

July 14, 1999

Road Badger Inc.
#212, 9333 - 50 Street
Edmonton, AB T6B 2L5
Attention: Ray Gillard

Dear Sir:

RE: Road Badger Demonstration Projects
Mountain View County, Ponoka and Eaglesham, Alberta

Thank you for inviting Alberta Infrastructure personnel to the Road Badger demonstration projects. The attached is a summary of the comments received from the individuals attending the demonstrations. I trust this information will be helpful to you.

In summary, the technology demonstrated has the ability to rehabilitate and extend the serviceability of unpaved roads. The Road Badger could provide a benefit to a jurisdiction responsible for a gravel road maintenance program.

Sincerely,



Ted Harrison, P. Eng.
Materials Engineer

Attachment

cc T. Willis
A. Kwan

TH/nv

NOTE TO FILE

Date: July 20, 1999

RE: ROAD BADGER DEMONSTRATION AT MOUNTAIN VIEW COUNTY, PONOKA & EAGLESHAM AB

Alberta Infrastructure personnel attended demonstrations of the "Road Badger" at Mountain View County, Ponoka and Eaglesham.

Mountain View County: May 6, 1999, Ted Hamison, Materials Engineer and Joe Filice, Materials Technologist.

Ponoka: June , 1999, Steve Otto, Road Preservation Engineer

Eaglesham: June 15, 1999, Bruce Henderson, Maintenance Contract Inspector, Valleyview and Craig Bindner, Maintenance Contract Inspector, Peace River.

Description:

The "Road Badger" is used to maintain and reclaim gravel or treated roads. It can rehabilitate and extend the serviceability of unpaved roads, as well as reprofile and remove washboard, rutting, etc. Rather than routine re-gravelling to replenish the road surface, the Road Badger utilizes an onboard hydraulics system to operate the scarifier and power assisted disc system to break up the road surface and work the existing gravel. This equipment was specifically designed for use on roads that are difficult to rework due to high fines content or have been stabilized or treated for dust control. (TH/JF)

A choice of a remote control system is offered so that a single operator can run the grader and Road Badger without stopping. (SO)

Observations:

Mountain View

- The Road Badger was first used on the north-south road, east of Hwy 2 near Didsbury; this section of the road was in fair to good condition and therefore wasn't a good test for the Road Badger. The east-west section had some rutting, potholes and consolidated surface. The Road Badger was able to re-establish the original cross-sectional profile and appeared to bring the coarse aggregate to the surface.
- A visual inspection of the completed roadway showed that the surface defects were no longer evident. The washboard and ruts had been removed and the cross drainage on the road was re-established. There appears to be a more even distribution of coarse gravel on the road surface. However, a County Engineer noted that if it rained this section of the road would turn into mud unless it was adequately tight-bladed or compacted. (TH/JF)

Ponoka

- *Observation at the test section in June '99 in the County of Ponoka confirmed that the road needs to be tight-bladed after treatment by the Badger. After blading, the road surface looks "like new".*

The Road Badger seems to be best suited for gravel roads where it only needs to break up and renew the top 50 to 80 mm; deeper than this runs the risk of bringing up cobbles from the roadbed and makes compaction by blading more difficult. The demonstration on an oiled surface was successful; the Badger can work on those roads as well as straight gravel surfaces. (SO)

Eaglesham

- The Road Badger was used on 180m section of 51st street in the hamlet of Eaglesham.

The power platform was a 12C grader.

Torsion arrangement of the scarifier was set at 50 mm, with grader speed at 4 km/h.

The grader pulling the Road Badger made 4 passes in 40 minutes, scarifying and discing the entire road surface.

The spoons mounted above the discs had more wear showing on the back row than the front row. The spoons require replacement after 160 kms. Road Badger Inc. is considering a smaller diameter disc. The scarifying teeth also showed considerable wear. The two-prong tooth requires replacement after 2 to 5 kms. Road Badger Inc. is developing a new patent design.

The rear-mounted engine was a typical Hatz design with a warranty of 1 yrs/3000hrs.

The operating cost for operating the Road Badger is estimated to be \$100 per 1.6km.

The operation left no windrows allowing immediate vehicle movement on road surface.

Although the grader traveled at a slow speed, dust control is needed.

The completed roadway showed an even distribution of coarse gravel but for this demonstration the road surface was re-worked by a second grader. (CB)

- The first area worked was an oiled street that was quite rough. The Road Badger brought the aggregate to the surface for re-working. The material could be bladed and re-compacted to the original cross section and would provide acceptable performance for another season with minimal maintenance.

The second area selected for the demonstration was a straight gravel street that was rough with no crown. The Road badger was able to bring the aggregate to the surface. I would agree that if it rained without being bladed the surface would turn to mud. The roadway could be brought back to acceptable condition by blading and compacting, if necessary.

Further inspection of a street that was used for demonstration on July 14, indicated that the final product was impressive and in good condition.

There was no evidence of heavy loads on any of the projects visited

In my opinion, with supplementary spot gravelling and blading the Road Badger could be utilized in a gravelling and road maintenance program. (BH)

Benefits:

The use of the Road Badger equipment has a noticeable and measurable effect on the road surface. It re-establishes and reworks the gravel surface without the addition of more gravel as well it removes road surface defects such as washboard and ruts and improves cross-section drainage.

The following are general benefits to using Road Badger as stated by Road Badger personnel:

- Reduces per kilometre re-gravel and dust abatement costs.
- Extends road life.
- Conservation of non-renewable resources (gravel).
- Maintains existing cross-sectional profile.
- Eliminates washboard and ruts.
- Equipment portability – easily moved to other work areas.
- Can be used for blending stabilization/dust abatement materials.

Ted Harrison, P.Eng.

Materials Engineer

TSB

(780) 415-1023

cc T. Willis, Joe Filice (JF), Steve Otto (SO), Bruce Henderson (BH), Craig Bindner (CB)