

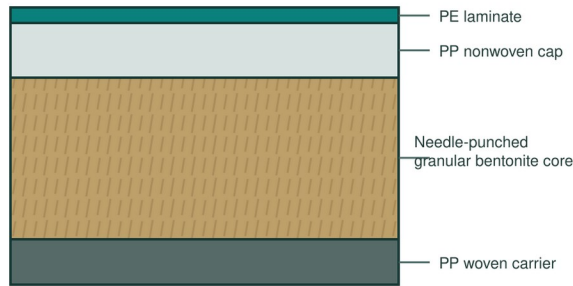
KGCL-L Installation Guide

Handling, deployment, factory-formed overlaps, slopes, repairs, cover and quality assurance

For 5.85 m wide laminated GCL rolls • Issue 0 - Revision L - Technical approval issue • 10 August 2026

Common KGCL-L construction

Laminate options vary by polymer, thickness and OIT class



KGCL-L series: 0.20, 0.50 and 1.00 mm declared laminate options

Default orientation: PE laminate towards contained liquid

Core bentonite remains granular; powdered bentonite is confined to the factory edge zone.

Factory-formed longitudinal edge

Plan view - schematic, not to scale

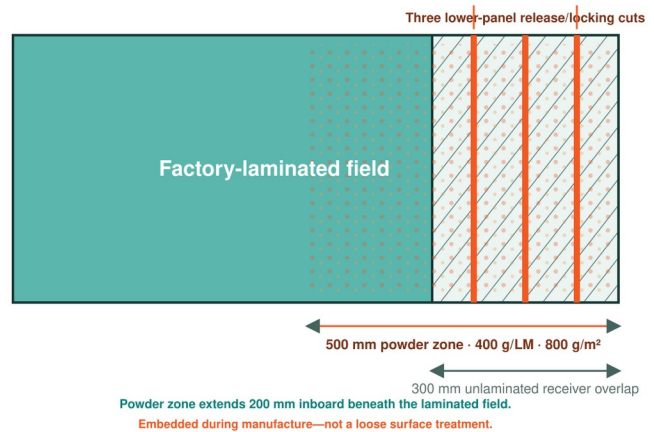


Figure 1. Product construction and factory-formed receiver-edge configuration.

Four installation controls

Use a rated installer-provided spreader bar and compatible full-length lifting mandrel/core-prong system for the 5.85 m-wide roll; deploy only onto an approved dry subgrade; place each fully laminated edge above the preceding 300 mm factory-treated unlaminated receiver edge without adding site powder; and cover/confine accepted work without delay.

Scope. This guide provides minimum general procedures for KGCL-L20A, KGCL-L50A, KGCL-L100A, KGCL-L50B, KGCL-L100B, KGCL-L50C and KGCL-L100C. Project drawings, specifications, the approved CQA plan and the Engineer of Record (EOR) govern. Any conflict, unapproved field change or unusual condition requires a hold point and written direction before work proceeds.

1. Responsibilities and pre-start submittals

Party	Minimum responsibility
Engineer of Record	Product/orientation approval; chemistry; internal and interface shear; slopes; anchor trench; cover; penetrations; settlement; hydraulic and conformance requirements.
Installer	Qualified crew, approved plant and lifting plan, panel layout, weather controls, correct overlaps, protection, records and rectification.
CQA consultant	Independent subgrade/roll/panel acceptance, seam and repair inspection, sampling, non-conformance control, daily records and final CQA report.
Kontain	Product identification, order evidence, technical clarification and review of proposed product-specific installation details.

Required before deployment

- Approved panel layout showing roll numbers, panel sequence, contained-liquid side, seam orientation, anchor trenches, penetrations and cover sequence.
- Current KGCL-L TDS and order dossier: current system certificates and GAI-LAP scope; product certificates; roll/lot register; granular core, factory powder, geotextile, PE-laminate and accessory-bentonite certificates; 500 mm / 400 g/LM powder record; lower-panel three-cut QC; and agreed conformance results.
- Approved subgrade inspection record, weather plan, traffic plan, lifting plan and rated lifting-equipment certifications. The lifting plan must identify the order-specific core material/type, clear diameter, roll width and maximum labelled gross mass.
- Project seam schedule showing longitudinal and transverse/cut overlaps, treatment and CQA hold points. Factory longitudinal edges contain a 500 mm lower-panel zone at 400 g/LM (800 g/m²); no site powder is required. At transverse/cut seams, site powder is mandatory wherever laminate remains, and as specified at approved repairs and penetrations.
- EOR-approved interface/internal shear basis for all slopes and a construction method that does not place the GCL in tension.
- Confirmed roll schedule. Standard roll length is 30 m; nominate custom lengths where practical to run continuously from crest to toe and reduce transverse seams. Confirm the core material/type, clear diameter and resulting gross roll masses against the lifting plan.

