RISK ASSESSMENT & METHOD STATEMENT

FOR

TRUCK MOUNTED MOBILE CONCRETE LINE PUMPING

Unit E, Tokar Industrial Park,
Yapton Lane,
Walberton,
West Sussex
BN18 0AS

Tel: 0800 270 7368
Email: info@expressconcretepumping.co.uk

METHOD STATEMENT & RISK ASSESSMENT

Method Statement Title: Truck mounted mobile CONCRETE LINE PUMPING

Method Statement No.: MS-0006

Date Compiled: 10th February 2019

Review Date: At commencement on site

Expiry Date: 1 calendar year from commencement

Compiled By: Ashley Sexton (Managing Director)

Main Contractor: Various

Site Managers: Various

Site Address: Various UK based premises / sites only

Site Operatives: Various

Truck Mounted Mobile Concrete Pump
Significant Risk Identification / Control Measure Statement

The mobile truck-mounted concrete pump is designed to convey concrete from the machine's delivery hopper to a point designated by the hirer/site management.

This is achieved via a hydraulically powered pump, through pipe sections attached upon a truck, to a suspended flexible rubber delivery hose, solid 'tremmie' pipe, or via a steel pipeline laid on the ground or fixed vertically.

Data Sheets detailing pump dimensions, positioning, reach, and pumping delivery pressures/ volume outputs are available upon request from Express Concrete Pumping (ECP), or from our website – www.expressconcretepumping.co.uk.

Information, Instruction, Training, Monitoring - All ECP Pump Operators (ECP PO's) are issued with a detailed Operators Procedure Guide (OPG). Every ECP PO holds a current CPCS card/NPORS certificate for concrete pumping operations. ECP PO's are assessed periodically, and are also subject to unannounced 'spot checks', in order to ensure safety, quality, & operating standards are maintained and developed.

Encouragement by site management of this progress would be appreciated. This enables us as a company to comply with our employer's legal requirements.

British Standard BS 8476:2007 'Code of practice for the safe use of concrete pumps' is recommended to hirers and interested parties as a reference document detailing the general minimum requirements in respect of the operation of concrete pumping equipment. Copies of the standard are available from BSI – www.bsi-global.com

Safe Systems of Work - Express Concrete Pumping have assessed all aspects of its operations, and have developed procedures and safe systems of work that aim to reduce and control risks to safety, health, and the environment.

Significant Risks - As an overview, the significant risks that are present in respect of concrete pumping activities are noted below, along with appropriate control measures. Any additional risks have been assessed and are recorded within our company (ECP PO's / RAMS / Method Statement).

METHOD STATEMENT & RISK ASSESSMENT

NOTE: This method statement must be fully explained to all employees involved in the operation prior to commencement of the works. They are to sign the signature box end the end of the statement to acknowledge receipt of the information.

Scope of Work
Description and sequence

Use of vehicle mounted boom pump for placement of concrete into floors on or above ground level.

Method
1. Before Leaving Depot

Walk-round inspection of vehicle, to ensure road worthiness, to include:- general visual check of pump turret and fixed steel pipes, hydraulic hoses (to check for any leaks), tyres, mirrors & lights, operation of remote control operator's system, hopper guard grid is secure and serviceable.

Fill water tanks and check air blow out system.

Defrost all windows (during winter conditions) to provide good all-round driving visibility. Allow engine to "warm-up" and idle for 5 minutes prior to departure, to build up air reservoirs for brakes.

2. Arrival on Site:

Park safely outside site and report to site manager.
Go through site induction process.

Fill out plant inspection record sheet/book.

Walk to area designated for pump setup area, and visibly assess environment. Check for ground stability (responsibility for suitable preparation is down to the site manager/hirer); overhead obstructions; visibility to work area; access conditions and route for delivery lorries.

Establish a code of signals between the pump operator and concrete laying gang / foreman prior to commencement of pumping works.

3. Pump Setup

Check wire safety lanyards are attached where required.

Remove steel and rubber pipes (necessary to reach pour stating point) from bed of pump, and carry to lay-out position. Layout necessary pipes in approximate assembly locations.

Join pipes together using couplings with rubber sealing rings.

Position any mobility pans under couplings (as necessary) to aid with hose movements during pour.

Fix suitable rope handling cord onto last section of pipework ready for work to commence.

