Lyndale Drive Retaining Wall Study

Public Meeting

Registration: 6:00 - 6:30
Presentation and Discussion: 6:30 - 8:30 pm
Tuesday, February 2nd, 2016

Winnipeg
TREK GEOTECHNICAL
HTFC PLANNING & DESIGN
MORRISON HERSHFIELD

Welcome

Thank you for attending tonight's public meeting for the Lyndale Drive Retaining Wall Study. This meeting is intended to provide you with a greater understanding of the project, to facilitate group discussions, and to hear back from the community on possible study outcomes.

Introductions

Project Manager:

Cam Ward, City of Winnipeg

Consultant Team:

James Blatz, TREK Geotechnical

Michael Van Helden, TREK Geotechnical

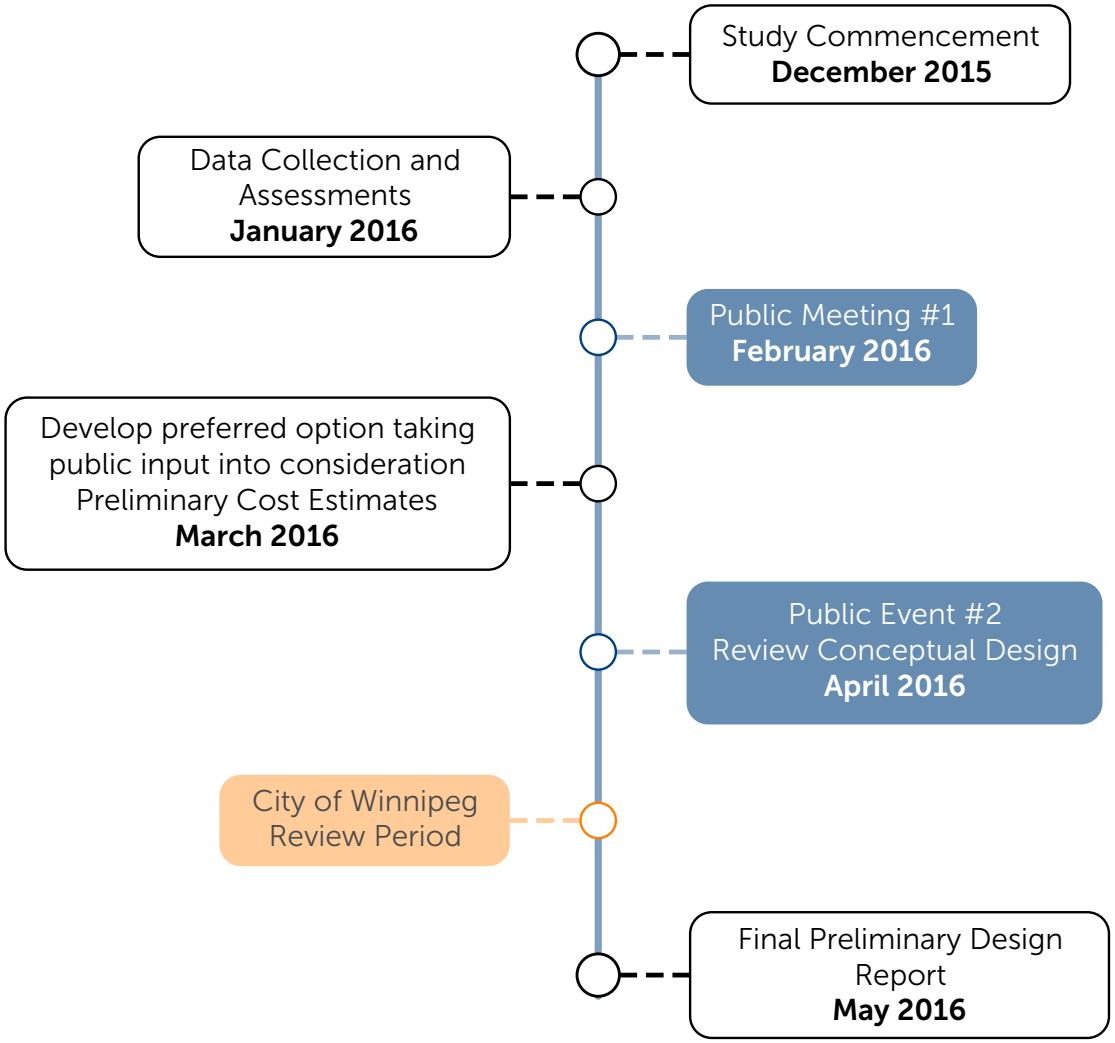
Bill Ebenspanger, Morrison Hershfield

Glen Manning, HTFC Planning & Design

Maureen Krauss, HTFC Planning & Design

Rachelle Kirouac, HTFC Planning & Design

Project Process & Timeline

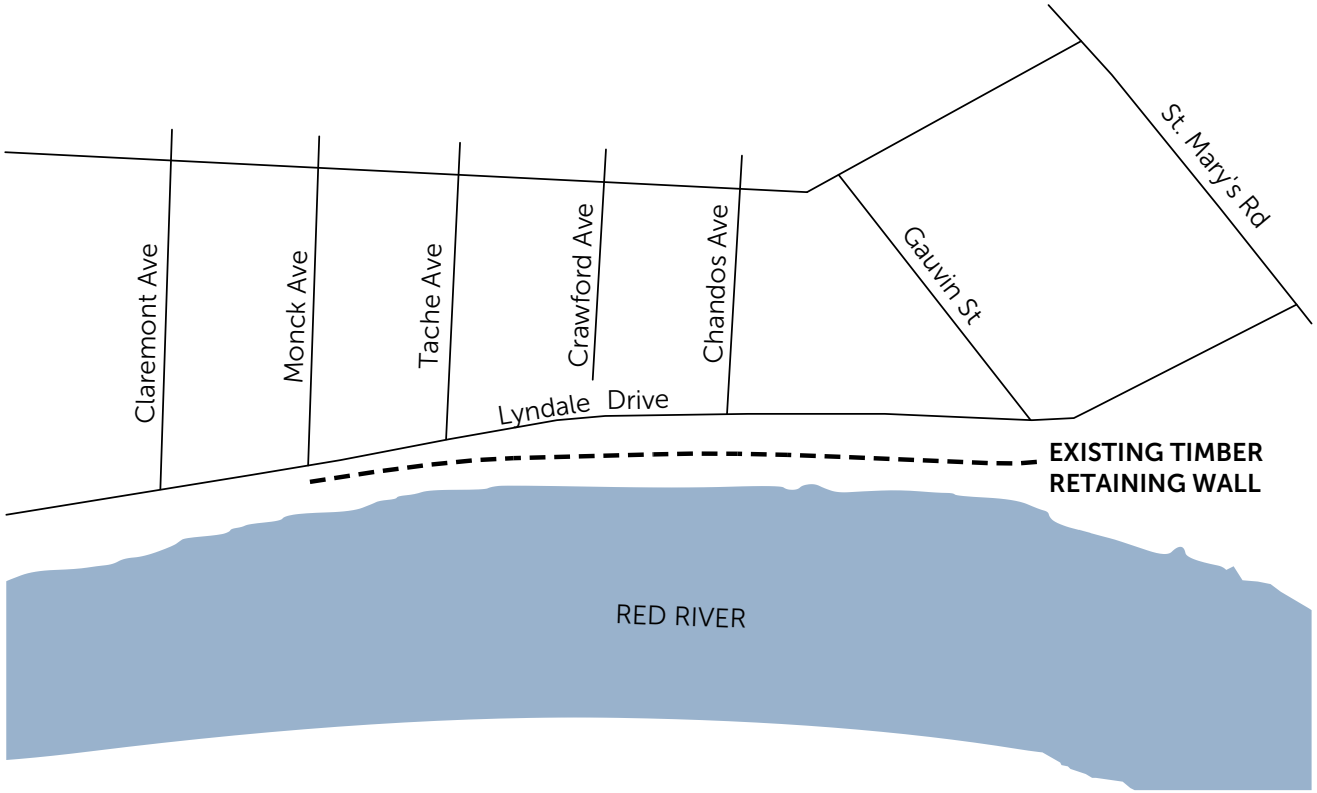


Tonight's Agenda

1. Study Background
2. Primary Study Considerations
   - Guiding factors in determining study outcomes
3. Riverbank Stability Explained
   - Geotech 101
4. Possible Outcomes
   - What can be done?
5. REFRESHMENT BREAK
6. Facilitated Discussion Tables
   - Conversation tables to discuss possible outcomes and receive input
6. Summary of Presentation and Discussion Table Input

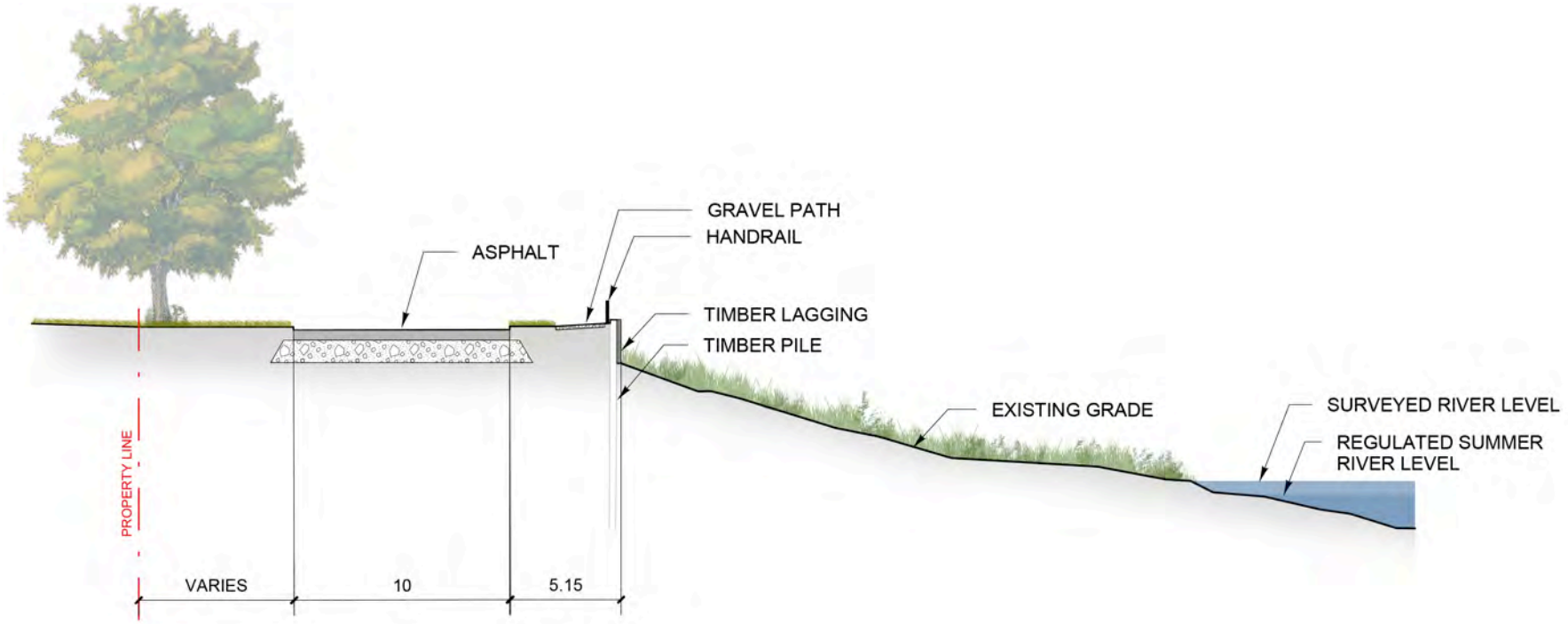
Study Background

The section of Lyndale Drive between Claremont Avenue and Gauvin Street has had a history of riverbank instabilities. Ongoing riverbank movements and deterioration of the retaining wall pose a risk to the road, dike, sewers, and other infrastructure at the top of the riverbank.



