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Work Package Plan (Rev 1) **Top Feed MiniCAT (with Prebore)** **Stone Column Installation**

110 – 2000065 – Reading Palmer Park **Palmer Park, Reading**

Revision	Prepared by	Date	Description
Rev 0	Tracy Thorp	08.06.21	
Rev 1	Tracy Thorp	09.06.21	Revised as per Pellikaan comments

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Appendices

Appendix A – Keller HSEQ Policy

Appendix B – FPS Pre commencement Piling Standard

Appendix C – Task Methodology

Appendix D – Site Hazard & Environmental Assessment

Appendix E – Hazard Assessments

Appendix F – COSHH Data Sheets

Appendix G – Working Platform Certificate and Rig Pressures

Appendix H – Predicted Noise & Vibration Charts

Appendix I – Site Access

Appendix J – Testing Proposals

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A Work Package Details

A1 Scope of work

This works package plan is to cover the design, installation and testing of stone columns by the Dry Top Feed Vibro Replacement System for **Pellikaan Construction Ltd** (Main Contractor).

A1.1 Subcontract Scope

Vibro Stone Column (VSC) Treatment is required beneath the foundations, floor slabs, and swimming pool area of the proposed Leisure Centre extension inclusive of the following:-

- 1 Vibro rig mobilisation
- 1 Pre-boring rig mobilisation
- Setting out of all stone columns
- 3 short duration Plate Load verification tests
- Full time Vibration Monitoring during the installation works
- Design of Piling Mat

A1.2 Programme

Commencement October 2021 (actual date tbc). Our works will be completed within 1 working week with full continuity (based on this Visit only).

Our overall Contract Period would be 1.5 weeks. An extra 0.5 weeks is required for any additional visits per rig (i.e. if >1 visit is required). This excludes all Bank Holidays in the period.

A1.3 Attendances

We will require the shared use of suitable welfare facilities, coordinates and site stations for setting-out purposes, the placement and maintenance of a 300mm thick piling platform (designed by Keller), a suitable machine on site to remove any obstructions (if encountered) and the pre-boring spoil, provision of space for materials and other equipment all to be provided Pellikaan Construction Ltd. Please also note that any necessary wheel washing/road cleaning, area and facility of wash-down due to asbestos risk, third party approvals, dust suppression measures or traffic management should also be carried out by the yourselves.

In addition Pellikaan Construction Ltd. will need to confirm the absence of services within our working areas and sign the following documents:-

- a permit to break ground
- the installation & maintenance sections of the working platform certificate
- A written instruction to work within 2.0m of any live services or existing structures

A copy of the HSEQ policy is included in Appendix A.

The Federation of Piling Specialists (FPS), of which Keller is a prominent member, offers guidance on the minimum acceptable conditions expected from the Main Contractor before work commences. A copy of this guidance is in Appendix B.

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A2 Planned Sequence of Works

In general the planned sequence of works will be as agreed with the site manager on rig arrival unless otherwise agreed up front.

A3 Task Methodology

A purpose built leader mounted MiniCAT rig with depth Vibrator will be used to install stone columns via the Top Feed Vibro Method as in Appendix C. The prebore rig will also be utilised to form an open hole before the depth Vibrator is introduced. In addition the pre-boring rig will be utilised for any columns within close proximity to existing structures/services, so as to help reduce the potential for heave and also the vibration associated with penetration.

Any variation will be detailed in the Control of Activity Risk in Section A4.

A3-1 Testing Operations

Testing will be undertaken in accordance with testing proposals in Appendix J.

A4 Control of Activity Risks

A site specific hazard and environmental assessment will also be completed prior to stone column installation, please see Appendix D - Initially, this will be completed on a Pre-Start site visit, approximately 1 week before works commence, by the Construction Manager or Works Manager. This document will then be updated as required by the Supervisor to reflect any changes in the working environment.

Key hazards are detailed below, however hazard assessments and COSHH data for the tasks can be found in Appendices E and F:

Hazard	Controls Specified	Task where hazard needs to be briefed (or personnel)		
		Loading / Unloading	Vibro Operations	Testing
Manoeuvring Rigs around site / Collision with Vehicles / Plant	Segregation of works and designated pedestrian routes to be used	x	x	x

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Buried / Existing Services	CAT Scan to be completed by Main Contractor. Services identified, clearly marked / exposed / diverted as necessary and Permit to Dig signed by Main Contractor	x	x	
Noise & Vibration	Noise monitoring not required. Full time Vibration Monitoring is to be undertaken at the request of Pellikaan Construction. The sensor will be placed at locations confirmed by Pellikaan and can be set up with a trigger alert notification system. Pellikaan will confirm any limits to be monitored against.		x	
Ground Stability – collapse of Plant / Equipment	Working Platform Certificate to be signed by Main Contractor prior to works commencing	x	x	x
Pre-Boring – Open Bores	Where required, Keller will provide hole covers. No holes will be left open overnight		x	
Upfilling/Backfilling ahead of installation	All excavations or upfill material beneath the proposed building will need to be placed in accordance with an end product Highways Specification so as to achieve 95% of the maximum dry density with an air void ratio of <5%.		x	
Dust	Main Contractor to mitigate any site wide issues with suppression. Keller to mitigate by controlling Keller site traffic, keeping cab doors/windows closed during installation, auto compressor cut-off, and good hygiene.		x	

Due to the nature of the plant on site, diesel spillages are a potential hazard. Spill kits will be kept within the stores units of the rig which will compromise plant nappies, spill granules booms and drip trays.

A5 Resources

A5-1 Plant

- 1No. MiniCAT leader mounted Vibro with Depth Vibrator
- 1No. JCB Loading Shovel

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- 1 No. Prebore Rig
- 1No. 125cfm Compressor
- 1 No. Vibro stores unit
- 1 No 12ft x 12ft site cabin and generator

All plant will arrive with up to date inspection certificates and will be checked and recorded on a daily basis.

A5.2 Labour

All site personnel will have as a minimum a CSCS card and CPCS card. Our site team will be:

- 1No. Supervisor / Rig Operator
 - 1No. Loading Shovel Driver
 - 1No. Prebore Driver
- 1No. Prebore Ganger*

A5.3 Optional personnel:

- 1No. Visiting Construction Manager
- 1No. Visiting Contract or Works Manager
- 1No. Visiting General Manager
- 1No. Visiting HSEQ Advisor

All personnel will have their CSCS/CPCS cards for inspection during the induction.

The Supervisor will be FPS/CITB accredited and competent to manage the works on site. The Supervisor is qualified to Site Managers Safety Training Scheme (SMSTS) and the Federation of Piling Specialists Supervisor Health, Safety and Environment (H.S.E) Awareness Course as a minimum. All Supervisors are also Fully First Aid Trained.

A6 Permits

Prior to commencement of vibro works, the following permit must be obtained:

- Working platform certificate - issued weekly and following any reinstatement of the platform, such as following removal of obstructions. The Working Platform Regular Inspection Log is to be completed with regards platform maintenance and kept up to date by the Main Contractor.
- Permit to dig – issued to last no more than 7 working days, must be relevant to the area we are working in and must confirm there to be no services in the area.

Prior to commencement of vibro operations within 2m of an existing service / fence / building / boundary etc the following permit must be obtained from the Main Contractor:

- Confirmation of Verbal Instruction (CVI)

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These documents must be signed by the Main Contractor or representative prior to undertaking our works. A copy of the Working Platform Certificate (WPC4) is attached in Appendix G.

A7 Working hours

The timescales quoted are based on working between the hours of **08:00-18:00 Monday-Friday**. Please note that we normally finish early on a Friday (3pm) but we reserve the right to work a full shift.

A8 Handover of completed works

Daily Report Sheet detailing the columns completed, their reference numbers and depths will be completed by Keller's Supervisor and issued daily.

A9 Key Personnel and Contacts

Keller Head Office		02476 511266
Rob Herring	General Manager	07767 446830
Billy Skeen	Construction Manager	07788 925403
Sarah Collerton	Contract Manager	07990 591594
Simon Jones	HSEQ Manager / BUCP for Platform Safety	07712 880 596
Andy Heathcote	Technical Director / BUCP for Platform Safety	02476 511266
Gary Bailey	Site Supervisor	07918 742281

B Site Details

B1 Access

The address which should be used to access the site is:

Palmer Park

Reading

RG6 1LF

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The Main Contractor's site traffic management plan should be adhered to at all times including the use of segregated walkways for access on to and around the site.

A copy of the site access details is in Appendix I.

B.1 Access arrangements for materials & plant

Delivery of material to site must follow the traffic management plan set out by the Main Contractor. All deliveries to site must obey any site speed limits or other signage.

The rig will be mobilised to and de-mobilised from site as an abnormal load via low loader and via approved transport routes. Please note the rig could be subject to out of hour's delivery times which will be notified if necessary.

The semi-low loader will drive onto site to a firm and level platform area, designated by the Main Contractor. The rig will manoeuvre itself off the trailer via the lowered rear ramps, the mast erected to an upright position after which, following pre-use checks, the rig is ready to use.

The remaining vibro equipment and loading shovel will be delivered on to site to a firm and level platform area, designated by the Main Contractor, via a step-frame or low loader. The loading shovel will manoeuvre itself off the trailer and can be used to move the small stores unit, diesel bowser, generator and test gear.

There may be up to 8 No. deliveries of 20T loads of stone per day (depending on column production) which will need to be stockpiled on site with easy and preferably close access for the loading shovel to then reach the rig. This stockpile may move location as works progress. It should be noted that the stone wagons will also require adequate access to replenish the stockpile.

B2 Site Layout

Stone will need be stockpiled close to the working area of the vibro rig for the loading shovel to access as works progress. Should a Site Layout be available, this will be discussed during the pre-start site visit.

B3 Control of Site Hazards

Below is listed the main hazards which are to be communicated to the site team and in particular any personnel interfacing with the vibro works such as excavator drivers, groundworkers etc. who may be less aware of the hazards which are presented by their works adjacent to the vibro works. These should be communicated across the wider site team.

Hazard	Controls Specified	Does it affect the activity? If Yes, see section 5
Open excavations including prebore	Columns to be filled with stone immediately following vibrator extraction.	
Moving plant – plant strikes	Rigs and loading shovels have 360 degree all round vision	

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B4 Communication & Contact Details

Client Contacts

TBC	Site Manager	Tel: TBC

B5 Emergency Arrangements

B5.1 First Aid

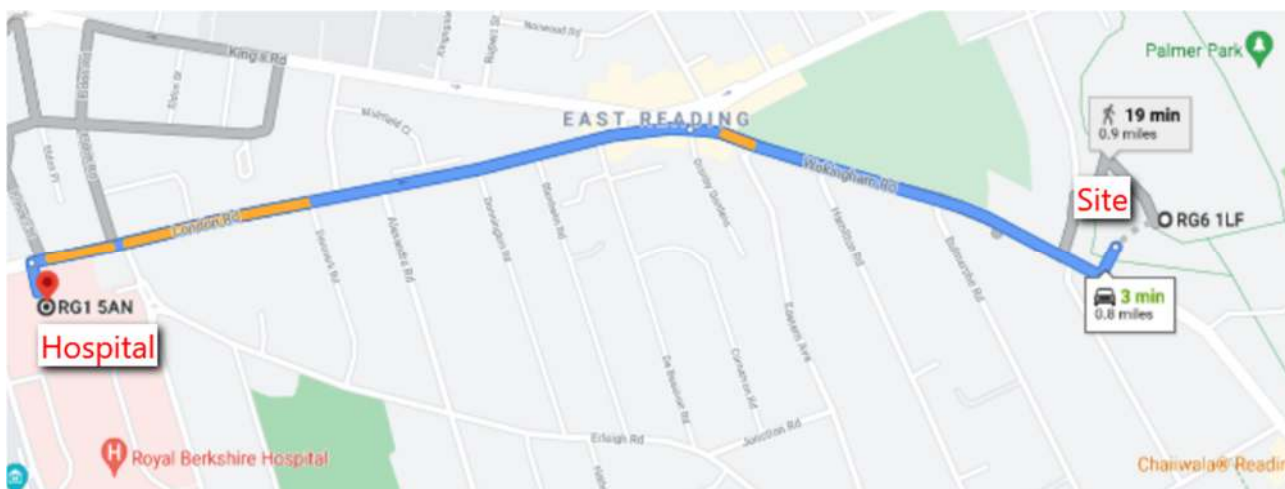
Keller Supervisors are trained First Aiders and the First Aid Box is in the Keller site cabin.

In the first instance, the first aider should be contacted. Following treatment, the incident should be recorded in Keller's site Accident book. Additionally, the accident will be reported to the Main Contractor. All near misses or accidents should be reported in this way.

The nearest A&E hospital address is:

Royal Berkshire Hospital
London Road/
Craven Road
Berkshire RG1 5AN

Tel : 0118 322 511



B5.2 Environmental considerations

Spill kits will be available for emergency use. Plant nappies and drip trays will be provided for all static plant.

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B6 Welfare

All welfare facilities are to be provided by the Main Contractor and must include as a minimum:

- Toilets
- Hot running water
- Cold drinkable water
- Canteen area for preparation of food
- Covered rest area to include seating
- Drying room

B7 Interfaces

Public	Hoarding/similar to be provided by Main Contractor and access to site should be restricted. Personnel to be aware of public when banking delivery wagons etc. off the highway onto site and should be aware of proximity to site boundaries while vibro works are in operation.
Statutory and Enforcement Authorities	No noisy operations to take place before 08:00 or after 17:30.

C Management of Health and Safety

C1 Briefing Arrangements

All personnel will attend an induction by the Main Contractor, after which they will be given a Works Package Plan briefing by the Keller Supervisor for which this document forms the basis. Records of this induction will be made and any further personnel will be inducted in the same way. The Supervisor will brief the crews daily in their duties on site and their activities for the day including interaction with other trades. This will make particular reference to any changes on site as appropriate. Reference can be made to Work Instructions where appropriate.

Toolbox talks will be carried out weekly and a training record will be made. These generally follow a schedule which is common across all Keller Foundations sites; however they may be substituted to account for current topics, such as working near railways, asbestos etc. if these are considered more appropriate for the current site or recent activities.

C2 COSHH

The Control of Substances Hazardous to Health Regulations, 2002, (C.O.S.H.H. Regulations), require that an assessment is undertaken of health risks created by work involving substances hazardous to health. The risk assessments for substances are included in the task assessments. These refer to the use of chemicals on a site and state that the precautions to be taken are recorded on a Substance C.O.S.H.H. Record. The Substance Identification Record is based on information obtained from a data sheet received from the substance supplier.

C.O.S.H.H Assessments for all substances used on the site can be found in Appendix F.

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C3 *Personal Protective Equipment*

As a minimum, the following PPE will be made available to all personnel attending site:

High Visibility vests

Eye Protection

Ear Protection

Safety Helmets

Protective Gloves

Protective Footwear

Operatives must ensure that they use and look after the items listed responsibly. Any damaged Personal Protective Equipment will be replaced as required during the contract.

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C4 Briefing Register

<i>I confirm that this Works Package Plan incorporating Task Briefings and Hazard Assessments have been explained to me and that I understand what is required of me to carry out my job. If I am unsure about the Method of Work I will ask my Supervisor prior to starting.</i>				
Date	Name (& Company if Not Keller)	Signature	Main Site Induction	
			(Y/N)	Time (Duration)



Appendix A – Keller HSEQ Policy

 KELLER	Health, Safety, Environment and Quality Policy	Version	02
<i>Policy Statement</i>		Approved	14 May 2019

This policy statement generally covers all the work carried out by the operating divisions of Keller Limited (UK and Eire), and sets out the management system requirements for them. Keller is a specialist contractor providing geotechnical solutions to the building and civil engineering sectors and, through Colcrete Eurodrill the supply of drilling, specialist mixing and pumping equipment worldwide.

The company operates under a certified Integrated Management System (IMS) in accordance with the requirements of; ISO 9001 Quality Management Systems, ISO 14001 Environmental Management Systems and ISO 45001 Occupational Health and Safety Management Systems. This policy is communicated to all employees and to other persons working for the company and is made available to other external stakeholders as required and is generally available via the Keller website.

Policy Statement

Keller meets its customers' expectations by providing them with a quality service.

To achieve this Keller shall maintain an Integrated Management System that will comply with recognised standards and lead to continual improvement in all areas of our operations by clearly defining aims and objectives. Within that context the organisation shall:

- Identify and comply with all the relevant legislation and other requirements to which we subscribe.
- Comply fully with the Keller Group Plc. "Think Safe" minimum standards by providing a safe, healthy and sustainable working environment for all our people with a commitment to providing a workplace that is "*free of injury - today*".
- Develop a strong, behavioural health and safety culture throughout the organisation through committed leadership.
- Ensure, through awareness and risk assessment the mental health of all our employees
- Ensure the health and safety of sub-contractors and other persons who may be affected by our activities.
- Assess and reduce the environmental impact of our key processes, products or services. Keller do so by focussing on a risk based approach that aims where possible to eliminate or otherwise effectively mitigate undesirable outcomes. and so prevent pollution, eliminate waste and continually improve our processes and services.
- Select suppliers appropriately with and to carefully use materials and resources, to eliminate or reduce waste and to prevent pollution.
- Ensure that all employees are aware of their statutory duties and that they take reasonable care of themselves, others and the environment.
- Train and develop our people so that they are competent to deliver a first class, quality service to our customers.
- Ensure confidentiality of information, including that provided by customers.
- Remain committed to eliminating Hazards, reduce Health and Safety risks using hierarchy of controls.
- Engage in consultation and participation of the workforce and or representatives on safety, environmental quality and operational issues.

Continue to satisfy all our customers and other stakeholders and interested parties. Keller continually strive to understand and meet and exceed their needs expectations wherever possible. Clear objectives and targets (KPI's), relating to performance, shall be set, as part of the Business Plan, to implement this policy and demonstrate our commitment to continual improvement.

This policy and associated procedures shall be formally reviewed annually or as a result of changes in legislation, scope or performance.



Bob Thompson - Managing Director (Keller UK)



Appendix B – FPS Pre commencement Piling Standard

FPS – Pre-commencement Piling Standard

1. Background

In general piling operations is one of (and in many cases) the first sub-contractors to work on a construction site. The work is very dirty; the rigs are heavy (up to 150t) and tend to be rather large, lots of associated equipment such as, casing, cages, and augers) are needed along with attendant plant such as cranes, excavators and dumpers. It is not practicable or safe to stack this equipment and therefore large areas of floor space may be required. There are also many daily vehicle movements i.e. reinforcement cage and concrete deliveries in particular and muck away leaving site. This leads to the need for certain facilities to be immediately available in order for the piling to safely commence in a satisfactory manner and also in accordance with legislation.

