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**The “Small Swale” Resource
Overview**

Prepared for:
City of Saskatoon
Community Services Department
City Planning Branch

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SMALE SWALE RESOURCE OVERVIEW

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1.0 Introduction

The City of Saskatoon requested Stantec Consulting Ltd. to conduct a Natural Areas Screening for the area known as the Small Swale, located within the University Heights Suburban Development Area (Figure 1, Appendix A). This screening report is a requirement of the City of Saskatoon Development Plan, which has established a policy for the conservation of natural areas and archaeological sites as part of the land development process. The Natural Areas Screening process involves the evaluation of the natural area and its archaeological resources, together with recommendations concerning opportunities for retention and management.

This report provides a “Resource Overview” of the Small Swale. The resource overview is the initial step in the process and provides a description of the existing ecological circumstances within the study area. It also addresses the heritage resource potential of the site. From this evaluation recommendations and decisions are made regarding the need for further, more in depth study of the Small Swale, if appropriate.

The report provides a land use and ecological overview description (Section 2.0), a discussion of the site’s heritage resource potential (Section 3.0), and recommendations regarding further study and site management (Section 4.0). Figures referred to in the report are provided in Appendix A. Photographs of the study area, taken in October 2003, are provided in Appendix B.

2.0 Description of the Study Area

2.1 STUDY LOCATION

The Small Swale is located primarily within the N 1/2 of Section 24 and the SE of Section 25 in Township 37, Range 5, W3M; and in the W 1/2 of 30-37-4 W3M. This is within the University Heights Suburban Development Area, currently being planned by the City of Saskatoon. The northern boundary of the study area is the South Saskatchewan River.

2.2 CURRENT LAND USE

Currently, land use is a combination of gravel extraction, pasture, idle lands, and residential (Refer to Figures 2 and 3). Much of the N 1/2 of Section 24 is currently used for gravel extraction and the natural character of the landscape has been completely modified. The SE of Section 25 is an overgrazed pasture that has also had some historic excavation and there are numerous large rock piles along the eastern boundary of this section. The SW of Section 25 contains a mixture of cultivated land and pasture. The W 1/2 of Section 30 contains a combination of a relatively natural grassland/shrub environment, and some disturbed lands that are used by the RM of Corman Park. A farmstead is located within the SE of Section 25.

2.3 BIOPHYSICAL DESCRIPTION

2.3.1 Topography and Soils

The Small Swale is located within the Saskatoon Plain Landscape Area of the Moist Mixed Grassland Ecoregion, within the Prairie Ecozone (Acton et al 1998). Generally, this plain is a level glacial lake and eroded till plain with elevations ranging from 500 to 520 m above sea level. Drainage is toward the South Saskatchewan River.

The Small Swale is located within a bouldery moraine overlying the Forestry Farm Aquifer. The surficial geology is described as being a glaciofluvial kame terrace (SRC 1987). Adjacent to the swale to the east is a glaciolacustrine and morainal plain. The bouldery, stony character of the Small Swale study area is very obvious and there are numerous small boulder covered hills throughout the study area. These small hills surround a small saline depression that trends in a northeast-southwest direction. Photographs in Appendix A provide a view of this rolling, stony landscape.

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The Dark Brown soils are represented by the Weyburn Association, which are light loams (Mitchell et al 1944). There are also Asquith and Biggar soil associations, which are fine sandy loams and gravelly loams, respectively. All soils are very stony in this location.

2.3.2 Vegetation

Vegetation typical of the Moist Mixed Grassland Ecoregion includes wheatgrasses and speargrasses (Padbury et al 1998). Blue grama grass is also common on the drier upper slopes of morainic landscapes and rough fescue and Hooker's oat grass may occur on the lower slopes. Sedges and June grass are also typical, depending upon topography and soil characteristics.

