

CONCRETE PUMPING OPERATION PLAN

PROJECT NAME – CONTRACT No.

Document Reference No: CONSTRUCT 01		Document Status		Tick Applicable Box	
				Draft	✓
				Live	
Authorised By:		Name:		Signature:	
Pumping Operation Manager		John Jones			
Batching Plant Manager		Jill Jones			
Project Manager		Jack Jones			
Pump Supervisor / Site Manager		Jan Jones			
Health & Safety Manager		Dave			

Issued to: (name & company) Simon Jones Operations Manager @ A Subcontractor		
Response required by (date): 23 July 20XX		Plan Approved/Agreed by: John Jones
Plan Approved/Agreed Status: (Indicate by circling relevant option)	<input checked="" type="checkbox"/> YES (Accepted, ready for implementation.)	<input type="checkbox"/> NO (Rejected, work cannot commence, must be amended & resubmitted.)

Revision Records				
Version No	Issue Date	Pages / Section Amended	Prepared by	Approved/Agreed by
1	20 July 20XX	John Jones	Jan Jones	John Jones
2		Jill Jones		
3		Jack Jones		
4		Jan Jones		
5		Dave		

Distribution of Controlled Copies			
Issued Copy No	Issue Date	Recipient Name	Company Name
1	23 July 20XX	John Jones	CONSTRUCT
2	23 July 20XX	Jill Jones	CONMIX
3	23 July 20XX	Jack Jones	CONSTRUCT
4	23 July 20XX	Jan Jones	CONQUICK
5	23 July 20XX	Dave	CONSTRUCT

Note: The latest issue will be retained by the Project Manager. All signatures must be collected on a hard copy of this document & kept in the Site Safety Files. Acceptance sheets issued by the client or principal contractor are to be attached to the hard copy

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Relevant Legislation, Standards & Guidance
The Provision and Use of Work Equipment Regulations 1998 (PUWER)
Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)
The Manual Handling Operations Regulations 1992
The Construction (Design and Management) Regulations 2015
BS 847:2007 "Code of Practice for the safe use of concrete pumps"
Safe Use of Concrete Pumps a CPA Good Practice Guide

DATE WORKS TO COMMENCE: 25 July 20XX

1. SCOPE OF WORKS

BRIEF DESCRIPTION: Pumping C40 concrete with an M61 Vehicle Mounted concrete pump over a maximum horizontal distance of 56m (gross) and maximum vertical distance of 60,1 m.

PUMP CLASSIFICATIONS:

Tick below boxes as appropriate:

Truck Mounted	Trailer Mounted/Static	Specialised	Truck Mixer
✓			

PUMPING STRATEGY:

All pumping operations will be undertaken in accordance with CONSTRUCT GP PLAN AND POLICY to ensure that we meet our obligations under PUWER 98 & LOLER 98, as well as BS 8476:2007 Code of Practice for the safe use of concrete pumps.

APPOINTED PERSON – PUMPING OPERATION MANAGER (Concrete Pumping Operation)

The Appointed Person, who has prepared this document, carries full responsibility for the safe completion of all works carried out during the pumping operation(s). The Appointed Person must ensure that the Pump Supervisor is adequately briefed on the contents of this document.

PUMP OPERATION SUPERVISOR:

Prior to the start of any works, the Pump Supervisor must ensure that all site personnel are adequately briefed on the contents of this document and risk assessments. They must liaise with the Appointed Person should site circumstances require any change to the methods employed during pumping operation(s).

2. COMPETENCY COMPLIANCE

Forename	Surname	Role	Competency ¹					Remarks
			NVQ	A06	A44	A72	Other	
John	Jones	Pumping Operation Manager	✓				✓	Supervision of Concrete Pumping Operations
Jan	Jones	Pumping Operations Supervisor	✓	✓	✓	✓	✓	Supervision of Concrete Pumping Operations
Bill	Driver	Pump Driver/Operator		✓				
Vito	Europo	Banksman					✓	CPCS Plant and Vehicle Marshaller A73
TBC	TBC	Concrete Operative					✓	Concrete placing, compacting and finishing
TBC	TBC	Concrete Operative					✓	Concrete placing, compacting and finishing
TBC	TBC	Concrete Operative					✓	Concrete placing, compacting and finishing

3. PUMPING EQUIPMENT DETAILS

Identify items in table below.

