

URETEK

The Science of Soil Stabilization[®]

WHO IS URETEK &
WHAT IS URETEK DEEP INJECTION®?

URETEK

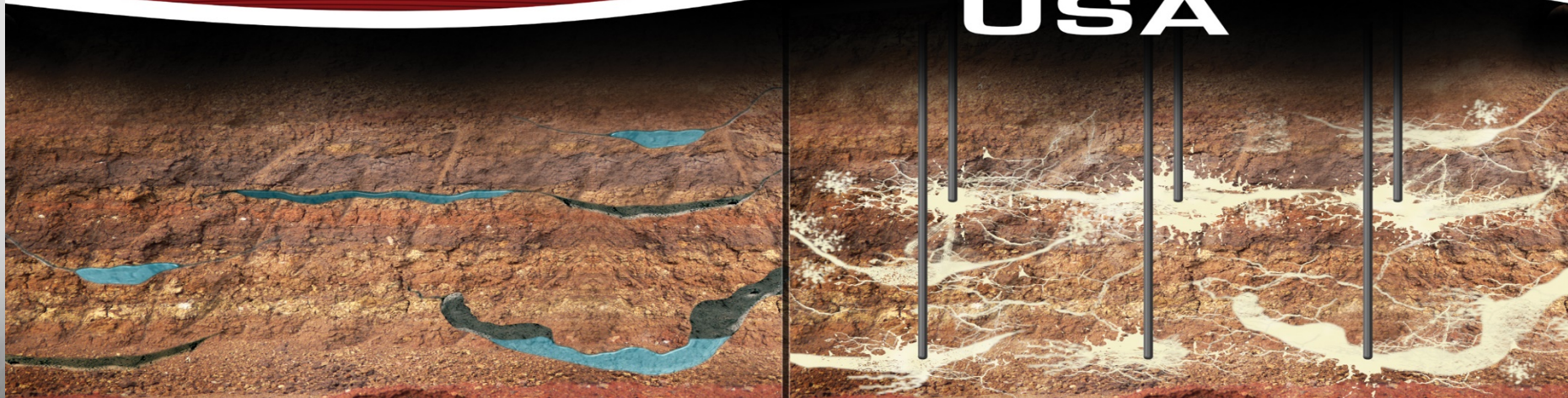
USA

the soil stabilization and pavement lifting
company that revolutionized the industry

