



Fast growing poplars fertilized with Edmonton region biosolids on an Al-Pac poplar plantation in Alberta.

BIOSOLIDS AMENDED AL-PAC POPLAR PLANTATION

Client: City of Edmonton and EPCOR Water Services Incorporated

The City of Edmonton (City) is interested in diversifying and expanding their biosolids management program in anticipation of increased biosolids production. The current regulatory purview for biosolids management in Alberta provides for applications only to productive agricultural land providing for little variety in the options available and a narrow window for biosolids generators to meet their annual use targets. Biosolids generators in British Columbia faced a similar situation prior to 2002 whereby they were required to submit a proposal to obtain an operating permit to apply organic residuals to land. The regulation in British Columbia, the Organic Matter Recycling Regulation (OMRR) was built upon the strong operational experience and knowledge base developed through the implementation of operational and research projects, in large part by SYLVIS.

SYLVIS investigated new land application options for biosolids produced in the Edmonton region, identifying mine reclamation, marginal land improvement and biomass production as potential options to augment the current beneficial use programs. The Alberta Pacific Forest Industries (Al-Pac) site on the Reid family property was selected as a project partner for the biosolids demonstration program. In consultation with Alberta Environment and Sustainable Resource Development (ESRD), SYLVIS developed operational and research objectives and a project design to determine the effect of biosolids applications on an operational-scale Al-Pac poplar plantation. Upon approval from ESRD, SYLVIS implemented biosolids application to approximately 23 ha of marginally productive land for the purpose of enhanced poplar growth. The growth response of the poplars and the soil fertility were monitored for two years following applications to determine the effect.

Tree mensuration data, and soil and water monitoring indicated that biosolids applications to marginal land for the purpose of biomass fertilization was an environmentally protective use of biosolids. An assessment of the soil carbon stores in biosolids amended areas as compared to a control indicated a significant increase in soil carbon. Identifying and developing novel residuals management options, outside the scope of current regulated practices, required a proactive approach and ongoing stakeholder engagement to address individual objectives and requirements for successful program development. The successful Al-Pac poplar plantation demonstration project provides further knowledge for options for managing the City's biosolids.

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