Study Background

Existing Conditions:



Lyndale Drive – Road failures

Existing Timber Retaining Wall

Primary Study Considerations

- Riverbank Stabilization
- Safety and Accessibility
- Bikes and Pedestrians
- Local Traffic and Parking Impacts
- Cost
- Construction Process (road blockages, traffic etc)
- Maintenance (snow clearing, mowing, trash pick-up)
- Appearance (Plantings, Materials, Views)
- Environmental Impacts

Riverbank Stability Explained – Geotech 101

Bottom of Slope at Red River

Lyndale Drive Riverbank

2013 Riverbank Instability – Monck to Tache

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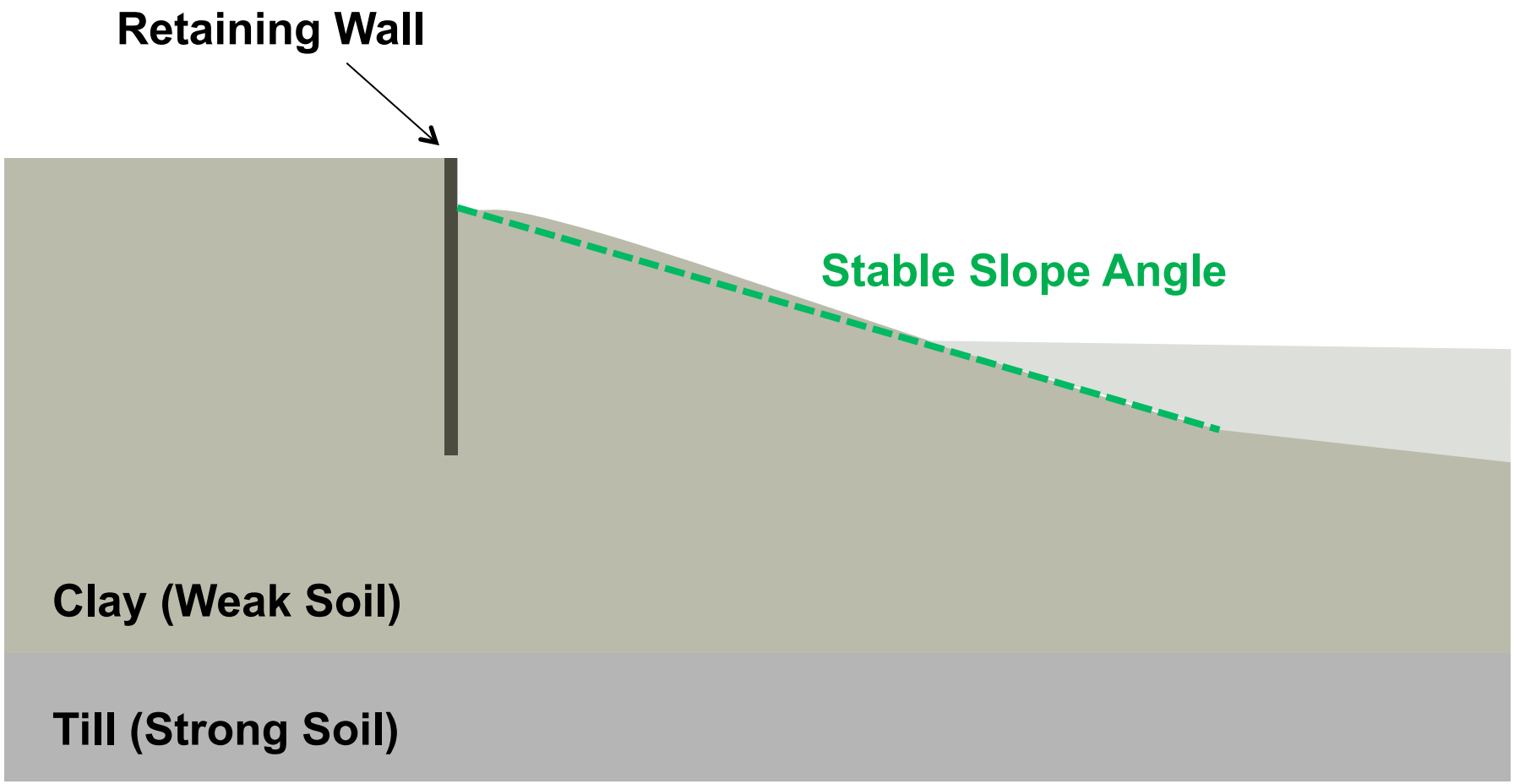
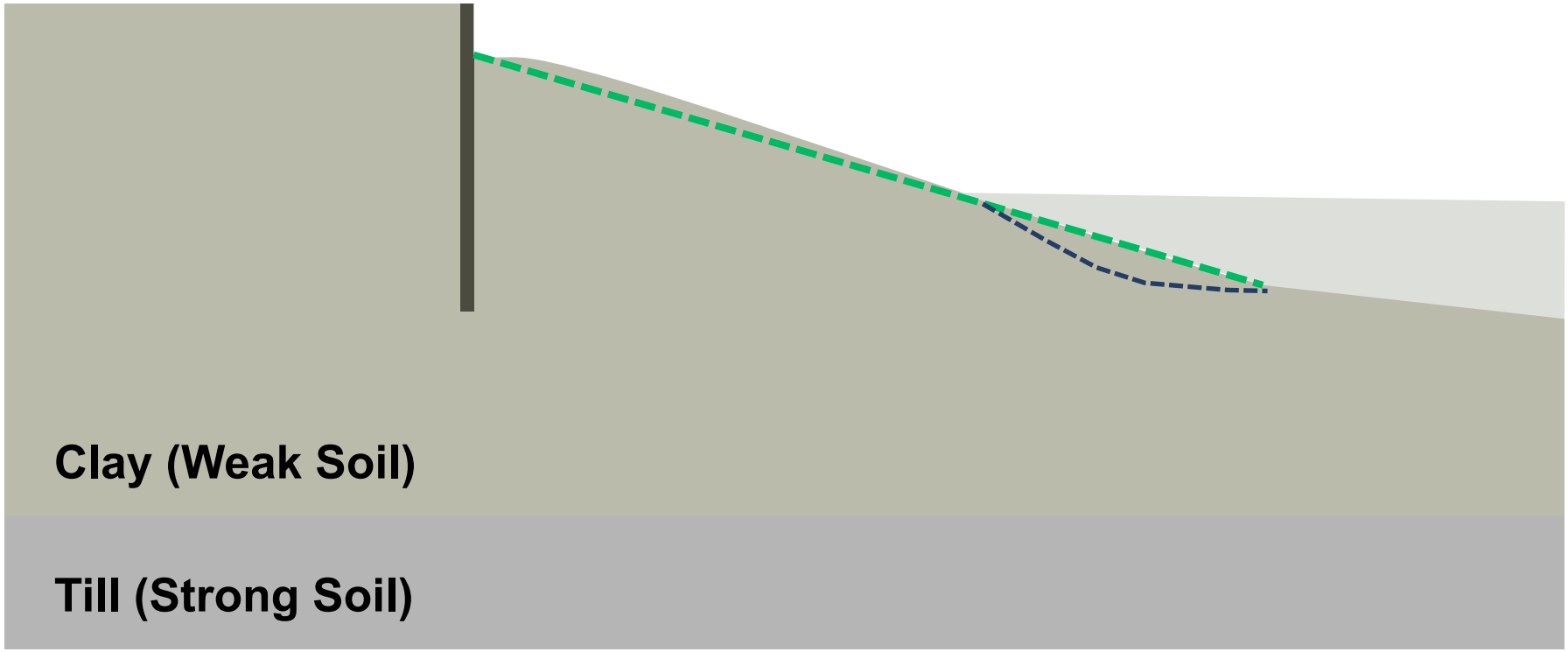
2013 Riverbank Instability – Monck to Tache