NEXT GENERATION – UDI

URETEK

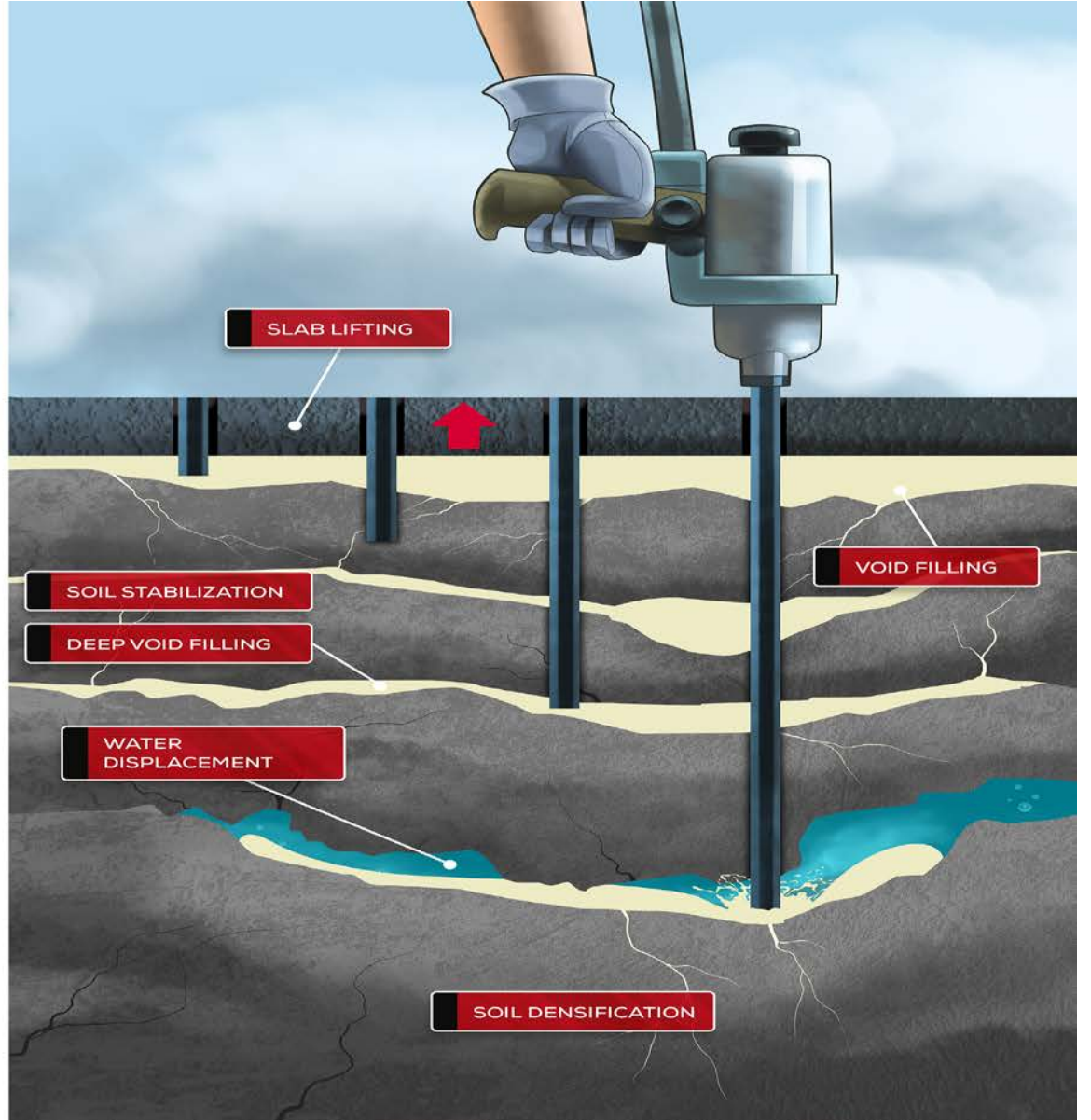
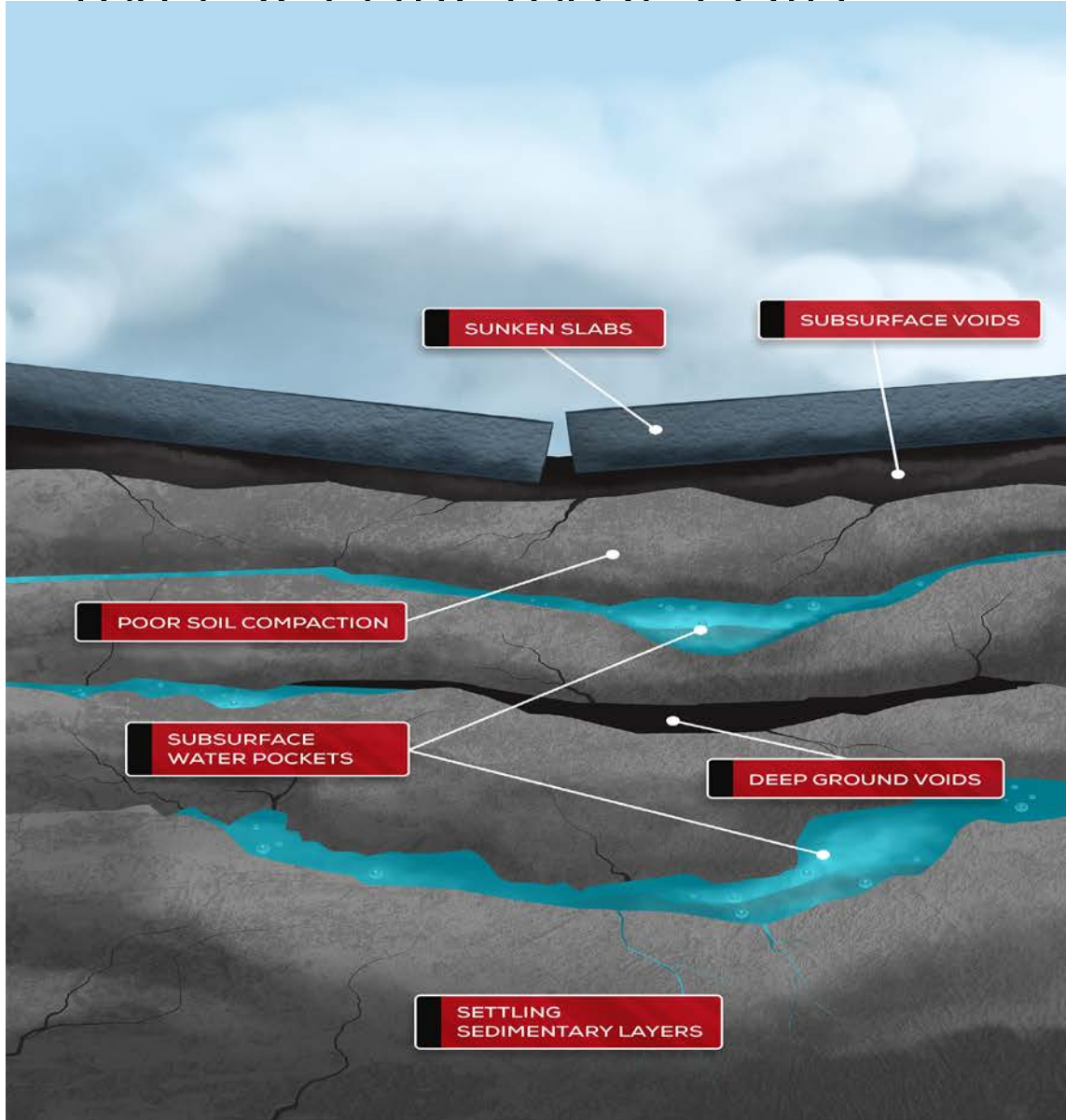
USA