The Pump	
Make and Model	FORD
Registration/Plant Number	ED09331
12 Monthly Thorough Examination Certificate	Next due 12 Dec 20XX
Details of last service	6 weekly service carried out 12 July 20XX
Dimension(s)	14.9 m x 3.2 m

¹ NVQ 2-Specialist Plant and Machinery Operations Concrete Pumping (QCF). A06-Truck Mounted Boom Concrete Pump. A44-Trailer Mounted Boom Concrete Pump. A72-Static Concrete Placing Boom.
CONST-HSE-DA-010

The Pump	
Weight	26T
Boom Chart Attached	Yes
Boom Reach Height	57.3
Boom Radius	See chart
Unusual Features, Boom & Other Restrictions	NA
Mechanical or Electronic Restrictions	NA
Fitted Safety Device (VECTOR etc, short rigging)	Yes
Outriggers	See Guidance at Appendix D
Outrigger Loads	30T
Max Outrigger Point Load	45 front 40 rear
Type of Outrigger Mats	Cam-mat
Mat Area Provided	NA – No requirement for TW Mat
Resulting Ground Pressure	NA
Temporary Works Load Bearing Capacity	NA
Additional Mats Required	No

The Pump Lines	
Type of pipe	Twin Wall
QC Testing	Measured
Pipe dimension(s)	3 m lengths x 125 mm
Maximum pump length	A maximum linear meterage of 32 m is required
Maximum Elevation	Vertical lift of 25 m is required
Permissible Hose Attachments	1 no 3m x 5.5" flex or 2 no 3m 5.5" flex or 1 no 6m 5.5" flex or 5.5" to 4.5" reducer on elbow/1 no 5m 4.5" flex
Cleaning Method	Compressed Air
Protection Required	Delivery lines run in proximity to delivery vehicles and plant therefore concrete bollards will be placed at 1 m intervals.
Pipeline Couplings	Standard with safety pin

4. ASSOCIATED EQUIPMENT

	PLACING BOOM	DELIVERY VEHICLE
Make & Type	NA	8m ³ Truckmixer
12 Monthly Thorough Examination Certificate	NA	
Owned by (Contact No.)	NA	CONMIX

Equipment must have a current 12 monthly thorough examination certificate.

Copies of statutory test certification and inspection reports will be available for inspection prior to any pumping taking place and are attached at Appendix A.

5. HAZARD IDENTIFICATION/RISK ASSESSMENT

Hazard Identification. The table below indicates the type of hazards usually applicable to the operation. Where applicable there must be mitigation put in place to reduce the risk to as low as reasonably practicable (ALARP).

Hazard Type	Applicable to Plan	Risk Assessed	Risk Rating		
			Low	Medium	High
Overhead Cables	NA	NA			
Contact with End-Placing Hose	Yes	Yes	✓		
Contact with pipes, hoses and sponge balls	Yes	Yes		✓	
Obstructions	Yes	Yes	✓		
Ground Conditions – Pump Lifting Position	NA	NA			
Underground Services	NA	NA			
Underground Voids / Vaults	NA	NA			
Traffic Site and Public	Yes	Yes	✓		
Manual Handling	Yes	Yes	✓		

Delivery line route (interaction with TW, other equipment and people)	NA	NA			
Operator/Gang fatigue due to over-run.	Yes	Yes	✓		
Tower/Mobile Cranes	NA	NA			
Vibration	Yes	Yes	✓		
Surplus Concrete/ Spillage	Yes	Yes	✓		
Noise	Yes	Yes	✓		
Equipment Cleaning	Yes	Yes		✓	
Enabling Works	NA	NA			
Communication (radio – visual)	Yes	Yes		✓	
Lighting	NA	NA			
Wind	NA	NA			
Fumes	NA	NA			
Other Hazard(s)	NA	NA			

Please see relevant risk assessments in Appendix B and the Pump Layout Plan in Appendix C.

6. WEATHER CONDITIONS

Pumping restrictions are implemented based on guidance from the manufacturer &/or Operators Manual and those detailed in the risk assessment.

- Operations will take place in wind speeds up to **XX** metres per second.
- Pumping operations must stop during storms, or when there is a risk of lightning strikes.

The Appointed Person, Pump Supervisor or Operator may stop pumping operations due to weather conditions at a lower wind speed than specified above or for other weather-related safety reasons.

7. TRAINING, INFORMATION AND INSTRUCTION

Suitable and sufficient training must be provided to ensure workforce competency. Any unusual requirements that are out of the normal parameters of the pumping operation must be identified and if other trades are included in this work then their competency must be verified. Information such as vehicle operating envelope charts must be legible and checked for accuracy. The AP must provide written and verbal instructions as to the hazard mitigation and the safe running of the operation.

8. SUPERVISION AND RESOURCES

Supervision of the operation will be required at the point of pumping and placement. The supervisors listed at paragraph 2 should be present at all times that the pump is in operation which includes cleaning and carry a duty of care to stop the operation at any point.

