11th Annual Schnabel Engineering Lecture
AL RASBAND, President, Malcolm Drilling Co.

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Build Better. Together
The Era of Drilled Shaft Equipment Begins
CIRCA 1920’s
The Renaissance for Drilling Equipment
The Hydraulic Top Drive Crawler Mounted Drill Rig
Quality Product
Secant Pile Walls

• Overlapping Drilled Shafts
  – Utilize casing
  – Guide Walls

• Initial Lean Shafts
  – Shafts filled with lean concrete

• Secondary Structural Shafts
  – Steel Beam or Rebar Cage

• High performance walls
Westside CSO Project
Secant Pile Wall
Displacement Piles
Soil Mixed Walls

- Cutter Soil Mixed Walls
- Similar product to slurry/diaphragm walls
- Dual cutter heads
  - Cut Soil / Soft Rock
  - Inject Cement
  - Excellent control of orientation
Penetration Phase: Fluidify / break down the soil
Injection Phase: Mix cement slurry with the soil
MULTI-AXIS SOIL MIXING

Fast, cheapest soil mixed wall

Ideal also for liquefaction cells

Can reach depth of 125 feet with current setup

Counter-rotating action for better blending
Malcolm Soil Mixing Methods

Multi-Axis Soil Mixing

Cutter Soil Mixing (CSM)
Soil Mixed Walls

• Jet Mixing
  – Paddle mixing of soil and cement under high pressure
  – High Pressure/Torque

• Typically reinforced with steel beam

• Also ideal for settlement control
SuperJet Grouting Process

1. Insertion of jetting tools into a drilled hole
2. Injection of high-velocity cement slurry and air
3. Completion of a subsurface Super-Jet Column
SR 520 FLOATING BRIDGE AND LANDINGS

OVERVIEW
SCOPE
EQUIPMENT
OBSTACLES TO OVERCOME
PICTURES
SR 520 FLOATING BRIDGE AND LANDINGS

OVERVIEW

SCOPE

DESIGN BUILD

EQUIPMENT

PICTURES
45 Degrees Below Freezing!!
Dubai, United Arab Emirates

125 Degrees in the Shade!!
The latest iteration in foundation technology – Capable of drilling 36” to 48” diameter shafts in excess of 150’ in a single stroke!
Hey! Do you have any questions?