Appendix G
Vegetation and Wildlife Reports

Environmental Impact Assessment

for the Revised Site of the

Proposed

Town of Neepawa

Industrial Wastewater

Treatment Facility

for

Earth Tech Canada

1000 Waverley St.

Winnipeg, MB R3T 0P3

by

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R2N 3X9

June 13, 2008

David Hatch of Green Spaces Environmental Consulting was contracted by EarthTech Canada to conduct an environmental impact assessment of a proposed new site for the expansion of the Industrial Wastewater Treatment Facility (IWWTF) at Neepawa and on June 14th, 2008, spent the entire day evaluating this site.

The site is located in the same section as the present facility and is situated on the north side of Hwy 16 and on the east side of Neepawa Road. The proposed facility is located approximately midway between Neepawa Road and the existing IWWTF. This location is a few kilometres east of the Town of Neepawa.

The proposed site is in the centre of a hay meadow. This year the hay meadow is in lush condition and composed primarily of Alfalfa (Medicago sativa) and a couple of species of Blue Grass (Poa spp.). Table 1 lists all of the species of plants identified at the time of our visit to this hay meadow. Two hundred one-square-metre plots were randomly sampled within this hay meadow and Blue Grass species were found in 96% of the plots and Alfalfa was in 62% of the plots. These species composed the overwhelming percentage of the plants growing in the hay meadow.

Table 1 lists in alphabetical order, by scientific name then common name, all of the 27 plant species found in the hay meadow. Table 2 lists in alphabetical order all of the 27 plant species found on the sand ridge, which stretches roughly north-south and is located along the eastern extremity of this project area. Note that there is very limited overlap in the species found in these two very different communities represented by these two tables.

Two other plant species are not found on these two lists and that is because they are the two dominant willow species comprising the large clump of plants, known locally as a “bush”, growing in the middle of the hayfield. These two species are Beaked Willow (Salix bebbiana) and Pussy Willow (Salix discolor). They are growing in a dense clump and are five to seven metres tall. There are no trees or shrubs growing in this clump. The two species are growing so densely that they block out the opportunity for trees, shrubs or any species to thrive in the shady environment.

None of the plant species found within the project area fall into any category that would bring them close to being considered “rare or endangered” in Manitoba. This is also true of the bird and mammal species encountered. Consequently, the development of an IWWTF in this location does not raise any specific environmental concerns regarding plants, birds and mammals.

Table 3 lists in alphabetical order by scientific name all of the 31 bird species recorded at the study site. Common names are also given. This figure for birds represents not only birds seen on the property but birds flying over the property and/or heard while the study team was on the property. Several of the bird species that were heard or flying over the property would not be nesting on the property and were simply traversing over it. Others were singing from their breeding territories, which were outside of the project area, but the study team heard their sound while conducting their surveys on the project area.

All of the species that would definitely not be nesting on the project area are identified with an asterisk in Table 2. A good example of this is the Spotted Sandpiper. This species breeds on the dikes at the existing sewage lagoon and is very closely tied to the lagoons. It is quite a vocal species however when it takes flight and although it may only be a few metres from the water’s edge, the sound of its voice still carries into the project area.

All of the species that do not have an asterisk in Table 2 could either be nesting and/or feeding in the hayfield and the tree-shrub covered sandy ridge along the east edge of it.

The sandy ridge, according to local people, was produced during the drought of the 1930s when soil in the adjacent field was whipped by the westerly wind and deposited along fence lines, which, in those days, often had shrubs or trees growing along them. It was not uncommon for the soil to be piled a couple of metres high in these locations and that is what has occurred to make this sand ridge possible. The soil in the adjacent hay meadow is a sandy loam and this type of soil was notorious for blowing badly during the drought years of the 1930s.

The hay meadow contained a tremendous number of mounds of earth produced by the Northern Pocket Gophers (Thomomys talpoides). There was also evidence that American Badger (Taxidea taxus), White-tailed Deer (Odocoileus virginianus) and Thirteen-lined Ground Squirrels (Spermophilus tridecemlineatus) were utilizing this field.

There are four rows of planted trees and shrubs in the project area that extend in a north-south line from the south edge of the project area well into the hayfield. The most easterly of these four rows is composed of Lilacs, the next row is hybrid Poplar (Populus sp.), the next row is Jack Pine (Pinus banksiana) and the most westerly row is comprised of Green Ash (Fraxinus pennsylvanica). Some of these hybrid Poplar are as much as five metres tall. The Pine are between two and three metres tall and the Lilacs (Syringa sp.) and Green Ash are shorter but generally all four rows contain healthy young plants. These four rows would provide a good buffer to shelter any development and to provide privacy for the facility. The land around these rows is being regularly cultivated, which shows that people are trying to assist these trees and shrubs to thrive. It would be a shame if they were bulldozed or lost, particularly in a community like Neepawa which prides itself on being very environmentally aware and highlights its annual Lily Festival as a tourist attraction. If some of the trees or shrubs have to be removed, possibly they could be donated to the community as a goodwill gesture.