Hold point - product identity

Check every roll label against the approved product code, laminate thickness, lot, roll number, dimensions, order-specific core material/type and clear diameter, labelled gross mass and order register before cutting or removing the combined thin-film and woven protective wrapping.

2. Orientation and terminology

Term	Meaning in this guide
Upper / laminate face	PE-laminated nonwoven face, normally oriented towards the contained liquid unless project drawings state otherwise.
Underside / carrier	Woven PP face normally placed against the approved subgrade.
Receiver edge	One 300 mm unlaminated factory edge within a 500 mm lower-panel powder zone applied at 400 g/LM (800 g/m ²), extending 200 mm inboard. Three longitudinal cuts pass through the lower receiver layer into the granular core.
Fully laminated edge	The opposite longitudinal edge. It is installed above the preceding panel's receiver edge to maintain PE coverage over the completed field seam.
Transverse / cut edge	A roll-end or field-cut edge across the roll width; it has no factory-unlaminated receiver strip.
A / B / C suffix	A = LDPE standard-OIT family; B = LLDPE standard-OIT family; C = enhanced-stabilised LLDPE family. The exact approved product code must be maintained through installation records.

3. Unloading, handling and storage

Rated spreader bar and full-length lifting mandrel



Do not lift from one end, spear the roll with bare forks, drag it, or allow slings to crush roll ends.

Figure 2. Minimum handling concept for a 5.85 m-wide roll.

Full-length plastic core and rated lifting system

The standard 5.85 m core is a continuous full-length plastic tube with a nominal 102 mm clear internal diameter. The all-plastic construction resists moisture-related softening and collapse and retains handling stiffness when the core is exposed after roll deployment; it does not make the wrapped GCL roll weatherproof. Empty cores can be segregated and recycled where a suitable facility accepts the clean plastic. Provide a compatible smooth mandrel/core-prong system, spreader bar where applicable, slings and lifting plant. The mandrel or core prong shall have a certified WLL of at least 1,000 kg in its actual support or cantilever configuration; labelled gross mass and lifting-plan design load govern. Alternative clear-ID plastic cores and full-length steel cores are available by order.

Handling procedure

- Before unloading, inspect both wrapping layers and both visible core ends; where accessible, inspect the bore. Record damage against the roll number. Isolate a roll with torn, punctured, abraded, open or wet wrapping, evidence of water ingress, or a cracked, split, crushed, bowed, excessively oval, displaced or obstructed core until accepted.
- Confirm the order-specific core material/type, clear diameter and lifting compatibility. The standard core is a continuous 5.85 m full-length plastic tube with a nominal 102 mm clear internal diameter; alternative clear-ID plastic or full-length steel cores require matching equipment.
- Before insertion, verify that the lifting mandrel or core prong has a smooth compatible outside diameter, adequate clearance for tolerance and ovality, sufficient engagement or support length, and suitable end geometry and bearing surfaces. Do not force equipment through a distorted or obstructed core or use a mandrel that can point-load or damage it.
- For the illustrated two-point spreader-bar lift, insert the approved mandrel fully through the 5.85 m full-length core and support it as designed. An engineered cantilever core-prong shall achieve its certified engagement length and distribute load as defined by the lifting-system design. The mandrel or core-prong WLL shall be at least 1,000 kg; use a higher-rated assembly whenever the labelled gross mass or lifting-plan design load exceeds that value. Raise the roll level without shock loading and control tilt and sway with tag lines where required.
- Never drag a roll, lift it from one end or its middle, use a bare forklift tine as a lifting prong, support or sling the roll only at one end, apply concentrated loads to exposed core ends, drop it from a vehicle, or allow chains/slides to bear against and crush the roll ends.
- Keep the combined thin-film and woven wrapping intact until deployment. It protects against transit and handling damage and reduces moisture/weather ingress, but is not waterproof and does not replace dry, drained storage. Repair or overwrap damage promptly.
- For short staging only, intact wrapped rolls may rest on firm, smooth, well-drained soil that is dry to slightly moist and not softened, muddy or ponded. Relocate before forecast rain or ground softening. Chock rolls and do not store on end.
- Limit stacks to three rolls unless a site-specific assessment and the packaging limit approve otherwise. For longer storage use clean dunnage or hardstand beneath a secure waterproof tarpaulin; keep rolls away from traffic, chemicals, heat, sparks and sharp objects.