It is essential to ensure the arrangements are made some weeks prior to the piling contractor arriving on site.

This document offers guidance on the minimum acceptable conditions expected before work commences.

2. Set-Down Area

	An area accessible to vehicles with trailers (usually 4 off) with a haul route designed to take the necessary loads with sufficient space to unload items up to 20m in length
	Within reach of the handling crane/piling rig
	Suitable access from this area to the piling site including segregation from other workers and pedestrians
	If no area is available on site then suitable arrangements have to be made with the Local Authority and/or Highways Agency for delivery times and possible road closures

Note – space requirements will vary greatly from project to project dependant on the piling technique used, attendant plant requirements, pile depth(s), diameter(s), ground conditions, design specification etc. it is critical that discussions take place with the piling contractor to agree working space before and during the contracted works.

3. Welfare Facilities

Provision of suitable and sufficient welfare arrangements continues to be one of the main frustrations for piling contractors on site. Being one of the first contractors on site, the PC is usually working out of temporary accommodation until the main welfare / office arrangements are constructed.

Piling work is dirty and is carried out in all weathers, because of this it is essential that welfare requirements are correct from day one and include scope for growth as follow on trades start work.

Welfare provisions must be made available in accordance with the Construction (Design and Management) Regulations:

Sanitary Conveniences

Shall be provided in close proximity of the area of work and easily accessible and shall be:

	Adequately ventilated and lit
	Kept clean and orderly
	Separate men and women, except when each convenience is in a separate room which can be locked from inside.
	Chemical toilets are not an acceptable option

Washing Facilities

Shall be provided (including showers if required by the nature of the work) in close proximity of the area of work and easily accessible and shall:

	Be in the immediate vicinity of every convenience, whether provided elsewhere as well
	Be in the vicinity of changing rooms, whether provided elsewhere as well
	Include a supply of clean hot and cold or warm water (which shall be running as far as is practicable)
	Include soap or other suitable materials for cleaning
	Include towels or suitable means of drying
	Be adequately ventilated and lit
	Be kept clean and orderly
	Be separate for men and women, except when each convenience is in a separate room which can be locked from inside

Drinking Water

Wholesome drinking water shall be provided for all persons at work in the workplace and shall:

	Be readily accessible at suitable places
	Be conspicuously marked
	Have a sufficient number of suitable drinking vessels unless supply is in form of a jet.

Changing rooms and lockers

Suitable and sufficient changing rooms shall be provided at readily accessible places and shall be

	Separate for men and women,
	Provided with seating and allow or include facilities for drying clothing overnight so they are ready for work the next day.
	Provided to enable persons to lock away, their work clothes, their own clothing and their personal effects.

Facilities for rest (and to Eat Meals)

Shall be provided at readily accessible places and shall:

	Be equipped with adequate number of tables and seating with backs – sufficient for the number of persons likely to use them at any one time.
	Include suitable arrangements to ensure meals can be prepared and eaten.
	Include a means of boiling water
	Be maintained at an appropriate temperature and clean.

Arrangements for Smokers

In accordance with legislation regarding smoking in public places:

	At the discretion of site management a smoking area may be provided. If providing a shelter the area of the structure, including the roof, is to be less than the area of the openings
--	--

4. Working Platforms

A working platform designed for the rig bearing pressures provided by the piling contractor will be provided. (BR 470 and Guidance on the reverse of the Working Platform Certificate should be consulted).

<http://www.fps.org.uk/fps/guidance/platforms/platforms.php>

	Platforms should also be suitable for persons to walk and work on, and not present a trip hazard from large cobbles or tramp material i.e. steel from demolition crush.
	A fully completed and signed Working Platform Certificate shall be issued prior to work commencing.

5. Third Party Protection

Piling operations are commonly carried out to the full extent of the site i.e. around the perimeter hoarding, which introduces a risk to third parties. When piling close to the site perimeter the PC should consider:

	Temporary closure of pedestrian walkways outside of site.
	Extending the perimeter hoarding vertically, or installing a fan type hoarding.
	Use of scaffold system to install a protected walkway beneath.

6. Vehicle/People Segregation

Workplace transport is the second biggest cause of incidents in the workplace, accounting for about 70 fatalities each year. The majority of these accidents are preventable by good traffic / pedestrian management which consider the number/type of deliveries and constantly changing site environment Sites should as a minimum:

	Have suitable segregated pedestrian routes, delineated by barriers, for access between Welfare and work areas.
	Have a designated, non-pedestrian, access for vehicles with a gateman to provide instructions/directions and ideally a one-way system around the site.
	Where pedestrian routes cross vehicle routes have clear visibility (no obstructions) for drivers and pedestrians
	Provide warning signs for drivers and pedestrians indicating crossing point.
	Sufficient operational space should be made available to the piling contractor in accordance with the earlier provisions in section 2 'Set down area'.
	Planned traffic routes should be agreed with the piling contractor and (where applicable) take into account any concrete hose routes / movement and crossing points etc.

7. Underground Services

Service strikes are still occurring on many piling projects and in particular on inner-city sites. In nearly all cases a permit to dig/pile is issued confirming underground services are NOT present. Investigation findings have confirmed in as much as 50% of cases that there is documented evidence of the service and the site investigation has failed to find it; usually owing to an ineffective search. The following guidance on requirements is offered:

	Confirmations of an in depth search of documentary evidence for services.
	Where services are known their presence should be confirmed and highlighted on site.
	If services are within 2m of a pile location they should be physically located and as appropriate relocated, protected or removed.

Further guidance can be found within HSG47 available from the HSE website <http://www.hse.gov.uk/pubns/books/index-hsg-ref.htm>

8. Permits to Work

The Health and Safety at Work Act requires the provision of a safe system of work. Where special precautions have to be taken before, during or following any potentially hazardous operation, the Permit to Work should be used as an integral part of the system of work, e.g. Working in close proximity to sewers, electrical circuits (cables), pipelines and the location of underground services.

The Permit to Work should be used as an operational document, prepared by a responsible person who is familiar with the work procedures, the hazards involved and the precautions to be taken.

Where specific hazards have been identified task specific permits must be issued and completed e.g. Permit to Dig, Permit to Pile etc.

9. Environmental Considerations

Concrete and concrete wash water:

Water contaminated with cement is highly alkaline and can be toxic to fish, plants and animals living in watercourses. Cement particles entering a watercourse can clog fishes' gills and also destroy their spawning grounds. It is illegal to allow cement, unset concrete or washout water containing cement to enter a watercourse or drain. (Special permission is needed before construction work can take place in a watercourse).

Uncontrolled release could result in a breach of environmental legislation

For Environmental Agency Guidance on Managing Concrete Washwaters on Construction sites see link:
<https://www.gov.uk/government/publications/managing-concrete-wash-waters-on-construction-sites>

	Ensure that a concrete / cement washout area is established, when necessary, to prevent the discharge of liquids to the ground/water environment
	Locate washout facilities at least 10m away from drains or surface waters and at least 10m from trees, where possible
	Ensure washout facilities are constructed and maintained in sufficient quantity and size to contain all liquid and concrete wastes i.e., lined with impermeable liners to prevent liquid and solid wastes escaping to the external environment, unless a consent or authorisation for soakaway is in place. Suitable washout facilities might include sludge boxes, washout pit, concrete retainers, concreted building foundations, leak-proof skips, washout sacs or bags, depending on the frequency and volume of wash water generated.
	Ensure excess liquid effluent from concrete / cement washout facilities is contained within additional washout facilities or disposed of as a hazardous / special waste stream, unless a consent or authorisation for soakaway is in place

There are other environmental considerations such as noise, dust, traffic, visual, vibration which are also the responsibility of the Principal Contractor but these should have been previously identified with controls and monitoring programmes already in place where necessary.

Federation of Piling Specialists

www.fps.org.uk fps@fps.org.uk Tel: 020 8663 0947



Appendix C – Task Methodology

TOP FEED VIBRO METHODOLOGY - MINICAT

The rig is self-erecting and will come to site already rigged with a Mono Type depth Vibrator and stone skip / hopper.

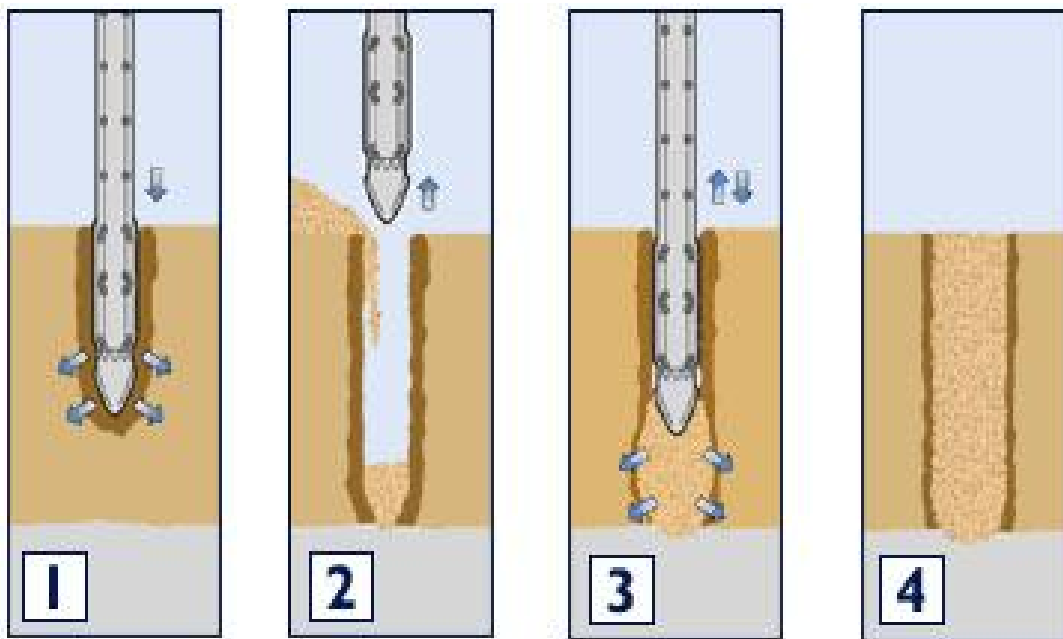
The JCB loading Shovel will load the stone skip / hopper during column installation.

The MiniCAT is fully instrumented with the column reference number, plot / building number and depth recorded directly on to the rig computer for download on to the daily report

Vibro Stone Column Sequence of Operations

HOLD POINT: Ensure the working platform certificate and permit to dig are signed and issued by the Main Contractor and the working area is adequately protected.

1. The positions of each of the stone columns are to be marked on the ground with a pin / peg in the area delineated by the Main Contractor for vibro works only.
2. The MiniCAT rig is tracked into position ensuring the Vibrator is positioned centrally over the column position
3. The Supervisor will identify and check the column position against the drawing and setting out.
4. The column will be constructed in the following sequence -



Stage 1

The vibrator to penetrate the ground under a combination of its self weight with the actions of high frequency vibrations and introduction of compressed air jetting as necessary to form an open hole to the required design depth, usually to a competent bearing stratum.

Stage 2

The vibrator is held at depth for a short time before being withdrawn and a charge of clean inert stone aggregate (grading 75 to 40mm) placed into the hole with the loading shovel.

Stage 3

Vibrator is reintroduced into the hole and the stone compacted, forcing it outwards and creating a tightly interlocked interface with the surrounding ground.

Stage 4

The addition and compaction of successive charges of stone forms a column of very compact dense stone which is built up to ground level.

PRE-BORING METHODOLOGY

The pre-bore rig will arrive on site with 450mm diameter augers pre-fitted.

All pre-bore rigs are fitted with an interlocking auger guard.

Prebore Sequence of Operations

HOLD POINT: Ensure the working platform certificate and permit to dig are signed and issued by the Main Contractor and the working area is adequately protected.

1. The positions of each of the stone columns are to be marked on the ground with a pin / peg in the area delineated by the Main Contractor for vibro works only.
2. The pre-bore rig is tracked into position ensuring the auger is positioned centrally over the intended column position
3. The Supervisor will identify and check the column position against the drawing and setting out.
4. The pre-bore hole will be bored out to the specified depth on the intended column position, checking the verticality of the hole whilst boring.
5. The Main Contractor will remove any spoil arisings from the pre-bored hole.
6. The stone column will be constructed with the depth vibrator via the appropriate stone column installation methodology in the open hole.
7. Any open pre-bore holes which will not be immediately filled will be protected by metal covers.
8. Under no circumstances will open holes be left overnight.



Appendix D – Site Hazard & Environmental Assessment

	1-1.2K F9 Site Hazard Assessment	Version	1
1-1.2K Hazard Assessment and Environmental Impact Assessment		Approved	11/10/2018

Contract No.		Contract		Postcode					
Main Contractor		System		Start date					
Site Agent		Contact number		Site hours	<table border="1"> <tr> <td>From</td> <td></td> <td>To</td> <td></td> </tr> </table>	From		To	
From		To							

Checklist of Hazards

Assessment
Yes/ No/ NA

Control measures required

1 Site access

- a Adequately prepared and protected?
- b Adequate width and headroom?
- c Adequate protection to kerbs, footpaths, services?

2 Site working area - General

- a Is the site securely fenced to prevent unauthorised entry?
- b Adequately prepared to allow the complete mobility of the proposed plant? E.g. FPS specification
- c Adequate working platform for the workforce?
- d Adequate lighting?
- e Will plant be safe near holes, excavations or embankments?
- f Have excavations and cellars been adequately backfilled?
- g Is the site free from confined spaces?
- h Is the work to be carried out near a railway line or tramway?

	1-1.2K F9 Site Hazard Assessment	Version	1
1-1.2K Hazard Assessment and Environmental Impact Assessment		Approved	11/10/2018

Checklist of Hazards	Assessment Yes/ No/ NA	Control measures required
i Will Keller operations affect the stability of any nearby buildings or structures?		
j Is the Keller working area free of adjacent roads, paths, or other public rights of way? If not, what hoardings will be erected?		
k Is the working area free from scaffolding?		
l Is the site free from tunnels?		
m Is there a risk from Working at Height, Slips Trips & Falls, Traps?		
n Is the site free from other hazards to safety? If not specify.		

3 Site safety Personnel

a Adequate provision of welfare facilities including Toilets / Drying Room / Mess / Canteen / Hot & Cold Water as a minimum?		
b Is there any special PPE required (other than High viz vest, boots, hat, gloves, eye protection, ear protection)? If so, specify.		
c Is there any risk to operatives from Manual Handling?		
d Is there any risk to operatives from Noise & Vibration?		
e Is there adequate segregation provided for pedestrians / plant?		
f Are all materials and substances used covered by Keller COSHH assessments?		
g Has the Construction Phase Plan been issued to Keller by the Principal Contractor (where projects are notifiable to HSE)		
h Are all training requirements in place for the anticipated activities?		

	1-1.2K F9 Site Hazard Assessment	Version	1
1-1.2K Hazard Assessment and Environmental Impact Assessment		Approved	11/10/2018

Checklist of Hazards

Assessment
Yes/ No/ NA

Control measures required

4 Plant contact with underground services

The Client (or Keller) permit to dig must be completed before site works commence

- a Has a Site Survey been carried out to determine the location of any underground services
- b Free from underground gas mains?
- c Free from underground sewerage, water or drainage services?
- d Free from underground electric / telecom / fibre-optic cables?
- e Free from other services? If not - specify which services are present.
- f Have existing services been marked on the ground?
- g Has the site representative of the Main Contractor signed the "Permit to Dig"?

5 Plant contact with Overhead services

- a Free from electricity cables?
- b Free from telecom cables?
- c Free from other overhead services or obstructions?
- d Other? - Specify

6 Environmental hazards

- a Is there any concern on site regarding ground contamination?
- b Are there any hazards on site from asbestos?

	1-1.2K F9 Site Hazard Assessment	Version	1
1-1.2K Hazard Assessment and Environmental Impact Assessment		Approved	11/10/2018

Checklist of Hazards	Assessment Yes/ No/ NA	Control measures required
c Are there any hazards on site from gases and vapours?		
d Are there any environmental hazards resulting from the proximity to Coastal Waters, Lakes, Rivers, Streams on site or close by?		
e Is the site close to a Fishery, Wildlife sanctuary, SSSI or any water sports?		
f Is there any Water abstraction close by from well or surface waters		
g Are there any expected hazards from airborne dust?		
h Is there a designated area for refuelling? State where.		
i Are there other environmental issues identified for this site? E.g. Protected species present		

7 Noise and vibration

a Are there particular hazards to persons living / working in the vicinity of our works regarding noise or vibration restrictions? If yes, please state control measures.		
--	--	--

8 Emergency response

a Name, address and telephone number of A and E Hospital (for display on the Site Emergency Information Sheet):	
--	--

Additional notes

Yellow (Site), Blue (Contracts), White (Client)

Name		
Signature	For Keller	For Client



Appendix E – Hazard Assessments

Operation / Task:	Site Establishment & Loading/Unloading	Assessment Ref / Rev:	GL_HA 03	Prepared by:	SJC / WS	Date:	01/12/2014
Location:	Site	Department:	Foundations-Ground Improvement	Revision	D	Date:	27/11/2019

H&S Consequence, C		Env. Consequence, C		Likelihood , L		Severity						Acceptance Criteria	
1 Minor Injury	1 Minor Impact / operational delay	1 Improbable											
2 First Aid injury	2 Community complaints	2 Remote				1	1	2	3	4	5	R	
3 Major injury	3 Major Impact	3 Possible				2	2	4	6	8	10	Y	
4 Permanent Consequence	4 Legal Consequence	4 Probable				3	3	6	9	12	15	G	
5 Potential Fatality	5 Major impact and cost	5 Almost Certain				4	4	8	12	16	20		
						5	5	10	15	20	25		
R Red - Intolerable take immediate action Y Yellow - Tolerable with additional controls G Green - Tolerable no further action required													

