Exposed Aggregate Concrete Wash-Off Water

Introduction

An exposed aggregate concrete double driveway will require approximately 500 litres of wash-off water and additional water will be required for other areas such as steps. Taking into consideration the extensive use of exposed aggregate concrete in BC and the toxicity of the wash-off water to fish, the safe disposal of this water is a necessity. Wash-off water from exposed aggregate concrete is highly alkaline, silty and may contain harmful chemicals. Wash water discharged into storm sewers may drain into fish bearing streams causing fish kills and habitat damage. It is therefore essential that no wash-off water be discharged into storm sewers or waterways because they lead to fish bearing streams.

The alkalinity of wash-off water is expressed as a pH number and silt or fines are expressed as total suspended solids (TSS) in milligrams per litre (mg/L). Recent tests conducted by an independent consultant on exposed aggregate concrete wash-off water show pH levels as high as 11.8 and TSS as high as 3900 mg/L. A pH level of over 10 will kill salmonid fish in minutes and TSS smothers fish eggs and clogs fish gills. As a comparison, discharge permits for ready-mix plants are typically between 6.0 and 9.0 pH and a TSS of 50 mg/L.

Objective

In order to mitigate and prevent pollution associated with exposed aggregate concrete, the BC Ready-Mixed Concrete Association, together with federal, provincial and municipal agencies in BC has produced this brochure to identify Best Management Practices (BMPs) or methods for the disposal of wash-off water used in the construction of exposed aggregate concrete.

The Best Management Practices, if followed, avoid contamination of waterways. Their use should conform to current local, provincial and federal environmental regulations. If in doubt, please check the environmental regulations in the area in which you will be working. Should BMPs not be employed, companies and/or individuals in violation may be subject to prosecution under applicable regulations. On conviction the polluter is subject to heavy fines.

The Best Management Practices

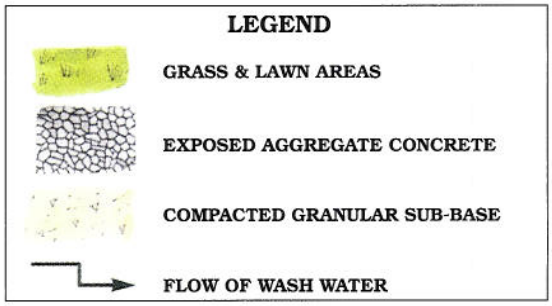
The Best Management Practices (BMPs) or methods for disposing of wash-off water can be classified in two broad categories.

A) "On-Site Disposal"

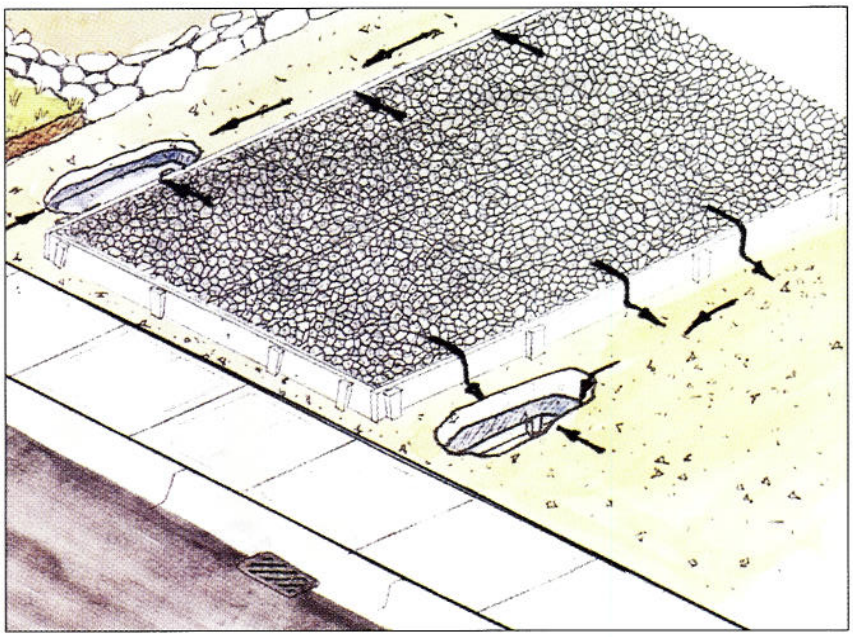
B) "Off-Site Disposal"

