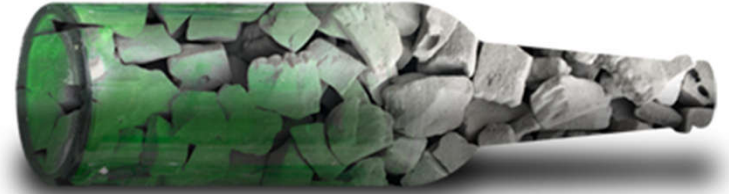


# Foam Glass Aggregate (FGA)



made  
from **100% RECYCLED**  
container glass



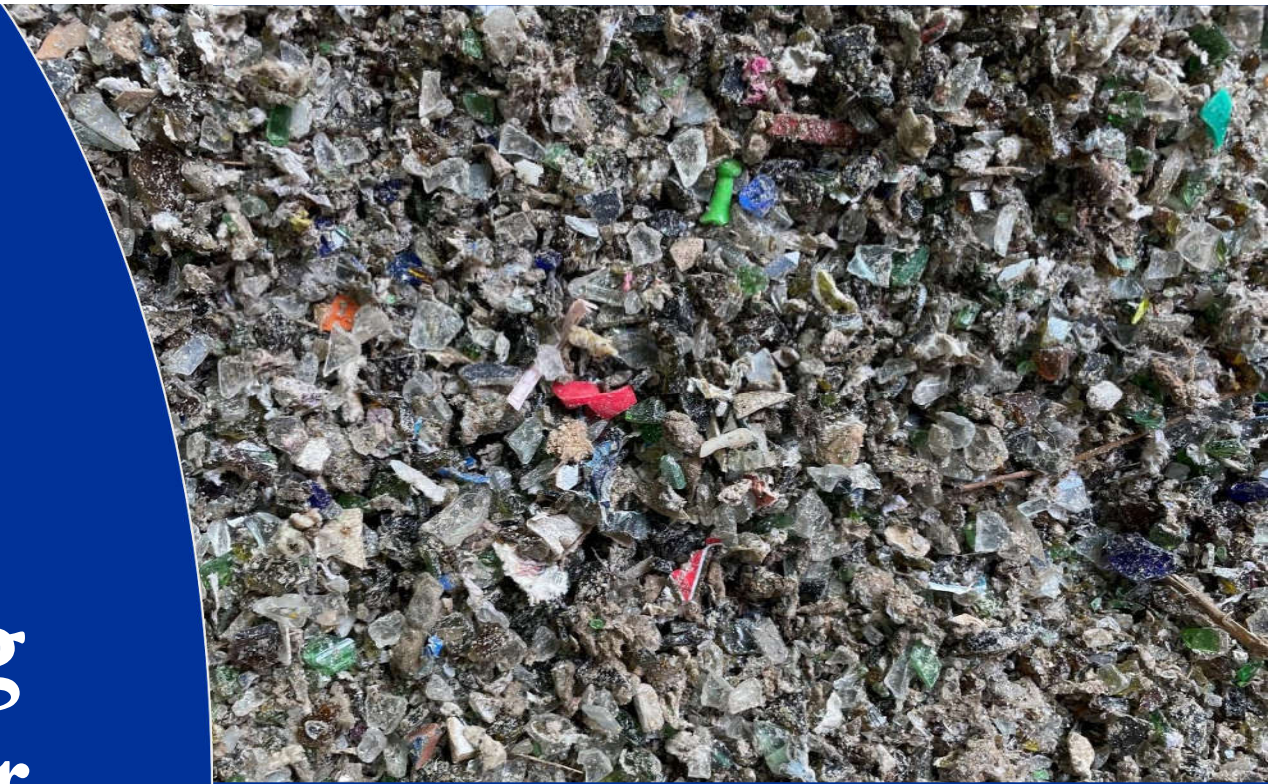
# Benefits of FGA

- ❖ Extremely Lightweight
  - ❖ 85-90% lighter than quarried aggregates
  - ❖ 55-60% lighter than lightweight aggregates
- ❖ Excellent Engineering Properties
  - ❖ Highly frictional
- ❖ Exceptional Insulating Properties
- ❖ Environmental Properties
  - ❖ Non-leaching, rot-resistant, non-flammable and durable
- ❖ Manufactured From 100% Recycled Glass



# Crushed glass from recycling plant and after washing

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# Manufacturing

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- ❖ The manufacturing process takes recycled glass powder and mixes it with a foaming agent, where it is then sent through a kiln and softened.
- ❖ During this process, bubbles are created within the softened glass due to the foaming agent creating foamed glass aggregates.