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
	General Note:					All plant operators are to be CPCS certified. All hand tools shall be visually inspected for damage prior to use. PPE is to be worn at all times. Hi-vis vests, hearing protection to EN 352-2, hand protection to EN 388 (mechanical hazards) and EN 374-3 (re-fuelling), protective footwear to EN 345, eye protection to EN 166 (light eye protection), head protection to EN 397. The Construction Manager or appointed representative is to visit site prior to mobilisation to ensure all requirements are in place and to complete a site hazard assessment.					
A Access and Egress to and from site											
A1	Parked Cars and pedestrians	Third party property and pedestrians	4	3	12	The Supervisor is to liaise with the Main Contractor to ensure that access roads including, if necessary, public roads are clear of any obstacles before the transport arrives at site. All movement is to be controlled by trained banksmen. If public highway traffic control is required this must be carried out by the Main Contractor. Pedestrian walkways across the site access are to be closed during the arrival of transport.	4	1	4	Site supervisor, Main Contractor	Construction Manager
A2	Adverse Ground	All Persons	3	3	9	Construction Manager or appointed person is to assess the platform on the pre mobilisation visit and record any improvements required on the site hazard assessment. The site supervisor is to confirm that the platform has not changed/requirements have been implemented prior to transport arrival.	3	1	3	Site supervisor	Construction Manager
A3	Vehicle movements on site	All site persons	3	4	12	All vehicle movements on site are to be controlled by a certified competent banksmen. All nonessential persons are to be kept clear of all vehicle manoeuvres. High visibility clothing is to be worn at all times.	3	1	3	Site supervisor	Construction Manager
A4	Vehicle movements off site	All Persons	4	4	16	All vehicle movement control when off site is to be controlled by competent persons. If it is required to control live traffic this must be arranged by the Main Contractor and identified at the pre-mobilisation visit.	4	1	4	Site supervisor, Main Contractor	Construction Manager
B Loading and unloading plant and equipment											

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
	General Note:					All plant operators are to be CPCS certified. All hand tools shall be visually inspected for damage prior to use. PPE is to be worn at all times. Hi-vis vests, hearing protection to EN 352-2, hand protection to EN 388 (mechanical hazards) and EN 374-3 (re-fuelling), protective footwear to EN 345, eye protection to EN 166 (light eye protection), head protection to EN 397. The Construction Manager or appointed representative is to visit site prior to mobilisation to ensure all requirements are in place and to complete a site hazard assessment.					
B1	Damage from incorrectly positioned or secured plant and equipment on transport	Third party property	4	3	12	The loading of all plant and equipment is to be as per the contract specific transport arrangements / Traffic Management Plan. The correct notification for all loads is to be supplied to the relevant authorities by the Contract Manager. All loads are to be secured and checked prior to movement. It is the responsibility of the transport operator for the safety and securing of equipment. Keller operatives are to co-operate fully during loading and unloading.	4	1	4	Site supervisor, transport operator	Supervisor
B2	Machine tipping, sliding and runaway transport	Operator and persons nearby	3	4	12	Plant is to be operated by authorised CPCS trained persons only. The plant is to back on and off the transport under the guidance of a trained competent banksman. Rubber mats are to be used when metal tracks could come into contact with metal on the truck bed. Plant is to be unloaded on a suitable and adequate area that is firm and level, this is to be agreed at the pre-mobilisation visit, recorded on the site hazard assessment and confirmed by the site supervisor upon arrival.	3	1	3	Rig operator, transport company and supervisor	Supervisor
B3	Fire	Loading crew	3	3	9	Flammable materials are to be stored away from machine. A fire extinguisher suitable for the material is to be available and have been inspected within 12 months.	3	1	3	Supervisor	Supervisor
B4	Noise exposure	Crew and others nearby	4	4	16	Noise levels for all operations have been assessed. All plant with a Laeq of 85Db(A) have mandatory ear protection zone signage. Ear protection available and issued to operatives. Where reasonably practicable, noise reduction methods will be used i.e acoustic blankets.	4	1	4	Construction manager, supervisor and Plant dept.	Supervisor, Construction Manager
B5	Contact with overhead power lines	Loading crew	5	3	15	Area for unloading plant is to be free from overhead lines. This is to be agreed at the pre-mobilisation visit, recorded on the site hazard assessment and confirmed by the site supervisor upon arrival.	5	1	5	Construction manager, supervisor	Supervisor
B6	Inadequate lighting	Loading crew	3	3	9	Contract Manager is to ensure that adequate lighting is provided if required after consultation with Construction Manager following pre-mobilisation visit, this is to be recorded on the site hazard assessment. Site supervisor to confirm lighting is adequate.	3	1	3	Contract manager, construction manager and supervisor	Supervisor
B7	Fall of ancillary equipment and cabins	Loading crew	3	4	12	In general all ancillary equipment and the site cabin will be lifted with 411 loading shovel. All operators are to authorised and CPCS certified. The 411 is to have been thoroughly inspected and certified within 12 months of use. When lifting the operator is to ensure that the quick hitch is correctly located within the equipment lifting cleats. Whilst moving around the site the load is to be kept as close to the ground as possible. If other plant is used such as forklift, all operators are to be authorised and certified and plant inspected as above.	3	1	3	Plant operator	Supervisor

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
	General Note:					All plant operators are to be CPCS certified. All hand tools shall be visually inspected for damage prior to use. PPE is to be worn at all times. Hi-vis vests, hearing protection to EN 352-2, hand protection to EN 388 (mechanical hazards) and EN 374-3 (re-fuelling), protective footwear to EN 345, eye protection to EN 166 (light eye protection), head protection to EN 397. The Construction Manager or appointed representative is to visit site prior to mobilisation to ensure all requirements are in place and to complete a site hazard assessment.					
B8	Manual Handling	Loading crew	2	4	8	Manual handling is to be reduced by the use of mechanical means, 411/forklift. All operatives are to have received manual handling training.	2	1	2	Operatives, site supervisor	Supervisor
B9	Collision with persons	Site workers	3	4	12	All main rig movements are to be controlled by a trained certified banksman. All non-essential persons are to be kept clear of the works area. In confined spaces a dedicated operative will be deployed to prevent access to non essential persons. Critical area for slewing to be identified leaving a gap of 600mm. Smaller gaps are to be fenced off.	3	1	3	Plant operator, banksman and site supervisor	Supervisor
B10	Fall from bed of transport	Loading crew	4	4	16	Due to the methods of normal loading/ unloading with the Loading Shovel, access to the rear of the transport should not be required by the banksman. All equipment is loaded/unloaded by the Loading Shovel which attaches to each item. If Hiab lifting is required the cabin is pre-slung eliminating the need to access the stepframe .	4	1	4	Operatives, site supervisor	Supervisor
C Use of lifting equipment attached to lorry e.g. lorry loader.											
C1	Lifting equipment failure caused by deterioration.	Operator / site staff	5	3	15	Supervisor to inspect 12-monthly and an inspection certificate for the lifting equipment, also 6-monthly certificates for the lifting accessories.	5	1	5	Operator / Banks man / Supervisor	Supervisor / Dept. Manager
C2	Failure caused by misuse of operator.	Operator / site staff	5	3	15	Supervisors to ensure that operator has a current appropriate training certificate, CITB CPCS or an FTA or RTITB.	5	1	5	Operator / Banks man / Supervisor	Supervisor / Dept. Manager
C3	Ground failure.	Operator / site staff	5	3	15	Supervisors to ensure that ground is suitable and to check with Main Contractor Works Manager ground is suitable. Outriggers, if fitted must be used.	5	1	5	Operator / Banks man /	Supervisor / Dept. Manager
D Crane work.											
D1	Working with a crane.	Operator / site staff				Refer to Hazard Assessment for working with a crane at work.				Operator / Banks man / Supervisor	Supervisor / Dept. Manager
E Electrical connections of cabins and other plant.											
E1	Electrocution 1	Electrician	5	2	10	Inspection certificates for internal wiring, plugs and appliances are to be provided when the cabin and its appliances are delivered. All electrical systems shall be installed by the company electrician or by a qualified electrical contractor. On completion of the installation a certificate of installation will be completed. User checks, formal visual checks and combined inspections and tests to be carried out in accordance with the table in the safety instruction: Inspections Of Electrical Equipment On Site.	5	1	5	Site Supervisor	Construction Manager

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
	General Note:					All plant operators are to be CPCS certified. All hand tools shall be visually inspected for damage prior to use. PPE is to be worn at all times. Hi-vis vests, hearing protection to EN 352-2, hand protection to EN 388 (mechanical hazards) and EN 374-3 (re-fuelling), protective footwear to EN 345, eye protection to EN 166 (light eye protection), head protection to EN 397. The Construction Manager or appointed representative is to visit site prior to mobilisation to ensure all requirements are in place and to complete a site hazard assessment.					
E2	Electrocution 2 - connecting cabin to generator, without earth rod, creating live cabin	Operatives	5	2	10	The cabin MUST be earthed before generator connected and powered up. REGULATION 542.1.4 OF THE IEE REGULATIONS BS7671 STATES THAT THIS TYPE OF CABIN INSTALLATION MUST HAVE AN EARTH ROD DRIVEN INTO THE GROUND TO A DEPTH THAT SOIL DRYING OR FREEZING WILL NOT INCREASE THE RESISTANCE ABOVE THE REQUIRED VALUE. Approval must be gained from the Main Contractor that earth rod can be driven into the ground. R C D Testing as per Keller Procedure to be undertaken on first installation on site and if the generator is moved within the site	5	1	5	Site Supervisor	Construction Manager
F	Site Clearance.										
F1	Needle Stick	Operatives	4	3	12	On sites (railway embankments with access for the public alongside parks etc.) where needle sticks might reasonably be expected to be found, a sharp box, tongs and specialist gloves shall be provided. Tool box talks to be given explaining the hazards of needle sticks and the correct procedure for disposal. No person is to touch a needle stick without the required protective clothing. Any person who suffers a needle stick puncture will be required to seek immediate medical attention.	4	1	4	Site Supervisor	Construction Manager
F2	Asbestos	Operatives	4	3	12	Work is to cease on the discovery of asbestos. The affected area is to be cordoned off. Work is only to re-commence upon the written instruction with the correct management systems in place.	4	1	4	Site Supervisor	Construction Manager
G	Access to site cabins										

Operation / Task:		Vibro Plate Load Test.		Assessment Ref / Rev:		GI_HA 04		Prepared by:		SJ Collerton / Ops		Date:		20/11/2014																																			
Location:		Site		Department:		Foundations - Ground Improvement		Revision		C		Date:		29/01/2019																																			
H&S Consequence, C 1 Minor Injury 2 First Aid injury 3 Major injury 4 Permanent Consequence 5 Potential Fatality		Env. Consequence, C 1 Minor Impact / operational delay 2 Community complaints 3 Major Impact 4 Legal Consequence 5 Major impact and cost		Likelihood, L 1 Improbable 2 Remote 3 Possible 4 Probable 5 Almost Certain		Severity <table><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>1</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>2</td><td>2</td><td>4</td><td>6</td><td>8</td><td>10</td></tr><tr><td>3</td><td>3</td><td>6</td><td>9</td><td>12</td><td>15</td></tr><tr><td>4</td><td>4</td><td>8</td><td>12</td><td>16</td><td>20</td></tr><tr><td>5</td><td>5</td><td>10</td><td>15</td><td>20</td><td>25</td></tr></table>			1	2	3	4	5	1	1	2	3	4	5	2	2	4	6	8	10	3	3	6	9	12	15	4	4	8	12	16	20	5	5	10	15	20	25	Acceptance Criteria R Red - Intolerable take immediate action Y Yellow - Tolerable with additional controls G Green - Tolerable no further action required					
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Task	Hazard	Persons at risk	Degree of risk C L RR			Control measures	Residual risk C L RR			Person responsible	Monitoring responsibility																																						
	General Note.					NOTE: only trained/competent operatives to set out a plate test load. Plant operators must have CPCS card. All hand tools shall be visually inspected by the user, for damage. PPE to be worn at all times. High Visibility vests, Hearing protection to EN 352-2, hand protection to EN 388 (mechanical hazards) and EN 374-3 (re-fuelling), protective footwear to EN 345, eye protection to EN166, head protection to EN397.																																											
A Excavating pit.																																																	
A1	Using damaged hand tool; causing various types of injuries.	Pit digger	2	3	6	As per the general note.						2	1	2	Supervisor	Construction Manager																																	
A2	Reversing the excavator.	Crew	3	3	9	An appropriately qualified banksman shall ensure that all operatives are clear before excavating takes place. Excavator to have reversing camera.						3	1	3	Banksman and Rig Operator	Supervisor																																	
A3	Falling into the excavation: slips trips and falls accidents.	All	2	3	6	Once the excavation has been completed, barriers to be placed around the excavation, whilst the plate load test is being prepared.						2	1	2	Supervisor	Construction Manager																																	
B Positioning plate.																																																	
B1	Lifting the 0.6m dia plate.	Ops	3	3	9	0.6m dia test plate to be moved by 411 loading shovel only						3	1	3	Supervisor	Construction Manager																																	
B2	Lifting the 1.5m x 0.6m dummy footing plate	Ops	3	3	9	Dummy footing plate to be moved by 411 loading shovel only						3	1	3	Supervisor																																		
C Setting up gauge frame.																																																	
C1	Frame points causing injuries.	Ops	3	3	9	Whilst positioning or moving the frame mushroom covers shall be on the points. The person assembling the gauge frame will need a second person to help assemble.						3	1	3	Supervisor	Construction Manager																																	
C2	Securing the frame sections together.	Ops	3	3	9	When attaching the vertical pipes the assembler shall use the correct size spanner to tighten the scaffold clamps						3	1	3	Supervisor	Construction Manager																																	
C3	Knocking the frames feet into the ground.	Ops	3	3	9	Only a four pound hammer shall be used to carry out this function.						3	1	3	Supervisor	Construction Manager																																	
D Positioning of the hydraulic Jack.																																																	
D1	Lifting the hydraulic jack causing muscular strains and sprains.	Ops	2	3	6	All operatives are trained in basic manual handling techniques. The jack shall be lifted by its handle.						2	1	2	Supervisor	Construction Manager																																	
E Tracking plant over the test area.																																																	
E1	No Banksman guiding the rig operator over the test point; rig knocking a person; causing multiple injuries or death.	All	5	3	15	A Banksman shall bank the rig into position. all other operatives shall stay clear of the test set up area.						5	1		Banksman and Rig Operator	Supervisor																																	
F Jacking up.																																																	
F1	Jack slips: causing various injuries.	Supervisor	5	3	15	The jack head shall be placed in the centre of the rig's cross beam. Only the extended jack to be placed to apply pressure on the rig's cross beam. Any other items not to be placed on top of the jack head. If the jack needs to be lifted, it may be lifted from the jack base.						5	1	5	Supervisor	Construction Manager																																	
F2	Pumping the jack up; place pressure on the bar, causing muscular strains	Supervisor	2	3	6	The correct jack handle shall be used when pumping the jack.						2	1	2	Supervisor	Construction Manager																																	
G Reinstating the working platform.																																																	
G1	The test area is not reinstated; causing slips, trips and fall accidents.	All	3	3	9	Test area shall be either reinstated back or barracked off when the test is completed.						3	1	3	Supervisor	Construction Manager																																	

Operation / Task:		Vibrocat & Minicat	Assessment Ref / Rev:		GI_HA 05		Prepared by:		SJCollerton / Ops		Date:	04/11/2014																																					
Location:		Site	Department:		Foundations - Ground Improvement		Revision		E		Date:	29/01/2019																																					
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			C	L	RR		C	L	RR																																								
	General Note					NOTE: Vibrocats / Minicats and associated equipment are only to be operated by trained and competent persons authorised on the company skills matrix. When applicable, operatives shall hold a current CPCS. Operatives under training shall be supervised by an authorised employee. PPE to be worn at all times. High Visibility vests, Hearing protection to EN 352-2, hand protection to EN 388 (mechanical hazards) and EN 374-3 (re-fuelling), protective footwear to EN 345, eye protection to EN166, head protection to EN397.																																											
A	All Activities.																																																
A1	Inadequate lighting.	All	3	3	9	Supervisor to confirm on site hazard assessment form that lighting is adequate or to ensure artificial light is available when necessary.	3	1	3	Supervisor	Construction Manager																																						
A2	Slips, trips and falls	All	3	3	9	Good housekeeping.	3	2	6	Supervisor and crew	Supervisor																																						
A3	Leptospirosis	All	3	3	9	Cuts to be dressed immediately, cleanliness to be encouraged. Awareness card to be provided.	3	1	3	Supervisor and crew	Supervisor																																						
A4	Excessive noise exposure to the operator and others close by.	All on site	4	4	16	Noise levels for all operations have been assessed. Items of plant with average noise levels above 85 dB(A) have Ear Protection Zone signs requiring person to wear ear protection within at least 20m of rig . Where reasonably practicable, noise reduction methods to be adopted to reduce noise levels. Ear Protection to comply EN 352-2 and EN 352-3 as necessary.	4	1	4	Supervisor and crew	Supervisor																																						
A5	Excessive noise exposure to the general public adjacent to the site.	Public	1	4	4	Noise survey to be made available to the principal contractor to allow assessment of noise pollution adjacent to the site.	1	1	1	Supervisor	Construction Manager																																						
A6	Dust	Crew	2	3	6	In dusty conditions, eye protection and dust masks to be worn if necessary. Windscreens of plant to be cleaned regularly if necessary. Consideration to be given to spraying site to damp down site surface to reduce dust.	2	2	4	Supervisor	Construction Manager																																						
B	Rigging of vibrocat and poker.																																																
B1	Manual handling.	Crew	3	2	6	Gloves to be worn to comply to EN 388. Personnel to have received manual handling training. (Refer to MHA 06: Rigging pokers or MHA 07 S Poker cables).	3	1	3	Supervisor	Construction Manager																																						
B2	Electric shock.	Crew	5	3	15	Plug and socket to be checked visually before connection made. Engine to be switched off.	5	1	5	Supervisor and crew	Construction Manager																																						
B3	Crush injury	Crew	4	4	16	During attachment of the vibrocat skip all non essential persons are to be removed from the area. The banksman is to stand in a position directly in front of the vibrocat cab so that the 411 operator can be seen. The skip is to be positioned by the 411, when lined up and bolts are placed the 411 operator is to ensure that the handbrake is applied.	4	2	8	Supervisor and crew	Construction Manager																																						
B4	Collapse of extended leaders	Crew	3	3	9	Poker and stone skip to be removed before mast is raised or lowered. Mast to be in the central position, both longitudinally and transversely before lowering.	3	1	3	Rig Operator	Supervisor																																						
C	Plant moving around site.																																																
C1	Unstable ground causing rig to topple	Anyone	5	4	20	Platform certificate to be completed to confirm that platform is adequate before work commences. Platform to extend at least half a machine width beyond probe positions. Extra consideration to be given when working adjacent to site boundaries	5	1	5	Supervisor	Construction Manager																																						
C2	Steep slope causing rig to topple.	Anyone	5	3	15	Maximum slope allowed when moving is 1 in 10. Any ramps (except for transportation delivery) steeper than 1:10 MUST be inspected by a competent person before being utilised	5	1	5	Rig Operator	Supervisor																																						
C3	Contact with overhead electric cables.	Rig Op	5	3	15	Supervisor to confirm on Permit to Dig that overhead lines do not affect the rig or to arrange for improvements to be implemented before work commences.	5	1	5	Supervisor	Construction Manager																																						
C4	Collisions	Anyone	3	3	9	Plant is fitted with 360 degree cameras. Movement to still be controlled by trained banksman with a slinger/signaller CPCS.	3	1	3	Rig Operator & Slinger /	Supervisor																																						
D	Forming column hole with vibrator.																																																