4. Subgrade acceptance and deployment

Subgrade acceptance

- CQA must accept the subgrade before GCL deployment. It must be firm, smooth and free of loose soil, vegetation, sharp objects, debris, standing water, abrupt grade changes, deep ruts, voids, cracks and protrusions that may damage or bridge the GCL.
- The EOR specifies grading, compaction, stiffness, particle size, moisture condition and any cushioning layer needed for the actual barrier system.
- Repair defects and re-inspect. Do not use the GCL to conceal an unacceptable subgrade.

Deployment sequence

- Confirm orientation before cutting the combined protective wrapping. Unwind from the bottom of the suspended roll so the panel is laid without uncontrolled free-fall or twisting.
- Deploy in the approved panel sequence. Use backwards-moving plant or another method that keeps equipment off exposed GCL and does not rut the accepted subgrade.
- Minimise dragging. Pull panels only enough to remove slack and align the upper panel with the receiver-edge boundary; do not tension the GCL.
- Lay panels flat. Remove folds, bridging and wrinkles before forming seams or placing the overlying layer.
- Keep the overlap zone clean, dry and free of soil. Walking and traffic on a completed overlap are prohibited unless protected and approved.
- Make every field cut over a sacrificial cutting board or protective GCL offcut. Never cut directly against installed GCL or another geosynthetic, and remove all trimmings before inspection.

Weather control

The PE laminate reduces direct rainfall ingress through the panel face; it does not make exposed work weatherproof or provide confinement. Water can reach bentonite through the 300 mm factory-unlaminated receiver edge, unfinished or unconfined seams, roll ends, transverse or cut zones, repairs, penetrations and damage, or migrate beneath the GCL. Do not deploy during rainfall, into standing water, over snow or ice, with frozen GCL, or onto a frozen or softened subgrade.

Rainfall contingency

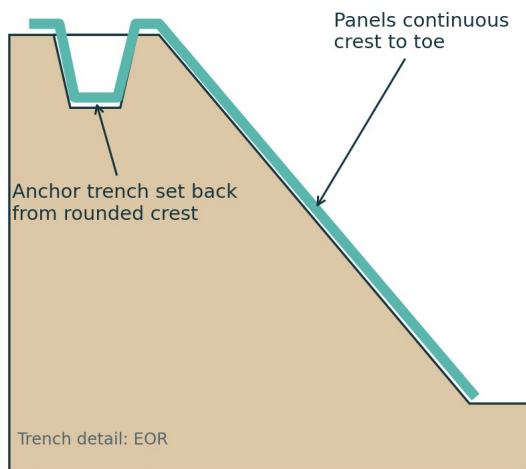
- Monitor current and forecast weather. Deploy only the area that can be anchored, seamed, inspected and permanently covered or fully waterproof-secured during the same shift.
- Before rain or a work break, protect every exposed 300 mm receiver strip, leading edge, panel end, transverse or cut zone, repair and penetration. Use continuous waterproof sheeting extending beyond the work and, where practicable, folded beneath the leading GCL edge. Lap and grade the sheeting to shed runoff away from the liner.
- Ballast temporary covers with sandbags or other approved smooth, non-abrasive weights. Do not use stakes, pins or other fasteners through the GCL, and do not place sharp or abrasive ballast directly on it. Secure cover edges so wind and runoff cannot lift them or direct water beneath the GCL.
- Maintain temporary drainage, bunds or sumps as required to prevent runoff ponding on the cover, entering from the sides or travelling below the GCL. Temporary-cover seams are not watertight unless specifically detailed and secured.
- If rain begins, stop deployment, secure the work and prohibit traffic on wet GCL. Do not drag, lift or reposition wetted panels unless directed through the project CQA procedure.
- After rain, remove temporary covers and standing water by a method that does not damage or displace the liner. CQA must re-inspect the GCL, 500 mm factory-impregnated lower-panel zones, three lower-panel release/locking cuts and field powder-treated seams, low points, anchor trenches and exposed subgrade for hydration, washout, displacement or contamination before work resumes or any area is concealed. Where water may have passed below the GCL, the EOR/CQA defines the inspection extent and corrective action.