9. COMMUNICATION

Tick below boxes as appropriate:

Hand Signals	Two-way Radios	Second Banksman
To be agreed	Chanel 6 + Spare battery	Yes

The use of hand signals should be confirmed between all operatives including Traffic Marshals that may be otherwise involved with secondary tasks within a logistics area. Frequencies for radio use may need to be authorised in sensitive areas such as Airports and secure areas.

There should be sufficient information provided to others working in the area that are not directly involved with the pumping operation. The supporting plan drawings within this document should be placed in an area for others to see. Out of bounds areas must be conveyed during morning safe start briefings.

A method statement / pumping operation plan briefing session will take place prior to starting any work.

10. ACCESS AND EGRESS

Access and egress planning must cover the traffic route to/from the site and all internal vehicle manoeuvring areas in addition to pedestrian walkways. The installation of pumping equipment should not interfere with safe access for others to conduct their daily work but if this cannot be averted then suitable control measures must be put in place and risk assessed.

11. EMERGENCY ARRANGEMENTS

The emergency arrangements should be no different from those identified in the Construction Phase Plan. Emergency arrangements are to be conveyed to the workforce and should be exercised periodically. There will be a requirement to produce a rescue plan to deal with the safe transport of an injured/incapacitated person from the place of incident to the emergency vehicle. This could include the use of a crane and suitable personal transport. This operation must be exercised periodically under the control of the AP.

EXAMPLE

APPENDIX A -

THOROUGH EXAMINATION CERTIFICATES

To be held in this section.

EXAMPLE

APPENDIX B - RISK ASSESSMENTS

Hazard	Relevant to Task		Activity	Population at Risk	Control Measures	Risk Rating		
	Yes	No				Low	Medium	High
Overhead Cables		X	Pump set up					
		X	Placement Boom set up					
		X	Boom operation					
Contact with End-Placing Hose	X		Starting to pump a new load of concrete					
	X		Grouting Up					
Contact with pipes, hoses and sponge balls	X		Clearing lines with compressed air					
Obstructions	X		Pump set up					
	X		Placement Boom set up					
	X		Boom operation					
Ground Conditions		X	Set up pumping equipment					
		X	Vehicle Access					
		X	Pedestrian Access					
Underground Services		X	Set up pumping equipment					
Underground Voids / Vaults		X	Set up pumping equipment					
Traffic	X		Vehicle movement to/from site					
	X		Vehicle					

Site and Public		Manoeuvring on site						
	X		Interaction with public highway					
Manual Handling	X		Handling of pumping equipment including steel lines and ancillary items.					
	X		Control of flexi-hose at point of placement.					
Concrete delivery line (interaction with TW, Equipment and operatives)		X	Setting up delivery lines and equipment					
		X	Pumping concrete					
		X	Access/Egress (walkways)					
		X	Demobilise delivery lines and equipment					
Operator/ Gang fatigue due to over-run.	X		Pumping concrete					
	X		Finishing concrete					
	X		Driving to – from site					
Tower/Mobile Cranes		X	Set up pumping equipment					
		X	Operating boom					
		X	Operating crane					
		X	Demobilise pumping equipment					
		X	Demobilise crane					
Vibration (include potential to disturb ground)	X		Compacting concrete					
	X		Pumping concrete					
Surplus Concrete/ Spillage	X		Pumping concrete					
	X		Wash out					
Noise	X		Concrete pumping					
Equipment/ Deck Cleaning	X		Using compressed air for deck clearing.					
	X		Cleaning out delivery lines.					
Enabling Works			Ground stabilisation					
			Isolation of services					
Communication (radio – visual)	X		Set up pumping equipment					
	X		Pumping operation					
	X		Demobilise pumping equipment					
Lighting		X	Operation of Pump					
		X	Placing/finishing concrete					

Wind		X	Operation of boom					
Fumes		X	Operation of Pump Engine					
Other Hazard(s)		X						

