LL-TEQ

The science behind the technology

GREEN · FAST · DURABLE

Proudly made in Québec

PRESENTATION DOCUMENT

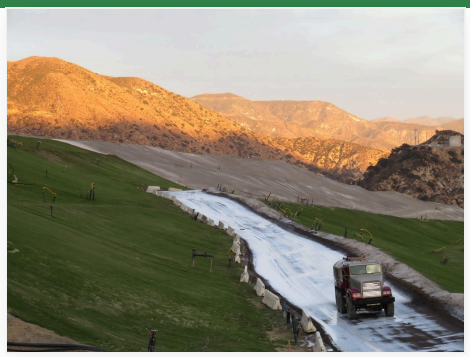
The science behind LL-TEQ

A Québec soil-stabilization technology, engineered for our climate.

GREEN	**No material hauling**	We transform the soil already in place, right on the job site.
FAST	**Integrated, mixed, compacted**	One single sequence on site — no waiting between layers.
DURABLE	**Resists water and freeze-thaw**	A watertight structure that works as a single monolith.

01 The problem we solve

Water, the number-one enemy of our roads



In Québec, water is the number-one enemy of our roads.

It seeps into the soil beneath the pavement. In winter it freezes and expands. In spring it melts and leaves voids behind. **It is this cycle that bursts our roads** from the inside, year after year.

LL-TEQ tackles the problem at its root: we keep water from entering the soil. Not just at the surface — everywhere in the structure.

02

How it works

Three steps, one single on-site sequence

1 We integrate LL-TEQ

Directly into the in-place materials, to a predefined depth (around 150 mm). No added materials, no needless hauling — we transform what is already there.

2 Every particle is coated

The technology works its way between the soil grains and surrounds each particle. Air and water are driven out. The treated volume becomes a sealed matrix: what is inside stays inside, what is outside stays outside.

3 The particles lock together

Under compaction, the coated particles bond to one another. The matrix sets and locks the entire structure. **Water can no longer get in, even under full immersion.**

✓ A single structure, not a layered pavement

It is no longer a layered pavement whose layers can delaminate. It is a single, dense, watertight structure that works as one monolith.

03 Rheology*, explained simply

One product, three successive states — at the right moment

** Rheology — the science of how materials flow and deform under an applied force.*

A single product can be thick at rest, fluid when worked, then rigid once left to set — and all of this **in a controlled order**, at the right moment. LL-TEQ is engineered on exactly this principle.

Before application — thick and stable

The product is dense. It stays in place, it does not run, it does not migrate. It is ready to be used at the right moment.

During mixing and compaction — fluid

Under mechanical action, the texture turns fluid. The product works its way everywhere between the soil grains and surrounds each particle.

After compaction — rigid and locked

When the mechanical action stops, the product returns to a rigid texture. It sets in place and locks the structure, particle by particle.

✓ Total confinement, at job-site scale

Each particle is held by all those around it, and those by their neighbours in turn. The larger the treated area, the more total the confinement — and the more the real bearing capacity exceeds what a laboratory cylinder can measure.

04 Rigid, but with memory

A dual-architecture polymer, engineered for freeze-thaw

Think of rubber: you stretch it, it returns to its shape. You press it, it springs back. That is because it combines **strong bonds** that hold it together and **flexible chains** that absorb deformation. LL-TEQ works on the same principle, but to a far more measured degree, engineered for a stabilized soil.

A rigid structure that never flexes eventually cracks — especially in frost. LL-TEQ sidesteps the problem through a dual-architecture polymer: **hard segments** that provide strength and bearing capacity, and **soft segments** that absorb variations in temperature and pressure.

✓ **Solid as a block, slightly flexible with shape memory**

That is why the treated soil does not crack after years of freeze-thaw cycles.

05

What it delivers in concrete terms

Three measurable results, once the soil is locked

STRUCTURAL

High bearing capacity

The load spreads through the entire treated volume. No weak point, no zone that gives way first.

FATIGUE

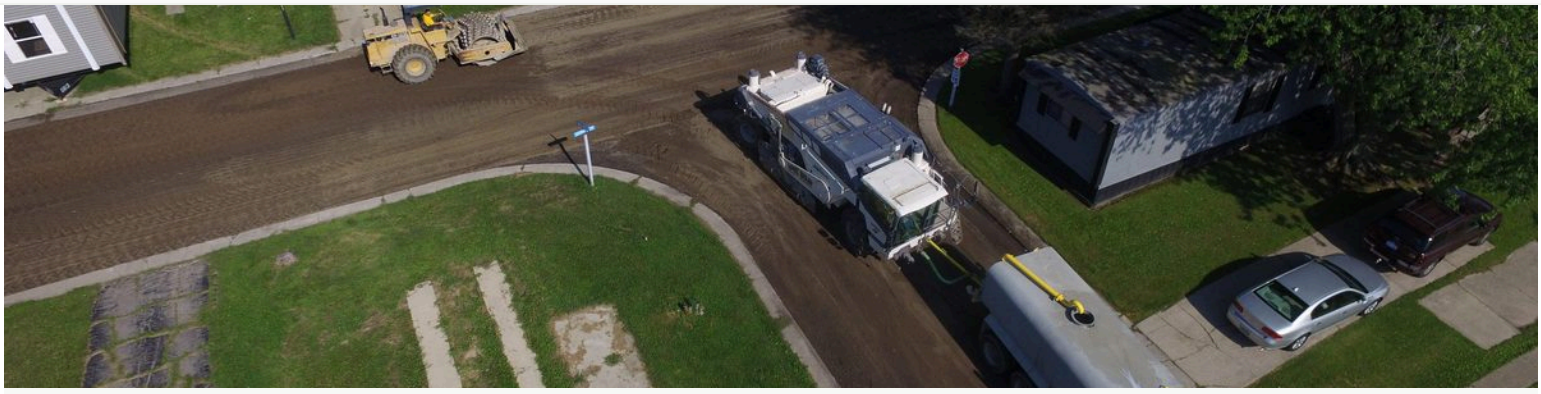
Resistance to repeated passes

The structure takes the passes of trucks and heavy equipment with no structural degradation.

WATER

Stable even under immersion

The structure stays stable in wet conditions or under full immersion — water no longer seeps into the treated volume.



LL-TEQ stabilization — the pavement works as a single monolith, everywhere within its volume.

06

In summary

Not a surface treatment — a different logic

LL-TEQ is neither a surface treatment nor an improvement on existing methods. It is a different logic.

Instead of adding a layer on top, we transform the soil itself. **Every particle is coated**, air and water are driven out, and the whole locks into a single, dense, watertight structure.

The result: a pavement that resists water, freeze-thaw, heavy loads and time — **everywhere within its volume, not just at the surface**.

✓ ***Made in Québec, for Québec's climate.***

A technology designed within our winters, our soils and our freeze-thaw cycles.

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