Riverbank Stability Explained



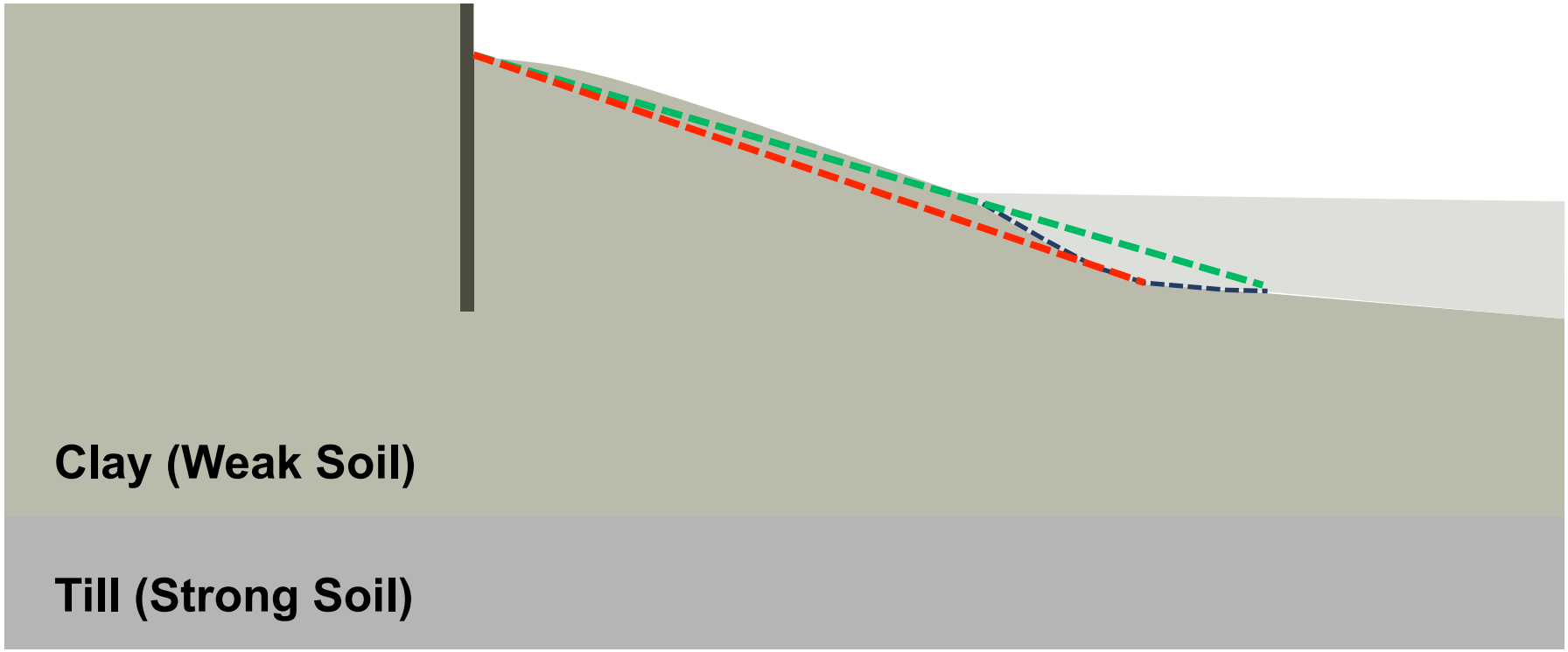
Riverbank Stability Explained

Erosion eats away soil near shoreline



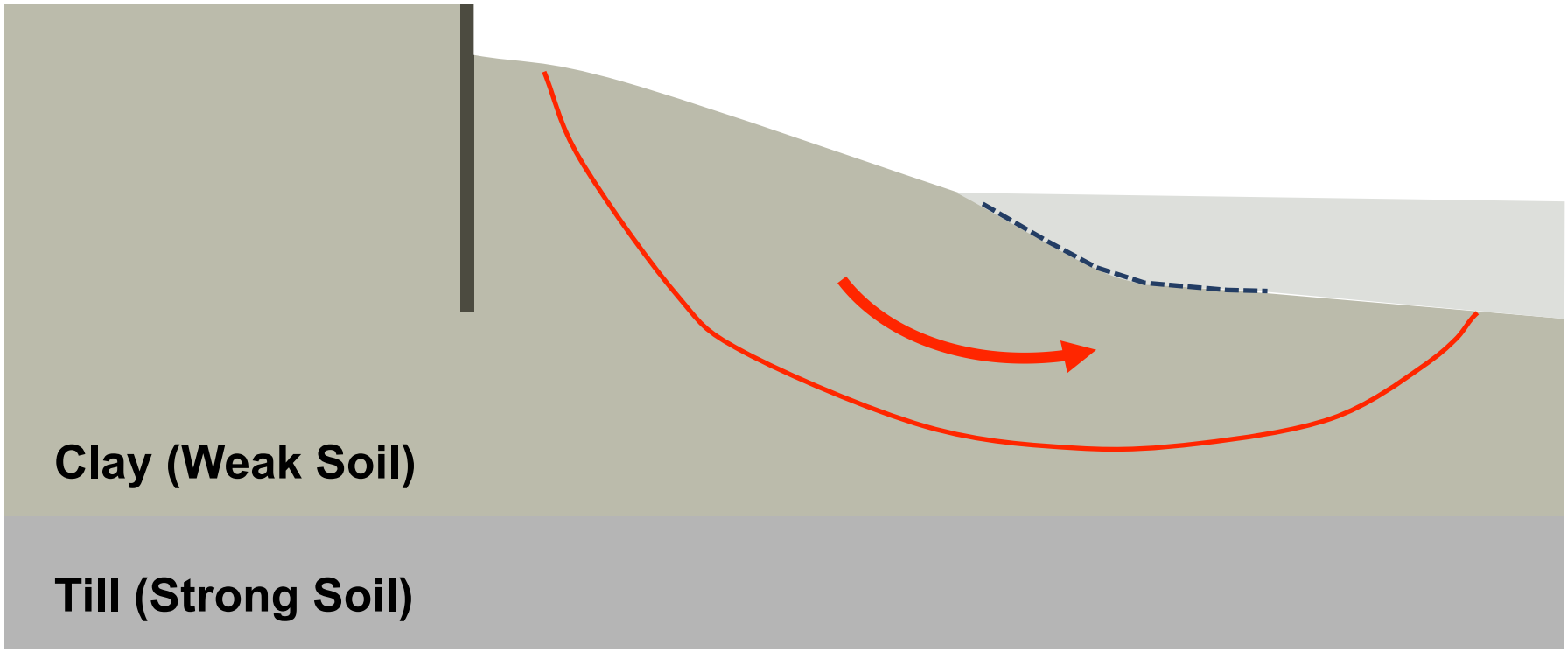
Riverbank Stability Explained

Unstable:
Slope angle becomes steeper than the stable slope angle



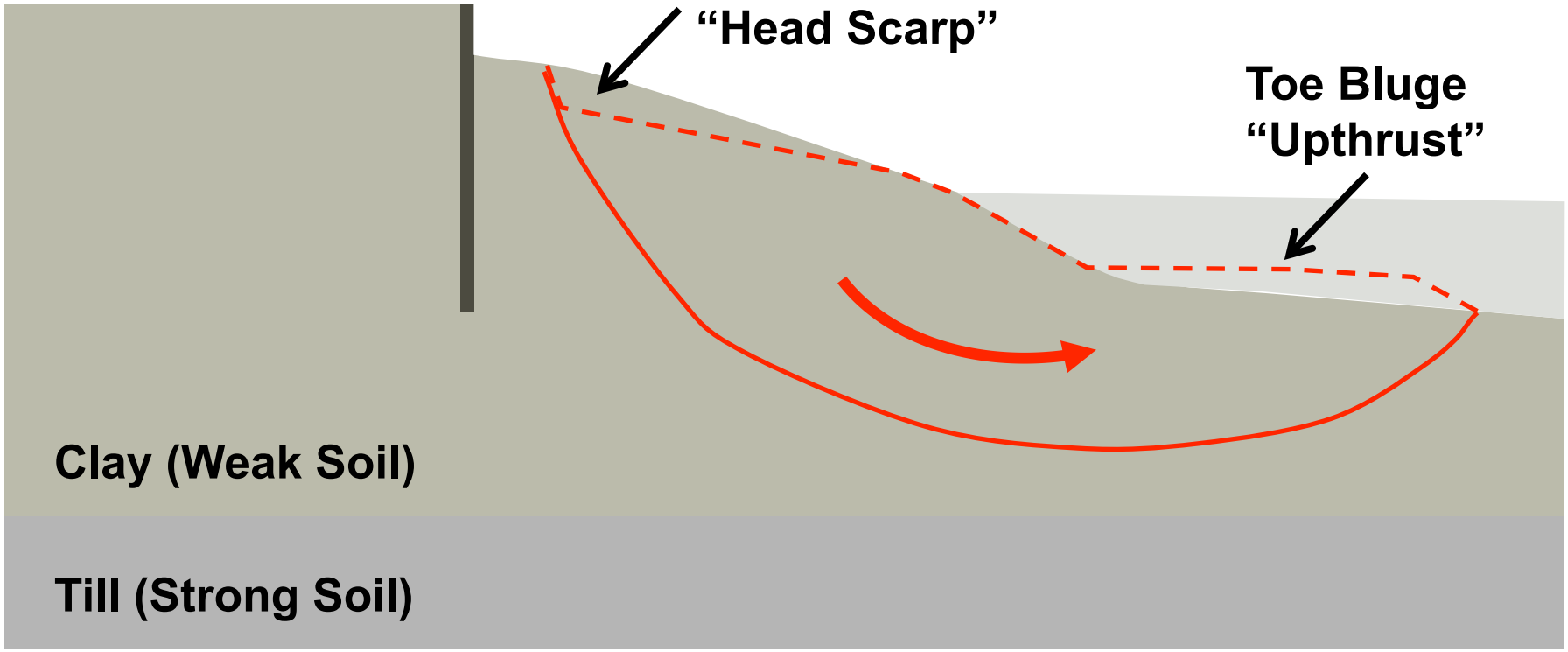
Riverbank Stability Explained

Riverbank Instability:
Imbalance in forces causes the riverbank to move



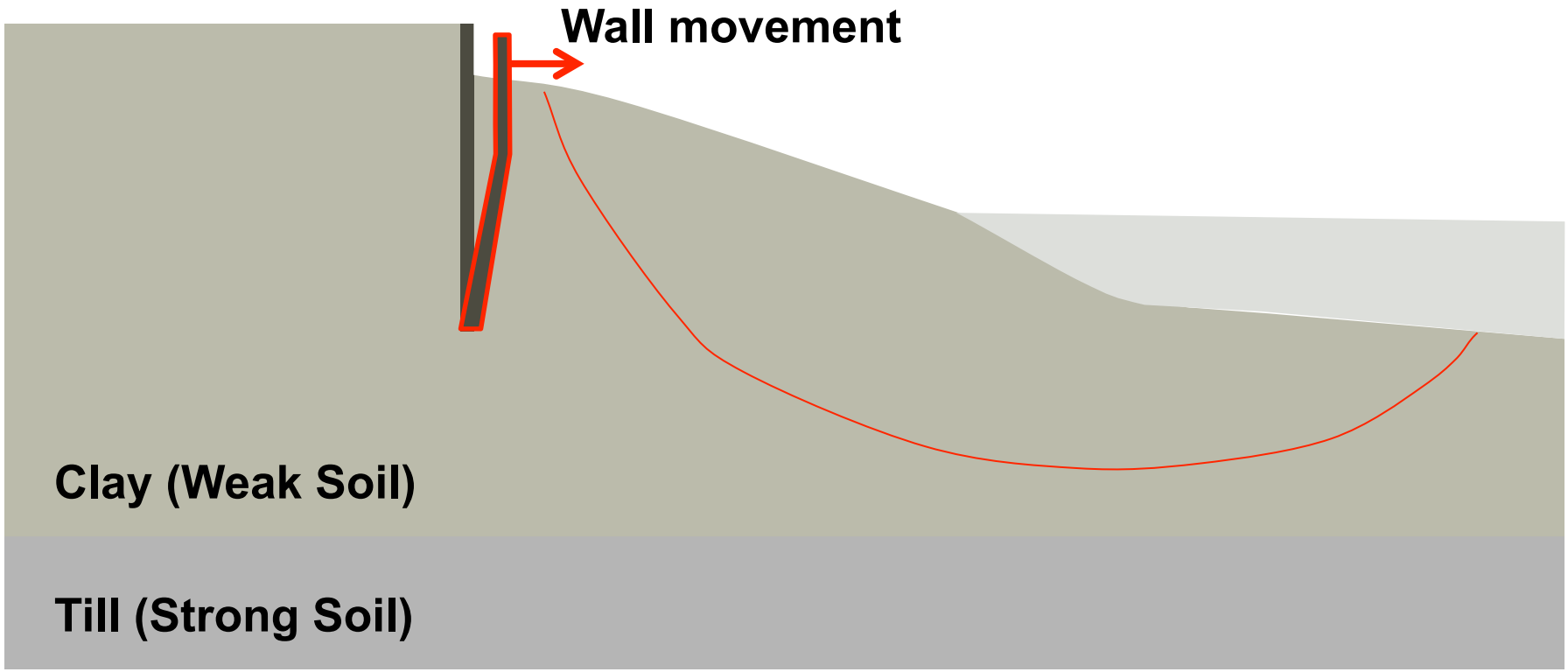