All of the plants, birds and mammals recorded in the project area are ones that are doing well in the general Neepawa area and, although any loss of habitat has negative local implications, none of these species in the project area are deemed “rare and/or endangered” by provincial and federal governmental officials. Consequently, the site chosen has a lot of merit, because there are several places in the immediate area which have far greater value for plants and wildlife. Considering that fact, this site is a good choice.

Table 1 – Plant Species Recorded in the Hay Meadow at the Project Site

Scientific Name	Common Name
Achillea millefolium	Yarrow
Agropyron repens	Couch Grass
Androsacea septentrionalis	Pygmyflower
Anemone canadensis	Canada Anemone
Arabis retrofracta	Reflexed Rock-Cress
Artemisia ludoviciana	Prairie Sage
Astragalus goniatus	Purple Milk-vetch
Bromus inermis	Smooth Brome
Cerastium arvense	Field Chickweed
Chrysopsis villosa	Hairy Golden-Aster
Cirsium arvense	Canada Thistle
Convolvulus sepium	Hedge Bindweed
Galium borealis	Northern Bedstraw
Lathyrus ochroleucus	Cream-coloured Vetchling
Lithospernum canescens	Hoary Puccoon
Medicago lupulina	Black Medick
Medicago sativa	Alfalfa
Melilotus sp.	Sweet Clover
Oenothera biennis	Yellow Evening-Primrose
Plantago major	Common Plantain
Poa spp.	Blue Grass
Sisyrinchium montanum	Blue-eyed Grass
Thalictrum dasycarpum	Tall Meadowrue
Thlapsi arvense	Penny Cress
Tragopogom dubius	Goat's-beard
Taraxacum officinale	Common Dandelion
Vicia americana	Wild Vetch

Table 2 – Plant Species Recorded on the Sand Ridge at the Project Site.

Scientific Name	Common Name
Acer negundo	Manitoba Maple
Amelanchier alnifolia	Saskatoon
Anemone canadensis	Canada Anemone
Bromus inermis	Smooth Brome
Cicuta maculata	Water-Hemlock
Cornus stolonifera	Red-osier Dogwood
Epilobium angustifolium	Fireweed
Fragaria virginiana	Smooth Wild Strawberry
Galium borealis	Northern Bedstraw
Humulus lupulus	Common Hop
Populus balsamifera	Balsam Poplar
Populus tremuloides	Aspen Poplar
Prunus pensylvanica	Pin Cherry
Prunus virginiana	Chokecherry
Quercus macrocarpa	Bur Oak
Ribes americanum	Wild Black Currant
Rosa acicularis	Prickly Rose
Rubus idaeus	Wild Red Raspberry
Rubus pubescens	Dewberry
Sanicula marilandica	Snakeroot
Smilacina stellata	Star-flowered Solomon's-Seal
Solidago canadensis	Graceful Goldenrod
Spiraea alba	Narrow-leaved Meadowsweet
Symphoricarpos occidentalis	Western Snowberry
Thalictrum dasycarpum	Tall Meadowrue
Urtrica gracilis	Stinging Nettle
Viburnum edule	Low-bush Cranberry

Table 3 – Bird Species Recorded at the Project Site

Scientific Name	Common Name
Actitis macularia *	Spotted Sandpiper
Agelaius phoeniceus	Red-winged Blackbird
Anas platyrhynchos	Mallard
Bubo virginianus	Great Horned Owl
Buteo jamaicensis	Red-tailed Hawk
Carduelis tristis	American Goldfinch
Charadrius vociferus	Killdeer
Colaptes auratus	Northern Flicker
Corvus corax	Common Raven
Dendroica petechia	Yellow Warbler
Empidonax minimus	Least Flycatcher
Falco sparverius	American Kestrel
Geothlypis trichas *	Common Yellowthroat
Hirundo rustica *	Barn Swallow
Icterus galbula	Baltimore Oriole
Larus delawarensis *	Ringed-billed Gull
Larus pipixcan *	Franklin's Gull
Melospiza melodia	Song Sparrow
Mniotilta varia *	Black-and-white Warbler
Molothrus ater	Brown-headed Cowbird
Passerculus sandwichensis	Savannah Sparrow
Pica pica	Black-billed Magpie
Pooecetes gramineus	Vesper Sparrow
Progne subis *	Purple Martin
Seiurus aurocapillus *	Ovenbird
Spizella pallida	Clay-coloured Sparrow
Sturnella neglecta	Western Meadowlark
Turdus migratorius	American Robin
Tyrannus tyrannus	Eastern Kingbird
Vireo gilvus *	Warbling Vireo
Zenaida macroura	Mourning Dove

* species not nesting in project area.