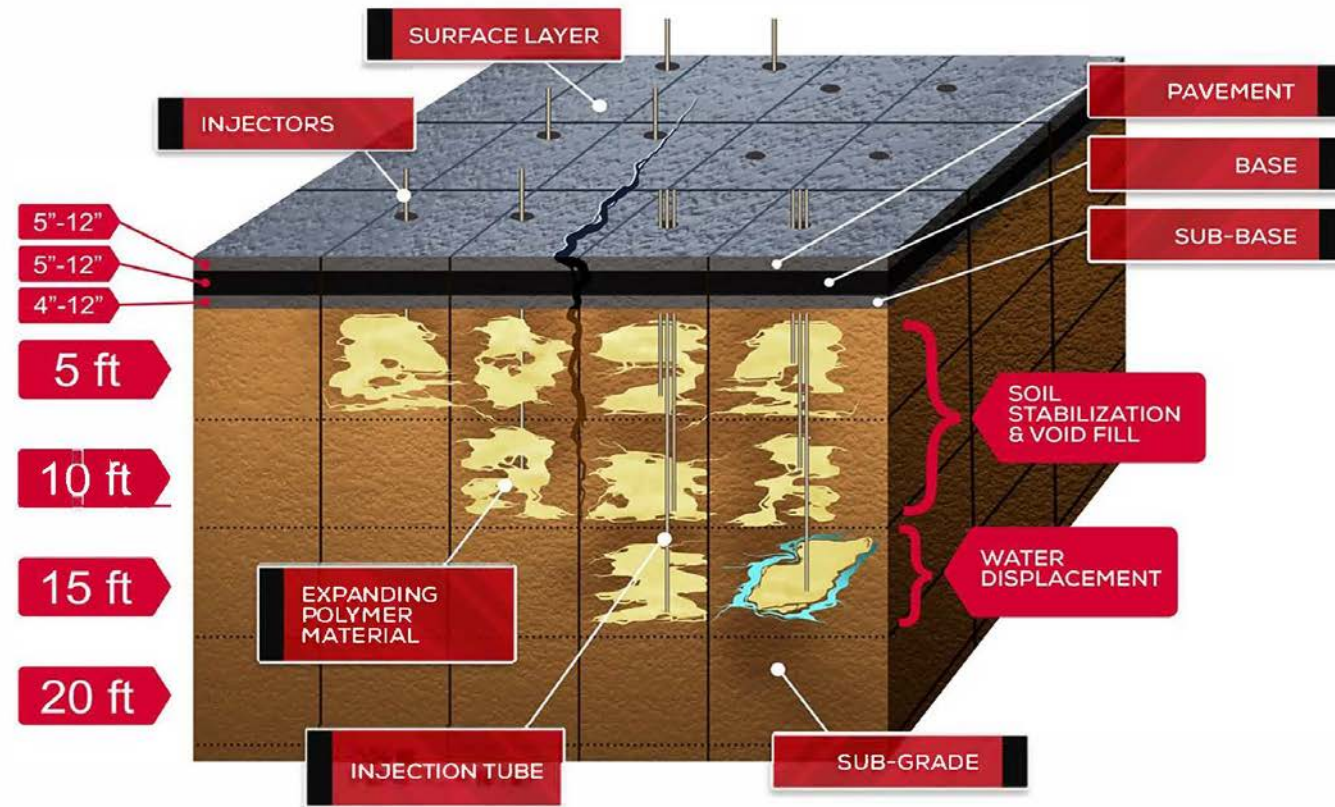
URETEK DEEP INJECTION[®] (UDI)

UDI is a chemical compaction grouting process for stabilizing weak and/or poorly compacted foundation soil IN SITU by injecting polyurethane directly into the foundation soils.

PAGE 2 SUBGRADE SOILS



SUBGRADE MADE STRONG



BENEFITS



**Limited
Downtime**

1



Warranty

4



**Underlying
Issue**

2



**Asphalt &
Concrete**

5



**Original
Design**

3



**Composite
Strength**

6

BENEFITS

- No excavation and limited road shutdown.
- Fixes the underlying issue versus just the symptom.
- Returns the pavement to its original design: pavement on base on stiffened sub-base or sub-grade.
- Two-year warranty against settlement of ½” or more.
- Capable of working with asphalt and concrete.
- Soil/polymer composite strength is greater than polymer alone.

- **Having appropriate Polymer for Highway work.**
- **Gather Soils Reports, Construction Drawings, and Visit Site to compile information to create a repair plan.**
- **Have Experienced Technicians with Robust DCP unit to test subgrade soils to minus 30 feet, so they can adjust injection plan when on site if necessary.**





Depth ft - in	Number of blows
0' - 4"	asphalt
0' - 8"	pavement
1' - 0"	pavement
1' - 4"	pavement
1' - 8"	21
2' - 0"	18
2' - 4"	15
2' - 8"	5
3' - 0"	3
3' - 4"	4
3' - 8"	3
4' - 0"	2
4' - 4"	1
4' - 8"	2
5' - 0"	1
5' - 4"	0
5' - 8"	2
6' - 0"	1
6' - 4"	3
6' - 8"	4

Depth ft - in	Number of blows
7' - 0"	2
7' - 4"	2
7' - 8"	wor
8' - 0"	wor
8' - 4"	wor
8' - 8"	wor
9' - 0"	wor
9' - 4"	wor
9' - 8"	7
10' - 0"	3
10' - 4"	3
10' - 8"	3
11' - 0"	5
11' - 4"	4
11' - 8"	2
12' - 0"	2
12' - 4"	1
12' - 8"	2
13' - 0"	2
13' - 4"	2

Depth ft - in	Number of blows
13' - 8"	3
14' - 0"	3
14' - 4"	6
14' - 8"	8
15' - 0"	8
15' - 4"	6
15' - 8"	7
16' - 0"	7
16' - 4"	7
16' - 8"	8
17' - 0"	9
17' - 4"	10
17' - 8"	10
18' - 0"	10
18' - 4"	10
18' - 8"	10
19' - 0"	10
19' - 4"	10
19' - 8"	7
20' - 0"	11

POLYURETHANE MATERIAL

- Low viscosity
- 2-component: Resin & Hardener (1:1 by volume)
- Formulated to resist water intrusion into the reaction
- Exothermic chemical reaction generates CO₂ gas
- CO₂ gas causes expansion of the polymer and creates pressure on the surrounding environment

POLYURETHANE MATERIAL

- Rapid Cure –
 - ✓ Reaction complete in < 1 minute
 - ✓ Can support traffic after 20 minutes
 - ✓ Full strength in 24 hours
- Rigid Structural Polyurethane created as the material cures
- Installed density range – 4 to 10 lbs / CF
- Strength varies with density



Injection inside steel reinforced, plexi-glass box so material flow could be observed



Stabilized soil mass was free-standing
after box removed



Vertical load applied using an excavator



Soil mass would not crush,
but excavator was lifted 11 inches

LEAKING CULVERTS

Stop the leaks and repair
the road applications





6/2/2003











4. Culvert apron 7' X 22' – two injection to 5' depth



Bridgman - Culvert



Bridgman – Culvert Base

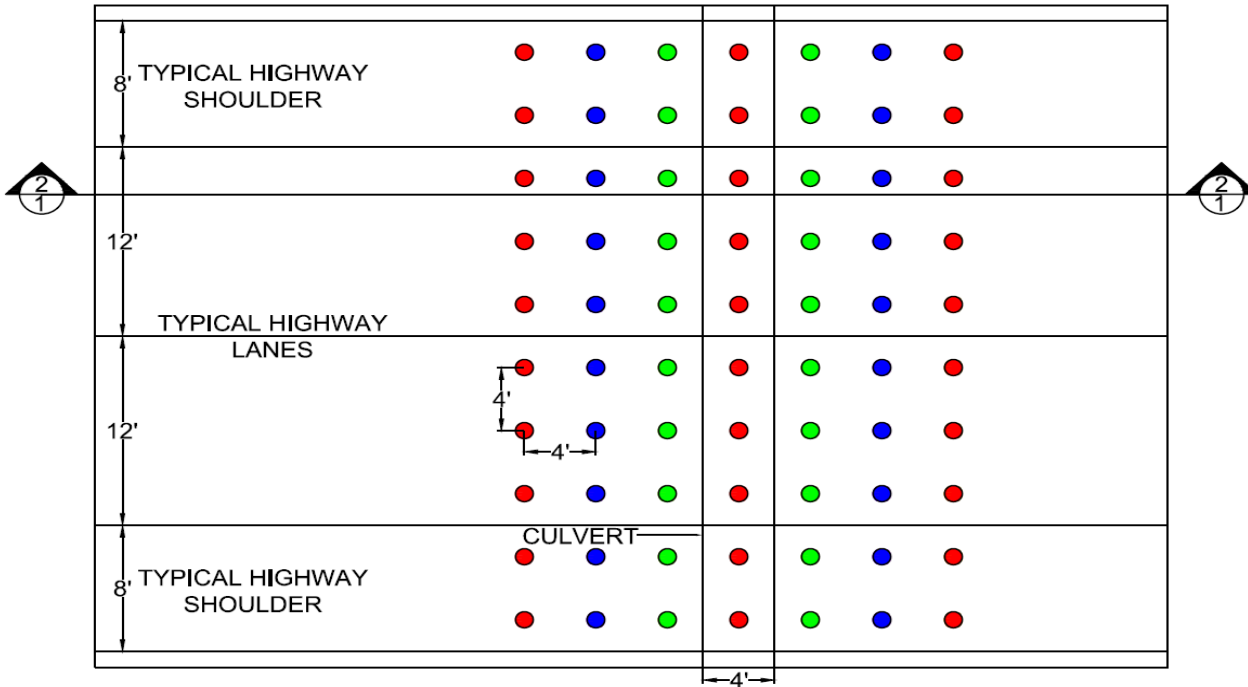
05/22/2006





1
1

TYPICAL INJECTION LAYOUT PLAN VIEW



LEGEND:



URETEK DEEP INJECTIONS up to -4'.



URETEK DEEP INJECTIONS up to -8'.



URETEK DEEP INJECTIONS up to -12'.



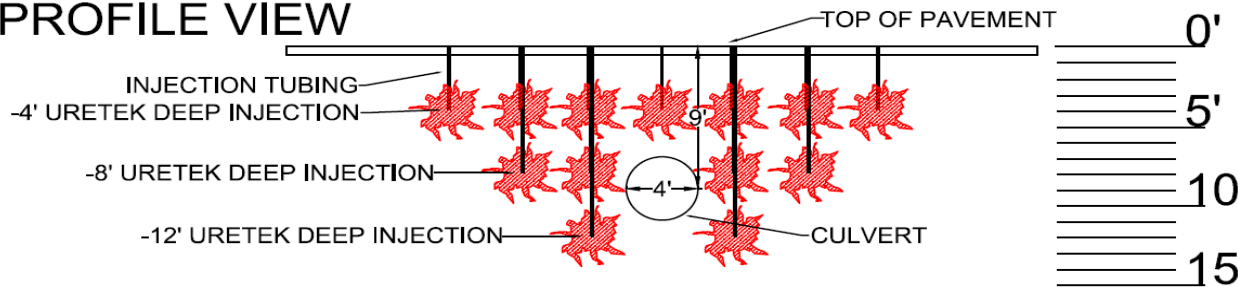
Polymer grout bulb - shape is for illustration only; shape varies based on soil conditions, density, etc.

NOTES:

All dimensions, slopes, thickness of gravels and slabs, etc. are approximate. DCP testing will be performed on site to finalize injection layout.

2
1

TYPICAL INJECTION LAYOUT PROFILE VIEW



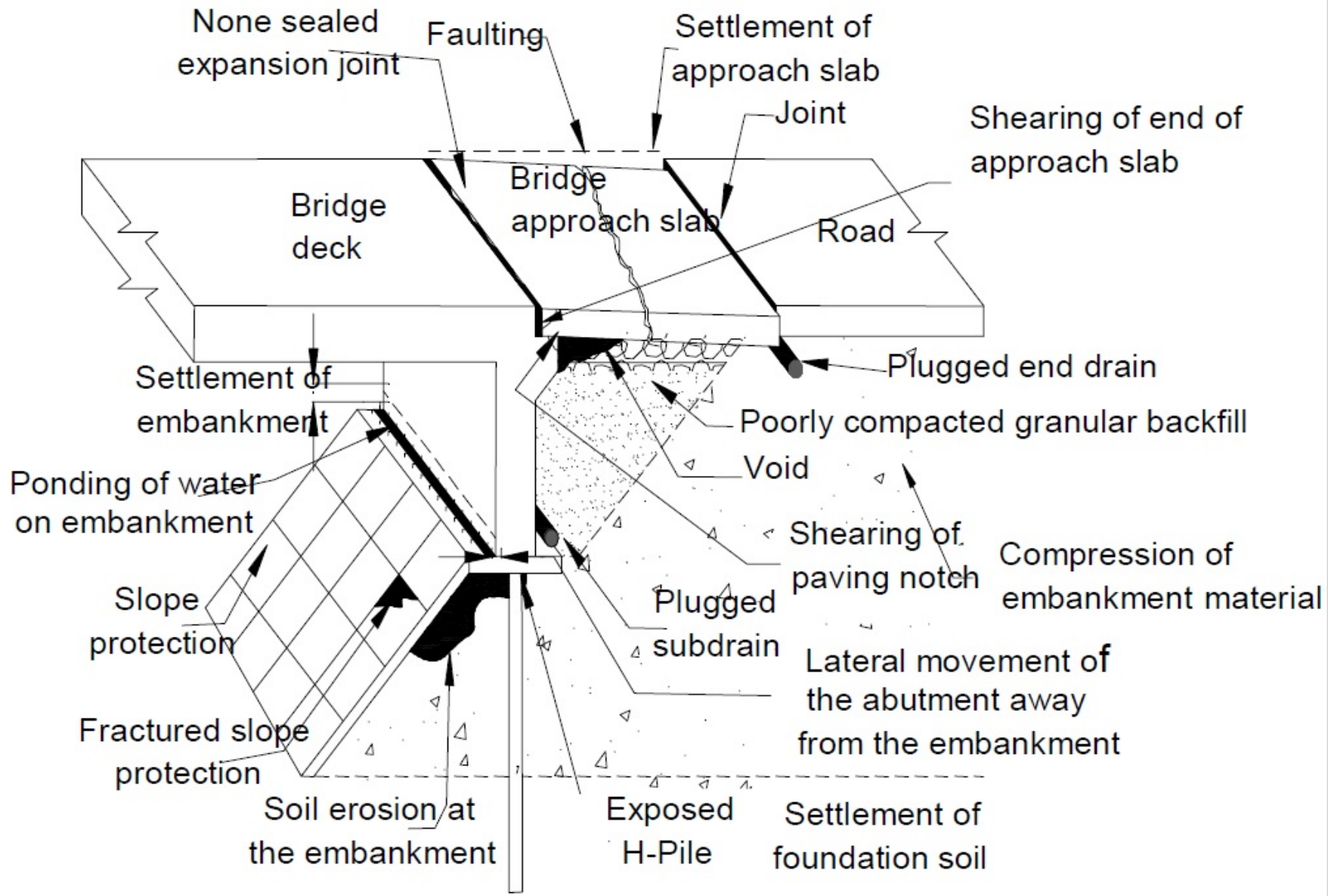
Firm Name and Address
URETEK USA
 P.O. Box 1929
 Tomball, TX 77377

Project Name and Address
**TYPICAL 2 LANE
 HIGHWAY - TAPERED
 INJECTIONS AROUND
 CULVERT**

Project STANDARD PLAN	Sheet
Date 7/26/19	1
Scale 1" = 10'	

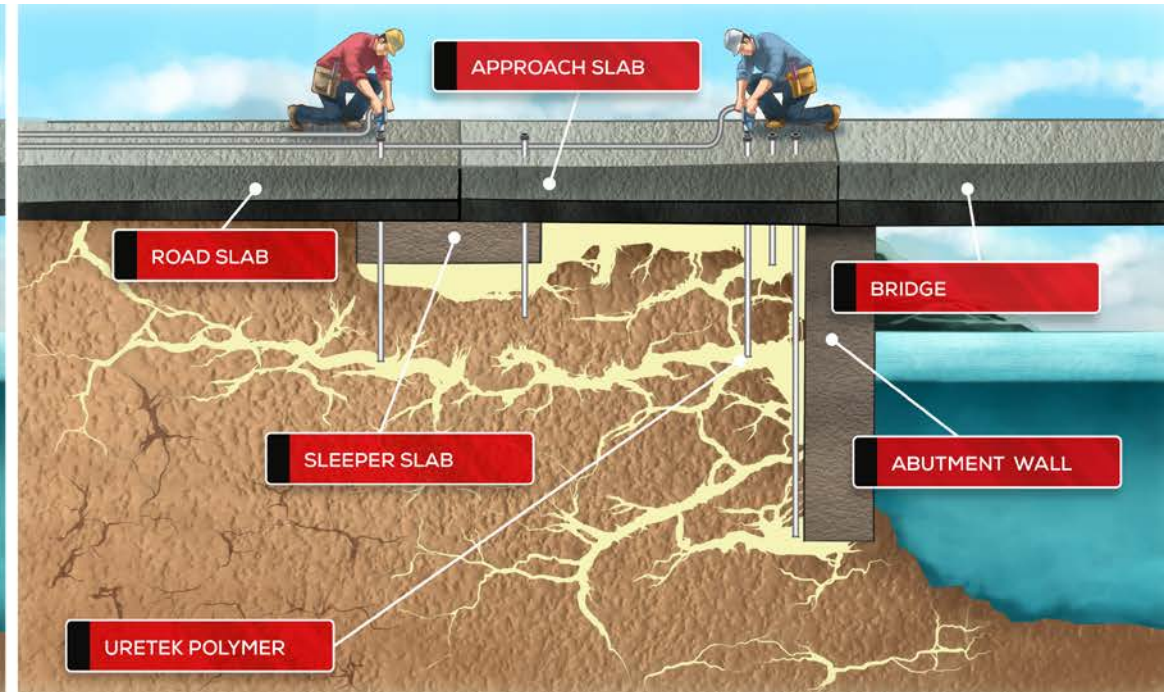
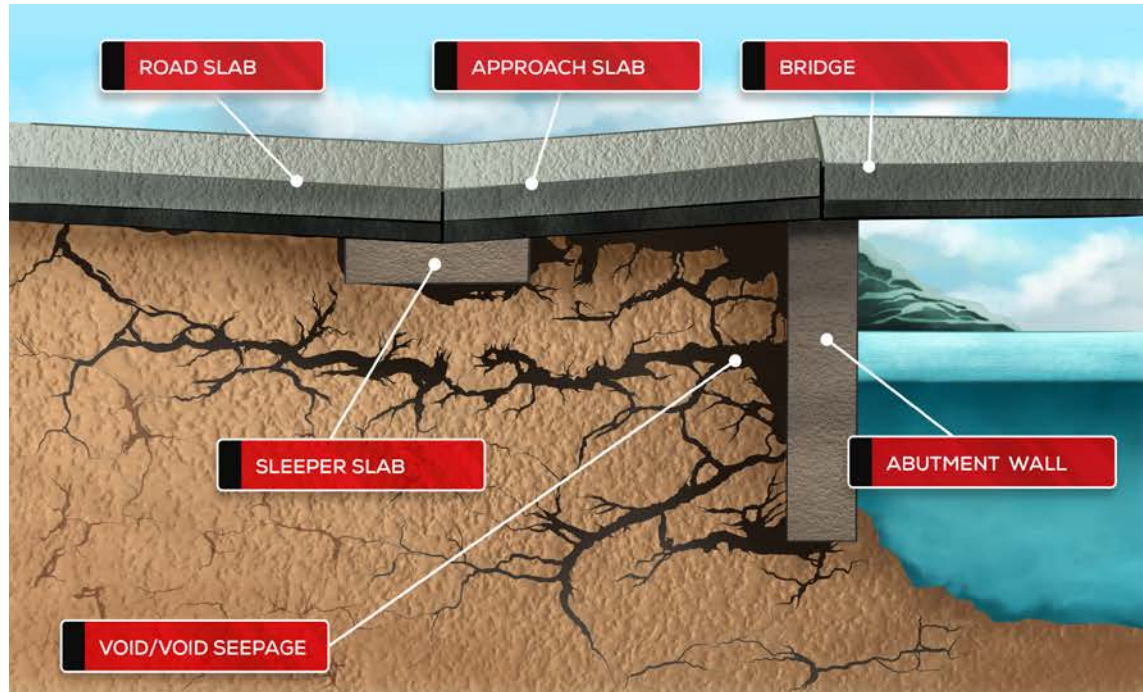


