Presentation Objectives

- Objectives of Temporary Shoring
- ALDOT’s approach
- Our arsenal
Objectives of Temporary Shoring

\[0.7 \times 26' = 18'\]

\[1.5H:1V\]

\[26'\]
Objectives of Temporary Shoring
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Objectives of Temporary Shoring

What does temporary shoring have to accomplish?

1. Provide adequate space to perform the required work
2. Safely resist all live and dead loads while the work is being performed
3. Maintain pre-construction conditions above/behind the shoring system

- Only distinction between “permanent” and “temporary” is longevity
ALDOT’s Approach to Temporary Shoring

206.06 – Removal of Existing Drainage and Other Facilities
  • Incidental

214.05 – Structure Excavation for Minor Structures
  • Incidental

215.03 – Excavation for Bridges
  • 215-B: Cofferdams or Sheeting and Shoring, LS

503.03 – Structure Foundations
  • 503-B: Cofferdam and Pumping, LS
    • Must be steel sheet piles

505.03 – Piling
  • 505-I: Temporary Steel Sheet Piling, SF

529.02 – Retaining Walls
  • Incidental
ALDOT’s Approach to Temporary Shoring

570 – Soil Nail Retaining Wall
  • 570-C: Temporary Soil Nail Wall, SY

572 – Soldier Beam and Lagging
  • Has the ability to be quantified and paid for as temporary
What’s in our toolbox?

2 basic types of temporary earth retention systems:

- Top-down construction
  - Soil Nail Wall
  - Soldier Pile and Lagging
  - Sheet piles

- Bottom-up construction
  - MSE
Soil Nail Walls
Soil Nail Walls
Soil Nail Walls

Design Considerations:

- Soils must be able to stand vertical for short periods of time
- Generally not recommended for use in existing fill sections
  - Testing frequency
- Good Assumption: Length of nails = Height of wall
  - Need for temporary or permanent construction easements
- Internal design by contractor
- Can be installed in low-head room environments
- Multiple facing options for temporary applications
- Versatility: Medium
- Construction Difficulty: Medium
Soil Nail Walls
Soldier Pile and Lagging
Soldier Pile and Lagging
Soldier Pile and Lagging
Soldier Pile and Lagging
Soldier Pile and Lagging

Design Considerations:

- Soils must be able to stand vertical for short periods of time
- Recommended for cut or fill sections
- Can be either cantilevered or tied back
  - Need for temporary or permanent construction easements
- Internal design by contractor
- Versatility: High
  - Soldier piles can be driven or drilled
  - Cantilevered or tied-back
- Construction Difficulty: Medium
Sheet Piling
Sheet Piling
Sheet Piling
Sheet Piling
Sheet Piling

Design Considerations:

- Can be either cantilevered or tied back
  - Need for temporary or permanent construction easements
- Design by Contractor
- Can be driven or vibrated
- Cheap
- Versatility: Medium
  - Requires penetration of 1-1.5 x wall height
  - Relatively large deflections
- Construction Difficulty: Low
Temporary MSE Structures
Temporary MSE Structures
Temporary MSE Structures
Temporary MSE Structures
Temporary MSE Structures
Temporary MSE Structures
Temporary MSE Structures

Design Considerations:

- Ideal for phase construction
- Rapid installation
  - Minimal construction equipment
- Design by Contractor
- Cheap
- Versatility: High
- Construction Difficulty: Low
- Currently no Special Provision for Temporary Structures
  - In progress...
Final Thoughts

- We have more than just sheet piles at our disposal now
- Need to provide contractors adequate information to design these systems
- Every situation is unique
  - There is no one-size-fits-all solution to temporary shoring
- If we can identify where temporary shoring will be required, we can provide the appropriate recommendations and information to keep risk and bid prices down
Thank You

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