Client:	**Originator:**
	Cementation SKANSKA
Metro, 2nd Floor, 33 Trafford Road, Exchange Quay 2, Salford, M5 3NN	Maple Cross House, Denham Way, Maple Cross, Rickmansworth, WD3 9SW ☎+44 (0)1923 423100

Work Execution Plan for Continuous Flight Auger and Rotary Bored Piles

Project: Project Bradford	**Location: Manchester - M11 3DU**
Project No: 22D990	

Document Status:			**For Information**	
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Cementation Section	**Title**	**Name [Print]**	**Signature**	**Date**
Author	**Operations Manager**	**Vitor Marques**	Vitor Marques	26/11/2020
Reviewer				
PC Review Section	**Title**	**Name [Print]**	**Signature**	**Date**
Approver:				
Acceptor:				

Format	**Document Number**	Revision	Date of issue
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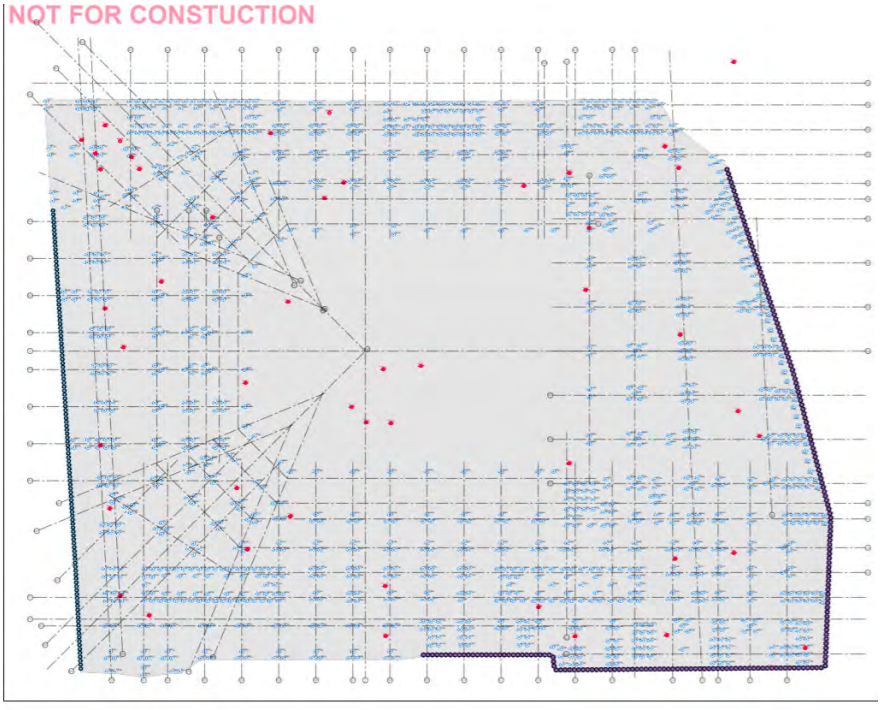
1 Scope of Work

1.1 Purpose of Document

The Project Bradford site is approx. 21,000m2. The site is roughly rectangular in shape and bounded to the south by the Ashton Canal, to the east by Alan Turing Way (A6010), to the west by Joe Mercer Way, which is a pedestrian walk way leading to the City of Manchester Stadium. Currently the longest proposed piles, are in the north west corner of the site and have a toe level of 26.6m AOD, with a seam indicated around 16.98m AOD, we are therefore anticipating 42m deep probes in this area working, based on approx. 59m AOD working platform. From the meeting with the EA and the ground water levels given in BH Appendix B Ground Water Risk Assessment in association with proposed grouting work, both the piling and the grouting will be installed below ground water level.

The purpose of this Works Execution Plan (WEP) is to define the scope of the works, method of working, and procedures to be implemented by Cementation Skanska Ltd (CSL) for the installation of our works through penetrative methods implementing continuous flight auger and rotary bored piles drilling techniques. A Piling techniques specific risk assessment was carried out to identify potential impact over the groundwater pathways contamination risk (page 118) whilst drilling through different aquifers and/or perched water.

This WEP will be briefed to all contract staff and operatives to advise the nature of work and the risks / hazards involved, in order to execute the works in a controlled and safe manner. This will be achieved by identifying the risks / hazards associated with the works and the subsequent control measures and risk mitigation, therefore ensuring that the works are carried out in a manner that reduces the risk to operatives, the public, adjacent work forces and other third party assets. All operations shall be reviewed throughout the project duration to ensure that the works are continuing to be carried out in a safe manner.



1.3 Schedule of Drawings/Specification/Reports

The below documents have been reviewed and considered in the development of this method statement.

Buro Hapold Drawings:

- BRA-BHE-ZZ-PL-DR-S-0700_P02 Piling GA
- BRA-BHE-ZA-PL-DR-S-0701_P02 Piling Zone A
- BRA-BHE-ZB-PL-DR-S-0702_P02 Piling Zone B
- BRA-BHE-ZC-PL-DR-S-0703_P02 Piling Zone C
- BRA-BHE-ZD-PL-DR-S-0704_P02 Piling Zone D
- BRA-BHE-XX-XX-DR-C-0020 P10 Existing Utilities

Cementation Skanska Drawings:

- 22D990-CSL-00-F1-SK-X-0008 P01 Bearing Pile arrangement with local boreholes
- 22D990-CSL-00-F1-SK-X-019 C02 General Grouting Arrangement / Site Constrains

Other:

- 76500 OVG Manchester Factual Report on Ground Investigation 04 10/03/20
- BRA-BHE-XX-XX-RP-CG-004_P03 - Ground Engineering Interpretive Report dated 31 Jan 2020
- 191213 FG_AS 0042841 Geoenvironmental and Geotechnical Desk Study (BRA-BHE-XX-XX-RP-CG-0001)
- 2011 Buckinghams Remediation Validation Report
- ICE Specification for piling and embedded retaining walls : Third edition
- Buro Happold Project Specification for Piling and Embedded Retaining Walls, referenced BRA-BHE-XX-XX-SP-GC-0002_P05, dated 27/08/2020

1.4 Works Location



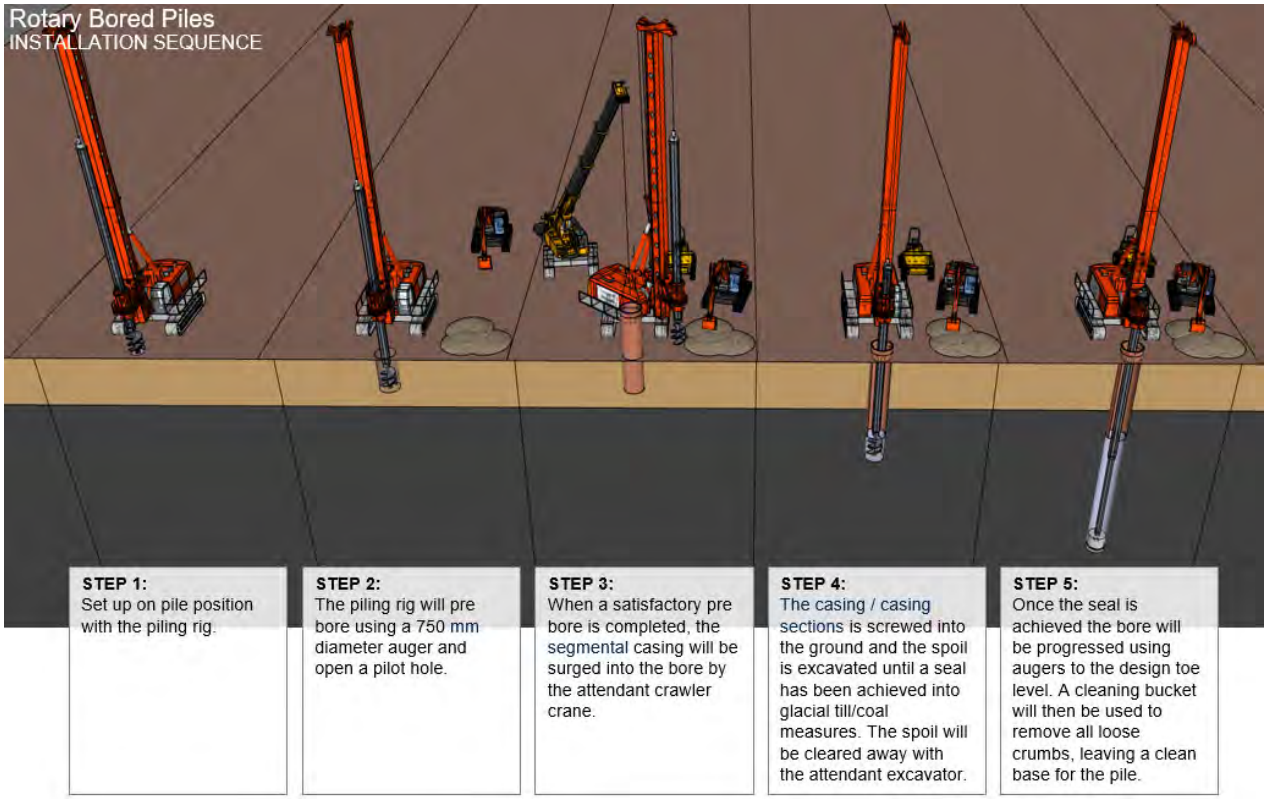
BAM Project Office
C/O CFG Campus
Off Gibbon St/ Alan Turing Way

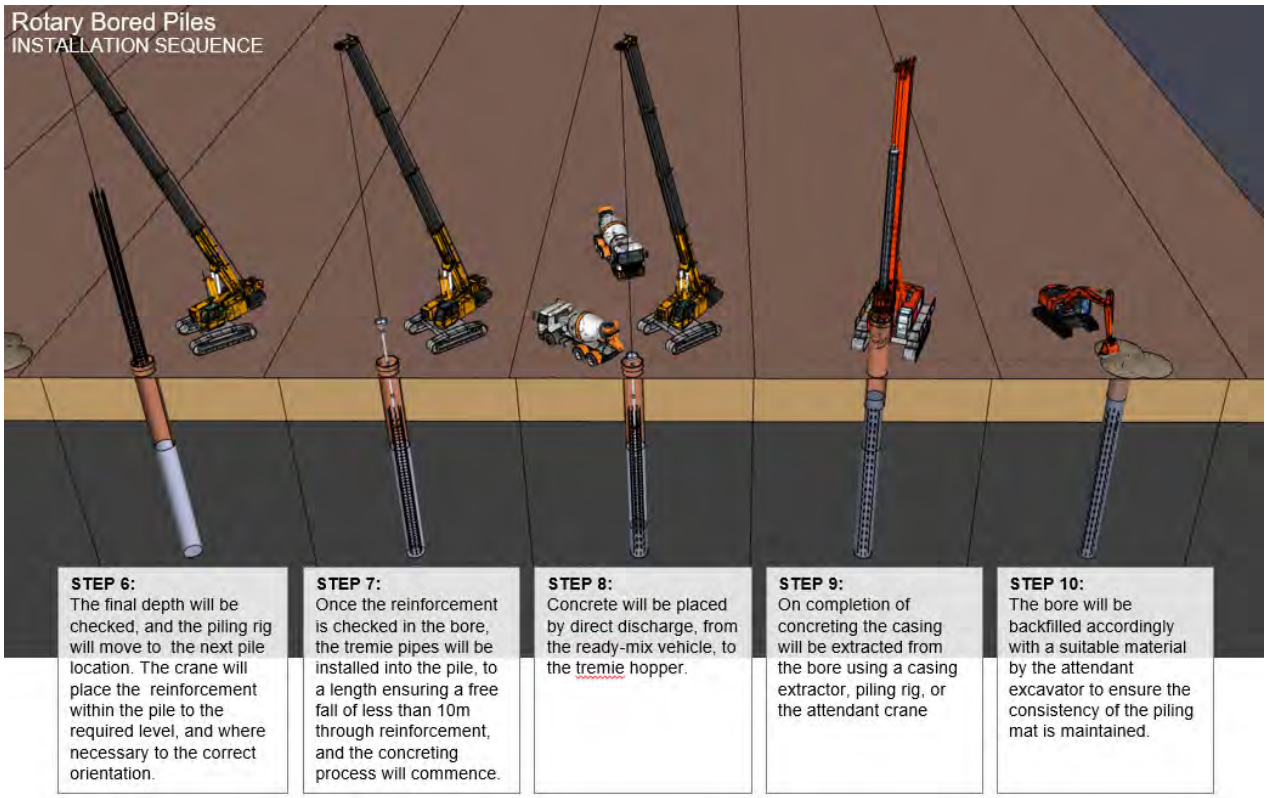
Manchester
Post Code: M11 3DU

1.5 Description of Works

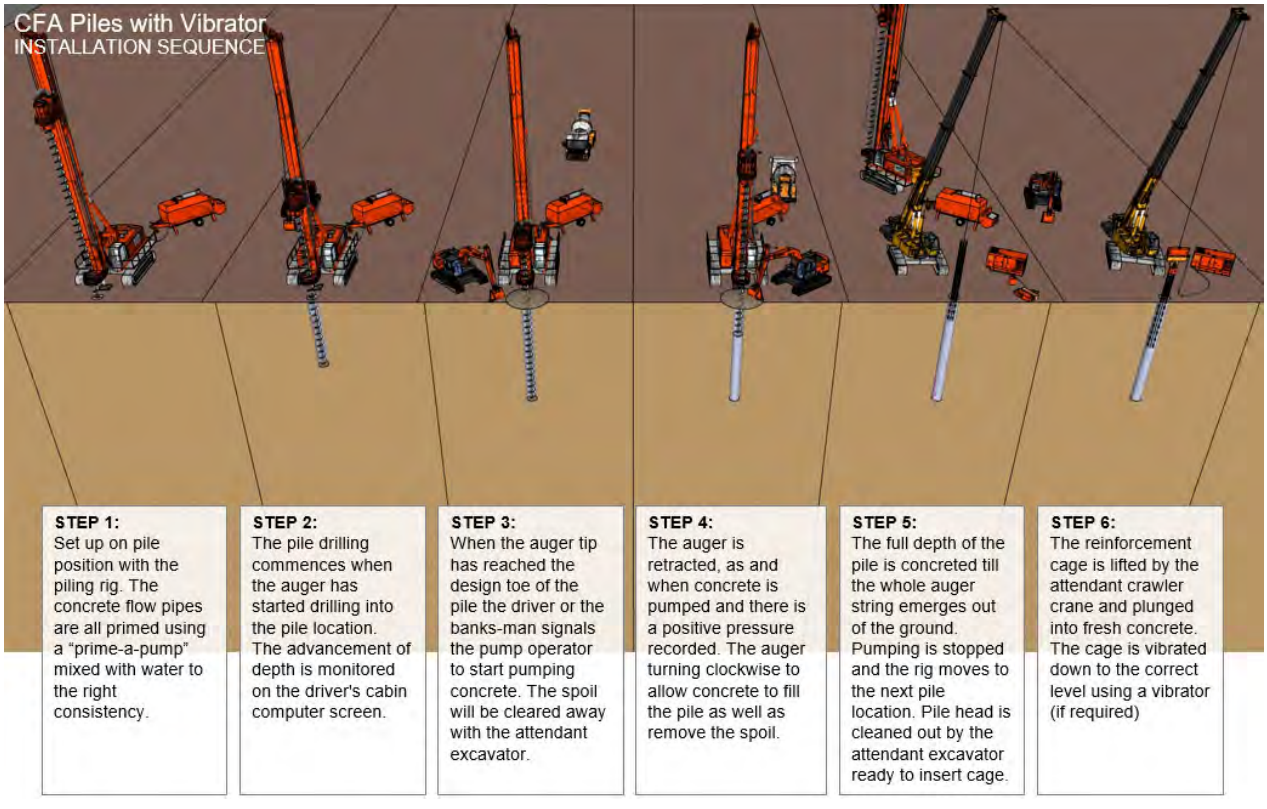
The works involve the installation of rotary bored piles and contiguous flight auger piles at depths that will be established after the probing and grouting works feedback and complementary preliminary test piles to validate current design assumptions and potential value engineering exercise. Upon completion of the piling works and the piles being trimmed to cut-off level by others, 100% integrity testing will be conducted.

Rotary Bored Piles Pictorial Procedure:





CFA Piles Pictorial Procedure:



2 Programme

2.1 Contract Programme

The contract programme is attached within *appendix B*.

Brief outline of Contract programme and Key dates

- Site Access for Preliminary Test Piles – 18th January 2020 ~ 5 Weeks Duration
- Site Access for Main Piling Works – 29th March 2021 ~ 20 Weeks Duration

2.2 Working Hours

Monday to Friday	08:00 – 18:00 hrs
Saturday	08:00 – 13:00 hrs – (not currently required)

It is anticipated that the delivery of abnormal loads and some concreting works may be undertaken out of hours. If extension of working hours is required, applications will be made to the appropriate local authority.

3 Risk Assessments and Method Statements (RAMS)

Our site activities are broken down into various activities and each of these have a combined risk assessments and method statement. These are listed within appendix C and will be briefed to the appropriate operatives.

- 22D990-CSL-00-F1-MS-X-0001 P01 Rotary Piling.pdf
- 22D990-CSL-00-F1-MS-X-0002 P01 Rotary piling mobilisation.pdf
- 22D990-CSL-00-F1-MS-X-0003 P01 CFA Piling.pdf
- 22D990-CSL-00-F1-MS-X-0004 P01 CFA Mob.pdf
- 22D990-CSL-00-F1-MS-X-0023 P01 Welding cutting and grinding.pdf
- 22D990-CSL-00-F1-MS-X-0027 P01 ClearingBlockages.pdf
- 22D990-CSL-00-F1-MS-X-0035 P01 Tremie use.pdf
- 22D990-CSL-00-F1-MS-X-0036 P01 Environmental.pdf
- 22D990-CSL-00-F1-MS-X-0037 P01 Deliveries & unloading.pdf
- 22D990-CSL-00-F1-MS-X-0038 P01 Health.pdf
- 22D990-CSL-00-F1-MS-X-0039 P01 Electrical Work.pdf
- 22D990-CSL-00-F1-MS-X-0040 P01 Refuelling.pdf
- 22D990-CSL-00-F1-MS-X-0042 P01 Load testing.pdf
- 22D990-CSL-00-F1-MS-X-0043 P01 Integrity testing.pdf
- 22D990-CSL-00-F1-MS-X-0050 P01 Pressure Washer.pdf
- 22D990-CSL-00-F1-MS-X-0060 P01 Manual Handling.docx.pdf
- 22D990-CSL-00-F1-MS-X-0061 P01 - MEWP.pdf
- 22D990-CSL-00-F1-MS-X-0062 P02 Pathways Contamination.pdf
- 22D990-CSL-00-F1-MS-X-0063 P01 Covid 19.pdf

4 Inspection and Test Plan (ITP)

The inspections, checks and tests required to undertake our work to ensure compliance with the agreed specification are listed within the Inspection and Test Plan (see *Appendix D)*. The ITP is derived from the contract requirements / specification and our best practices. The ITP may include hold points as required and inspection points linked to each activity to ensure that each stage is undertaken as specified.

The ITP will be briefed to the relevant site personnel.

5 Lifting including MEWPS

5.1 Lifting Operations

All our lifting operations will comply with LOLER Regulations 1998 and BS7121.

In accordance with CSL standard practice, all lifts will be planned by a CPCS qualified competent Appointed Person.

All lifting operations involved in our works will be covered within a specific Lift Plan (*See Appendix E*). Our Appointed Person will assess and specify how to undertake the lift in the plan. The Crane Supervisor (likely to be the Contract Supervisor) is responsible for ensuring lifting is undertaken safely in accordance with the Lift Plan.

All personnel involved with the lifting operation, including the crane operator, will be briefed on and sign up to the relevant lift plan. In addition, the contract Lifting RAMS, as detailed in the Lift Plan will be briefed. (*See Appendix E*).

The Crane Supervisor / Appointed Person will ensure that all lifting equipment is inspected and operator certificates are checked prior to first use; and ensure the crane is set up and used as detailed within the Lift Plan.

A lifting accessory colour code scheme is in operation and only items with the current colour code will be used. Prominently positioned site notices identify the current colour code in place for a given period.

5.1 Use of MEWPS

MEWPs (if required) shall be fitted with sky sirens or similar. Any machine supplied in attendance to CSL will need to comply with this requirement. MEWPs (Z45 type) fitted with all terrain tyres are standard issue on CSL sites generally used to assist rigging and de-rigging and then held on site for use should the need arise.

All personnel involved with the MEWP operation, including the banksman, will be briefed on and sign up to the relevant MEWP plan. In addition, the contract MEWP RAMS, as detailed in the MEWP Plan will be briefed. (*See Appendix E*).

Note - Provided a minimum 300mm thick stone platform is laid (minimum thickness in accordance with BR470 Working Platforms for Tracked Plant) there is no bearing capacity issue with regard to the use of MEWPS on site and these are suitable for use without any outrigger pads or spreader plates etc.

Only competent IPAF trained operators are permitted to operate the MEWP on site.

5.3 Thorough Examinations

All CSL lifting accessories and equipment are thoroughly examined in accordance with LOLER at 6 monthly intervals by an independent body.

Copies of relevant Thorough examination reports are held in the cab for cranes / rigs / MEWPS and are available for inspection at any time.

6 Resources

6.1 Work Force

6.1.1 Project Management Team

Our Supervision and management details for works described in this method statement are, as below.

CSL Project Role	*Name*	*Contact details*
Project Director	Caroline Rookes	07971 609 584
Operations Manager	Vitor Marques	07342 049 279
Senior Project Manager	Gavin Clifford	07342 049 270
Senior Project Engineer	Dave Sivills	07876 872 287
Graduate Engineer	Oliver Partington	
Temporary Works Coordinator	Gavin Clifford	07342 049 270

EHS Manager	Phil Matthews	07813 609 933
QA Manager	Peter Smith	07802 469 589
Commercial Manager	Jonothan Hutchinson	07341 129 525
Quantity Surveyor	Martin Tinlin	07392 091 996
Construction Manager	George Reynolds	07740 640 075
Contract Supervisor	Hugo Collum	07971 190 891
Appointed Person	Gavin Clifford	07342 049 270
Crane Supervisor	Hugo Collum	07971 190 891
First Aider	Hugo Collum	07971 190 891

6.1.2 Project Operatives

Project Role / Activity	*Number of Personnel*	*Certification / Competence Required*
Contract Supervisor	2No	CSCS, SSSTS
Rig Operator	4No	CPCS, CITB, iPAF
Crane Operator	4No	CPCS
Appointed Person (lifting)	1No	CPCS
Banksman	8no	CPCS
Concrete Ganger	4 no	CPCS
Fitter	1no	CPCS

6.1.3 Operatives Training

All operatives on site will have the following core training -

- CSCS / CPCS Card
- Site Specific Induction - BAM
- Site Induction – CSL
- Daily Briefing – CSL
- Daily Briefing – Daily Activity Safe Start -
- RAMS / Lift Plan Briefings / ITP (briefed as required)
- IFE (Injury Free Environment) – this behavioural safety program has been ongoing within the business for more than 10 years).

All CSL site inductions and Risk Assessment / Method Statement briefings will be undertaken by the Project Manager (or their appointed delegate). A record of all briefings will be retained on site.

All CSL personnel employed on site are required to make applicable certification available for inspection upon request.

A full record is also kept of the weekly Tool Box Talks (TBT), which are given by the Contract Supervisors and Engineers. Additional TBTs are also carried out if a specific and / or unexpected hazard is identified.

6.2 Plant / Equipment

The following plant / equipment will be used specifically in relation to this method statement.

Piling Rig	Cementation Skanska – details (*Appendix F)*
Crawler Crane	Rental from approved supplier
Compressors	Rental from approved supplier
Jet Wash Bowsers	Rental from approved supplier
Fuel bowser	Rental from approved supplier
Air compressor	Rental from approved supplier
Concrete Pumps	Cementation Skanska
Concrete Agitators	Rental from approved supplier
Tool Container	Cementation Skanska
Testing Beams	Cementation Skanska
Ancillary Tools – Drilling equipment	Cementation Skanska

All items of plant equipment and tools shall be subject to a daily inspection / maintenance regime to ensure they remain fit for use. This will be carried out by the respective operators and appropriate maintenance records maintained.

CSL Field Service Team operate a Planned Plant Maintenance (PPM) Scheme.

It is a Skanska UK requirement that Excavators must be fitted with double locking quick hitch systems.

Over Appendix E is identified Noise and Whole-Body Vibration Assessments of a Piling Rig in CFA and Rotary drilling technique mode in a real environment (page 196) that was considered to provide the risk assessments for the piling activity.

6.3 Materials

6.3.1 General materials

Listed below are the materials likely to be associated with our works.

Material	*Storage Arrangements*	*Hazardous*	*COSHH Assessment*
Concrete	Ready mic concrete lorries / agitator	Yes	Yes
Reinforcement	On timbers in a suitable location	No	No
Diesel	Double bunded fuel bowser in CSL site compound	Yes	Yes
Greases	Within CSL stores container	Yes	Yes
Engine Oil	Within CSL stores container	Yes	Yes
Hydraulic Oil	Within CSL stores container	Yes	Yes
Oxygen	Locked cage in CSL site compound – if required	Yes	Yes
Propane	Locked cage in CSL site compound – if required	Yes	Yes

Cementation use the SYPOL COSHH Management System to produce COSHH assessments (*see Appendix H)* using manufacturer's safety data sheets and relevant exposure scenarios. An up to date register of all hazardous substances and associated assessments will be held within the site file.

Substances will be used in accordance with the requirements of the COSHH assessment.

Briefing of COSHH Assessments will be carried out during the Cementation induction.

Special emphasis will be placed on briefing unusual or first use substance.

6.3.2 Concrete

All ready mixed concrete shall be manufactured to comply with the requirements of BS EN206-1:2000 and BS 8500- 2:2006.

Concrete plants (main supply and back up) shall be accredited by UKAS, and shall comply with the quality and product conformity regulations of one of the quality schemes for ready mixed concrete (QSRMC or BSI) which incorporate the requirements of BS EN ISO 9001.

Concrete mix designs will be submitted for approval

6.3.3 Reinforcement

Reinforcement steel shall be procured from a CARES approved supplier.

Reinforcement cages will be fabricated in accordance with the Construction Drawings and Detailed Design Documentation.

All reinforcement will be delivered to site and unloaded / stored in an agreed area of the site. Any 'single use' slings used for slinging loads will be cut immediately following unloading. Unloading will be carried out in accordance with the Lift Plan under the supervision of the Crane Supervisor.

6.4 Attendances

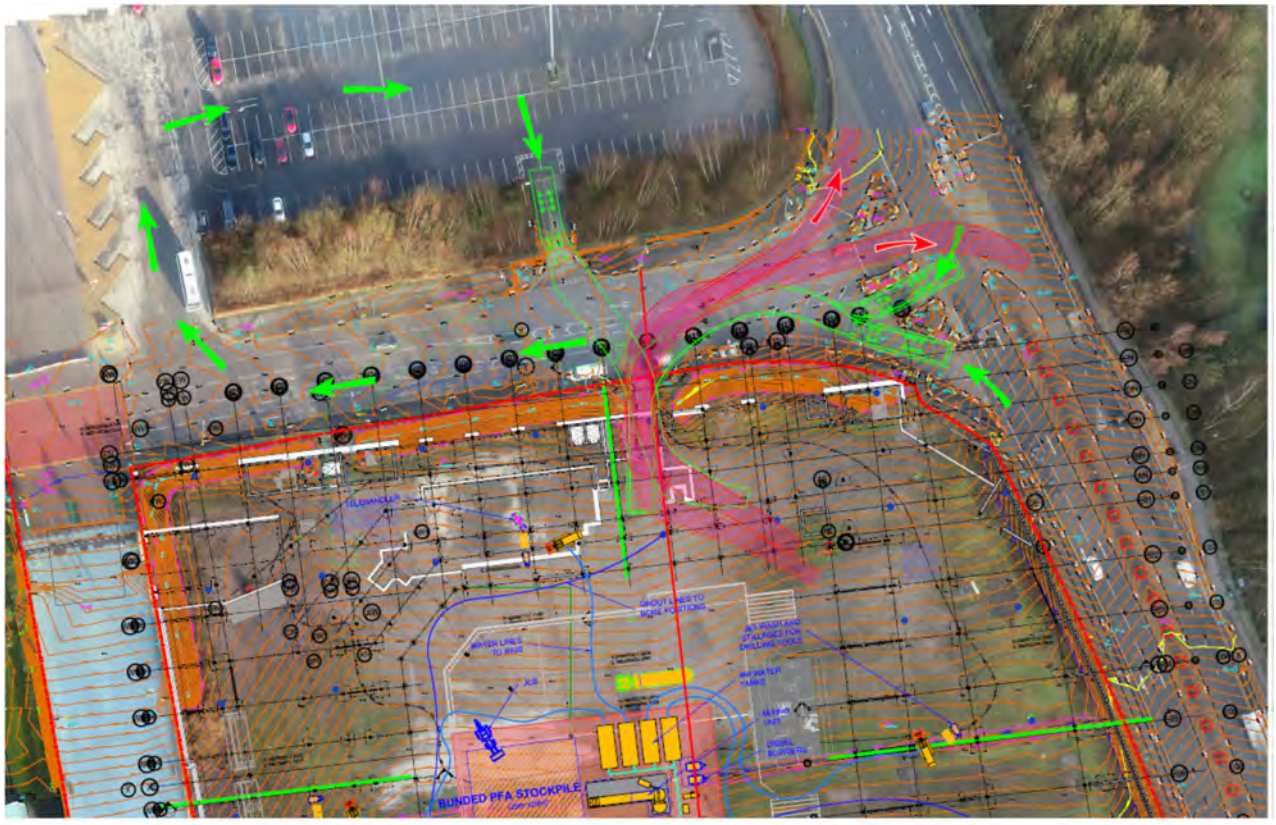
The Principal contractor will provide the necessary attendances in accordance with the trade contract.

Full FPS attendance responsibilities will be provided by the PC

(http://www.fps.org.uk/fps/guidance/commercial/facilattend/F+A(PDW)-August%202015.pdf)

7 Site Specific Control Measures

7.1 Access



BAM Project Office
C/O CFG Campus
Off Gibbon St/ Alan Turing Way
Manchester
Post Code: M11 3DU

Site access route are shown above. All deliveries will be advise to the client before arrival.

7.2 Traffic Management / Skanska Vulnerable Road Users Policy

CSL will adhere to the Site Traffic Management Plan implemented by the Principal Contractor. A copy should be provided to CSL, along with any revisions, which will then be briefed to the site team.

In addition to the main traffic management plan, CSL will ensure that all vehicles are suitably managed whilst within their area of control and that all drivers are made aware of the Traffic Management Plan and associated routes.

The Skanska Vulnerable Road Users Policy details specific requirements for transport and delivery vehicles to safeguard other road users particularly cyclists. Details of the required equipment to be fitted to vehicles is contained in our RAMS for Delivery (see *Appendix C).*

7.3 Working Platform

CSL are a fully audited member of the Federation of Piling Specialists (FPS) and as such have adopted the Federation of Piling Specialists (FPS) Working Platform Certificate as a mandatory requirement for all project sites. Information for Principal Contractors is available via :http://www.fps.org.uk/fps/platforms/platforms.php

The working platform shall be suitably engineered, firm and level. This shall conform to the Federation of Piling Specialists (FPS) Specification and be designed, prepared and installed in advance of the piling works. The platform shall be regularly checked and maintained for the duration of the piling works.

Plant and equipment details are attached within *Appendix F* with the applicable bearing pressures.

Once the platform is prepared and prior to any loading, a suitably competent person from the Principal Contractor (PC) shall sign and issue a Working Platform Certificate specific to each working area, an example of the Working Platform Certificate is attached (see *Appendix H)*. The Working Platform Certificate shall be in place and issued to our Contract Supervisor prior to unloading any plant or equipment on site.

The Working Platform Certificate shall confirm the following:-

- Suitability of the platform and access routes to be loaded by specified plant and equipment
- The perimeter / extent of the platform (this should be clearly marked on site)
- The extent of any verification testing which may be required.
- Piling Platform Commencement Levels.

Operation and Maintenance procedure:

- The working platform shall be visually inspected daily by the Contract Supervisor (CS) and shall be subject to at least a weekly inspection by the PC's Temporary Works Coordinator (TWC).
- The weekly inspection will require the rear of the original Working Platform Certificate to be signed by the PC's TWC.
- Approval must be obtained from the PC TWC prior to any alterations to the piling platform.
- After any alterations to the piling platform, such as excavation for drains, removal of obstructions or after periods of inclement weather, the piling platform must be re-certified with either the re-signed original certificate accordingly or a new certificate.

7.4 Permits, Licenses and Consents

The following permits are required for the works:

- Permit to Dig
- Hot works Permit
- Permit to Load

7.5 Interface Arrangements / Third Parties Affected by the Work

The works are located with a fenced off site and currently there are no works that will involve interaction with the public.

7.6 Welfare

Welfare and changing facilities will be suitable and be provided by the principle contractor for all operatives on site. Office space will be provided for management and engineers. The main offices are separate from the works site. At the mixing compound a small office/drying room unit will be established (if deemed required) by CSL to assist in managing the day to day operations.

7.7 Personal Protective Equipment (PPE)

As a minimum the following items are mandatory articles of PPE required to undertake the activities identified within this method statement.

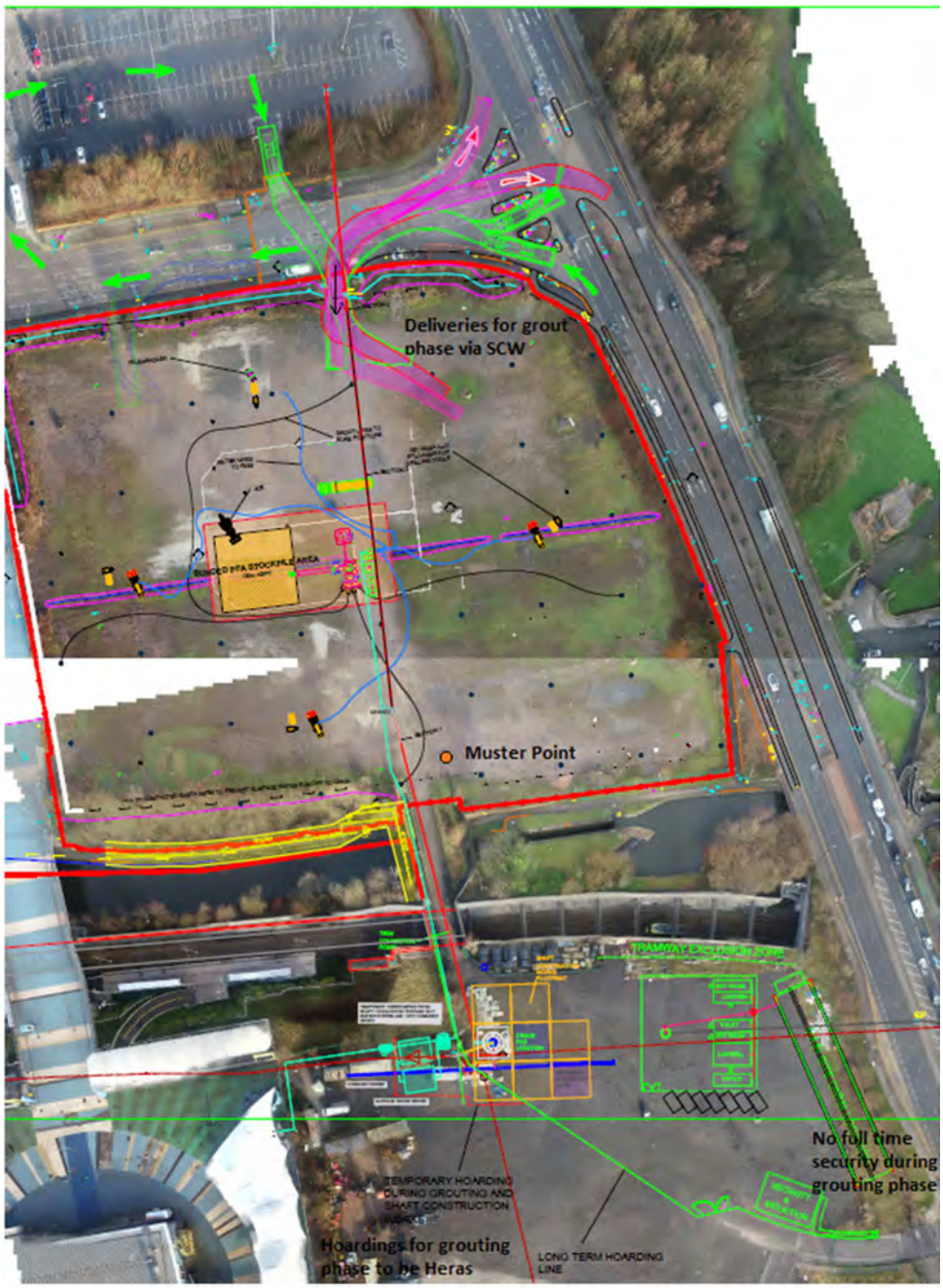
- Hard hat to EN 397
- Orange Hi Visibility Jacket to EN 471
- Orange Hi Visibility Trousers to EN471
- Steel toe capped boots with mid sole protection
- Eye protection to EN 166 (unless deemed otherwise)
- Gloves (EN 388)

Any PPE which is required in addition or in lieu of the minimum mandatory items will be detailed within the task briefing.

8 Emergency Procedures

Cementation Skanska will work in accordance with the PC's Emergency Preparedness Plan (EPP), A copy of which will be made available on site.

8.1 Emergency Access and Egress

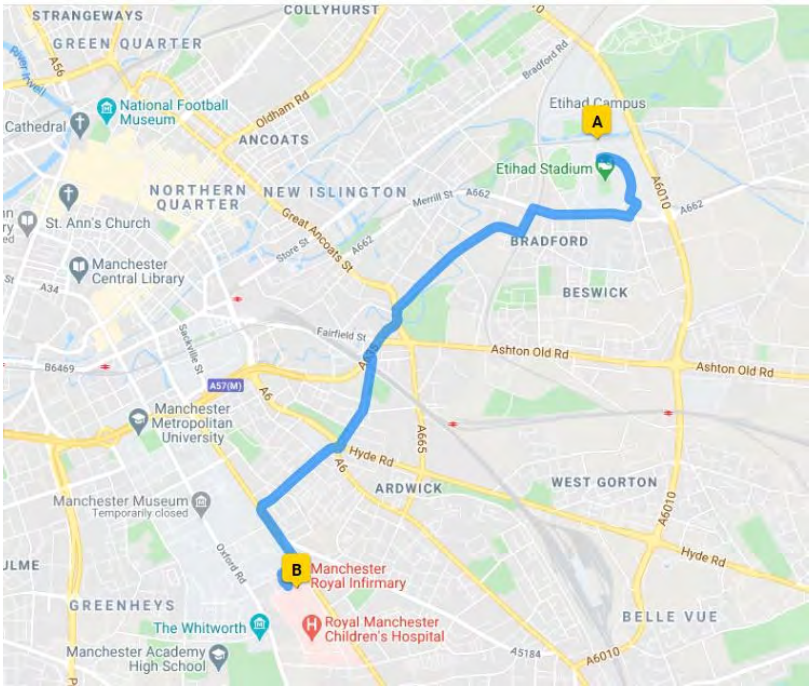


Note: Emergency access to the site will be via Sports City Way and via Gibbon Street to the compound area

8.2 Nearest Hospital Locations

The nearest Accident & Emergency Department is:-

Hospital A and E	Manchester Royal Infirmary	Oxford Road Manchester M13 9WL M8 5RB	0161 276 1234



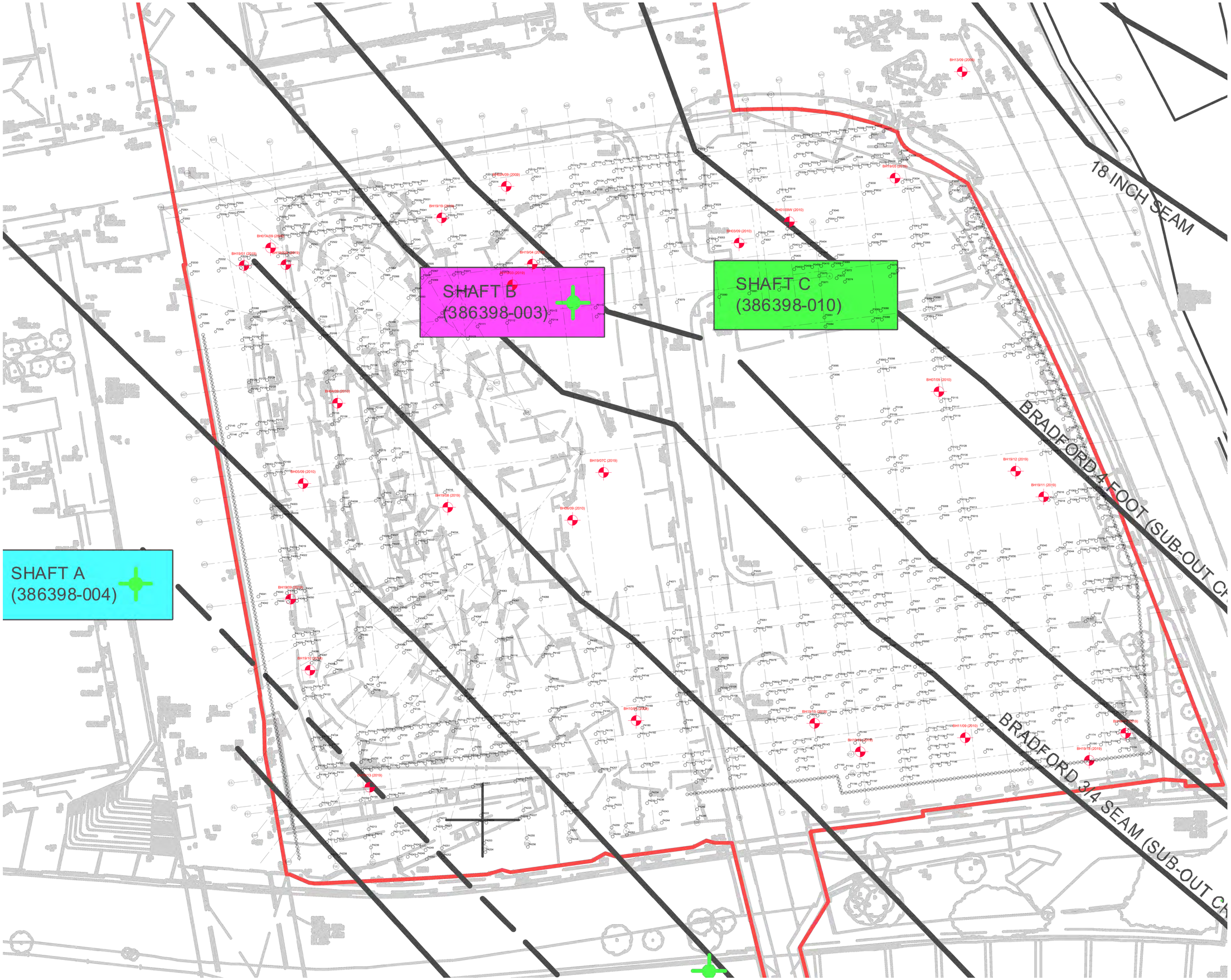
8.3 Reporting Procedures

CSL use an Incident Reporting Desk (0845 6050477) for reporting / recording of all quality, environmental, health and safety related accidents, incidents and near misses.

These reports are allocated a severity level based on their potential outcome and are circulated to relevant managers. Dependant on severity level, further investigations are carried out either locally or by the Health and Safety Professionals.

ALL accidents / incidents will be reported in a timely manner to the CS and the PC.

Appendix A Site Layout / Drawings / Sketches



NOTES

1. PILE POSITIONS AND NUMBERS TAKEN FROM SCHEDULE :-
BRA-BHE-XX-XX-SC-S-0010 EXTRACTED

2. BOREHOLE POSITIONS TAKEN FROM EXCEL:-
EXTRACTED BOREHOLE INFORMATION_BOREHOLES USED (UPDATED 070420)

3. GRIDLINES EXTRACTED FROM REVIT MODEL:-
BRA-BHE-ZZ-ZZ-M3-S-1001 - (LEVEL PL)

4. CONTIGUOUS PILED WALL LINE COORDINATES TAKEN FROM PDF:-
BRA-BHE-ZA-PL-DR-S-0701
BRA-BHE-ZB-PL-DR-S-0702
BRA-BHE-ZC-PL-DR-S-0703
BRA-BHE-ZD-PL-DR-S-0704

REV	MODIFICATION	BY	DATE

Status: S2 - FIT FOR INFORMATION

Cementation
SKANSKA

Head Office
Mail: Maple Cross House, Denham Way, Maple Cross, Rickmansworth, Hertfordshire, WD3 9SW
Phone: +44 (0) 1923 423100
Fax: +44 (0) 1923 423681

Job: BRADFORD

Drawing Title: BEARING PILE ARRANGEMENT WITH LOCAL BOREHOLES

Scale:	Drawn By	Checked
A1 @ NTS	O.H	Z.B
Project No.	**Date**	**Approved**
22D990	08/07/20	Z.B

Drawing Number	Revision
22D990-CSL-00-F1-SK-X-0008	P01

BH13/09 (2009)
45.888

BH02A/09 (2009)
41.306

BH19/19 (2019)
43.63

BH01/09Y (2010)
41.8

BH01A/09 (2009)
39.749

BH01/09X (2010)
41.9

BH19/02A (2019)
40.08

BH19/01 (2019)
39.87

BH01/09Z (2010)
42.12

BH19/04 (2019)
43.28

BH19/03 (2019)
41.96

BH01/09W (2010)
41.86

BH03/09 (2010)
41.114

BH19/05 (2019)
44.01

BH19/06 (2019)
45.1

BH19/22 (2019)
49.21

BH07/09 (2010)
44.55

BH04/09 (2010)
44.767

BH19/21 (2019)
47.82

BH19/20 (2019)
50.43

BH19/07C (2019)
45.31

BH05/09 (2010)
43.658

BH19/08 (2019)
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BH06/09 (2010)
46.19

BH19/12 (2019)
48.02

BH19/11 (2019)
45.06

BH19/24 (2019)
51.36

BH19/09 (2019)
45.18

BH19/23 (2019)
51.59

BH19/25 (2019)
53.59

BH19/10 (2019)
45.86

BH09/09 (2010)
48.929

BH10/09 (2009)
47.516

BH19/15 (2019)
47.22

BH19/16 (2019)
47.2

BH11/09 (2010)
45.004

BH19/17 (2019)
46.85

BH19/18 (2019)
48.52

BH19/14 (2019)
44.52

BH19/13 (2019)
42.74

BH19/26 (2019)
51.78

SURFACE LEVEL DATA

NUMBER	MINIMUM LEVEL	MAXIMUM LEVEL	COLOUR
1	48.00	49.00	
2	47.00	48.00	
3	46.00	47.00	
4	45.00	46.00	
5	44.00	45.00	
6	43.00	44.00	
7	42.00	43.00	
8	41.00	42.00	
9	39.00	41.00	
10	NO ROCK LEVEL		

NO ROCK POSITIONS SHOWING BOREHOLE TERMINATION LEVELS

NOTES

1. PILE POSITIONS AND NUMBERS TAKEN FROM SCHEDULE :-
BRA-BHE-XX-XX-SC-S-0010 EXTRACTED

2. BOREHOLE POSITIONS TAKEN FROM EXCEL:-
ADDITIONAL BOREHOLE LOCATIONS FOR DRAWINGS

3. GRIDLINES EXTRACTED FROM REVIT MODEL:-
BRA-BHE-ZZ-ZZ-M3-S-1001 - (LEVEL PL)

4. CONTIGUOUS PILED WALL LINE COORDINATES TAKEN FROM PDF:-
BRA-BHE-ZA-PL-DR-S-0701
BRA-BHE-ZB-PL-DR-S-0702
BRA-BHE-ZC-PL-DR-S-0703
BRA-BHE-ZD-PL-DR-S-0704

REV	MODIFICATION	BY	DATE

Status: S2 - FIT FOR INFORMATION

Cementation SKANSKA

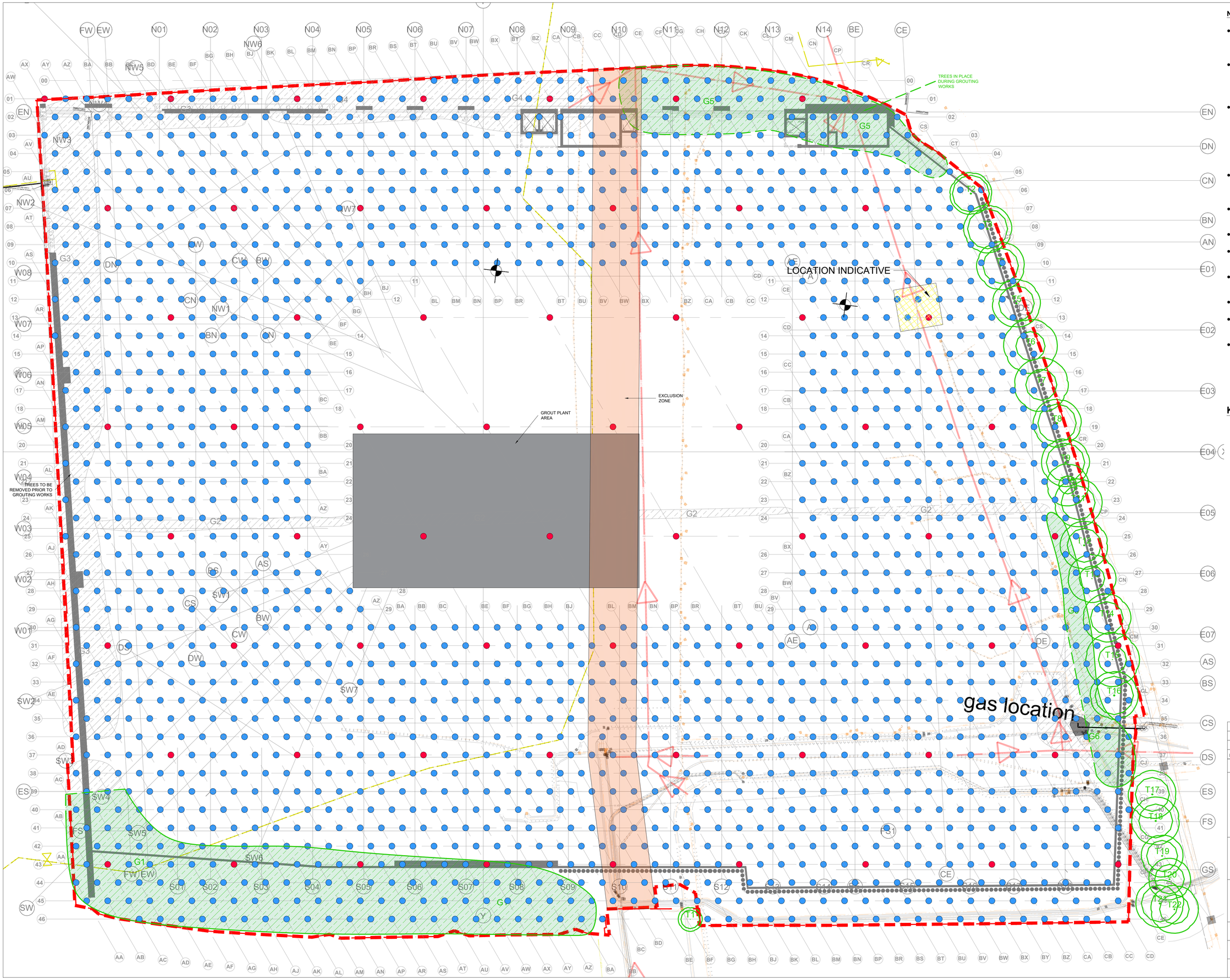
Head Office
Mail: Maple Cross House, Denham Way, Maple Cross, Rickmansworth, Hertfordshire, WD3 9SW
Phone: +44 (0) 1923 423100
Fax: +44 (0) 1923 423681

Job: BRADFORD

Drawing Title: BEARING PILE ARRANGEMENT WITH LOCAL BOREHOLES

Scale:	Drawn By	Checked
A1 @ NTS	O.H	J.R
Project No.	**Date**	**Approved**
22D990	29/07/20	Z.B

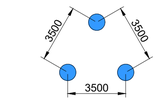
Drawing Number: 22D990-CSL-00-F1-SK-X-0009 | Revision: P02

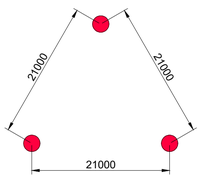


NOTES

- TREE POSITIONS TAKEN FROM CAD FILE:- ***'Tree Line.dwg'*** RECEIVED VIA EMAIL ON 05.10.20.
- SITE BOUNDARY, EXCLUSION ZONE AND GROUT PLANT AREA TAKEN FORM CAD FILE:- ***'Grouting Logistics with contours.dwg'.***
- GROUTING LAYOUT TO BE READ IN CONJUNCTION WITH PILE LAYOUT DRAWINGS:-
  - ***BRA-BHE-ZA-PL-DR-S-0701 P02***
  - ***BRA-BHE-ZB-PL-DR-S-0702 P02***
  - ***BRA-BHE-ZC-PL-DR-S-0703 P02***
  - ***BRA-BHE-ZD-PL-DR-S-0704 P02***
- CSL ACCEPTS NO LIABILITY FOR THE ACCURATENESS OF THE CONSTRAINTS DATA PROVIDED BY BAM OR OTHERS.
- PLATFORM CERTIFICATE AND PERMIT TO BREAK GROUND TO BE ISSUED BY BAM.
- MANAGEMENT OF SERVICES BY BAM.
- 3.5m GRID IS MINIMUM SPACING AND GROUND CONDITION DEPENDANT.
- SHAFT LOCATIONS APPROXIMATED FROM '***AREA C STABILISATION REPORT***'.
- ADDITIONAL SHAFT LOCATION UNKNOWN.
- BACKGROUND INFO SHOWN FROM: ***Grouting Constrains 4.11.20 - stripped.dwg***
- DRAWING CO-ORDINATED USING: ***Grouting Constrains 4.11.20 - stripped.dwg***

KEY.





SHAFT LOCATIONS (APPROXIMATE ONLY)

REV	MODIFICATION	BY	DATE
C02	BACKGROUND INFORMATION ADDED (SEE BACKGROUND NOTE)	S.A.W.	09/11/20
C01	ISSUED FOR CONSTRUCTION	J.H.	22/10/20

Status: FOR CONSTRUCTION

Cementation SKANSKA

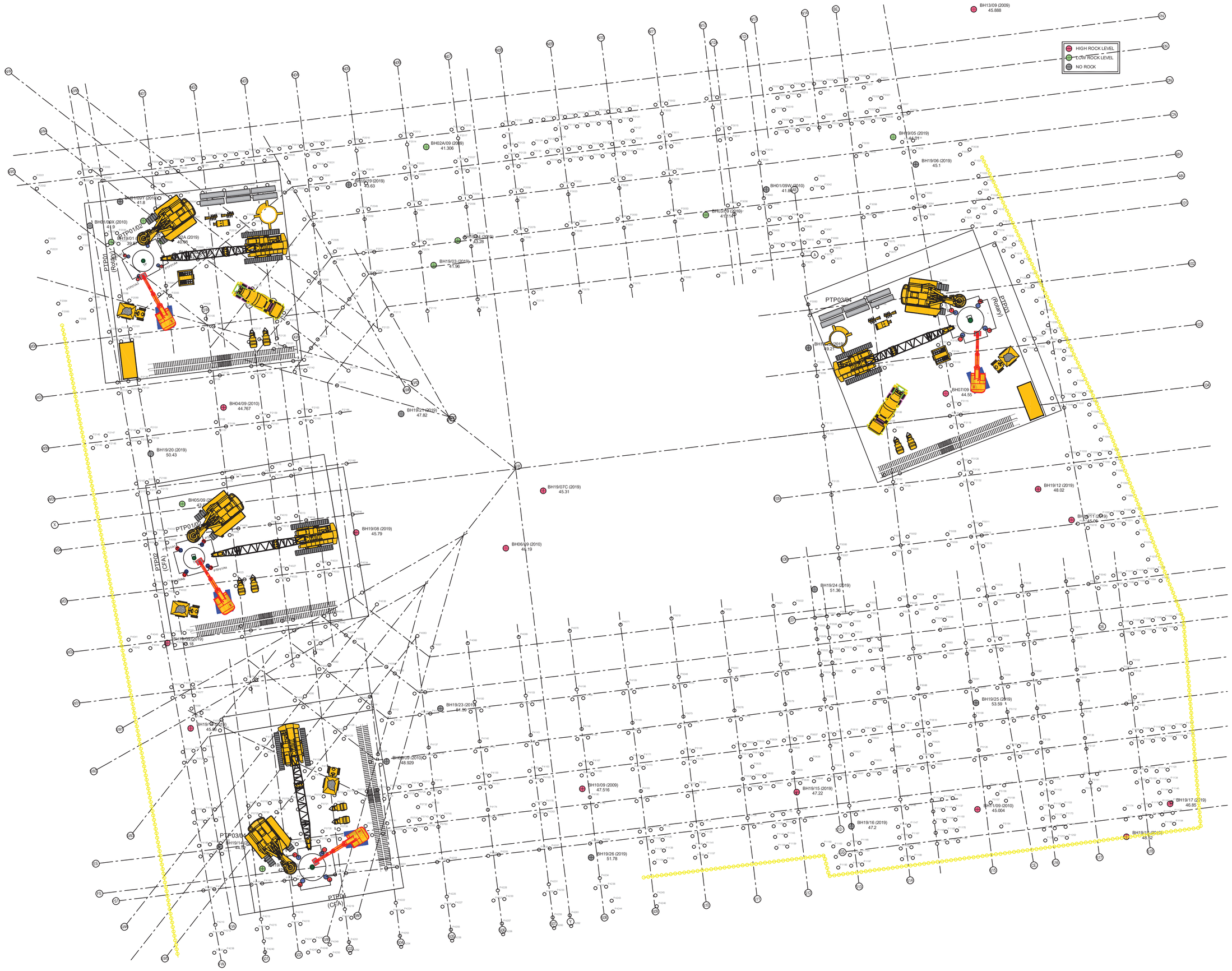
Head Office
Mail: Maple Cross House, Denham Way, Maple Cross, Rickmansworth, Hertfordshire, WD3 9SW
Phone: +44 (0) 1923 423100
Fax: +44 (0) 1923 423681

Job: PROJECT BRADFORD

Drawing Title: GENERAL GROUTING ARRANGEMENT

Scale:	Drawn By	Checked
A1 @ NTS	J.H	G.C
Project No.	**Date**	**Approved**
22D990	09/11/20	G.C

Drawing Number: 22D990-CSL-00-F1-SK-X-019 — Revision: C02



NOTES

1. PILE POSITIONS AND NUMBERS TAKEN FROM SCHEDULE :-
BRA-BHE-XX-XX-SC-S-0010 EXTRACTED

2. BOREHOLE POSITIONS TAKEN FROM EXCEL:-
ADDITIONAL BOREHOLE LOCATIONS FOR DRAWINGS

3. GRIDLINES EXTRACTED FROM REVIT MODEL:-
BRA-BHE-ZZ-ZZ-M3-S-1001 - (LEVEL PL)

4. CONTIGUOUS PILED WALL LINE COORDINATES TAKEN FROM PDF:-
BRA-BHE-ZA-PL-DR-S-0701
BRA-BHE-ZB-PL-DR-S-0702
BRA-BHE-ZC-PL-DR-S-0703
BRA-BHE-ZD-PL-DR-S-0704

5. PLATFORM AREA REQUIRED FOR EACH TEST PILE AS FOLLOWS:
   -- CFA 30M X 25M
   -- ROTARY 30M X 30M

6. TEST PILE ASSUMED PILING PLATFORM LEVEL

   PTP01 - ROT - 57.23mOD
   PTP02 - CFA - 58.73mOD
   PTP03 - ROT - 58.32mOD
   PTP04 - CFA - 60.30mOD

REV	MODIFICATION	BY	DATE

Status: S2 - FIT FOR INFORMATION

Head Office
Mail: Maple Cross House, Denham Way, Maple Cross, Rickmansworth, Hertfordshire, WD3 9BW
Phone +44 (0) 1923 423100
Fax +44 (0) 1923 423991

Job: BRADFORD

Drawing Title: TEST PILE LOCATIONS WITH LOCAL BOREHOLES

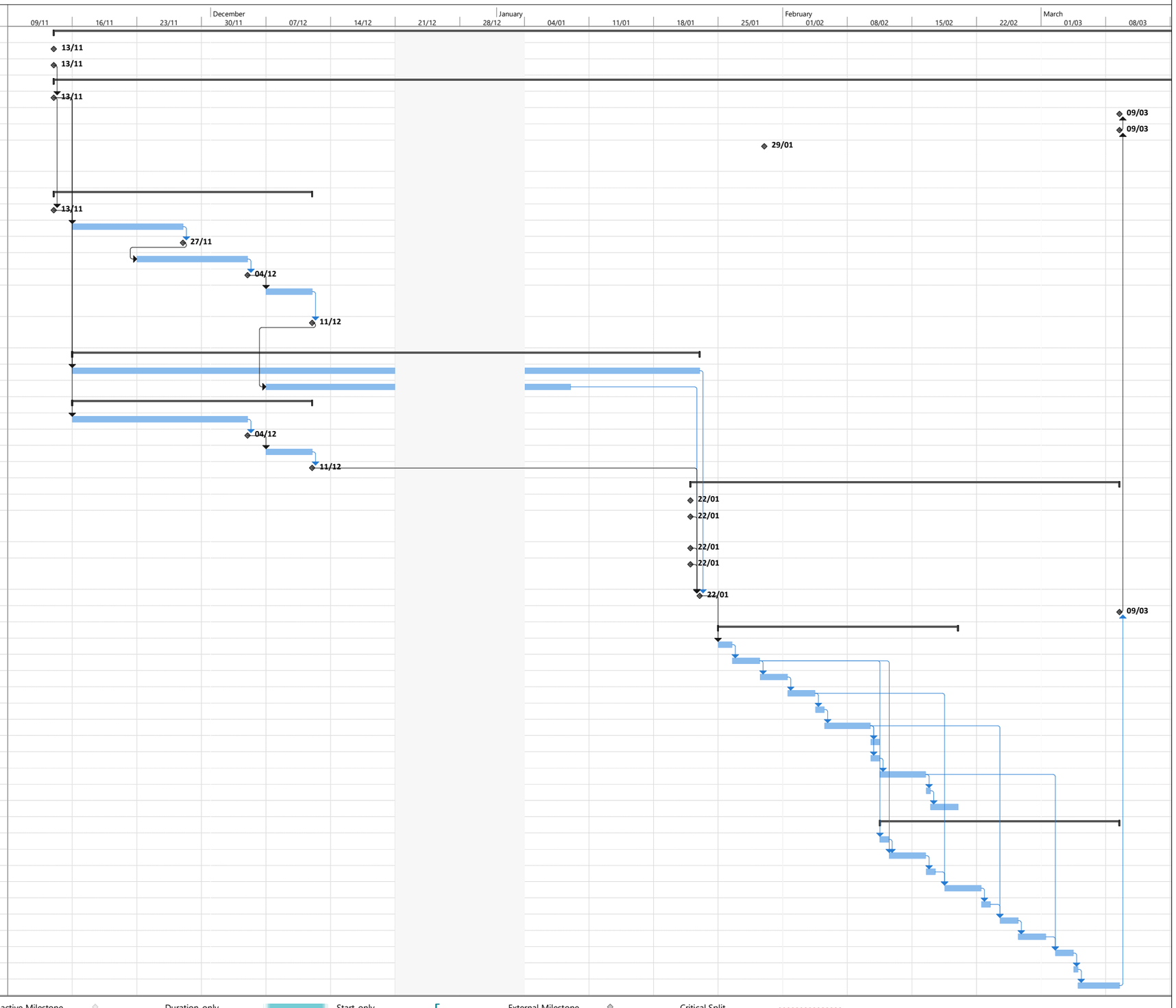
Scale:	Drawn By	Checked
A1 @ NTS	G.C	Z.B
Project No.	**Date**	**Approved**
22D990	23/10/20	V.M
Drawing Number		**Revision**
22D990-CSL-00-F1-SK-X-0021		P01

Appendix B Programme

Cementation
SKANSKA

22D990 - Project Bradford Prelim Test Piles_T01 - 19 Oct 2020.mpp Preliminary Test Pile works not including drilling & grouting or main piling works

ID	Task Name	Duration	Start	Finish
1	**22D990 - Project Bradford - Preliminary Test Piles**	**85 days**	**Fri 13 Nov '20**	**Mon 29 Mar '21**
2	**01 Contract Agreement**	**0 days**	**Fri 13 Nov '20**	**Fri 13 Nov '20**
3	Contract Award (Prelim Test Piles)	0 days	Fri 13 Nov '20	Fri 13 Nov '20
4	**02 Key Dates**	**85 days**	**Fri 13 Nov '20**	**Mon 29 Mar '21**
5	Starting date (PTPs)	0 days	Fri 13 Nov '20	Fri 13 Nov '20
6	Sub Contract Completion Date - physical works	0 days	Tue 09 Mar '21	Tue 09 Mar '21
7	Planned Completion Date - physical works	0 days	Tue 09 Mar '21	Tue 09 Mar '21
8	Proposed completion of drilling and grouting works (n.b. STAND-ALONE CONTRACT)	0 days	Fri 29 Jan '21	Fri 29 Jan '21
9	Proposed commencement of main piling works	0 days	Mon 29 Mar '21	Mon 29 Mar '21
10	**03 Design**	**20 days**	**Fri 13 Nov '20**	**Fri 11 Dec '20**
11	Client releases Construction Issue 'Design Data'	0 days	Fri 13 Nov '20	Fri 13 Nov '20
12	Cementation Complete Element Design	10 days	Mon 16 Nov '20	Fri 27 Nov '20
13	Cementation submit Element Design for Acceptance	0 days	Fri 27 Nov '20	Fri 27 Nov '20
14	Client review & acceptance period	10 days	Mon 23 Nov '20	Fri 04 Dec '20
15	Client confirms design acceptance	0 days	Fri 04 Dec '20	Fri 04 Dec '20
16	Cementation compile Pile Schedule, Reinforcement Cage drawings & Mix Design	5 days	Mon 07 Dec '20	Fri 11 Dec '20
17	Pile Schedule, reinforcement Cage Drawings and concrete mix design issued to client	0 days	Fri 11 Dec '20	Fri 11 Dec '20
18	**04 Procurement**	**40 days**	**Mon 16 Nov '20**	**Fri 22 Jan '21**
19	Lead in Period for Rig	40 days	Mon 16 Nov '20	Fri 22 Jan '21
20	Lead in Period for Pile Concrete & Reinforcement	15 days	Mon 07 Dec '20	Fri 08 Jan '21
21	**05 HSEQ Documentation**	**20 days**	**Mon 16 Nov '20**	**Fri 11 Dec '20**
22	Cementation prepare HSEQ Documentation	15 days	Mon 16 Nov '20	Fri 04 Dec '20
23	Issue HSEQ documentation for approval	0 days	Fri 04 Dec '20	Fri 04 Dec '20
24	Client Review period	5 days	Mon 07 Dec '20	Fri 11 Dec '20
25	HSEQ documentation approved	0 days	Fri 11 Dec '20	Fri 11 Dec '20
26	**06 Piling Operations**	**32.5 days**	**Fri 22 Jan '21**	**Tue 09 Mar '21**
27	**Client Deliverables**	**0 days**	**Fri 22 Jan '21**	**Fri 22 Jan '21**
28	Client issues permit to load / piling platform certificate to Cementation	0 days	Fri 22 Jan '21	Fri 22 Jan '21
29	Client issues permit to dig to Cementation	0 days	Fri 22 Jan '21	Fri 22 Jan '21
30	Client issues the full working area to Cementation	0 days	Fri 22 Jan '21	Fri 22 Jan '21
31	Commence on site operations	0 days	Fri 22 Jan '21	Fri 22 Jan '21
32	Complete on site operations	0 days	Tue 09 Mar '21	Tue 09 Mar '21
33	**Preliminary Test Pile Construction Works**	**20 days**	**Mon 25 Jan '21**	**Fri 19 Feb '21**
34	Mobilise rig 1 to site in rotary mode	1.5 days	Mon 25 Jan '21	Tue 26 Jan '21
35	Construct PTP #1 & anchor reaction piles	3 days	Tue 26 Jan '21	Fri 29 Jan '21
36	Intersite move	1 day	Fri 29 Jan '21	Mon 01 Feb '21
37	Construct PTP #2 & anchor reaction piles	3 days	Mon 01 Feb '21	Thu 04 Feb '21
38	Convert rig on site from rotary to CFA mode	1 day	Thu 04 Feb '21	Fri 05 Feb '21
39	Construct PTP #3 & anchor reaction piles	3 days	Fri 05 Feb '21	Wed 10 Feb '21
40	Demobilise rig 1	1 day	Wed 10 Feb '21	Thu 11 Feb '21
41	Mobilise rig 2 to site in CFA mode	1 day	Wed 10 Feb '21	Thu 11 Feb '21
42	Construct PTP #4 & anchor reaction piles	3 days	Thu 11 Feb '21	Tue 16 Feb '21
43	Demobilise rig 2 from site	0.5 days	Tue 16 Feb '21	Tue 16 Feb '21
44	Time risk allowance	3 days	Wed 17 Feb '21	Fri 19 Feb '21
45	**Pile Testing Works**	**18 days**	**Thu 11 Feb '21**	**Tue 09 Mar '21**
46	Mobilise test beams to site	1 day	Thu 11 Feb '21	Fri 12 Feb '21
47	Conduct Maintained load test #1	2 days	Fri 12 Feb '21	Tue 16 Feb '21
48	Move beams to next test location	1 day	Tue 16 Feb '21	Wed 17 Feb '21
49	Conduct Maintained load test #2	2 days	Thu 18 Feb '21	Mon 22 Feb '21
50	Move beams to next test location	1 day	Mon 22 Feb '21	Tue 23 Feb '21
51	Conduct Maintained load test #3	2 days	Wed 24 Feb '21	Fri 26 Feb '21
52	Move beams to next test location	1 day	Fri 26 Feb '21	Mon 01 Mar '21
53	Conduct Maintained load test #4	2 days	Tue 02 Mar '21	Thu 04 Mar '21
54	Demobilise test beams from site	0.5 days	Thu 04 Mar '21	Thu 04 Mar '21
55	Time risk allowance	2.5 days	Fri 05 Mar '21	Tue 09 Mar '21



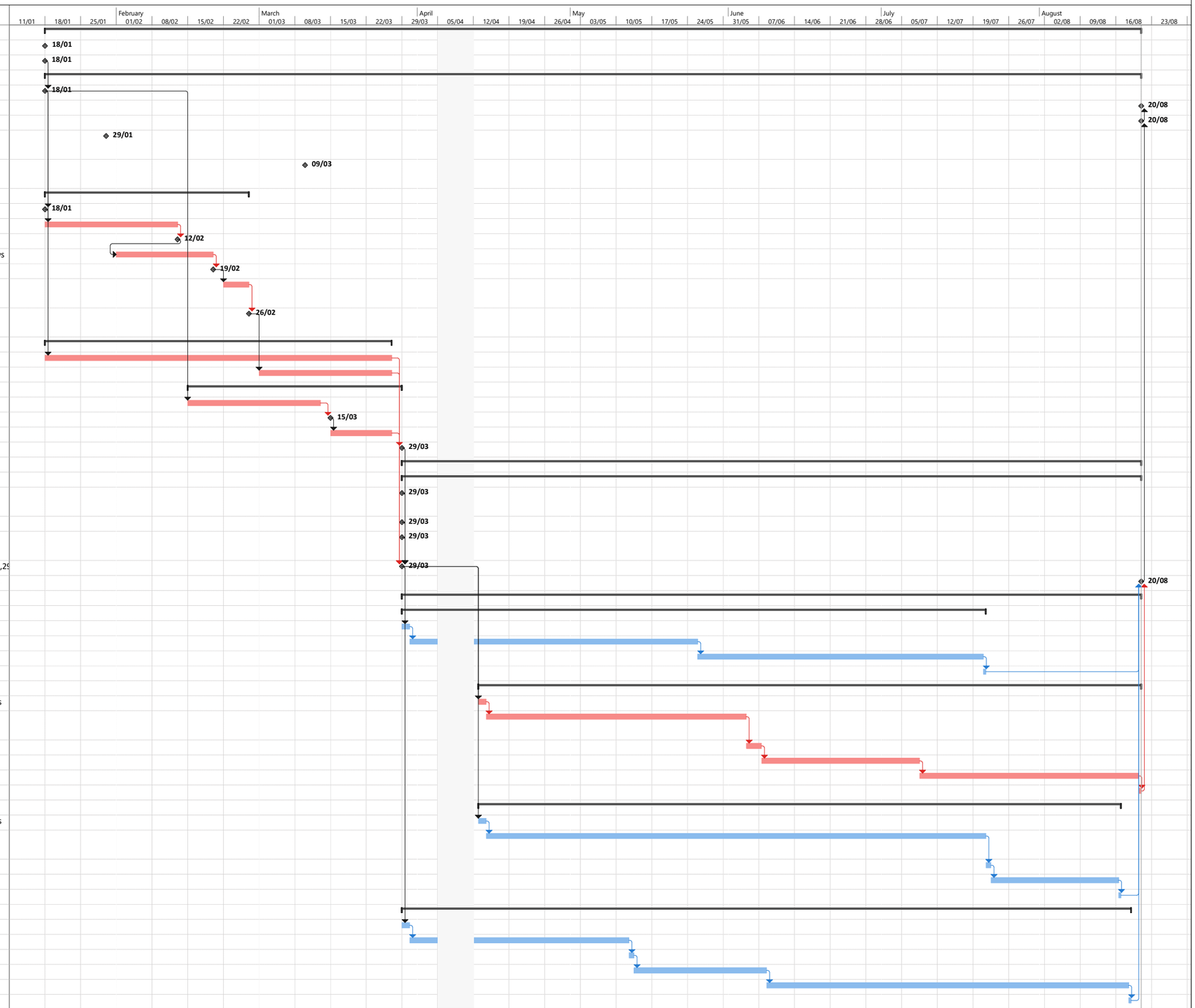
22D990 Project Bradford - PTP wo
Date: Mon 19 Oct '20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split	
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Progress	
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Manual Progress	

Cementation SKANSKA

22D990 - PB tender programme_T02 - 19 Oct 2020.mpp Main Piling works not including drilling & grouting or preliminary test piles

ID	Task Name	Duration	Start	Finish	Predecessors
1	**22D990 - Project Bradford - Main Piling contract**	**147 days**	**Mon 18 Jan '2**	**Fri 20 Aug '21**	
2	**01 Contract Agreement**	**0 days**	**Mon 18 Jan '2**	**Mon 18 Jan '21**	
3	Contract Award (Main Piling)	0 days	Mon 18 Jan '2	Mon 18 Jan '21	
4	**02 Key Dates**	**147 days**	**Mon 18 Jan '2**	**Fri 20 Aug '21**	
5	Starting date (Main Piling)	0 days	Mon 18 Jan '2	Mon 18 Jan '21	3
6	Sub Contract Completion Date - excluding testing	0 days	Fri 20 Aug '21	Fri 20 Aug '21	7
7	Planned Completion Date - excluding testing	0 days	Fri 20 Aug '21	Fri 20 Aug '21	32
8	Proposed completion of drilling and grouting works (n.b. Stand-alone contract)	0 days	Fri 29 Jan '21	Fri 29 Jan '21	
9	Proposed completion of preliminary pile tests (n.b. Stand-alone programme)	0 days	Tue 09 Mar '21	Tue 09 Mar '21	
10	**03 Design**	**30 days**	**Mon 18 Jan '2**	**Fri 26 Feb '21**	
11	Client releases Construction Issue 'Design Data'	0 days	Mon 18 Jan '2	Mon 18 Jan '21	5
12	Cementation Complete Element Design	20 days	Mon 18 Jan '2	Fri 12 Feb '21	11
13	Cementation submit Element Design for Acceptance	0 days	Fri 12 Feb '21	Fri 12 Feb '21	12
14	Client review & acceptance period	15 days	Mon 01 Feb '2	Fri 19 Feb '21	13FS-10 days
15	Client confirms design acceptance	0 days	Fri 19 Feb '21	Fri 19 Feb '21	14
16	Cementation compile Pile Schedule, Reinforcement Cage drawings & Mix Design	5 days	Mon 22 Feb '21	Fri 26 Feb '21	15
17	Pile Schedule, reinforcement Cage Drawings and concrete mix design issued to client	0 days	Fri 26 Feb '21	Fri 26 Feb '21	16
18	**04 Procurement**	**50 days**	**Mon 18 Jan '2**	**Fri 26 Mar '21**	
19	Lead in Period for Four Rigs	50 days	Mon 18 Jan '2	Fri 26 Mar '21	5
20	Lead in Period for Pile Concrete & Reinforcement	20 days	Mon 01 Mar '2	Fri 26 Mar '21	17
21	**05 HSEQ Documentation**	**30 days**	**Mon 15 Feb '2**	**Mon 29 Mar '2**	
22	Cementation prepare HSEQ Documentation	20 days	Mon 15 Feb '2	Fri 12 Mar '21	5
23	Issue HSEQ documentation for approval	0 days	Mon 15 Mar '2	Mon 15 Mar '2	22
24	Client Review period	10 days	Mon 15 Mar '2	Fri 26 Mar '21	23
25	HSEQ documentation approved	0 days	Mon 29 Mar '2	Mon 29 Mar '2	24
26	**06 Piling Operations**	**97 days**	**Mon 29 Mar '2**	**Fri 20 Aug '21**	
27	**Client Deliverables**	**97 days**	**Mon 29 Mar '2**	**Fri 20 Aug '21**	
28	Client issues permit to load / piling platform certificate to Cementation	0 days	Mon 29 Mar '21	Mon 29 Mar '21	
29	Client issues permit to dig to Cementation	0 days	Mon 29 Mar '2	Mon 29 Mar '2	
30	Client issues the full working area to Cementation	0 days	Mon 29 Mar '21	Mon 29 Mar '21	
31	Commence on site operations	0 days	Mon 29 Mar '2	Mon 29 Mar '2	19,20,25,28,2
32	Complete on site operations	0 days	Fri 20 Aug '21	Fri 20 Aug '21	38,45,51,58
33	**Main Piling Works**	**97 days**	**Mon 29 Mar '2**	**Fri 20 Aug '21**	
34	**Rig 1**	**74.5 days**	**Mon 29 Mar '2**	**Wed 21 Jul '21**	
35	Mobilise rig to site in rotary mode	1.5 days	Mon 29 Mar '2	Tue 30 Mar '21	31
36	Contig wall west elevation	33.5 days	Tue 30 Mar '2	Tue 25 May '21	35
37	Foundation piles	39 days	Wed 26 May '2	Tue 20 Jul '21	36
38	Demobilise Rig from site	0.5 days	Wed 21 Jul '21	Wed 21 Jul '21	37
39	**Rig 2**	**92 days**	**Tue 13 Apr '21**	**Fri 20 Aug '21**	
40	Mobilise rig to site in rotary mode	1.5 days	Tue 13 Apr '21	Wed 14 Apr '21	31FS+5 days
41	Contig wall south elevation (incl. temp buttresses)	35 days	Wed 14 Apr '21	Fri 04 Jun '21	40
42	Convert rig on site from rotary to CFA mode	1 day	Fri 04 Jun '21	Mon 07 Jun '21	41
43	Cores 5, 6 & 7 (South)	23 days	Mon 07 Jun '2	Thu 08 Jul '21	42
44	Foundation piles	31 days	Thu 08 Jul '21	Fri 20 Aug '21	43
45	Demobilise Rig from site	0.5 days	Fri 20 Aug '21	Fri 20 Aug '21	44
46	**Rig 3**	**88 days**	**Tue 13 Apr '21**	**Mon 16 Aug '21**	
47	Mobilise rig to site in rotary mode	1.5 days	Tue 13 Apr '21	Wed 14 Apr '21	31FS+5 days
48	Contig wall east elevation (incl. temp butresses)	68 days	Wed 14 Apr '21	Wed 21 Jul '21	47
49	Convert rig on site from rotary to CFA mode	1 day	Wed 21 Jul '21	Thu 22 Jul '21	48
50	Foundation piles	17 days	Thu 22 Jul '21	Mon 16 Aug '21	49
51	Demobilise Rig from site	0.5 days	Mon 16 Aug '2	Mon 16 Aug '21	50
52	**Rig 4**	**95 days**	**Mon 29 Mar '2**	**Wed 18 Aug '21**	
53	Mobilise rig to site in rotary mode	1.5 days	Mon 29 Mar '2	Tue 30 Mar '21	31
54	Core 1 (NW)	24 days	Tue 30 Mar '2	Wed 12 May '2	53
55	Convert rig on site from rotary to CFA mode	1 day	Wed 12 May '2	Thu 13 May '21	54
56	Cores 2, 3 & 4 (NC & NE)	17 days	Thu 13 May '2	Tue 08 Jun '21	55
57	Foundation piles	51 days	Tue 08 Jun '21	Wed 18 Aug '21	56
58	Demobilise Rig from site	0.5 days	Wed 18 Aug '2	Wed 18 Aug '21	57



22D990 Project Bradford - Main p
Date: Mon 19 Oct '20

Task	Summary	Inactive Milestone	Duration-only	Start-only	External Milestone	Critical Split
Split	Project Summary	Inactive Summary	Manual Summary Rollup	Finish-only	Deadline	Progress
Milestone	Inactive Task	Manual Task	Manual Summary	External Tasks	Critical	Manual Progress

Appendix C Risk and Methods Statements (RAMS)

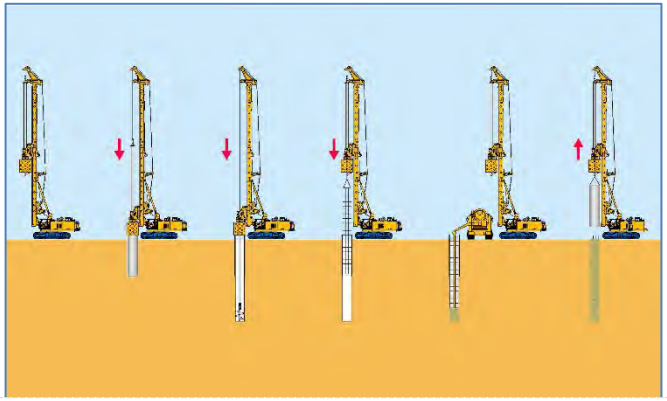
Site A19 Project Bradford		Activity **Rotary Piling**	Persons conducting assessment Vitor Marques		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0001	Review Date 11-11-2020	Revision No. P01	Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska	Name	Signature	Date
Persons Exposed 15	Employees 12	Other Workers 2	Public/Visitors	Vulnerable Persons	Total at Risk 15

Method Statement: Rotary Piling Using Segmental Casing

Introduction



Rotary piling uses a short auger and temporary casing. A pilot hole is bored first and then a temporary casing installed at a depth to restrain any loose strata. Thereafter, the pile is drilled to depth. Once complete, the reinforcement steel cage is installed and the concrete poured, before the temporary casing is withdrawn to complete the pile



Drilling

The pile position will be set out, clearly marked and protected with a Cemcap. The pile position shall be set out within 5mm of the design coordinates of the pile centre.