BRIDGE PRESERVATION



Common problems at bridge sites

BRIDGE APPROACH/DEPARTURE SLABS





MICHIGAN APPS — Goose Lake









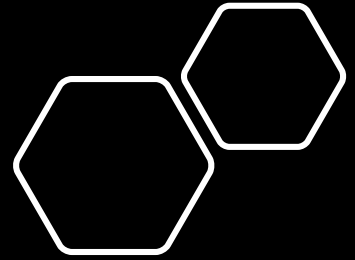




Bridge Structure 13372

At the northerly end of the McNamara Terminal loop, the wingwall in the southwest quadrant at the west abutment is pulling away from the bridge due to a void under the wingwall and sloped paving.







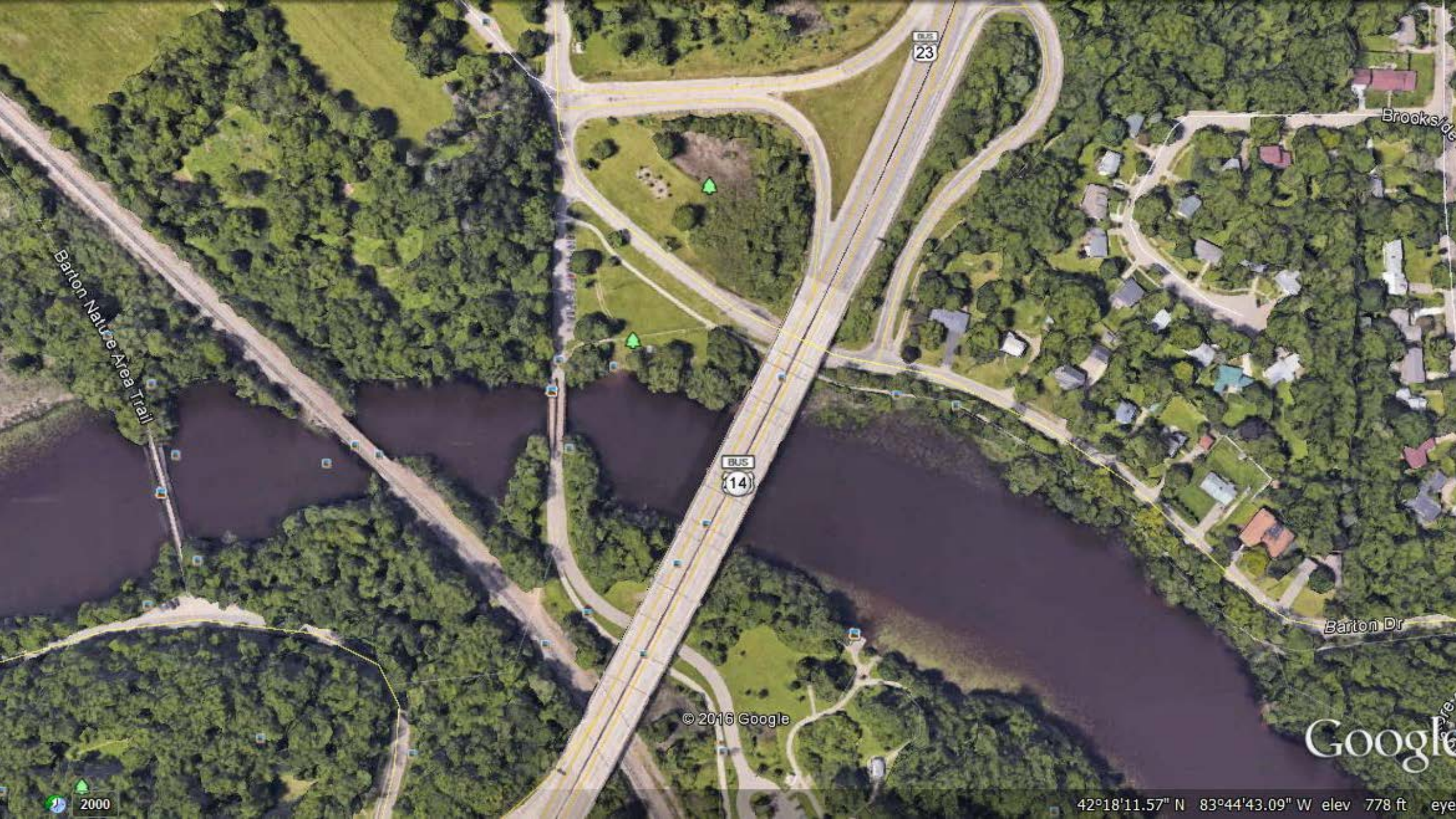
UNITED STATES OF AMERICA

522



URETEK USA, INC.
1-888-2URETEK

USDOT 623783



Barton Nature Area Trail

BUS
23

BUS
14

Brooks/de

Barton Dr

© 2016 Google

Google

2000

42°18'11.57" N 83°44'43.09" W elev 778 ft eye