"Physics" of Riverbank Stability

Riverbank Instability:
Imbalance in forces causes a "slide mass" to move



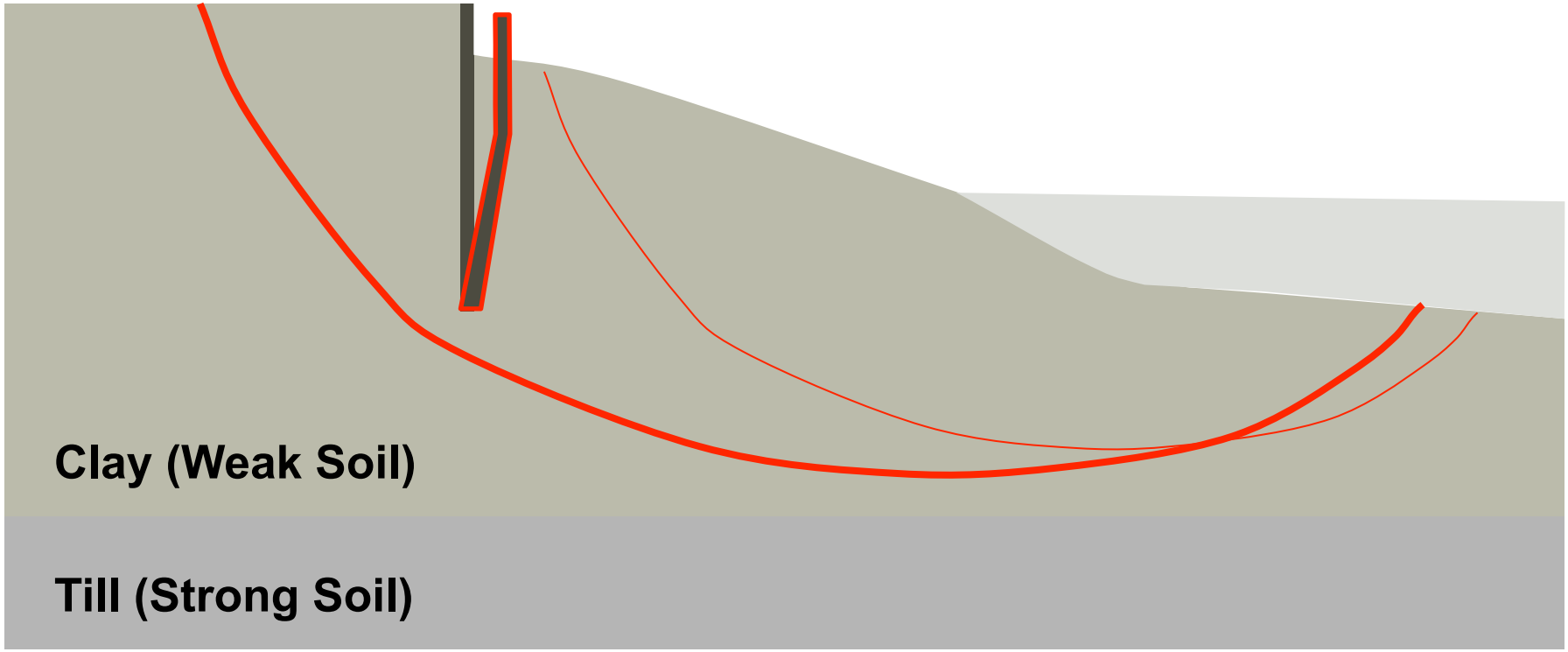
Riverbank Stability Explained

Riverbank movement can cause wall movement if not addressed



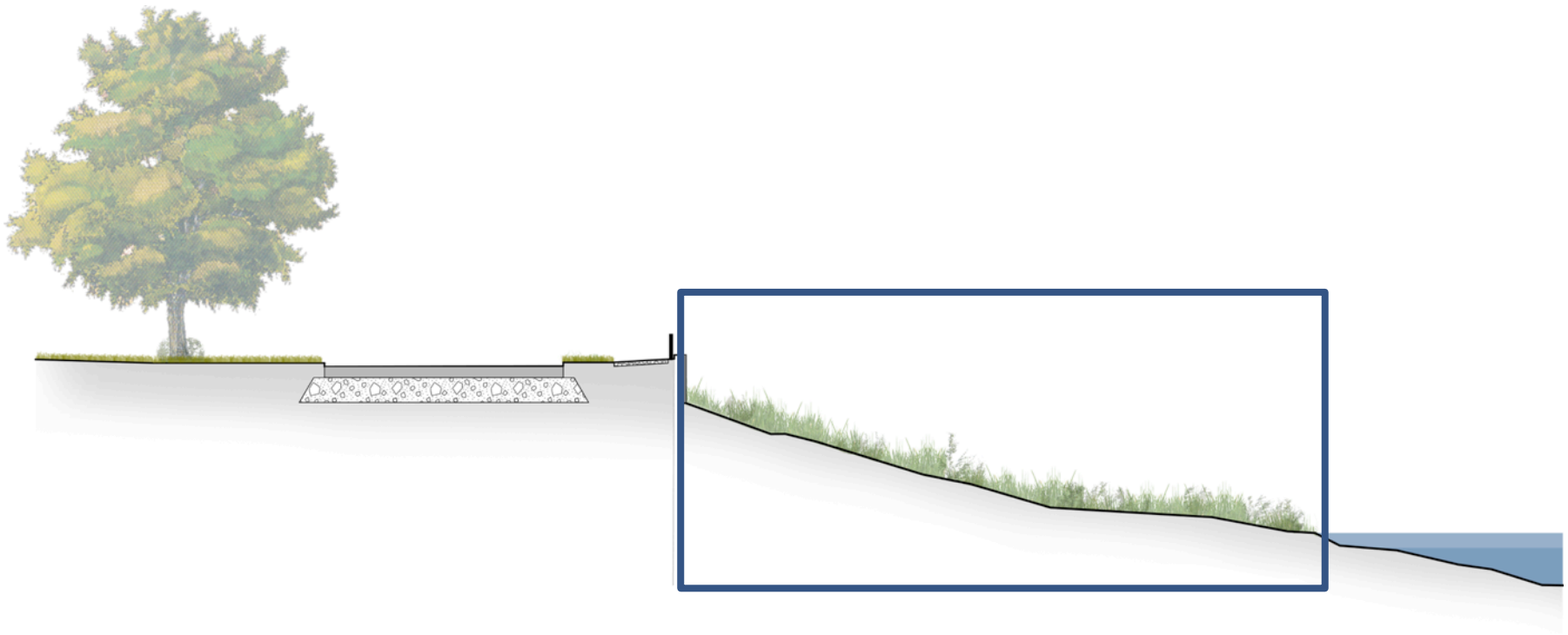
Riverbank Stability Explained

"Retrogression" is when the head scarp moves farther from river



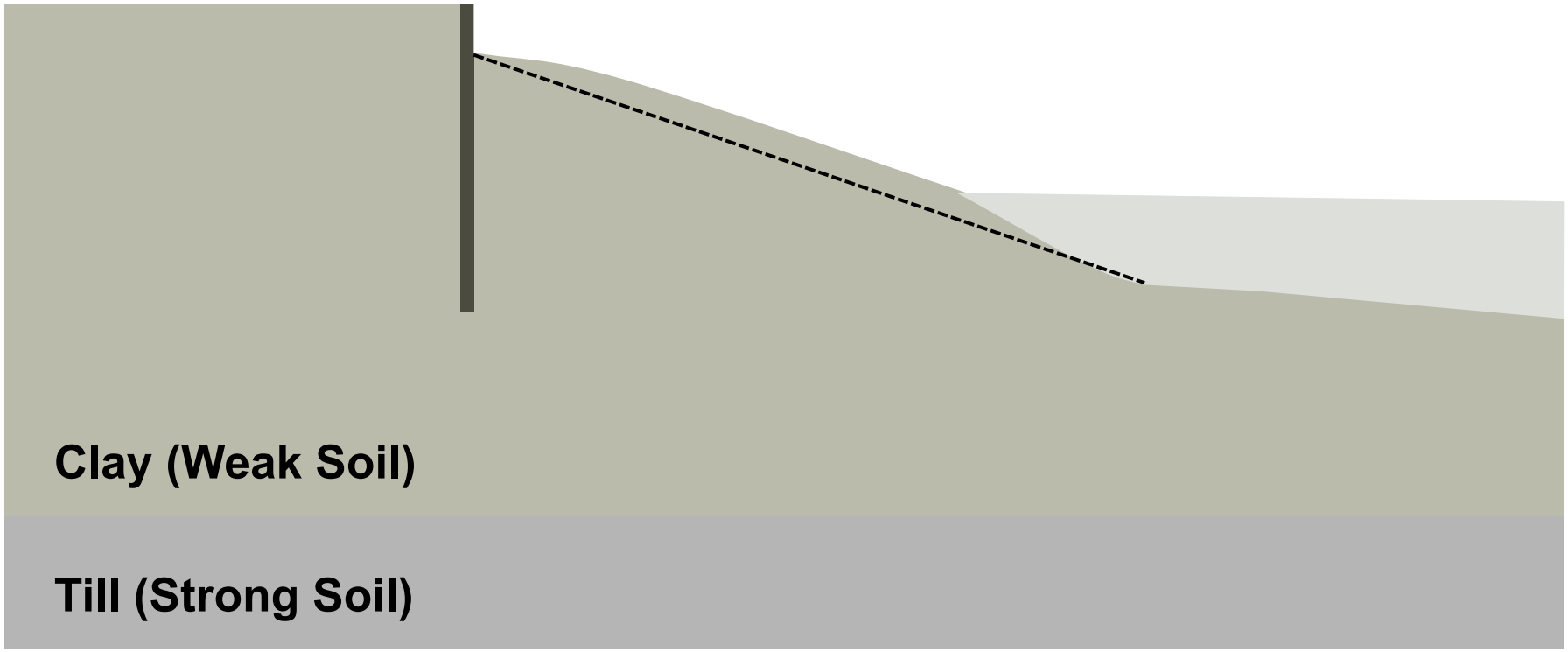
Possible Outcomes

Topic 1: Riverbank Stabilization



