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Verify Sheet Pile Toe Level and Driving Criteria Guide

Verify sheet pile toe level and driving criteria with an interactive checklist that is commentable; capture blows per 250 mm and as-builts, then export as PDF/Excel.

Project:	
Date:	
Filled by:	

Pre-Drive Controls	
1	Review approved drawings, method statement, and criteria for penetration, refusal (blows per 250 mm), and target toe elevation per approved project specifications and authority requirements. Evidence: signed ITP checklist, marked datum benchmarks, and photo of issued-for-construction plans.
2	Verify hammer type and calibrate energy using manufacturer tools or energy meter; record stroke/pressure. Acceptance: energy within manufacturer range for sheet type. Evidence: calibration certificate and daily energy readings attached to pile IDs.
3	Measure each pile length and confirm splicing plan to achieve design embedment considering final cut-off. Acceptance: available length ≥ design penetration + cut-off allowance. Evidence: measurement log, heat numbers, and photos of splice preparation.
4	Establish survey control for top and toe levels with total station; close traverse. Acceptance: control closure ≤ ±5 mm and benchmark protected. Evidence: survey report, control point photos, and coordinates posted in the field.

Driving Operations	
5	Record blow counts per 250 mm continuously with time, set per blow, and stroke/pressure. Acceptance: consistent penetration without unexplained spikes. Evidence: signed driving log with photos of chalk marks every 250 mm.
6	Monitor verticality/alignment using spirit level or laser plumb at intervals. Acceptance: deviation within project tolerance (e.g., ≤ 1:100) per approved project specifications and authority requirements. Evidence: readings and photos at 1 m intervals.
7	Inspect helmet seating, hammer cushion, and pile cap before each drive. Acceptance: flat, undamaged surfaces; cushion thickness within manufacturer limits. Evidence: close-up photos and supervisor sign-off per shift.
8	Check interlock engagement and apply lubricant to avoid overheating. Acceptance: interlocks free, no discoloration or galling. Evidence: IR thermometer readings and maintenance log entries.

Penetration and Refusal Criteria	
9	Confirm minimum penetration is achieved. Acceptance: toe elevation at or below design toe level within ±0.05 m. Evidence: survey shot tied to benchmark and logged against pile ID.
10	Apply refusal criteria based on blows per 250 mm at recorded energy. Acceptance: refusal when threshold per approved project specifications and authority requirements is met; note stroke/pressure. Evidence: log entries highlighting refusal interval with supervisor signature.
11	If set reduces abruptly without reaching criteria, pause and assess for false set or cushion degradation. Acceptance: resume only after cause is corrected. Evidence: inspection photos and corrective action note on log.
12	Adjust hammer energy incrementally to maintain safe penetration; avoid exceeding equipment or sheet limits. Acceptance: energy within manufacturer bounds and method statement. Evidence: energy trend on log and operator confirmation.

Obstructions Handling	
13	On sudden blow-count spikes or rebound, stop driving and mark depth. Acceptance: investigation initiated per method statement. Evidence: depth mark photo, GPS location, and notification to engineer.
14	Attempt controlled extraction and redrive up to 2 m to clear debris. Acceptance: restored penetration comparable to adjacent sheets. Evidence: extraction/redrive cycles recorded with blow counts per 250 mm.
15	Pre-bore with auger diameter smaller than sheet width to obstruction depth +0.5 m if required. Acceptance: spoils logged; interlocks undamaged. Evidence: bore log, photos, and approval per method statement.
16	Submit obstruction treatment report detailing location, depth, and mitigation. Acceptance: engineer approval prior to resuming full driving. Evidence: signed inspection request and attached sketches/photos.

Toe Level Verification	
17	Survey toe depth immediately after achieving criteria using dip tape inside pan, weighted line, or sonic device. Acceptance: measurement accuracy ±10 mm. Evidence: survey sheet with instrument and benchmark references.
18	Cross-check toe elevation by length accounting: delivered length − exposed length − cut-off allowance. Acceptance: discrepancy ≤ 20 mm; otherwise remeasure. Evidence: calculation sheet attached to pile record.
19	Verify cut-off elevation for top-of-pile to avoid undercutting embedment. Acceptance: cut-off within ±10 mm of specified level. Evidence: marked pile photos and foreman sign-off.
20	Record groundwater level at survey time to contextualize penetration performance. Acceptance: reading from piezometer or observation well. Evidence: instrument reading photo and timestamp in log.

Records and As-Builts	
21	Complete a driving record per sheet: location, lengths, energy, blows per 250 mm, refusal notes, toe elevation, and variances. Acceptance: record signed daily. Evidence: compiled PDF with photos and signatures.
22	Attach instrument evidence: energy meter screenshots, IR temperature readings, and GPS coordinates. Acceptance: files labeled by pile ID. Evidence: uploaded images/files linked in log.
23	Update as-built plan with sheet IDs, toe elevations, obstruction treatments, and refusal zones; georeference to site grid. Acceptance: CAD/DWG with revision control. Evidence: exported PDF/DWG with title block and date.
24	Obtain final approvals from inspector, contractor PM, and engineer; archive in DMS with QR-linked export. Acceptance: all signatures captured. Evidence: approval workflow record and QR-authenticated file.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Verify sheet pile toe level and driving criteria with this focused, field-ready checklist. It guides you through sheet pile driving verification, including penetration criteria, blow counts per 250 mm, refusal confirmation, obstruction handling, and accurate as-built documentation. The scope covers steel sheet pile installation only, emphasizing toe elevation checks, driving logs, hammer energy control, and survey validation. By staying within this scope, you reduce the risk of false refusal, bent sheets, damaged interlocks, inadequate embedment, and incomplete records that can delay approvals or compromise wall performance. You will capture evidence for each sheet: set per blow, verticality observations, toe level survey shots, groundwater context, and obstruction treatments—ready for engineer review. The outcome is a defensible record proving design penetration and refusal were achieved per approved project specifications and authority requirements. Use the interactive features to tick items, add comments for variances, and export your as-built package to PDF/Excel with a project QR code.	1. Preparation: review the approved drawings, specifications, and method statement; brief the crew; don PPE (helmet, gloves, eye/ear protection, high-visibility, boots). 2. Gather tools: total station, dip tape/weighted line or sonic device, energy meter, IR thermometer, camera, GPS-enabled device, and standardized blow-count forms. 3. Open the interactive checklist on your tablet or phone, select the work area and sheet IDs, and start the Pre-Drive Controls section. 4. During driving, tick items, enter blow counts per 250 mm, and attach photos of chalk marks, instrument readings, and survey setups in real time. 5. Use comments to flag anomalies (e.g., obstruction depth, false set, energy change) and tag the engineer or inspector for prompt review. 6. After achieving criteria, complete toe level verification, cross-check calculations, and log groundwater level; attach the survey sheet. 7. Generate a daily summary and export as PDF/Excel with embedded photos, logs, and a project QR code for authentication. 8. Collect digital signatures from the operator, site engineer, and inspector; distribute the package to stakeholders and file it in the DMS. 9. Archive as-built CAD/PDF files with version control, linking each sheet ID to its driving record for future audits.