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
D1	Contact with underground services	Rig Op	5	3	15	Services to be traced by a cable avoiding tool and marked on the ground (by Main Contractor). Markings to be maintained. Columns to avoid live services. Permit to Dig to be completed. When the proposed working position is within 0.5 metres of a service, the service should be exposed by hand digging with a spade or shovel.	3	1	3	Main Contractor & Rig Operator	Supervisor
E Delivery of stone.											
E1	Collision of delivery lorry	Anyone	3	3	9	If site congestion requires, banksman with slinger/ signaller CPCS to be provided.	3	1	3	Slinger / signaller	Supervisor
F Operation of JCB 411 wheeled loaders to take stone to column position.											
F1	Poor roadways for plant.	Rig Op	3	3	9	Supervisor to confirm on site hazard assessment that routes are suitable for the loading shovel or to arrange for improvements to be implemented before work commences.	3	1	3	Supervisor	Construction Manager
F2	Inappropriate use of loading shovel	Rig Op	3	3	9	Loading shovel operator to have a CPCS. Operator to also have a CPCS as a slinger / signaller as he also acts as banksman for the vibro rig. Engine to be switched off when not in use. Key to be removed when operator is not in cab	3	1	3	Rig Operator / Slinger / Signaller	Supervisor
F3	Collision with persons	Anyone	5	3	15	Loading shovel to have reversing cameras and orange flashing light operating at all times and white noise reversing siren when the engine is running. Operator to be alert for movements around machine. If site congestion requires, banksman with slinger/ signaller CPCS to be provided.	5	1	5	Rig Operator / Slinger / Signaller	Supervisor
F4	Malfunction of loading shovel	Rig Op	3	3	9	Driver to inspect machine before use each day and to complete a weekly inspection form.	3	1	3	Rig Operator	Supervisor
G Pouring of stone from skip to poker.											
G1	Stone falling from skip.	Crew	3	3	9	Vibrocat operator to ensure that no person is standing near when skip is being unloaded into poker.	3	1	3	Rig Operator	Supervisor
H Use of compressed air.											
H1	Hoses causing trip hazard	Anyone	3	3	9	Hoses to be laid tidily.	3	1	3	Crew	Supervisor
H2	Whipping of hoses.	Anyone	3	3	9	Whip checks on all air lines.	3	1	3	Crew	Supervisor
I Completed columns.											
I1	Trip hazard if column left below platform level.	Anyone	3	2	6	On completion of area, loading shovel to blade stone across to fill low columns.	3	1	3	Rig Operator	Supervisor
J Operation of JCB 411 wheeled loaders to move diesel bowser.											
J1	Back of unlevel bowser hitting ground .	Crew	3	2	6	Step down towing hitch to be fitted to bowser.	3	1	3	Crew	Supervisor
J2	Handling injury lifting bowser onto towing hitch.	Crew	3	2	6	Step down towing hitch to be fitted to bowser to eliminate lifting requirement.	3	1	3	Crew	Supervisor
K Preboring (when required)											
	General Note.					NOTE: For prebore carried out using a CFA rig, refer to the relevant parts of HA 07: CFA Piling. For preboring carried out by a sub-contractor using an auger boring rig, the sub-contractor's risk assessment and method statement must be approved by the Project Manager and copies kept in the site file. Where there is a conflict between the procedures of the sub-contractor and those of Keller, a safety officer shall be informed and a judgement taken as to which shall prevail. 4-year test certificate and current inspection certificate, not more than 12 months old to be provided with machine. Supervisor to inspect the machine on delivery. Operator to inspect the machine daily before use and to carry out routine servicing in accordance with Work Instruction. Weekly inspection to be made by operator and a weekly inspection report completed. Operator shall hold a current CPCS Bored Piling Operator card.					
K1	Fall of site personnel into re-bored open hole.	Anyone	3	3	9	All open holes must have hole covers placed over them, filled in or adequately fenced / identified. Only sufficient holes for the immediate use of the vibro rig to be prebored in advance. No holes to be left open overnight.	3	1	3	Rig Operator / Ganger	Supervisor
K2	Spoil hitting persons nearby when spinning off.	Crew	3	3	9	Auger to be fitted with auger cleaning or spoil to be spun off the auger before it is two metres above ground level. Ganger in attendance at all times with authority to prevent persons moving within two metres of rotating auger.	3	1	3	Rig Operator / Ganger	Supervisor
K3	Spoil falling causing splashing into area open to public	Crew & Public	3	2	6	Project / Construction Manager to state requirements for hoardings to Client. Supervisor to assess hoardings and to inform Project / Construction Manager if hoardings are inadequate. Construction Manager to note requirements on Site Hazard Assessment and need for improved hoardings to Project Manager.	3	1	3	Supervisor	Construction Manager / Project Manager
K4	Entanglement of personnel in auger	Crew	5	2	10	Augers to be fitted with a physical guard, to prevent access to the rotating auger or, if a physical guard is not practicable, trip lines to stop the auger. Trip lines to be tested daily. The removal of guards must be strictly in accordance with WI for pre-boring and authorised at the appropriate level as stated in the WI procedure.	5	1	5	Rig Operator / Ganger	Supervisor

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility	
			C	L	RR		C	L	RR			
L	Fuelling & Re-fuelling of Plant											
	General Note.					Reference should also be made to Keller Works Instruction 6.4PL_WI Diesel Refuelling & Deliveries.						Supervisor
L1	Diesel spillage during fuelling / refuelling operations	Crew	3	2	6	Fuel storage bowsters are double banded with 110% capacity of the tank and re-fuelling operations are to be undertaken in designated area away from drains or watercourses. Plant nappies and spill kits stored adjacent to all bowsters.					Crew	Supervisor
L2	Potential for dermatitis	Crew	3	2	6	Personnel re-fuelling to ensure gloves are to EN 374-3.					Crew	Supervisor



Appendix F – COSHH Data Sheets

 KELLER	CAO4 Antifreeze	Version	3
1-3.4K Chemical Management (COSHH)		Approved	2018-12-19

CA No.	CA0004
Description of product: (Include name)	Tradetec Antifreeze
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	Antifreeze coolant used in all internal combustion engines. . Normally used during servicing and maintenance of engines on plant and equipment within the depot environment. Also used on site if cooling system of plant and equipment requires draining and replenishing after maintenance. Substance normally used by fitters. On average, 2 to 3 litres are used on a full cooling system replenish. Product decanted from container via hand pump or through funnel into engine radiator

Identify the persons at risk:	Employees (Including Trainees) ☒	Contractors ☒	Public ☐
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Manufacturer name, address and telephone number.(A copy of a current safety data sheet for this substance should be attached to this assessment)	Name: Exol Lubricants Limited Address: All Saints Road Wednesbury, West Midlands, WS10 9TS Tel: (0) 121 568 6800 (Monday – Friday 08.30 – 17.00hrs GMT) Email / Website:
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Classification (state the category of danger)

H302 - Harmful if swallowed; H373 - May cause damage to organs through prolonged or repeated exposure

 ☐ Unstable Explosive	 ☐ Corrosive	 ☒ Hazardous to the Aquatic Environment
 ☐ Flammable	 ☒ Harmful (Toxic / Irritant)	 ☐ Acute Toxicity
 ☐ Oxidising	 ☒ Health Hazard	 ☐ Gas under pressure

Hazard Type							
☐	☒	☐	☐	☐	☒	☐	☐
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other State
Route of Exposure							
☒	☒	☒	☒	☐			
Inhalation	Skin	Eyes	Ingestion	Other State			

 KELLER	CAO4 Antifreeze	Version	3
1-3.4K Chemical Management (COSHH)		Approved	2018-12-19

Workplace Exposure Limits (WELs) please indicate n/a where not applicable

Long-term exposure level (8hrTWA):

Antifreeze: 60 mg/m³

Mono Ethylene Glycol: 20 ppm(Sk) / 52 mg/m³(Sk)

Glycerine 99.5% Tech: 10 mg/m³

Short-term exposure level (15 mins):

Antifreeze: 125 mg/m³

Mono Ethylene Glycol: 40 ppm(Sk) / 104 mg/m³(Sk)
2 mg/m³

State the Risks to Health from Identified Hazards

Harmful if swallowed, irritating to skin and causes irritation to eyes and mucous membranes. Causes severe burns, May impair fertility, May cause harm to the unborn child

Control Measures: (e.g. ventilation, training, supervision)

Provide adequate general and local exhaust ventilation(if used inside). For prolonged or repeated skin contact use suitable protective gloves.

Wash hands at the end of each work shift and before eating, drinking, smoking and using the toilet. When using do not eat, drink or smoke. Wash contaminated clothing before reuse.

Is health surveillance or monitoring required?

☐

YES

☐

NO

Personal Protective Equipment (state type and standard)


☐

Dust mask


☐

Visor


☐

Respirator


☒

Goggles

Use approved safety goggles or face shield. EN 166 recommended


☒

Gloves

Nitrile gloves are recommended but be aware that the liquid may penetrate the gloves. Frequent change is advisable.


☐

Overalls


☐

Footwear


☐

Other

First Aid Measures

Eye contact: Promptly wash eyes with plenty of water while lifting the eye lids. Make sure to remove any contact lenses from the eyes before rinsing. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues

Ingestion: Do not induce vomiting. If vomiting occurs, the head should be kept low so that the stomach vomit doesn't enter the lungs. Get medical attention. Rinse mouth thoroughly. Give small quantities of water to drink.

Inhalation: Move the exposed person to fresh air at once. If breathing stops, provide artificial respiration. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention if any discomfort continues.

Skin Contact: Remove contaminated clothes and rinse skin thoroughly with water. Get medical attention if any discomfort continues.

Storage

Keep separate from food, feedstuffs, fertilisers and other sensitive material.

Store in tightly closed original container in a dry, cool and well-ventilated place.

Keep upright.

 KELLER	CAO4 Antifreeze	Version	3
1-3.4K Chemical Management (COSHH)		Approved	2018-12-19

Transport			
Not classified as dangerous goods for carriage under ADR/RID/AND/IMDG/ICAO/IATA regulations			
Fire Fighting			
Extinguishing media: Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Do not use water jet as an extinguisher, as this will spread the fire.			
Spillage			
Stop leak if possible without risk. Remove sources of ignition. Absorb in vermiculite, dry sand or earth and place into containers. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.			
Disposal of Substances & Contaminated Containers			
Where possible, arrange for product to be recycled. Incineration may be carried out under controlled conditions provided that local regulations for emissions are met.			
Is exposure adequately controlled?	YES	☒	NO ☐
Risk Rating Following Control Measures			
High ☐	Medium ☒	Low ☐	

 KELLER	CA035 FIXT 400	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-19

CA No.	CA035
Description of product: (Include name)	FIXT 400 Wire rope and chain lube
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	Penetrant/lubricant spray 400ml aerosol, used by plant teams as a lubricant or aid to assist in freeing seized nuts & bolts etc.

Identify the persons at risk:	Employees (Including Trainees)	X	Contractors		Public	
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Manufacturer name, address and telephone number.(A copy of a current safety data sheet for this substance should be attached to this assessment)	Name: Fixt consumables Address: Seymour Road, Nuneaton, Warwickshire, CV11 4LB Tel: 02476 322 126 Email / Website: info@fixtconsumables.com
Classification (state the category of danger)	

 ☐ Unstable Explosive	 ☐ Corrosive	 ☒ Hazardous to the Aquatic Environment
 ☒ Flammable	 ☐ Harmful (Toxic / Irritant)	 ☐ Acute Toxicity
 ☐ Oxidising	 ☐ Health Hazard	 ☐ Gas under pressure

Hazard Type							
☐	☒	☒	☐	☐	☒	☐	☐
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other state
Route of Exposure							
☒	☒	☒	☒	☐	☐		
Inhalation	Skin	Eyes	Ingestion	Other State			
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA): BUTANE-600ppm ISOBUTANE-800ppm Naphtha (petroleum) hydrodesulfurized light Dearomatized-315ppn/1200mg/m3 Naphtha (petroleum) hydrotreated light- 315ppm/1200mg/m3				Short-term exposure level (15 mins): BUTANE-750ppm			

 KELLER	CA035 FIXT 400	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-19

State the Risks to Health from Identified Hazards

Deliberately concentrating and inhaling the contents of this container is dangerous and can be fatal.
 Inhalation: In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. Unconsciousness, possibly death.
 Skin contact: Skin irritation is not anticipated when used normally. Repeated exposure may cause skin dryness or cracking.
 Eye contact: Spray and vapour in the eyes may cause irritation and smarting.
 Health Warnings
 Arrhythmia (deviation from normal heartbeat) Narcotic effect. Solvent vapours are hazardous and may cause nausea, sickness and headaches.
 Route of entry: Inhalation.
 Target Organs: Central nervous system Respiratory system, lungs
 Medical Symptoms, Arrhythmia, (deviation from normal heart beat). Narcotic effect. Vapours may cause drowsiness and dizziness.

Control Measures: (e.g. ventilation, training, supervision)

Provide adequate ventilation. Provide adequate ventilation. Observe occupational exposure limits and minimize the risk of inhalation of spray.
 Respiratory equipment In case of inadequate ventilation use suitable respirator.

Is health surveillance or monitoring required? ☐ YES ☒ NO

Personal Protective Equipment (state type and standard)

 ☐		 ☐	
Dust mask		Visor	
 ☐		 ☒	Wear chemical goggles when eye exposure is reasonably probable.
Respirator		Goggles	
 ☒	For prolonged or repeated exposure, use suitable gloves.	 ☐	
Gloves		Overalls	
 ☐		 ☐	
Footwear		Other	

First Aid Measures

Eye contact: Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Continue to rinse for at least 15 minutes and get medical attention.
Ingestion: In case of inhalation of spray mist: Move person into fresh air and keep at rest. Perform artificial respiration if breathing has stopped. Keep the affected person warm and at rest. Get prompt medical attention.
Ingestion: Immediately rinse mouth and provide fresh air. DO NOT induce vomiting. Get medical attention immediately.
Skin Contact: Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above.

Storage

Extremely flammable. Keep away from heat, sparks and open flame. Store at moderate temperatures in dry, well ventilated area. Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50 degrees Centigrade. Do not pierce or burn, even after use. Flammable compressed gas storage.
 (ADR/RID/AND-2, 5F), (IMDG-2.1), (ICAO2.1)

 KELLER	CA035 FIXT 400	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-19

Special precautions for user: EMS 2-13, Hazard No. (ADR) 23 Flammable gas, Tunnel Restriction Code (D)

Transport

This product is packed in accordance with the Limited Quantity Provisions of CDGCPL2, ADR and IMDG. These provisions allow transport of aerosols of less than 1 litre packed in cartons of less than 30kg gross weight to be exempt from control providing that they are labelled in accordance with the requirements of these regulations to show that they are being transported as Limited Quantities. Aerosols not so packed and labelled must show the following.

Fire Fighting

Extinguish with foam, carbon dioxide, dry powder or water fog. Extremely flammable. Forms explosive mixtures with air. May travel considerable distance to source of ignition and flash back. Aerosol cans may explode in a fire. Aerosol containers can explode when heated, due to excessive pressure build-up. Water spray should be used to cool containers. Use water to keep fire exposed containers cool and disperse vapours. Warn firefighters that aerosols are involved.

Spillage

Provide adequate ventilation. In case of inadequate ventilation, use respiratory protection. Avoid inhalation of vapours and aerosol spray. Do not allow to enter drains, sewers or watercourses. Contain spillages with sand, earth or any suitable adsorbent material. Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Absorb spillage with non-combustible, absorbent material. Let evaporate. Keep out of confined spaces because of explosion risk.

Disposal of Substances & Contaminated Containers

Do not puncture or incinerate even when empty. Dispose of waste and residues in accordance with local authority requirements. Make sure containers are empty before discarding (explosion risk). Empty containers must not be burned because of explosion hazard

Is exposure adequately controlled? YES ☒ NO ☐

Risk Rating Following Control Measures

High ☐ Medium ☐ Low ☒

	CA039 GT85 Maintenance spray	Version	0
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-12

CA No.	CA039
Description of product: (Include name)	GT85 Maintenance spray
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	A general purpose lubrication spray used by fitters and operators to lubricate moving parts on plant

Identify the persons at risk:	Employees (Including Trainees)	X	Contractors		Public	
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Manufacturer name, address and telephone number.(A copy of a current safety data sheet for this substance should be attached to this assessment)	Name:WD-40 Co. LTD Address:po Box 440, Kiln Farm, Milton Keynes, MK11 3LF Tel:01908555400 Email / Website:www.wd-40.co.uk
Classification (state the category of danger)	

 ☐ Unstable Explosive	 ☐ Corrosive	 ☐ Hazardous to the Aquatic Environment
 ☒ Flammable	 ☒ Harmful (Toxic / Irritant)	 ☐ Acute Toxicity
 ☐ Oxidising	 ☐ Health Hazard	 ☐ Gas under pressure

Hazard Type							
☐	☒	☒	☐	☐	☒	☐	☐
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other state
Route of Exposure							
☒	☒	☒	☒	☐	☐		
Inhalation	Skin	Eyes	Ingestion	Other State			
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA): Hydrocarbons- 800mg/m3. Petroleum gases(lpg)-1000ppm(1750mg/m3.) Oil mist- 5mg/m3				Short-term exposure level (15 mins): Petroleum gases(lpg)-1250ppm(2180mg/m3) Oil mist-10mg/m3			

 KELLER	CA039 GT85 Maintenance spray	Version	0
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-12

State the Risks to Health from Identified Hazards

May cause drowsiness or dizziness, extremely flammable, pressurised container, may burst if heated. If ingested, the mixture may cause slight/mild irritation of the mouth and upper digestive tract. If aspirated, product may cause lung damage.

Control Measures: (e.g. ventilation, training, supervision)

Use only in well ventilated environment. Avoid breathing vapours or spray. Do not pierce or burn even after use. Do not spray on an open flame or other ignition sources. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Protect from sunlight and do not expose to temperatures exceeding 50°C. Use only as directed

Is health surveillance or monitoring required?

