

Flinders Ports Berth Loading Limits and Permit Guideline



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Revision Status

Revision	Date	Description	Originated by	Reviewed by	Approved by
0	04 Feb 22	For Review	ED	PC	LK
1	15 Mar 22	For Use	ED	PC	LK
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4	16 Jan 25	For Use	ED	PC	PC
5	24 Jan 25	For Use	ED	PC	PC
6	18 May 26	For Use	ED	PC	GT

Disclaimer

All loads are indicative only and use of Flinders Port Pty Ltd (**Flinders Ports**)' premises or facilities (including without limitation any wharves, jetties, land, equipment, buildings or roads) ("Premises") is subject to the terms and conditions of the agreement for use which a user has entered into, or that apply to the Premises.

Standard heavy plant and equipment types and loading expectancies are nominally defined in this document and communicated via the Flinders Ports website (<https://www.flindersports.com.au/>) in the 'Info Hub' portal section of the site, please check the website for the latest version of this document. It is important to note that the Flinders Ports Berth Loading Limits is a "guide" only and any operations are to be managed in consultation with Flinders Ports and with appropriate knowledge and appreciation of customary operational constraints.

The Flinders Ports Berth Loading Limits are current at the time of publication and may be subject to variation. All publicised load limit information is governed by the following disclaimer:

Flinders Ports (including its directors, officers, employees, agents or representatives) do not give any promise, representation, warranty or undertaking as to suitability of the Premises or facilities for any use or business to be carried on by a user of the Premises.

Terms & Abbreviations

Axle	A central rotating shaft or rod that connects a pair of wheels,
FPH or Flinders Ports	Flinders Port Pty Ltd ABN 83 097 377 172
Independent Engineer	An Engineering Consultancy approved by Flinders Ports. <i>Unless FPHs suggested Engineer Check prior to engagement.</i>
Load Limit	The maximum allowable load on the area or structure
Permit	An Approval issued by Flinders Ports to allow a Port User to perform the act described in the permit.
Port User	Any user of the Port, internal to Flinders Ports or external, on site or off site. The person or entity applying for a permit for the permit.
Premises	Includes anything owned/ used by Flinders Ports
Site	The spatial location of an actual or planned structure or set of structures
EWPs	Elevated Work Platforms
kPa	KiloPascal
LV	Light Vehicle under a total mass of 3t
m	Meter
m ²	Square Meter
M2	Square Meter
SM	Square Meter
SPMTs	Self-Propelled Modular Transporters
t	ton

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Guidelines on Load Limitations and Permit Process

All port users and stakeholders should be aware of load limitations and access restrictions through the Flinders Ports' induction process, onsite signage and as noted within this guideline.

A permit is required for all cranes, lifting equipment (EWPs, Boom Lifts, Crane Trucks etc.), Low Loader Trailers, SPMTs, bulk loading (stacked pallets, stockpiles), and any vehicle requiring a road going permit or load bearing structure. **All previously mentioned heavy loads will be stopped at Flinders Ports security gates and will not be permitted access without a permit.**

Road going trucks, EWPs and Boom Lifts also require an additional engineering assessment in the following locations, as the infrastructure may carry load capacities less than the standard 12t axle load that is allowed; These are:

- Port Adelaide Outer Harbor Berth 2 Passenger Terminal (12t Axles – Limited Access to Equipment)
- Port Adelaide Outer Harbor Berth 4 Timber Wharf – (Pedestrian Access Only).
- Port Adelaide Osborne Berth 2 (No Vehicle or Pedestrian Access)
- Port Adelaide Osborne Berth 1 Northern Wingwall (Light Vehicle Access Only)
- Port Adelaide Inner Harbour Oil Berth M & N Berth Wharf (Light Vehicle Access Only)
- Wallaroo - Vehicles drivable under a class C license (max 4.5t GVM) in green zones
- Port Giles (12t Axle limit)
- Port Lincoln (8t Axle limit)
- Kirton Point (1.9t Axle limit)
- Port Pirie Berth 2 Timber Wharf (No Vehicle or Pedestrian Access)
- Port Pirie Berth 1 & 2 Wharf (No Vehicle Access Subject to Engineering Assessment only)

The permit application form can be found on the Flinders Ports Internet Page <https://www.flindersports.com.au/flinders-ports-info-hub/>.

All permit requests are to be made direct via the link on this page. Prior to a permit being issued, port users will be required to execute a Deed of Indemnity (Access) and Flinders Ports' Senior Engineer may require users to engage a suitably qualified independent engineer (at the user's expense) to assess (and provide a report) demonstrating the load(s) are within permissible limits (see note below).

Flinders Ports will provide necessary drawings and documents (unless otherwise not available) to the independent engineer. Use of Flinders Ports' intellectual property ("IP") is subject to Flinders Ports' approval, any conditions specified at the time and for the sole purpose of undertaking structural analyses. Flinders Ports reserves the right to at any time, for any reason require the immediate return or destruction of all IP (including drawings and documents) provided.

Note: *Flinders Ports has an existing arrangement with WGA to provide design checks to port users at market rates and in a reasonable timeframe. The user may choose to engage WGA or an alternative suitably qualified independent engineer for a design check. Such engagement will be between the user and the independent engineer and will not involve Flinders Ports. Contact details for WGA:*

*Alastair Oliver
08 8223 7433
AOLiver@wga.com.au*

Permit Assessment Timeframes

- Standard permit (within the allowable load limits and specified plant) – up to 3 business days
- Non-standard permit (outside of allowable load limits and/or specified plant) – up to 3 business days following the independent engineering assessment
- Note regarding non-standard permits: the engineering assessment may take considerable time depending on the complexity of the application and available resources.
- Flinders Ports has an office closure from Christmas to after the start of the New Year allow additional time of 10 business days.

Guidelines on Pick & Carry (Franna) Cranes

Pick & Carry cranes commonly known as Franna Cranes are widely used throughout the Ports. All port users and stakeholders should be aware of load limitations and access restrictions through the Flinders Ports' induction process, site signage and as noted within this guideline.

All Franna Cranes come under the category of lifting equipment and require a Permit prior to access site.

Cranes will be stopped at Flinders Ports security gates and will not be permitted access without a permit.

A permit for Franna cranes can be applied for a period of up to one year for general access to Flinders Ports Wharves. This permit will not apply to all sites as some sites have restricted load limits and not suitable to support these vehicles.

A permit may be issued for the associated cranes in the below locations. For heavier pick and carry cranes or cranes to be used in other locations, an engineering assessment will likely be needed at a cost to the applicant.

Franna Cranes:

AT-12, 14, 15, 18, 20,

MAC 25

AT-40 (in yard areas only) *

Locations:

Adelaide Outer Harbor Berth 01,

Adelaide Outer Harbor Berth 2/3 RoRo Pad,

Adelaide Outer Harbor Berth 3/4 RoRo Deck,

Adelaide Outer Harbor Flinders Adelaide Container Terminal (Berth 6 & 7)

Adelaide Inner Harbor Berth 18-20

Adelaide Inner Harbor Berth 25

Adelaide Inner Harbor Berth 27

Adelaide Inner Harbor Berth 29

Osborne Berth 01

Flinders Ports request applicants to attempt to plan their works such that they select the above approved Franna Crane models at locations listed for ease of approval. Other Franna Crane models/locations will require further engagement and extended timeframes for assessment.

Guidelines on Ground Bearing Pressures

For paved and unpaved areas away from wharf surfaces and jetty surfaces, Flinders Ports refer to 'Safe Work Australia – Guide to Mobile Cranes' as suitable ground bearing pressures for outrigger and pad loads where these areas have not been specifically designed and built to a load capacity.

Ground Type	Maximum Permissible ground pressure (P _{MAX}) (tonnes per m ²)
Hard Rock	200
Shale rock and sandstone	80
Compacted gravel – with up to 20% sand	40
Asphalt	20
Compacted sand	20
Stiff clay (dry)	20
Loose sand	10
Wet clay	Less than 10

The greatest force applied by any outrigger to the ground will be at the point of tipping just as the crane is about to overturn and when the crane boom is located directly above an outrigger foot.