Hudson (1993) completed a vegetation survey of the study area and noted a wide variety of grass, shrub and forb species. For portions of Sections 24 and 25 of the study area he noted (NOTE: these comments relate to a transect through the W ½ of the SE ¼ of Section 25 and the NW ¼ of the NE ¼ of Section 24):

The study area consists of a frozen sea of stony hills carrying dry prairie species with swales between them carrying moist prairie species. I'd guess the area of stony hills at about 40-50% of the total. It has been somewhat overgrazed as judged by the lack of fescue, the predominance of small grasses (Poa susikit, Koeleria, Calamagrostis, and small forms of Poa pratensis), and the abundance of forb flora. Yet as concerns introduced pest species it is in pretty fair condition. The abandoned road allowance between sections 24 and 25 is overrun with awnless brome and lesser crested wheat for want of grazing. There is a fair bit of invasion of Poa pratensis in some of the swales.

For a transect through the NE ¼ of 24 and the SE ¼ of 25 and through the saline depression, he noted:

Very interesting area and in generally good shape except for some perennial sow thistle around watering holes and on pocket gopher mounds.

He noted that the saline areas were related to groundwater seepage and the slopes around the depressions were "sometimes subsaline dominated by *Crepis runcinata*, *Distichlis stricta*, or more often mainly with *Lilium*, *Zygadenus elegans*, and *Potentilla flabelliformis*." It should be noted that much of the NE ¼ of 24 has now been disturbed by active gravel operations and the natural character described by Hudson has been destroyed.

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He describes portions of Section 30 as being a gently rolling till surface not as eroded as the other tracts were. The southern half was initially fescue prairie but has been invaded by brome and quack grasses, now making up about 60% of the cover. The northern half, on more clay soils, is a *Stipa-Agropyron* grassland with some fescue in the low spots and on the north slopes. Introduced species are less on the more northern portions.

A search of the Saskatchewan Conservation Data Centre (SKCDC) records identified one rare plant species (ranked S3 – rare to uncommon) previously identified within the study area. The species is the few-flowered aster (*Aster pauciflorus*) and was located along the northern edge of NE1/4 24-37-5 W3M in 1965. This plant is found in moist to drying alkaline or saline meadows and sloughs. However, this location has now been significantly altered by gravel operations. Hudson's 1993 survey of the site did not make note of this species.

Aerial photographs (Figures 2 and 3) illustrate how disturbed the study area has become. Much of Section 24 is now actively farmed or has large-scale gravel extraction activities. Much of the SW of Section 25 is cultivated and the SE of 25 has been heavily grazed. Only portions of Section 30 remain relatively undisturbed, although as noted in Hudson's remarks, the more northern portions are in the most natural state.

2.3.3 Wildlife

Wildlife species potentially found in the study area are those typical of a grassland environment and include: Richardson's ground squirrel, Franklin's ground squirrel, jackrabbit, red fox, badger, white-tailed deer, and a variety of small rodents and grassland birds. The study area contains no evidence of any rare or endangered species or habitats (e.g., burrowing owls) and no species were identified in the SKCDC search.

The active gravel operations have affected a significant portion of this site and the noise from the operations is likely affecting wildlife use of the area. Historically, wildlife species likely used the small swale as a possible route to the river. However, the gravel operations have likely modified that pattern.

3.0 Heritage Resource Potential

Several heritage resource studies have been completed on lands near the study area (e.g., Walker 1983, Stantec 2001, 2002). The results suggest that there are few heritage resources of interest within the area, with the exception of the historic Batoche Trail and the limestone quarrying activities common to the area during Saskatoon's early history. Remnants of both are located some distance south of the Small Swale within the NW 12-37-5 W3M.

A search of the Saskatchewan Archaeological Resource Record database for the region was completed and no known heritage resources have been recorded for the Small Swale site.

A windshield survey of the study area was completed and 2003 aerial photographs of the site were examined. This review suggested that the heritage resource potential for the majority of the Small Swale region is low. However, there are two exceptions. Lands near the river (e.g., within 500 m) may have some potential for surface finds such as stone circles (tepee rings), particularly within Section 30, which is the most undisturbed component of the study area. Additionally, a review of historic aerial photographs reveals that there were buildings located within the pasture in the SE of Section 25 (Refer to Figures 3 and 4 and Photo 4). Hudson (1993) also commented that he saw evidence of old buildings at this location. There is a high probability that this was an old homestead site.

