



## **St. Jude Medical:**

### **Restoration and Prairie Gardens on a Corporate Site**

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#### **INTRODUCTION**

Driving into the entryway of St. Jude Medical's Woodridge complex, most people slow down enough to wonder, "What is this?" The landscape at this corporate site demands attention. Formal gardens using mostly native species give way to natural areas of prairie, savanna, and woodland. The scene provides an excellent framework to question our ideas of landscape restoration and prairie gardens.

St. Jude Medical manufactures heart pacemakers and medical devices. Though just a five minute drive from downtown St. Paul, Minnesota, this corporate site is in a peaceful residential neighborhood of single family homes. The Woodridge facility is located southwest of the junction of Highways 36 and 35E, and is accessed from County Road B. Construction on the building began in 1993 and the gardens and natural areas were planted in 1994, so the landscape is still very young.

#### **PROJECT GOALS**

Having seen a prairie restoration at a YMCA camp, the building architect was interested in natural landscaping and called landscape architect Jim Hagstrom, of Savanna Designs in Lake Elmo, Minnesota. The idea of a naturalistic planting met with skepticism by some at St. Jude Medical. The company was concerned about its neighbors, about its reputation with the financial and business world, and about its clients and colleagues in the international medical community. They wanted to project an image of corporate responsibility. As Hagstrom points out, this image can be antithetical to natural landscaping.

To explain natural landscaping and what might be possible for the site, Hagstrom showed corporate officers slides of natural areas and gardens which relied on native plants. He took them to visit restorations in the area, and they toured the very artistic planting of *Betula nigra* (river birch) and prairie grasses at General Mills, Inc. in Golden Valley, Minnesota. Hagstrom was candid about the benefits, challenges, and problems associated with naturalized plantings.

In defining the project two key issues emerged: perception and sustainability. In Hagstrom's words, "the overriding issue of this project became one of perception." The primary design goal was to create a landscape which evoked an image of care, intent, and responsibility. Committed to the use of native plants, Hagstrom turned to traditional design techniques to "make nature acceptable" to his client.

An ethic of sustainability was the other guiding concept for the project. Hagstrom's goals for a sustainable landscape in this cold climate are a design which:

- a.) requires minimal or no irrigation
- b.) handles storm water on-site
- c.) uses predominantly native plant materials
- d.) encourages biodiversity
- e.) invests in healthy soil (no fertilizer and pesticides)

f.) minimizes or eliminates bluegrass lawns

The design challenge was, therefore, to integrate a naturalistic landscape based on an ethic of sustainability with a sense that the place was cared for. The term restoration was never used to describe this project. Yet, if landscape restoration is a reconstruction of the structure and function of a past ecosystem, this project has many components of a restoration. For Hagstrom the past is simply a model to study. It is not a landscape that must be replicated religiously. He selected prairie, oak savanna, and oak woodland as his models for this project and focused on form -- the plant species. To integrate nature with the human activities that will occur in this place, Hagstrom targeted only a few ecosystem functions (biodiversity, healthy soil, etc.).

## **AN OVERVIEW OF THE SITE**

Before European settlement this 11-acre site was most likely oak savanna. An abandoned farm house next door suggests farming and the pasturing of animals occurred here. When St. Jude Medical began construction in 1993, the site contained a disturbed gravel pit, a dense oak woodland, and a small remnant oak savanna. Gravel from the site was used years ago for improvements of Highway 36 and *Populus deltoides* (cottonwood) near the gravel pit were 30 - 40 years old. There were low areas on the property which held water seasonally.

The soil on the site is sandy and gravelly. Because the building was newly constructed most of the site was regraded. Twelve inches of top soil was brought in and spread over the lawn and garden areas. The property today can be divided into several landscape areas (acreage is approximate):

1. Parking lots and building -- two acres
2. Prairie gardens (1/2 acre) and turf areas (1/2 acre) -- one acre
3. Natural areas:
  - Prairie and savanna --five acres
  - Creek and pond -- part of prairie
  - Oak woodland -- three acres

## **THE PRAIRIE GARDENS**

The gardens merge native plants with traditional design techniques. These are formal gardens at the street entrance and the building entrance. Rather than describe each in detail, I will discuss some of the techniques the designer employed. These techniques are used only in the prairie gardens, not in the prairie and savanna areas.

1. Augmenting native plants with non-native plants. There will always be people that insist on the use of only native plants for restorations and naturalized gardens. The St. Jude Medical site uses primarily native species but augments them with cultivars of related native species, species slightly out of their range, and bedding plants and bulbs.