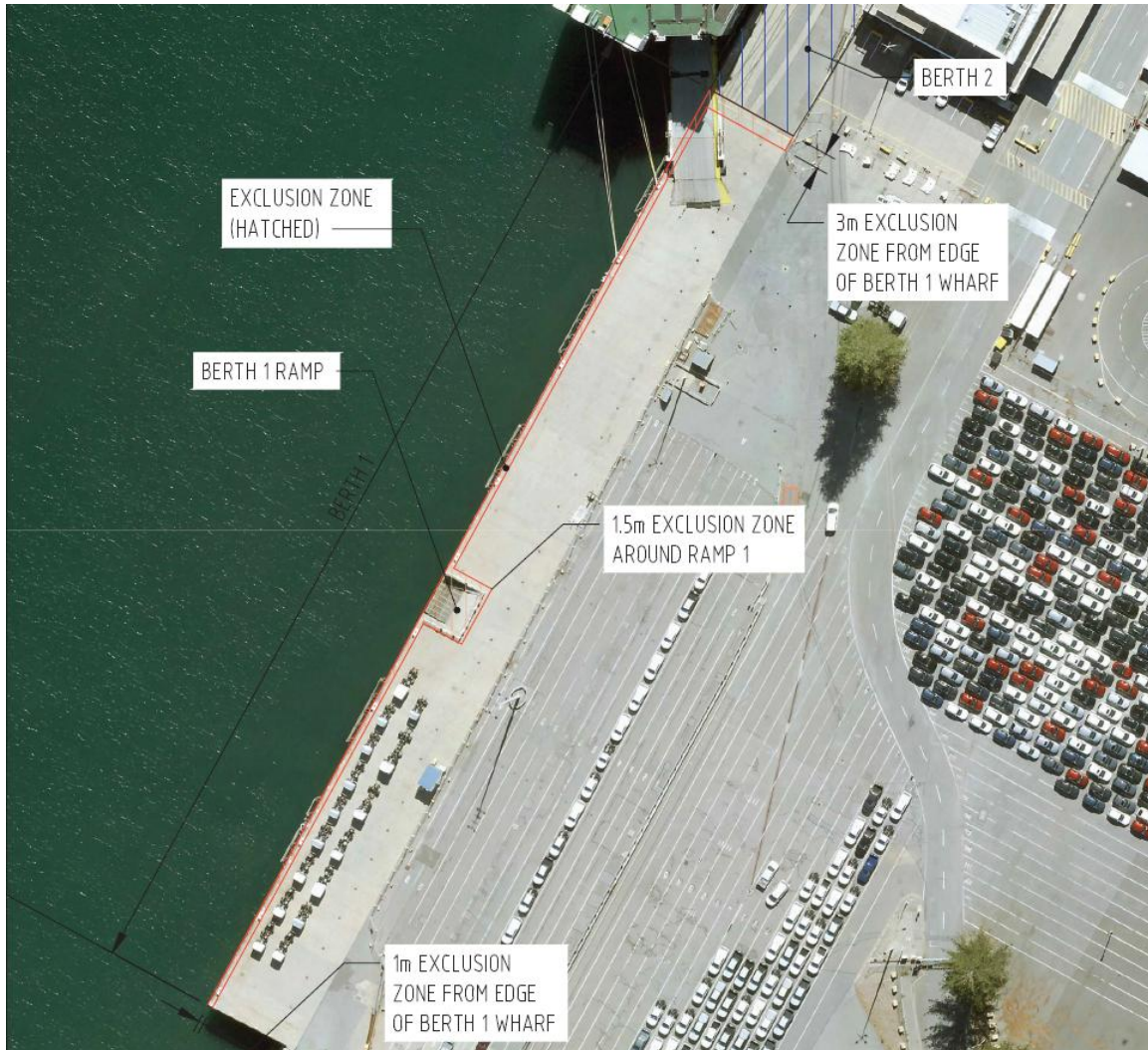
<https://www.safeworkaustralia.gov.au/doc/guide-mobile-cranes>

Port Adelaide

	AXLE LOADS					
	SINGLE	TANDEM	TRI	FORKLIFT	SURCHARGE	NOTES
SITE	(t)	(t)	(t)	(t)	(t/m ²)	
OH1 Wharf apron	Refer to individual wharf Table and Diagram, Page 9					
OH2 Wharf apron	Refer to individual wharf Table and Diagram, Page 10					
OH2/3 RoRo Pad	Refer to individual wharf Table and Diagram, Page 11					
OH3 Wharf (North End)	Refer to individual wharf Table and Diagram, Page 12					
OH3/4 RO/RO Pad	66.7	89.6	99	66.7	6.1	
OH4 Concrete RoRo Deck	50	60		50	2.1	
Berth 04 Loading platform				100	2.5	
OH4 Timber wharf deck	Pedestrian loading only on timber wharf. No vehicle loading permitted, Page 13					
OH6 Wharf apron	Refer to individual wharf Table and Diagram, Page 14					
OH7 Wharf apron	Refer to individual wharf Table and Diagram, Page 15					
OH8 Wharf apron	8	16.5	20	50	1.5	
Osborne 1 Wharf apron	Refer to individual wharf Table and Diagram, Page 16					
Osborne 2 Wharf apron	No loading permitted. Not safe for vehicle or pedestrian loading					
M Timber jetty/T-Head	Refer to individual wharf Table and Diagram, Page 17					
K Timber wharf platform	2.5 (LVs Only)	NA	NA	2.5	0.5	
K Wharf apron	25	32	48	25	2.1	3m from wharf edge
H Vehicular Bridge	8					
18-20 Wharf apron	Refer to individual wharf Table and Diagram, Page 20					
25 Wharf apron	25	32	48	25	2.1	3m from wharf edge
27 Wharf apron	25	32	48	25	2.1	3m from wharf edge
29 Wharf apron	Refer to individual wharf Table and Diagram, Page 21					
UNLESS OTHERWISE NOTIFIED ALL LOADS ARE ONLY APPLICABLE 6m FROM EDGE OF WHARF (SEE SPECIFIC SITE PLANS)						

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Adelaide Outer Harbor - Berth 01



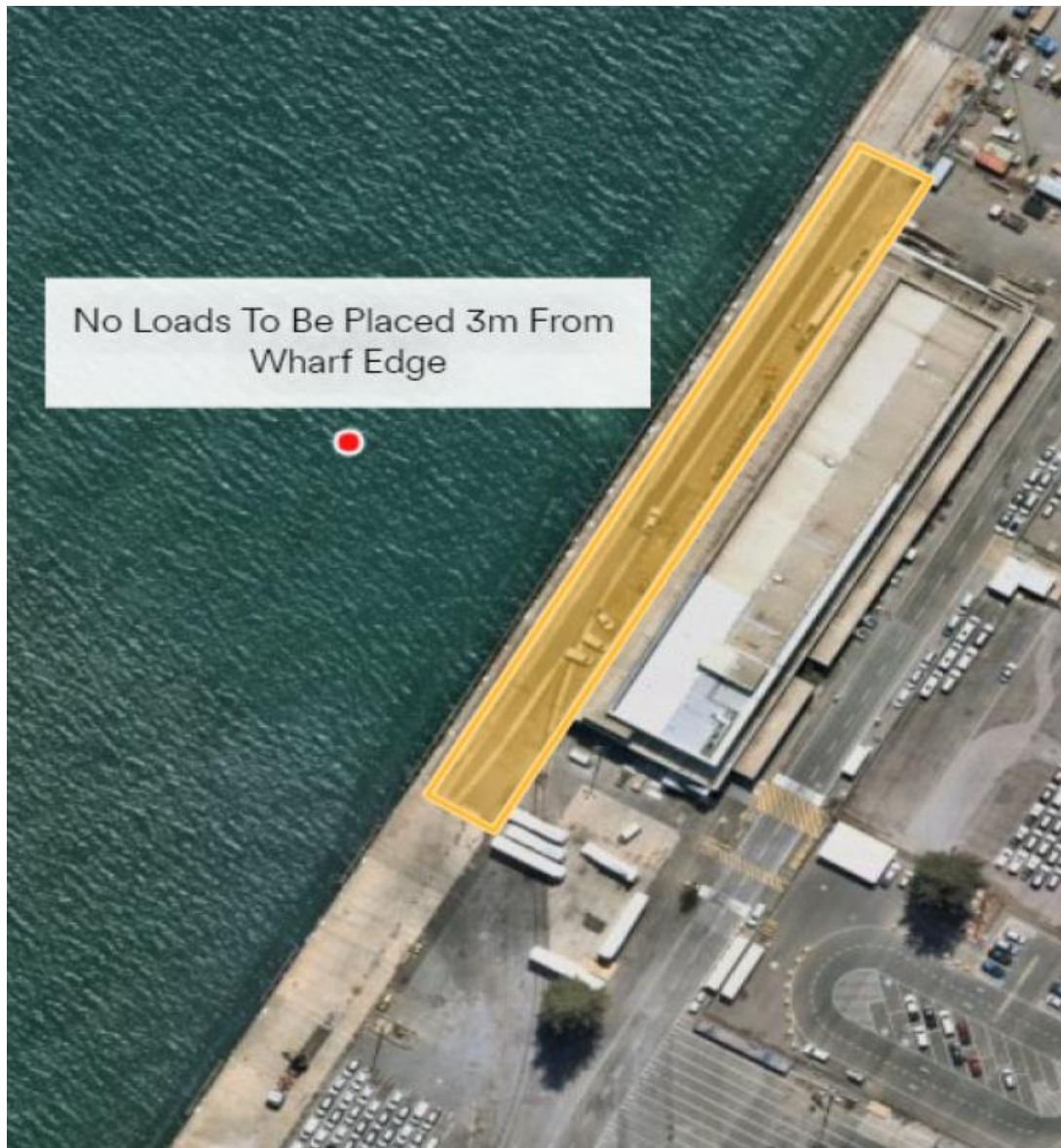
AREA		
STANDARD LOADS	PEDESTRIAN	YES
	LIGHT VEHICLE (<3t GROSS)	YES
	AMBULANCES	YES
	FIRE TRUCKS	YES
UNIFORMLY DISTRIBUTED LOADS (UDL)	BULK MATERIALS, CONDENSED STORAGE	21.5 kPa
POINT LOADS	OUTRIGGERS ON PADS, SPREADER MATS	42t (7m x 7m OUTRIGGER SPACING ON 1m x 1m SPREADER MAT)
AXLE LOADS	TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	50t AXLE
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUG)	50t AXLE GROUP
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 7.6m TO ADJ. GROUG)	60t AXLE GROUP
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUG)	76t AXLE GROUP
	HLP/SPMT'S (AXLE SPACING 1.8m)	21t AXLE
	FORKLIFTS	50t AXLE
	FRANNA CRANES	25t FRANNA
	STACKERS	50t AXLE

NOTE:

- LOADS PRESENTED ON FACT SHEET ARE NOT TO BE PLACED ON EXCLUSION ZONE (HATCHED REGION)
- LOADS ARE PRESENTED FOR WHARF STRENGTH CAPACITY AND HAVE NOT BEEN LIMITED TO AS4997 BAR STRESS LIMITATIONS

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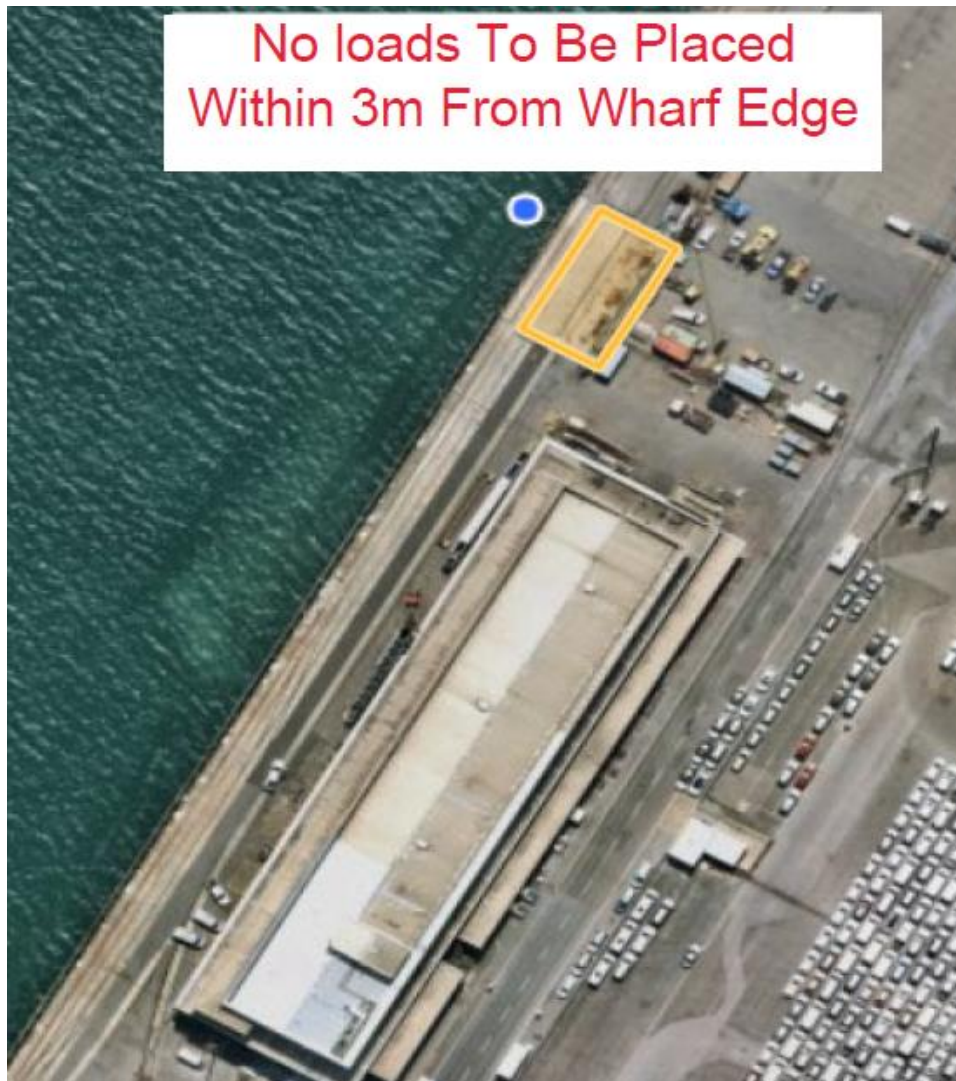
Adelaide Outer Harbor - Berth 02



Outer Harbor Berth 2 Deck		
Standard Loads	Pedestrian	YES
	Light Vehicles (<3t Gross)	YES
	Ambulances	YES
	Fire Trucks	YES
Uniformly Distributed Loads (UDL)	Bulk Materials, Condensed Storage	2.1t/m ²
Point Loads	Crane Outriggers, Dunnage, Columns	17t
	Outriggers on Pads, Spreader Mats	4t/m ² - only load within 4.5m
Axle Loads	Trucks (Single Axle, 4m to next axle)	12t
	Trucks (Double Axle Group Axle @1.25)	12t group (6t per axle)
	Trucks (Triple Axle Group @1.25m)	18t group (6t per axle)
	Quad axle or more e.g heavy load platforms and SPMTs (1.4m spacing)	6t per axle
	Mobile Cranes (axles at 1.5m)	12t
	Forklifts (Min Axle Spacing 3.2m)	12t
	Franna Cranes (Min Axle Spacing 3.2m)	18t
	Stackers (Min Axle Spacing 3.2m)	18t

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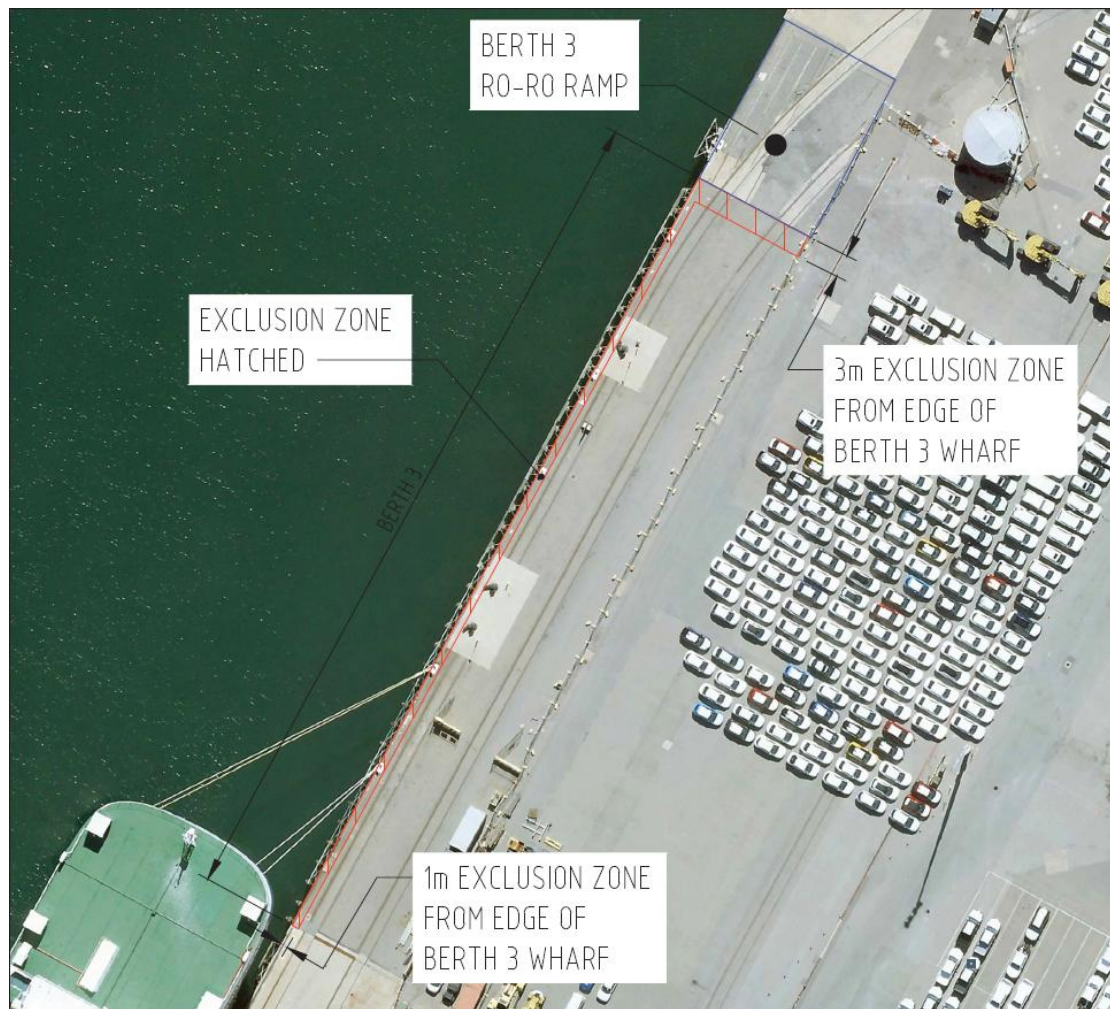
Adelaide Outer Harbor - Berth 2-3 RoRo Pad



Outer Harbor Berth 2-3 RoRo Pad		
Standard Loads	Pedestrian	YES
	Light Vehicles (<3t Gross)	YES
	Ambulances	YES
	Fire Trucks	YES
Uniformly Distributed Loads (UDL)	Bulk Materials, Condensed Storage	6.1t/m ²
Point Loads	Crane Outriggers, Dunnage, Columns	80t
	Outriggers on Pads, Spreader Mats	80t/m ² - only load within 4.5m
Axle Loads	Trucks (Single Axle, 4m to next axle)	66.7t
	Trucks (Double Axle Group Axle @1.25)	89.6t group (44.8t per axle)
	Trucks (Triple Axle Group @1.25m)	99t group (33t per axle)
	Quad axle	118.4t group (29.6t per axle)
	Heavy Load platforms and SPMTs (1.4m spacing)	29t per axle
	Mobile Cranes (axles at 1.5m)	29.6t per axle
	Forklifts (Min Axle Spacing 5.75m)	66.7t
	Franna Cranes (Min Axle Spacing 5.75m)	66.7t
Reach Stackers (Min Axle Spacing 5.75m)	66.7t	
Heavy Load Trailers	Samson S1 Bogie Axle	83t group (41.5 per axle)
	Samson S1 Bogie Axle	87.4t group (43.7t per axle)
	Samson S1 Bogie Axle	87.6t group (43.8t per axle)

