

# Environment Act Licence

Manitoba  
Environment



Licence No. 1588

Issue Date SEPTEMBER 9, 1992

In accordance with the Manitoba Environment Act (C.C.S.M. c. E125)

THIS LICENCE IS ISSUED TO:

## **THE RURAL MUNICIPALITY OF MACDONALD : "the Licencee"**

for the construction and operation of the Development being three extensions to the existing R. M. of Macdonald water supply system in the areas west of Starbuck, north of Osborne, and south and west of Sanford subject to the following specifications, limits, terms and conditions:

### **Specifications, Limits, Terms and Conditions**

- 1) The Licencee shall construct the Development on lands described on the following plans:
  - R. M. of Macdonald Starbuck South and West Water Pipeline - Pipeline Plan (dated July, 1992)
  - R. M. of Macdonald Osborne Water Pipeline - Pipeline Plan (dated July, 1992)
  - R. M. of Macdonald Sanford South Water Pipeline - Pipeline Plan (dated July, 1992)

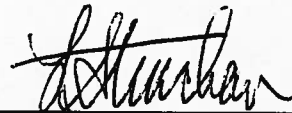
and in accordance with methods outlined in the report **R. M. of Macdonald Rural Water Pipelines Proposal** prepared by the Manitoba Water Services Board and submitted to Manitoba Environment as information with the Environment Act Proposal dated June 29, 1992.

- 2) The Licencee shall be restricted by this Licence to tunnelling river crossings as described on page 3 of the Proposal. The Licencee shall not undertake any method of stream or river crossing other than that authorized by this Licence without prior written approval from the Director.
- 3) The Licencee shall re-establish the profile of any disturbed river or stream banks to pre-construction condition.
- 4) The Licencee shall re-establish the profile, compact and seed all excavated areas within the Provincial Roads rights-of-way.

- 5) The Licencee shall separate and replace topsoil from backhoe and trenching operations in accordance with the methodology described in Figures 1, 2 and 3 attached to this licence.
- 6) The Licencee shall reseed disturbed areas of natural vegetation with a mixture of native or introduced grasses.
- 7) The Licencee shall ensure that the domestic water supply is operated in accordance with Manitoba Regulations under the Public Health Act and all operating requirements as recommended by Manitoba Environment.
- 8) The Licencee shall ensure that all waste oil products generated by the machinery used in the construction of the Development shall be collected and disposed of in accordance with Manitoba Environment requirements.
- 9) The Licencee shall provide written notification to the Historic Resources Branch at least one week in advance of the construction of pipeline crossings of the La Salle River.

### **Revocation**

If, in the opinion of the Director, the Licencee has exceeded or is exceeding any of the specifications, limits, terms or conditions set out herein, the Director may revoke this Licence either temporarily or permanently.



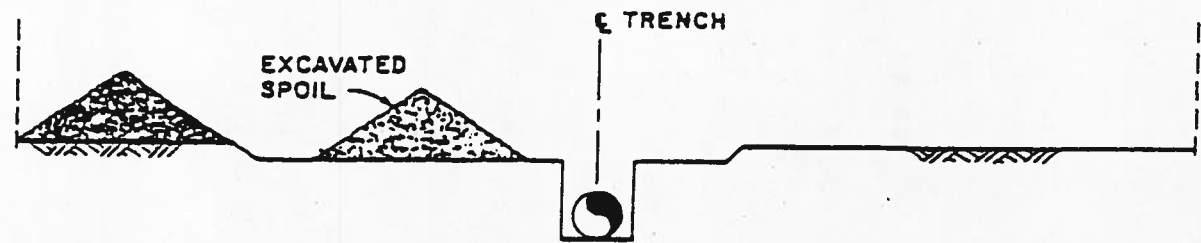
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Larry Strachan, P. Eng  
Director  
Environment Act