Once all hoses have been connected, conduct a final walk-through check of all hoses and couplings starting at point of pour and finishing at pump hopper.

Acquire 25-50kg of cement (client to supply) for every 20m of pipeline to be used, for pipe grouting, and position by hopper prior to delivery lorry arrival.

4. Priming Hoses / Pipes

On arrival of 1st delivery lorry, mix up grout for lining pump hoses.

Remove grout pot lid.

Empty 1⁄2 a bag of cement into bucket containing @ 20lts. of water and mix using a small paddle to combine water and cement into a flow-able grout.

Pour mixture into top of connecting knuckle / grout pot on 5 inch to 4 inch reducer.

Repeat above steps for remaining cement.

Re-apply grount pot lid and secure with a clip and rubber sealing ring.

5. During works

Reverse concrete delivery lorry up to hopper ready for discharge.

Ensure that hopper grid is in lowered position, prior to approach of mixer lorry, and at all times during discharge and pumping operations.

Allow delivery vehicle to agitate mixer drum for a couple of minutes to avoid initial aggregate

Establish a suitable position of work – to be able to see concrete discharge into hopper and point of delivery from hose. This may involve the use of the remote control pack.

Should a remote control pack be used, then any other operating controls, mounted on the pump body, must be disabled.

Commence pumping of concrete at a suitable rate to allow for site operators to spread concrete and for lorry to discharge concrete at a rate to keep hopper 3⁄4 full.

Until concrete is flowing smoothly out of the end of the delivery hose, or when a blockage occurs in the pipeline, all personnel should remain clear of the delivery hose (The danger zone is the area around the delivery hose in which the delivery hose can strike out or burst if a blockage occurs. The diameter of the zone is twice the length of the delivery hose).

If a blockage occurs during the pour, the concrete pump operator must stop pumping immediately and instruct personnel to move to a safe position before attempting to remove the blockage.

If the concrete pump operator needs to open the delivery pipeline to clear a blockage, he must first release the pressure inside the pipeline as much as possible, e.g. by reversing the pumping action. The pipeline must be treated as being pressurised at all times. Appropriate and adequate eye protection must be worn when opening the pipeline.

The hirer is to ensure that site personnel DO NOT under any circumstance open or attempt to open the pipeline under pressure.

Use horn to signal to concrete lorry driver to stop discharge if the need arises to move hoses, disconnect hoses, or to stop pour for any other reason.

Move pipes as necessary to making a suitable progress across pour area.

On completion of lorry discharge, allow the end of delivery hose to rest on the floor.

At the end of discharge of each load remove any disconnected hoses and wash out immediately to avoid concrete drying inside hoses and pipes.

If the concrete pump has to be left unattended, the operation of the pump must be isolated.

6. Between concrete lorry deliveries

Agitate the contents of the hopper should the need arise – long intervals between delivery

7. On completion of works

Concrete in the hopper should be discharged until the only a small amount is left in the hopper (just covering the ram inlet chambers).

The pressure in the pipeline should be released by retracting concrete into the hopper.

The access point in the rear knuckle (immediately after the hopper) should be opened, a wetted sponge ball inserted into the line, and the access cover re-secured.

A cage, or protective back board, should be erected at the end of the delivery hose (to receive and confine the cleaning ball).

The end of the discharge hose should be secured to avoid any whiplash.

All laying gang members should be moved away from the discharge hose, to a safe area.
The cleaning ball should then be advanced through the remaining pipes and hose, At reduced engine revs, until it emerges at the discharge point.

The ball should then be recovered and thoroughly cleaned and washed off.

All hoses should be thoroughly washed out and stored on the lorry bed.

All couplings should be cleaned, washed and stored on the lorry bed.

A suitable site for emptying the remaining concrete from the hopper should be identified, and the pump moved to this location.

The retaining lever on the lower door of the hopper is then released, and the door swung away to allow the remaining concrete to be discharged from the hopper.

Flush out all the intake rams, pistons and thoroughly rinse all concrete and grout from the hopper. Once fully flushed, close the lower door of the hopper and secure with the retaining level.

Ensure all pipes, clips, hoses, wash out lines sole plates are stowed in their respective areas on the lorry bed, and ready for road travel.

Complete client receipt and present to client’s representative.

Sign out (if required) from site and return to depot.