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Adelaide Outer Harbor - Berth 03



AREA		
STANDARD LOADS	Pedestrian	YES
	LIGHT VEHICLE (-3t GROSS)	YES
	AMBULANCES	YES
	FIRE TRUCKS	YES
UNIFORMLY DISTRIBUTED LOADS (UDL)	BULK MATERIALS, CONDENSED STORAGE	21.5 kPa
POINT LOADS	OUTRIGGERS ON PADS, SPREADER MATS	42t (7m x 7m OUTRIGGER SPACING ON 1m x 1m SPREADER MAT)
AXLE LOADS	TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	50t AXLE
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUG)	50t AXLE GROUP
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 7.6m TO ADJ. GROUG)	60t AXLE GROUP
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUG)	76t AXLE GROUP
	HLP/SPMT'S (AXLE SPACING 1.8m)	21t AXLE
	FORKLIFTS	50t AXLE
	FRANNA CRANES	25t FRANNA
	STACKERS	50t AXLE

NOTE:

- LOADS PRESENTED ON FACT SHEET ARE NOT TO BE PLACED ON EXCLUSION ZONE (HATCHED REGION)
- LOADS ARE PRESENTED FOR WHARF STRENGTH CAPACITY AND HAVE NOT BEEN LIMITED TO AS4997 BAR STRESS LIMITATIONS

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Adelaide Outer Harbor - Berth 04 (Timber Wharf)

Pedestrian Loading Only on Timber Wharf. No Vehicle Access Permitted.

Timber Wharf Area	Allowable Loads
	Pedestrian Loading Only

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Adelaide Outer Harbor - Berth 06

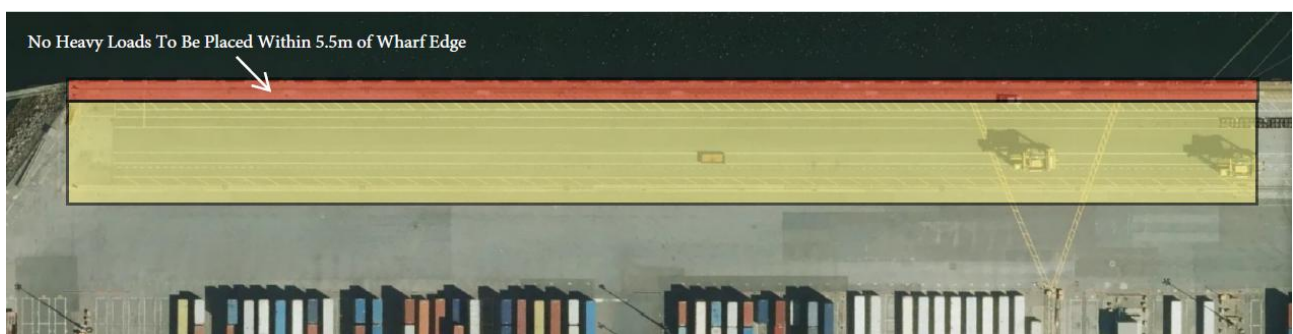


Table 7: OH6 – Wharf Structural Capacity Assessment Vehicle Results

VEHICLE	ALLOWABLE LOAD	GOVERNING COMPONENT
Single Axle	113t / axle	Landside crane beam
Dual Axle	85t / axle	Landside crane beam
Triple Axle	80t / axle	Landside crane beam
Quad Axle	68t / axle	Landside crane beam
SPMT / HLP	50t / axle	Sheet pile wall
Mobile cranes on axles	75t / axle	Sheet pile wall
Crane Outrigger* (includes LTM1250)	250t over 1m x 1m pad 7m pad spacing	Sheet pile wall
Frannas	40t Capacity Franna	Landside crane beam
Forklifts	20t Capacity Forklift	Landside crane beam
Stacker	113t (front axle)	Landside crane beam
Straddle Carrier	33t / axle	n/a (max load of vehicle)
UDL	26.8kPa	Sheet pile wall

- *Assumed pad/outrigger is not located on the landside crane beam*
- *No heavy loads to be placed within 5.5m of wharf edge*

Adelaide Outer Harbor – Berth 07

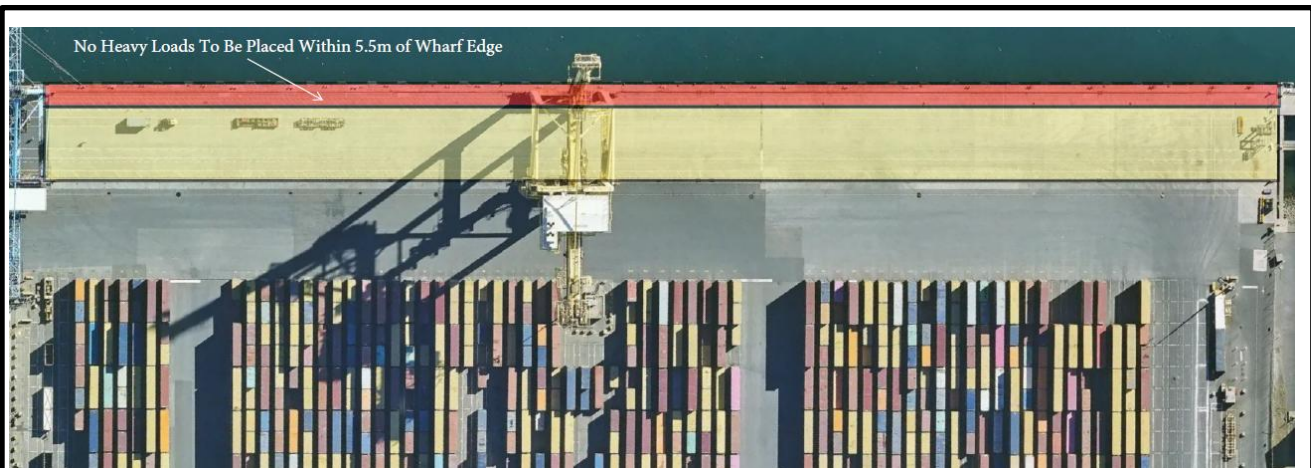


Table 8: OH7 – Wharf Structural Capacity Assessment Vehicle Results

VEHICLE	ALLOWABLE LOAD	GOVERNING COMPONENT
Single Axle	45t / axle	Slab
Dual Axle	36t / axle	Slab
Triple Axle	34t / axle	Slab
Quad Axle	33t / axle	Slab
SPMT	33t / axle	Slab
Franna (including AT40 Franna)	47t (front axle)	Slab
Forklift	42t (front axle)	Slab
Crane Outrigger* (includes LTM1250)	80t over 1m x 1m pad 7m pad spacing assuming spreader beams to load over piles only	Piles
Stacker	42t (front axle)	Slab
Straddle Carrier	33t / axle	Slab
UDL	34.0kPa	Slab

- *Assumed pad/outrigger is not located on the landside crane beam*
- *No heavy loads to be placed within 5.5m of wharf edge*

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Port Adelaide Inner Harbour – Osborne Berth 01



SETBACK FROM EDGE OF WHARF				OSBORNE BERTH 1		
0-2.2m	2.2-2.7m	2.7-6.2m	>6.2m			
				STANDARD LOADS	PEDESTRIAN	YES
					LIGHT VEHICLE (<3t GROSS)	YES
					AMBULANCES	YES
					FIRE TRUCKS	YES
				UNIFORMLY DISTRIBUTED LOADS (UDL)	BULK MATERIALS, CONDENSED STORAGE	20 kPa
				POINT LOADS	OUTRIGGERS ON PADS, SPREADER MATS	70t (7m x 7m OUTRIGGER SPACING) ON A 1m x 1m SPREADER MAT
				AXLE LOADS	TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	40t AXLE
					TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUP)	50t AXLE GROUP
					TRUCKS - TRIPLE AXLE (AXLE SPACING 1.25m, 7.6m TO ADJ. GROUP)	66t AXLE GROUP
					TRUCKS - QUAD AXLE GROUP (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUP)	96t AXLE GROUP
					HLP/SPMTs (AXLE SPACING 1.4m)	20t AXLE
					MOBILE CRANES (AXLE SPACING 1.5m)	18t AXLE
					FORKLIFTS (AXLE SPACING 3.7m)	40t AXLE
					FRANNA CRANES (AXLE SPACING 4.75m)	45t AXLE
		STACKERS (AXLE SPACING 6.2m)	70t AXLE			

SETBACK FROM EDGE OF WHARF	OSBORNE BERTH 1 (NORTHERN SHEETPILE WALL AREA)
0-5.2m	LIGHT VEHICLE ACCESS ONLY PERMITTED. NO HEAVY/LONG TERM LOADING.

NOTES

- ALL SETBACKS ARE FROM THE WATERSIDE EDGE OF THE CONCRETE WHARF WALL.
- LOADS ARE FROM ASSESSMENT OF WHARF STRUCTURE ONLY. WHARF PAVEMENT CAPACITY SHOULD BE ASSESSED SEPARATELY.
- ALL SPECIFIED LOADS (EXCLUDING UDL) ARE FROM THE A 2.7m SETBACK FROM WHARF EDGE CALCULATIONS.

