



1999-10-06

File No. D468-001-01-09 / 22-48

Road Badger Inc.
1992 Glenmore Avenue
Sherwood Park, AB T8A 2G5

**Attention: Mr. Ray Gillard
General Manager**

Dear Sir:

RE: ROAD BADGER FIELD ASSESSMENT - 1999 PROGRAM

As requested by Larry Culver of Road Badger Inc., UMA Engineering Ltd. has undertaken a number of field evaluations of the "Road Badger" to objectively quantify its performance. The "Road Badger" is a piece of road maintenance equipment that is connected to the rear of a grader or tractor and is used to rehabilitate and extend the serviceability of unpaved roads thereby reducing overall road maintenance costs. Rather than regularly placing additional gravel to replenish the travelling surface, this equipment operates a patented scarifier and disc system to break up the road surface and work the existing gravel, allowing the grader to restore the crown, remove surface defects and provide an improved travelling surface without disturbing the existing road grade. When operating on oiled roads the machine breaks up the existing cold mix or oil and gravel mix into gravel size pieces that can be reshaped and recompact.

Field Evaluation - Oiled Roads

The Road Badger was observed in operation rejuvenating an oiled road access to an acreage subdivision in Sturgeon County on September 13, 1999. The road was more than 11 years old and had a hard surface with a number of surface defects. The Road Badger was able to break up the surface, which occasionally broke loose in slabs as large as 2.5 m by 1 m. Due to the age of the road, the cool weather and the weathering of the asphalt binder, it took a number of passes to break the material down to about a minus 40 mm type gravel with occasional oversize pieces. Calcium was added by the municipality and the material was tight bladed and compacted to provide a renewed surface.

This method of repair has advantages over the traditional method of repair (grading the surface and adding new material). These advantages include: loosening the existing surface to allow access to any poor base materials, breaking the oiled material up into gravel sizes, mixing the oiled material and removing potholes and ruts.

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The equipment was used on a number of road sections within the vicinity and the Manager of Transportation from Sturgeon County provided cost comparisons between traditional oiled road maintenance and the Road Badger Operation. These cost comparisons indicated a savings of \$1,600 to \$3,785 per section of road or \$500 to \$1,000 per hour of Road Badger operation.

Based on this field program, the Road Badger road maintenance equipment has demonstrated that it is capable of breaking up hard road surfaces such as oiled gravel and gravel with dust abatement additives. The operation of the Road Badger on oiled surfaces provides a surface of oiled gravel size pieces that can be reshaped and recompact to provide a rejuvenated road surface.

The precise depth control on this equipment also reduces the potential of cutting too deep and bringing up the underlying soil.

We trust that this information is sufficient at this time. Please call the undersigned at (780) 486-7657 if you have any questions or comments.

Yours truly,

UMA Engineering Ltd.



Roland R. Merkosky, P.Eng.
Geotechnical Project Manager

RRM/klm

