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Static Lateral Load Test: Checklist for Setup and Acceptance

Static Lateral Load Test interactive checklist for construction teams; commentable steps to set reactions, measure deflection/rotation, confirm acceptance, and export secure records as PDF/Excel.

Project:
Date:
Filled by:

Pre-Test Controls	
1	Confirm test method and approvals.
2	Confirm scope is a static lateral load test (no tension/uplift). Obtain signed approval per approved project specifications and authority requirements; attach method statement and risk assessment.
3	Establish exclusion zone with barriers at least 3 m around jack and reaction system; install signage and spotter. Capture site layout photos and supervisor sign-off.
4	Verify ground/platform bearing capacity is adequate for reaction supports (calculate kPa demand vs capacity ≥ 1.5 safety factor). Attach calculation sheet and geotech approval.
5	Check calibration of load cell and pressure gauge within 6 months; accuracy ≤ ±1% of reading. Upload certificates and record serial numbers.

Reaction System Setup	
6	Select reaction type (reaction piles/anchors or frame) with capacity ≥ 1.3× target lateral load. Document design, anchor spacing, and arrangement; attach drawing.
7	Install reaction piles/anchors to specified depth and proof to required resistance without engaging the test element in tension. Record proof readings and photos.
8	Align hydraulic jack centerline to pass through target load point; vertical offset ≤ ±2 mm and horizontal skew ≤ ±1°. Capture alignment photo with straightedge/laser evidence.
9	Seat bearing plates and packers; ensure full contact and no visible gaps. Preload to 5% target to remove slack; inspect for slip or uplift. Record observations.

Instrumentation Setup	
10	Install load cell between jack and bearing surface; connect to data logger. Zero at no-load; verify zero drift ≤ 0.5% FSD over 10 minutes. Log serials.
11	Mount two LVDTs on an independent reference frame to measure lateral deflection; resolution ≤ 0.1 mm. Set gauge tips perpendicular to movement; zero both sensors.
12	Fix a digital inclinometer at the test head; accuracy ±0.05°. Zero against a calibrated level; document initial angle and photo evidence showing placement.
13	Verify reference frame stiffness and isolation: under simulated max load, frame deflection ≤ 0.5 mm relative to ground. Record check method and measurement.

Loading Procedure	
14	Apply seating load to 5% target, hold 2 minutes, then unload to zero. Residual deflection ≤ 0.5 mm; otherwise re-seat and adjust packers. Log values and time stamps.
15	Load in increments of 10–25% of target lateral load (kN). At each step, hold until movement rate ≤ 0.2 mm per 5 minutes or 10 minutes minimum. Record per minute.
16	Maintain load direction horizontal using a spherical seat and guide rails; angular deviation ≤ ±2°. Verify with digital angle gauge and photo at max load.
17	If cyclic loading is specified, run cycles at 50% and 100% target without engaging any tension elements. Capture looped load–deflection data and hysteresis notes.

Measurement and Recording	
18	At each hold, record LVDT readings (two axes), compute average and differential. Plot live load–deflection curve; upload graph screenshot to this step.
19	Record head rotation at each increment; note maximum rotation at service load and at peak. Acceptance typically ≤ project limit (e.g., 0.5°); enter values.
20	Capture photos/videos showing gauges, load display, and synchronized clock at start, each increment, and unload. Ensure legible units (kN, mm, °). Attach files.
21	Log ambient temperature and soil moisture/condition; perform mid-test zero check on LVDTs (drift ≤ 0.1 mm). Note any anomalies and corrective actions.

Acceptance and Demobilization	
22	Unload in steps mirroring loading. Record residual deflection 10 minutes after zero load; acceptable if ≤ specified limit (e.g., ≤ 25% of maximum).
23	Evaluate against acceptance criteria per approved project specifications and authority requirements: movement at service/factored loads and rotation limits. Mark pass/fail with rationale.
24	Inspect test element, jack points, and reaction system for damage or movement; no uplift or cracking permitted. Photograph condition and obtain supervisor sign-off.
25	Compile report: method statement, setup photos, calibrations, time–load–movement logs, plots, acceptance decision, and signatures. Export PDF/Excel with QR; distribute to stakeholders.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Static Lateral Load Test confirms how a foundation or pile responds to controlled horizontal loading. This checklist supports site engineers conducting a horizontal load test, also called a lateral pile test or static horizontal loading, by detailing reaction setup, instrumentation, data capture, and acceptance evaluation. The scope is strictly lateral; tension or uplift testing is excluded. Following these steps helps avoid common risks: inadequate reaction capacity, misaligned jacks inducing unintended moments, under-embedded reaction piles, instrument drift, and incomplete time–movement records. You will configure reaction frames or piles, align the hydraulic jack and load cell, measure deflection with LVDTs and rotation with an inclinometer, and document hold periods until movement rates stabilize. Acceptance is determined against project criteria for maximum movement, residual movement, and rotational limits at service and factored loads. Use this interactive checklist during planning and execution; tick items as you go, add comments or photos for evidence, and export your filled record to PDF/Excel with a QR for secure verification.	1. Preparation: Gather hydraulic jack, load cell, pump, reaction steel, packers, LVDTs, inclinometer, data logger, lasers/levels, barriers, PPE, and calibrated tools. Verify target loads, site access, ground capacity, and approved method statement. 2. Set up the interactive checklist: open on a tablet or laptop, enable online mode, and assign roles. Preload project data (pile ID, target load, location) and attach calibration certificates. 3. Execute the test while ticking items in sequence. Add time-stamped comments for observations, and attach photos/videos for alignment checks, gauge faces, and each load increment. 4. Data capture: enter load (kN), deflection (mm), and rotation (°) at each hold. Use charts to confirm stabilization and trends before proceeding to the next increment. 5. Export: when complete, generate a commentable PDF/Excel including photos, plots, and signatures. The QR code secures authenticity and links to the online record. 6. Sign-off: obtain digital signatures from site engineer, quality manager, and client’s representative. Archive the file in the project document system and share the QR link.