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Port Adelaide Inner Harbour – Oil Berths (M, N, L)

Entry, Middle & Northern Culverts

Three sets of box culverts are present at the Oil Berth Site (M, N, L); refer to Figure below for locations.

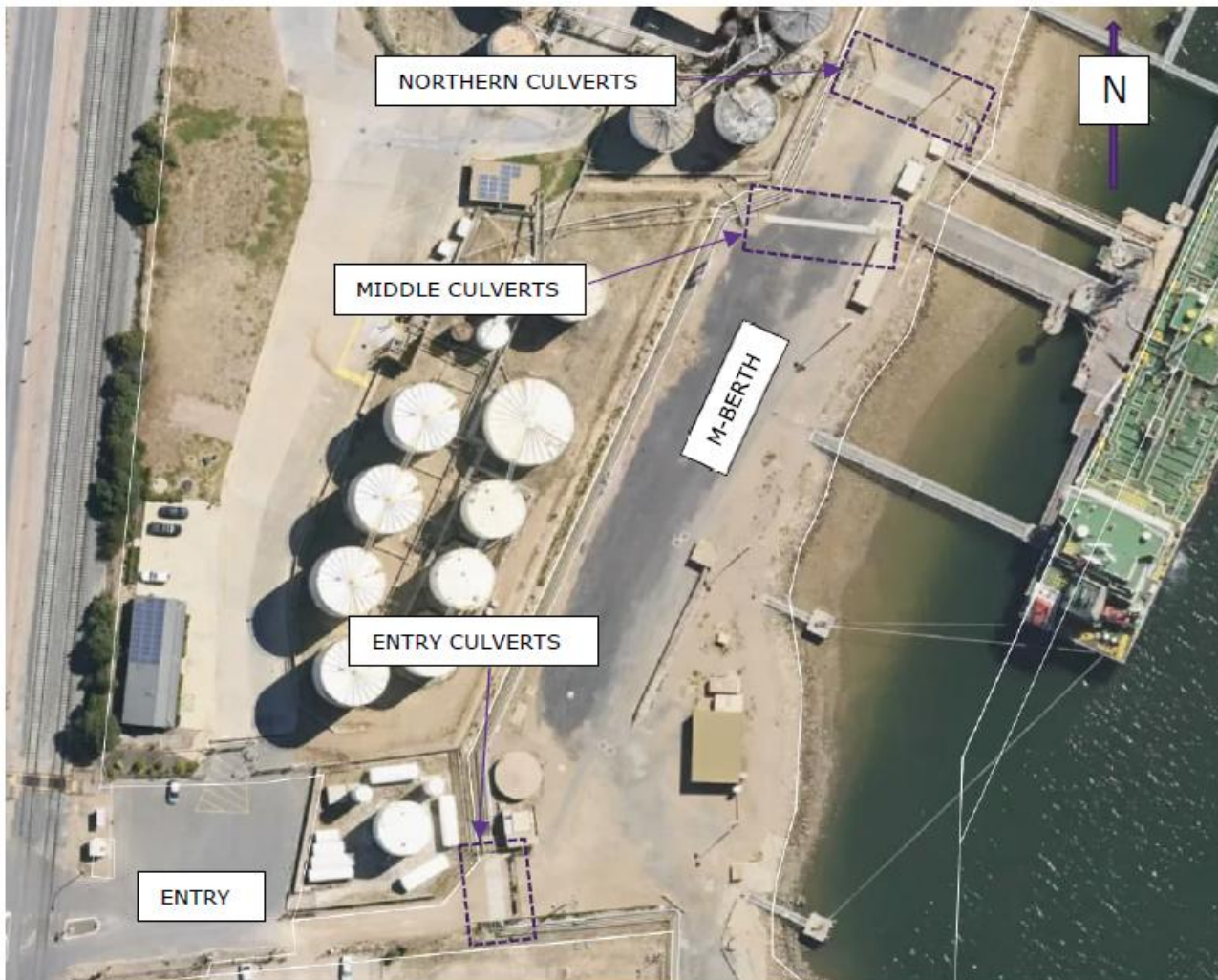


Figure 1: M Berth – plan view locating the three sets of culvert boxes

Loading of these culverts is restricted, with allowable loads stipulated in the below sections for with & without steel plate reinforcement.

All loads greater than Light Vehicles require assessment and permit approval prior to traversing M Berth Culverts.

Note: If steel plate reinforcement is required for loading the supply & installation of these are the responsibility of the requester/contractor.

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M Berth Allowable Culvert Loads (Without Steel Plates)

Allowable Culvert Loads			
All Culverts	Minimum individual wheelset load	4.5	t
	Maximum UDL	2	t/m ²
	Maximum Axle Load	9	t
	Minimum Axle Spacing	1.35	m

Note:

- The maximum wheel or axle loads must not be applied concurrently with the maximum uniformly distributed load. These are mutually exclusive loading regimes.
- A posted speed of 10km/h should be adopted at M-Berth, or as a minimum when traversing culverts.
- The maximum axle spacing is considering spacing between axles with each wheel weighing the same as the maximum individual wheel load (i.e. 4.5t). The maximum wheel load is per wheel set not per tyre, i.e. dual tyre wheelsets have max 4.5t total (nominal 2.25t per tyre).

M Berth Allowable Culvert Loads (With Steel Plates)

Allowable Culvert Loads			
All Culverts	Minimum individual wheelset load	6	t
	Maximum Axle Load	12	t
	Minimum Axle Spacing	1.35	m

Note:

- The crane must traverse the culverts at a speed which does not exceed 10km/h
- The crane axle loads must not exceed 12t, and the load of any one wheel must not exceed 6t, at any time while crossing the culvert.

M Berth Culverts – Steel Plates Requirement

- The steel plates shall be minimum 25mm thick and span such that they overlap the outside edge of the culvert by 300mm. Plate edges shall be supported on temporary compacted crushed rock with appropriate ramping and secured in place to suit trafficking by the crane.
- The steel plates are assumed to have a width of 1200mm, and these shall be placed such that a joint between plates is in the centre of the concrete slab. Joints in plates shall not be co-incident with joints in the concrete slab
- Culvert width = 2700mm, therefore minimum steel plate dimension:
- **3300mm x 1200mm x 25mm Thick.**

M Berth Timber Jetty/Wharf Allowable Loading

	Axle Loads					
	A	B	C	D	E	F
	SINGLE	TANDEM	TRI	FORKLIFT	SURCHARGE	Crawler/Spider Crane
	AXLE	AXLE	AXLE	AXLE	Area	
LOCATION/ FACILITY	(t)	(t)	(t)	(t)	(t/ m ²)	
M Berth Timber Jetty/T Head	2.5 (LV's Only)	N/A	N/A	2.5	0.5	<ul style="list-style-type: none"> • Maximum load – 4t crawler crane with max outrigger load of 3.3t. • Crane outrigger to be setup within 300mm of a crosshead using minimum of 600mm wide x 16mm thick plates on each outrigger.

Adelaide Inner Harbour – Berths 18-20



SETBACK FROM EDGE OF WHARF				INNER HARBOUR BERTH 18-20					
0-1.5m	CO	2-5.5m	>5.5m						
STANDARD LOADS				PEDESTRIAN	YES				
				LIGHT VEHICLE (<3t GROSS)	YES				
				AMBULANCES	YES				
				FIRE TRUCKS	YES				
UNIFORMLY DISTRIBUTED LOADS (UDL)				BULK MATERIALS, CONDENSED STORAGE	10 kPa				
POINT LOADS				OUTRIGGERS ON PADS, SPREADER MATS	- 35t (5m x 5m OUTRIGGER SPACING) ON A 0.7m x 0.7m SPREADER MAT - 50t (7m x 7m OUTRIGGER SPACING) ON A 1m x 1m SPREADER MAT				
AXLE LOADS				TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	25t AXLE				
				TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUP)	32t AXLE GROUP				
				TRUCKS - TRIPLE AXLE (AXLE SPACING 1.25m, 7.6m TO ADJ. GROUP)	48t AXLE GROUP				
				TRUCKS - QUAD AXLE GROUP (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUP)	64t AXLE GROUP				
				HLP/SPMTs	1.4M AXLE SPACING	3.6m WIDE TRAILER		13t AXLE GROUP	
						3.6m WIDE TRAILER		17.5t AXLE GROUP	
					1.8M AXLE SPACING	3.7m - 4.2m WIDE TRAILER		18.5t AXLE GROUP	
						>4.2m WIDE TRAILER		19.5t AXLE GROUP	
				MOBILE CRANES (AXLE SPACING 1.5m)	14t AXLE				
				FORKLIFTS (AXLE SPACING 3.7m)	35t AXLE				
FRANNA CRANES (AXLE SPACING 4.75m)	42t AXLE								
STACKERS (AXLE SPACING 6.2m)	63t AXLE								

NOTES

- ALL SETBACKS ARE FROM THE WATERSIDE EDGE OF THE CONCRETE WHARF WALL.
- LOADS ARE FROM ASSESSMENT OF WHARF STRUCTURE ONLY. WHARF PAVEMENT CAPACITY SHOULD BE ASSESSED SEPARATELY.