# Manufacturing

- ❖ After the Foam Glass Aggregate cools, it cracks and forms the aggregate pieces seen here coming off the conveyor belt.

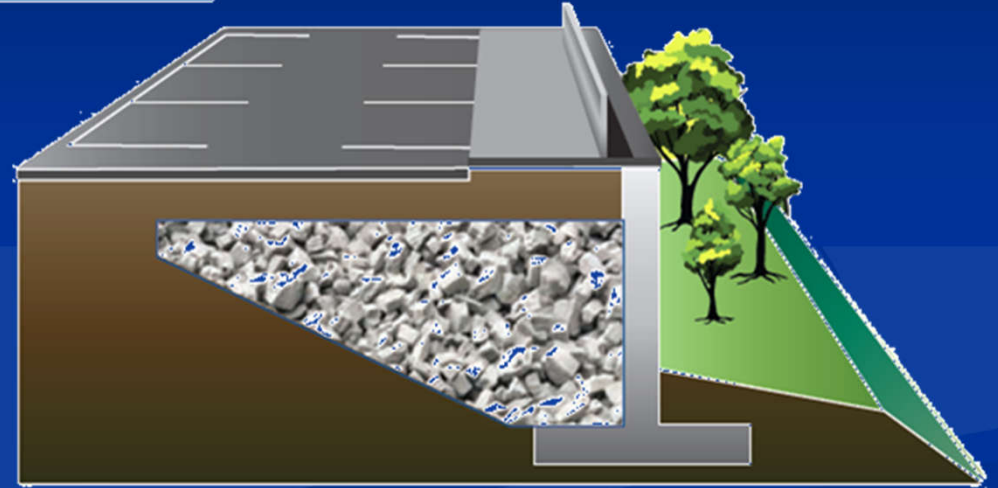


# Transportation Applications

## Embankments



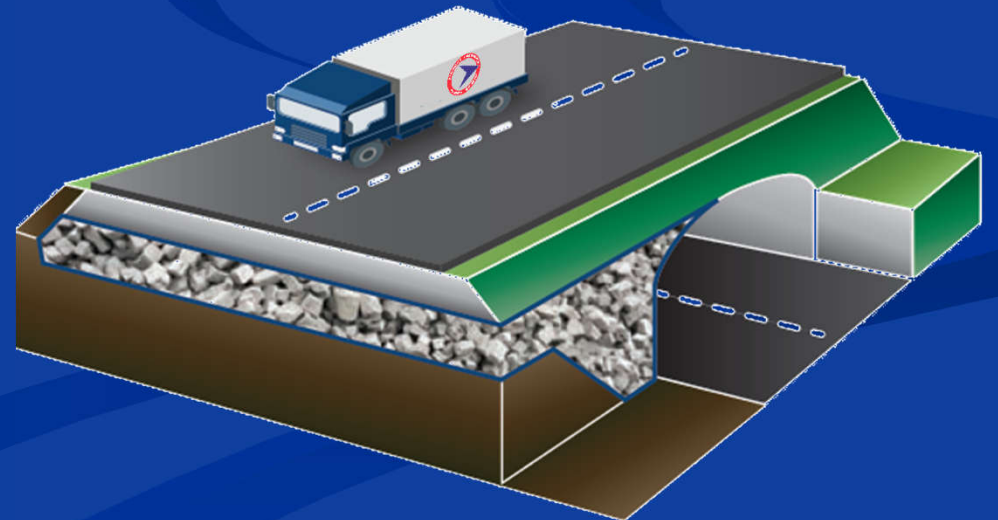
## Retaining Walls & Abutments



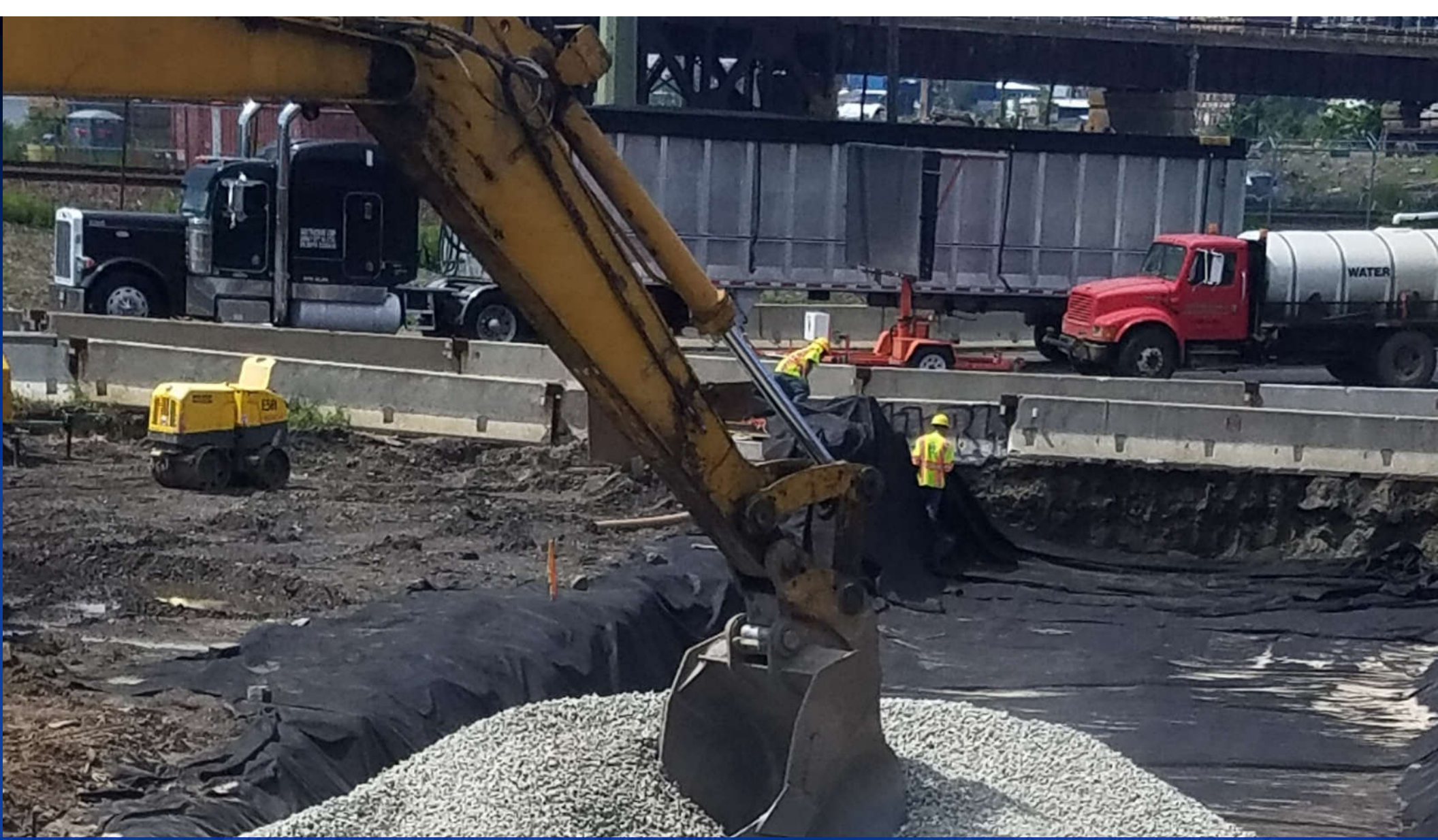
## Utilities



## Tunnels & Culverts







## Route 7 Wittpenn Roadway Installation







Route 7 Wittpenn Bridge  
Kearny, NJ





Behind Abutment on I-80 over Rockway River  
Denville, NJ







Behind Wire Wall On Fish House Road Kearny





# NJDOT Projects

- ❖ Route 7 Wittpenn Bridge  
