COMPREHENSIVE LAND USE PLANNING

City of Sturgis, South Dakota

September 2014

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CHAPTER ONE - THE PLANNING PROCESS

Introduction

Geography and Demographics

The City of Sturgis, Meade County, South Dakota sits within the Black Hills region of the state, situated along Interstate 90, at the crossroads of State Hwy 34/14, approximately midway between Rapid City to the southeast and Spearfish to the northwest. The City is nestled within significant expanses of public lands, owned and managed by the State, BLM and National Forest. The Bear Butte State Park and the Bear Butte Lake Recreation Area are approximately 7 miles north from the City center. Historic Fort Meade sits on the eastern edge of the City, and Mount Rushmore and the Crazy Horse Memorial are within a short and scenic drive. Other nearby attractions include the Fort Meade and the Black Hills National Cemeteries.

At an elevation of 3,422 feet above mean sea level and with picturesque wooded hills surrounding, the City of Sturgis has a relatively comfortable summer climate with enough snow in the winter to provide for winter recreation opportunities. Average summer high temperatures range from the high 60's to the high 80's, average winter low temperatures are in the mid-teens to the mid-twenties, degrees Fahrenheit. Average annual precipitation is approximately 20 inches, with average annual snowfall approximately 47 inches. Climactic data is found in **Appendix I**.

The 2012 population estimate was 6,644, with a projected population growth of approximately 3% per year. The population increase is shown to be generated in the 20-35 age group, with a significant increase in the 55-65 age demographic [(1)].

The economic employment base in the City includes Government, followed by construction, manufacturing and trades; then education, medical and professional services and finally leisure and hospitality. The largest employer in the region is the VA Hospital – Black Hills Healthcare System, with the City, County and School District combined providing the next largest employment base. Manufacturing and Hospitality round out the major employers [(1)]. The tourism and manufacturing industries show evidence of continued growth and with the recent moves by the National Guard to consolidate their facilities into the Sturgis area there is evidence to support a larger government employment base as well.

In recent years, the growth in the business and employment sector has outpaced residential construction, thereby creating a relative shortage of housing for those working in and within the Sturgis area. Current vacancy rates for rental units within the City are less than 1.0%, with available owner occupied units on the market at approximately 1.6% [(1)].

Basis of the Study

With the relative low volume of available residential units and limited residential developments coming on line the City took the initiative to contract with KLJ to produce residential use land plans for three City owned parcels and one parcel currently owned by the Meade County School District that is under consideration by the City to purchase and develop.

Additionally, there is a perceived need to relocate and expand the existing Fairgrounds, currently located centrally in the City to another site. Several concerns with the current fairgrounds have been noted they include but are not limited to conflicts between the rodeo and motorsports track, lack of room to expand, parking and noise.

[(1)] City of Sturgis Housing Study, April 2014, Community Partners Research, Inc.

Parcels

The three parcels in the study currently owned by the City are the Fairgrounds, Marcotte and South parcels. In addition to these three parcels, the Comprehensive Land Use Plan includes land adjacent to the Sturgis Brown High School currently owned by the Meade School District. Collectively it is estimated that the developable land in all parcels is approximately 215.5 acres. All parcels are generally shown on the vicinity map **(Figure 1)** below.

Figure 1

Vicinity Map – not to scale

School

The School parcel includes a portion of approximately 460 acres of land and is accessed off of Highway 34. Of this acreage, and exempting therefrom land retained by the school and reserved for the National Guard there remains approximately 135 acres of readily developable land. The site is bounded by BLM land and the City owned lagoons to the north, HWY 34 and Fort Meade to the South, private commercial use to the east and BLM land to the west. The site is encumbered by several public uses under management of several differing jurisdictions. These include the Sturgis Brown High School, National Guard, County 4H and federally regulated floodplain. The site also contains a known historic armory and rifle range site. The significant developable land within the site has been most recently used for agricultural purposes or is left in a relatively natural state. The northerly portion of the site lies landlocked by the Bear Butte Creek floodplain and BLM lands and is relatively inaccessible for development in the near future.

Fairgrounds

The Fairgrounds parcel includes approximately 22 acres of developable area, not including the existing ball fields. It is accessed via Ballpark Road/5th Street and is generally bounded by the railroad to the north, school to the south, private residential property to the east and Ballpark Road to the west. The current use of the site is recreation, including a rodeo arena, motorcycle racetrack and the adjacent ball fields.

Marcotte

The Marcotte parcel includes approximately 53 acres of land. It is accessed off Elk Road by way of Dolan Creek Road and Moose Drive and is generally bounded by existing residential properties to the north and east across Elk Rd., and State land to the south and estate, private residential properties to the west. The current use of the land is agricultural/open space.

South

The South parcel includes approximately 5.5 acres of developable area. It is accessed off Pineview Drive via either Vanocker Road or Junction Avenue/Vanocker Canyon Road. The site is bounded on the north by existing residential property, the south by National Forest Land, to the east by proposed commercial property (currently undeveloped) and the west by residential/agricultural use. The current use of the site is agricultural with a municipal water facility in the northeast corner.

Kick-off Meeting

Defining the Scope

KLJ and the City met on February 10th, 2014 to establish the timeline for the project, identify key stakeholders and refine the scope of the project and the deliverables. Each parcel was addressed specifically, with those present sharing input and the history of interest in the respective parcels. In addition, a detailed discussion was held regarding the overall goals of the City and preferred development patterns and housing types.

Key Land Use Elements

Several key points, pertinent to all parcels were identified and are as follows:

- Land uses and housing should support the general population and economy. Uses specifically directed to support the Rally exist in sufficient quantity.
- Commercial property is needed but not considered a part of this planning effort.
- City has significant parkland as measured per capita, generally new parks not a priority.
  - trail connections are a high priority
  - City maintained, small ‘pocket parks’ are not desired
  - A park in the southern part of the City is desirable, 2 acres or larger.
  - Open space as an integral part of development is desired.
- Use of sustainable road sections is supported.
- Single family attached and detached in an ‘affordable’ category. Higher end residential is being provided in other areas of the City.
- Both single family and multi-family units are needed.
  - Affordable housing is a priority, workforce housing
  - Multi-family rental property
  - Townhomes and Condo’s both as owner occupied and rental units

Parcel Specific Land Use Elements

Key elements specific to each parcel were identified and will be expounded upon where appropriate herein. Minutes from this initial meeting are available in the public record at the office of the City.

Public & Stakeholder Engagement

Website

Throughout the project, the City maintained a webpage within the City's existing website to disseminate related information. KLJ provided digital copies of all parcel maps and land use sketches to the City were they were posted to the webpage subsequent to being presented publicly.

Public Meetings and Open Houses

Several public meetings and public open houses were held throughout the duration of the project. All were generally well attended. KLJ provided meeting summaries in the form of meeting minutes to the City to be held in the project record. Prior meetings were summarized in the subsequent meeting to ensure the public and stakeholders had input on the findings and conclusions.

Meetings comprised a brief summary of the 'to-date' status of the project, followed by any project related updates from the City, follow-up on outstanding questions, a presentation of new maps, concepts and information on a parcel by parcel basis and a question and comment session. Several meetings took on an appropriately informal nature with significant discussion between all present.

Meetings were held on the following dates:

- February 10th, 2014 – Kick-off Meeting
- March 24th, 2014 – Joint meeting with City Council, Planning Commission
- March 25th, 2014 – Public Open House, Parks Commission
- March 26th, 2014 – Public Meeting
- May 5th, 2014 – Public Meeting, presentation to the City Council
- May 6th, 2014 – Public Open House

Stakeholder Interviews

Throughout the project, multiple interviews were held with critical stakeholders. Interviews were conducted by both the City staff and KLJ. Wherein both parties could not be present, the key findings were shared. Those interviewed included State Parks, Meade School District Superintendent, Sturgis Brown HS Principal, South Dakota DOT, National Guard, Chamber of Commerce, Economic Development Council, City Public Work, Utility & Parks Departments, Fairgrounds & Rodeo members, and Utility (gas and electric) providers.

Several other stakeholders and constituency groups were represented at public meetings and were able to provide their input in the forum. In addition, KLJ held several phone interviews with a variety of interest groups, private companies and organizations to fill gaps in or better support the available information.

Base Mapping

Physical Data Gathering

All base materials for the respective sites were derived from public information sources and the City of Sturgis. KLJ completed several on-site inspections and walks of all parcels to check for visible evidence of improvements that needed inclusion on the base maps. No on-site or ground based improvement location or actual land surveying was completed.

Public sources of information include available GIS information, compiled into and ArcGIS base file. Both GIS imagery and Google Earth imagery were used in coordination with the point and vector data. Floodplain and wetland information was obtained from the relevant federal databases. Climactic information was compiled from NOAA sources, soils information was acquired from the USGS website.

Opportunities & Constraints Map

Opportunities and Constraints maps were then drawn and used to illustrate the opportunities and constraints of each parcel and to serve as the basis from which the subsequent land use alternatives were drawn. In general the opportunities are considered to be those items that can be used to enhance the project; such as but not limited to views, solar access, trail connections, natural environments, vehicle access, available utility service, etc. Constraints are such things as easements, natural hazards, historical sites, excessive topography, poor soils and groundwater. Reference information related to the existing conditions is provided in **Appendix II**.

Base maps were shared at public meetings, via the project webpage and with stakeholders. Where necessary the maps have been revised per the input received over the duration of the project.

Each opportunity and constraint is to be evaluated on a case-by-case basis and incorporated or avoided as most appropriate for the proposed use. For example, a floodplain may be generally avoided for development and preserved in open space. However, in certain cases, where there is justification or an advantage to developing within the floodplain it may be proposed to do so and in accordance with Federal law and required permitting. Another example is an overhead utility line that poses a physical constraint to development may could be relocated and/or undergrounded if seen as advantageous to the project.

Developing Alternatives

Site Organizational Diagrams

The initial phase of the Land Use Studies was to develop Site Organizational Diagrams (SOD's) for each parcel. Commonly referred to as 'bubble diagrams' these graphics illustrated the general land uses, site access points and internal relationships and circulation without going into a greater level of detail to show lot lines or similar.

These general diagrams were presented in public forums to assist the public in understanding the proposed uses and provide feedback. In several cases, overlays were used during and subsequent to each public meeting to sketch in the options and gain more input. For brevity these diagrams have been omitted from this report; however the ideas and resolutions derived from this public engagement exercise are represented in the final Land Use Plans.

Site Land Use Plans

Subsequent to the SOD's and with significant public and stakeholder input on the various options, KLJ developed Preliminary Land Use Plans, each of which was completed to a greater level of detail to better illustrate the intent of the plan.

For all but the Fairgrounds parcel, multiple plans were drawn to show the full capacity of the parcel and thus provide the City with options in moving forward with the development. It is important to consider that the actual timing and/or sequencing of the development of each parcel is an unknown so to address this concern alternatives are presented. Typically, it takes years to fully develop land use projects, it is important to consider market demand and fluctuations, a quality plan should retain the compatibility of uses while still allowing for market adjustments.

To conclude the planning process, the alternatives for each parcel were presented in a public meeting with the City Council. A public open house was held the following night, with all plans being presented in a free discussion style of meeting. The consultant made notes of any new issues that arose from discussions and the public was provided an opportunity to write down their comments and present them to the project representatives. Most comments either reiterated past concerns or were generally in favor of the alternatives presented.

Final Land Use Plans have been developed and are included in this report. Discussions of general recommendations can be found in the 'Recommendations' chapter, with site specific recommendations, including the lands use plan(s) are found in the appendices.

CHAPTER TWO - RECOMMENDATIONS

General Recommendations

General recommendations that apply to all sites are discussed below. For ease of distribution, we have developed separate sections for a detailed discussion of each of the four parcels studied in this planning exercise. Site-specific discussions and recommendations can be found as follows:

- School Parcel – page 11
- Fairgrounds Parcel – page 25
- Marcotte Parcel – page 31
- South Parcel – page 39

Lifestyle Enhanced Development

Planning research and market studies continue to show several important trends that should be considered with any new development. Nationally we see an in-migration of populations from rural or sub-urban type lifestyles into more urban communities. Studies from the Urban Land Institute and National Realtors Association show that approximately 65% of these buyers prefer walkable communities with access to parks and open space. A walkable community refers to incorporating pedestrian friendly streets, paths within open space and having destinations such as schools, recreation, shopping or jobs within a three (3) minute walk of one another.

It is not always possible to achieve all of these ideals, particularly in smaller, in-fill developments; however, we can address the consumer demand by addressing the lifestyle enhancing opportunities with the specific sites and looking at the proposed housing type, further developing these opportunities for the anticipated demographic/buyer. The recent housing study completed by the City of Sturgis suggests this in-migration trend in Sturgis is heavily weighted to the 55-65 year old demographic and informal interviews at the public meetings supports this finding with folks relocating from their rural ranches as a part of downsizing their lifestyle as they near or enter retirement. In addition, the housing study shows a demand in the 35-44 age group, a demographic that is commonly quite active and includes households with children. Both age groups enjoy walking paths, and will certainly enjoy the views and climate the area offers.

The Land Use Plans presented herein differ significantly from traditional suburban residential development and illustrate ways to capitalize on the unique geography, views and outdoor activities found in Sturgis, SD. By utilizing clusters of relatively higher density development, the plans increase the amount of open land to be preserved and decrease the amount of infrastructure (roads and utilities) required to serve the units. A critical element to this land use strategy and one that helps preserve and promote the active lifestyles consumers demand is to maintain open views and access to the open space. This can be accomplished in numerous ways; a few key strategies illustrated in these plans are:

- Alignment of neighborhood entries and/or larger boulevard streets with views to Bear Butte, adjacent natural amenities, and/or the developed parks and open space within the community.
- Omitting lots or other visual obstructions at key points within the community to serve as “window’s” and access points to the preserved open space or other shared amenities.
- Fronting homes on common open space, providing access to the garages via a common auto-court or alley. The common open space should align with other neighborhood open spaces, parks, views or similar to further enhance the walkability, connectivity and overall aesthetics of the community.

Sustainable, Low Impact Development

There is a significant market preference for sustainable development where we see a growing demand for communities that provide a balance in economic, environmental and social impacts. In addition, there are studies available that show that cities utilizing sustainable development practices are benefiting from annual savings, sometimes as much as 12%, in providing services and maintaining infrastructure. In addition, it has been shown that walkable communities can reduce traffic by as much as 30%. KLJ recently completed some comparisons of traditional development layouts to more sustainable, lifestyle enhanced development and found that in the latter the open space preserved as an amenity is significant, the developable lots increased and the costs of supporting infrastructures decreased by as much as 17%. The details of sustainable development strategies are too inclusive to cover here however, below is a list of easily achievable sustainable development practices that can be considered with the parcels in this study:

- Reduced, pedestrian friendly, street sections appropriate for the adjacent uses, traffic volume and aesthetics
- Cluster development – typically smaller individual lots, or more dense forms of development clustered together within tracts of open space.
- Preservation of natural drainages, lowlands and wetlands; utilizing existing topography and drainages to convey storm water and enhance water quality.
- Higher density development close to jobs and retail with pedestrian connections to regional trails.
- Water conserving landscapes and plumbing fixtures
- Energy efficient construction (insulation, windows, lighting, etc.)

As noted, this is not an all-inclusive list and it is recommended that at the time of development the City review each land plan in relation to how effective the sustainable practices are.

Planned Unit Development

Article V, Section 1a, Title 18 of the City of Sturgis, SD, Municipal Code contains the Planned Unit Development section of the Zoning Ordinance. The use of a Planned Unit Development (PUD) within the City is a 'use permitted on review', and thereby includes additional requirements for approval beyond those required for standard zoning under the same code. In effect, the City's PUD zoning is an overlay district used in accord with standard 'underlying' zoning such as GR-1, R-2, Single Family Residential-Office Commercial and General Commercial Districts.

Whereas on all parcels it may be possible to achieve similar land uses as shown herein using standard zoning on individual parcels or lots, the use of a Planned Unit Development (PUD) for each site is strongly recommended. Employing a PUD will provide the City the best opportunity to create site-specific development standards that benefit the unique nature of the proposed development without the need or risk of revising existing City Code or establishing a new precedent in how the existing base code and development standards are applied. The challenge will be in the actual application of the PUD, primarily due to the additional requirements such as providing building layouts, defining right-of-ways and the defined expiration of the PUD after three (3) years. These challenges are addressed further in the Summary Chapter of this report.

The PUD is beneficial when developing communities with mixed uses, such as single family, multi-family and recreation or commercial all allowed within the development. In this manner, the City could sell off a specific development site to a different developer, and have some assurance that the overall community will all be integrated and built to consistent standards.

Planned Unit Developments exist in a myriad of forms, some being very prescriptive, with others being more general and essentially define allowed uses to specific areas. The recommendation for the Sturgis area and market is to tend toward the more general end of the spectrum but to address those issues critical to the success of the lifestyle-enhanced development. Listed below are a few areas to consider; however, this is not intended to be a comprehensive list and each parcel should be looked at as unique:

- Land use categories, allowed uses and density for each land use category
- Reduced street sections specific to the site, portion of the site
- Streetscapes, front yard and common open space landscaping
- Pedestrian connectivity, trailheads, access to public lands
- Views to be preserved, preservation of natural amenities, drainages, wooded areas, etc.
- Minimum open space required, areas to be preserved
- Lot configurations
  - Minimum lot size
  - Setbacks (side, front, rear, garage and/or outbuilding setbacks)
  - Flag lots, common access easements
  - Alley loaded
- Building massing
  - Building heights, clustering, rear loaded garages,
- Architectural style – particularly on sites that will have a mix of residential types.
- Fencing – style and height
- Off-street parking
- Rental units, auxiliary structures for rent on a single site, 'in-law' units above garages, and basement units with separate access, etc.

Covenants & Property Owners Associations

There are numerous pros and cons to allowing or requiring a Property Owner's Association (POA/HOA) and whether to require covenants. In particular, the POA is only as effective as its governing membership; the City has no authority over the POA/HOA outside of the commonly applied municipal code. The benefit to a POA/HOA is that it allows some self-governance of the community and provides a good vehicle for the collection of fees to apply toward the maintenance of private streets and alleys and other public open spaces not otherwise maintained by the City.

The recommendation of covenants comes from the knowledge that covenant controlled communities tend to maintain their property value better in the long run. The covenants, like the PUD Zoning, can be very prescriptive or more general in application. However, in the Sturgis market it is likely the covenants need to be less prescriptive, focusing primarily on maintenance of common areas and those areas of private property visible throughout the community and needed to be well maintained to perpetuate the value of the community as a whole.

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CHAPTER THREE – SCHOOL PARCEL

Opportunities and Constraints

Overview

The School parcel is the largest of all parcels studied for this report and contains several existing uses as well as environmental and cultural constraints. The site is bounded by BLM land and the City owned lagoons to the north, HWY 34 and Fort Meade to the South, private commercial use to the east (unincorporated land) and BLM land to the west. The site is encumbered by several public uses under management of several differing jurisdictions. These include the Sturgis Brown High School, National Guard, County 4H and the federally regulated floodplain. The site also contains a known historic armory and rifle range site. A finding on the archeological conditions of the respective sites is provided in **Appendix III**.

Overall, the parcel is approximately 460 acres, of which it has been estimated that only 135 acres of that land is readily available for development. This developable area is the approximate acreage of land remaining after the existing uses, a majority of the floodplain, the landlocked northerly portion (see below), ten (10) acre public school and fifty (50) acre National Guard reserve sites are removed from the gross acreage. Although there is developable acreage north of the creek the site is relatively inaccessible due to the expanse of the Bear Butte Creek floodplain blocking reasonable access from the south and the BLM land to the north. When combined with the bluffs and the approximately three-quarter (3/4) mile distance from the existing Sly Hill Road/128th Avenue right-of-way makes access cost prohibitive in the short term.

The significant developable land within the site has recently been used for agricultural purposes or is left in a relatively natural state. Due to the diverse nature of the existing and proposed uses on the site, several alternatives were prepared and discussed herein.

Access

Access to the site is via HWY 34. As noted above the access from the north is limited by jurisdictional control, topographical constraints and cost feasibility. The City expressed a desire to achieve a secondary access to/from Sly Hill Road to relieve several concerns. Such an access would require crossing the Bear Butte Creek Floodway and approximately three-quarters (3/4) of a mile road through BLM land. While access to/from the north is technically feasible, it was determined out of the scope of this study.

Calls were made to South Dakota Department of Transportation to determine the ability to use and improve existing access points as well as determine if additional access points would be granted. At the time of the interview, the Department expressed no reservations in using existing access points, expressing a desire to have the access to the Sturgis Brown High School improved and keeping any proposed new access across from existing access points south of the highway. There were no prohibitions expressed for additional access points, noting each proposed improvement would need to be adequately planned and reviewed at the time of the application.

Meade County School District was interviewed in the preliminary phases of the project, in part to discuss the existing principle, west access to the school. This shared access serves not only the school, but also the County 4H facilities and other auxiliary buildings north of the high school. This access serves a 'loop' road that encircles the high school and ties into the existing easterly access to the school and existing National Guard facilities. The configuration of the westerly access, combined with the traffic volumes, relatively inexperienced drivers and a lack of a signal makes this a dangerous intersection. The City, DOT and the school district all expressed a desire to improve the functionality and safety of this intersection. The proposed land use plans all incorporate this intersection in an

improved configuration.

Several access points are shown on the proposed land use plans and are discussed briefly herein. The existing access east of the school and shared by the National Guard is proposed to remain and is not an integral part of the plans. All plans show a new access as the easterly boundary of the site, which is the section line. This would be a new, full access and is critical to the traffic circulation to and from the site. Where other accesses are shown, they could serve as right in, right out as well a full access, to be determined with the final land uses and would need to be approved by the DOT. The plans also show adding the 'fourth leg' to the most westerly access off HWY 34 at the entrance to Fort Meade. An access at this location is significant to the proposed uses, traffic circulation and emergency response. This access is proposed on BLM land and thus would require their approval and by the DOT.

Utilities

Currently the site is served by all utilities, sufficient to support the existing uses. Improving the electric and natural gas service systems to support additional development is feasible and without any noted concerns from the utility provider. Water and sewer service would be provided by the City and both systems would require improvements and extensions to adequately serve the proposed uses/locations. Potable water service would require a main line extension from the point where the City system cross connects into the Fort Meade system, at approximately the westerly entrance to Fort Meade. Sanitary sewer service, particularly east of the high school would likely require the use of a new lift station.

An overhead utility line transverses the northerly portion of the property. An in-person interview with the utility provided revealed that the easement for this line lies ten (10) feet either side to the line of poles. This portion of the property is difficult to access and is for the purpose of this study considered undevelopable

Cultural and Environmental

Multiple cultural and environmental conditions exist within the site. The discussion below is an overview of the findings and is not intended to be all-inclusive. Depending upon the location and type of development actually proposed there will likely need to be additional environmental and cultural studies and surveys performed.

The primary environmental encumbrance is the FEMA mapped 100-year floodplain for Bear Butte Creek. The creek runs from west to east, traversing the entire site and bounded by a floodplain that expands from approximately feet to over 2,500 feet in width. Development within this floodplain is not prohibited, but any such proposed development would require the import of fill to raise the land elevation above the floodplain level and thus would need to be reviewed and approved by the Army Corps of Engineers. An endangered species' and habitat study has not been commissioned so there are no findings with respect to these concerns. The floodplain habitat is heavily wooded and is one of the nicest natural amenities in the region. The proposed land use plans show a majority of the floodplain being preserved in open space, with minimal development limited primarily to recreational uses such as trails.

The National Wetlands Inventory shows jurisdictional wetlands areas on the site that lie outside of the 100-yr floodplain. These wetlands are associated with the natural drainage patterns that exist east of the high school. The NWI wetlands are shown on the Opportunities and Constraints Map for this site

(attached). Additional wetlands, both jurisdictional and non-jurisdictional may exist on the site. It is recommended that a wetlands investigation and delineation be performed on the site prior to any development.

The site is bounded on the north by the existing City wastewater lagoons. The lagoons are not a direct environmental concern on the site but should be noted as they may present an odor concern.

Along with Bear Butte Creek, the associated woodlands, the floodplain and cultural sites, there also exist several other environmental opportunities on the site. Significant views of natural formations and the built environment exist from the site. View to historic Fort Meade exist to the south, Bear Butte rises to over 4,000 feet in elevation just four and a half miles distant, and pine wooded hillsides are prevalent to the west and southwest. The proposed land use plans capitalize on these natural amenities are discussed in detail with each plan.

This site in its entirety lies within the Fort Meade Historic District, with much of the site being considered an 'Eligible' archeological site. Visible evidence of the historic armory and rifle range exist north of Bear Butte Creek, within the area of the site assumed impractical for development with this study. Native cultures are known to have resided, crossed and hunted in the area, particularly along Bear Butte Creek. It is presumed that there is a high likelihood of archeological and historically significant sites and artifacts along the creek and within the areas not already disturbed by development and crop production. A Cultural Resources Assessment has been provided for this site and can be found in **Appendix III**. A level III Cultural Resources Study and coordination with the State Historic Preservation Office is being recommended for this site.

A grant from the Nation Park Service (NPS) was secured by the City to help fund the existing improvements for the rodeo and fairgrounds. The proposed plans herein work on the presumption that the rodeo & fairgrounds functions and much of the existing facilities will be relocated to the School Parcel. For this to occur and retain the grant from the NPS, the City will need to go through a specific process with the State Parks who manages these NPS grants throughout the State. A meeting was held with the City and State Parks and it is confirmed that the grant funding can move with the site once the processing is completed.

Site Conditions

Although both the east and the west (of the high school) portions of the site can be considered feasible sites for residential development, the soils and subsoil conditions are generally more favorable for residential development on the westerly side. The easterly side has existing drainage concerns that are causing low-lying marshy areas making higher density forms of development more challenging. The drainage issues on the east side do appear to me manageable, and the soils themselves are conducive to development and it is anticipated that once the drainage issues are resolved the westerly portion can be developed.

The following page contains the Opportunities and Constraints Map for the School Parcel (Figure 2).

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School Parcel Opportunities & Constraints Map

11x17

FIGURE 2

School Parcel Land Use Plan 'A'

Overview

This plan was developed to address several concerns that arose during the initial public meetings on this site. The outline below generally covers the concerns discussed:

- Separate sites for Rodeo & Motorsports.
- Added recreational facilities such as ballparks, dog park, biking, trails, equestrian, motorsports.
- Expansion room for the Fairgrounds
- Site for eventual indoor events
- Five (5) acre National Guard Site
- Residential in a mix of types, Single Family, Single Family Attached, Multi-Family

