The Bluestem Bioreactor

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Introduction

- Background
- Construction
- Features
- Operational Experience
- Data Collection
- Results
- Future

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Background

- Intergovernmental Agency (City of Cedar Rapids and Linn County).
- Formed in 1994
- Expanded composting in 1995
- Developed an ISWM Plan in 1996
- Began landfill siting in 1996
- Applied for and received Iowa DNR grant for bioreactor pilot project in 1997

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Background

- Construct a series of bioreactor cells, each capable of holding one year's waste.
- Fill a cell each year with mixed MSW (and potentially wastewater biosolids)
- After a number of years (six to eight?) excavate a cell, screen the degraded organics from the non- organic materials
- Organics to be used for beneficial use, non-organics to be landfilled in conventional landfill
- SUSTAINABLE LANDFILLING

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Background

- Constructed bioreactor in 1998
- Filled bioreactor in 1999
- Capped bioreactor in 2000
- First full year of operation in 2001

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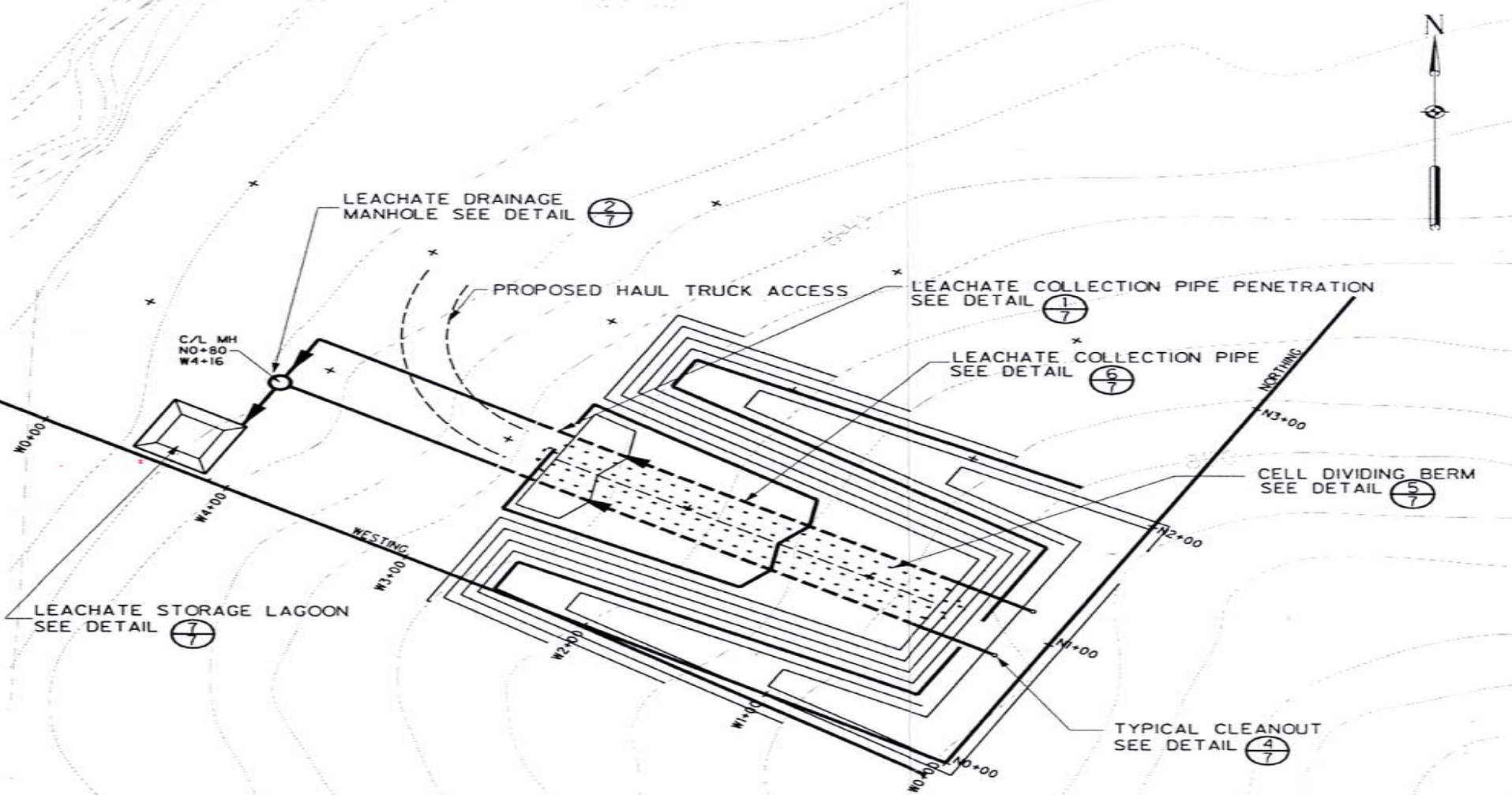

LEACHATE COLLECTION PLAN

0 50' 100'

SCALE: 1" = 50'

Construction

Construction

Construction

Features

- Two distinct cells. Cell A and Cell B
- Cell B received cake and liquid sludges
- Temperature probes each side
- Horizontal gas collection system
- Targeted leachate recirculation system
- Exposed R-PP cap
- 6 Time capsules to monitor progress

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Construction

- Bioreactor Filling
  - Cell A
    - MSW 6092 tons
    - Woodchips 360 tons
    - Paper sludge 40 tons
  - Cell B
    - Same as Cell A
    - Also 26 tons of WWTP liquid sludge
    - Also 71 tons WWTP cake sludge

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