32,000 cy **27.6 Million Bottles**
- ❖ I-80 over Rockaway River  
2,147 cy **1.9 Million Bottles**
- ❖ Route 1&9 New Road, Contract 1  
873 cy **0.8 Million Bottles**
- ❖ Route 322 Mullica Hill  
24 cy **21,000 Bottles**



# Projects in Design

❖ Route 40 & 322 Atlantic City

35,000 cy    **30 Million Bottles**

❖ Route 47 Widening

8,000 cy    **7 Million Bottles**

❖ Route 29 Cass Street Drainage

6,375 cy    **5.5 Million Bottles**

❖ Fish House Road Kearny

Amount To Be Determined

# Resiliency

- ❖ Production Emission and Energy



- ❖ 50% less CO<sub>2</sub> than other lightweight aggregates

- ❖ Transportation Emission and Congestion



- ❖ 1 Truck of FGA  $\approx$  7 Trucks Of Regular Backfill  
Trucks Off the Road

- ❖ Locally Recycled and Manufactured Material

- ❖ Material Reduction

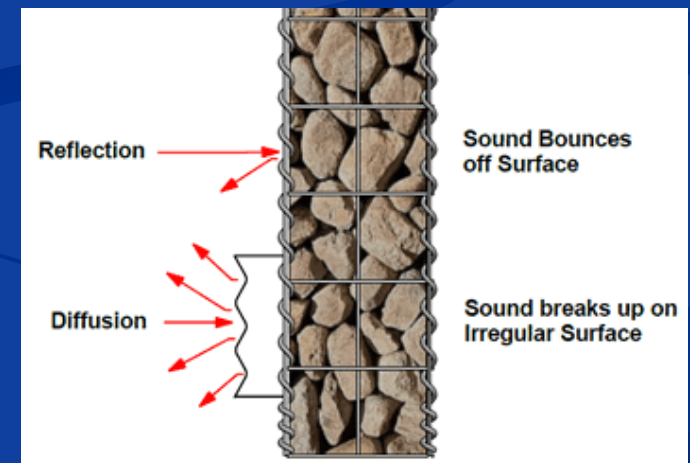
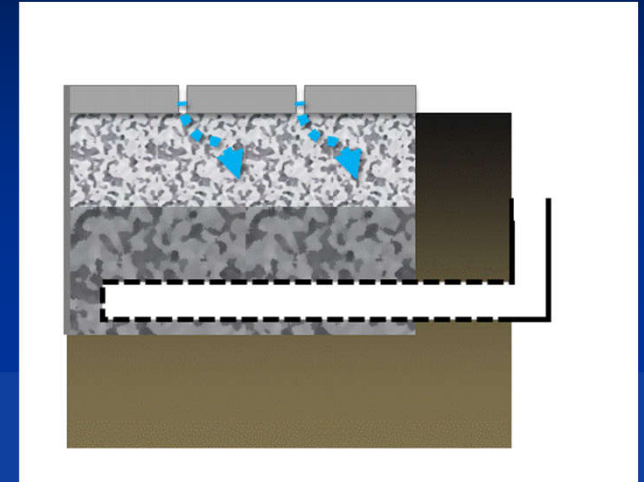


- ❖ Less Weight → Smaller Walls → Less Materials  
(i.e., Concrete, Steel) → Less Emissions



# Future Applications

- ❖ Flood Mitigation
  - ❖ Underground Reservoirs
- ❖ Noise Reduction
  - ❖ Noise Walls
- ❖ MSE Walls
  - ❖ FGA Backfill
- ❖ Rehabilitation Projects
  - ❖ Abutment and Wall Reconstruction



# Questions?

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