The following pages graphically identify each method. These methods represent realistic, straightforward and economical techniques recommended by BC concrete finishers. On-site disposal of wash-off water is highly site specific. It is therefore recommended the infiltration basins be located as far as possible from drainage ditches, drainage tiles and water wells. In areas close to drainage ditches, drainage tiles and water wells, Method (B) "Off-Site Disposal" should be used.

Method (A) On-Site Disposal

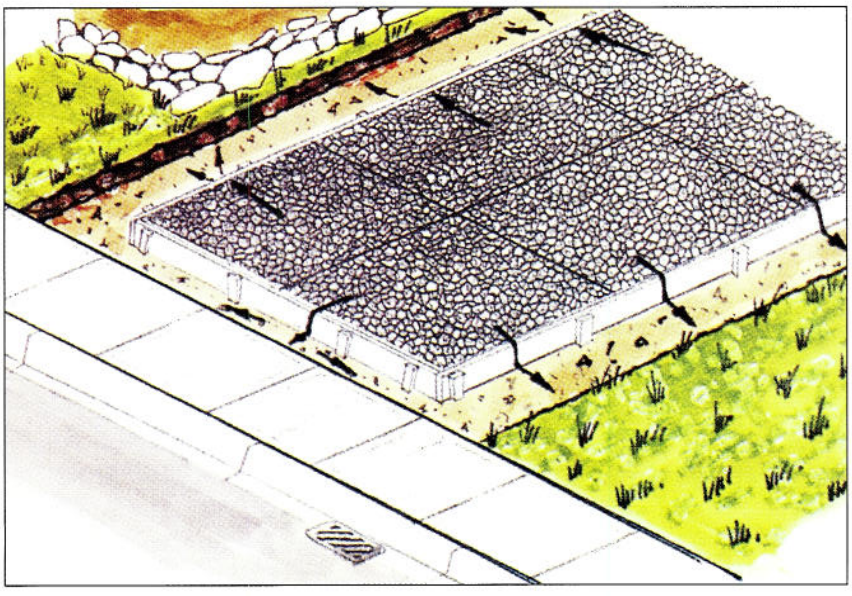


1. Pit Disposal - freely draining native soil.



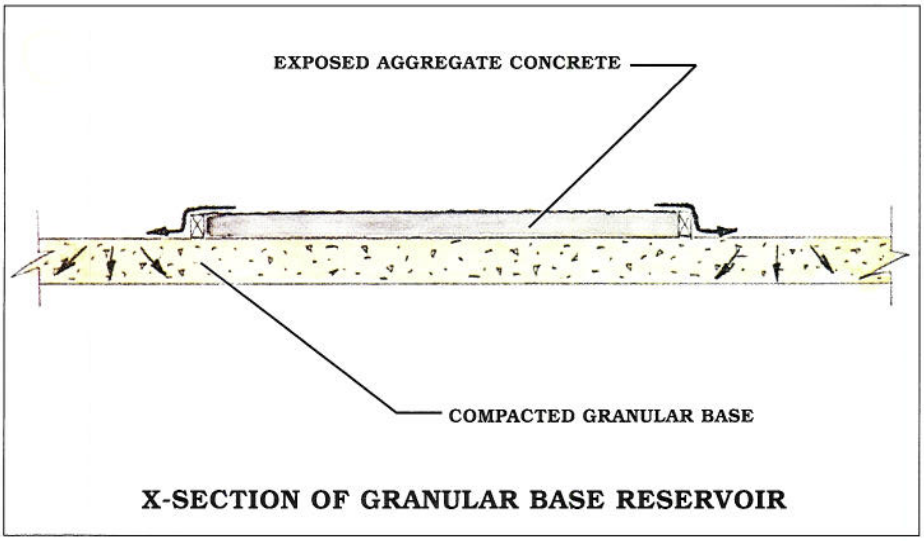
Disposal to temporary freely percolating pit(s) that will contain all wash off water. Caution should be used to ensure that wash-off water is not directly conveyed into storm drains and streams.