- Cultivars of related native species. In this project, to obtain a specific plant size or form, a cultivar of a related species may replace a native species. For example, *Rudbeckia fulgida* 'Goldsturm' has bold flowers which are held above a dense canopy of deep green foliage. It has a compact cushion form. This is used instead of the native species *Rudbeckia hirta* which generally lacks the luxurious foliage and bunching form. *Cornus sericea* 'Isanti', the Isanti dogwood, replaces the native species *C. stolonifera* because it grows only five-feet high instead of the eight to ten feet of the native.
  - Species out of their range. The designer uses plants representative of the model plant communities -- prairie, oak savanna, woodland. However, not all the plants present are native in this region. The natural range of *Echinacea purpurea* (purple coneflower) for instance, does not extend as far north as St. Paul. However, this plant has such a strong association with prairies that it fits well in the garden areas.
  - Bedding plants and bulbs. Few prairie flowers bloom in early spring. In Minnesota, it is late May and early June before the puccoon, prairie phlox, and butterfly weed begin their display. Narcissus and *Phlox subulata* (creeping phlox) are used in some of the garden areas to provide early spring color.
2. Framing and contrasting. Sweeps of turf and a formal hedge of *Ribes alpinum* (alpine currant) are employed for framing and contrasting. The hedge begins at the street entrance and it separates the prairie from the entrance garden. This separation helps people compartmentalize the scene -- you first see the formal prairie garden and in the distance the prairie and savanna. The turf not only frames but provides a striking contrast to the formal beds or the unmowed prairie.
3. Geometric plantings. Geometry and straight lines seem hypocritical in a naturalistic planting. Yet in these prairie gardens they provide a sense of order. Some of the beds are strict rectangles with a single species or two planted soldier-like in rows and columns. When grasses are used in this format, they soften the harsh lines. *Liatris* and *Rudbeckia* cultivars blocked in this manner are bold and dramatic in bloom. There is nothing prairie-like in these geometric plantings. They represent the extreme end of a continuum from formal garden to naturalized garden to restoration. The same species are repeated in more natural beds which have curving lines, more informal spacing, and a mix of trees, shrubs, and herbaceous materials.

In establishing the formal areas, it was important to have the gardens presentable as soon as possible. Therefore, containerized plants were used, not seeds and seedlings. Additional top soil was brought in for the gardens. Some of this was rich soil from the low areas and had been stockpiled during construction. Boulders

were placed to enhance the design and after planting a shredded bark mulch was applied to reduce weed growth and conserve moisture. The installation was done by the design company's landscape crew. This crew also maintains the gardens. The grasses and flower seedheads are not cut in the fall so they provide interest during the winter season. Spring clean-up includes pruning and cutting back the herbaceous plants. From May through August, the crew visits the site twice a month for weeding. The plants in the gardens are drought tolerant. Watering was done the first year to ensure successful establishment but is no longer necessary. No fertilizer is used in the gardens. Nutrients in the form of dead herbaceous material are not being returned to the soil but the gardens started with a rich topsoil, receive nutrients from decomposing bark mulch, and most of the species planted flourish in infertile soil.

## **THE NATURAL AREAS**

The natural areas on the site required varying levels of intervention. An oak woodland that covers a hillside has been left untouched. It is heavy with underbrush including *Rhamnus cathartica* (common buckthorn). Hagstrom acknowledges that the woodland needs a management plan. The remnant oak savanna had several old oaks which were pruned to remove dead limbs. A small area (about 1000 square feet) in the savanna had a ground cover of native species including *Koeleria cristata* (June grass) and other native grasses. This patch was weeded to remove non-native species; no seeds or plants were added. The ground cover for the rest of the oak savanna was prepared and seeded like the prairie.

The largest prairie area is in front of the building and merges into the savanna. The prairie areas are not all contiguous and include some fairly narrow swatches. For example, three parking lot islands are from ten to twenty feet wide and up to 280 feet long. Thus, you do not have the feeling of being on a vast expanse of prairie. Instead, it is more akin to a prairie pocket which might have been found in the transition zone between prairie and woodland.

For species selection and planting the prairie, Hagstrom hired Prairie Restorations, Inc. a Princeton, Minnesota company that has been doing prairie restorations for over 20 years. Hagstrom's design specifications called for a "short dry" prairie, but the moisture capacity of the soil suggested mesic species of a mixed prairie would also be appropriate. The design priorities dictated the choice of the model, and a "short dry" mix was seeded in most of the prairie areas. Some taller grasses were used in select areas and a wet mix was used around the pond and in low spots. The seed order included:

Mix	Quantity	Common Names	Scientific Names
Blue grama	30 lbs	Blue grama	<i>Bouteloua gracilis</i>
Short dry grass	57 lbs	Sideoats grama blue grama little bluestem June grass	<i>Bouteloua curtipendula</i> <i>Bouteloua gracilis</i> <i>Schizachyrium scoparium</i> <i>Koeleria cristata</i>
Mixed height mesic	10 lbs	Big bluestem sideoats grama Canada wild rye switch grass little bluestem Indian grass Kalm's brome	<i>Andropogon gerardii</i> <i>Bouteloua curtipendula</i> <i>Elymus canadensis</i> <i>Panicum virgatum</i> <i>Schizachyrium scoparium</i> <i>Sorghastrum nutans</i> <i>Bromus kalmii</i>
Tallgrass wet	5 lbs	Big bluestem Canada wild rye switch grass Indian grass cord grass wool grass	<i>Andropogon gerardii</i> <i>Elymus canadensis</i> <i>Panicum virgatum</i> <i>Sorghastrum nutans</i> <i>Spartina pectinata</i> <i>Scirpus cyperinus</i>
Forbs	10+ lbs	24 species, mostly dry to mesic, including: yarrow butterfly weed rough blazing star azure aster black-eyed Susan purple prairie clover and others	<i>Achillea millefolium</i> <i>Asclepias tuberosa</i> <i>Liatris aspera</i> <i>Aster oolentangiensis</i> <i>Rudbeckia hirta</i> <i>Petalostemum purpureum</i>

For part of the prairie, site preparation required removing brush and *Acer negundo* (boxelder), *Ulmus spp.* (elm) and *Rhamnus cathartica* (buckthorn). Other areas were devoid of vegetation because of construction and grading. An herbicide was sprayed where necessary to kill existing vegetation. The areas were then tilled and firmed. Seed was both drilled and hand broadcast. After seeding, the site was mulched with little bluestem straw. Since some species do not establish well from seed, over 2500 seedlings were then planted. Fifteen species were planted as seedlings, including forbs such as *Amorpha canescens* (lead plant), *Asclepias incarnata* (swamp milkweed), and *Phlox pilosa* (prairie phlox). The site was not irrigated.

A crew from Prairie Restorations, Inc. manages the prairie. It was mowed once the first season (1994) and spot sprayed for thistle. In spring of 1995 and 1996, the prairie and savanna were burned. A two to five year burn cycle will begin in 1997. During the summer of 1995, *Rudbeckia* and a few other forb species bloomed in the prairie. The planting was still sparse at this time and bare soil was visible. It looked "weedy" but was on track for such a young planting.

## **THE CREEK AND POND**

To meet the goal of handling storm water on-site, a holding pond was designed. There were seasonal wetlands on the site and one of these was cleared of vegetation, deepened, and reshaped. All runoff from the building roof, parking lots, and sidewalks are channeled to the pond through underground drain tiles or into the landscaped and prairie areas. The pond is in the prairie and savanna so the vegetation around the pond includes wet prairie grasses and forbs. Water from the pond is pumped up to a small pool near the building and flows down a stone creek bed back to the pond. The pump aerates the water in the pond and it is hoped that this aeration will help keep the water clean. The creek, with its two small pools, was installed as a typical small-scale water garden, using plastic liners, landscape fabric, cobblestone and boulders. The vegetation around the pool nearest the building includes *Hemerocallis* (daylilies) and *Hosta*. As the creek travels away from the building more native vegetation is prevalent.

## **EVALUATION**

It is not clear whether there was a formal evaluation process for this project. But the designer continues to visit the site and watch it mature. He receives informal evaluations on the project since his crew maintains the gardens. It is obvious that employees at St. Jude Medical enjoy the grounds. A letter of thanks from the plant manager to Hagstrom expresses the company's enthusiasm:

"... thank you for really doing an outstanding job on the Woodridge facility. We receive nothing but complements on the aesthetics of the facility especially of late as things are in full bloom. The Woodridge facility is truly a showcase for St. Jude Medical and we bring many surgeons, public officials, and other dignitaries through this facility and all comment on the aesthetics

of our landscaping."

Such a complement, of course, says nothing about the success of the restoration of the natural areas. Prairie Restorations, Inc. is satisfied with the progress the prairie is making. Because the landscape is so young, the ecological accomplishments of the project are difficult to assess. It is possible, however, to evaluate whether the designer's goals for a sustainable landscape have been achieved.