8. Location

Access Routes

a. Access for Emergency Services and others.
The works will not impact on access for the emergency services or others.

b. Lighting
All work is to be carried out in daylight hours. The hirer is to supply any additional lighting required.

9. Plant and Equipment.
Schedule of equipment

9.5 tonne mounted concrete pump (including pump and truck, fully laden weight).

10. Test Certificates
Operator to possess a CPCS certificate for operation of concrete pumps and relevant driving license where required.

11. Specialist Equipment
N/A

12. Materials
Materials to be used / pumped

Ready mixed concrete (various mix designs).

13. COSHH Implications

See manufacturer's COSHH data / safety sheets.

14. Fire Implications

N/A

15. Risks and Controls

See attached hazard identification sheet and control measures.

16. Training

The pump operator is to be in possession of a valid training certificate.

17. Organisation

A. Sexton, A Goff, Darren Nichols

18. Housekeeping Removal

All residual concrete and wash out shall remain on site and is the responsibly of the client to dispose of.

19. Briefing Register

The briefing register for this operation is attached.

20. Personal Protective Equipment

The following PPE MUST be worn by all operatives involved in this operation:

Safety Hats
High Visibility Vests
Safety Boots (Steel)
Waterproof Gloves
Safety Glasses
Ear Defenders (if required due to site conditions)

21. Issue, Maintenance and Recall

All PPE will be issued to employees by the contracts Manager prior to their commencement on site. The foreman is to inspect all employees PPE prior to the operation to ensure it is serviceable.

22. Power

Not required. All equipment is diesel powered.

23. Welfare

Welfare facilities are to provided by main contractor.

24. 3rd Party Protection

25. The Environment / Noise

See method statements

26. Aqueous /Effluent Discharge

All concrete washed from hopper, pipes and hoses shall be contained on-site and not allowed to contaminate any drains or water courses. The responsibility for this containment lies with the client/hirer.

27. *First Aid*
The first aider for the project will be the site manager or a person appointed by the hirer.

28. Fire.

No fire risk will be present during this operation.

Adverse Weather Conditions

Adverse weather conditions should not effect this operation.

28. Spillage
Should any fuel or oil spillage occur it would be contained using subsoil, which will subsequently disposed of as contaminated waste. The disposal is of any contaminated waste as a result of a spillage will be the responsibility of the main contractor.

29. Communications

Radio
Radios may be used as an when required over long pipe runs. A suitable frequency will be agreed with the main contractor so as not to interfere with other site communications.

Telephone
Mobile phones will available with site foreperson and pump operative.

Verbal
This method statement and the associated risk assessment will be verbally explained to all employees involved in the operation prior to its commencement.

Hand Signals
All hand signals to reversing vehicles will be in accordance with the Health and Safety (Safety Signs and Signals) Regulations 1996.

METHOD STATEMENT & RISK ASSESSMENT

HAZARD AND RISK IDENTIFICATION SHEET																
	EFFECTED AREA												RISK VALUE			
HAZARD																
SERVICES																
Overhead	X	X	X			X	X	X	X	X	X			2	2	4
FALLS																
From Height	X	X	X			X	X	X	X	X	X			2	2	4
Same Level/Trip	X	X	X			X	X	X	X	X	X			2	2	4
MACHINERY IN MOTION																
Drawn in	X	X	X			X	X	X	X	X	X			2	2	4
Flying objects	X	X	X	X	X	X	X	X	X	X	X	X	X	3	3	9
VEHICLE IN MOTION																
Fall From	X	X	X			X	X	X	X	X	X	X		3	2	6
Trapped Between Machinery/ Vehicles	X	X	X			X	X	X	X	X	X			3	2	6
Hit By Machinery/ Vehicles	X	X	X			X	X	X	X	X	X			3	2	
Hit By Burst Hoses/ Flying Material	X	X	X	X	X	X	X	X	X	X	X	X	X	3	2	6
COSHH																
Irritant	X	X			X	X		X	X	X				4	4	16
GENERAL																
Manual handling	X	X	X			X	X	X	X	X	X			2	2	4
Explosions																
Electricity	X	X	X			X	X	X	X	X	X	X		2	2	4
Hand tools	X							X						1	2	2
Noise				X										2	2	4
Falling objects	X	X	X			X	X	X	X	X	X	X	X	3	3	9

