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**Material:** Natural Sand & Gravel

**Product:** M•DOT – 23A (GR)

**Location:** American Aggregate, Highland Plant – State Pit #63-114

**Applications:** Dense graded base for road shoulders  
Surfacing for unpaved driveways, roads and parking lots  
Dense graded base under portland cement concrete slabs  
General fill

**Description:** A dense graded base aggregate, produced by screening and crushing, natural sand & gravel. A material formed by the natural abrasion and disintegration of rocks by glacial or riverbed action. The particles are sized from 1" (25.0mm) to zero (dust).



**23A Natural Sand & Gravel – Actual size shown**

## Specifications: M•DOT

23A Natural Sand & Gravel conforms to all the requirements of Michigan Department of Transportation (M•DOT) "2003 Standard Specifications for Construction", section 902

## Gradation:

U.S. Sieve	⇒	1"	¾"	½"	⅜"	#4	#8	LBW
Metric Sieve	⇒	25.0mm	19.0mm	12.5mm	9.5mm	4.75mm	2.36mm	-
Specification	⇒	100	-	-	60-85	-	25-60	9-16
2008 Average	⇒	<b>100</b>	<b>97</b>	<b>86</b>	<b>79</b>	<b>64</b>	<b>52</b>	<b>9</b>

## Physical Properties:

- 2008 Crushed Particles – 54% (Specification 25% min)
- L A Abrasion – 15% (MDOT 2004)

## General Usage Guide:

The 23A Natural Sand & Gravel should be placed 6"-18" (150mm-450mm) thick, depending upon ground conditions and design loadings, in lifts not exceeding 8" (200mm). Prior to the placement of any base material, the grade should be compacted and trimmed to the design density & elevations and be free of any standing water and not in a frozen condition. Base material should be compacted at optimum moisture content ( $\approx 6\%-8\%$ ) to 95%-100% relative density or to the compaction level as specified in the design plans.

## Field Estimating Quantities (Compacted in Place):

U.S.

	100 sq. yd.	200 sq. yd.	500 sq. yd.	1,000 sq. yd.	2,000 sq. yd.	5,000 sq. yd.	10,000 sq. yd.
6" Deep	32 tons	63 tons	158 tons	317 tons	633 tons	1,583 tons	3,167 tons
8" Deep	42 tons	84 tons	211 tons	422 tons	844 tons	2,111 tons	4,222 tons
10" Deep	53 tons	106 tons	264 tons	528 tons	1,056 tons	2,639 tons	5,278 tons
12" Deep	63 tons	127 tons	317 tons	633 tons	1,267 tons	3,167 tons	6,333 tons

Metric

	100m <sup>2</sup>	200m <sup>2</sup>	500m <sup>2</sup>	1,000m <sup>2</sup>	2,000m <sup>2</sup>	5,000m <sup>2</sup>	10,000m <sup>2</sup>
150mm	34t	68t	169t	338t	676t	1,691t	3,382t
200mm	45t	90t	225t	451t	902t	2,254t	4,509t
250mm	56t	113t	282t	562t	1,127t	2,818t	5,636t
300mm	68t	135t	338t	676t	1,353t	3,382t	6,763t

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