1. Requires minimal or no irrigation. The plants in the gardens are drought tolerant. Watering was done the first year to ensure successful establishment, but is no longer necessary. The prairie, savanna, and woodland cover well over 3/4 the site and are not irrigated. Only the turf areas (approximately 1/2 acre) require regular watering.
2. Handles storm water on-site. Thus far, it seems this goal has been met. The holding pond receives water from the building and parking lots. The parking lot islands have depressions which enable much of the island runoff to drain slowly into the soil rather than into the parking lot.
3. Uses predominantly native plant materials. The gardens are not intended to be prairie restorations. Thus, it seems appropriate to take liberties in these areas and include non-native species. The prairie, however, contains only plants native to this area. For example, Echinacea purpurea, while used in the gardens, is not found in the prairie since its natural range does not extend this far north.
4. Encourages biodiversity. The plant list includes many species of native trees, shrubs, grasses, and herbaceous forbs. Many of the plants are not commonly available and approximately ten different nurseries were needed to obtain the quantities and types of plants required by the design. More animal species are beginning to inhabit the site. Butterflies, in particular, have been a pleasant surprise to company employees.
5. Invests in healthy soil (no fertilizer and pesticides). In the gardens a shredded bark mulch helps prevent the loss of soil. As the mulch decomposes it acts as a slow release fertilizer. Since most of the garden plants used can flourish in infertile soil, Hagstrom anticipates there will be no need to fertilize the garden areas in the future. No fertilizer is used in the natural areas. The lawn receives an organic fertilizer.
6. Minimizes or eliminates bluegrass lawns. The design has less turf than is typical in most corporate landscapes. It is used in strips and swaths, not in large expanses, and probably covers about one-half acre. For people interested in seeing prairie restorations on these sites, this may still be too much bluegrass.

A corporate site provides wonderful opportunities for monitoring and evaluating a restoration. Companies can capitalize on employees' interest and the simple fact

that there are many people on site daily to participate in observation and monitoring. An employee-run monitoring program at St. Jude Medical would enable the company to evaluate the ecological success of the natural areas. For example, to track the botanical progress of the restoration, permanent plots could be marked in the prairie and savanna. Inventories of native and exotic plant species could be conducted in these plots and compared over time. Programs to track animal species might also be initiated. For instance, employees and their families could conduct a butterfly count two or three times during the growing season. Once this program is underway, the company could expand it to the immediate neighborhood. It would be interesting to compare the species and numbers of butterflies at St. Jude Medical with nearby yards and parks. There are many possibilities for monitoring. With guidance and training, interested employees can collect data that will help refine management strategies and ensure the success of the natural areas.

## **CRITIQUE**

The landscape at St. Jude Medical is a wonderful bridge to the natural world. It uses the traditional cues of a formal garden to introduce the prairie plants and then leads one out to the prairie in all its informality. Some may feel this is making unnecessary concessions, that we do not need to shield people from nature. But Hagstrom understands that while most people enjoy plants and gardens, many people are uncomfortable with nature on its own terms. His design capitalizes on peoples' pleasure in plants and encourages them to explore the prairie. This does not mean that a prairie cannot stand alone on a corporate site. It is simply one approach.

If one considers only aesthetics, most people will agree that a prairie restoration appears "weedy" and is not terribly attractive the first few years after seeding. The design of this site buys the prairie the years it needs to become spectacular in its own right. The lines of the currant hedge and bluegrass lawn draw attention to the formal gardens when they are in bloom. Once the prairie matures, these lines will frame the native prairie and allow it to steal the stage in July, August, and September.

Hagstrom's goals for this project were clear. They specified a prairie, a savanna, and gardens -- not a restoration. But the prairie and savanna on this site meet some of the requirements of a restoration. The model of oak savanna was very appropriate for this site. I believe design considerations had more impact than ecology when a "short dry prairie" was prescribed instead of a more mesic prairie with mixed tall and short grasses. It will be interesting to see if, over time, the taller grasses move into the short dry prairie. This restoration has structural integrity -- the plant materials fit the models and regional ecotypes were generally used. In addition, this landscape replicates some of the functions of an ecosystem such as handling water, nutrient cycling, and biodiversity. However, because the restored areas are small and not necessarily contiguous, the site cannot function as an ecosystem. Focusing on the plant material, and not the large scale ecosystem dynamics seems very appropriate for this project.

The only thing that I question in this corporate landscape is the creek. Most of the site is bold and challenges us to expand our view of urban and suburban landscapes. The creek seems a concession to a romantic view of nature. With its



stone edges cutting between the prairie and the woodland, it is more a back-yard water garden than a creek. One could argue that a romanticized approach to nature has a cultural and historical place in American life, and is appropriate here. (The true romantics are blind to the huge pump in the savanna that carries water to the head of the creek.) But, for me, the style of the creek detracts from the honesty and integrity of the rest of the design. It is possible that as the native vegetation along the creek matures there will be a more natural merging of rock and vegetation. A more deliberate transition zone from Hosta and Hemerocallis into the prairie might also help.

## **CONCLUSION**

The landscape at St. Jude Medical is exciting and ambitious. The company had the courage to try something different and the wisdom to have specialists design, install, and maintain it. Hagstrom brought his love of native plants together with a sensitivity to human needs and perceptions. He has designed a truly inviting landscape that both gives pleasure and educates. Though some would not call this landscape a restoration, it helps one understand the continuum from garden to restoration.

## **REFERENCES**

Information for this case study came from discussions with landscape architect Jim Hagstrom, reviewing project notes and blueprints, and site visits in August 1995 and April 1996.