Safety & Health Above All Else

Adelaide Inner Harbour – Berth 29



SETBACK FROM EDGE OF WHARF			INNER HARBOUR BERTH 29		
0-3m	3-6m	>6m			
			STANDARD LOADS	PEDESTRIAN	YES
				LIGHT VEHICLE (<3t GROSS)	YES
				AMBULANCES	YES
				FIRE TRUCKS	YES
			UNIFORMLY DISTRIBUTED LOADS (UDL)	BULK MATERIALS, CONDENSED STORAGE	21.5 kPa
			POINT LOADS	OUTRIGGERS ON PADS, SPREADER MATS	100t (7m x 7m OUTRIGGER SPACING) ON A 1m x 1m SPREADER MAT
			AXLE LOADS	TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	90t AXLE
				TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUP)	115t AXLE GROUP
				TRUCKS - TRIPLE AXLE (AXLE SPACING 1.25m, 7.6m TO ADJ. GROUP)	180t AXLE GROUP
				TRUCKS - QUAD AXLE GROUP (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUP)	215t Axle Group
				HLP/SPMTs (AXLE SPACING 1.4m)	50t Axle
				MOBILE CRANES (AXLE SPACING 1.5m)	50t Axle
				FORKLIFTS (AXLE SPACING 3.7m)	100t AXLE
				FRANNA CRANES (AXLE SPACING 4.75m)	25t FRANNA
				STACKERS (AXLE SPACING 6.2m)	100t AXLE

NOTES

- DO NOT LOAD DIRECTLY ONTO CONCRETE CAPPING BEAM
- LOADS ARE FROM ASSESSMENT OF WHARF STRUCTURE ONLY. WHARF PAVEMENT CAPACITY SHOULD BE ASSESSED SEPARATELY.

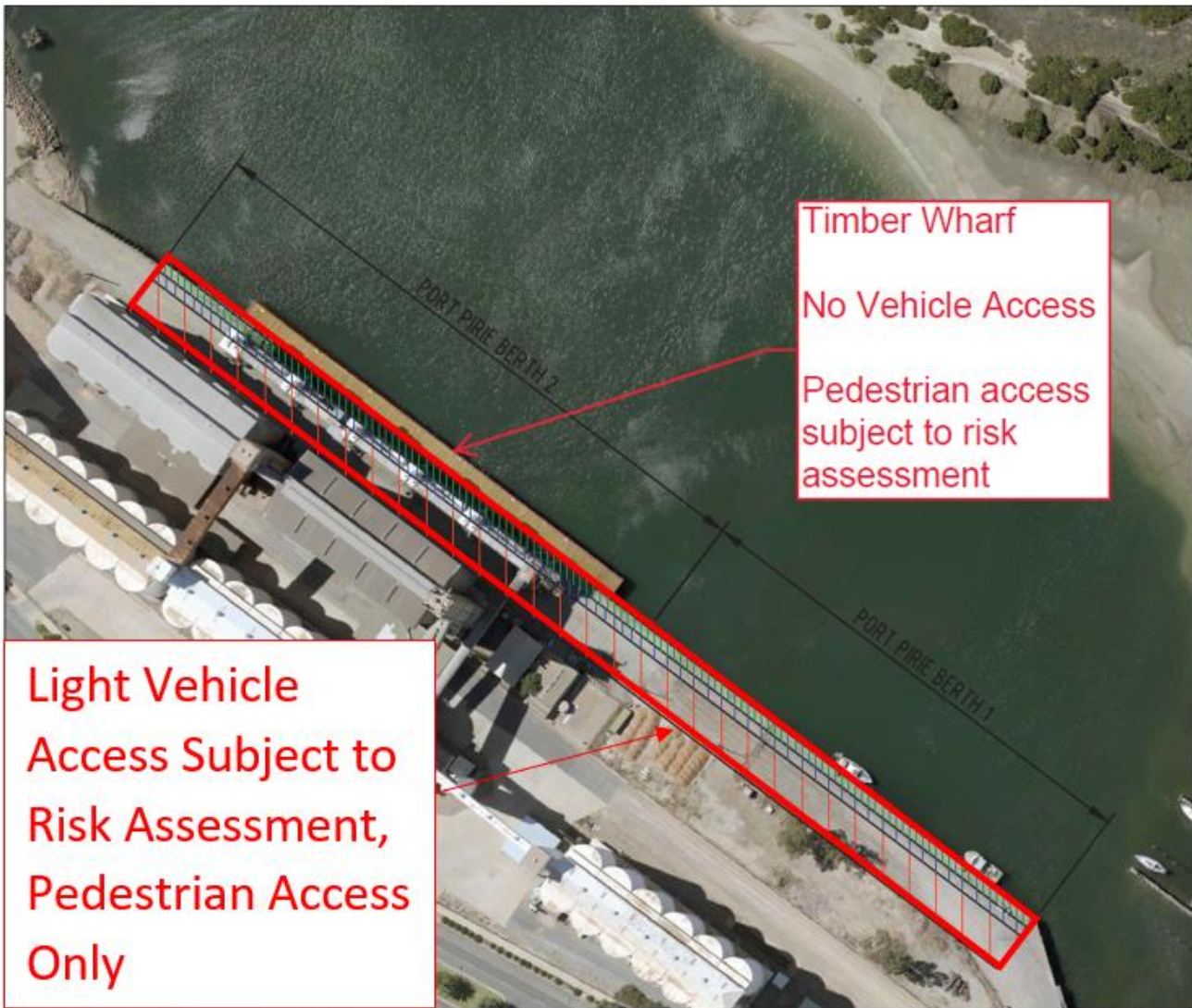
Safety & Health Above All Else

Port Pirie

	Axle Loads					
	A	B	C	D	E	F
	SINGLE	TANDEM	TRI	FORKLIFT	SURCHARGE	NOTES
	AXLE	AXLE	AXLE	AXLE	Area	
LOCATION/ FACILITY	(t)	(t)	(t)	(t)	(t/ m ²)	
No. 1 Wharf Apron	No heavy load access permitted. Light vehicle access subject to risk assessment only.					
No.2 Wharf Apron	No heavy load access permitted. Light vehicle access subject to risk assessment only.					
No. 2 Timber Wharf	No heavy load access permitted. Pedestrian access subject to risk assessment only.					
No. 4 Wharf Apron	40*	70*	90*	45*	From Edge of Wharf: <ul style="list-style-type: none"> 0-10m: 2.1t/m^{2**} 	
No. 5-10 Wharf Apron	40*	70*	90*	45*	From Edge of Wharf: <ul style="list-style-type: none"> 0-9m:2.1t/m^{2**} 9m+: 5.6t/m² 14m+:16.8t/m² 	Gottwald G HMK 6407 B Mobile Harbour Crane – 9m Komatsu HM400-3 Articulated Dump Truck Min 4m from wharf edge Translifter Liftec LTH 90R with Kalmar TT618i Tow Tractor Min 4m from wharf edge
No. 11 Timber Jetty	No Vehicle Loading - Pedestrian access only, and only in areas without significant rot of timber deck determined by inspection and <u>Subject to Risk Assessment</u>					

Safety & Health Above All Else

Port Pirie – Berths 01 & 02



Safety & Health Above All Else

Port Pirie – Berths 05-10



PLAN

ENLARGEMENT PART PLAN

SETBACK FROM EDGE OF WHARF			PORT PIRIE BERTHS 5 -10		
0-3m	3-6m	>6m			
/	/	/	STANDARD LOADS	PEDESTRIAN	YES
				LIGHT VEHICLE (<3t GROSS)	YES
				AMBULANCES	YES
				FIRE TRUCKS	YES
/	/	/	UNIFORMLY DISTRIBUTED LOADS (UDL)	BULK MATERIALS, CONDENSED STORAGE	215 kPa (<1 WEEK ONLY)
			POINT LOADS	OUTRIGGERS ON PADS, SPREADER MATS	100t (7m x 7m OUTRIGGER SPACING) ON A 1m x 1m SPREADER MAT
/	/	/	AXLE LOADS	TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	40t AXLE
				TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUP)	70t AXLE GROUP
				TRUCKS - TRIPLE AXLE (AXLE SPACING 1.25m, 7.6m TO ADJ. GROUP)	90t AXLE GROUP
				TRUCKS - QUAD AXLE GROUP (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUP)	110t AXLE GROUP
				HLP/SPMTs (AXLE SPACING 1.4m)	22.5t PER AXLE
				MOBILE CRANES (AXLE SPACING 15m)	22.5t PER AXLE
				FORKLIFTS (AXLE SPACING 3.7m)	45t AXLE
				FRANNA CRANES (AXLE SPACING 14.75m)	25t FRANNA
STACKERS (AXLE SPACING 6.2m)	100t AXLE				

NOTES

- DO NOT LOAD DIRECTLY ONTO CONCRETE CAPPING BEAM
- LOADS ARE FROM ASSESSMENT OF WHARF STRUCTURE ONLY. WHARF PAVEMENT CAPACITY SHOULD BE ASSESSED SEPARATELY.

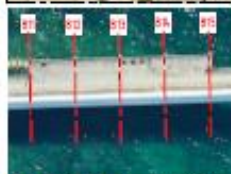
Safety & Health Above All Else

Port Lincoln

	Axle Loads						
	SINGLE	TANDEM	TRI	FORKLIFT/FRANNA (Front/Rear)	Crane Outrigger	SURCHARGE	Gross Vehicle Mass (GVM)
	AXLE	AXLE	AXLE	AXLE			Total
LOCATION/ FACILITY	(t)	(t)	(t)	(t)	(t/m ²)	(t/ m ²)	(t)
Jetty Berth 3-7	8	16	16				38
Coastal Wharves (Berths 8- 10)	12*	24*		23*/4*	2.1	2.1	54
Kirton Point Jetty	1.9						3.3

*No vehicle tyre, crane outrigger or outrigger spreading mat to be within 3m of wharf edge

Port Giles



PARKING BAY 1

N.T.S.



