Generated file by QChecklists
https://quollnet.com

Install CSL tubes on piles: fixation, sealing, records

Install CSL tubes on piles with an interactive checklist that is commentable and export as PDF/Excel. Ensure fixation, continuity, sealing, and complete tube records—excluding CSL testing.

Project:
Date:
Filled by:

Pre-Installation Preparation	
1	Review approved drawings for required number, tube diameter, and locations; mark the cage layout accordingly. Acceptance: plan matches mark-up; number of tubes confirmed. Evidence: annotated plan photo and supervisor acknowledgement.
2	Confirm tube type and size (smooth bore, nominal ID 50–63 mm) and compatibility of caps/couplers with concrete/grout. Acceptance: correct materials on delivery docket. Evidence: photos of labels and lot numbers recorded.
3	Verify tube segment lengths achieve toe level plus ≥150 mm projection above cut-off, accounting for splices. Acceptance: total length per design ±50 mm. Evidence: length measurements logged with tape photos.
4	Assemble tools/PPE: 35–40 mm steel mandrel ball, bottle brush, compressed air, thread sealant, butyl/PVC tape, O-ring caps, couplers, SS band clamps, tie wire, spacers, 0–0.6 MPa gauge and hand pump. Evidence: tool list and calibration dates recorded.

Tube Materials and Fabrication	
5	Dry-fit tube segments on level ground; check straightness ≤5 mm per 1 m and no dents/kinks. Acceptance: joints mate fully. Evidence: straightedge photo and joint close-ups.
6	Clean bores with brush and air until a white cloth swab emerges clean. Acceptance: no debris or moisture. Evidence: before/after swab photos uploaded.
7	Assign tube IDs (T1–Tn) and tag with weatherproof markers 1.5 m below top. Acceptance: unique IDs visible. Evidence: ID list in Tube Record and tagged tube photos.
8	Assemble couplers per manufacturer; apply compatible thread sealant; tighten to 30–40 N·m using a torque wrench. Acceptance: full thread engagement; torque recorded. Evidence: torque log and joint photos.

Fixation to Reinforcement Cage	
9	Position tubes equidistant around cage circumference per plan (e.g., 3–4 tubes typical). Acceptance: spacing tolerance ±10°; tubes parallel to cage. Evidence: layout photo with angle tape or template.
10	Tie tubes to vertical bars at ≤1.0 m intervals using SS strapping or 16-gauge tie wire with protective sleeves. Acceptance: slack ≤5 mm; no sharp bends. Evidence: tie detail photos every 2 m.
11	Install plastic spacers every 1.5–2.0 m to maintain tube cover ≥75 mm from cage edge and clear of tremie paths. Acceptance: cover verified with tape. Evidence: spacer locations photographed and logged.
12	Secure tube bottoms to base ring with rigid brackets to prevent flotation or displacement >10 mm during lifting and lowering. Evidence: photos and short video of trial lift showing stability.

Continuity and Alignment	
13	Verify tube plumbness parallel to cage; deviation ≤15 mm over full length. Method: measure offsets at three elevations. Evidence: measurements recorded with annotated photos.
14	Perform dry mandrel test: drop/pull 35–40 mm steel ball through each tube from top to bottom. Acceptance: free passage without snagging. Evidence: per-metre pass/fail log and video snippet.
15	Stagger splices vertically by ≥300 mm between adjacent tubes to reduce congestion. Acceptance: spacing confirmed. Evidence: mid-cage joint photos with measurements.
16	Set tube tops to project ≥300 mm above cut-off elevation; mark each top with elevation. Acceptance: elevation within ±10 mm. Evidence: level/tape reading photos.

Sealing and Protection	
17	Install bottom caps with O-rings; apply sealant to threads. Pressure test each tube to 0.2 MPa for 2 minutes (water or air). Acceptance: pressure loss ≤0.01 MPa. Evidence: gauge close-up photo with timestamp.
18	Wrap every joint with butyl tape and overwrap with PVC tape, 100 mm minimum overlap. Acceptance: continuous wrap, no gaps. Evidence: joint labels and wrap photos.
19	Fit top pressure-rated caps with valves; add temporary protective sleeves to prevent concrete ingress; tether caps to cage. Acceptance: caps secured; sleeves intact. Evidence: cap detail photos.
20	Protect tubes during cage handling and concreting: use tag lines; prohibit slings/hooks on tubes; monitor during lowering. Recheck top elevations post-placement within ±10 mm. Evidence: lifting photos and post-pour measurements.

Records and Handover	
21	Complete Tube Record: tube IDs, lengths, locations, splice counts, mandrel results, pressure test data, materials lot numbers. Acceptance: all fields filled. Evidence: signed record by foreman and inspector.
22	Install durable as-built tag at cage top with tube IDs and date; ensure legible after placement. Evidence: close-up and context photos showing tag position.
23	After initial set, remove temporary sleeves and re-cap; confirm tubes are unobstructed at tops. Acceptance: no concrete ingress observed. Evidence: photos and short note of condition.
24	Submit as-built package: Tube Record, photos, pressure logs, and mark-ups to the engineer per approved project specifications and authority requirements; archive with QR link. Evidence: exported PDF/Excel and distribution list.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Install CSL tubes on piles is the focused task of attaching, sealing, and documenting crosshole sonic logging conduits on drilled shaft reinforcement cages. This checklist covers CSL tube installation only—fixation, continuity checks, and sealing—excluding any CSL testing operations. It aligns with common practice for drilled shafts and bored piles, using steel or PVC tubes with smooth internal bores, reliable couplers, and pressure-rated caps. By following these steps, you avoid water ingress, concrete contamination, tube collapse, or blocked passages that compromise future sonic logging. You will also ensure consistent tube coverage around the cage, protect tubes during lifting and placement, and produce a complete, traceable tube record for review per approved project specifications and authority requirements. The outcome is a dependable setup that enables efficient, accurate future CSL without rework, delays, or claims. Use this interactive checklist to tick items, add comments and photos, and export to PDF/Excel with a QR-secured record.	1. Preparation: assemble tubes, couplers, O-ring caps, torque wrench, mandrel (35–40 mm), hand pump with 0–0.6 MPa gauge, brushes, tape, spacers, SS straps, and PPE; review approved drawings and specifications. 2. Site readiness: set a clean assembly area, confirm cage lifting points, and brief the crew on handling tubes, tie spacing, and no-hook zones to avoid damage. 3. Open the checklist, start interactive mode, select project/pile ID, and assign tube IDs (T1–Tn) to prefill the Tube Record fields. 4. Tick each item as you complete it; attach photos of joints, gauges, elevations, and trial lifts directly from your device for traceable evidence. 5. Use comments to flag issues (e.g., kinked segment, failed pressure hold) and record corrective actions with timestamps and responsible persons. 6. Export the in-progress or final record to PDF/Excel for daily reports or submittals; include embedded photos and measurement logs. 7. Sign-off: capture digital signatures from the foreman and inspector after verifying completeness and compliance with approved project specifications and authority requirements. 8. Archive the final package in your project system and share the QR-authenticated link with stakeholders for future CSL access and verification.