2. Trench Border Disposal - freely draining native soil.



Similar to item one (1), with water contained in trench.

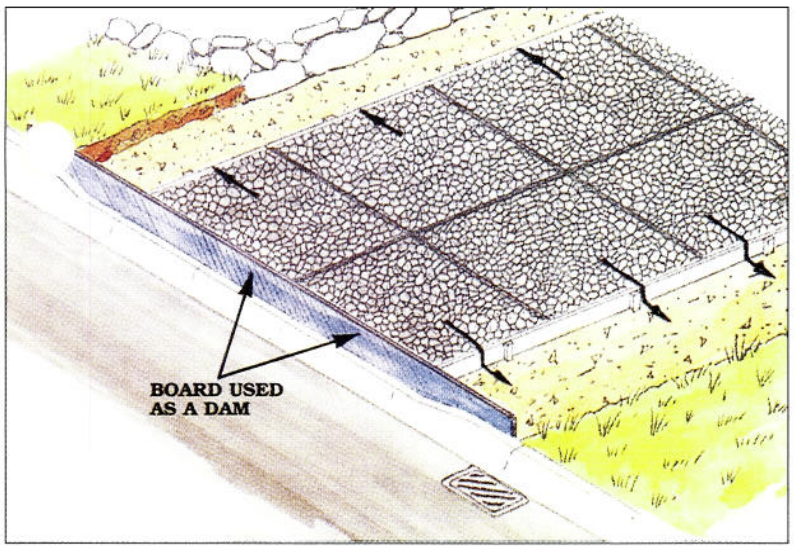
3. Compacted Granular Base Disposal

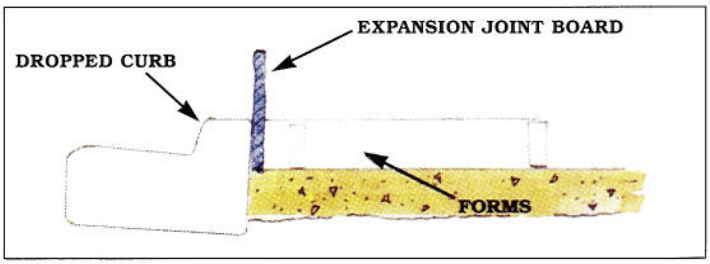


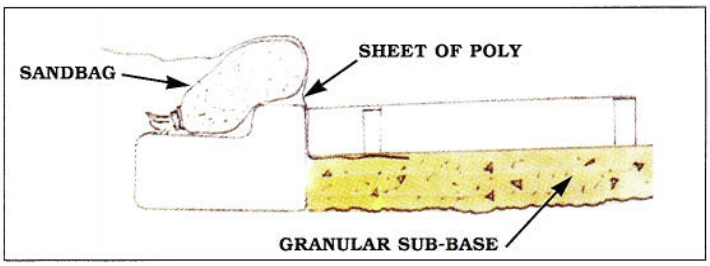
X-SECTION OF GRANULAR BASE RESERVOIR

In areas where native soil is impermeable, compacted granular base is required to absorb wash-off water.