The rig shall be tracked under the guidance of the rig banksman to the designated pile position. The banksman will establish and maintain a 5m exclusion zone around the rotating auger of the piling rig. This area will be directly controlled by the piling rig banksman and interface managed by the Cementation Supervisor



The banksman shall position a minimum of 2 offset pins set out at a fixed distance from the pile position pin to assist in the accurate positioning of boring tools and casing. The offset pins shall be set at 90° to the pile centre.

The auger shall be carefully positioned by the banksman over the steel pin indicating the pile position. The banksman will check the centre of the auger is within the tolerance, in all directions, as indicated within the ITP. The pin will then be removed and safely stored within a container on the rig.

The piling rig shall be set up to commence boring within the specified construction tolerances. The minimum acceptable criteria at piling platform level (unless otherwise specified in the ITP) are as follows:

- Plan position within 75mm
- Verticality within 1 in 75



A short “pilot hole” will be drilled to enable the installation of the temporary casing. This “pilot hole” will be protected by coned barrier as per the Cementation Standard Detail shown to the left. The temporary casing will be inserted to the required depth by driving, or rotating and crowding. At no point will the casing remain unsupported unless an adequate assessment has been carried out by the supervisor and engineer of its stability.



The casing position will be checked by the rig banksman to ensure the casing has been placed within tolerance for both plan position and verticality. This will be confirmed with the setting out engineer. The temporary casing shall normally be left 1m above working platform level. The casing length and final depth will be recorded in the rig banksman’s book. The segmental casing toe should ensure a minimum of 0.5m penetration into rock.

The pile will then be bored to the designed depth (as specified within the pile schedule) using boring tools, drilling buckets and augers. If required, the base of the pile will have all residual debris removed using a cleaning bucket.



The pile depth shall be checked at regular intervals using a weighted tape from the top of the temporary casing.

The final depth will be recorded within the rig operator's log book. This information shall be transferred to the daily report every day. The rig will then be tracked away from the pile position under the direction of the rig banksman. On completion of drilling any spoil surrounding the temporary casing will be removed by the attendant excavator.

All associated digging equipment will be suitably positioned when not in use i.e Augers stands may be used, cleaning and digging buckets to be laid down. Augers to be drilled into platform on pile positions only.

Placing of Reinforcement

Each reinforcement cage will be checked prior to use for:

- Compliance with the design specification
- Appropriate tag to identify cage type (when more than one cage type)
- Checked for any loose bars, prior to lifting vertically.
- Check spacers are correct size, spaced and positioned with the correct number as specified.



The reinforcement cage will be lifted using the single line of the crane depending on the weight of the cage. This will be lowered to the correct level and suspended from the casing with hanging chains or sat on the toe of the pile.

Where necessary the reinforcement cage will be supported on the casing with bespoke cage brackets to ensure that it will remain at the specified level as per the design.

All exposed bars will have Cemcaps fitted.

The cage level will be checked again once the concrete has set and as-built information recorded.

Concrete Checks



The concrete ganger will check the concrete ticket (before starting to discharge) as directed in the ITP. Once the ticket has been accepted as correct a visual inspection of the concrete will be carried out.

The concrete technician will also visually check the concrete, slump test and take sets of cubes as detailed in the specification and ITP.

Only once all the checks have been completed and concrete accepted as compliant will it be discharged into the tremie hopper.

Concreting

The tremie pipes will be connected together using greased wires for the full depth of tremie.



An attendant crane will place the tremie pipe into the pile though the centre of the reinforcement cage (no more than 10m of cage past the end of the tremie pipe)

Concrete delivery wagons will be banked by the concrete ganger from a position of safety with line of sight between driver and concrete ganger maintained at all times.

Each wagon driver will be advised of this requirement by the vehicle marshal on entering site.

Concreting Process



Under the instruction of the concrete ganger the concrete will be poured into the pile bore (via the tremie pipe) and the level checked with a weighted tape from the top of the temporary casing. Once the reinforcement is adequately supported by the concrete the holding chains will be removed. The concrete level dips for each concrete delivery and final level will be recorded in the concrete ganger's book.



Whilst concreting the pile and on the last concrete load, a 4 m3 concrete skip might be made available if required to release the concrete wagon from the concreting area as follows: Concrete wagon will be banked onto the concrete skip location, where the wagon will discharge the concrete into a crane mounted skip. Then the crane, banked by the concrete ganger, will lift the filled skip over the pile position and discharge the concrete down the bore, via the tremie and hopper.

The temporary casing will be extracted using the rig and pile bore concreted until piling platform level. During concrete pour, Piling Rig will extract the casing from the bore and lay down in the platform each segmental casing from vertical to horizontal position and then attendant crane will lift each casing segment away from the pile position. All wet piles will be protected with pile covers. The cage level will be checked again once the concrete has set and as-built information recorded.

Arisings

The attendant excavator will be used to transfer the pile arisings into a dumper. The dumper will transport the arisings to the designated area for stockpiling. The piling operatives and other personnel with not enter the red zone of the excavator while it is operating. Before approaching the excavator or the dumper, ensure the driver has given the "Thumbs-Up" to indicate that it is safe to do so. The excavator bucket should be lowered to the ground before approaching.

When mucking away the pile arisings a banksman will be present to control vehicle movements. Any reversing of wagons will be controlled by the banksman. An exclusion zone shall be in place around the wagon while it is being loaded.

Indicative Plant Layout and Piling Mat for Prelimary Test Piles



Risk Assessment: Rotary Piling

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Platform / Work Area									
Platform failure from lack of maintenance, use and any excavations - leading to rig instability and potential for overturning	5	5	25	• Daily monitoring of platform performance by banksman, supervisor & PC temporary works co-ordinator. Checks to be recorded on Platform Inspection Check sheet. • Obstructions removed or other anomalies noted to be reinstated to original design, tested & platform certificate renewed. • Certified Piling Mat Boundaries will be physically identified on site by the means of cones/poles or ropes.	1	5	5	Construction Supervisor Banksman	Daily
Untidy work area causing slip, trips or falls	4	3	12	• Maintain work area clear of obstructions. • Utilise attendant excavator to maintain work area clear of spoil / slurry.	1	3	3	Contract Supervisor	Daily

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Unexpected spoil contamination with potential to cause unknown hazard to health	3	4	12	• Stop work immediately. • Review and revise working procedures, ensuring appropriate controls / disposal measures are implemented and correct PPE is worn	1	4	4	Banksman	When required
Dislodging of stacked casings causing trapping and/or crushing	3	4	12	• Casings to be stacked a maximum of 2 high. • Suitable chocks (2x2 timbers minimum) to be placed either side • Where tools/equipment are to be stored within 2m of stacked casings barriers are to be placed around them.	1	4	4	All operatives	Daily
Boring									
Flying debris from the auger causing impact to operatives and personnel	5	5	25	• Exclusion Zone 5m from the centre of the auger demarcated by barriers set to demarcate the zone (not contain it) – no person to enter when auger rotating – banksman to marshal from a safe distance. • Only the excavator operator (within the confines of his cab) is allowed to work in the exclusion zone. (Preferably window closed but if open appropriate PPE to be worn). • Specific assessment if working close to hoarding and members of public /other contractors etc.	1	5	5	Banksman	Daily
Falling augers due to loose / unrestrained auger connections	4	4	16	• Banksman to check visually at the start of boring every pile and during the boring process – that auger pins are in position • Stop work and refit loose pins at earliest opportunity – preferably at ground level.	1	4	4	Banksman	Daily
Entrapment in rotating augers / spin off	3	5	15	• Banksman to be clear of any 'spinning off' positions or when auger is positioned over the top of the casing. • Barriers to be used to mark off the slewing zone of the piling rig.	1	5	5	Banksman	Daily
Personal injury from changing auger teeth – use of correct procedure	3	3	9	• Use correct tools provided. • Operative experienced in using hand tools required and briefed/understands teeth settings.	1	3	3	Banksman / Rig Operator	Daily

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Danger from rotating auger				• Eye protection (to EN 166) and gloves (to EN 388) worn. • Correct manual handling techniques to be used. • Auger to be positioned on the ground preferably. • Rig operator to ensure the auger cannot rotate – engage dead man's handle.					
Falling into open bore/ Contact with moving auger	2	5	10	• Prebore /Pilot holes to be protected by crowd barriers as per the Cementation Standard Detail. • Exclusion zone to always be in place around pile bores	1	5	5	Contract Supervisor / Banksmen	Daily
Falling into open bore when casing in position	2	5	10	• Exclusion zone to always be in place around pile bores • Casing to be left one metre above platform level wherever possible. • If casing is not one metre then barriers to be positioned around pile bore and pile cover are to be used.	1	5	5	Contract Supervisor / Banksmen	Daily
Noise during drilling.	3	4	12	• Hearing protection to be worn by everyone in the area.	1	4	4	Contract Supervisor/Banksman	Daily
Crush injuries due to working adjacent to structures	3	5	15	• When working adjacent to structures an additional banksman will be in place to monitor the distance between the rig and the structure during set up, if deemed to be necessary by the supervisor.	1	5	5	Contract Supervisor	Daily
Lifting Operations / Single Line Working	5	5	25	• Comply with specific lift plan / risk assessment. • Secure single line when not in use and at end of shift. • Material pre-slung with one trip or webbing slings – must be cut immediately once offloaded.	1	5	5	All operatives	Daily
Inserting Cages									
Lifting a reinforcement cage – falling components, dropped or collapsed cages	4	5	20	• Comply with any specific lift plans. • Ensure cage has been designed to be lifted and lifting points are communicated to operatives. • Check for loose cage bars / spacers etc. before lifting the cage.	1	4	4	TWC TWS All operatives	Daily

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
				• Attach tag lines to control the load if moving long distances or high lifts.					
Protruding Steel - impaling on steel	5	3	15	• Cover projecting reinforcement with Cemcaps	2	3	6	Concrete Ganger	Daily
Lifting Operations / Single Line Working	5	5		• Comply with specific lift plan / risk assessment. • Secure single line when not in use and at end of shift. • Material pre-slung with one trip or webbing slings – must be cut immediately once offloaded	1	5	5	All operatives	Daily
Concreting									
Concrete delivery causing crushing to vehicle Banksman	3	5	15	• Trained Slinger Signaller to be used. • Always bank from a safe position. • Ensure an unbroken line of sight • Do not go behind any reversing vehicle	1	5	5	Vehicle marshal	Daily
Concrete splashing or contact with skin causing personal injury	3	3	9	• Full PPE including EYE and HAND protection to be worn when working with concrete. Forearms to be covered by required PPE. • Eye protection to EN 166 or Safety Visor minimum. • Gloves (suitable for task) to EN 388 minimum.	1	3	3	Contract Supervisor / Concrete ganger	Daily
Falling Objects, trapped fingers when operating tremie i.e. Lifting, inserting, splitting and trapping the tremmie tube & placing hopper	3	5	15	• Lift Plan when using a Handling Crane with Slinger-Signaller to control area and signal to the crane / rig operator. • Experienced piling operatives to position the trapping beams and the fork. • Tremie rack to be placed adjacent to work area to avoid moving the tremie pipes long distances by crane. • Tremie pipes to be washed out in the tremie rack. • Firm stable work area with good drainage.	1	5	5	Contract Supervisor / Concrete Ganger / Slinger-Signaller	Daily
Crushing segmental casings to vehicles/plant/site involved in concreting operations	3	4	12	• Piling Rig to extract the segmental casing from the bore and lay down the casings on the piling mat; • Crane will lift away from the working area after segmental casing is on the piling mat.	1	4	4	Ganger / Banskman	Daily

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
				• Banksman to set out an exclusion zone whilst extracting casings with the piling rig to prevent operatives/plant access.					
Slips or falls around recently completed piles with fresh concrete and unstable surfaces	3	4	12	• Open bores to have barriers prior to backfilling. • Pile bores to be backfilled by the completion of the following shift after concreting. • Concreted piles to be covered or protected with barriers.	1	4	4	Contract Supervisor / Ganger	Daily
Lifting Operations / Single Line Working	5	5	25	• Comply with specific lift plan / risk assessment. • Secure single line when not in use and at end of shift.	1	5	5	Contract Supervisor / Slinger-Signaller	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:

Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

Cementation SKANSKA

Risk Assessment & Method Statement (RAMS)

Site Project Bradford		Activity **Mobilisation of Rotary Equipment**		Persons conducting assessment Vitor Marques		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0002	Review Date 12/11/20	Revision No. P01		Name	Signature	Date
Person Supervising Work Brian McNicol		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 4	Employees 4	Other Workers 2		Public/Visitors	Vulnerable Persons	Total at Risk 4

Method Statement: Mobilisation of Rotary Equipment

Piling Platform

A piling platform certificate shall be in place and issued to the Contract Supervisor (CS) prior to unloading any plant or equipment on site. This certificate shall confirm the following:-

- Suitability of the piling platform and access routes to be loaded by specified plant and equipment.
- The perimeter / extent of the platform.
- The extent of any verification testing that is required.
- Piling Platform commencement levels.
- Gradients not to exceed 1:10

The Principal Contractor should mark out any services, make these known and issue a permit to dig.

Rig Delivery / Rigging



The piling rig will be delivered to site on a low loader



A trained competent CPCS-qualified operator will drive the rig off the low loader

A suitable offloading ramp will be used.



Inspection

A competent field service engineer will then be responsible for the safe erection of the piling rig in accordance with the manufacturer's instructions.

Upon completion of rigging, and when satisfied the equipment is safe and functioning correctly, he shall complete and sign the 'Rigging Sheet'. A copy of this shall be left within the cab of the rig.

Any defects shall be corrected prior to first use.

Electrical Connections

All plant or welfare electrical connections will be undertaken by qualified electricians and certificates issued.

Personnel and Plant

All operatives and subcontractors (including plant operators) will be checked for the appropriate certification (i.e. CSCS/CPCS) of competence prior to their site duties.

Subcontractor's plant will be checked to be fit for purpose, correctly maintained and in safe operation.

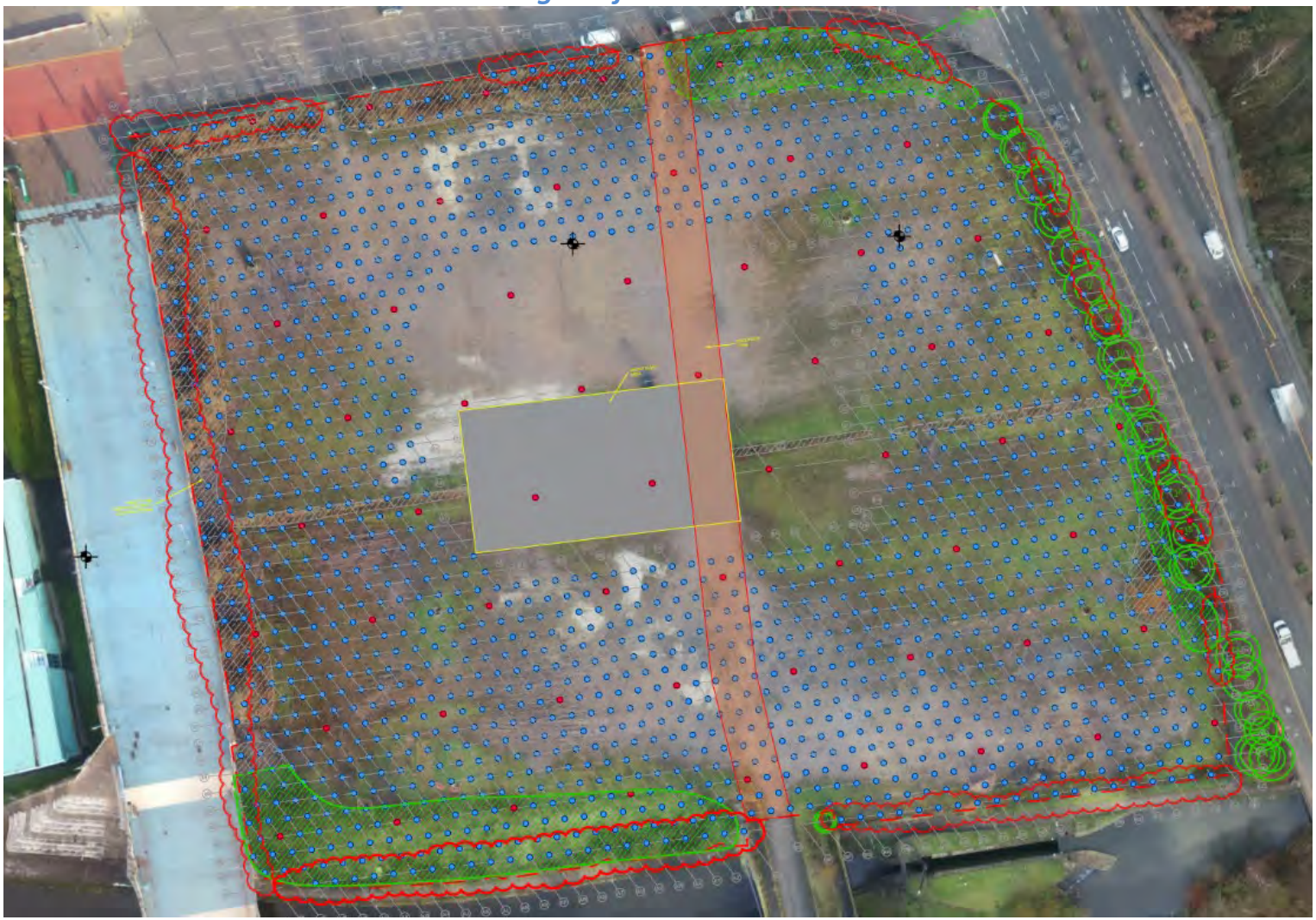
Demobilisation

The piling rig will be derigged by a competent field service engineer in accordance with the manufacturer's instructions.

A trained competent CPCS qualified operator will drive the rig onto the low loader.

The low loader will remove the rig from site in accordance with the site traffic management plan and applicable movement order.

Piling Platform Boundaries



Risk Assessment: Mobilisation of Rotary Equipment

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

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Risk = Likelihood x Severity

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Site									
Operator inexperience	4	5	20	• All operators and banksman are CPCS trained, rig specific trained and regularly assessed in-house. • Site specific inductions, TBTs and daily briefings are carried out.	1	5	5	Contract Supervisor	Daily
Platform failure from inadequate design and construction leading to rig instability and potential for overturning	5	5	25	• All-Weather working platform designed, constructed, tested and maintained to suit specific rig / plant loadings. • Platform certificate in place – detailing plant and exact perimeter of platform edge. • Plant movement / piling position in relation to any embankments should be clearly identified on site & briefed to all mobile plant operators.) • Daily Platform inspections to be undertaken to check integrity of platforms during piling operations.	1	5	5	Contract Supervisor	Daily
Services	2	4	8	• Services to be identified on drawing(s). Locations should be marked with appropriate signage.	1	4	4	Principal Contractor / Contract Supervisor	On contract start

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
				• Permit to dig to be issued (and briefed to all operatives).					
Risk of electrocution from electrical connections	3	5	15	• All electrical work to be carried out by qualified and competent electricians. • Works to be carried out in accordance to manufacturer's specifications. • Electrical Permit to be obtained, if applicable.	1	5	5	Contract Supervisor	On Delivery or modification of electric connections
Access and moving on site avoiding slips , trips and falls	3	2	6	• Employees to use only designated pedestrian routes to access the work area. • Routes to be kept clear from obstruction at all times. • Work area to be kept tidy.	1	2	2	All operatives	Daily
Unloading Assembling Rig									
Toppling over of rig when unloading / loading causing personal injury or damage	5	5	25	• Plan and brief procedure. • Implement a traffic management plan. • Stable ramp for rig to use to/ from low-loader. • Implement an exclusion zone. • Rig banksman to maintain track alignment with all edges. • Use standard / approved signals.	1	5	5	Rig Operator	Loading / unloading
Equipment collapse due to failure of mechanical parts due to wear and tear or incorrect fitting	5	5	25	• Planned preventative maintenance programme in place for all rigs, carried out by competent personnel and external LOLER inspectors. • Effective reporting procedure and prompt response to defect reports. • Competent personnel carry out installation and predetermined functional checks at every new location. (Rigging sheet). • Daily and weekly operator maintenance checks specific to the rig type.	1	5	5	Plant Dept Rig Operator	Daily
Falls from working at height whilst fitting out rig	5	5	25	• Skanska-approved MEWPs provided for work on the rig. • Competent fitter using a harness and lanyard whilst erecting handrails atop of rig base unit. • MEWP's are standard issue for every project to be operated by competent operative in accordance with the specific control measures required for the task.	1	5	5	Contract Supervisor	Daily

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
				• MEWP will have sky siren fitted. • MEWP to have a rescue plan in place					
Falling Augers due to incorrect fitting	5	4	20	• Auger connected by competent person during rigging up.	1	4	4	Contract Supervisor	Daily
General									
Attendant plant / excavators	3	4	12	• Contract Supervisor to check competence of plant operators – CPCS and observations. • Regular monitoring of competence, taking into account feedback from experienced site operatives. • Supervisor to review and sign plant operator's weekly maintenance reports. • Attendant plant to be under direct control of the Cementation banksman. • Keep clear from working area of machine. • Excavator operators to inspect quick hitch mechanism daily and on every change of bucket/attachment to ensure mechanism is fully compliant, locked and secured. • No semi-auto quick hitch will be permitted on site. • Operatives not to work under quick hitch bucket in any circumstances.	1	4	4	Contract Supervisor	Daily
Site Specific Measures									
Platform failure from inadequate design and construction leading to rig instability and potential for overturning	5	5	25	• Visual working platform extension is not fully certified to withstand the Piling Rig/Crane Loads. Certified area to be visually identified with cones/poles/ropes or barriers.	1	5	5	Contract Supervisor	Daily

Hierarchy of Risk Reduction:

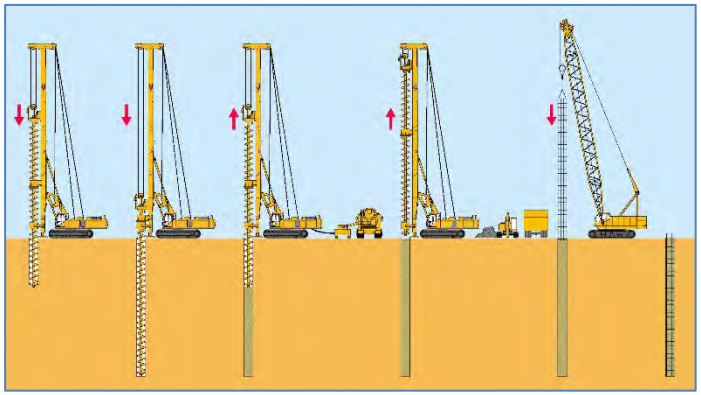
Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

Site Project Bradford		Activity **CFA Piling**		Persons conducting assessment		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0003	Review Date 12-11-2020	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 6	Employees 5	Other Workers 1		Public/Visitors 0	Vulnerable Persons 0	Total at Risk 6 (nr)

Method Statement: CFA Piling

Introduction

The pile is constructed using a continuous auger. This is screwed into the ground to the required depth. Once this is achieved, the auger is extracted whilst concrete is pumped under pressure into the bore via its hollow stem. On completion the spoil is removed, the top of the concrete located and the reinforcement cage inserted



Drilling

The pile position will be set out, clearly marked and protected with a Cemcap. The pile position shall be set out within 5mm of the design coordinates of the pile centre.

The rig shall be tracked under the guidance of the rig banksman to the designated pile position.

The banksman will establish a 7.5m exclusion zone around the rotating auger of the piling rig. This area will be directly controlled by the piling rig banksman and interface managed by the Contract Supervisor (CS).

The bung will be inserted into the bottom of the auger by the rig banksman.

The auger shall be carefully positioned by the banksman over the steel pin indicating the pile position. The banksman will check the centre of the auger is within the tolerance, in all directions, indicated within the ITPs. The pin will then be removed and safely stored within a container on the rig.

The piling rig and instrumentation shall be set up to commence boring within the specified construction tolerances. The minimum acceptable criteria (unless otherwise specified in the ITP) is as follows:

At piling platform level:

- Plan position within 75mm
- Vertically within 1 in 75

The pile will be bored to the designed depth as per the pile schedule.

The final depth will be recorded by the Rig Operator in the log book.



Auger Gates

The auger gates will remain closed at all times unless it becomes necessary for the rotary table to pass through or spoil pressure starts to build. The banksman must ensure that the exclusion zone is enforced. Pile arisings may build up around the base of the augers which assist in preventing any possible entanglement. If the pile arisings are cleared away by the attendant excavator then the banksman is to ensure that they are in a position of safety away from the proximity to the augers.



The following methodology for operating auger gates must be employed : When it is required for the auger gates to be opened the driver must stop the augers rotating.

- It is the responsibility of the banksman to direct the rig driver on the opening and closing of the auger gates ram. This is due to line of sight issues the rig driver faces.
- The banksman is to signal for the auger gates ram to be opened.
- The rig driver is to open the ram and confirm to the banksman that he is clear to proceed to the auger gates and that driver is no longer in control of the ram.
- The banksman is to undo the ram clip and then is to signal to the rig driver for the ram to be closed.
- The rig driver is to close the ram and confirm to the banksman that he is now clear to proceed to the auger gates and that he is no longer on the ram controls.

The same methodology must be adopted in closing the auger gates

Concreting



The concrete will be delivered to site in a concrete wagon. These wagons will be banked by the pumpman from a position of safety with line of sight between the driver and pumpman maintained at all times. Each wagon driver will be advised of this requirement by the vehicle marshal on entering site.

Concrete Checks



The pumpman will check the concrete ticket (prior to discharge) as directed in the ITP. Once the ticket has been accepted as correct, a visual inspection of the concrete will be carried out. The concrete technician will also visually check the concrete, carry out a workability test and take sets of test cubes as detailed within the ITP.

Only once all the checks have been completed and accepted that the concrete is compliant will it be discharged into a concrete pump or agitator holding drum.

Concreting Process

The rig operator will signal, via hand signals or radio, to the pumpman to commence pumping. The concrete will then be pumped to the base of the pile bore through a series of flexible concrete hoses, rig mounted delivery pipework and the hollow stem of the flight auger.

Once the initial pressure has built up (as shown on the rig instrumentation) the rig operator will lift the auger (50mm) to blow the bung.

Once the bung has been blown the tool will be re-inserted to the pile toe level and then extracted, maintaining the concrete over-break within the limits set by the Project Engineer.



The auger cleaner will remove the spoil from the auger during extraction from the pile and concreting process

On completion of concreting to platform level, or a distance below this level that will allow the residual concrete contained with the hollow auger stem to fill the bore to platform level, the rig operator will signal to the pumpman to stop pumping.

Rebores

In the event of a blockage during the concrete process which results of the cessation of the concreting process, the blockage shall be removed, in accordance with the Pumping RAMS. The pile shall be redrilled in accordance with the project specific ITP

Installation of Steel

Each reinforcement cage will be checked for the following:

- Compliance with design requirements.
- Tags or marks to identify cage type.
- Any loose bars.
- Check there is the minimum number of spacers specified at the size specified, and these are equally spaced around the cage, and still in position when placed in the bore
- The first set of spacers is to be within 300mm below cut off level.

Once concreted, the rig will then be tracked away from the pile position under the direction of the rig banksman.

Spoil will be removed from the top of the pile by the attendant excavator.

The head of the pile will be cleared of any contaminated concrete with a graft or scoop.



The reinforcement cage will be lifted using the single line of the piling rig or attendant excavator and lowered to the correct level within the freshly concreted pile bore.

Where necessary, the reinforcement cage will be supported with cross bars to ensure that it will remain at the specified level as per the design.

All exposed bars will have Cemcaps fitted and wet piles will be protected with pile covers.

The cage level will be checked again once the concrete has set and as-built information recorded. If required cages will be vibrated in using a cage vibrator.

Working Piling Platform

FPS piling platform certificate will be identifying the current restrictions in accessing piles positions. Temporary works checks are required before any piling works are carried out.

Risk Assessment: CFA Piling

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

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
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Risk = Likelihood x Severity

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Platform / Work area									
Platform failure from lack of maintenance, use and any excavations leading to rig instability and potential for overturning	5	5	25	• Daily monitoring of platform performance by banksman, supervisor. Notify PC of issues. • Obstructions removed or other anomalies noted to be reinstated to original design, tested & platform certificate renewed.	1	5	5	Banksman	Daily
Untidy work area causing slips, trips or falls	4	3	12	• Maintain work area clear of obstructions. • Utilise attendant excavator to maintain work area clear of spoil / slurry.	1	3	3	Contract Supervisor	Daily
Reversing Auger causing removal of spoil undermining the platform stability – potential for rig to overturn	4	5	20	• Operation ONLY to be carried out under direct supervision of the Contract Supervisor. • Rig operator to back screw in a slow controlled manner ensuring the majority of spoil remains within the pile bore, so as not to create voids in the ground.	1	5	5	Contract Supervisor	When required

				• Observe ground performance and rig mast foot pressure during the process. • As auger cleaner may be less efficient additional measures may be required to remove spoil from the auger. • Backfilled pile positions clearly marked and cordoned off.					
Unexpected Spoil contamination with potential to cause unknown hazard to health	3	4	12	• Stop work immediately. • Review and revise working procedures, ensuring appropriate controls / disposal measures are implemented and correct PPE is worn	1	4	4	Banksman	When required
Boring									
Spoil falling from the Auger causing impact to operatives and personnel	5	5	25	• Remove spoil at low level – never allow spoil to travel to height. • Use auger cleaner to maintain efficiency – a star or brush system dependant on ground conditions. • In difficult ground conditions the attendant excavator may be utilised, using a plate welded to the bucket of the machine. Excavator operators to be briefed as they may not have performed this task before. • Exclusion Zone 7.5m around the auger demarcated by barriers set to demarcate the zone (not contain it) – no person to enter when auger rotating – banksman to marshal. • Only the excavator operator (within the confines of his cab) is allowed to work in the exclusion zone when the auger is rotating. (Preferably window closed but if open appropriate PPE to be worn). • If spoil is noted at height on the auger – clear the area, rotate the auger until it is clear.	1	5	5	Banksman Excavator operator	Daily
Spoil falling from the Auger causing impact to third party personnel / public	5	5	25	• IF Exclusion zone cannot be fully implemented - STOP. • SPECIFIC RISK ASSESSMENT TO BE CARRIED OUT with suitable additional control measures assessed including (as a minimum): o Position and height of hoarding, o Relocation of walkways o Covering to walkways • At end of shift rig is removed as far as practicable away from hoarding.	1	5	5	Contract Supervisor/ Banksman	Daily

Falling augers due to loose / unrestrained auger connections	4	4	16	• Banksman to check visually at the start of boring every pile and during the boring process – that auger pins are in position. • Stop work and refit loose pins at earliest opportunity – preferably at ground level.	1	4	4	Banksman	Daily
Entrapment in rotating augers	3	5	15	• Keep auger gates closed at all times or until such a time as the rotary table must pass through the gates or excess spoil pressure builds up within the gates. • Banksman to maintain exclusion zone 7.5m from auger in this respect	1	5	5	Banksman	Daily
Trapping hand tools in rotating auger	4	5	20	• Under no circumstances is spoil to be removed from the auger manually by graft whilst the auger is rotating.	1	5	5	Banksman	Daily
Trapping or crushing in the operation of the auger gates	4	5		• If auger gates are opened then the banksman must enforce the exclusion zone. • Pile arisings will build up around the auger which will help prevent entanglement. If the attendant excavator clears the arisings with the open auger gates then the banksman must retreat to a position of safety. • If any 3rd parties enter the exclusion zone then the rig driver is to cease works immediately. • The purpose built handles must be used when handling the auger gates. • The banksman must control the opening and closing of the hybrid auger gates ram by directing the rig driver.	2	5	10	Banksman	Daily
Augers rotating or spoil falling as banksman beneath augers to insert bung or change teeth	4	3	12	• Rig operator to ensure that the augers cannot turn – engage dead man's handle. • Make sure auger is free from spoil which could fall as bung / teeth hammered home. Rotate auger in a controlled manner to clear if necessary. • Ensure correct bung, teeth pins and locks are being used. • Check surface conditions, if required to kneel on floor. • Use purpose-designed tools in a good state of repair, to change teeth.	1	3	3	Banksman / Rig Operator	Daily
Flying Debris from using Auger Cleaner	4	4	12	• Banksman to ensure Exclusion Zone is set up around the affected area. • Fit shroud around cleaner if flying debris is a problem.	1	4	4	Banksman	Daily

				• Excavator operator to work from safe position if poss. Windows closed or appropriate eye protection worn. • Specific assessment if working close to hoarding and members of public /other contractors etc.				Engineer	When manifest
Concreting									
Concrete delivery causing crushing to pumpman.	3	5	15	• The pumpman's safe position for directing the reversing concrete truck up the ramp is the agitator working platform.	1	5	5	Pumpman	Every load
Falling debris or splashing while clearing spoil (from concreted pile)	3	4	12	• Attendant excavator to be under strict control of the banksman – all persons to be clear of operation. • Wear PPE to protect from splashes.	1	4	4	Banksman	Daily
Pumping Concrete / clearing blockages / compressor use causing injuries to personnel	4	4		• See separate RAMS for pumping concrete / blockages.	1	4	4	Pumpman	Daily
Inserting Cages									
Lifting a reinforcement cage – falling components, dropped or collapsed cages	4	5	20	• Comply with any specific lifting plans • Ensure cage has been designed to be lifted and lifting points are communicated to operatives. • Check for loose cage bars / spacers etc. before lifting the cage. • Attach tag lines to control the load if moving long distances or high lifts.	1	4	4	All operatives	Daily
Strike by Bucket of excavator	3	5	15	• Never stand beneath the excavator bucket, when inserting cage. • Keep clear of slew zone. • Bucket fastened and checked in accordance with manufacturer's instructions. • Clear line of vision between operator and personnel.	1	5	5	All operatives Excavator operator	Daily
Insertion of cages into wet concrete avoiding over exertion and slipping	4	4	16	• Identify and expose the full diameter of pile by removing any spoil contamination using a graft. • Clear spoil water & debris from immediate vicinity. • Insert into wet concrete using mechanical devices (single line/crane/excavator). • Excavator to remove the bucket at all times when lifting.	1	4	4	Banksman	Daily

				• Operatives may push cage in with their feet only if cage insertion is easy, use mechanical means at all other times with purpose-designed placing bar. • If required us a vibrator to assist with pile cage insertion.					
Protruding Steel /and fresh concrete - impaling on steel and falling in bores.	5	3	15	• Cover projecting reinforcement with Cemcaps. • Unset piles to be covered or suitably protected.	2	3	6	Banksman	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:

Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

Site **Project Bradford**			Activity **Mobilisation of CFA Equipment**	Persons conducting assessment Victor Marques		
Risk Assessment No. **22D990-CSL-OO-F1-MS-X-0004**	Review Date 12-11-2020	Revision No. **PO1**		Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 5	Employees 4	Other Workers 1		Public/Visitors 0	Vulnerable Persons 0	Total at Risk 5 (nr)

Method Statement: Mobilisation of CFA Equipment

Piling Platform

A piling platform certificate shall be in place and issued to the Contract Supervisor (CS) prior to unloading any plant or equipment.

This certificate shall confirm the following:-

- Suitability of the piling platform and access routes to be loaded by specified plant and equipment.
- The perimeter / extent of the platform.
- The extent of any verification testing that is required.
- Piling Platform commencement levels.

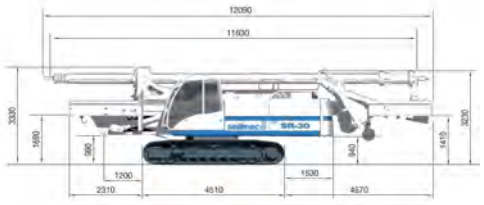
The Principal Contractor should remove or mark out any services and make these known. A permit to dig shall also be issued.

Any Gradients should not exceed 1:10

Rig Delivery / Rigging



The piling rig will be delivered to site on a low loader. Whilst on transport the piling rig over the low loader will need to have a headroom clearance of 4.40m from the access road level.





A trained competent CPCS qualified operator will drive the rig off the low loader.

A suitable offloading ramp will be used.

Inspection

A competent field service engineer will then be responsible for the safe erection of the piling rig on site in accordance with the manufacturer's instructions.

Upon completion of the rigging and when satisfied the equipment is safe and functioning correctly he shall complete and sign the 'Rigging Sheet'. A copy of this shall be left within the cab of the rig. Any defects shall be corrected prior to first use.



Flexible concrete / compressor hose setting up

All flexible hoses are subject to a regular test and inspection regime prior to despatch to site.



Flexible concrete hose routes shall be agreed between the CS and the PC to minimise movement and crossing by plant. It is important that flexible concrete hoses are protected at crossing points such that hidden internal damage does not occur. It is preferable to use a steel delivery pipe for this application to avoid damage. A vehicle ramp with solid pipe running through it is an alternative. The flexible concrete hose line will be inspected each day by the concrete pumpman.

All joints will be fitted with a safety pin. In addition whip checks will be fitted to all hose joints local to the rig and that are off the ground.

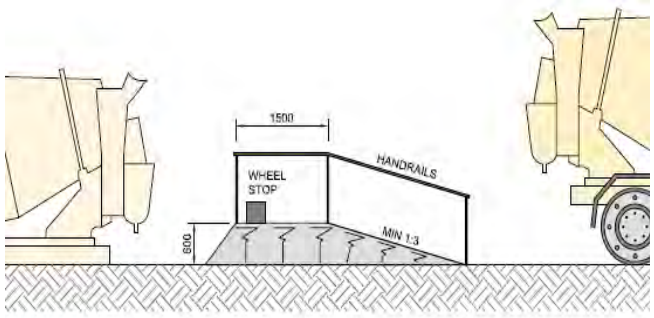
A safety chain is also fitted between the concrete pump and the elbow – this must be in place at all times when pumping.

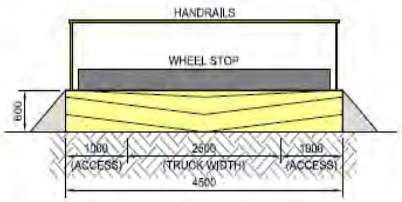
Positioning the flexible concrete hose will be carried out by mechanical handling wherever practicable to reduce the risk of manual handling injury

Agitator Set up

A temporary ramp constructed out of crushed stone/concrete will be set up, backing towards the concrete pump/agitator (if required).

This will be a maximum of 0.6m high and approximately 4.5m wide, as per the sketch. A wheel stop to prevent wagons reversing too far will be fixed near the top of the ramp. This should be formed with a 12" x 12" timber or a concrete equivalent. Railway sleepers should not be used. Edge protection shall be provided in the form of plastic crowd barriers or road pins / scaffold poles driven into the ramp.





As an alternative, a tilting agitator can be used to avoid installing a ramp.



The location for the concrete pump and the agitator will be planned and agreed with the PC. Consideration will need to be given to the following issues:

- Safe pedestrian access / egress around the pump / agitator set up for the pumpman.
- Safe vehicle access to and from the pump / agitator set up in accordance with the Traffic Management Plan.
- Pile locations and planned sequence of works, including communication between pumpman and rig operator, usually line of sight.
- Flexible concrete hose management; use of steel pipe, hose routes and crossing points etc.

Provision / location of suitable washout facilities for delivery vehicles and the agitator / pump set up

Electrical Connections

All plant or welfare electrical connections will be undertaken by qualified electricians and certificated.

Personnel and Plant

All operatives and subcontractors (including plant operators) will be checked for the appropriate certification (i.e. CSCS/CPCS) of competence prior to their site duties.

Subcontractor's plant will be checked as fit for purpose, correctly maintained and in safe operation.

Demobilisation

The piling rig will be derigged by a competent field service engineer ~~site~~ in accordance with the manufacturer's instructions.

A trained competent CPCS qualified operator will drive the rig onto the low loader.

The low loader will remove the rig from site in accordance with the site traffic management plan and applicable movement order.

Risk Assessment: Mobilisation of CFA Equipment

(associated RAMS – Deliveries, lifting, health)

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

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Site									
Operator inexperience	4	5	20	• All operators and banksman are CPCS trained, rig-specific trained and regularly assessed in-house. • Site specific inductions, TBTs and daily briefings are carried out.	1	5	5	Contract Supervisor	Daily
Platform failure from inadequate design and construction leading to rig instability and potential for overturning	5	5	25	• All Weather working platform designed, constructed, tested and maintained to suit specific rig / plant loadings. • Platform certificate in place – detailing plant and exact perimeter of platform edge. • Plant movement / piling position in relation to any embankments should be clearly identified on site & briefed to all mobile plant operators). • Daily Platform inspections to be undertaken to check integrity of platforms during piling operations	1	5	5	Engineer	Daily
Striking underground or over site services	2	4	8	• Services to be made known on a drawing. These should be located with marked signage on site. • Permit to dig to be issued (and briefed to all operatives).	1	4	4	Principal Contractor / Contract Supervisor	On contract start

Risk of electrocution from electrical connections	3	5	15	• All electrical work to be carried out by qualified and competent electricians. • Works to be carried out in accordance to manufacturer's specifications. • Electrical Permit to be obtained, if applicable.	1	5	5	Contract Supervisor	On Delivery or modification of electric connections
Access and moving on site avoiding slips , trips and falls	3	2	6	• Employees to use only designated pedestrian routes to access the work area. • Routes to be kept clear form obstruction at all times • Work are to be kept tidy	1	2		All operatives	Daily
Unloading / Assembling Rig									
Equipment collapse due to failure of mechanical parts due to wear and tear or incorrect fitting	5	5	25	• Planned preventative maintenance programme in place for all rigs, carried out by competent personnel and external LOLER inspectors. • Effective reporting procedure and prompt response to defect reports. • Competent personnel carry out installation and predetermined functional checks at every new location. (Rigging sheet). • Daily and weekly operator maintenance checks specific to the rig type.	1	5	5	Plant Dept Rig Operator	Daily
Toppling over of rig when unloading / loading causing personal injury or damage	5	5	25	• Plan and brief procedure. • Implement a traffic management plan. • Stable ramp for rig to use to/ from trailer. • Implement an exclusion zone. • Rig attendant to maintain track alignment with all edges. • Use standard / approved signals.	1	5	5	Rig Operator	Loading / unloading
Falls from working at height whilst fitting out rig	5	5	25	• MEWP's provided for work on the rig when laid down and adding augers @ 6m high. • Competent fitter using a harness and lanyard whilst erecting handrails atop of rig base unit. • MEWP's are standard issue for every project, to be operated by competent operative in accordance with the specific control measures required for the task. • MEWP will have sky siren fitted. • MEWP to have a rescue plan in place	1	5	5	Contract Supervisor	Daily
Falling augers due to incorrect fitting	5	4	20	• Auger fitted by competent person during rigging up.	1	4	4	Contract Supervisor	Daily

Hose Management									
Moving heavy hoses	3	4	12	• Handling of flexible concrete hose should be carried using the attendant excavator. • Locate hoses away from traffic or pedestrian walkways	1	4	4	Operatives	Daily
Locating hoses to avoid damage and trip potential	2	4	8	• Eliminate vehicles crossing the hose and excessive length of hose being used when not required. • Use steel pipe as far as practicable.	1	4	4	Operatives	Daily
Bursting of concrete hoses from incorrect fitting or site damage (in use or being tracked over)	5	4	20	• Flexible concrete hoses visually inspected and pressure tested prior to despatch • Site will inspect all concrete hose on delivery, reject any damaged pieces. • Fit safety pins and whip checks (off ground) to all quick-release couplings and check daily. • The length of hose in the loop between the rig and the rotary head is to be sheathed, which will contain bursts at this location. • Ensure the restraining chain is in place between pump & elbow and safety pins fitted to all joints. • Care should be taken not to kink the hose.	1	4	4	Contract Supervisor	Daily
General									
Attendant plant / excavators	3	4	12	• Check competence of plant operators – CPCS and observations. • Regular monitoring to check competence taking into account feedback from experienced site operatives. • Review and sign plant operator's weekly maintenance reports. • Attendant plant to be under direct control of the Cementation banksman. • Keep clear from working area of machine. • Excavator operators to inspect quick hitch mechanism daily and on every change of bucket/attachment to ensure mechanism is fully compliant, locked and secured • No semi-auto quick hitch will be permitted on site. • Operatives not to work under quick-hitch bucket under any circumstances.	1	4	4	Contract Supervisor	Daily
Agitator ramp leading to instability for concrete trucks	5	4	20	• Ensure work area is clean and tidy. • Ramp designed as per method statement sketch, as low as practicable. Monitored daily	1	4	4	Contract Supervisor / Pumpman	Daily

Site Specific Measures									

Hierarchy of Risk Reduction:



Cementation
SKANSKA

Risk Assessment & Method Statement (RAMS)

Site Project Bradford		Activity **Welding, Cutting and Grinding**	Persons conducting assessment Victor Marques		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0023	Review Date 12/11/20	Revision No. P01	Name	Signature	Date
Person Supervising Work		Employer Cementation	Name	Signature	Date
Persons Exposed 2	Employees 2	Other Workers 0	Public/Visitors 0	Vulnerable Persons 0	Total at Risk 2(Nr)

Method Statement: Cutting, Welding and Grinding *(associated RAMS : Deliveries, Environment, Lifting, Health, Refuelling)*

Introduction

Often our works require the use of cutting, welding, and gouging (burning) techniques to modify existing steelwork.

For these techniques trained, competent and certificated operatives will be used.

In most cases, a hot works permit will be in operation and fire extinguishers will be located in the vicinity.

Cutting



The required PPE will be

- Goggles
- Leather gloves
- Safety boots

This activity to be undertaken clear of all other personnel.

Welding



The PPE will be appropriate to the particular task i.e.

- Full-face shield (welding / gouging)
- Leather gauntlet (welding)
- Safety boots (rubber soles)

In addition, safety screens should be deployed to protect others from arc flash

Plant and Equipment

- Welding set c/w leads and electrodes
- Petrol Driven Cut-off Saw
- Grinder (electrical or compressed air)

All plant will be certificated, well maintained and operated in accordance with the manufacturer's operating procedures and instructions.

Gas Cylinders

Cylinders of oxygen (black) and acetylene (maroon) are used in welding. These cylinders will be stored upright in dry conditions, on a hard standing, in a ventilated place and shielded from heat sources and sunlight.



Movement of these cylinders should be on a small trolley designed for this purpose.

Regulators and hoses are specifically designed for each gas. These should always be removed for transportation.

Cylinders will be operated in accordance with the manufacturer's instructions.

Risk Assessment: Cutting, Welding and Grinding *(associated RAMS: Deliveries, Environment, Lifting, Health, Refuelling)*

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

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = “7 day” injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Likelihood

Risk = Likelihood x Severity

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Unfamiliar with site hazards causing bodily injury	4	5	20	• Attend PC and Company site induction. • Briefed on task-specific risk assessment. • Assess required site activities before proceeding onto site and again once at work area – report any risk issues to supervisor for correction. • Competent certified operative for the task.	1	5	5	Operative / Contract Supervisor	Site arrival
Crushing , Impact from vehicles / plant during access and egress to and from the work area	4	4	16	• Access routes to be clearly identified and kept clear at all times. • Signs and physical barriers to be in place around work area. • Ensure work area is safe - clear of traffic and pedestrian routes with no other contractors working in the same vicinity.	1	4	4	Operative	Daily
Fire from hot working process causing burns and loss of property	4	4	16	• Briefed and Signed hot works permit to be in place. • Warning signage to be posted. • Area to be kept free of combustible materials, paper, oils, rags, etc • Calibrated / annually inspected fire extinguishers to be positioned adjacent to the work area. • Fire watch to be implemented. • Emergency procedure and action to be known by users.	1	4	4	Operative / Contract Supervisor	Start of task
Explosion, fire or escape from handling and storage of hazardous gases.	3	4	12	• Operators briefed on task and to work in accordance with good practice, COSHH assessments and safety data sheets available. • Cylinders / equipment used in accordance with manufacturer's instructions. • Cylinder valves to be closed when not in use and	1	4	4	Operative	Start of Task

				the key removed. • Vent torch, hoses and regulator when not in use • Regular inspection and maintenance regime. • Flashback arresters fitted to bottles. • Check for leaks. • Daily visual inspections by users. • Cylinders stored upright, secure, safe area. • No smoking in vicinity. • Fuels and oils to be stored away from work area. • Area to be kept clear – rubbish and debris free					
Malfunctioning of (Welding) plant causing injury	4	3	12	• All welding plant and equipment must have current test and calibration certificate. • Operator to inspect welding plant and ancillary equipment daily before use. • Operator to maintain welding plant daily log.	1	3	3	Welder	Start of Task
The use of Hand Tools / Grinding and disc cutting operations causing lacerations or electrocution	4	5	20	• Only trained and competent persons to operate hand tools / grinders / stihl saws in accordance with manufacturer's instructions and their training. • Inspect equipment guards, discs before use. • Discovery of any defective parts must stop the task and be reported. • All tools to be maintained in accordance with manufacturer's instructions • Only 110V electrical tools. • All electrical tools must be PAT tested and in date. • Operator to inspect compressed air tools before use. • Loose fitting clothing NOT to be worn. • Personnel with long hair must wear a hair net. • Discs to be changed by a certified person. • Blade cover must be engaged in place before use. • Equipment to be fuelled up in the site compound. • Provision of first aid kit and eye wash station in work area. • Works only to proceed with Hot Works permit. • Non-essential persons will be kept away from the Hot Works area.	2	5	10	Trained Operative	Daily

				• All rubbish and debris cleared from area prior to cutting. • Appropriate PPE to be worn at all times i.e. glasses, anti-vibration gloves and hearing protection.					
Manual Handling	3	3	9	• Manual handling to be eliminated wherever possible. • Carry out manual handling assessment and know the weights of all materials. • Cylinders are heavy, move with a suitable trolley where practicable. • Never leave cylinders free standing – secure. • Use mechanical means where practicable to position work piece.	1	3	3	All Operatives	Daily
Poor Lighting Levels	2	3	6	• Background lighting provided by PC. • Personal task lighting to be provided where required.	1	3	3	Operative	Daily
Flash into eyes of third parties causing blindness	3	4	12	• Protective screens deployed and in use. • Warning signs in place when welding is in progress. • Adequate masks to be worn by welders. • Welding shields to be used.	1	4	4	Welder	Start of Task
Protection to users from hot liquid metal causing severe burns	4	4	16	• PPE, to include flame retardant coveralls, goggles, gloves and hearing protection • Use of fire blankets to other surfaces / materials	2	4	8	Welder	Start of Task
Poisoning from exposure to hot working fumes	3	4	12	• Ensure adequate ventilation or use fume extractor • Flexible exhaust extensions to be used , if appropriate • Care must be taken as these flexi-pipes will get hot. Do not allow to come into contact with exposed skin, use gloves when altering the direction of their emissions.	1	4	4	Operative	Start of Task
Repetitive Strain	2	3	6	• Avoid long periods of welding, grinding, and gouging. • Low vibration tools to be used. • Record vibrating tool usage.	1	3	3	Operative	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:



Cementation
SKANSKA

Risk Assessment & Method Statement (RAMS)

Site	Activity	Persons conducting assessment		
Project Bradford	**Concrete Pumping / Clearing Blockages**			
Risk Assessment No. **22D990-CSL-OO-F1-MS-X-0027**	Review Date 12/11/20	Revision No. **PO1**	Name	Signature	Date
Person Supervising Work	Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 6	Employees 4	Other Workers 2	Public/Visitors 0	Vulnerable Persons 0	Total at Risk 6 (nr)

Method Statement: Concrete Pumping / Clearing Blockages

On completion of delivery the chute of the concrete wagon will be washed down by the driver, and together with any excess concrete be discharged into the designated concrete washout area. Washout from agitators & pumps will be handled similarly. The location of the washout area will be within the site area adjacent to the concrete pump and agitator but 15 m away from drains and the watercourses. It will consist of a designated skip or excavated pit lined with polythene, or a suitable sediment & pollution control membrane. Any over-spilled concrete will be cleaned up either manually or with the aid of an excavator and placed into the designated concrete washout area for later removal. Solid, settled concrete waste can either be reused on site or disposed of in accordance with waste management best practice.

Priming the concrete line

Concrete lines will be primed in advance of pumping operations with concrete pump line priming solution to lubricate the internal surfaces to help prevent blockages.

Cleaning the concrete line (blowing out)

This is carried out using compressed air to push a sponge ball through the line, clearing it of concrete. A 100mm diameter flexible concrete hose can normally be blown out from the pump to the auger in a continuous operation.



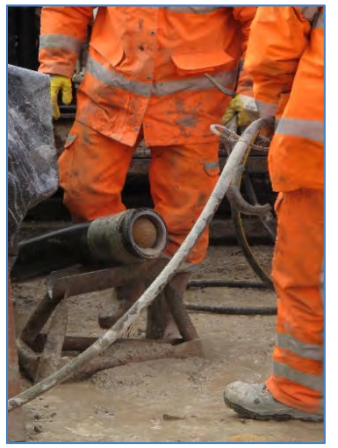
A 125mm diameter hose should be blown out in two stages due to the weight of concrete in the line.

Firstly work from the pump to the back of the rig, secondly from the pump to the auger. The second phase must not be from the rig pipe work to the auger as concrete may have run back into the rubber hose. When blowing out to a free hose end attach the line to the purpose-designed catcher or 'Pig'. Always ensure the loose end of the hose is suitably restrained to prevent it kicking. Hose lines less than 10m must not be blown out. These should be attached to another section of hose and the above procedure adopted.





A guard box should be placed and secured in front of the auger to prevent concrete blowing across site. This should not be pointed towards buildings and watercourses.



Disconnect the flexible concrete hose from the pump. Insert the sponge ball into the flexible concrete hose to be blown out, fit the blow-out adaptor and attach the compressed air line. The blow-out adaptor is fitted with a pressure gauge and manually-operated relief valve to discharge pressure from the line. Prior to blowing out a final check will be made to ensure the blow-out exclusion zone (5m) is clear of personnel. Compressed air will gradually be allowed into the line in a slow controlled manner until the line is blown out i.e. the sponge ball comes out of the other end. After clearing the concrete from the line, the sponge ball is re-inserted with water before blowing through with air to give a final clearance through the line.

If a blockage occurs during blowing out, discharge the compressed air pressure and follow the blockage clearance procedure outlined below.

Blockage Clearance Procedure

Once a blockage has occurred the pump shall be switched to reverse (suck back) and operated for approx. 5 strokes to relieve the pressure in the line. Stop the pump.

Blockage before the flow meter

Blockages before the flow meter are noted either by the rise in pressure noted at the pump on the non-arrival of concrete, as registered on the flow meter.

The concrete hose should be split at the nearest joint and by lifting the hose with the attendant excavator or the secondary line on the rig gravity should clear the blockage. Sometimes this requires the hose to be shaken in a controlled manner.

If this does not clear the blockage then the end of the hose should be firmly restrained to prevent it from kicking back, i.e. attached to the excavator quick-hitch with a chain and shackle. Measures should be taken to contain any expected discharges from the hose end and the 'Cleaning the Lines procedure' shall be followed. When cleared and before re-coupling the line (whilst still restrained) should be pumped through with concrete to check the blockage has been fully cleared.

Blockage after the flow meter but before the augers

Blockages after the rig flow meter are noted by an increase in pressure before the blockage occurred.

The augers should be drilled into the ground (on a pile position*) to bring any joints down to ground level. Once pressure in the line has been released the lifting / shaking procedure above can be followed.

NB. The Project Engineer should ensure that a design assessment is carried out on the relevant pile to check for the effects of reduced adhesion from drilling the pile and leaving it incomplete for more than 4 hours or it is to be backfilled and completed at a later time.

Blockage in the augers

The augers will need to be removed from the bore by 'back-screwing'. This must be done in a slow controlled manner ensuring the majority of spoil stays within the pile bore, so as not to undermine the piling platform or adversely affect rig stability.

In any case the spoil on the auger shall not be allowed to travel beyond 1.5m from ground level.

When the augers are lifted from the bore there is potential to create an open bore as the pile arisings may not completely fill the bore. In this case:

- The rig will move away from the pile position
- The attendant excavator will clear the pile arisings.
- All operatives will stand in a position of safety during this operation.
- Immediately the pile arisings are cleared, a pile cover will be placed over the open bore and barriers placed around the pile position to further mitigate against any likelihood of 3rd parties falling down an open bore.

A check shall be made to see if the bung has blown out of the tip of the auger. If not then this should carefully be removed using a screwdriver or pigtail spike to probe within the auger tip, listening carefully for any movement of concrete as this may exit quickly (although not under pressure) once released. Hammering the auger stem or striking with the excavator bucket in a controlled manner can also assist the process.

Once the blockage is cleared the banksman will reposition the rig over the pile position. The augers are to be lowered just over the pile cover to prevent anyone from being able to access the open bore. As the augers block the access the banksman can then retrieve the pile cover and direct the rig driver to re-insert the augers into the bore.

In the event that the blockage cannot be cleared the augers shall drilled into the ground and split from ground level. Care should be taken as these will still be full of concrete at this time which may flow out when the augers are split. Clearing of the auger can be undertaken with small amount of vibratory or mechanical assistance. A short scaffold pole, inserted into the stem, could also be used. If the blockage cannot be cleared safely then the auger shall be taken out of service and replaced. A short amount of pumping should be carried out to check the line.

Blockage in the flow meter

An unusual but recurring cause of blockages is the detachment of the flow meter lining. Any such blockage would be removed using the aforementioned methods.

Risk Assessment: Concrete Pumping / Blockages

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Compressor Use									
Incorrect use causing injury from flying objects and associated noise (of air rush)	2	4	8	• Check whip restraints are in place on compressed air lines and that air hoses are in good condition • All hoses checked prior to use • Only operate when furthest end is fully restrained and clear • Maintain an exclusion zone when releasing pressure and wear ear defenders • Maintain compressor in accordance with manufacturer's instructions	1	4	4	Pumpman	Daily
Priming Lines									
Pumping Concrete – protection against skin contact with concrete following a hose or connection burst	5	4	20	• Prime the lines in advance of pumping the concrete with a concrete pump line priming solution, to assist initial flow. • Hose not to be moved when pumping.	4	4	4	Pumpman	Prior to pumping

				• During the concrete operation the pumpman must monitor; the workability of the concrete, pump pressure gauge, the rhythm of the pump strokes and maintain contact with the rig operator. • Maintain an exclusion zone of 5 metres around the work area, during pumping operations • Wear hearing protection whilst pumping. • Wear standard PPE – in normal circumstance no person should be directly in contact with concrete. • Periodic skin checks are incorporated into the SHEPS audit checklist • All hoses to be attached with safety clips in position and whip checks across joints					
Blockage Clearance									
High-speed concrete ejection when clearing blockages and pipelines	5	4	20	• STOP PUMPING SHOULD A BLOCKAGE OCCUR – • Prior to attempting to clear a blockage, reverse pump (suck) for 5 strokes (depending on pump type) to relieve the pressure. • The blockage clearance procedure within the method statement should only be carried out under direction of a Contract Supervisor or Construction Manager. • Maintain an exclusion zone of 5 metres around the work area during blockage clearance operations. • Ensure that the end of the hose is firmly restrained to prevent it from kicking when the pressure is released. • The end of the hose should be attached to the eye on the excavator bucket by a chain and care taken to contain any discharges from the hose.	1	4	4	Pumpman	When blockage encountered
Concrete cascading onto operatives whilst unblocking augers	4	4	16	• When using any rods / scaffold tubes, operative to stand to the side of the auger. • No movement of the auger is permitted till: o The banksman has moved away from at the auger base o has signalled the rig operator from a position of safety	1	4	4	Rig Operator / Pumpman	When auger blockage encountered
Fall from height while clearing blockage	5	5	25	• Where required and practicable drill the augers into the ground to bring the swan neck and loop hoses down to ground level. Otherwise use a MEWP following preparation of a specific risk assessment. •	1	5	5	All operatives	When blockage encountered

Blowing with Compressed Air									
High-speed flying debris when blowing out the concrete lines	4	4	20	• Work in accordance with the method statement and blow-out procedure contained within. • Check pressure relief valve on the blow-out chamber is in good working order. • Place guard box around auger and secure. • Keep all personnel at least 5m from concrete line and auger. • Point discharge end away from personnel / roads / railways/ buildings etc. • Ensure any loose hoses being blown out are suitably restrained – ie chain and shackle to the excavator. • Never blow out from the T piece at the rear of the rig	1	4	4	Supervisor/ Pumpman	Daily
Potential to fall in an open bore once the augers are extracted.	3	4	12	• No working over an open bore. • Track rig away from pile position for the Attendant excavator to clear pile arisings. • Pile cover to be placed on the open bore immediately. • Barriers to be placed around the pile cover to further mitigate the risk of third parties falling down an open bore. • Banksman must stand in a position of safety. • Banksman to remove pile cover only when rig is positioned over the pile position for the augers to be re-inserted into the bore.	2	4	8	Banksman.	Every time a blockage occurs
Pump Cleaning									
Trapped arms when cleaning the concrete pump and agitator	3	4	12	• Use the access points provided on the pump and agitator to access the machinery. • Pumpman must switch off engine before raising grille. Maintain an exclusion zone of 5 metres around the work area during cleaning operations.	1	3	3	Supervisor	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:

Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

Site Project Bradford		Activity **Use of Tremie**		Persons conducting assessment		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0035	Review Date 12/11/20	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 3	Employees 3	Other Workers		Public/Visitors	Vulnerable Persons	Total at Risk 3

Method Statement: Use of Tremie *(associated RAMS: Lifting, Environment , Deliveries, Health)*

Tremie Process



The tremie process is a means of concreting a pile through a support material (bentonite / polymer) or under water. This ensures the integrity of the concrete from contamination and 'washing' the aggregates.



Tremie Assembly

The tremie pipes will be assembled using greased wire connections to the required tremie length. Wires are inserted to lock two sections together. Tremie sections are typically 1-3m in length. The top of the tremie string always consists of a concrete hopper. There are 2 levels of rubber gasket rings to ensure a watertight seal.

Tremie Storage



Tremie tubes are stored in purpose-built storage racks which incorporate space for working at the top (to insert or wash down tremie tubes).

Each tremie tube is lifted or lowered into the tremie rack using a purpose-made tremie cap or hopper

Concreting using Tremie

The attendant crane will place the tremie pipe into the pile through the centre of the reinforcement cage to the base of the pile bore. The tremie shall be arranged centrally within the pile so concrete can be placed uniformly.

A vermiculite plug will be introduced to the hopper, prior to the start of discharging concrete into the hopper, to separate concrete from the bentonite. A minimum 0.5m column of vermiculite is to be used inside the tremie tube.



Under the instruction of the concrete ganger the concrete will be poured into the pile bore (via the tremie pipe) and the level checked with a weighted tape from the top of the temporary casing. The concrete dips for each concrete delivery and final level will be recorded in the concrete ganger's book at the end of each discharge.



Following the initial slow concrete discharge, to ensure the cage does not uplift, the tremie pipe must remain embedded in the concrete by at least 3 m.

As the concrete is discharged into the pile bore, displaced fluid (water or bentonite) will be pumped away from the pile head. Bentonite is recycled back to the bentonite plant for cleaning and storage, water to a suitable discharge point or storage.

Once the reinforcement is adequately supported by the concrete the reinforcement hanging chains will be removed.

Tremie pipe length will be reduced as the concrete pour progresses to assist in the construction process and mitigate uplift of the reinforcement cage.

At the top of the pile extra concrete will be poured above cut-off level to ensure clean uncontaminated concrete at cut-off level. Concrete will always be left above the natural water level.

Where the pile cut-off level is at platform level any contaminated concrete or bentonite mix will be removed from the top of the pile and disposed of in accordance with the waste management plan.

A single string of tremies will generally be used in foundation piles and short diaphragm wall panels, however two tremies is more appropriate to larger diameter piles and long panels. When using 2 tremies the differential concrete rise between the 2 tremies should not exceed 300mm.

