

# Aggregates

Prepared by the Nova Scotia Department of Natural Resources February 2016

## What comes out of pits and quarries in Nova Scotia?

Aggregates are extracted from pits and quarries around the province. Aggregates, which are used extensively in construction, include sand, gravel and crushed stone. Aggregates are the most mined materials in the world. They are used to build public highways and streets, create concrete, and to reinforce and add strength to other building materials.

## How are aggregates used?

We need aggregate to meet our basic needs for the construction of homes and office buildings, streets and highways, bridges, institutions, public transit ways, and for the provision of services, consumer goods and environmental protection. Aggregates are critical to our economy, public and private infrastructure. Aggregates are non-renewable resources, which we use and benefit from every day. We live and work in buildings built with aggregate. Our children go to schools built with aggregate. We reach our destinations on roads and highways constructed from aggregate. Even the water we drink is filtered and purified by aggregate. Aggregates are used for foundations, concrete blocks, brick, mortar, shingles, steel, glass and asphalt. Aggregates from pits and quarries are sometimes supplemented in construction projects with slag, which is an industrial byproduct, and crushed, recycled concrete.

## How much aggregate do we use?

In Canada, every person uses between 9 and 14 tonnes of aggregate per year—the equivalent of about a tandem dump truck load. About 330 tonnes of aggregate are used in the construction of an average house in Canada. Building a school or hospital, requires the use of approximately 14,000 tonnes of aggregate. The construction of one kilometer of a four lane highway requires 35,000 tonnes of aggregate.

## Are all aggregate deposits the same quality?

Not all deposits of sand, gravel and crushed stone meet the quality specifications of the construction industry. The use of poor quality or inferior aggregates can cause highways and other infrastructure to deteriorate more quickly, which can be extremely costly for governments and taxpayers. An evaluation of the aggregate resources of Nova Scotia has been completed by the Department of Natural Resources—information on the potential of aggregate resources can be obtained from the department.

## Why do we need so many pits and quarries?

A big chunk of the price of aggregate is the cost of trucking the aggregate from the pit or quarry to the construction site. The location of a pit or quarry in relation to road construction or building projects is a key consideration when evaluating whether or not an aggregate deposit should be developed. Most of the aggregate used in urban areas is for home and office construction, but locating pits and quarries close to populated areas presents challenges. As long as people want homes, roads, public infrastructure, and services to cost as little as possible, pits and quarries will need to be located adjacent to populated areas and near highway developments.

## Who regulates pits and quarries?

Aggregates are regulated under the Environment Act by the Nova Scotia Department of Environment.

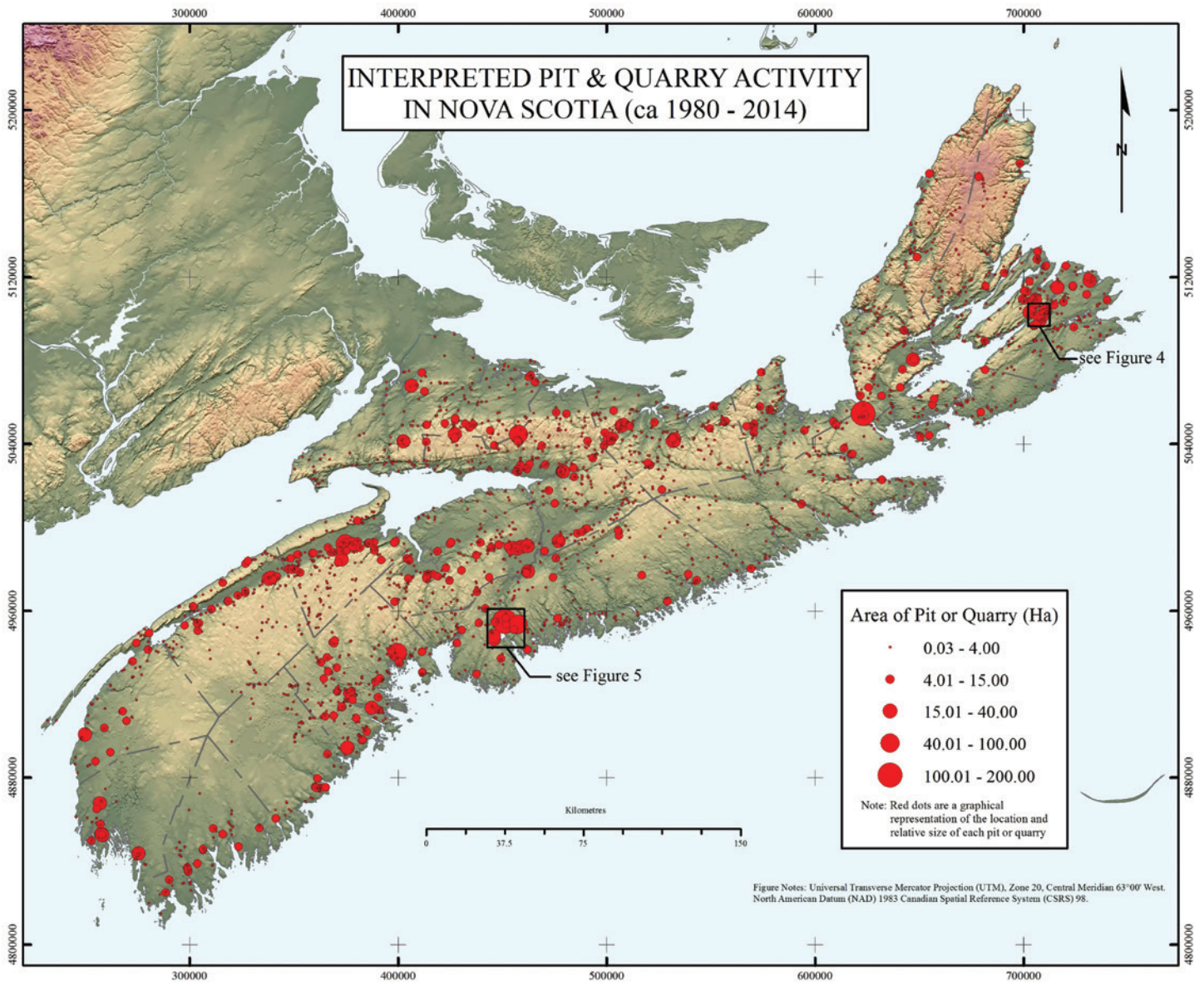


Figure 1. Pit and quarry activity 1980-2014 (After Hennick et al., 2015)