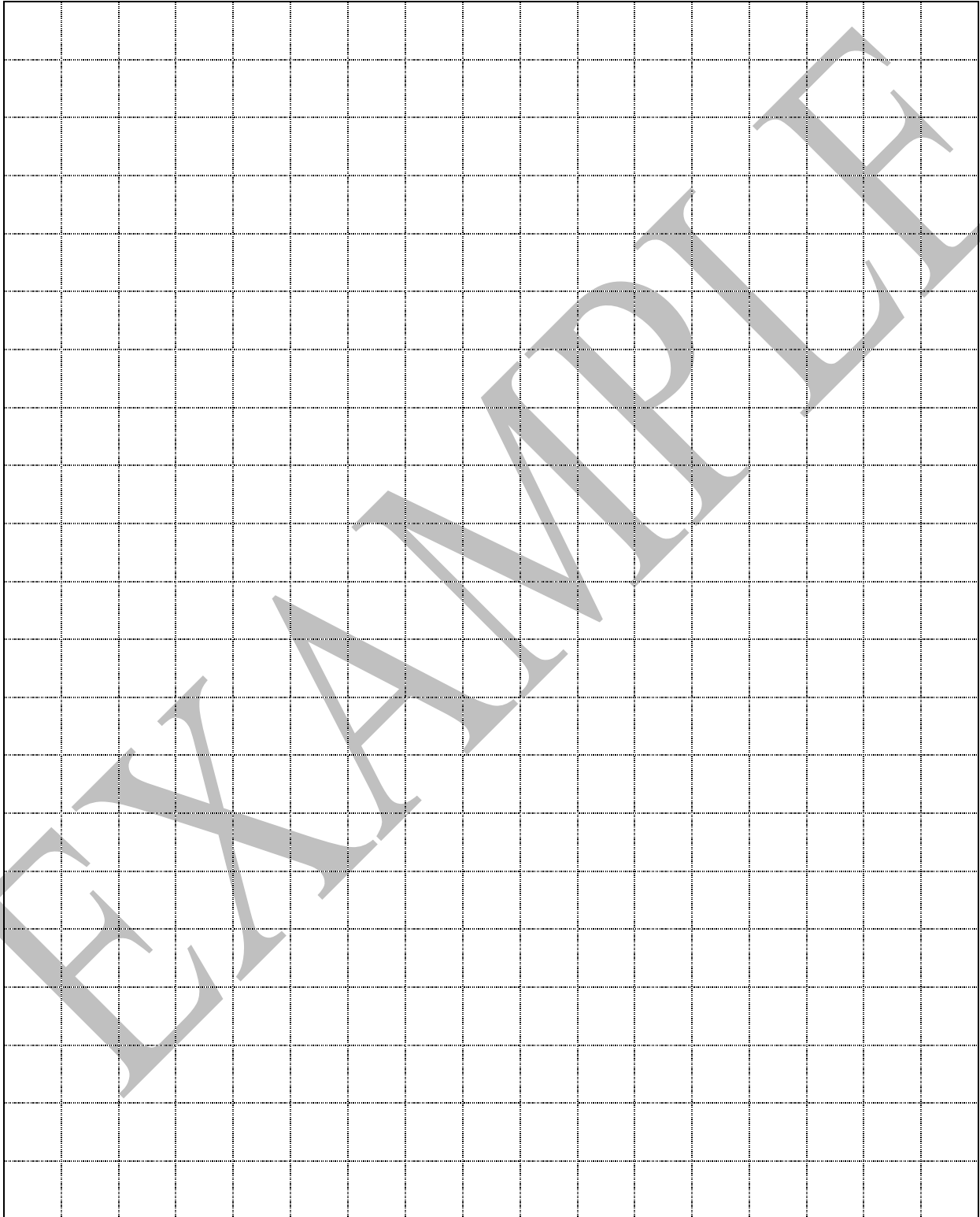
EXAMPLE

APPENDIX C - PUMP LAYOUT PLAN

PUMP LAYOUT PLAN

This drawing shows the agreed position of Pump & delivery line travel paths where necessary. It should be completed in plan and elevation, detailing secondary hazards.

Note: This hand-drawn document can be replaced by an electronic Site Layout Drawing if available.



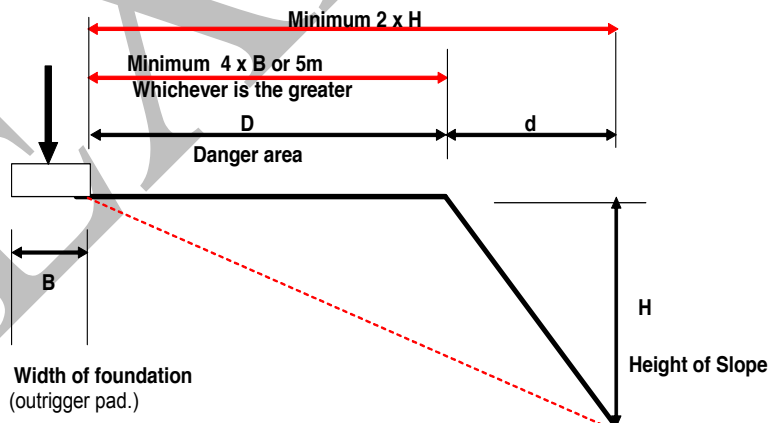
APPENDIX D – GENERAL GUIDANCE FOR CALCULATING OUTRIGGER PAD SIZE

For very large mobile concrete pumps, or special situations or where the ground conditions are not straight forward (e.g. layered strata, paved areas etc) the foundation must be specially designed by a geotechnical engineer.