Hazard Severity & Probability

Severity
1 Negligible
2 Slight
3 Moderate
4 High
5 Severe

Probability
1 Not likely
2 Possible
3 Quite possible
4 Likely
5 Almost a certainty

EXPRESS CONCRETE PUMPING

METHOD STATEMENT & RISK ASSESSMENT

Risk	Professional Control	Site Management and Hirer Considerations & Controls
Contact with overhead power cables	ECP follow industry guidance (GS6) – 6m from electric services mounted on wooden poles and 11m from services mounted on metal pylons.	Ensure the pump is sited so that the pump does not encroach within these limits.
Fall from height whist checking pump, filling water tanks, unloading pipes	Ensure footwear is clean and free from mud, debris, etc. Short duration tasks only (retrieving fittings, etc.). Long duration tasks (changing seals, etc. require a harness and separate method statement. Unload pipes, 1 at a time, from side of lorry.	Keep site clean as practicable. Do not allow non-ECP operatives to access the pump deck of the lorry.
Collapse or settlement of pump due to ground conditions/ inadequate ground support	Sole plates are provided for placement below outrigger feet to support the pumps outriggers/ reduce surface damage these are designed for use on firm, level standing.	Ensure ground conditions at set-up position are adequate for imposed load of pump. Provide sufficient extra support (timbers, steel sheets, etc.) as necessary.
Drawn into machinery in motion	Ensure hopper grating is lowered and secured during pumping operations.	Keep unauthorised personnel away from working area.
Vehicle Movements (reversing) – crushing / trapping of persons by delivery vehicles	Where possible the ECP PO will direct the mixer truck during the manoeuvre onto the concrete pump hopper.	Provide a competent banksman to direct concrete mixer trucks (especially when the ECP PO is required to operate the boom/pump.
Injury to people, or property from spillage/splatter from hoses	Pump all concrete from hoses prior to moving pipes. Ensure hose sits on floor between loads. Direct hose away from edge of shutters, etc. whilst discharging concrete.	Ensure suitable edge protection to slab/pour. Debris is likelihood of overspill or splatter.
Potential blockage at start or restart of pump	Agitate concrete in hopper between loads.	
Hose “whipping” when flexible hose used off end of boom	ECP PO request everyone remain clear end of discharge hose on restart. Steel pipe to be used wherever possible.	Ensure laying gang members keep clear of end of hose on restart.
Bursting of pipelines under pressure	Only pipes, hoses & clips of sufficient safety rating to be used. Wear and damage to hoses and pipes should be checked frequently and replaced as necessary.	
Forceful ejection of concrete from end of hose	Pipe seals maintained correctly. Level of concrete in hopper controlled correctly.	If ECP PO operates pumps using remote control unit a secondary banksman should be appointed to watch levels of concrete in hopper (to avoid air being pumped into pipework)
Pressurised concrete release – dismantling hoses	Release pressure in pipeline before releasing joining clips.	Non ECP PO operatives NOT to release clips without ECP PO’s instruction / direction / guidance

COSHH: Cement - Irritant	Gloves to be worn when handling pipe, hoses, grout or washing out.	
Blockages (and why they occur)		
Segregation of aggregate during pumping	Use appropriate amount of primer / grout to line pipeline	Consider length of pipeline used (site setup position of pump)
Inappropriate concrete mix	Check and adjust slump as necessary	Ensure “pump mix” specification on design mix.
Stiffening of concrete in boom pipeline, water bleeds from concrete, incorrect dosage of plasticiser (flash set)	ECP PO shall agitate concrete in hopper and move concrete in pipeline if delays are envisaged	Deliveries should be time managed to avoid delays or waiting times
Flexible hoses kinked or trapped	Suspend vertically if off the boom and layout straight if used as horizontal pipework	
Foreign objects delivered form mixer drum	Monitor the discharge of the concrete into the hopper	Banksman to assist if ECP PO is using pump via remote control box.
Flexible hoses kinked or trapped	Suspend vertically if off the boom and layout straight if used as horizontal pipework	
Foreign objects delivered form mixer drum	Monitor the discharge of the concrete into the hopper	Banksman to assist if ECP PO is using pump via remote control box.

This is to certify that I have read and understood the above method statement, risk assessment and control measures.

PRINT NAME	SIGNATURE	DATE	PRINT NAME	SIGNATURE	DATE

Site Address: