



*Dornix Park*

*Master Plan*



## **Executive Summary:**

In April, 2006, a group of Big Timber citizens met to begin the process of developing a public park and recreation area on a parcel of city-owned property that includes the old Big Timber Landfill (a brownfield site), Boulder River frontage and the former Stene/Williams homestead. Goals for park design include sustainable redevelopment of the landscape, ecologically sensitive maintenance, preservation of historic structures, and citizen education about the delicate ecosystems that are integral to the landscape.

The park site is a working landscape; animals graze in the fields, and the city of Big Timber utilizes adjacent areas for waste disposal, recycling, composting, storage and water treatment. The founding group, now known as the Dornix Park Citizens Committee (DPCC), intends to establish a park that demonstrates successful multi-community-uses: preservation, restoration, recreation, wildlife habitat, growing food, outdoor education and continuing city public works.

The park project has already generated significant opportunities and partnerships. Sweet Grass High School has obtained a three-year Service Learning Grant from the Department of Public Instruction to work on many facets of the park, and Montana State University's Landscape Design Department has been instrumental in helping to establish the feasibility of the park and in producing Preliminary Plans.

What follows in the Dornix Park Master Plan report is a closer look at the process followed by the Dornix Park Citizens Committee, the final Master Plan, a detailed description of the areas and elements chosen, special reports on landscape, vegetation, and historic preservation, and probable costs associated with the improvements for Dornix Park.

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## **ACKNOWLEDGEMENTS**

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## **INTRODUCTION**

The community of Dornix began like most western towns, with the arrival of the railroad in 1883. Our project property – Dornix Park – lies southwest of the original Dornix town site. Dornix, Gaelic for “smooth flat stones”, was once located near the confluence of the Boulder and Yellowstone Rivers. The town existed at this site for a year before its relocation and later renaming to present day Big Timber.

In the 1890’s Big Timber was a significant sheep ranching community, shipping more wool than any other town in the world. The evolving land use of the park site reveals the Spirit of Place. The property, originally settled by whites in the 1880’s, existed to support sheep ranching and later in the mid-twentieth century, truck farming.

Scarring of the land from contemporary activities is visible in the landscape. The site reveals the story of modern society to the visitor through the landscape narratives of water treatment, working maintenance and storage for Big Timber’s Public Works department, and a capped, abandoned landfill.

The current canvas of Dornix Park is in flux and ever evolving as an opportunity for education, recreation, and re-creation of place for the community of Big Timber. Once owned by the Stene-Williams family, a homestead, 25+ acre homestead was acquired in 1999 and added to the 65 acres already owned by the City of Big Timber.

## **PARK PROJECT HISTORY**

In June 2006 the City of Big Timber authorized the Dornix Park Citizens Committee to oversee a Feasibility Study for the planning and future development of Dornix Park. As part of the Feasibility Study, volunteers collected soil and water samples, and sought initial approvals from the Montana Department of Environmental Quality for the use of the old Landfill site and adjacent land. Issues identified during the Feasibility Study included:

- Soil saturation/drainage rates
- Water table
- Mineral rates
- Methane levels in the soil

Additional problems on site include, seepage from the adjacent waste water treatment plant currently draining to the Boulder River.

Two key community relationships were developed during the Feasibility Study as part of overall planning for Dornix Park. First, Sweetgrass County High School received a three year, \$27,000 Service Learning Grant that encompassed the Dornix Park property. Second, Montana State University – Bozeman Assistant Professor Bill Pond was contacted to provide guidance for the Feasibility Study and a preliminary Plan for the Park. Special attention was given to the design

of a growing area that would be constructed and maintained, in part, through the Sweet Grass High School Service Learning Grant. These two partnerships became integral in the early planning stages of Dornix Park.

Students from MSU-Bozeman's Landscape Design program made Dornix Park a semester long design project, producing concept drawings for the entire park focusing on the growing area. Their plans were presented to community representatives in December, 2006. (Appendix A, Bill Pond's Preliminary Plan and MSU Student Concept Plan Drawings.)

In March, and April 2007 the Dornix Park Citizen Committee working, with Assistant Professor Bill Pond, organized two community design charettes as a means of generating options for a Master Plan for Dornix Park.

Participants in the first charrette on March 31, 2007, were asked to identify themes, objectives and elements that would appear in the Master Plan. They also identified three themes to guide further development of the site. The three themes included:

- Celebration of Family and Community
- Re-creation of Spirit
- Accessibility

## **PARK PROJECT HISTORY**

Along with these three themes, elements and activity spaces were identified for the park. They included: active and passive recreation spaces, iconic elements reflective of the site history and character, and educational elements.

At the second community charette on April 21st, the three themes:

- Celebration of Family and Community
- Re-creation of Spirit
- Accessibility

were presented to the participants as Concept Plans. (See Appendix B Pg 46) After considering all three designs, the participants voted and selected the theme, Re-creation of Spirit-A Celebration of Wind and Water to become the basis for the development of the Final Plan.

The Dornix Park Citizens Committee, together with Professor Bill Pond, used the recommendations from the charette process to further refine the chosen design. Professor Pond prepared the completed Preliminary Plan that appears in Appendix B, Page 50.

The following program elements were then designed with green building and sustainability in mind.

- Play Structure
- Wetland Boardwalk
- Multi-Use Trail System-Pedestrian and Bicycle
- Historical Homestead Area
- Food Crop/Growing Area
- Welcome Pavilion
- Amphitheater
- Fishing Pier
- Environmental Learning Center
- Prairie Restoration
- Passive Open Space
- Wildlife Preserve
- Day Camp Area

## **PARK PROJECT HISTORY**

The Dornix Park Citizens Committee presented the Preliminary Plan and the results from the design charettes to the Big Timber City Council on June 18, 2007.

On July 2nd, the Big Timber City Council agreed to contract with CTA, Inc., a multi-disciplinary design firm located in Billings, Montana, to prepare a Master Plan for Dornix Park. The funds for the contract came from the Stillwater Mining Company's hard rock mining fees designated for parks and recreation. The Big Timber-CTA contract is attached. (See Appendix L.)

The Dornix Park Citizens Committee has sought input from Big Timber residents throughout the planning process. In addition to the two charettes mentioned above, members conducted tours of the park site, and held trail-building and clean-up work days August 11th and September 22nd, 2007.

As the design for the Master Plan progressed, two additional public meetings were held. CTA and student intern, Dayton Rush prepared a draft Master Plan #1 and several renditions of park elements for the September 26, 2007 public meeting. (Appendix C, Page 51)

The second public meeting for the Master Plan was held on October 13th. Draft Master Plan #2, Appendix C, Page 58 was presented at this meeting.

CTA submitted the final Master Plan for Dornix Park to the Dornix Park Citizens Committee at their meeting on November 7, 2007.

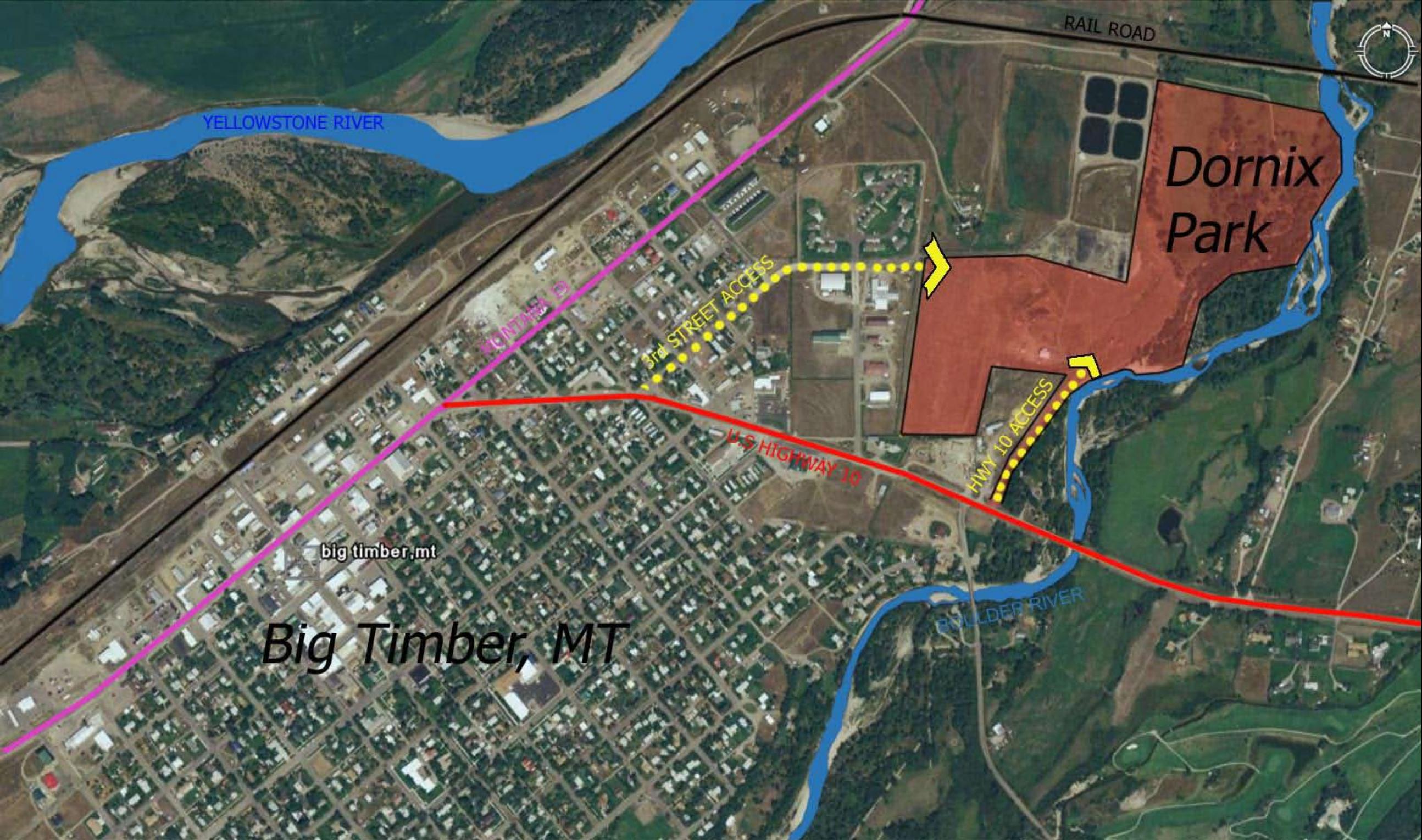
The final Master Plan is on Page 21.

## **METHODOLOGY**

Commencement of the work by CTA included a complete ALTA Survey and retracement of the property boundaries for the park property. (Appendix D Page 59, CTA survey & Boundry Retracement) The survey identified all natural features (topography, vegetation, and waterways) on site as well as all human made structures including buildings, foundations, fencing, wells, and infrastructure.

An initial site visit by CTA Project Manager, Angela Hansen and student intern, Dayton Rush, MSU Landscaping Department, identified two significant features that warranted further investigation. First, the existing vegetation indicated significantly different ecosystems on site including a wetland system. Second, the buildings at the homestead lent themselves to the historic nature of Dornix. Both of these characteristics were identified as significant in fulfilling the restoration, recreation, and education mandate of the project. CTA worked further to investigate these two assets through the wetland delineation process as well as with an architectural historian to document the historic buildings.

Site Location Within Big Timber



*Dornix Park*

## **EXISTING SITE CONDITIONS INVENTORY**

### **Vegetation**

The site inventory of the land included a sample identification of the vegetation as part of identifying the ecosystems of the site. CTA subcontracted with Confluence, Inc. to delineate the wetlands on the site and to begin delineating the ecosystems within the Park. (See Appendix E for Confluence full report). From the site visit and investigation three distinct ecosystems are identified on the Dornix Park site. Those areas include: Semi-Arid Upland, Meadow- Upland Terrace, and a Riparian Ecosystem. Each reflects the unique character of the Montana landscape.



*Traditional Poplar Windbreak at the Homestead*

### **Semi Arid Upland**

Sited on the upland bench area directly adjacent to the old landfill, the vegetation is characteristic of a semi-arid upland plain. Characteristic vegetation that appears in the area includes yucca, and prickly Pear species. This area is adjacent to the transfer station and the old land fill. The area is also spotted with invasive species of spotted knapweed, Canada thistle, hounds tongue, flixweed, oxeye daisy, and leafy spurge.



*Example of Semi-Arid Land - Found in the Upper Portion of the Park Near the Transfer Station*

## **Meadow-Upland Terrace**

Located just below the transfer station site, and south of the waste water treatment lagoons is the meadow. This area, once used for farming, is rich in grasses including crested wheatgrass (*Agropyron cristatum*), fescue (*Festuca sp.*), orchard grass (*Dactylus glomerata*), and timothy (*Phleum pretense*). The area has traditionally been well irrigated and appears that the water table is higher in this area of the site as reflected by the vegetation.



*Pastureland now known as the Meadow*

## **Riparian Edge**

The riparian edge along the Boulder River transitions from grasslands into woody species, including over story tree species and under story shrub layers. Common plant material in this area includes: Cottonwoods (*Populus sp*), willow (*salix sp.*) and alder (*alnus incana*) Throughout the riparian edge wetland vegetation was noted creating opportunity for delineation by Confluence, Inc. The wetland areas were flagged and later surveyed as part of the ALTA Survey conducted on site. (See Appendix D for complete Wetland Delineation Report)



*Boulder River w/thick over and understory vegetation makes up Riparian Edge*

## **Wildlife**

Both domesticated and wild animals are common on the Dornix Park property. Sheep grazing is on-going on site and is reminiscent of the historic use of the property. Additionally, the adjacency of the land to the Boulder River and the extensive under story vegetation has encouraged the area to be used by deer, and other small mammals. The tall cottonwoods dotted throughout the site, have traditionally been home to many bird species, including hawks, and turkey buzzards.



*Native Meadowlark found in Montana*

## **Historic Structures**

A group of old buildings exists on the lower portion of the park property. These structures were once the homestead of the Stene-Williams family during their ranching days along the Boulder. Two of the five structures on site reflect building techniques from the nineteenth and twentieth century. These historic structures are crucial in establishing the Spirit of Place and telling the story of the Dornix community.

A thorough process to document the historic structures and place them in their context of the community of Dornix and Big Timber was undertaken. Investigation into the history and further documenting the structures for future reference was completed as part of this process. (See Appendix G for Historic Architecture Report).



*One of the original Homestead Buildings*

## **Brownfield**

A portion of the Dornix Park property was once the Big Timber Landfill. In 1984 the landfill was closed and the city began utilizing a transfer station (also on city property) for the removal and recycling of the community's garbage. Both the old Landfill and the transfer station are a part of the park to be used for the recreation and the education of the park visitor. Confluence, Inc. was contracted to develop a prairie restoration plan for this Landfill area.  
(See Appendices F Prairie Restoration Plan)



*Traditional Landfill Methods*



*Wetland used to Treat Wastewater*



*Common Water Treatment Lagoon Process*

## **Aquatic Resources**

The Boulder River is the southern boundary of the property. The lower terrace of the property adjacent to the river traditionally acted as a natural buffer during the high water season to the uplands of the site. Alterations to the land occurred by the previous landowner to allow the ranching activities on the property. Today, an approximately 6' high berm parallels the river and acts as a buffer to the low lying property protecting the historic homestead on site. This buffer has altered the natural wetland system once prevalent on site.

In addition to the natural wetland edge of the river, other water is flowing through the lowlands of the site from adjacent land uses. A current challenge to the project is the seepage of waste water from the city's treatment lagoons. Current waste water is flowing from the lagoons at a rate of 68 gpm.

This water reaches the Boulder River via one of the many irrigation ditches on the property.

A series of unmaintained irrigation ditches still can be seen throughout the site. Once utilized to irrigate the property, the ditches lend themselves to sustaining mesic and wet mesic vegetation.

One final source of water on site comes from a natural spring. The spring currently rises from beneath the treatment lagoons and is piped into an irrigation ditch that bisects the meadow on the property.



*Boulder River adjacent to the Homestead*



*View of the Boulder River from upper park area near the Transfer Station*

## **Surrounding Land Uses**

Dornix Park is sited within an industrial area. Land uses that are adjacent to the property include, an industrial park to the north, the city's operating transfer station to the southwest and the public works maintenance yard and waste water treatment lagoons sited within the heart of the park. The park is bordered on the south by the Boulder River and on the east by the Burlington Northern Pacific Railroad currently managed by Montana Rail Link.

Each of these land uses impacts the site as their operations and functions are very much a part of the activity there. It is this activity that provides the additional challenge to the project, the interaction between recreational uses and traditional Public Works operations that help a community function. The impact of these day-to-day functions is very apparent on the park property and provides a creative challenge for park planners and users.



*Old Landfill (within Dornix) and Industrial Park, North of Dornix*



*Big Timber Transfer Station, located at the South West corner of the Park*

## **SUSTAINABLE DESIGN STRATEGIES**

Working from the community mandate, and with the support of the Dornix Park Citizen Committee, the concept that originated from the community design charrettes was further refined by the project team from CTA. During this process the following tasks were completed in order to prepare the project for implementation:

- Review and Identification of fund raising and grant funding opportunities.
- Wetland Delineation and Recommendation plan by Confluence, Inc.
- Prairie Restoration Plan assembled by Confluence, Inc.
- ALTA Survey including topographic analysis completed by CTA Personnel
- Title search and review completed by Sweetgrass Title
- Legal Description and Property Boundary filed with governing body. Completed by CTA Survey team.

- Historic/Cultural Analysis done of historic farmstead completed by CTA Architectural Historian
- Review of City of Big Timber Noxious Weed Management Plan
- Research and development of project details related to green building techniques
- Review and scorecard documentation for Yellowstone Business Partnership Pilot Program

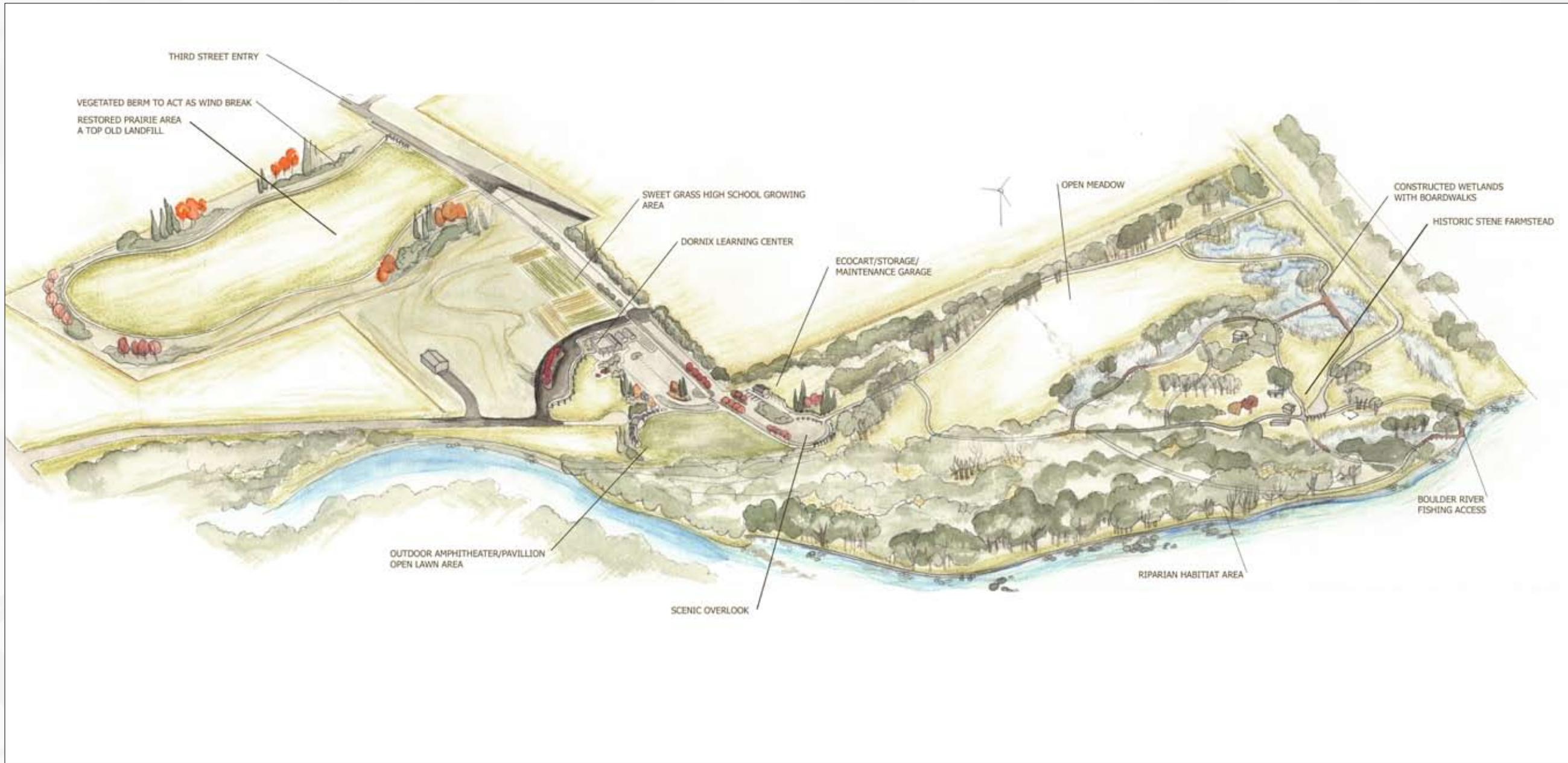
The goal of sustainable development for the project means that the park development has many opportunities to lead Montana in sustainable site development. One of the many guidelines that the City of Big Timber and the Dornix Park Citizen Committee in particular is utilizing as a guide through the sustainable process is the Yellowstone Business Partnership.

This program, The Yellowstone Business Partnership for Sustainable Development, is a recent program developed from three states, Montana, Wyoming, and Idaho as a response to local development processes within their states. This program much like LEED, utilizes a rating system to classify the sustainability of development projects as they are developed within their own local jurisdictions. Review of the design, materials, and processes identified for the Dornix Park Project meets the criteria for the Greater Yellowstone Framework developed by the Yellowstone Business Partnership. The attached YBP – Greater Yellowstone Framework Scorecard summarizes the standards that are met with the Dornix Park Project. (See Appendix H)

**Site Narrative:**

The master plan for Dornix Park identifies three unique areas that are developed based upon their physical, cultural, and biological influences. The following describes each separately.

**Dornix Park - Master Plan Recreation of Spirit " A Celebration of Wind & Water"**  
**10/27/07**



*Dornix Park*

## **Entry/Old Landfill**

The primary entrance to the park is from Third Street through the industrial park and past the Public Works maintenance and storage area. Both the utilitarian working landscape and the recreational park setting are found at the entrance to the property.

The old Landfill site with its restored short grass prairie is used to educate the community about the rebirth that can occur from a once degraded site.

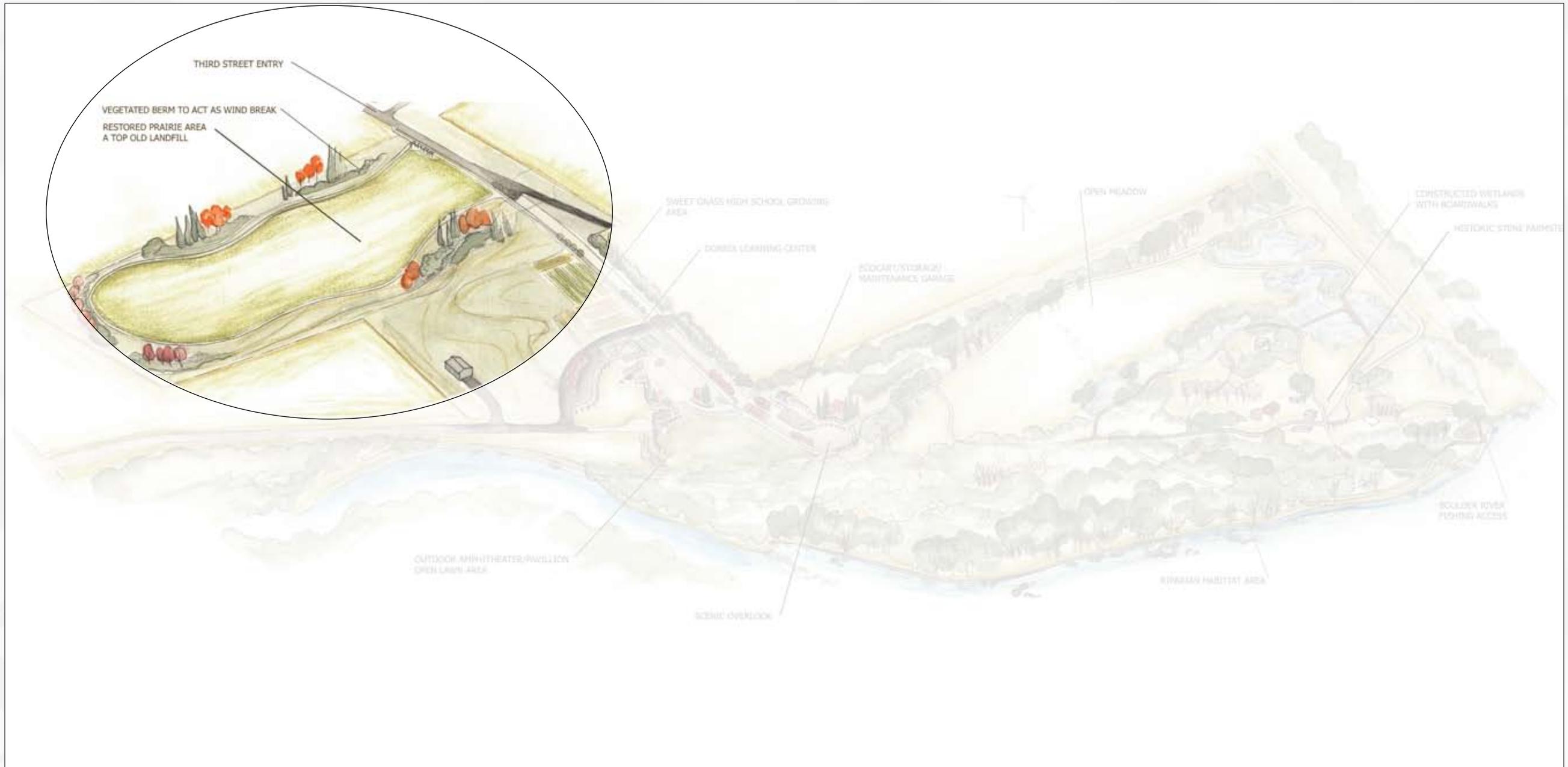
It became important to maintain the public works access to the park to fulfill the working mission of the city while attempting to establish the identity of Dornix Park at its entrance. Vehicular traffic enters the site and shares the entry with public service vehicles into the Public Works maintenance yard.

Once past the maintenance yard entrance, the driving surface transitions to pervious pavement designed to handle lightweight vehicles. Vegetated bioswales are planted on either side of the drive into the site as a technique to detain and cleanse the run-off before the storm water enters the Boulder River.

Circulation paths are especially significant at the entrance to the park. Pedestrian access is provided at the entry through the use of a 6' wide trail system. The trail is constructed of pervious pavement that allows the infiltration of water into the subsurface and down to the aquifer.

As the visitor transitions further into the site, the bioswales and pervious vehicular and pedestrian circulation systems continue to work in harmony to limit the storm water runoff.

## Dornix Park - Entry/Old Landfill



*Dornix Park*

## Entry Signage

To welcome and inform all who enter Dornix Park, entry signage will be placed near the Third Street entry. The signage will welcome visitors by automobile and pedestrians using the new trail system. Located at the intersection of new trails and shared use roads will be informational signage about Dornix Park, brownfield reclamation, prairie restoration, and history. Signage will be constructed from wood timbers and recycled composite wood for long lasting appeal. Surrounding the signs will be flagpoles used to display flags during public events and landscaping to complement the nearby planted berms and prairie reclamation areas.



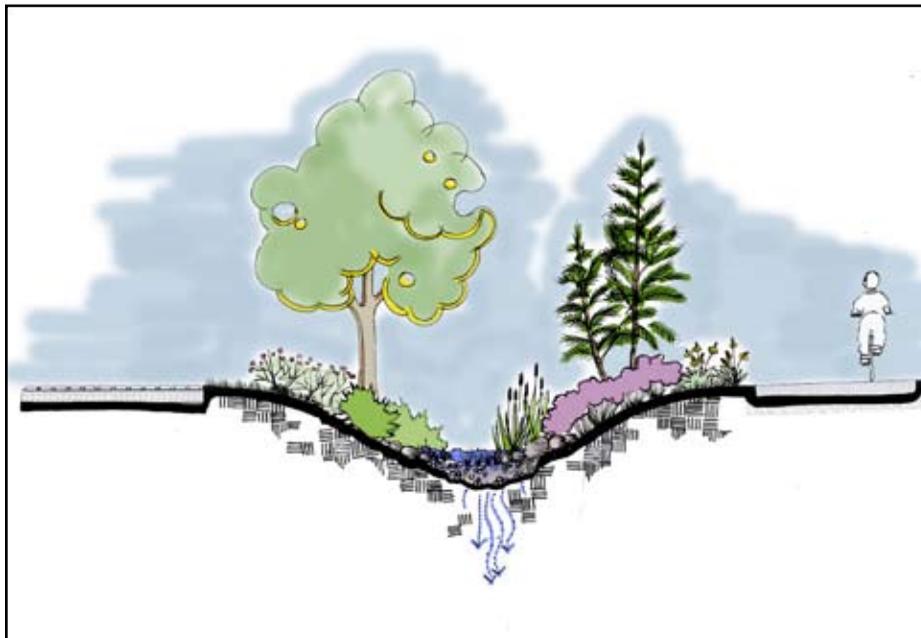
## Pedestrian Trail

To separate circulation between the pedestrian and the automobile, a 12' wide handicap (ADA), accessible pedestrian and bike trail will connect the town of Big Timber and Dornix Park. The trail will be constructed of Poly-pavement, a non toxic, bio-degradable and environmentally friendly alternative to concrete and asphalt. An additive will be mixed with native soil to strengthen it and create a surface stronger than asphalt, yet compliment the natural park setting.



## Bioswales

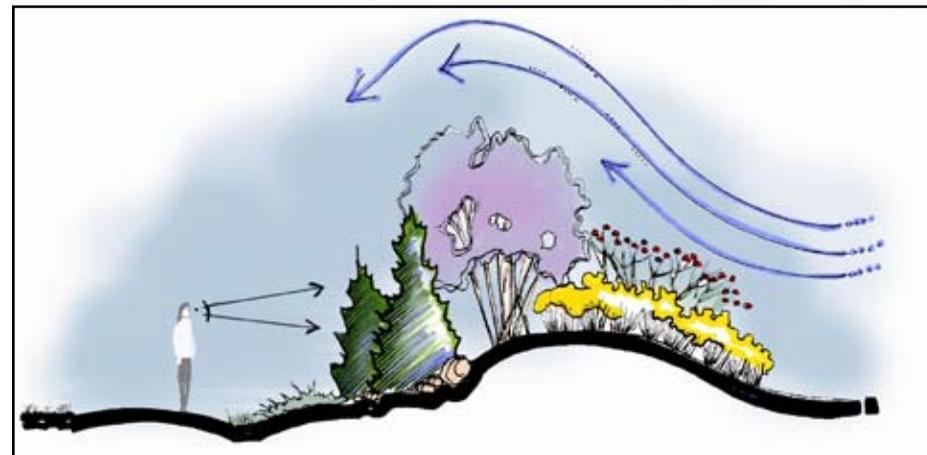
Separating the pedestrian and automobile trails is a planted bioswale that collects surface runoff from the paved road and the pedestrian trail. The bioswale allows rainwater to collect and water trees, grasses and shrubs. Bioswales reduce the need for traditional, expensive storm water management practices and allows natural infiltration to the ground water to occur. Plant material within the bioswales will include, grasses sedges, cat tails, water birch, willows, dogwoods, and maples.



## Planted Berms

To enhance the passive open space, topsoil generated from the creation of new entry roads and construction will be used to create berms that when planted will act to screen views and to block sound, and wind. Berming allows for an increased root zone for plants to grow and thrive on top of the re-claimed landfill. Plant materials that will be a part of the reclamation project include:

- Rocky mountain juniper, *Juniperus scopulorum*
- Service berry, *Amlencher alnifolia*  
Western snow berry,  
*Symphoricarpus albus*
- Chokecherry, *Prunus virginiana*
- Tri-lobed sumac, *Rhus aromatica*
- Small soap weed, *Yucca glauca*
- Woods rose, *Rosa woodsii*
- Native grass and wildflowers



## **Landfill Short Grass Reclamation**

Re-creation of spirit starts here. The old Landfill near the Third Street entry is a safe place for passive open space to be used for community activities, trail systems, and short grass prairie reclamation. The central open space will be planted with drought tolerant, low growing native grasses. The reclamation will be carried out according to recommendations from Confluence, Inc. (See Appendix F for Prairie Restoration Plan). Implementation of the Prairie Plan is expected to be a collaborative effort between community organizations, local extension agents and Sweetgrass High School. Proper establishment and management of these areas will result in increased wildlife habitat and add to the educational experience of park visitors for generations to come. The open space will have an irrigation system above the surface to keep grass conditioned for summer long events and activities.



## **Vehicular Circulation**

The road entering Dornix Park will be paved in a typical manner using asphalt or concrete. This will insure that public works equipment and buses can enter the park without damaging the roads. However, in areas of lighter traffic, a recycled plastic grid anchored into the ground and filled with recycled glass from the nearby recycling bins will be used to surface roads and parking lots. This surface is porous and allows storm water to infiltrate into the ground where it falls. This surface is composed of natural and recycled materials that make for a great driving surface, and are environmentally friendly.

One such manufacturer of this system is Invisible Structures. Further inquiry of this company can be done by visiting their website.  
[www.invisiblestructures.com](http://www.invisiblestructures.com)



## **Environmental Learning Center**

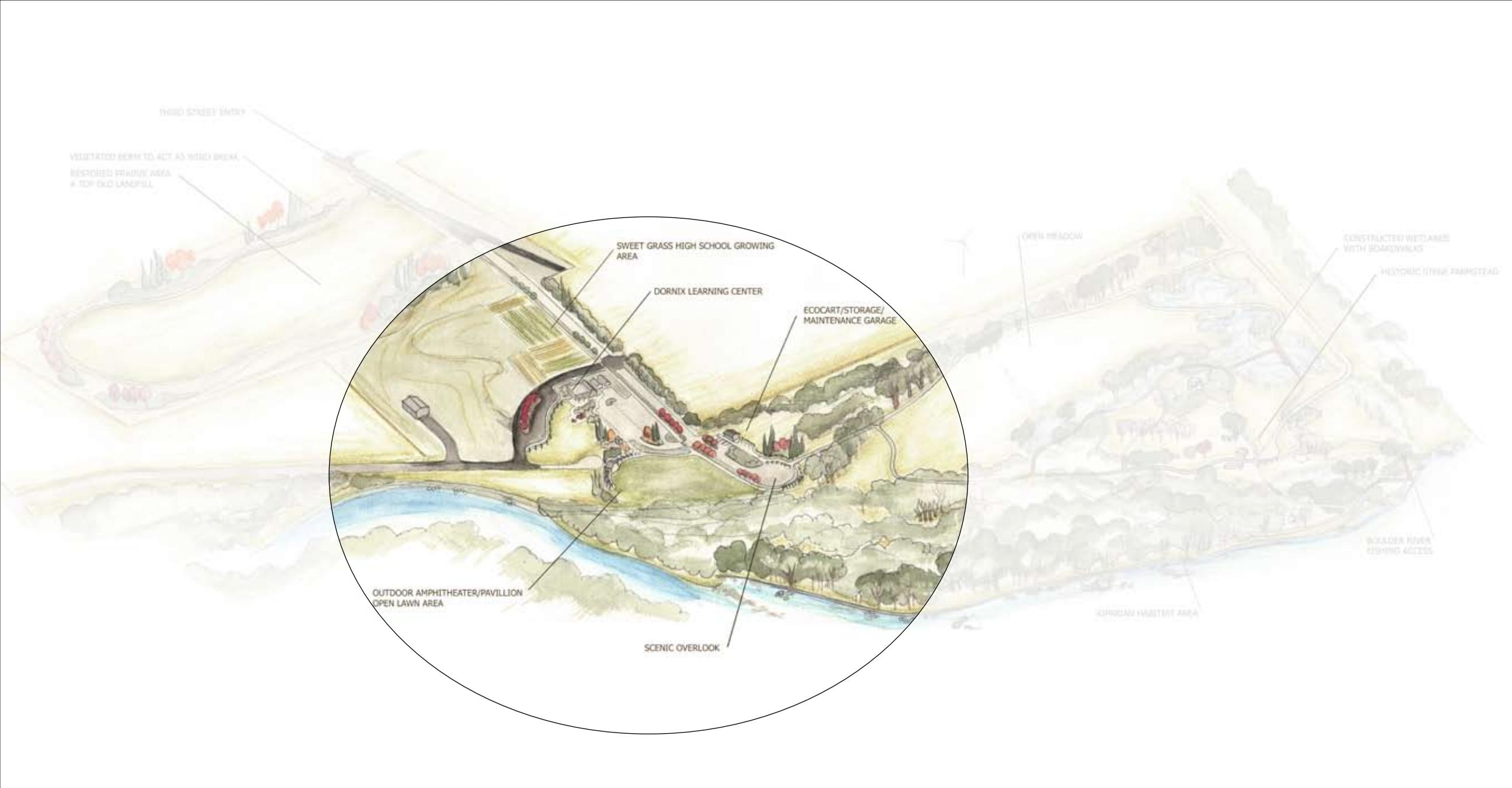
At the heart of the park, stands the Dornix Environmental Learning Center (pg. 29). This public building is situated to be used as the hub for the park. Associated elements within this area include a Growing Area with Greenhouses, Gardens, and Outdoor Pavilion.

Opportunities to demonstrate green technologies abound here. Innovative techniques regarding pervious paving, the use of recycled materials, and natural materials from the site are included in the development of the structures. For example, rain gardens adjacent to the Environmental Learning Center will be utilized to control storm water run off. The use of bioswales and pervious recycled glass paving in the parking areas are proposed to control storm water run off and increase water infiltration on site.

Uses of low maintenance, drought tolerant, native grasses are specified for the lawn areas. The use of surface water for irrigation is also part of the plan for this, as well as other areas of the park. The Outdoor Pavilion will make use of recycled timbers and local river rock. All ornamental fencing is currently designed to be built from stone gabions with recycled timbers for the rails.

All materials collected from the site, or the local community. Native plant material is specified for the landscaped areas of the park.

# Dornix Park - Environmental Learning Center



*Dornix Park*

## **Environmental Learning Center**

This is the largest building in Dornix Park. It provides a gathering place for community activities, including educational classes, day camps, and many other large outdoor gatherings of every size. Programming for the building includes:

- 2 reg. classrooms
- Open area for conference/displays
- Bathrooms
- Storage
- Office Space

Around the building rain gardens will collect water from the roof and walks to manage storm water. Native plantings of trees, shrubs, grasses, and wildflowers, will add interest and color to the structure and surrounding area.



## **Growing Area with Greenhouses and Gardens**

The Growing Area is north of the Environmental learning Center. The space will be utilized for Sweetgrass High School students and other community members to develop working gardens and Greenhouse information. Food produced in the garden space and greenhouses will be utilized in a "Garden to Cafeteria" Program currently being developed.



## **Play Structures**

Located south of the environmental Learning Center is the childrens play area. The play structure found here will reflect the natural feel of the park by incorporating a large climbing boulder for children of all age groups. The surface below the play structure will consist of pea gravel and the area is separated from nearby roads with a gabion and wood fence. Youth activity tables will also serve as areas for outdoor classrooms.



## **Scenic Overlook, Trail Use Parking**

At the end of the porous roadway extending from Third Street is a turn-around big enough to allow emergency vehicular access. Wrapping the turn around is the continuation of the bioswale. Just to the south end of the turn around is a pedestrian overlook that consists of informational signage that reflects the style and construction of the entry signage. This signage will contain three informational panels about Dornix past, present and future. Also, split timber benches will provide sitting areas. These benches could be placed by community organizations or donated by families as memorials or tributes.

The Scenic Overlook (pg. 31), capitalizes on the opportunity to describe the many characteristics of the landscape. The advantage of being at the highest point on the site affords the visitor a 360 degree view of the park. Interpretive panels telling the historical, cultural, ecological, and hydrologic history of the site are currently planned for the Scenic Overlook.

## **Eco-cart Parking and Shed**

For accessibility to the river-front trails, boardwalks and historic building, the multi-use maintenance and storage shed located north east of the Scenic Overlook will also accommodate an eco-cart parking area where environmentally friendly transportation can be checked out for use inside the park. The carts will act as a mobile access for all areas of the park.



**Dornix Park - Scenic Overlook, Trail use Parking**



*Dornix Park*

## **Pavilion**

South of the Environmental Learning Center and parking lot is the Outdoor Pavilion and open lawn. The Pavilion consists of two parts: the center is a 20' x 40' sound shell for concerts and community events. The sound shell is supported with recycled wood and stone veneer columns made from local stone and has controlled vehicular access in the rear for easy set up of equipment. Connected to the band shell is a long open-air pergola. The pergola is constructed of wood and recycled composite lumber. The pergola will be planted with virginia creeper, clematis and honeysuckle vines to provide shade and wind protection. The band shell and pergola surrounds and frames a large open lawn that can be used for public gatherings. The lawn will have an irrigation system fed by nearby irrigation ditches and supplemented with well water.



## **Green Fencing**

To divide space and direct the circulation, fences composed of stone gabions and rustic timbers will support vines to create green walls.



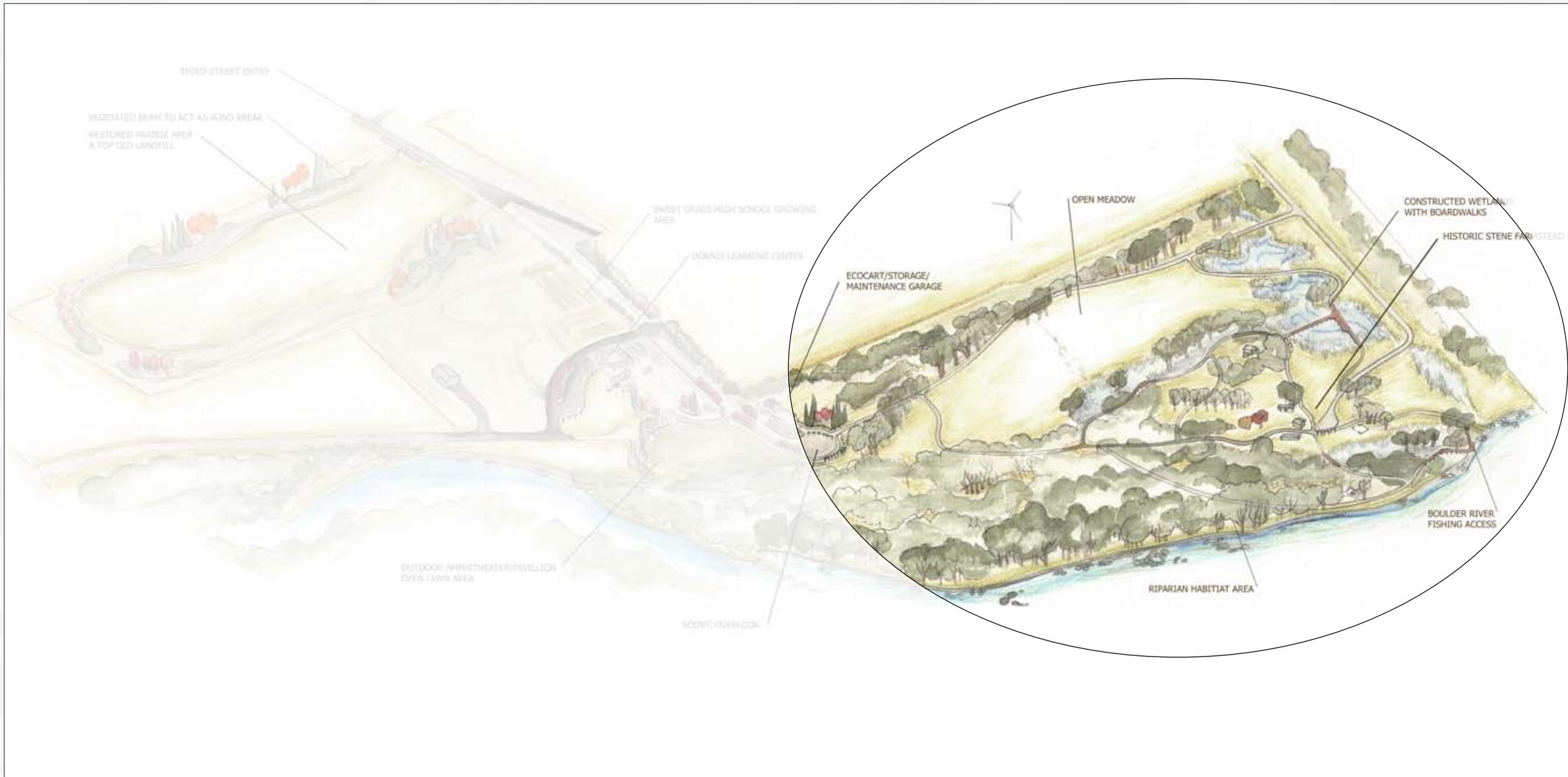
## **Homestead**

This area of the park presents another great opportunity to demonstrate the rebirth of the land, and to tell the story of the historical use of the property. The extensive amount of water flowing across the homestead, along with the wetlands provides ample opportunity for education and demonstration of a sensitive landscape at work.

Retention of the historic structures from the Homestead lends itself to telling the agricultural heritage of Dornix, Big Timber, and Sweet Grass County. Current plans for these structures include rehabilitation interpretive displays, and eventual interactive working history displays for the education of the visitor.

Access to the aquatic ecosystem is made through a series of boardwalks providing an opportunity to educate the visitor to the significance of the place and its balance in the larger Boulder River system. Boardwalk systems providing access to the wetland and river will be limited in order to be less intrusive to the sensitive areas of the Boulder River.

# Dornix Park - Homestead



*Dornix Park*

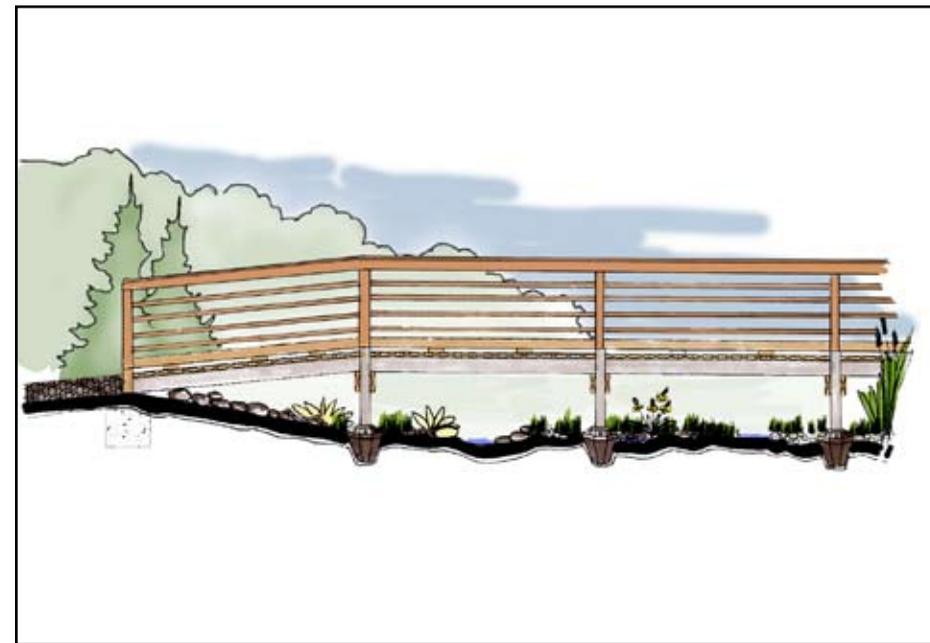
## Wind Power

In keeping with the sustainable theme, the installation of a modern wind turbine is planned for inside the public works area. The power generated by this turbine will be used to reduce the cost of operating the city's water treatment facility.



## Wetland Boardwalks

The wetlands on site are opportunities for boardwalks and outdoor classrooms. The boardwalks will be constructed of durable composite lumber made of recycled materials. They will be held in place with a pier system that makes the smallest possible footprint in the wetlands. The proposed system, Diamond Piers (Appendix J), consist of a pre-cast concrete block held in place with steel pins that are driven in to the ground.

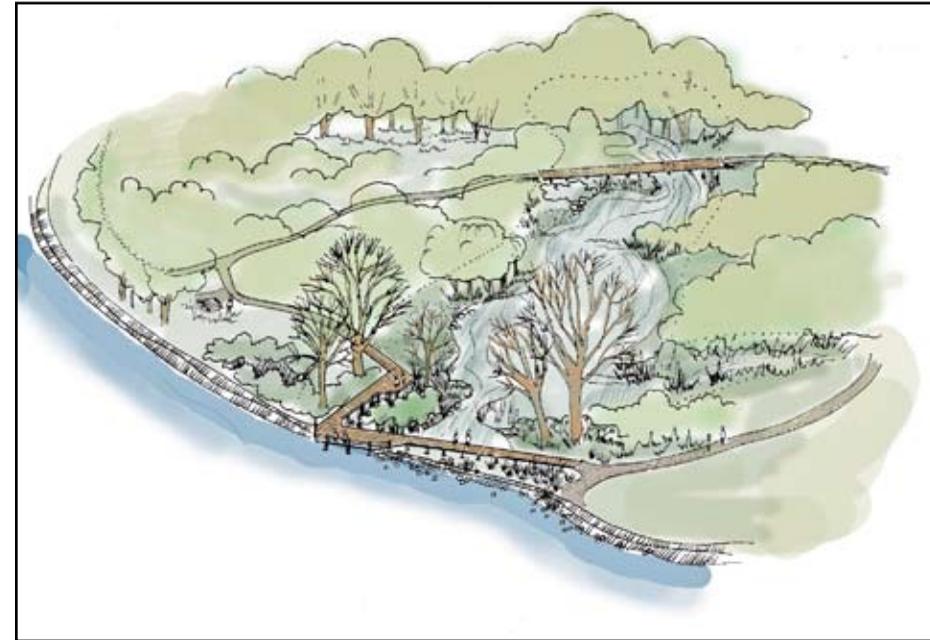


## **Trail System**

The trail system near the Boulder River front can be divided into three categories, large, medium and small. A single emergency vehicle access constructed as wide and paved of asphalt will allow access from the Scenic Overlook down to the existing gravel road at the railroad easement located at the homestead. This access will also act as the eco-cart trail access to the Homestead.

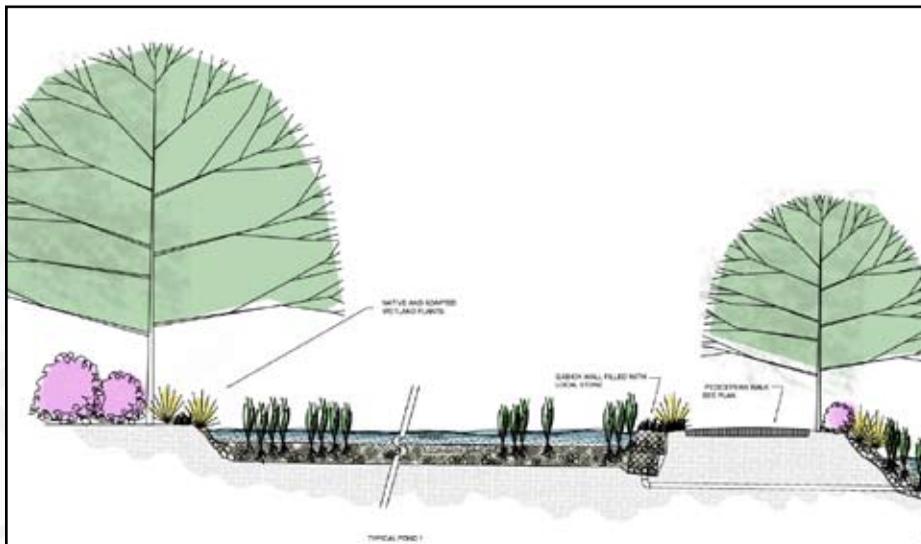
Medium trails, also ADA accessible, will be constructed of a compacted gravel road base and be 6' - 8' wide to accommodate two way pedestrian traffic. These gravel trails will be used to access wetland boardwalks and historic buildings.

The third type of trail is a small mowed trail, less than 6' wide. This trail types is located through vegetated areas and are for quiet, passive use. The layout of the trails will allow guests to make a grand loop through the park, providing access to the three areas within the park.



## **Constructed Wetlands**

Currently the city water treatment facility cleans water to a condition suitable for human consumption. However, because of the rate of the treated water discharge, the health of the Boulder River ecosystem will be threatened especially as Big Timber grows. To address this problem wetlands planted with sedges, bulrushes, cattails and sweet grass will be constructed to further cleanse the treated water. This system will have a series of ponds that hold water for filtration, infiltration and temperature control before it discharges into the Boulder River.



## **Final Recommendations**

As the project moves from the planning to implementation stage the following items should be addressed during the construction documentation process:

- The proposed wetland enhancement and creation of additional wetlands on site requires additional review and permitting with the following regulatory agencies:
- Sweetgrass County Conservation District - 310 permit
- Montana DEQ 318 permit
- Montana DNRC floodplain permit

We recommend working further with Confluence, Inc. to provide the proper documentation for the wetlands plan.

- Construction documentation to include:
  - Hydraulic Modeling
  - Drainage study
  - Stormwater Management Plan during Construction
  - Well Permitting as necessary
  - Construction Permitting
- Geotechnical Report to identify construction appropriateness
- Engineering Report

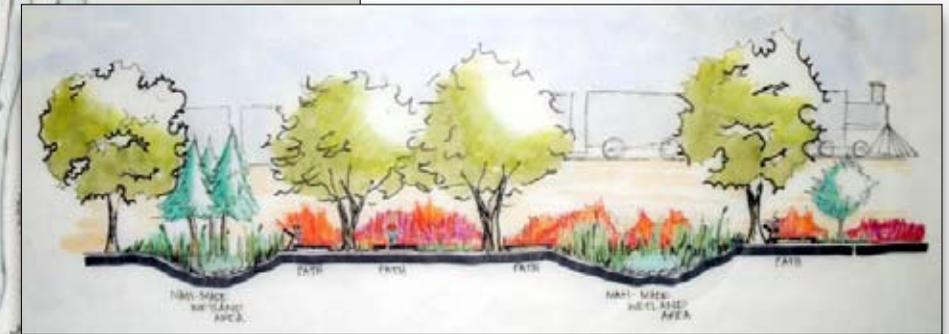
**APPENDIX A:**

**Preliminary Plan-MSU Student Project:**

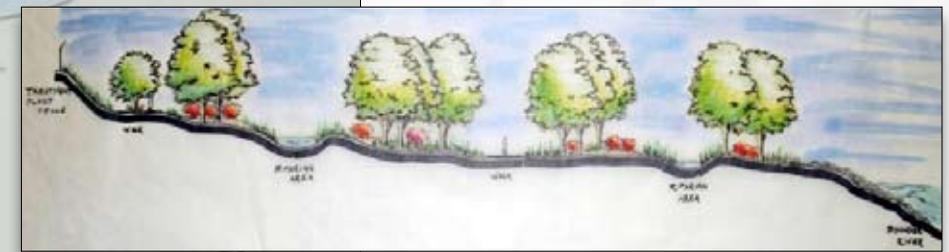
Landscape Design Students from MSU first Conceptualized the future of Dornix Park. Working under the direction of Professor Bill Pond and in conjunction with Dornix Park Citizen Committee, the following concepts were developed.



Dornix Park Concept A 12/30/06



Dornix Park Concept B 12/30/06



*Dornix Park*

## **APPENDIX B:**

### **Community Design Charettes**

The following images are part of the working drawings that developed from the community design charettes. Citizens, students, and design professionals helped to develop the concepts seen here. Initial conceptual themes included:

- Celebration of Family and Community.
- Recreation of Spirit
- Accessibility

Quick sketches and diagrams from the first charette were later refined and developed into the images seen here.

Community Charette Concept Plan #1 4/21/07



*Dornix Park*

# Community Charette Concept Plan #2 4/21/07



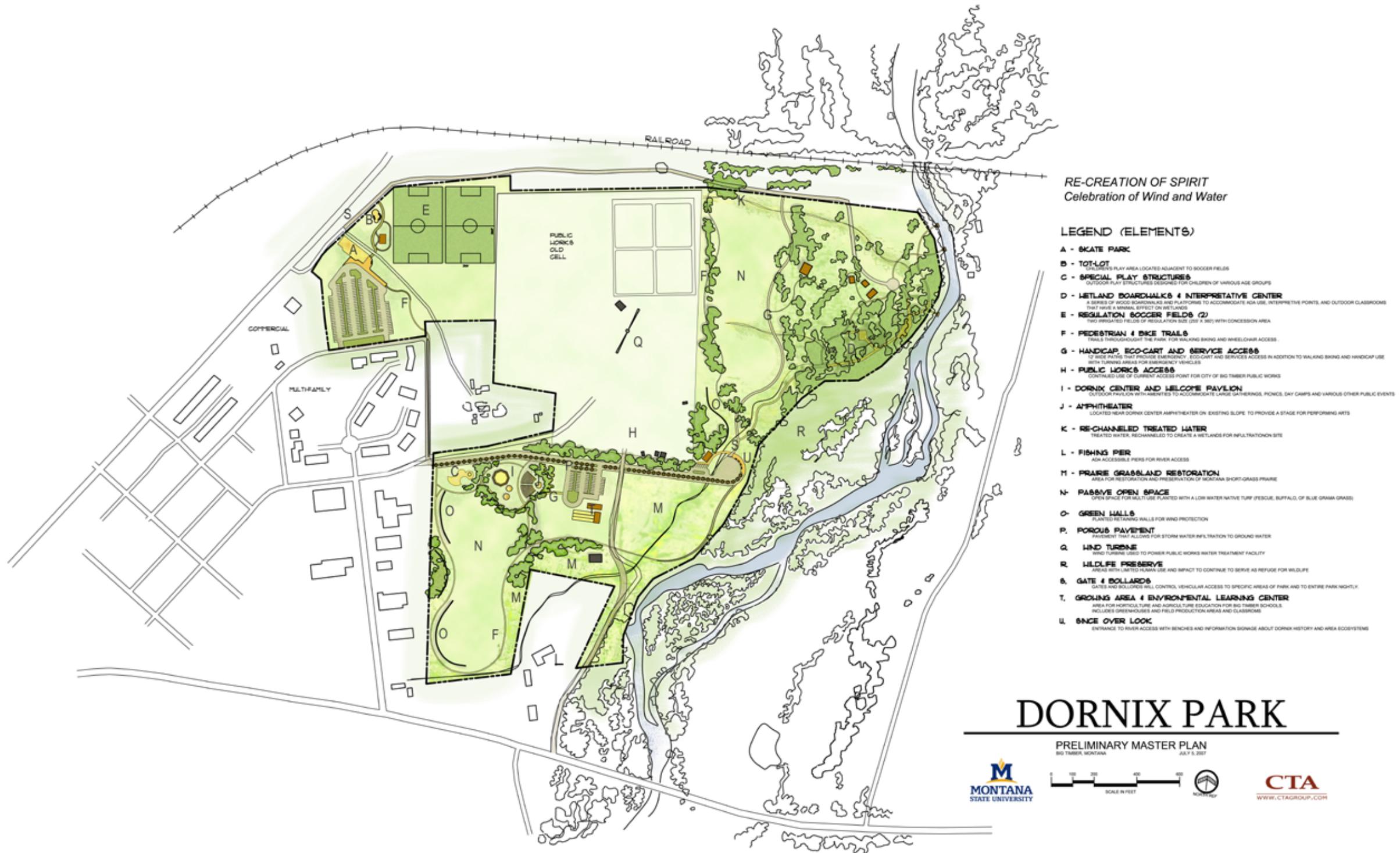
Community Charette Concept Plan #3 4/21/07



*Dornix Park*

**Preliminary Plan 5/5/07**

Produced by Professor Bell Pond, MSU Bozeman, at the completion of the charette process



## **APPENDIX C:**

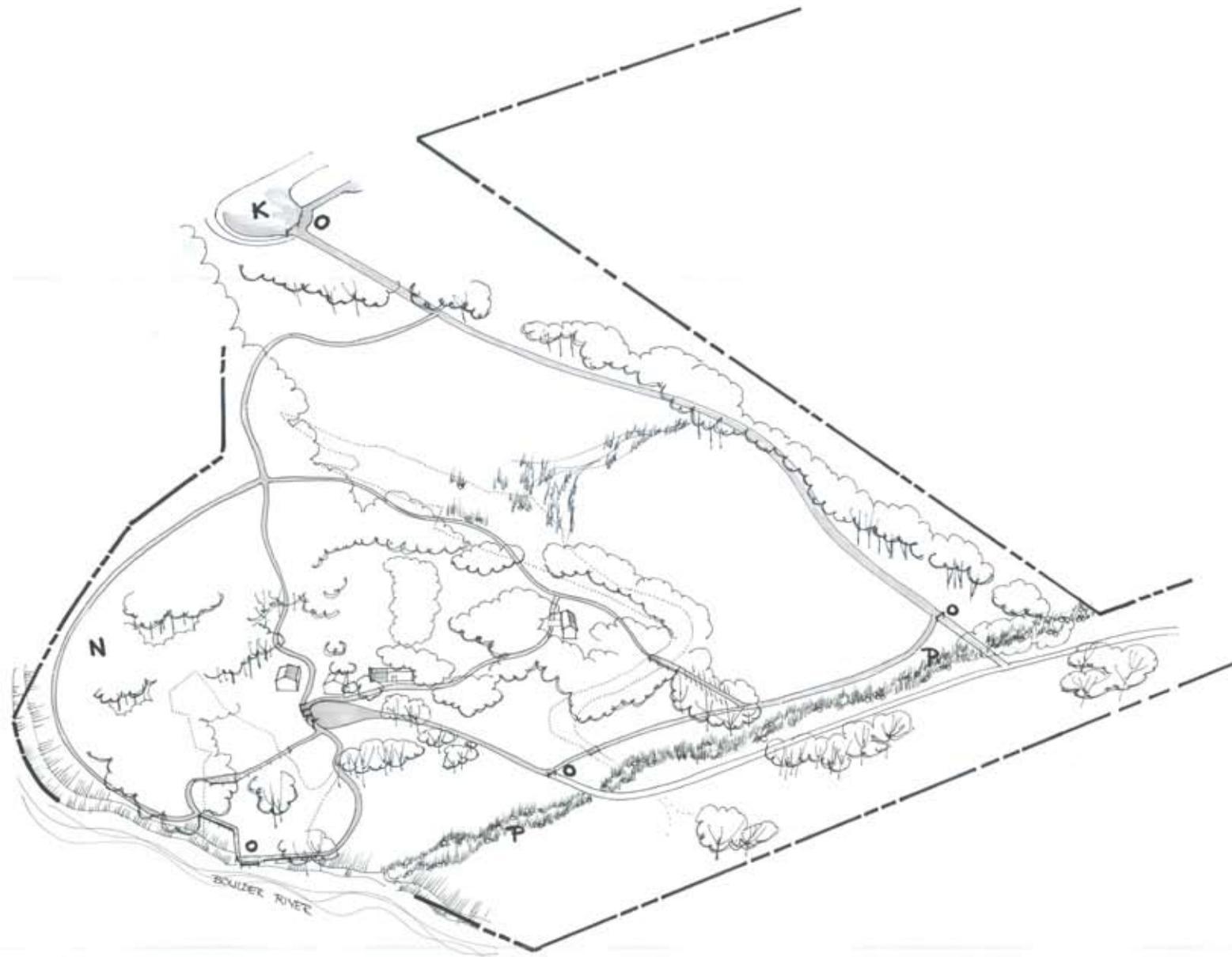
### **Draft Master Plan & Element Renditions**

Once a conceptual master plan was developed the Dornix Park Citizen Committee began working with CTA to further work through many of the due diligence process and to refine the initial concept for the park.

One of the first steps taken at this stage was to survey the property both to establish the boundary and to identify all elements natural and constructed by man on site.

Further refinement then occurred as the survey was combined with the concept drawings. The images shown here document this process.

# Roads & Trails Study Sketch 9/12/07



## RE-CREATION OF SPIRIT Celebration of Wind and Water

### LEGEND (ELEMENTS)

- A - DORNIX ENTRY SIGNAGE  
ENTRY SIGNAGE VISIBLE FROM CAR, AND PARK INFORMATION SIGNAGE ALONG PEDESTRIAN TRAIL
- B - PLAY STRUCTURES & CHILDREN'S DAY CAMP  
OUTDOOR PLAY STRUCTURES, YOUTH GROWING AREA, AND OUTDOOR GATHERING / CLASSROOM AREA
- C - PASSIVE OPEN SPACE  
OPEN SPACE FOR MULTUSE, PLANTED WITH A LOW WATER, NATIVE TURF WITH IRRIGATION
- D - PEDESTRIAN & BIKE TRAILS  
TRAILS THRU OUT THE PARK FOR WALKING BIKING AND WHEELCHAIR ACCESS
- E - PLANTED BEARMS  
PLANTED BEARMS FOR WIND PROTECTION AND VISUAL SCREEN OF INDUSTRIAL AREA
- F - "GREEN" STREETS AND PARKING LOTS  
PAVED AREAS WITH PLANTED SWALES FOR WATER COLLECTION, FILTRATION AND ON SITE INFILTRATION
- G - DORNIX CENTER, WELCOME PAVILION & SOUND SHELL  
OUTDOOR PAVILION WITH AMENITIES TO ACCOMMODATE LARGE GATHERINGS, PICNICS, DAY CAMPS AND VARIOUS OTHER PUBLIC EVENTS
- H - HANDICAP, ECO-CART AND SERVICE ACCESS  
12' WIDE PATHS THAT PROVIDE EMERGENCY, ECO-CART AND SERVICES ACCESS IN ADDITION TO WALKING BIKING AND HANDICAP USE WITH TURNING AREAS FOR EMERGENCY VEHICLES
- I - PUBLIC WORKS ACCESS  
CURRENT ACCESS POINT FOR CITY OF BIG TIMBER PUBLIC WORKS TO REMAIN
- J - GROWING AREA & ENVIRONMENTAL LEARNING CENTER  
AREA FOR HORTICULTURE AND AGRICULTURE EDUCATION FOR BIG TIMBER SCHOOLS INCLUDES GREENHOUSES, FIELD PRODUCTION AREAS AND CLASSROOMS
- K - SINCE OVER LOOK  
ENTRANCE TO RIVER ACCESS WITH BENCHES AND INFORMATION SIGNAGE ABOUT DORNIX HISTORY AND AREA ECOSYSTEMS
- L - PRAIRIE GRASSLAND RESTORATION  
AREA FOR RESTORATION AND PRESERVATION OF MONTANA SHORT-GRASS PRAIRIE
- M - WIND TURBINE  
WIND TURBINE USED TO POWER PUBLIC WORKS WATER TREATMENT FACILITY
- N - WILDLIFE PRESERVE  
AREAS WITH LIMITED HUMAN USE AND IMPACT TO CONTINUE TO SERVE AS REFUGE FOR WILDLIFE
- O - GATE & BOLLARDS  
GATES AND BOLLARDS WILL CONTROL VEHICULAR ACCESS TO SPECIFIC AREAS OF PARK BY DAY AND TO ENTIRE PARK NIGHTLY. REMOVABLE FOR EMERGENCY ACCESS
- P - NATURALIZED TREATED WATER  
TREATED WATER CHANNEL WIDENED AND PLANTED WITH WETLAND VEGETATION TO LOWER WATER TEMPERATURE BEFORE ENTERING THE BOULDER RIVER
- Q - INTERPRETATIVE WETLAND BOARDWALKS AND RIVER ACCESS  
A SERIES OF WOOD BOARDWALKS AND PLATFORMS TO ACCOMMODATE ADA USE, INTERPRETIVE POINTS, AND OUTDOOR CLASSROOMS WITH MINIMAL EFFECT ON WETLANDS

## DORNIX PARK

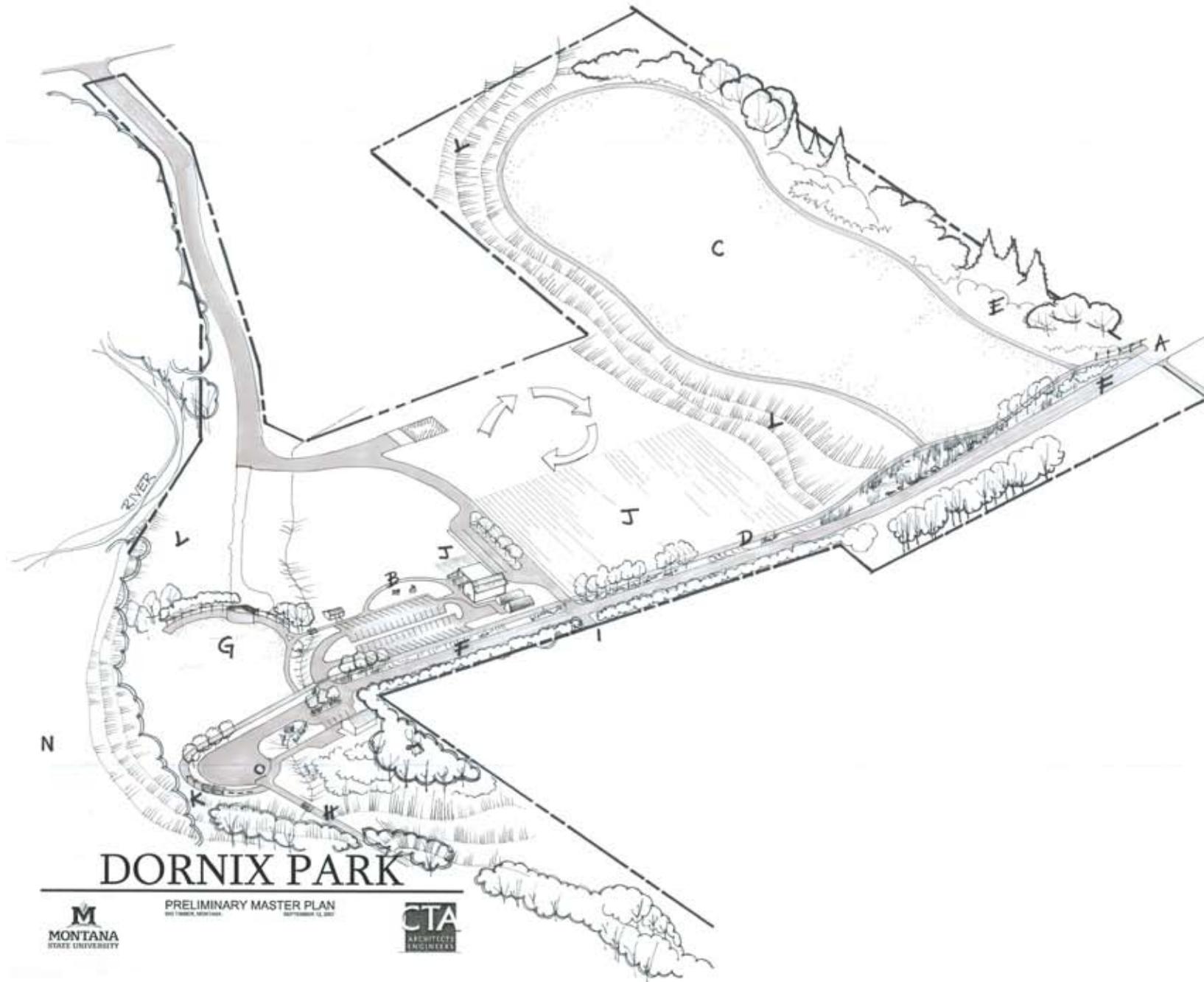


PRELIMINARY MASTER PLAN  
9/12/07



*Dornix Park*

Rendition to make trails for Trail Day 9/26/07



**RE-CREATION OF SPIRIT**  
*Celebration of Wind and Water*

LEGEND (ELEMENTS)

- A - DORNIX ENTRY SIGNAGE  
ENTRY SIGNAGE VISIBLE FROM CAR, AND PARK INFORMATION SIGNAGE ALONG PEDESTRIAN TRAIL
- B - PLAY STRUCTURES & CHILDREN'S DAY CAMP  
OUTDOOR PLAY STRUCTURES, YOUTH GROWING AREA, AND OUTDOOR GATHERING / CLASSROOM AREA
- C - PASSIVE OPEN SPACE  
OPEN SPACE FOR MULTI-USE, PLANTED WITH A LOW WATER, NATIVE TURF WITH IRRIGATION
- D - PEDESTRIAN & BIKE TRAILS  
TRAILS THRU OUT THE PARK, FOR WALKING BIKING AND WHEELCHAIR ACCESS.
- E - PLANTED BERMS  
PLANTED BERMS FOR WIND PROTECTION AND VISUAL SCREEN OF INDUSTRIAL AREA
- F - "GREEN" STREETS AND PARKING LOTS  
PAVED AREAS WITH PLANTED SWALES FOR WATER COLLECTION, FILTRATION AND ON SITE INFILTRATION
- G - DORNIX CENTER, WELCOME PAVILION & SOUND SHELL  
OUTDOOR PAVILION WITH AMENITIES TO ACCOMMODATE LARGE GATHERINGS, PICNICS, DAY CAMPS AND VARIOUS OTHER PUBLIC EVENTS
- H - HANDICAP, EGO-CART AND SERVICE ACCESS  
12' WIDE PATHS THAT PROVIDE EMERGENCY, EGO-CART AND SERVICES ACCESS IN ADDITION TO WALKING BIKING AND HANDICAP USE WITH TURNING AREAS FOR EMERGENCY VEHICLES
- I - PUBLIC WORKS ACCESS  
CURRENT ACCESS POINT FOR CITY OF BIG TIMBER PUBLIC WORKS TO REMAIN
- J - GROWING AREA & ENVIRONMENTAL LEARNING CENTER  
AREA FOR HORTICULTURE AND AGRICULTURE EDUCATION FOR BIG TIMBER SCHOOLS. INCLUDES GREENHOUSES, FIELD PRODUCTION AREAS AND CLASSROOMS
- K - SINCE OVER LOOK  
ENTRANCE TO RIVER ACCESS WITH BENCHES AND INFORMATION SIGNAGE ABOUT DORNIX HISTORY AND AREA ECOSYSTEMS
- L - PRAIRIE GRASSLAND RESTORATION  
AREA FOR RESTORATION AND PRESERVATION OF MONTANA SHORT-GRASS PRAIRIE
- M - WIND TURBINE  
WIND TURBINE USED TO POWER PUBLIC WORKS WATER TREATMENT FACILITY
- N - WILDLIFE PRESERVE  
AREAS WITH LIMITED HUMAN USE AND IMPACT TO CONTINUE TO SERVE AS REFUGE FOR WILDLIFE
- O - GATE & BOLLARDS  
GATES AND BOLLARDS WILL CONTROL VEHICULAR ACCESS TO SPECIFIC AREAS OF PARK BY DAY AND TO ENTIRE PARK NIGHTLY. REMOVABLE FOR EMERGENCY ACCESS
- P - NATURALIZED TREATED WATER  
TREATED WATER CHANNEL WIDENED AND PLANTED WITH WETLAND VEGETATION TO LOWER WATER TEMPERATURE BEFORE ENTERING THE BOULDER RIVER
- Q - INTERPRETATIVE WETLAND BOARDWALKS AND RIVER ACCESS  
A SERIES OF WOOD BOARDWALKS AND PLATFORMS TO ACCOMMODATE ADA USE, INTERPRETIVE POINTS, AND OUTDOOR CLASSROOMS WITH MINIMAL EFFECT ON WETLANDS

**DORNIX PARK**



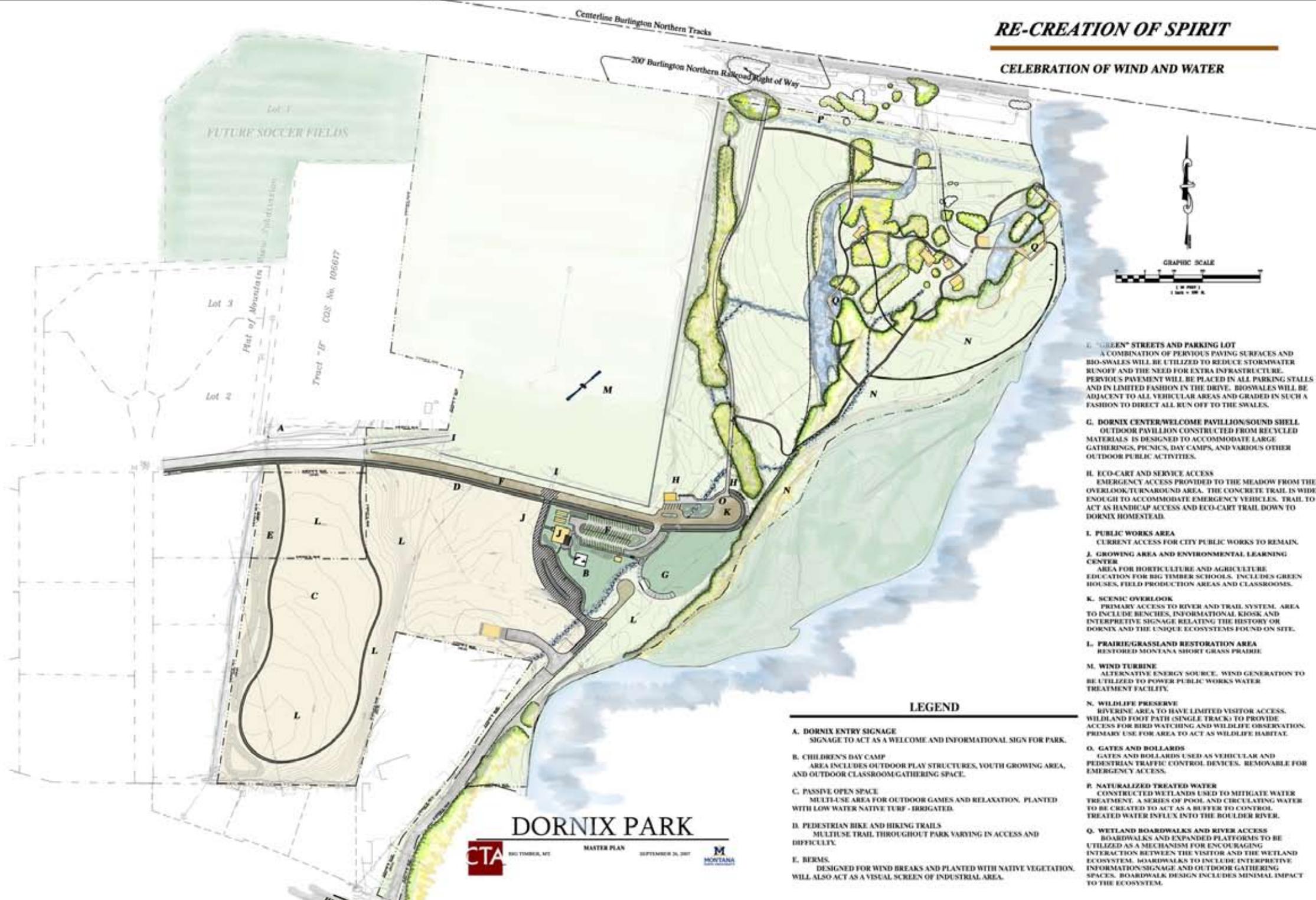
PRELIMINARY MASTER PLAN  
 FOR TRAIL DAY, SEPTEMBER 26, 2007



*Dornix Park*

**RE-CREATION OF SPIRIT**

**CELEBRATION OF WIND AND WATER**



**DORNIX PARK**

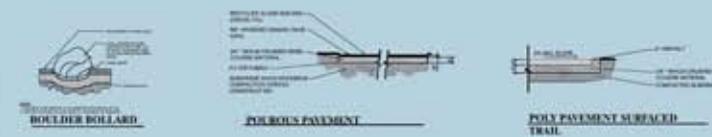
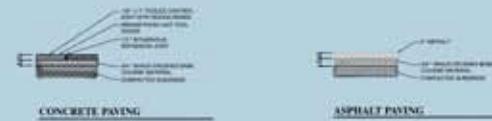
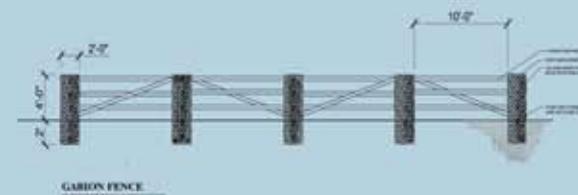
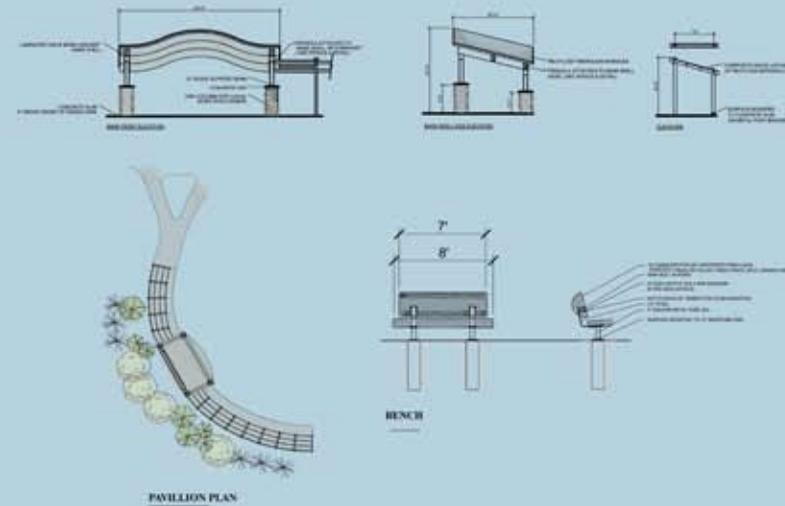
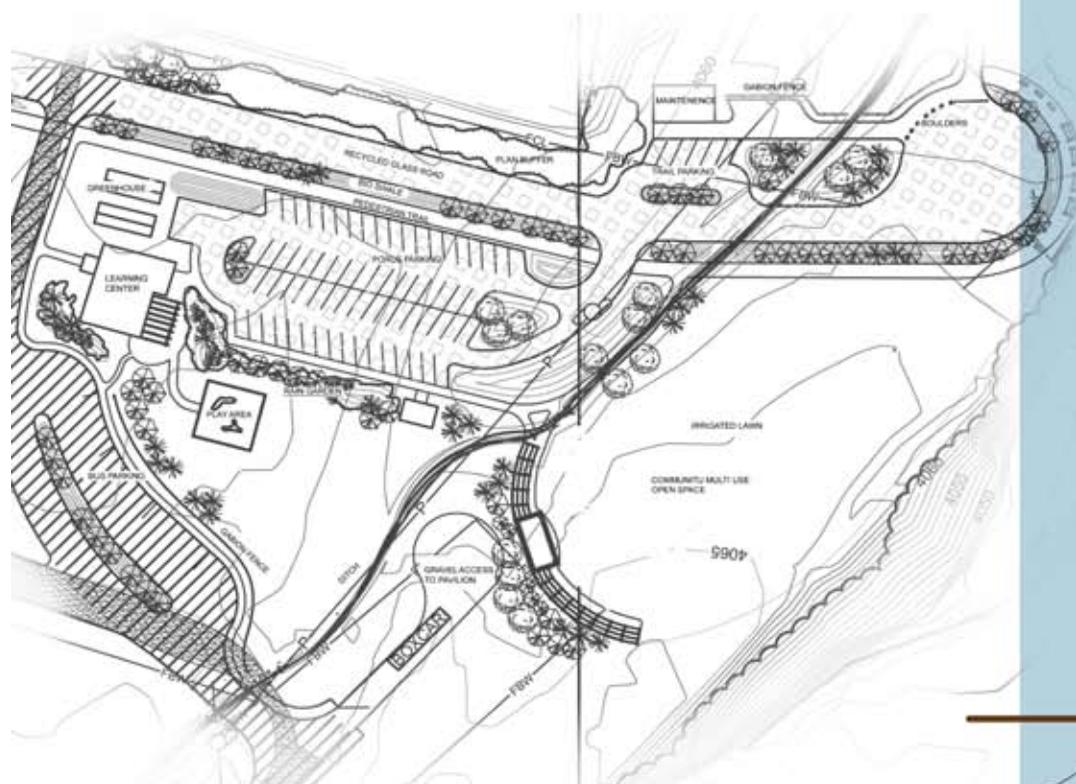
CTA BIG TIMBER, MT MASTER PLAN SEPTEMBER 26, 2007 MONTANA

**LEGEND**

- A. DORNIX ENTRY SIGNAGE**  
SIGNAGE TO ACT AS A WELCOME AND INFORMATIONAL SIGN FOR PARK.
- B. CHILDREN'S DAY CAMP**  
AREA INCLUDES OUTDOOR PLAY STRUCTURES, YOUTH GROWING AREA, AND OUTDOOR CLASSROOM/GATHERING SPACE.
- C. PASSIVE OPEN SPACE**  
MULTI-USE AREA FOR OUTDOOR GAMES AND RELAXATION. PLANTED WITH LOW WATER NATIVE TURF - IRRIGATED.
- D. PEDESTRIAN BIKE AND HIKING TRAILS**  
MULTI-USE TRAIL THROUGHOUT PARK VARYING IN ACCESS AND DIFFICULTY.
- E. BERMS**  
DESIGNED FOR WIND BREAKS AND PLANTED WITH NATIVE VEGETATION. WILL ALSO ACT AS A VISUAL SCREEN OF INDUSTRIAL AREA.
- F. "GREEN" STREETS AND PARKING LOT**  
A COMBINATION OF PERVIOUS PAVING SURFACES AND BIO-SWALES WILL BE UTILIZED TO REDUCE STORMWATER RUNOFF AND THE NEED FOR EXTRA INFRASTRUCTURE. PERVIOUS PAVEMENT WILL BE PLACED IN ALL PARKING STALLS AND IN LIMITED FASHION IN THE DRIVE. BIOSWALES WILL BE ADJACENT TO ALL VEHICULAR AREAS AND GRADED IN SUCH A FASHION TO DIRECT ALL RUN OFF TO THE SWALES.
- G. DORNIX CENTER/WELCOME PAVILION/SOUND SHELL**  
OUTDOOR PAVILION CONSTRUCTED FROM RECYCLED MATERIALS IS DESIGNED TO ACCOMMODATE LARGE GATHERINGS, PICNICS, DAY CAMPS, AND VARIOUS OTHER OUTDOOR PUBLIC ACTIVITIES.
- H. ECO-CART AND SERVICE ACCESS**  
EMERGENCY ACCESS PROVIDED TO THE MEADOW FROM THE OVERLOOK/TURNAROUND AREA. THE CONCRETE TRAIL IS WIDE ENOUGH TO ACCOMMODATE EMERGENCY VEHICLES. TRAIL TO ACT AS HANDICAP ACCESS AND ECO-CART TRAIL DOWN TO DORNIX HOMESTEAD.
- I. PUBLIC WORKS AREA**  
CURRENT ACCESS FOR CITY PUBLIC WORKS TO REMAIN.
- J. GROWING AREA AND ENVIRONMENTAL LEARNING CENTER**  
AREA FOR HORTICULTURE AND AGRICULTURE EDUCATION FOR BIG TIMBER SCHOOLS. INCLUDES GREEN HOUSES, FIELD PRODUCTION AREAS AND CLASSROOMS.
- K. SCENIC OVERLOOK**  
PRIMARY ACCESS TO RIVER AND TRAIL SYSTEM. AREA TO INCLUDE BENCHES, INFORMATIONAL KIOSK, AND INTERPRETIVE SIGNAGE RELATING THE HISTORY OF DORNIX AND THE UNIQUE ECOSYSTEMS FOUND ON SITE.
- L. PRAIRIE/GRASSLAND RESTORATION AREA**  
RESTORED MONTANA SHORT GRASS PRAIRIE.
- M. WIND TURBINE**  
ALTERNATIVE ENERGY SOURCE. WIND GENERATION TO BE UTILIZED TO POWER PUBLIC WORKS WATER TREATMENT FACILITY.
- N. WILDLIFE PRESERVE**  
RIVERINE AREA TO HAVE LIMITED VISITOR ACCESS. WILDLAND FOOT PATH (SINGLE TRACK) TO PROVIDE ACCESS FOR BIRD WATCHING AND WILDLIFE OBSERVATION. PRIMARY USE FOR AREA TO ACT AS WILDLIFE HABITAT.
- O. GATES AND BOLLARDS**  
GATES AND BOLLARDS USED AS VEHICULAR AND PEDESTRIAN TRAFFIC CONTROL DEVICES. REMOVABLE FOR EMERGENCY ACCESS.
- P. NATURALIZED TREATED WATER**  
CONSTRUCTED WETLANDS USED TO MITIGATE WATER TREATMENT. A SERIES OF POOL AND CIRCULATING WATER TO BE CREATED TO ACT AS A BUFFER TO CONTROL TREATED WATER INFUX INTO THE BOULDER RIVER.
- Q. WETLAND BOARDWALKS AND RIVER ACCESS**  
BOARDWALKS AND EXPANDED PLATFORMS TO BE UTILIZED AS A MECHANISM FOR ENCOURAGING INTERACTION BETWEEN THE VISITOR AND THE WETLAND ECOSYSTEM. BOARDWALKS TO INCLUDE INTERPRETIVE INFORMATION/SIGNAGE AND OUTDOOR GATHERING SPACES. BOARDWALK DESIGN INCLUDES MINIMAL IMPACT TO THE ECOSYSTEM.

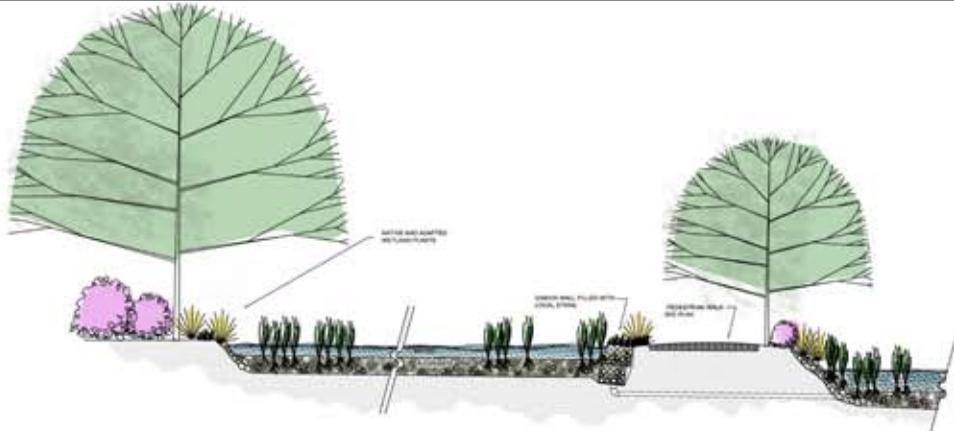


# DORNIX CENTER

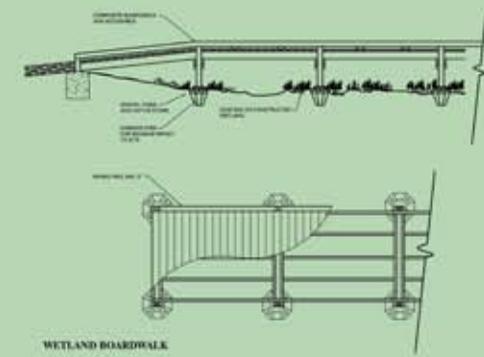
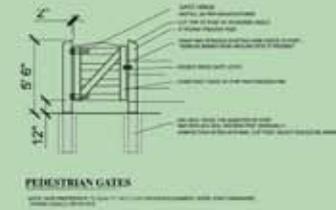
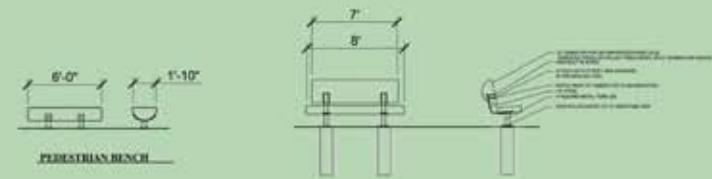
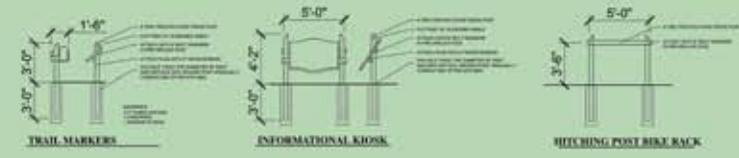
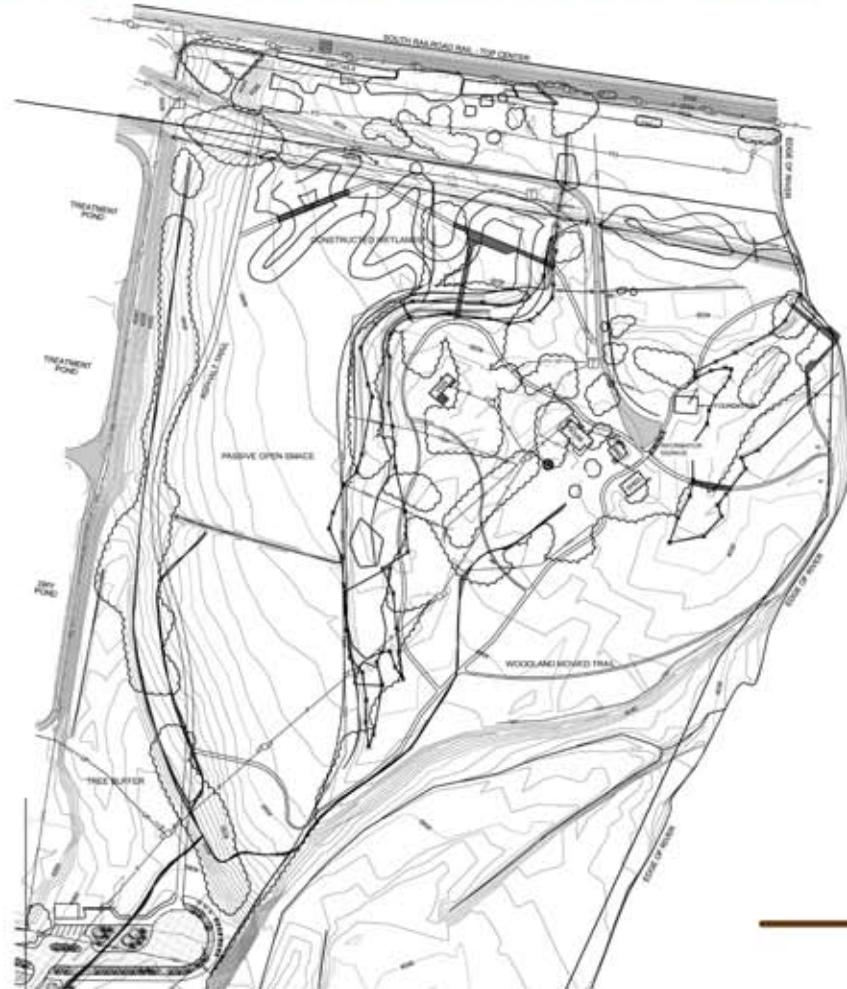


## DORNIX PARK RE-CREATION OF SPIRIT

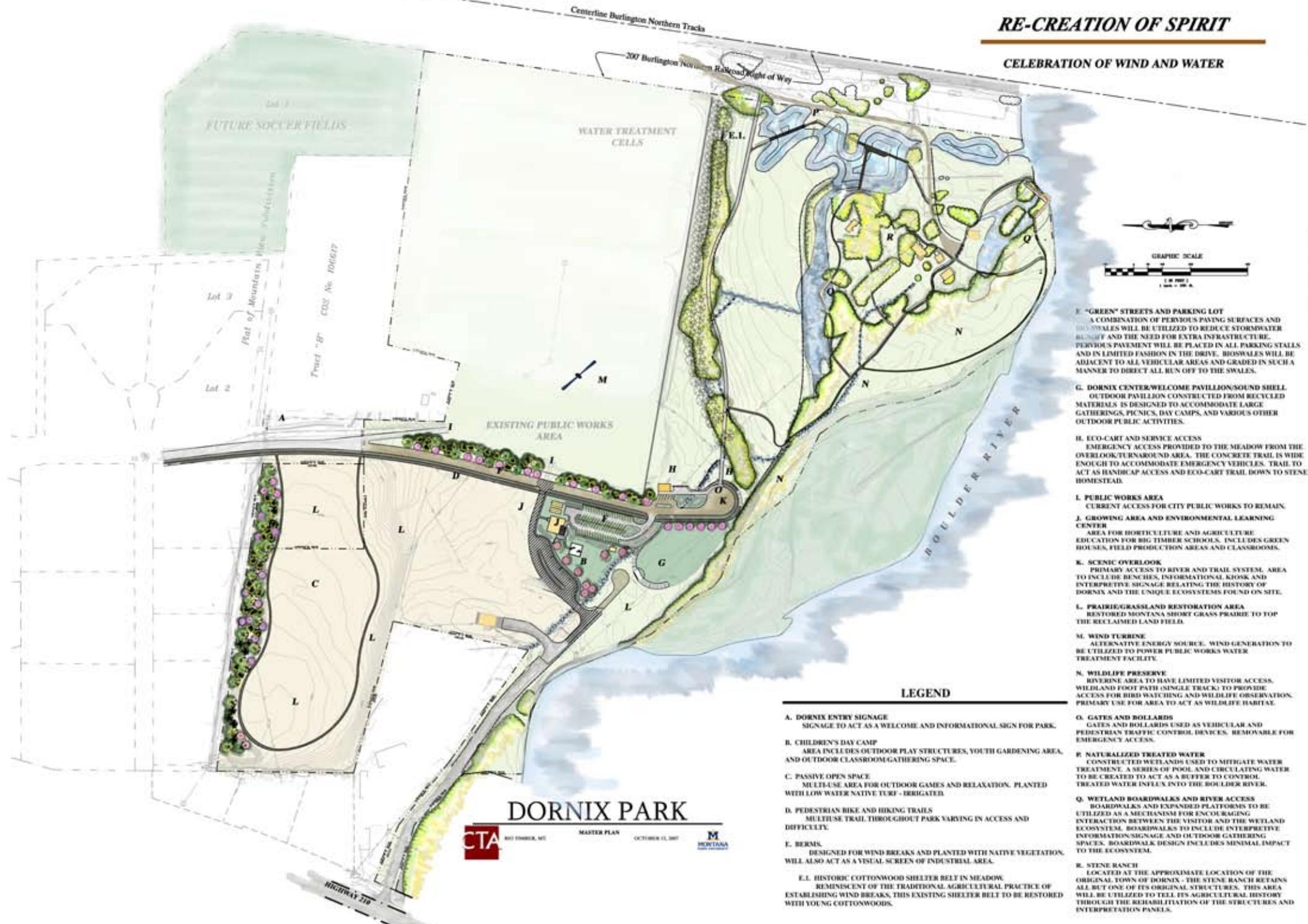




# DORNIX RIVER FRONT



## DORNIX PARK RE-CREATION OF SPIRIT



**APPENDIX D:**

**ALTA Survey and Property  
Boundary Legal Description**

The final boundary survey and site survey are enclosed here for reference illustrating a significant step in the design process of Dornix Park.



# Dornix Park Survey 4/21/07

## CERTIFICATE OF SURVEY NO. \_\_\_\_\_

Survey requested by the City of Big Timber to locate and monument the boundaries of properties conveyed to the City of Big Timber through the following conveyances: Warranty Deed from Fred W. Tucker and Stella May Tucker to City of Big Timber, Book 48 Page 269-274; Warranty Deed from Steven D. Richert and Bruce M. Richert to City of Big Timber, Book 44 Page 644-645; Trust Deed from and Joan Marie Sime to City of Big Timber, Book 74 Page 916-917; Lease and excepting from the preceding. Any land now contained in the Centennial Park Subdivision Plat No. 112861; Warranty Deed from City of Big Timber to Steven D. Richert and Bruce M. Richert, Book 64 Page 646-647; Warranty Deed from City of Big Timber to Steven D. Richert and Bruce M. Richert, Book 65 Page 553. Also to locate and monument the boundaries of Block 4 of said Centennial Park Subdivision.

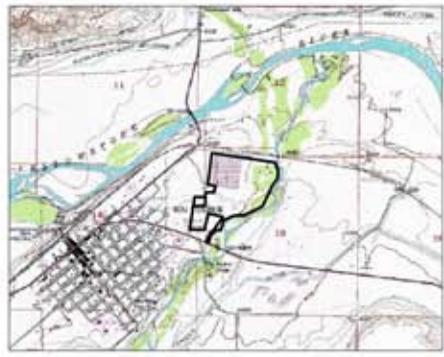
**Legal Description Parcel A:** A Tract of land located in Sections 13 and 14, Township 1 North, Range 14 East, Principal Meridian, City of Big Timber, Sweet Grass County, Montana, being more particularly described as follows:  
Beginning at the West quarter corner of said Section 13 (thence N 89°26'31" W 481.82 feet); thence N 89°26'31" E along the east line of Centennial Park Subdivision Plat and the Centennial Park Addition, recorded as Plat No. 112861 in the Sweetgrass County Clerk and Recorder's Office, 795.17 feet; thence N 89°26'31" E along the south line of Block 4 of said Plat No. 112861, 480.00 feet; thence N 07°21'19" W, along the east line of said Block 4, 200.00 feet; thence N 07°21'19" W along the east line of said Plat No. 112861, 137.13 feet; thence S 89°49'09" E, 263.36 feet; thence N 14°13'01" E, 213.33 feet; thence N 79°18'49" W, 256.80 feet; thence N 08°27'56" E, 104.52 feet to the westerly right of way line of the Burlington Northern Railroad; thence S 83°30'40" E along said westerly right of way line 232.88 feet to the westerly bank of the Boulder River; thence along the low water mark of the Boulder River for the following six courses: S 21°30'14" E, 121.19 feet; thence S 08°27'56" W, 42.39 feet; thence S 46°21'42" E, 149.91 feet; thence S 07°26'31" E, 263.40 feet; thence S 28°07'41" W, 280.25 feet; thence along the northwesterly edge of an abandoned bed of the Boulder River for the following six courses: S 42°33'18" W, 64.27 feet; thence S 17°49'57" W, 289.98 feet; thence S 07°26'31" E, 134.20 feet; thence S 08°27'56" W, 142.50 feet; thence S 72°17'14" W, 127.30 feet; thence S 57°10'47" W, 108.03 feet; thence along the meander lines of the Boulder River as shown on the approved Government Plat of Fractional Township No. 1 North, Range No. 14 East of the Principal Meridian, Montana, for the following two courses: S 24°30'53" W, 223.44 feet; thence S 49°33'57" W, 257.75 feet; thence along the northwesterly edge of an abandoned bed of the Boulder River for the following five courses: S 28°57'10" W, 146.70 feet; thence S 36°40'17" W, 42.24 feet; thence S 62°21'19" W, 36.83 feet; thence S 46°07'30" W, 193.17 feet; thence S 10°33'10" W, 93.82 feet; thence along the low water mark of the northwesterly bank of the Boulder River for the following five courses: S 48°13'57" W, 234.34 feet; thence S 57°56'39" W, 97.21 feet; thence S 34°07'27" W, 108.00 feet; thence S 09°03'54" W, 108.27 feet; thence S 08°27'56" W, 113.90 feet; thence N 89°27'31" W, 207.31 feet; thence S 47°39'48" W, 256.48 feet; thence S 17°37'52" W, 241.25 feet to the westerly right of way line of State Highway 15; thence along said right of way N 06°46'23" W, 81.13 feet; thence along the east boundary of Certificate of Survey No. 115113 for the following three courses: N 27°40'07" E, 213.22 feet; thence N 36°20'54" E, 202.11 feet; thence N 54°43'00" E, 484.80 feet; thence along the north boundary of said Certificate of Survey No. 115113 N 70°33'50" W, 485.08 feet; thence along the westerly boundary of said Certificate of Survey No. 115113 S 14°51'31" W, 553.68 feet to the Point of Beginning.

**Block of Bearings:** N 07°21'19" W along the West line of the southeast quarter of Section 13 as determined by Thomas J. Hallis, Registered Land Surveyor # 28325 on March 10th, 1971 and shown on Certified Land Center Recordation # 80495, on file with the Clerk and Recorder of Sweetgrass County.

### SURVEYOR'S NOTES

- 1) Measurements 14, 15, 17 and 18, found on the north line of the Moffitt Miner Subdivision at B with for line and distance. I have held these measurements for this portion of the border. The east line of the Centennial Park Subdivision between monuments 9 and 13 measured 1.37 feet short and extending that line through monument 11 to the north line of Moffitt Miner Subdivision makes the line more clearly agree with plat distance.
- 2) No monuments were found on the east-west corner of Section 13 except for the west corner. Fence corner and remnants of old lines were found on the east side of access road to City of Big Timber transfer station. Fence and lines corner agree closely with calls for Parcel 2 of Deed recorded in Book 48 Page 269. Held lines as true evidence of east-west corner line position.
- 3) For discussion of location of southwest corner of Section 13, see Corner Recordation from filed by Hallis, Book 1, Page 70. I have accepted Hallis corner for use in this survey as it was set using record data from Northern Pacific RR Co. and has been used by all other subdivisions and COB in the subject area. I will note that if a line is extended from the point of curve on the north line of Lot 1, Plat of Subdivision View Subdivision (Map #41), perpendicular to the centerline of the MBL track, the point where the line intersects the centerline is 90.67' distant from Mon #35, the 1.17' area per foot by Hallis. This is close to the measurement called for by NW records and what Hallis calls for from line to set Alam Cap.
- 4) As a chain link fence has been installed along the west boundary of the subject property between monuments #36 and 41 it appears that some of the monuments at these corners were destroyed or disturbed during the process. Monument #36 was found in the concrete poured for the fence corner.
- 5) A portion of the Boulder River has abandoned its bed and re-established itself in one of the old high water channels to the east. As determined by testimony of area landowners and visible evidence in aerial photographs, this was an avulsion event which occurred approximately 1973. Up until that time, as the river low water mark moved through the process of accretion and reliction, the upland landowners boundaries also moved with the low water mark. At the time of the avulsion event, the upland landowners boundaries remained at the low water mark at the time of the event and the ownership of the abandoned bed of the river between the meander lines of the stream as shown on the Official Government Township Plat remained with the state of Montana per MCA 71-1-102. Therefore, the boundary of this tract follows the low water mark of the stream until it intersects the abandoned bed, then follows the low water line of the west side of the abandoned bed until the point where it intersects the Government Land Office meander lines as shown on the Township Plat. It then follows the meander lines until it again intersects the low water line of west side of the abandoned bed. It then follows the low water line of west side of the abandoned bed until it intersects the current low water mark of the Boulder River. Then along the low water mark of the river until the called for south boundary.
- 6) West low water mark of Boulder River delineated from survey measurements made August 2nd, 2007, and low water mark digitized from aerial photographs.
- 7) Low water mark of abandoned bed of the Boulder River delineated from survey measurements made August 2nd, 2007. Slope of bank, existing vegetation, and visible signs of some river bed were taken into account for this determination.
- 8) Dimension shown in parenthesis, (194.20), are deed or plat dimensions.
- 9) City limits delineated from map supplied by Public Works office dated April 06, 2003.

### VICINITY MAP

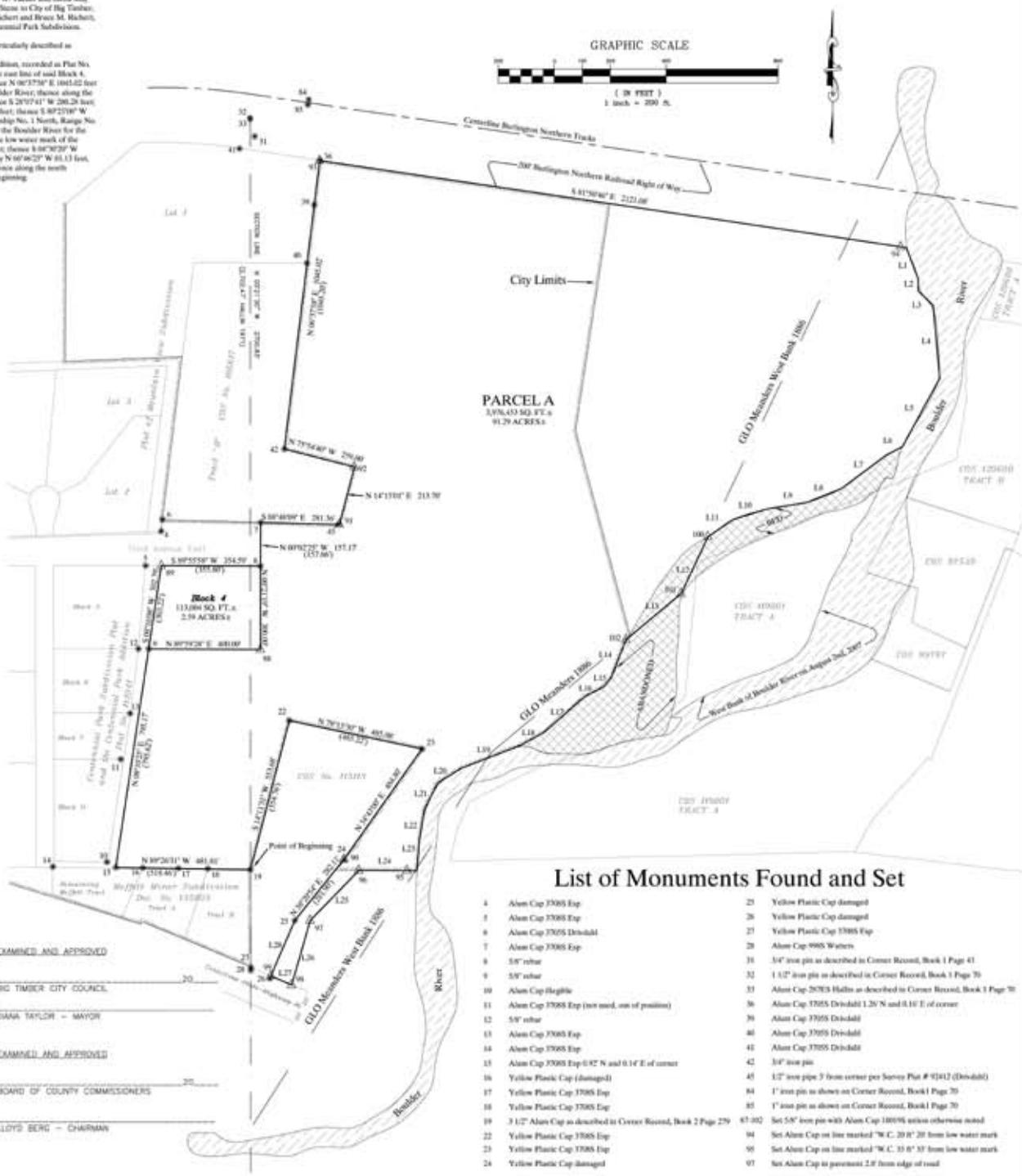


LINE	BEARING	DIST	LINE	BEARING	DIST
1.1	S 21°30'14" E	121.19	1.15	S 36°40'17" W	42.24
1.2	S 08°27'56" W	42.39	1.16	S 42°33'18" W	76.81
1.3	S 46°21'42" E	149.91	1.17	S 07°26'31" W	143.07
1.4	S 07°26'31" E	263.40	1.18	S 07°26'31" W	95.82
1.5	S 28°07'41" W	280.25	1.19	S 08°27'56" W	230.24
1.6	S 42°33'18" W	64.27	1.20	S 17°49'57" W	97.21
1.7	S 17°49'57" W	289.98	1.21	S 28°07'41" W	106.67
1.8	S 47°39'48" W	134.25	1.22	S 09°03'54" W	108.27
1.9	S 08°27'56" W	113.90	1.23	S 08°27'56" W	113.90
1.10	S 72°17'14" W	127.30	1.24	N 89°27'31" W	207.31
1.11	S 57°10'47" W	108.03	1.25	S 47°39'48" W	256.48
1.12	S 24°30'53" W	223.44	1.26	S 17°37'52" W	241.25
1.13	S 49°33'57" W	257.75	1.27	N 06°46'23" W	81.13
1.14	S 28°57'10" W	146.70	1.28	N 27°40'07" E	213.22

**CERTIFICATE OF CLERK AND RECORDER**  
I, Sherry Bjornstal, Clerk and Recorder of Sweet Grass County, Montana, do hereby certify that the foregoing instrument was filed in my office this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, A.D., of \_\_\_\_\_, and recorded in Book \_\_\_\_\_ of Plats, on Page \_\_\_\_\_ Records of the Clerk and Recorder, Park County, Montana.  
Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
Sherry Bjornstal  
Clerk and Recorder of Sweet Grass County, Montana

**CERTIFICATE OF SURVEYOR**  
I, George Bornemann, Licensed Professional Land Surveyor, do hereby certify that during the month of August 2007 I supervised the survey, plotting, and description of the tracts shown on the accompanying Certificate of Survey and that said Certificate correctly shows the position of said tracts on the ground.  
DATED this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
George Bornemann  
Montana Registration No. 18019LS

**EXAMINED AND APPROVED**  
BIG TIMBER CITY COUNCIL  
DANA TAYLOR - MAYOR  
**EXAMINED AND APPROVED**  
BOARD OF COUNTY COMMISSIONERS  
LLOYD BERG - CHAIRMAN



### List of Monuments Found and Set

- |    |  |    |  |
|----|--|----|--|
| 1  | Alam Cap 37085 Exp   | 21 | Yellow Plastic Cap damaged   |
| 2  | Alam Cap 37085 Exp   | 22 | Yellow Plastic Cap damaged   |
| 3  | Alam Cap 37085 Divided   | 23 | Yellow Plastic Cap 37085 Exp                                       |
| 4  | Alam Cap 37085 Exp   | 24 | Alam Cap 9985 Waters   |
| 5  | 5/8" nail  | 25 | 3/4" iron pin as described in Corner Record, Book 1 Page 41        |
| 6  | 5/8" nail  | 26 | 1 1/2" iron pin as described in Corner Record, Book 1 Page 70      |
| 7  | Alam Cap 37085 Exp   | 27 | Alam Cap 20785 Halls as described in Corner Record, Book 1 Page 70 |
| 8  | Alam Cap 37085 Exp   | 28 | Alam Cap 37085 Divided 1.29' N and 6.14' E of corner               |
| 9  | Alam Cap 37085 Exp   | 29 | Alam Cap 37085 Divided   |
| 10 | Alam Cap 37085 Exp   | 30 | Alam Cap 37085 Divided   |
| 11 | Alam Cap 37085 Exp (not used, out of position)                 | 31 | Alam Cap 37085 Exp   |
| 12 | 5/8" nail  | 32 | Alam Cap 37085 Divided   |
| 13 | Alam Cap 37085 Exp   | 33 | Alam Cap 37085 Divided   |
| 14 | Alam Cap 37085 Exp   | 34 | Alam Cap 37085 Divided   |
| 15 | Alam Cap 37085 Exp 6.42' N and 6.14' E of corner               | 35 | 3/4" iron pin  |
| 16 | Yellow Plastic Cap (damaged)                                   | 36 | 1/2" iron pipe 3' from corner per Survey Plat # 91412 (Divided)    |
| 17 | Yellow Plastic Cap 37085 Exp                                   | 37 | 1" iron pin as shown on Corner Record, Book 1 Page 70              |
| 18 | Yellow Plastic Cap 37085 Exp                                   | 38 | 1" iron pin as shown on Corner Record, Book 1 Page 70              |
| 19 | 3 1/2" Alam Cap as described in Corner Record, Book 2 Page 279 | 39 | Set 5/8" iron pin with Alam Cap 18095 unless otherwise noted       |
| 20 | Yellow Plastic Cap 37085 Exp                                   | 40 | Set Alam Cap on line marked "M.C. 20' N 20' from low water mark    |
| 21 | Yellow Plastic Cap 37085 Exp                                   | 41 | Set Alam Cap on line marked "M.C. 33' N 33' from low water mark    |
| 22 | Yellow Plastic Cap 37085 Exp                                   | 42 | Set Alam Cap in pavement 2.8' from edge of road                    |

REVISIONS:

**RETRACEMENT OF BOUNDARIES**

**CERTIFICATE OF SURVEY**

PRINCIPAL MERIDIAN  
MONTANA  
CITY OF BIG TIMBER  
SWEET GRASS COUNTY

13	18	14E
14	1M	14E
X	X	X

DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DATE: 09-11-07  
C.T.A. # \_\_\_\_\_  
CADD FILE: \_\_\_\_\_

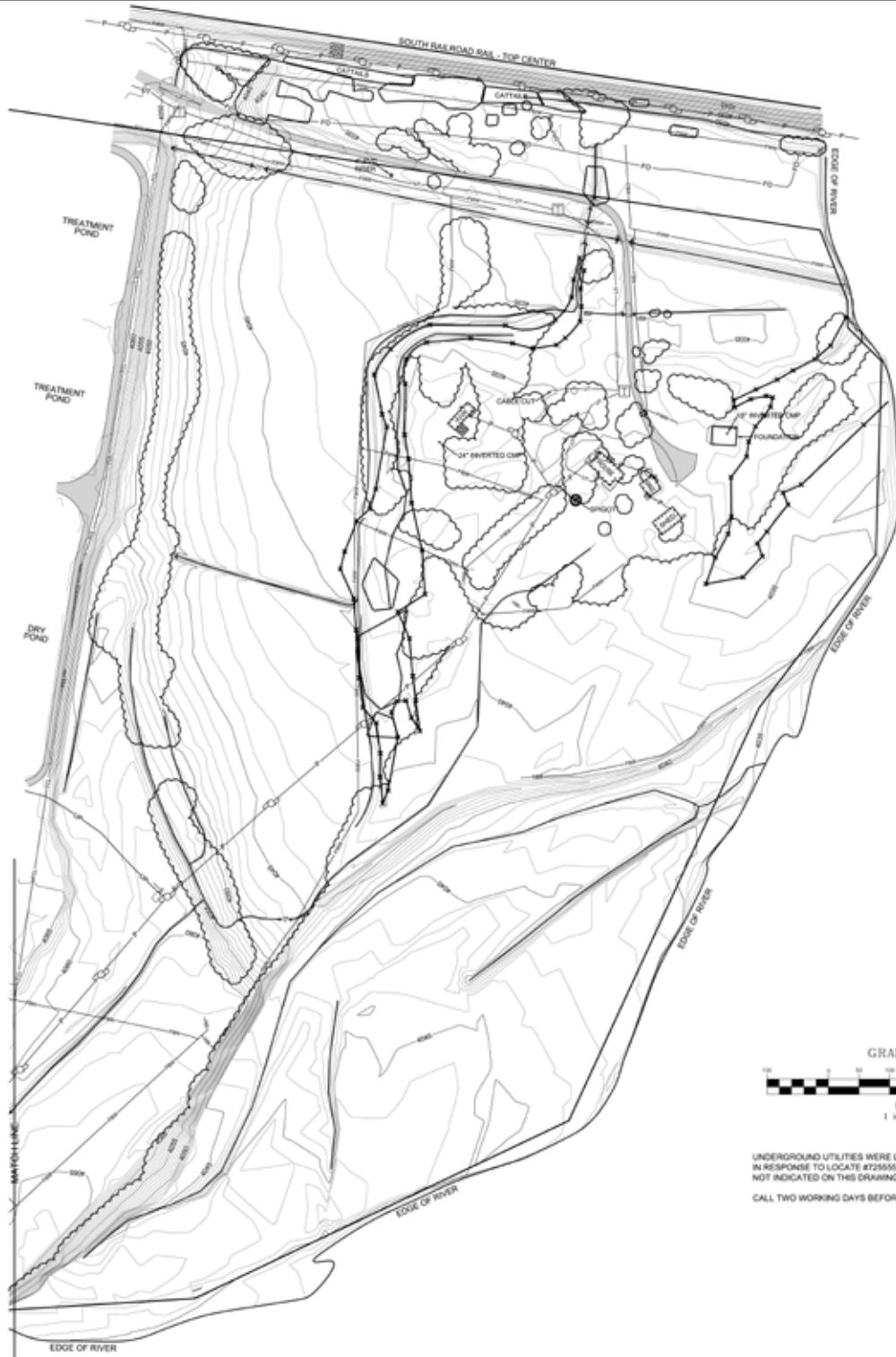
**CTA CIVIL ENGINEERS**  
119 North 3rd  
Livingston, MT  
59047  
406-222-0104

CITY OF BIG TIMBER

SHEET 1 OF 1

*Dornix Park*

# Dornix Park Survey 4/21/07



UNDERGROUND UTILITIES WERE LOCATED FROM MARKS FOUND ON THE GROUND IN RESPONSE TO LOCATE #7255551. THERE MAY BE OTHER EXISTING UTILITIES NOT INDICATED ON THIS DRAWING.  
CALL TWO WORKING DAYS BEFORE YOU DIG. 1-800-424-5555

### LEGEND

- SANITARY SEWER MANHOLE
- FIRE HYDRANT
- WATER SHUTOFF
- WATER VALVE
- WELL
- UTILITY POLE
- GUYWIRE
- POWER METER
- TELEPHONE PEDESTAL
- DOUBLE POLE SIGN
- SINGLE POLE SIGN
- CONCRETE
- ASPHALT
- GRAVEL
- BUILDING
- SANITARY SEWER LINE
- WATER LINE
- UNDERGROUND POWER
- OVERHEAD POWER
- UNDERGROUND - TRIANGLE TEL CO OF ASSN INC
- UNDERGROUND FIBER OPTIC - SPRINT/NEXTEL
- FENCE LINE - WOVEN WIRE
- FENCE LINE - BARBED WIRE
- FENCE LINE - CHAINLINK
- FENCE LINE - WOOD
- FENCE LINE - SMOOTH WIRE
- EDGE OF BRUSH - DRIFLINE
- EDGE OF TREES - DRIFLINE
- WETLAND FLAGS
- PROPERTY BOUNDARY

NOT A BOUNDARY SURVEY

DORNIX PARK  
EAST HALF  
BIG TIMBER, MT

EXISTING  
TOPOGRAPHY

SHEET  
2 OF 2

EAST  
HALF

REVISIONS:

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 ENGINEERS  
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 SUITE 100  
 DENVER, CO 80202  
 ALL RIGHTS RESERVED  
 DRAWN BY: CDS  
 CHECKED BY: GSB  
 DATE: 8/20/07  
 CTA # DORNIX7  
 CADD FILE: MP\_BASE\_SVY (ORIG)

*Dornix Park*

# Dornix Park Survey 4/21/07



## LEGEND

- SANITARY SEWER MANHOLE
- FIRE HYDRANT
- WATER SHUTOFF
- WATER VALVE
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- FENCELINE - BARBED WIRE
- FENCELINE - CHAINLINK
- FENCELINE - WOOD
- FENCELINE - SMOOTH WIRE
- EDGE OF BRUSH - DRIPLINE
- EDGE OF TREES - DRIPLINE
- WETLAND FLAGS
- PROPERTY BOUNDARY



REVISIONS:

**DORNIX PARK  
WEST HALF  
BIG TIMBER, MT**

**EXISTING  
TOPOGRAPHY**

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DRAWN BY: CCB  
CHECKED BY: OSB  
DATE: 8/8/07  
CTA # DORNIX7K  
CADD FILE: MP\_BASE\_SVY (JRG)

**CTA**  
CIVIL  
ENGINEERS

WEST  
HALF

SHEET  
**1 OF 2**





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