

## **AN INNOVATIVE GREEN REDEVELOPMENT APPROACH**

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### **ABSTRACT**

This paper describes the use of “green” redevelopment as part of the long-term remedial work at a former Manufactured Gas Plant (FMGP) site in Janesville, Wisconsin.

The redevelopment of the property as community green space meets local needs while maintaining environmental protection. The green space includes a new soil barrier layer with prairie vegetation, a grass parking area, and an asphalt drive to access the substation and parking. It is integrated with an active, long-term groundwater remediation system at the site.

The preparation of the redevelopment plan applied a participatory decision-making process that integrated the following methods: field visits, interviews, meetings, and a document review. An interdisciplinary team facilitated, by an environmental planner, created the redevelopment plan. The team included ecologists, engineers, and city employees.

Negotiations to create the green space involved a lease agreement with the city and an addendum to the existing remediation feasibility study. This creative process and practical plan improved community relations and the ecological enhancement of the site – which may add value to remediation efforts.

## INTRODUCTION

Alliant Energy, a Midwest based utility company, is using an innovative approach to manage it's former Manufactured Gas Plant (FMGP) site in Janesville, Wisconsin. The approach used a participatory decision-making process and an interdisciplinary information gathering process to create and implement a green space redevelopment plan for the site.

### Description of Site

The FMGP site is located adjacent to a railroad corridor, across the street from a riverfront and near a city park where water ski shows and July Fourth celebrations occur. The site is approximately 2 acres. According to historical records, the gas manufacturing process took place from approximately 1887-1933. See Figure 1 for a historic view of the MGP site. The round structure in the foreground of photograph is a gas holding tank.

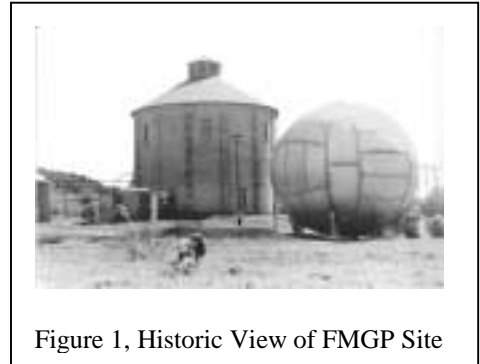


Figure 1, Historic View of FMGP Site

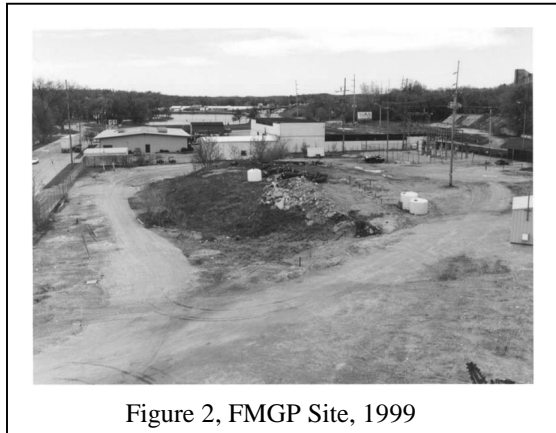


Figure 2, FMGP Site, 1999

The site is currently being remediated and hosts a substation and a small building. The active groundwater remediation system includes air sparging and soil vapor extraction. These systems create a microbial fence for the treatment of dissolved-phase constituents and are regularly monitored. See Figure 2 for recent view of site.

## PLANNING PROCESS

After the remediation system was constructed and put in to operation, a planning process ensued to create a land use plan for the site. For community relation purposes, Alliant Energy pursued a new approach to meet environmental requirements, while redeveloping the site into something useful for the City of Janesville. This integrated approach utilized information and expertise from various disciplines to understand and plan for the site in a holistic and practical manner.

### Project Team

The interdisciplinary team used to create the redevelopment plan was facilitated by an environmental planner and included: 1) An arborist from a nonprofit organization, 2) An

ecologist from a prairie nursery, 3) Engineers from Alliant Energy, their consultants, and the City of Janesville, 4) A landscape architect from the City of Janesville and a landscape design consultant, 5) A risk assessment specialist, and 6) The City Park Director and the City Planning Director from Janesville. Involving experts and participants from various disciplines and organizations was useful to create a plan that works for people and the environment.

### **An Integrated Approach**

To gather information for planning purposes, three data collection tools were used: 1) A historical review of existing documents for the site, 2) Qualitative interviews, and 3) Field observations. Once the preliminary data collection process was complete, meetings were used to share information and formulate a redevelopment strategy for the site with the above-mentioned planning team.

**Document Review.** The document review included a review of all the hard copy files and reports for the site. For example, these files included historical photographs, maps, and external and internal correspondence regarding the site. Reports, such as the feasibility study for the site, were reviewed and provided comprehensive information from types of contaminants found on site to remediation recommendations. From these documents a greater understanding was established as to the physical and environmental characteristics of the site, the proposed and implemented procedures to improve the environmental quality of the site, as well as understanding the historical context of the site.

