



MASTER[®]
CTS

MASTER GCCM: Advanced Canal Lining & Water Infrastructure Protection.

Pre-manufactured geosynthetic cementitious composite mat systems for regional engineering.

MASTER CTS — A DIVISION OF ASATEEN GROUP.

THE VULNERABILITY OF REGIONAL WATER INFRASTRUCTURE.

SEEPAGE
LOSSES

DETERIORATION
OF EXISTING
CHANNELS



THE CONVENTIONAL BURDEN:

LABOR-INTENSIVE WET-TRADE DEPENDENCY

HEAVY TRANSPORT LOGISTICS

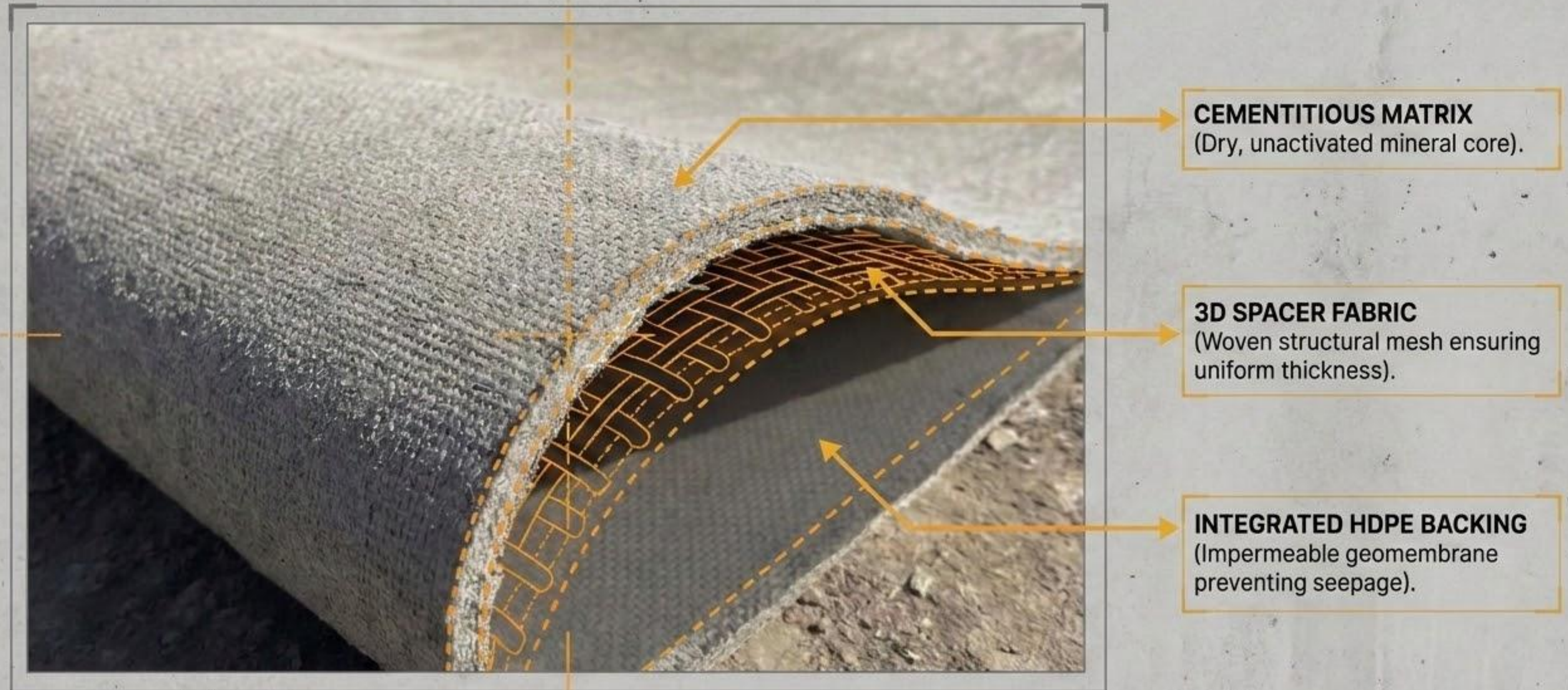
CONSTRUCTION DELAYS IN ARID/REMOTE ENVIRONMENTS

