PLANT RISK ASSESSMENT REPORT

SECTION 1: PLANT IDENTIFICATION

Report Number:	407/201-06		**Assessment Date:**	22nd June 2012
Company:	Wacker Neuson		**Plant Type:**	Vibratory Rammers
Assessment Purpose:	☐	Operational risks associated with the plant as it stands – On site		
	☐	Operational risks associated with the plant as it stands – Desk top analysis		
	☐	Access Systems		
	☐	Modification/s		
	☒	Other : Group assessment of plant type		
Assessed by:	Darren Husson – VEHTEC Pty Ltd			

SECTION 2: PLANT SUMMARY

Preamble:

This assessment is designed to encompass Vibratory Rammers, which can be commonly known as 'Leg Rammers'. Requiring one person to operate, the Vibratory Rammer is a compaction tool with a small 'footprint' enabling compaction into tight corners or narrow trenches.

This document is intended to highlight Occupational Health Safety and Welfare related risks that may present during on site set up and operation and has been conducted in accordance with the OHS&W Legislation – 2010 Part 3 Division 3.3

Is the plant designed for its intended use?	☒ **Yes** ☐ **No**	*Final Sign off by Employer/Owner user - All actions/recommendations complete*
Has the plant been modified from the original design?	☐ **Yes** ☒ **No**	
Is the plant in good working condition?	☒ **Yes** ☐ **No**	Name: _____ Position:_____
Is action required before the plant can be safely used?	☐ **Yes** ☒ **No**	
Has the required action / remedy been undertaken?	☐ **Yes** ☐ **N/A**	Signed: _____Date:_____

Photographs are for illustrative purposes only. Functions, layout, engines and bodies will vary between models

SECTION 3: RISK ANALYSIS LIKELIHOOD AND CONSEQUENCES

Table 1. Measure of Likelihood		
Level	**Description**	**Detail**
A	Almost Certain	The event is expected to occur in most circumstances
B	Likely	The event will probably occur in most circumstances
C	Moderate	The event should occur at some time
D	Unlikely	The event could occur at some time
E	Rare	The event may occur only in exceptional circumstances

Table 2. Measure of Consequences or Impact		
Level	**Description**	**Detail**
1	Insignificant	No injuries, low financial loss
2	Minor	First Aid treatment, on site release immediately contained, medium financial loss
3	Moderate	Medical treatment required, on site release contained with outside assistance, high financial loss
4	Major	Extensive injuries, loss of production capability, off site release with no detrimental effects, major financial loss
5	Catastrophic	Death, toxic release off site with detrimental effect, huge financial loss

Table 3. Risk Analysis Matrix

	Consequences				
Likelihood	Insignificant **1**	Minor **2**	Moderate **3**	Major **4**	Catastrophic **5**
A (Almost certain)	**S**	**S**	**H**	**H**	**H**
B (Likely)	**M**	**S**	**S**	**H**	**H**
C (Moderate)	**L**	**M**	**S**	**H**	**H**
D (Unlikely)	**L**	**L**	**M**	**S**	**H**
E (Rare)	**L**	**L**	**M**	**S**	**S**

*Only hazards with a risk deemed higher than 'low' need to be controlled

Legend:

- **H**= High risk, detailed research and management planning required.
- **S**= Significant risk, senior management attention needed. Continuous review.
- **M**= Moderate risk, management responsibility. Periodic review
- **L**= low risk, manage by routine procedures. Periodic review to ensure risk does not increase.

SECTION 4: HAZARD IDENTIFICATION

Hazard Item N°	Hazard Item Observation Detail	Hazard	L	C	Risk
1	**Plant in its current state has potential to cause injury/illness due to:**				
1.1	Entanglement	No			
1.2	Puncturing	No			
1.3	Cutting **(Operator/bystander caught under the compaction plate)**	**Yes**	**D**	**3**	**M**
1.4	Stretching **(Operator incorrectly starting the plant)**	**Yes**	**D**	**3**	**M**
1.4a	**(Incorrect operation of the plant)**	**Yes**	**D**	**3**	**M**
1.5	Stabbing	No			
1.6	Trapping **(Operator/bystander caught under the compaction plate)**	**Yes**	**D**	**4**	**S**
1.7	Abrasion **(Operator/bystander caught under the compaction plate)**	**Yes**	**D**	**3**	**M**
1.8	Engulfment **(Operator/bystander caught under the compaction plate)**	**Yes**	**D**	**3**	**M**
1.8a	**(Compacting in deep trench)**	**Yes**	**D**	**5**	**H**
1.9	Crushing **(Operator/bystander caught under the compaction plate)**	**Yes**	**D**	**3**	**M**
1.10	Shearing **(Operator/bystander caught under the compaction plate)**	**Yes**	**D**	**3**	**M**
1.11	Tearing **(Operator incorrectly starting the plant)**	**Yes**	**D**	**3**	**M**
1.11a	**(Incorrect operation of the plant)**	**Yes**	**D**	**3**	**M**
1.12	Asphyxiation	No			
1.13	Slips, Trips **(Incorrect operation of the plant)**	**Yes**	**D**	**2**	**L**
1.13a	**(Operating the plant on a dangerous or inclined slope)**	**Yes**	**D**	**2**	**L**
1.14	Falls	No			
1.15	Falling Objects	No			
1.16	Expelled Parts	No			
2	**Plant in its current or intended state has the potential to create a hazardous condition due to:**				
2.1	Pressured Content **(Burst fuel line – limited exposure to fuel line)**	**Yes**	**D**	**2**	**L**
2.2	Explosion **(No smoking near unit)**	**Yes**	**D**	**2**	**L**
2.3	Radiation	N/A			
2.4	Vapour	N/A			
2.5	Dust **(Can generate dust upon compaction – Operator required to wear appropriate PPE)**	**Yes**	**A**	**2**	**S**
2.6	Moisture **(Operator to be managed by SOP and/or Employers/Owners policy)**	**Yes**	**D**	**2**	**L**
2.7	Gases **(Not to be used in confined space) (Operator required to wear appropriate PPE)**	**Yes**	**D**	**2**	**L**
2.8	Fire **(Exhaust can reach high temperatures – do not position close to flammable materials or liquids whilst hot)**	**Yes**	**E**	**5**	**S**
2.9	Vibration **(Vibrates by nature – Operators to exercise caution and rest as required. Managed by Employers/Owners SOP)**	**Yes**	**A**	**2**	**S**
2.10	Electricity	No			
2.11	Friction	No			
2.12	Ice Formation	No			

2.13	Laser Beams	No			
2.14	Hot and Cold Parts **(Engine when performing maintenance checks, checks to be undertaken when unit is cold. Never perform maintenance when unit is hot. Exhaust system outlet on the RHS may reach high temperatures at times.)**	**Yes**	**E**	**2**	**L**
2.15	Temperature Extremes **(Operator to be managed by SOP and/or Employers/Owners policy)**	**Yes**	**D**	**2**	**L**
2.16	Noise (Low dB levels) **(Operator required to wear appropriate PPE)**	**Yes**	**D**	**2**	**L**
		Yes / No / N/A			
3	Manual handling requirements have been assessed as acceptable **(Users assessment required when moving plant)**	N/A			
4	Repetitive, forceful, awkward, sustained movements have been minimised/ eliminated	**No**			
5	The current guard (s) and their condition are adequate for this plant **(Designed for application)**	Yes			
6	Is the guarding appropriate for all work requirements **(Designed for application)**	Yes			
7	Operator controls are located for ease of use by operators	Yes			
8	Operator controls are identified and marked appropriately	Yes			
9	Emergency stops are clearly marked	Yes			
10	Emergency stops are located at the most likely place (s) for emergency use	Yes			
11	The power source of the plant has been designed, constructed, installed, protected, maintained as to minimise the risk of harm to employees. **(Plant to be maintained as per Operators Manual)**	Yes			
12	There is provision to lock out the plant, and dissipate energy	Yes			
13	Access platforms/ladders/handrails are provided	N/A			
14	Access to moving parts from the platform can be performed safely	N/A			
15	Access platforms/ladders/handrails provide secure, non slipping access	N/A			
16	Lighting is adequate for plant operation, maintenance and cleaning at any time **(Subject to site environment lighting)**	N/A			
17	Noise levels have been assessed as below 85dB(A) **(Operator required to wear appropriate PPE)**	**No**	**A**	**2**	**S**
18	Personal Protective Equipment (PPE) has been provided for safe operation of this plant **(Users responsibility)**	N/A			
19	PPE requirements are signposted **(Employers/Owners responsibility dependant on Management Policies)**	No			
20	There is provision for safe cleaning of this plant (NB availability of cleaning devices)	N/A			
21	Safe access to areas to be cleaned has been provided	N/A			
22	There is provision for easy and safe scrap removal	Yes			
23	The plant has the potential to jam/block **(Mechanical failure or incorrect application)**	**Yes**	**C**	**1**	**L**
24	A safe system of work has been established to remove jam/blockage **(Ram block/jam only to be cleared by trained or experienced persons. Plant to be isolated in terms of operating manual) (Employers/Owners assessment required)**	N/A			
25	Safe system of work has been established for any sample retrieval	N/A			
26	There is adequate provision to properly service and routinely grease and oil the plant **(Plant to be maintained by appropriately trained personnel in terms of operators manual)**	Yes			
27	Safe systems of work have been established for hazards associated with any necessary maintenance of the plant **(Employers/Owners responsibility)**	N/A			
28	The rigidity and stability of the plant and supporting structure is adequate. **(Plant to be operated within its capabilities and with regard to recommended operating environs)**	Yes			
29	The environment in which the plant is situated has been assessed for its interrelationship with this plant as acceptable **(Employers/Owners Responsibility)**	N/A			

30	Ventilation and/or other air flow needs are adequate	Yes			
31	Static electricity hazards have been assessed and controlled	N/A			
32	Workplace substances associated with the use of the plant have been assessed	N/A			
33	Authorised entry systems for the plant and surrounds have been established	N/A			
34	The upstream and downstream effects of malfunction or unscheduled stoppage of the plant have been considered **(Employers/Owners responsibility)**	N/A			

SECTION 5: RISKS AND CONTROLS

<table>
<tr><th colspan="6">Summary of Hazards Identified and solution(s) to adequately manage the respective risk.</th></tr>
<tr><th>Hazard Item No</th><th colspan="2">Level of Risk</th><th colspan="3">Action Required / Comments</th></tr>
<tr><td rowspan="4">1.3
1.4
1.4a
1.6
1.7
1.8
1.9
1.10
1.11
1.11a</td><td rowspan="4">Moderate</td><td rowspan="4">Significant</td><td rowspan="4">Hazard
General operation of the Vibratory Plate can cause cutting, stretching, trapping, abrasion, engulfment, crushing, shearing and tearing hazard.
Comments
Incorrect use of the plant or operation in the incorrect environment posses a physical risk to the operator and bystanders.
Controls
Operator is to perform a Jobsite Safety Analysis (JSA) prior to operation. Work Zone Traffic Management (WZTM) procedures need to be implemented prior to operation.
Operator to keep bystanders away during starting and operation. Prior to starting the plant, the operator is to ensure that both they and the plant are on stable level ground and start the plant as per the operator’s manual. Operators are to start and operate the plant in terms of the manufacturer’s instructions and keep clothes and limbs clear of the plant at all times when in operation.

When operating on slopes or hills, always operate the plant up and down hills rather than from side to side. NEVER operate the plant sideways on slopes. The plant may roll over, even on stable ground.

Always use caution when operating near the edges of pits, trenches or platforms. Check to be sure ground surface is stable enough to support the weight of the plant and operator and ensure there is no danger of the plant sliding, falling or tipping.

Revised Risk Assessment
With the above controls in place the risk is considered controlled.</td><td>Action Required</td><td colspan="3">Nil</td></tr>
<tr><td>Responsible Person</td><td>Operator</td><td>Due Date</td><td></td></tr>
<tr><td>Actioned by:
(Name & Date)</td><td colspan="3"></td></tr>
<tr><td>Verified by:
(Name & Date)</td><td colspan="3"></td></tr>
</table>

1.13 1.13a 2.9	Low	Moderate	Hazard Slipping and tripping. Comments By design the plant exerts significant downward pressure which can violently affect the user. Controls Operators' are to be completely familiar with the Operators' manual prior to use of the plant. The plant is only to be used in environments as per operators manual. Revised Risk Assessment With the above controls in place the risk is considered controlled.	Action Required	Nil		
				Responsible Person	Operator	Due Date	
				Actioned by: (Name & Date)			
				Verified by: (Name & Date)			
2.5 2.7 2.9 17	Significant		Hazard Dust, noise and vibrations Comments Vibratory Rammers can create dust through the compaction process. Controls Operators are to be completely familiar with the Operators' manual prior to use of the plant. Appropriate ear protection and breathing masks are to be used as required by the end users assessment of the operational environment and in terms of Employers/Owners policies. Revised Risk Assessment With the above controls in place the risk is considered controlled.	Action Required	Nil		
				Responsible Person	Operator	Due Date	
				Actioned by: (Name & Date)			
				Verified by: (Name & Date)			

<table>
<tr><td rowspan="4">2.8</td><td rowspan="4">Significant</td><td rowspan="4">Hazard
Exhaust system can reach high temperatures.

Controls
Operators' are to be completely familiar with the Operators' manual prior to use of the plant.

Operators Manual to be followed at all times. No sparks, flames, or burning objects near the plant. Shut off the engine before refuelling. Refer operators manual.

Revised Risk Assessment
With the above controls in place the risk is considered controlled.</td><td>Action Required</td><td colspan="3">Nil</td></tr>
<tr><td>Responsible Person</td><td>Operator</td><td>Due Date</td><td></td></tr>
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(Name & Date)</td><td colspan="3"></td></tr>
<tr><td>Verified by:
(Name & Date)</td><td colspan="3"></td></tr>
</table>

SECTION 6: CONTROL MEASURES AND TRAINING

Control Measures

Pre-Operation	A Standard Operating Procedure (SOP) should be developed for the correct use of the plants' systems prior to deployment. Complete familiarisation of the Operators Manual and all systems shall be considered Mandatory. The plant is intended for relatively flat ground deployment only and for specific compaction activities.
Modifications	Any modification to the factory unit should be strongly considered to ensure that it will not have any detrimental effect to the stability, safety or operation of the plant. Modifications should only be undertaken by suitably qualified or experienced persons.
Attachments	Only OEM attachments (or those authorised by the OEM) should be used on the plant. Non authorised attachments may affect the safety and stability of the plant when in operation.
Operational Risk	This risk assessment does not negate the requirement of the operator/supervisor to conduct an operational risk assessment of this piece of plant for its intended use and its interface with the operators and the suitability of this piece of plant to integrate and complete the required task. This document has been prepared with due care, however cannot be considered complete given the limited knowledge of the intended operational environment for which the unit has been selected.
Work Zone Traffic Management	This risk assessment has been prepared with the knowledge that effective Work Zone Traffic Management (WZTM) systems will be employed in line with AS1742.3, OHS&W Regulations 2010, Road Traffic Act 1971 and internal Standard Operating Procedures.
Continuous Review	This document is not intended to be static, nor is it intended to be considered complete for all situations. This document forms the basis to allow the Employer/Owner of the asset to have an informed position. A system of continuous review should be embraced in line with Management Policies.

Operator Competencies

Formal Qualifications:	Must comply with the regulations enforced by the WorkSafe authority within the state that the plant is being operated.
Competency Assessed Skills:	Skills must comply with the requirements of the guidelines established by the relevant state based WorkSafe authority and assessed by the state WorkSafe body's authorised assessor.
General Training Instruction:	On the job training by qualified Operator
Experience:	As appropriate and assessed (as above)
Standard Work Procedure (s):	To be developed by the client/user

SECTION 7: PLANT INSPECTIONS, MAINTENANCE AND TESTING

Inspection, Maintenance and Testing Requirements	Frequency
Manufacturers Operator and Service manuals as supplied with the unit	Refer Operator Manual
Servicing and Maintenance	As per Manufacturers guidelines

**This is not a definitive list and may need to be revised over time*