**Field Observations.** Field observations were conducted in the winter, spring, summer, and fall. They included a walk through and around the site to gain a hands-on understanding of site function, site constraints, and the remediation process and operational needs.

For example, during a spring field visit a consulting engineer (standing in Figure 3) demonstrated how the remediation system operates and provided suggestions for facilitation of future monitoring and maintenance needs. See Figure 3 for photograph of field visit. During another field visit the arborist and ecologist toured the site and provided suggestions for the site's future ecological function and investigated soil conditions for planting prairie and trees.

**Interviews.** Qualitative interviews were conducted with team members and engineers who regularly monitor the site. The interviews were designed to gain an understanding of the

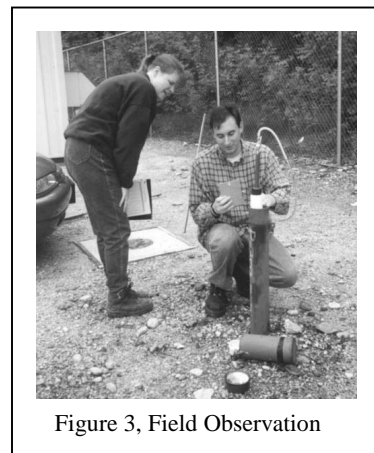


Figure 3, Field Observation

interviewees' involvement with the site, site constraints, site visions, and other community issues or projects that should be addressed in order to effectively plan for the site. The environmental planner conducted the qualitative interviews using open-ended descriptive questions. This format allows the interviewee to expand upon ideas and share new information rather than be limited to predetermined yes/no or multiple-choice responses.

The first two interviews were conducted with senior environmental managers at Alliant Energy to determine the future needs of the site from an energy delivery standpoint, and to address the limitations and opportunities available to pursue for the site. To gather detailed information regarding site constraints and future land use feasibility, four interviews were conducted with Alliant's consultants who designed, operate and monitor the remediation system. In order to gather direction and information from the City of Janesville, an interview was conducted with Director of City Planning and the city's Senior Planner.

### Planning Meetings

Both update and planning meetings were used to share information and formulate a redevelopment strategy for the site with key planning participants. For example three meetings were held with Wisconsin Department of Natural Resources staff to update them on the planning process and discuss regulatory implications.

The planning meeting was held in the city's library and was constructed as a working meeting, whereby participants formalized their vision for the site as well as identified site constraints. To assist discussion, poster size pictures of the site were used, as well as the city's drawing for their riverfront redevelopment project. See Figures 4 and 5 for meeting photographs.

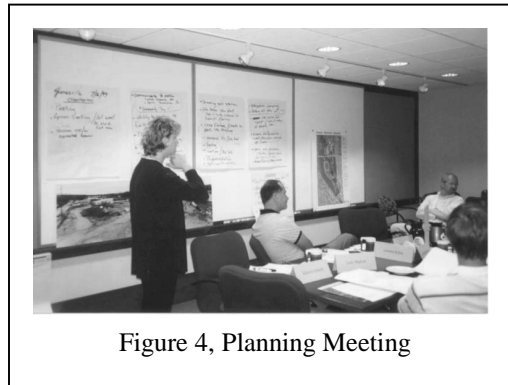


Figure 4, Planning Meeting



Figure 5, Design Review Meeting

Once draft landscape designs were created to capture the intent of the planning team, they were shared with the city planners for review. The designs were revised to meet their needs. The final design includes a protective soil barrier layer to limit casual contact with MGP residuals. The landscaping design details are described in the results section.

## RESULTS

The planning process resulted in the creation of an innovative redevelopment plan for the FMGP site -- a green space parking area for the City of Janesville to use for overflow parking needs for special summer events held at the nearby Traxler Park. See Figure 6 for the landscape design. Negotiations to create the green space involved a lease agreement with the city and an addendum to the existing Feasibility Study that was previously approved by the Wisconsin Department of Natural Resources. The City of Janesville will maintain the parking area and prairie. The entrances to the u-shaped drive will be gated and access controlled by the City of Janesville. The city will therefore be able to limit the possibility of the site becoming a storage yard for cars and other vehicles, as well as limit access if wet weather should prohibit parking on the grass. Alliant Energy will retain ownership and continue to operate and maintain the substation and groundwater remediation system.

