



Drive steel H-piles checklist: shoes, splices, blow counts

Drive steel H-piles with an interactive checklist for shoes, splices, penetration, blow counts, and alignment; commentable and export as PDF/Excel for compliance.

Project:

Date:

Filled by:

Pre-Drive Verification

1	Confirm latest approved drawings, pile schedule, and layout grid using a calibrated total station; mark control points and offsets; obtain superintendent and inspector sign-off on layout sketch.
2	Verify pile size, section (e.g., HP shapes), grade, and coating against delivery tags and mill certificates; photograph tags and upload mill cert PDFs to the lot record.
3	Inspect straightness, camber, and physical damage using a 2 m straightedge and calipers; acceptance within project tolerances (e.g., sweep $\leq L/1000$); capture close-up photos of any remediation.
4	Confirm leads, drive cap/helmet, striker plate, and hammer compatibility; record hammer ID and rated energy (kJ); photograph helmet/cushion components and note replacement criteria per manufacturer.
5	Review geotechnical notes for predrill/jet allowances; document that no predrilling or jetting will occur unless approved; if required, log diameter, depth, and method per specifications.

Pile Shoes and Tips

6	Confirm shoe/tip type and size match soil profile and project documents; record model, heat numbers, and any hardfacing details; photograph shoe before installation.
7	Dry-fit shoe to pile; check concentricity and seating with a straightedge; acceptance: offset ≤ 2 mm all around; photograph alignment from four sides.
8	Weld shoe per approved WPS; verify preheat with temperature crayons or IR thermometer ($^{\circ}\text{C}$); record amperage, voltage, and travel speed; perform VT after cooling; attach weld parameters sheet.
9	Grind/remove slag and sharp edges; verify flush transition between shoe and H-pile flanges/web; capture macro photos of finished weld and surface quality.
10	Stencil durable pile ID, station, and shoe install date on the web; photograph labeled ID prior to lifting into the leads.

Splices and Weld QA

11	Confirm planned splice elevation lies within permitted zone per approved project specifications; mark upper and lower limits with paint; photograph markings.
12	Prepare splice faces: square cut, remove mill scale, and bevel per WPS; check root gap with feeler gauges (≤ 2 mm unless specified); document measurements.
13	Fit-up using clamps and dogs; verify flange and web alignment; acceptance: mismatch ≤ 2 mm; record with steel rule photos and notes.
14	Verify welder qualifications and WPS/WPQR; record WPS number and filler metal batch; maintain interpass temperature within WPS range; log parameters and welder ID on splice report.
15	Perform VT and required MT/UT after cooling; record NDT results, acceptance, and any repairs; capture indication locations on annotated photos; document re-examination outcomes.

Driving Operations and Monitoring

16	Set pile in leads; check initial plumb in both axes using a digital level; acceptance: plumb within 1:100; confirm flange orientation as designed; photograph instrument display.
17	Verify hammer stroke/pressure to achieve target energy within manufacturer limits; record kJ per blow (or pressure) and ambient conditions; inspect striker/cushion surfaces, replace if degraded; photograph before driving.
18	Drive and log blows per 0.25 m increment; record time, penetration (mm/blow), and rebound; use a digital logger and retain a signed paper backup for the daily pile log.
19	Apply planned pauses for setup/relaxation when specified; perform restrike using the same hammer; record interval since last drive and resulting blow counts; note that PDA is not used on this checklist.
20	Protect pile head and flanges with correct cap/shims; inspect for mushrooming or cracking every ~50 blows; dress minor burrs safely; capture close-up photos of any damage and remediation.

Penetration Criteria and Blow Counts

21	Measure penetration depth from a fixed benchmark with a survey rod; verify tip elevation against design; record to the nearest 10 mm; confirm with total station when practical.
22	Apply acceptance criteria per approved project specifications and authority requirements (minimum penetration or refusal at defined blows/25 mm); record actual values and obtain engineer confirmation.
23	For the last 3 m, record blows for each 0.25 m and, at final set, note blows per 25 mm; validate against criteria; inspector and superintendent sign the final set record.
24	If refusal occurs above target elevation, stop and notify engineer; re-drive, predrill, or other measures only with written direction; document instructions, outcomes, and updated acceptance criteria.
25	If low blow counts persist below target elevation, evaluate soil consistency and contingency criteria; continue only per written direction; log observations and photos of cuttings or spoil.

Alignment, Final Position, and Records

26	Check final plumbness with an inclinometer; acceptance: $\leq 1:100$ in both axes; record readings and photograph the device screen for traceability.
27	Survey final plan position and head elevation using a total station; acceptance: within ± 25 mm unless specified otherwise; upload CSV coordinate file and photo of prism setup.
28	Verify flange orientation and twist; measure rotation with a digital protractor; acceptance: $\leq 2^\circ$ unless specified; record values and photos of gauge placement.
29	Cut pile to design elevation using oxy-fuel or saw; cool naturally; dress edges; record offcut length and retain labeled offcut for QA archive; photograph finished cut.
30	Compile complete driving record: pile ID, hammer details, blows, penetration, refusals, splices, NDT, elevations, surveys; attach photos and certificates; obtain inspector and contractor digital signatures; issue daily report.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Drive steel H-piles with a disciplined, field-ready process that controls shoes, splices, penetration, blow counts, and alignment from the start. This checklist supports H-pile driving and steel pile installation crews with clear acceptance cues, objective measurements, and documentation requirements. You will confirm tip shoes and welding quality assurance before driving, monitor hammer performance and blow count trends, and validate penetration criteria and alignment tolerances without relying on PDA. The result is reliable bearing, minimal damage, and accurate as-built location data. By using total stations, digital inclinometers, calibrated gauges, and structured driving logs, you'll reduce rework, avoid premature refusal, and prove compliance per approved project specifications and authority requirements. Each step specifies tools, tolerances, and evidence—photos, readings, and signatures—so daily pile records are complete and defensible. Start in interactive mode to tick items, add comments, attach photos, and export your report as PDF/Excel with an embedded QR for quick verification.	1. Preparation: gather approved drawings, pile schedule, mill certificates, WPS/WPQR, calibrated total station, digital level, IR thermometer, straightedge, gauges, camera, and PPE. Confirm hammer, helmet, and leads compatibility before mobilization. 2. Open the checklist on a tablet or phone. Start a new pile record by selecting location, pile ID, and hammer ID. Enable offline mode if coverage is poor. 3. Using the Interactive Checklist: tick each item as work progresses, attach photos of tags, welds, gauges, and instruments, and enter readings (kJ, mm/blow, elevations) in the provided fields. 4. Add Comments: record variances, approvals, and engineer directions. Mention times for pauses and restrike, and link to WPS numbers and NDT reports for splices. 5. Export: generate a commentable, QR-secured report and export as PDF/Excel. Share with the superintendent, inspector, and engineer for daily review. 6. Sign-Off: capture digital signatures from contractor and inspector. Archive the report with photos, logs, and survey files in the project folder for traceability.