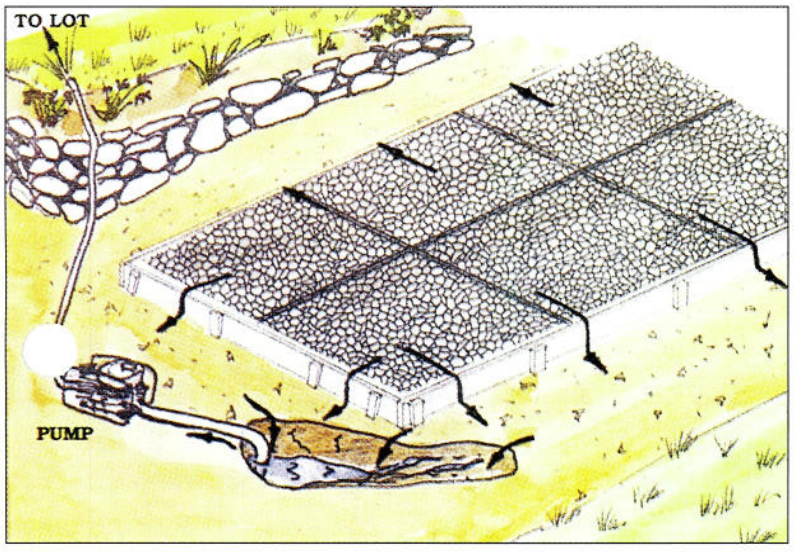
4. Damming Disposal with Methods 1, 2 or 3 - used to prevent wash off water from reaching gutter.







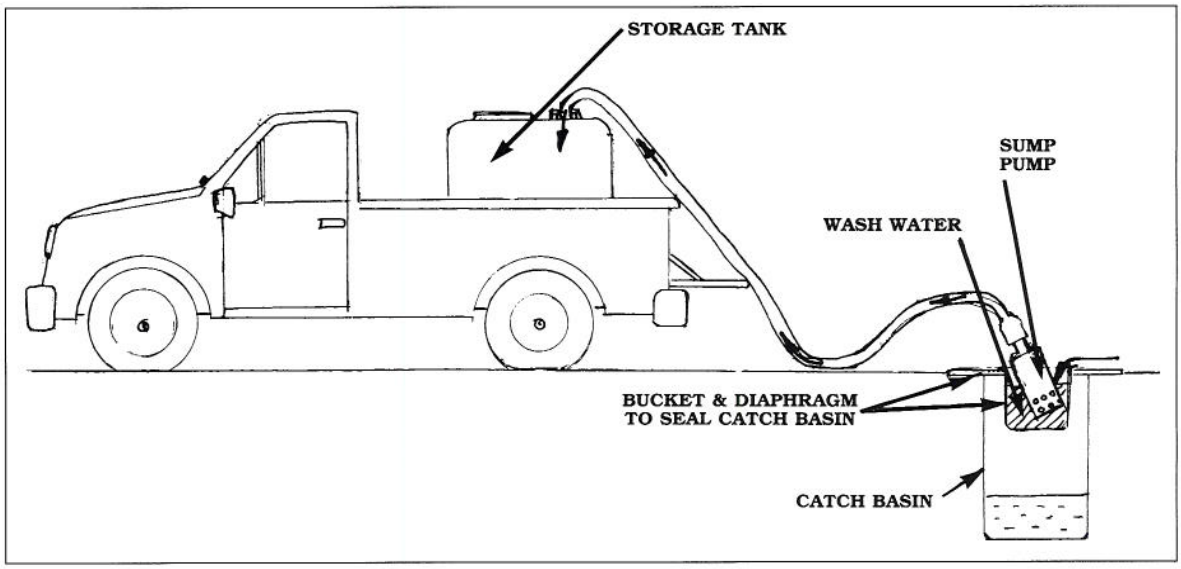
5. Pump To Lot



Where wash water can and will be contained on lot. (Preferable Option)

Method (B) Off-Site Disposal

On-site collection to portable container and haul to approved off-site facility or treatment centre



Catch basin sealed with impervious diaphragm sump and pumped into storage tank.
(For information on this service contact the BCRMCA)

Note: A weak solution of muriatic acid is sometimes used to clean concrete after it is cured. Care should be taken to ensure that this water is not discharged to storm sewers or waterways.

Illustrations by:
Mark Stewart & Associates

Copies of this brochure and a one-page pamphlet showing the Best Management Practices can be obtained by contacting:

BC Ready-Mixed Concrete Association

26162-30A Avenue, Aldergrove, BC V4W 2W5
Phone: 604-626-4141 Fax: 604-626-4143
Email: info@bcrmca.ca

or by any of the supporting agencies listed below:

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