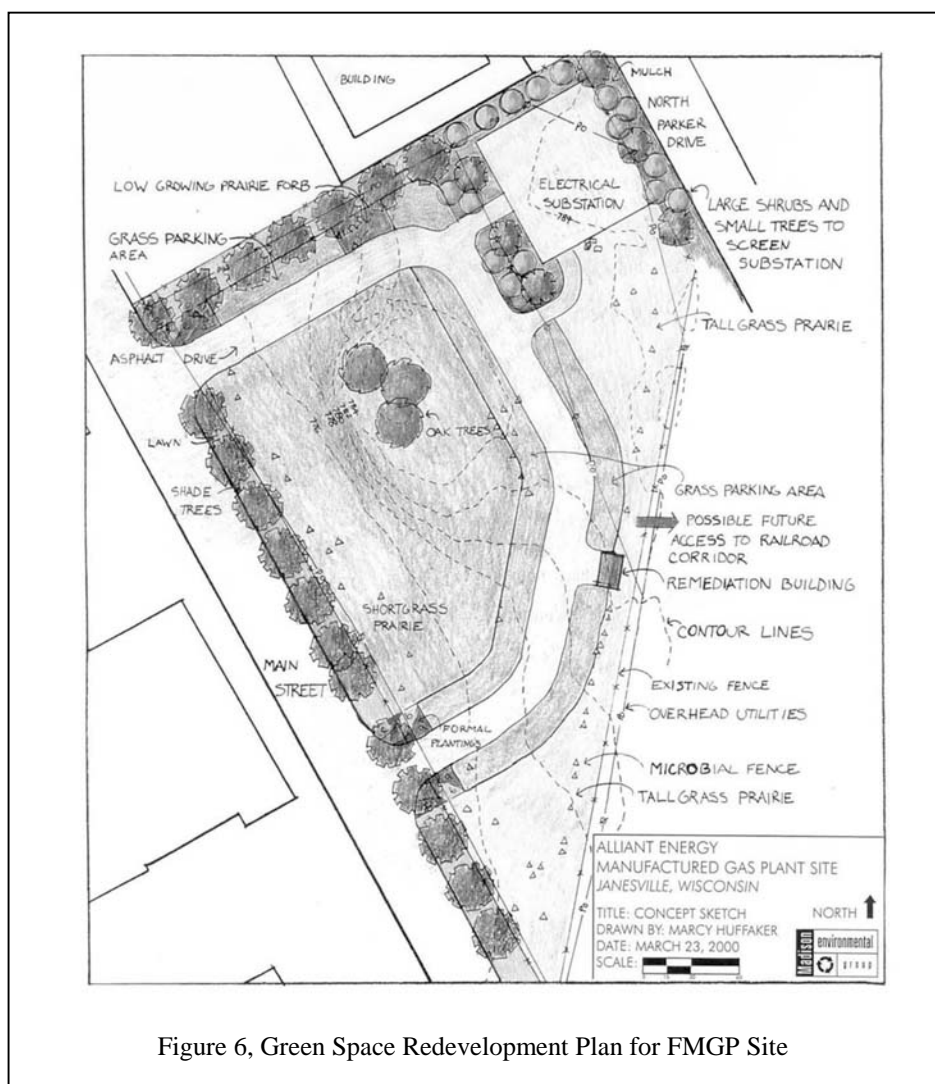


Figure 6, Green Space Redevelopment Plan for FMGP Site

## **Description of Site Improvements**

The landscape plan for the site is designed to create a visually pleasing, low maintenance space that incorporates a green space parking area with a native landscape theme. Specifically, the green space parking area will include: 1) Short-grass prairie on the mound in middle portion of the site, 2) Tall-grass prairie along eastern edge of site adjacent to the rail corridor, 3) An asphalt drive to access the parking and substation, 4) A grass parking strip (adjacent to asphalt drive) to host 60 parking spaces, 5) Native shrubs and APlan Before You Plant® trees next to substation, 6) Groupings of prairie flower plants at entrances, and 7) Trees on the terrace to coordinate with Traxler Park area trees. The landscape plan does not limit the potential for future access to the adjacent railroad corridor.

## **BENEFITS**

Many benefits were realized in using the innovative approach to closure described in this paper. The participatory decision-making process engaged project participants and created avenues for outcome-oriented communication with the City of Janesville – Alliant Energy's customer. The interdisciplinary approach enhanced the planning process by integrating social and scientific concerns. This is beneficial to successfully create a land use plan for a brownfield site, such as the Janesville MGP site. The redevelopment plan created a solution that meets the needs of all parties – the community, the engineers monitoring the site, and the landowner.

## **CONCLUSIONS**

The planning process has thus far proved to be a positive experience for Alliant Energy. The utility is currently piloting similar approaches at its Fond du Lac, Wisconsin and Mason City, Iowa FMGP sites. An additional area of interest for Alliant Energy is the phytoremediation potential of the prairie plantings that dominate the landscape of the final cover. This benefit would require further study. Finally, this creative planning process and resulting practical plan also improved community relations and the ecological enhancement of the site.

## **ACKNOWLEDGEMENTS**

This project was successful due to the team approach facilitated by Madison Environmental Group, Inc. Team member organizations include: Alliant Energy; Prairie Nursery; The RETEC Group, Inc.; RMT, Inc.; Trees Forever; and the City of Janesville.

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