The tables below have an in-built Factor of Safety 2 (FOS)

GRANULAR SOILS	COHESIVE SOILS (CLAY)
<ul style="list-style-type: none"> ▪ E.g. Loose - can be excavated with a spade; 50mm wooden peg can be easily driven. Dense - requires pick for excavation: 50mm wooden peg hard to drive 	<ul style="list-style-type: none"> ▪ E.g. Soft - moulded by light finger pressure; Firm - can be moulded by strong finger pressure; Stiff - cannot be moulded by fingers but can be indented by thumb; Very stiff - can be indented by thumb nail.
<ul style="list-style-type: none"> ▪ Where groundwater is at a depth B or less below the level of the foundation, or the site is liable to flooding, then the above foundation areas should be doubled. (B is the width of the foundation) 	<ul style="list-style-type: none"> ▪ If site liable to flooding, then the above foundation areas should be increased by 50%.
<ul style="list-style-type: none"> ▪ If only general information on the soil type is available use the upper limit of the bands shown. 	
<ul style="list-style-type: none"> ▪ Foundation areas should be approximately square or circular. 	
<ul style="list-style-type: none"> ▪ Foundation materials must be capable of spreading the load over the area required. 	
<ul style="list-style-type: none"> ▪ Visually check effect of partial loading on foundation areas before fully loading. 	
<ul style="list-style-type: none"> ▪ Re-inspect foundation after first load of concrete has been discharged. 	

Plant siting close to batters: Guidelines for positioning plant such that its stability is not compromised due to interaction with the slope.



A Geotechnical Engineer must always be consulted if a mobile concrete pump is to be set up within the "Danger Area".

APPENDIX E - Daily - Weekly Checks and Inspections Record

Name:

Depot or Site Address:

Fleet No.:

Week Ending:

Daily Pre-use Checks		M	T	W	T	F	S	S
1.	Engine oil level(s)							
2.	Fuel level/Leaks							
3.	Coolant level							
4.	Hydraulic Oil Level							
5.	Hydraulic System Leaks							
6.	Tyre Pressures and Condition							
7.	Wipers, Washers							
8.	Lights and Indicators							
9.	Horn and Cab instruments							
10.	Wheel Nuts and Studs							
11.	Operation of Hand or Foot Brake							
12.	Hopper Grill and Safety Interlock							
13.	Delivery Hoses							
14.	Outrigger Support Plates/Timbers							
15.	Grease Pump Unit							
16.	Accumulator Pressure							
17.	Boom Pins and Keyways							
18.	Ground Lines Pipes, Flex's & Clips							
<i>Further model specific checks as specified by manufacturer</i>								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								

Weekly Servicing Checks	
A.	Battery and Water Level
B.	Windscreen Washer Reservoir
C.	Grease Boom
D.	Transmission Levels
E.	Brake and Clutch Levels
F.	Hydraulic Oil Level & Filters
G.	Hydraulic Hoses
H.	Check A/C Belt
I.	Grease Slew Ring
J.	Hydraulic Fan
K.	Pumping Piston Fixing
L.	Tyre Condition
M.	Operation of Boom
N.	Prop Shaft Belts
O.	Outriggers for Cracks
P.	Boom & Boom Pipes for Cracks
<i>Further model specific checks as specified by manufacturer</i>	
Q.	
R.	
S.	
T.	
U.	
V.	
W.	
X.	
Y.	
Z.	
AA.	
BB.	

Daily Site Checks	M	T	W	T	F	S	S
Ground Conditions							
Overhead Power Cables							
Washout Facility							
Protection for Nearby Cars/Property							
Customer Provided Method Statement							

Defect Report

(All defects must be reported. Those affecting safe operation must be reported and repaired immediately)

Description:

Reported to: _____ Date: _____

Description:

Reported to: _____ Date: _____

Engine Hrs	Chassis Miles

Operator's observations, requirements for oil, grease etc:

Operator's Signature: _____ Date: _____

Repairs Completed or Comments:

Fitter's Signature: _____ Date: _____

Manager's Signature: _____ Date: _____

APPENDIX F – Copy of Concrete Mix Design

To be held in this section.

EXAMPLE