☐

YES

☒

NO

Personal Protective Equipment (state type and standard)

 ☐		 ☐	
Dust mask		Visor	
 ☐	Normally not needed but if WEL's are exceeded a respirator with ffp3 capabilities (as per company issue)	 ☒	With danger of contact with eyes tight fitting goggles with side protection(EN166)
Respirator		Goggles	
 ☐		 ☐	
Gloves		Overalls	
 ☐		 ☐	
Footwear		Other	

First Aid Measures

Eye contact:remove contact lenses. Wash thoroughly for several minutes using copious water. Seek medical help if necessary.
Ingestion:typically no exposure pathway.rinse mouth thoroughly with water. Do not induce vomiting.
Inhalation:remove person from danger area. Supply person with fresh air and consult a doctor according to symptoms.
Skin Contact:remove polluted,soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin(flare) consult a doctor.

Storage

Ensure good ventilation, formation of explosive mixture may be possible. Keep away from sources of ignition. Prevent the build up of electrostatic charge in the immediate area. Ensure lighting and electrical equipment are not a source of ignition.

Transport

Aerosol – classified as hazardous-UN1950 AEROSOLS-2.1. Persons transporting goods must be trained. All persons involved in transporting must observe safety regulations. Precautions must be taken to prevent damage.

Fire Fighting

Suitable extinguishing media- water jet spray/foam/CO2/dry extinguisher.
Unsuitable extinguisher media- high volume water jet.
Exposure hazards: Highly flammable. In combustion emits toxic fumes. Form explosive air-vapour mixture. Vapour may travel considerable distance to source of ignition and flash back.

Spillage

If spray or gas escapes, ensure ample fresh air is available.
Soak up with absorbent material(e.g. universal binding agent, sand,diatomaceous earth) and dispose of according to section below.

	CA039 GT85 Maintenance spray	Version	0
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-12

Disposal of Substances & Contaminated Containers			
Do not perforate , cutup or weld uncleaned container. Recycling-15 01 04 metallic packaging			
Is exposure adequately controlled?	YES	☒	NO ☐
Risk Rating Following Control Measures			
High	☐	Medium	☐
		Low	☒

 KELLER	CA065 Q8Haydn 46 Oil	Version	3
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-12-19

CA No.	CA065
Description of product: (Include name)	Q8 Haydn 46 lubricating oil
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	The oil is dispensed straight from its container into the hydraulic tank of any piece of plant or equipment requiring lubricating oil. It is transferred electrically.

Identify the persons at risk:	Employees (Including Trainees)	☒	Contractors	☐	Public	☐
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Manufacturer name, address and telephone number. (A copy of a current safety data sheet for this substance should be attached to this assessment)	Name: Kuwait Petroleum International Lubricants (UK) Ltd Address: Second Floor, Unit 3 Colton Mill, Bullerthorpe Lane, Leeds LS15 9JN Tel: +44 113 2350 555 Email / Website: SDSinfo@Q8.com
Classification (state the category of danger)	

The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.

 ☐ Unstable Explosive	 ☐ Corrosive	 ☐ Hazardous to the Aquatic Environment
 ☐ Flammable	 ☐ Harmful (Toxic / Irritant)	 ☐ Acute Toxicity
 ☐ Oxidising	 ☐ Health Hazard	 ☐ Gas under pressure

Hazard Type							
☐	☐	☒	☐	☐	☒	☐	☐
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other State
Route of Exposure							
☐	☒	☒	☒	☐			
Inhalation	Skin	Eyes	Ingestion	Other State			
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA): Distillates (petroleum), solvent-dewaxed heavy paraffinic: 5 mg/m ³				Short-term exposure level (15 mins):			

 KELLER	CA065 Q8Haydn 46 Oil	Version	3
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-12-19

State the Risks to Health from Identified Hazards

The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.
Skin contact: Defatting to the skin. May cause skin dryness and irritation

Control Measures: (e.g. ventilation, training, supervision)

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Is health surveillance or monitoring required?

☐ YES

☒ NO

Personal Protective Equipment (state type and standard)

 ☐		 ☐	
Dust mask		Visor	
 ☐		 ☐	
Respirator		Goggles	
 ☒	this is necessary. Wear suitable gloves tested to EN374. Recommended: < 1hour (breakthrough time): nitrile rubber 0.17 mm.	 ☐	
Gloves		Overalls	
 ☐		 ☐	
Footwear		Other	

First Aid Measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Ingestion: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin Contact: Wash skin thoroughly with soap and water or use recognised skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. High pressure skin injections are serious medical emergencies. Injury will not appear serious at first. Within a few hours, tissue will become swollen, discoloured and extremely painful.

Storage

Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Transport

Not regulated.

 KELLER	CA065 Q8Haydn 46 Oil	Version	3
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-12-19

Fire Fighting

Suitable extinguishing media : Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog).
 Unsuitable extinguishing media : Do not use water jet.

Spillage

Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

Disposal of Substances & Contaminated Containers

This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Is exposure adequately controlled? YES ☒ NO ☐

Risk Rating Following Control Measures

High ☐ Medium ☐ Low ☒

 KELLER	CA066 Holbein NWG46	Version	3
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-04

CA No.	CA066
Description of product: (Include name)	Q8 Holbein ECO 46
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	Lubricating oil used in most of Keller plant's hydraulic systems. It is either poured or pumped into the hydraulic tank from its container.

Identify the persons at risk:	Employees (Including Trainees)	X	Contractors		Public	
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Manufacturer name, address and telephone number.(A copy of a current safety data sheet for this substance should be attached to this assessment)	Name: Kuwait Petroleum International Lubricants (UK) Ltd. Address: Second Floor, Unit 3 Colton Mill, Bullerthorpe Lane, Leeds LS15 9JN Tel: +44 113 2350 555 Email / Website: : SDSinfo@Q8.com
Classification (state the category of danger)	

 ☐ Unstable Explosive	 ☐ Corrosive	 ☐ Hazardous to the Aquatic Environment
 ☐ Flammable	 ☐ Harmful (Toxic / Irritant)	 ☐ Acute Toxicity
 ☐ Oxidising	 ☐ Health Hazard	 ☐ Gas under pressure

Hazard Type							
☐	☐	☐	☐	☐	☒	☐	☐
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other state
Route of Exposure							
☐	☒	☒	☒	☐			
Inhalation	Skin	Eyes	Ingestion	Other State			
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA):				Short-term exposure level (15 mins):			

 KELLER	CA066 Holbein NWG46	Version	3
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-04

State the Risks to Health from Identified Hazards

No known significant effects or critical hazards.

Control Measures: (e.g. ventilation, training, supervision)

Appropriate engineering controls: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Is health surveillance or monitoring required? ☐ YES ☒ NO

Personal Protective Equipment (state type and standard)

 ☐		 ☐	
Dust mask		Visor	
 ☐		 ☒	
Respirator		Goggles	
 ☒	Chemical resistant, impervious gloves complying with an approved standard (i.e. EN374) should be worn at all times.	 ☒	Appropriate protection dependent upon task
Gloves		Overalls	
 ☒	Appropriate Footwear for the task	 ☐	
Footwear		Other	

First Aid Measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Ingestion: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin Contact: Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. High pressure skin injections are serious medical emergencies. Injury will not appear serious at first. Within a few hours, tissue will become swollen, discolored and extremely painful.

Storage

Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Transport

Not regulated. Always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

 KELLER	CA066 Holbein NWG46	Version	3
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-04

Fire Fighting

Suitable extinguishing: Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog).

Unsuitable extinguishing: Do not use water jet.

Protective actions: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Spillage

Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

Disposal of Substances & Contaminated Containers

This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and run off and contact with soil, waterways, drains and sewers.

Is exposure adequately controlled? YES ☐ NO ☒

Risk Rating Following Control Measures

High ☐ Medium ☐ Low ☒

 KELLER	CA067 Rembrandt EP2 grease	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-11

CA No.	CA067
Description of product: (Include name)	Q8 Rembrandt grease
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	Used by fitters and operators for lubricating parts. It is either pumped in or spread by hand

Identify the persons at risk:	Employees (Including Trainees)	X	Contractors		Public	
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Manufacturer name, address and telephone number. (A copy of a current safety data sheet for this substance should be attached to this assessment)	Name: Kuwait Petroleum International Lubricants (UK) Ltd. Address: Second Floor, Unit 3 Colton Mill, Bullerthorpe Lane, Leeds LS15 9JN Tel: +44 113 2350 555 Email / Website: SDSinfo@Q8.com
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Classification (state the category of danger)

	☐ Unstable Explosive		☐ Corrosive		☐ Hazardous to the Aquatic Environment
	☐ Flammable		☐ Harmful (Toxic / Irritant)		☐ Acute Toxicity
	☐ Oxidising		☐ Health Hazard		☐ Gas under pressure

Hazard Type							
☐	☐	☐	☐	☐	☒	☐	☐
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other state
Route of Exposure							
☐	☒	☐	☐	☐	☐	☐	☐
Inhalation	Skin	Eyes	Ingestion	Other State			
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA): 5mg/m ³				Short-term exposure level (15 mins):			

 KELLER	CA067 Rembrandt EP2 grease	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-11

State the Risks to Health from Identified Hazards

Possible defatting to skin

Prolonged or repeated contact can defeat the skin and can lead to irritation, cracking and/or dermatitis

Control Measures: (e.g. ventilation, training, supervision)

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Is health surveillance or monitoring required?

☐

YES

☒

NO

Personal Protective Equipment (state type and standard)

 ☐		 ☐	
Dust mask		Visor	
 ☐		 ☐	
Respirator		Goggles	
 ☒	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Wear suitable gloves tested to EN374. Recommended: < 1 hour (breakthrough time): nitrile rubber 0.17 mm.	 ☐	
Gloves		Overalls	
 ☐		 ☐	
Footwear		Other	

First Aid Measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Ingestion: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin Contact: Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Storage

. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

 KELLER	CA067 Rembrandt EP2 grease	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-11

Transport			
always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.			
Fire Fighting			
Suitable extinguishing media: Use dry chemical, CO ₂ , alcohol-resistant foam or water spray (fog). Unsuitable extinguishing media: Do not use water jet. In a fire or if heated, a pressure increase will occur and the container may burst. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.			
Spillage			
Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. Large spill: Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with noncombustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.			
Disposal of Substances & Contaminated Containers			
Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.			
Is exposure adequately controlled?		YES	NO
		☒	☐
Risk Rating Following Control Measures			
High	Medium	Low	
☐	☐	☒	

1 Identification of substance

1.1 Product name

Red Diesel (Gas Oil)

1.2 Product description of use

Describe the activity or work process.

(Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)

Operators pump the diesel from diesel tank to machine when fuel levels drop in any plant.

The fuel pump is designed to prevent diesel spilling and contaminating both personnel and the ground.



1.3 Persons at risk

Identify those at risk (click the relevant box)

Employees (including trainees)



Contractors



The Public



1.4 Manufacturer or distributor in the UK.

Name

Crown Oil

Address

Crown Oil Ltd, The Oil Centre, Bury New Road, Bury. BL9 7HY

Emergency Tel

0161 764 6622

Email / Website address

technical@crownoil.co.uk

Safety Data Sheet reference

Date of Issue

20/05/2019

Reference / Revision No

2

1.5 Hazard classification.

Check the appropriate box in accordance with the information on the SDS



Unstable explosive



Corrosive



Hazardous to aquatic environment



Flammable



Harmful (Toxic/Irritant)



Acute toxicity



Oxidising



Health hazard



Gas under pressure

2 Composition

Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other (state)
☐	☒	☐	☐	☐	☒	☐	

2.1 Route of exposure

Check the appropriate box in accordance with the information on the SDS

Inhalation	Skin	Eyes	Ingestion	Other (state)
☒	☒	☒	☒	

2.2 State the potential risks to health from the identified hazards

Repeated exposure may cause cancer. Can be fatal if swallowed. Causes skin irritation.

2.3 Hierarchy of control measures (e.g. ventilation, training, supervision).

1. Eliminate the hazard 2. Substitute the product 3. Engineer a solution 4. Administrative controls 5. PPE		Comments
Can the risk be eliminated?	No	We need Red diesel for power in the machines that we have.
Is another, safer product available?	No	We use electricity to power those machines that we can.
Special requirements? containment, fume cupboard, Lev and or blast screen?	No	We use in well ventilated areas at all times.
Special procedures, SSOW, local legislation?	Yes	SSOW how to use a bunded fuel bowser using the correct PPE.
P.P.E	Yes	There is an argument for using an oil protective glove EN374 for refuelling.

3 First aid measures

Eye contact	Flush eyes with water for several minutes. Remove contact lenses if present. If irritation or blurred vision occurs and persists, obtain medical attention. Consult a doctor.
Ingestion	Do not induce vomiting as there is a high risk of aspiration. Seek professional medical attention or send casualty to hospital. Do not wait for symptoms to develop. Consult a doctor.
Inhalation	Remove victim to fresh air and keep at rest in a comfortable position for breathing. If symptoms occur or if breathing becomes impaired obtain medical attention. If breathing is difficult, obtain medical help.
Skin Contact	Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Consult a doctor

4 Firefighting measures

Alcohol or polymer foam. Carbon dioxide. Dry chemical powder. Use water spray to cool containers.

5 Accidental release measures

If outside do not approach from downwind. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Turn leaking containers leak-side up to prevent the escape of liquid. Eliminate all sources of ignition.

6 Handling & storage

Store in a cool, well ventilated area. Keep container tightly closed. Keep away from sources of ignition. Prevent the build up of electrostatic charge in the immediate area.

Ensure lighting and electrical equipment are not a source of ignition.

7 Workplace exposure limits

Long-term exposure level (8hrTWA):	Short-term exposure level (15 mins):
100mg/m ³	No information supplied

7.1 Health surveillance

Is health surveillance required for this product?	No	If Yes, report findings to HR
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7.2 Personal protective equipment (state regulatory standards that apply i.e. BS EN

Please check the appropriate box.



Dust mask

☐	Choose an item.
	Choose an item.
	Choose an item.
	Choose an item.
☐	Choose an item.
	Choose an item.
☒	.EN 388 Work Gloves
	Choose an item.
	Choose an item.
	Choose an item.
☒	EN 345 S3
	Wellingtons EN 345 S5



Respirator



Gloves



Footwear



Visor



Eye protection



Overalls



Hygiene

☐	Choose an item. Choose an item.
☒	Safety Glasses Clear/Tinted EN166 F Safety Glasses Clear/Tinted EN 166 b Impact resistant Choose an item.
☒	RIS-3279-TOM ISSUE 1 (ORANGE ONLY) Choose an item.
☒	Always wash hands before preparing food. Take off heavily contaminated clothing and wash thoroughly.

8 Physical chemical properties (refer to SDS)

9 Stability reactivity (refer to SDS)

10 Toxicology information (refer to SDS)

11 Ecological information (refer to SDS)

12 Disposal of substances & containers

This material and container must be disposed of as a HAZARDOUS WASTE

13 Transport information

UN number UN1202. Shipping name. Gas Oil. Transport class 3

14 Regulatory information

Specific regulations are not applicable.

15 Other relevant information

This substance is environmentally hazardous.

SDS and Assessment Section	Title	Activity	Required *
1	Identification of substance	Product name	*
1.1	Product name	Name and photograph	*
1.2	Product description of use	Describe specifically how the product will be used.	*
1.3	Persons at risk	Those affected or impacted by the activity	*
1.4	Manufacturer	Manufacturer or distributor in the UK	*
2	Hazard identification including pictograms	Refer to hazard symbols	*
3	Composition and ingredients	Liquid / solid /dust etc	*
3.1	Route of exposure	Inhalation/ingestion/ skin/eyes	*
3.2	State the risk to Health	Irritants / dermatitis	*
3.3	Control measures	Hierarchy of controls. training? supervision? ventilation?	*
4	First aid measures	Solutions to 3.1 Route of exposure	*
5	Firefighting measures	Type of extinguisher	*
6	Accidental release measures	How to deal with a spill	*
7	Handling storage	Safe Storage (Temp / Containment etc.)	*
8	Work Exposure Limits WEL	mg ³ / ppm	*
8.1	Health surveillance	Is Health monitoring a requirement when using this product?	*
8.2	Personal Protective Equipment	Always state the level of protection. i.e. EN 166b for eye protection relates to level of impact protection. Be specific.	*
9	Physical chemical properties	Refer to MSDS	
10	Stability / reactivity	Refer to MSDS	
11	Toxicology information	Refer to MSDS	
12	Ecological information	Refer to MSDS	
13	Disposal considerations	Regulatory requirements. licenced waste remover?	*
14	Transport information	Classification ADR?	*
15	Regulatory information	Refer to MSDS	
16	Other information	Any additional relevant information	

 KELLER	CA103 Aerosol Solutions Linemarker(various colours)	Version	4
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-03

CA No.	CA103
Description of product: (Include name)	Aerosol Solutions Line marker 750ml (Various Colours)
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	The marker paint is used to mark the pile positions on site prior to carrying out our piling operations. It is used by our setting out engineers and site foreman in open air environment. Setting out the position(s) only takes about a second at any one time. Numerous positions may be required throughout a working day, dependant on the size of the working site.

Identify the persons at risk:	Employees (Including Trainees) ☒	Contractors ☒	Public ☐
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Manufacturer name, address and telephone number.(A copy of a current safety data sheet for this substance should be attached to this assessment)	Name: Aerosol Solutions Limited Address: Unit C, Bridgefield Industrial Estate, Draycott Road, Breaston, Derby. DE72 3DS Tel: 01332 870030 Email: sales@aerosolsolutions.co.uk Website: http://www.aerosolsolutions.co.uk/
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Classification (state the category of danger)

 ☐ Unstable Explosive	 ☐ Corrosive	 ☒ Hazardous to the Aquatic Environment
 ☒ Flammable	 ☒ Harmful (Toxic / Irritant)	 ☐ Acute Toxicity
 ☐ Oxidising	 ☐ Health Hazard	 ☐ Gas under pressure

Hazard Type							
☐	☐	☒	☒	☐	☒	☐	☒
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other State(Aerosol)
Route of Exposure							
☒	☒	☒	☒	☐			
Inhalation	Skin	Eyes	Ingestion	Other	State		

	CA103 Aerosol Solutions Linemarker(various colours)	Version	4
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-03

Workplace Exposure Limits (WELs) please indicate n/a where not applicable

Long-term exposure level (8hrTWA): ACETONE-WEL 500 ppm 1210 mg/m ³ BUTANE-WEL 600 ppm AROMATIC HYDROCARBON-SUP 600 mg/m ³ ISOBUTANE-WEL 800 ppm BUTYL ACETATE –norm-WEL 150 ppm 724 mg/m ³ 1,2,4-TRIMETHYLBENZENE-WEL 25 ppm CUMENE-WEL 25 ppm(Sk) 125 mg/m ³ (Sk) MESITYLENE-WEL 25 ppm	Short-term exposure level (15 mins): WEL 1500 ppm 3620 mg/m ³ WEL 750 ppm N/A No std WEL 200 ppm 966 mg/m ³ N/A WEL 50 ppm(Sk) 250 mg/m ³ (Sk) N/A
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State the Risks to Health from Identified Hazards

General information Deliberately concentrating and inhaling the contents of this container is dangerous and can be fatal.

Inhalation In high concentrations, vapours and aerosol mists have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Unconsciousness, possibly death.

Skin contact Repeated exposure may cause skin dryness or cracking.

Eye contact Irritating to eyes. Vapour or spray in the eyes may cause irritation and smarting. Repeated exposure may cause chronic eye irritation.

Acute and chronic health hazards

Arrhythmia (deviation from normal heart beat). In high concentrations, vapours and aerosol mists have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Route of entry Inhalation

Target organs Central nervous system Respiratory system, lungs

Medical symptoms Arrhythmia (deviation from normal heart beat). Narcotic effect. Vapours may cause drowsiness and dizziness. Skin irritation.

Control Measures: (e.g. ventilation, training, supervision)

Keep away from heat, sparks and open flame. Do not spray on a naked flame or any incandescent material. Do not pierce or burn, even after use. When using does not eat, drink or smoke. Wash promptly if skin becomes wet or contaminated. Ensure good hygiene practice are carried out. Do not pierce or burn the container

Is health surveillance or monitoring required? ☐ YES ☒ NO

Personal Protective Equipment (state type and standard)

 ☐		 ☐	
Dust mask		Visor	
 ☒	If ventilation is inadequate, suitable respiratory protection must be worn.	 ☒	Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible.
Respirator		Goggles	
 ☐		 ☐	
Gloves		Overalls	
 ☐		 ☐	
Footwear		Other	

	CA103 Aerosol Solutions Linemarker(various colours)	Version	4
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-03

First Aid Measures

Eye contact: Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes.

Ingestion: Rinse mouth thoroughly with water. Do not induce vomiting. Get medical attention.

Inhalation: If spray/mist has been inhaled, proceed as follows. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. If breathing stops, provide artificial respiration. Keep affected person warm and at rest. Get medical attention immediately.

Skin Contact: Remove contaminated clothing immediately and wash skin with soap and water.

General information Move affected person to fresh air at once.

Storage

Usage precautions Read and follow manufacturer's recommendations. Keep away from heat, sparks and open flame. Do not spray on a naked flame or any incandescent material. Eliminate all sources of ignition. Storage precautions Keep away from heat, sparks and open flame. Store at moderate temperatures in dry, well ventilated area. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use

Transport

This product is packed in accordance with the Limited Quantity Provisions of CDGCPL2, ADR and IMDG. These provisions allow transport of aerosols of less than 1 litre packed in cartons of less than 30kg gross weight to be exempt from control providing that they are labelled in accordance with the requirements of these regulations to show that they are being transported as Limited Quantities. Aerosols not so packed and labelled must show the following.

Hazard Identification Number-(ADR/RID)

Fire Fighting

Suitable extinguishing media Extinguish with foam, carbon dioxide, dry powder or water fog.

Specific hazards Containers can burst violently or explode when heated, due to excessive pressure build-up. Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Forms explosive mixtures with air. The product is extremely flammable.

Protective actions during firefighting

Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Use water to keep fire exposed containers cool and disperse vapours.

Warn firefighters that aerosols are involved.

Spillage

Methods for cleaning up Eliminate all sources of ignition. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation. Leave small quantities to evaporate, if safe to do so. Do not allow material to enter confined spaces, due to the risk of explosion. Absorb spillage with non-combustible, absorbent material.

Disposal of Substances & Contaminated Containers

Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Containers should be thoroughly emptied before disposal because of the risk of an explosion. Empty containers must not be punctured or incinerated because of the risk of an explosion.

Is exposure adequately controlled?

YES

☒

NO

☐

Risk Rating Following Control Measures

High

☐

Medium

☐

Low

☒

 KELLER	CA108 Adblue	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-19

CA No.	CA108
Description of product: (Include name)	Adblue
Describe the activity or work process. (Include how long, how often this is carried out, the quantity of substance used, where it is to be used, what it is used for and who by)	Adblue is decanted directly from its container into the adblue tank when a top up is required by either the rig operator or the fitter

Identify the persons at risk:	Employees (Including Trainees)	X	Contractors		Public	
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Manufacturer name, address and telephone number.(A copy of a current safety data sheet for this substance should be attached to this assessment)	Name: Tennants Distribution Limited Address: Hazelbottom Road, Cheetham, Manchester, M8 0GR Tel: 44(0)161 205 4454 Email / Website: msds@tennantsdistribution.com
Classification (state the category of danger)	

 ☐ Unstable Explosive	 ☐ Corrosive	 ☐ Hazardous to the Aquatic Environment
 ☐ Flammable	 ☐ Harmful (Toxic / Irritant)	 ☐ Acute Toxicity
 ☐ Oxidising	 ☐ Health Hazard	 ☐ Gas under pressure

Hazard Type							
☐	☒	☒	☐	☐	☒	☐	☐
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other state
Route of Exposure							
☒	☒	☒	☒	☐	☐		
Inhalation	Skin	Eyes	Ingestion	Other State			
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA):N/A				Short-term exposure level (15 mins):N/A			

 KELLER	CA108 Adblue	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-19

State the Risks to Health from Identified Hazards

Inhalation: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Control Measures: (e.g. ventilation, training, supervision)

Ensure good ventilation in the workplace. Do not use in spray form.

Is health surveillance or monitoring required?

☐ YES

☒ NO

Personal Protective Equipment (state type and standard)

 ☐		 ☐	
Dust mask		Visor	
 ☐		 ☒	
Respirator		Goggles	
 ☒		 ☐	
Gloves		Overalls	
 ☐		 ☐	
Footwear		Other	

First Aid Measures

Eye contact: Check for and remove any contact lenses. Rinse opened eye for several minutes under running water. Get medical attention if irritation occurs.
Ingestion: Rinse out mouth and then drink plenty of water. Do not induce vomiting: call for medical help immediately.
Inhalation: Avoid inhalation of vapour mist or spray. If inhaled, supply fresh air. Get medical attention in case of complaints.
Skin Contact: Immediately rinse with water. If skin irritation continues, get medical attention.

Storage

Store in a closed, dry room with good ventilation at temperature not below -11 °C and not above +30 °C.. For use in catalytic SCR systems the product must not be stored in, or come into contact at any point with: mild steel, aluminium, brass or copper as these will poison the catalyst. Keep containers closed until required. Store away from oxidising agents. See section 10. Protect from frost, store in cool, dry conditions in well-sealed receptacles.

Transport

This product is not classed as hazardous for transport (ADR, RID, IMDG).

Fire Fighting

Suitable extinguishing media: Use fire extinguishing methods suitable to surrounding conditions.
Unsuitable extinguishing media: Not known.

Spillage

Do not allow to enter sewers/surface or ground water.
Absorb with liquid binding material (sand, diatomite, acid binders, universal binders, sawdust). Send for recovery or disposal in suitable receptacles.

	CA108 Adblue	Version	2
1-3.1K Hazardous Substance COSHH Assessment		Approved	2018-10-19

Disposal of Substances & Contaminated Containers			
Recommended Hierarchy of Controls: Minimise waste Reuse if not contaminated Recycle, e.g. dilution and use as fertilizer Safe disposal (if all else fails). European waste catalogue Waste code 06 10 99 (wastes not otherwise specified) Uncleaned packaging Recommendation: Disposal must be made according to official regulations Recommended cleansing agents: Water if necessary together with cleansing agents			
Is exposure adequately controlled?	YES	☒	NO ☐
Risk Rating Following Control Measures			
High	☐	Medium	☐
Low	☒		



Appendix G – Working Platform Certificate and Rig Pressures

Working Platform Certificate (FPS/WPC/4d)



Project Name	
Work area covered by this certificate	

(A sketch or marked up pile layout drawing may be attached to this certificate. Include haul roads and gridlines.)

Part 1 – WORKING PLATFORM DESIGN (INCLUDING RAMPS AND ACCESS ROUTES)

Equipment to be used on site.	MiniCAT 2807-2808 (21T)	JCB Loading Shovel (8T)																														
Maximum plant loading (MiniCAT)	<table border="1"> <caption>Pressure summary for platform design</caption> <thead> <tr> <th>Mode</th> <th>BRE load case (1 or 2)</th> <th>Length (m)</th> <th>Width (m)</th> <th>UDL Pressure (kPa)</th> </tr> </thead> <tbody> <tr> <td>Standing</td> <td>1</td> <td>2.52</td> <td>0.70</td> <td>73</td> </tr> <tr> <td>Travelling</td> <td>1</td> <td>2.52</td> <td>0.70</td> <td>73</td> </tr> <tr> <td>Handling</td> <td>Not used</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Penetrating</td> <td>2</td> <td>0.56</td> <td>0.70</td> <td>102</td> </tr> <tr> <td>Extracting</td> <td>2</td> <td>1.77</td> <td>0.70</td> <td>124</td> </tr> </tbody> </table>		Mode	BRE load case (1 or 2)	Length (m)	Width (m)	UDL Pressure (kPa)	Standing	1	2.52	0.70	73	Travelling	1	2.52	0.70	73	Handling	Not used	N/A	N/A	N/A	Penetrating	2	0.56	0.70	102	Extracting	2	1.77	0.70	124
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Penetrating	2	0.56	0.70	102																												
Extracting	2	1.77	0.70	124																												

(Note: BR470 'Working Platforms for Tracked Plant: Good practice guide to the design, installation, maintenance and repair of ground-supported platforms' is available from IHS BRE Press – Tel 01344 328 038)

Designer Name		Tel No.
Designer Organisation		
Specification of testing required to verify the design		

Part 2 – VERIFICATION BY PRINCIPAL CONTRACTOR

The working platform detailed above has been designed, installed to the design and, if specified, tested to safely support the equipment detailed in Part 1 above. The limits of the platform have been clearly identified on site as necessary.

The working platform will be REGULARLY INSPECTED, MAINTAINED, MODIFIED, REPAIRED, and REINSTATED to the as-designed condition after any excavation or damage, throughout the period when the equipment is on the site. A completed copy of this certificate signed by an authorised person from the Principal Contractor shall be given to each user of the working platform prior to commencement of any works on site.

Name & Position		Date
Organisation		Signature

The HSE has worked closely with the FPS to develop this initiative and supports the principle of reducing accidents by the certification of properly designed, prepared and maintained working platforms

Working Platform Certificate (FPS/WPC/4d)

Working Platform Regular Inspection Log

(To be completed by an authorised representative of the Principal Contractor)

The working platform has been inspected *prior to handover and provides safe access for people and plant*. All necessary maintenance, modification, repair or re-instatement of the working platform is to the as-designed installed condition. If necessary, a revised Working Platform Layout Drawing has been issued to the specialist contractor.

Date	Organisation	Name & Position	Signature	Comments (include key details of alteration, modification, maintenance, repair, date of next inspection, and whether or not revised drawing issued etc. as appropriate)

Working Platform Certificate (FPS/WPC/4d)

Guidance on working platforms for tracked plant

1. Design

- 1.1. The HSWA 1974 and CDM Regulations 2015 require the Principal Contractor to appoint competent Designers in respect of Working Platform design. This legislation explains how competence can be assessed by reference to professional qualifications or professional memberships and by reference to practical experience of the design of working platforms. Principal Contractors must be satisfied that a competent Designer has been appointed by them in accordance with the relevant legislation before they complete and sign the WPC.
- 1.2. The stability of tracked plant is fundamentally dependent upon the provision of a suitable and sufficient working platform. It must be properly designed and installed to a recognised standard. Whilst the same type of rig may be operated by different companies, the design bearing pressures may differ due to the specific operating configuration of the rig and/or any modifications. Details of the plant to be used and bearing pressures will be provided by the specialist contractor in advance of work commencing.
- 1.3. Working platform design is extremely sensitive to the bearing pressure and type of fill used in the platform. (For example, changing the angle of friction of the fill from 35 degrees to 45 degrees can halve the platform thickness.) It is therefore advised that the Designer may have to adopt conservative/cautious estimates of platform shear strength unless higher values can be demonstrated by testing or with reference to appropriate published data.
- 1.4. The working platform must be *safe for pedestrian access and* free draining to prevent the build-up of water and slurry. It must be free from harmful materials and contaminants. In the case of fine-grained sub-grades, a separation/filter membrane should be installed beneath the platform material to inhibit 'pumping' and infiltration of the fine-grained soils up into the platform material during wet weather (which can impair platform performance and increase maintenance costs).
- 1.5. Proof testing of the platform can be carried out with a suitably sized circular plate subjected to the maximum design loading. Such testing, as part of an appropriately designed testing regime, should highlight any gross inconsistencies in platform performance. Potentially, significant savings in platform thickness and cost may be realised by adopting a more detailed testing strategy.
- 1.6. The working platform must have a design life which starts before delivery of the piling equipment and ends on completion of all piling works. This includes load testing, integrity testing, investigation of non-conformances and any remedial works.
- 1.7. The specialist contractor is to advise the Principal Contractor at the earliest practicable opportunity should the specialist contractor become aware of any circumstances relating to the working platform that renders it unsafe.

2. Installation

- 2.1. The FPS Working Platform Certificate is mandatory for all sites where a rig or attendant plant operates. It must be signed by an authorised representative of the Principal Contractor. This signature confirms that the legal duties required under CDM have been carried out.
- 2.2. If the working platform is to be constructed or removed in phases while piling works are ongoing, then the extent of the platform must be clearly defined on the certificate and, in accordance with good practice, physically on site. This is particularly important where the platform material is removed from an area previously made available to the specialist contractor.
- 2.3. The working platform *must* provide *safe* access for all plant deliveries, sub-contractors and personnel associated with the specialist operations. Properly designed and installed, the working platform could also provide suitable and safe access for following trades for the whole project.
- 2.4. Poor definition of the edge of the working platform is a major cause of tracked plant instability. It is good practice that the working platform should extend at least 2m beyond the pile position/edge of the building to ensure sufficient safe working area for the specialists personnel and attendant plant. Where having to work within this 2m zone is unavoidable the Designer is to be informed of the requirement to design the platform for working up to its edge.
- 2.5. Where access ramps are used to move between working levels these must be of sufficient gradient and width to allow the plant to move safely with the stability constraints of the machine. Ramps must be in a straight line between working areas. Rigs and cranes cannot change direction on ramps. Where a change in direction is required, this must be on a flat level platform.

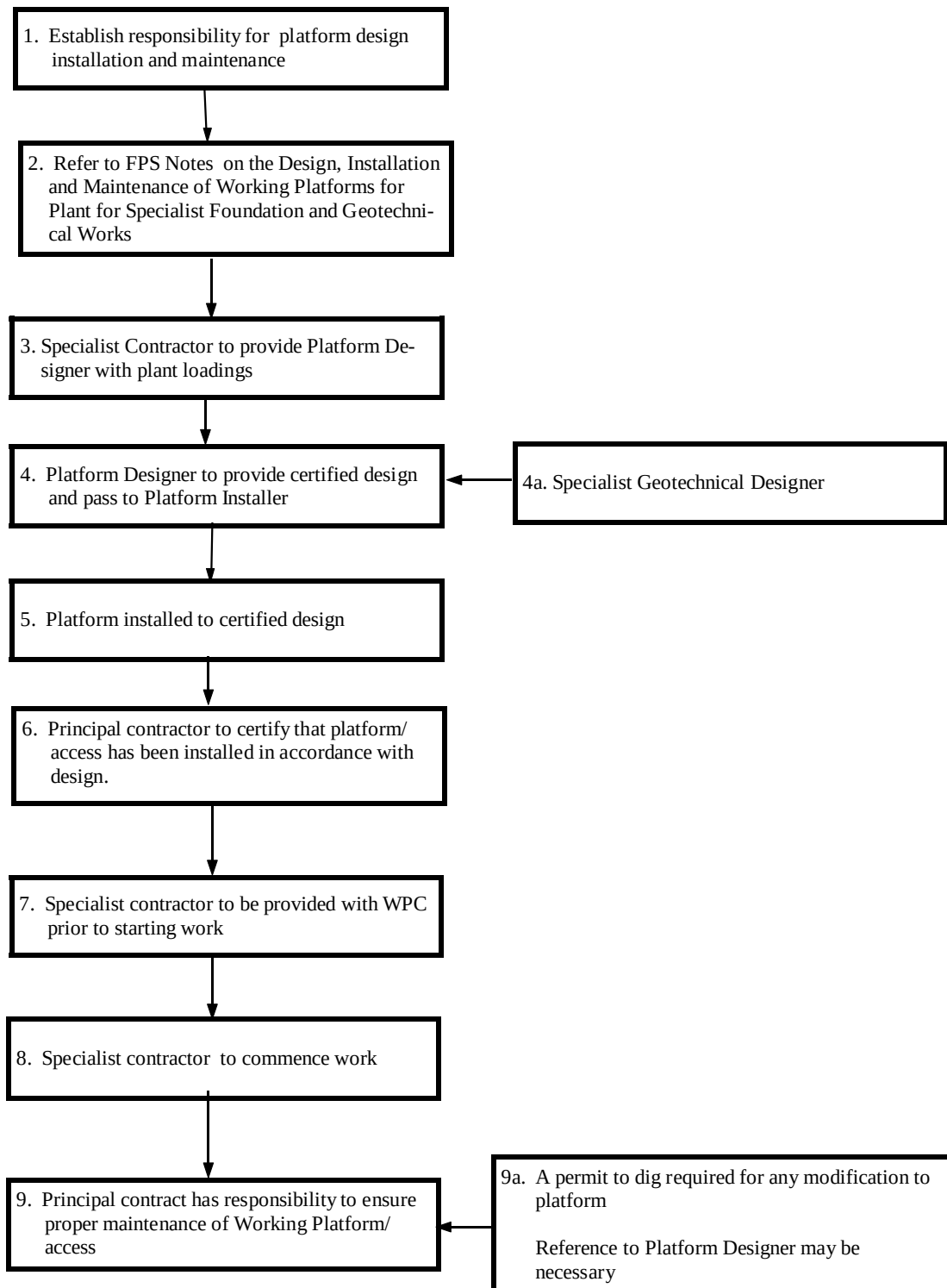
3. Maintenance, modification, repair and reinstatement

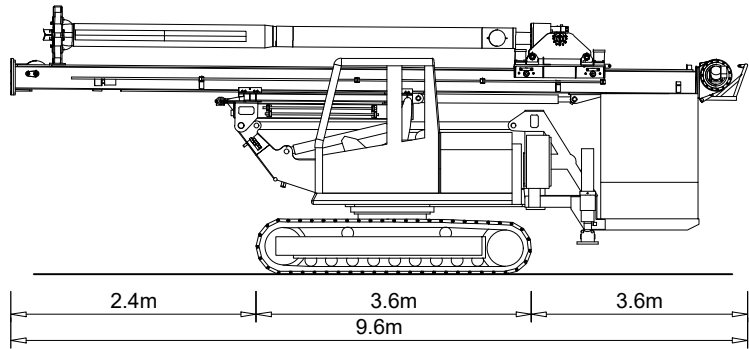
- 3.1. The working platform must be kept free draining. Water and slurry which is allowed to build up on the working platform can hide such hazards as recently constructed piles, trip hazards, uneven or unstable ground, services and excavations. Slurry can be transferred to work equipment which increases the risk of slips on steps as well as difficult handling of work tools.
- 3.2. Obstructions encountered during installation of the piling works will generally require excavation to remove them. This can create a 'soft spot' which can result in the rig overturning. It is essential, therefore, that any excavations made in the working platform are reinstated to the designed standard, including any reinforcement and separation filter/membrane.
- 3.3. The working platform shall be subject to regular inspection by a competent individual appointed by the Principal Contractor (e.g. the Temporary Works Co-ordinator) throughout its design life and after any reinstatement or any works which might have modified it. Any damaged or inadequate areas identified must be reinstated to the designed standard. Following the regular inspection, the Working Platform Regular Inspection Log shall be signed by an authorised representative of the Principal Contractor and issued to the specialist contractor with a layout drawing of the working platform amended as appropriate.