Risk Assessment: Use of Tremie

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Trapped fingers from: • connecting tremie tubes • using tremie forks • assembling concrete chutes	3	4	12	• Use correct tools for wire extraction. • Keep hands free of all joint areas when connecting. • Experienced piling operatives to position the trapping beams and tremie fork.	1	4	4	Concrete Ganger	Daily
Slips due to wash water present in cleaning area	3	3	9	• Good housekeeping of work area. • Drainage system in use for keeping wash water to a minimum.	1	3	3	Concrete Ganger	Daily
Unsecured / incorrect connection allowing tube to fall	3	5	15	• Check joining wires and rubber seals correctly installed and in position. • Inspect condition of wires and seals and replace as necessary.	1	5	5	Concrete Ganger	Daily
Tremie tubes falling over falling over causing injury	2	4	8	• Only use supplied tremie racks or lay tubes flat on the ground. • Tremie pipes to be washed out in the tremie rack. • Correct joining with tremie wires.	1	4	4	Concrete Ganger	Daily

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Trips or falls from tremie racks	2	5	10	• Integral steps used for access. • Handrail barrier locked into position at all times with chained pin when in use. • Good housekeeping around and at the top of rack.	1	5	5	Concrete Ganger	Daily
Manual handling causing injury	2	3	6	• Lightest piece of tremie equipment is 35kg – no equipment to be manually lifted. • Use mechanical devices at all times.	1	3	3	Concrete Ganger	Daily
Falling Objects when moving tremie equipment	3	5	15	• Plan lift when using a Handling Crane with Banksman to control area and signal to the crane / rig operator. • Tremie rack to be placed adjacent to work area to avoid moving the tremie pipes long distances by crane. • Avoid placing tremie in racks on very windy days. • Avoid stress on joints in bending by not laying long lengths of tremie on the ground. Stack vertically in racks.	1	4	4	Contract Supervisor/ Ganger	Daily
Entrapment by tremie tube while placing tubes in rack	3	4	12	• Stand in a position to be able to deflect the tubes rather than become trapped. • Steady load when appropriate.	1	4	4	Concrete Ganger	Daily
Splashing or contact with skin causing personal injury from concrete or high pressure washer jet	3	3	9	• Full PPE including EYE and HAND protection to be worn when working with concrete. • Eye protection to EN 166 or Safety Visor. • Gloves (suitable for task) to EN 388. • Long sleeve ppe when concreting.	1	3	3	Concrete Ganger	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:

Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

Site Project Bradford		Activity **Environment**		Persons conducting assessment Vitor Marques		
Risk Assessment No. 22D990-CSL-00-MS-X-0036	Review Date 12/11/20	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 12	Employees 9	Other Workers 3		Public/Visitors	Vulnerable Persons	Total at Risk 12 (nr)

Method Statement: Environment

Project Impacts

The project shall assess the following potential site conditions for their associated environmental impacts following the source-pathway- receptor process.

Where the assessment identifies, implement controls and checks that the controls are in place and effective.

- The ground conditions and site topography
- The nature of the site processes and any excavations
- Location of offices, stores and welfare facilities
- Material storage facilities
- Fuel storage and refuelling areas
- Sensitive receptors eg watercourses (rivers and streams), nearby buildings
- Potential for site water run-off
- Local drainage arrangements, manholes, catch pits
- Waste management arrangements, including storage and disposal
- Maintenance facilities, wheel washes and vehicle cleaning
- Access roads, hard standings and car parks
- On-site concrete or bentonite plants
- Concrete wash-out arrangements
- Dewatering activities
- Noisy activities including out of hours and or night time working
- Any other specific considerations

Incident reporting

Via the ***Skanska Incident Hotline 0845 605 0477***

Pollution Control

Storage of Liquid in Drums – drums containing **f**uels, oils, and COSHH substance will be stored within a drip tray capable for holding 25% of the total capacity. If the drums have a total capacity in excess of 200 litres then they must be bunded to 110% of the total volume.

The drums will be clearly labelled to indicate the contents.

Material Safety Data Sheets (MSDS) for each material used onsite will be obtained using our Sypol database with a hard copy of each MSDS will be held in the COSHH store.

Storage and Use of Fuel Cans: Ensure that vessels used are appropriate for the fuel and the caps are securely fitted. When being transported, they must be restrained.

Spill Control - Spill control kits will be located near to fuel stores / refuelling points and on each piling rig.

Drip trays are mandatory for items of static plant, fuel and COSHH substances.

If a spill occurs or a spill enters a watercourse then the site supervisor should contact the EHS team to identify further action. If this occurs out of hours, the supervisor will contact the local spill response company.

Fuel bowsers must be locked at all times when not in use

Adler & Allen – Major Spill response – 0800 592 827



For a spill occurring on the piling platform or natural ground then the extent of the contamination will be assessed and the contamination removed. In the case of small spills, operatives will dig out the contaminated ground (normally identified by a change in colour, odour, texture or moisture). The waste material will be segregated and disposed of correctly. It should be tested and classified to confirm if it is hazardous waste or not. If classified as hazardous waste, it will be put into hazardous waste bags and removed by a licenced waste contractor to a facility permitted to accept the waste.

Waste Management

Waste Duty of Care – applies to you if you produce, carry, keep, dispose of, treat, import or have control of waste.
The law requires anyone dealing with waste to keep it safe, make sure it is dealt with responsibly and only given to businesses authorised to take it.

As the holder of waste Cementation Skanska has the responsibility to take all reasonable steps to ensure that when waste is transferred to another waste holder, then the waste is managed correctly throughout its complete journey to disposal or recovery.
You do this by:
• checking the next waste holder is authorised to take the waste
• asking the next waste holder where they are going to take the waste
• carrying out more detailed checks if you suspect the waste is not being handled in line with the duty of care, e.g. requesting evidence that your waste has arrived at the intended destination and that it has been accurately described.

Where practicable waste streams will be segregated on site using clearly labelled skips, identifying the type of waste eg Wood, Metals. Where this is not practicable, a single skip is to be provided for all **Non-Hazardous** waste streams and removed to a transfer station for further treatment.

The Environmental Team hold a central register of all known waste carriers and facilities used by Cementation Skanska. This register can be viewed by site at any time. If new waste contractors or waste facilities are to be used, approval from the Environmental team must be obtained before adding to the register.

Cementation Skanska will appoint a number of competent persons to undergo Waste Duty of Care training. Their responsibility will then be to ensure that waste will only be allowed to leave site following full completion of the correct legal paperwork ie

- Inert/Non-Hazardous Waste - Waste Transfer Note
- Hazardous Waste - Hazardous Waste Consignment Note (HWCN) – the HWCN number to be obtained from the Environment Advisor.
- Special Waste (Hazardous) - Scotland is to be recorded on a SEPA consignment note.

Each site/project has the responsibility to inform the Environmental Advisor 48 hours in advance of any waste transfer from site to ensure that the relevant checks have been carried out and copies of permits/licences are in place.

Suspected Contaminated Land

If any potentially contamination land is discovered, we will suspend our works and immediately notify a Line Manager, the client and our Environmental Advisor.
Potential contamination will be contained i.e. waste not removed from site until test results have been received and the material classified.

Concrete Washout

On completion of delivery of the concrete, the concrete wagon will wash out its chute into the designated concrete wash out area. This is to be located remote from sensitive locations i.e. drains, watercourses or boreholes.

Where a "Siltbuster" type system is not in place, this wash out area it to consist of a designated skip or excavated pit lined with 1000 gauge polythene within the site area adjacent to the concrete pump and agitator. Site operatives are to ensure that polythene overlaps the edges of the wash out area and edges held in place with the aid of sandbags or lugs.

Washout from the agitator, pump area, tremies and any other equipment must be directed into the wash out area.

Place any **excess concrete** into a designated overflow location.

Any **spilled concrete** will be cleaned up with the aid of either an excavator, or manually, and placed into the overflow location/concrete wash out skip area.

Solid settled concrete can either be reused on site or disposed of in accordance with waste management best practice. An exemption may be required to reuse waste concrete – ask your Environmental Advisor for advice. Any remaining wash water within the washout area will be tankered off site to a waste treatment facility or, where available, pumped to the principal contractor's water treatment process with their prior consent. Wash water may be discharged to foul sewers where possible however consent is needed from the sewerage provider in order to do this. ask your Environmental Advisor for advice

Noise, Vibration and lighting

Noise - All plant is to be maintained to prevent excessive noise emissions. All plant used on a temporary basis will be shut down in periods of non-use.
Where applicable, noisy plant will be located as far away as possible from public areas and sensitive receptors.
All site-based employees will be briefed on the site rules applicable when entering / leaving / working on the site.
Noise contours for the rig will be available onsite.

Vibration – Piling at times can cause some vibratory or percussive movement that may cause slight vibration. However due to the nature of the ground conditions it is not expected that vibrations will have any serious impact on adjacent structures or the surrounding environment.

Lighting - Consideration will be given when positioning site lighting to prevent glare for operatives, the general public and nearby houses/offices

Risk Assessment: Environment

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

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No impact
Rating 2 = Little effect
Rating 3 = Significant effect
Rating 4 = Extremely serious
Rating 5 = Catastrophic

Risk = Likelihood x Severity

Acceptable | Further review | Unacceptable Risk

HAZARD (ENVIRONMENTAL IMPACT)	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Air Quality - dust generation from material stockpiles, haul roads, cutting operations.	5	4	20	• A means of containment must be in place when dust is created e.g. damping down, covering of material stockpiles. • Use a wheel wash or equivalent means of cleaning vehicle wheels. • Minimise grinding, drilling, saw cutting and damp down where unavoidable. • Cover waste skips. • Service plant and equipment regularly. • Visually monitor dust levels in sensitive areas.	2	2	4	All operatives Inspections by Contract Supervisor	Daily
Ecology - disturbance to protected species or habitat	3	4	12	• All buildings, trees and shrubs shall be inspected for nesting birds on a regular basis. • The site shall be inspected for protected habitats or invasive species (giant hogweed, knotweed) prior to work being carried out. • If protected habitats, invasive species or nesting birds are encountered, stop work and consult EHS Team	1	3	3	All operatives Contract Supervisor	Daily
Air Quality - emissions from plant	5	3	15	• Switch off plant and equipment when not in use. • Ensure fuel-efficient plant is used where possible.	1	2	2	All operatives Plant Manager	Daily

				• Measure energy and fuel use to identify areas to minimise use. • Ensure non-road mobile machinery complies with Low Emission Zones.					
Contamination of ground and water courses from oil and diesel spills	4	3	12	• Storage to be in accordance with manufacturer's instructions. • Use bunds or double skins where appropriate. • Regular daily and weekly maintenance and checks to be carried out as part of supervisors standard inspections. • Regular servicing. • Drip trays positioned under stationary plant. • Spill kits readily available. • Report any spills immediately. • Contaminated materials from spill kits should be disposed of as hazardous waste. • Fuel bowsers must be locked on site at all times when not in use.	1	3	3	All operatives Supervisors	Daily
Natural resource use	5	3	15	• All timber used must be FSC or PEFC. • All quarried products from BES6001 certified suppliers. • All rebar to be from Eco-reinforcement certified suppliers. • Substances on the Skanska Restricted Substances list shall be avoided where possible. • Use materials with recycled content where possible.	1	2	2	Engineer / Procurement	Placing Order
Noise pollution from works operations	4	4	16	• Plant maintenance carried out regularly. • Shut down plant when not in use • Where practicable locate noisy plant away from receptors. • Limit plant movements to normal working hours.	1	3	3	All operatives	Daily
Ecology – protection of trees	3	4	12	• Check for the presence of Tree Preservation Orders on the site. If they are in place avoid damage to these trees by fencing the area in line with British Standard 5837. • Root protection areas should be followed at all times. • Any roots exposed during works should be wrapped. Wrapping to be removed prior to backfill which should take place as soon as possible. • Roots greater then 25mm diameter must not be cut without consultation with an arboriculturist.	1	3	3	Engineer / Principal Contractor	Contract start

Glare from site lighting	4	2	8	• Position and direct lighting towers so as to avoid glare to personnel and third parties.	1	2	2	All operatives	Daily
Waste Management	5	4	20	• Minimise waste produced on site by minimisation, re-use and recycling. • Only use registered waste carriers and permitted/licensed waste management facilities. • Store waste in secure containers.	1	3	3	Contract Supervisor	Daily
Water Pollution - concrete wash out	3	3	9	• Maintain and use suitable wash out systems. • Place adjacent to the work area to collect wash water.	1	2	2	All operatives	Daily
Unknown contamination encountered within the ground	2	4	8	• If any suspected contamination is evident, suspend our works. • Operatives to be screened / assessed and any additional health measures to be put into place. • Professional assessment to be carried out and any measures / PPE to be put into place before works recommence.	1	3	3	All operatives	Occurrence
Water use	4	4	16	• In offices, install taps and equipment to minimise water use. • Use water recycling where possible for site cabins and damping down.	1	2	2	All operatives	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:



Site Project Bradford		Activity **Deliveries & unloading**		Persons conducting assessment		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0037	Review Date 12/11/20	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 5	Employees 5	Other Workers		Public/Visitors	Vulnerable Persons	Total at Risk 5 (nr)

Method Statement: Deliveries & unloading

Introduction

Delivery vehicles to be compliant with the Skanska Vulnerable Road Users Policy.

All deliveries are to be stopped at the access to the site.

The driver to be briefed on:

- Acceptable traffic routes to the place to unload
- Appropriate PPE to be used
- Who will be responsible for banking the vehicle
- How the load will be unloaded
- Who will check, sign and retain the delivery ticket

During unloading :

- All persons to be in a safe place
- A suitable safe system for working at height to be in operation
- Operation in strict accordance with the lift plan and separate risk assessment
- Craneage to be deployed only on platforms which are appropriately designed for the lift
- Slings, shackles and chains must be correctly rated for the load to be lifted and only used by the certified slinger / signaller

Deliveries to be stacked on supports clear of the ground.

Unloading positions to be carefully selected to avoid impact to operatives, buildings and any third parties.

Vehicle Cycle Protection Systems

Transport vehicles will be fitted with safety equipment designed to protect cyclists and pedestrians. These are mandatory on lorries >3.5t.



Warning signs – front and rear



Side under run guards



Class V1 Mirrors



Fresnel Lens



Rear facing camera



Sensors

Examples of Safe Unloading Systems





Skanska Standards



Examples of Collective Fall Prevention

Loading and unloading personnel

All those involved in loading and unloading will be briefed on the risk assessment and method statement, have pre-task and daily briefings and have attended the mandatory Skanska toolbox talk.

Loading and offloading involving craneage and slinging loads will only be carried out by a trained Slinger/ Signaller in accordance with the AP authorised Lift Plan under the supervision of the Lift Supervisor.

Loads involving tracking machinery up/down delivery vehicle will only be carried out by a competent operator / rig driver.

The Contract Supervisor will be delivering a pre task briefing every morning where the type of deliveries will be covered and briefed out to the Operatives. Deliveries not covered in the daily briefing must not be unloaded until the load is checked, the off-loading method is agreed and off-loading is authorised by the Contract Supervisor.

Tool Box Talk on Loading and unloading deliveries will be delivered to all site operatives prior commencement of work on site as a part of this RAMS



Instructions to drivers

Instructions for drivers regarding loading and unloading will be given to the driver.

Specific loads

Loads identified as needing specific arrangements must have the following:

- The Contract Supervisor or Project will decide if an off-site visit is required and the frequency of pre-delivery planning meetings.
- Specific risk assessments and method statement must be produced and authorised along with a lifting plan if appropriate.

Out of hours deliveries

If the competent people, equipment, plant etc as set out in this risk assessments & method statement are not available then the load will not be offloaded.

For out of hours loading and unloading special considerations are required and to be planned in the risk assessment and method statement.

This will include the enhanced risks and environmental considerations e.g. local authority acceptance, neighbour & other stakeholder acceptance, noise, light etc.

No out of hours offloading will be carried out without the risk assessment and method statement and the controls in place.

Unsafe loads

No unloading will be undertaken if on arrival the load is unsafe to offload or it has shifted in transit. In these circumstances the Contract Supervisor or Project Engineer will decide if it is safe to send the vehicle away in conjunction with the driver.

Only if it is safe to do so can the load be unloaded, however a risk assessment and method statement must be completed and briefed to all those involved in the activity.

These require formal planning for medium and high risk loads as defined by this list below:

- Pre-cast elements
- Steel elements or steel structures
- Timber
- Pipes
- Plant and machinery
- Facilities
- Fuel or chemical containers
- Heavy packages or pallets
- Pre-assembled pipe racks
- Other

Loads being lifted will be subject to the project/contract lift plan.

The table overleaf shows the loads which have been identified for this project:

Site Specific Plan

A plan (to be used on noticeboards and in meetings), shall identify where loading / unloading is authorised. This plan:

- Will be updated (below or in the risk register) throughout the project as locations are added or changed.
- Identify what plant and equipment is available to load /offload (e.g. tower crane, forklift etc.)
- Identify the facilities such as a loading gantry and also use of any delivery management system to execute the load / offload
- Identify controls ie ensure exclusion of unauthorised persons, plant capacity, lifting equipment, capability, restrictions etc
- Detail safe offloading and methodology if needed to be completed outside the site confines. (eg low loaders).

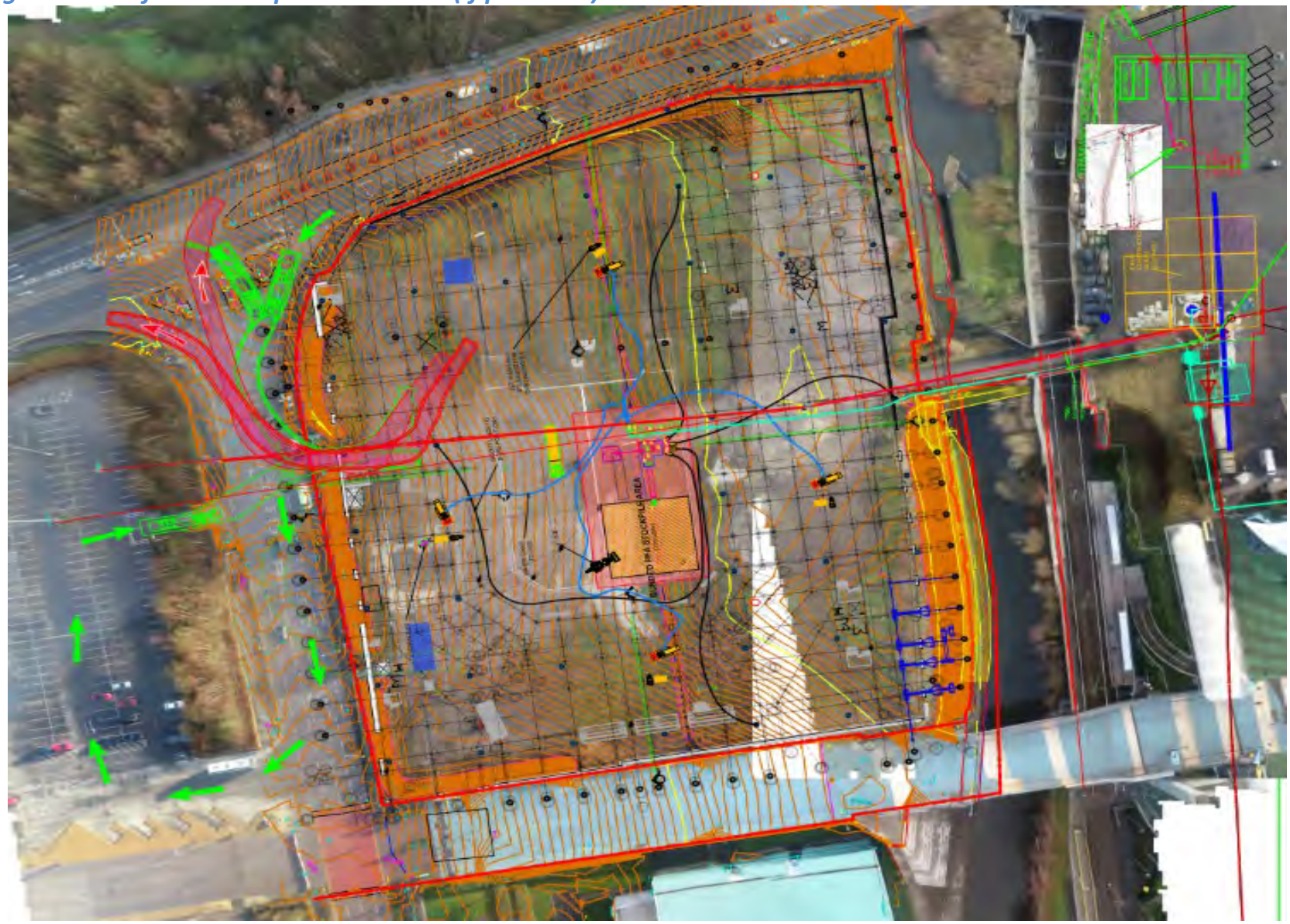
Site specific Loading / unloading arrangements are detailed below

Principal contractor Site logistics Plan is detailed below if provided

Arrangements for Loads identified on this project:

Load	*M/H*	*Plant & Equipment*	*Measures to access vehicle safely*	*Measures to prevent falls from vehicle*	*Controls Comments*
Rig	***Medium***	***BG33***	***N/A***	***N/A***	***Unloading and loading onto low loader***
Rig	***High***	***BG33 Mast section and Kelly Bar***	***Podium Steps***	***Edge Protection***	***Using lifting equipment as detailed in lift plan***
Rig	***Medium***	***BG33 Counterweight***	***Podium Steps***	***Edge Protection***	***Using lifting equipment as detailed in lift plan***
Rig	***Medium***	***BG33 Rotary Head***	***Podium Steps***	***Edge Protection***	***Using lifting equipment as detailed in lift plan***
Mewp	***Medium***	***Z45/25***	***N/A***	***N/A***	***Delivered by small low loader***
Digging Tools	***Medium***	***Segmental Casing, Augers, Digging Buckets , KDK Driving Hat***	***Podium Steps***	***Edge Protection***	***Using lifting equipment as detailed in lift plan***
Jet Wash Bowser Diesel Bowser etc	***Medium***	***External Plant Hire***	***Podium Steps***	***Edge Protection***	***Delivered by Small wagons***
Crane	***Medium***	***80t and 50t Telescopic Cranes***	***N/A***	***N/A***	***Unloading and loading onto low loader***
Stores	***Medium***	***Stores Container***	***N/A***	***N/A***	***Using lifting equipment as detailed in lift plan***

Insert Site Logistics Plan from Principal Contractor (if provided)



Risk Assessment: Deliveries

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Movement									
Pedestrians Impact with vehicles	5	4	20	• Site traffic routes to be established by PC to segregate vehicles and pedestrians and briefed to our operatives. • Clearly defined routes.	1	4	4	All Operatives	Job start or on any change
Impact with reversing vehicles	5	5	25	• No vehicles allowed to reverse without a vehicle plant marshal in place. • Banksman (Vehicle/Plant Marshall) to hold CPCS Vehicle/Plant Marshal certification. • Line of sight to be maintained between the driver and designated banksman during reversing operations - otherwise vehicle to STOP. • Clear hand signals to be used. • Individual unloading the delivery to have attended the Safe Load TBT	1	5	5	Vehicle Plant Marshal	Daily
Site Access / Egress for vehicles to prevent accidents with other personnel	5	5	25	• In accordance with designated routes. • In accordance with gate man / marshal's instructions. • Site induction/ briefing for driver.	1	5	5	All Operatives	Daily

				• Designated area for unloading.					
Collision with cyclists causing accident/ fatality	5	5	25	• Vehicle to be fitted with protection system as described in Skanska Vulnerable Road User Policy. • Vehicles to use PC or Skanska delivery access route set from 2.5 miles radius from the site	2	5	10	Delivery company	Daily
Crushing from concrete trucks discharging	4	3	12	• Pumpman to make himself known to the concrete delivery vehicle driver. • Vehicle to be stationary before adjusting chutes. • Pumpman's position of safety whilst reversing is within the agitator working platform.	1	3	6	Pumpman	Daily
Unloading									
Fall from delivery vehicle - Working at height whist unloading	5	5	25	• Loads to be pre slung where practicable. • No person to access the vehicle without edge protection system in place. • Use purpose-designed access points where available • Ensure all ladders fixed or footed. • Access / egress only by the standard step ladder issued to every project. Footed by second operative. • CSL standard hauliers have had vehicles adapted to fit post and ratchet straps. (Posts carried in CSL stores container).	1	5	5	All operatives	Daily
Plant falling off vehicle	3	5	15	• Use competent driver or plant operator. • Maintain an exclusion zone around lorry whilst unloading.	1	5	5	Operator	Daily
Out of date single-use slings could fail and cause load to drop	3	5	15	• Material pre-slung with one trip or webbing slings – must cut immediately once offloaded. • Secure storage arrangements can be used to return these to the supplier i.e. lockable skip.	1	5	5	Contract Supervisor	Daily
Excessive weight or radius of lifting causing load to drop	4	5	20	• Comply with specific lift plan / risk assessment.	1	5	5	All Operatives	Daily
Impact whilst guiding the load	3	5	15	• Loads to be guided from ground level using tag lines. • Do not position yourself at a potential pinch point. • Be aware of the blind side to any loading e.g. forklifts inadvertently pushing loads forward whilst loading.	1	5	5	Slinger	Daily
General									
Weather conditions causing loads to be unstable	3	4	12	• Don't unload in high winds. • Check operating conditions for safe working in winds for the unloading device.	1	4	4	Contract Supervisor	Daily
Failure of platform causing instability to vehicles	3	4	12	• Platform to be designed for vehicle access and crane outriggers. • Separate risk assessment for any methods to extract vehicles.	2	4	8	Contract Supervisor	Daily
Unstable load causing tipping	3	5	15	• Load straps only to be fastened or removed by lorry driver • For any vehicle movement the load should be appropriately fastened.	1	5	5	Driver	Daily

Injuries occurring as a result of change or unplanned events	4	5	20	Site logistics plan to be briefed out and implemented • Site logistics plan to be reviewed on a weekly basis • Stop works when change occurs and inform Supervisor or Project Engineer	1	5	5	All operatives / Contract Supervisor / Project Engineer	Daily
Injuries occurring during loading and offloading operations	4	5	20	• Identify Loads, Risk and Control measures before loading • and offloading • Tool Box Talk to be delivered to all Operatives prior to commencement of works	1	5	5	All operatives / Contract Supervisor / Project Engineer	Daily
Injuries to Delivery Drivers whilst checking load is secure	3	5	15	• No lone working permitted. Delivery drivers must be kept in the direct line of sight of the Construction Supervisor or his nominated site operative at all times. Include in Site Induction for all Supervisors and Operatives prior to working on site.	1	5	5	Contract Supervisor and site operatives	Prior to the person working on site
Site Specific Measures									

Hierarchy of Risk Reduction:



Site Project Bradford		Activity **Health**		Persons conducting assessment		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0038	Review Date	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 30	Employees 24	Other Workers 6		Public/Visitors	Vulnerable Persons	Total at Risk 30 (nr)

Method Statement: Health

Personal Health

CSL has introduced various control measures for health-related risks, arising from our operations, in accordance with the controlling statutory regulations

- Noise (Control of Noise at Work Regulations 2005)
- Leptospirosis (Control of Substances Hazardous to Health Regulations 2002)
- Hand and body vibration (Control of Vibration at Work Regulations 2005)
- Asbestos (Control of Asbestos Regulations 2012)
- Manual handling (Manual Handling Operations Regulations 1992)
- Skin disease (Control of Substances Hazardous to Health Regulations 2002)
- Fatigue
- Drugs and alcohol

CSL has risk profiled its employees and as a result operatives are included in our health surveillance programme.

Safety-critical roles require the person to undertake a Safety Critical Worker health assessment every 3 years.

Personal Protective Equipment

As a minimum the following items are mandatory articles of PPE required to undertake the activities identified within this method statement:

- Hard hat to EN 397 class 2
- Yellow Hi Vi to EN 471
- Yellow Hi Visibility Trousers to EN 471
- Steel toe-capped boots with mid-sole protection
- Eye protection to EN 166 (unless deemed otherwise)
- Gloves (EN 388)

Any PPE required in addition or in lieu of the minimum mandatory items will be detailed within the appropriate Risk Assessment & Method Statement (RAMS).



Risk Assessment: Health

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

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Risk = Likelihood x Severity

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Noise damaging hearing	5	4	20	• Construction plant noise level assessments and rig contours to be appended to the RAMS • Signage to be placed adjacent to working area to warn persons of mandatory PPE requirements in regards hearing protection • All operatives to wear mandatory hearing protection i.e. ear defenders within the exclusion zone of the piling rig. • Advise third party employees on the need for hearing protection • Annual health surveillance for operatives exposed	1	4	4	All operatives	Daily
Leptospirosis (Weil's Disease) - Working within areas adjacent to water or rats' habitat	3	5	15	• Operatives provided with a Leptospirosis pocket card. • Practice good housekeeping and personal hygiene. • Cover any cuts and abrasions. • Wash hands thoroughly prior to eating, drinking or smoking. • Wear company standard PPE.	1	5	5	All operatives	Daily

				• If any illness or flu-like symptoms become apparent, ensure you present your Leptospirosis pocket card at any doctor or health professional appointments.					
Vibration from hand held impact tools with potential to result in 'Vibration White Finger' or 'Hand-Arm Vibration Syndrome (HAVS) (EHS014)	3	4	12	• Known vibration levels of equipment and trigger time to be included where vibrating equipment used • Use suitable low-vibration tools. • Check tools before using them to make sure they have been properly maintained and repaired • Make sure cutting tools sharp so they are efficient. • Reduce the amount of time you use a tool in one go. • Avoid gripping or forcing a tool more than you need • Encourage good blood circulation by: o Keeping warm and dry o Giving up or cutting down on smoking because smoking reduces blood flow o Massaging and exercising fingers during work breaks.	1	4	4	All operatives	Daily
Whole-body Vibration from operating machinery / plant (EHS014)	2	2	4	• Regular maintenance of equipment. • Ergonomic design of workplace. • Limiting of the duration and magnitude of exposure. • Sufficient breaks to rest tired muscles. • Impact assessment on vibration, if required. • Known vibration levels of equipment and trigger time to be included where vibration equipment is in use.	1	2	2	All operatives	Daily
Unexpected encountering asbestos with the potential to cause respiratory difficulty (EHS006 Asbestos)	2	5	10	• Personnel to have received asbestos awareness training. • Immediately cease work and avoid further contact. • Specific RA to be produced where working with asbestos is known, which will include using appropriate ppe (disposable overalls and facemasks). • Avoid creating any dust. • Thoroughly wash before eating, drinking or smoking.	1	5	5	All operatives	Daily
Manual Handling causing strain to muscles and back (EHS 016)	4	4	16	• Avoid. • Separate manual handling risk assessment to be undertaken where manual handling cannot be avoided: o Loads to be as small, light and as manageable as possible o Task to be modified to reduce carrying distance, twisting and lifting o Handling environment to be improved	1	4	4	All operatives	Daily

				o Operatives trained in correct lifting o Individuals to be assessed for suitability					
Exposure to construction substances causing skin conditions	3	3	9	• Avoid direct contact between unprotected hands and substances, products and wet work. • Gloves (rated for the particular substance) used. • Barrier creams adopted where appropriate. • Hand wash with cleaning cream/ soap in hot/ cold water. • Report itchy, dry or red skin – early treatment helps.	1	3	3	All operatives	Daily
Fatigue when working shifts / nights increasing risk of accidents	2	3	6	• Longer breaks in shift work patterns transferring between day and night shifts. • Working an average 8 hours over 17 weeks. • Separate assessment required for pile installations in a shift pattern. • Where *LONG TERM* shift work is required a separate fatigue assessment to be undertaken.	1	3	3	All operatives	Daily
Drugs and Alcohol increasing risk of accident and injury	2	4	8	• Random testing to ensure enforcement of company policy. • Suspected intoxicated personnel tested and excluded where necessary.	1	4	4	All operatives	Daily
Effect of sun causing burn to skin with the potential to develop skin cancer	4	4	16	• Wear helmet with visor to protect face & head from sun. • Wear long-sleeve shirts. • Apply high-factor suntan lotions to exposed areas of skin.	1	4	4	All operatives	Daily
Eye Damage from wind blown dust or flying objects from construction activities	3	4	12	• Operatives to wear visors / glasses at all times for Immediate use as conditions on site demand. • Suitable visors / glasses are to be worn for carrying out or viewing specific activities requiring eye protection. • Damp down dust at source. • Operatives to exercise good personal hygiene.	1	4	4	All operatives	Daily
Working in areas which may contain discarded hypodermic needles	3	4	12	• Sharps to be removed by trained personnel. • Instruct measures to take in event of injury – first aid procedures and location of nearest hospital. • Never place hands in blind cavities or unsighted areas without wearing gloves. • Give tool box talks / induction on the hazard.	1	4	4	All operatives	Daily
Use of COSHH products causing hazard to health / environment	2	3	6	• Give priority in selection of products to those with 'green characteristics'	1	3	3	Contract Supervisor / Engineer	In selection process

Site Specific Measures									

Hierarchy of Risk Reduction:



Cementation
SKANSKA

Risk Assessment and Method Statement (RAMS)

Site		Activity		Persons conducting assessment		
Project Bradford		**Electrical Work**				
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0039	Review Date 12/11/20	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation		Name	Signature	Date
Persons Exposed 3	Employees 3	Other Workers 3		Public/Visitors 0	Vulnerable Persons 0	Total at Risk 3

Method Statement: Electrical Work

Introduction

In conjunction with our foundation works, a number of electrical works will have to be carried out. These tasks include, but are not limited to:

- Plant maintenance and repairs;
- Installation and Testing of Electrically Driven Equipment, Mains Distribution Units and Welfare Units.

Generally, electrical works are covered by the appropriate RAMS for the technique to be employed. This RAMS will cover general electrical safety and good practice.

Site Inductions / Information

Most of the electrical work carried out on site will be undertaken by visiting staff or subcontractors not permanently based on site. Each individual attending the site will be subject to the required inductions and briefings.

On arrival on site our electrician will report to the Principal Contractor or Cementation Site Management for this induction and to receive instructions on :

- The scope of the electrical work.
- Safe access and egress from the work place.
- Information pertaining to the safe undertaking of the required task.

All electrical works will be carried out by a trained, certified individual in a safe and competent manner, in accordance with the appropriate manuals / standard practices.

PPE



The PPE to be used for electrical work will be suitable for the task, as a minimum the following PPE must be warn:

- Full PPE including EYE and HAND protection to be worn;
- Eye protection to EN 166 or Safety Visor;
- Hard-toed boots with midsole protection;
- Hard hat to EN 397;
- Gloves (suitable for task) to EN 388.

Plant maintenance and repairs



During the duration of the project, a number of plant & equipment repairs and maintenance will be necessary. These works will be carried out by our own trained and qualified fitters. Each specific task will be assessed for risk and undertaken in accordance with our standard instructions.

Electrical Equipment

Electrical equipment is used both on site and in the offices – this equipment should be used in accordance with the standard instructions. Outside on site, only 110V, not 230V, or cordless equipment should be used. If a mains source is used a RCD should be utilised.

Risk Assessment: Electrical Work *(Associated RAMS – Technique and mobilisation RAMS)*

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
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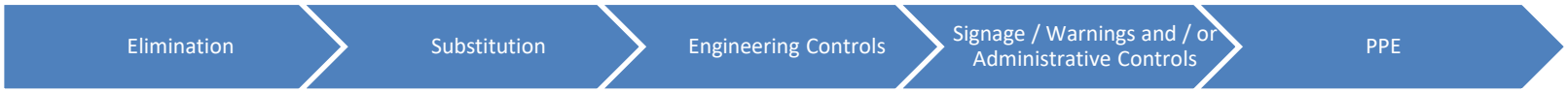
Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
General Electrical Safety									
Injury from an unfamiliarity with the site rules / instructions.	4	5	20	• Report to Principal Contractor's office to sign in and receive a site briefing / instructions. • Show your CSCS credentials. • Ensure all hazards are adequately defined and explained. • Inspect location – identify any hazards – act accordingly. • Wear correct PPE to ensure visibility. • Make others aware of your presence.	2	5	10	Principal Contractor / Electrician	Each Visit
Struck by moving vehicles / plant	3	5	15	• Keep to any pedestrian walkways. • Inform and wait for permission to proceed from any plant banksman / operators. • Do not work in the direct vicinity of operating plant.	1	5	5	Electrician	Each Visit
Fatality due to inexperienced/ untrained/ unauthorised personnel carrying out works.	3	5	15	• Training: Only authorised and trained personnel allowed to work on electrical equipment – i.e. 17th Edition / ECS Card. • Ensure that people working with electrical equipment or systems are competent for the task. • Permit to Work System in place.	1	5	5	Contract Supervisor	Operative on arrival
Burns from combustible or electrical fires	3	5	15	• Good housekeeping - keep flammable materials away from work areas. • In the case of a fire, the works area should be isolated immediately. • CO2 (Black) fire extinguishers must be used for electrical fires.	1	5	5	Electrician	Daily

Injury due to slips trips and falls caused by electrical work and cabling	4	3	12	• Where cables are needed for temporary lighting or mains-powered tools, run these at high level, particularly along corridors. • Any temporary cables (power tools etc.) must be routed safely and away from walkways. • Use cordless tools when possible to avoid having to use cable runs. • Sign cable routes as appropriate.	1	3	3	Electrician	Daily
Electrocution from damaged equipment or cables.	4	5	20	• Thorough and regular visual inspection before each use by an authorised competent person. • Abrasion resistant or armoured flexible leads should be used. • Damaged equipment should be taken out of service as soon as the damage is noticed. • No makeshift repairs should be undertaken. • All electric tools and equipment to be PAT tested at the designated frequencies. • Cables to be run where they are least likely to be damaged. Positions to be marked.	1	5	5	Electrician	Daily
Fatality due to excessive voltages.	3	5	15	• Use of cordless tools or 110V supply systems. • If mains voltages has to be used a RCD (residual current device) should be in place. This should be rated to 30mA with no time delay. • Any 230V portable should be visually inspected on a weekly basis – 230V should not be out on site.	1	5	5	Contract Supervisor	Daily
Electrocution from lighting systems and cuts from broken glass	3	5	15	• Lighting systems should be run off as low a voltage as possible. • Protect bulbs against breakage, if breakage occurs, isolate the bulb and replace. • Broken glass should be only handled when using gloves. • Make sure there is a system for checking bulbs to maintain electrical safety and also to keep the site well lit.	1	5	5	All operatives	Daily
Electrocution due to contact with water	3	5	15	• Avoid carrying out electrical works while raining. • Avoid working close to water/ running cables close to water.	1	5	5	Electrician	Daily
Electrocution when wiring into site mains.	3	5	15	• Ensure that the area that you are working within is isolated (power switched off). • Ensure that the isolation is protected, e.g. that the area you are working in cannot become live again by accident. • Warning signage should be in place. • Lock-out tags should be used and positioned close to works.	1	5	5	Electrician	Daily
Lone working	2	4	8	• If working alone in a part of the site ensure others are aware of your circumstances • Arrange a check-in or call-back time with responsible party	1	4	4	Electrician	Daily
Other activities in the area causing hazards	2	4	8	• Keep clear of all other contractors and their activities. • Arrange to test when they are taking a break or request a temporary stand-down.	1	4	4	Electrician	Daily

Site Specific Measures									

Hierarchy of Risk Reduction:



Cementation SKANSKA

Risk Assessment and Method Statement (RAMS)

Site Project Bradford		Activity **Refuelling**		Persons conducting assessment		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0040	Review Date	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation Skanska		Name	Signature	Date
Persons Exposed 2	Employees 2	Other Workers		Public/Visitors	Vulnerable Persons	Total at Risk 2 (nr)

Method Statement: Refuelling

The majority of Cementation major plant items, rigs and cranes have been modified so that refuelling can be safely carried out from ground level (see adjacent photographs). Some plant items do however have manufacturer's running boards and handrails, these will be used where fitted to provide safe access whilst refuelling.

A competent person on site will be nominated to control all fuel deliveries and major plant refuelling operations, ensuring that suitable precautions such as fire extinguishers, spill kits etc. are all in place and that the receiving bowser has sufficient space for the delivery.

Ancillary plant refuelling operations will be carried out by trained competent operators. These persons will again ensure that suitable precautions are in place.

Refuelling and deliveries must not be carried out within 10m of any watercourse or sensitive receptors.

To prevent inadvertent operation of equipment during refuelling, where it is possible to refuel without the keys being required, then the keys will be removed from the ignition and held by the nominated refueller until such time the refuelling activity is complete.

1) Slew the body so there is easy access to the door (Body sits cross-tracks)



2) Remove the section of the running board from in front of access door (where applicable).



3) Open access door from platform level.



4) Locate the fuel siphon hose and place pipe end feed into fuel bowser



5) Start lift pump to siphon diesel



If the running boards cannot be removed or OEM running boards with handrails are fitted then edge protection to be provided or deployed.



Risk Assessment: Refuelling *(associated documents COSHH assessments for Petrol and Diesel)*

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

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
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Severity

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Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Combustion of fuel	5	5	25	• Allow tools such as stihl saws to cool prior to refuelling. • Define storage areas, provide fire points and spill kits • Fuels to be stored and refuelled well away from any naked flames and any designated smoking areas in well-ventilated areas.	1	5	5	Operator	Daily
Containment of fuel during storage	4	4	16	• Fuel to be stored in double-bunded bowser and locked when not in use. • Smaller quantities to be stored in suitably labelled metal containers (jerry cans) stored on drip trays. • Storage areas to be minimum 10m away from any watercourse or sensitive receptor.	1	5	5	Contract Supervisor	Daily
Fall from working at height when refuelling	4	5	20	• Major plant items such as rigs and cranes have been modified such that they can be refuelled safely from ground level (except where OEM full width running boards and handrails are fitted).	1	5	5	Project Engineer	Contract commencement

				• Plant-specific measures to be included where refuelling at height					
Protection of individuals from contact with liquids: • limited carcinogen • ill health if ingested • eye irritation • skin – irritation (potential dermatitis) • harmful to aquatic organisms • allergic reaction	3	4	12	Use standard PPE in line with COSHH assessments i.e. • Heavy duty gloves • Eye protection • Protective clothing If in Contact: • Inhalation - remove to fresh air and rest. • Ingestion - do not induce vomiting and give plenty of water in sips • Skin - wash with soap/cleanser and rinse with water. • Splashing eyes - irrigate eyes for 15 mins. Limit Exposure by: • ventilate area and exclude all sources of ignition • Contain spills by absorbing in sand or inert absorbent material and, • Collect into a container, close lid and dispose in a controlled manner. • Do not breathe in vapour. • Do not eat, drink or smoke when using.	1	4	4	Operator	Daily
Prevention of spills from refuelling plant	4	3	12	• Use 'plant nappy' type drip trays during refuelling activities. • Ensure sensitive receptors are protected and refuelling activities not within 10m of any watercourse. • Ensure refuelling in safe area clear of traffic and other hazards.	1	3	3	Operator	Daily
Deliveries	2	3	6	• Competent person to receive deliveries. • Ensure sufficient capacity in receiving fuel bowser. • Spill control measures in place.	1	3	3	Contract Supervisor	Daily
Inadvertent operation during refuelling	2	5	10	• Ignition keys to be removed (except when refuelling can only happen with the keys present) and held by the individual nominated to refuel. Keys returned when refuelling complete	1	5	5	Contract Supervisor	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:


Elimination
Substitution
Engineering Controls
Signage / Warnings and / or Administrative Controls
PPE

Site Project Bradford		Activity **Load Testing**		Persons approving the assessment Vitor Marques		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0042	Review Date 12/11/20	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation		Name	Signature	Date
Persons Exposed 2	Employees 2	Other Workers 0		Public/Visitors 0	Vulnerable Persons 0	Total at Risk 2

Method Statement: Load Testing

(associated RAMS – lifting, deliveries, health, environment and refuelling)

Project Specifics

CSL will be installing 4 Nr Preliminary Test Piles (PTP) and 7 Nr Working Test Piles (WTP) with associated Anchor Piles.

Introduction



The CRAFT system is intended to provide a safe rapid assembly reaction system for the load testing of foundation piles. This is achieved by having all the connections between the reaction system and the anchor piles at a level that is easily accessible from the ground.

The main CRAFT beam(s) arrive on site with a toolbox containing all the necessary items to extend the bars and to safely erect the system. The beam fits and is connected directly onto anchor piles, with the test pile central to the system. As the load is applied to the test pile, via a calibrated load cell and jack, the reaction (uplift load) is transferred to the anchor piles. The anchor piles are designed to resist these uplift forces and are suitably reinforced with both designed main and transfer steel.

Installation of Anchor Piles

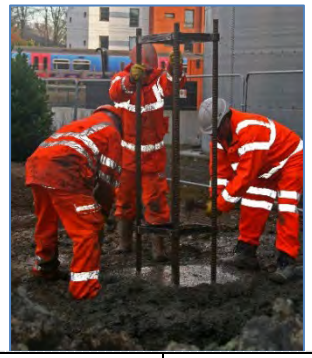
Our standard reaction for a compression load test is to use expendable anchor piles to provide the necessary tension loads. These anchor piles will be designed in friction for the imposed uplift forces, and will contain additional steel reinforcement to transfer the load within the pile. There are standard installation specifications, depending on the maximum test load, for the CRAFT beams. These detail:

- Anchor spacing footprint
- The transfer steel make up, position and levels
- The test pile cap size and level



The additional steel may comprise a reinforcement cage or steel bars bundled together depending on the pile technique. The cage / bundle must extend to the depth which has been designated as the friction length.

In addition to the tension steel, transfer steel is placed to transfer the load from the pile into the test beams (into the test pile). It is important that this transfer steel is positioned accurately, vertical, and to the correct orientation and level. The protruding steel should be visible and protected from damage.



Installation of Pile Cap (if required)



The test pile will be excavated and broken down to the specified level, and the pile head cleared of debris.

A prefabricated flat pack wooden shutter is then assembled, positioned and levelled off prior to carefully backfilling around the shutter. Position and levelling is vitally important.

The pile cap is then concreted with a set of cubes taken. These will be crushed prior to the test to ensure the test cap has reached the designated strength for testing.

Assembly of the Test Beams

The assembly and testing of the pile is undertaken by a competent test technician who is also trained as a signaller slinger and first aider.

On arrival on the site, he will report to the Principal Contractor for briefing and induction and explain the procedure for testing and provide a briefing note for Principal contractor information / briefing.

The technician will inspect the test site, which should have a suitably level working platform free from debris. He will work in accordance with the separate Method Statement for the particular CRAFT beam in use and the standard load test checklist to confirm suitability.

The CRAFT system is either delivered on a hiab or delivery vehicles with a mobile crane. The main beam supports are assembled on the protruding anchor steel, and once these are levelled, the base plate and jacks are positioned on the test piles. The beam is lifted into position and secured in position with holding down plates, beams and nuts.

The test area will be barriered off, with incorporated Danger signs and a contact tel no for emergencies.

Once the test set up is complete and has satisfied the Load test checklist, the temporary works coordinator should confirm the test can proceed



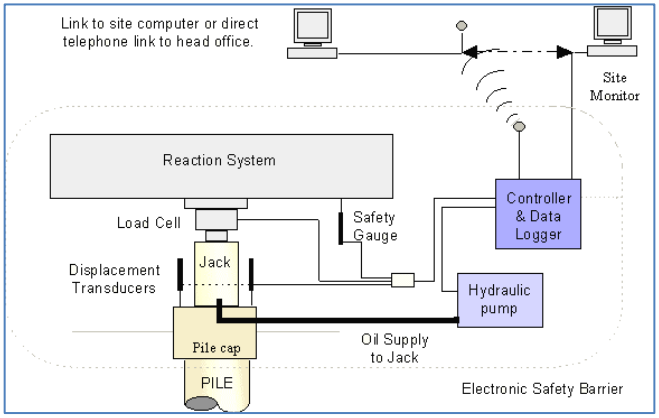
Testing and Remote logging

The system consists of a load cell and five displacement sensors (transducers), four monitoring the pile head displacement and a fifth (safety gauge) independently monitoring the reaction frame movement with reference to the pile head. A microprocessor based data logger/controller and a hydraulically operated load maintaining device is also employed.



A portable computer, programmed by our technician, is used to set and feed the test schedule into the data logger/controller. The technician is in charge of setting up the test equipment and running the test, in accordance with the predefined test specification.

The patented system has been developed to be fully capable of operating automatically unattended in a safe manner. The system checks constantly for any potential error conditions within the test and if any are encountered will fail safe without requiring user intervention. Experienced personnel will check all tests that are running remotely at regular intervals from the operations control centre.



The data logger/controller operates within the criteria set for the test. The logger automatically records and stores all data received from the load cell and deflection transducers, at the pre-set time-intervals as specified. It correlates the settlement and load and only if the prescribed criterion has been met, will it permit the load to be increased or decreased automatically in a controlled manner. The load can also be set manually through a digital control in the data logger. The load cell transmits the measured load back to the data logger, which decides whether any adjustment of the hydraulic feed to the jack is necessary. If an adjustment is required, the load maintainer (powered by oxygen free nitrogen) will expedite any changes needed to maintain the load.



The displacement sensors (transducers) continually measure with a resolution of better than 0.01 mm.

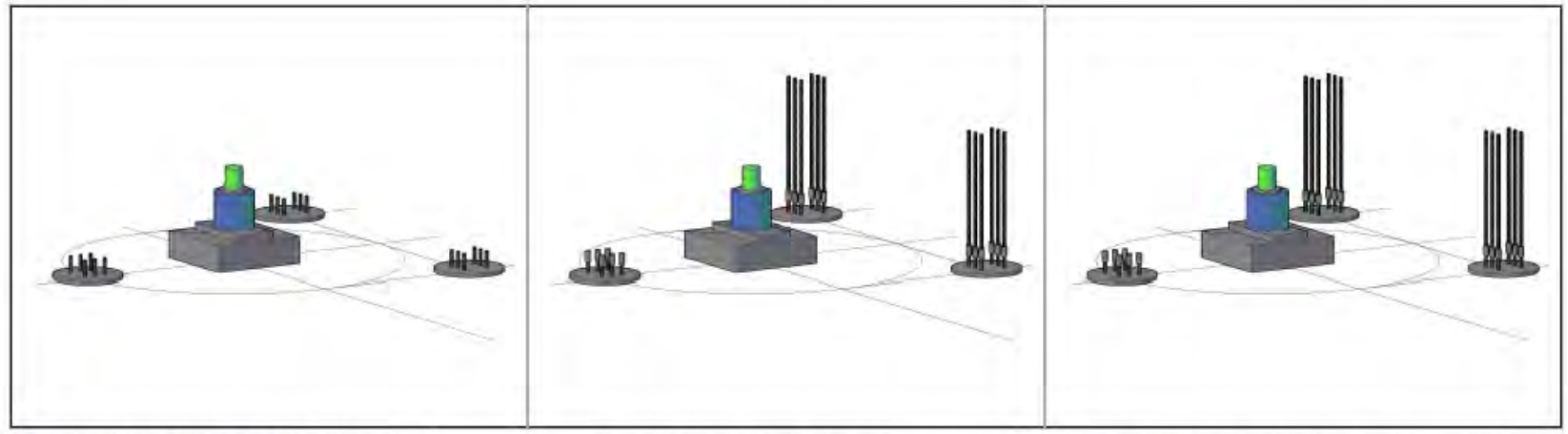
A portable computer can be connected to the system either directly or via a radio communications link without interrupting the test programme to:

- Monitor the load and deflection of the pile head, updating the displayed results every 2.5 seconds.
- Transfer up-to-date logged data from the logger's memory bank to the computer for analysis and data storage.
- Monitor deflection of the reaction beam.
- Allow the comparison between pile head displacement with respect to the reference frame and the displacement of the pile head with respect to the reaction beam as an independent check.
- Interrogate the micro processor/logger for its assessment of safe operation of the test.

The computer will analyse the data in tabular or graphical form with a hard copy included in a final report.

Eventual 3 Anchors Setup

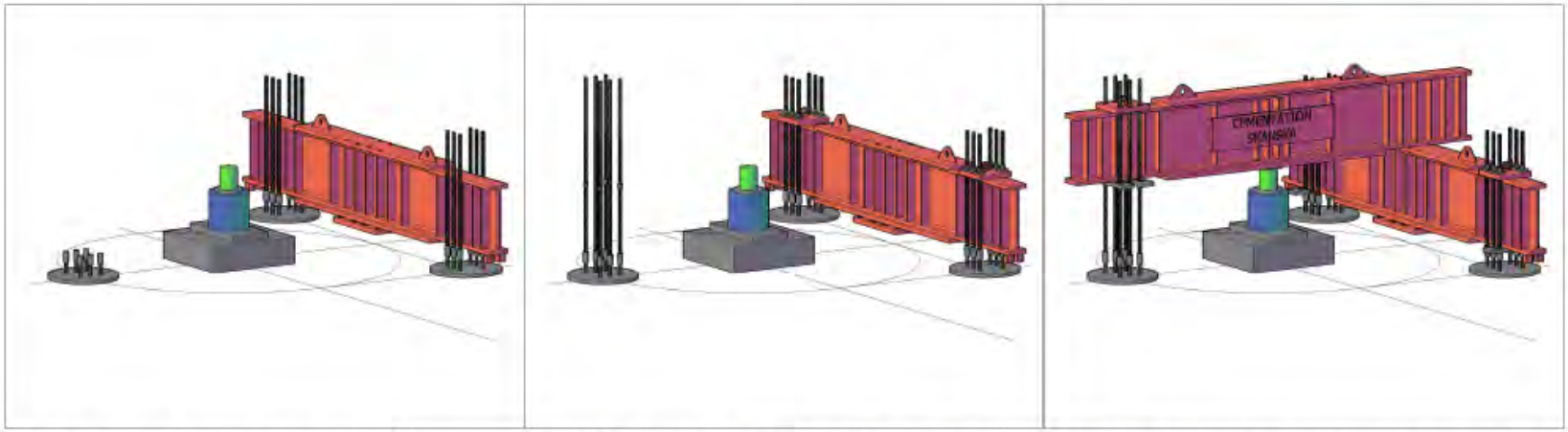
Due the particularity of the assembly methodology for the NP-10 load test using the 16 MN testing beam with only a secondary and primary beam to connect to a 3 Nr anchor piles only the attached pictorial procedure must be achieved, if any change arise TWC must be contact immediately:



1-Install steel plate and jack on top of the pile cap

2-Install additional bars on the secondary beam anchors

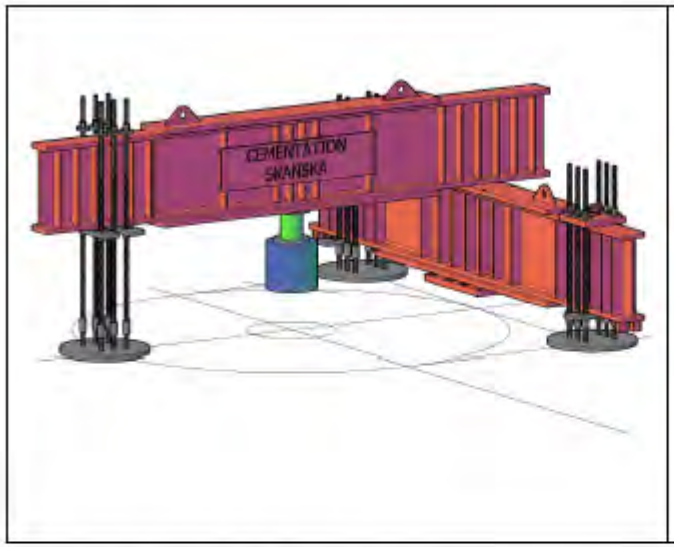
3-Install secondary beam bottom steel plates in each anchor



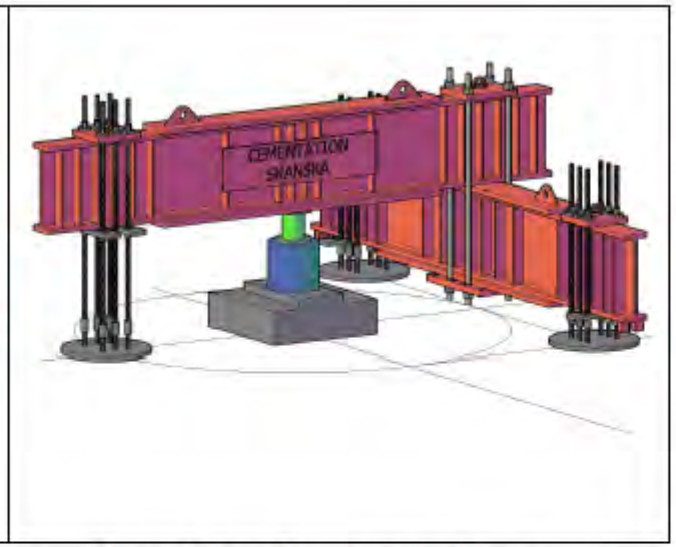
4-Lift in to position the secondary testing beam

5-install top steel plates on the secondary testing beam and thread the nuts on the dywidag bars. install bar extension over the single anchor and principal beam bottom steel plate

6-Install the principal beam and position the top steel plate on the single anchor



7 - position the nuts on the top plate and thread them



8 - install the maccaloy bars and bottom and top steel plate. Inspect testing beam, carry on inspection and grant a permit to load before start loading the pile

After load test is complete permit to dismantle must be granted by the TWC and sequencing of dismantling will be in reverse to the pictorial shown above.

Risk Assessment: Load Testing *(associated RAMS – lifting, deliveries, health, environment and refuelling*

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

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Installation of pile anchor system during main piling									
Incorrect anchor or steel installation leading to potential test failure or test set up collapse causing injury	4	4	16	• Piles and steel installation to be in accordance with written instructions / templates / drawings / sketches • Check required grade of steel used • Check the anchor footprint prior to assembly • Verify steel orientation prior to installation • Verify required projection lengths of anchor steel	1	4	4	Contract supervisor	Each test
Failure of the pile due to understrength concrete causing test set up instability	2	4	8	• Take cubes from the test and anchor piles • Ensure cured concrete strength is sufficient to withstand the test load over the diameter of the pile.	1	4	4	Project Engineer	Each test
Failure of pile cap from lack of design or poor workmanship	2	4	8	• Use either a standard pile cap design or one specifically undertaken for the pile • Pile top to be cleaned and levelled off • Pile cap located centrally over the pile	1	4	8	Contract supervisor	Each test

Site / work Area									
Obstructions in test area causing slips , trips and blind spots	3	3	9	• Test area to be clean and scraped free from debris • All pile heads to be exposed • All protruding steel to have threads protected (to ensure good strong coupling) • All protruding steel to be protected with Cemcaps or similar	1	3	3	Test technician / Contract Supervisor	Each test
Injury to parties arising from test – moving plant or pedestrians	4	5	20	• Maintain an exclusion zone • Area to be fenced off • Signage to warn personnel to keep clear • Phone number to be displayed for emergencies • PC to be notified of test and duration • Tool box talk / daily briefings / briefing sheets to employees working in general vicinity	1	5	5	Test technician	Each test
Incorrect procedure leading to test overload and sudden collapse	3	4	12	• Verified and calibrated load cell in use • Failsafes adopted in the automatic load system • Test parameters checked at FDA mission control • Analysis of any error conditions prior to reloading	1	4	4	Test technician / FDA Manager	Each test
Lone working	2	5	10	• Make presence known to security / FDA controller with known check back time on every occasion • Keep mobile phone on person with number known to security / FDA controller • No onerous tasks to be undertaken	1	5	5	Test technician	When arising
Working at height causing falls	4	5	20	• All Working at height to involve the use of a MEWP • No ladders • No climbing on equipment • All equipment to be tethered	1	5	5	Test technician	Each test
Assembly of Test and Beams									
Incorrect test set up	2	4	8	• Erect test in accordance with instructions in 'beam type' specific method statement. • Inspect test before loading in accordance with checklist for temporary works. • Test is level and all reaction points are equidistant from test pile. • Minimum amount of packing plates used. • If anything doers not comply with the CRAFT method statement, then further instructions from the FDA manager are required	1	4	4	Project Engineer / FDA Manager	Each test
Wrong connection steel causing joint failure and test collapse	3	5	15	• All couplers marked off and inspected to confirm equal / minimum locking to each bar • Diameters of bars and couplers to be checked prior to use • Grade of steel to be checked • Use a known source of materials (toolbox or certificated delivery)	1	5	5	Test Technician	Each connection

Wrong plates / beams used causing test set up instability	3	5	15	• Inspect all steelwork and confirm free from damage, bending, distortion prior to use • Only use the designated plates / beams for each test • No improvising – confirm discrepancies to FDA manager	1	5	5	Test Technician	Each test
Manual Handling of heavy objects causing muscle strain	3	3	9	• Do not lift anything manually over 20 kg or a lesser amount depending on personal circumstances • Weights of all equipment are documented in 'beam type' specific method statements. Check before handling • All plates / beams to have integral lifting points / attachments	1	3	3	Test technician	Each test
Lifting of beams	4	5	20	• In accordance with Lifting RAMS and Lift Plan • Signaller Slinger only to be used for any lifts	1	5	5	Test technician	Each test
Jacking system									
Injection of high pressure hydraulic oil bursting from system causing skin injection or toxicity	3	5	15	• Inspect all joints and hoses • Any alterations to make up of hoses to be by competent person or company • Regular maintenance to equipment • Operate all equipment in accordance with operators instructions • Standard PPE – protective clothing , gloves and eye protection • Report incident for immediate treatment	1	5	5	Test technician	Each test
Incorrect calibration causing overload to test system and possible collapse	3	5	15	• Check serial numbers of load cells with supplied calibration • Check calibration of jack • Where possible check jack pressure gauge against the applied load.	1	5	5	Test technician	Each test
Working with oxygen free nitrogen causing: • asphyxiation • cold burns • ill health if ingested • eye irritation • skin - irritation and dermatitis (prolonged contact)	3	3	9	• Do not breathe gas • Do not eat, drink or smoke • Use in well ventilated area • PPE overall to keep skin covered, eye protection, gloves • Cylinders stored upright in a locked cage • Oxygen free removes the potential risk of oxygen combustion during the application of high pressure.	1	3	3	Test technician	Each test
Loading Test Pile									
Overloading pile due to incorrect specification	3	5	15	• Project Engineer to complete the booking sheet with load test specification • Technician to undertake load checklist • Temporary works coordinator to sign off permit to load • FDA Manager to check uploaded specification when test handed over for remote monitoring	1	5	5	Test technician / FDA Manager / Project Engineer / Temporary Works coordinator	Each test
Incorrect resetting errors to allow the automatic loading of the pile	3	4	12	• All errors to be investigated • Physical evidence may be required by technician visiting site before resetting	1	4	4	Test technician / FDA Manager	Each test

				• Only proceed when absolutely sure of the error and that a reset is appropriate					
Site Specific Measures									
Overloading pile due to incorrect specification	3	5	15	Project Engineer to complete the booking sheet with load test specification for each working test pile	1	5	5	Test technician / FDA Manager / Project Engineer / Client TWC or TWS	Each test
Incorrect Test Setup	2	4	8	• Design brief / Design Check certificate to be issued with a load test specific drawing identifying the interaction between and the testing beam components and anchor piles to get TWC permit to load • Client TWC or TWS will Inspect test before loading in to issue Permit to load • FDA Technician to issue inspection form recording the findings and get validation from the TWC/TWS before start to load the pile;	1	4	4	Project Engineer / FDA Manager / Client TWC or TWS	Each test

Hierarchy of Risk Reduction:

Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

Site Project Bradford		Activity **Integrity Testing**		Persons conducting assessment Victor Hanyes		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0043	Review Date 12/11/20	Revision No. P01		Name	Signature	Date
Person Supervising Work		Employer Cementation		Name	Signature	Date
Persons Exposed 1	Employees 1	Other Workers 0		Public/Visitors 0	Vulnerable Persons 0	Total at Risk 1

Method Statement: Integrity Testing

Introduction

The Sonic Integrity test is carried out by tapping the head of the pile with a small hammer to generate an acoustic wave, which spreads from the blow throughout the pile. The wave is reflected by any discontinuities and the return waves are detected at the pile head.

The depth in the pile at which the returned waves are displayed is calculated by assuming the propagation velocity of the wave in the pile concrete.



Technician with integrity test recording box and hammer

Testing Information

On arrival on site our technician will report to the Principal Contractor for induction and to receive instructions on :

- The scope of the testing work.
- Safe access and egress to the position of the piles to be tested.
- The pile referencing and drawings pertaining to the tests to be undertaken.

The technician will be made aware of the pile lengths from the daily reports and the prevailing ground conditions from the internal booking form submitted to the FDA dept. this information should also be available from the Principal Contractor if the piling is complete and the rig demobilised.

The piles to be tested must be trimmed back to good homogenous and cured concrete, have the top of each reinforcing rebar protected with a CEM cap and be free from debris, water and any reinforcement cages / beams. The pile head must be clearly accessible.

Testing

The technician will access the site and undertake the testing in accordance with the received instructions and the manufacturer's operating procedure for integrity testing kit.

Each pile will be tapped a minimum of three times or until a three similar traces are recorded. According to this trace the technician will make a preliminary assessment as to the integrity of the pile and record this on the testing sheet.

If a trace cannot be recorded, the pile will require further trimming and the pile retested

Reporting

A copy of the completed (preliminary) testing sheet will be left with the Principal Contractor and a copy of this sheet together with the electronic results forwarded to the FDA office.

These traces are reviewed and assessed by the FDA Manager and formally submitted to the Cementation Engineer for further review and onward submission to the Principal Contractor.

Any anomalies / discontinuities will be clearly noted together with any piles which will need to be retested or subject to further desktop study.

Risk Assessment: Integrity Testing

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
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Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
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Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Injury from an unfamiliarity with the site rules / instructions.	4	5	20	• Report to Principal Contractor's office to sign in and receive a site briefing / instructions • Show your CSCS credentials • Ensure all hazards are adequately defined and explained • Inspect location – identify any hazards – act accordingly • Wear correct ppe to ensure visibility. • Make others aware of your presence	2	5	10	Principal Contractor / Test Technician	Each Visit
Struck by moving vehicles / plant	3	5	15	• Keep to any pedestrian walkways • Inform and wait for permission to proceed from any plant banksman / operators • Do not work in the direct vicinity of operating plant	1	5	5	Test Technician	Each Visit
Dust , debris from hammer hitting top of pile causing damage to eyes	4	3	12	• Wear eye protection. • Clear away any loose debris from the hammer strike zone.	1	3	3	Test Technician	Each Visit
Impaling on protruding steel	3	4	12	Ensure steel is covered with Cemcaps or appropriate protection	1	4	4	Principal Contractor / Test Technician	Each Visit
Becoming tapped from falling debris in collapsing excavation	2	5	10	Only enter excavations where there is: • No free standing or flowing water • Proper access (footed secured ladders extending 1m	1	5	5	Principal Contractor	Each Visit

				above access level) / tagged scaffolding • Secured support or safe batters to the sides					
Asphyxiation in confined spaces	2	5	10	• Do not enter any confined spaces unless you are trained to do so. • Then, only with the proper support and precautions in place. • Separate RAMS required	1	5	5	Test Technician	Each Visit
Impact of falling shutters erected around piles causing injury	3	4	12	Inspect shuttering to ensure adequately supported and safe to proceed before access	1	4	4	Test Technician	Each Visit
Partially trimmed piles with potential for falling debris	3	4	12	Keep clear of all partially trimmed piles	1	4	4	Test Technician	Each Visit
Lone working	2	4	8	• If working alone in a part of the site ensure others are aware of your circumstances • Arrange a check in or call back time with responsible party	1	4	4	Test Technician	Each Visit
Other activities in the area causing hazards ie trimming piles	2	4	8	• Keep clear of all other contractors and their activities • Arrange to test when they are taking a break or request a temporary stand-down.	1	4	4	Principal Contractor / Test Technician	Each Visit
Integrity Test Equipment	2	3	6	• Use in accordance with manufacturer's instructions	1	3	3	Test Technician	Each Visit
Site Specific Measures									

Hierarchy of Risk Reduction:



Cementation SKANSKA

Risk Assessment & Method Statement (RAMS)

Site Project Bradford		Activity **Use of Pressure Washers**	Persons conducting assessment		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-0050	Review Date 12/11/20	Revision No. P01	Name	Signature	Date
Person Supervising Work		Employer Cementation	Name Brian McNicol	Signature	Date
Persons Exposed 4	Employees 4	Other Workers 0	Public/Visitors 0	Vulnerable Persons 0	Total at Risk 4 (Nr)

Method Statement: Use of Pressure Washers *(associated RAMS : Deliveries, Environment, Lifting, Health, Refuelling)*

Introduction



Often our rotary and CFA works require the use of pressure washers to keep these plant items clean. Pressure washers may also be used to keep concrete platforms free from debris.

For these operations - trained and competent operatives will be used.

An exclusion zone will be in operation to prevent others entering the work area. This activity to be undertaken clear of all other personnel.

Towable Pressure Washer Equipment

All plant will be certificated, well maintained and operated in accordance with the manufacturer's operating procedures and instructions.
The pressure washer will be stored on a hard standing, ie the Piling Platform.
Movement of these should be by a dumper or similar designed for this purpose. Only to be lifted by a crane if identified in the lift plan.
Carry out daily inspections on hoses, couplings and connectors.
Always depressurise the system when the pump unit is turned off.



Safety PPE

The types of PPE required will be

- Full face visor (EN166 Class A) or Goggles (EN166 Class A) See below;
- Waterproof Gloves
- Safety boots (EN345 or EN ISO20345)
- Hearing Protection
- Wet Suit (if in constant use)



Full Face Visor (Greenhams-256101-Visor. 256100-Goggles)

Risk Assessment: Use of Pressure Washers *(associated RAMS: Deliveries, Environment, Lifting, Health, Refuelling)*

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

Likelihood

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Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
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	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Access to work area									
Unfamiliar with site hazards causing bodily injury	4	5	20	• Attend PC and Company site induction. • Briefed on task-specific risk assessment. • Assess required site activities before proceeding onto site and again once at work area – report any risk issues to supervisor for correction.	1	5	5	Operative / Contract Supervisor	Site arrival
Crushing , Impact from vehicles / plant during access and egress to and from the work area	4	4	16	• Access routes to be clearly identified and kept clear at all times. • Signs and physical barriers to be in place around work area. • Ensure work area is safe - clear of traffic and Pedestrian routes with no other contractors working in the same vicinity.	1	4	4	Operative	Daily
Poor Lighting Levels	2	3	6	• Background lighting provided by PC. • Personal task lighting to be provided where	1	3	3	Operative	Daily

				required.					
Undertaking the task									
Correct use of pressure washer to prevent injury to operator and staff personnel	3	4	12	• Trained and Competent Operators briefed on task and to work in accordance with good practice. • Regular inspection and maintenance regime. • Pressure washer used in accordance with manufacturer's instructions. • Daily visual inspections by users – nozzles, hoses, couplings and connectors. • Check for leaks. • Discovery of any defective parts must stop the task and be reported. • Repairs to be made by a certified person. • Equipment to be fuelled up in the exclusion zone/site compound. • Pressure washer stored upright, secure, safe area. • Area to be kept clear – rubbish and debris free • Provision of first aid kit and eye wash station close to work area.	1	4	4	Operative	Start of Task
Malfunctioning of Pressure Washer causing injury	4	3	12	• Operator to check pressure washer and ancillary equipment daily before use. • If any defects discovered during inspection or use then the unit shall be quarantined immediately.	1	3	3	Operative	Start of Task
The use of Pressure Washers causing lacerations	4	5	20	• All lances / tools to be maintained in accordance with manufacturer's instructions • Non-essential persons will be kept away from the Jetting area. • Appropriate PPE to be worn at all times i.e. goggles or visor and hearing protection. • Any minor injury sustained must be reported as there could be serious underlying tissue injury • Depressurise system following use of pump unit.	2	5	10	Operative	Daily
Protection to users from water jet causing injury	4	4	16	• PPE, to include goggles/visor, gloves and hearing protection • Do not point pressure washer at self or others • Any injury by impact/penetration of water jet to seek expert medical advice immediately	2	4	8	Operative	Daily

				• Personnel to be excluded from the jetting area • Loose debris must be removed and not be able to fly around • Any injury by impact/penetration of water jet to seek expert medical advice immediately					
Repetitive Strain	2	3	6	• Avoid long periods of jetting. • Rotate personnel to reduce the risk of vibration.	1	3	3	Operative	Daily
Pump noise causing damage to hearing	3	2	6	• Wear ear defenders • Keep untasked individuals away from the operation	1	2	2	Operative	Daily
Site Specific Measures									

Hierarchy of Risk Reduction:

Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

SKANSKA

EHS 016-F01 Manual handling risk assessment form

22D990-CSL-00-F1-MS-X-0060 P01

Summary of Assessment	**Overall priority for remedial action (Circle)** **LOW** Medium High INTOLERABLE – STOP WORK
Operations or person covered by this assessment: Lifting the following apparatus: Mesh borehole covers Crowd control barriers / cones and poles Chains (various) Tremie Forks & Tremie Lifting Cap Trapping Beams Cage Brackets Dywidag Bars & Steel Gates for Dywidag Bars People performing these operations: All operatives	Date by which action is to be taken Date for reassessment:
Location of assessment: **Project Bradford**	Assessor's name: **Vitor Marques**
Date of assessment: 12/11/20	Signature: Vitor Marques

Section A - Preliminary		
Q1	Do the operations involve significant risk of injury? If yes go to Q2. If no the assessment need go no further, if in doubt answer 'YES'	Yes
Q2	Can the operations be avoided/mechanised/automated as far as is reasonably Practicable? If no go to Q3. If 'Yes' state the actions in section C and check that the result is satisfactory.	Yes
Q3	Are there elements of the tasks clearly identified in Section B? If 'YES' go to section B (Overleaf). If 'NO' you may go straight to Section C if you wish.	No

Section B: More detailed assessment (overleaf)

Low, Medium, High, Intol = Intolerable – STOP WORK

Section C – Control Measures		**By Whom**	**By When**
1	**Use site attended excavator where possible for large loads that can be safely lifted and have designated lifting points.**	**Crane operator**	**Immediately**
2	**Recommended that lifting operations completed with 2 ops. If operatives are uncomfortable with the load, seek assistance from other operatives on site to share load.**	**Operative**	**Immediately**
3	**Plan a suitable route before lifting any equipment.**	**Operative**	**Immediately**
4	**Use wheelbarrow if possible to transport materials/equipment longer distances if crane is unavailable.**	**Operative**	**Immediately**
5	**Wear appropriate clothing to suit weather conditions. Ensure full PPE is worn.**	**Operative**	**Immediately**
6	**Ensure PPE does not restrict movements**	**Operative**	**Immediately**
7	**Ensure good posture when lifting.**	**Operative**	**Immediately**

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Section B – More detailed assessment						
Score the activity in line with Risk Assessment Guidance 1 – 4. Add total and look at level of further action that is required.	Does it apply?	Level of risk				Control Measures. Make rough notes for completing in section C.
	Y/N	Low 1	Med 2	High 3	Intol 4	
1) The loads – Are they:						
Heavy? Bulky? Unwieldy?	Y			**3**		Get assistance.
Difficult to grasp?	Y		**2**			Use attendant Excavator or share load.
Unstable/Unpredictable?	Y			**3**		Check if comfortable with load.
Sharp? Hot? Cold? Rough?	Y			**3**		Wear gloves and full PPE.
2) Individual Capability.						
Require unusual capability?	N	**1**				
Is it a problem to those with health problems?	Y			**3**		Avoid lifting.
Is a two person lift required?	Y		**2**			Share the load.
Require specific information for lifting object?	N	**1**				
Is movement hindered by wearing PPE?	N	**1**				PPE standard
3) The Tasks – Do they involve:						
Holding loads away from trunk?	N	**1**				
Twisting? Stooping?	Y		**2**			Two man lifting, good posture, mechanically reposition load.
Stretching? Bending?	Y		**2**			Training. Share load.
Large vertical movement?	N	**1**				
Long carrying distance(s)?	Y		**2**			Plan route.
Strenuous pushing/pulling?	Y		**2**			Rest.
Unpredictable load movement?	N	**1**				
Repetitive handling?	Y			**3**		Share task (with team) or load.
Insufficient rest or recovery?	N	**1**				
A work rate imposed by process?	Y	**1**				
4) The Work Environment – Are there						
Constraints on posture?	N	**1**				
Poor floors?	Y		**2**			Piling platform
Variations in levels?	N	**1**				Very level site
Hot/Cold/Humid conditions?	Y			**3**		Cold. Wear appropriate clothing/PPE.
Strong air movements?	N	**1**				
Poor lighting conditions?	N	**1**				Task lighting
Any line scoring a risk rating of 4 should receive immediate attention	**N**	**Low 1**	**Med 2**	**High 3**	**Intol 4**	**Total Score**	**44**

0 - 44	45 - 62	63 – 80	81 - 100
Low	Medium	High	Intolerable

No overall action. Look at any single cause with a rating of 4 and Eliminate it.	Look at ways to reduce the risk. Start regular monitoring to ensure risk does not increase.	Action is required to reduce the overall level of risk	You need to look at the whole activity and reduce the overall level of risk urgently. **The activity is not to be undertaken.**

SKANSKA	HEALTH AND SAFETY **WORKING AT HEIGHT**

SAFE USE OF MEWP & RESCUE PLAN

1. Selection:-

The selection of a MEWP MUST be made on the basis that a MEWP is the most suitable method of access for the tasks, having considered the hazards and controls highlighted in Section 4 and 5 below and the heirarchy of control measures.