Riverbank Stabilization

Fill Placement Steepens Slope Angle Reduces Stability



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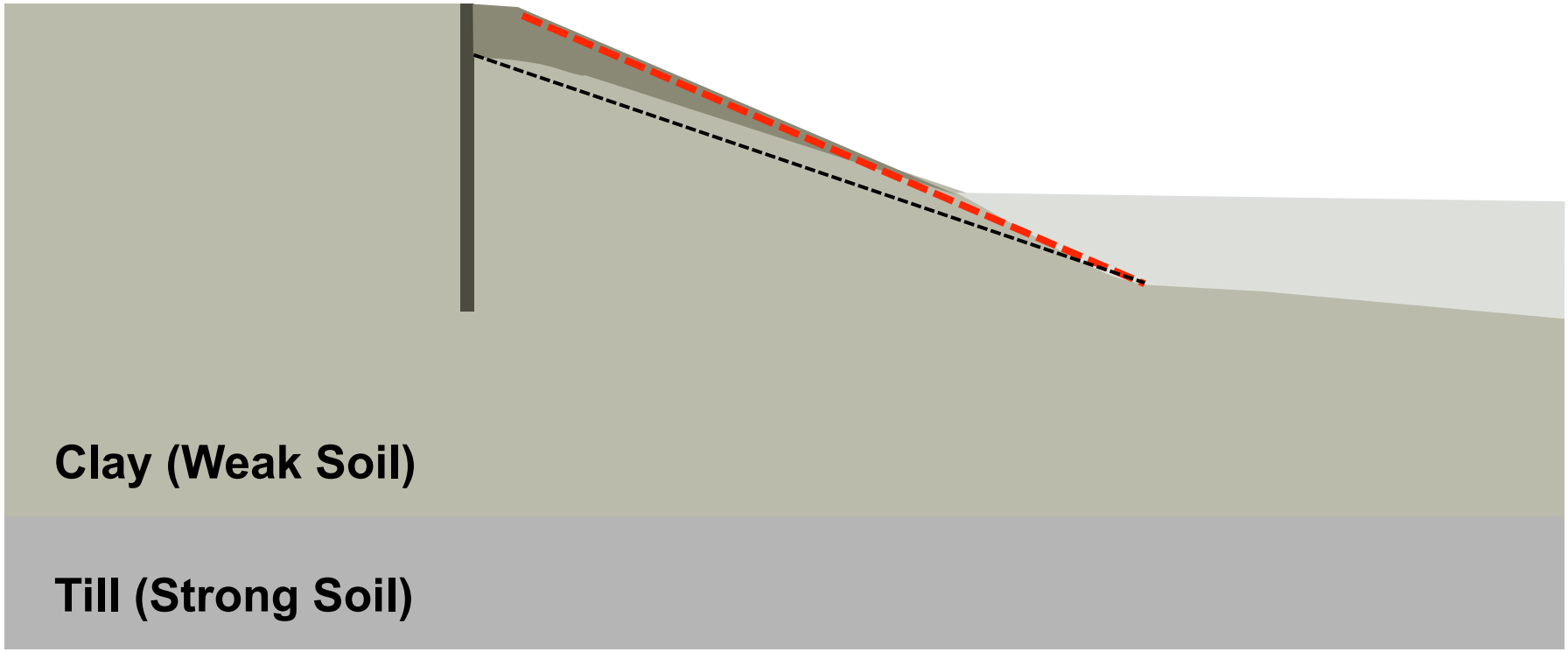
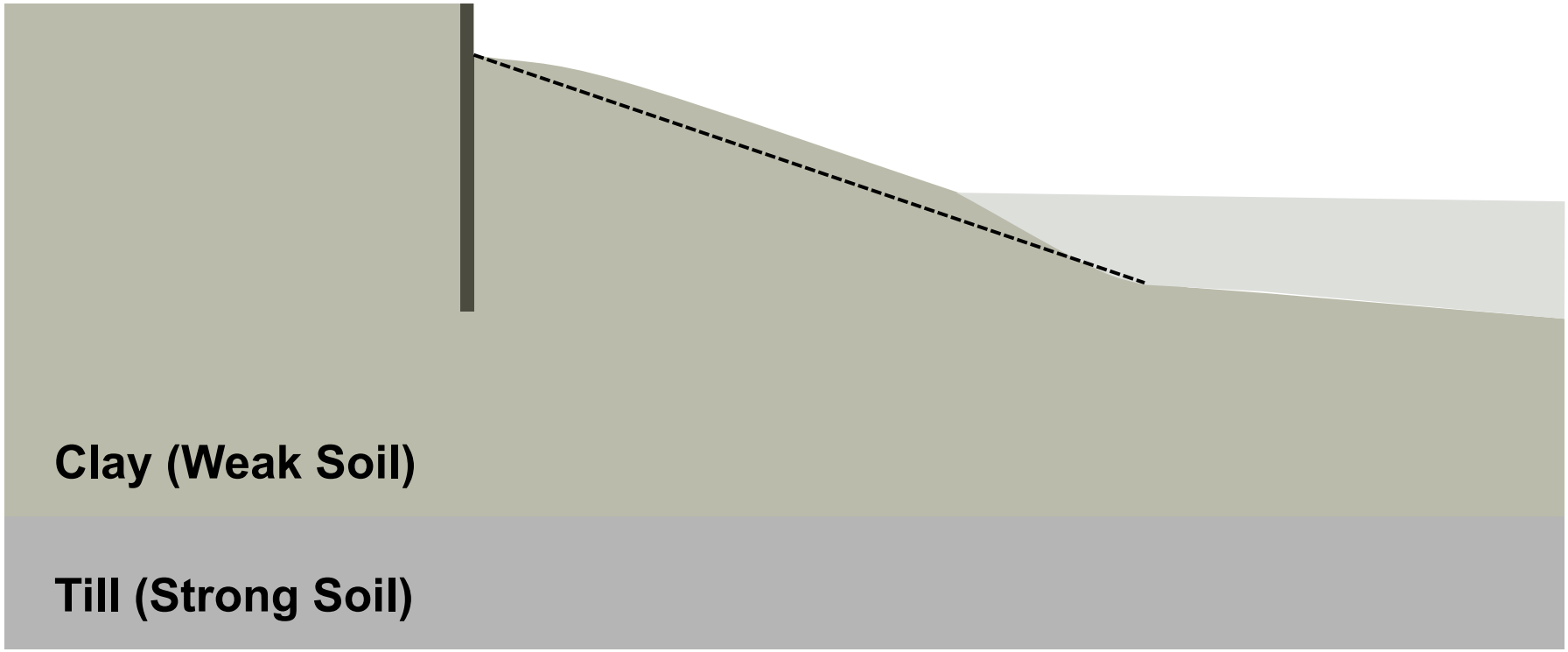


Riverbank Stabilization

Soil Removal (from top of bank) "Offloads" the riverbank, flattens the slope angle Improves Stability



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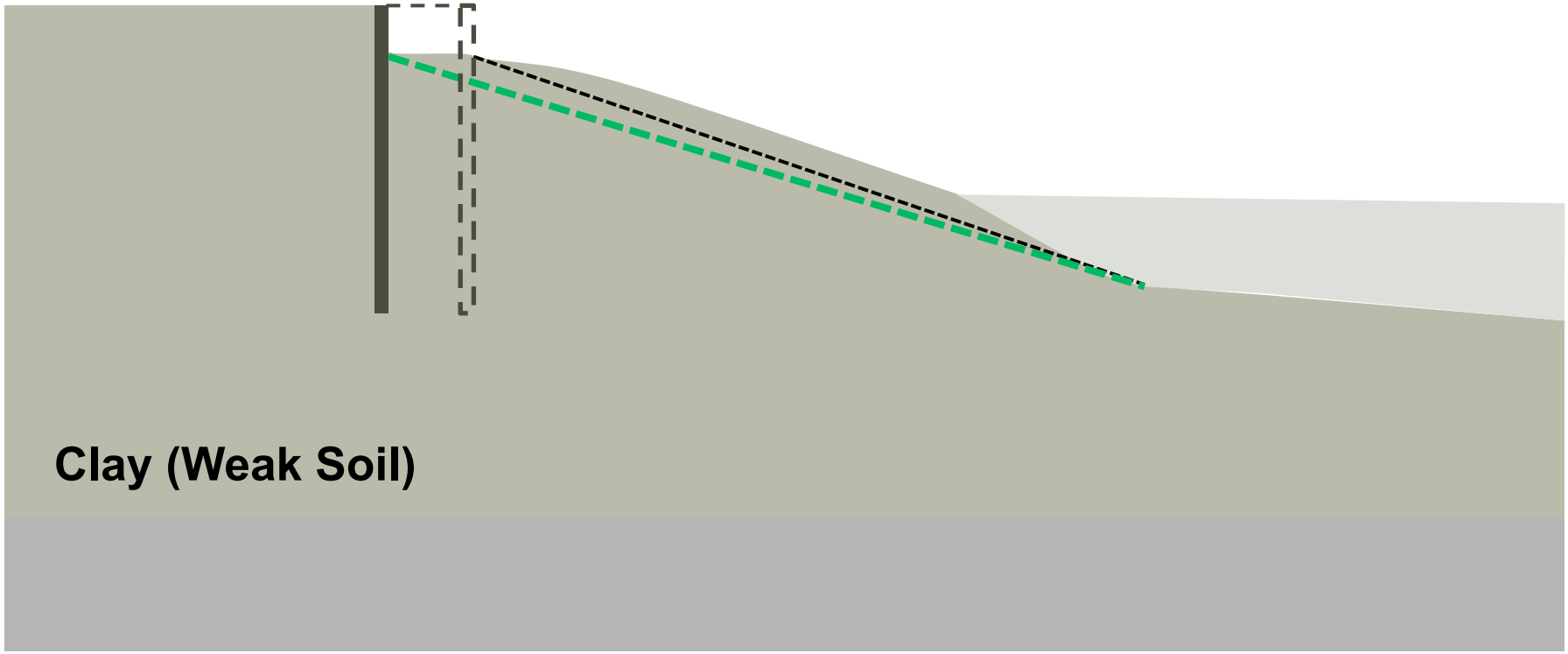
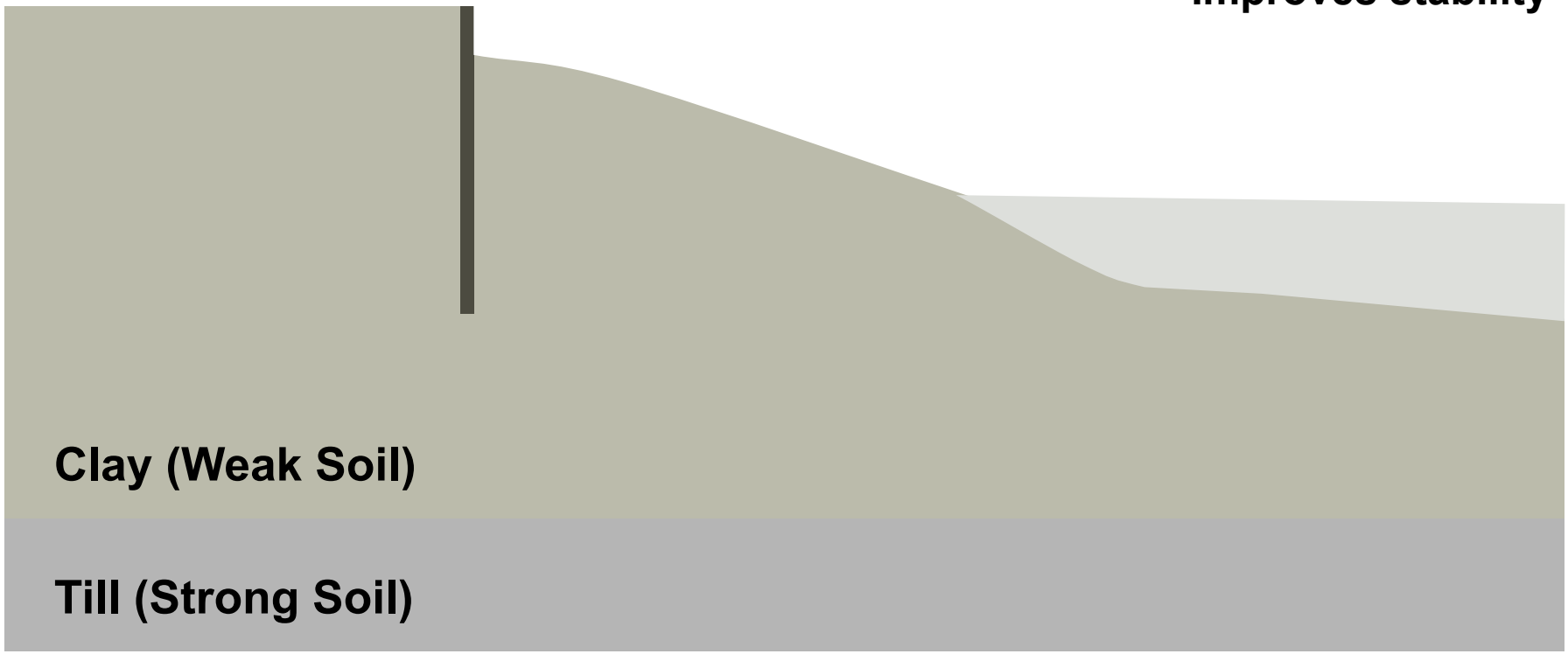