CONVENTIONAL METHOD CAST IN PLACE OUTDATED



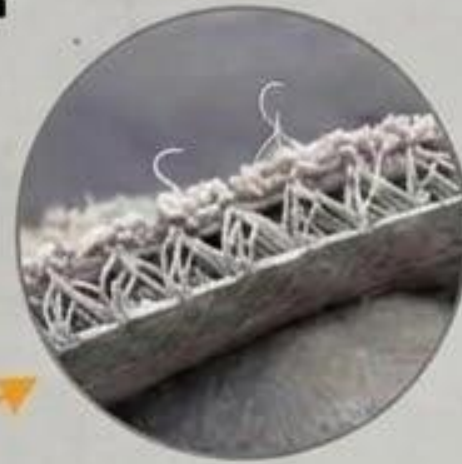
SYSTEM IDENTITY: THE 3-PART MATERIAL ANATOMY.

A pre-manufactured, roll-deployed, water-activated hardened cementitious layer.



TECHNICAL SPECIFICATIONS: ROLL DIMENSIONS & LAYER COMPOSITION.

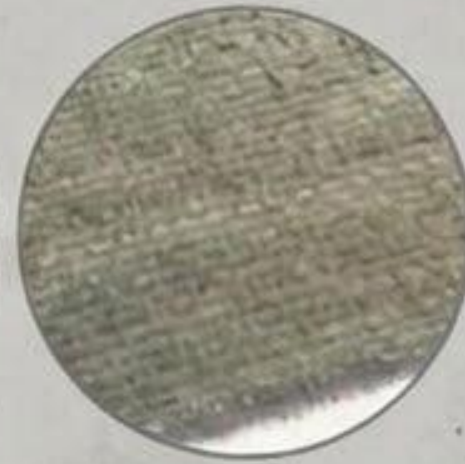
Standard Roll Size: 5 x 2 m
Custom Sizes: Available
Thickness: 5 / 8 / 10 / 12 mm



3D Fiber Structure



Surface Fabric Texture



Bottom Fabric Texture



Top Layer:
Surface Fabric & 3D Fiber

Middle Layer:
Cementitious Core

Bottom Layer:
HDPE Layer (Impermeable Backing)



Customized Edge Options
Available

MATERIAL CLOSE-UP: FIBER & CORE TEXTURE.



