



*Virginia Transportation Construction Alliance*

# #10 Screenings as Embankment Fill

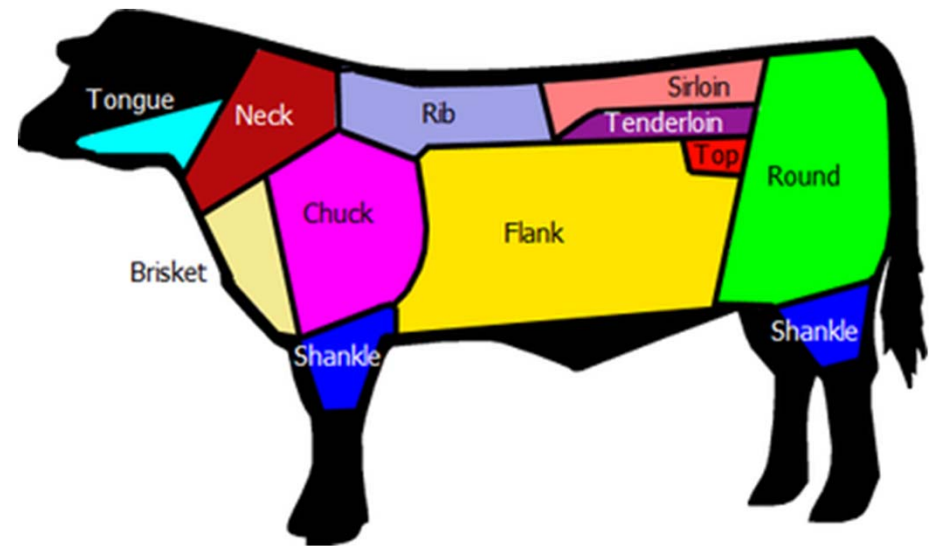
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# Construction Aggregates

- Our product is like the beef industry
- Multiple cuts of beef are made
- Can't make only tenderloin
- Someone has to buy the other cuts
- Otherwise, the tenderloin would be un-affordable



# Construction Aggregates

- Construction aggregates are the same way
- When we crush stone, we make approximately the following:
  - 45% clean stone
  - 20% fine aggregate
  - 35% aggregate base

# Factors Impacting Fines and Base Sales

- Coarser asphalt mixes and increased use of RAP
- Less new pavement construction in recent years
- Increased use of in place recycling
- Lack of acceptance of manufactured sand in concrete
- Use of drainable pavements and bases

# Construction Aggregates

- Fines and base production have decreased by 10 to 15% of total production through improved production methods
  - Total elimination is impossible
- Sales over the last decade or so have leaned heavily towards clean stone and less on fines and base

The Result....





# #10 Screenings Typical Gradation

<u>Sieve Size</u>	<u>Tot. % Passing</u>
-------------------	-----------------------

- |        |     |
|--------|-----|
| ● 3/8" | 100 |
| ● #4   | 99  |
| ● #8   | 80  |
| ● #16  | 59  |
| ● #30  | 54  |
| ● #50  | 34  |
| ● #100 | 24  |
| ● #200 | 14  |



# Base & Fines in Virginia - 2016

- In Virginia alone, the industry has the following:
  - 6,184,000 tons of aggregate base
  - 910,000 tons of manufactured sand
  - 5,942,000 tons of screenings
- These quantities grow every year as clean stone sales accelerate
- This is not a *sustainable* way to do business
  - Bad for the environment
  - Bad for future aggregate costs

# What Can Be Done?

- Several initiatives that could help lead to a more sustainable use of fines and base
- The industry needs help from VDOT to implement these



# Approved Uses for Quarry Fines

## Special Provision for #10 Screenings:

- Embankment Fill
- Structural Backfill – (CBR 30)
- Pipe Backfill
- Reinforced Fill for MSE Walls
- Soft Ground Stabilization

# Atlee Road Extension

- General Contractor

**ABERNATHY  
CONSTRUCTION CORP.**

- Materials Supplier



- Locally Administered Project



# Embankment Fill



# Structural Fill- CBR 30



# Pipe Backfill



# MSE wall backfill





# Soft Ground Stabilization



# **Project Tools for Managing #10 Screenings**

**Utilizing Screenings in These Applications Requires Special Considerations that need to be Included as Contract Bid Items:**

- Topsoil
- Seed, Lime, Fertilizer
- Soil Retention Coverings
- Slope Drains
- Silt Traps & Silt Fence
- Rock Check Dams

# Drainage, Seeding, Coverings



# Atlee Road Extension

## Advantages of Utilizing of Screenings



- Keeping job on schedule
- Increased project productivity
- Minimal Tracking
- Solids falling out quickly — do not stay suspended
- Adding an additional tool to the department/ contractor toolbox
- Utilizing an available resource responsibly