Premature hydration

Hydration can begin at exposed edges or laps, or from below, even where the laminate appears dry. Unconfined swelling can cause bentonite migration, distortion, wrinkles or seam displacement. If GCL becomes wet, stop and isolate it. Do not conceal ponded water, softened subgrade, visible swelling, displaced or contaminated bentonite, or distorted seams. CQA/EOR must inspect and record the disposition. Accepted areas may be promptly confined beneath at least 300 mm of approved soil; otherwise protect, repair or replace the affected GCL.

5. Slopes and anchorage

Slope section



Panel layout on slope

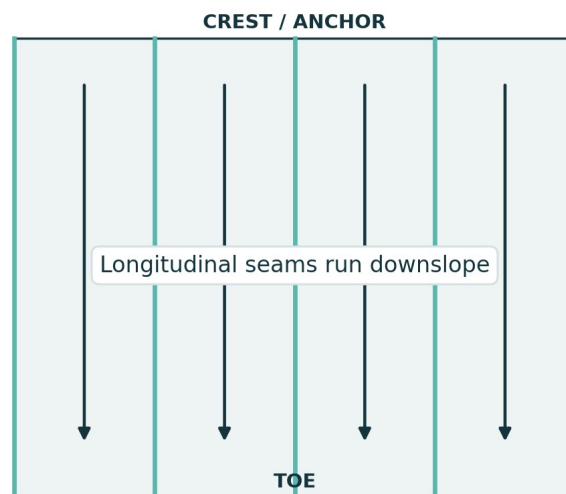


Figure 3. Slope installation principles: crest anchorage and seams running down the slope.

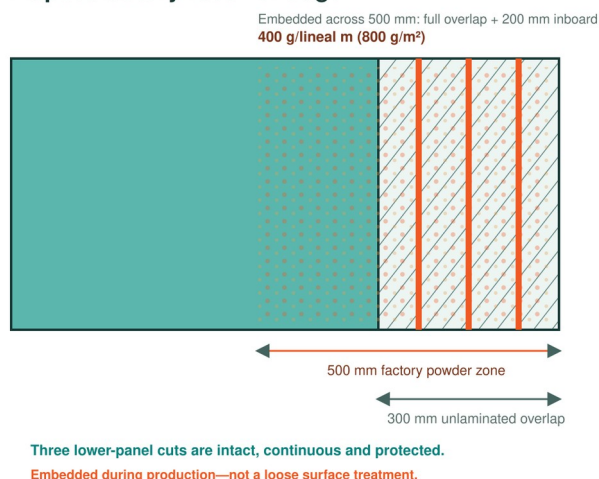
- Run full panels from crest to toe with longitudinal seams parallel to maximum slope. Select custom roll lengths where practical to span the slope continuously and minimise transverse seams. Suspend and control the roll from the crest; never release it to free-roll under gravity.
- Use the anchor trench or run-out detail shown on the project drawings. The EOR determines setback, geometry, rounded transitions, backfill, compaction and pull-out capacity from project-specific stability and construction requirements.
- Avoid transverse/end seams on slopes. Where unavoidable and expressly approved, provide intermediate anchorage and shingle the upper panel over the lower panel in the direction of grade; use at least 1,500 mm overlap or the larger project requirement.
- Keep end seams away from the crest and toe. As a general minimum, locate approved end seams at least 1 m from the crest or toe on slopes steeper than 4H:1V.
- Progress cover placement from the toe towards the crest and push the cover upslope, keeping plant on placed cover, so construction does not drag or tension the GCL. Prevent overlying textured geosynthetics from pulling the GCL downslope.

No catalogue slope limit

Slope suitability is governed by internal shear, both interfaces, cover veneer stability, liquid level/drawdown, settlement, anchorage and construction loading. Use project-specific direct shear testing and analysis; do not select KGCL-L from slope ratio alone.

6. Factory-formed longitudinal overlap

1 Inspect factory receiver edge



2 Place fully laminated edge above

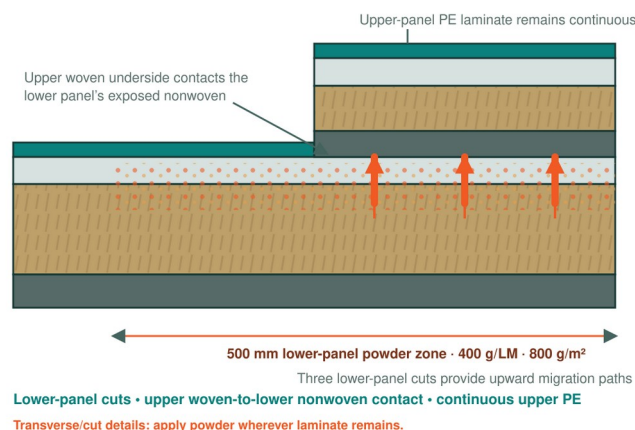


Figure 4. Approved KGCL-L longitudinal overlap sequence.

