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Perform dynamic pile testing (PDA) checklist and CAPWAP

Perform dynamic pile testing (PDA) using an interactive, commentable checklist that exports as PDF/Excel, covering stresses, transfer, CAPWAP, and acceptance.

Project:
Date:
Filled by:

Pre-Test Preparation	
1	Confirm scope covers initial driving only; restrike is excluded. Review ITP, schedule, and acceptance criteria with the superintendent.
2	Verify pile ID, length, cross-section, wall/diameter, steel grade or concrete strength using tape, calipers, and mill/plant certificates; match drawings; photo evidence.
3	Calibrate PDA unit, strain transducers, and accelerometers per manufacturer procedure; accept only if diagnostics pass; upload calibration log to record.
4	Mark intended sensor stations 1–2 pile diameters below head; verify clean, flat surfaces; capture marked locations in photos for traceability.

Instrumentation Setup	
5	Install paired strain gauges symmetrically; clamp/weld/epoxy as permitted; alignment within 5 mm and full contact; photo close-ups required.
6	Mount accelerometers adjacent to strain gauges with secure cabling and strain relief; set sampling ≥ 20 kHz; screenshot device settings.
7	Measure pile section dimensions and compute area and impedance; set wave speed from material E or field tap test; upload calculation sheet.
8	Connect PDA to sensors; verify polarity, time sync, and GPS; accept if clock drift ≤ 1 s; store verification screenshot.

Driving and Data Collection	
9	Enter hammer type, ram mass, cushion materials/thickness, and drive cap details; attach hammer sheet; confirm entries match serial records.
10	Record blow-by-blow logs at key depths; include stroke, set (mm/blow), and penetration; no gaps permitted; save raw and processed files.
11	Monitor max compressive and tensile stresses per blow; keep ≤ allowable per specifications and material; save stress plots and peak values.
12	Track transferred energy to the pile and energy ratio; compare to expected range for hammer system; export energy report with timestamps.
13	Inspect drive cap and cushion condition at planned intervals; replace if degraded or uneven; document temperature and wear with photos.
14	Verify stroke within planned range using stroke scale or sensor; adjust hammer settings if needed; record readings and adjustments.

Data Quality Control	
15	Check signal coherence and baseline in real time; accept only unclipped, stable traces; archive screenshots of representative good blows.
16	Compare opposite-side gauge responses; variance under elastic response < 10%; investigate mismatches; attach comparison chart highlighting deviations.
17	Review reflections for section changes or defects; confirm timing aligns with geometry; annotate traces; save annotated plots.
18	Pause driving to rectify anomalies (sensor slip, cable fault, cracked head); re-verify signals; file issue report and corrective evidence.

CAPWAP Analysis and Interpretation	
19	Select representative blows near target embedment and uniform resistance; list blow numbers and depths; justify selection in analysis notes.
20	Run CAPWAP; adjust quake/damping within reasonable bounds; accept stable match with low error and plausible parameters; export summary report.
21	Derive mobilized capacity, shaft/base split, and peak stresses; cross-check with set and hammer energy; save capacity tables and plots.

Reporting and Acceptance	
22	Compare CAPWAP capacity to required value per approved project specifications and authority requirements; record accept/contingency decision; obtain digital signatures.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Perform dynamic pile testing (PDA) provides a structured way to assess driven pile performance during initial driving using strain and acceleration sensors coupled to a PDA test unit. This high-strain dynamic testing records hammer energy transfer, blow-by-blow driving stresses, and wave propagation responses that enable CAPWAP signal matching for capacity estimation. The scope here is limited to initial drive only and explicitly excludes restrike testing. Following this checklist helps teams prevent overstressing, avoid sensor misplacement, and eliminate data loss, while producing traceable evidence for acceptance per approved project specifications and authority requirements. You'll confirm instrumentation quality, verify signal coherence, monitor compressive and tensile stress against material limits, and run CAPWAP to derive mobilized resistance and shaft/base split. The outcome is defensible acceptance or a clear contingency plan based on transparent field data and analysis. Use the interactive mode to tick steps, add comments, attach photos and plots, and export PDF/Excel with a QR-secured record.	1. Preparation: assemble PDA unit, calibrated strain gauges and accelerometers, clamps/epoxy, spare cables, hammer data sheets, stroke scale, PPE (helmet, eye/ear protection, gloves), and camera/tablet for documentation. Confirm site access, pile IDs, and power/charging for devices. Open the checklist on your device and attach project metadata. 2. Using the Interactive Checklist: start interactive mode, tick steps as completed, and add comments for deviations or issues. Attach photos, screenshots, and files directly to items. Use the QR link to share live status with stakeholders. When finished, export to PDF/Excel for records and submittals. 3. Sign-Off: capture digital signatures from the tester, contractor representative, and engineer. Distribute the exported report and raw data to the project team. Archive files in the project repository; verify the QR code authenticates the version used for acceptance.