4. Working Platform Layout

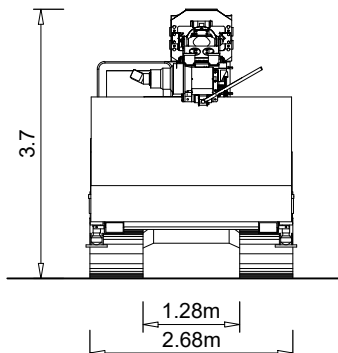
- 4.1 Items that must be included and properly located on the working platform layout drawing and be notified by the Principal Contractor to the specialist contractor would include: detail of platform edges and 2m delineation, trial pits, services or voids, areas of backfilling, known underground basements; areas that are covered by the certificate or permit, test locations (if specified by the Designer of the platform) and any other feature that may affect the safety of operations.

**WORKING PLATFORMS AND ACCESS ROUTES
TYPICAL PROCESS DIAGRAM
DESIGN, INSTALLATION AND MAINTENANCE**

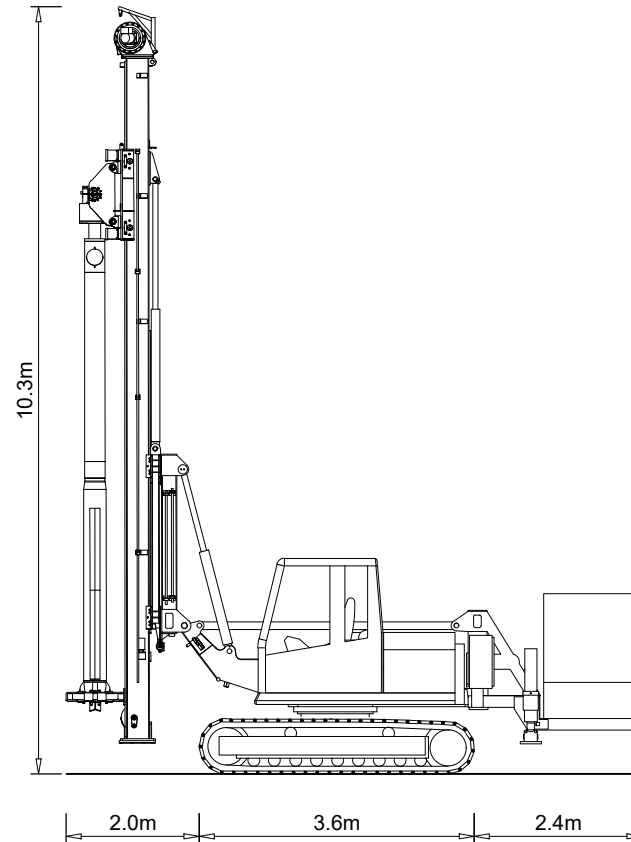




1 Side elevation - in transit
NTS



2 Rear elevation - in transit
NTS



3 Side elevation - in operation
NTS

Pressure summary for platform design				
Mode	BRE load case (1 or 2)	Length (m)	Width (m)	UDL Pressure (kPa)
Standing	1	2.52	0.70	73
Travelling	1	2.52	0.70	73
Handling	Not used	N/A	N/A	N/A
Penetrating	2	0.56	0.70	102
Extracting	2	1.77	0.70	124

Key Features

- Used for the construction of Vibro Stone Columns.
- Installs columns via the conventional top-feed method of installation
- Stone Column lengths of up to 6.3m achievable
- Similar Mini-Cat rigs also available Includes Pre-Boring (auger cleaners & guards fitted)
- Can work safely off gradients of 1:12 and track 1:10
- Fully Instrumented Equipment

Project:

Rig data sheet

Drawing:

MiniCAT

2807 & 2808

Drawn:	LC	Date:	11/09/19
Checked:	RJH	Scale:	NTS
Approved:	BS	Size:	A4



Oxford Road
Ryton on Dunsmore
Coventry
CV8 3EG

Tel: 024 76511 266
Fax: 024 76305 230
Mail: Foundations@keller.com

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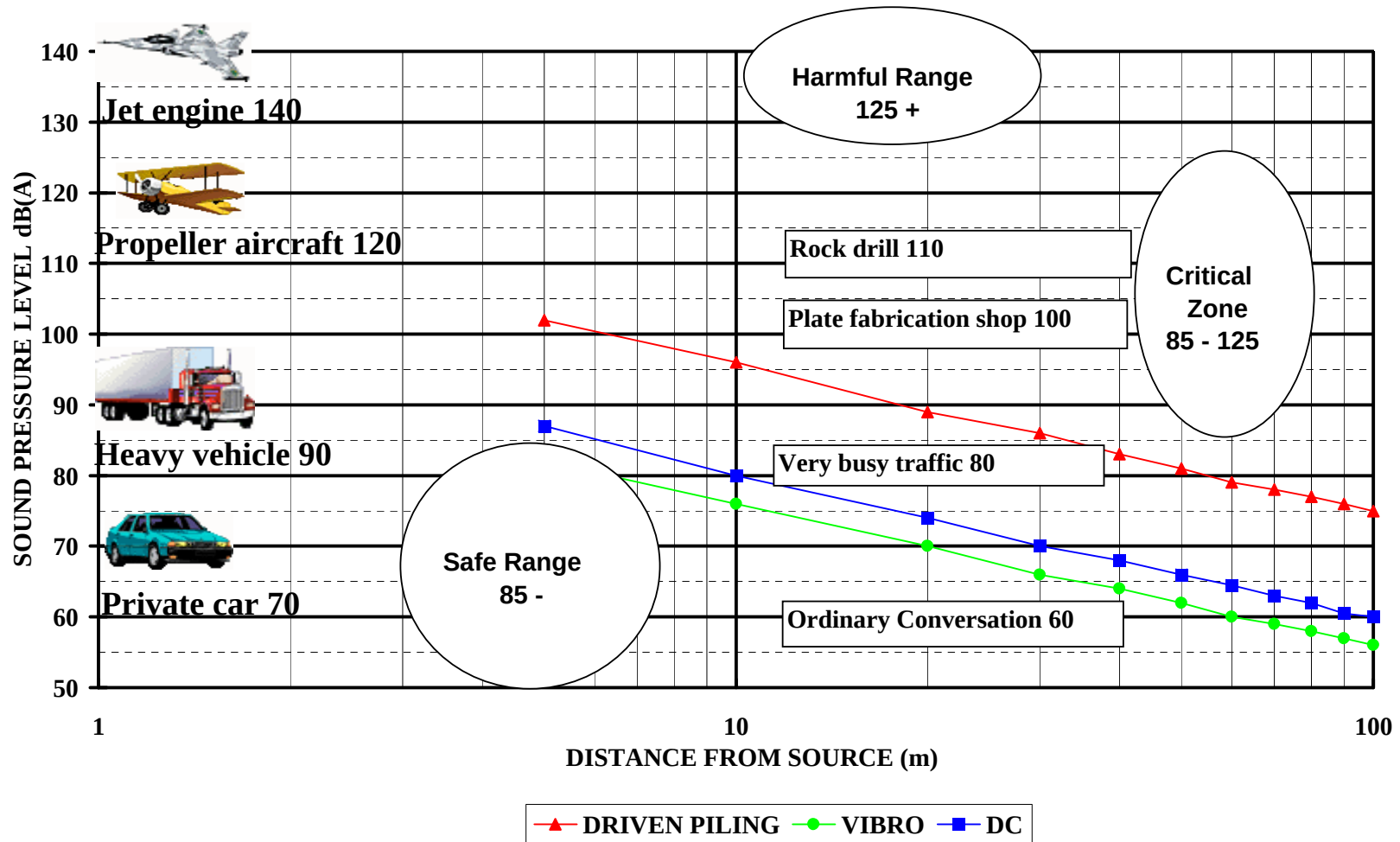
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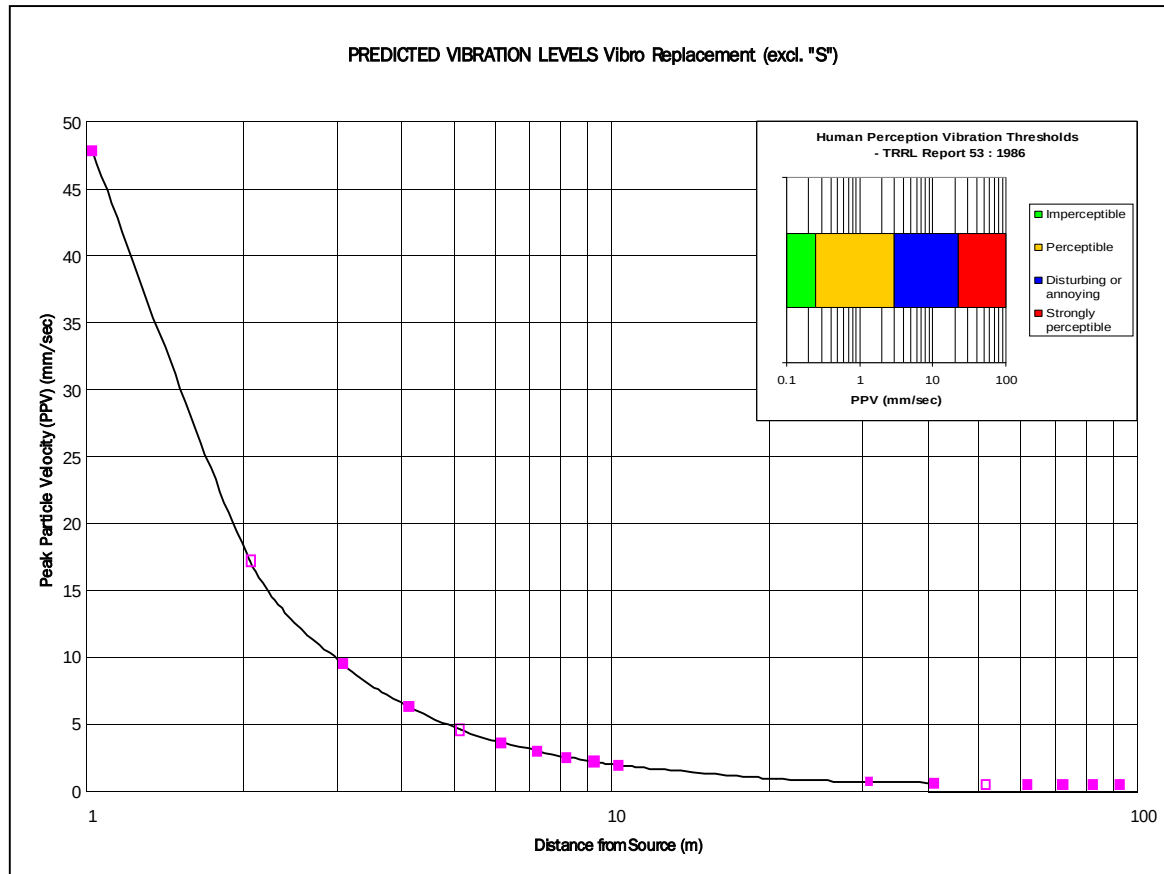


Appendix H – Predicted Noise & Vibration Charts

PREDICTED NOISE LEVELS



PREDICTED VIBRATION LEVELS Vibro Replacement (excl. "S")



GUIDANCE FOR ACCEPTABLE LEVELS CAN BE FOUND IN CIRIA TECHNICAL NOTE 142 – 1992

Examples from table 9 of this report are;

Commercial & Industrial Buildings
20 to 40 mm/sec

Dwellings / Buildings of Similar Design
15 to 20 mm/sec

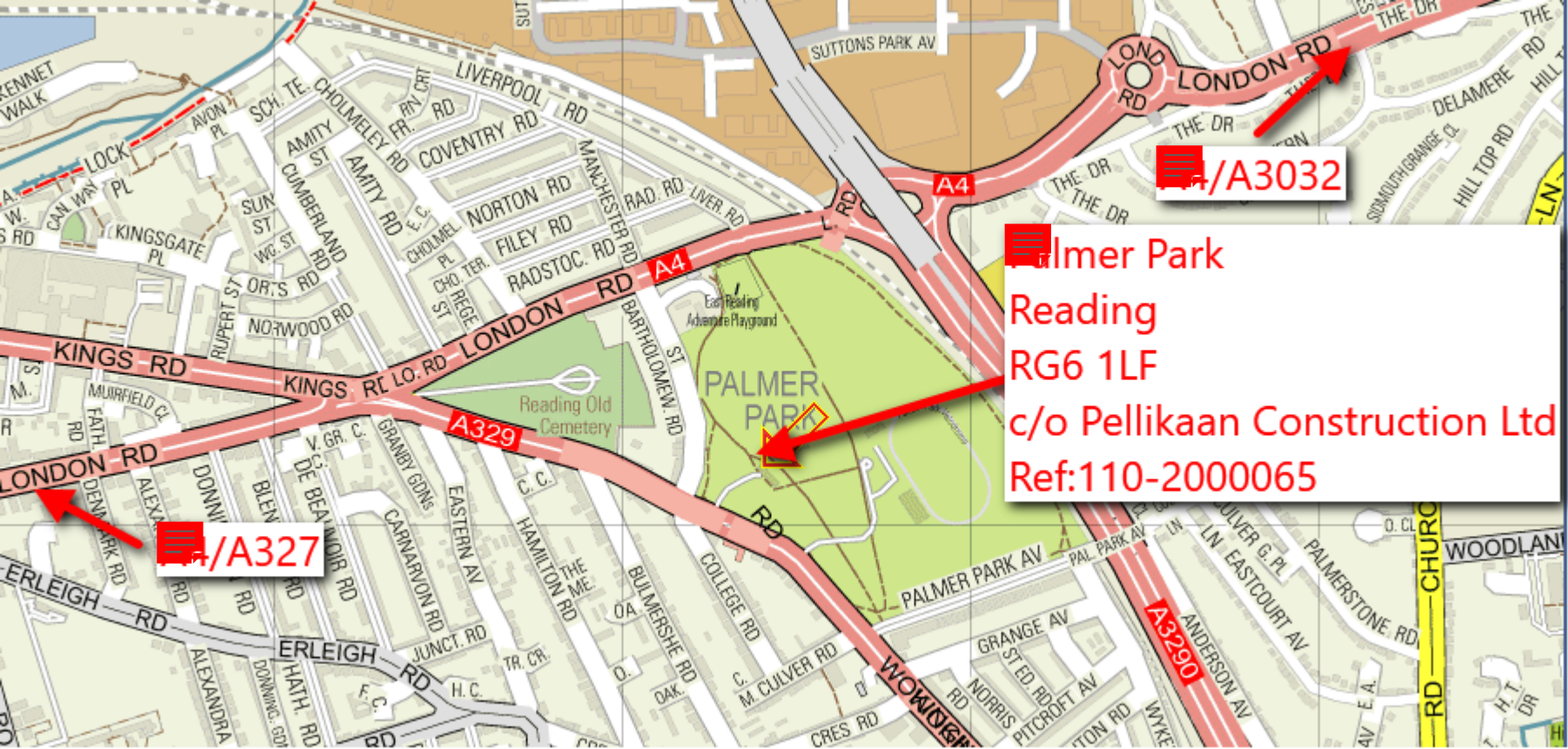
Structures of Great Intrinsic Value
(E.g buildings under a preservation order)
3 to 8 mm/sec

IMPORTANT NOTE; Above values are guidelines only. The maximum / acceptable PPV on any structure is to be specified by the Structural Engineer

The Keller Vibro poker operates at 50 Hz.



Appendix I – Site Access



Palmer Park
Reading
RG6 1LF
c/o Pellikaan Construction Ltd
Ref:110-2000065



Appendix J – Testing Proposals

Testing Proposal for
READING, PALMER PARK
110-2000065

Summary

	STANDARD PLATE LOAD TESTS
TYPE	600mm plate, see attached spec
TEST LOCATIONS	Client to provide or Keller will choose at random
RATIO*	1 per 150 columns
TOTAL NUMBER INCLUDED	3

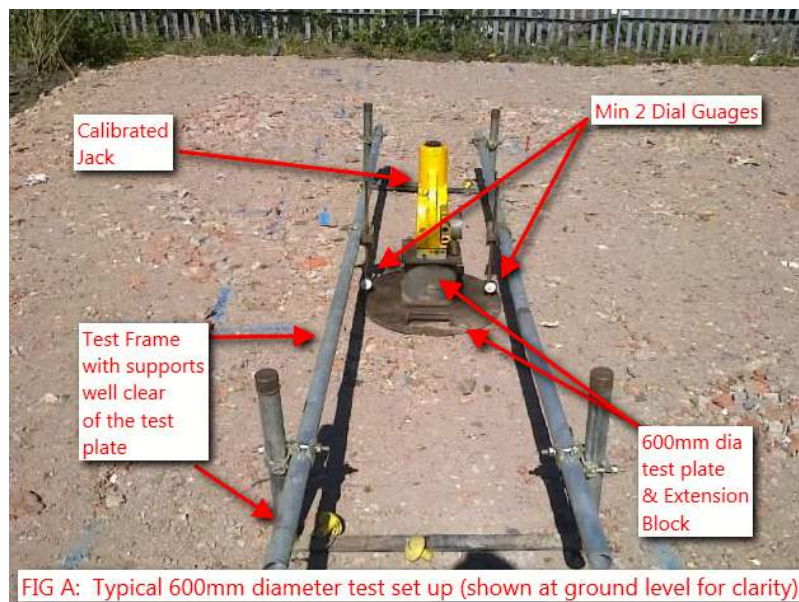
*This is the overall ratio of testing and is not intended to reflect the actual programming of the tests on this site. It is sometimes appropriate to avoid testing too soon so there may be a delay before the first tests can be undertaken. There may also be other reasons which prevent us from testing on a particular day. Where appropriate, multiple tests will be undertaken on other days so as to maintain compliance with the above ratios. This will be appropriately managed by our Supervisor on site.