Riverbank Stabilization

Rockfill Columns or Shear Keys
strengthen the soils
Steepens the "stable" slope angle
Improves stability



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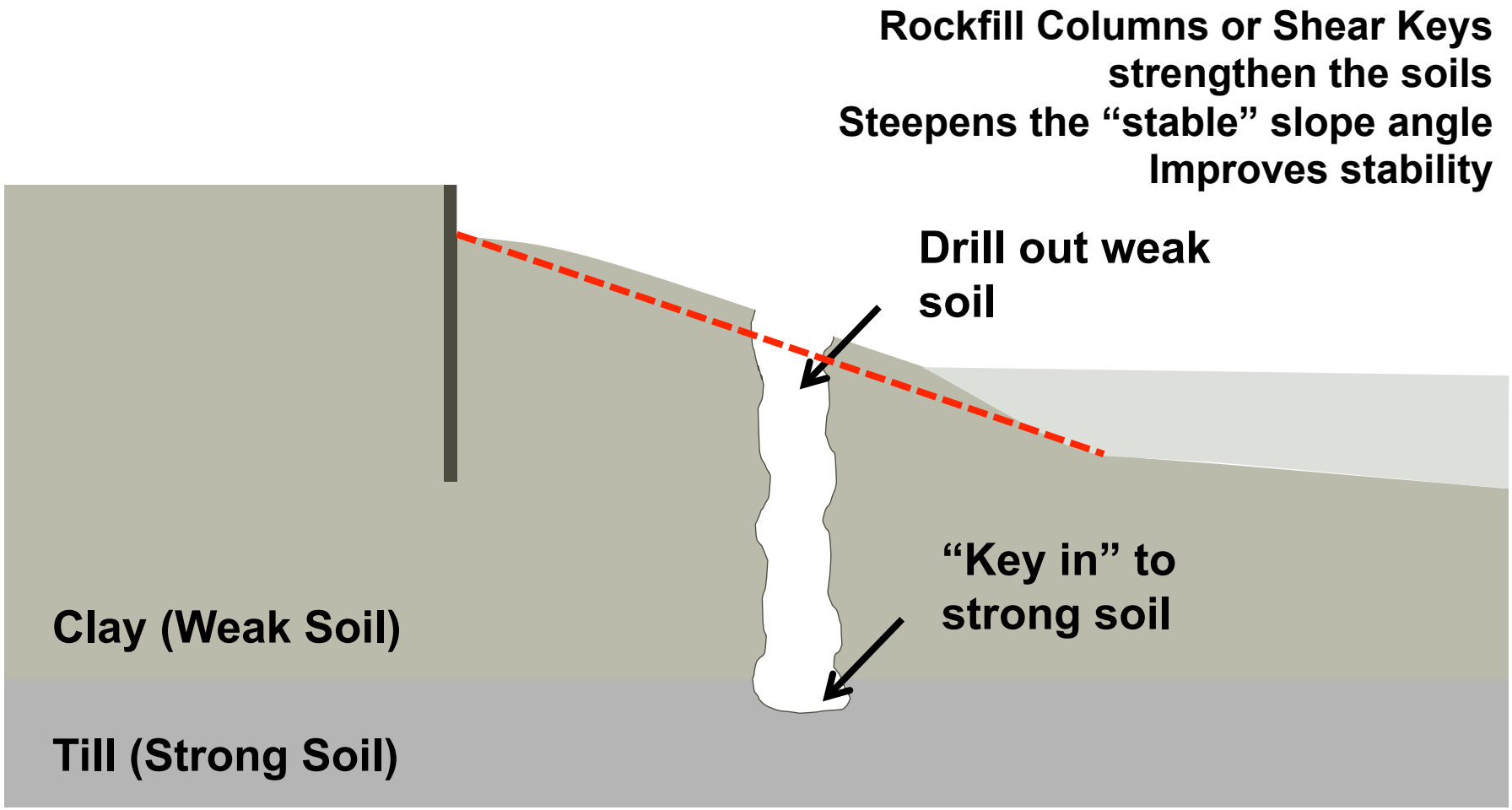

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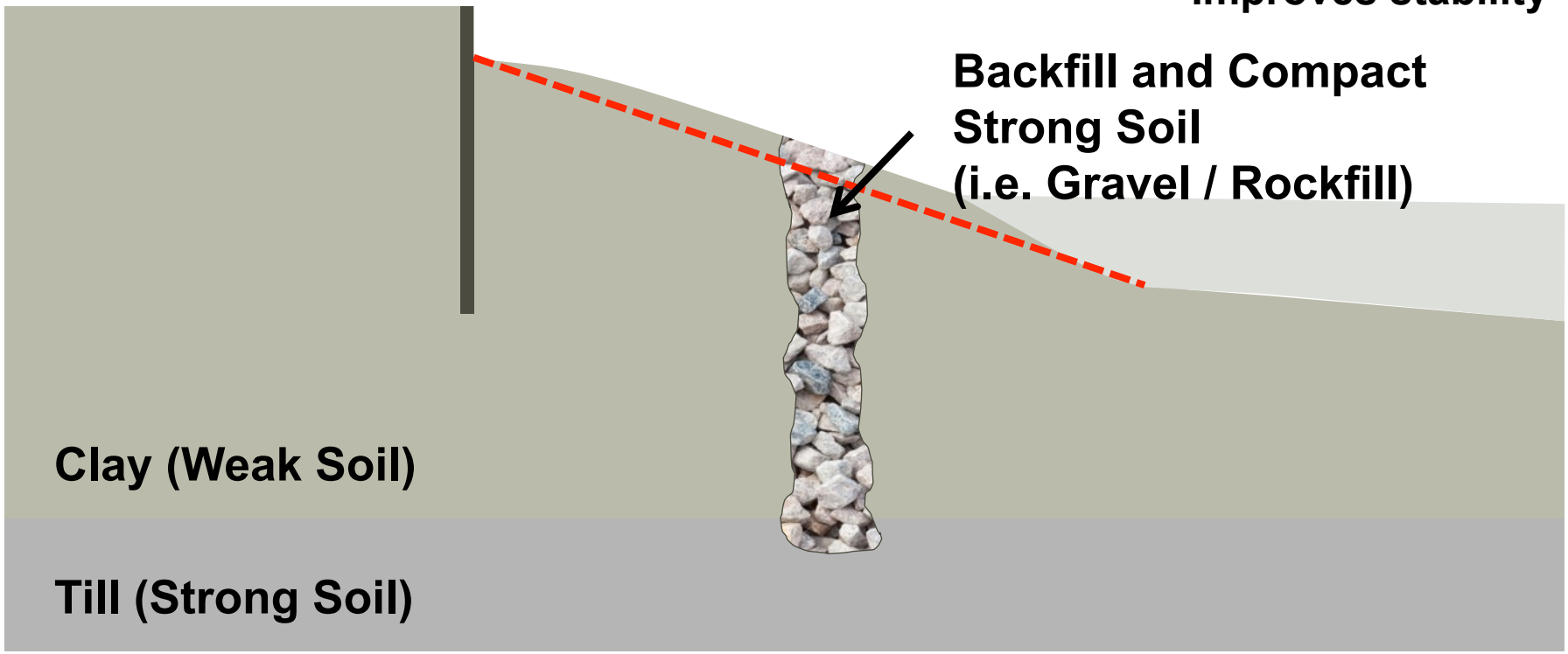

