FACT SHEET

# Quarry Operations

**Everything we eat, drink, work and play with comes from the earth. That includes the materials we use to build our communities. Some of the most important materials for building are communities are stone, sand and gravel. The roads we drive on, the hospitals we visit, and the schools we learn in are all built from stone, sand and gravel.**

## Walker has two types of aggregate operations:

### QUARRIES

A quarry makes different sizes of stone from solid bedrock by blasting and breaking apart the rock.

### PITS

A pit is made up of sand and gravel “deposits” left from glaciers that is dug out by machinery.

## There are two types of processing plants:

### FIXED

A fixed plant is constructed on the quarry floor and remains in one location throughout the lifetime of the operation.

### PORTABLE

A portable plant moves locations within the quarry to remain close to the blasting and rock face where the extraction is.

*We are a family owned company, operating as good neighbours for over 130 years.*

**Have questions about the proposed Upper’s Quarry? Our team is here to answer them.**


**uppersquarry.ca**
Information Line: 1-844-907-3731
info@uppersquarry.ca

**Kevin Kehl**
Upper’s Quarry Project Manager

**Walker**
P.O. Box 100
Thorold, Ontario
L2V 3Y8


To learn more about Walker Industries, visit **walkerind.com**.

# There are many steps involved in the operation of a quarry:

## 1 Stripping

a. When bedrock is covered in soil, this is called overburden. This overburden must be moved/stripped by excavators to expose the rock.

b. The overburden is used to build berms and is planted with grass and trees to help block noise and visuals of the operation.

c. Removal of the overburden is done in phases as the quarry grows. This allows vegetation to remain intact as long as possible, and helps minimize soil erosion and dust.

## 2 Drilling

a. The drill sits on the rock and drills long, thin, vertical holes in the rock in a designed blast pattern.

b. The pattern is designed and chosen to break the bedrock into the right sized pieces and to reduce the effects of noise and vibration from the blast.

c. Once the holes are drilled, they are protected from water and debris with plugs until they are ready to be loaded for the blast.

## 3 Blasting

a. Energy is used to fracture the bedrock for processing. A detonator, wire and emulsion are put into each hole and topped with some stone (called a collar) to help contain the blast energy.

b. Each hole is wired together in sequence and is electronically controlled. The detonation of each hole is milliseconds after each other, similar to a domino effect.

c. The broken rock falls to the quarry floor into a pile called a “muck pile”. Some of the large rocks (armour stone) are put aside for landscaping and erosion control.

*The controlled blasting process is efficient, safe, and highly regulated by the provincial government to minimize impacts on the community.*

## 4 Transfer/Hauling

a. A face loader uses a spade bucket equipped with teeth to dig into the muck pile and loads the rock into a very large dump truck called a haul truck.

b. The haul truck transfers the rock from the quarry floor to the primary processing plant, also called the primary crusher.

## 5 Processing

a. The processing plant is made up of crushers, screens and conveyors. The operator monitors the crusher from a control room.

b. The primary crusher fragments the largest rocks. Rocks that are too large are broken up manually to a size that will pass through the crusher.

c. The conveyor moves the rock from the crusher to the primary screen which separates the stone by size.

d. Any oversize rocks go to the secondary crusher, to be broken into smaller pieces.

e. The rock is screened into different sizes for different uses. Depending on the size, it moves on different conveyors for further processing or for sale.

f. Transfer or drop points are where stone moves from one conveyor to another or from a crusher to a screen. Walker uses various mitigation measures to control dust at these points.

g. There are typically three or four stages of screening, and screens are changed depending on the type of products being made.

## 6 Washing

a. Some stone needs to be washed to remove fine material before it is used. Stone is directed to a wash screen where water sprays over it removing the fines (dust) and leaving clear stone behind.

b. The water with the fines is de-watered when possible.

c. The water is collected and pumped to a settling pond where it sits and the remaining fines settle to the bottom. The clear water in the pond is then recirculated to the wash plant. Materials from the pond are periodically excavated and are used as an agriculture supplement (e.g. Agriculture Lime).

## 7 Stockpiling

a. The stones sorted out by screens are put into different stockpiles. The stockpiles help minimize dust emissions and their heights are typically kept below the level of on-site berms so they are not visible outside of the quarry perimeter. Stockpiles of finer material are also stored away from property lines to mitigate dust.

b. Stockpiles are designed so that highway trucks can drive to the pile, be loaded by a yard loader and drive away, eliminating the need to backup and additional noise from backup alarms.

c. The operation is designed for safety by physically separating the highway trucks that come in to pick up stone products from the quarry off-road haul trucks, and by creating a clear and direct path in to and out of the operation.

*A traffic plan is in place at each quarry site, enabling trucks to navigate around stockpiles safely and efficiently.*

## 8 Weighing & Shipping

a. Highway trucks are weighed on a weigh scale as they enter and exit the quarry. The scale provides an accurate weight of product being sold and confirms that the truck meets Ministry of Transportation weight requirements. A typical dump truck can carry 18 – 23 tonnes of stone. It takes 18,000 tonnes of stone to build one kilometer of a two lane road.

b. Shipping loaders load product onto road trucks to be shipped to customers. There is a scale on the bucket so it can weigh product as it is loaded ensuring the weights on the truck axels are consistent with MTO weight restrictions.

## 9 Rehabilitating

a. The overburden that was stripped is saved to rehabilitate the quarry when all the stone is removed. It allows for contouring of the inside of the quarry in a way that makes it ready for its new life.

b. Quarries have been made into lakes, golf courses, neighbourhoods, parks, vineyards and other agricultural farmland.

*A portion of Walker’s Vineland Quarry has been progressively rehabilitated into active vineyards that contribute to the local wine industry.*

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Building a sustainable future, together.

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