- Confirm panel sequence.** Orient the underlying panel with its 300 mm factory-unlaminated receiver edge available for the next panel. The adjoining panel must approach with its opposite, fully laminated longitudinal edge.
- Inspect the receiver edge.** Verify a clean 300 mm exposed lower-panel nonwoven edge for the full seam length. Confirm the production record declares a 500 mm powder-impregnated zone at 400 g per lineal metre (800 g/m²), extending 200 mm inboard, and that all three lower-panel release/locking cuts are visible and continuous. Do not brush, shake or disturb the edge to expose powder. Reject premature hydration, suspected powder loss, displaced bentonite, damage, soil or standing water.
- Place the upper panel.** Overlap the adjoining fully laminated edge to the 300 mm receiver boundary. Its woven underside must sit directly against the exposed lower-panel nonwoven while its PE laminate remains on the upper surface, providing continuous laminate coverage over the seam.
- Do not add site accessory powder.** Powdered sodium bentonite has already been mechanically embedded across the 500 mm lower-panel zone during production at 400 g per lineal metre (800 g/m²). When hydrated and confined, this powder and the granular core bentonite migrate upward through three cuts in the lower receiver layer to the upper woven-to-lower nonwoven contact interface. Manually placed powder is neither required nor part of the compliant factory longitudinal seam.
- Do not alter the factory longitudinal edge.** No PE film is peeled, cut, stripped or removed to create or modify a longitudinal receiver edge. If the receiver edge is laminated, under-width, damaged, contaminated or suspected of losing its factory treatment, stop and quarantine the roll or affected seam area. Do not top up the factory zone without a written product-specific disposition.
- Accept before covering.** CQA inspects overlap width, 500 mm treatment-zone and 400 g/LM production records, continuity, cleanliness, all three lower-panel cuts, direct upper-woven-to-lower-nonwoven contact, upper-panel laminate coverage, wrinkles and damage. Record both roll numbers and the seam location.

Stop-work condition

Do not create a factory longitudinal receiver edge by scoring, cutting, peeling or stripping the laminate in the field. Quarantine any non-conforming longitudinal edge and obtain a product-specific disposition from Kontain and the CQA consultant. The controlled transverse option in Section 7 is separate.

7. Seam schedule and accessory bentonite

Condition	Minimum overlap	Accessory bentonite powder	Key control
Intact factory receiver edge	300 mm	500 mm zone at 400 g/LM (800 g/m ²); none added on site	Upper woven-to-lower nonwoven contact; bentonite migrates upward through three lower-panel cuts
Damaged, contaminated or non-conforming receiver edge	Project disposition required	Mandatory where an approved repair is used	Stop work; do not field-form a longitudinal receiver edge
Transverse/cut seam - base or shallow grade	600 mm	Mandatory: 0.5 kg/m	Select Option A or B below; shingle with grade
Approved transverse seam on slope	1,500 mm or larger project value	Mandatory: 0.5 kg/m	Option A preferred; intermediate anchorage and EOR approval
Patch	500 mm beyond damage in every direction	Mandatory around damage beneath patch	Same KGCL-L product code and orientation
Penetration / structure	Project detail; collar typically extends ≥ 300 mm	Mandatory in prepared notch and between layers	Movement, termination and confinement by EOR

Powder planning quantity

Do not include factory longitudinal seams in the site accessory-powder quantity; their 500 mm zone is already embedded during production at 400 g/lineal m. Include every transverse/cut length where laminate remains, plus approved repair and penetration details. At 0.5 kg/m, one transverse seam across a 5.85 m roll requires 2.93 kg before waste. Calculate the order quantity from the total length of transverse/cut seams and repair or penetration details, add the project-approved handling-loss allowance, then round up to available package quantities.