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May 22, 2008

On April 22nd and 23rd 2008, David Hatch of Green Spaces Environmental Consulting, under contract to Earth Tech Canada, visited Neepawa, MB, and did a cursory environmental assessment of the land associated with the Town of Neepawa Industrial Wastewater Treatment Facility (IWWTF) which is located to the north of the Springhill Farms pork-processing facility on Hwy #16 on the east side of Neepawa.

During the two days, he conducted a general survey of all of the land bordering on the existing IWWTF and the land in the vicinity of the existing IWWTF outfall location. Close examination of lands between the existing IWWTF and the Springhill Farms processing facility was completed.

The land between the IWWTF and the Springhill Farms facility is divided by a gravel trail. On the west side of the trail, there are two small dugouts with both having earth piled adjacent to them. These earth piles have been left unattended for many years and consequently now have some large trees and a variety of smaller trees and shrubs growing on them, plus, some dense stands of Smooth Brome (Bromus inermis). The shrub species are primarily Chokecherry (Prunus virginiana) and, to a lesser extent, Saskatoon (Amelanchier alnifolia) and Western Snowberry (Symphoricarpus occidentalis). The trees are largely Balsam Poplar (Populus balsamifora), but there are a few Manitoba Maple (Acer negundo), Bur Oak (Quercus macrocarpa) and Peach-leaved Willow (Salix amygdaloides). There is also a remnant patch of native prairie to the north of these dugouts which would cover approximately one hectare and contains several native plant species typical of undisturbed prairie.

On the west side of the trail, the area generally had debris piled on it which has been taken over by Smooth Brome which has concealed much of the debris. Consequently, one can readily stumble over concrete blocks and strands of barbed wire which are protruding out of the ground. The barbed wire is particularly hazardous because there is far too much of it and it is either flat on the ground or only a few centimetres above ground. It has been hidden by the dense growth of Smooth Brome and consequently presents a substantial tripping hazard.

At the time of our April visit, we were informed that Red-sided Garter Snakes (Thamnophis sirtalis parietalis) were living in the debris piles and were particularly common on the west side of the gravel trail between the IWWTF and the Springhill Farms facility. Weather conditions were too cool for snakes to be active at the time of our visit. However, on May 5, a quick visit was made to the site and there was a great deal of snake activity. It is apparent that this is a snake hibernation area, which is not surprising, because garter snakes are highly adaptable and often over-winter below the frost line around concrete foundations or in debris piles where there is much buried concrete. This shows how adaptable the species is as they are utilizing man-made sites over natural ones for their winter hibernacula.

The east side of the gravel trail between the IWWTF and the Springhill Farms facility is an even more hazardous site to traverse. There are a great many small piles of debris lying along the south side of a series of shallow borrow pits, some of which contained water at the time of

our visit and others which did not. These borrow pits generally are filled with Cattail (Typha latifolia) and are fringed on the west, south and east sides by four species of willow.

Both sides of the gravel trail were crisscrossed very thoroughly making east-west transects approximately 3 metres apart. The site on the east side of the trail contains innumerable piles of debris but we never encountered any barbed wire there.

The piles of debris on the east side of the gravel trail are primarily covered by two plant species and these are Smooth Brome and Kochia (Kochia scoparia). As there were willows immediately adjacent to these two species, excellent habitat was provided for the Snowshoe Hare (Lepus americanus), which is commonly called Bush Rabbit in Manitoba. They were often encountered as we traversed the property. White-tailed Deer (Odocoileus virginianus) tracks were also frequent in the Kochia areas and an American Porcupine (Erethizon dorsatum) was present in the willows at this location.

A long row of Caragana (Caragana arborescens) stretches in an east-west line along the north edge of the pile of debris on the east side of the gravel trail. The row is planted immediately south of the existing IWWTF's southern fence line. Caragana can make an excellent windbreak and is utilized by a wide variety of wildlife species. In southern Manitoba, one frequently finds Yellow Warblers (Dendroica petechia) nesting in such areas. Often in southern Manitoba deserted farm groves, that have a row of Caragana associated with them, harbour a covey of Grey Partridge (Perdix perdix) during the winter months. At the time of the study team's visit to this row, a pair of Grey Partridge was present in the Caragana.

It is the conclusion of the study team that although wildlife uses the habitat on both sides of the gravel trail, there is enough high-quality habitat in the immediate vicinity of the project area to compensate for any loss of wildlife habitat by dramatically altering the appearance of these two sites. For example, the remnant patch of native prairie on the west side of the gravel trail contains some interesting species but nothing listed as endangered in Manitoba or Canada that could be identified at this early stage of the season. To the northwest of the IWWTF, on the east side of the Whitemud River and east of the Town of Neepawa municipal Lagoon Cell No. 3, there is a great patch of native prairie which covers several hectares and is in a natural state. This piece of property is adjacent to Neepawa Road, which stretches north-south along the road allowance that is located between the town's municipal and the existing IWWTF lagoons. This piece of quality native grassland is bordered by a high fence and includes the site of the Neepawa Archery Range.