4.0 Discussion and Recommendations

The Small Swale area was initially identified in Weichel's (1992) inventory of natural areas as a location potentially requiring protection. Hudson (1993) completed a vegetation survey of this area, and others in the vicinity and also noted some interesting features. However, since these studies the Small Swale has been disturbed by intensive gravel operations, and other portions continue to have been grazed and used for cropland. Generally, the character, particularly within the southern half of the swale, has been significantly altered. There are small areas of relatively natural habitat remaining, particularly within the more eastern and northern portions, near the river.

The Small Swale is unlike the Northeast Swale (Stantec 2002) located to the south. The Northeast Swale is larger, is more associated with wetlands and groundwater, and has a larger area of relatively undisturbed grasslands. The Small Swale, however, appears to have been encroached upon from a variety of directions and some of the potentially most interesting areas, as identified by Hudson, are now being destroyed by gravel operations.

Based upon our Resource Overview results, we recommend the following:

- The potential heritage site (old building/farmstead) with the SE 25-37-5 W3M should be visited and site information collected, if available. The presence of this site does not prevent future development, but the information should be collected and reported to the Heritage Branch prior to development.
- A heritage resource impact assessment (HRIA) should be completed on lands within the W ½ of 30-37-4 W3M, particularly near the northern portion and the river. There may be some potential for tepee rings to be found here. Again, the presence of these would not affect future development but should be recorded if present. If no development is planned for this area, no HRIA will be required.
- The northern half of 24-37-5 W3M once contained some interesting natural vegetation, as reported by Hudson (1993). A rare plant species was found here in 1965. However, this area is now highly disturbed by gravel operations and very little natural environment remains. The highly disturbed and fragmented nature of this area suggests that it has little ecological value and future developments could occur with no concern.

