

Former Performance Paper Mill Property: From Demolition to Revitalization

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and

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City of Kalamazoo



Former Performance Paper Site



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Background

- Paper manufacturing from mid to late 1800s
- 27 acre industrial brownfield site
- Mill E (315 East Alcott, 3.21 acres), Mill C (505 East Alcott, 7.89 acres) and Mill D/Powerhouse (405 East Alcott, 16.13 acres)
- Historic Employment Center



- Economic base for neighborhood
- Became source of pollution and blight
- Closed February of 1998
- Tax Reversion/State Foreclosure & Ownership
- City of Kalamazoo BRA Acquisition in 2003 & 2005



Site Overview/Historical Usage

- Paper manufacturing operated for 94 years (1895-1989)
- Produced variety of high quality papers from virgin pulp and recycled products (via de-inking process)
- Historical chemical use included cutting oil, coolant, petroleum distillates, latex, polymer grease, biocides, lubricating oil, solvent degreasers, caustic, acids, Stoddard solvents, and dyes
- Materials that contained hazardous substances, primarily from coal ash, were used as general fill outside of structure footprints
- Deterioration of Portage Creek concrete channel walls posed threat of release of thousands of tons of toxic material into Potage Creek

Legacy Environmental Issues

- Mercury, arsenic, lead, chromium and selenium detected at concentrations that exceeded Part 201 clean-up criteria including direct contact, drinking water, and groundwater/surface water interface (GSI) in soil and groundwater
- Benzo(a)pyrene detected at concentrations exceeding human direct contact criteria in soil
- Volatile Organic Compounds (VOCs) detected at concentrations exceeding GSI and drinking water protection criteria in soil and groundwater
- Channelization (8-10 foot concrete walls) eliminated floodplain and severely compromised fish and wildlife habitat

Chronology of Clean-up Efforts

- Removal of approximately 40 structures (2002 - 2008)
- Stream restoration design, permitting, remedial investigation, and demolition of remaining mill structures (2004 - 2008)
- Pre-restoration project survey to evaluate and document fish and macroinvertebrate populations and habitat (2010)
- Construction/Restoration Activities (2011 - 2014)
- Post restoration biological survey (macroinvertebrate, fish, habitat, and vegetation (2013 – 2014)
- Sediment evaluation, feasibility study, and design for removal of Alcott Street Dam (2012 – 2014)

Project Partners

- Michigan Department of Environmental Quality
- City of Kalamazoo and its Brownfield Redevelopment Authority
- U.S. Environmental Protection Agency – Great Lakes Restoration Initiative grant (\$3.35 Million)
- U.S. Fish and Wildlife Service (\$135,000)
- Kalamazoo River Natural Resource Damage Trustees
- Michigan Department of Natural Resources
- Kalamazoo River Watershed Council
- Kalamazoo River Cleanup Coalition
- Edison Neighborhood Association
- Milwood Neighborhood Association

Structure Removal

- Michigan Department of Attorney General and MDEQ secure administration inspection warrant to conduct facility evaluation - 2003
- Kalamazoo City Attorney and MDEQ secure court-raise order - 2004.
- MDEQ initiated structure removal in 2004

1997 Aerial



- County Boundary
- City Limits
- Strees
- Freeway
- Major Arterial
- Minor Arterial
- Ramp
- Roads
- Water Features
- Municipalities
- Shows

This map is neither a legally recorded map nor a survey and is not intended to be used as one. This map is a compilation of records, information and data located in various city, county, state and federal offices and other sources regarding the area shown, and is to be used for reference purposes only. Created From City of Kalamazoo Online Mapping Site. Sources: Kalamazoo, MI. Data Dates: 2009: County Basemap; 2008: Rentals Daily, Dec. Section Lines; Nov., Mowing Properties; Sept., Ownership Info; Jan., Parcels, Zoning, Landuse, Bus Stops, Bus Routes; 2007: October, Centerlines; June, Voting Precincts; Apr., School Prop.; 2006: Aug., Parking; Feb., Soils, Trees, NWI Wetlands; 2004: Dec., Elevation Contours; Nov., Structures and Roads; Aug., Bus Routes; June, Brownsfields; all others Fall 2003. Map Created: 6/29/2011



Demolition activities (Power Plant and the pipe bridge leading to what's left of Mill "C" in background) (looking north)





Demolition of pipe bridge over Bryant Street (looking southwest)