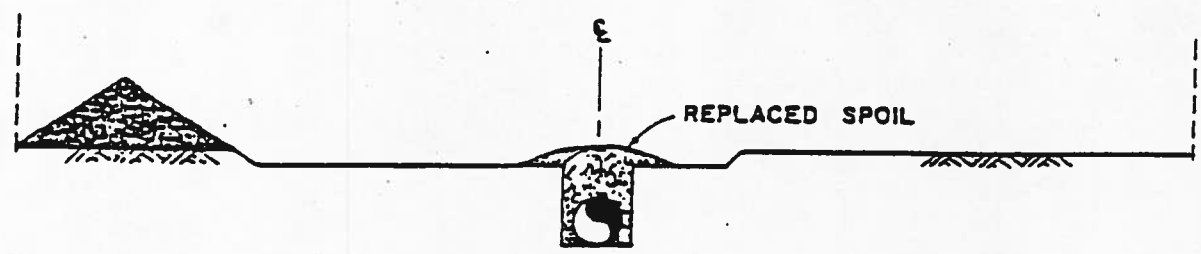
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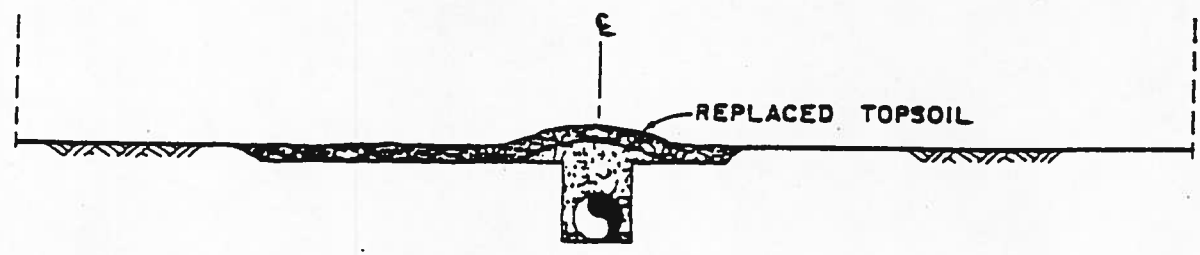
1. TOPSOIL STRIPPED  
N.T.S.



2. TRENCH EXCAVATED  
N.T.S.



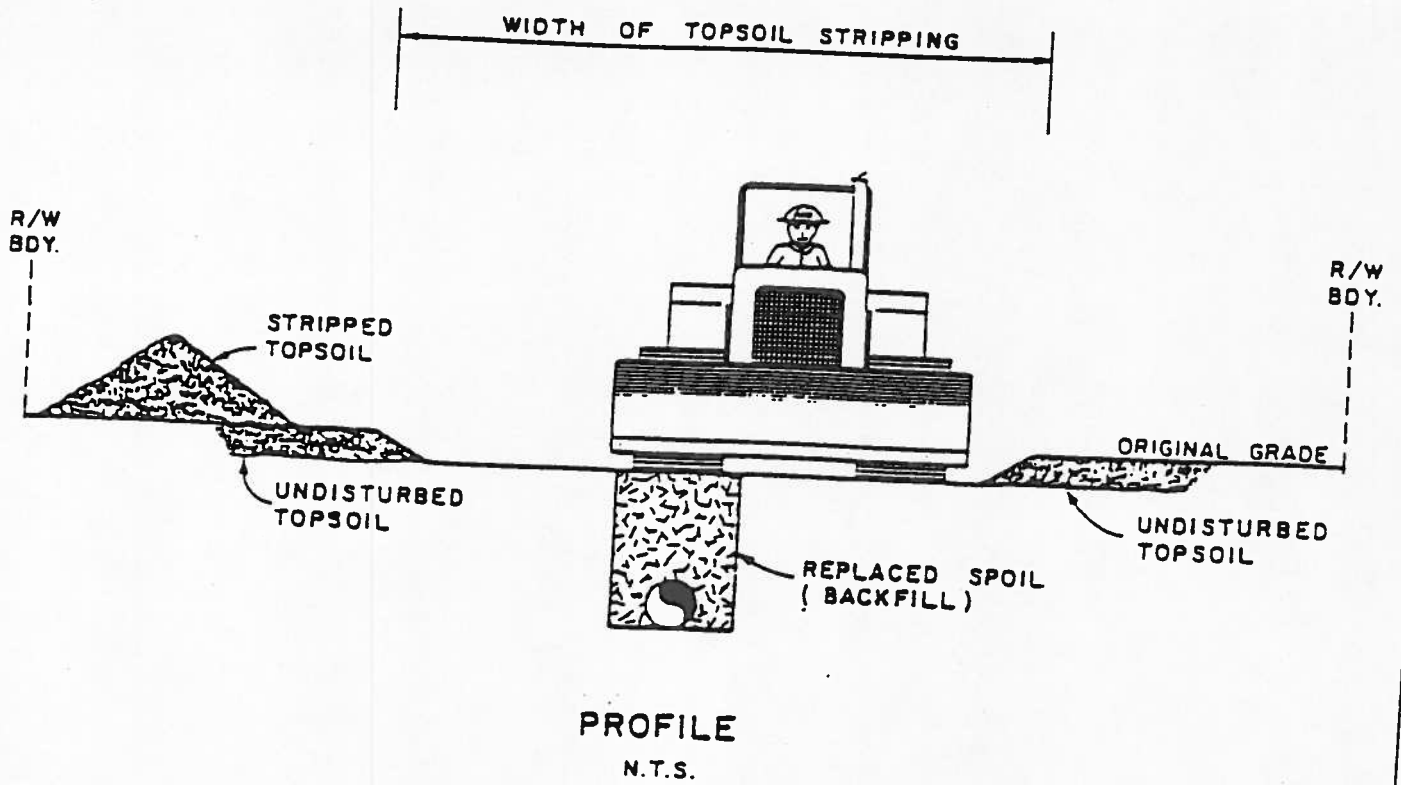
3. TRENCH BACKFILLED  
N.T.S.