SMALL SCALE RESOURCE OVERVIEW

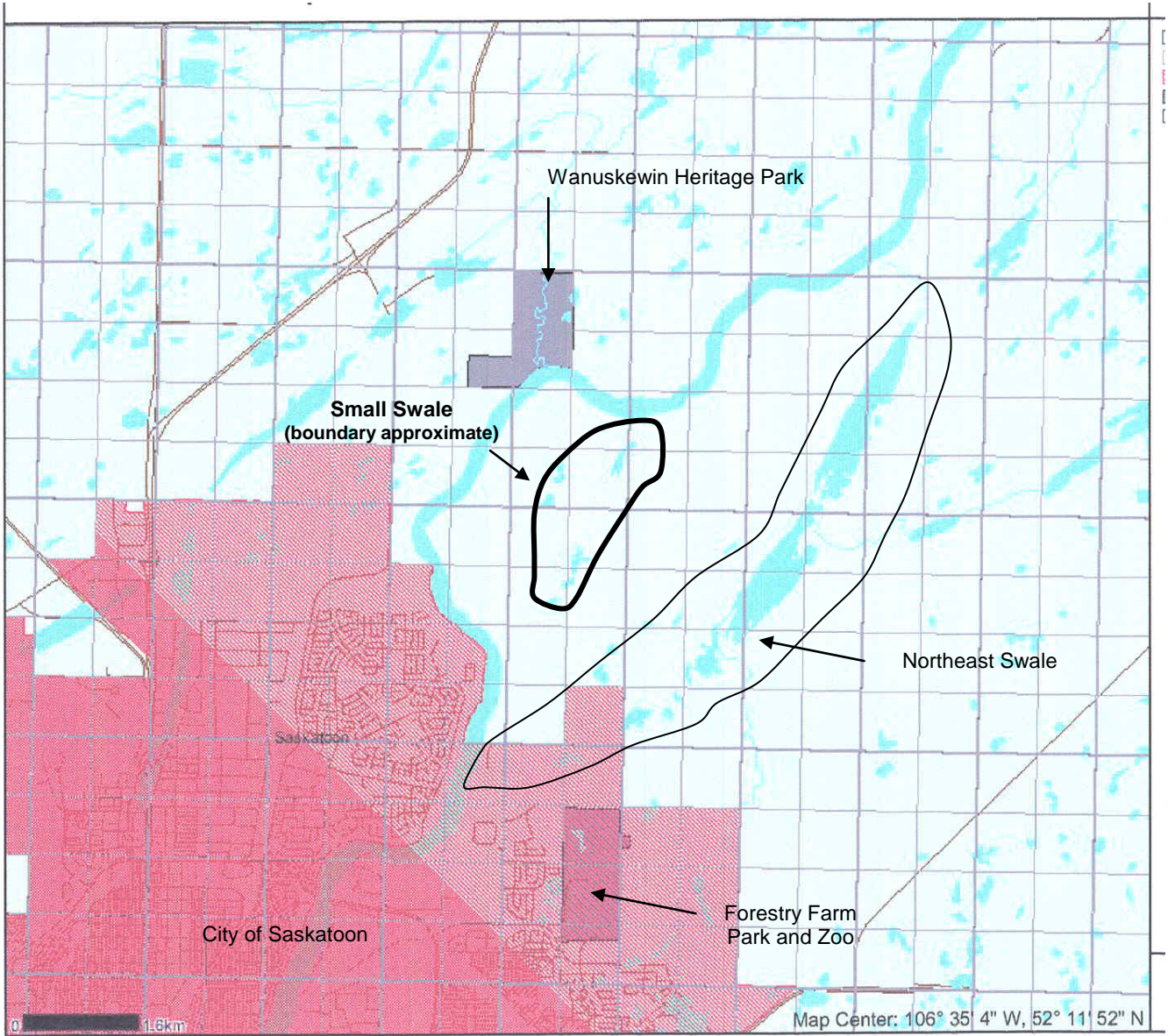
- The southern half of 25-37-5 W3M has been used for a variety of purposes. The SE quarter contains a small saline, seasonal slough but the quarter has been overgrazed and portions were used for small scale gravel or rock extraction activities. The SW quarter is more natural, although it too has seen small scale gravel/rock extraction activities, grazing, and cultivation. Generally, the fragmented and disturbed nature of the southern half of 25 suggests that it has minimal ecological value and future developments could occur with no concern.

The study area is now a fragmented mosaic of gravel operations, abandoned roadways, old rock/gravel quarries, cultivated lands, and pasture. No large, relatively undisturbed natural ecological units remain, although lands within Section 30 remain ecologically well connected to the river valley. Future development activity with Sections 24 and 25 will likely not affect any important ecological units. However, it is recommended that disturbance within Section 30, particularly near the river, be avoided. This area remains in the most natural state, although grazed, and could serve as a potential environmental reserve, although small in size.

5.0 References

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Appendix A: Figures





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September 2003 Aerial Photograph courtesy
Meewasin Valley Authority