Transverse / cut-edge laminate treatment

- Option A - enhanced GCL contact (preferred): remove a 300 mm-wide strip of laminate from the lower panel only. Use a controlled method that leaves the upper nonwoven intact. Apply powder at 0.5 kg/m onto the exposed nonwoven so it filters into and is retained by the fibre structure, then shingle the intact fully laminated upper panel over the overlap.
- Option B - laminate retained: where the time and damage risk of removal are not accepted, retain the lower laminate. Manual bentonite-powder placement at 0.5 kg/m is mandatory wherever that laminate remains before forming the lap. This is a client/EOR decision. The retained film separates the GCL geotextiles and can leave an interfacial flow path; the seam is not represented as direct, watertight GCL-to-GCL contact.
- For either option, keep the seam flat, clean and dry; maintain the specified overlap; shingle in the direction of grade; inspect before concealment; and promptly place at least 300 mm of approved soil cover to provide continuous confinement.

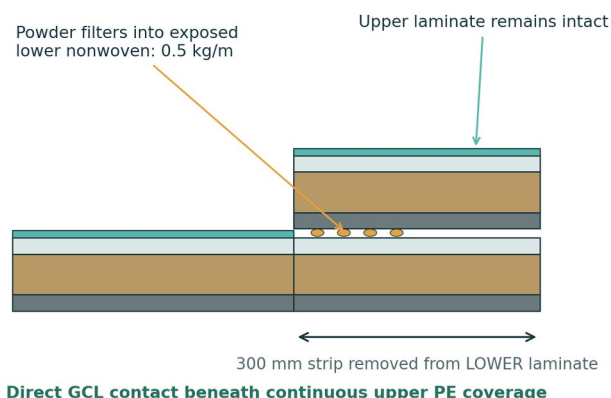
Accessory bentonite control

- Use sodium bentonite meeting the same approved source/specification as the GCL core. Keep containers sealed, dry, labelled and traceable.
- Apply manually placed powder only at transverse/cut seams, repairs and penetration cut-details. Use a continuous, uniform band at 0.5 kg per lineal metre without gaps, contamination or displacement. Do not add site powder to compliant factory longitudinal overlaps or scatter it beyond a field treatment zone.
- Prevent loose powder and bentonite-contaminated water entering adjacent drainage geocomposites, filters, sumps or pipework. Remove spills before placing the next layer.
- Record bag/lot identification and the seam length treated. Reinspect after wind, traffic or repositioning and before the seam is concealed.

8. Repairs, penetrations and structures

Option A - enhanced contact

Preferred where the work method permits



Option B - laminate retained

Client/EOR acceptance required

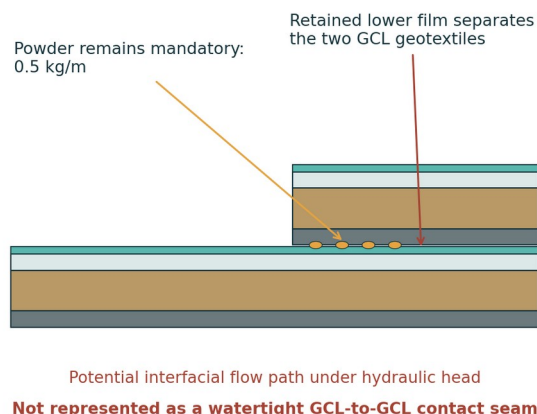
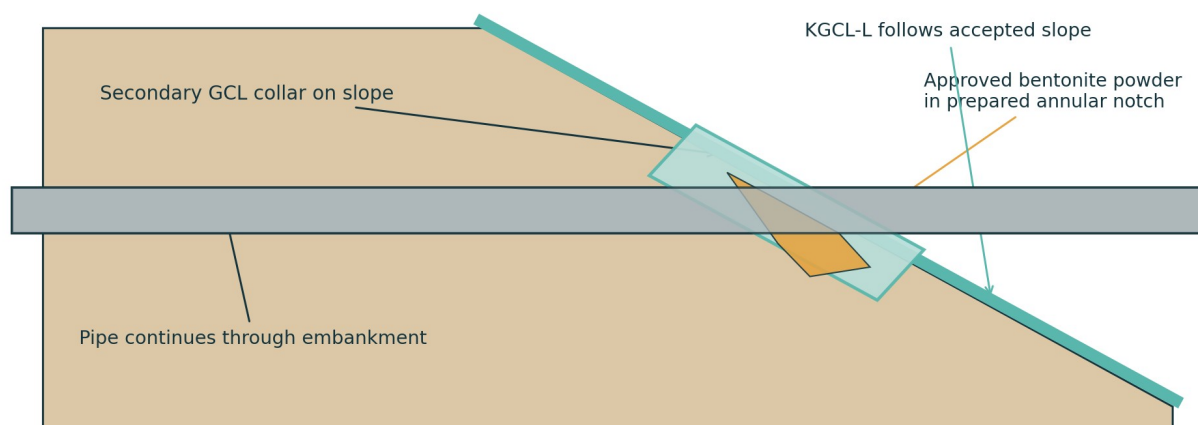


Figure 5. Transverse and cut-edge laminate-treatment options.