Riverbank Stability Explained

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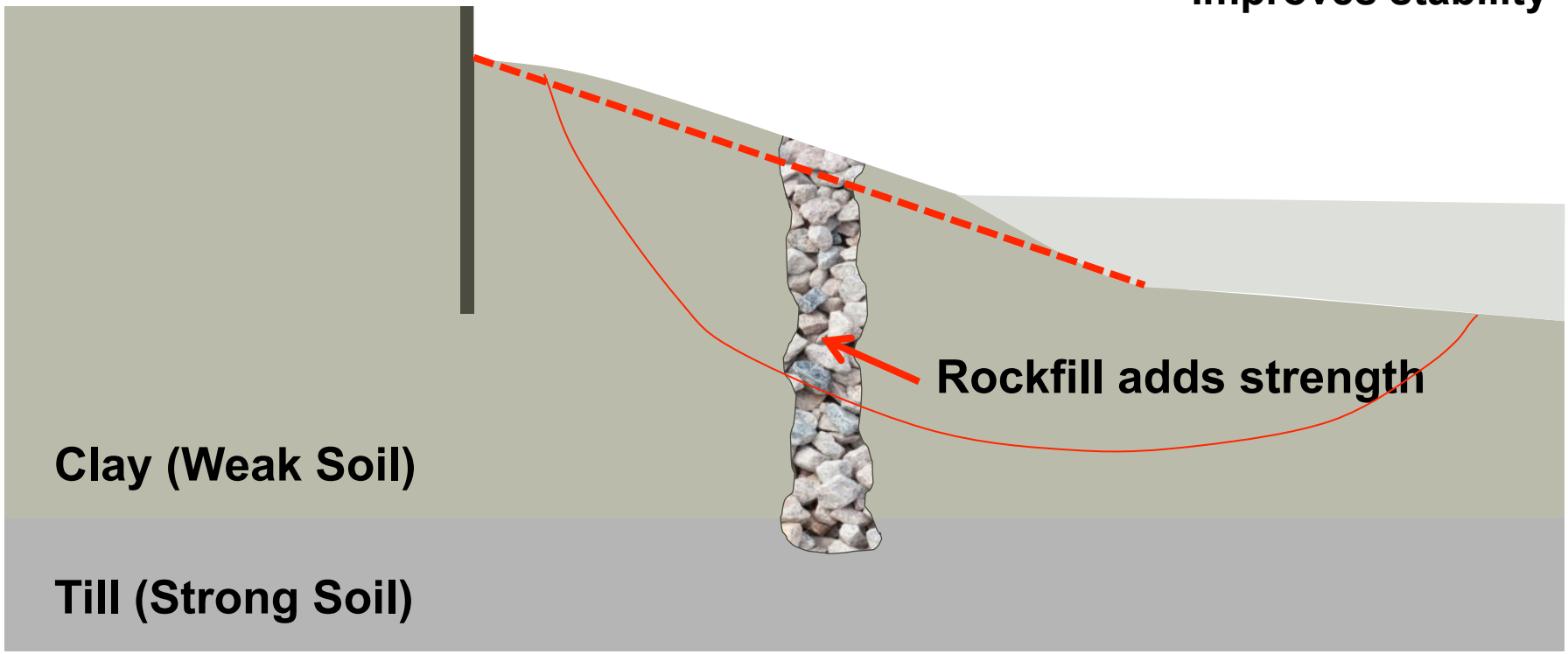

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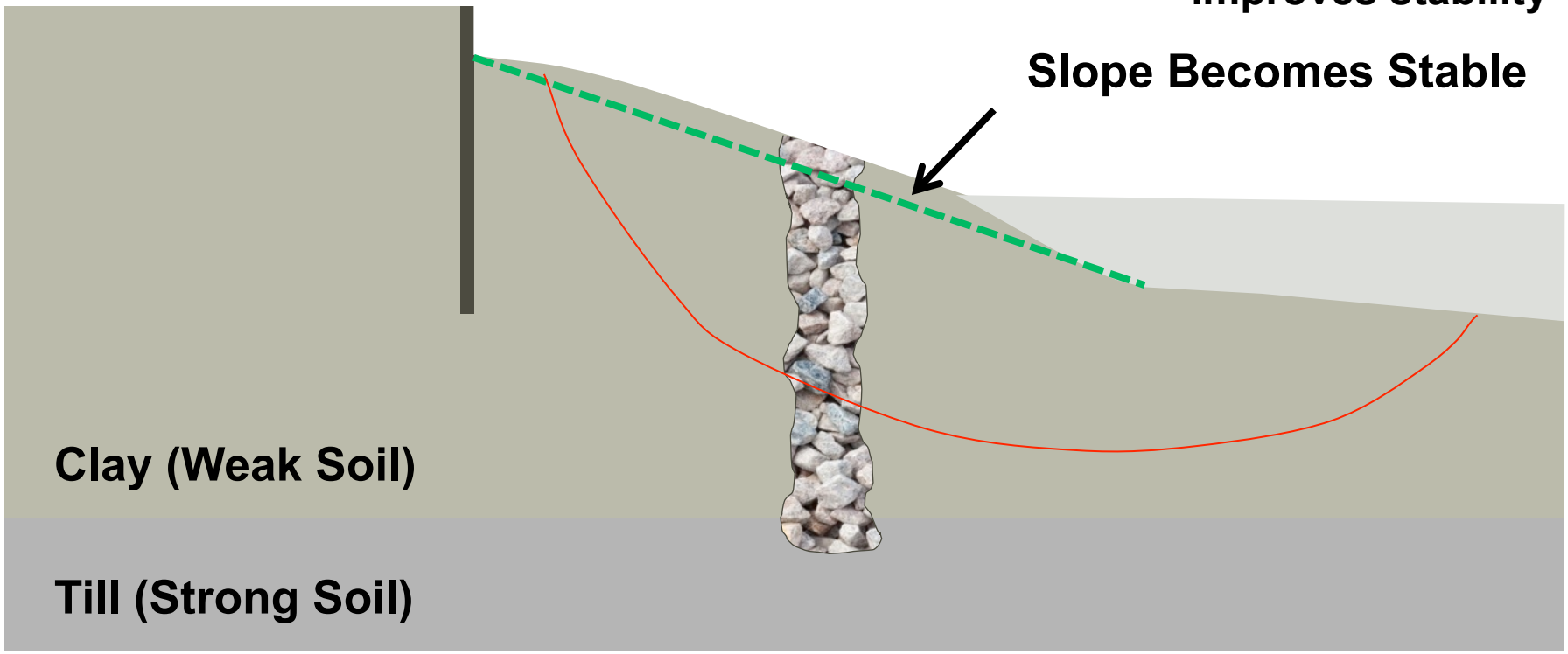

2013 Emergency Stabilization between Monck and Tache

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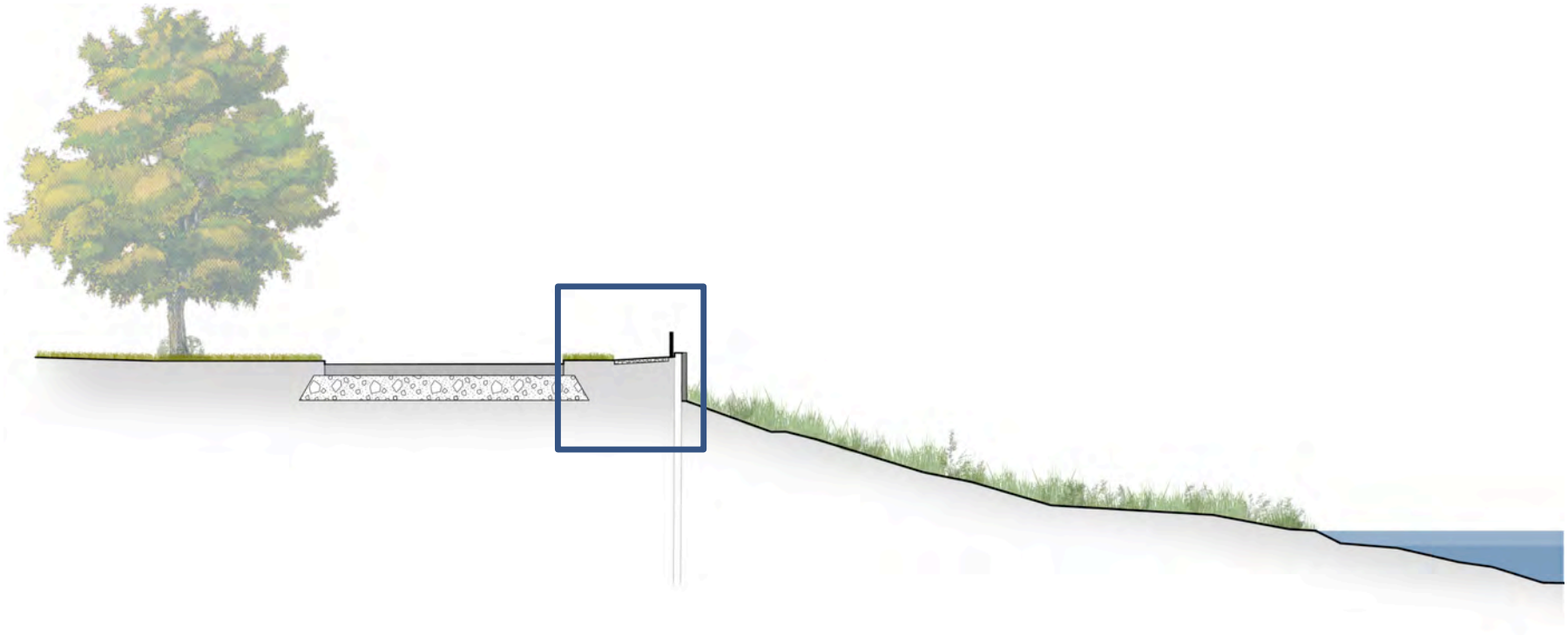
Potential Solutions

- Offload or flatten slope
  - Move wall towards the road
  - Replace soil with lightweight materials
- Strengthen the slope
  - Rockfill columns
  - Eliminate Retaining Wall
- New stronger wall