The MEWP shall be selected by a competent person who has undertaken the IPAF MEWP for Managers training course.

The MEWP selected shall be suitable for the tasks, taking into account the nature of the work and the conditions in the work areas described below.

Name of Competent Person:		Date of assessment:	
Project Name / Location:		Project No:	
MEWP - manufacturer / type / Model etc	**Z45/25J Genni**	Supervisor to intiial box to confirm correct machine delivered	
Ground Bearing Pressure (GBP) - Kpa	**345 kPA**	Note - the GBP of the Z45/25J Articulated boom = 345Kpa This is the typical MEWP ordered for projects	

2. Tasks and work areas:-

a) Detail below a description of the tasks to be performed with the MEWP: (include any limits or restrictions for operating, weather conditions and duration of the work)

The use of the MEWP for this Project consists of the operator working within confines of the basket to connect augers. This involves using the MEWP to elevate the operative to an approximate height of 6m. This work will be under the control and guidance of the Supervisor/Bansman. None of this work may be carried out with third parties working below due to the risk of falling equipment. In the event of a rig break down the MEWP may be used by Cementation Fitter to access certains parts of the Rig.

Max height at which work will be carried out (m)	**6**	**Max reach at which work will be carried out (m)**	**5**		
Max SWL	**225**	**Max No. of Persons**	**2**	**Max operating wind speed**	**12.5 m/s**

The Ground conditions in the operating area must be clear, reasonably level and compacted suitably to take the intended ground bearing pressure of the machine. Holes or openings must be covered with suitable covers fixed into pace to prevent movement during the MEWP operations. Temporary covers must be strong enough to withstand the appliend ground bearing pressures of the machine in use.

b) Detail below a description of the work areas where the MEWP is to be operated: *(include references to the proximity of structures, ground, other plant / activities, travelling at height)*

Operations will be carried out on the piling platform which will have a current certificate and will be checked in advance before any elevated works for level and condition. The area for these works should be protected or controlled preventing any collision or contact by a third party.

Dates and times when the tasks are to be carried out:	

3. Management Controls:-

Name of Operator:		Name of Banksman	
IPAF / CPCS - Expiry Date		Slinger Signaller Expiry Date	
Harness training	☐	Other relevant training	

MEWP Operators must be familiar with the type of machine prior to use *(complete the checks below)*

Does the Operator require familiarisation training;	**YES / NO**	*Check operators logbook*	
Familiarisation training given by (name):		Date:	
Familiarisation training given by (signature):		Name of company:	

The working platform parameters and bearing pressures exerted by the machine have been checked and are acceptable.

On the access / egress to work location:	**YES / NO**	Sign & Print name	
At the work location:	**YES / NO**	Sign & Print name	

SAFE USE OF MEWP & RESCUE PLAN

4. Risk Assessment:- *(to be reviewed by the Project Engineer or Contract Supervisor at site prior to the first use)*

Suitability of site surface conditions: *(paying particular attention to soft ground, ruts, holes, slopes, gradients, uneven ground, adjacent structures etc)*

Proximity of hazards: YES or NO - *(the control measures are to be detailed below in section 5) -*

1	Access/egress routes - plant & pedestrians	yes	**7**	Third and other parties	yes
2	Ground conditions / overturning	no	**8**	Falls	yes
3	Trapping / adjacent structures	no	**9**	Weather conditions	yes
4	Other vehicles / mobile plant / operations	yes	**10**		
5	Travelling with basket raised	yes	**11**		
6	Overhead services	yes	**12**		

5. Site Controls and Briefing:-

Hazard No.(see above)	Control measures to be implemented based on the above
1	**Site access /Mewp to be banked**
2	**Platform certificate to be in place**
3	**Operator and bodily parts to remain inside basket while travelling around nearby equipment**
4	**Banksman to be in control of moving plant at all times, exclusion zones/barriers to be in place around the work area**
5	**Harnesses to be worn at all times with basket raised/attention should be given to tail swing and other equipment**
6	**Exclusion Zones to overhead services to be advised during site initial briefing**
7	**Exclusion zones and barriers to be in place around the work area**
8	**Harnesses to be worn at all times with basket raised/no overstretching from the basket is permitted or standing on either the rails or kick plate**
9	**Work in accordance with manufacturers guidelines**

Supervisor / Engineer Review and sign off prior to first use ……... **Date** ……...

On subsequent operations of the same tasks, with the same personnel and MEWP it is sufficient to carry out a specific activity risk assessment briefing with everyone involved and record on a briefing register.

Date of last Report of Thorough Examination (TE):		Date when the next TE is due:	

NOTE - A THOROUGH EXAMINATION IS REQUIRED EVERY 6 MONTHS

DO's AND DON'Ts

Operators MUST NOT operate alone - the Banksman must be in attendance at all times during use

Operators MUST NOT climb onto or over the handrails of the basket.

Operators MUST NOT use the machine during ADVERSE WEATHER conditions (refer to the manufacturers instructions).

Operators MUST ensure the machine is NOT OVERLOADED (check with manufacturers instructions for SWL).

Operators MUST ensure that the basket is lowered when practicable if the machine is to be traversed.

Operators MUST wear a full body harness, with the shortest possible restraint lanyard and CLIP ON.

Operators and Banksmen MUST continually monitor the ground conditions and the working platform.

Operators MUST be extra vigilant when working close to adjacent or overhead structures or excavations.

Contd on page 3

SAFE USE OF MEWP & RESCUE PLAN

Contd from page 2

Operators MUST carry out the PRE-USE CHECKS, the daily maintenance (refer to manufacturers guidance) and complete the record.

Operators MUST report any FAULTS immediately to the SUPERVISOR.

Supervisors and MEWP Operators MUST ensure the Report of Thorough Examination remains in date (six monthly).

MEWP Operators MUST REMOVE the KEYS when the machine is NOT IN USE.

6. Emergency rescue: *(detail the rescue arrangements and implementation)*

Note: - When working with fall restraint it is NOT anticipated that rescue from suspension will be required. Therefore the specific details given below deal with the emergency lowering arrangements for the MEWP

Note:- The MEWP keys shall be left in the base unit during use to facilitate use of the auxillary controls.

Nominated person(s) responsible for emergency lowering: *(The Banksman must be in attendance at all times)*

Name of responsible person:	
Name of responsible person:	

Specific Rescue Plan details: (are given below)

Please see attached rescue plan instructions.

7. Declarations:

Assessment prepared by (Competent Person)

Print Name Below	Signature (below)	Date
Vitor Marques	Vitor Marques	**16/08/2019**

Contract Supervisor (I confirm I have read and understood the contents of this risk assessment)

Print Name Below	Signature (below)	Date

MEWP Operator (I confirm I have read and understood the contents of this risk assessment)

NOTE - A PRE USE INSPECTION MUST BE CARRIED PRIOR TO FIRST USE - THEN ON EACH DAY OF SUBSEQUENT USE
EHS 010-F03 EXP MEWP reception and inspection form

Print Name Below	Signature (below)	Date

MEWP Banksman (I confirm I have read and understood the contents of this risk assessment)

Print Name Below	Signature (below)	Date

The completed form shall be fully signed by all parties, dated and then held in the site records file.

Site		Activity	Persons conducting assessment		
Project Bradford		**Use of MEWP RISK ASSESSMENT**	Vitor Marques		
Risk Assessment No.	Review Date	Revision No.	Name	Signature	Date
22D990-CSL-00-F1-MS-X-0061	15/08/2019	C01			
Person Supervising Work		Employer	Name	Signature	Date
		Cementation			
Persons Exposed	Employees	Other Workers	Public/Visitors	Vulnerable Persons	Total at Risk (nr)
6	6	0	0	0	6

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk	CONTROL MEASURES	Factors of Harm		Residual risk	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity	Multiple of columns 1 × 2		Likelihood	Severity	Multiple of columns 5 × 6		
Standard Measures *(highlight any changes in red)*									
Site operation.									
Access/ egress routes- plant & pedestrians.	3	5	15	• MEWP to be banked at all times • Use designated pedestrian walkways • Exclusion zones / barriers to be in place around the working area.	1	5	5	Supervisor	Daily
MEWP overturning.	3	5	15	• Operator to be trained and competent (IPAF). • Piling Platform to be designed and certified. • Piling Platform edges to be clearly marked. • Ground conditions to be monitored and recorded. • Do not use on uneven, sloping or soft ground.	1	5	5	Supervisor / MEWP Operator	Daily

HAZARD	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk	CONTROL MEASURES	Factors of Harm		Residual risk	Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity	Multiple of columns 1 × 2		Likelihood	Severity	Multiple of columns 5 × 6		
				• Follow manufacturers operating instructions. • MEWP to be inspected before each use.					
Moving MEWP whilst platform raised.	3	5	15	• Where possible the MEWP is not to be moved with the platform in the raised position. • Where necessary Harness to be worn.	1	5	5	MEWP Operator/ Supervisor.	Daily
Trapping/ adjacent structures.	2	5	10	• All MEWPS to have an Anti-Entrapment Device fitted (Sky Siren).	1	5	5	Engineer	Pre-start/Daily
Falls from Platform/ Over-reaching.	2	5	10	• Operator to use a Harness and Lanyard restraint, attached to the designated points within the basket, at all times. • Both feet to remain on the floor of the platform at all times. • No climbing out of the basket whilst in the raised position.	1	5	5	Supervisor	Daily
Falling Objects	3	4	12	• The MEWP is provided with guard rails and toe boards. • Exclusion zone to be maintained around the base of the MEWP when in use.	1	4	4	Supervisor/ MEWP Operator	Daily
Adverse Weather Conditions.	3	5	15	• Do not use in winds above the Manufacturers Operating Instructions (usually 12.5 m/s or 28 mph).	1	5	5	MEWP Operator	Daily
Unauthorised use	3	4	12	• Key to be removed from ground controls when not in use, to prevent unauthorised use.	1	4	4	MEWP Operator	Daily
Equipment failure/ Rescue plan.	2	3	6	• A MEWP use & rescue plan must be in place. • The emergency lowering procedure must be known by all involved. • The MEWP Use & rescue plan must be briefed to all and regularly practiced.	1	3	3	MEWP Operator / Supervisor.	Weekly
Site Specific Measures (Complete for proximity hazards identified within the MEWP Plan)									
MEWP overturning.	3	5	15	Use and park the MEWP within the piling platform boundaries	1	5	5	MEWP Operator / Supervisor.	Daily

Hierarchy of Risk Reduction:

Elimination → Substitution → Engineering Controls → Signage / Warnings and / or Administrative Controls → PPE

Emergency rescue plan for work at height from a Mobile Elevating Work Platform (MEWP)

This rescue plan has been compiled in order to comply with current legislation (Work at Height Regulations 2005) for people who work at height. It is to be brought to the notice of those exposed to the risk of working at height and those supervising and managing the same work at height

Emergency Situation	Proposed Action
Failure of upper control functions while elevated	Where the normal upper control functions fail, the operator will use the auxiliary controls from the platform to lower the boom safely to the ground.
Failure of the operator to be able to operate the MEWP functions while elevated due to the following reasons: **A.** Operator incapacitated **B.** Auxiliary functions fail to operate from upper control station	Where the operator is incapable of lowering the MEWP using the upper controls, an appointed person familiarised in the use of the lower 'ground' controls will lower the platform
Failure of lower ground controls	Where the lower ground controls fail to allow the boom to be lowered safely to the ground, the appointed person will use the auxiliary ground controls to lower the boom safely to the ground.
Failure of ALL normal and auxiliary lowering functions	Where all normal and auxiliary functions have failed, the appointed person on the ground should refer to the MEWP Supplier promptly.
When the Operator is incapacitated Call 999 and ask for fire/rescue at height service and advise immediately the Site Manager.	

Machine Type and Location:	MEWP Z45 / Piling Platform

Nationwide Platforms
A Lavendon Group Company

Emergency Lowering Instructions

Genie Diesel Boom Lifts

Machine Range: G34D, Z45D, S45, G60, G65, S65 and G85

If there is a machine breakdown or if the operator becomes incapacitated it may be necessary to perform an emergency rescue from the ground. Emergency rescues must be rehearsed routinely.

Warning

While every effort is made to ensure that the information provided is accurate and up to date, we are not able to guarantee the completeness and accuracy of these instructions and you should therefore not rely on them. Nationwide Platforms Ltd accepts no liability for reliance on the contents of this information sheet which has been produced as additional GUIDANCE ONLY and is not intended to replace the manufacturer's manual. You should refer to the manufacturer's manual.

You should not operate this Mobile Elevating Work Platform (MEWP) unless you are suitably trained and fully familiarised with its operation and the emergency procedures set out in the manufacturer's manual. Operating plant necessarily involves risk of injury to the person.

A Before starting work consider the following:

- Will there be a second person in the vicinity of the machine to undertake a rescue if required?
- Have both the operator and rescuer been familiarised with the ground controls?
- Can the rescuer gain access to the ground controls? i.e. Ensure that the machine is not parked with the ground controls facing a wall or similar obstruction.
- Is the key in the ground control to allow the rescuer to switch power from basket to ground controls?

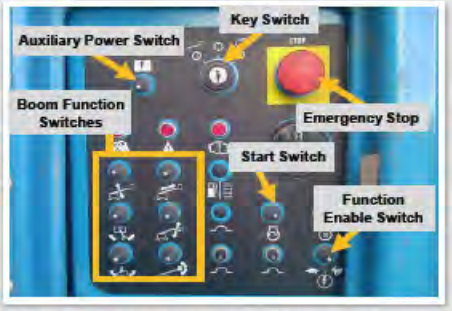
B Before attempting to operate any boom functions:

- It is imperative that an inspection be carried out to ensure the lowering of the boom is not hindered by obstructions such as steel work, pipes, cables, etc.
- If the operator in the cage has been incapacitated ensure they will not be put in additional danger by operation of the platform. Remember that completing a rescue in 4-6 minutes may be critical.
- If unsure seek help (it may be necessary to carry out a mid air rescue).
- Carefully plan each action before starting to lower the platform.

C If there are no obstructions and the engine is functional:

In order of preference, always attempt C before attempting D

1. Check for any obstructions.
2. Switch the Key Switch fully clockwise to "base" position.
3. Pull out or twist Emergency Stop.
4. Start engine using Start Switch.
5. Operate and hold Function Enable Switch to fast speed (denoted by hare symbol).
6. Operate and hold desired Boom Function Switch (an alarm should sound to indicate boom is being lowered).



(Panels may vary slightly in appearance depending on year and model but all have the same functions)

D In the case of engine failure, obstructions or trapped operator:

In the case where the boom cannot be directly lowered or if the operator is trapped, it is necessary to use the Auxiliary Power Function until the boom is clear. This will give the rescuer more precise control of each function. **Once all obstructions have been cleared normal operation of the boom using the engine should be resumed.**

1. Check for any obstructions.
2. If the engine is still running push the emergency stop in to switch the machine off.
3. Switch the Key Switch fully clockwise to "base" position.
4. Pull out or twist Emergency Stop.
5. Operate and hold the Auxiliary Power Switch while simultaneously operating and holding the required Boom Function Switch (an alarm should sound to indicate boom is being lowered).
6. Once the boom is clear of obstructions start the engine using the start switch.
7. Operate and hold Function Switch to fast speed (denoted by Hare symbol).
8. Operate and hold desired Boom Function Switch (an alarm should sound to indicate boom is being lowered).

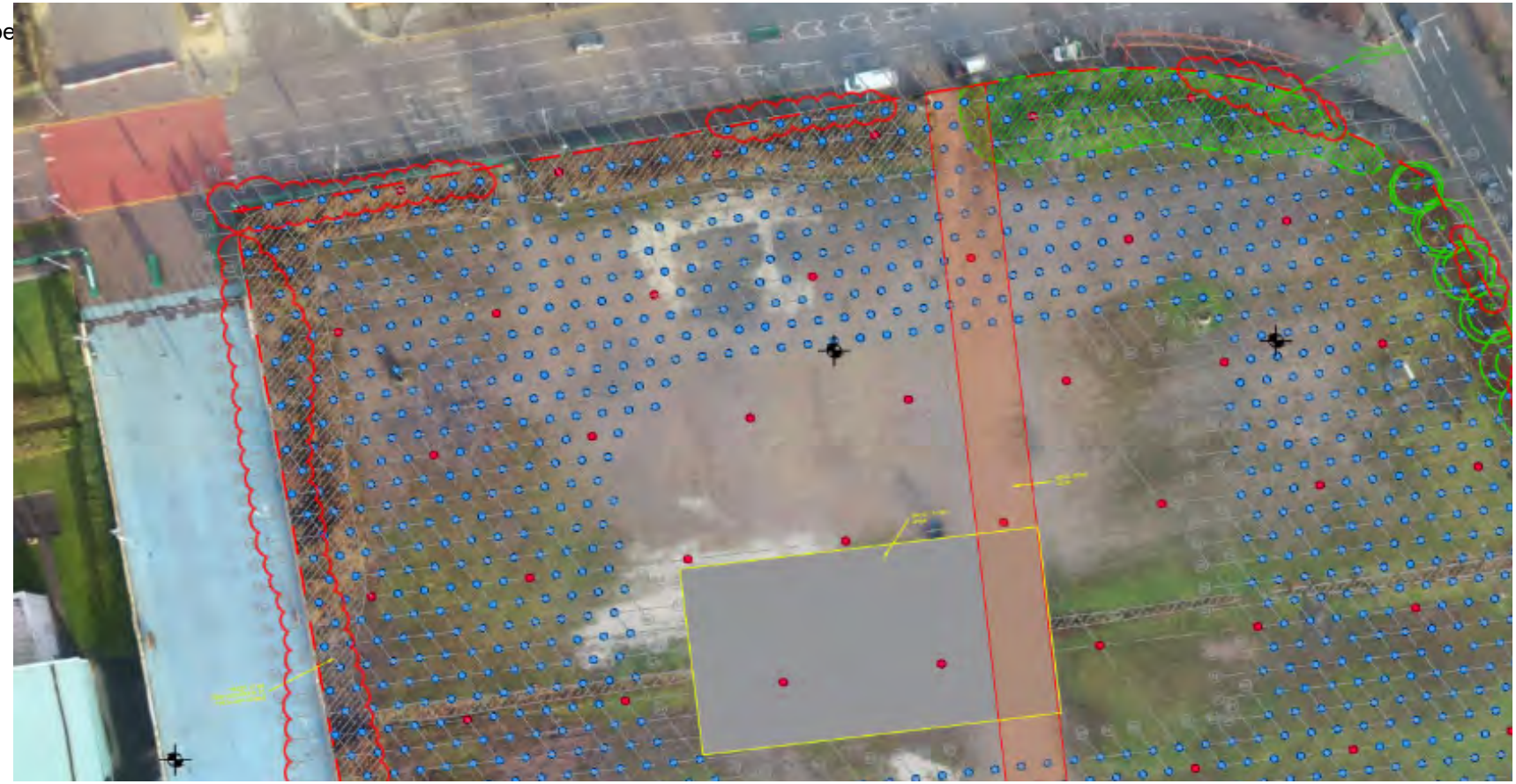
E Technical advice and training courses:

If the controls do not function or you are unsure of their operation please call our Technical Support team on 0845 745 0000 option 2.

As the UK's largest training provider in our industry, we have a range of courses to help you and your operators to work efficiently and safely at height.

Contact us for full details of courses and dates.

To be



MEWPS FOR MANAGERS

This is to certify that

VITOR MARQUES

has successfully completed an IPAF MEWPs for Managers course for the management of the use of Mobile Elevating Work Platforms

Certificate No:

OP/1329527

Date Issued:

17/01/2017

Expiry Date:

31/01/2022

Signed on behalf of the
International Powered Access Federation

Training Centre where the course was conducted

Nationwide Platforms Ltd-HQ-LEICESTER

The world authority in powered access

www.ipaf.org

Cementation
SKANSKA

Risk Assessment and Method Statement (RAMS)

Site Project Bradford		Activity Ground Water Pollution Pathways	Persons conducting assessment Vitor Marques		
Risk Assessment No. 22D990-CSL-00-F1-MS-X-062	Review Date 26/11/2020	Revision No. P02	Name	Signature	Date
Person Supervising Work		Employer	Name	Signature	Date
Persons Exposed	Employees	Other Workers	Public/Visitors	Vulnerable Persons	Total at Risk (nr)

Method Statement: Groundwater Pollution Pathways

Project Impacts

The project shall access the potential source of contamination and associated environmental impacts following the source-pathway-receptor process. Where the assessment identifies an impact, controls and checks must be in place and be effective.

The chosen piling techniques which will be implemented we can ensure compliance with the 'piling and penetrative ground improvement methods on land affected by contamination: Guidance on pollution prevention.

OGV Manchester Ground Engineering Interpretive report BRA-BHE-XX-XX-RP-CG-0004, highlights the following:

1. Contamination risk assessment indicates the risks to construction works from on-site contaminants is moderate and potential risks can be mitigated through good construction practices
2. Geotechnical considerations indicate large existence of Made Ground, Alluvium and Terrace gravels and Glacial Till overlying Coal Measures. Perched ground water is present on the Made ground and a continuous perched water table seems not exist
3. Geoenvironmental Conclusions and recommendations – indicates the majority of the Made Ground Arrisings (2/3s) could be classified as Non-Hazardous waste with a portion of (1/3) of the material classifies as Hazardous Waste. The underlying natural soil would likely to be classified as inert
4. Hydrogeology

- Superficial deposits have been classified as Secondary (undifferentiated) Aquifer.
- Coal Measures are classified as Secondary aquifer, defined as permeable layer capable of supporting water at a local rather than strategic scale
- Ashton Canal located along the southern boundary of the site
- River Medlock located 24 m to the north-west of the site, contained with a 600 m-long culvert below Bradford Road Gas Works

Hazard to Receptor [bold text] / Pathway [normal text]	Risk Assessment (following CIRIA C552)			Comment on hazard realisation [normal text] and mitigation measures [bold text]
	Consequence	Probability	Risk	
Controlled Waters – River Medlock and Ashton Canal	Medium	Low	Moderate / Low	Potential for increased infiltration and promotion of leaching through permeable strata and/or surface water run-off during the development earthworks.
Secondary Aquifer – Coal Measures Degradation of water quality	Mild	Low	Low	Potential for increased infiltration and promotion of leaching during development earthworks.
Flora and Fauna Migration via surface water run-off and via drainage.	Minor	Low	Very Low	Vegetation currently on site of low ecological value. Proposed development includes podium level planting and street side landscaping. Likely that suitable topsoil material will be imported as required.
Built environment Direct contact	Medium	Low	Moderate / Low	Potential for direct contact with contamination in shallow soils

Figure 1-Potential Contamination Sources following review od site desk study information BRA-BHE-XX-XX-RP-CG-0004

The current piling methodology, CFA and Rotary bored Piles, is based in non-displacement piling methods an involve the extraction of the soil prior to placing concrete, therefore there is no disturbance of the surrounding soil provided that the pile is formed or placed in close contact with the surrounding soil there should be no formation of preferential pathways.

Risk Assessment: Groundwater Pollution Pathways

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

Likelihood

Risk = Likelihood x Severity

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

Acceptable | Further review | Unacceptable Risk

HAZARD (ENVIRONMENTAL IMPACT)	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Additional Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Standard Measures *(highlight any changes in red)*									
Creation of preferential pathways, through a low permeability layer (an aquifer). Contamination migration down pile shaft	3	4	12	Zones of broken ground or voiding will be previously treatment by grouting operations on the piles area of influence location. For CFA piling with wet pile technique means concrete is cast immediately after boring.For Rotary bored piles casing is inserted to offer temporary support to the holes whilst drilling and will only be removed at the same time concrete is pour causing minimal disturbance to the surrounding solid.	1	4	4	Probing and grouting to be undertaken prior to piling Piles to be designed based on CFA and Rotary piles	Prior Piling Starts
Creation of preferential pathways, through a low permeability layer (an aquifer) - Potential contamination of an aquifer	3	3	9	The site investigation refers that there is any discernible pattern relating to groundwater flow in direction to site or otherwise into other surface water features. Perched water was recorded was recorded in localized areas within the made ground and at the boundary between the Glacial Till or Alluvium and Made Ground. There is no evidence that these bodies of water are continuous or that they communicate with offsite receptors. It is unlikely that there is any hydraulic continuity between the culverted River Medlock and the groundwater from the Coal Measure aquifer as there is no evidence of consistent groundwater flow in the direction of the River. Refer to the findings of the recent ground investigation. In addition, CFA and rotary bored piling (both non-displacement piling methods) are considered to be suitable methods with negligible risk of creating preferential pathways subject to good workmanship and support of the bore throughout pile construction. (Reference: Environment Agency (2001) Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. NC/99/73).	1	3	3		Each Pile

Cementation SKANSKA

Risk Assessment and Method Statement (RAMS)

HAZARD (ENVIRONMENTAL IMPACT)	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Additional Control measures implemented by (name)	Control Frequency Check Rate
	Likelihood	Severity			Likelihood	Severity			
Creation of preferential pathways, through a low permeability layer (an aquifer) - Potential contamination of an aquifer	3	2	6	It is vital that the bore is supported at all times throughout the construction of the pile to avoid disturbance of the surrounding soils which may cause collapse of the bore or formation of voids which may create a preferential flow pathway or collapse. CFA piling relies on the retention of soil on the auger to provide support to the surrounding soil until the auger is withdrawn and concrete intruded. It is vital that the intruded concrete is placed under pressure at a rate consistent with that of the withdrawal of the auger to ensure the bore is supported. A high level of workmanship is required in the construction process to ensure the above scenarios do not occur. Rotary bored piling uses a temporary casing to support the bore. Care should be taken to ensure under reaming of the casing does not occur during boring which can cause bore collapse.	2	2	4	Trained, qualified and competent CFA operators will be used. All cementation rigs are fitted with sophisticated monitoring systems to monitor concrete pressure, flow rate and auger lift speed amongst other drilling and concreting parameters. Rotary bored piles will only be used if rock strengths on site mean tension piles or wall piles cannot be constructed to the required toe level. Trained, competent rotary rig operators will be used.	Each Pile
Creation of preferential pathways, through a low permeability layer (an aquifer) - Potential contamination of an aquifer	3	2	6	Appropriate QA measures should be incorporated into the construction works to enable workmanship to be monitored. In CFA piling the onboard instrumentation is used as a quality control measure. To ensure the bore remains supported at all times, the operator can ensure that positive concrete pressure is maintained as the auger is being withdrawn by monitoring the onboard instrumentation. In rotary bored piling, depth of casing installed versus depth of bore should be carefully monitored and recorded. It is important that QA instrumentation in piling rigs is calibrated and operating correctly.	2	2	4		Each Pile
Direct contact with contaminated soil arisings that have been brought to the surface. Negative impact on health & safety of operatives or other site personnel	3	3	9	Any contaminated arisings generated from the piling works are required to be disposed of offsite in an appropriately licensed waste management facility. Made Ground includes elevated concentrations of some contamination (namely hydrocarbons). The Main Contractor should highlight any abnormal risk to the Piling Sub Contractor.	1	3	3	Bam to highlight any abnormal risk to the piling subcontractor and constantly review.	Each Pile

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Risk Assessment and Method Statement (RAMS)

HAZARD (ENVIRONMENTAL IMPACT)	1	2	3	4	5	6	7	8	9
	Factors of Harm		Risk Multiple of columns 1 × 2	CONTROL MEASURES	Factors of Harm		Residual risk Multiple of columns 5 × 6	Additional Control measures implemented by (name)	Control Frequency Check Rate
Direct contact with contaminated soil arisings that have been brought to the surface. Negative impact on health & safety of operatives or other site personnel.	3	3	9	Both CFA and rotary bored piling necessitate bringing to the surface a volume of soil from within the bore to construct the pile. Handling, transport, and disposal of this material needs to be addressed appropriately by the MC.	1	3	3	BAM to handle, transport and dispose of material in appropriate manor. BAM to highlight any additional measures required by Cementation	Each Pile
Creation of preferential pathways, through a low permeability surface layer, to allow upward migration of landfill gas, soil gas or contamination vapors to the surface.	3	3	9	Due to the method of piling no preferential pathway will be created.	1	3	3		Each Pile
Direct contact of the piles or engineered structures with contaminated soil or leachate – Degradation of pile materials	2	3	6	The exposure classes for concrete within piles is defined by the Client's Engineer. The concrete should conform to the specified classes.	1	3	3	Concrete mix design to conform to specified Class	Each Pile
Contamination of groundwater, and subsequently, surface waters by wet concrete, cement, paste or grout.	2	2	4	The impact is low due to the concrete having low mobility potential. Surface water run-ff impacting the Ashton Canal will be managed by standard good site housekeeping and control of surface operations.	1	2	2		Each Pile

Hierarchy of Risk Reduction:



Risk Assessment: OLD COAL WORKINGS

Project name: 22D990 – Project Bradford	Address: BAM Project Office, C/O CFG Campus, Off Gibbon St/ Alan Turing Way, Manchester, Post Code: M11 3DU				
Site - Construction sites, Offices & Welfare	**Activity** COVID-19 Business sustainability and protection of staff / workforce		**Persons conducting assessment (list)**		
Risk Assessment No. 22D990/RAMS/COV001	Review To be reviewed as required	Revision No. 0	Authors name Gavin Clifford	Signature	Date 20/10/20
Persons Exposed - 25	Employees - YES	Other Workers - YES	Public/Visitors - NO	Vulnerable Persons - NO	Total at Risk – 25+

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

Infection Risk = Likelihood x Severity

Likelihood

Rating 1 = Remote
Rating 2 = Unlikely
Rating 3 = Possible
Rating 4 = Likely
Rating 5 = Almost certain

Severity

Rating 1 = No infection
Rating 2 = Minor illness/infection
Rating 3 = Serious (illness)
Rating 4 = Specified illness
Rating 5 = Fatality or multiple fatality

Low | Medium | High

HAZARD	1 Factors of Harm: Likelihood	2 Factors of Harm: Severity	3 Risk Multiple of columns 1 × 2	4 CONTROL MEASURES	5 Factors of Harm: Likelihood	6 Factors of Harm: Severity	7 Residual risk Multiple of columns 5 × 6	8 Control measures implemented by (name)	9 Control Frequency Check Rate
Standard Measures *(highlight any changes in red)*									
Travel – Offsite									
Travel to site >2.5hrs interaction with others	2	5	10	• Ensure when traveling to only travel by yourself (where possible) and try to minimise stops when required. • If stops are needed maintain a 2.0m distance from others.	2	5	10	Drivers	Each time interaction is made <2.0m Observation during restart

				• If required to stop wash your hands when going back into or at a safe space (car, etc) soap and water for at least 20 seconds or use a hand sanitiser. • Construction projects to make available suitable locations for parking. Office Parking etc. CSL to discuss with Main Contractor regarding designated parking to ensure spacing's between vehicles. • Skanska policy for driving over 2hrs to have a 20 minute break every 2 hours. • Operatives to stay in the car where possible to reduce exposure risk when taking breaks. • Gloves to be supplied to the operatives in case they have to get out of the car for unforeseen reasons. • Hand Sanitiser to be provided for all operatives who are working on the project for personnel use. • Park at least a space away from nearby users (where possible). • Wait for public to move before exiting the vehicle.					of activities and modified as necessary
Travel to Site 2.5hrs> interaction with others	4	5	20	• Ensure when traveling to only travel by yourself (where possible) and try to minimise stop when required. • If stops are needed maintain a 2.0m distance from others • If required to stop wash your hands when going back into or at a safe space (car, desk etc) soap and water for at least 20 seconds or use a hand sanitiser • Construction projects to make available suitable locations for parking. Office Parking etc. CSL to discuss with BAM regarding designated parking to ensure spacing's between vehicles. • Skanska policy for driving over 2hrs to have a 20 minute break every 2 hours. • Operatives to stay in the car where possible to reduce exposure risk when taking breaks.	2	5	10	Drivers	Each time interaction is made <2.0m Observation during restart of activities and modified as necessary

				• PPE - Gloves to be supplied to the operatives in case they have to get out of the car for unforeseen reasons. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use. • Park at least a space away from nearby users (where possible). • Wait for public to move before exiting the vehicle. • Use local Labour where possible to remove long travel times.					
Travel to site from accommodation interaction with others on site within carparks	5	5	25	• You are advised to avoid public transport where possible, you are advised to travel alone using your own transport. • Construction projects to make available suitable locations for parking. Office Parking etc. CSL to discuss with Main Contractor regarding designated parking to ensure spacing's between vehicles. • Ensure when traveling to only travel by yourself and try to minimise stop when required. • Where possible park one clear space away from other cars • Maintain a distance of 2.0m if other are present when arriving to site. • If interaction occurs wash your hands when going back into or at a safe space (car, etc) soap and water for at least 20 seconds or use a hand sanitiser • PPE - Gloves to be supplied to the operatives in case they have to get out of the car for unforeseen reasons. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use. • Park at least a space away from nearby users.	2	5	10	All	Each time interaction is made <2.0m Observation during restart of activities and modified as necessary

Refuelling Cars, Plant and Site vehicles creating interaction with others	5	5	25	• When going for fuel pick a different pump which is free to ensure maximum distance from others. • Use protective disposable gloves normally provided at the pump. • Maintain a distance of 2.0m when fuelling if others are present. • If interaction occurs wash your hands when back into or at a safe space (car, etc) soap and water for at least 20 seconds or use a hand sanitiser. • Operatives to stay in the car where possible to reduce exposure risk when taking breaks. • PPE - Gloves to be supplied to the operatives in case they have to get out of the car for unforeseen reasons. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use. • Choose quiet periods to take vehicles to be refuelled at petrol stations. • Park at least a space away from nearby users.	2	5	10	All	
Travel – On site									
Site Plant vehicles – interaction with others	5	5	25	• Plant sharing is prohibited. • No changing of driver when using site vehicles. • Deep clean of vehicle is required if other drivers use vehicle or 72 hr quarantine. • Plant is to have a designated driver. • When plant is not in use keys are to be removed. • Park at least a space away from nearby users.	1	5	5	Plant operator	Always Observation during restart of activities and modified as necessary
Accommodation									
Lack of accommodation due to progressive shutdown of local	5	1	5	• Source other means of accommodation. Compliant with Government guidelines for Hotels, B&B etc.	3	1	3	All Staff and Operatives	Ongoing Observation during restart

facilities – operatives have nowhere to stay				• Look to change operative to a shorter working day to keep things moving (consideration of fatigue management with increased travel).					of activities and modified as necessary
Office & Site Welfare									
Office become congested with frequent staff creating interaction and contamination	5	5	25	• Office staff to be kept to a minimum. • Maintain a distance of 2.0m distance from others. • If interaction occurs wash your hands when back into or at a safe space (car, etc) soap and water for at least 20 seconds or use a hand sanitiser. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use.	2	5	10	BAM office controls All Staff and Operatives	Ongoing Observation during restart of activities and modified as necessary
Site Welfare units – Interaction potential	5	5	25	• Maintain a distance of 2.0m distance from others. • If interaction occurs wash your hands when back into or at a safe space (car, desk etc) soap and water for at least 20 seconds or use a hand sanitiser. • Only prepare own food and clean facilities after use. • Following using the welfare unit surfaces are to be cleaned prior to another operative entering. • Only site team are to use welfare unit. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use. • Increase number of welfare units on site. • Reduce number of workers on site.	2	5	10	All Staff and Operatives	Ongoing Observation during restart of activities and modified as necessary
Materials Deliveries & Visiting Plant Fitters									
Lack of materials (sand, Cement and Steel) due to progressive shut down	5	1	5	• Site to stock pile material to ensure uninterrupted working. • Regular review of supplier's availability.	2	1	2	Site Manager	When Required
Site stop due to lack of fitter availability	5	1	5	• Multiple fitters to be allocated to the site to ensure plant and equipment remains operational. • Full time fitter on site	2	1	2	Site Supervisor	Ongoing

Drilling									
Interaction with other site members when setting up the drilling rig and adding casing and rods etc.	5	5	25	• Maintain a distance of 2.0m distance from others. • If interaction occurs wash your hands when back into or at a safe space (car, desk etc) soap and water for at least 20 seconds or use a hand sanitiser. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use. • Daily briefing reinforcing the requirement of social distancing. • Hold point to stop works if activity presents a unforeseen situation where operatives are required to be within 2.0m of each other – management to review and implement additional measures before operations continues.	2	5	10	Site Supervisor & Site Management	Ongoing Observation during restart of activities and modified as necessary
Placing Reinforcement and Grouting									
Interaction with other site members when placing grout	5	5	25	• Maintain a distance of 2.0m distance from others. • If interaction occurs wash your hands when back into or at a safe space (car, etc) soap and water for at least 20 seconds or use a hand sanitiser. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use. • Daily briefing reinforcing the requirement of social distancing. • Hold point to stop works if activity presents a unforeseen situation where operatives are required to be within 2.0m of each other – management to review and implement additional measures before operations continues.	2	5	10	Site Supervisor & Site Management	Ongoing Observation during restart of activities and modified as necessary

General Site Hygiene									
General working environment being dirty and difficult to maintain a high cleaning standard creating a contamination risk.	5	5	25	• Wash your hands more often - with soap and water for at least 20 seconds or use a hand sanitiser when you get home or into work, when you blow your nose, sneeze or cough, eat or handle food. • Avoid touching your eyes, nose, and mouth with unwashed hands. • Avoid close contact with people who have symptoms. • Cover your cough or sneeze with a tissue, then throw the tissue in a bin and wash your hands. • Clean and disinfect frequently touched objects and surfaces. • If there is a risk on site contact management to arrange alternative welfare or for the area to undergo deep cleaning. • Hand Sanitiser to be provided for all operative who are working on the project for personnel use. • Daily cleaning of welfare units by operatives that use facilities at end of shift to ensure safe working environment. • Designate operatives to welfare units and site cabins to reduce cross contamination and movements on site. • If welfare, plant ad resources is to be shared a deep clean is required or 72 hr quarantine.	2	5	10	Site Operatives	Ongoing Observation during restart of activities and modified as necessary
Communication									
Communication and Record Keeping	N/A	N/A	N/A	• Each project to have in place a project shut down/closure plan. This is to be communicated to all key staff and made available on site. • Designated Skanska appointed persons attending sites are to maintain regular contact and keep a daily site record of work activities and persons on site.	N/A	N/A	N/A	Staff	Daily

				• Designated Skanska person to maintain a video record of site on a daily basis.					
Staff									
Essential works, Engineers, Appointed Persons & Duty Holders • Social Distancing • Close working • Skin contact • PPE/RPE • Lone Working Risk of infection	5	5	25	• All staff on site are to maintain the 2.0m distance ruling when working, taking rest breaks and using welfare. • Non-essential physical work that requires close contact must not be carried out. • Work requiring skin to skin contact must not be completed. • Operatives to have own transport – radios will be used to ensure contact at all times. • All attendance on site and precise location of works must be brought to the attention of the designated Skanska authorised person. • Ensure tools and PPE / RPE, where possible are cleaned thoroughly at the end of each shift. • Cleaning products and provision are to be made available to essential staff attending site.	2	5	10	All Operatives & Staff	Daily
PPE - General									
Personal Protective Equipment and Respiratory Protective Equipment. • Contamination • Effectiveness • Training -non face fit Risk of infection	3	5	15	• Single use protective equipment is to be disposed of after use. PPE Must not be shared with other individuals. • Reusable PPE and RPE must be cleaned thoroughly at the end of each shift. • Cleaning products and provision are to be made available to essential staff attending site. • Anyone wearing RPE must be clean shaven to ensure effectiveness of protection. RPE must cover both the nose and mouth with the straps placed above and below the ear. SEE attached guidance on how to wear RPE correctly. A face fit test is also required (please use this link for further guidance on face fit testing HSE on face fit testing).	2	5	10	All Operatives & Staff	Daily Observation during restart of activities and modified as necessary

Hierarchy of Risk Reduction:



Source of Information

https://www.gov.uk/government/publications/covid-19-guidance-on-social-distancing-and-for-vulnerable-people/guidance-on-social-distancing-for-everyone-in-the-uk-and-protecting-older-people-and-vulnerable-adults

Note: This is a live document and will be developed during the ongoing works as unforeseen challenges arise.

Appendix D Inspection and Test Plan (ITP)

Cementation SKANSKA

INSPECTION AND TEST PLAN		ITP No.:	22D990-CSL-00-F1-ITP-X-0001	Revision:	P01
		CONTRACT NUMBER:	22D990	Date:	12/11/2020
SUB CONTRACTOR	Cementation Skanska	CONTRACT TITLE	Project Bradford		
LOCATION (if required)		SCOPE OF WORKS:	CFA and Rotary Piling		

Controlling Document/Specification/International Standard/Code of Practice etc.		ORGANISATION CODINGS		INSPECTION CODINGS	
		CSL:	Cementation Skanska Limited	H	Hold points
ICE Sperwall version :	3rd Edition	PC:	Principal Contractor / Client	N	Notification point
Contract specification ref:		Oth:	Client / Employer /	X	First time only
		Oth:	Consultant / Engineer etc.	I*	Inspection
				W*	Witness of test
				DR	Review of Documents
				SA	Submit for approval
				SI	Submit for information only
				SR	Submit for records
				A	Approval

REV	AMENDMENT COMMENT	ORIGINATOR	DATE	COMMENTS	*R	Random inspections
					*100	100% inspection
					*10	10% Inspection
					*20	20% inspection
					Where * is control code	

REVIEWED AND APPROVED BY:	NAME	DATE	SIGNATURE
Project Manager:	Gavin Clifford		
Operations Manager:	Vitor Marques		
Client:			

Cementation SKANSKA

Inspection and Test Plan

Contract Name: Project Bradford **Contract Number :** 22D990 **Revision:** P01

version 14 of master template

				Inspection					inspection codes			
Item No	Activity Description	Controlling Document / Specification	Test & Inspection	Spec. Clause	Acceptance Criteria	Frequency	Action by	Verifying Document	CSL	PC	Oth	Remarks
1	Project Planning	OWOW26.02	Prepare PEP and ensure review and approval		Fully completed PEP, reviewed and approved	Prior to commencement	Project Engineer	Approved Project Execution Plan	SA			Brief to relevant site management
2	Method Statement and Risk Assessment	WEP	Prepare and ensure approval		Fully completed and approved/ signed by Ops Manager	Prior to commencement	Project Engineer	Approved Method Statement	SA	A		Brief to relevant personnel on site
3	Design the Concrete Mix	ICE Sperw	Compliance with project specification / design	B19.2 XXX	Approved Mix Design	Prior to commencement	Project Engineer	Concrete Mix Design	H	A		Foward to client / copy on site
4	Concrete Batch Plant	QSRMC / BSI	Check the batch plant is registered		Facility compliant with scheme	Prior to commencement	Project Engineer	Certificate of Registration	H	DR		Certified to QSRMC / BSI scheme or other
5	Concrete Testing Laboratory	ICE Spec	Check the laboratory is accredited	B19 8.1 B21.8.4	Accreditation by UKAS	Prior to commencement	Project Engineer	Certificate or detailed on cube certificates	H	DR		
6	Steel Reinforcement Provider		Check the supplier is approved		Cetification to the CARES scheme	Prior to commencement	Project Engineer	CARES Certificate	H	DR		Including for Welding, if cages are welded
7	Steel Reinforcement Detail Drawing / Sketch		Check that the drawing / sketch complies with the project design & specification		Correct number of and diameter of bars, spacing of and diameter of links, cover provided (sufficient spacers), debonding foam length and level. Overall length of cage. Projection and lifting points, etc.	Prior to commencement	Project Engineer	Detail Drawing / Sketch	DR			Project Engineer to provide detail drawing / sketch to reinforcement supplier and to review and approve suppliers' fabrication drawing
8	Supplier Steel Reinforcement Drawing		Check the steel cages comply with the project design & specification and our engineers requirements (as above)		Correct number of and diameter of bars, spacing of and diameter of links, cover provided, debonding foam length and level. Overall length of cage. Projection and lifting points and weld specifications	Prior to commencement	Project Engineer	Supplier's detailed reinforcement cage drawings	H	DR		Drawings to be used for checking suitability (in conjunction with a checklist for complex cages / panels)
9	Design the Working Platform	BR470	Design compliance		Correct loadings and bearing pressures for plant to be used	Prior to commencement.	Temporary Works Coordinator	Signed Working Platform Certificate	DR	A		TWC responsible for platform
10	Install the Working Platform	ICE Spec	Check the installation of the platform	A3.1.4 A3.4.4	In compliance with the Platform design	Prior to commencement	Temporary Works Coordinator	Signed Working Platform Certificate	DR	A		TWC responsible for platform
11	Test the Working Platform	FPS Platform Cert	Use plate bearing tests as appropriate		With the loadings and bearing pressures for plant to be used and the platform design document	Prior to commencement	Project Engineer	Signed Working Platform Certificate				TWC responsible for platform
12	Adequacy of working platform	FPS Platform Cert	Check the suitability of the platform by tracking the rig over it.		Appears in good condition, firm, level and safe with no soft spots	Prior to Rigging Up the machine	Contract Supervisor	Record on Daily report	A			
13	Live services		Check Utilities Drawings & CAT Survey on site		Identify and protect services	Prior to ground penetration in accordance with permit to dig	Principal Contractor	Permit to Dig	DR	H		Clarify responsibility for service location
14	Concrete quality	BS EN 206-1 ICE Spec	Concrete test cube compressive strengths	B 19.3 B21.8.5	28 day cube strength > **N/mm^2 Compliance with Table 19.3 of ICE Spec	On receipt of certificates	Project Engineer	Concrete cube test certificates	*100	DR		Add results to Cube Register and forward to client at suitable intervals
15	Plan lifts	LOLER BS 12390-3	Ensure Lift Plan is approved by Grade 4 AP		AP authorised Lift Plan	Prior to a lift	Project Engineer	Lift Plan	SA	A		Briefed to all personnel involved in the lifting operations
16	Hot works		Ensure a hot works permit is in place		No risk of residual fire	Prior to hot works on site	Project Engineer	Hot works permit	DR	A		Briefed to all personnel involved in hot works
17	Temporary Works checks		Form 5 (Design Brief), Form7 (design check Cert) Form 8 (Permit to load), Form 9 (Inspections), Form 10 (permit to unload)		Designnated Checks are in place	Prior to any lift or usage	Cementation Temporary Works Coordinator	Temporary Works schedule	H	DR		
18	Design		Are there any design inspections to deliver the design? Ie strata penetrations									
19	ROMP		Are there any actions to mitigate risks from those listed in the ROMP /									
20	PEP		Are there any actions to mitigate risks from the top 5 quality list in the PEP									
27	Pile location		Check position relative to completed piles and recently cast piles		Not within * x diameter within ** hours of casting adjacent pile	Each Pile	Contract Supervisor					CS to confirm sequence with Rig Operator
28	Working Platform		Visually check		Appears in good condition, firm, level and safe with no soft spots	Each Pile	Banksman					STOP if in doubt - raise any concerns with CS
29	Set up on pile position	ICE Spec	Check the position of the auger tip / casing	Table B1.4	Within 25 mm of the pin position	Each Pile	Banksman					Banksman to report to Contract Supervisor if outside acceptance criteria
30	Boring tool dimenions	ICE Spec	Check boring head and teeth for wear	B1.10.2	Maximum **mm undersize	Each Pile	Banksman					Banksman to change teeth and notify CS
31	Soil / strata / formation	Design document	Visually check to confirm the material, depths and thicknesses.		As assumed in the Design document.	First pile in each new area	Project Engineer	Confirmation letter				Report to Designer if any variations
32	Bored Depth		Check the final bored depth using a weighted tape		As detailed in the Design / Pile Schedule	Each Pile	Banksman	Banskman's Book / Pile log template				
33	Bored Depth		Check the depth on the rig instrumentation		As detailed in the Design / Pile Schedule	Each Pile	Rig Operator	Rig Operator's Book				Project Engineer to check Rig Instrumentation daily against the Design / Pile Schedule
34	Time for Pile Construction / Open bores		Record start and finishing times for pile construction		Time not to exceed not to exceed ** hrs	Each Pile	Banksman	Banskman's Book / Pile log template				Record date and time of start and finish
35	Pile Verticality (casing)	ICE Spec	Check the pile verticality with rig leveller	B1.4	The mast deviation should be less that 0.76 degrees to achieve a 1 in 75 tolerance	Each Pile	Rig Operator					On Daily Report if outside tolerance
36	Pile Verticality (mast)	ICE Spec	Check verticality with spirit level	Table B1.4	Bubble to be in the centre of the 2 centering marks	Each Pile / Casing**	Banksman					On Daily Report if outside tolerance
37	Pile Base		Inspection of pile base after cleaning bucket use		Clean base / all loose material removed - what are we looking for?	Each Pile	Banksman					Contract Supervisor to check with TORCH where possible
38	Tremie equipment (Dry bores)		Check and record the number and lengths of tremies used and the level of the bottom of the tremie		Tremie to be a minimum of 3m below the bottom of the reinforcement cage	Every pile	Concrete Ganger	Concrete Ganger's Book / pile log template				Informationto be handed to Project Engineer after each pour
39	Working Platform		Visual check		Appears in good condition, firm, level and safe with no soft spots	Each pile	Banksman					STOP if in doubt - raise any concerns with CS
40	Boring Head Check	ICE Spec	Check boring head diameter	B1.10.2	Within - 0 mm + 10mm of specified size	Daily	Banksman	Daily Report				Remove from service when undersize
41	Boring tool wear		Check boring head and teeth for wear		Maximum **mm undersize	Each Pile	Banksman	Daily Report				Banksman to change teeth and notify CS
42	Instrumentation check		Check the accuracy of the Depth indicator		No more than 50mm variance in 10 metres	At contract start and after re-rigging	Contract Supervisor	Daily Report				Recheck if machine is re-rigged
43	Instrumentation Data		Check the default instrumentation to set up computer		Review Contract Name , number, diameter, overbreak, and pump calibration is correct	At start of contract or any change	Project Engineer					
44	Instrumentation Connection		Check ability of instrumentation to connect to server		Valid GPS signal	Start of contract	Project Engineer					If no signal - make alternative arrangements to download data daily
45	Pump Calibration		Verify initial pump calibration		Ensure pump calibrated for contract concrete	Contract Start up / change of mix / change of pump	Project Engineer	Pump calibration sheet				
46	Pump Calibration		Check the pump calibration / efficiency		Ensure Rig computer matches pump efficiency.	and every * weeks.	Project Engineer	Pump calibration sheet				
47	Soil / strata / formation	Design document	Visually check to confirm the material, depths and thicknesses.		As assumed in the Design document.	First pile on site and in each new area	Project Engineer	Confirmation letter /each pile log				Report to Designer if any variations and confirm in writing to the client
48	Pile Location		Check the pile position is sufficiently far from recently cast piles		At least *m or * diameters with * hrs of concreting	Each Pile	Banksman					
49	Set up on pile position	ICE Spec	Check the position of the boring head over the pin	B1.4 Table 1.4	Within 25 mm of the pin position	Each Pile	Banksman					Banksman to report to Contract Supervisor if outside acceptance criteria
50	Pile Verticality	ICE Spec	Check the pile verticality with rig leveller	B1.4 Table 1.4	The mast deviation should be less that 0.76 degrees to achieve a 1 in 75 tolerance	Each Pile	Rig Operator					Stop if outside tolerance
51	Pile Verticality	ICE Spec	Check verticality with spirit level	B1.4 Table 1.4	Each day morning and afternoon - bubble to be in the centre of the 2 centering marks	Each Pile **	Banksman					Stop if outside tolerance
52	Depth of Pile		Check the depth from rig computer		Within *** mm of the designed depth / pile schedule	Each Pile	Rig Operator	Rig Instrumentation / Rig Operator's Log Book				Contract Supervisor to transfer details on to Daily Report
53	Initial Inspection - levels		Visual check the level of the top of steel / sufficient cover and concrete level		Top of steel to be within +**mm - **mm Concrete to be within +**mm - **mm	Each Pile	Contract Supervisor	Daily Report				CS to report to Project Engineer if outside acceptance criteria
54	Concrete overbreak		Check concrete tickets against the theoretical volume		No underbreak	Daily **	Project Engineer					Project Engineer to report to Operations Manager if outside acceptance criteria
55	Rig Instrumentation Print outs		Check pile installation details (within 1-2 working days of casting)		Length as per the design and pile schedule, overbreak as not less than instructed to operator	Daily	Project Engineer	Rig instrumentation data				
56	Action on undertaking any pile rebore mid way through a pile construction	ICE Spec	Check the rebore pile depth beyond the original specified depth	B4.4.1	Any pile rebored is 0.5m deeper below the concrete cessation level Has the designer designed a rebore depth Consider whether to rebore the pile completely	Every rebore	Rig Operator	Daily Report by Supervisor				Confirmed by Contract supervisor on the Daily Report Has the designer been notified of the rebore
57	Action on undertaking any pile rebore due to issue preventing the start of the concreting process		Check the rebore pile depth		Pile rebore is 0.5m further than the specified toe level or specified refusal criteria.	Every rebore	Contract Supervisor	Daily Report				Check it is possible / no restrictions to drill deeper
129	Availability of Concrete		Confirm sufficient concrete available.		Within ** minutes	Each Pile	Contract Supervisor					
130	Concrete Delivery	ICE Spec	Visually check each delivery of concrete prior to discharge	B19.8.1 / 2 XX	Appears to be within the specified workability *** - *** slump / flow and no lumps	Each load	Pumpman					If the workability appears outside the acceptance criteria the Contract Supervisor shall ensure that a slump / flow test is carried out
131	Cold weather concreting	ICE Spec	Check concrete temperature and consistency of concrete	B19.7 B21.7	Concrete temperature to not fall below 5° for the concreting to proceed No ice to be present in the concrete	Each load	Pumpman	Temps recorded on pile log / daily report				If less than 5 degrees then concreting to cease unless further measures are in place (hot water)
132	Protection to recently placed pile heads in cold weather		If air temperature is less than 5° C then check extra measures are in place to protect concrete	B19.7 B21.7	All exposed concrete is protected against frost or freezing	All poured concrete	Pumpman					
133	Concrete ticket inspection on delivery	ICE Spec	Check the Delivery Ticket	B19.3	Ensure the concrete is for Cementation and the correct site also Strength is **N/mm^2 Slump ***mm Designation ***	Each load	Pumpman					If outside the acceptance criteria notify the Contract Superervisor
134	Concrete workability	ICE Spec	Carry out a slump / flow test	B19.8 C21.8	Target *** mm, allowance range is *** mm to *** mm	Any suspect loads plus when taking cubes every ** m3 or part therof, ** each day or ** piles	Concrete Technician	Concrete Technician's Record Sheet Daily Report				If outside the acceptance criteria report to the Contract Supervisor - REJECT the load or seek further instructions from the concrete supplier
135	Adding Water to Concrete delivery Vehicles	ICE Spec	If concrete is too stiff and additional water is required - this can only be undertaken to the instructions of the concrete supplier	B19.3	Quantity water may be added, as directed by the Concrete Supplier, SUBJECT to their management approval of each instance where water is added - to a delivery vehicle only.	To each delivery vehicle load when outise the lower tolerance of slump ramge. Slump to be retaken after addition	Pumpman	Readymix ticket				Each individual ticket must be marked with the amount of water added and the concrete authoriser's name
136	Concrete Cube Test Samples	ICE Spec	Making 100mm concrete test cubes	B19.2.1 B21.8.3 BS EN 12390-2	One set of 4 / 6 * at 7 days, * at 28 days, * at spare	Every ** m3 or part thereof or every day	Concrete Technician	Concrete Technician's Record Sheet Daily Report				Concrete technician to handover Record Sheet prior to leaving site. Site to maintain Site Cube Register if cubes are stored / cured on site
137	Concrete Curing		Site curing of concrete cubes		Ensure cubes are cured in a heated cabin or tempetrature-regulated bath or insulated container	All cubes	Pumpman					
138	Concrete Curing		Curing Tank	BS EN 12390-2	Ensure temperature of curing tank is xx degrees and this temperature is maintained without interruption	All cubes	Pumpman	Temperature record				
151	Pile cage - debonding foam		Check the correct length of foam is in place and is properly secured		Length as per the design / pile schedule and / or the cage sketch. Tolerance of foam = +/- *mm	Each Cage	Ganger					
152	Receiving Reinforcement cages	ICE Spec	Visually check pile cages on receipt	B19.9.1 B21.9	Steel is clean (not rusty), the delivery is complete (see delivery ticket) and undamaged	Each Load	Contract Supervisor	GRS				Contact Supervisor to sign Delivery Note
153	Pile Reinforcement cages	ICE Spec	Check cage fabrication / details	B19.9.3 B21.9	As per the design / pile schedule / cage sketch reference	Each cage / section	Project Engineer					Detailed cage checklist to be used for complex cages

Cementation SKANSKA

Inspection and Test Plan

Item No	Activity Description	Controlling Document / Specification	Test & Inspection	Spec. Clause	Acceptance Criteria	Frequency	Action by	Verifying Document	CSL	PC	Oth	Remarks
154	Placing Reinforcement	ICE Spec	Check the top of cage is at the correct level and central in the pile	B3.4.1	As per the pile schedule within + ***mm / - **mm	Each Pile	Banksman	Daily Report				Concrete Ganger to record in Book; Setting Out Engineer to record in As-built schedule
155	Cover to reinforcement	ICE Spec	Check the required dimensions of the spacers and sufficient spacers around the circumference and along the cage	B19.9.4 B21.9.4	Spacers to provide a minimum of 75mm cover, one spacer per bar at cut-off level. Therafter spacers alternating on each bar at a minimum of every 4 metres along the cage	Each Pile / Cage	Contract Supervisor					Concrete Ganger to record in Book; Setting Out Engineer to record in As-built schedule
156	Correct pile cage / steel	ICE Spec	Check the correct cage / steel is placed in the pile	B19.9.3 B21.9.3	As per the design / pile schedule and on the cage tag	Each Pile	Ganger					Project Engineer to ensure cages are tagged / labelled as per the pile schedule, Contract Supervisor to check on receipt
157	Correct pile cage / steel	ICE Spec	Secondary check on complex cages		Cage tag removed and checked against the pile schedule	Each Pile	Rig Operator					
158	Orientation of Cages		Check reinforcemet cage is orientated correctly		Reiforcement cage is with the tolerance of xx degrees of the orientaion reference	Each Pile	Setting out Engineer					
159	Welded Bands		Visually check the dimensions of the bands and the numbers and suitability of the welds on the bands for lifting.		As per the Design / Cage Sketch	Each Cage	Ganger					Project Engineer to ensure sufficient detail in cage sketch. Contract Supervisor to check on receipt.
160	Cage splices		Check all bulldogs / couplers / clamps		As per the design / pile schedule / cage sketch	Each joint	Ganger					Project Engineer to ensure sufficient detail in the cage sketch.
161	Cage Feet		Check the Cage Feet are the correct dimenions and fitted correctly		As per the design / pile schedule / cage sketch	Each pile	Ganger					Project Engineer to ensure sufficient detail in the cage sketch.
162	Tightening of pile reinforcement splicing couplers		Installation torque		To the manufacturer's recommended torque of ****	Each coupler	Ganger	Visual inspection				
231	Placing separating layer		Check sufficient depth of vermiculite (>300mm in the tremie tube) is used at concrete water interface		***mm depth of vermiculite required ie (***litres of vermiculite)	Each tremied pile	Concrete Ganger	Banskman's Book / Pile log template				
232	Concrete level		Checks the level of concrete in the panel / pile		Concrete use greater than theoretical	After Each Load	Concrete Ganger	Concrete Ganger's Book / pile log template				Project Engineer to transfer records to Concrete Graph
233	Tremie level	Ice Spec	Check the level of the base of the tremie	B3.5.2.4	A minimum of 3m below top of concrete (other than at completion of panel then no less than 2m)	After Each Load	Concrete Ganger	Concrete Ganger's Book / pile log template				Project Engineer to transfer records to Concrete Graph
234	Tremie Embedment (wet)	ICE Spec	Check and record the number and lengths of tremies used and the level of the bottom of the tremie	B3.5.2.4	Tremie to be maintained between 3m and 6m below top of concrete	Every pile	Concrete Ganger	Concrete Ganger's Book / pile log template				Book to be handed to Project Engineer after each pour
316	Preparation of pile cap		Check pile cap shutter dimensions. Top of cap is 300mm above ground. Cap correctly reinforced and levelled before concreting.		In accordance with the Test pile cap and shutter instructions. Concrete float finished and level.	Every test pile	Contract Supervisor	Test pile cap and shutter instructions				If outside the required spec - notify FDA
317	Preparation of anchor steel		Visual check that the anchor steel is in accordance with test pile contruction instructions		Anchor Steel in accordance with the test pile instruction form and the requirements of the pile design	Every test pile	Contract Supervisor	Test pile instruction				If outside the required spec - notify FDA
318	Embedment steel		Check on size, spacing, embedment and verticality of the embedment steel. Satisfactorily protected threads and visual.		Embedment steel complies to the Instructions i.e. 36mm prestressed dywidag bar(s) 4.2m into the pile with a projection of 1.8m. Central to the pile and positioned straight. All bars with protected threads	Every test pile	Contract Supervisor	Test pile instruction				If outside the required spec - notify FDA
319	Anchor setting out prior to construction		Check diagonally acoss each pair of anchors as set out		Both the diagonals the same length and the test pile is central on the mid-point. Tolerance =/- *mm	Every test pile	Contract Supervisor	Test pile instruction				If outside the required spec - notify FDA
320	Anchor setting out after construction		Check diagonally acoss each pair of anchors as installed		Both the diagonals the same length and the test pile is central on the mid-point. Tolerance =/- *mm	Every test pile	Contract Supervisor	Test pile instruction				If outside the required spec - notify FDA
321	Pre pile load test (concrete)		Check the strength of the concrete in the pile		Strength greater than **N / mm^2	Prior to commencing the load test	Project Engineer	Cube test result sheet				Project Engineer to confirm concrete strength BEFORE starting the test
322	Technician Pre start checks		Checks listed on the Technician's pre-start list		Checks listed on the Technician's pre-start list completed and signed off	Prior to commencing the load test	Testing Technician	Pre-start checklist				
323	Test pile installation details		Check the Test Pile Construction checklist		Checks signed of by Contract Supervisor and the Project Engineer	Prior to commencing the load test	Temporary Works Coordinator	Test pile construction checklist				
324	Permission to load		Check the Test Pile checklist is complete		Signed off by Temporary Works Coordinator	Prior to commencing the load test	FDA Manager	Test pile construction checklist				Project Engineer is the Temporary works co-ordinator
325	Pile load test procedure		Check the remote verification of site procedure and test parameters and equipment calibrations		In accordance with contract test specification. Calibrations in date	Every test pile	FDA Manager	FDA Load Test Checklist				
326	Pile load testing		Check the settlement of the pile under the specified load		**mm at ***T (WL)	Every test pile	Testing Technician	Load Test Report				Testing Technician to report the result to the Project Engineer

Appendix E Lift and MEWP Plans

To follow

Appendix F Details of Piling Rig and Crane

Federation of Piling Specialists (the "FPS")
Rig Loadings Spreadsheet (the "Spreadsheet")
Disclaimer

The Spreadsheet has been designed without liability with the intention of assisting in the calculation of track bearing pressures for use in the BRE Design Method[1]. The Spreadsheet contains sample data, which are intended only to illustrate how the Spreadsheet may be operated, and do not represent any specific rig .

The Spreadsheet is intended for use only by a competent person. It is intended to assist in calculating the track loadings that occur with the rig working on a flat horizontal surface with a vertical mast it makes no allowance for the effects on track loadings caused by raking the mast in any direction, or non-vertical suspended loads.

Whilst we have taken steps to check the accuracy of the Spreadsheet, the FPS and the authors of the Spreadsheet do not give any warranty, guarantee, representation or other assurance as to: the operation, quality or functionality of the Spreadsheet; the accuracy or completeness of the Spreadsheet; or its fitness for any particular purpose.

To the fullest extent permissible by law, the FPS and the authors of the Spreadsheet each disclaim all responsibility for any damages or losses (including, without limitation, financial loss, damages for loss in business projects, loss of profits or other consequential losses) arising in contract, tort or otherwise from the use of or inability to use the Spreadsheet, or from any action or decision taken as a result of using the Spreadsheet.

[1] BRE Report 470, Working Platforms for Tracked Plant, 2004

The user of this spreadsheet shall input data into the relevant yellow boxes on this worksheet and on all of the other relevant worksheets

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	BAUER	Rig Type & Serial No.	BG33V	#5119
Operation mode:	Kelly	Date:	31/10/2019	
Completed by:	M.Worrall	Checked by:	S.Joynson	

Main Components - Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
UPPER WORKS (Slewing)	Upper Mast (inc 2m)	6,100	60		3.30	-197	0
	Lower Mast	13,500	132		3.30	-437	0
	Cylinders	700	7		1.65	-11	0
						0	0
						0	0
						0	0
LOWER WORKS (Slewing)	Base Unit	51,200	502		0.00	0	0
						0	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	KDK 340 K	6,700	66		4.70	-309	0
	Casing Driver 2m	3,000	29		4.70	-138	0
	BA 1400 Sledge	2,000	20		4.70	-92	0
						0	0
						0	0
COUNTER-WEIGHT (Slewing)	Counterweight	29,400	288		-4.30	1,240	0
						0	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)						0	0
	BK280/419/4/48	10,200	100		4.70	-470	0
	Tool	4,000	39		4.70	-184	0
UPPER WORKS		20,300	199	0.00	3.24	-646	0
LOWER WORKS		51,200	502	0.00	0.00	0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM		11,700	115	0.00	4.70	-539	0
COUNTERWEIGHT		29,400	288	0.00	-4.30	1240	0
OTHER		14,200	139	0.00	4.70	-655	0
SLEWING TOTAL/RESULTANT (with θ=0)		126,800	1,244	0.00	0.48	-600	0

Foot Pads - Slewing :

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.40	-225		3.30	None	None
Front Pad 2					None	None
Rear Pad 1					None	None
Rear Pad 2					None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Crowd System - Maximum Extraction Force (kN)		330	0.00	4.70	Must be inline with suspended equip't.
Crowd System - Maximum Penetration Force (kN)		-330	0.00	4.70	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		80		4.42	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)				0.00	0.00	0	0
				0.00	0.00	0	0
				0.00	0.00	0	0
NON-SLEWING TOTAL/RESULTANT (with θ=0)		0	0	0.00	0.00	0	0
TOTAL RIG MASS		126,800					

Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

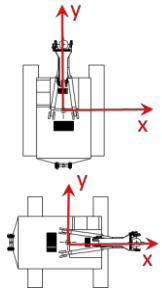
Tracks		Slewing		
Track bearing length (m)	4.68	Can the rig slew?	YES	
Track pad width (m)	0.80			
Distance between centrelines of tracks (m)	3.68			

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

BK280/419/4/48 Kelly Bar 2000mm CDA & 1850mm Bucket BA 1400 Drill Axis Extension Installed. Pnertration Force limited to 260kN and Extraction Force Limited to 320kN Specific to A19 Testos Junction. Please ensure all opratives are aware of this.

BAUER BG33V	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	199	0.00	3.24	-646	0
Suspended Eqpt. on Crowd	115	0.00	4.70	-539	0
Counterweight (slewing)	288	0.00	-4.30	1,240	0
Other (slewing)	139	0.00	4.70	-655	0
Lower Works (Slewing)	502	0.00	0.00	0	0
Net Extraction Force	0	0.00	4.70	0	0
Net Penetration Force	0	0.00	4.70	0	0
Applied Auxillary Force	0	0.00	4.42	0	0
Front Pad 1	0	0.00	3.30	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,244	0.00	0.48	-600	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
	0	330		
	0	-330		
	0	80		
	0	-225	0	0.40
	0	0	0	0.00
	0	0	0	0.00
	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	**Max. Pad Pressure**		0	
Total Rig Weight (kN)	1244					Track Bearing Length (m)		4.68	
Resultant of all Actions (kN)	**1,244**	**0.00**	**0.48**	**-600**	**0**	Track pad width (m)		0.80	
						Track Centerline Dist. (m)		3.68	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Standing

Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Bearing Len. (m)	Equivalent Bearing L (m)	Q (KPa)
0	269	63	269	63	0.482	4.683	3.719	209
15	247	62	283	71	0.466	4.683	3.751	221
30	221	67	288	87	0.418	4.683	3.848	229
45	194	76	283	111	0.341	4.683	4.001	230
60	168	89	267	141	0.241	4.683	4.201	227
75	144	104	241	175	0.125	4.683	4.433	220
90	123	123	210	210	0.000	4.683	4.683	210
105	144	104	241	175	-0.125	4.683	4.433	220
120	168	89	267	141	-0.241	4.683	4.201	227
135	194	76	283	111	-0.341	4.683	4.001	230
150	221	67	288	87	-0.418	4.683	3.848	229
165	247	62	283	71	-0.466	4.683	3.751	221
180	269	63	269	63	-0.482	4.683	3.719	209
195	283	71	247	62	-0.466	4.683	3.751	221
210	288	87	221	67	-0.418	4.683	3.848	229
225	283	111	194	76	-0.341	4.683	4.001	230
240	267	141	168	89	-0.241	4.683	4.201	227
255	241	175	144	104	-0.125	4.683	4.433	220
270	210	210	123	123	0.000	4.683	4.683	210
285	241	175	144	104	0.125	4.683	4.433	220
300	267	141	168	89	0.241	4.683	4.201	227
315	283	111	194	76	0.341	4.683	4.001	230
330	288	87	221	67	0.418	4.683	3.848	229
345	283	71	247	62	0.466	4.683	3.751	221
					Maximum Track Values		4.001	230
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.400	0.500	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		4.001	230

Eccentricity index - X direction (sideways) **0.26**

Eccentricity index - Y direction (forwards/backwards) **0.21**

Track pressure distribution warning **None**

Slewing foot pad message **Slewing Foot Pad Pressure OK**

Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**

BRE LOAD CASE (1 or 2) 1

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).

Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).

Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).

Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.

Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -

Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.

By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).