Repair procedure

- Mark and photograph the defect. Remove loose contamination without enlarging the damage.
- Cut a patch from the same KGCL-L product code and orient it consistently. Round patch corners where practical.
- Apply approved accessory bentonite powder around the damaged area at 0.5 kg per lineal metre of patch perimeter. Extend the patch at least 500 mm beyond every part of the damage.
- Do not use the transverse strip-removal option to improvise a damage repair. For damage through the laminated GCL, use an EOR/CQA-approved detail that separately restores the GCL seal and the PE barrier; replace the full panel where a demonstrably watertight repair cannot be achieved.
- CQA records the defect, repair dimensions, roll source, accessory bentonite lot and acceptance before covering.

Typical sloping penetration concept - project detail required



Engineer of Record confirms collar dimensions, pipe termination, movement allowance and confinement.

Figure 6. Typical sloping penetration concept; dimensions and connection details are project-specific.

- Use a sharp knife and frequent blade changes. Cut neat collars rather than tearing geotextiles.
- Prepare a smooth annular notch around the pipe or embedded structure, fill it with approved bentonite powder and provide a secondary GCL collar with powder between the approved layers.
- The EOR details mechanical terminations, movement allowance, differential settlement, boots/clamps, interfaces with geomembrane and final confinement. Generic collars do not replace a designed connection.

9. Cover, confinement and hydration

Control	Minimum guide requirement
Direct traffic	Prohibited on exposed GCL. Use approved low-ground-pressure methods only where the project method expressly permits.
Final soil cover	At least 300 mm after CQA acceptance, or the greater project value. Maintain continuous confinement across panels and overlaps.
Cover-soil grading and binding	Approved, well-graded and compactable mineral soil containing sufficient stable fines to bind the compacted layer and resist rilling and erosion. Nominal maximum particle size is normally 25 mm.
Cohesion screening	Nominal apparent cohesion of at least 5 kPa at the specified placement density and moisture condition, unless otherwise approved by the EOR. Typical candidates include clayey or silty sand and well-graded crushed material containing stable fines.
Dispersivity and erosion	Dispersive soils are prohibited. The EOR shall accept the material using recognised project-appropriate testing and shall specify surface-water, erosion and vegetation controls where required.
Particle shape and foreign matter	Free of sharp or angular stone, roots, debris, frozen lumps and other objects that may puncture, abrade or bridge the GCL. Provide an approved cushioning geotextile and field trial where coarser/angular material is proposed.
Moisture and workability	Moisture-condition for placement and compaction without rutting, shoving, pumping or excessive deformation. Pure clean sand and highly plastic clay require project-specific workability and stability acceptance; neither is automatically suitable.
Chemical compatibility	Cover and subgrade soils must not impair bentonite hydration. High-calcium or otherwise aggressive soils require project-specific compatibility assessment.
Slope-veneer stability	Check every sloping cover veneer using project-specific cover-soil, GCL internal and interface shear properties at representative density, moisture, saturation, normal stress and drainage conditions. Include seepage/pore pressure, construction loading, slope geometry, cover thickness, toe support and seismic loading where relevant.
Equipment separation	Maintain at least 300 mm soil between plant and GCL during placement. Provide at least 600 mm in high-traffic/roadway areas, and consider 800 mm or the larger project requirement for repeated trafficking.
Placement direction on slopes	Progress from toe towards crest and push/place cover upslope, keeping plant on placed cover, so seams are not opened and the GCL is not dragged or tensioned downslope.
Geomembrane above GCL	Place promptly after GCL acceptance. Use a slip/rub sheet where needed to prevent a textured geomembrane dragging or abrading the GCL.
Exposure	Cover/confine accepted work by end of shift where practicable. Otherwise waterproof-secure it, including every exposed receiver edge, roll end and cut zone, using positive drainage and non-penetrating ballast; do not leave unprotected work overnight.
Use 5 kPa only as a screening criterion The nominal 5 kPa apparent-cohesion value is a material-selection and placement-condition criterion, not an assumed long-term design parameter. Unless durable effective cohesion is demonstrated by project-specific drained testing under representative wet or saturated conditions, use $c' = 0$ kPa in long-term veneer-stability checks. Preliminary checks may use the Kontain Liner Design Support Tools; final acceptance remains with the EOR.	