PARKING BAY 2

N.T.S.

	AREA	GENERAL
STANDARD LOADS	PEDESTRIAN	YES
	LIGHT VEHICLE (-3t GROSS)	YES
	AMBULANCES	YES
	FIRE TRUCKS	YES
AXLE LOADS	TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	12t AXLE
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUP)	16.5t AXLE GROUP
	TRUCKS - TRIPLE AXLE (AXLE SPACING 1.25m, 6.2m TO ADJ. GROUP)	20t AXLE GROUP
	TRUCKS - QUAD AXLE (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUP)	NO
	HLP/SPMT'S	NO
	FORKLIFTS (KOMATSU FD135-0) ⁽¹⁾	26.5t FRONT AXLE, 2.5t REAR AXLE
	FRANNA CRANE (AT15-3 CRANE) ⁽²⁾	27.2t FRONT AXLE, 3.0t REAR AXLE
	MOBILE CRANE (AXLE SPACING 3.6m)	12t AXLE GROUP
	DUST TRUCK ⁽²⁾	YES
	EWP (HAULOTTE HA20RTJ PRO)	6.1t FRONT AXLE, 4.0t REAR AXLE
	LIMA CRANE ⁽¹⁾	YES
HS20-44 ⁽¹⁾	YES	
POINT LOAD	OUTRIGGERS ON PADS/SPREADER MATS ⁽³⁾	20t (4.0m x 4.0m SPACING, ON A 0.4m x 0.7m MAT)

⁽¹⁾ - DESIGN VEHICLE USED IN ANALYSIS, SIMILAR ARRANGEMENT AND AXLE LOAD SUITABLE.

⁽²⁾ - REFER TO SHEET 3 FOR ARRANGEMENT.

⁽³⁾ - TO ONLY BE POSITION BETWEEN BENTS 42-61.

Safety & Health Above All Else



TURNING BAY

N.T.S.

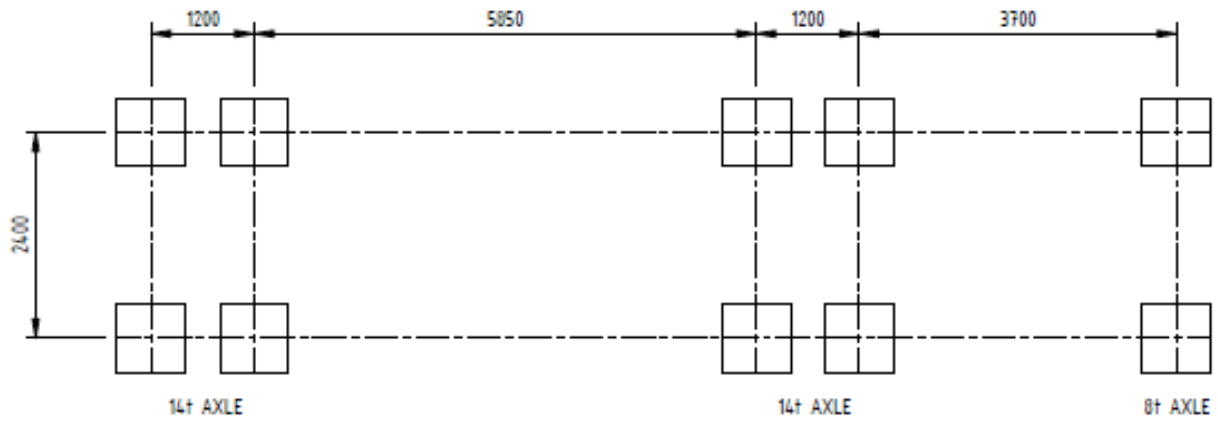
AREA		GENERAL
STANDARD LOADS	PEDESTRIAN	YES
	LIGHT VEHICLE (<3T GROSS)	YES
	AMBULANCES	YES
	FIRE TRUCKS	YES
AXLE LOADS	TRUCKS - SINGLE AXLE (AXLE SPACING 4m)	12T AXLE
	TRUCKS - DUAL AXLE (AXLE SPACING 1.25m, 4m TO ADJ. GROUP)	16.5T AXLE GROUP
	TRUCKS - TRIPLE AXLE (AXLE SPACING 1.25m, 6.2m TO ADJ. GROUP)	20T AXLE GROUP
	TRUCKS - QUAD AXLE (AXLE SPACING 1.25m, 9.5m TO ADJ. GROUP)	NO
	HLP/SPMT'S	NO
	FORKLIFTS (KOMATSU FD135-8) ⁽¹⁾	26.5T FRONT AXLE, 2.5T REAR AXLE
	FRANNA CRANE (AT15-3 CRANE) ⁽¹⁾	27.2T FRONT AXLE, 3.0T REAR AXLE
	MOBILE CRANE (AXLE SPACING 3.6m)	12T AXLE GROUP
	DUST TRUCK ⁽²⁾	YES
	EWP (HAULOTTE HA20RTJ PRO)	6.1T FRONT AXLE, 4.0T REAR AXLE
	LIMA CRANE ⁽¹⁾	YES
	HS20-44 ⁽¹⁾	YES
POINT LOAD	OUTRIGGERS ON PADS/SPREADER MATS ⁽³⁾	20T (4.0m x 4.0m SPACING, ON A 0.4m x 0.7m MAT)

⁽¹⁾ - DESIGN VEHICLE USED IN ANALYSIS, SIMILAR ARRANGEMENT AND AXLE LOAD SUITABLE.

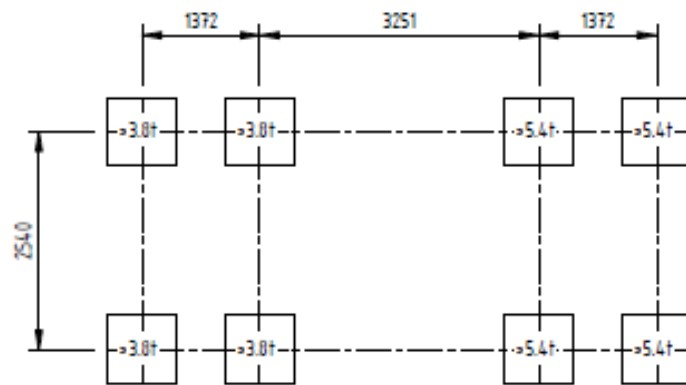
⁽²⁾ - REFER TO SHEET 3 FOR ARRANGEMENT.

⁽³⁾ - TO ONLY BE POSITION BETWEEN BENTS 42-61.

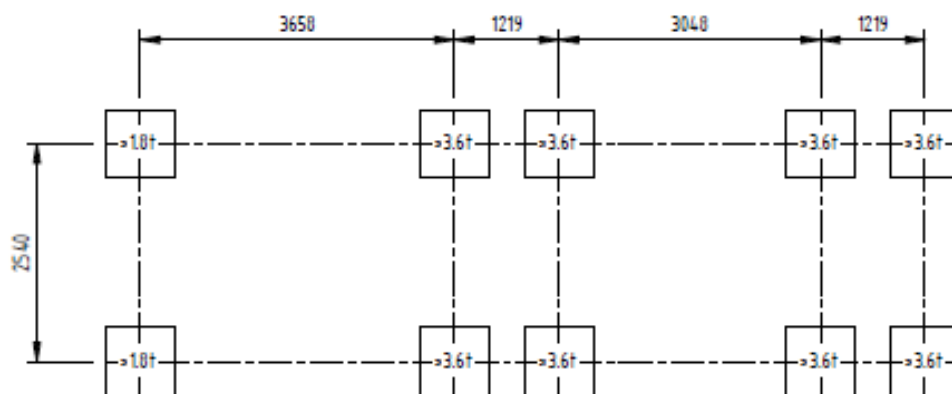
Safety & Health Above All Else



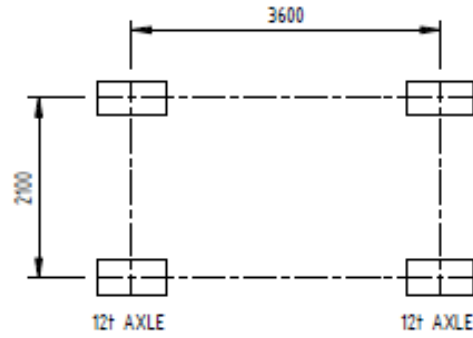
DUST TRUCK CONFIGURATION
N.T.S.



LIMA CRANE CONFIGURATION
N.T.S.

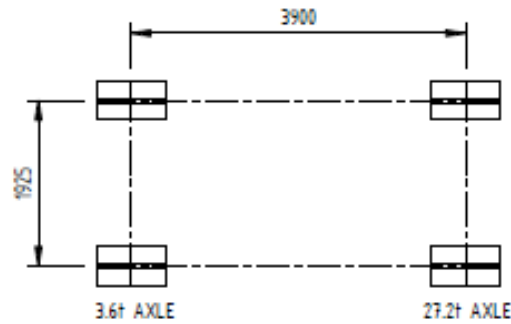


HS20-44 CONFIGURATION
SCALE 1 : 75



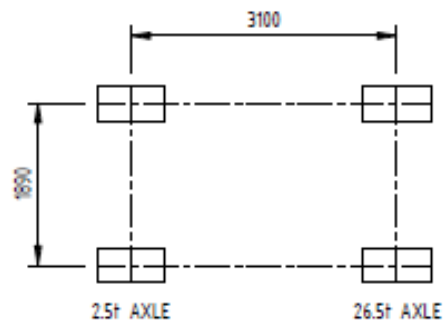
LIEBHERR LT1030-2.1 CONFIGURATION

N.T.S.