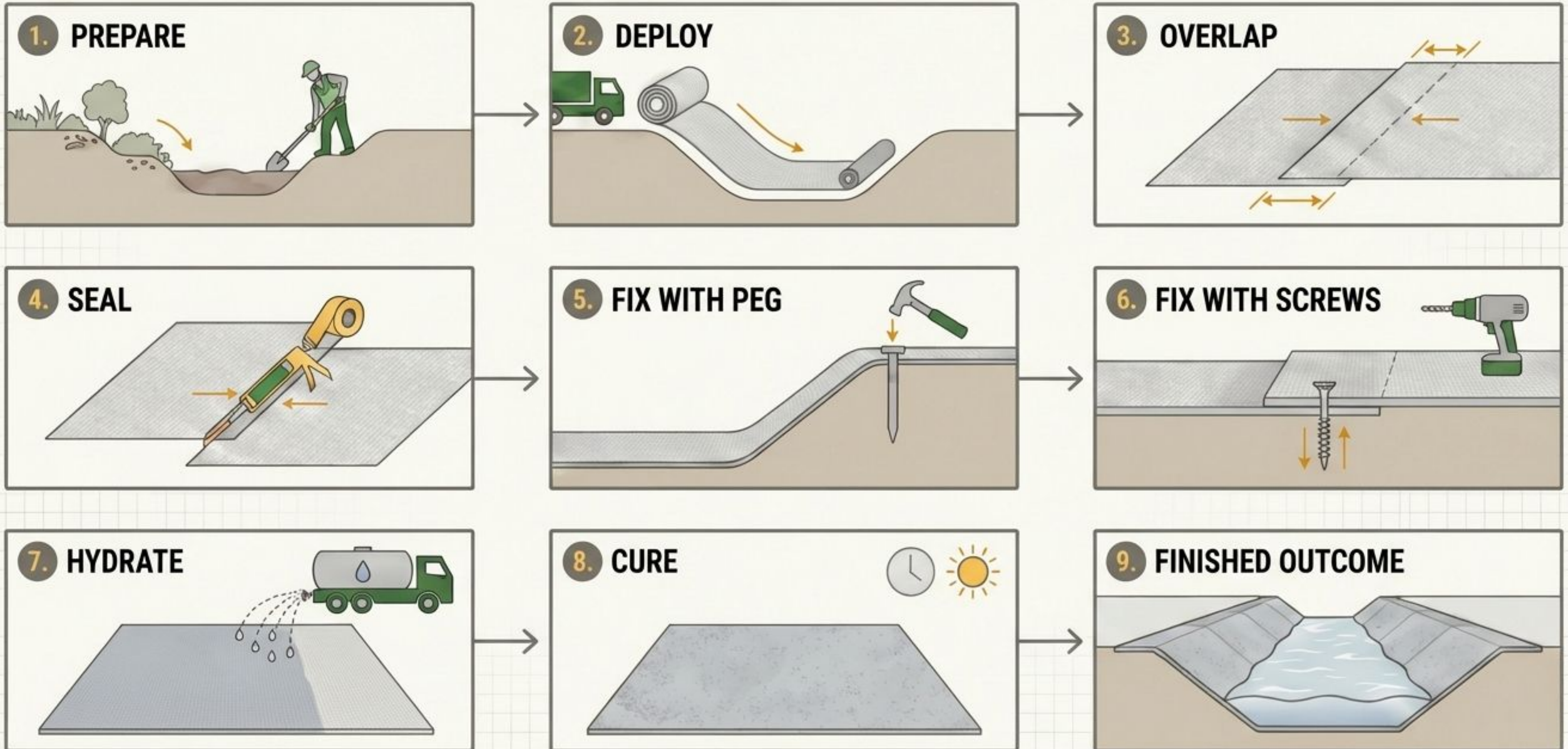
Detailed view of the 3D fiber matrix and cementitious mix layer.

CAPABILITY MATRIX: GCCM VS. CONVENTIONAL CONCRETE.

EVALUATION METRIC	CONVENTIONAL CAST-IN-PLACE	MASTER GCCM
WET-TRADE DEPENDENCY	HIGH 	ELIMINATED 
INSTALLATION SPEED	SLOW (FORMWORK/POUR/CURE)	RAPID (~200 SQM/HR)
LOGISTICS LOAD	HEAVY (MIXER TRUCKS, RAW MATERIALS)	LIGHTWEIGHT (ROLL DEPLOYED)
REHABILITATION LOGIC	FULL DEMOLITION REQUIRED	OVERLAY CAPABLE (NON-DESTRUCTIVE)

THE FIELD ENGINEERING BLUEPRINT.

An engineered workflow transitioning from raw subgrade preparation to a fully hardened, impermeable infrastructure asset in 9 controlled steps.



PHASE 1: SUBGRADE PREPARATION & RAPID DEPLOYMENT.



PREPARE -

Subgrade is cleared, shaped, shaped, and compacted to provide uniform support.



DEPLOY -

Pre-manufactured rolls are positioned via manual labor or heavy machinery, immediately establishing the continuous lining geometry.

Correct textile face orientation is strictly maintained.

