A unique remediation/risk management strategy was used for the Brownfields redevelopment of a former smelter and battery recycling facility, Northwest Smelting and Refining, located in Winnipeg, Manitoba. Historically, the northern portion of the site was used as a waste disposal area for battery casings and metal debris. Metal-impacted soil was found to be at hazardous levels across the site. A remedial options analysis was completed. The recommended remedial option included designing an engineered granular cap on the northern portion of the site to cover hazardous material in that area, where metal impacts and debris already existed, and excavating and placing metal-impacted soils from the rest of the site below it.

The work program included the preparation of technical specifications for site remediation; contract development and preparation; remediation plan (RP) development; development and implementation; preparation of closure documentation including construction supervision and soil screening using an X-ray Fluorescence Analyzer; closure sampling; and contract administration services. Dillon also applied for, and obtained, a City of Winnipeg permit for land development and site drainage works prior to site remediation. A human health and ecological risk assessment was prepared to establish site-specific remediation criteria and to demonstrate that the proposed remedial strategy addressed the exposure pathways/risk for the site.

Challenges included the discovery of a former operation consisting of four kilns with associated additional metal-impacted soil below the former building foundations. Previous studies of the property suggested that it was not likely that impacts would be encountered below the former building foundations; however, this was not the case. The soils below the foundation were found to have elevated levels of metals requiring removal. To accommodate the increase in impacted material, the engineered cap design was enlarged and raised.

Approximately 8,500 m3 of impacted soil was removed from the southern portion of site through excavation and relocated beneath the engineered cap on the northern portion of the site. Approximately 500 m3 of hazardous granular material was removed from the site.

The objectives of the RP were achieved. A closure letter was received from Manitoba Sustainable Development which cleared the contaminated site designation.

The southern section of the site is suitable to be redeveloped as an industrial/commercial area. The northern portion of the site is designed for use as a storage area (e.g., parking lot, material storage). The site is currently for sale.

Heather Fisher, PEng, PMP, EP(CEA)
Heather is a registered professional engineer in the province of Manitoba with over 18 years of experience in contaminated sites management, contaminated site assessment, and remediation projects.

Her experience includes Phase I, II, and III environmental site assessments (ESAs); site investigations; evaluating and recommending site management strategies; implementing remedial systems including remediation monitoring and reporting; remedial planning including preparation of specifications for tenders and remediation plans; developing sampling strategies for human health and ecological risk assessments; hazardous substance sampling, analysis and disposal; cost estimation; and oversight during the remediation of contaminated sites. Heather is also experienced in environmental compliance auditing; solid and hazardous waste management; developing contaminant sampling and disposal strategies; groundwater monitoring; hazardous waste; and indoor air quality and safety.

Heather has extensive experience with remedial work including managing the Northwest Smelting and Refining remediation, the Cambridge Bay Airport remediation project and the Fort Smith, NT metals remediation project.