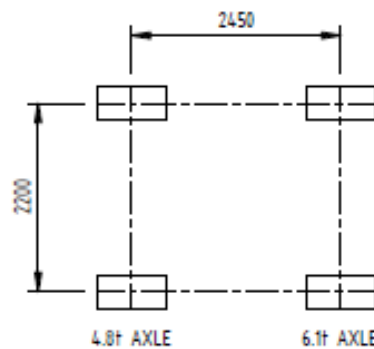
FRANNA AT15-3 CONFIGURATION

N.T.S.



KOMATSU FD135-8 CONFIGURATION

N.T.S.



HAULOTTE HA20RTJ PRO CONFIGURATION

N.T.S.

SHEET 4

Safety & Health Above All Else

Klein Point

	Axle Loads					
	A	B	C	D	E	F
	SINGLE	TANDEM	TRI	FORKLIFT	SURCHARGE	NOTES
	AXLE	AXLE	AXLE	AXLE		
LOCATION/ FACILITY	(t)	(t)	(t)	(t)	(t/m ²)	
Klein Point Jetty/Walkways	Vehicles Prohibited (Pedestrians Only)				0.152	Maximum Point Load = 1.1kN (112kg) on a minimum 100mm x 100mm outrigger pad

Wallaroo

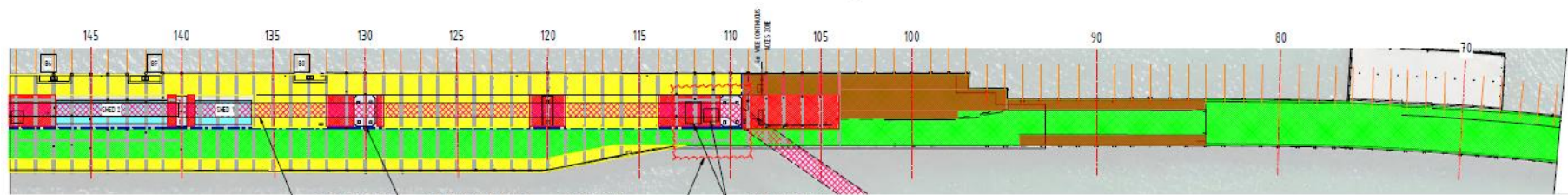
Allowable without permit in the green areas only:

- Vehicles drivable under a class C license
- Light vehicles (sedans, station wagons, panel vans, utilities, light delivery vans)
- Small trucks, vehicles up to 4.5t GVM
- Small buses (vans) that can seat a maximum of 12 people, subject to (class C and <4.5t GVM)
- Bent 0-84 Yes inside the bollards
- Bent 84 +South side between the yellow lines and excluding any fenced off areas.

All other vehicles and loads require a permit.



PART PLAN (BENTS 237-149)
SCALE 1:400



PART PLAN (BENTS 149-65)
SCALE 1:400

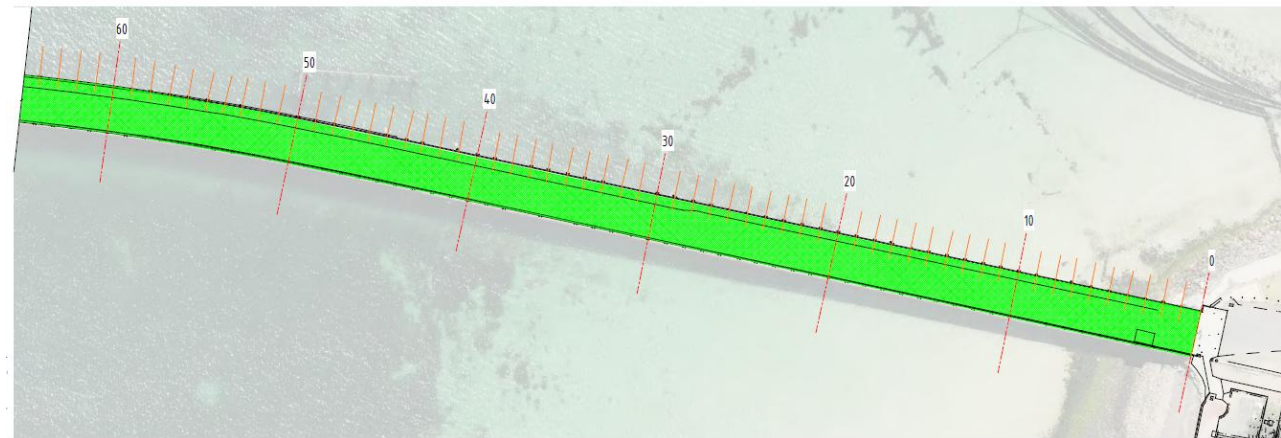
LEGEND

- NO FURTHER RESTRICTION BEYOND EXISTING PUBLISHED LOAD LIMITS (REFER TABLE 1). VEHICULAR (WITHIN LIMITS STATED) AND PEDESTRIAN LOADS ACCESS PERMITTED. (LOWER LIMIT FOR "OTHER AREAS")
- NO FURTHER RESTRICTION BEYOND EXISTING PUBLISHED LOAD LIMITS (REFER TABLE 1). VEHICULAR (WITHIN LIMITS STATED) AND PEDESTRIAN LOADS ACCESS PERMITTED. (LOWER LIMIT FOR "BETWEEN YELLOW LINES")
- DECK AREA VERTICALLY SUPPORTED BY DETERIORATED STEEL TRUSSES. DECK AREA PLANNED TO BE REMOVED AS PART OF UPCOMING WORKS. NO VEHICLES PERMITTED. PEDESTRIAN ONLY (MAX. 3 PERSONNEL WITHIN ANY 5m x 5m ZONE)
- DECK AREA VERTICALLY SUPPORTED BY DETERIORATED STEEL TRUSSES AND POOR CONDITION TRUSS STRONGERS. AREA PLANNED TO BE REMEDIATED AS PART OF UPCOMING SUBSTATION STRENGTHENING WORKS. NO VEHICLES PERMITTED. PEDESTRIAN ONLY (MAX. 3 PERSONNEL WITHIN ZONE)
- ISOLATED STRONGERS IN POOR CONDITION. REPLACEMENT REQUIRED. NO VEHICLES PERMITTED. PEDESTRIAN ONLY (MAX. 3 PERSONNEL WITHIN ZONE)

TABLE 1 - VEHICULAR LOAD LIMITS (WHERE PERMITTED)

LOCATION	AXLE LOADS				OTHER LOADS
	A	B	C	D	
	SINGLE AXLE	TANDY AXLE	TRI-AXLE	FORKFLT AXLE	
JETTY - BETWEEN YELLOW LINES	6.5	7			GENERAL SURCHARGE / UNIFORM LOAD
JETTY - OTHER LINES	3	4			

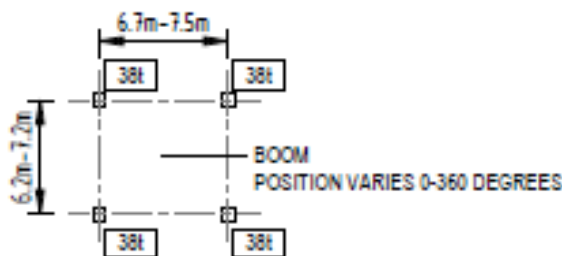
NOTES:
 FOLLOWING VEHICLES HAVE BEEN ASSESSED BY WGA AND CONFIRMED TO BE WITHIN THE LOAD RATING ASSESSMENT / LIMITS PRESENTED IN TABLE 1:
 - CROWN FORKFLT - MODEL C200C-5
 - TOYOTA FORKFLT - MODEL 62-8FD25



PART PLAN (BENTS 65-0)
SCALE 1:400

Safety & Health Above All Else

Thevenard

LOCATION	Axle Loads					Comments
	SINGLE (t)	TANDEM (t)	TRI (t)	FORKLIFT (t)	SURCHARGE (t/m ²)	
Timber Jetty	7.5	10				
2020 Concrete Access Jetty	12	18	22	22		<p>Jetty designed to achieve a class 15 deck classification to AS4997 (UDL=15kPa).</p> <p>Design Vehicle Loads:</p> <ul style="list-style-type: none"> - 20t Self Propelled Knuckle Boom - 22t Franna Pick and Carry 8t @3m from front axle (22t front axle, 6t rear) - Maintenance areas (over existing concrete caissons only) – 50t All Terrain Crane set up with full outriggers lifting 20t load <p>- MAINTENANCE AREAS (OVER EXISTING CONCRETE CAISSONS ONLY) - 50T ALL TERRAIN CRANE SET UP WITH FULL OUTRIGGERS LIFTING 20T LOAD:</p>  <p>NOTE: OUTRIGGERS REACTIONS ALREADY INCLUDE A 10% DYNAMIC FACTOR. THE ABOVE ARE MAXIMUM OUTRIGGER REACTIONS AND ACTUAL REACTIONS WILL VARY DEPENDING ON BOOM AND RADIUS.</p>
Sheet Pile Wharf	12	19.2	21.6		2.1	

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