PHASE 2: STRUCTURAL OVERLAP & BARRIER CONTINUITY

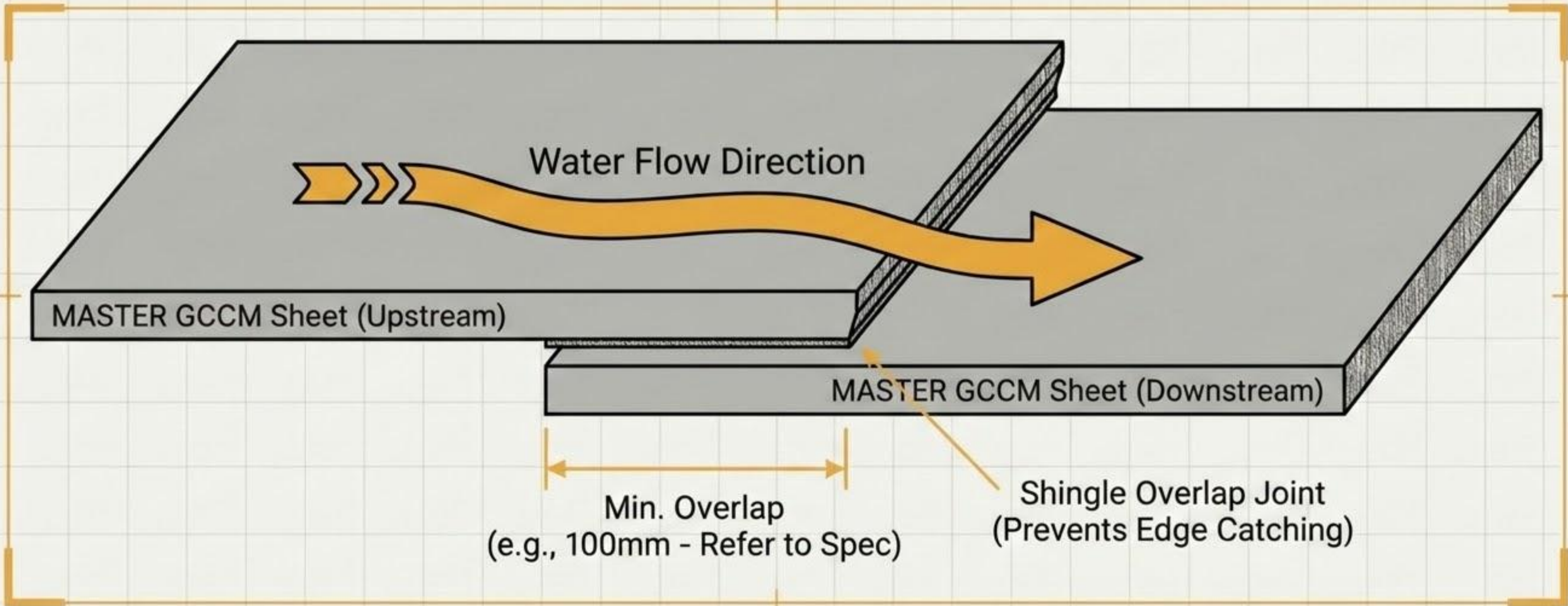
KEY ENGINEERING METRIC: OVERLAP DISCIPLINE



Adjacent sheets are systematically overlapped to ensure absolute barrier continuity. This geometric discipline is non-negotiable for preventing water ingress and maintaining the integrity of the integrated HDPE backing.

MASTER GCCM: Overlap Shingling & Water Flow

Installation detail for proper water conveyance.



PHASE 3: SEAM SEALING & MECHANICAL FIXATION



SEAL (STEP 4):

Application of low-permeability joint sealant to guarantee an impermeable boundary.



PEG (STEP 5):

Anchor pegging secures edges and accommodates localized subgrade movement.



SCREW (STEP 6):

Screw-based fastening definitively locks the structural overlap, dictating position prior to hydration.

PHASE 4: CONTROLLED HYDRATION ACTIVATION

Mechanism: Water application activates the internal cementitious matrix.



T+0: Hydration.

T+ 1-2 Hours:
Initial structural set begins.

T+ 24 Hours:
Full functional readiness achieved.

FINAL OUTCOME: HARDENED INFRASTRUCTURE PROTECTION

MICRO: CURED MATERIAL INTEGRITY



STRUCTURAL
TRANSFORMATION
FLEXIBLE > RIGID

MACRO: COMPLETED INFRASTRUCTURE ASSET



SYSTEM RESULT:

The flexible mat has transformed into a rigid, highly durable water-infrastructure surface.