The area of the Neepawa Archery Range includes very sandy terrain and has the Whitemud River along its western edge and a small shallow oxbow meandering through it immediately to the east of the river. Within this general area is the location of the IWWTF outfall. This oxbow contained very little water at the time of our visit but was bordered by an extensive tract of sedges which gradually gave way to native grasses as the elevation increased. The oxbow, at its lowest elevation, had dense stands of Cattail in it. On the slopes, the native grasses were

interspersed by shrubs and some trees. Five species of willows were found to be located along the Whitemud River, the archery area and the land immediately bordering them between Neepawa Road and the Town of Neepawa municipal lagoon.

In the area of the Neepawa Archery Range, there is a major tract of north-facing slope that is predominantly vegetated by Balsam Poplar. The remainder of the slopes have relatively few trees and those trees that do exist are primarily Bur Oak and Balsam Poplar although there are a few Manitoba Maple and White Birch (Betula papyrifera). In the northeast corner of the area of the Neepawa Archery Range, there are some young Aspen Poplar (Populus tremuloides) spreading in clumps. Adjacent to them, and stretching to the south, are many young pines which have been planted. These pines are 2–4 metres in height and are doing very well in the small area where they have been introduced.

This tract of property, if left in its present state, probably harbours all of the native species that might be lost in the development of the two small pieces of property on the east and west sides of the gravel trail located between the existing IWWTF and the Springhill Farms facility.

All the terrain immediately bordering the IWWTF was walked. Directly on the west and north sides of the existing IWWTF is a hay field which, at one stage, would have been an Alfalfa (Medicago sativa) and brome field but to a large degree the Alfalfa has died out. On the west side of this field is an old sand ridge that has trees and shrubs growing on it in addition to brome. On the north side of this field there is a long east-west borrow pit stretching almost the entire length of the field. In all probability this shallow borrow pit was excavated to produce the outer sides and the dikes of the existing IWWTF's lagoons. Presently, in this shallow borrow pit, there is an amazingly dense stand of Common Horsetail (Equisitum varigatum) which is very vibrant and dominates much of the surface area. Common Horsetail is a common species but in forty years of botanical work the writer has never seen such a large, dense stand of this species. Of special interest were the deer trails through it because the deer are feeding in the hay meadows and living in the adjacent woods. This big borrow pit contains a number of Badger (Taxidea taxus) dens and has a few scattered burrows which are probably the nesting sites of Rough-winged Swallows (Stelgidopteryx serripennis).

For wildlife, by far the best habitat in the area adjoins the IWWTF lagoons on the east side. This extensive tract of woods contains a number of areas of mature Aspen Poplar. It also contains some exceptionally large Chokecherry, one clump of which was five metres tall. This tract of woods is growing on relatively sandy soil but it is in a natural state and some of the plants growing in it have reached a great age. For example, there are clumps of Western Snowberry that are two metres tall and in most of the prairie areas of southern Manitoba one seldom sees snowberry over one metre tall. Another species that is exceptionally tall here is the Prickly Rose (Rosa acicularis), where some plants exceed two metres in height.

This tract of woods has an abundance of Red-osier Dogwood (Cornus alnifolia) growing in the low-lying areas and the dogwood is being heavily browsed by the deer. There is also an

abundance of other shrubs that are heavily used by deer and these include Chokecherry, Saskatoon and Pin Cherry (Prunus pensylvanica). There are also stands of Beaked Hazelnut (Corylus cornuta) which are being very heavily browsed.

Although the overwhelming majority of the trees in these woods are Aspen Poplar, there are some Bur Oak, a few Manitoba Maple and American Elm (Elmus americanus). Deer, in southern Manitoba, are noted for browsing heavily on oak and the young oak and Manitoba Maple are both being relatively heavily browsed in these woods. Judging by the amount of browsed trees and shrubs in this tract of woodlands, one would believe that it is supporting a high population of deer and that the woods are being overly browsed in places.

At the time of our visit there were several deer in the woods and it is such an excellent stand of prime habitat that it has the potential to be a treasure-house for breeding birds and a great variety of woodland plants. As there is potential for a variety of flora species to occur in this area that could not be identified at the time of the site visit, if this area is to be disturbed, additional surveys during the summer months would be required prior to expansion to search for rare and/or endangered woodland plants.

If, in the future, it became necessary to expand eastward, great care should be taken in encroaching upon this undisturbed tract of woodlands because it is in prime condition and is significant for wildlife species in the local area.