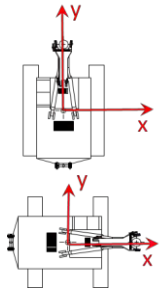
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

FPS

BAUER BG33V	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	199	0.00	3.24	-646	0
Suspended Eqpt. on Crowd	115	0.00	4.70	-539	0
Counterweight (slewing)	288	0.00	-4.30	1,240	0
Other (slewing)	139	0.00	4.70	-655	0
Lower Works (Slewing)	502	0.00	0.00	0	0
Net Extraction Force	0	0.00	4.70	0	0
Net Penetration Force	0	0.00	4.70	0	0
Applied Auxillary Force	0	0.00	4.42	0	0
Front Pad 1	0	0.00	3.30	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,244	0.00	0.48	-600	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Net Extraction Force	0	330		
Net Penetration Force	0	-330		
Applied Auxillary Force	0	80		
Front Pad 1	0	-225	0	0.40
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	0	0.00	0.00	0	0	**Max. Pad Pressure**		0	
Total Rig Weight (kN)	1244					Track Bearing Length (m)		4.68	
Resultant of all Actions (kN)	1,244	0.00	0.48	-600	0	Track pad width (m)		0.80	
						Track Centerline Dist. (m)		3.68	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Travelling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	269	63	269	63	0.482	4.683	3.719	209
15	247	62	283	71	0.466	4.683	3.751	221
30	221	67	288	87	0.418	4.683	3.848	229
45	194	76	283	111	0.341	4.683	4.001	230
60	168	89	267	141	0.241	4.683	4.201	227
75	144	104	241	175	0.125	4.683	4.433	220
90	123	123	210	210	0.000	4.683	4.683	210
105	144	104	241	175	-0.125	4.683	4.433	220
120	168	89	267	141	-0.241	4.683	4.201	227
135	194	76	283	111	-0.341	4.683	4.001	230
150	221	67	288	87	-0.418	4.683	3.848	229
165	247	62	283	71	-0.466	4.683	3.751	221
180	269	63	269	63	-0.482	4.683	3.719	209
195	283	71	247	62	-0.466	4.683	3.751	221
210	288	87	221	67	-0.418	4.683	3.848	229
225	283	111	194	76	-0.341	4.683	4.001	230
240	267	141	168	89	-0.241	4.683	4.201	227
255	241	175	144	104	-0.125	4.683	4.433	220
270	210	210	123	123	0.000	4.683	4.683	210
285	241	175	144	104	0.125	4.683	4.433	220
300	267	141	168	89	0.241	4.683	4.201	227
315	283	111	194	76	0.341	4.683	4.001	230
330	288	87	221	67	0.418	4.683	3.848	229
345	283	71	247	62	0.466	4.683	3.751	221
					Maximum Track Values		4.001	230
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.400	0.500	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		4.001	230

Eccentricity index - X direction (sideways) **0.26**
Eccentricity index - Y direction (forwards/backwards) **0.21**
Track pressure distribution warning **None**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) 1

Notes on Using this Table

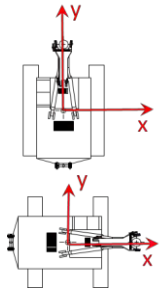
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

BAUER BG33V	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	199	0.00	3.24	-646	0
Suspended Eqpt. on Crowd	115	0.00	4.70	-539	0
Counterweight (slewing)	288	0.00	-4.30	1,240	0
Other (slewing)	139	0.00	4.70	-655	0
Lower Works (Slewing)	502	0.00	0.00	0	0
Net Extraction Force	0	0.00	4.70	0	0
Net Penetration Force	0	0.00	4.70	0	0
Applied Auxillary Force	80	0.00	4.42	-354	0
Front Pad 1	0	0.00	3.30	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,324	0.00	0.72	-953	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Net Extraction Force	0	330		
Net Penetration Force	0	-330		
Applied Auxillary Force	80	80		
Front Pad 1	0	-225	0	0.40
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
	Max. Pad Pressure		0	

NON-SLEWING ACTIONS					
Lower Works Non-Slewing	0	0.00	0.00	0	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**
Total Rig Weight (kN)	1244				
Resultant of all Actions (kN)	**1,324**	**0.00**	**0.72**	**-953**	**0**

	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Front Pad 1	0	0	0	0.00
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
	Max. Pad Pressure		0	

Track Bearing Length (m)	4.68
Track pad width (m)	0.80
Track Centerline Dist. (m)	3.68

Handeling

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Handling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	340	14	340	14	0.720	4.683	3.243	255
15	300	17	368	21	0.696	4.683	3.292	277
30	256	29	380	42	0.624	4.683	3.436	288
45	211	44	373	78	0.509	4.683	3.665	288
60	171	63	346	127	0.360	4.683	3.963	280
75	136	84	302	185	0.186	4.683	4.310	265
90	108	108	246	246	0.000	4.683	4.683	246
105	136	84	302	185	-0.186	4.683	4.310	265
120	171	63	346	127	-0.360	4.683	3.963	280
135	211	44	373	78	-0.509	4.683	3.665	288
150	256	29	380	42	-0.624	4.683	3.436	288
165	300	17	368	21	-0.696	4.683	3.292	277
180	340	14	340	14	-0.720	4.683	3.243	255
195	368	21	300	17	-0.696	4.683	3.292	277
210	380	42	256	29	-0.624	4.683	3.436	288
225	373	78	211	44	-0.509	4.683	3.665	288
240	346	127	171	63	-0.360	4.683	3.963	280
255	302	185	136	84	-0.186	4.683	4.310	265
270	246	246	108	108	0.000	4.683	4.683	246
285	302	185	136	84	0.186	4.683	4.310	265
300	346	127	171	63	0.360	4.683	3.963	280
315	373	78	211	44	0.509	4.683	3.665	288
330	380	42	256	29	0.624	4.683	3.436	288
345	368	21	300	17	0.696	4.683	3.292	277
					Maximum Track Values		3.665	288
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.400	0.500	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		3.665	288

Eccentricity index - X direction (sideways)	**0.39**
Eccentricity index - Y direction (forwards/backwards)	**0.31**
Track pressure distribution warning	**None**
Slewing foot pad message	**Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message	**Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2)	**1**

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).

Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).

Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).

Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.

Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -

Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.

By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).

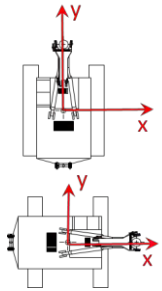
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

FPS

BAUER BG33V	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	199	0.00	3.24	-646	0
Suspended Eqpt. on Crowd	115	0.00	4.70	-539	0
Counterweight (slewing)	288	0.00	-4.30	1,240	0
Other (slewing)	139	0.00	4.70	-655	0
Lower Works (Slewing)	502	0.00	0.00	0	0
Net Extraction Force	0	0.00	4.70	0	0
Net Penetration Force	-375	0.00	4.70	1,761	0
Applied Auxillary Force	0	0.00	4.42	0	0
Front Pad 1	0	0.00	3.30	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Actions	869	0.00	-1.34	1,162	-0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
	0.00	330		
	-260.00	-330		
	0.00	80		
Front Pad 1	0	-225	0	0.40
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
	Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1244					Track Bearing Length (m)		4.68	
Resultant of all Actions (kN)	**869**	**0.00**	**-1.34**	**1,162**	**0**	Track pad width (m)		0.80	
						Track Centerline Dist. (m)		3.68	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Penetrating

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	360	0	360	0	1.337	3.015	2.010	270
15	280	0	410	0	1.291	3.152	2.101	307
30	195	0	417	0	1.157	3.552	2.368	313
45	126	0	393	0	0.945	4.189	2.793	294
60	80	6	351	27	0.668	4.683	3.346	264
75	50	19	285	110	0.346	4.683	3.991	232
90	32	32	200	200	0.000	4.683	4.683	200
105	50	19	285	110	-0.346	4.683	3.991	232
120	80	6	351	27	-0.668	4.683	3.346	264
135	126	0	393	0	-0.945	4.189	2.793	294
150	195	0	417	0	-1.157	3.552	2.368	313
165	280	0	410	0	-1.291	3.152	2.101	307
180	360	0	360	0	-1.337	3.015	2.010	270
195	410	0	280	0	-1.291	3.152	2.101	307
210	417	0	195	0	-1.157	3.552	2.368	313
225	393	0	126	0	-0.945	4.189	2.793	294
240	351	27	80	6	-0.668	4.683	3.346	264
255	285	110	50	19	-0.346	4.683	3.991	232
270	200	200	32	32	0.000	4.683	4.683	200
285	285	110	50	19	0.346	4.683	3.991	232
300	351	27	80	6	0.668	4.683	3.346	264
315	393	0	126	0	0.945	4.189	2.793	294
330	417	0	195	0	1.157	3.552	2.368	313
345	410	0	280	0	1.291	3.152	2.101	307
					Maximum Track Values		2.368	313
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.400	0.500	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		2.368	313

Eccentricity index - X direction (sideways) **0.73**
Eccentricity index - Y direction (forwards/backwards) **0.57**
Track pressure distribution warning **Track(s) lifting**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) **2**

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

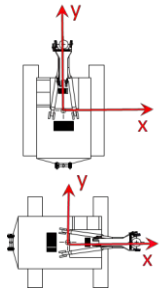
Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

FPS

BAUER BG33V	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	199	0.00	3.24	-646	0
Suspended Eqpt. on Crowd	115	0.00	4.70	-539	0
Counterweight (slewing)	288	0.00	-4.30	1,240	0
Other (slewing)	139	0.00	4.70	-655	0
Lower Works (Slewing)	502	0.00	0.00	0	0
Net Extraction Force	205	0.00	4.70	-965	0
Net Penetration Force	0	0.00	4.70	0	0
Applied Auxillary Force	0	0.00	4.42	0	0
Front Pad 1	0	0.00	3.30	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,449	0.00	1.08	-1,564	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
	320.00	330		
	0.00	-330		
	0.00	80		
	0	-225	0	0.40
	0	0	0	0.00
	0	0	0	0.00
	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1244					Track Bearing Length (m)		4.68	
Resultant of all Actions (kN)	**1,449**	**0.00**	**1.08**	**-1,564**	**0**	Track pad width (m)		0.80	
						Track Centerline Dist. (m)		3.68	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Extracting

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	478	0	478	0	1.080	3.786	2.524	359
15	394	0	536	0	1.043	3.896	2.598	402
30	303	0	555	0	0.935	4.220	2.813	416
45	224	2	541	6	0.763	4.683	3.156	406
60	161	29	493	90	0.540	4.683	3.603	379
75	114	54	411	195	0.279	4.683	4.124	344
90	80	80	307	307	0.000	4.683	4.683	307
105	114	54	411	195	-0.279	4.683	4.124	344
120	161	29	493	90	-0.540	4.683	3.603	379
135	224	2	541	6	-0.763	4.683	3.156	406
150	303	0	555	0	-0.935	4.220	2.813	416
165	394	0	536	0	-1.043	3.896	2.598	402
180	478	0	478	0	-1.080	3.786	2.524	359
195	536	0	394	0	-1.043	3.896	2.598	402
210	555	0	303	0	-0.935	4.220	2.813	416
225	541	6	224	2	-0.763	4.683	3.156	406
240	493	90	161	29	-0.540	4.683	3.603	379
255	411	195	114	54	-0.279	4.683	4.124	344
270	307	307	80	80	0.000	4.683	4.683	307
285	411	195	114	54	0.279	4.683	4.124	344
300	493	90	161	29	0.540	4.683	3.603	379
315	541	6	224	2	0.763	4.683	3.156	406
330	555	0	303	0	0.935	4.220	2.813	416
345	536	0	394	0	1.043	3.896	2.598	402
					Maximum Track Values		2.813	416
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.400	0.500	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		2.813	416

Eccentricity index - X direction (sideways) **0.59**

Eccentricity index - Y direction (forwards/backwards) **0.46**

Track pressure distribution warning **Track(s) lifting**

Slewing foot pad message **Slewing Foot Pad Pressure OK**

Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**

BRE LOAD CASE (1 or 2) **2**

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).

Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).

Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).

Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.

Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -

Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.

By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).

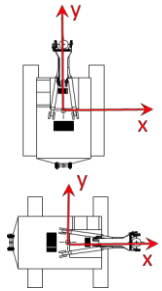
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

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FPS

BAUER BG33V	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	199	0.00	3.24	-646	0
Suspended Eqpt. on Crowd	115	0.00	4.70	-539	0
Counterweight (slewing)	288	0.00	-4.30	1,240	0
Other (slewing)	139	0.00	4.70	-655	0
Lower Works (Slewing)	502	0.00	0.00	0	0
Applied Extraction Force	0	0.00	4.70	0	0
Applied Penetration Force	0	0.00	4.70	0	0
Applied Auxillary Force	0	0.00	4.42	0	0
Front Pad 1	0	0.00	3.30	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,244	0.00	0.48	-600	0



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	330		
0	-330		
0	80		
0	-225	0	0.40
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1244					Track Bearing Length (m)		4.68	
Resultant of all Actions (kN)	**1,244**	**0.00**	**0.48**	**-600**	**0**	Track pad width (m)		0.80	
						Track Centreline Dist. (m)		3.68	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Other

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	269	63	269	63	0.482	4.683	3.719	209
15	247	62	283	71	0.466	4.683	3.751	221
30	221	67	288	87	0.418	4.683	3.848	229
45	194	76	283	111	0.341	4.683	4.001	230
60	168	89	267	141	0.241	4.683	4.201	227
75	144	104	241	175	0.125	4.683	4.433	220
90	123	123	210	210	0.000	4.683	4.683	210
105	144	104	241	175	-0.125	4.683	4.433	220
120	168	89	267	141	-0.241	4.683	4.201	227
135	194	76	283	111	-0.341	4.683	4.001	230
150	221	67	288	87	-0.418	4.683	3.848	229
165	247	62	283	71	-0.466	4.683	3.751	221
180	269	63	269	63	-0.482	4.683	3.719	209
195	283	71	247	62	-0.466	4.683	3.751	221
210	288	87	221	67	-0.418	4.683	3.848	229
225	283	111	194	76	-0.341	4.683	4.001	230
240	267	141	168	89	-0.241	4.683	4.201	227
255	241	175	144	104	-0.125	4.683	4.433	220
270	210	210	123	123	0.000	4.683	4.683	210
285	241	175	144	104	0.125	4.683	4.433	220
300	267	141	168	89	0.241	4.683	4.201	227
315	283	111	194	76	0.341	4.683	4.001	230
330	288	87	221	67	0.418	4.683	3.848	229
345	283	71	247	62	0.466	4.683	3.751	221
					Maximum Track Values		4.001	230
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.400	0.500	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
						Maximum Equivalent Design Values	4.001	230

Eccentricity index - X direction (sideways) **0.26**
Eccentricity index - Y direction (forwards/backwards) **0.21**
Track pressure distribution warning **None**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) **0**

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	BAUER	Rig Type & Serial No.	BG33V #5119
Operation mode:	Kelly	Date:	31/10/2019
Completed by:	M.Worrall	Checked by:	S.Joynson

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	20,300	199	0.00	3.24	-646	0
LOWER WORKS	51,200	502	0.00	0.00	0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	11,700	115	0.00	4.70	-539	0
COUNTERWEIGHT	29,400	288	0.00	-4.30	1,240	0
OTHER	14,200	139	0.00	4.70	-655	0
TOTAL/RESULTANT (with θ=0)	126,800	1,244	0.00	0.48	-600	0

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.40	-225	0.00	3.30	None	None
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		330	0.00	4.70	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-330	0.00	4.70	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		80	0.00	4.42	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	0			0.00	0.00		
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		0	0	0.00	0.00	0	0
TOTAL RIG MASS		126,800					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	4.68	Can the Rig Slew?	YES	
Track pad width (m)	0.80			
Distance between centrelines of tracks (m)	3.68			

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	4.00	0.80	230	1	0.26	0.21	0
Travelling	4.00	0.80	230	1	0.26	0.21	0
Handling	3.66	0.80	288	1	0.39	0.31	80
Penetrating	2.37	0.80	313	2	0.73	0.57	-260
Extracting	2.81	0.80	416	2	0.59	0.46	320
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

BK280/419/4/48 Kelly Bar 2000mm CDA & 1850mm Bucket BA 1400 Drill Axis Extension Installed. Pnertration Force limited to 260kN and Extraction Force Limited to 320kN Specific to A19 Testos Junction. Please ensure all opratives are aware of this.

Cementation

SKANSKA

Document Title:

BG33 Continuous Flight Auger Bearing Pressure and Dimension Summary

Federation of Piling Specialists (the "FPS")
Rig Loadings Spreadsheet (the "Spreadsheet")
Disclaimer

The Spreadsheet has been designed without liability with the intention of assisting in the calculation of track bearing pressures for use in the BRE Design Method[1]. The Spreadsheet contains sample data, which are intended only to illustrate how the Spreadsheet may be operated, and do not represent any specific rig .

The Spreadsheet is intended for use only by a competent person. It is intended to assist in calculating the track loadings that occur with the rig working on a flat horizontal surface with a vertical mast it makes no allowance for the effects on track loadings caused by raking the mast in any direction, or non-vertical suspended loads.

Whilst we have taken steps to check the accuracy of the Spreadsheet, the FPS and the authors of the Spreadsheet do not give any warranty, guarantee, representation or other assurance as to: the operation, quality or functionality of the Spreadsheet; the accuracy or completeness of the Spreadsheet; or its fitness for any particular purpose.

To the fullest extent permissible by law, the FPS and the authors of the Spreadsheet each disclaim all responsibility for any damages or losses (including, without limitation, financial loss, damages for loss in business projects, loss of profits or other consequential losses) arising in contract, tort or otherwise from the use of or inability to use the Spreadsheet, or from any action or decision taken as a result of using the Spreadsheet.

[1] BRE Report 470, Working Platforms for Tracked Plant, 2004

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	Bauer	Rig Type & Serial No.	BG33V 5119
Operation mode:	CFA	Date:	02/12/2019
Completed by:	M.WORRALL	Checked by:	S.Joynson

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	20,300	199	0.00	3.24	-646	0
LOWER WORKS	51,200	502	0.00	0.13	-64	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	18,760	184	0.00	4.40	-810	0
COUNTERWEIGHT	29,400	288	0.00	-3.83	1,103	0
OTHER	3,000	29	0.00	4.40	-129	0
TOTAL/RESULTANT (with θ=0)	122,660	1,203	0.00	0.45	-545	0

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.40	-225	0.00	3.00	None	None
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		830	0.00	4.40	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-330	0.00	4.40	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		80	0.00	0.00	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	0			0.00	0.00		
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		0	0	0.00	0.00	0	0
TOTAL RIG MASS		122,660					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	4.68	Can the Rig Slew?	YES	
Track pad width (m)	0.80			
Distance between centrelines of tracks (m)	3.68			

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	4.04	0.80	218	1	0.25	0.19	0
Travelling	4.04	0.80	218	1	0.25	0.19	0
Handling	4.08	0.80	229	1	0.23	0.18	80
Penetrating	1.70	0.80	357	2	0.84	0.66	-220
Extracting	2.94	0.80	365	2	0.55	0.43	450
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

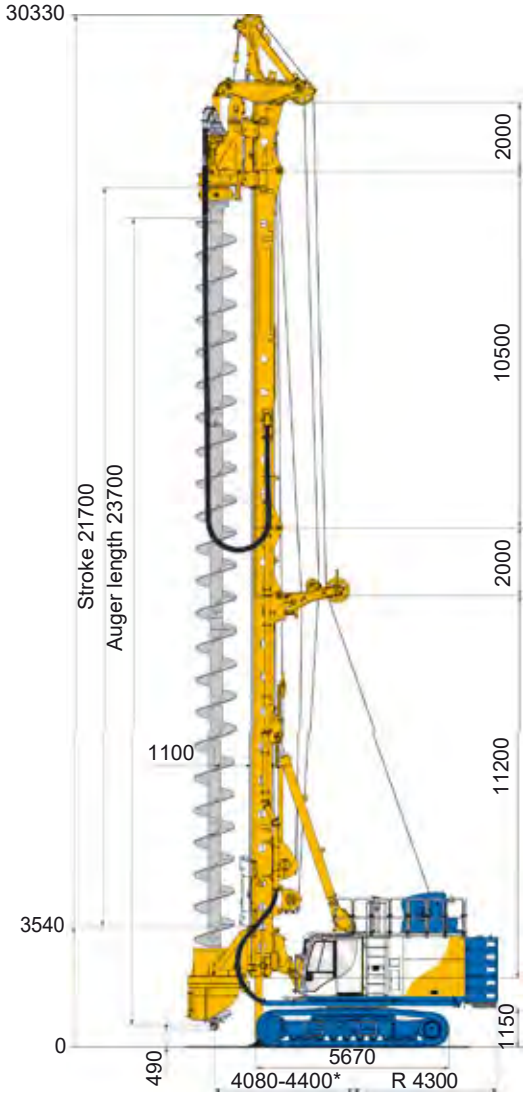
MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

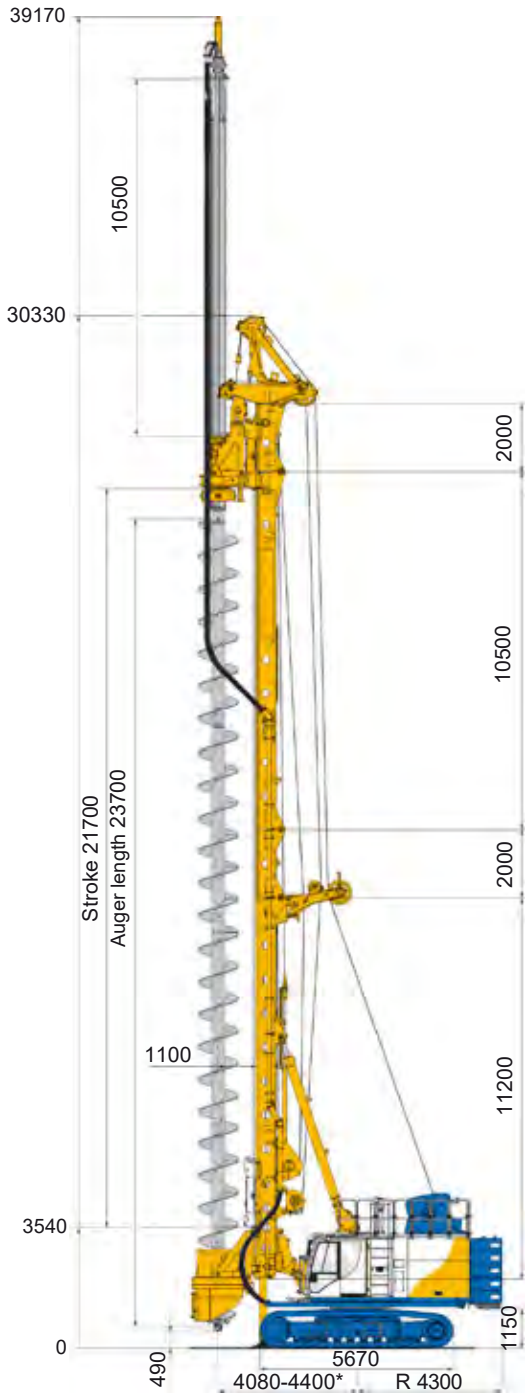
Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below! Only for use where the rig is working on a ground supported platform! Rigs to be operated in accordance with manufacturere's & employers instructions.Handling limited to 80kN. Penetration force limited to 220kN. Extraction force limited to 450kN. Max foot pad

Application – CFA-Drilling





	Basic version	Upgraded version
Under carriage	UW 100	UW 100
Mast extension	2 m + 2 m Vario	2 m + 2 m Vario
Kelly extension	without	10.5 m
Max. drilling diameter	1,180 mm	1,180 mm
Max. drilling depth (with auger cleaner)	21.3 m	31.8 m
Max. extraction force with main and crowd winch (effective)	830 kN	830 kN
With counterweight *	14.9 t	19.7 t

* depending on equipment

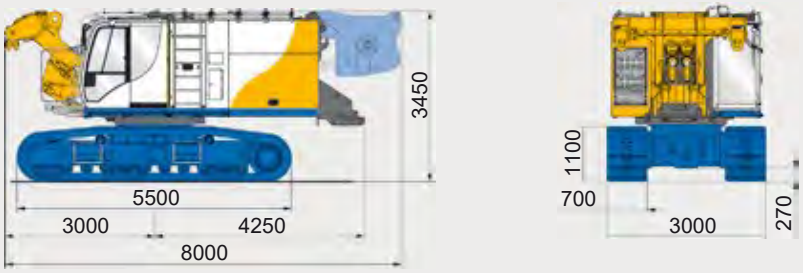
Transport – Dimensions and Weights

G = Weight
B = Width

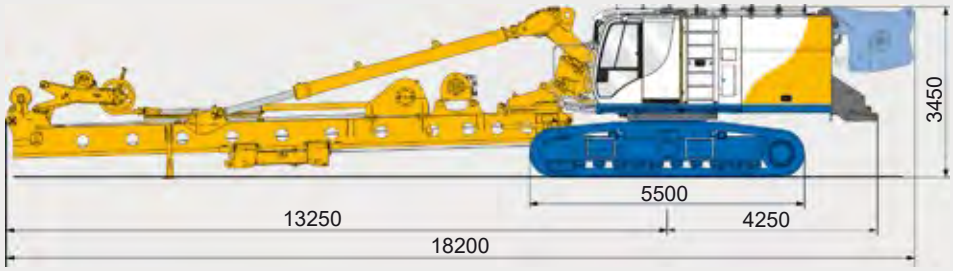
Weights shown are approximate values; optional equipment may change the overall weight and dimensions.

Transport with UW 80

G = 45.3 t
G = 49.5 t (with main winch 265 kN)

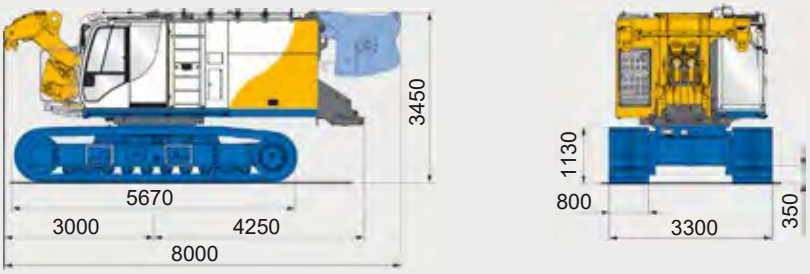


G = 61.2 t
G = 65.4 t (with main winch 265 kN)

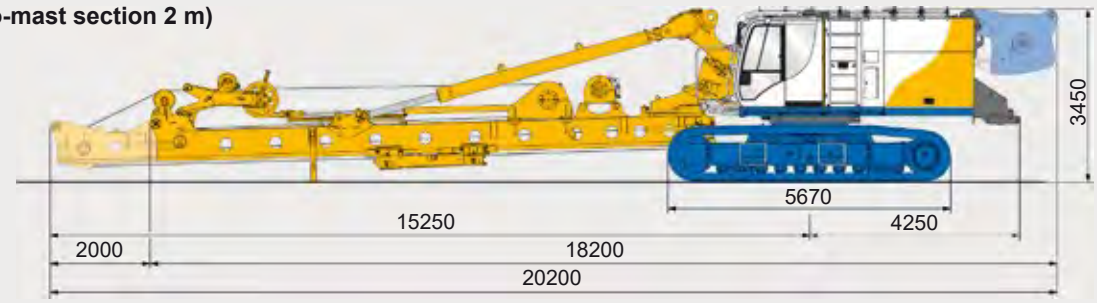


Transport with UW 100

G = 47.0 t
G = 51.2 t (with main winch 265 kN)



G = 62.7 t
G = 66.9 t (with main winch 265 kN)
G = 68.2 t (with main winch 265 kN and Vario-mast section 2 m)



Cementation

SKANSKA

Document Title:

SF120 Continuous Flight Auger Bearing Pressure and Dimension Summary

Federation of Piling Specialists (the "FPS")
Rig Loadings Spreadsheet (the "Spreadsheet")
Disclaimer

The Spreadsheet has been designed without liability with the intention of assisting in the calculation of track bearing pressures for use in the BRE Design Method[1]. The Spreadsheet contains sample data, which are intended only to illustrate how the Spreadsheet may be operated, and do not represent any specific rig .

The Spreadsheet is intended for use only by a competent person. It is intended to assist in calculating the track loadings that occur with the rig working on a flat horizontal surface with a vertical mast it makes no allowance for the effects on track loadings caused by raking the mast in any direction, or non-vertical suspended loads.

Whilst we have taken steps to check the accuracy of the Spreadsheet, the FPS and the authors of the Spreadsheet do not give any warranty, guarantee, representation or other assurance as to: the operation, quality or functionality of the Spreadsheet; the accuracy or completeness of the Spreadsheet; or its fitness for any particular purpose.

To the fullest extent permissible by law, the FPS and the authors of the Spreadsheet each disclaim all responsibility for any damages or losses (including, without limitation, financial loss, damages for loss in business projects, loss of profits or other consequential losses) arising in contract, tort or otherwise from the use of or inability to use the Spreadsheet, or from any action or decision taken as a result of using the Spreadsheet.

[1] BRE Report 470, Working Platforms for Tracked Plant, 2004

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	Soilmec	Rig Type & Serial No.	SF120 3284
Operation mode:	CFA	Date:	22/11/2019
Completed by:	M.WORRALL	Checked by:	S.Joynson

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	22,600	222	0.00	3.65	-809	0
LOWER WORKS	56,400	553	0.00	-0.10	55	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	19,500	191	0.00	4.73	-905	0
COUNTERWEIGHT	15,000	147	0.00	-4.10	603	0
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	113,500	1,113	0.00	0.95	-1,055	0

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	2.25	-1,160	0.00	3.65	Rectangular	1.12 x2m
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		1160	0.00	4.73	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-160	0.00	4.73	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		50	0.00	5.00	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	0			0.00	0.00		
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		0	0	0.00	0.00	0	0
TOTAL RIG MASS		113,500					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	5.22	Can the Rig Slew?	YES	
Track pad width (m)	0.90			
Distance between centrelines of tracks (m)	4.10			

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	3.58	0.90	213	1	0.46	0.36	0
Travelling	3.58	0.90	213	1	0.46	0.36	0
Handling	3.28	0.90	251	1	0.55	0.43	50
Penetrating	4.10	0.90	132	2	0.39	0.30	-160
Extracting	2.50	0.90	378	2	0.81	0.64	1000
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

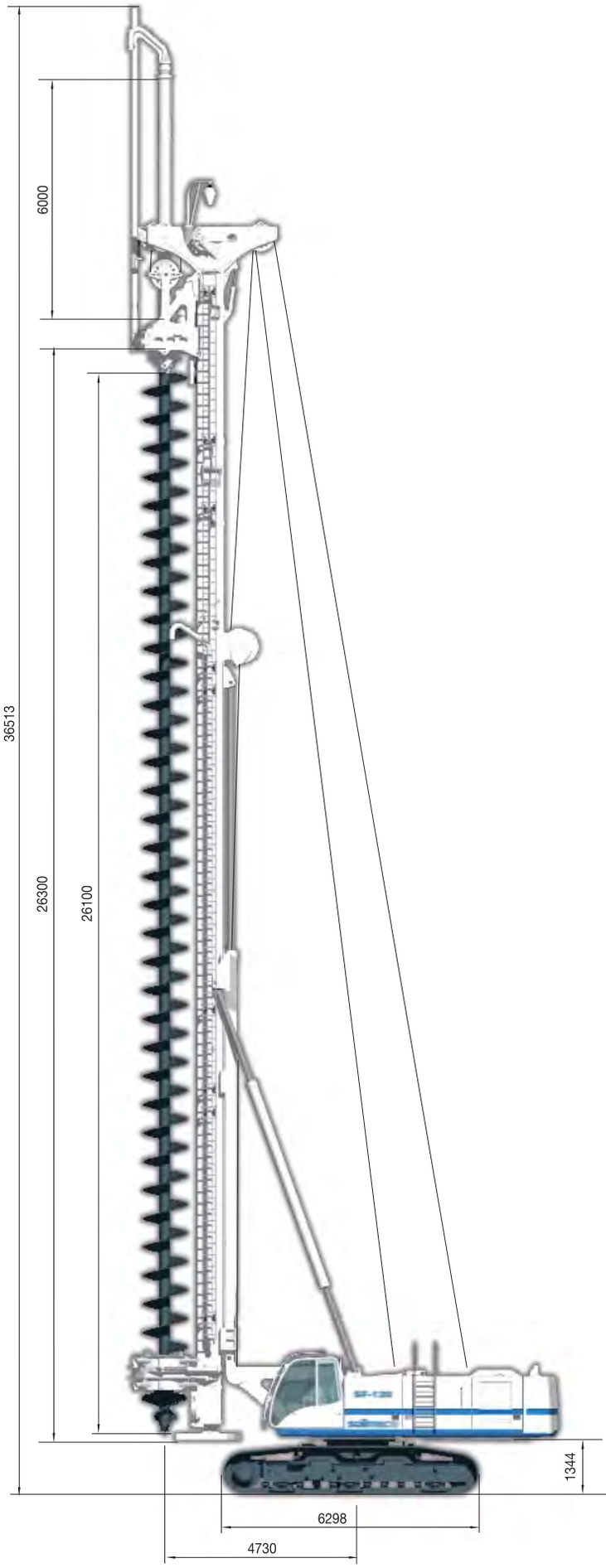
MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	ERROR - Slewing Foot Pad Pressure Exceeds Track Pressure	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

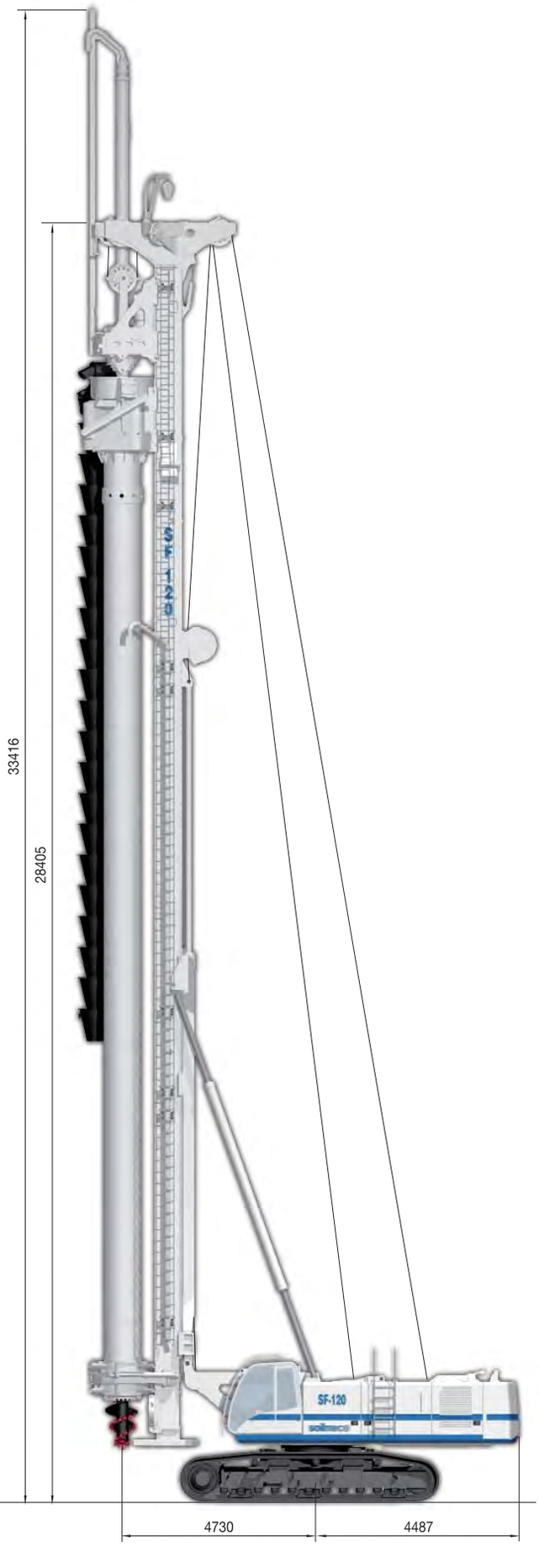
Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below ! Only for use where the rig is working on a ground supported platform ! Foot pad pressures are adjusted to equalise with the track pressures ! Rigs to be operated in accordance with manufacturers & employers instructions. There are limits on working practice which must

CFA / CAP - WORKING CONDITION





	Overall height	**36513 mm**	*1438 in*
	Operating weight (approx)	**105000 kg**	*220462 lb*
	**Rotary Drive - single gear type**		
	- Torque (nominal)	**300 kNm**	*221265 lbf*ft*
	- Speed of rotation (max)	**24,2 rpm**	*24.2 rpm*
	**Main winch SW 290**	**controlled descent**	*controlled descent*
	- Line pull (1st layer)	**290 kN**	*65193 lbf*
	- Rope diameter	**30 mm**	*1.19 in*
	- Rope lenght	**37 m / 84 m / 134 m**	*121 ft / 276 ft / 340 ft*
	- Line speed (max.)	**78 m/min**	*256 ft/min*
	**Auxiliary winch SW 140**	**controlled descent**	*controlled descent*
	- Line pull (1st layer)	**145 kN**	*32597 lbf*
	- Rope diameter	**26 mm**	*1.02 in*
	- Line speed (max.)	**90 m/min**	*295 ft/min*
	**CFA (Continuous Flight Auger)**		
	- Max pile diameter	**1200 mm**	*47.24 in*
	- Max pile depth w/o auger cleaner	**30,5 (24,5 + 6) m**	*100 (80.4 + 20) ft*
	- Max pile depth with auger cleaner	**29 m (23 + 6)**	*95 (75.5 + 20) ft*
	- Max Extraction force	**1160 kN**	*260774 lbf*
	- Lenght of auger string	**24,5 m**	*80 ft*
	**CAP (Cased Augered Piles)**		
	- Max pile diameter	**1000 mm**	*39.37 in*
	- Max pile depth	**27 m**	*88.6 ft*
	- Max cased depth	**21 m**	*68.9 ft*
	- Casing pull up / down	**410 kN**	*92170 lbf*
	- 2nd rotary max torque	**440 kNm**	*324522 lbf*ft*
	- Max casing speed	**5,7 rpm**	*5.7 rpm*
	**Mast inclination**		
	- Backward / Forward / Lateral	**10° / 4° / 3°**	*10° / 4° / 3°*

Soilmec integrates high quality level components: Gearmatic, Hydromatic, Lohmann, Rothe erde, Trasmital, Zollern.

Standard equipment

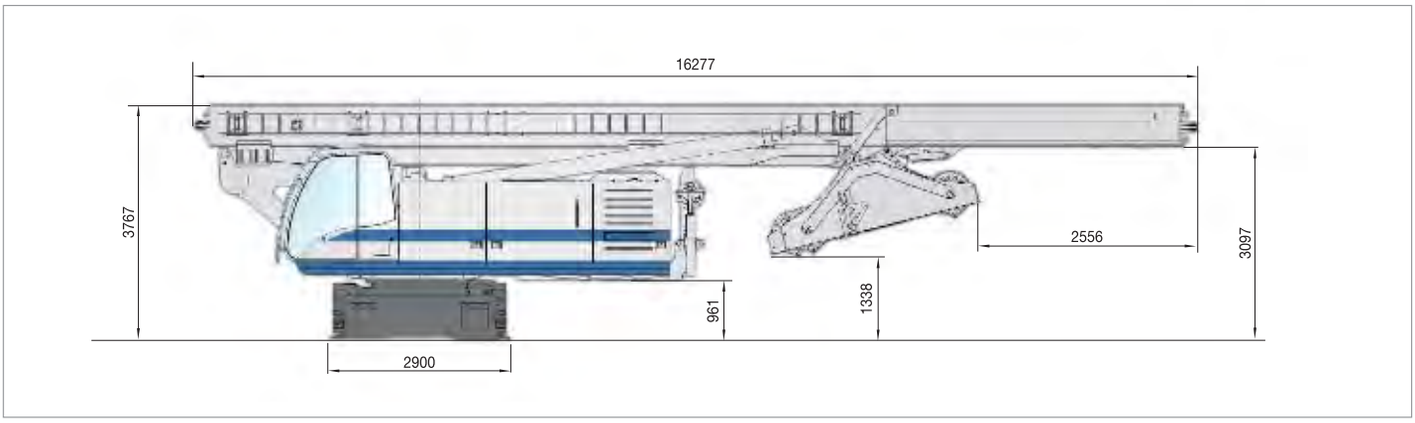
- Oscillator attachment
- Central lubrication system
- Emergency mode of operation for engine
- Engine diagnostic system
- Diagnostic panel for hydraulic functions
- Removable counterweight
- Transport securing lugs on crawler units
- Access ladder on upper carriage
- On-board lighting set
- On-board tool set
- Electric refuelling pump
- High-comfort operator's cab
- Protective roof grate *(FOPS compliant)*
- Air conditioning system
- Radio and CD player

Optional equipment

Base carrier
- Biodegradable oil
- Pressurized air conditioning system

Drilling Equipment
- Swivel for auxiliary rope
- Videocamera attachment
- Pull down winch (207 kN)

TRANSPORT DATA



Transport w/o rotary, counterweight and crawler	Weight	**55000 kg**	*121254 lb*

FOCUS - DMS

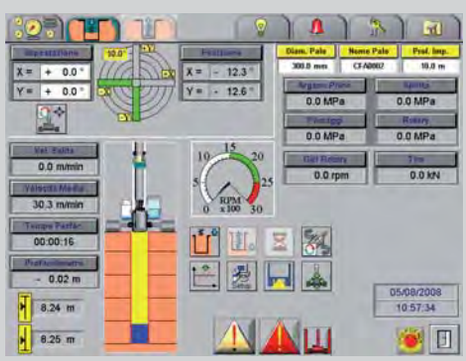
DMS
DRILLING MATE SYSTEM

Soilmec innovative DMS - Drilling Mate System - has been designed to incorporate:

- CAN OPEN bus system
- colour touch screen suitable for the drilling field

DMS consists of 3 items:

- **DMS**
- **DMS PC**
- **DMS MANAGER**

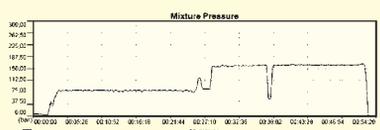


The **CFA Soilmec rigs** are equipped with the **DRILLING MATE SYSTEM (DMS)** operated through a 12" touch screen to control and monitoring the operating parameters as well as productive data.

The **standard DMS equipment** is composed of:
PLC - controller for all electrically actuated functions
- fault checking and reporting
- monitor unit designed to display:
  - engine information and diagnostic capability
  - pump pressures
  - mast verticality
  - drilling depth
  - rotary speed and pressure
  - crowd pressure
  - graphics drilling charts

The following additional optional features are available:
- automatic turret hole centering
- automatic mast verticality
- recording of operating data on
- memory card

DMS PC software package to o analyze and print production data and job site daily reports



DMS MANAGER for remote control o and transmission of process and operating data and tele assistance



Federation of Piling Specialists (the "FPS")
Rig Loadings Spreadsheet (the "Spreadsheet")
Disclaimer

The Spreadsheet has been designed without liability with the intention of assisting in the calculation of track bearing pressures for use in the BRE Design Method[1]. The Spreadsheet contains sample data, which are intended only to illustrate how the Spreadsheet may be operated, and do not represent any specific rig .

The Spreadsheet is intended for use only by a competent person. It is intended to assist in calculating the track loadings that occur with the rig working on a flat horizontal surface with a vertical mast it makes no allowance for the effects on track loadings caused by raking the mast in any direction, or non-vertical suspended loads.

Whilst we have taken steps to check the accuracy of the Spreadsheet, the FPS and the authors of the Spreadsheet do not give any warranty, guarantee, representation or other assurance as to: the operation, quality or functionality of the Spreadsheet; the accuracy or completeness of the Spreadsheet; or its fitness for any particular purpose.

To the fullest extent permissible by law, the FPS and the authors of the Spreadsheet each disclaim all responsibility for any damages or losses (including, without limitation, financial loss, damages for loss in business projects, loss of profits or other consequential losses) arising in contract, tort or otherwise from the use of or inability to use the Spreadsheet, or from any action or decision taken as a result of using the Spreadsheet.

[1] BRE Report 470, Working Platforms for Tracked Plant, 2004

The user of this spreadsheet shall input data into the relevant yellow boxes on this worksheet and on all of the other relevant worksheets

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	SOILMEC	Rig Type & Serial No.	SR-75	4718
Operation mode:	ROTARY BORED	Date:	02/12/2019	
Completed by:	M.WORRALL	Checked by:		

Main Components - Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
UPPER WORKS (Slewing)	Mast Assembly	11,726	115		3.48	-400	0
	Parallelogram	4,590	45		1.95	-88	0
	Rotary Table	5,586	55		4.42	-242	0
						0	0
						0	0
						0	0
LOWER WORKS (Slewing)	Undercarriage	20,232	198		0.00	0	0
	Slewing Mainframe	18,326	180		-0.83	149	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	Kelly Bar 4x11.5m	6,608	65		4.80	-311	0
						0	0
						0	0
						0	0
						0	0
COUNTER-WEIGHT (Slewing)	Counterweight	9,000	88		-4.11	363	0
						0	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)						0	0
						0	0
						0	0
UPPER WORKS		21,902	215	0.00	3.40	-730	0
LOWER WORKS		38,558	378	0.00	-0.39	149	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM		6,608	65	0.00	4.80	-311	0
COUNTERWEIGHT		9,000	88	0.00	-4.11	363	0
OTHER		0	0	0.00	0.00	0	0
SLEWING TOTAL/RESULTANT (with θ=0)		76,068	746	0.00	0.71	-529	0

Foot Pads - Slewing :

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.35	-314		3.50	Rectangular	700mm x 500mm
Front Pad 2					None	None
Rear Pad 1					None	None
Rear Pad 2					None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Crowd System - Maximum Extraction Force (kN)		246	0.00	4.80	Must be inline with suspended equip't.
Crowd System - Maximum Penetration Force (kN)		-408	0.00	4.80	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		127		5.20	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)				0.00	0.00	0	0
				0.00	0.00	0	0
				0.00	0.00	0	0
NON-SLEWING TOTAL/RESULTANT (with θ=0)		0	0	0.00	0.00	0	0
TOTAL RIG MASS		76,068					

Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

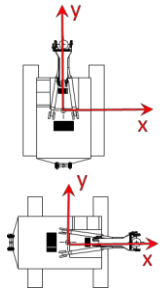
Tracks		Slewing		
Track bearing length (m)	4.60	Can the rig slew?	YES	
Track pad width (m)	0.90			
Distance between centrelines of tracks (m)	3.58			

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below! Only for use where the rig is working on a ground supported platform! Rigs to be operated in accordance with manufacturere's & employers instructions.Rig positioned at maximum drilling radius. Auxillary line force limited to 80kN. Penertrating force limited to 200kN Extraction force limited to 246kN. This information must be relaid to the rig operator.

SOILMEC SR-75	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	215	0.00	3.40	-730	0
Suspended Eqpt. on Crowd	65	0.00	4.80	-311	0
Counterweight (slewing)	88	0.00	-4.11	363	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	378	0.00	-0.39	149	0
Net Extraction Force	0	0.00	4.80	0	0
Net Penetration Force	0	0.00	4.80	0	0
Applied Auxillary Force	0	0.00	5.20	0	0
Front Pad 1	0	0.00	3.50	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	746	0.00	0.71	-529	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
	0	246		
	0	-408		
	0	127		
	0	-314	0	0.35
	0	0	0	0.00
	0	0	0	0.00
	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	**Max. Pad Pressure**		**0**	
Total Rig Weight (kN)	746					Track Bearing Length (m)		4.60	
Resultant of all Actions (kN)	**746**	**0.00**	**0.71**	**-529**	**0**	Track pad width (m)		0.90	
						Track Centerline Dist. (m)		3.58	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Standing

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	174	7	174	7	0.709	4.600	3.181	130
15	153	9	188	11	0.685	4.600	3.229	142
30	130	14	195	21	0.614	4.600	3.371	147
45	107	22	191	40	0.502	4.600	3.597	148
60	87	32	177	65	0.355	4.600	3.891	143
75	69	42	154	95	0.184	4.600	4.233	135
90	54	54	126	126	0.000	4.600	4.600	126
105	69	42	154	95	-0.184	4.600	4.233	135
120	87	32	177	65	-0.355	4.600	3.891	143
135	107	22	191	40	-0.502	4.600	3.597	148
150	130	14	195	21	-0.614	4.600	3.371	147
165	153	9	188	11	-0.685	4.600	3.229	142
180	174	7	174	7	-0.709	4.600	3.181	130
195	188	11	153	9	-0.685	4.600	3.229	142
210	195	21	130	14	-0.614	4.600	3.371	147
225	191	40	107	22	-0.502	4.600	3.597	148
240	177	65	87	32	-0.355	4.600	3.891	143
255	154	95	69	42	-0.184	4.600	4.233	135
270	126	126	54	54	0.000	4.600	4.600	126
285	154	95	69	42	0.184	4.600	4.233	135
300	177	65	87	32	0.355	4.600	3.891	143
315	191	40	107	22	0.502	4.600	3.597	148
330	195	21	130	14	0.614	4.600	3.371	147
345	188	11	153	9	0.685	4.600	3.229	142
					Maximum Track Values		3.597	148
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.350	0.389	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		3.597	148

Eccentricity index - X direction (sideways) **0.40**
Eccentricity index - Y direction (forwards/backwards) **0.31**
Track pressure distribution warning **None**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) 1

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

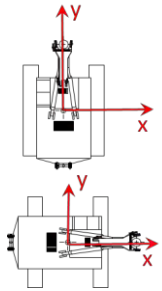
Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

FPS

SOILMEC SR-75	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	215	0.00	3.40	-730	0
Suspended Eqpt. on Crowd	65	0.00	4.80	-311	0
Counterweight (slewing)	88	0.00	-4.11	363	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	378	0.00	-0.39	149	0
Net Extraction Force	0	0.00	4.80	0	0
Net Penetration Force	0	0.00	4.80	0	0
Applied Auxillary Force	0	0.00	5.20	0	0
Front Pad 1	0	0.00	3.50	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	746	0.00	0.71	-529	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
	0	246		
	0	-408		
	0	127		
	0	-314	0	0.35
	0	0	0	0.00
	0	0	0	0.00
	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	**Max. Pad Pressure**		**0**	
Total Rig Weight (kN)	746					Track Bearing Length (m)		4.60	
Resultant of all Actions (kN)	**746**	**0.00**	**0.71**	**-529**	**0**	Track pad width (m)		0.90	
						Track Centerline Dist. (m)		3.58	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Travelling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	174	7	174	7	0.709	4.600	3.181	130
15	153	9	188	11	0.685	4.600	3.229	142
30	130	14	195	21	0.614	4.600	3.371	147
45	107	22	191	40	0.502	4.600	3.597	148
60	87	32	177	65	0.355	4.600	3.891	143
75	69	42	154	95	0.184	4.600	4.233	135
90	54	54	126	126	0.000	4.600	4.600	126
105	69	42	154	95	-0.184	4.600	4.233	135
120	87	32	177	65	-0.355	4.600	3.891	143
135	107	22	191	40	-0.502	4.600	3.597	148
150	130	14	195	21	-0.614	4.600	3.371	147
165	153	9	188	11	-0.685	4.600	3.229	142
180	174	7	174	7	-0.709	4.600	3.181	130
195	188	11	153	9	-0.685	4.600	3.229	142
210	195	21	130	14	-0.614	4.600	3.371	147
225	191	40	107	22	-0.502	4.600	3.597	148
240	177	65	87	32	-0.355	4.600	3.891	143
255	154	95	69	42	-0.184	4.600	4.233	135
270	126	126	54	54	0.000	4.600	4.600	126
285	154	95	69	42	0.184	4.600	4.233	135
300	177	65	87	32	0.355	4.600	3.891	143
315	191	40	107	22	0.502	4.600	3.597	148
330	195	21	130	14	0.614	4.600	3.371	147
345	188	11	153	9	0.685	4.600	3.229	142
					Maximum Track Values		3.597	148
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.350	0.389	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		3.597	148

Eccentricity index - X direction (sideways) **0.40**
Eccentricity index - Y direction (forwards/backwards) **0.31**
Track pressure distribution warning **None**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) 1

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

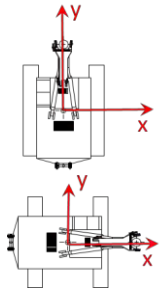
Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

FPS

SOILMEC SR-75	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	215	0.00	3.40	-730	0
Suspended Eqpt. on Crowd	65	0.00	4.80	-311	0
Counterweight (slewing)	88	0.00	-4.11	363	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	378	0.00	-0.39	149	0
Net Extraction Force	0	0.00	4.80	0	0
Net Penetration Force	0	0.00	4.80	0	0
Applied Auxillary Force	80	0.00	5.20	-416	0
Front Pad 1	0	0.00	3.50	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	826	0.00	1.14	-945	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Net Extraction Force	0	246		
Net Penetration Force	0	-408		
Applied Auxillary Force	80	127		
Front Pad 1	0	-314	0	0.35
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
	Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	746					Track Bearing Length (m)		4.60	
Resultant of all Actions (kN)	**826**	**0.00**	**1.14**	**-945**	**0**	Track pad width (m)		0.90	
						Track Centerline Dist. (m)		3.58	

Handeling

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Handling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	265	0	265	0	1.144	3.467	2.312	199
15	214	0	299	0	1.105	3.584	2.390	224
30	159	0	308	0	0.991	3.927	2.618	231
45	112	0	298	0	0.809	4.473	2.982	224
60	78	11	271	39	0.572	4.600	3.456	206
75	53	23	224	99	0.296	4.600	4.008	185
90	36	36	164	164	0.000	4.600	4.600	164
105	53	23	224	99	-0.296	4.600	4.008	185
120	78	11	271	39	-0.572	4.600	3.456	206
135	112	0	298	0	-0.809	4.473	2.982	224
150	159	0	308	0	-0.991	3.927	2.618	231
165	214	0	299	0	-1.105	3.584	2.390	224
180	265	0	265	0	-1.144	3.467	2.312	199
195	299	0	214	0	-1.105	3.584	2.390	224
210	308	0	159	0	-0.991	3.927	2.618	231
225	298	0	112	0	-0.809	4.473	2.982	224
240	271	39	78	11	-0.572	4.600	3.456	206
255	224	99	53	23	-0.296	4.600	4.008	185
270	164	164	36	36	0.000	4.600	4.600	164
285	224	99	53	23	0.296	4.600	4.008	185
300	271	39	78	11	0.572	4.600	3.456	206
315	298	0	112	0	0.809	4.473	2.982	224
330	308	0	159	0	0.991	3.927	2.618	231
345	299	0	214	0	1.105	3.584	2.390	224
					Maximum Track Values		2.618	231
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.350	0.389	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		2.618	231

Eccentricity index - X direction (sideways) **0.64**
Eccentricity index - Y direction (forwards/backwards) **0.50**
Track pressure distribution warning **Track(s) lifting**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) **1**

Notes on Using this Table

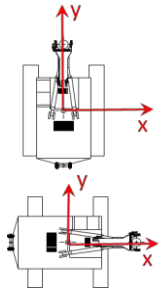
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR-75	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	215	0.00	3.40	-730	0
Suspended Eqpt. on Crowd	65	0.00	4.80	-311	0
Counterweight (slewing)	88	0.00	-4.11	363	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	378	0.00	-0.39	149	0
Net Extraction Force	0	0.00	4.80	0	0
Net Penetration Force	-265	0.00	4.80	1,271	0
Applied Auxillary Force	0	0.00	5.20	0	0
Front Pad 1	0	0.00	3.50	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Actions	481	0.00	-1.54	742	-0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
	0.00	246		
	-200.00	-408		
	0.00	127		
	0	-314	0	0.35
	0	0	0	0.00
	0	0	0	0.00
	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	746					Track Bearing Length (m)		4.60	
Resultant of all Actions (kN)	**481**	**0.00**	**-1.54**	**742**	**0**	Track pad width (m)		0.90	
						Track Centerline Dist. (m)		3.58	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Penetrating

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	235	0	235	0	1.541	2.277	1.518	176
15	171	0	269	0	1.488	2.435	1.623	201
30	105	0	264	0	1.334	2.897	1.931	198
45	58	0	237	0	1.090	3.631	2.421	178
60	30	0	203	0	0.770	4.589	3.059	153
75	15	5	162	51	0.399	4.600	3.802	129
90	8	8	108	108	0.000	4.600	4.600	108
105	15	5	162	51	-0.399	4.600	3.802	129
120	30	0	203	0	-0.770	4.589	3.059	153
135	58	0	237	0	-1.090	3.631	2.421	178
150	105	0	264	0	-1.334	2.897	1.931	198
165	171	0	269	0	-1.488	2.435	1.623	201
180	235	0	235	0	-1.541	2.277	1.518	176
195	269	0	171	0	-1.488	2.435	1.623	201
210	264	0	105	0	-1.334	2.897	1.931	198
225	237	0	58	0	-1.090	3.631	2.421	178
240	203	0	30	0	-0.770	4.589	3.059	153
255	162	51	15	5	-0.399	4.600	3.802	129
270	108	108	8	8	0.000	4.600	4.600	108
285	162	51	15	5	0.399	4.600	3.802	129
300	203	0	30	0	0.770	4.589	3.059	153
315	237	0	58	0	1.090	3.631	2.421	178
330	264	0	105	0	1.334	2.897	1.931	198
345	269	0	171	0	1.488	2.435	1.623	201
					Maximum Track Values		1.623	201
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.350	0.389	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		1.623	201

Eccentricity index - X direction (sideways) **0.86**
Eccentricity index - Y direction (forwards/backwards) **0.67**
Track pressure distribution warning **Track(s) lifting**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) **2**

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

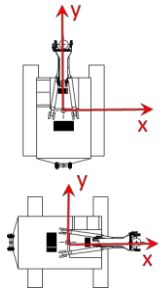
Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

FPS

SOILMEC SR-75	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	215	0.00	3.40	-730	0
Suspended Eqpt. on Crowd	65	0.00	4.80	-311	0
Counterweight (slewing)	88	0.00	-4.11	363	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	378	0.00	-0.39	149	0
Net Extraction Force	181	0.00	4.80	-870	0
Net Penetration Force	0	0.00	4.80	0	0
Applied Auxillary Force	0	0.00	5.20	0	0
Front Pad 1	0	0.00	3.50	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	927	0.00	1.51	-1,399	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
	246.00	246		
	0.00	-408		
	0.00	127		
	0	-314	0	0.35
	0	0	0	0.00
	0	0	0	0.00
	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	746					Track Bearing Length (m)		4.60	
Resultant of all Actions (kN)	**927**	**0.00**	**1.51**	**-1,399**	**0**	Track pad width (m)		0.90	
						Track Centerline Dist. (m)		3.58	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Extracting

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	434	0	434	0	1.509	2.374	1.583	325
15	319	0	496	0	1.457	2.529	1.686	372
30	200	0	491	0	1.306	2.981	1.987	369
45	113	0	444	0	1.067	3.700	2.467	333
60	60	0	384	3	0.754	4.600	3.091	288
75	31	10	307	100	0.390	4.600	3.819	245
90	18	18	206	206	0.000	4.600	4.600	206
105	31	10	307	100	-0.390	4.600	3.819	245
120	60	0	384	3	-0.754	4.600	3.091	288
135	113	0	444	0	-1.067	3.700	2.467	333
150	200	0	491	0	-1.306	2.981	1.987	369
165	319	0	496	0	-1.457	2.529	1.686	372
180	434	0	434	0	-1.509	2.374	1.583	325
195	496	0	319	0	-1.457	2.529	1.686	372
210	491	0	200	0	-1.306	2.981	1.987	369
225	444	0	113	0	-1.067	3.700	2.467	333
240	384	3	60	0	-0.754	4.600	3.091	288
255	307	100	31	10	-0.390	4.600	3.819	245
270	206	206	18	18	0.000	4.600	4.600	206
285	307	100	31	10	0.390	4.600	3.819	245
300	384	3	60	0	0.754	4.600	3.091	288
315	444	0	113	0	1.067	3.700	2.467	333
330	491	0	200	0	1.306	2.981	1.987	369
345	496	0	319	0	1.457	2.529	1.686	372
					Maximum Track Values		1.686	372
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.350	0.389	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		1.686	372

Eccentricity index - X direction (sideways)	**0.84**
Eccentricity index - Y direction (forwards/backwards)	**0.66**
Track pressure distribution warning	**Track(s) lifting**
Slewing foot pad message	**Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message	**Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2)	**2**

Notes on Using this Table

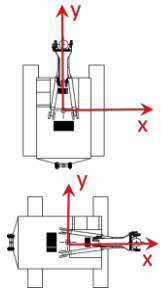
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR-75	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	215	0.00	3.40	-730	0
Suspended Eqpt. on Crowd	65	0.00	4.80	-311	0
Counterweight (slewing)	88	0.00	-4.11	363	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	378	0.00	-0.39	149	0
Applied Extraction Force	0	0.00	4.80	0	0
Applied Penetration Force	0	0.00	4.80	0	0
Applied Auxillary Force	0	0.00	5.20	0	0
Front Pad 1	0	0.00	3.50	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	746	0.00	0.71	-529	0



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Applied Extraction Force	0	246		
Applied Penetration Force	0	-408		
Applied Auxillary Force	0	127		
Front Pad 1	0	-314	0	0.35
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
	Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	0	0.00	0.00	0	0				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**0**	**0.00**	**0.00**	**0**	**0**	Max. Pad Pressure		0	
Total Rig Weight (kN)	746					Track Bearing Length (m)		4.60	
Resultant of all Actions (kN)	**746**	**0.00**	**0.71**	**-529**	**0**	Track pad width (m)		0.90	
						Track Centreline Dist. (m)		3.58	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Other

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	174	7	174	7	0.709	4.600	3.181	130
15	153	9	188	11	0.685	4.600	3.229	142
30	130	14	195	21	0.614	4.600	3.371	147
45	107	22	191	40	0.502	4.600	3.597	148
60	87	32	177	65	0.355	4.600	3.891	143
75	69	42	154	95	0.184	4.600	4.233	135
90	54	54	126	126	0.000	4.600	4.600	126
105	69	42	154	95	-0.184	4.600	4.233	135
120	87	32	177	65	-0.355	4.600	3.891	143
135	107	22	191	40	-0.502	4.600	3.597	148
150	130	14	195	21	-0.614	4.600	3.371	147
165	153	9	188	11	-0.685	4.600	3.229	142
180	174	7	174	7	-0.709	4.600	3.181	130
195	188	11	153	9	-0.685	4.600	3.229	142
210	195	21	130	14	-0.614	4.600	3.371	147
225	191	40	107	22	-0.502	4.600	3.597	148
240	177	65	87	32	-0.355	4.600	3.891	143
255	154	95	69	42	-0.184	4.600	4.233	135
270	126	126	54	54	0.000	4.600	4.600	126
285	154	95	69	42	0.184	4.600	4.233	135
300	177	65	87	32	0.355	4.600	3.891	143
315	191	40	107	22	0.502	4.600	3.597	148
330	195	21	130	14	0.614	4.600	3.371	147
345	188	11	153	9	0.685	4.600	3.229	142
					Maximum Track Values		3.597	148
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Length						0.350	0.389	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing L						0.000	0.000	0
					Maximum Equivalent Design Values		3.597	148

Eccentricity index - X direction (sideways) **0.40**
Eccentricity index - Y direction (forwards/backwards) **0.31**
Track pressure distribution warning **None**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2) **0**

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

FPS

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	SOILMEC	Rig Type & Serial No.	SR-75 4718
Operation mode:	ROTARY BORED	Date:	02/12/2019
Completed by:	M.WORRALL	Checked by:	0

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	21,902	215	0.00	3.40	-730	0
LOWER WORKS	38,558	378	0.00	-0.39	149	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	6,608	65	0.00	4.80	-311	0
COUNTERWEIGHT	9,000	88	0.00	-4.11	363	0
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	76,068	746	0.00	0.71	-529	0

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.35	-314	0.00	3.50	Rectangular	700mm x 500mm
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		246	0.00	4.80	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-408	0.00	4.80	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		127	0.00	5.20	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	0			0.00	0.00		
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		0	0	0.00	0.00	0	0
TOTAL RIG MASS		76,068					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks			Slewing		
Track bearing length (m)	4.60		Can the Rig Slew?	YES	
Track pad width (m)	0.90				
Distance between centrelines of tracks (m)	3.58				

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	3.60	0.90	148	1	0.40	0.31	0
Travelling	3.60	0.90	148	1	0.40	0.31	0
Handling	2.62	0.90	231	1	0.64	0.50	80
Penetrating	1.62	0.90	201	2	0.86	0.67	-200
Extracting	1.69	0.90	372	2	0.84	0.66	246
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below! Only for use where the rig is working on a ground supported platform! Rigs to be operated in accordance with manufacturere's & employers instructions.Rig positioned at maximum drilling radius. Auxillary line force limited to 80kN. Penertrating force limited to 200kN

Cementation

SKANSKA

Document Title:

SR75 Continuous Flight Auger Bearing Pressure and Dimension Summary

Federation of Piling Specialists (the "FPS")
Rig Loadings Spreadsheet (the "Spreadsheet")
Disclaimer

The Spreadsheet has been designed without liability with the intention of assisting in the calculation of track bearing pressures for use in the BRE Design Method[1]. The Spreadsheet contains sample data, which are intended only to illustrate how the Spreadsheet may be operated, and do not represent any specific rig .

The Spreadsheet is intended for use only by a competent person. It is intended to assist in calculating the track loadings that occur with the rig working on a flat horizontal surface with a vertical mast it makes no allowance for the effects on track loadings caused by raking the mast in any direction, or non-vertical suspended loads.

Whilst we have taken steps to check the accuracy of the Spreadsheet, the FPS and the authors of the Spreadsheet do not give any warranty, guarantee, representation or other assurance as to: the operation, quality or functionality of the Spreadsheet; the accuracy or completeness of the Spreadsheet; or its fitness for any particular purpose.

To the fullest extent permissible by law, the FPS and the authors of the Spreadsheet each disclaim all responsibility for any damages or losses (including, without limitation, financial loss, damages for loss in business projects, loss of profits or other consequential losses) arising in contract, tort or otherwise from the use of or inability to use the Spreadsheet, or from any action or decision taken as a result of using the Spreadsheet.

