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Proof-roll subgrade checklist: soft spots and acceptance

Proof-roll subgrade interactive checklist for site teams; commentable steps to find soft spots, remediate, re-proof, and accept. Export as PDF/Excel with QR-secured records.

Project:	
Date:	
Filled by:	

Pre-rolling Preparation	
1	Confirm subgrade elevation within design tolerance using a level/total station; moisture within OMC ±2% with a moisture meter; record readings and survey shots.
2	Define proof-rolling limits, lot size, and pass layout on a plan; mark boundaries with paint/flags; attach a markup and photos for evidence.
3	Ensure surface drains freely with no standing water; pump or cut shallow reliefs to dewater; acceptance: firm, non-glossy surface; photo evidence.
4	Remove loose debris, organic pockets, and large clods with rakes and blades; acceptance: uniform, tight surface; photo before/after.

Equipment and Calibration	
5	Verify proof-rolling vehicle type and axle load meet project requirements; weigh axles on portable scales; acceptance: within specified kN per axle; log kN values.
6	Check tire inflation pressure with a calibrated gauge; acceptance: within ±10 kPa of target; record pressures and gauge calibration date.
7	Confirm travel speed between 3–8 km/h using GPS or tachometer; acceptance: average within range; record start/end times and distance to compute speed.
8	If using a smooth-drum roller, operate in static mode unless authorized; record vibration status and amplitude if permitted by specifications.

Proof-rolling Execution	
9	Establish straight, parallel passes with 50% overlap; paint alignment lines; acceptance: full coverage with no missed strips; attach a coverage map.
10	Run initial passes along the roadway alignment; if specified, add a transverse set; record number and direction of passes per lot.
11	Observe live response: rut depth, deflection, weaving, and pumping; call out chainage and offset; video or photo each anomaly for the log.
12	Measure rut/deflection with a 3 m straightedge and ruler; acceptance: ≤ 25 mm or per approved specifications; record mm at three points.
13	Note environmental conditions (temperature, recent rainfall, cloud cover); acceptance: conditions recorded to contextualize results; photo sky/ground conditions.
14	Log axle load, tire pressure, speed, pass count, and coverage for each lot; acceptance: complete entries; exportable worksheet attached.

Soft Spot Identification	
15	Flag locations exhibiting pumping, shear cracking, or bounce; stake corners; acceptance: each soft spot uniquely ID’d with chainage/offset; geo-tagged photos.
16	Delineate soft spot limits by two confirming passes around the perimeter; mark boundaries with paint; sketch limits on the plan.

Remediation	
17	For shallow weakness (<150 mm), scarify with a grader to target depth, moisture condition to OMC, and compact; acceptance: density per spec; nuclear density results attached.
18	For deep weakness, undercut to firm bearing layer measured by probe/plate; acceptance: firm base passes spot proof roll; record undercut depth (mm).
19	Backfill with approved granular material in ≤150 mm lifts; compact each lift; acceptance: density ≥ target per spec; field test results and lift photos.
20	Install separator geotextile where fines pumping persists and is authorized; acceptance: product per approved submittal; delivery tickets and installation photos.
21	Trim and re-establish design elevation using total station; acceptance: elevation within ±10 mm; upload survey file and as-built shots.

Re-proof and Acceptance	
22	Allow moisture to equilibrate if wet conditioned; acceptance: surface firm and non-tacky; record elapsed time and field moisture check.
23	Re-proof roll remediated areas using the same axle load and speed; acceptance: no pumping and rutting ≤ 10–15 mm; record measured mm and photos.
24	Spot check 5–10 m beyond boundaries to confirm no extension; acceptance: no new soft responses; update map and log.
25	Obtain inspector/engineer sign-off per approved project specifications and authority requirements; acceptance: digital signatures captured; distribute signed report.

Comments:

Filled by:

Signature:

Introduction	How to use this checklist
Proof-roll subgrade is a critical field verification step that confirms the subgrade can support construction and traffic without excessive deformation. This checklist guides proof rolling, subgrade evaluation, and soft spot remediation using SI units, practical tools, and clear acceptance cues. You will plan controlled passes with a loaded truck or roller, quantify rutting and deflection, and distinguish between elastic response and pumping. The scope includes identifying soft areas, choosing an appropriate remediation method (undercut and replace, moisture conditioning and compaction, separator geotextile if permitted), re-proof rolling corrected zones, and recording acceptance criteria. It explicitly excludes stabilization mix design decisions, which shall be handled separately per approved project specifications and authority requirements. By following these steps, you reduce risks of rutting, settlement, reflective cracking, and premature pavement failure. Use this interactive checklist on site to tick items, capture photos and readings, leave comments for collaborators, and export your record as PDF/Excel secured by a QR code.	1. Preparation: Assemble a calibrated tire gauge, portable axle scales (or weigh ticket), GPS/speed readout, 3 m straightedge, ruler, moisture meter, nuclear density gauge (or approved alternative), paint/flags, and PPE. 2. Open the checklist in interactive mode on a tablet/phone. Create a lot, set chainage limits, and enter target axle load, tire pressure, and speed from the project specifications. 3. During proof rolling, tick items as you go, add comments for anomalies, and attach geo-tagged photos/videos and measurement readings directly to the relevant checklist line. 4. After identifying soft spots, switch to remediation tracking: record chosen method, depths, lift thicknesses, density results, and survey elevations without duplicating earlier entries. 5. Re-proof corrected areas and update the same lot with before/after metrics. Use the comparison view to verify rutting reduction and absence of pumping against acceptance criteria. 6. Sign-Off: Collect digital signatures from contractor and inspector, then export as PDF/Excel. Share the QR-authenticated package with stakeholders and archive it in project records.