4. TOPSOIL REPLACED  
N.T.S.

SEQUENCE OF TOPSOIL HANDLING

FIGURE 1



**Notes**

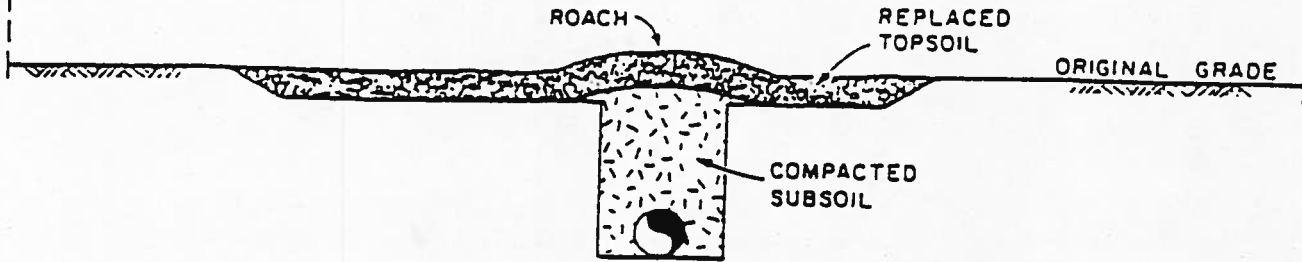
1. Except in rocky or muskeg areas, compact the backfilled subsoil to minimize settlement. The degree of compaction which can be achieved is limited by soil type, frost and moisture content, depth of cover, pipe strength and insulation, and other factors. Typically, compaction is achieved by a few passes with a crawler tractor. In special cases such as irrigated fields and open cut road crossings, 100% compaction is desirable and requires special equipment and compaction in multiple lifts.
2. Dispose of excess subsoil in locations satisfactory to the landowner and in a manner which will prevent mixing with topsoil.

COMPACTION OF BACKFILL

FIGURE 2

R/W  
BDY.

R/W  
BDY.



### PROFILE

N.T.S.

#### Notes

1. Roach the trench to compensate for settlement and changes in natural drainage patterns. The height of the roach depends upon land use, the degree of compaction achieved, and soil frost. Frozen soils require higher roaches than non-frozen soils. In agricultural lands, including forested lands in the yellow area, the roach should be low and wide (unfrozen case) to facilitate topsoil replacement. A higher roach is acceptable on forested land provided drainage and wildlife are unaffected. Typical values for roaching of representative soil types are presented below. The higher numbers in the range represent the worst case (frozen or clods).

Type of Backfill	Swell Coefficient (r)
blasted rock	.00 - .05
sand & gravel	.05 - .10
sand	.08 - .15
silty sand	.10 - .15
silt	.10 - .20
clay	.10 - .25
organic (muskeg)	.50 - 1.00

$$R = r \times D \quad \text{where } R = \text{height of roach}$$

$$r = \text{swell coefficient}$$

$$D = \text{depth of trench}$$

2. Leave periodic gaps in roach (e.g., 250 m), at all obvious drainage courses and at trench breakers (Dwgs. No. 12-3a and 3b) to allow for surface run-off. These gaps may require maintenance the following year to fill in settled areas.
3. Replace topsoil evenly after trench has settled or has been compacted.

Source: Formula adapted from Transcanada Pipelines, 1979.

## ROACHING THE TRENCH

FIGURE 3