DEC 7 2004



Mill "D" Building 3 demolition (looking southwest)



Concrete crushing/recycling area (looking north)

2007 Aerial



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Powerhouse Removal



2011 Aerial



- County Boundary
- City Limits
- Slices
- Freeway
- Major Arterial
- Minor Arterial
- Ramp
- Roads
- Water Feature
- Municipal Line
- 2011 Aerial Photo
- Shadows

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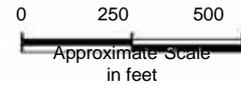






Site Evaluation and Restoration Design

- Evaluate soil and groundwater quality in restoration project area
- Establish floodplain and increase flood storage
- Natural stream channel design techniques
- Incorporate fish, aquatic, and riparian habitat



TITLE
PROPOSED FLOODPLAIN
 UFS CORPORATION, SOUTHFIELD, MI., 248-204-5900

PORTAGE CREEK TOXIC
 SUBSTANCE SOURCE REDUCTION
 KALAMAZOO, MICHIGAN

DATE
06/29/11
 DR.
AM
 CK.
HH

JOB NO.
13651073
 SKETCH NO.

FIGURE 1

Partnership

City of Kalamazoo – BRA & DBB

- ü Emergency Response
- ü Acquisition
- ü Site Security
- ü Corridor Reuse Planning
- ü Utility Relocation
- ü ~\$1.1 Million Investment



Reuse Planning



- Environmental Conditions
- Market Study
- Public Participation

Restoration

- Removal of powerhouse foundations (to install new sanitary sewer)
- Abatement, management and disposal of buried pipe (containing asbestos)
- Demolition, disposal and recycling of surface and subsurface structures and concrete foundations
- Removal of impacted excavation spoils from new floodplain
- Excavation and construction of new creek channel, floodplain and banks, and re-direction of flow
- Installation of habitat structures, site grading, and other restoration activities (e.g., seeding and planting)



Concrete channelized creek (looking north from Alcott Street)



Concrete channelized creek upper reach (looking north)



06/22/2011



Former Mill D Building (looking north)



11/22/2011



Creek channel and floodplain construction (looking north)



11/23/2011



11/23/2011



Low-flow water diversion to the new creek channel (looking north)



10/28/2011





11/28/2011



Creek channel as seen from Alcott Street (looking north)



Completed creek channel as seen from Alcott Street (looking north)



Restored creek channel and floodplain (looking north)



Geese investigating restored floodplain (looking south at Alcott St.)



Restored creek channel (looking northeast)



Restored creek channel and floodplain (looking northwest)



Restored creek channel and floodplain (looking south)



Ducks enjoying the habitat provided by the newly restored creek







11/28/2011







Accomplishments

- Significantly addressed five habitat and toxics-related Beneficial Use Impairments to advance Area of Concern de-listing efforts
- Incorporated natural stream design to restore 1,440 linear ft. of creek through a new channel, floodplain, and banks
- Excavated and relocated approx. 38,000 cubic yards of spoils from floodplain, and added approx. 2,200 cubic yards of clean fill
- Removed approx. 30,000 tons of impacted materials
- Recycled approx. 24,000 tons of concrete and 540 tons of steel
- Constructed fish habitat structures- five riffles, seven pools, 15 rock/log structures
- Graded and restored site with native vegetation
- Constructed a recreational trail base
- Advanced progress toward increased property values and creation of sustainable jobs in the community

Redevelopment Opportunities



Post Restoration Monitoring

- Assess macroinvertebrate, fish community, and vegetation species abundance and diversity
- Evaluate groundwater quality
- Evaluate restoration design and function



05/01/2014 09:32



05/01/2014 14:16



05/01/2014 14:18



05/01/2014 14:18



05/01/2014 16:31



05/01/2014 16:37



05/01/2014 16:37

“Lessons Learned” for Application Elsewhere

- Cultivate and maintain the support and trust of local partners and stakeholders over the long-term
- Budget in adequate time for partner negotiations, coordination, and review activities
- Give equal consideration to multiple dimensions (e.g., engineering, ecological, socio-economic, cultural)
- Recognize that every site remediation is unique
- “Expect the unexpected” and accommodate “surprises” in budget and timeline
- Feature “institutionalized redundancies” to ensure safety and Quality Assurance/ Quality Control

Questions



Michigan Department of Environmental Quality

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