[1] BRE Report 470, Working Platforms for Tracked Plant, 2004

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	SOILMEC	Rig Type & Serial No.	SR75 4718
Operation mode:	CFA 4 FALL	Date:	04/12/2019
Completed by:	M.WORRALL	Checked by:	S.Joynson

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	18,163	178	0.00	3.18	-566	0
LOWER WORKS	38,558	378	0.00	-0.39	149	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	14,170	139	0.00	4.38	-608	0
COUNTERWEIGHT	9,000	88	0.00	-4.11	363	0
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	79,891	784	0.00	0.85	-662	0

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	2.00	-940	0.00	3.50	C-Shaped	2.1 x 1.1
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		984	0.00	4.38	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-408	0.00	4.38	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		127	0.00	5.10	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	0			0.00	0.00		
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		0	0	0.00	0.00	0	0
TOTAL RIG MASS		79,891					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	4.60	Can the Rig Slew?	YES	
Track pad width (m)	0.75			
Distance between centrelines of tracks (m)	3.58			

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	3.14	0.75	206	1	0.47	0.37	0
Travelling	3.14	0.75	206	1	0.47	0.37	0
Handling	2.45	0.75	316	1	0.69	0.54	80
Penetrating	1.17	0.75	323	2	0.99	0.77	-195
Extracting	2.16	0.75	364	2	0.79	0.61	500
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

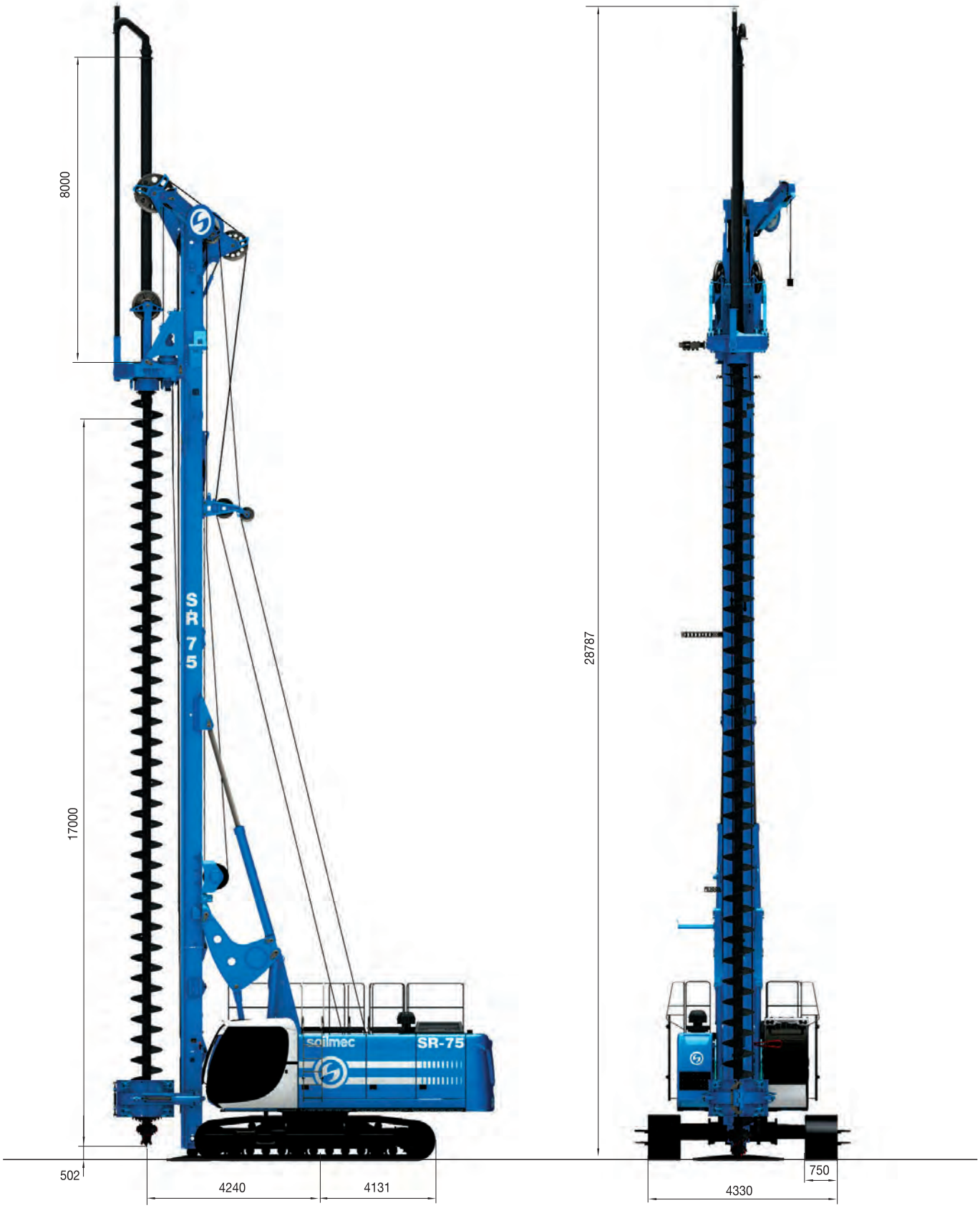
Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below! Only for use where the rig is working on a ground supported platform! Rigs to be operated in accordance with manufacturere's & employers instructions.Handling limited to 80kN. Penetration force limited to 195kN. Extraction force limited to 500kN. Max foot pad

SR-75 ADV Hydraulic Rotary Rig

CFA APPLICATIONS Quick conversion kit



CFA - Continuous Flight Auger - **Quick conversion kit**		
Operating weight w/o auger	**71800 kg**	*158292 lb*
Max pile diameter	**1200 mm**	*203926 lb*
Max pile depth with star auger cleaner c/w 8 m auger extension	**23,4 m**	*76.7 ft*
Max pile depth with double roller auger cleaner c/w 8 m auger extension	**22 m**	*72 ft*
Extraction force	**800 kN**	*179847 lbf*
Crowd force on auger	**408 kN**	*91722 lbf*

SR-75 ADV Hydraulic Rotary Rig

CFA APPLICATIONS 4° line pull



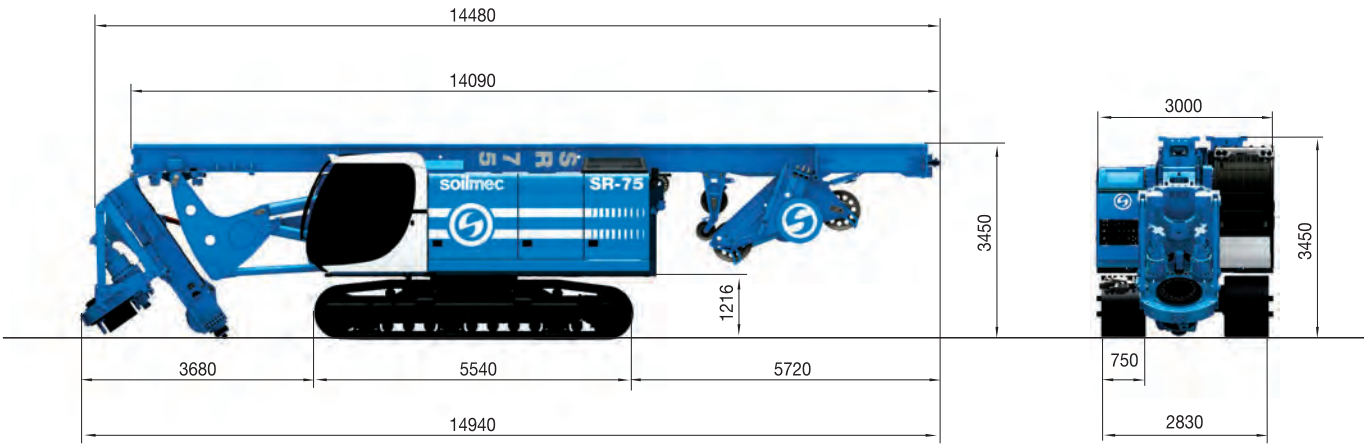
CFA - Continuous Flight Auger - **4° Line pull**		
Operating weight c/w auger extension, w/o auger, w/o auger cleaner	**71200 kg**	*156969 lb*
Max pile diameter	**1200 mm**	*47 in*
Max pile depth with star auger cleaner c/w 6 m auger extension	**25,5 m**	*84 ft*
Max pile depth with double roller auger cleaner c/w 6 m auger extension	**24 m**	*79 ft*
Extraction force	**984 kN**	*221212 lbf*
Crowd force on auger (opt.)	**408 kN**	*91722 lbf*

SPECIAL VERSION		
Operating weight c/w auger extension, w/o auger, w/o auger	**71600 kg**	*157851 lb*
cleaner	**1200 mm**	*47 in*
Max pile diameter	**27 - 29 m ***	*88.6 - 95 ft **
Max pile depth with star auger cleaner c/w 6 m auger extension	**25,5 - 27,5 m ***	*83.6 - 90.2 ft **
Max pile depth with double roller c/w 6 m auger extension	**787 kN**	*176925 lbf*
Extraction force	**408 kN**	*91722 lbf*

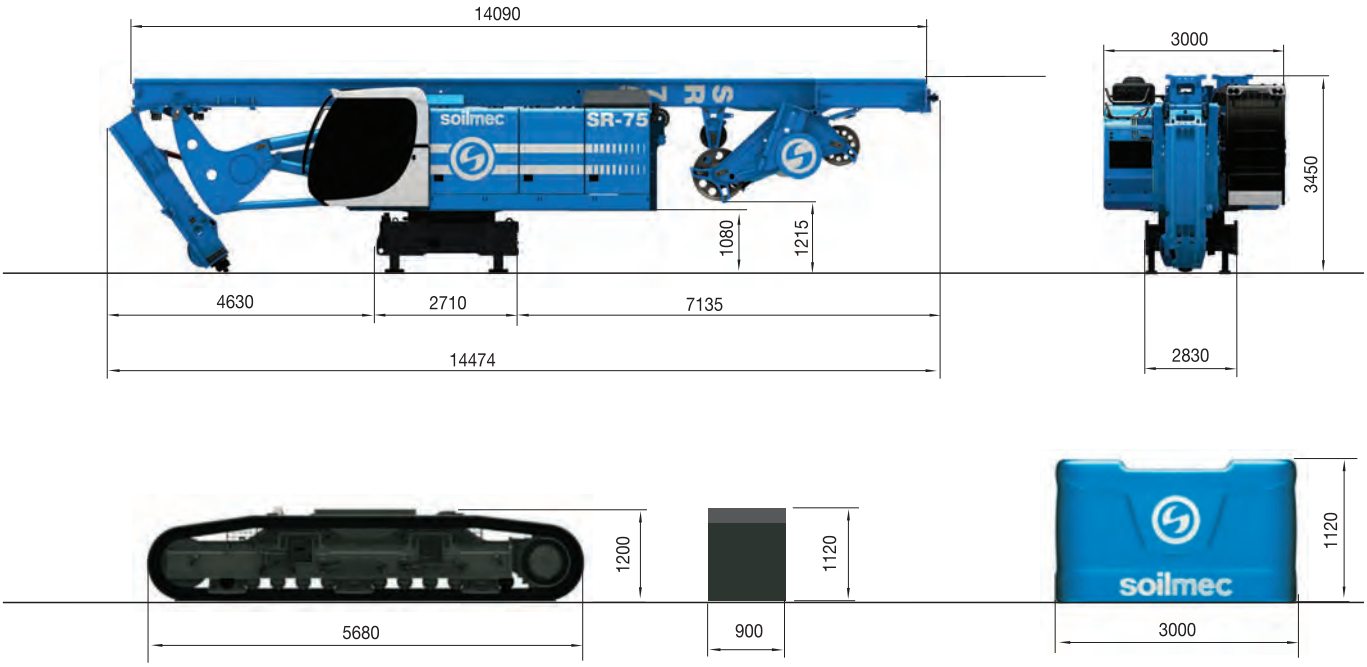
*** c/w 8 m auger**

SR-75 ADV Hydraulic Rotary Rig

TRANSPORT, DIMENSIONS AND WEIGHTS



Transport configuration		
Transport width	**3000 mm**	*118.11 in*
Transport length	**14480 mm**	*571 640 in*
Transport height	**3450 mm**	*135.83 in*
CCS Version - Transport weight std - min	**52200 / 49500 kg**	*115080 / 109128 lb*
WCS Version - Transport weight std - min	**56200 / 55450 kg**	*123899 / 122245 lb*



Transport configuration with removable side frames		
Transport weight w/o side frames; counterweight and rotary	**41200 kg**	*90830 lb*
Counterweight	**9000 kg**	*19842 lb*
Side frames weight	**2x8000 kg**	*2x17637 lb*

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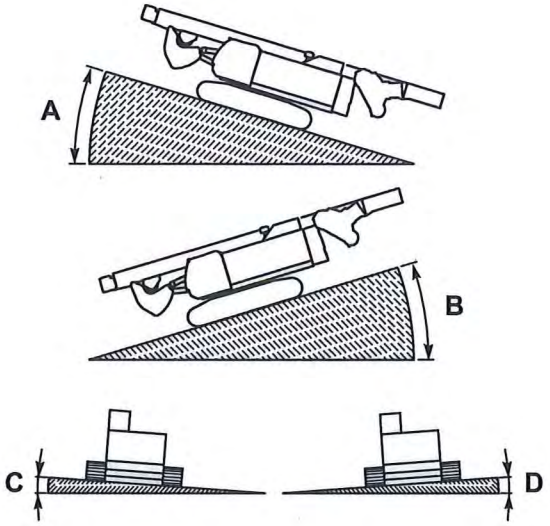
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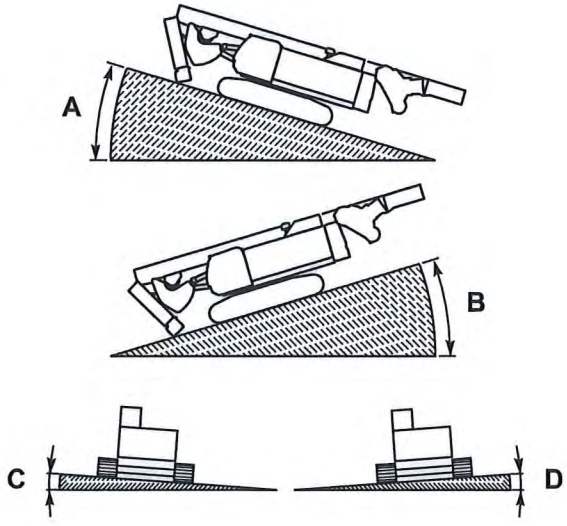
B-7.6.1 Tramming in transport condition without mast lower element

Slope angles			
A	B	C	D
20°	20°	3°	3°
Max ground pressure (MPa)			
0.21			



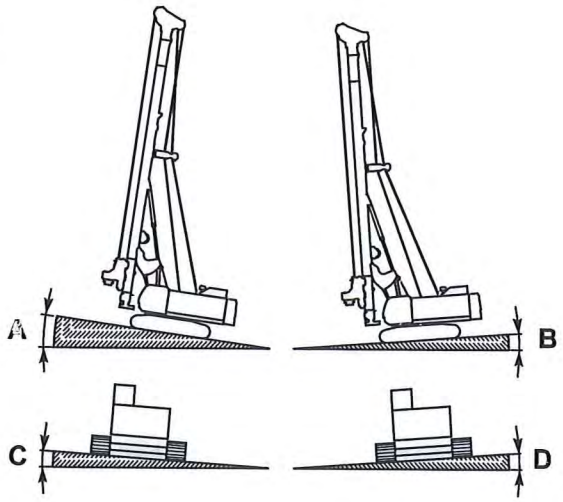
B-7.6.2 Tramming in transport condition with mast lower element

Slope angles			
A	B	C	D
20°	20°	3°	3°
Max ground pressure (MPa)			
0.2			



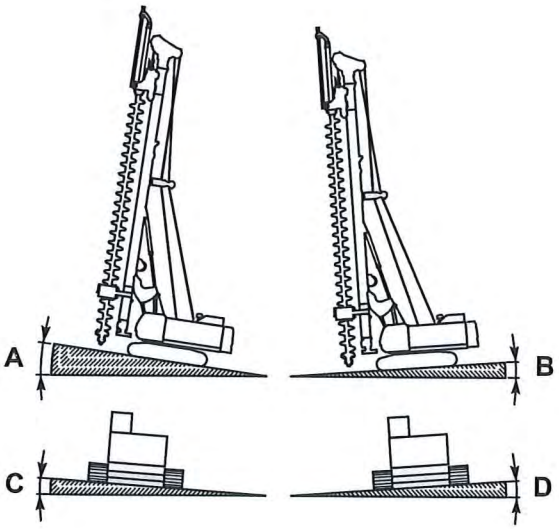
B-7.6.3 Tramming in work condition without drilling equipment

Slope angles			
A	B	C	D
10°	8°	3°	3°
Max ground pressure (MPa)			
0.38			



B-7.6.4 Tramming in work condition with drilling equipment - CFA version

Slope angles			
A	B	C	D
10°	1°	3°	3°
Max ground pressure (MPa)			
0.44			



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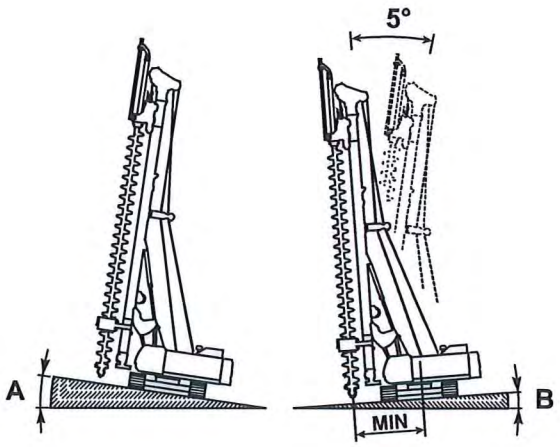
UM426233 - 0A - 03/2016

B-7.6.4.1 Tramming in cross-track work condition with drilling equipment - CFA version

Slope angles	
A	B
5°	1°
Max ground pressure (MPa)	
0.26	

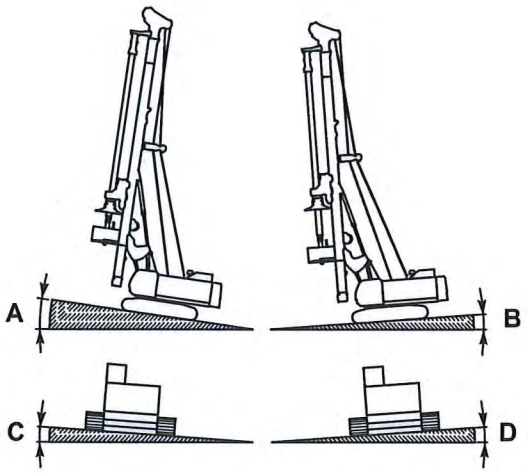
DANGER

Compulsorily bring the mast to minimum working radius and tilt 5° backwards.



B-7.6.5 Tramming in work condition with drilling equipment - LDP version

Slope angles			
A	B	C	D
10°	1°	3°	3°
Max ground pressure (MPa)			
0.44			

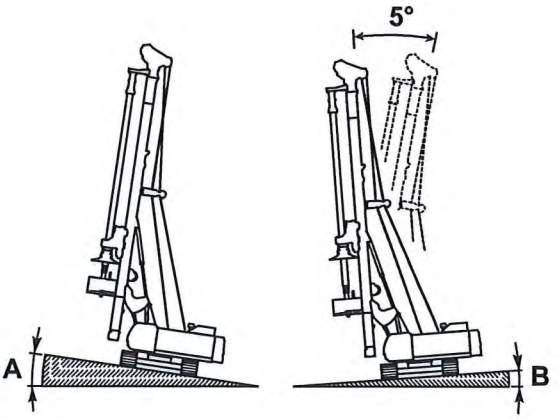


B-7.6.6 Tramming in cross-track work condition with drilling equipment - LDP version

Slope angles	
A	B
5°	1°
Max ground pressure (MPa)	
0.28	

DANGER

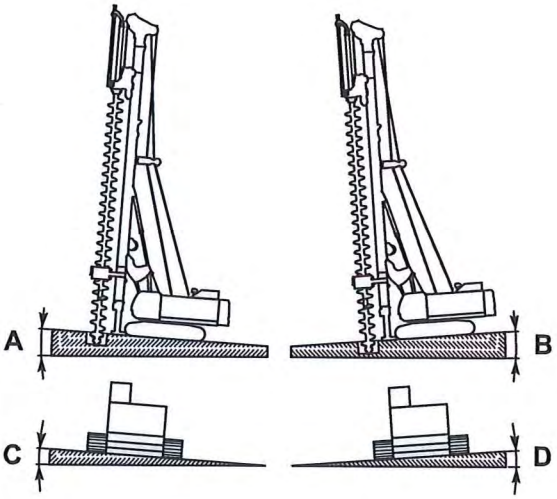
Compulsorily tilt the mast 5° backwards.



UM426233 - 0A - 03/2016

B-7.6.6.1 Work - CFA version

Slope angles			
A	B	C	D
1°	1°	1°	1°
Max ground pressure (MPa)			
1.9			

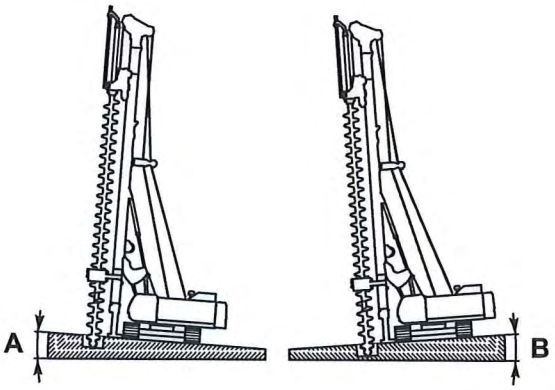


WARNING

The maximum ground pressure is referred to the portion underneath the foot base. To increase stability, place a steel plate under the foot base.

B-7.6.6.2 Work in cross-track condition - CFA version

Slope angles	
A	B
1°	1°
Max ground pressure (MPa)	
1.9	



WARNING

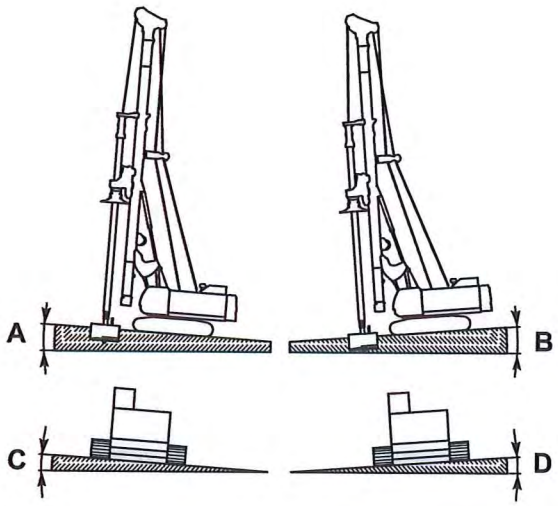
The maximum ground pressure is referred to the portion underneath the foot base. To increase stability, place a steel plate under the foot base.

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B-7.6.7 Work - LDP version

Slope angles			
A	B	C	D
1°	1°	1°	1°
Max ground pressure (MPa)			
0.8			

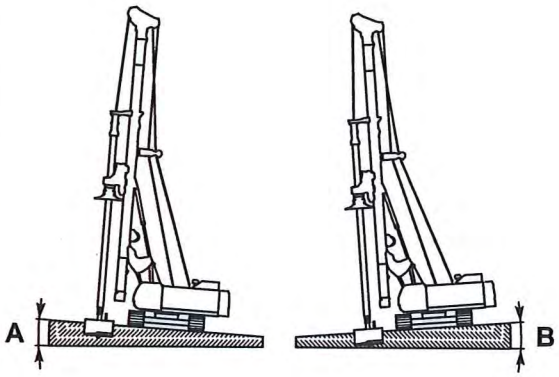


B-7.6.8 Work in cross-track condition - LDP version

Slope angles	
A	B
1°	1°
Max ground pressure (MPa)	
0.37	

WARNING

The maximum ground pressure is referred to the portion underneath the foot base (when lowered to the ground). To increase stability, place a steel plate under the foot base.



Federation of Piling Specialists (the "FPS")
Rig Loadings Spreadsheet (the "Spreadsheet")
Disclaimer

The Spreadsheet has been designed without liability with the intention of assisting in the calculation of track bearing pressures for use in the BRE Design Method[1]. The Spreadsheet contains sample data, which are intended only to illustrate how the Spreadsheet may be operated, and do not represent any specific rig .

The Spreadsheet is intended for use only by a competent person. It is intended to assist in calculating the track loadings that occur with the rig working on a flat horizontal surface with a vertical mast it makes no allowance for the effects on track loadings caused by raking the mast in any direction, or non-vertical suspended loads.

Whilst we have taken steps to check the accuracy of the Spreadsheet, the FPS and the authors of the Spreadsheet do not give any warranty, guarantee, representation or other assurance as to: the operation, quality or functionality of the Spreadsheet; the accuracy or completeness of the Spreadsheet; or its fitness for any particular purpose.

To the fullest extent permissible by law, the FPS and the authors of the Spreadsheet each disclaim all responsibility for any damages or losses (including, without limitation, financial loss, damages for loss in business projects, loss of profits or other consequential losses) arising in contract, tort or otherwise from the use of or inability to use the Spreadsheet, or from any action or decision taken as a result of using the Spreadsheet.

[1] BRE Report 470, Working Platforms for Tracked Plant, 2004

The user of this spreadsheet shall input data into the relevant yellow boxes on this worksheet and on all of the other relevant worksheets

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	SOILMEC	Rig Type & Serial No.	SR125	SR005187
Operation mode:	CFA/ECT4 Special 30 + 8.5M	Date:	26/09/2020	
Completed by:	M.WORRALL	Checked by:	S.JOYNSON	

Main Components - Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
UPPER WORKS (Slewing)	Mast Assembly	24,000	235	0.08	3.72	-876	19
	Mast Rams	7,820	77	0.10	1.98	-152	8
	Auger Cleaner	918	9	1.00	4.50	-41	9
						0	0
						0	0
						0	0
LOWER WORKS (Slewing)	Slewing Mainframe	28,909	284	-0.13	-1.10	312	-37
						0	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	Rotary	9,108	89	0.10	4.62	-413	9
	Auger 25HD5 sp20 1200mm	13,550	133	0.10	4.90	-651	13
	Auger Extention 8.5m	2,173	21	0.10	5.04	-107	2
	Swivel and Neck 5"	289	3	-0.13	4.90	-14	0
	Concrete Hose	846	8	-0.60	5.45	-45	-5
COUNTER-WEIGHT (Slewing)	Counterweight	23,015	226	0.01	-4.31	973	2
						0	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)						0	0
						0	0
						0	0
UPPER WORKS		32,738	321	0.11	3.33	-1068	36
LOWER WORKS		28,909	284	-0.13	-1.10	312	-37
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM		25,966	255	0.07	4.83	-1231	19
COUNTERWEIGHT		23,015	226	0.01	-4.31	973	2
OTHER		0	0	0.00	0.00	0	0
SLEWING TOTAL/RESULTANT (with θ=0)		110,628	1,085	0.02	0.93	-1,014	20

Foot Pads - Slewing :

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	1.96	-1140	0.00	3.60	Rectangle cw front in	1876mm x 1330mm
Front Pad 2					None	None
Rear Pad 1					None	None
Rear Pad 2					None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Crowd System - Maximum Extraction Force (kN)		984	0.07	4.83	Must be inline with suspended equip't.
Crowd System - Maximum Penetration Force (kN)		-540	0.07	4.83	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		80	-0.55	5.43	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)		40,783	400	-0.05	0.00	0	-20
				0.00	0.00	0	0
				0.00	0.00	0	0
NON-SLEWING TOTAL/RESULTANT (with θ=0)		40,783	400	-0.05	0.00	0	-20
TOTAL RIG MASS		151,411					

Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	5.55	Can the rig slew?	YES	
Track pad width (m)	1.00			
Distance between centrelines of tracks (m)	4.20			

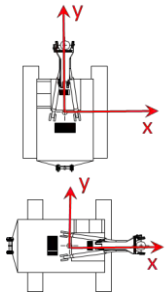
Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below ! Only for use where the rig is working on a ground supported platform ! Foot pad pressures are adjusted to equalise with the track pressures ! Rigs to be operated in accordance with manufacturers & employers instructions.Rig position at maximum radius 4.90m. Vertical mast. Max auger 1200mm x 30m. Max Penetration force -300kN. This information must be relaid to operator.

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	321	0.11	3.33	-1,068	36
Suspended Eqpt. on Crowd	255	0.07	4.83	-1,231	19
Counterweight (slewing)	226	0.01	-4.31	973	2
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	284	-0.13	-1.10	312	-37
Net Extraction Force	0	0.07	4.83	0	0
Net Penetration Force	0	0.07	4.83	0	0
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,085	0.02	0.93	-1,014	20

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	984		
0	-540		
0	80		
0	-1140	0	1.96
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	



NON-SLEWING ACTIONS					
Lower Works Non-Slewing	400	-0.05	0.00	0	-20
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**
Total Rig Weight (kN)	1485				
Resultant of all Actions (kN)	**1,485**	**0.00**	**0.68**	**-1,014**	**0**

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

Track Bearing Length (m)	5.55
Track pad width (m)	1.00
Track Centerline Dist. (m)	4.20

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Standing

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	233	35	233	35	0.683	5.550	4.185	177
15	210	36	248	42	0.656	5.550	4.238	190
30	183	41	254	57	0.584	5.550	4.381	197
45	156	50	248	80	0.473	5.550	4.604	198
60	131	62	232	110	0.330	5.550	4.891	194
75	109	76	206	144	0.164	5.550	5.223	186
90	92	90	179	174	-0.013	5.550	5.523	177
105	112	74	211	139	-0.190	5.550	5.171	188
120	135	60	235	105	-0.353	5.550	4.844	195
135	160	49	250	76	-0.492	5.550	4.566	198
150	187	40	253	54	-0.598	5.550	4.354	196
165	213	35	246	41	-0.663	5.550	4.224	188
180	236	36	230	35	-0.683	5.550	4.185	180
195	251	43	207	35	-0.656	5.550	4.238	192
210	256	58	180	41	-0.584	5.550	4.381	199
225	251	81	154	50	-0.473	5.550	4.604	200
240	234	111	129	61	-0.330	5.550	4.891	196
255	208	146	107	75	-0.164	5.550	5.223	188
270	181	176	91	88	0.013	5.550	5.523	179
285	213	140	110	72	0.190	5.550	5.171	189
300	238	106	132	59	0.353	5.550	4.844	197
315	253	77	158	48	0.492	5.550	4.566	200
330	256	55	184	40	0.598	5.550	4.354	198
345	249	41	210	35	0.663	5.550	4.224	191
						Maximum Track Values	4.566	200
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						1.960	1.960	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	4.566	200

Eccentricity index - X direction (sideways)	**0.33**
Eccentricity index - Y direction (forwards/backwards)	**0.25**
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	**1**

Notes on Using this Table

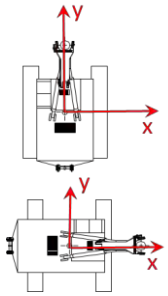
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
SLEWING ACTIONS									
Upper Works (slewing)	321	0.11	3.33	-1,068	36				
Suspended Eqpt. on Crowd	255	0.07	4.83	-1,231	19				
Counterweight (slewing)	226	0.01	-4.31	973	2				
Other (slewing)	0	0.00	0.00	0	0				
Lower Works (Slewing)	284	-0.13	-1.10	312	-37				
Net Extraction Force	0	0.07	4.83	0	0	0	984		
Net Penetration Force	0	0.07	4.83	0	0	0	-540		
Applied Auxillary Force	0	-0.55	5.43	0	0	0	80		
Front Pad 1	0	0.00	3.60	0	0	0	-1140	0	1.96
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Slewing Action	1,085	0.02	0.93	-1,014	20	**Max. Pad Pressure**		0	



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**	**Max. Pad Pressure**		0	
Total Rig Weight (kN)	1485					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**1,485**	**0.00**	**0.68**	**-1,014**	**0**	Track pad width (m)		1.00	
						Track Centerline Dist. (m)		4.20	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Travelling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	233	35	233	35	0.683	5.550	4.185	177
15	210	36	248	42	0.656	5.550	4.238	190
30	183	41	254	57	0.584	5.550	4.381	197
45	156	50	248	80	0.473	5.550	4.604	198
60	131	62	232	110	0.330	5.550	4.891	194
75	109	76	206	144	0.164	5.550	5.223	186
90	92	90	179	174	-0.013	5.550	5.523	177
105	112	74	211	139	-0.190	5.550	5.171	188
120	135	60	235	105	-0.353	5.550	4.844	195
135	160	49	250	76	-0.492	5.550	4.566	198
150	187	40	253	54	-0.598	5.550	4.354	196
165	213	35	246	41	-0.663	5.550	4.224	188
180	236	36	230	35	-0.683	5.550	4.185	180
195	251	43	207	35	-0.656	5.550	4.238	192
210	256	58	180	41	-0.584	5.550	4.381	199
225	251	81	154	50	-0.473	5.550	4.604	200
240	234	111	129	61	-0.330	5.550	4.891	196
255	208	146	107	75	-0.164	5.550	5.223	188
270	181	176	91	88	0.013	5.550	5.523	179
285	213	140	110	72	0.190	5.550	5.171	189
300	238	106	132	59	0.353	5.550	4.844	197
315	253	77	158	48	0.492	5.550	4.566	200
330	256	55	184	40	0.598	5.550	4.354	198
345	249	41	210	35	0.663	5.550	4.224	191
					Maximum Track Values		4.566	200
						Pad Area (m²)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						1.960	1.960	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	4.566	200

Eccentricity index - X direction (sideways)	**0.33**
Eccentricity index - Y direction (forwards/backwards)	**0.25**
Track pressure distribution warning	**None**
Slewing foot pad message	**Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message	**Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2)	**1**

Notes on Using this Table

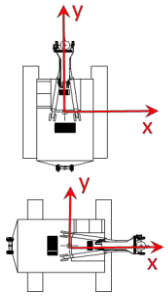
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	321	0.11	3.33	-1,068	36
Suspended Eqpt. on Crowd	255	0.07	4.83	-1,231	19
Counterweight (slewing)	226	0.01	-4.31	973	2
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	284	-0.13	-1.10	312	-37
Net Extraction Force	0	0.07	4.83	0	0
Net Penetration Force	0	0.07	4.83	0	0
Applied Auxillary Force	80	-0.55	5.43	-434	-44
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,165	-0.02	1.24	-1,448	-24



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Net Extraction Force	0	984		
Net Penetration Force	0	-540		
Applied Auxillary Force	80	80		
Front Pad 1	0	-1140	0	1.96
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
	Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**		Max. Pad Pressure	0	
Total Rig Weight (kN)	1485					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**1,565**	**-0.03**	**0.93**	**-1,448**	**-44**	Track pad width (m)		1.00	
						Track Centerline Dist. (m)		4.20	

Handeling

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Handling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	286	0	278	0	0.925	5.549	3.700	214
15	250	4	306	5	0.898	5.550	3.755	229
30	209	14	319	21	0.809	5.550	3.932	240
45	170	28	315	52	0.665	5.550	4.220	241
60	134	43	293	94	0.476	5.550	4.598	234
75	105	60	255	145	0.254	5.550	5.041	220
90	81	78	206	199	0.015	5.550	5.519	203
105	101	62	249	152	-0.225	5.550	5.101	218
120	130	45	289	100	-0.449	5.550	4.651	232
135	165	30	313	56	-0.643	5.550	4.263	241
150	204	16	320	24	-0.794	5.550	3.963	241
165	245	5	308	6	-0.890	5.550	3.771	231
180	282	0	282	0	-0.925	5.549	3.700	212
195	309	5	246	4	-0.898	5.550	3.755	232
210	323	22	206	14	-0.809	5.550	3.932	243
225	318	52	167	27	-0.665	5.550	4.220	243
240	296	95	132	42	-0.476	5.550	4.598	236
255	257	146	103	58	-0.254	5.550	5.041	222
270	207	201	79	77	-0.015	5.550	5.519	205
285	251	153	99	60	0.225	5.550	5.101	220
300	292	101	128	44	0.449	5.550	4.651	234
315	316	57	162	29	0.643	5.550	4.263	243
330	323	25	201	15	0.794	5.550	3.963	243
345	312	6	241	5	0.890	5.550	3.771	234
					Maximum Track Values		3.963	243
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						1.960	1.960	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	3.963	243

Eccentricity index - X direction (sideways) **0.45**
Eccentricity index - Y direction (forwards/backwards) **0.33**
Track pressure distribution warning **Track(s) lifting**
Slewing foot pad message **Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message **Non-Slewing Foot Pad Pressure OK**

BRE LOAD CASE (1 or 2) **1**

Notes on Using this Table

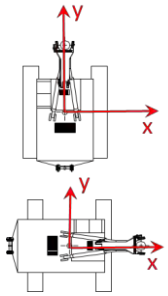
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	321	0.11	3.33	-1,068	36
Suspended Eqpt. on Crowd	255	0.07	4.83	-1,231	19
Counterweight (slewing)	226	0.01	-4.31	973	2
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	284	-0.13	-1.10	312	-37
Net Extraction Force	0	0.07	4.83	0	0
Net Penetration Force	-555	0.07	4.83	2,680	-41
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Actions	531	-0.04	-3.14	1,666	-21



	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Net Extraction Force	0.00	984		
Net Penetration Force	-300.00	-540		
Applied Auxillary Force	0.00	80		
Front Pad 1	0	-1140	0	1.96
Front Pad 2	0	0	0	0.00
Rear Pad 1	0	0	0	0.00
Rear Pad 2	0	0	0	0.00
Max. Pad Pressure			0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1485					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**931**	**-0.04**	**-1.79**	**1,666**	**-41**	Track pad width (m)		1.00	
						Track Centerline Dist. (m)		4.20	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Penetrating

Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	315	0	315	0	1.790	2.954	1.969	236
15	230	0	360	0	1.723	3.155	2.103	270
30	144	0	358	0	1.539	3.708	2.472	268
45	81	0	325	0	1.250	4.576	3.051	244
60	43	1	283	8	0.875	5.550	3.800	212
75	23	8	225	80	0.441	5.550	4.668	181
90	14	13	158	151	-0.023	5.550	5.504	156
105	24	8	231	72	-0.486	5.550	4.579	184
120	46	0	287	2	-0.915	5.550	3.720	215
135	86	0	329	0	-1.282	4.478	2.985	247
150	152	0	360	0	-1.562	3.639	2.426	270
165	239	0	358	0	-1.735	3.119	2.079	269
180	322	0	308	0	-1.790	2.954	1.969	241
195	366	0	224	0	-1.723	3.155	2.103	275
210	363	0	139	0	-1.539	3.708	2.472	272
225	330	0	77	0	-1.250	4.576	3.051	247
240	286	8	40	1	-0.875	5.550	3.800	215
255	227	81	20	7	-0.441	5.550	4.668	183
270	160	152	12	11	0.023	5.550	5.504	157
285	234	73	22	7	0.486	5.550	4.579	186
300	291	2	43	0	0.915	5.550	3.720	218
315	334	0	82	0	1.282	4.478	2.985	250
330	365	0	147	0	1.562	3.639	2.426	274
345	364	0	233	0	1.735	3.119	2.079	273
					Maximum Track Values		2.103	275
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						1.960	1.960	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	2.103	275

Eccentricity index - X direction (sideways)	0.86
Eccentricity index - Y direction (forwards/backwards)	0.65
Track pressure distribution warning	Track(s) lifting
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	2

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

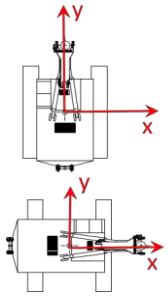
Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

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Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	321	0.11	3.33	-1,068	36
Suspended Eqpt. on Crowd	255	0.07	4.83	-1,231	19
Counterweight (slewing)	226	0.01	-4.31	973	2
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	284	-0.13	-1.10	312	-37
Net Extraction Force	729	0.07	4.83	-3,523	54
Net Penetration Force	0	0.07	4.83	0	0
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	-650	0.00	3.60	2,340	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,165	0.06	1.89	-2,197	74

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
984.00	984		
0.00	-540		
0.00	80		
-650	-1140	332	1.96
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		332	



NON-SLEWING ACTIONS					
Lower Works Non-Slewing	400	-0.05	0.00	0	-20
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**
Total Rig Weight (kN)	1485				
Resultant of all Actions (kN)	**1,565**	**0.03**	**1.40**	**-2,197**	**54**

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

Track Bearing Length (m)	5.55
Track pad width (m)	1.00
Track Centerline Dist. (m)	4.20

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Extracting

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	374	0	387	0	1.404	4.112	2.741	290
15	296	0	433	0	1.344	4.292	2.862	325
30	215	0	444	0	1.192	4.748	3.165	333
45	149	0	426	0	0.959	5.447	3.631	319
60	100	17	383	64	0.661	5.550	4.228	293
75	67	33	312	152	0.318	5.550	4.915	262
90	50	45	246	222	-0.048	5.550	5.455	238
105	74	29	332	128	-0.409	5.550	4.731	270
120	111	12	397	43	-0.743	5.550	4.063	301
135	164	0	433	0	-1.027	5.245	3.497	325
150	235	0	445	0	-1.240	4.605	3.070	333
165	317	0	425	0	-1.369	4.219	2.812	319
180	391	0	370	0	-1.404	4.112	2.741	294
195	438	0	291	0	-1.344	4.292	2.862	328
210	448	0	211	0	-1.192	4.748	3.165	336
225	429	0	145	0	-0.959	5.447	3.631	322
240	386	64	98	16	-0.661	5.550	4.228	295
255	314	153	65	32	-0.318	5.550	4.915	264
270	248	224	48	43	0.048	5.550	5.455	240
285	335	129	72	28	0.409	5.550	4.731	272
300	400	44	108	12	0.743	5.550	4.063	303
315	436	0	160	0	1.027	5.245	3.497	327
330	449	0	231	0	1.240	4.605	3.070	337
345	429	0	313	0	1.369	4.219	2.812	322
					Maximum Track Values		3.070	337
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						1.960	1.960	332
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	3.070	337

Eccentricity index - X direction (sideways)	0.67
Eccentricity index - Y direction (forwards/backwards)	0.51
Track pressure distribution warning	Track(s) lifting
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	2

Notes on Using this Table

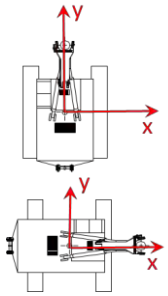
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

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SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	321	0.11	3.33	-1,068	36
Suspended Eqpt. on Crowd	255	0.07	4.83	-1,231	19
Counterweight (slewing)	226	0.01	-4.31	973	2
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	284	-0.13	-1.10	312	-37
Applied Extraction Force	0	0.07	4.83	0	0
Applied Penetration Force	0	0.07	4.83	0	0
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,085	0.02	0.93	-1,014	20



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	984		
0	-540		
0	80		
0	-1140	0	1.96
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1485					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**1,485**	**0.00**	**0.68**	**-1,014**	**0**	Track pad width (m)		1.00	
						Track Centreline Dist. (m)		4.20	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Other

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	233	35	233	35	0.683	5.550	4.185	177
15	210	36	248	42	0.656	5.550	4.238	190
30	183	41	254	57	0.584	5.550	4.381	197
45	156	50	248	80	0.473	5.550	4.604	198
60	131	62	232	110	0.330	5.550	4.891	194
75	109	76	206	144	0.164	5.550	5.223	186
90	92	90	179	174	-0.013	5.550	5.523	177
105	112	74	211	139	-0.190	5.550	5.171	188
120	135	60	235	105	-0.353	5.550	4.844	195
135	160	49	250	76	-0.492	5.550	4.566	198
150	187	40	253	54	-0.598	5.550	4.354	196
165	213	35	246	41	-0.663	5.550	4.224	188
180	236	36	230	35	-0.683	5.550	4.185	180
195	251	43	207	35	-0.656	5.550	4.238	192
210	256	58	180	41	-0.584	5.550	4.381	199
225	251	81	154	50	-0.473	5.550	4.604	200
240	234	111	129	61	-0.330	5.550	4.891	196
255	208	146	107	75	-0.164	5.550	5.223	188
270	181	176	91	88	0.013	5.550	5.523	179
285	213	140	110	72	0.190	5.550	5.171	189
300	238	106	132	59	0.353	5.550	4.844	197
315	253	77	158	48	0.492	5.550	4.566	200
330	256	55	184	40	0.598	5.550	4.354	198
345	249	41	210	35	0.663	5.550	4.224	191
					Maximum Track Values		4.566	200
						Pad Area (m²)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						1.960	1.960	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	4.566	200

Eccentricity index - X direction (sideways)	0.33
Eccentricity index - Y direction (forwards/backwards)	0.25
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	0

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	SOILMEC	Rig Type & Serial No.	SR125 SR005187
Operation mode:	CFA/ECT4 Special 30 + 8.5M	Date:	26/09/2020
Completed by:	M.WORRALL	Checked by:	S.JOYNSON

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	32,738	321	0.11	3.33	-1,068	36
LOWER WORKS	28,909	284	-0.13	-1.10	312	-37
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	25,966	255	0.07	4.83	-1,231	19
COUNTERWEIGHT	23,015	226	0.01	-4.31	973	2
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	110,628	1,085	0.02	0.93	-1,014	20

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	1.96	-1,140	0.00	3.60	ectangle cw front inde	1876mm x 1330mm
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		984	0.07	4.83	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-540	0.07	4.83	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		80	-0.55	5.43	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	0	40783	400	-0.05	0.00		-20
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		40,783	400	-0.05	0.00	0	-20
TOTAL RIG MASS		151,411					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	5.55	Can the Rig Slew?	YES	
Track pad width (m)	1.00			
Distance between centrelines of tracks (m)	4.20			

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	4.57	1.00	200	1	0.33	0.25	0
Travelling	4.57	1.00	200	1	0.33	0.25	0
Handling	3.96	1.00	243	1	0.45	0.33	80
Penetrating	2.10	1.00	275	2	0.86	0.65	-300
Extracting	3.07	1.00	337	2	0.67	0.51	984
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below ! Only for use where the rig is working on a ground supported platform ! Foot pad pressures are adjusted to equalise with the track pressures ! Rigs to be operated in accordance with manufacturers & employers instructions.Rig position at maximum radius 4.90m. Vertical

Federation of Piling Specialists (the "FPS")
Rig Loadings Spreadsheet (the "Spreadsheet")
Disclaimer

The Spreadsheet has been designed without liability with the intention of assisting in the calculation of track bearing pressures for use in the BRE Design Method[1]. The Spreadsheet contains sample data, which are intended only to illustrate how the Spreadsheet may be operated, and do not represent any specific rig .

The Spreadsheet is intended for use only by a competent person. It is intended to assist in calculating the track loadings that occur with the rig working on a flat horizontal surface with a vertical mast it makes no allowance for the effects on track loadings caused by raking the mast in any direction, or non-vertical suspended loads.

Whilst we have taken steps to check the accuracy of the Spreadsheet, the FPS and the authors of the Spreadsheet do not give any warranty, guarantee, representation or other assurance as to: the operation, quality or functionality of the Spreadsheet; the accuracy or completeness of the Spreadsheet; or its fitness for any particular purpose.

To the fullest extent permissible by law, the FPS and the authors of the Spreadsheet each disclaim all responsibility for any damages or losses (including, without limitation, financial loss, damages for loss in business projects, loss of profits or other consequential losses) arising in contract, tort or otherwise from the use of or inability to use the Spreadsheet, or from any action or decision taken as a result of using the Spreadsheet.

[1] BRE Report 470, Working Platforms for Tracked Plant, 2004

The user of this spreadsheet shall input data into the relevant yellow boxes on this worksheet and on all of the other relevant worksheets

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	SOILMEC	Rig Type & Serial No.	SR125	SR005187
Operation mode:	LDP Winch Crowd	Date:	26/09/2020	
Completed by:	M.WORRALL	Checked by:	S.JOYNSON	

Main Components - Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
UPPER WORKS (Slewing)	Mast Assembly	18,084	177	0.10	3.68	-653	18
	Mast Rams	7,820	77	0.10	1.98	-152	8
						0	0
	Pull Down Winch	3,430	34	0.10	3.25	-109	3
						0	0
						0	0
LOWER WORKS (Slewing)	Slewing Mainframe	28,517	280	-0.13	-1.10	308	-36
						0	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	Rotary	8,917	87	0.10	4.91	-430	9
	Joint & Flange 1500mm	1,509	15	0.10	5.45	-81	1
						0	0
						0	0
						0	0
COUNTER-WEIGHT (Slewing)	Counterweight	20,043	197	0.01	-4.31	847	2
						0	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)	Kelly 5x16 FT	13,700	134	0.10	5.45	-732	13
	Kelly Guide	505	5	0.10	4.90	-24	0
						0	0
	UPPER WORKS	**29,334**	**288**	**0.10**	**3.18**	**-914**	**29**
	LOWER WORKS	**28,517**	**280**	**-0.13**	**-1.10**	**308**	**-36**
	SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	**10,426**	**102**	**0.10**	**4.99**	**-510**	**10**
	COUNTERWEIGHT	**20,043**	**197**	**0.01**	**-4.31**	**847**	**2**
	OTHER	**14,205**	**139**	**0.10**	**5.43**	**-757**	**14**
	SLEWING TOTAL/RESULTANT (with θ=0)	**102,525**	**1,006**	**0.02**	**1.02**	**-1,026**	**19**

Foot Pads - Slewing :

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.54	-1140	0.00	3.60	Rectangular	600mm x 900mm
Front Pad 2	1.96	-1140	0.00	3.60	Rectangle cw front in	1876mm x 1330mm
Rear Pad 1					None	None
Rear Pad 2					None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Crowd System - Maximum Extraction Force (kN)		540	0.10	4.99	Must be inline with suspended equip't.
Crowd System - Maximum Penetration Force (kN)		-540	0.10	4.99	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		80	-0.55	5.43	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)		40,783	400	-0.05	0.00	0	-20
				0.00	0.00	0	0
				0.00	0.00	0	0
	NON-SLEWING TOTAL/RESULTANT (with θ=0)	**40,783**	**400**	**-0.05**	**0.00**	**0**	**-20**
	TOTAL RIG MASS	**143,308**					

Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

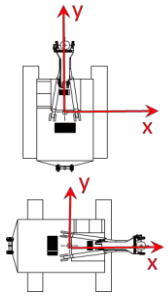
Tracks		Slewing		
Track bearing length (m)	5.55	Can the rig slew?	YES	
Track pad width (m)	1.00			
Distance between centrelines of tracks (m)	4.20			

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below ! Only for use where the rig is working on a ground supported platform ! Foot pad pressures are adjusted to equalise with the track pressures ! Rigs to be operated in accordance with manufacturers & employers instructions.Rig position at maximum radius 5.45m. Vertical mast.Max extraction main winch 420kN in this load case the kelly 5x16 and kelly guide are suspended from the extraction system instead of rotary table. Maximum penetration force on kelly is -225kN. This

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	288	0.10	3.18	-914	29
Suspended Eqpt. on Crowd	102	0.10	4.99	-510	10
Counterweight (slewing)	197	0.01	-4.31	847	2
Other (slewing)	139	0.10	5.43	-757	14
Lower Works (Slewing)	280	-0.13	-1.10	308	-36
Net Extraction Force	0	0.10	4.99	0	0
Net Penetration Force	0	0.10	4.99	0	0
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	3.60	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,006	0.02	1.02	-1,026	19



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	540		
0	-540		
0	80		
0	-1140	0	0.54
0	-1140	0	1.96
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1406					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**1,406**	**0.00**	**0.73**	**-1,026**	**-1**	Track pad width (m)		1.00	
						Track Centerline Dist. (m)		4.20	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Standing

Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	227	27	226	27	0.730	5.550	4.091	172
15	203	28	243	33	0.701	5.550	4.147	185
30	176	34	249	48	0.625	5.550	4.299	192
45	148	43	244	71	0.507	5.550	4.537	193
60	123	55	227	102	0.353	5.550	4.843	188
75	101	69	201	136	0.176	5.550	5.198	180
90	85	82	172	167	-0.013	5.550	5.524	171
105	104	67	205	131	-0.202	5.550	5.147	181
120	126	53	230	97	-0.376	5.550	4.797	189
135	152	42	245	68	-0.525	5.550	4.499	193
150	180	33	249	46	-0.639	5.550	4.273	191
165	206	27	241	32	-0.708	5.550	4.133	183
180	230	27	224	26	-0.730	5.550	4.091	174
195	246	34	200	27	-0.701	5.550	4.147	187
210	252	49	173	33	-0.625	5.550	4.299	194
225	246	72	146	43	-0.507	5.550	4.537	195
240	229	103	121	54	-0.353	5.550	4.843	190
255	203	138	99	67	-0.176	5.550	5.198	182
270	174	169	83	81	0.013	5.550	5.524	172
285	207	133	102	65	0.202	5.550	5.147	183
300	232	98	124	52	0.376	5.550	4.797	191
315	248	68	149	41	0.525	5.550	4.499	195
330	252	46	177	32	0.639	5.550	4.273	193
345	244	32	203	27	0.708	5.550	4.133	185
					Maximum Track Values		4.499	195
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.540	0.540	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	4.499	195

Eccentricity index - X direction (sideways)	**0.35**
Eccentricity index - Y direction (forwards/backwards)	**0.26**
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	**1**

Notes on Using this Table

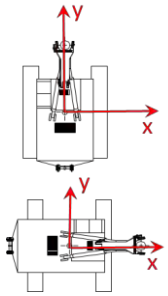
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	288	0.10	3.18	-914	29
Suspended Eqpt. on Crowd	102	0.10	4.99	-510	10
Counterweight (slewing)	197	0.01	-4.31	847	2
Other (slewing)	139	0.10	5.43	-757	14
Lower Works (Slewing)	280	-0.13	-1.10	308	-36
Net Extraction Force	0	0.10	4.99	0	0
Net Penetration Force	0	0.10	4.99	0	0
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	3.60	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,006	0.02	1.02	-1,026	19



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	540		
0	-540		
0	80		
0	-1140	0	0.54
0	-1140	0	1.96
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1406					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**1,406**	**0.00**	**0.73**	**-1,026**	**-1**	Track pad width (m)		1.00	
						Track Centerline Dist. (m)		4.20	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Travelling

Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	227	27	226	27	0.730	5.550	4.091	172
15	203	28	243	33	0.701	5.550	4.147	185
30	176	34	249	48	0.625	5.550	4.299	192
45	148	43	244	71	0.507	5.550	4.537	193
60	123	55	227	102	0.353	5.550	4.843	188
75	101	69	201	136	0.176	5.550	5.198	180
90	85	82	172	167	-0.013	5.550	5.524	171
105	104	67	205	131	-0.202	5.550	5.147	181
120	126	53	230	97	-0.376	5.550	4.797	189
135	152	42	245	68	-0.525	5.550	4.499	193
150	180	33	249	46	-0.639	5.550	4.273	191
165	206	27	241	32	-0.708	5.550	4.133	183
180	230	27	224	26	-0.730	5.550	4.091	174
195	246	34	200	27	-0.701	5.550	4.147	187
210	252	49	173	33	-0.625	5.550	4.299	194
225	246	72	146	43	-0.507	5.550	4.537	195
240	229	103	121	54	-0.353	5.550	4.843	190
255	203	138	99	67	-0.176	5.550	5.198	182
270	174	169	83	81	0.013	5.550	5.524	172
285	207	133	102	65	0.202	5.550	5.147	183
300	232	98	124	52	0.376	5.550	4.797	191
315	248	68	149	41	0.525	5.550	4.499	195
330	252	46	177	32	0.639	5.550	4.273	193
345	244	32	203	27	0.708	5.550	4.133	185
					Maximum Track Values		4.499	195
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.540	0.540	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	4.499	195

Eccentricity index - X direction (sideways)	**0.35**
Eccentricity index - Y direction (forwards/backwards)	**0.26**
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	**1**

Notes on Using this Table

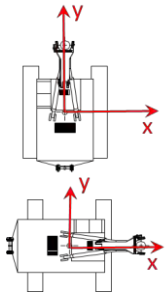
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	288	0.10	3.18	-914	29
Suspended Eqpt. on Crowd	102	0.10	4.99	-510	10
Counterweight (slewing)	197	0.01	-4.31	847	2
Other (slewing)	139	0.10	5.43	-757	14
Lower Works (Slewing)	280	-0.13	-1.10	308	-36
Net Extraction Force	0	0.10	4.99	0	0
Net Penetration Force	0	0.10	4.99	0	0
Applied Auxillary Force	80	-0.55	5.43	-434	-44
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	3.60	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,086	-0.02	1.34	-1,460	-25



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	540		
0	-540		
80	80		
0	-1140	0	0.54
0	-1140	0	1.96
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

NON-SLEWING ACTIONS					
Lower Works Non-Slewing	400	-0.05	0.00	0	-20
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**
Total Rig Weight (kN)	1406				
Resultant of all Actions (kN)	**1,486**	**-0.03**	**0.98**	**-1,460**	**-45**

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

Track Bearing Length (m)	5.55
Track pad width (m)	1.00
Track Centerline Dist. (m)	4.20

Handeling

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Handling

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	280	0	272	0	0.983	5.377	3.584	210
15	243	0	301	0	0.954	5.464	3.643	226
30	201	7	315	12	0.860	5.550	3.831	237
45	161	21	311	42	0.707	5.550	4.136	237
60	125	37	289	85	0.506	5.550	4.538	228
75	96	53	250	137	0.271	5.550	5.008	214
90	73	71	199	192	0.017	5.550	5.516	197
105	93	55	244	144	-0.238	5.550	5.074	212
120	121	39	285	91	-0.477	5.550	4.597	227
135	156	23	310	47	-0.683	5.550	4.184	236
150	196	9	316	15	-0.843	5.550	3.865	237
165	237	0	304	0	-0.945	5.490	3.660	228
180	276	0	277	0	-0.983	5.377	3.584	208
195	304	0	239	0	-0.954	5.464	3.643	228
210	319	12	198	7	-0.860	5.550	3.831	239
225	314	42	158	21	-0.707	5.550	4.136	239
240	292	85	123	36	-0.506	5.550	4.538	230
255	252	138	94	51	-0.271	5.550	5.008	216
270	201	194	72	69	-0.017	5.550	5.516	199
285	246	145	91	54	0.238	5.550	5.074	214
300	287	92	118	38	0.477	5.550	4.597	229
315	313	47	153	23	0.683	5.550	4.184	238
330	319	15	192	9	0.843	5.550	3.865	240
345	307	0	234	0	0.945	5.490	3.660	230
					Maximum Track Values		3.865	240
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.540	0.540	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	3.865	240

Eccentricity index - X direction (sideways)	0.47
Eccentricity index - Y direction (forwards/backwards)	0.35
Track pressure distribution warning	Track(s) lifting
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	1

Notes on Using this Table

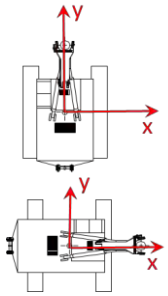
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My	Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
SLEWING ACTIONS									
Upper Works (slewing)	288	0.10	3.18	-914	29				
Suspended Eqpt. on Crowd	102	0.10	4.99	-510	10				
Counterweight (slewing)	197	0.01	-4.31	847	2				
Other (slewing)	139	0.10	5.43	-757	14				
Lower Works (Slewing)	280	-0.13	-1.10	308	-36				
Net Extraction Force	0	0.10	4.99	0	0	0.00	540		
Net Penetration Force	-327	0.10	4.99	1,633	-33	-225.00	-540		
Applied Auxillary Force	0	-0.55	5.43	0	0	0.00	80		
Front Pad 1	0	0.00	3.60	0	0	0	-1140	0	0.54
Front Pad 2	0	0.00	3.60	0	0	0	-1140	0	1.96
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Slewing Actions	678	-0.02	-0.89	607	-14	**Max. Pad Pressure**		0	



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**	**Max. Pad Pressure**		0	
Total Rig Weight (kN)	1406					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**1,079**	**-0.03**	**-0.56**	**607**	**-34**	Track pad width (m)		1.00	
						Track Centerline Dist. (m)		4.20	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Penetrating

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	157	38	156	38	0.562	5.550	4.425	122
15	144	38	164	43	0.540	5.550	4.470	129
30	128	41	167	53	0.481	5.550	4.589	133
45	112	46	163	67	0.388	5.550	4.773	134
60	97	53	154	84	0.270	5.550	5.010	132
75	83	62	139	104	0.133	5.550	5.284	128
90	73	71	124	121	-0.013	5.550	5.524	123
105	86	61	142	101	-0.158	5.550	5.233	129
120	100	52	156	81	-0.293	5.550	4.965	133
135	115	45	165	64	-0.407	5.550	4.736	134
150	131	40	167	51	-0.494	5.550	4.563	132
165	146	38	163	42	-0.547	5.550	4.457	128
180	159	39	154	38	-0.562	5.550	4.425	124
195	167	44	141	37	-0.540	5.550	4.470	131
210	170	54	126	40	-0.481	5.550	4.589	135
225	166	68	110	45	-0.388	5.550	4.773	136
240	156	86	95	52	-0.270	5.550	5.010	134
255	141	106	81	61	-0.133	5.550	5.284	130
270	126	122	71	69	0.013	5.550	5.524	125
285	144	102	84	59	0.158	5.550	5.233	130
300	158	82	98	51	0.293	5.550	4.965	134
315	167	65	113	44	0.407	5.550	4.736	136
330	169	52	129	39	0.494	5.550	4.563	134
345	166	43	143	37	0.547	5.550	4.457	130
					Maximum Track Values		4.736	136
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.540	0.540	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	4.736	136

Eccentricity index - X direction (sideways)	**0.28**
Eccentricity index - Y direction (forwards/backwards)	**0.20**
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	**2**

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

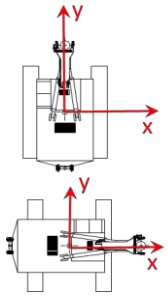
Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	288	0.10	3.18	-914	29
Suspended Eqpt. on Crowd	102	0.10	4.99	-510	10
Counterweight (slewing)	197	0.01	-4.31	847	2
Other (slewing)	139	0.10	5.43	-757	14
Lower Works (Slewing)	280	-0.13	-1.10	308	-36
Net Extraction Force	318	0.10	4.99	-1,585	32
Net Penetration Force	0	0.10	4.99	0	0
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	3.60	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,323	0.04	1.97	-2,611	50

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
420.00	**540**		
0.00	**-540**		
0.00	**80**		
0	**-1140**	**0**	**0.54**
0	**-1140**	**0**	**1.96**
0	**0**	**0**	**0.00**
0	**0**	**0**	**0.00**
Max. Pad Pressure		**0**	



NON-SLEWING ACTIONS					
Lower Works Non-Slewing	400	-0.05	0.00	0	-20
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**
Total Rig Weight (kN)	1406				
Resultant of all Actions (kN)	**1,724**	**0.02**	**1.51**	**-2,611**	**30**

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	**0**	**0**	**0.00**
0	**0**	**0**	**0.00**
0	**0**	**0**	**0.00**
0	**0**	**0**	**0.00**
Max. Pad Pressure		**0**	

Track Bearing Length (m)	**5.55**
Track pad width (m)	**1.00**
Track Centerline Dist. (m)	**4.20**

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Extracting

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	452	0	460	0	1.515	3.781	2.521	**345**
15	351	0	520	0	1.456	3.958	2.639	**390**
30	246	0	531	0	1.297	4.433	2.956	**399**
45	162	0	504	0	1.050	5.174	3.449	**378**
60	104	12	452	53	0.732	5.550	4.086	**343**
75	66	29	367	160	0.364	5.550	4.822	**303**
90	46	43	275	258	-0.029	5.550	5.492	**269**
105	71	26	381	143	-0.420	5.550	4.710	**309**
120	111	9	462	39	-0.783	5.550	3.985	**349**
135	172	0	510	0	-1.092	5.050	3.367	**383**
150	261	0	533	0	-1.326	4.346	2.897	**399**
165	367	0	514	0	-1.471	3.913	2.609	**386**
180	465	0	447	0	-1.515	3.781	2.521	**349**
195	525	0	346	0	-1.456	3.958	2.639	**394**
210	536	0	242	0	-1.297	4.433	2.956	**402**
225	508	0	158	0	-1.050	5.174	3.449	**381**
240	455	53	101	12	-0.732	5.550	4.086	**345**
255	369	161	64	28	-0.364	5.550	4.822	**305**
270	277	260	44	41	0.029	5.550	5.492	**271**
285	384	144	68	26	0.420	5.550	4.710	**311**
300	465	39	108	9	0.783	5.550	3.985	**351**
315	514	0	169	0	1.092	5.050	3.367	**385**
330	537	0	256	0	1.326	4.346	2.897	**403**
345	519	0	362	0	1.471	3.913	2.609	**389**
					Maximum Track Values		2.897	403
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.540	0.540	**0**
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	**0**
						Maximum Equivalent Design Values	2.897	403

Eccentricity index - X direction (sideways)	**0.73**
Eccentricity index - Y direction (forwards/backwards)	**0.55**
Track pressure distribution warning	**Track(s) lifting**
Slewing foot pad message	**Slewing Foot Pad Pressure OK**
Non-Slewing foot pad message	**Non-Slewing Foot Pad Pressure OK**
BRE LOAD CASE (1 or 2)	**2**

Notes on Using this Table

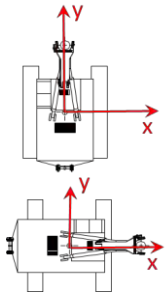
Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

SOILMEC SR125	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
SLEWING ACTIONS					
Upper Works (slewing)	288	0.10	3.18	-914	29
Suspended Eqpt. on Crowd	102	0.10	4.99	-510	10
Counterweight (slewing)	197	0.01	-4.31	847	2
Other (slewing)	139	0.10	5.43	-757	14
Lower Works (Slewing)	280	-0.13	-1.10	308	-36
Applied Extraction Force	0	0.10	4.99	0	0
Applied Penetration Force	0	0.10	4.99	0	0
Applied Auxillary Force	0	-0.55	5.43	0	0
Front Pad 1	0	0.00	3.60	0	0
Front Pad 2	0	0.00	3.60	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	1,006	0.02	1.02	-1,026	19



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	540		
0	-540		
0	80		
0	-1140	0	0.54
0	-1140	0	1.96
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure		0	

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
Lower Works Non-Slewing	400	-0.05	0.00	0	-20				
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00
Summary of Non-slewing Actions	**400**	**-0.05**	**0.00**	**0**	**-20**	Max. Pad Pressure		0	
Total Rig Weight (kN)	1406					Track Bearing Length (m)		5.55	
Resultant of all Actions (kN)	**1,406**	**0.00**	**0.73**	**-1,026**	**-1**	Track pad width (m)		1.00	
						Track Centreline Dist. (m)		4.20	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Mode : Other

Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m^2)	Min pressure L.H. track (kN/m^2)	Max bearing pressure R.H. track (kN/m^2)	Min bearing pressure R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	227	27	226	27	0.730	5.550	4.091	172
15	203	28	243	33	0.701	5.550	4.147	185
30	176	34	249	48	0.625	5.550	4.299	192
45	148	43	244	71	0.507	5.550	4.537	193
60	123	55	227	102	0.353	5.550	4.843	188
75	101	69	201	136	0.176	5.550	5.198	180
90	85	82	172	167	-0.013	5.550	5.524	171
105	104	67	205	131	-0.202	5.550	5.147	181
120	126	53	230	97	-0.376	5.550	4.797	189
135	152	42	245	68	-0.525	5.550	4.499	193
150	180	33	249	46	-0.639	5.550	4.273	191
165	206	27	241	32	-0.708	5.550	4.133	183
180	230	27	224	26	-0.730	5.550	4.091	174
195	246	34	200	27	-0.701	5.550	4.147	187
210	252	49	173	33	-0.625	5.550	4.299	194
225	246	72	146	43	-0.507	5.550	4.537	195
240	229	103	121	54	-0.353	5.550	4.843	190
255	203	138	99	67	-0.176	5.550	5.198	182
270	174	169	83	81	0.013	5.550	5.524	172
285	207	133	102	65	0.202	5.550	5.147	183
300	232	98	124	52	0.376	5.550	4.797	191
315	248	68	149	41	0.525	5.550	4.499	195
330	252	46	177	32	0.639	5.550	4.273	193
345	244	32	203	27	0.708	5.550	4.133	185
					Maximum Track Values		4.499	195
						Pad Area (m^2)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng						0.540	0.540	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing						0.000	0.000	0
						Maximum Equivalent Design Values	4.499	195

Eccentricity index - X direction (sideways)	0.35
Eccentricity index - Y direction (forwards/backwards)	0.26
Track pressure distribution warning	None
Slewing foot pad message	Slewing Foot Pad Pressure OK
Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK
BRE LOAD CASE (1 or 2)	0

Notes on Using this Table

Auxilliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negavtive as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
When applying Auxilliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	SOILMEC	Rig Type & Serial No.	SR125 SR005187
Operation mode:	LDP Winch Crowd	Date:	26/09/2020
Completed by:	M.WORRALL	Checked by:	S.JOYNSON

Main Components - Slewing:

Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	29,334	288	0.10	3.18	-914	29
LOWER WORKS	28,517	280	-0.13	-1.10	308	-36
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	10,426	102	0.10	4.99	-510	10
COUNTERWEIGHT	20,043	197	0.01	-4.31	847	2
OTHER	14,205	139	0.10	5.43	-757	14
TOTAL/RESULTANT (with θ=0)	102,525	1,006	0.02	1.02	-1,026	19

Foot Pads - Slewing :

Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1	0.54	-1,140	0.00	3.60	Rectangular	600mm x 900mm
Front Pad 2	1.96	-1,140.00	0.00	3.60	ectangle cw front inde	1876mm x 1330mm
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing

		Force	X - Coordinate	Y - Coordinate	
		kN	m	m	
Maximum Extraction Force (kN)		540	0.10	4.99	Must be inline with suspended equip't.
Maximum Penetration Force (kN)		-540	0.10	4.99	-ve Must be inline with suspended equip't.
Maximum Auxillary Force (kN)		80	-0.55	5.43	

Main Components - Non-Slewing:

Item		Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	0	40783	400	-0.05	0.00		-20
				0.00	0.00		
				0.00	0.00		
TOTAL/RESULTANT (with θ=0)		40,783	400	-0.05	0.00	0	-20
TOTAL RIG MASS		143,308					

Front Foot Pads - Non-Slewing

Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m^2	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing		
Track bearing length (m)	5.55	Can the Rig Slew?	YES	
Track pad width (m)	1.00			
Distance between centrelines of tracks (m)	4.20			

	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
MODE	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q_{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	Algebraic sum of forces (kN)
Standing	4.50	1.00	195	1	0.35	0.26	0
Travelling	4.50	1.00	195	1	0.35	0.26	0
Handling	3.86	1.00	240	1	0.47	0.35	80
Penetrating	4.74	1.00	136	2	0.28	0.20	-225
Extracting	2.90	1.00	403	2	0.73	0.55	420
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	ERROR MESSAGES FOR LINE FORCES		
	Zero Pressure	Auxillary Line	Extraction Force	Penetration Force
Standing	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

Note: The disclaimer on the first worksheet applies to all tables in this workbook

Notes

Only for rig operation on level ground with a vertical mast, unless noted below ! Only for use where the rig is working on a ground supported platform ! Foot pad pressures are adjusted to equalise with the track pressures ! Rigs to be operated in accordance with manufacturers & employers instructions.Rig position at maximum radius 5.45m. Vertical

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Cementation Skanska Ltd.
Att: Susan Gardiner,
Maple Cross House, Denham Way,
Maple Cross, Rickmansworth, Herts.,
WD3 9SW

Date	Our reference/No	Our contact	Direct line
20th March 2020	M5/0271/75/68/0001	Mark Roberts	07768 510 681
Your date	Your reference/No		

Dear Susan,

77 Welbeck Street Development, London, W1G 0BB (Cementation Contract No. 302685)
Noise and Whole-Body Vibration Assessments of a Soil Mec SR-75 Piling Rig in CFA and Rotary Modes

I write following my two visits to the 77, Welbeck Street site on 3rd and 10th March 2020 to carry out noise and whole body vibration assessments of one of Cementation Skanska's Soil Mec SR-75 piling rigs in CFA mode (3rd March) and Rotary mode (10th march). The SR075 Piling Rig carries Plant Number 58283. Even though the two SR-75 rigs have been in Cementation's fleet for a few years now, Skanska Technology has not carried out a previous assessment of either rig.

Cementation's client for the project is John F. Hunt. The architect is EPR Architects. The site is being redeveloped as a new 10 storey new hotel for Shiva Hotels with commercial units on part of the ground floor. The site is formed from collectively Nos. 74 to 77, Welbeck Street and Nos. 28 to 40, Marylebone Lane. The site is on the corner of Marylebone Lane, Welbeck Street and Henrietta Place, just across the road from Debenhams department store.

The weather during both visits was generally dry and overcast. There was a light to moderate breeze at times on 10th March.

In addition to the piling rig, Cementation had the following items of plant on site:

- Hired (Delden) Tadano 60 tonne GTC-600 Liebherr telescopic crawler, which was present to assist the piling rig.
- Hired Putzmeister 1407 concrete pump from Premier Concrete Pumping Ltd. Unusually for CFA projects there was no concrete agitator, but the site

was a small one and space may have been a constraint. (Plated EC Sound Power Level of 116 dB(A).

John F Hunt had two excavators (Volvo EC140EL, plated Sound Power Level of 100 dB(A)) on site, ones of which was being used to handle spoil arisings from the pile bore close to the rig and the second was on general spoil loading duties at a stockpile in the northern part of the site. There was also a Thwaites 6 tonne dumper present.

The SR-75 was being used to install a secant piled wall around the perimeter of the site to form the new basement for the new hotel. The secant wall was of the hanging type, with short unreinforced concrete female piles 900 mm diameter CFA piles between 900 mm diameter reinforced large diameter rotary male piles. Four of the piles will have king posts installed.



Photograph 1. Soil Mec SR-75 Piling Rig in CFA Mode at the 77, Welbeck Street Site on 03/03/2020 (©Mark Roberts).

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Skanska Technology's own CEL-593.C1 sound level meter and CEL-284/2 acoustic calibrator were away for annual calibration when the two site visits were made, so arrangements were made to hire in a Svantek SV971 sound level meter (serial No. 55504) and SV33 calibrator (serial No. 48872) both of which were hired from AcSoft (the UK Agent for Svantek). Prior to the start of the measurement session in the morning and the calibration was verified at the end of the day. There was 0.2 dB drift which is well within acceptable limits. Battery condition was good throughout the measurement period, with fresh batteries having been fitted at the start of the assessment on 3rd March and were still good for the visit on 10th March. There was no need to change the batteries during the day. During the actual measurements the microphone was protected by a foam windshield and mounted on STL's own tripod. Copies of the front pages of the calibration certificates for the meter and the calibrator are appended to this letter.

In parallel with the noise measurements, a whole-body vibration meter was installed in the cab of the SR-75 rig on the driver's seat during both visits. The WBV meter used was hired from AcSoft (STL does not own a WBV meter). For these visits a SV106 human vibration meter (serial No. 20917) with a SV38V WBV measurement pad (serial No. 31638) were used. The batteries failed part way through the run on 3rd March due to part-used batteries being used. Fresh batteries were fitted for the assessment on 10th March and these lasted the full duration of the monitoring on that day. Copies of the front pages of the calibration certificates for the meter and the sensor pad are appended to this letter.

PDF files of the full calibration certificate packs for any of the items of equipment can be supplied, one request.

On return to the office the date from both meters was downloaded using Svantek's Supervisor download and data management software.

On 3rd March, twenty-two noise measurement runs (L2 to L23) were made during the visit when the SR-75 rig was being used in CFA mode. Most were in Broad Band Environmental mode with one in Octave Band Environmental mode (No. L19). Runs L10 and L20 were very short duration runs which were terminated shortly after starting due to other activities on site contaminating the noise from the SR-75 rig and are not used in the assessment. Run L23 was an assessment made close to the hired concrete pump. A five-minute measurement period was used. Some snapshot readings were noted down from the meter display screen whilst measurement runs were in progress and reference will be made to these, where appropriate.

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A single run was made using the WBV meter with the rig in CFA mode on 3rd March.

During the visit on 10th March when the rig was being operated in rotary mode, runs L24 to L32 were made. Most runs were in Broad Band environmental Mode with Nos. L24 and L25 in Octave Band Environmental Mode.

A single run was made using the WBV meter with the rig in rotary mode on 10th March.

In general on both visits, noise measurements could be made all around the rig apart from the front of the rig on 3rd March and the front of the rig, apart from on the gantry on which the site cabins were located, on 10th March. Access to the starboard side and astern of the rig was more difficult on 3rd March due to safety considerations which meant most runs were made on the port side of the rig.

The site was busy with J F Hunt installing scaffolding around the perimeter of the site and handling spoil from the piling works, including loading spoil from a stockpile into tipper lorries for removal from site. Two pressure washers were in use at the site entrance to remove mud from vehicles leaving the site. On 3rd March, the Welbeck Street entrance was in use, which was allowing CFA piles to be installed in the north-western corner of the site. By the time of the visit on 10th March the Marylebone Lane entrance in the north-western corner of the site was in use.

1. Noise Assessment of Soil Mec SR-75 Piling Rig No 58283 in CFA Mode

Table 1 presents the analysis of the noise measurements made of the Soil Mec SR-75 rig for boring CFA piles. Table 2 considers the data for injecting CFA piles. The first parts of Tables 1 and 2 present the raw data with the processed (distance corrected) data following each.

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Cementation Skanska 20th March 2020

Table 1. Broad Band Environmental Data for Soil Mec SR-75 Piling Rig Plant No. 58283 in CFA Mode Boring Piles (L_{Aeq})

Raw Data.

		Distance to (m)		SOUND PRESSURE LEVEL	
Location (Run)	**Rig Aspect.**	**Power Pack Centre**	**Rotary Head / Auger**	**L_{eq} in dB(A)**	**L_{MAX} in dB(A)**
1 (L2)	Astern, Slightly to Port.	9.0	15.0	76.0	82.9
2 (L4)	Port Side, 45° Astern.	10.5	14.0	81.9	92.9
3 (L6)	Port Side, 20° Astern.	10.0	14.0	82.1	85.9
4 (L8)	Port Side.	10.0	11.0	80.4	86.0
5 (L11)	Port Side.	10.0	11.0	79.0	84.3
6 (L13)	Astern.	9.0	15.0	82.3	92.1
8 (L15)	Starboard Side, 60° from Front.	10.0	9.0	86.7	89.0
9 (L17)	Starboard Side, 60° from Front.	17.0	18.0	84.0	90.2
10 (L19)	Port Side, Closer In.	9.0	9.0	80.7	87.4
11 (L21)	Port Side, Slightly Astern.	9.0	11.0	81.7	88.6

Note:

- Port refers to the left hand or driver's cab side of the rig and starboard to the opposite site. Astern is to the rear of the rig.

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Cementation Skanska 20th March 2020

Table 1. (concluded)

Distance Corrected Data.

Location (Run)	Rig Aspect.	L_{eq} in dB(A)	Distance Correction (to Power Pack) in dB(A)*	Partial Sound Power of Power Pack in dB(A)
1 (L2)	Astern, Slightly to Port.	76.0	26.80	102.8
2 (L4)	Port Side, 45° Astern.	81.9	28.14	110.0
3 (L6)	Port Side, 20° Astern.	82.1	27.72	109.8
4 (L8)	Port Side.	80.4	27.72	108.1
5 (L11)	Port Side.	79.0	27.72	106.7
6 (L13)	Astern.	82.3	27.06	109.4
8 (L15)	Starboard Side, 60° from Front.	86.7	27.72	114.4
9 (L17)	Starboard Side, 60° from Front.	84.0	32.33	116.3
10 (L19)	Port Side, Closer In.	80.7	26.80	107.5
11 (L21)	Port Side, Slightly Astern.	81.7	26.80	108.5
			Power Pack Average:	**109.4**

Notes:

* = Includes 0.26 dB Correction for the Rotary Head based on the value for Run L13.

Summary (Boring CFA Piles).

	Average L_{Aeq} in dB
Rig Power Pack:	**109.4**
Rotary Head:	**98.7**
Complete Rig:	**109.7**

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Table 2. Broad Band Environmental Data for Soil Mec SR-75 Piling Rig Plant No. 58283 in CFA Mode Extracting Auger & Concreting Piles (L_{Aeq})

Raw Data.

		Distance to (m)		SOUND PRESSURE LEVEL	
Location (Run)	**Rig Aspect.**	**Power Pack Centre**	**Rotary Head / Auger**	**L_{eq} in dB(A)**	**L_{MAX} in dB(A)**
1 (L3)	Astern, Slightly to Port.	9.0	15.0	78.7	92.6
2 (L5)	Port, 45° Astern.	10.5	14.0	78.7	87.0
3 (L7)	Port Side, 20° Astern.	10.0	14.0	78.3	85.5
4 (L9)	Port Side.	10.0	11.0	76.7	83.2
5 (L12)	Port Side.	10.0	11.0	80.9	85.7
7 (L14)	Port, 45° Astern.	10.5	15.0	82.8	89.5
8 (L16)	Starboard Side, 60° from Front.	10.0	9.0	79.7	85.0
9 (L18)	Starboard Side, 60° from Front.	17.0	18.0	77.7	89.9
11 (L22)	Port Side, Slightly Astern.	9.0	11.0	81.1	85.2

Note:

- Port refers to the left hand or driver's cab side of the rig and starboard to the opposite site. Astern is to the rear of the rig.

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Cementation Skanska 20th March 2020

Table 2. (concluded) – Distance Corrected Data.

Location (Run)	Rig Aspect.	L_{eq} in dB(A)	Distance Correction (to Power Pack) in dB(A)*	Partial Sound Power of Power Pack in dB(A)
1 (L3)	Astern, Slightly to Port.	78.7	26.64	105.3
2 (L5)	Port, 45° Astern.	78.7	27.98	106.7
3 (L7)	Port Side, 20° Astern.	78.3	27.56	105.9
4 (L9)	Port Side.	76.7	27.56	104.3
5 (L12)	Port Side.	80.9	27.56	108.5
7 (L14)	Port, 45° Astern.	82.8	27.98	110.8
8 (L16)	Starboard Side, 60° from Front.	79.7	27.56	107.3
9 (L18)	Starboard Side, 60° from Front.	77.7	32.17	109.9
11 (L22)	Port Side, Slightly Astern.	81.1	26.64	107.7
			Power Pack Average:	**107.4**

Notes:

* = Includes 0.42 dB Correction for the Rotary Head based on analysis of the data.

Summary (Injecting CFA Piles).

