



Understanding Excavation

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- Graduate of: LAU, JHU
- Grew up in an old stone house
- Enjoy old cars.
- Restoration committee: former church of the pilgrims (Maronite cathedral) in Brooklyn heights.
- Recently restored two artist cottages in Westport, CT.
- Involved with numerous Landmark projects in the city.



Understanding Excavation

The process involved in
lowering a cellar or expanding
a rear yard

Understanding Excavation

YOURs / Someone else's

Excavation Process

- **Investigation:** What's under there?
- **Design:** Support of Excavation (SOE)
- **Construction:** Effects of Excavation
- How to protect your building

INVESTIGATION

Available Data



RA CONSULTANTS LLC

Project: Plantation

Location: Plantation

Contractor: Hard Tech

Equipment: Hand Tools

Date: February 15, 2016

Drawn by: RAE

TEST PIT LOG (TPL)

Surface ID: 012

Station: 0+00.0000

Project No.: 15010

Drawn by: RAE

Observed: RAE, JAC

NEEDS PICTURES

SECTION #1

NEEDS PICTURES

SECTION #2

NEEDS PICTURES

SECTION #3

NEEDS PICTURES

SECTION #4

NEEDS PICTURES

SECTION #5

NEEDS PICTURES

SECTION #6

NEEDS PICTURES

SECTION #7

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SECTION #14

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SECTION #15

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SECTION #16

NEEDS PICTURES

SECTION #17

NEEDS PICTURES

SECTION #18

NEEDS PICTURES

SECTION #19

Test pit

INVESTIGATION

4

DESIGN

Lowering Cellar or Expanding Rear Yard

- Includes desires of the Client and opinions of Architects, Structural Engineers, and Geotechnical Engineers (i.e., how deep, how wide, location of elevator pits, what methods)
- Includes considerations of water elevation, impact on historic buildings, impact on local utilities, etc.
- Neighboring agreements may or may not be finalized in the early stages
- Peer reviews by neighbors' Professional Engineers often occur in later stages of the project

DESIGN

ENGINEERING OPTIONS

- Do Nothing or
- Underpinning
- Segmental Retaining Wall
- Soil Slope
- Rock Excavation
- Rock Bolting
- Rigid Wall (secant, tangent pile)



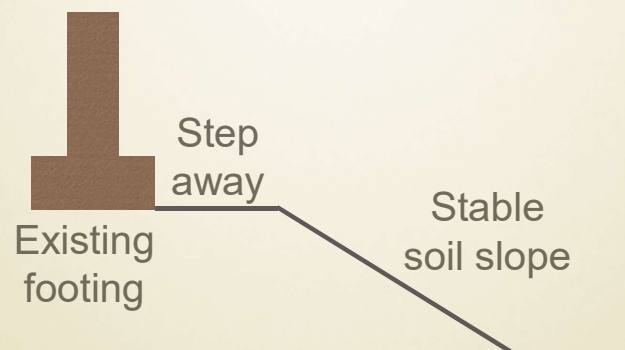
DESIGN

SEGMENTAL RETAINING WALL



DESIGN

SOIL SLOPE

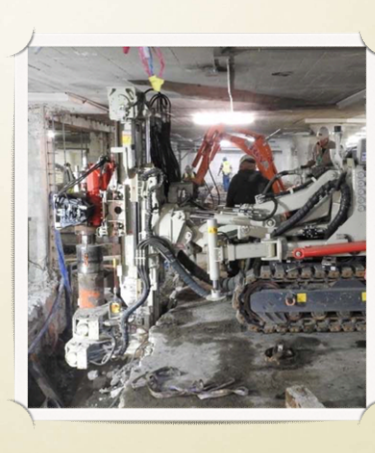


DESIGN

ROCK EXCAVATION



Saw cut

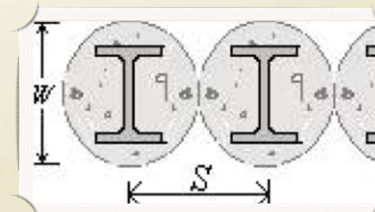
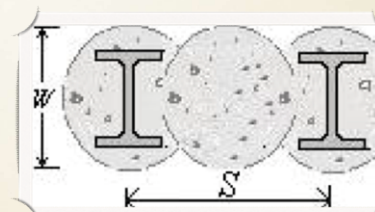


Line drill

DESIGN

ENGINEERING OPTIONS

- Rigid Wall (secant or tangent pile)



CONSTRUCTION

- Supporting existing buildings: Cross-Lot Bracing, Rakers, Tension Ties, Berms, etc. as determined by Structural Stability Engineer and requested by neighbor's peer review
- Excavating soil
- Excavating rock
- Waterproofing
- Building formwork and pouring concrete

CONSTRUCTION

Potential Effects of Excavation

- Supporting existing buildings: Cross-Lot Bracing, Rakers, Tension Ties, Berms, etc. as determined by Structural Stability Engineer and/or requested by neighbor's peer review.

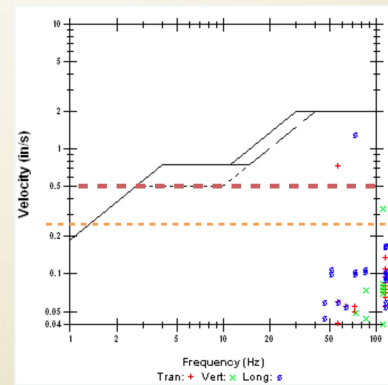


CONSTRUCTION

Potential Effects of Excavation Excavating Soil or Rock



Movement



Vibration

CONSTRUCTION

Potential Effects of Excavation

Waterproofing

CONSTRUCTION

Potential Effects of Excavation

Building formwork
& pouring concrete

CONSTRUCTION

Potential Effects of Excavation



Undesired

Potential to
gain space at
low
construction
cost

Desired

How to Protect Your Building

- Attorney representation combined with Engineer Peer Review
- Be open to negotiation: Expect some damage and ensure funds to repair are in place. Option to allow work may allow more oversight on your part. Plan on lowering your own slab.
- Familiarize yourself with applicable building code text pertaining to vibration monitoring, optical monitoring, pre-construction condition assessments

How to Protect Your Building

PEER REVIEW

- Hire A LAWYER!
- Lawyer reaches out to Structural and/or Geotechnical Engineer that performs peer review of neighboring construction
- In Landmarked Districts, certain letters of participation are required from neighbors before construction proceeds.

How to Protect Your Building

If you choose not to participate,
you may lose leverage down the road

How to Protect Your Building

If you participate,
know the facts and negotiate

How to Protect Your Building

Negotiate

- Demand real-time vibration monitoring
- Demand notification of monitoring events (otherwise the data will be collected but not shared amongst neighbors)
- Demand access to job site for your consultants
- Fees for attorney and engineering peer review as well as for damage
- May or may not allow underpinning/tiebacks. Allowing those items may give you more oversight potential and may allow you to collect more repair fees/legal fees

If all else fails

Call the DOB