

## Grizzly Static Material Screener

PennDOT District 1 – Warren County

### Problem/Challenge Addressed

The current process for using millings as shoulder backup material is timely and not efficient. Millings clump and harden over time from sitting, then requires an excavator and loader to break down the material to an aggregate the size of less than 2 inches. The process results in non-uniform material with larger aggregate between the 3- to 6-inch diameter range. Over the last few years, crews hauled nearly 50,000 tons of material to waste sites. Capturing a modest 10% of the stone would yield a 5,000-ton riprap inventory valued at \$200,000 (\$40 per ton).

### Results/Key Takeaways

Using the Blueline Static Grizzly Bar Material Screen Plant will save more than 90 crew hours annually (approximately \$67,000 in crew costs over a 5-year period), and more than \$250,000 in material costs over a 5-year period.

### Contact Information

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### Method/Process/Product to Resolve Challenge

The main purpose for utilizing millings for shoulder backup is to fix washout areas. The millings bind together better than virgin aggregate and can withstand runoff for longer periods of time. A general maintenance crew can average 100 tons of material a day in a manual operation and the large crew placing material mechanically can average 600 tons daily. Currently, crushers are rented (rental fees are costly) and outsourced (outsourcing contractors are quite costly) because PennDOT operators **are not authorized** to operate the crushers. Virgin aggregate specification targets 100% of the material to be less than 2 inches to obtain optimum compaction.

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### BLUELINE Rock Grizzly Exclusive Engineered Design Features

**Cost** - \$22,786

**Weight** – 13,000 lbs.

**Material Screener** - 4-5YD 8" minus "SPLAYED Main Deck with 2" minus "SPLAYED SHIFT DECK" Moveable /Removeable Deck Reducer to couple with main grizzly.

- **"Splayed" Main Deck Bars** filled with Dynamic Dampening non-packing material
- **"Channeled & Double Plated Front Wall"** filled with Dynamic Dampening non-packing material
- **"Recessed Mid-Span Bar"** with Strategic Gusseting welded solid to the Main Deck Bars
- **"Moveable/Removable Splayed Deck Reducer"** with Bumper Plates, Capture Hooks, Bucket Hooks, & Safety Bar, filled with Dynamic Dampening non-packing material

### Material and Design Specifications

Main Deck Bars are 5/16"x 4"x 4" and Deck reducer bars are 5/16"x 4"x 4"splayed & material filled box tube turned to diamond side; Head bar is 3/8"x 6"x 6" box tube; Front wall is 1/4" double plated and material filled; Side wall material is 5/16" x 6" x 6" box tube and 5/16" x 6" x 10" rectangle tube, Mid-span bar is 3/8"x4"x4" box tube; Mid-span and deck bar gussets are 3/8" plate.

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**Step 1:** Material is dumped on top of the screen using a loader. The larger chunks fall off the front of the screen into a pile.

**Note:** The screener is used by Warren County crews as part of the process to widening and backup shoulders using the millings. It saves time and equipment needed to remove or break up large chunks of co-mingle. Large chunks that do not fall through the screen are crushed later.

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**Step 2:** Material two inches and smaller falls through the screen and collects underneath.

**Step 3:** The smaller pieces that fall through the screen are put into separate piles ready for use during shoulder widening and backup.

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**Step 4:** Materials are loaded in a dump truck and taken to the work area where it is placed to widen and backup shoulders along rural roadways. The smaller pieces will not clog the widener causing delays from work stoppage to remove the pieces.