	Average L_{Aeq} in dB
Rig Power Pack:	**107.4**
Rotary Head:	**97.8**
Complete Rig:	**107.8**

It was noted during the visit that particularly during injection of the piles the rig did not appear to be working that hard and the power pack revolutions were reduced compared to during drilling. This is borne out by the lower Sound Power Level measured for the rig during injection.

Runs L19., L21 and L22 were made in Octave Band Environmental Mode for SR-75 No. 58283 whilst drilling or boring CFA piles. The Occupational Noise Assessments for these runs are presented in Tables 3, 4 and 5.

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Table 3. Occupational Noise Assessment for Location 10, Run L19 (Soil Mec SR-75 Plant No. 58283 Boring CFA Pile).

Rig: Soil Mec SR-75

Plant Number: 58283 **Run:** 18 (L19)

Location: 77 Welbeck St.

Activity: CFA Boring

OCTAVE BANDS Hz.	Z-Weighted L_{eq} dB	A-WEIGHTING CORRECTION dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	INTENSITY i
16		-56.7	-56.7	2.14E-15
31.5	80.5	-39.4	41.1	1.29E-05
63	85.6	-26.2	59.4	8.71E-04
125	74.8	-16.1	58.7	7.41E-04
250	73.0	-8.6	64.4	2.75E-03
500	70.8	-3.2	67.6	5.75E-03
1k	70.6	0.0	70.6	1.15E-02
2k	67.1	1.2	68.3	6.76E-03
4k	63.9	1.0	64.9	3.09E-03
8k	55.5	-1.1	54.4	2.75E-04
16k	45.2	-6.6	38.6	7.24E-06
			TOTAL INTENSITY:	0.031749113
			CORRESP. dB(A):	**75.0**

OCTAVE BANDS Hz.	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	ASSUMED PROTECTION VALUE OF 3M PLUGS dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE WITH PLUGS dB_A	INTENSITY i
63	59.4	15.4	44.0	2.51E-05
125	58.7	19.5	39.2	8.32E-06
250	64.4	23.7	40.7	1.17E-05
500	67.6	27.4	40.2	1.05E-05
1k	70.6	25.4	45.2	3.31E-05
2k	68.3	30.3	38.0	6.31E-06
4k	64.9	37.8	27.1	5.13E-07
8k	54.4	38.1	16.3	4.27E-08
			TOTAL INTENSITY:	9.5635E-05
			CORRESP. dB(A):	**49.8**

Protection Provided By 3M plugs: **25.2 dB.**

NB. Intensity, i, is in arbitrary units such that i = 1.00 for 90 dB(A).

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Table 4. Occupational Noise Assessment for Location 11, Run L21 (Soil Mec SR-75 Plant No. 58283 Boring CFA Pile).

Rig: Soil Mec SR-75

Plant Number: 58283 **Run:** 21 (L21)

Location: 77 Welbeck St.

Activity: CFA Boring

OCTAVE BANDS Hz.	Z-Weighted L_{eq} dB	A-WEIGHTING CORRECTION dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	INTENSITY i
16		-56.7	-56.7	2.14E-15
31.5	86.8	-39.4	47.4	5.50E-05
63	84.7	-26.2	58.5	7.08E-04
125	74.4	-16.1	58.3	6.76E-04
250	71.7	-8.6	63.1	2.04E-03
500	70.9	-3.2	67.7	5.89E-03
1k	69.5	0.0	69.5	8.91E-03
2k	65.6	1.2	66.8	4.79E-03
4k	62.2	1.0	63.2	2.09E-03
8k	55.6	-1.1	54.5	2.82E-04
16k	45.1	-6.6	38.5	7.08E-06
			TOTAL INTENSITY:	0.025446182
			CORRESP. dB(A):	**74.1**

OCTAVE BANDS Hz.	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	ASSUMED PROTECTION VALUE OF 3M PLUGS dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE WITH PLUGS dB_A	INTENSITY i
63	58.5	15.4	43.1	2.04E-05
125	58.3	19.5	38.8	7.59E-06
250	63.1	23.7	39.4	8.71E-06
500	67.7	27.4	40.3	1.07E-05
1k	69.5	25.4	44.1	2.57E-05
2k	66.8	30.3	36.5	4.47E-06
4k	63.2	37.8	25.4	3.47E-07
8k	54.5	38.1	16.4	4.37E-08
			TOTAL INTENSITY:	7.79892E-05
			CORRESP. dB(A):	**48.9**

Protection Provided By 3M plugs: **25.1 dB.**

NB. Intensity, i, is in arbitrary units such that i = 1.00 for 90 dB(A).

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Table 5. Occupational Noise Assessment for Location 11, Run L22 (Soil Mec SR-75 Plant No. 58283 Injecting CFA Pile).

Rig: Soil Mec SR-75

Plant Number: 58283 **Run:** 22 (L22)

Location: 77 Welbeck St.

Activity: CFA Injecting

OCTAVE BANDS Hz.	Z-Weighted L_{eq} dB	A-WEIGHTING CORRECTION dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	INTENSITY i
16		-56.7	-56.7	2.14E-15
31.5	79.3	-39.4	39.9	9.77E-06
63	82.5	-26.2	56.3	4.27E-04
125	75.1	-16.1	59.0	7.94E-04
250	76.9	-8.6	68.3	6.76E-03
500	79.3	-3.2	76.1	4.07E-02
1k	77.2	0.0	77.2	5.25E-02
2k	73.8	1.2	75.0	3.16E-02
4k	70.0	1.0	71.0	1.26E-02
8k	62.2	-1.1	61.1	1.29E-03
16k	51.3	-6.6	44.7	2.95E-05
			TOTAL INTENSITY:	0.146740076
			CORRESP. dB(A):	**81.7**

OCTAVE BANDS Hz.	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	ASSUMED PROTECTION VALUE OF 3M PLUGS dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE WITH PLUGS dB_A	INTENSITY i
63	56.3	15.4	40.9	1.23E-05
125	59.0	19.5	39.5	8.91E-06
250	68.3	23.7	44.6	2.88E-05
500	76.1	27.4	48.7	7.41E-05
1k	77.2	25.4	51.8	1.51E-04
2k	75.0	30.3	44.7	2.95E-05
4k	71.0	37.8	33.2	2.09E-06
8k	61.1	38.1	23.0	2.00E-07
			TOTAL INTENSITY:	0.000307344
			CORRESP. dB(A):	**54.9**

Protection Provided By 3M plugs: **26.8 dB.**

NB. Intensity, i, is in arbitrary units such that i = 1.00 for 90 dB(A).

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The assessment assumes the wearing of a typical brand of in-ear plugs. The Cementation personnel on site were generally wearing ear plugs. We have octave band protection data for 3M brand in-ear plugs in our files and these offer a level of protection between 25.1 and 26.8 dB for the SR-75 in CFA mode. Assessments for other brands of plugs or for earmuffs can be completed, on request, if the required octave band attenuation data is available.

Noise Contour Diagrams have been drawn for Soil Mec SR-75 Rig No. 58283 in CFA mode (drilling and injecting) and an Occupational Noise Data Sheet has been prepared, all of which are appended to this letter.

2. Whole Body Vibration Assessment of Soil Mec SR-75 Piling Rig No 58283 in CFA Mode

You recall that for the first set of Whole-Body Vibration (WBV) measurements at the Stratford Waterfront development, a hired Svantek SV100A and Samsung Galaxy Tab S2 tablet with the Assistant App (Android version) installed were used. There were issues with the Bluetooth connection between the sensor pad dropping out whilst measurements were being made and the tablet was outside the exclusion zone. For the WBV measurements at the 77 Welbeck Street site a Svantek SV106 Human Vibration Analyser linked by a cable to an SV38A sensor pad (like the wireless SV100A) were hired. This combination cannot be controlled wirelessly, so was set up with the driver sitting on the pad and the monitor set running and the equipment left running until it was switched off and retrieved from the driver's cab later in the day. Unfortunately, the part-used batteries the SV106 was fitted with did not last the full measurement period and the unit shut itself down part-way through the day, after about 3 hours of measurement. However, enough data was obtained to make an assessment before the SV106 shut itself down.

The SV38V pad has two slots in the rubber which allow a strap to be inserted for attaching the pad to e.g. the back of a seat. During the visit, the pad was only used on the seat of the piling rig without a strap, i.e. with the pad in the horizontal plane. The drivers are considered to receive the bulk of the vibration dose through the bottom of the seat and not the back. Table 6 (overleaf) presents a summary of the results for the single run. The Svantek SV106 can be configured to undertake measurements in accordance with the requirements of BS ISO 2361-1 when it is being used in conjunction with an SV38V sensor pad.

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The A(8) Exposure is the dose projected to be experienced by the subject over an 8-hour period of work according to BS ISO 2631-1: 1997 (Mechanical Vibration and Shock – Evaluation of Human Exposure to Whole Body Vibration – Part 1: General Requirements).

Table 6. Wole Body Vibration Assessment Data obtained for the SR-75 Piling Rig in CFA Mode at the 77 Welbeck Street Site on the 3rd March 2020

Run No.	Run Duration	Piling Rig (Make & Model)	CS Plant No.	Activity During Measurement Period	Daily Exposure (A(8)) (ms^{-2})	Time to Reach Exposure Action Level of 0.5 ms^{-2} A(8)	Time to Reach Exposure Limit Value of 1.2 ms^{-2} A(8)
WBV-001	08:58:07 – 12:32:00	Soil Mec SR-75	58283	CFA Piling – Boring and Injecting Piles.	0.082	> 1 Day Shift	> 1 Day Shift

The Exposure Action Level (EAL) of A(8) = 0.5 ms^{-2} during a single working day of an 8-hour shift during a 24-hour period is the Whole-Body Vibration Level above which action should be taken to reduce the exposure for the operator in question.

The Exposure Limit Value (ELV) of A(8) = 1.2 ms^{-2} during a single working day of an 8-hour shift during a 24-hour period is the Whole-Body Vibration Limit which should not be exceeded.

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3. Noise Measurement of Hired Putzmeister 1407 Concrete Pump

A single run was made near to the hired Putzmeister 1407 concrete pump which was supplying concrete to the SR-75. This was made from a distance of 5.5 m. The pump was plated with CE Guaranteed Sound power Level mark of 116 dB(A).

The single short run generated an estimated Sound Power Level of 114 dB(A).

Table 7. Putzmeister 1407 Concrete Pump Summary (Pumping Concrete).

	L_{WA} in dB
Concrete Pump:	**114**

Run L23 was made in Octave Band Environmental Mode. Table 8 (overleaf) shows an assessment using 3M brand in-ear plugs, which provided a 24.9 dB protection for this run when pumping concrete.

4. Noise Assessment of Soil Mec SR-75 Piling Rig No 58283 in Rotary Mode

On 10th March when the rig was in Large Diameter Rotary mode, it was working on the eastern side of the site facing the scaffolding gantry on which the site cabins were mounted. The close proximity between the rig and the scaffolding meant that the rig had to slew to starboard to spin the spoil off the auger flights, because a manifold for the hydraulic hoses leading to the rotary head sticks out from the starboard side of the mast and this would have caught on the scaffolding risking hose damage if the rig had slewed to port.

Table 9 presents the analysis of the noise measurements made of the Soil Mec SR-75 rig for boring Rotary piles. The first part of Table 9 presents the raw data with the processed (distance corrected) data following. Runs L28 and L29 were made in Octave Band Environmental Mode.

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Table 8. Occupational Noise Assessment for Location 23, Run L23 (Hire Putzmeister 1407 Concrete Pump – Pumping Concrete).

Rig: Hired Putzmeister 1407 Concrete Pump

Plant Number: N/A **Run:** 023-L23

Location: 77 Welbeck St.

Activity: Pumping Concrete

OCTAVE BANDS Hz.	Z-Weighted L_{eq} dB	A-WEIGHTING CORRECTION dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	INTENSITY i
16		-56.7	-56.7	2.14E-15
31.5	82.5	-39.4	43.1	2.04E-05
63	89.5	-26.2	63.3	2.14E-03
125	82.5	-16.1	66.4	4.37E-03
250	97.1	-8.6	88.5	7.08E-01
500	84.9	-3.2	81.7	1.48E-01
1k	83.8	0.0	83.8	2.40E-01
2k	80.7	1.2	81.9	1.55E-01
4k	76.8	1.0	77.8	6.03E-02
8k	70.4	-1.1	69.3	8.51E-03
16k	63.2	-6.6	56.6	4.57E-04
			TOTAL INTENSITY:	1.326369542
			CORRESP. dB(A):	**91.2**

OCTAVE BANDS Hz.	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	ASSUMED PROTECTION VALUE OF 3M PLUGS dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE WITH PLUGS dB_A	INTENSITY i
63	63.3	15.4	47.9	6.17E-05
125	66.4	19.5	46.9	4.90E-05
250	88.5	23.7	64.8	3.02E-03
500	81.7	27.4	54.3	2.69E-04
1k	83.8	25.4	58.4	6.92E-04
2k	81.9	30.3	51.6	1.45E-04
4k	77.8	37.8	40.0	1.00E-05
8k	69.3	38.1	31.2	1.32E-06
			TOTAL INTENSITY:	0.004247436
			CORRESP. dB(A):	**66.3**

Protection Provided By 3M plugs: **24.9 dB.**

NB. Intensity, i, is in arbitrary units such that i = 1.00 for 90 dB(A).

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Figure 2. The SR-75 Piling Rig in Rotary Mode Viewed from the Scaffolding next to the Site Offices (2nd Level). Rig is Slewed to Starboard. on 10/03/2020 (©Mark Roberts).

Table 9. Broad Band Environmental Data for Soil Mec SR-75 Piling Rig Plant No. 58283 in Large Diameter Rotary Mode Boring Piles (L_{Aeq})

Raw Data.

		Distance to (m)		SOUND PRESSURE LEVEL	
Location (Run)	**Rig Aspect.**	**Power Pack Centre**	**Rotary Head / Auger**	**L_{eq} in dB(A)**	**L_{MAX} in dB(A)**
1 (L24)	Front, slightly to Starboard. Runs made from 2nd Floor Scaffolding Gantry by Site Office	16.0	4.0	82.0	104.3
1 (L25)		16.0	4.0	88.0	109.0
2 (L26)	Starboard Side, 10° Astern.	12.0	15.0	87.8	100.1
3 (L27)	Astern.	9.5	15.5	84.4	96.4
4 (L28)	Starboard, 30° from Front.	12.5	11.5	87.6	101.7
5 (L29)	Port Side, 45° from Astern.	10.0	13.0	78.3	85.4
5 (L30)	Port Side, 45° from Astern.	10.0	13.0	82.0	100.0
6 (L31)	Port Side, 45° from Front.	10.0	9.0	83.4	94.4
7 (L32)	Port Side.	7.5	7.5	84.4	95.5

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Table 9. (concluded)

Note:

- Port refers to the left hand or driver's cab side of the rig and starboard to the opposite site. Astern is to the rear of the rig.

Distance Corrected Data.

Location (Run)	Rig Aspect.	L_{eq} in dB(A)	Distance Correction (to Power Pack) in dB(A)*	Partial Sound Power of Power Pack in dB(A)
1 (L24)	Front, slightly to Starboard. Runs made from 2nd Floor Scaffolding Gantry by Site Office	82.0	27.62	109.6
1 (L25)		88.0	27.62	115.6
2 (L26)	Starboard Side, 10° Astern.	87.8	29.20	117.0
4 (L28)	Starboard, 30° from Front.	87.6	29.56	117.2
5 (L29)	Port Side, 45° from Astern.	78.3	27.62	105.9
5 (L30)	Port Side, 45° from Astern.	82.0	27.62	109.6
6 (L31)	Port Side, 45° from Front.	83.4	27.62	111.0
7 (L32)	Port Side.	84.4	25.12	109.5
3 (L27)	Astern.	84.4	27.53	111.9
			Power Pack Average:	**111.9**

Notes:

* = Includes 0.36 dB Correction for the Rotary Head based on the value for Run L27.

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Summary (Boring Large Diameter Rotary Piles).

	Average L_{Aeq} in dB
Rig Power Pack:	**101.8**
Rotary Head:	**111.9**
Complete Rig:	**112.3**

Runs L24, L25 and L32 were made in Octave Band Environmental Mode for SR-75 No. 58283 whilst drilling Rotary piles. The Occupational Noise Assessment for these runs are presented in Tables 10, 11 and 12 (overleaf).

The assessment assumes the wearing of a typical brand of in-ear plugs. The Cementation personnel on site were generally wearing ear plugs. We have octave band protection data for 3M brand in-ear plugs in our files and these offer a level of protection between 26.2 and 26.9 dB. Assessments for other brands of plugs or for earmuffs can be completed, on request, if the required octave band attenuation data is available.

A Noise Contour Diagram has been drawn for Soil Mec SR-75 Rig No. 58283 in Rotary mode and an Occupational Noise Data Sheet has been prepared, both of which are appended to this letter.

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Table 10. Occupational Noise Assessment for Location 1, Run L24 (Soil Mec SR-75 Plant No. 58283 Boring LD Rotary Piles).

Rig: Soil Mec SR-75

Plant Number: 58283 **Run:** 01-L24

Location: 77 Welbeck St.

Activity: Rotary Boring Pile

OCTAVE BANDS Hz.	Z-Weighted L_{eq} dB	A-WEIGHTING CORRECTION dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	INTENSITY i
16		-56.7	-56.7	2.14E-15
31.5	72.5	-39.4	33.1	2.04E-06
63	77.1	-26.2	50.9	1.23E-04
125	73.7	-16.1	57.6	5.75E-04
250	75.4	-8.6	66.8	4.79E-03
500	73.5	-3.2	70.3	1.07E-02
1k	71.6	0.0	71.6	1.45E-02
2k	68.9	1.2	70.1	1.02E-02
4k	63.9	1.0	64.9	3.09E-03
8k	54.4	-1.1	53.3	2.14E-04
16k	43.5	-6.6	36.9	4.90E-06
			TOTAL INTENSITY:	0.04419832
			CORRESP. dB(A):	**76.5**

OCTAVE BANDS Hz.	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	ASSUMED PROTECTION VALUE OF 3M PLUGS dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE WITH PLUGS dB_A	INTENSITY i
63	50.9	15.4	35.5	3.55E-06
125	57.6	19.5	38.1	6.46E-06
250	66.8	23.7	43.1	2.04E-05
500	70.3	27.4	42.9	1.95E-05
1k	71.6	25.4	46.2	4.17E-05
2k	70.1	30.3	39.8	9.55E-06
4k	64.9	37.8	27.1	5.13E-07
8k	53.3	38.1	15.2	3.31E-08
			TOTAL INTENSITY:	0.000101703
			CORRESP. dB(A):	**50.1**

Protection Provided By 3M plugs: **26.4 dB.**

NB. Intensity, i, is in arbitrary units such that i = 1.00 for 90 dB(A).

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Table 11. Occupational Noise Assessment for Location 1, Run L25 (Soil Mec SR-75 Plant No. 58283 Boring LD Rotary Piles).

Rig: Soil Mec SR-75

Plant Number: 58283 **Run:** 02-L25

Location: 77 Welbeck St.

Activity: Rotary Boring Pile

OCTAVE BANDS Hz.	Z-Weighted L_{eq} dB	A-WEIGHTING CORRECTION dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	INTENSITY i
16		-56.7	-56.7	2.14E-15
31.5	72.2	-39.4	32.8	1.91E-06
63	73.9	-26.2	47.7	5.89E-05
125	75.0	-16.1	58.9	7.76E-04
250	76.6	-8.6	68.0	6.31E-03
500	84.0	-3.2	80.8	1.20E-01
1k	81.9	0.0	81.9	1.55E-01
2k	78.7	1.2	79.9	9.77E-02
4k	69.5	1.0	70.5	1.12E-02
8k	59.4	-1.1	58.3	6.76E-04
16k	49.3	-6.6	42.7	1.86E-05
			TOTAL INTENSITY:	0.391893326
			CORRESP. dB(A):	**85.9**

OCTAVE BANDS Hz.	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	ASSUMED PROTECTION VALUE OF 3M PLUGS dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE WITH PLUGS dB_A	INTENSITY i
63	47.7	15.4	32.3	1.70E-06
125	58.9	19.5	39.4	8.71E-06
250	68.0	23.7	44.3	2.69E-05
500	80.8	27.4	53.4	2.19E-04
1k	81.9	25.4	56.5	4.47E-04
2k	79.9	30.3	49.6	9.12E-05
4k	70.5	37.8	32.7	1.86E-06
8k	58.3	38.1	20.2	1.05E-07
			TOTAL INTENSITY:	0.000795951
			CORRESP. dB(A):	**59.0**

Protection Provided By 3M plugs: **26.9 dB.**

NB. Intensity, i, is in arbitrary units such that i = 1.00 for 90 dB(A).

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Table 12. Occupational Noise Assessment for Location 7, Run L32 (Soil Mec SR-75 Plant No. 58283 Boring LD Rotary Piles).

Rig: Soil Mec SR-75

Plant Number: 58283 **Run:** 09-L32

Location: 77 Welbeck St.

Activity: Rotary Boring Pile

OCTAVE BANDS Hz.	Z-Weighted L_{eq} dB	A-WEIGHTING CORRECTION dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	INTENSITY i
16		-56.7	-56.7	2.14E-15
31.5	78.8	-39.4	39.4	8.71E-06
63	79.9	-26.2	53.7	2.34E-04
125	80.6	-16.1	64.5	2.82E-03
250	84.4	-8.6	75.8	3.80E-02
500	83.9	-3.2	80.7	1.17E-01
1k	81.5	0.0	81.5	1.41E-01
2k	75.6	1.2	76.8	4.79E-02
4k	69.4	1.0	70.4	1.10E-02
8k	59.9	-1.1	58.8	7.59E-04
16k	49.3	-6.6	42.7	1.86E-05
			TOTAL INTENSITY:	0.359428955
			CORRESP. dB(A):	**85.6**

OCTAVE BANDS Hz.	A-WEIGHTED OCTAVE BAND SOUND PRESSURE dB_A	ASSUMED PROTECTION VALUE OF 3M PLUGS dB	A-WEIGHTED OCTAVE BAND SOUND PRESSURE WITH PLUGS dB_A	INTENSITY i
63	53.7	15.4	38.3	6.76E-06
125	64.5	19.5	45.0	3.16E-05
250	75.8	23.7	52.1	1.62E-04
500	80.7	27.4	53.3	2.14E-04
1k	81.5	25.4	56.1	4.07E-04
2k	76.8	30.3	46.5	4.47E-05
4k	70.4	37.8	32.6	1.82E-06
8k	58.8	38.1	20.7	1.17E-07
			TOTAL INTENSITY:	0.000868347
			CORRESP. dB(A):	**59.4**

Protection Provided By 3M plugs: **26.2 dB.**

NB. Intensity, i, is in arbitrary units such that i = 1.00 for 90 dB(A).

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5. Whole Body Vibration Assessment of Soil Mec SR-75 Piling Rig No 58283 in Large Diameter Rotary Mode

For the WBV measurements at the 77 Welbeck Street for the SR-75 rig in rotary mode the same hired Svantek SV106 Human Vibration Analyser linked by a cable to an SV38A sensor pad was used. Again, the monitor set up with the driver sitting on the pad and the monitor set running and the equipment left running until it was switched off and retrieved from the driver's cab later in the day.

New batteries were fitted at the start of the day and these lasted the full duration of the measurement period. During the visit, the pad was only used on the seat of the piling rig without a strap, i.e. with the pad in the horizontal plane.

Table 7 (overleaf) presents a summary of the results for the single run. The A(8) Exposure is the dose projected to be experienced by the subject over an 8-hour period of work according to BS ISO 2631-1: 1997 (Mechanical Vibration and Shock – Evaluation of Human Exposure to Whole Body Vibration – Part 1: General Requirements). The Svantek SV106 was configured to undertake measurements in accordance with the requirements of BS ISO 2361-1 when being used in conjunction with an SV38V sensor pad.

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Table 7. Wole Body Vibration Assessment Data obtained for the SR-75 Piling Rigs in Large Diameter Rotary Mode at the 77 Welbeck Street Site on the 10th March 2020

Run No.	Run Duration	Piling Rig (Make & Model)	CS Plant No.	Activity During Measurement Period	Daily Exposure (A(8)) (ms^{-2})	Time to Reach Exposure Action Level of 0.5 ms^{-2} A(8)	Time to Reach Exposure Limit Value of 1.2 ms^{-2} A(8)
WBV-002	08:44:28 – 12:45:15	Soil Mec SR-75	58283	LD Rotary Piling – Boring Piles.	0.063	> 1 Day Shift	> 1 Day Shift

Discussion and Conclusions

The Sound Power Levels for Soil Mec SR-75 Rig No. 58283 at the 77 Welbeck Street in CFA and Rotary modes were found to be as follows:

- CFA Mode Boring Piles 110 dB(A).
- CFA Mode Injecting Piles 108 dB(A).
- LD Rotary Mode Boring Piles 112 dB(A).

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These measured values compare favourably with the Guaranteed Sound Power Level displayed on the rig of 113 dB(A).

The Whole-body Vibrations measurements recorded at the 77 Welbeck Street site did not raise any concerns in terms of the exposure of the driver to vibration during a typical working day. The results were:

- A(8) = 0.082 ms^{-2} for the rig in CFA Mode.
- A(8) = 0.063 ms^{-2} for the rig in Large Diameter Rotary Mode.

The measured levels were well below the Exposure Action Level (EAL) of A(8) = 0.5 ms^{-2}. It should be noted that the ground conditions at the 77, Welbeck Street site were not particularly challenging for the rig in either mode. Also, on both days, there were periods of time when the rig was stood e.g. waiting for concrete.

On a site with more challenging ground conditions it is expected that the noise and whole-body vibration levels would both be higher. The assessments in this report are considered to represent working in typical London ground conditions.

I trust the information contained in this report will be of assistance. If you have any queries, please do not hesitate to contact me.

Yours sincerely,

Skanska Technology Limited



Mark Roberts
Project Engineer
Noise & Vibration Lead

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Encl.

- Screenshots of Calibration certificates for the hired Noise Meter, Calibrator, Human Vibration Meter and WBV Sensor Pad.
- Screenshot of Occupational Noise Data Sheets (2x).
- Screenshots of Noise Contour Diagrams (3x)

(Note. The screenshots of the Noise Contour Diagrams will not be to scale so copies of these and the Occupational Noise Data Sheet will be supplied separately when they have been properly scanned in).

Cc:

David O'Donnell, Cementation Skanska. }
Balint Madar, Cementation Skanska. }
Ian Lovett, Cementation Skanska. }
Phil Matthews, Cementation Skanska. } electronic copy only.
Steve Joynson, Cementation Skanska. }
Katie Atherton, Cementation Skanska. }
Mark Bradshaw, Cementation Skanska. }
Vijay Pookat, Cementation Skanska. }

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Cementation Skanska 20th March 2020

SVANTEK

AcSoft Calibration
Bedford Technology Park
Thurleigh, Bedford, MK44 2YA
U.K
Tel.: +44 (0) 1234 639551
Fax: +44 (0) 1234 639561
Email: sales@svantek.co.uk
www.svantek.co.uk

CALIBRATION CERTIFICATE

Date of issue: 16-04-2019 Certificate No: Page: 1/7

OBJECT OF CALIBRATION	Sound level meter type SVAN 971, No 55504, manufacturer Svantek with preamplifier type SV18, No 57110, manufacturer SVANTEK and microphone type 7052E, No 67949, manufacturer ACO.
APPLICANT	AcSoft Internal Hire
CALIBRATION METHOD	Method described in instruction IN-02 "Calibration of the sound level meter", issue number 11 date 27.01.2016, written on the basis of international standard EN IEC 61672-3:2013 Electroacoustics. Part 3: Periodic tests.
ENVIRONMENTAL CONDITIONS	Temperature: (22.3 - 22.5) °C Ambient pressure: (100.5 - 100.5) kPa Relative humidity: (38 - 40) %
DATE OF CALIBRATION	16-04-2019
UNCERTAINTY OF MEASUREMENTS	Uncertainty of measurement has been evaluated in compliance with EA-4/02:2013. The expanded uncertainty assigned corresponds to a coverage probability of 95 % and the coverage factor $k = 2$.
CONFORMITY WITH REQUIREMENTS	On the basis of the calibration results, it has been found that, the sound level meter meets metrological requirements specified in the standard IEC 61672-1:2013 Electroacoustics – Sound level meters. Part 1: Specifications, for class 1.
CALIBRATION RESULTS	**The sound level meter submitted for testing has successfully completed the Class 1 periodic tests of IEC 61672-3:2013 (BS EN 61672-3:2013), for the environmental conditions under which the tests were performed.** The results are presented on pages 2 to 7 of this certificate (including measurement uncertainty).
APPROVED BY	B. Hunt

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Cementation Skanska 20th March 2020

SVANTEK

CALIBRATION CERTIFICATE

Date of issue: 2019-09-30 Certificate No: Page: 1/3

OBJECT OF CALIBRATION	Manufacturer:	**Svantek**	
	Model:	**SV33**	
	Serial No.:	48872	
	Description:	Acoustical Calibrator accuracy class 1 with nominal level $L_{p,nom1}$ = 114 dB, and nominal frequency f_{n1} = 1000 Hz.	
APPLICANT	AcSoft Internal Hire		
ENVIRONMENTAL CONDITIONS	Temperature:	23.7	°C
	Humidity:	51.6	%
	Pressure:	100.01	hPa
DATE OF CALIBRATION	2019-09-30		
APPROVED BY	B. Hunt		

AcSoft
sound & vibration

AcSoft Calibration | Bedford Technology Park
Thurleigh | Bedford | MK44 2YA
+44 (0) 1234 639550
www.acsoft.co.uk

This calibration was performed on behalf of Svantek UK by AcSoft Calibration.
AcSoft Calibration is a trading name of AcSoft Ltd, Bedford Technology Park, Thurleigh, Bedford, MK44 2YA.

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SVANTEK ISO9001 certified

FACTORY CALIBRATION DATA OF THE SV 106 *No. 20917*

1. CALIBRATION (electrical)

LEVEL METER;

Input	1 V_{rms}, 15.915 Hz		100 mV_{rms}, 79.58 Hz		1 V_{rms}, 79.58 Hz	
Filter	BL Wd		BL Wh		BL Wd	
Calibration factor	-14 dB		+20 dB		0 dB	
	Indication [dB]	**Error** [dB]	**Indication** [dB]	**Error** [dB]	**Indication** [dB]	**Error** [dB]
Channel 1	145.95	-0.05	159.95	-0.05	159.94	-0.06
Channel 2	145.95	-0.05	159.96	-0.04	159.94	-0.06
Channel 3	145.95	-0.05	159.96	-0.04	159.94	-0.06
Channel 4	145.96	-0.04	159.97	-0.03	159.95	-0.05
Channel 5	145.96	-0.04	159.97	-0.03	159.95	-0.05
Channel 6	145.97	-0.03	159.97	-0.03	159.95	-0.05

2. CALIBRATION (vibrational)

LEVEL METER

Input	120dB (1.0 m/s^2), 15.915Hz		140dB (10.0 m/s^2), 79.58Hz	
Filter	BL Wk		BL Wh	
	Indication [dB]	**Error** [dB]	**Indication** [dB]	**Error** [dB]
Channel 1	120.0	0.0	139.9	-0.1
Channel 2	120.0	0.0	139.9	-0.1
Channel 3	120.0	0.0	139.9	-0.1
Channel 4	120.0	0.0	139.9	-0.1
Channel 5	120.0	0.0	139.9	-0.1
Channel 6	120.0	0.0	139.9	-0.1

Calibration measured with the accelerometer DYTRAN type 3055A2 No. 220. Calibration factor: 0.2dB

3. LINEARITY TEST (electrical)

LEVEL METER; Filter: BL Wd; f_{sin}= 15.915 Hz; Calibration factor: -14dB;

Input [mV_{rms}]		1.585	1.778	1.995	2.818	5.012	50.12	501.2	1778
Nominal result [dB re 1µm]		90	91	92	95	100	120	140	151
Ch 1	**Error** [dB]	0.02	0.04	0.05	0.08	0.06	0.04	0.06	0.04
Ch 2	**Error** [dB]	0.05	0.04	0.04	0.10	0.06	0.04	0.06	0.05
Ch 3	**Error** [dB]	0.03	0.04	0.06	0.07	0.06	0.04	0.06	0.04
Ch 4	**Error** [dB]	0.03	0.04	0.05	0.07	0.06	0.04	0.06	0.04
Ch 5	**Error** [dB]	0.02	0.02	0.04	0.06	0.05	0.03	0.05	0.03
Ch 6	**Error** [dB]	0.02	0.02	0.04	0.07	0.05	0.04	0.05	0.04

LEVEL METER; Filter: BL Wh; f_{sin}= 79.58 Hz; Calibration factor: 20dB;

Input [mV_{rms}]		0.316	0.355	0.398	0.562	1.000	10.00	100.0	1122
Nominal result [dB re 1µm]		110	111	112	115	120	140	160	181
Ch 1	**Error** [dB]	0.49	0.43	0.37	0.17	0.00	0.00	0.00	-0.01
Ch 2	**Error** [dB]	0.23	0.22	0.21	0.09	-0.01	0.00	0.00	-0.01
Ch 3	**Error** [dB]	0.22	0.23	0.21	0.07	-0.03	0.01	0.00	0.00
Ch 4	**Error** [dB]	0.41	0.35	0.32	0.18	0.00	0.01	0.00	-0.01
Ch 5	**Error** [dB]	0.36	0.29	0.29	0.14	0.02	0.00	0.00	-0.01
Ch 6	**Error** [dB]	0.24	0.22	0.20	0.10	0.00	0.00	0.00	-0.01

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11. UNDERRANGE INDICATION

LEVEL METER; Filter: Wd; f_{min}= 15.915 Hz

	Indication [dB]
Channel 1	79.01
Channel 2	79.02
Channel 3	79.01
Channel 4	79.02
Channel 5	79.02
Channel 6	79.02

Calibration factor: -14dB

LEVEL METER; Filter: Wh; f_{min}= 79.58 Hz

	Indication [dB]
Channel 1	98.87
Channel 2	99.01
Channel 3	98.85
Channel 4	98.91
Channel 5	98.93
Channel 6	98.92

Calibration factor: 20dB

ENVIRONMENTAL CONDITIONS

Temperature	Relative humidity	Ambient pressure
23 °C	47 %	1004 hPa

TEST EQUIPMENT

Item	Manufacturer	Model	Serial no.	Description
1.	SVANTEK	SVAN 401	103	Signal generator
2.	SVANTEK	SVAN912AE	4200	Sound & Vibration Analyser
3.	KEITHLEY	2000	0910165	Digital multimeter
6.	PCB	301A11	2381	Reference accelerometer

CONFORMITY & TEST DECLARATION

1. Herewith Svantek company declares that this instrument has been calibrated and tested in compliance with the internal ISO9001 procedures and meets all specification given in the Manual(s) or respectively surpass them.

2. Traceability of the calibration is guaranteed by the above mentioned ISO9001 procedures.

3. The information appearing on this sheet has been compiled specifically for this instrument. This form is produced with advanced equipment & procedures which permit comprehensive quality assurance verification of all data supplied herein.

4. This calibration sheet shall not be reproduced except in full, without written permission of the SVANTEK Ltd.

Calibration specialist: Tomasz Krajewski Tomasz Krajewski Test date: 2018-06-15

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Cementation Skanska 20th March 2020

SVANTEK

CALIBRATION CERTIFICATE

Date of issue: 18/06/2019 Certificate No: Page: 1/3

OBJECT OF CALIBRATION	Manufacturer:	**Svantek**	
	Model:	**SV38V**	
	Serial No.:	31638	
	Description:	Triaxial Whole-Body Seat Accelerometer	
APPLICANT	AcSoft Internal Hire		
ENVIRONMENTAL CONDITIONS	Temperature:	23.2 – 23.3	°C
	Humidity:	50.4 – 51.8	%
	Pressure:	1004.4 – 1004.5	hPa
DATE OF CALIBRATION	18/06/2019		
APPROVED BY	B. Hunt		

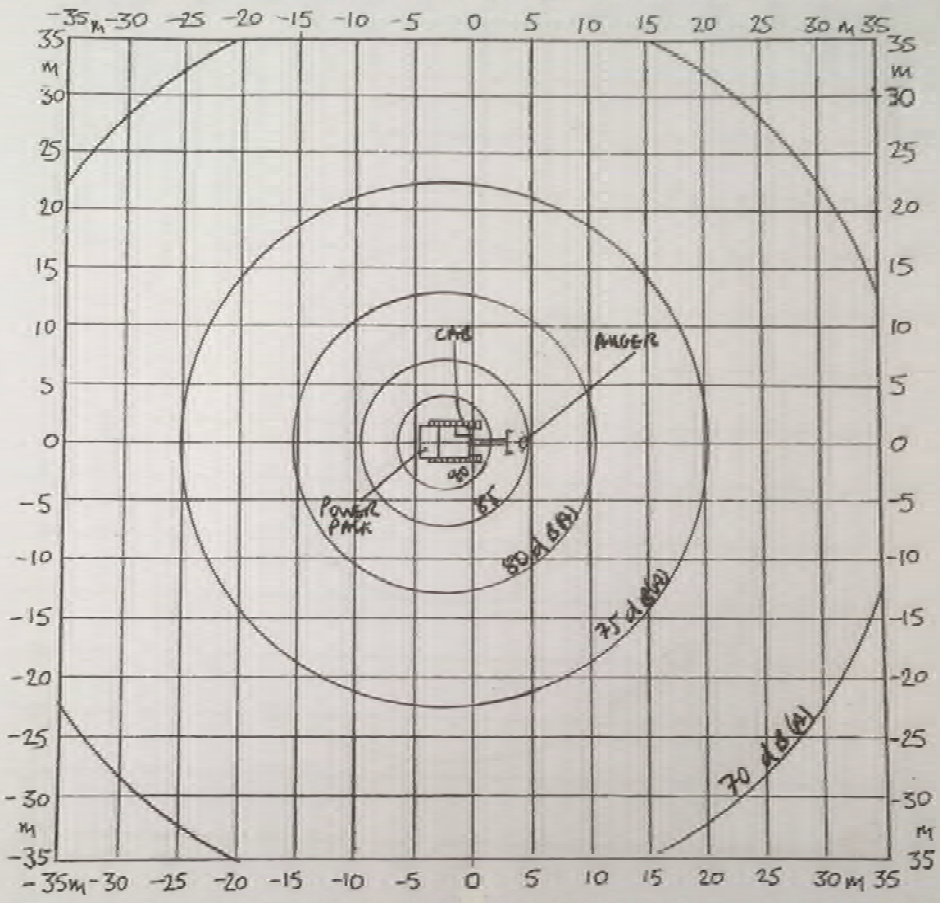
AcSoft
sound & vibration

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www.acsoft.co.uk

This calibration was performed on behalf of Svantek UK by AcSoft Calibration.
AcSoft Calibration is a trading name of AcSoft Ltd, Bedford Technology Park, Thurleigh, Bedford, MK44 2YA.

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Cementation Skanska 20th March 2020



ESTIMATED SOUND LEVEL CONTOURS FOR SOIL MEC SR-75 PILING RIG IN CONTINUOUS FLIGHT AUGER (CFA) MODE BORING PILES.

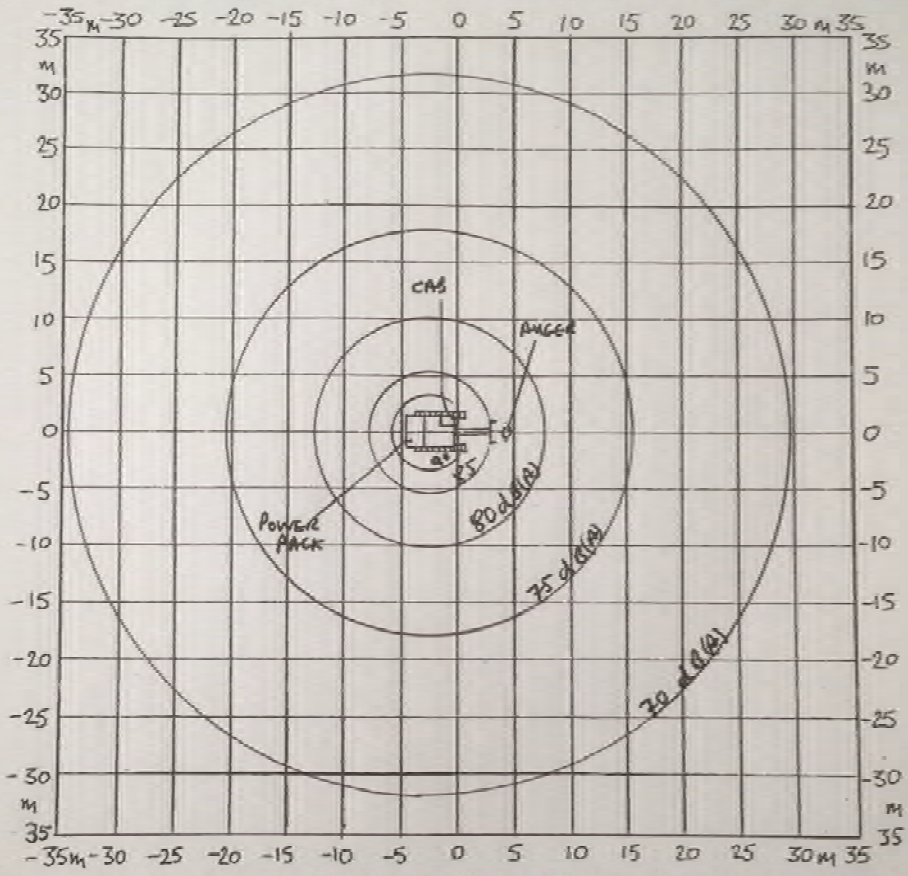
PLANT NO: 58283

DATE: 3RD MARCH 2020

SITE: 77 WELBECK STREET, LONDON.

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Cementation Skanska 20th March 2020



ESTIMATED SOUND LEVEL CONTOURS FOR SOIL MEC SR-75 PILING RIG IN CONTINUOUS FLIGHT AUGER (CFA) MODE CONCRETING PILES.

PLANT Nº: 58283

DATE: 3RD MARCH 2020

SITE: 77 WELBECK STREET, LONDON.

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Cementation Skanska 20th March 2020

Skanska Technology

CEMENTATION SKANSKA LTD.
PLANT NOISE ASSESSMENTS.

Occupational Noise Assessment Data Sheet:

Rig Type: Soil-Mec SR-75 Hydraulic Excavator Mounted Piling Rig.

Plant Number: 58283.

Operating Mode: Continuous Flight Auger (CFA) Piling.

Date: 3rd March 2020.

Location: 77, Welbeck Street, London. (302685).

Sound Power Level at Source:

Drilling CFA Pile (L_{Aeq}): 109.7 dB(A).
Injecting CFA Pile (L_{Aeq}): 107.8 dB(A).

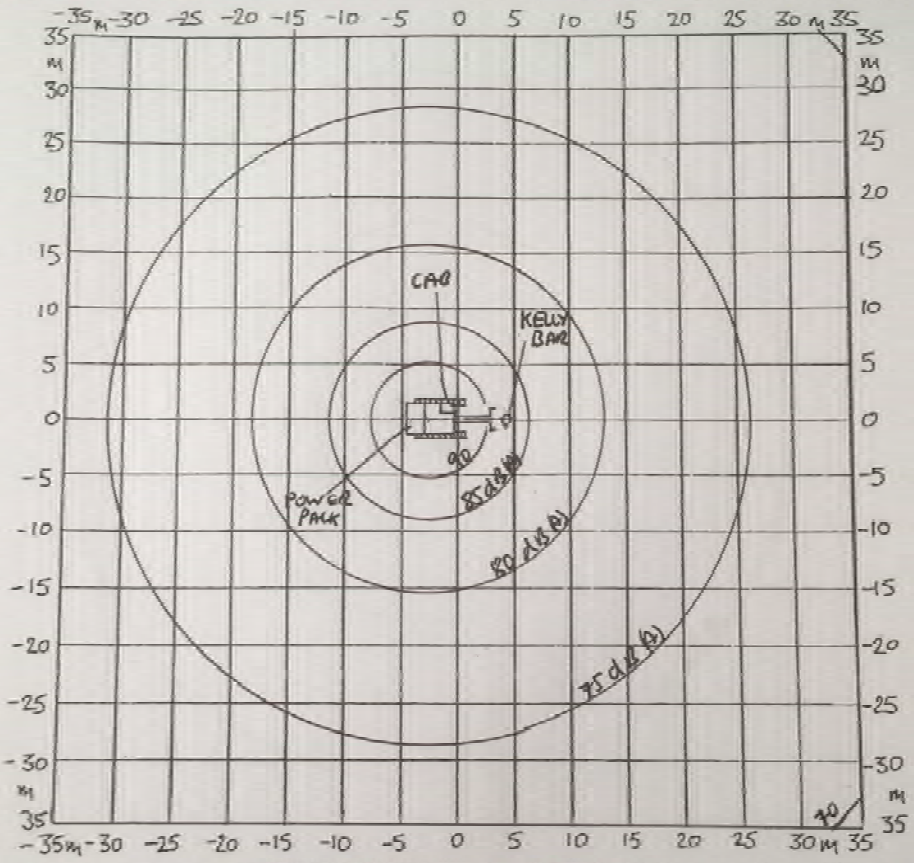
	MICROPHONE POSITION				
	1	2	3	4	
Sound Pressure Level:	80.7	81.7	81.1		dB(A).
A-Weighted Octave Band Sound Level at Centre Frequency.					
16 Hz.	N/A	N/A	N/A		dB_A
31.5 Hz.	41.1	47.4	39.9		dB_A
63 Hz.	59.4	58.5	56.3		dB_A
125 Hz.	58.7	58.3	59.0		dB_A
250 Hz.	64.4	63.1	68.3		dB_A
500 Hz.	67.6	67.7	76.1		dB_A
1,000 Hz.	70.6	69.5	77.2		dB_A
2,000 Hz.	68.3	66.8	75.0		dB_A
4,000 Hz.	64.9	63.2	71.0		dB_A
8,000 Hz.	54.4	54.5	61.1		dB_A
16,000 Hz.	38.6	38.5	44.7		dB_A

Details of Microphone Locations:

1. Boring CFA Pile, Port Side, 9.0m from the Auger.
2. Boring CFA Pile, Port Side, slightly astern, 11.0m from the Auger.
3. Injecting CFA Pile, Port Side, slightly astern, 11.0m from the Auger.
4.

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Cementation Skanska 20th March 2020



ESTIMATED SOUND LEVEL CONTOURS FOR SOIL MEC SR-75 PILING RIG IN LARGE DIAMETER ROTARY MODE BORING PILES WITH SEGMENTAL CASINGS.

PLANT NO: 58283.

DATE: 10TH MARCH 2020

SITE: 77 WELBECK STREET, LONDON.

SKANSKA

Cementation Skanska 20th March 2020

Skanska Technology

CEMENTATION SKANSKA LTD.
PLANT NOISE ASSESSMENTS.

Occupational Noise Assessment Data Sheet:

Rig Type: Soil-Mec SR-75 Hydraulic Excavator Mounted Piling Rig.

Plant Number: 58283.

Operating Mode: Large Diameter Rotary Bored Piling.

Date: 10th March 2020.

Location: 77, Welbeck Street, London. (302685).

Sound Power Level at Source:

Boring Rotary Piles (L_{Aeq}): 112.3 dB(A).

	MICROPHONE POSITION				
	1	2	3	4	
Sound Pressure Level:	82.0	88.0	84.4		dB(A).
A-Weighted Octave Band Sound Level at Centre Frequency.	L24	L25	L32		
16 Hz.	N/A	N/A	N/A		dB_A
31.5 Hz.	33.1	32.8	39.4		dB_A
63 Hz.	50.9	47.7	53.7		dB_A
125 Hz.	57.6	58.9	64.5		dB_A
250 Hz.	66.8	68.0	75.8		dB_A
500 Hz.	70.3	80.8	80.7		dB_A
1,000 Hz.	71.6	81.9	81.5		dB_A
2,000 Hz.	70.1	79.9	76.8		dB_A
4,000 Hz.	64.9	70.5	70.4		dB_A
8,000 Hz.	53.3	58.3	58.8		dB_A
16,000 Hz.	36.9	42.7	42.7		dB_A

Details of Microphone Locations:

1. Boring LD Rotary Pile, Front, slightly to Starboard, 4.0m from the Auger.
2. Boring LD Rotary Pile, Front, slightly to Starboard, 4.0m from the Auger.
3. Boring LD Rotary Pile, Port Side, 7.5m from the Auger.
4.

CEMENTATION SKANSKA LTD.
PLANT NOISE ASSESSMENTS.

Occupational Noise Assessment Data Sheet:

Rig Type: Soil-Mec SR-75 Hydraulic Excavator Mounted Piling Rig.

Plant Number: 58283.

Operating Mode: Continuous Flight Auger (CFA) Piling.

Date: 3rd March 2020.

Location: 77, Welbeck Street, London. (302685).

Sound Power Level at Source:

Drilling CFA Pile (L_{Aeq}): 109.7 dB(A).
Injecting CFA Pile (L_{Aeq}): 107.8 dB(A).

	MICROPHONE POSITION				
	1	2	3	4	
Sound Pressure Level:	80.7	81.7	81.1		dB(A).
A-Weighted Octave Band Sound Level at Centre Frequency.					
16 Hz.	N/A	N/A	N/A		dB_A
31.5 Hz.	41.1	47.4	39.9		dB_A
63 Hz.	59.4	58.5	56.3		dB_A
125 Hz.	58.7	58.3	59.0		dB_A
250 Hz.	64.4	63.1	68.3		dB_A
500 Hz.	67.6	67.7	76.1		dB_A
1,000 Hz.	70.6	69.5	77.2		dB_A
2,000 Hz.	68.3	66.8	75.0		dB_A
4,000 Hz.	64.9	63.2	71.0		dB_A
8,000 Hz.	54.4	54.5	61.1		dB_A
16,000 Hz.	38.6	38.5	44.7		dB_A

Details of Microphone Locations:

1. Boring CFA Pile, Port Side, 9.0m from the Auger.
2. Boring CFA Pile, Port Side, slightly astern, 11.0m from the Auger.
3. Injecting CFA Pile, Port Side, slightly astern, 11.0m from the Auger.
4.

CEMENTATION SKANSKA LTD.
PLANT NOISE ASSESSMENTS.

Occupational Noise Assessment Data Sheet:

Rig Type: Soil-Mec SR-75 Hydraulic Excavator Mounted Piling Rig.

Plant Number: 58283.

Operating Mode: Large Diameter Rotary Bored Piling.

Date: 10th March 2020.

Location: 77, Welbeck Street, London. (302685).

Sound Power Level at Source:

Boring Rotary Piles (L_{Aeq}): 112.3 dB(A).

	MICROPHONE POSITION				
	1	2	3	4	
Sound Pressure Level:	82.0	88.0	84.4		dB(A).
A-Weighted Octave Band Sound Level at Centre Frequency.	L24	L25	L32		
16 Hz.	N/A	N/A	N/A		dB_A
31.5 Hz.	33.1	32.8	39.4		dB_A
63 Hz.	50.9	47.7	53.7		dB_A
125 Hz.	57.6	58.9	64.5		dB_A
250 Hz.	66.8	68.0	75.8		dB_A
500 Hz.	70.3	80.8	80.7		dB_A
1,000 Hz.	71.6	81.9	81.5		dB_A
2,000 Hz.	70.1	79.9	76.8		dB_A
4,000 Hz.	64.9	70.5	70.4		dB_A
8,000 Hz.	53.3	58.3	58.8		dB_A
16,000 Hz.	36.9	42.7	42.7		dB_A

Details of Microphone Locations:

1. Boring LD Rotary Pile, Front, slightly to Starboard, 4.0m from the Auger.
2. Boring LD Rotary Pile, Front, slightly to Starboard, 4.0m from the Auger.
3. Boring LD Rotary Pile, Port Side, 7.5m from the Auger.
4.

Appendix G COSHH Assessments

CoSHH Register

Ref No.	Substance	Use	Trade Contractor	Date Assessment Received	REVIEW DATE DUE	METHOD STATEMENT NUMBER
1	Gas Oil / Diesel	Fuel	Shell UK	18/08/20	18/08/23	22C770-CSL-00-F1-COSHH-001
2	Generic Unleaded Petrol	Fuel	Various	21/01/20	21/01/21	22C770-CSL-00-F1-COSHH-002
3	Carelube HES46	Lubricant	Lubricants UK Ltd	19/04/18	19/04/21	22C770-CSL-00-F1-COSHH-003
4	Spirax S2 G 80W-90	Lubricant	Shell UK	21/02/20	21/02/21	22C770-CSL-00-F1-COSHH-004
5	Rimula RT4 X 15W-40	Engine Oil	Shell UK	06/02/20	06/02/23	22C770-CSL-00-F1-COSHH-005
6	Release Oil - M02	Release Oil	Pick Quick Services	08/01/20	08/01/21	22C770-CSL-00-F1-COSHH-006
7	Prime-a-Pump	Concrete pump primer	Concrete Pumping Products Ltd	20/04/20	20/04/23	22C770-CSL-00-F1-COSHH-007
8	Spot Marker	Aerosol	Blue Diamond I. S. Ltd	20/02/19	20/02/22	22C770-CSL-00-F1-COSHH-008
9	Readymix Concrete	Concrete	Cemex	18/08/20	18/08/21	22C770-CSL-00-F1-COSHH-009
10	WD40	Multiuse Aerosol	WD40 Company Ltd	21/02/20	21/02/21	22C770-CSL-00-F1-COSHH-010
11	CAT Deo tm ULS 10W-30	Engine Oil	Exxon Mobil Corporation	17/09/20	17/09/23	22C770-CSL-00-F1-COSHH-011

NB: This example register is designed to be used electronically and is set with filters on the header row to allow quick searches within each section, the COSHH Assessment and MSDS can then be filed as hard copy or electronically either by reference number, substance alphabetically or by Trade Contractor to allow easy retrieval. The date columns have been formatted as dd/mm/yy and the review date will automatically insert received date plus three months (Column E can be cleared if register is to be printed and used as a hard copy).

ID#:	349495	**User making request:**	Added Manually
Fax:	N/A	**Phone:**	N/A
Email:	N/A	**Date Created:**	10/02/2012
Date Assessment Reviewed	18/08/2020	**Next Review Date:**	18/08/2023
Material Code:	92632	**Tradename:**	GAS OIL / DIESEL
Supplier:	SHELL U.K OIL LTD	**IMC:**	
Keyword:	Fuel	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	10 litre	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices:

Existing Control measures: PPE, Risk Assessment, Briefing, Storage, Spill Kits, Spill Kit Training

Exp Limit Fuels, diesel 500mg/m3 8hTWA OEL

Notes

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Connecting	Inside Well Ventilated	Up to 1/2 hour per shift
2	Connecting	Outside	Up to 1/2 hour per shift
3	Immersing	Inside Well Ventilated	Up to 1/2 hour per shift
4	Immersing	Outside	Up to 1/2 hour per shift
5	Filling	Outside	Up to 1/2 hour per shift
6	Filling	Outside	1/2 to 2 hours per shift
7	Filling	Outside	2 to 4 hours per shift

Work Area

Work Area Code	Sub Area Code
FUELS	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** FUELS **SUB** 92632

MATERIAL/PROCESS

GAS OIL / DIESEL

MEDIUM HAZARD

LIQUID



CONTENTS
Fuels, diesel < 95%,

SIGNAL WORD WARNING

EXP LIMIT Fuels, diesel 500mg/m3 8hTWA OEL

SUPPLIER SHELL U.K OIL LTD

KEYWORD Fuel

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Connecting

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED



BS EN166





WASH AFTER EXPOSURE



IF SOILED



CLOSE ALL CONTAINERS



ACUTE HAZARD / ECOTOXIC

HEALTH HAZARDS

Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

CONSIDERATIONS







SPILLAGE

Mark the area and warn all personnel
Ventilate area
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides
Skin - wash with soap/cleanser and rinse with water
If irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

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SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

FACILITY CEMENTATION **MAIN** FUELS **SUB** 92632

MATERIAL/PROCESS

GAS OIL / DIESEL



MEDIUM HAZARD

LIQUID

CONTENTS
Fuels, diesel < 95%,

SIGNAL WORD WARNING

EXP LIMIT Fuels, diesel 500mg/m3 8hTWA OEL

SUPPLIER SHELL U.K OIL LTD

KEYWORD Fuel

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Connecting

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



KEEP SKIN COVERED



BS EN166





WASH AFTER EXPOSURE



IF SOILED



CLOSE ALL CONTAINERS



ACUTE HAZARD / ECOTOXIC

HEALTH HAZARDS

Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

CONSIDERATIONS







SPILLAGE

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 92632

MATERIAL/PROCESS

GAS OIL / DIESEL

MEDIUM HAZARD

LIQUID



CONTENTS
Fuels, diesel < 95%,

SIGNAL WORD WARNING

EXP LIMIT Fuels, diesel 500mg/m3 8hTWA OEL

SUPPLIER SHELL U.K OIL LTD

KEYWORD Fuel

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Immersing

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | NITRILE | IF CONTACT LIKELY



WASH AFTER CONTACT | IF HEAVILY SOILED



AFTER USE | FLAMMABLE / ACUTE

HEALTH HAZARDS

Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

CONSIDERATIONS







SPILLAGE

Mark the area and warn all personnel
Ventilate area
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
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Skin - wash with soap/cleanser and rinse with water
If irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

Cleaning tools by immersing in bath.

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 92632

MATERIAL/PROCESS

GAS OIL / DIESEL

MEDIUM HAZARD

LIQUID



CONTENTS
Fuels, diesel < 95%,

SIGNAL WORD WARNING

EXP LIMIT Fuels, diesel 500mg/m3 8hTWA OEL

SUPPLIER SHELL U.K OIL LTD

KEYWORD Fuel

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Immersing

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | NITRILE | IF CONTACT LIKELY



WASH AFTER CONTACT | IF HEAVILY SOILED



AFTER USE | FLAMMABLE / ACUTE

HEALTH HAZARDS

Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

CONSIDERATIONS







SPILLAGE

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 92632

MATERIAL/PROCESS

GAS OIL / DIESEL



MEDIUM HAZARD

LIQUID

CONTENTS
Fuels, diesel < 95%,

SIGNAL WORD WARNING

EXP LIMIT Fuels, diesel 500mg/m3 8hTWA OEL

SUPPLIER SHELL U.K OIL LTD

KEYWORD Fuel

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | NITRILE | IF CONTACT LIKELY



WASH AFTER CONTACT | IF HEAVILY SOILED



AFTER USE | FLAMMABLE / ACUTE

HEALTH HAZARDS

Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

CONSIDERATIONS







SPILLAGE

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FIRE

Isolated small scale fire:
Carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

Using pump, minimal exposure.

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 92632

MATERIAL/PROCESS

GAS OIL / DIESEL

MEDIUM HAZARD

LIQUID



CONTENTS
Fuels, diesel < 95%,

SIGNAL WORD WARNING

EXP LIMIT Fuels, diesel 500mg/m3 8hTWA OEL

SUPPLIER SHELL U.K OIL LTD

KEYWORD Fuel

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED | NITRILE | IF CONTACT LIKELY



WASH AFTER CONTACT | IF HEAVILY SOILED



AFTER USE | FLAMMABLE / ACUTE

HEALTH HAZARDS

Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
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CONSIDERATIONS







SPILLAGE

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 92632

MATERIAL/PROCESS

GAS OIL / DIESEL

MEDIUM HAZARD

LIQUID



CONTENTS
Fuels, diesel < 95%,

SIGNAL WORD WARNING

EXP LIMIT Fuels, diesel 500mg/m3 8hTWA OEL

SUPPLIER SHELL U.K OIL LTD

KEYWORD Fuel

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling

AREA Outside

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED | NITRILE | IF CONTACT LIKELY



WASH AFTER CONTACT | IF HEAVILY SOILED



AFTER USE | FLAMMABLE / ACUTE

HEALTH HAZARDS

Harmful if inhaled
Causes skin irritation
Suspected of causing cancer
May cause damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

CONSIDERATIONS







SPILLAGE

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FIRE

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Carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

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REQUEST DETAILS #ID: 349495 User making request: Added Manually

MATERIAL DETAILS Material Code: 92632

Tradename: GAS OIL / DIESEL

MEDIUM UNCONTROLLED ACUTE RISK

MEDIUM UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: SHELL U.K OIL LTD

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Connecting	Inside Well Ventilated	Up to 1/2 hour per shift
2	Connecting	Outside	Up to 1/2 hour per shift
3	Immersing	Inside Well Ventilated	Up to 1/2 hour per shift
4	Immersing	Outside	Up to 1/2 hour per shift
5	Filling	Outside	Up to 1/2 hour per shift
6	Filling	Outside	1/2 to 2 hours per shift
7	Filling	Outside	2 to 4 hours per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 10 litre

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: FUELS

Sub Area Code:

OTHER INFORMATION

CONSIDERATIONS	Answer
Has the elimination or substitution of this material been considered?	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures?	YES
Are procedures to ensure the maintenance of controls in place?	YES
Are procedures to conduct exposure monitoring in place?	YES
Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained?	YES
Have all actions to be taken in the event of an emergency been considered?	YES

ID#:	220184	**User making request:**	Added Manually
Fax:	N/A	**Phone:**	N/A
Email:	N/A	**Date Created:**	10/02/2012
Date Assessment Reviewed	21/01/2020	**Next Review Date:**	21/01/2021
Material Code:	87563	**Tradename:**	GENERIC - UNLEADED PETROL
Supplier:	VARIOUS	**IMC:**	
Keyword:	Petrol	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	5 litres	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices:

Existing Control measures: PPE, Risk Assessment, Briefing, Storage, Spill Kits, Spill Kit Training

Exp Limit Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

Notes

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Filling	Outside	Up to 1/2 hour per shift
2	Filling	Inside Well Ventilated	Up to 1/2 hour per shift
3	Filling	Outside	2 to 4 hours per shift
4	Filling	Outside	4 to 8 hours per shift
5	Filling	Outside	Over 8 hours per shift
6	Filling	Inside Poorly Ventilated	Up to 1/2 hour per shift
7	Filling	Inside Poorly Ventilated	2 to 4 hours per shift
8	Filling	Inside Poorly Ventilated	4 to 8 hours per shift
9	Filling	Outside	Over 8 hours per shift
10	Filling	Outside	Up to 1/2 hour per shift
11	Filling	Outside	1/2 to 2 hours per shift
12	Filling	Outside	1/2 to 2 hours per shift
13	Connecting	Outside	Up to 1/2 hour per shift
14	Connecting	Confined Space	Up to 1/2 hour per shift
15	Mixing	Outside	Up to 1/2 hour per shift
16	Mixing	Inside Well Ventilated	Up to 1/2 hour per shift
17	Filling	Outside	Up to 1/2 hour per shift
18	Filling	Inside Well Ventilated	Up to 1/2 hour per shift
19	Filling	Inside Well Ventilated	Up to 1/2 hour per shift

Work Area

Work Area Code	Sub Area Code
FUELS	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | WASH AFTER USE



IF SOILED | CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
Ingestion - give plenty of water in sips, obtain immediate medical attention
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor





FIRE

Isolated small scale fire:
Vapour may spread - distant ignition is possible
Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Filling

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS



POLYTHENE OR VITON



IF CONTACT LIKELY





WASH AFTER USE



IF SOILED



CLOSE ALL CONTAINERS



HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
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May cause drowsiness or dizziness
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SPILLAGE

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Carbon dioxide - powder - foam - inert material
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Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











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Safer, Healthier, Stronger

FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
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May cause eye irritation

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Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
Ingestion - give plenty of water in sips, obtain immediate medical attention
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Vapour may spread - distant ignition is possible
Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

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SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** 4 to 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | AT END OF SHIFT



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
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Carbon dioxide - powder - foam - inert material
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CONSIDERATIONS











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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** Over 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | AT END OF SHIFT



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

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Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling

AREA Inside Poorly Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

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Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Vapour may spread - distant ignition is possible
Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Inside Poorly Ventilated **EXPOSURE TIME** 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

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Ingestion - give plenty of water in sips, obtain immediate medical attention
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Vapour may spread - distant ignition is possible
Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Inside Poorly Ventilated **EXPOSURE TIME** 4 to 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | AT END OF SHIFT



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

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FIRE

Isolated small scale fire:
Vapour may spread - distant ignition is possible
Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** Over 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | AT END OF SHIFT



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | WASH AFTER USE



IF SOILED | CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
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May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
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SPILLAGE

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CONSIDERATIONS











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MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Connecting

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS



POLYTHENE OR VITON



IF CONTACT LIKELY



AND



LEV OR



FILTER TYPE A2



WASH AFTER USE



IF SOILED



CLOSE ALL CONTAINERS

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
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SPILLAGE

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Ingestion - give plenty of water in sips, obtain immediate medical attention
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Vapour may spread - distant ignition is possible
Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

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Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

HIGH ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Connecting

AREA Confined Space

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



MONITOR O2 LEVEL | IMPERVIOUS OVERALLS



POLYTHENE OR VITON | PROTECTIVE FOOTWEAR | IF CONTACT LIKELY



AND | LEV AND | EN137 OR 14593/14594



WASH AFTER USE | IF SOILED | CLOSE ALL CONTAINERS

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
May cause eye irritation

SPILLAGE

Large spillage-evacuate area & refer to emergency spillage procedure
Ventilate area and exclude all sources of ignition
Wear polythene or viton gloves
Wear eye protection if contact likely
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
Ingestion - give plenty of water in sips, obtain immediate medical attention
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
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FIRE

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Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Refer to Confined Spaces Regulations 1997 and your specific Confined Spaces Risk Assessment for further requirements.

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
Causes skin irritation
Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects
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SPILLAGE

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Vapour may spread - distant ignition is possible
Carbon dioxide - powder - foam - inert material
Do not use water
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Refer to assessment for material to be mixed for any further precautions

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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



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LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | AND | LEV OR



FILTER TYPE A2 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR VITON



IF CONTACT LIKELY | WASH AFTER USE



IF SOILED | CLOSE ALL CONTAINERS | HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
May cause cancer
May cause genetic defects
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Suspected of damaging fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure
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Toxic to aquatic life with long lasting effects
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CONSIDERATIONS







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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



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LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Filling

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS



POLYTHENE OR VITON



IF CONTACT LIKELY





WASH AFTER USE



IF SOILED



CLOSE ALL CONTAINERS



HIGHLY FLAMM /ACUTE HAZ

HEALTH HAZARDS

Highly flammable liquid and vapour
May be fatal if swallowed and enters airways
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FACILITY CEMENTATION **MAIN** FUELS **SUB** 87563

MATERIAL/PROCESS

GENERIC - UNLEADED PETROL



HIGH HAZARD

LIQUID

SUPPLIER VARIOUS
KEYWORD Petrol

CONTENTS
Gasoline-, Benzene < 5%, Contains proprietary anti-knocking agents and octane boosters.