Sanitary and Storm Manhole Repair

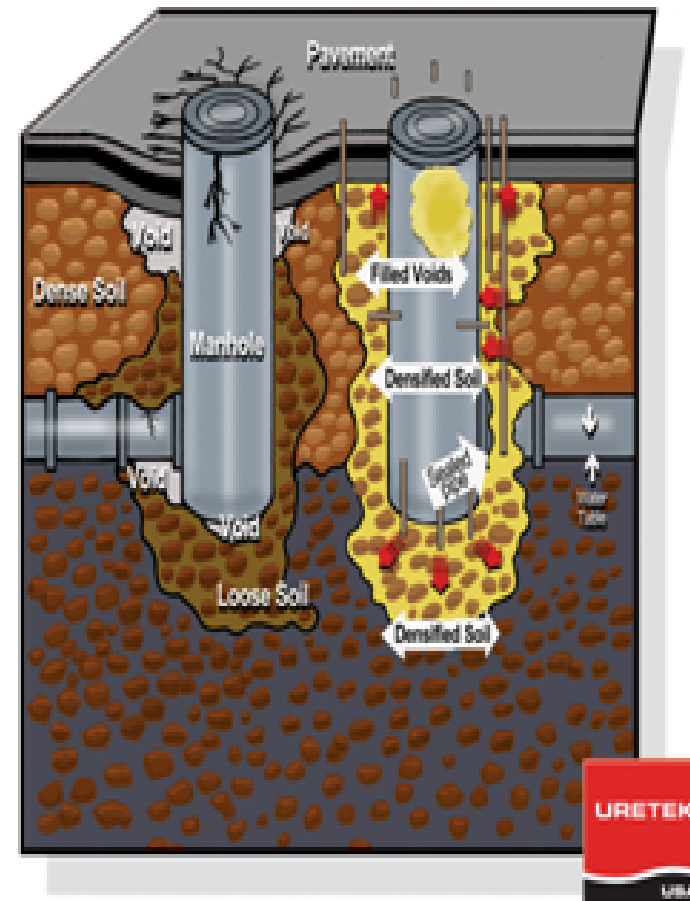


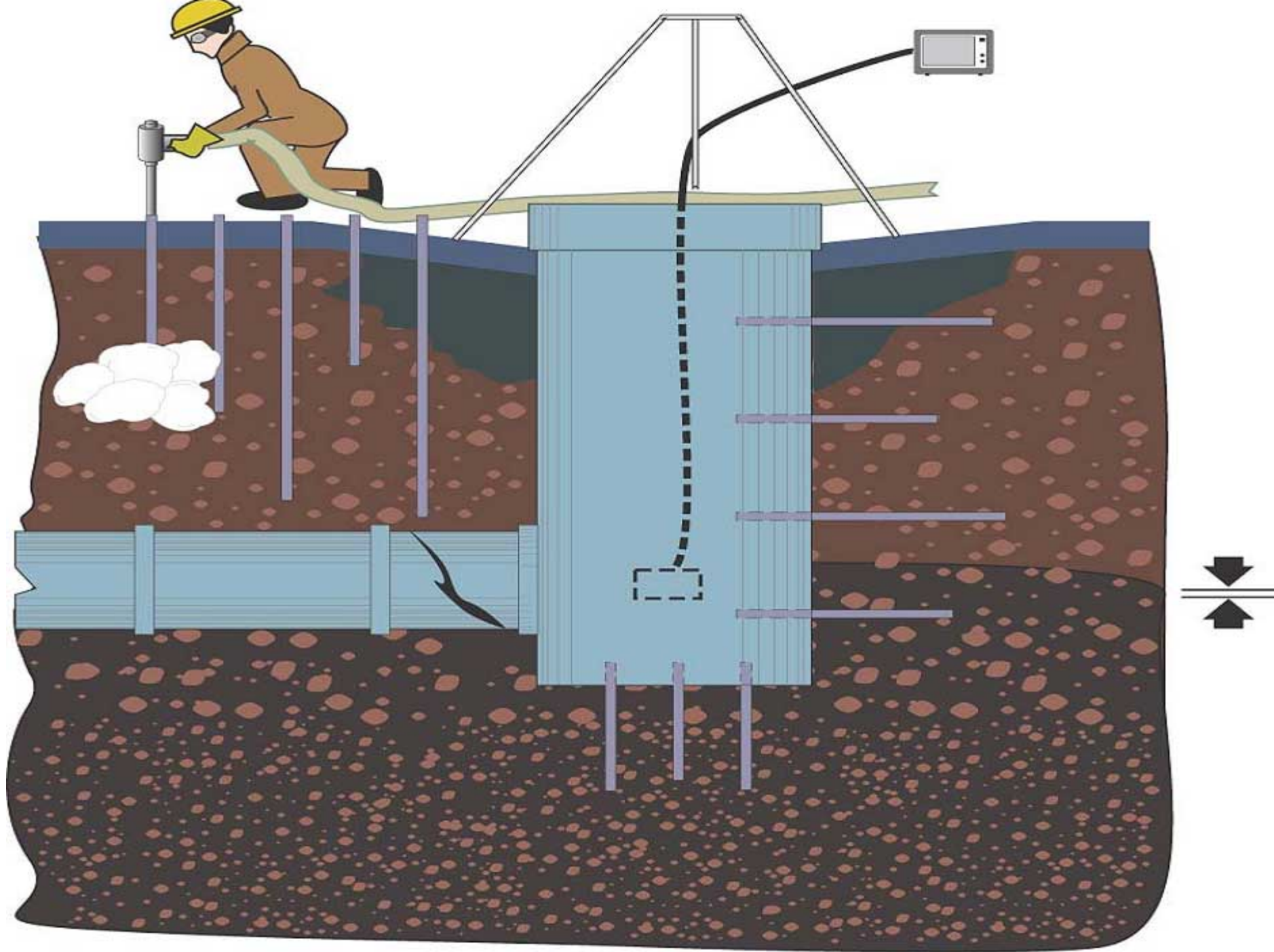
www.uretekholdings.com

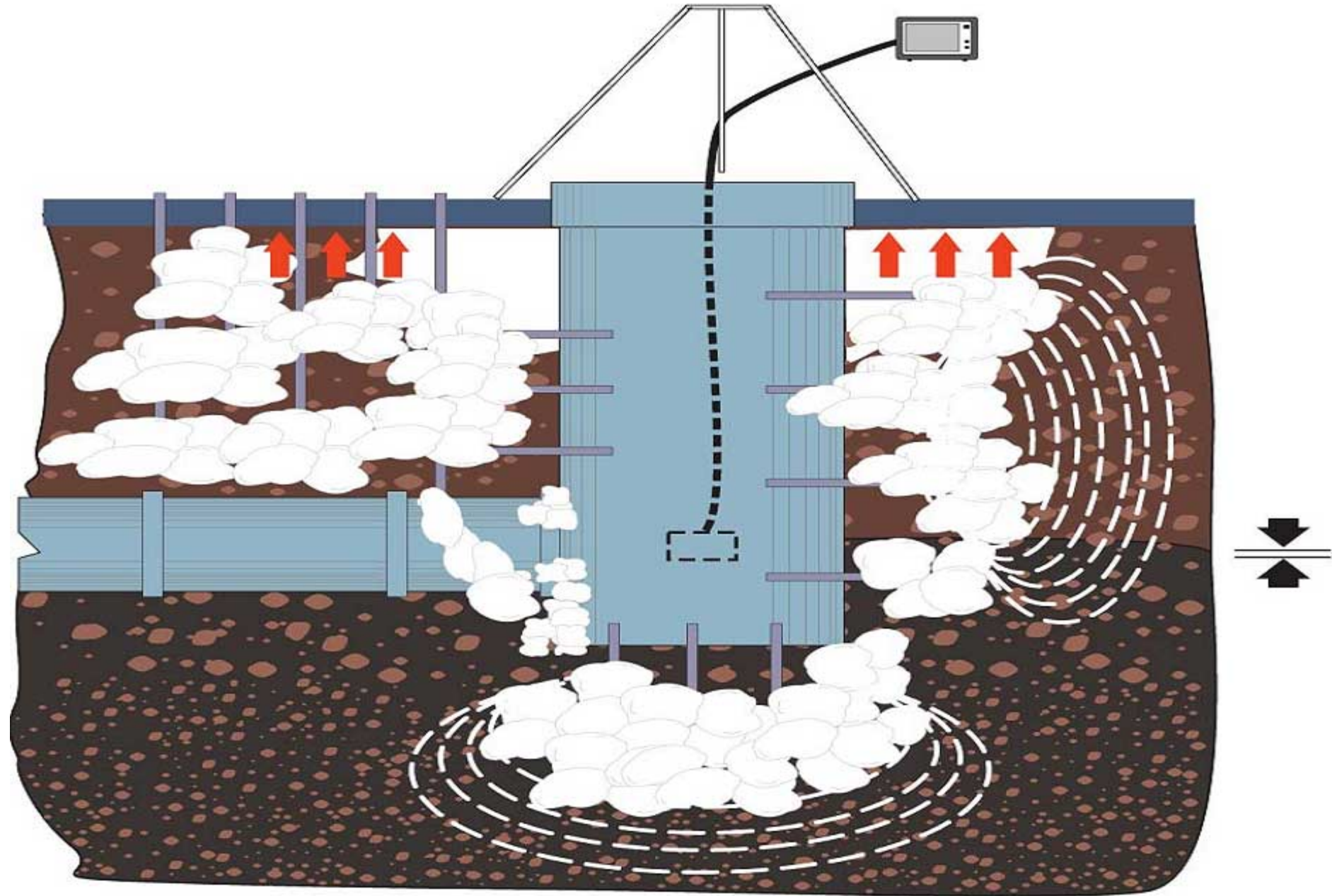
✓ Solve Complex Infrastructure Problems

- » Fill Voids
- » Stabilize Compromised Soils
- » Seal Around Cracks and Holes
- » Lift Surfaces Into Specification

INFRASTRUCTURE REHABILITATION®







Underground Drainage Line Repair

Grosse Pointe Farms, MI



Project Challenges	Solution	Support	Outcome
<ul style="list-style-type: none">• Previous sewer rehabilitation caused the broken saddle was not sealed and resulted in groundwater and soil infiltration• Eroding soil behind the box caused large voids and surface settlement• Asphalt settling	<ul style="list-style-type: none">• Drill 5/8" diam. holes to seal leaky joint behind the inside wall of the box• Utilized lazer levels to detect 1mm bump to detect soil density was obtained to lift roadway	<ul style="list-style-type: none">• Specifications• Designed injection quantity and depth• Pre-construction meeting• On-site installation	<ul style="list-style-type: none">• Minimal downtime: Work was completed within 6 hours, mitigating over one week of major traffic rerouting• Financial Savings: Saved client \$59,000.00





URETEK

Brian Francis

(313) 300-5888

elseygroup@uretekusa.com