

Concrete Plant Material Management

Discussion Topics

Pre-Planning

- Material & Hauling Selection
- Equipment Selection
- Site Selection & Layout
- Traffic Patterns

During Production

- Aggregate Stockpiling & Best Practices
- Handling of Other Materials
- Plant Personnel
- Plant to Job Communication
- Plant Fine Tuning
- Concrete & Aggregate Testing

Why?

Reduce Risk

- Downtime
- Rejected Material
- Additional Testing
- Re-work Cost

Provide a Quality Product

- Warranties
- Good for the Concrete Industry
- Good for Repeat Business
- Mix Consistency

Why?

Potential Negative

- Contaminated Materials
- Production Issues
- Inconsistent or Failing Concrete
- Rejected Loads or Finished Work
- Frustrated Suppliers → Cost Increases
- Frustrated Owners → Microscope & Less Repeat Work

Why?

209,507 Cubic Yards Batched in 4 Months
 >1,000 Loads of Cement & GGBFS in
 >6,500 Loads of Limestone & Sand in
 >19,000 Loads of Concrete out
 >26,500 Truckloads of Material Entered & Exited

\$150,000 per Day Schedule
 Over \$1.2 Million in Potential Bonus for Quality Initiative

Pre-Planning

Material & Hauling Selection

- **Know your sources & haulers**
 - Variability & flexibility
 - Dock vs. direct pit/quarry
 - Hauler reliability
 - Does hauler respect concrete
 - Clean trucks & avoid back-hauls
 - Commitments on tonnage per day
- **Product sizing**
 - Workability impacts
 - Placement methods
 - Mix design weights
 - Impact on site layout
 - Single vs blended products
 - Segregation concerns



Pre-Planning

Equipment Selection

- **Plant**
 - Size & Output vs Schedule & Production
 - Number of materials
- **Loader(s)**
 - Capacity influence
- **Stacker(s)**
 - Site size
 - Impact on segregation
- **Cement Storage**

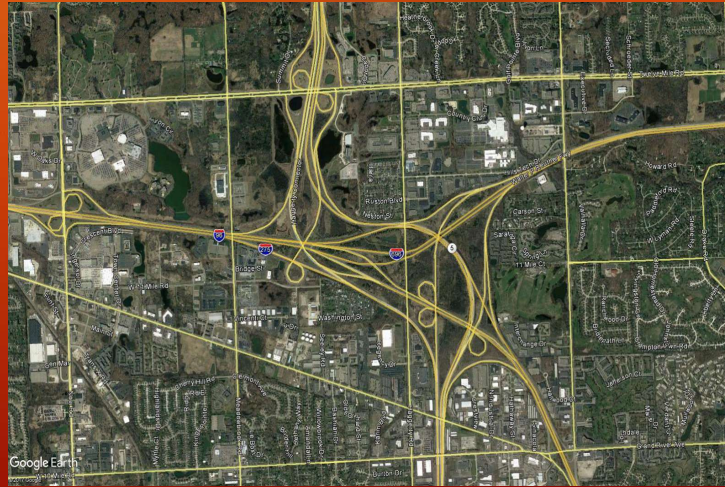




Pre-Planning

Site Selection & Layout

- **Traffic Patterns**
 - Raw Material Delivery
 - Concrete Delivery Times
 - Project Staging
 - Number of Available Entry Points
- **Size**
 - Anticipated Schedule & Productions
 - Plant Footprint
- **Site Conditions**
 - Water Flow
 - Existing Soil



Pre-Planning

Questions??

During Production



During Production

Aggregate Stockpiling

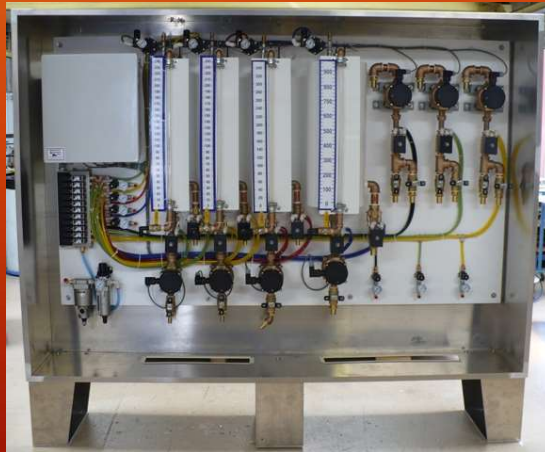
- Dump Patterns
- Loader Operator(s)
- Stacker Positioning
- FHWA 'Preventing Stockpile Segregation' Video



During Production

Other Materials

- Cementitious Products
 - Plant Capacities
 - 'Just-in-time' Product
 - Pre-Mixing with Blended Products
- Admixtures
 - Storage Capacities & Storage Flexibility
 - Dispensing Accuracy
 - Monitoring Capabilities
 - Dispensers
 - Inventory



During Production

Plant Personnel

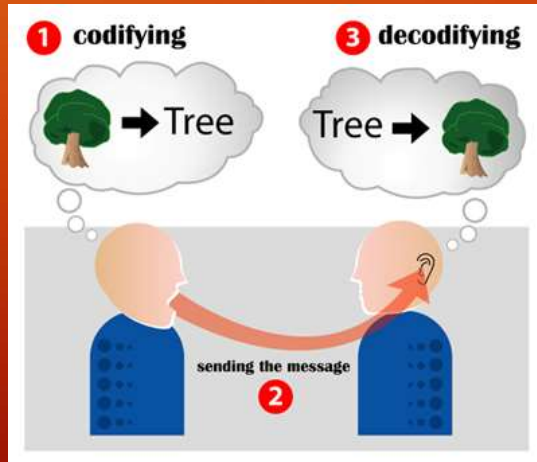
- Experience
- Training
- Cohesiveness



During Production

Plant to Job Communication

- Must be Effective!
- Controls Production Flow
 - Speed up / Slow Down
- Concrete Time Limits
 - Trucks Backing Up
- Concrete Properties
 - Too Wet / Too Dry / Air Content



During Production

Plant Fine Tuning

- Material Timing into Mixer
- Aggregate / Cement / Water / Admix
- Aggregate Flow on Belt
 - Speed up / Slow Down
 - Feed Layering
 - Scale Baffles & Meter Gates
- Mixing Time
 - Requirements may vary depending on mix



During Production

Concrete & Aggregate Testing

- Personnel
 - A Team
 - Substitutions?
- Test Methods
 - ASTM / AASHTO Standards Followed?
 - Testing Best Practices
 - Methodical !!
 - Mini Stockpiles



During Production

Questions??

Where Does All That Leave Us??

Better Concrete



Better Productivity



Higher Profitability



Less Stress



Questions