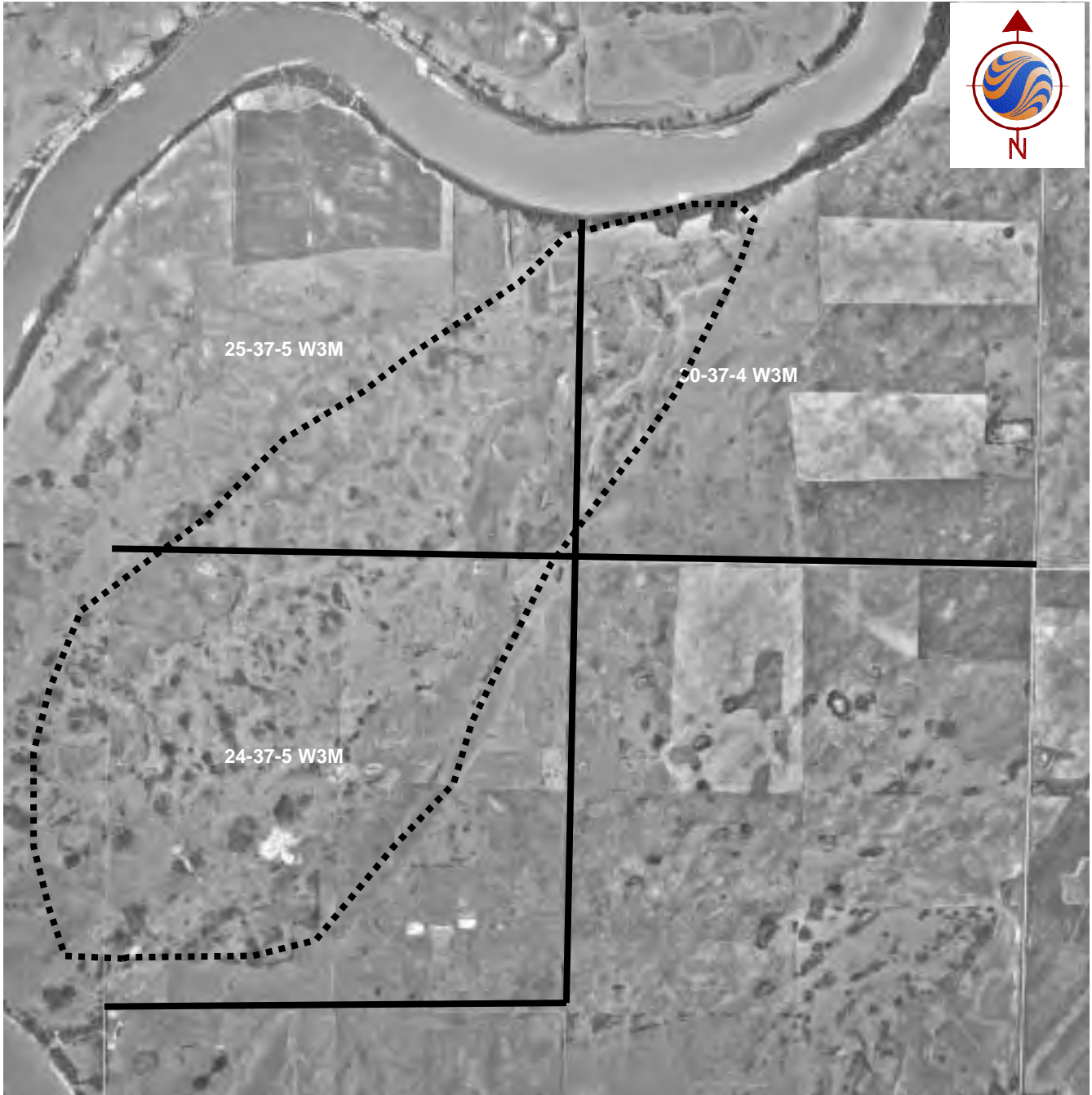
Client/Project
CITY OF SASKATOON, SMALL SWALE
RESOURCE OVERVIEW

Figure No.
2

Title

2003 Aerial Photograph
(scale: 1:11,000)





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Small Swale study area (approx.)

Aerial Photograph by Information Services
Corporation of Saskatchewan

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CITY OF SASKATOON, SMALL SWALE
RESOURCE OVERVIEW

Figure No.

4

Title

1961 Aerial Photograph
(scale: 1:21,000 approx.)

Appendix B: Site Photographs



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PHOTO 1 Looking west to the gravel operations in NE 24



PHOTO 2 Looking west along abandoned road allowance between Sections 24 and 25



PHOTO 3 Looking northwest into the SE of Section 25



PHOTO 4 Potential old farmstead site in the SE of Section 25



PHOTO 5 Looking west into the saline depression along the border of Sections 24 and 25.



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PHOTO 6 West half of Section 30



PHOTO 7 Section 30. Lands used by the RM of Corman Park. This site is disturbed.



PHOTO 8 Looking southeast into the SW of Section 30. A relatively undisturbed rolling landscape, although brome grass is common.



PHOTO 9 Old rock piles in the overgrazed pasture within the SE of Section 25