SIGNAL WORD DANGER

EXP LIMIT Benzene 3.25mg/m3 8hTWA 1ppm 8hTWA WEL, Gasoline- 1ppm 8hTWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Filling

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS



POLYTHENE OR VITON



IF CONTACT LIKELY





WASH AFTER USE



IF SOILED



CLOSE ALL CONTAINERS



HIGHLY FLAMM /ACUTE HAZ

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Highly flammable liquid and vapour
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CONSIDERATIONS











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REQUEST DETAILS #ID: 220184 User making request: Added Manually

MATERIAL DETAILS Material Code: 87563

Tradename: GENERIC - UNLEADED PETROL

HIGH UNCONTROLLED ACUTE RISK

HIGH UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: VARIOUS

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Filling	Outside	Up to 1/2 hour per shift
2	Filling	Inside Well Ventilated	Up to 1/2 hour per shift
3	Filling	Outside	2 to 4 hours per shift
4	Filling	Outside	4 to 8 hours per shift
5	Filling	Outside	Over 8 hours per shift
6	Filling	Inside Poorly Ventilated	Up to 1/2 hour per shift
7	Filling	Inside Poorly Ventilated	2 to 4 hours per shift
8	Filling	Inside Poorly Ventilated	4 to 8 hours per shift
9	Filling	Outside	Over 8 hours per shift
10	Filling	Outside	Up to 1/2 hour per shift
11	Filling	Outside	1/2 to 2 hours per shift
12	Filling	Outside	1/2 to 2 hours per shift
13	Connecting	Outside	Up to 1/2 hour per shift
14	Connecting	Confined Space	Up to 1/2 hour per shift
15	Mixing	Outside	Up to 1/2 hour per shift
16	Mixing	Inside Well Ventilated	Up to 1/2 hour per shift
17	Filling	Outside	Up to 1/2 hour per shift
18	Filling	Inside Well Ventilated	Up to 1/2 hour per shift
19	Filling	Inside Well Ventilated	Up to 1/2 hour per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 5 litres

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: FUELS

Sub Area Code:

OTHER INFORMATION

CONSIDERATIONS	Answer
Have you considered all components used in this task? Considered requisite under this exposure scenario	YES
Has the elimination or substitution of this material been considered? Considered requisite under this exposure scenario	YES
If available, have you considered purchasing pre-diluted or pre-mixed products? Considered requisite under this exposure scenario	YES
Have you implemented the use of the engineering controls before resorting to the use of RPE? Considered requisite under this exposure scenario	YES
Are all personnel provided with necessary RPE, suitably trained in its correct use, maintenance, and storage and been fit tested where required? Considered requisite under this exposure scenario	YES

	Are procedures to ensure the maintenance of controls in place? Considered requisite under this exposure scenario	YES
	Are procedures to conduct exposure monitoring in place? Considered requisite under this exposure scenario	YES
	Have users been informed, instructed and trained in the specific hazards for this material? Considered requisite under this exposure scenario	YES
	Are local area evacuation procedures in place in the event of a significant spillage of this product? Considered requisite under this exposure scenario	YES
	Is the fire response team trained in the specific fire fighting requirements for this material? Considered requisite under this exposure scenario	YES
	All actions to be taken in the event of an emergency have been considered	YES

ID#:	2220076	**User making request:**	Craig Pitman
Fax:		**Phone:**	01302793297
Email:	craig.pitman@skanska.co.uk	**Date Created:**	14/07/2014
Date Assessment Reviewed	19/04/2018	**Next Review Date:**	19/04/2021
Material Code:	108741	**Tradename:**	CARELUBE HES 46
Supplier:	LUBRICANTS UK LIMITED	**IMC:**	
Keyword:	Oil (Mineral)	**Frequency of use:**	Weekly
Approximately how much of the material is used by one person in one working day:	10ltrs	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices:

Existing Control measures: PPE, Risk Assessment , Storage, Briefing

Exp Limit Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

Notes

Files Uploaded

File Name

iye62eNq.pdf

Activities

Act No.	Method	Area	Exposure
1	Pouring	Inside Well Ventilated	Up to 1/2 hour per shift
2	Pouring	Inside Well Ventilated	1/2 to 2 hours per shift
7	Pouring	Inside Poorly Ventilated	1/2 to 2 hours per shift
8	Pouring	Inside Poorly Ventilated	Up to 1/2 hour per shift
9	Pouring	Outside	1/2 to 2 hours per shift
10	Pouring	Outside	Up to 1/2 hour per shift

Work Area

Work Area Code	Sub Area Code
STORES BENTLEY	

Safer Substitute Chosen **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 108741

MATERIAL/PROCESS

CARELUBE HES 46

MEDIUM HAZARD

LIQUID



CONTENTS
Highly refined mineral oil (IP 346 DMSO extract < 3 percent),

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

SUPPLIER LUBRICANTS UK LIMITED
KEYWORD Oil (Mineral)

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Pouring

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES


KEEP SKIN COVERED


NITRILE


IF SPLASH LIKELY


WASH AFTER CONTACT


IF SOILED





HEALTH HAZARDS

Not classified as hazardous under the CLP regulations (EC/1272/2008)
May cause eye irritation
Skin - irritation and dermatitis may result from prolonged contact
Mechanically degraded mineral oil may cause skin cancer
When using do not eat, drink or smoke
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear nitrile gloves
Wear eye protection if splash likely
Wear protective clothing if whole container is spilt
Absorb in sand or inert absorbent material
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - give plenty of water in sips
If feeling unwell consult your doctor immediately
Eye - irrigate with water for at least 15 minutes
Skin - wash with soap/cleanser and rinse with water
If irritation persists then consult a doctor



FIRE

Isolated small scale fire:
Powder - foam - carbon dioxide (CO_2)
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 108741

MATERIAL/PROCESS

CARELUBE HES 46

MEDIUM HAZARD

LIQUID



CONTENTS
Highly refined mineral oil (IP 346 DMSO extract < 3 percent),

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

SUPPLIER LUBRICANTS UK LIMITED
KEYWORD Oil (Mineral)

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Pouring

AREA Inside Well Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES


KEEP SKIN COVERED


NITRILE


IF SPLASH LIKELY


WASH AFTER CONTACT


IF SOILED





HEALTH HAZARDS

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MATERIAL/PROCESS

CARELUBE HES 46

MEDIUM HAZARD

LIQUID



CONTENTS
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SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

SUPPLIER LUBRICANTS UK LIMITED
KEYWORD Oil (Mineral)

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Pouring

AREA Inside Poorly Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES


KEEP SKIN COVERED


NITRILE


IF SPLASH LIKELY




WASH AFTER CONTACT


IF SOILED



HEALTH HAZARDS

Not classified as hazardous under the CLP regulations (EC/1272/2008)
May cause eye irritation
Skin - irritation and dermatitis may result from prolonged contact
Mechanically degraded mineral oil may cause skin cancer
When using do not eat, drink or smoke
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear nitrile gloves
Wear eye protection if splash likely
Wear protective clothing if whole container is spilt
Absorb in sand or inert absorbent material
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - give plenty of water in sips
If feeling unwell consult your doctor immediately
Eye - irrigate with water for at least 15 minutes
Skin - wash with soap/cleanser and rinse with water
If irritation persists then consult a doctor



FIRE

Isolated small scale fire:
Powder - foam - carbon dioxide (CO_2)
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

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SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 108741

MATERIAL/PROCESS

CARELUBE HES 46

MEDIUM HAZARD

LIQUID



CONTENTS
Highly refined mineral oil (IP 346 DMSO extract < 3 percent),

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

SUPPLIER LUBRICANTS UK LIMITED
KEYWORD Oil (Mineral)

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Pouring **AREA** Inside Poorly Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED



NITRILE



IF SPLASH LIKELY





WASH AFTER CONTACT



IF SOILED



HEALTH HAZARDS

Not classified as hazardous under the CLP regulations (EC/1272/2008)
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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 108741

MATERIAL/PROCESS

CARELUBE HES 46

MEDIUM HAZARD

LIQUID



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SUPPLIER LUBRICANTS UK LIMITED
KEYWORD Oil (Mineral)

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Pouring **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



KEEP SKIN COVERED



NITRILE



IF SPLASH LIKELY





WASH AFTER CONTACT



IF SOILED



HEALTH HAZARDS

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 108741

MATERIAL/PROCESS

CARELUBE HES 46

MEDIUM HAZARD

LIQUID



CONTENTS
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SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

SUPPLIER LUBRICANTS UK LIMITED
KEYWORD Oil (Mineral)

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Pouring **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



KEEP SKIN COVERED



NITRILE



IF SPLASH LIKELY





WASH AFTER CONTACT



IF SOILED



HEALTH HAZARDS

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REQUEST DETAILS #ID: 2220076 User making request: Craig Pitman

MATERIAL DETAILS Material Code: 108741

Tradename: CARELUBE HES 46

MEDIUM UNCONTROLLED ACUTE RISK

MEDIUM UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: LUBRICANTS UK LIMITED

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Pouring	Inside Well Ventilated	Up to 1/2 hour per shift
2	Pouring	Inside Well Ventilated	1/2 to 2 hours per shift
7	Pouring	Inside Poorly Ventilated	1/2 to 2 hours per shift
8	Pouring	Inside Poorly Ventilated	Up to 1/2 hour per shift
9	Pouring	Outside	1/2 to 2 hours per shift
10	Pouring	Outside	Up to 1/2 hour per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 10ltrs

Frequency of use: Weekly

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: STORES BENTLEY

Sub Area Code:

OTHER INFORMATION

CONSIDERATIONS	Answer
Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures? Users have been informed, instructed and trained in the use of the relevant COSHH control measures.	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls carried out	YES
Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
Are procedures to undertake skin checks in place? Regular checks are carried out by the company occupational health nurse	YES
Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained? All information regarding COSHH is stored on the company server	YES
Have all actions to be taken in the event of an emergency been considered? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES

ID#:	2243269	**User making request:**	Added Manually
Fax:	N/A	**Phone:**	N/A
Email:	N/A	**Date Created:**	03/02/2012
Date Assessment Reviewed	21/02/2020	**Next Review Date:**	21/02/2021
Material Code:	18474	**Tradename:**	SHELL SPIRAX S2 G 80W-90 (001D8261)
Supplier:	SHELL UK OIL PRODUCTS LIMITED	**IMC:**	
Keyword:	Oil (Mineral)	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	20 litres	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices:

Existing Control measures: PPE, Risk Assessment, Briefing, Storage, Spill Kit Training

Exp Limit Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

Notes

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Decanting	Any area (not confined)	Up to 1/2 hour per shift
2	Filling	Inside Well Ventilated	1/2 to 2 hours per shift
3	Decanting	Outside	1/2 to 2 hours per shift
4	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
5	Hand applying	Inside Well Ventilated	Up to 1/2 hour per shift
6	Hand applying	Inside Well Ventilated	1/2 to 2 hours per shift
7	Hand applying	Outside	Up to 1/2 hour per shift
8	Hand applying	Outside	1/2 to 2 hours per shift
9	Decanting	Inside Well Ventilated	Up to 1/2 hour per shift
10	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
11	Decanting	Outside	Up to 1/2 hour per shift
12	Decanting	Outside	1/2 to 2 hours per shift
13	Dispensing	Inside Well Ventilated	Up to 1/2 hour per shift
14	Dispensing	Inside Well Ventilated	1/2 to 2 hours per shift
15	Dispensing	Outside	Up to 1/2 hour per shift
16	Dispensing	Outside	1/2 to 2 hours per shift

Work Area

Work Area Code	Sub Area Code
STORES BENTLEY	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 18474

MATERIAL/PROCESS

SHELL SPIRAX S2 G 80W-90 (001D8261)



MEDIUM HAZARD

LIQUID

SUPPLIER SHELL UK OIL PRODUCTS LIMITED
KEYWORD Oil (Mineral)

CONTENTS
Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 0 - 90%, Contains additives

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

MEDIUM ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting **AREA** Any area (not confined) **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES



AVOID SKIN CONTACT | IF OVEREXPOSURE LIKELY | IF CONTACT LIKELY



OR | OR



WASH AFTER EXPOSURE | IF HEAVILY SOILED | CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam - inert material
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

CONSIDERATIONS







ACTIVITY COMMENTS

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 18474

MATERIAL/PROCESS

SHELL SPIRAX S2 G 80W-90 (001D8261)



MEDIUM HAZARD

LIQUID

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CONTENTS
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SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

MEDIUM ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Filling **AREA** Inside Well Ventilated **EXPOSURE TIME** 1/2 to 2 hours per shift

CONTROL MEASURES


AVOID SKIN CONTACT


POLYTHENE OR NITRILE


IF CONTACT LIKELY




WASH AFTER EXPOSURE


IF HEAVILY SOILED


CLOSE ALL CONTAINERS


CONTROLLED STORE /WASTE

HEALTH HAZARDS

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May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS







SPILLAGE

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 18474

MATERIAL/PROCESS

SHELL SPIRAX S2 G 80W-90 (001D8261)



MEDIUM HAZARD

LIQUID

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MEDIUM ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift

CONTROL MEASURES



AVOID SKIN CONTACT | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER EXPOSURE | IF HEAVILY SOILED



CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

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CONSIDERATIONS







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MATERIAL/PROCESS

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HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting **AREA** Inside Well Ventilated **EXPOSURE TIME** 1/2 to 2 hours per shift

CONTROL MEASURES



AVOID SKIN CONTACT | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER EXPOSURE | IF HEAVILY SOILED



CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

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CONSIDERATIONS







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MATERIAL/PROCESS

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HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Hand applying **AREA** Inside Well Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES



AVOID SKIN CONTACT | IF OVEREXPOSURE LIKELY | IF CONTACT LIKELY



WASH AFTER EXPOSURE | IF HEAVILY SOILED



CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

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CONSIDERATIONS







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MATERIAL/PROCESS

SHELL SPIRAX S2 G 80W-90 (001D8261)



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HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Hand applying

AREA Inside Well Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



AVOID SKIN CONTACT



POLYTHENE OR NITRILE



IF CONTACT LIKELY





WASH AFTER EXPOSURE



IF HEAVILY SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
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CONSIDERATIONS







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FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam - inert material
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

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SKANSKA

Printed 16/09/2020

FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 18474

MATERIAL/PROCESS

SHELL SPIRAX S2 G 80W-90 (001D8261)



MEDIUM HAZARD

LIQUID

SUPPLIER SHELL UK OIL PRODUCTS LIMITED
KEYWORD Oil (Mineral)

CONTENTS
Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 0 - 90%, Contains additives

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

MEDIUM ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Hand applying **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES


AVOID SKIN CONTACT


IF OVEREXPOSURE LIKELY


IF CONTACT LIKELY


WASH AFTER EXPOSURE


IF HEAVILY SOILED


CLOSE ALL CONTAINERS


CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

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METHOD Hand applying

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



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METHOD Decanting **AREA** Inside Well Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift

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METHOD Dispensing **AREA** Inside Well Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES



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REQUEST DETAILS #ID: 2243269 User making request: Added Manually

MATERIAL DETAILS Material Code: 18474

Tradename: SHELL SPIRAX S2 G 80W-90 (001D8261)

MEDIUM UNCONTROLLED ACUTE RISK

HIGH UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: SHELL UK OIL PRODUCTS LIMITED

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Decanting	Any area (not confined)	Up to 1/2 hour per shift
2	Filling	Inside Well Ventilated	1/2 to 2 hours per shift
3	Decanting	Outside	1/2 to 2 hours per shift
4	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
5	Hand applying	Inside Well Ventilated	Up to 1/2 hour per shift
6	Hand applying	Inside Well Ventilated	1/2 to 2 hours per shift
7	Hand applying	Outside	Up to 1/2 hour per shift
8	Hand applying	Outside	1/2 to 2 hours per shift
9	Decanting	Inside Well Ventilated	Up to 1/2 hour per shift
10	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
11	Decanting	Outside	Up to 1/2 hour per shift
12	Decanting	Outside	1/2 to 2 hours per shift
13	Dispensing	Inside Well Ventilated	Up to 1/2 hour per shift
14	Dispensing	Inside Well Ventilated	1/2 to 2 hours per shift
15	Dispensing	Outside	Up to 1/2 hour per shift
16	Dispensing	Outside	1/2 to 2 hours per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 20 litres

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: STORES BENTLEY

Sub Area Code:

OTHER INFORMATION

CONSIDERATIONS	Answer
Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures? Users have been informed, instructed and trained in the use of the relevant COSHH control measures.	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls carried out	YES
Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained? All information regarding COSHH is stored on the company server	YES
Have all actions to be taken in the event of an emergency been considered? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES

ID#:	2988474	**User making request:**	Craig Pitman
Fax:		**Phone:**	01302793297
Email:	craig.pitman@skanska.co.uk	**Date Created:**	07/03/2017
Date Assessment Reviewed	06/02/2020	**Next Review Date:**	06/02/2023
Material Code:	248777	**Tradename:**	SHELL RIMULA RT4 X 15W-40
Supplier:	SHELL UK OIL PRODUCTS LIMITED	**IMC:**	
Keyword:	Oil (Mineral)	**Frequency of use:**	Weekly
Approximately how much of the material is used by one person in one working day:	5ltr	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	.
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices: .

Existing Control measures: PPE, Risk Assessment, Briefing, Storage, Spill Kit Training

Exp Limit Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

Notes Contains Calcium long chain alkaryl sulphonate. May produce an allergic reaction. Contains Benzenesulfonic acid, methyl-, mono-C20-24-branched alkyl derivs., calcium salts. May produce an allergic reaction.

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Decanting	Inside Well Ventilated	Up to 1/2 hour per shift
2	Decanting	Outside	1/2 to 2 hours per shift
3	Direct Exposure	Outside	Up to 1/2 hour per shift
4	Decanting	Outside	Up to 1/2 hour per shift
5	Decanting	Inside Poorly Ventilated	1/2 to 2 hours per shift
6	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
7	Decanting	Inside Poorly Ventilated	1/2 to 2 hours per shift
8	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
9	Decanting	Outside	1/2 to 2 hours per shift

Work Area

Work Area Code	Sub Area Code
STORES BENTLEY	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 248777

MATERIAL/PROCESS

SHELL RIMULA RT4 X 15W-40



MEDIUM HAZARD

LIQUID

SUPPLIER SHELL UK OIL PRODUCTS LIMITED
KEYWORD Oil (Mineral)

CONTENTS
polyolefin amide alkenamine 1 - 5%, Zinc dialkyldithiophosphate 1 - 2.4%, Calcium long chain alkaryl sulphonate 0.1 - 0.9%, Benzenesulfonic acid, methyl-, mono-C20-24-branched alkyl derivs., calcium salts 0.1 - 0.9

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES


KEEP SKIN COVERED


POLYTHENE OR NITRILE


IF CONTACT LIKELY




WASH AFTER USE


IF SOILED


CLOSE ALL CONTAINERS


CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation
May cause allergic reaction in susceptible individuals in contact with skin

CONSIDERATIONS







SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID



Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 248777

MATERIAL/PROCESS

SHELL RIMULA RT4 X 15W-40



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MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

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MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Direct Exposure **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR NITRILE | PROTECTIVE FOOTWEAR



BS EN166 | WASH AFTER USE



IF SOILED | CHRONIC HAZARD

HEALTH HAZARDS

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ACTIVITY COMMENTS

Used oil may contain carcinogenic material

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 248777

MATERIAL/PROCESS

SHELL RIMULA RT4 X 15W-40



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MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

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MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting

AREA Inside Poorly Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED



POLYTHENE OR NITRILE



IF CONTACT LIKELY





WASH AFTER USE



IF SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

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MATERIAL/PROCESS

SHELL RIMULA RT4 X 15W-40



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MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting

AREA Inside Well Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES


KEEP SKIN COVERED


POLYTHENE OR NITRILE


IF CONTACT LIKELY




WASH AFTER USE


IF SOILED


CLOSE ALL CONTAINERS


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MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting

AREA Inside Poorly Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED



POLYTHENE OR NITRILE



IF CONTACT LIKELY





WASH AFTER USE



IF SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

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MATERIAL/PROCESS

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LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting

AREA Inside Well Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES


KEEP SKIN COVERED


POLYTHENE OR NITRILE


IF CONTACT LIKELY




WASH AFTER USE


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MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Decanting **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

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Alcumus Safer, Healthier, Stronger

REQUEST DETAILS #ID: 2988474 User making request: Craig Pitman

MATERIAL DETAILS Material Code: 248777

Tradename: SHELL RIMULA RT4 X 15W-40

MEDIUM UNCONTROLLED ACUTE RISK

MEDIUM UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: SHELL UK OIL PRODUCTS LIMITED

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Decanting	Inside Well Ventilated	Up to 1/2 hour per shift
2	Decanting	Outside	1/2 to 2 hours per shift
3	Direct Exposure	Outside	Up to 1/2 hour per shift
4	Decanting	Outside	Up to 1/2 hour per shift
5	Decanting	Inside Poorly Ventilated	1/2 to 2 hours per shift
6	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
7	Decanting	Inside Poorly Ventilated	1/2 to 2 hours per shift
8	Decanting	Inside Well Ventilated	1/2 to 2 hours per shift
9	Decanting	Outside	1/2 to 2 hours per shift

SCENARIO DETAILS

Additional work practices: .

Approximately how much of the material is used by one person in one working day: 5ltr

Frequency of use: Weekly

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?: .

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: STORES BENTLEY

Sub Area Code:

OTHER INFORMATION

Contains Calcium long chain alkaryl sulphonate. May produce an allergic reaction. Contains Benzenesulfonic acid, methyl-, mono-C20-24-branched alkyl derivs., calcium salts. May produce an allergic reaction.

CONSIDERATIONS	Answer
Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures? Users have been informed, instructed and trained in the use of the relevant COSHH control measures.	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls carried out	YES
Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
Are procedures to undertake skin checks in place? Regular checks are carried out by the company occupational health nurse	YES
Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained? All information regarding COSHH is stored on the company server	YES
Have all actions to be taken in the event of an emergency been considered? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES

ID#:	220490	**User making request:**	Added Manually
Fax:	N/A	**Phone:**	N/A
Email:	N/A	**Date Created:**	10/02/2012
Date Assessment Reviewed	08/01/2020	**Next Review Date:**	08/01/2021
Material Code:	161994	**Tradename:**	LOGCO ECO/F-RELEASE OIL - MO2
Supplier:	PICK QUICK SERVICE	**IMC:**	
Keyword:	Mould Release	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	10 litres	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices:

Existing Control measures: PPE, Risk Assessment, Briefing, Storage, Spill Kits, Spill Kit Training

Exp Limit Distillates (petroleum), hydrotreated light 1000mg/m3 8hTWA OEL

Notes Classification based upon contents stated within supplier's safety data sheet rather than upon suppliers classification. Contains Dipentene. May produce an allergic reaction.

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Spraying (Trigger Bottle)	Outside	1/2 to 2 hours per shift
2	Spraying (Pressurised/Gun)	Outside	1/2 to 2 hours per shift

Work Area

Work Area Code	Sub Area Code
OILS	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** OILS **SUB** 161994

MATERIAL/PROCESS

LOGCO ECO/F-RELEASE OIL - MO2



MEDIUM HAZARD

LIQUID

CONTENTS
Distillates (petroleum), hydrotreated light 40 - 60%,
Dipentene 0 - 1%,

SIGNAL WORD DANGER

EXP LIMIT Distillates (petroleum), hydrotreated light 1000mg/m3 8hTWA OEL

SUPPLIER PICK QUICK SERVICE
KEYWORD Mould Release

MEDIUM ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Trigger Bottle)

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

May be fatal if swallowed and enters airways
Causes skin irritation
May cause an allergic skin reaction
May cause drowsiness or dizziness
Mechanically degraded mineral oil may cause skin cancer
May cause eye irritation
Toxic to aquatic life with long lasting effects

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection if spill is in a poorly ventilated space
Wear respiratory protection if whole container is spilt
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

In case of allergic reaction/anaphylactic shock call for immediate assistance from trained first aiders
Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
Ingestion - give plenty of water in sips, obtain immediate medical attention
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor



FIRE

Isolated small scale fire:
Carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

Intermittent use of low pressure trigger spray bottle.

This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464

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FACILITY CEMENTATION **MAIN** OILS **SUB** 161994

MATERIAL/PROCESS

LOGCO ECO/F-RELEASE OIL - MO2



MEDIUM HAZARD

LIQUID

CONTENTS
Distillates (petroleum), hydrotreated light 40 - 60%,
Dipentene 0 - 1%,

SIGNAL WORD DANGER

EXP LIMIT Distillates (petroleum), hydrotreated light 1000mg/m3 8hTWA OEL

SUPPLIER PICK QUICK SERVICE
KEYWORD Mould Release

MEDIUM ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Pressurised/Gun)

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS | POLYTHENE OR NITRILE



PROTECTIVE FOOTWEAR | BS EN166 GRADE 3 | AND



LEV AND | FILTER TYPE A2P2 | WASH AFTER USE



IF SOILED | CLOSE ALL CONTAINERS | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

May be fatal if swallowed and enters airways
Causes skin irritation
May cause an allergic skin reaction
May cause drowsiness or dizziness
Mechanically degraded mineral oil may cause skin cancer
May cause eye irritation
Toxic to aquatic life with long lasting effects

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection if spill is in a poorly ventilated space
Wear respiratory protection if whole container is spilt
Wear protective overalls & chemical proof footwear
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

In case of allergic reaction/anaphylactic shock call for immediate assistance from trained first aiders
Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
Ingestion - give plenty of water in sips, obtain immediate medical attention
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor



FIRE

Isolated small scale fire:
Carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

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REQUEST DETAILS #ID: 220490 User making request: Added Manually

MATERIAL DETAILS Material Code: 161994

Tradename: LOGCO ECO/F-RELEASE OIL - MO2

MEDIUM UNCONTROLLED ACUTE RISK

HIGH UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: PICK QUICK SERVICE

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Spraying (Trigger Bottle)	Outside	1/2 to 2 hours per shift
2	Spraying (Pressurised/Gun)	Outside	1/2 to 2 hours per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 10 litres

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: OILS

Sub Area Code:

OTHER INFORMATION

Classification based upon contents stated within supplier's safety data sheet rather than upon suppliers classification. Contains Dipentene. May produce an allergic reaction.

CONSIDERATIONS	Answer
Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
Have you implemented the use of the engineering controls before resorting to the use of RPE? Risk assessment, method statements and procedures are in place for use of this product. These are taken into consideration prior to the use of PPE	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures? Users have been informed, instructed and trained in the use of the relevant COSHH control measures.	YES
Are all personnel provided with necessary RPE, suitably trained in its correct use, maintenance, and storage and been fit tested where required? All personnel are provided with suitable RPE and trained in its correct use and maintenance	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls carried out	YES
Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
Are procedures to undertake skin checks in place? Regular checks are carried out by the company occupational health nurse	YES
Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained? All information regarding COSHH is stored on the company server	YES
Have users been informed, instructed and trained in the specific hazards for this material? Users have been informed, instructed and trained in the use of this material.	YES

	Have all actions to be taken in the event of an emergency been considered? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES
	Are First Aiders trained in the specific First Aid requirements for this material? Some training has been given regarding the use of this material	YES

ID#:	349489	**User making request:**	Added Manually
Fax:	N/A	**Phone:**	N/A
Email:	N/A	**Date Created:**	03/02/2012
Date Assessment Reviewed	20/04/2020	**Next Review Date:**	20/04/2023
Material Code:	42187	**Tradename:**	PRIME-A-PUMP
Supplier:	LANSDOWNE PRODUCTS LTD	**IMC:**	
Keyword:	Additive	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	10 litres	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices:

Existing Control measures: PPE, Briefing, Risk Assessment, Storage

Exp Limit Sodium carbonate 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL

Notes

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Dissolving	Outside	1/2 to 2 hours per shift
2	Mixing	Outside	Up to 1/2 hour per shift
3	Pouring	Outside	Up to 1/2 hour per shift
4	Mixing	Outside	Up to 1/2 hour per shift
5	Hand applying	Outside	1/2 to 2 hours per shift

Work Area

Work Area Code	Sub Area Code
STORES BENTLEY	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 42187

MATERIAL/PROCESS

PRIME-A-PUMP

MEDIUM HAZARD

SOLID



CONTENTS
Sodium carbonate 30 - 50%, Proprietary lubricant, gelling agent and buffer

SIGNAL WORD WARNING

EXP LIMIT Sodium carbonate 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL

SUPPLIER LANSDOWNE PRODUCTS LTD
KEYWORD Additive

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Dissolving

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES


AVOID SKIN CONTACT


POLYTHENE OR NITRILE


BS EN166




WASH AFTER EXPOSURE


IF HEAVILY SOILED




CLOSE ALL CONTAINERS ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye irritation
May cause ill health if ingested in quantity
Skin - irritation and dermatitis may result from prolonged contact

CONSIDERATIONS







SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Suitable eye protection must be worn
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Scoop or scrape up and place in suitable container
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - rinse thoroughly with water for 20 minutes - take care not to affect uncontaminated eye. If irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water - carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 42187

MATERIAL/PROCESS

PRIME-A-PUMP

MEDIUM HAZARD

SOLID



CONTENTS
Sodium carbonate 30 - 50%, Proprietary lubricant, gelling agent and buffer

SIGNAL WORD WARNING

EXP LIMIT Sodium carbonate 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL

SUPPLIER LANSDOWNE PRODUCTS LTD
KEYWORD Additive

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

CONTROL MEASURES


AVOID SKIN CONTACT


POLYTHENE OR NITRILE


BS EN166




WASH AFTER EXPOSURE


IF HEAVILY SOILED


CLOSE ALL CONTAINERS


SWEEP OR VACUUM


ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye irritation
May cause ill health if ingested in quantity
Skin - irritation and dermatitis may result from prolonged contact

CONSIDERATIONS







SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Suitable eye protection must be worn
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Scoop or scrape up and place in suitable container
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - rinse thoroughly with water for 20 minutes - take care not to affect uncontaminated eye. If irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water - carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

Mixing large quants with water

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 42187

MATERIAL/PROCESS

PRIME-A-PUMP

MEDIUM HAZARD

SOLID



CONTENTS
Sodium carbonate 30 - 50%, Proprietary lubricant, gelling agent and buffer

SIGNAL WORD WARNING

EXP LIMIT Sodium carbonate 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL

SUPPLIER LANSDOWNE PRODUCTS LTD
KEYWORD Additive

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Pouring

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES


AVOID SKIN CONTACT


POLYTHENE OR NITRILE


BS EN166




WASH AFTER EXPOSURE


IF HEAVILY SOILED


CLOSE ALL CONTAINERS


ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye irritation
May cause ill health if ingested in quantity
Skin - irritation and dermatitis may result from prolonged contact

CONSIDERATIONS







SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Suitable eye protection must be worn
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Scoop or scrape up and place in suitable container
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - rinse thoroughly with water for 20 minutes - take care not to affect uncontaminated eye. If irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water - carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

Pouring mixed product.

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 42187

MATERIAL/PROCESS

PRIME-A-PUMP

MEDIUM HAZARD

SOLID



CONTENTS
Sodium carbonate 30 - 50%, Proprietary lubricant, gelling agent and buffer

SIGNAL WORD WARNING

EXP LIMIT Sodium carbonate 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL

SUPPLIER LANSDOWNE PRODUCTS LTD
KEYWORD Additive

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES


AVOID SKIN CONTACT


POLYTHENE OR NITRILE


BS EN166




WASH AFTER EXPOSURE


IF HEAVILY SOILED


CLOSE ALL CONTAINERS


SWEEP OR VACUUM


ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye irritation
May cause ill health if ingested in quantity
Skin - irritation and dermatitis may result from prolonged contact

CONSIDERATIONS







SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Suitable eye protection must be worn
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Scoop or scrape up and place in suitable container
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - rinse thoroughly with water for 20 minutes - take care not to affect uncontaminated eye. If irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water - carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

Refer to assessment for material to be mixed for any further precautions

This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464

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FACILITY CEMENTATION **MAIN** STORES BENTLEY **SUB** 42187

MATERIAL/PROCESS

PRIME-A-PUMP

MEDIUM HAZARD

SOLID



CONTENTS
Sodium carbonate 30 - 50%, Proprietary lubricant, gelling agent and buffer

SIGNAL WORD WARNING

EXP LIMIT Sodium carbonate 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL

SUPPLIER LANSDOWNE PRODUCTS LTD
KEYWORD Additive

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Hand applying

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES


AVOID SKIN CONTACT


POLYTHENE OR NITRILE


BS EN166




WASH AFTER EXPOSURE


IF HEAVILY SOILED




CLOSE ALL CONTAINERS ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye irritation
May cause ill health if ingested in quantity
Skin - irritation and dermatitis may result from prolonged contact

CONSIDERATIONS







SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Suitable eye protection must be worn
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Scoop or scrape up and place in suitable container
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - rinse thoroughly with water for 20 minutes - take care not to affect uncontaminated eye. If irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water - carbon dioxide - powder - foam - inert material
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

ACTIVITY COMMENTS

Pouring mixed product.

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Alcumus
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REQUEST DETAILS #ID: 349489 User making request: Added Manually

MATERIAL DETAILS Material Code: 42187

Tradename: PRIME-A-PUMP

MEDIUM UNCONTROLLED ACUTE RISK

MEDIUM UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: LANSDOWNE PRODUCTS LTD

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Dissolving	Outside	1/2 to 2 hours per shift
2	Mixing	Outside	Up to 1/2 hour per shift
3	Pouring	Outside	Up to 1/2 hour per shift
4	Mixing	Outside	Up to 1/2 hour per shift
5	Hand applying	Outside	1/2 to 2 hours per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 10 litres

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: STORES BENTLEY

Sub Area Code:

OTHER INFORMATION

CONSIDERATIONS	Answer
Have you considered all components used in this task? All components have been considered and the controls that are in place are deemed satisfactory	YES
Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
If available, have you considered purchasing pre-diluted or pre-mixed products? None deemed suitable	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures? Users have been informed, instructed and trained in the use of the relevant COSHH control measures.	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls carried out	YES
Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained? All information regarding COSHH is stored on the company server	YES
Have all actions to be taken in the event of an emergency been considered? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES

ID#:	3725477	**User making request:**	Gary Jeavons
Fax:		**Phone:**	07711107977
Email:	gary.jeavons@skanska.co.uk	**Date Created:**	20/02/2019
Date Assessment Reviewed	20/02/2019	**Next Review Date:**	20/02/2022
Material Code:	314410	**Tradename:**	HI-VIZ LINE MARKER PAINT 500 ML
Supplier Code:	28853	**Supplier:**	BLUE DIAMOND STL.
Supplier Phone:	01302 310113	**IMC:**	
Keyword:	Coating (Aerosol)	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	500 ml	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	inhalation contact with skin contact with eyes
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No

Additional work practices:
airfed hood
painters overalls
chemical resistant gloves

Existing Control measures:
safety helmet
overalls
safety glasses
safety boots

Exp Limit
Methanol 266mg/m3 Vap8hTWA 333mg/m3 Vap15mSTEL WEL, Xylene 220mg/m3 8hTWA 441mg/m3 15mSTEL WEL, n-Butyl acetate 724mg/m3 8hTWA 966mg/m3 15mSTEL WEL, Propane 1800mg/m3 8hTWA 7200mg/m3 15mSTEL OEL, methyl acetate 616mg/m3 8hTWA 770mg/m3 15mSTEL WEL, methyl formate 125mg/m3 8hTWA 250mg/m3 15mSTEL , 2-methoxy-1-methylethyl-acetate 274mg/m3 8hTWA 548mg/m3 15mSTEL WEL, Ethyl acetate 200ppm Vap8hTWA 400ppm Vap15mSTEL WEL

Notes
Classification is based upon the contents stated in the supplier's safety data sheet rather than upon the supplier's classification.

Files Uploaded

File Name
Y9Mjjf37.pdf

Activities

Act No.	Method	Area	Exposure
1	Spraying (Aerosol)	Inside Well Ventilated	Up to 1/2 hour per shift

Work Area

Work Area Code	Sub Area Code
PAINT SHOP	

Safer Substitute Chosen **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 314410

MATERIAL/PROCESS

HI-VIZ LINE MARKER PAINT 500 ML



MEDIUM HAZARD

AEROSOL

SUPPLIER BLUE DIAMOND STL.
KEYWORD Coating (Aerosol)

CONTENTS
Propane 19 - < 23%, methyl acetate 16 - < 22%, Xylene 15 - < 19%, Hydrocarbons, C4 9 - < 11%, n-Butyl acetate 1 - < 3%, Ethyl acetate 1 - < 3%, Methanol 0.5 - < 1%, 2-methoxy-1-methylethyl-acetate 0 - < 0.5%, methyl formate

SIGNAL WORD DANGER

EXP LIMIT Methanol 266mg/m3 Vap8hTWA 333mg/m3 Vap15mSTEL WEL, Xylene 220mg/m3 8hTWA 441mg/m3 15mSTEL WEL, n-Butyl acetate 724mg/m3 8hTWA 9

MEDIUM ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE | BS EN166



AND | LEV OR | FILTER TYPE AXP3



WASH AFTER EXPOSURE | IF SOILED | PRESSURISED

HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
Causes serious eye irritation
Causes skin irritation
May cause damage to organs through prolonged or repeated exposure
Potential for ototoxic effects that may cause hearing loss
May cause drowsiness or dizziness
May cause ill health if ingested in quantity

SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - rinse thoroughly with water for 20 minutes - take care not to affect uncontaminated eye. If irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

CONSIDERATIONS











ACTIVITY COMMENTS

Intermittent use of aerosol spray.

This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464

SKANSKA

Printed 11/06/2019

Alcumus Safer, Healthier, Stronger

REQUEST DETAILS #ID: 3725477 User making request: Gary Jeavons

MATERIAL DETAILS Material Code: 314410

Tradename: HI-VIZ LINE MARKER PAINT 500 ML

MEDIUM UNCONTROLLED ACUTE RISK

MEDIUM UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: BLUE DIAMOND STL.

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Spraying (Aerosol)	Inside Well Ventilated	Up to 1/2 hour per shift

SCENARIO DETAILS

Additional work practices: airfed hood, painters overalls, chemical resistant gloves

Approximately how much of the material is used by one person in one working day: 500 ml

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?: inhalation, contact with skin, contact with eyes

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: PAINT SHOP

Sub Area Code:

OTHER INFORMATION

Classification is based upon the contents stated in the supplier's safety data sheet rather than upon the supplier's classification.

CONSIDERATIONS	Answer
REG 7 — Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
REG 7 — Have you implemented the use of the engineering controls before resorting to the use of RPE? Risk assessment, method statements and procedures are in place for use of this product. These are taken into consideration prior to use of RPE	YES
REG 8 — Have users been informed, instructed and trained in the use of the relevant COSHH control measures? Risk assessment, method statements and procedures are in place for use of this product. All personnel are trained in its correct use and maintenance	YES
REG 8 — Are all personnel provided with necessary RPE, suitably trained in its correct use, maintenance, and storage and been fit tested where required? All personnel are provided with suitable RPE and trained in its correct use and maintenance	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls are carried out	YES
Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
Are procedures to undertake urine tests for Xylene in place. 650 mmol methyl hippuric acid/mol creatinine in urine [post shift] Yearly checks are carried out by the company occupational health nurse when necessary specific test will be carried out	YES
Are procedures in place to undertake tests for ototoxic effects? Regular checks of all personnel are carried out by the company occupational health nurse and exposure monitoring is carried out yearly or when required	YES

	Are specific records in accordance with the COSHH Regulations suitably maintained? All information regarding COSHH is stored on the company server	YES
	Have all actions to be taken in the event of an emergency been considered? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES
	Is the fire response team trained in the specific fire fighting requirements for this material? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES

ID#:	206240	**User making request:**	Added Manually
Fax:	N/A	**Phone:**	N/A
Email:	N/A	**Date Created:**	04/06/2010
Date Assessment Reviewed	18/08/2020	**Next Review Date:**	18/08/2021
Material Code:	146	**Tradename:**	EN197-1 COMMON CEMENTS AND MIXTURES
Supplier:	CEMEX UK OPERATIONS LTD	**IMC:**	
Keyword:	Cement	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	1 tonne	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No
Additional work practices:			
Existing Control measures:	PPE		
Exp Limit	Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium (VI) cpd 0.05mg/m3 8hr TWA WEL, Respirable silica 0.1mg/m3 8hTWA WEL, Portland cement 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL, Flue dust, portland cement 10mg/m3 Inhal8hTWA 4mg/m3 Resp8hTWA WEL		
Notes	Contains Portland cement. May produce an allergic reaction. Contains Flue dust, portland cement. May produce an allergic reaction. Assessment covers tradenames Rugby Premium, CEMEX Portland, Rugby Cement, CEMEX Rapid, Rugby High Strength, CEMEX Extra, Rugby Sulfate, CEMEX Portland 42,5, Rugby White, Rugby Fast Set		

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Mixing	Outside	2 to 4 hours per shift
2	Cutting (Mechanical)	Outside	4 to 8 hours per shift
3	Injecting	Inside Well Ventilated	4 to 8 hours per shift
4	Mixing	Outside	1/2 to 2 hours per shift
5	Mixing	Outside	Up to 1/2 hour per shift
6	Hand applying	Any area (not confined)	2 to 4 hours per shift
7	Hand applying	Any area (not confined)	1/2 to 2 hours per shift
8	Hand applying	Any area (not confined)	Up to 1/2 hour per shift
9	Mixing	Inside Poorly Ventilated	4 to 8 hours per shift
10	Mixing	Outside	4 to 8 hours per shift
11	Loading/Unloading	Outside	2 to 4 hours per shift
12	Loading/Unloading	Outside	2 to 4 hours per shift
13	Loading/Unloading	Outside	Up to 1/2 hour per shift
14	Mixing	Inside Poorly Ventilated	2 to 4 hours per shift
15	Mixing	Inside Poorly Ventilated	1/2 to 2 hours per shift
16	Mixing	Inside Poorly Ventilated	Up to 1/2 hour per shift
17	Mixing	Inside Well Ventilated	4 to 8 hours per shift
18	Mixing	Inside Well Ventilated	2 to 4 hours per shift
19	Mixing	Inside Well Ventilated	1/2 to 2 hours per shift
20	Mixing	Inside Well Ventilated	Up to 1/2 hour per shift
21	Mixing	Outside	2 to 4 hours per shift
22	Pouring	Outside	1/2 to 2 hours per shift
23	Pouring	Outside	2 to 4 hours per shift

Work Area

Work Area Code	Sub Area Code
SITE MATERIALS	

Safer Substitute Chosen No **Reason for leaving/swapping material**

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Outside

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

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SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

HIGH ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Cutting (Mechanical)

AREA Outside

EXPOSURE TIME 4 to 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | PROTECTIVE FOOTWEAR



IF CONTACT POSSIBLE | AND | WATER SUPPRESSION AND



FILTER TYPE P3 | WASH AFTER USE | AT END OF SHIFT



SWEEP OR VACUUM | CONTROLLED STORE /WASTE

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Cutting cured material.

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Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE | **HIGH CHRONIC RISK - FULL EXPOSURE** | **HIGH ACUTE RISK - INDIVIDUAL ACTIVITY**

METHOD Injecting
AREA Inside Well Ventilated
EXPOSURE TIME 4 to 8 hours per shift

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 | | WASH AFTER USE



AT END OF SHIFT | CLOSE ALL CONTAINERS | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention



FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing



ACTIVITY COMMENTS

Applying mixed material.

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Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

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SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

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SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Hand applying

AREA Any area (not confined)

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | OR | OR



WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | WHEN CURED

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Applying mixed material.

This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464

SKANSKA

Printed 16/09/2020

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Hand applying

AREA Any area (not confined)

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | OR | OR



WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | WHEN CURED

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Applying mixed material.

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SKANSKA

Printed 16/09/2020

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Hand applying

AREA Any area (not confined)

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | OR | OR



WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | WHEN CURED

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Applying mixed material.

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SKANSKA

Printed 16/09/2020

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

HIGH ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Poorly Ventilated

EXPOSURE TIME 4 to 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | AT END OF SHIFT



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

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Skin - remove contaminated clothing
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Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

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SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

HIGH ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Outside

EXPOSURE TIME 4 to 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | AT END OF SHIFT



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

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If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention



FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing



ACTIVITY COMMENTS

Mixing with water.

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Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Loading/Unloading

AREA Outside

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | IF CONTACT POSSIBLE



WASH AFTER USE | IF SOILED

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

Ensure access to eyewash station for emergency use
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If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention



FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing



ACTIVITY COMMENTS

Handling sealed containers, minimal contact envisaged.
In the event of a spill please refer to spillage section

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SKANSKA

Printed 16/09/2020

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Loading/Unloading

AREA Outside

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | IF CONTACT POSSIBLE



WASH AFTER USE | IF SOILED

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

Ensure access to eyewash station for emergency use
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Get prompt medical attention



FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing



ACTIVITY COMMENTS

Handling sealed containers, minimal contact envisaged.
In the event of a spill please refer to spillage section

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SKANSKA

Printed 16/09/2020

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE | **HIGH CHRONIC RISK - FULL EXPOSURE** | **LOW ACUTE RISK - INDIVIDUAL ACTIVITY** | **LOW CHRONIC RISK - INDIVIDUAL ACTIVITY**

METHOD Loading/Unloading
AREA Outside
EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | IF CONTACT POSSIBLE



WASH AFTER USE | IF SOILED

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



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Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention



FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing



ACTIVITY COMMENTS

Handling sealed containers, minimal contact envisaged.
In the event of a spill please refer to spillage section

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Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Poorly Ventilated

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

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Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
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Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

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Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Poorly Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
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FIRST AID

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Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
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Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

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MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER

EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Poorly Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

CONSIDERATIONS





SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate



FIRST AID

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Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention



FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing



ACTIVITY COMMENTS

Mixing with water.

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MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

HIGH ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Well Ventilated

EXPOSURE TIME 4 to 8 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | AT END OF SHIFT



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
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Skin - remove contaminated clothing
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Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

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Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Well Ventilated

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
Suitable eye protection must be worn
Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
Scoop or scrape up and place in suitable container
Do not dry sweep - either suppress dust or clear using hepa vacuum
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Ensure access to eyewash station for emergency use
Inhalation - remove to fresh air and rest
After a significant exposure or if feeling unwell call for medical assistance immediately
Ingestion - do not induce vomiting
Ingestion - wash out mouth with water
If feeling unwell consult your doctor immediately
Eye contact - irrigate using eyewash & get immediate medical attention
Skin - remove contaminated clothing
In case of burns immerse affected area in water
Get prompt medical attention

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixing with water.

This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464

SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE | **HIGH CHRONIC RISK - FULL EXPOSURE** | **MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY** | **MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY**

METHOD Mixing AREA Inside Well Ventilated EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

Ventilate area
Wear heavy duty impervious gloves
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Suitable respiratory protection must be worn
Wear protective overalls & chemical proof footwear
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CONSIDERATIONS











ACTIVITY COMMENTS

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MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER

EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

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CONSIDERATIONS











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MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Mixing

AREA Outside

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | AND | LEV OR



FILTER TYPE P3 | WASH AFTER USE | IF SOILED



CLOSE ALL CONTAINERS | SWEEP OR VACUUM | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
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Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

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MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Pouring

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | WASH AFTER USE



IF SOILED | CLOSE ALL CONTAINERS | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

Causes serious eye damage
Causes skin irritation
May cause respiratory irritation
May cause an allergic skin reaction
Prolonged skin contact can cause burns/skin ulceration
May cause ill health if ingested in quantity

SPILLAGE

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Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

Mixed material.

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MATERIAL/PROCESS

EN197-1 COMMON CEMENTS AND MIXTURES



HIGH HAZARD

SOLID

SUPPLIER CEMEX UK OPERATIONS LTD
KEYWORD Cement

CONTENTS
Portland cement 5 - 100%, Flue dust, portland cement 0 - 5%, Respirable silica < 1%,

SIGNAL WORD DANGER
EXP LIMIT Portland cement10mg/m3 inh 4mg/m3respWEL, Silica resp. cryst. 0.1mg/m3 8hr TWA WEL, Chromium(VI) cpd 0.05mg/m3 8hr TWA WEL

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Pouring

AREA Outside

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



IMPERVIOUS OVERALLS | HEAVYDUTY IMPERVIOUS | WET CEMENT



BS EN166 GRADE 3 | WASH AFTER USE



IF SOILED | CLOSE ALL CONTAINERS | SENSITISER/ACUTE HAZARD

HEALTH HAZARDS

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Wear self-contained breathing apparatus and protective clothing

CONSIDERATIONS











ACTIVITY COMMENTS

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REQUEST DETAILS #ID: 206240 User making request: Added Manually

MATERIAL DETAILS Material Code: 146

Tradename: EN197-1 COMMON CEMENTS AND MIXTURES

HIGH UNCONTROLLED ACUTE RISK

HIGH UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: CEMEX UK OPERATIONS LTD

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Mixing	Outside	2 to 4 hours per shift
2	Cutting (Mechanical)	Outside	4 to 8 hours per shift
3	Injecting	Inside Well Ventilated	4 to 8 hours per shift
4	Mixing	Outside	1/2 to 2 hours per shift
5	Mixing	Outside	Up to 1/2 hour per shift
6	Hand applying	Any area (not confined)	2 to 4 hours per shift
7	Hand applying	Any area (not confined)	1/2 to 2 hours per shift
8	Hand applying	Any area (not confined)	Up to 1/2 hour per shift
9	Mixing	Inside Poorly Ventilated	4 to 8 hours per shift
10	Mixing	Outside	4 to 8 hours per shift
11	Loading/Unloading	Outside	2 to 4 hours per shift
12	Loading/Unloading	Outside	2 to 4 hours per shift
13	Loading/Unloading	Outside	Up to 1/2 hour per shift
14	Mixing	Inside Poorly Ventilated	2 to 4 hours per shift
15	Mixing	Inside Poorly Ventilated	1/2 to 2 hours per shift
16	Mixing	Inside Poorly Ventilated	Up to 1/2 hour per shift
17	Mixing	Inside Well Ventilated	4 to 8 hours per shift
18	Mixing	Inside Well Ventilated	2 to 4 hours per shift
19	Mixing	Inside Well Ventilated	1/2 to 2 hours per shift
20	Mixing	Inside Well Ventilated	Up to 1/2 hour per shift
21	Mixing	Outside	2 to 4 hours per shift
22	Pouring	Outside	1/2 to 2 hours per shift
23	Pouring	Outside	2 to 4 hours per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 1 tonne

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: SITE MATERIALS

Sub Area Code:

OTHER INFORMATION

Contains Portland cement. May produce an allergic reaction. Contains Flue dust, portland cement. May produce an allergic reaction. Assessment covers tradenames Rugby Premium, CEMEX Portland, Rugby Cement, CEMEX Rapid, Rugby High Strength, CEMEX Extra, Rugby Sulfate, CEMEX Portland 42,5, Rugby White, Rugby Fast Set

CONSIDERATIONS	Answer
Have you considered all components used in this task?	YES
Has the elimination or substitution of this material been considered?	YES
If available, have you considered purchasing pre-diluted or pre-mixed products?	YES
Have you implemented the use of the engineering controls before resorting to the use of RPE?	YES

	Have users been informed, instructed and trained in the use of the relevant risk control measures?	YES
	Are all personnel provided with necessary RPE, suitably trained in its correct use, maintenance, and storage and been fit tested where required?	YES
	Are procedures to ensure the maintenance of controls in place?	YES
	Are procedures to conduct exposure monitoring in place?	YES
	Are procedures to undertake skin checks in place?	YES
	Are procedures to undertake chest X-Ray's in place?	YES
	Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained?	YES
	Have all actions to be taken in the event of an emergency been considered?	YES

ID#:	1894629	**User making request:**	Robert Butler
Fax:	01302793331	**Phone:**	01302793245
Email:	robert.butler@skanska.co.uk	**Date Created:**	10/05/2013
Date Assessment Reviewed	21/02/2020	**Next Review Date:**	21/02/2021
Material Code:	2396	**Tradename:**	WD-40 MULTI-USE PRODUCT [AEROSOL]
Supplier:	WD-40 COMPANY LIMITED	**IMC:**	
Keyword:	Lubricant (Aerosol)	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	250 ml	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No
Additional work practices:			
Existing Control measures:	Risk Assessment, PPE, Toolbox Talk, Storage		
Exp Limit	Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mSTEL WEL, Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 800mg/m3 8hTWA OEL		
Notes	Classification is based upon the contents stated in the supplier's safety data sheet rather than upon the supplier's classification.		

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Spraying (Aerosol)	Any area (not confined)	Up to 1/2 hour per shift
3	Spraying (Aerosol)	Inside Well Ventilated	1/2 to 2 hours per shift
4	Spraying (Aerosol)	Outside	1/2 to 2 hours per shift
6	Spraying (Aerosol)	Any area (not confined)	1/2 to 2 hours per shift
9	Spraying (Aerosol)	Confined Space	Up to 1/2 hour per shift
10	Spraying (Aerosol)	Inside Poorly Ventilated	Up to 1/2 hour per shift
11	Spraying (Aerosol)	Outside	Up to 1/2 hour per shift
34	Spraying (Aerosol)	Outside	2 to 4 hours per shift
76	Spraying (Aerosol)	Inside Well Ventilated	Up to 1/2 hour per shift

Work Area

Work Area Code	Sub Area Code
PAINT SHOP	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



MEDIUM HAZARD

AEROSOL

SUPPLIER WD-40 COMPANY LIMITED
KEYWORD Lubricant (Aerosol)

CONTENTS
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 60 - 80%, Carbon dioxide 1 - 5%,

SIGNAL WORD DANGER

EXP LIMIT Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mST

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Any area (not confined)

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



OR | OR | AND



LEV OR | FILTER TYPE A2P2 | WASH AFTER EXPOSURE



IF HEAVILY SOILED | PRESSURISED

HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
May cause drowsiness or dizziness
Repeated exposure may cause skin dryness or cracking
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene or nitrile gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

ACTIVITY COMMENTS

Intermittent use of aerosol spray.

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FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



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SUPPLIER WD-40 COMPANY LIMITED
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HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Inside Well Ventilated

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER EXPOSURE | IF HEAVILY SOILED



PRESSURISED

HEALTH HAZARDS

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HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Outside

EXPOSURE TIME 1/2 to 2 hours per shift

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER EXPOSURE | IF HEAVILY SOILED



PRESSURISED

HEALTH HAZARDS

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Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

ACTIVITY COMMENTS

Intermittent use of aerosol spray.

This assessment was compiled by Alcumus Sypol Limited from supplier's safety data sheets where appropriate. Safety in the use of assessments is the responsibility of the subscriber. For advice call the helpdesk on 01296 678464

SKANSKA

Printed 16/09/2020

Alcumus Safer, Healthier, Stronger

FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



MEDIUM HAZARD

AEROSOL

SUPPLIER WD-40 COMPANY LIMITED
KEYWORD Lubricant (Aerosol)

CONTENTS
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 60 - 80%, Carbon dioxide 1 - 5%,

SIGNAL WORD DANGER

EXP LIMIT Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mST

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Any area (not confined)

EXPOSURE TIME 1/2 to 2 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE



IF CONTACT LIKELY | OR | OR



AND | LEV OR | FILTER TYPE A2P2



WASH AFTER EXPOSURE | IF HEAVILY SOILED | PRESSURISED

HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
May cause drowsiness or dizziness
Repeated exposure may cause skin dryness or cracking
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene or nitrile gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

ACTIVITY COMMENTS

Intermittent use of aerosol spray.Use LEV / RPE in poorly ventilated areas.

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FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



MEDIUM HAZARD

AEROSOL

SUPPLIER WD-40 COMPANY LIMITED
KEYWORD Lubricant (Aerosol)

CONTENTS
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 60 - 80%, Carbon dioxide 1 - 5%,

SIGNAL WORD DANGER

EXP LIMIT Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mST

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

HIGH ACUTE RISK - INDIVIDUAL ACTIVITY

HIGH CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Confined Space

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



MONITOR O2 LEVEL | KEEP SKIN COVERED



POLYTHENE OR NITRILE | PROTECTIVE FOOTWEAR | IF CONTACT LIKELY



AND | LEV AND | EN137 OR 14593/14594



WASH AFTER EXPOSURE | IF HEAVILY SOILED | PRESSURISED

HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
May cause drowsiness or dizziness
Repeated exposure may cause skin dryness or cracking
May cause ill health if ingested in quantity
May cause eye irritation

SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene or nitrile gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

CONSIDERATIONS







ACTIVITY COMMENTS

Intermittent use of aerosol spray. Refer to Confined Spaces Regulations 1997 and your specific Confined Spaces Risk Assessment for further requirements.

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FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



MEDIUM HAZARD

AEROSOL

SUPPLIER WD-40 COMPANY LIMITED
KEYWORD Lubricant (Aerosol)

CONTENTS
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 60 - 80%, Carbon dioxide 1 - 5%,

SIGNAL WORD DANGER

EXP LIMIT Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mST

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Inside Poorly Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



AND | LEV OR | FILTER TYPE A2P2



WASH AFTER EXPOSURE | IF HEAVILY SOILED | PRESSURISED

HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
May cause drowsiness or dizziness
Repeated exposure may cause skin dryness or cracking
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene or nitrile gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

ACTIVITY COMMENTS

Intermittent use of aerosol spray.

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FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



MEDIUM HAZARD

AEROSOL

SUPPLIER WD-40 COMPANY LIMITED
KEYWORD Lubricant (Aerosol)

CONTENTS
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 60 - 80%, Carbon dioxide 1 - 5%,

SIGNAL WORD DANGER

EXP LIMIT Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mST

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Outside

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



KEEP SKIN COVERED | POLYTHENE OR NITRILE | IF CONTACT LIKELY



WASH AFTER EXPOSURE | IF HEAVILY SOILED



PRESSURISED

HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
May cause drowsiness or dizziness
Repeated exposure may cause skin dryness or cracking
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene or nitrile gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

ACTIVITY COMMENTS

Intermittent use of aerosol spray.

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FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



MEDIUM HAZARD

AEROSOL

SUPPLIER WD-40 COMPANY LIMITED
KEYWORD Lubricant (Aerosol)

CONTENTS
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 60 - 80%, Carbon dioxide 1 - 5%,

SIGNAL WORD DANGER

EXP LIMIT Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mST

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Outside

EXPOSURE TIME 2 to 4 hours per shift

CONTROL MEASURES



KEEP SKIN COVERED



POLYTHENE OR NITRILE



IF CONTACT LIKELY



AND



LEV OR



FILTER TYPE A1P2



WASH AFTER EXPOSURE



IF HEAVILY SOILED



PRESSURISED



HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
May cause drowsiness or dizziness
Repeated exposure may cause skin dryness or cracking
May cause ill health if ingested in quantity
May cause eye irritation

SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene or nitrile gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

CONSIDERATIONS







ACTIVITY COMMENTS

Intermittent use of aerosol spray.

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FACILITY CEMENTATION **MAIN** PAINT SHOP **SUB** 2396

MATERIAL/PROCESS

WD-40 MULTI-USE PRODUCT [AEROSOL]



MEDIUM HAZARD

AEROSOL

SUPPLIER WD-40 COMPANY LIMITED
KEYWORD Lubricant (Aerosol)

CONTENTS
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics 60 - 80%, Carbon dioxide 1 - 5%,

SIGNAL WORD DANGER

EXP LIMIT Oil mist(min*) 5mg/m3TWA 10mg/m3STEL OEL, Carbon dioxide 9150mg/m3 8hTWA 5000ppm 8hTWA 27400mg/m3 15mSTEL 15000ppm 15mST

HIGH ACUTE RISK - FULL EXPOSURE

HIGH CHRONIC RISK - FULL EXPOSURE

MEDIUM ACUTE RISK - INDIVIDUAL ACTIVITY

MEDIUM CHRONIC RISK - INDIVIDUAL ACTIVITY

METHOD Spraying (Aerosol)

AREA Inside Well Ventilated

EXPOSURE TIME Up to 1/2 hour per shift

CONTROL MEASURES



POLYTHENE OR NITRILE



BS EN166



WASH AFTER EXPOSURE



IF HEAVILY SOILED



PRESSURISED

HEALTH HAZARDS

Extremely flammable aerosol
Pressurised container: May burst if heated.
May cause drowsiness or dizziness
Repeated exposure may cause skin dryness or cracking
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS







SPILLAGE

Not applicable when intact
In case of leakage or loss of containment:
Ventilate area and exclude all sources of ignition
Wear protective clothing if whole container is spilt
Allow to dissipate
Wear polythene or nitrile gloves
Ensure area is safe before re-entry

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Keep aerosol cans cool, do not burn for disposal
Isolated small scale fire:
Vapour may spread - distant ignition is possible
Water fog - carbon dioxide - powder - foam
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Keep containers cool with water spray
Risk of explosion if involved in a fire

ACTIVITY COMMENTS

Intermittent use of aerosol under laboratory conditions.

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REQUEST DETAILS #ID: 1894629 User making request: Robert Butler

MATERIAL DETAILS Material Code: 2396

Tradename: WD-40 MULTI-USE PRODUCT [AEROSOL]

HIGH UNCONTROLLED ACUTE RISK

HIGH UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: WD-40 COMPANY LIMITED

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Spraying (Aerosol)	Any area (not confined)	Up to 1/2 hour per shift
3	Spraying (Aerosol)	Inside Well Ventilated	1/2 to 2 hours per shift
4	Spraying (Aerosol)	Outside	1/2 to 2 hours per shift
6	Spraying (Aerosol)	Any area (not confined)	1/2 to 2 hours per shift
9	Spraying (Aerosol)	Confined Space	Up to 1/2 hour per shift
10	Spraying (Aerosol)	Inside Poorly Ventilated	Up to 1/2 hour per shift
11	Spraying (Aerosol)	Outside	Up to 1/2 hour per shift
34	Spraying (Aerosol)	Outside	2 to 4 hours per shift
76	Spraying (Aerosol)	Inside Well Ventilated	Up to 1/2 hour per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 250 ml

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: PAINT SHOP

Sub Area Code:

OTHER INFORMATION

Classification is based upon the contents stated in the supplier's safety data sheet rather than upon the supplier's classification.

CONSIDERATIONS	Answer
Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
Have you implemented the use of the engineering controls before resorting to the use of RPE? Risk assessments, method statements and procedures are in place for use of this product - these are taken into consideration prior to the use of RPE.	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures? Users have been informed, instructed and trained in the use of the relevant COSHH control measures.	YES
Are all personnel provided with necessary RPE, suitably trained in its correct use, maintenance, and storage and been fit tested where required? All personnel are supplied with suitable RPE and trained in it's correct use and maintenance.	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls carried out	YES
Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained? All information regarding COSHH is stored on the company server	YES

	Have all actions to be taken in the event of an emergency been considered? The Company Fire & Emergency Evacuation Procedures are in place in the event of an emergency.	YES
	Is the fire response team trained in the specific fire fighting requirements for this material? The fire response team are trained in the fire fighting requirements for this material	YES

ID#:	2988379	**User making request:**	Craig Pitman
Fax:		**Phone:**	01302793297
Email:	craig.pitman@skanska.co.uk	**Date Created:**	07/03/2017
Date Assessment Reviewed	17/09/2020	**Next Review Date:**	17/09/2023
Material Code:	254056	**Tradename:**	CAT DEO-ULS 10W-30
Supplier:	EXXON MOBIL CORPORATION	**IMC:**	
Keyword:	Oil (Mineral)	**Frequency of use:**	Daily
Approximately how much of the material is used by one person in one working day:	10ltr	**How many people are directly exposed?:**	1
Are any other people put at risk from indirect exposure?:	No	**How are they exposed?:**	
Are there any susceptible workers?:	No	**Susceptible Categories:**	
Other info:		**Is this material being used outside of the normal temperature range?:**	No
Additional work practices:			
Existing Control measures:			
Exp Limit	Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA 10mg/m3 15mSTEL OEL		
Notes	Product Code: 20202040B023, 452615-00, 97AX89		

Files Uploaded

File Name

Activities

Act No.	Method	Area	Exposure
1	Decanting	Inside Well Ventilated	Up to 1/2 hour per shift
4	Decanting	Outside	Up to 1/2 hour per shift
5	Decanting	Outside	1/2 to 2 hours per shift
6	Filling	Inside Poorly Ventilated	Up to 1/2 hour per shift
7	Filling	Outside	Up to 1/2 hour per shift

Work Area

Work Area Code	Sub Area Code
SITE MATERIALS	

Safer Substitute Chosen No **Reason for leaving/swapping material**

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

MEDIUM HAZARD

LIQUID



SUPPLIER EXXON MOBIL CORPORATION

KEYWORD Oil (Mineral)

CONTENTS

ZINC ALKYL DITHIOPHOSPHATE 0.1 - < 1%, Highly refined mineral oil (IP 346 DMSO extract < 3 percent), Additives

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS





METHOD Decanting **AREA** Inside Well Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



AVOID SKIN CONTACT



IF OVEREXPOSURE LIKELY



IF CONTACT LIKELY





WASH AFTER EXPOSURE



IF HEAVILY SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

SPILLAGE

Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam - inert material
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

Alcumus
Safer, Healthier, Stronger

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FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

MEDIUM HAZARD

LIQUID



SUPPLIER EXXON MOBIL CORPORATION

KEYWORD Oil (Mineral)

CONTENTS

ZINC ALKYL DITHIOPHOSPHATE 0.1 - < 1%, Highly refined mineral oil (IP 346 DMSO extract < 3 percent), Additives

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS





METHOD Decanting **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



AVOID SKIN CONTACT



IF OVEREXPOSURE LIKELY



IF CONTACT LIKELY





WASH AFTER EXPOSURE



IF HEAVILY SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

SPILLAGE



Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam - inert material
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

Alcumus
Safer, Healthier, Stronger

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SKANSKA

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

MEDIUM HAZARD

LIQUID



SUPPLIER EXXON MOBIL CORPORATION

KEYWORD Oil (Mineral)

CONTENTS

ZINC ALKYL DITHIOPHOSPHATE 0.1 - < 1%, Highly refined mineral oil (IP 346 DMSO extract < 3 percent), Additives

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS





METHOD Decanting **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



AVOID SKIN CONTACT



POLYTHENE OR NITRILE



IF CONTACT LIKELY





WASH AFTER EXPOSURE



IF HEAVILY SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

SPILLAGE



Ventilate area
Wear polythene or nitrile gloves
Wear eye protection if contact likely
Wear respiratory protection for large spills in poorly ventilated areas
Wear protective overalls and footwear for large spillages
Absorb in sand or inert absorbent material
Small spills - wipe up with cloth
Collect into a container, close lid
Dispose or recycle of spillages in a controlled manner - Refer to Hazardous Waste Regulations if appropriate

FIRST AID

Inhalation - remove to fresh air; get immediate medical attention after significant exposure or if feeling ill
Ingestion - do not induce vomiting, wash out mouth with water
If feeling unwell consult your doctor immediately
Eye - irrigate with water until irritation subsides; if irritation persists then consult a doctor
Skin - wash with soap/cleanser and rinse with water; if irritation persists then consult a doctor

FIRE

Isolated small scale fire:
Water fog - carbon dioxide - powder - foam - inert material
Do not use water jet
Large fire: evacuate area, call fire brigade or follow site procedure
Wear self-contained breathing apparatus and protective clothing
Toxic fumes are produced when material is involved in a fire

ACTIVITY COMMENTS

Alcumus
Safer, Healthier, Stronger

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Printed 17/09/2020

SKANSKA

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

MEDIUM HAZARD

LIQUID



SUPPLIER EXXON MOBIL CORPORATION

KEYWORD Oil (Mineral)

CONTENTS

ZINC ALKYL DITHIOPHOSPHATE 0.1 - < 1%, Highly refined mineral oil (IP 346 DMSO extract < 3 percent), Additives

SIGNAL WORD NONE

EXP LIMIT Highly refined mineral oil (IP 346 DMSO extract < 3 percent) 5mg/m3 8hTWA

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS





METHOD Filling **AREA** Inside Poorly Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



AVOID SKIN CONTACT



IF OVEREXPOSURE LIKELY



IF CONTACT LIKELY





WASH AFTER EXPOSURE



IF HEAVILY SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

SPILLAGE

Ventilate area
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Wear eye protection if contact likely
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FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

MEDIUM HAZARD

LIQUID



SUPPLIER EXXON MOBIL CORPORATION

KEYWORD Oil (Mineral)

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HEALTH HAZARDS

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May cause ill health if ingested in quantity
May cause eye irritation

CONSIDERATIONS





METHOD Filling **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY

CONTROL MEASURES



AVOID SKIN CONTACT



IF OVEREXPOSURE LIKELY



IF CONTACT LIKELY





WASH AFTER EXPOSURE



IF HEAVILY SOILED



CLOSE ALL CONTAINERS



CONTROLLED STORE /WASTE

SPILLAGE



Ventilate area
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SKANSKA

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

SUPPLIER EXXON MOBIL CORPORATION
KEYWORD Oil (Mineral)
SIGNAL WORD NONE

MEDIUM HAZARD

LIQUID



METHOD Decanting **AREA** Inside Well Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift **ACTIVITY COMMENTS**

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

CONTROL MEASURES

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY



AVOID SKIN CONTACT | IF OVEREXPOSURE LIKELY | IF CONTACT LIKELY | WASH AFTER EXPOSURE | IF HEAVILY SOILED | CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

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Printed 17/09/2020

SKANSKA

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

SUPPLIER EXXON MOBIL CORPORATION
KEYWORD Oil (Mineral)
SIGNAL WORD NONE

MEDIUM HAZARD

LIQUID



METHOD Decanting **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift **ACTIVITY COMMENTS**

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

CONTROL MEASURES

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY



AVOID SKIN CONTACT | IF OVEREXPOSURE LIKELY | IF CONTACT LIKELY | WASH AFTER EXPOSURE | IF HEAVILY SOILED | CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
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SKANSKA

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

SUPPLIER EXXON MOBIL CORPORATION
KEYWORD Oil (Mineral)
SIGNAL WORD NONE

MEDIUM HAZARD

LIQUID



METHOD Decanting **AREA** Outside **EXPOSURE TIME** 1/2 to 2 hours per shift **ACTIVITY COMMENTS**

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

CONTROL MEASURES

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY



AVOID SKIN CONTACT | POLYTHENE OR NITRILE | IF CONTACT LIKELY | WASH AFTER EXPOSURE | IF HEAVILY SOILED | CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
May cause ill health if ingested in quantity
May cause eye irritation

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SKANSKA

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

SUPPLIER EXXON MOBIL CORPORATION
KEYWORD Oil (Mineral)
SIGNAL WORD NONE

MEDIUM HAZARD

LIQUID



METHOD Filling **AREA** Inside Poorly Ventilated **EXPOSURE TIME** Up to 1/2 hour per shift **ACTIVITY COMMENTS**

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

CONTROL MEASURES

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY



AVOID SKIN CONTACT | IF OVEREXPOSURE LIKELY | IF CONTACT LIKELY | WASH AFTER EXPOSURE | IF HEAVILY SOILED | CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

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SKANSKA

FACILITY CEMENTATION **MAIN** SITE MATERIALS **SUB** 254056

MATERIAL/PROCESS

CAT DEO-ULS 10W-30

SUPPLIER EXXON MOBIL CORPORATION
KEYWORD Oil (Mineral)
SIGNAL WORD NONE

MEDIUM HAZARD

LIQUID



METHOD Filling **AREA** Outside **EXPOSURE TIME** Up to 1/2 hour per shift **ACTIVITY COMMENTS**

LOW ACUTE RISK - FULL EXPOSURE

MEDIUM CHRONIC RISK - FULL EXPOSURE

CONTROL MEASURES

LOW ACUTE RISK - INDIVIDUAL ACTIVITY

LOW CHRONIC RISK - INDIVIDUAL ACTIVITY



AVOID SKIN CONTACT | IF OVEREXPOSURE LIKELY | IF CONTACT LIKELY | WASH AFTER EXPOSURE | IF HEAVILY SOILED | CLOSE ALL CONTAINERS | CONTROLLED STORE /WASTE

HEALTH HAZARDS

Mechanically degraded mineral oil may cause skin cancer
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REQUEST DETAILS #ID: 2988379 User making request: Craig Pitman

MATERIAL DETAILS Material Code: 254056

Tradename: CAT DEO-ULS 10W-30

LOW UNCONTROLLED ACUTE RISK

MEDIUM UNCONTROLLED CHRONIC RISK

LOW CONTROLLED ACUTE/CHRONIC RISK

IMC: Supplier: EXXON MOBIL CORPORATION

ACTIVITY DETAILS

Act No.	Method	Area	Exposure
1	Decanting	Inside Well Ventilated	Up to 1/2 hour per shift
4	Decanting	Outside	Up to 1/2 hour per shift
5	Decanting	Outside	1/2 to 2 hours per shift
6	Filling	Inside Poorly Ventilated	Up to 1/2 hour per shift
7	Filling	Outside	Up to 1/2 hour per shift

SCENARIO DETAILS

Additional work practices:

Approximately how much of the material is used by one person in one working day: 10ltr

Frequency of use: Daily

How many people are directly exposed?: 1

Are any other people put at risk from indirect exposure?: No

How are they exposed?:

Are there any susceptible workers?: No

Susceptible Categories:

WORK AREA

Work Area Code: SITE MATERIALS

Sub Area Code:

OTHER INFORMATION

Product Code: 20202040B023, 452615-00, 97AX89

CONSIDERATIONS

	Answer
Has the elimination or substitution of this material been considered? No other products deemed as suitable	YES
Have users been informed, instructed and trained in the use of the relevant risk control measures? Users have been informed, instructed and trained in the use of the relevant COSHH control measures.	YES
Are procedures to ensure the maintenance of controls in place? Regular audits of all procedures and controls carried out	YES

	Are procedures to conduct exposure monitoring in place? Procedures are in place for monitoring of any personnel likely to be exposed to any harmful products	YES
	Are specific records for inspection of control measures, exposure monitoring health and/or surveillance suitably maintained? Specific records in accordance with the COSHH Regulations are suitably maintained.	YES
	Have all actions to be taken in the event of an emergency been considered? The company fire and emergency evacuation procedures are in place in the event of an emergency	YES

Appendix H Working Platform Certificate

EXCELLENCE IN GEOTECHNICAL ENGINEERING

To: Main Contractors December 2013

Dear Sirs,

SAFETY ALERT

You will no doubt be aware that the Federation of Piling Specialists (FPS) Working Platform Initiative is wholeheartedly supported by the Health and Safety Executive. As part of the Initiative FPS Members passed a resolution agreeing not to commence work on any site after 1st January 2004 unless and until a properly completed Working Platform Certificate has been handed over.

Since the implementation of this resolution, incidences of rig instability involving FPS Members have been thankfully rare. Where rig instability has occurred it has generally been attributed to inadequate design, inadequate installation or inadequate maintenance of the Working Platform.

We are aware that Employers and Main Contractors have had their budgets and margins squeezed by the longest recession in living memory and this pinch point has certainly impacted on Piling Contractors too. During this period FPS Members have reported being asked sometimes to work on sites with inadequate or no Working Platform and being advised that other piling contractors are willing to work without a Working Platform. Such requests are always refused but do call into question whether the risks of operating piling and associated plant have been properly considered within the Site Specific Risk Assessments. It is for this reason that we believe that it may be prudent to renew awareness of the significant risks encountered with piling and associated operations.

As specialist sub-contractors FPS Members rely upon our Employers to provide us with a safe working environment and to confirm, by way of a properly completed Working Platform Certificate, that our plant can be operated safely. We trust that your own desire for the highest levels of site safety will mean that you will join us in our efforts to achieve zero Working Platform incidents and request that you distribute copies of the attached information to all of those in your employment who are involved with sites where piling may be required. Further detailed information regarding Working Platforms can be obtained from www.fps.org.uk but should you have any specific queries please do not hesitate to contact your FPS piling contractor.

Yours sincerely



Jim De Waele
Chairman

Forum Court, 83 Copers Cope Road, Beckenham, Kent BR3 1NR. **Tel: 020 8663 0947** Fax: 020 8663 0949 Email: fps@fps.org.uk

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AVOID **THIS!**
DO IT **RIGHT!**



www.fps.org.uk

FEDERATION OF
PILING SPECIALISTS

FPS
EXCELLENCE IN GEOTECHNICAL ENGINEERING

Cementation SKANSKA

Working Platform Certificate

EXCELLENCE IN GEOTECHNICAL ENGINEERING

Project Name	**Sheffield Advanced Wellbeing Research Centre, Sheffield**
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.	
Maximum plant loading	

(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

Cementation SKANSKA

Working Platform Certificate

FPS EXCELLENCE IN GEOTECHNICAL ENGINEERING

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)

Cementation SKANSKA

Working Platform Certificate

FPS EXCELLENCE IN GEOTECHNICAL ENGINEERING

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.

SKANSKA

Permit to Dig

Serial No:

Part 1 – Authorisation by permit controller

Project:		Soil types(s):	
Contractor:		Permit start date and time:	
Engineer Supervisor:		Permit expiry date and time:	
Excavation location(s) and specification:			
Plan or sketch attached to permit – record original drawing no:			Yes / No
Note - Utilities drawings must be attached to the permit, if drawings are not available then the trial hole excavation sketch must be produced for the specific work area. Prior to any excavation known services will be marked on the existing ground.			

Hazard

There exists the potential for the following hazards to be present:			
LV/HV Electricity*	Yes/No	Hazardous soils/substances*	Yes / No
Gas/pressurised services*	Yes/No	Underground structures	Yes / No
Piped water	Yes/No	Explosive ordnance	Yes / No
Telecomm/ fibre optic*	Yes/No	Piped fuel/petrochemical	Yes / No
Sewage pipes	Yes/No	Ground/surface water*	Yes / No

Service Provider Easements

Note - If the works are within the easements specified below, a service providers supervisor must be onsite	
Work within 3m easement – record services and provider:	Yes / No

Safe System of Work (* delete as applicable)

Risk Assessment no:	Document attached	Yes / No
Health and safety briefing sheet no:	Document attached	Yes / No
Temporary Works inspection required – record reference no:		Yes / No
Continued gas monitoring - record unit type/serial no:		Yes / No
Batter / step / support excavation sides*		Yes / No
Safe access and egress		Yes / No
Weils diseases cards issued to working party		Yes / No
Use of powered plant or tools is **PROHIBITED** within this set distance of any services identified		meters
Provide temporary support to services		Yes / No
No smoking in excavation		Yes / No
Permit to work underneath overhead services necessary		Yes / No
Toothless excavator buckets shall be used		Yes / No
Services to be marked out onsite		Yes / No
CABLE AVOIDANCE TOOL to be used before breaking ground – record type:		Yes / No
Trial holes to be dug by hand to confirm the location of the known services identified above.		Yes / No
Work is within an ecological / environmentally sensitive area and additional controls are necessary		Yes / No
Permission is granted to excavate according to the written safe system of work and controls identified above.		

Name:	Position:
Signature:	Date and Time:

Part 2 – Receipt by supervisor

As the supervisor, I am familiar with the scope of work and safe systems to be implemented.	
A briefing has been delivered to the workforce on this safe system of work:	Yes / No

Name:	Position:
Signature:	Date and Time:

Part 3 – Completion by supervisor

The activities authorised by this permit have finished.	

Name:	Position:
Signature:	Date and Time:

Part 4 – Cancellation by permit controller

The activities authorised by this permit have now ceased. No further excavation is to take place in this location.	
The excavation(s) covered by this permit, have been backfilled:	Yes/No

Name:	Position:
Signature:	Date and Time:

Addendum EHS 007-F03 CAT SCAN RECORD

Project: Risk Assessment No:

CAT Scan Operator: CAT Equipment Ser No:

Utility Drawing No: Permit Reference No:

Location: Weather:

Time/Date of Scan:

Note: Attaching a drawing to this addendum can be used to show accurate specific site area scanned instead of the box provided above.

As the operator of the CAT, the details in the drawing represent the recordings of the equipment identified above at the date and time stated.

Signature of CAT Operator:

Accepted/Not Accepted – Permit Controller, Print Name:

Signature Permit Controller:

Appendix I Briefing Sheet

BRIEFING REGISTER

This form should be used to record attendance at briefings, training events, toolbox talks and inductions, covering all subjects

PLEASE COMPLETE IN PEN (NOT PENCIL) AND A SEPARATE FORM FOR EACH DAY AT TRAINING EVENTS

Subject of Briefing / Training / TBT:	

Details:	Complete below	Method of delivery	Tick below
Date(s)		**Toolbox talk**	
Start time		**Briefing**	
Finish time		**Induction**	
Duration (in hours excluding breaks)		**Training course**	
Location / site		**One to one**	
Contract No. *(if applicable)*		**Other** *(please specify)*	

List of persons attending

Print name clearly below	**Signature**	**Employee number**	**Company name**

The above named individuals have indicated that they have understood this briefing / training / tbt / induction

Signed:	**Name:**	**Position:**

Comments from those receiving the training / briefing / tbt / induction:	**Reviewed for EHS / Resource Depts. By:**

Distribution:	*Original to the EHS Administrator, Cementation Skanska at Maple Cross*	*Copy to the contract file*
	Copy to the client or Principal Contractor	*Copy to be retained on site*

The EHS Administrator shall forward copies to the Training Administrator, as appropriate.