Please note that the tests are normally undertaken at the end of each working shift so as to avoid disruption to the construction works. It is also the most appropriate timing as testing is a quiet activity which will not disrupt neighbours etc.

N.B should another warranty provider be adopted (such as LABC or Premier) additional testing will be required.

SPECIFICATION FOR SHORT TERM PLATE LOAD TESTS ON STONE COLUMNS CONSTRUCTED BY VIBRO STABILISATION

1. The short term plate load test is carried out by excavating a shallow pit to a depth of approximately 600mm below the working platform and with a base size of about 1.0 metre square.
2. The area to be tested shall be cleared of all material before a 600mm diameter rigid steel plate is carefully bedded down onto the prepared surface.
3. The reaction of the tests is usually provided by the Vibro rig on site or a suitable excavator provided by others. The loading arrangements shall be capable of transferring safely the maximum load required to the test area.
4. The load onto the circular steel bearing plate is applied centrally by means of a hydraulic jack calibrated in tonnes.
5. The vertical movement of the bearing plate is recorded by a minimum of **two** dial gauges capable of measurement to within **0.1mm**. Each gauge is mounted on a reference frame supported on rigid supports well clear of the test area.



DESCRIPTION	DETAIL
Test Specification	Keller Standard
Plate Size	600mm circular
Maximum Test Load	110kN
Number of Increments	Min 5 No. equal increments
Reading Intervals	5 minutes
Minimum Hold Period	5 minutes
Hold at Maximum Load	10 minutes with readings at 5 & 10 mins
Unloading	Release to zero in one increment
Final Reading	1 after 5 mins



Appendix K – Covid 19 Instructions

These additional instructions are to be read in conjunction with the following documents (appended) –

1 Hazard Assessment - COVID-19 - GI_HA 10

2 WI Working During COVID-19 Pandemic on Site

3 Toolbox Talk 004 - COVID-19 Safe Operating Practice

- Maintain 2m distance **from all personnel at all times** in site offices or on site
- One operative one machine to avoid cross contamination. Cabins to be fully cleaned with disposable cloths or paper roll and combined detergent disinfectant solution should drivers require to be swapped in machines.
- No sharing of PPE under any circumstances
- 2 Man Crew – 1 No cabin to be provided. No more than one person in a small (3m x 3m) Keller cabin at any one time and are to maintain the 2m distance.
- 4 Man Crew (Prebore) – 2 No cabins to be provided. No more than one person in a small (3m x 3m) Keller cabin at any one time and are to maintain the 2m distance.
- Cabins to be cleaned on a regular (at least twice daily) basis with disposable cloths or paper roll and disposable mop heads, to clean all hard surfaces, floors, chairs, door handles and sanitary fittings, following one of the options below:

use either a combined detergent disinfectant solution at a dilution of 1,000 parts per million available chlorine

or

a household detergent followed by disinfection (1000 ppm av.cl.). Follow manufacturer's instructions for dilution, application and contact times for all detergents and disinfectants

Operation / Task:		Assessment Ref / Rev:	COVID-19 Sites	Prepared by:		Review Date:	23/04/2021
Location:		Department:		Issue Date:	23/04/2021		

H&S Consequence, C	Env. Consequence, C	Likelihood, L						Acceptance Criteria
1 Minor Injury	1 Minor Impact / operational delay	1 Improbable						R Red - Intolerable take immediate action
2 First Aid injury	2 Community complaints	2 Remote						Y Yellow - Tolerable with additional controls
3 Major injury	3 Major Impact	3 Possible						G Green - Tolerable no further action required
4 Permanent Consequence	4 Legal Consequence	4 Probable						
5 Potential Fatality	5 Major impact and cost	5 Almost Certain						

	1	2	3	4	5
1	1	2	3	4	5
2	2	4	6	8	10
3	3	6	9	12	15
4	4	8	12	16	20
5	5	10	15	20	25

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
A											
A1	Transmission of COVID-19 virus between Keller employees	ALL	4	5	20	Operatives to ensure they have no underlying government identified high risk health conditions and do not have any symptoms of COVID-19 (a high temperature, a new continuous cough, loss of sense of taste or smell) before starting work. All Keller employees to be subject to temperature check each day before accessing site or shared vehicles. Line management must check COVID19 precautions are sufficient for staff that have previously been advised to Shield. Employees and subcontract resources encouraged to follow government guidance and complete two lateral flow tests per week to help break chain of transmission.	4	2	8	ALL	Supervisor
A2	Transmission of COVID-19 virus between Keller employees	ALL	4	5	20	Maintain good hand hygiene by washing for 20 seconds with hot water and soap before each shift, before eating, after going to the toilet, after coughing and sneezing, after making contact with face coverings. Hand Sanitiser to be available and used where soap and water is not available. Catch sneezes and coughs in tissue and put in the bin.	4	2	8	ALL	Supervisor

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
A2	Transmission of COVID-19 virus between Keller employees	ALL	4	5	20	Employees to avoid sharing PPE and items that require skin contact such as gloves, tools and pens. All common points of contact such as office door handles and plant controls to be sanitised daily. Employees to provide their own drinking vessels, crockery and utensils. These items are to be thoroughly cleaned daily in hot soapy water, by the employee.	4	2	8	ALL	Supervisor
A3	Transmission of COVID-19 virus between Keller employees	ALL	4	5	20	Apply social distancing rules wherever appropriate (minimum 2m apart). Work in closer proximity is not permitted without face coverings. The duration of work closer than 2.0m is to be kept as short as possible, never more than 15minutes. Work closer than 1.0m is not permitted under any circumstances. Face coverings are to be used when working indoors and outside if closer than 2.0m. Respiratory protection (FFP3) may be used as required by task risk assessment (subject to face fit) or JSP Constructor air fed helmet.	4	2	8	ALL	Supervisor
A4	Exposure to COVID-19 virus risk to Keller employees outside of construction sites	ALL	4	5	20	Avoid travel on public transport. If travel on public transport is essential then face coverings are to be worn at all times. Visits to public areas such as shops, petrol stations or service stations to be avoided. Social distancing is to be respected at all times. If visits deemed absolutely necessary then face coverings are to be worn.	4	1	4	All	Individuals

Task	Hazard	Persons at risk	Degree of risk			Control measures	Residual risk			Person responsible	Monitoring responsibility
			C	L	RR		C	L	RR		
A5	Transmission of COVID-19 virus between sites by management and mobile workforce	ALL	4	5		Visits by mobile staff to be limited to one site per day. A complete change of PPE is required between projects. Different face coverings to be used between sites. Visitors are not permitted to enter shared spaces such as site cabins	4	1	4	All	Mobile employees

1- 3.5K WI 3 Working During COVID 19 Pandemic on Site

Work Instruction

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2	Introduction	1
3	Work Instruction	2
3.1	Self-Isolation	2
3.2	If Someone Falls ill whilst on site	2
3.3	Travel to and from Work	2
3.4	Welfare Facilities	2
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3.6	Site Meetings	3
3.7	What to do if you cannot follow the above guidelines	4
4	Change Record	4

1 Covid-19 Operational Controls

It is widely identified that the best way to prevent exposure to Covid-19 is to minimise interaction with other people and to practice good personal and environmental hygiene. This is no different in a work or social situation.

To assist our projects in maintaining healthy environments for all employees we would like to ensure that each project implements the following measures.

1.1 Minimum measures required

- Maintain social distancing of 2.0metres at all times
- Conduct all toolbox and prestart meetings outside
- Conduct separate toolbox talks and daily briefings where required to maintain social distancing
- Stagger meal and rest breaks across the project-(social distancing must be maintained in all areas and at all times including breaks). •All staff must wipe down (Disinfect) eating and shared areas before and after each use.
- All sites to have sufficient disinfectant, sprays, wipes, soap and associated resources.
- Where possible, provide independent lunch rooms for workers

2 Introduction

These instructions are one of a group of instructions covering our range of geotechnical techniques, known as Work Instructions.

These instructions must be read together with the Work Package Plan or Method Statement, as these documents provide further details relating to this type of work specific to particular contracts.

This Work Instruction will cover what to do when working on site during the Coronavirus Pandemic (COVID-19) and how to keep yourself and others safe based on latest UK Government guidance at the time. (Last update 25 March 2020)

Latest Government guidance can be found here <https://www.gov.uk/coronavirus>

3 Work Instruction

3.1 Self-Isolation

Anyone who meets one of the following criteria should not come to site:

- Has a high temperature or a new persistent cough - [follow the guidance on self-isolation](#)
- Is a [vulnerable person](#) (by virtue of their age, underlying health condition, clinical condition or are pregnant)
- Is living with someone in [self-isolation](#) or a [vulnerable person](#).

3.2 If Someone Falls ill whilst on site

If a worker develops a high temperature or a persistent cough while at work, they should:

- Inform their line manager, maintaining safe distance
- Do not enter the welfare facilities but leave site with the minimal interaction with others and touching the least number of surfaces. Ask to leave via a gate and avoid finger/hand print entry devices.
- Return to their accommodation immediately (for colleagues working away from home this may mean staying away until the self-isolation period is complete)
- Avoid touching anything
- Cough or sneeze into a tissue and put it in a bin, or if they do not have tissues, cough and sneeze into the crook of their elbow.

They must then follow the guidance on self-isolation and not return to work until their period of self-isolation has been completed.

3.3 Travel to and from Work

With hotels and businesses closing under order from the UK Government, there may come a time when you struggle to find accommodation. In this event speak to your line manager to assist you in finding and in some cases paying for the accommodation.

Under no circumstances should you sleep in vehicles as you need to maintain a high level of hygiene during this time and be rested whilst you are off work, as these additional measures below will require additional energy to be expended due to social distancing and the use of PPE.

When travelling to work inside the M25, avoid using the Underground unless you can keep 2m social distance between you and other travellers.

Use of private vehicles with 1 person, or 2 sitting as far as practicable from each other (1 driving and the other in the back seat on the opposite side – taxi configuration) is preferable. Uber or taxi services can be used and receipts will be reimbursed through the expense system. Buses and Overground trains are acceptable as long as you can maintain the 2.0metres social distancing.

Follow the advice relating to use of tissues if you cough or sneeze. Do not touch your face with your hands and wash your hands thoroughly for at least 20 seconds when you arrive at your digs, home or site. If you have used a private car, each person should wipe down surfaces with a wipe or spray detergent and a cloth.

3.4 Welfare Facilities

The welfare facilities should be adequate for the size of site and enough space such that individuals can maintain 2m social distance in the toilet and washing facilities, the dining area and drying room. If this cannot be maintained your supervisor must agree with the Main Contractor a rota system to ensure you can use it and maintain the social distance of 2.0metres.

Briefings should be carried out in the open if possible and 2.0metres between the team members should be observed. If this means that someone cannot hear the briefing, the Supervisor will split the briefing into smaller groups and carry out multiple briefings.

- Stay on site once you have entered it and do not use local shops.
- Dedicated eating areas should be identified on site to reduce food waste and contamination
- Break times should be staggered to reduce congestion and contact at all times
- Hand cleaning facilities or hand sanitiser should be available at the entrance of any room where people eat and should be used by workers when entering and leaving the area
- Wherever possible bring pre-prepared meals and refillable drinking bottles from home
- Workers should sit 2.0metres apart from each other whilst eating and avoid all contact
- Shared crockery, eating utensils, cups etc. should not be used
- Drinking water should be provided on site with enhanced cleaning measures of the tap mechanism introduced.
- Tables should be cleaned between each use
- All rubbish should be put straight in the bin and not left for someone else to clear up, bins must be emptied at the end of each working day.
- All areas used for eating must be thoroughly cleaned at the end of each break and shift, including chairs, door handles, vending machines and payment devices.

3.5 Working on site

- Delivery drivers should remain in their vehicles if the load will allow it and must wash or clean their hands before unloading goods and materials.
- Do not touch delivery note pads without gloves on, any paper handed to you could transfer the virus, so store it safely in a plastic bag and do not touch it for at least 3 days. If you have to handle foreign objects, do so with gloves or immediately wash hands after contact.
- Non-essential physical work that requires close contact between workers should not be carried out
- Work requiring skin to skin contact should not be carried out
- Plan all other work to minimise contact between workers maintain a minimum 2m distance between each other.
- Re-usable PPE should be thoroughly cleaned after use and not shared between workers
- Single use PPE should be disposed of so that it cannot be reused
- Stairs should be used in preference to lifts or hoists
- Regularly clean touchpoints, doors, buttons etc.
- Increase ventilation in enclosed spaces
- Regularly clean the inside of vehicle cabs and controls between use by different operators.

Where a 2 person lift or operation is unavoidable by **any** other means the following strict guidance **must be** followed:

- The Supervisor will task brief the operatives involved in this procedure and be in attendance at all times (maintaining the 2m social distance)
- The following minimum PPE will be worn:
 - Disposable FFP3 face mask (3M 8835+ or equivalent) or JSP Force 8 FFP3 face mask.
 - Goggles
 - Disposable chemical suit (Tyvek or equivalent)
 - Rubber Gloves suitable for the task.
 - Hard Hat or bump cap.
- The task should be completed and if you then need to remove the PPE, you should do so in the Drying/changing room.
 - Dispose of the disposable elements of the PPE into a plastic bin liner and dispose of it correctly yourself in the designated bin/skip
 - thoroughly wash your hands and then face and any other areas of the skin that were exposed (should be minimal if the chemical suit is close fitting and worn correctly).
 - Reusable equipment – Goggles and JSP Force 8 face mask etc should be thoroughly cleaned and dried and stored safely in your bag for the next time you use it.

3.6 Site Meetings

- Only absolutely necessary meeting participants should attend
- Attendees should be 2.0 metres apart from each other
- Rooms should be well ventilated / windows opened to allow fresh air circulation
- Consider holding meetings in open areas where possible.

3.7 What to do if you cannot follow the above guidelines

- Under no circumstance should any Keller employee change or vary the above guidance without discussing first with their supervisor and Project/Works Manager. A risk assessment and task briefing must be completed and signed off by the Project Manager and Divisional Director

4 Change Record

Revision	Changes	Author
0 – 2020-03-25	Initial Issue	M.Large
Feb 2021	Review and update	S Jones

 KELLER	Toolbox Talk 004 - Covid-19 Safe Operating Practice	Version	1
1-2.1K Training		Approved	24 March 2020

Covid-19 Operational Controls

It is widely identified that the best way to prevent exposure to Covid-19 is to minimise interaction with other people and to practice good personal and environmental hygiene. This is no different in a work or social situation.

To assist our projects in maintaining healthy environments for all employees we would like to ensure that each project implements the following measures.



Measures required

- Maintain social distancing of 2.0metres at all times
- Conduct all toolbox and prestart meetings outside,.
- Conduct separate toolbox talks and daily briefings where required to maintain social distancing
- Stagger meal and rest breaks across the project - (social distancing must be maintained in all areas and at all times including breaks)
- All staff must wipe down (Disinfect) eating and shared areas before and after each use.
- All sites to have sufficient disinfectant, sprays, wipes, soap and associated resources.
- Where possible, provide independent lunch rooms for workers

Communication

Please ensure to discuss the above with each team prior to the next shift starting and agree on the actual site measures to stagger the breaks across the crew. As an example if we have three teams on a project, separate the break times for each group and minimise the need for close interaction. Please remember the importance of identification and early reporting of symptoms.

Reminder

Please remind all staff that while the COVID-19 situation is important, we must ensure to focus on preventing unsafe acts or situations in all of our works.

Please use 1-1.6K F6 Briefing Record to record the briefing and return a scanned copy of the completed form to Tracy Pyatt – tracy.pyatt@keller.com

Please contact Simon Jones HSEQ Manager, or any member of the HSEQ team for further advice.

Social distancing at work



COVID-19
(Coronavirus)

To reduce transmission

And wherever you can...

- ✓ Avoid shaking hands and direct physical contact
- ✓ Don't share PPE like gloves, welding hoods or face shields
- ✓ Have your own crockery and silverware
- ✓ Limit face-to-face meetings to a minimum, and use the phone or Skype instead

- ✓ Stay six feet or two metres apart from other people
- ✓ Do not share rides and, if you use public transport, sit away from others
- ✓ Hold site and safety meetings outside
- ✓ Take breaks and lunch outside if weather permits, or stagger them to provide additional space



NWE Bulletin 68 – Covid 19 - Arriving Home Safely



Health Advisory Note

This bulletin provides guidance for our teams working away and making sure that when they arrive home they take the necessary steps to protect their families in relation to the Coronavirus.

Advice for arriving at home:

When leaving work to come home, it is important to follow the advice and recommendations below to ensure you keep good standards of hygiene for yourself and your loved ones.

**Before leaving work -**

- Shower if practical
- Change out of your work clothes
- Leave your work bag securely at site

**Arriving home -**

- If anyone else can use your vehicle - wipe the steering wheel, controls and door handles on your vehicle with an antibacterial wipe
- Knock on the door or phone someone who is at home, ask them to open the door from the inside –help minimise potential cross contamination
- Use a hand sanitizer before making contact with anything at home

**At your front door -**

- Shout “hello” to loved ones, no cuddles yet – we’re trying to minimise the potential for cross contamination

**Box at the door -**

- Wipe down and store work items in a box by the front door – items such as keys, pens, glasses, footwear and bags

**Mobile phone -**

- When arriving home, wipe your phone clean.

**Walk straight to the sink or shower -**

- Avoid touching doors (get someone else to open them for you)
- Wash or shower especially exposed skin hands, arms, face with soap and hot water

For further information about this event, please do not hesitate to contact: [Simon Jones, HSEQ Manager \(NWE\)](#)