PERFORMANCE OUTPUT:

Delivers total seepage control, erosion defense, and long-term asset rehabilitation.

STRATEGIC APPLICATION: NON-DESTRUCTIVE OVERLAY



BLOCK 1

CORE ADVANTAGE: MASTER GCCM ALLOWS FOR DIRECT OVERLAY REHABILITATION.



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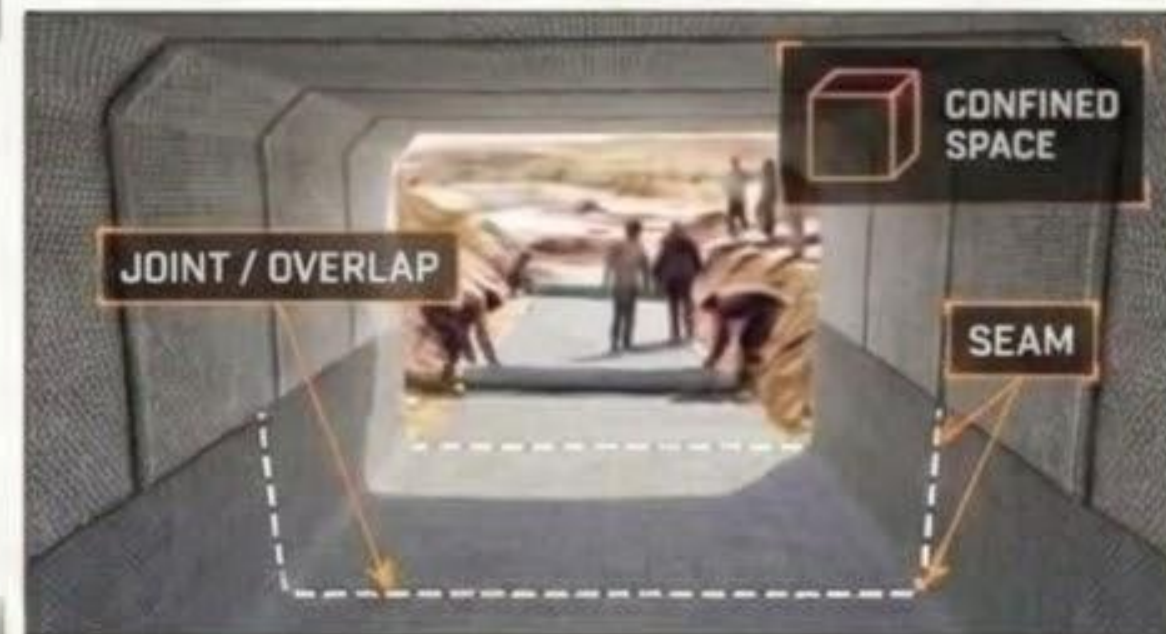
BLOCK 2

IMPACT: ELIMINATES THE REQUIREMENT FOR FULL STRUCTURAL DEMOLITION OF EXISTING DAMAGED CHANNELS. DRASTICALLY REDUCES PROJECT DOWNTIME, MACHINERY REQUIREMENTS, AND TOTAL LOGISTICAL BURDEN.

DATA TAG



CONFORMITY TO COMPLEX GEOMETRIES.



NEW YORK

1478

ADAPTABILITY PROFILE: The flexible pre-hydration state naturally conforms to sweeping canal profiles, confined interior box culverts, expansive lagoons, and agricultural ditches.



SYSTEM SPECIFICATIONS & PERFORMANCE DASHBOARD



ENGINEERED FOR AGGRESSIVE REGIONAL ENVIRONMENTS



ENVIRONMENTAL TOLERANCES

- Tolerant to dry, wet, or fully underwater installation conditions.
- Maintains structural integrity in extreme temperature fluctuations.
- Defends against severe regional saline and sulfate soil conditions.

A COMPLETE ENGINEERED INSTALLATION SYSTEM



MASTER GCCM transcends conventional product categories. It is a process-driven, regionally adapted barrier and lining solution delivering rapid, durable, and logistically efficient water infrastructure protection.