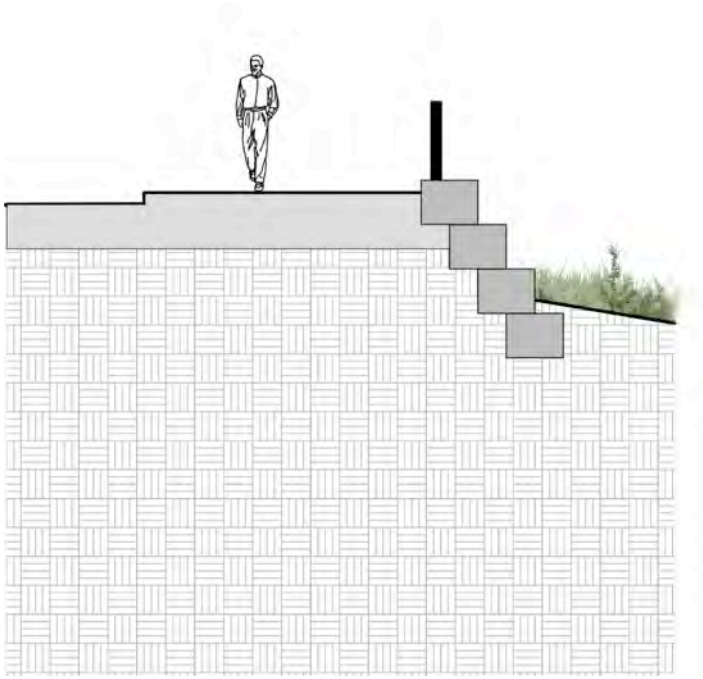
Possible Outcomes

Topic 2: Transition Concepts

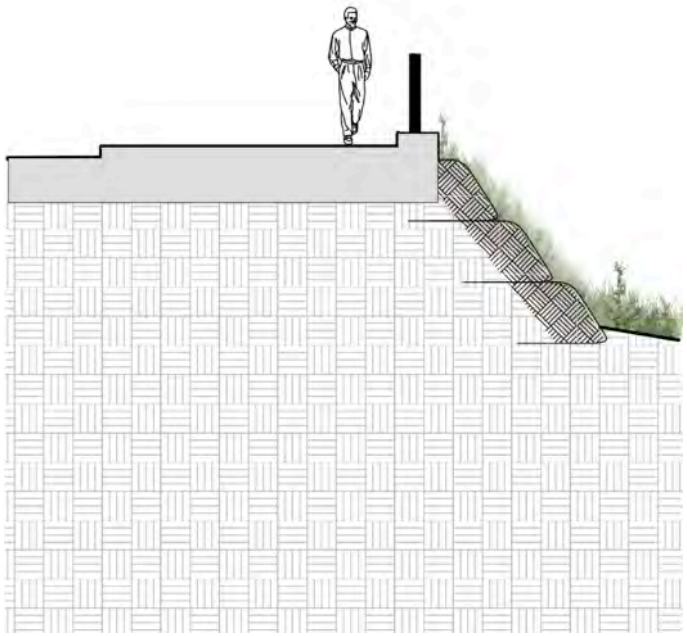


Concept 1: Landscape Wall

Segmental Block Retaining Wall



45° Green Wall



Concept 1: Landscape Wall

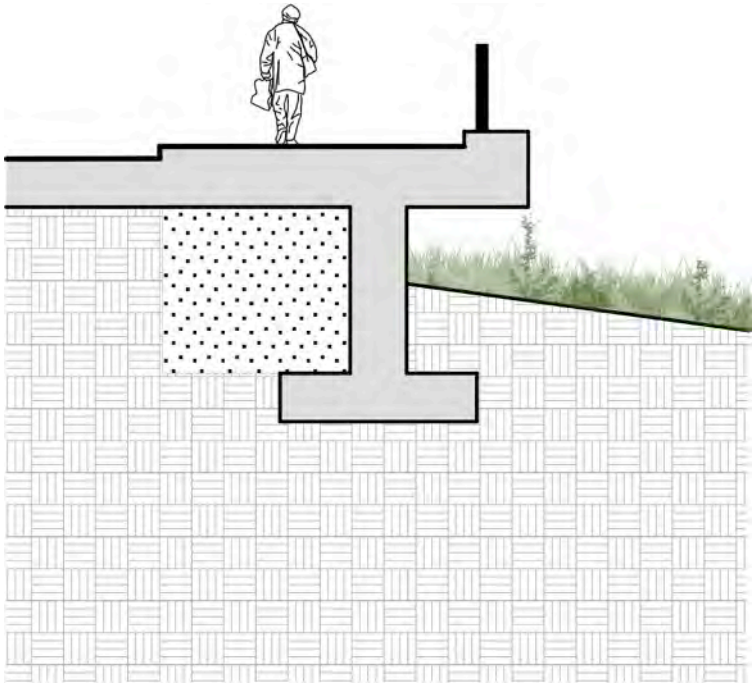
Segmental Block Retaining Wall

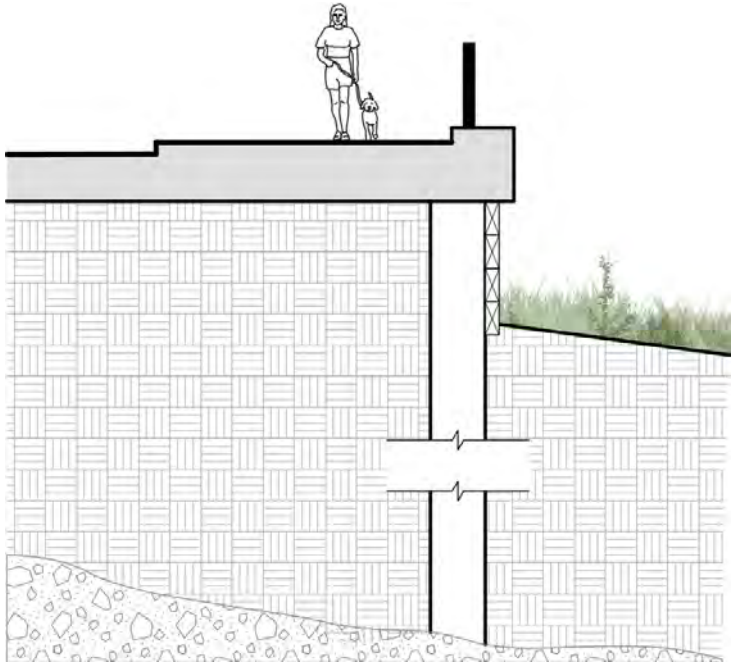
http://www.pondnpatio.com/hardscaping.htm

45° Green Wall

http://nilex.com/sites/default/files/Nilex-Presentation-TAC-2014-Supporting-Highway-Infrastructure-on-the-Canadian-Landscape.pdf

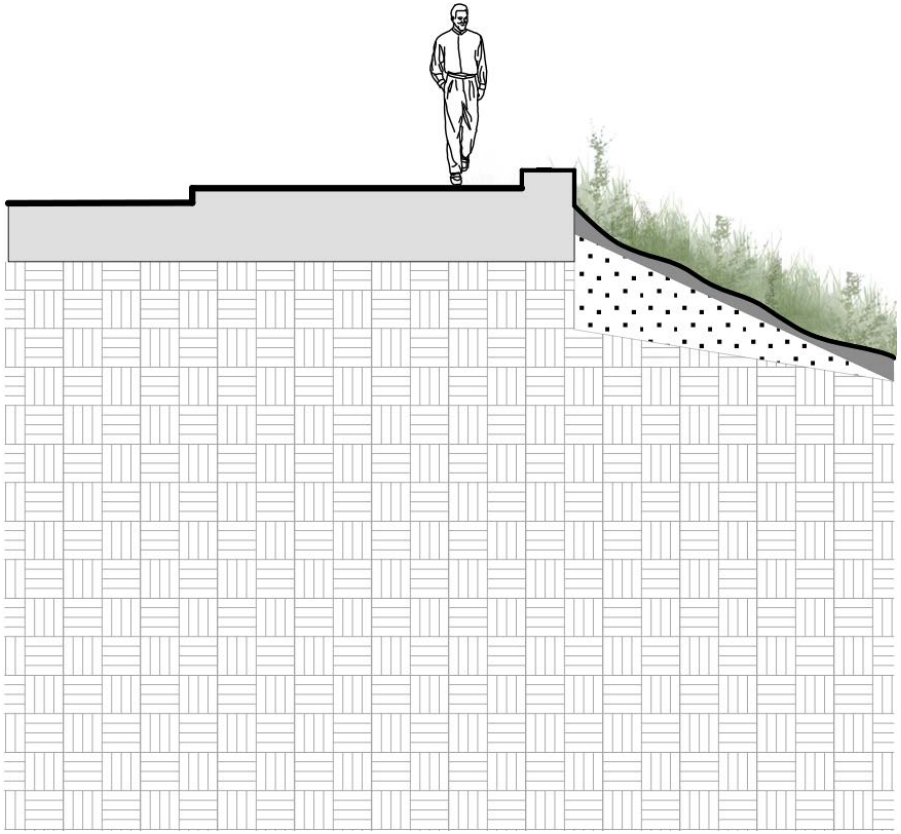
Concept 2: Structural Retaining Wall





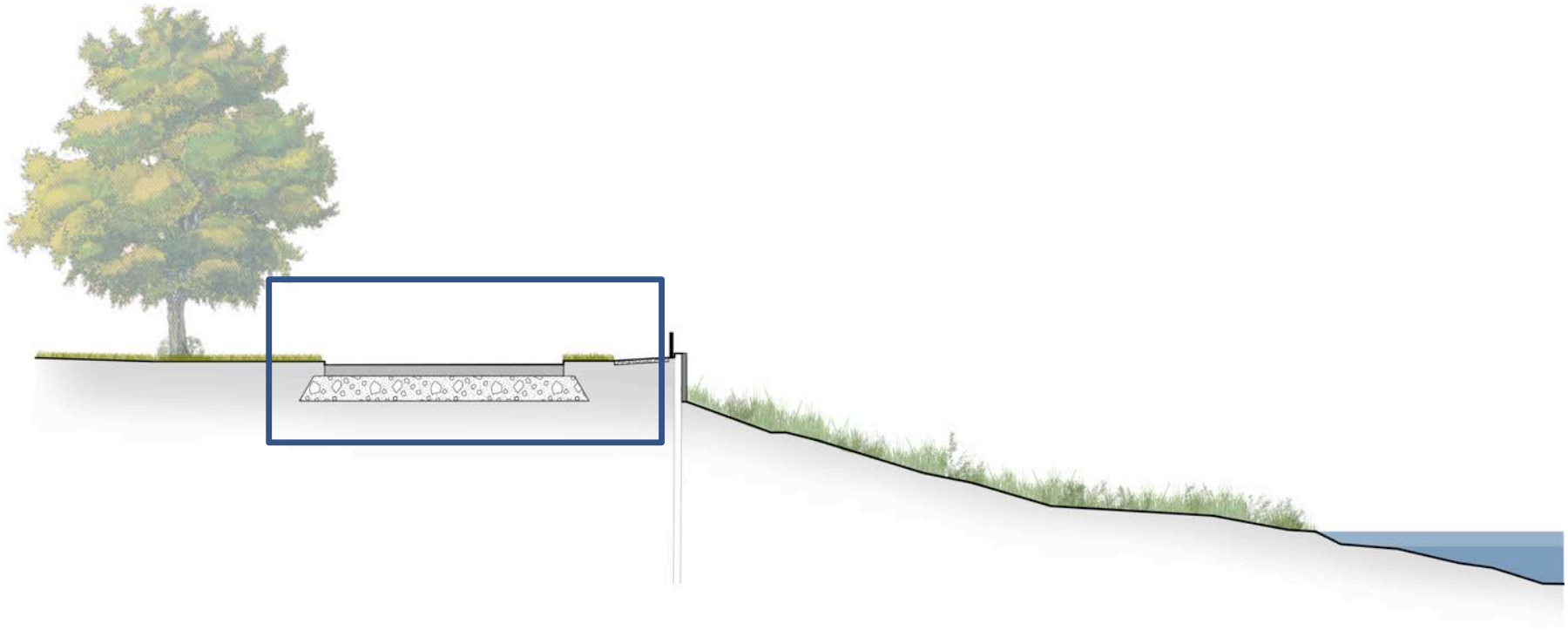
Transition Concepts

Concept 3: Vegetated Slope



Possible Outcomes

Topic 3: Pedestrians and Cyclists



Pedestrians and Cyclists

Pedestrians and Cyclists

REFRESHMENT BREAK

Things to think about:

- Pedestrian Safety / Handrails
- Lower Bank Trail - access to and use of the lower bank
- Crime prevention through Environmental Design
- Location and type of pedestrian and cycling pathways
- Landscaping
- Impacts on Lyndale Drive width and parking considerations
- Sunday closures, Manitoba Marathon

DISCUSSION TABLES

PRESENTATION SUMMARY AND REVIEW OF GROUP DISCUSSIONS

Thank you for your attendance this evening