Hydration

- Normally allow the confined GCL to hydrate from compatible subgrade/cover moisture or controlled water introduced in accordance with the design.
- Where the contained liquid is non-aqueous or chemically aggressive, the EOR defines pre-hydration water quality, volume, confinement and timing based on compatibility testing.
- Do not deliberately hydrate exposed, unconfined GCL. Prevent repeated wet-dry cycling and thermal exposure that can contribute to shrinkage or seam opening.

Chemical compatibility

Swell index and water index-flux results do not prove performance with project leachate/process water. Confirm hydration water, cover/subgrade chemistry and contained liquid before commissioning.

10. CQA inspection and records

Hold point	Acceptance checks	Record
Delivery	Correct product/variant and roll/lot labels; combined film/woven wrapping dry and intact; core material/type, full length and clear diameter verified; visible core ends and bore intact; no cracking, splitting, crushing, bowing, excessive ovality, obstruction, water ingress or product damage	Delivery register + photographs
Subgrade	Firm, smooth and clean; free of standing water, uncontrolled seepage, snow, ice and frozen or softened areas; grades and anchor trench accepted	Subgrade release
Panel	Correct orientation/roll number; flat, untensioned, undamaged; layout followed; protected cutting method	Panel deployment log
Longitudinal overlap	300 mm unlined overlap within a 500 mm factory powder zone at 400 g/LM; upper woven-to-lower nonwoven contact; continuous upper laminate; three lower-panel cuts; no site powder	Seam log + photographs
Transverse / cut seam	Approved location and Option A/B; shingled; required overlap; powder at 0.5 kg/m; no wrinkles or lower-nonwoven damage	Seam log + photographs
Repair / penetration	Approved detail; dimensions; same product; powder/collar/termination accepted	NCR/repair register
Weather release	Rain event recorded; temporary protection/drainage effective; no ponded water, softened subgrade, unconfined swelling, displacement or contaminated seam	Weather inspection + disposition
Cover	All work accepted; seams undisturbed; soil grading, stable fines, cohesion screening, non-dispersivity, particle shape, moisture, chemistry, thickness and slope-veneer stability accepted; no direct trafficking	Cover release + photographs

Minimum daily installation record

- Date, weather and forecast; temperature; wind/rain start, duration and intensity; exposed area; suspected water-entry paths; temporary protection and drainage; work area and re-released subgrade area.
- Roll numbers, product dimensions, wrapping condition, core material/type/clear diameter, labelled gross mass, lifting-equipment identification/WLL, panel locations/orientation, deployment time, and longitudinal and transverse seam locations.
- Accessory bentonite powder product/lot, quantity and treated transverse/cut or repair lengths; receiver-edge widths; factory-treatment identification; three-cut continuity; transverse Option A/B; upper-panel laminate coverage.
- Damage, non-conformances, repairs, penetrations, photographs, testing, corrective actions and acceptance signatures.
- Cover/geomembrane placement time, cover material, minimum thickness, plant used and any temporary protection, drainage or wet-weather disposition.
- Maintain a final as-built panel plan linking each installed panel to its roll number and showing seams, transverse treatment options, repairs, penetrations, samples, non-conformances and accepted departures from the panel layout.

Release to cover

No seam, repair, penetration or panel area is to be concealed until the CQA consultant has accepted it and the required records are complete.

References

- Geosynthetic Institute GRI-GCL3 Rev. 5. <https://geosynthetic-institute.org/grispecs/gcl3.pdf>
- Geosynthetic Accreditation Institute GAI-LAP - current laboratory method scope retained in the order quality dossier. <https://geosynthetic-institute.org/gai.htm>
- ASTM D5888, Standard Practice for Storage and Handling of GCLs. ASTM International
- ASTM D6102, Standard Guide for Installation of GCLs. ASTM International
- Kontain KGCL-L Technical Data Sheet and order-specific quality documentation. Kontain technical file
- Kontain GCL systems. <https://kontainsolutions.com/products/gcl-systems>
- Kontain Liner Design Support Tools - soil veneer stability. <https://kontainsolutions.com/design-tools/liner-design-tools>

Document control. This general guide is not a design, lifting plan, CQA plan or project specification. Original diagrams are Kontain schematics. Project documents and written EOR/CQA directions govern. Use the guide issue supplied with the order.