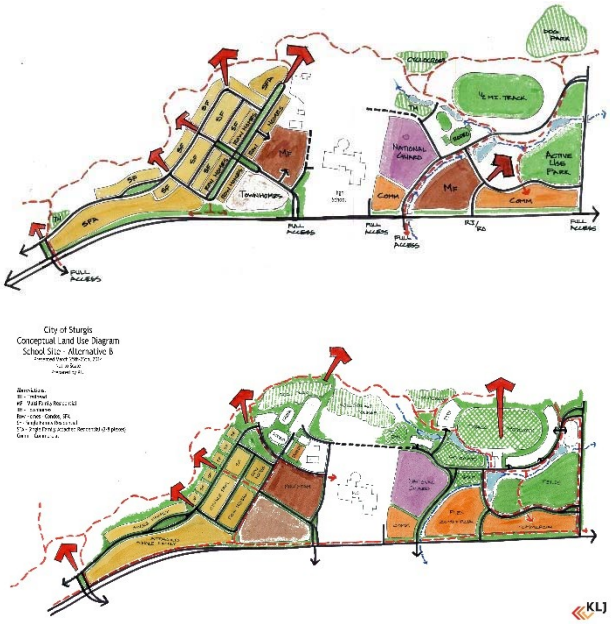


Figure 3
School Parcel SOD's

Figure 3 above shows the initial Site Organizational Drawing (SOD's) for the school parcel presented to the stakeholders at the public meetings. There was significant input with respect to the recreation components with the most significant being the proximity of the rodeo arena to the motorsports track. In addition to comments received from the public it was later determined that Meade School District wished to retain approximately ten (10) acres of land west of the existing school and the National Guard wished to retain fifty (50) acres of land surrounding their current facilities on the site. The two changes had a significant impact on the site and are reflected in the following alternatives.

Highlights

School Site Organizational Drawing (SOD) 'A' is attached as **Figure 3** on the following foldout page. The original scaled drawing of this exhibit can be obtained from the City in a 24"x36" (ArchD) format. The list below highlights some of the key elements of this plan:

- Twenty (20) plus acre rodeo & fairgrounds with separate parking for contestants/exhibitors and spectators. Arena seating and parking for approx. 1,000 spectators
- Approx. 50,000 square foot indoor events space
- Thirty- Five (35) acre, separate motorsports complex with seating for approx. 1,000 spectators, separate pit area and participant parking
- Additional six (6) acres of public park with passive use field space.
- Significant open space area for trails, cycling events, trailheads, dog park or other uses
- Minimal impact or development within the floodplain and wooded areas
- Approximately eight (8) acres of commercial development sites

- Approximately fifty-six (56) acres mixed use residential development
- Sustainable, compact, cluster development with boulevard streets aligned to preserve views to Fort Meade, Bear Butte and the surrounding wooded hillsides and banks of Bear Butte Creek.
- Numerous open space connections and view corridors into Bear Butte Creek from the residential areas, increasing property values within the community.

Two significant considerations need to be addressed with this site. First, this plan utilizes a portion of the floodplain along the westerly edge of the parcel for development; to build this concept as drawn will require removing some land from the floodplain with suitable fill and the proper permitting from the Federal Government. Secondly, while the location of the rodeo complex resolves concerns with the proximity to the motorsports track, it raises concerns with its proximity to residential areas with the associated noise and traffic. In addition, there's decreased efficiencies in the parking and support facilities when separating the major recreational uses.

The plan contains approximately eight (8) acres of prime commercial, retail or light industrial property, with the vision for this area to be utilized for support services to the fairgrounds and recreational area. Anticipated uses may include convenience store and fuel mart, large animal veterinarian, ranch supply, landscape nursery and supply, tractor sales/supply or similar. When utilizing this commercial area, the goal is to not compete with the existing commercial and retail uses within the central City core, but to provide expansion space that could supplement the existing commercial uses. Additionally, the area will provide a convenient location for the more industry oriented businesses in town to re-locate thus opening up the lots in town for a higher and more appropriate use such as retail, service and hospitality.

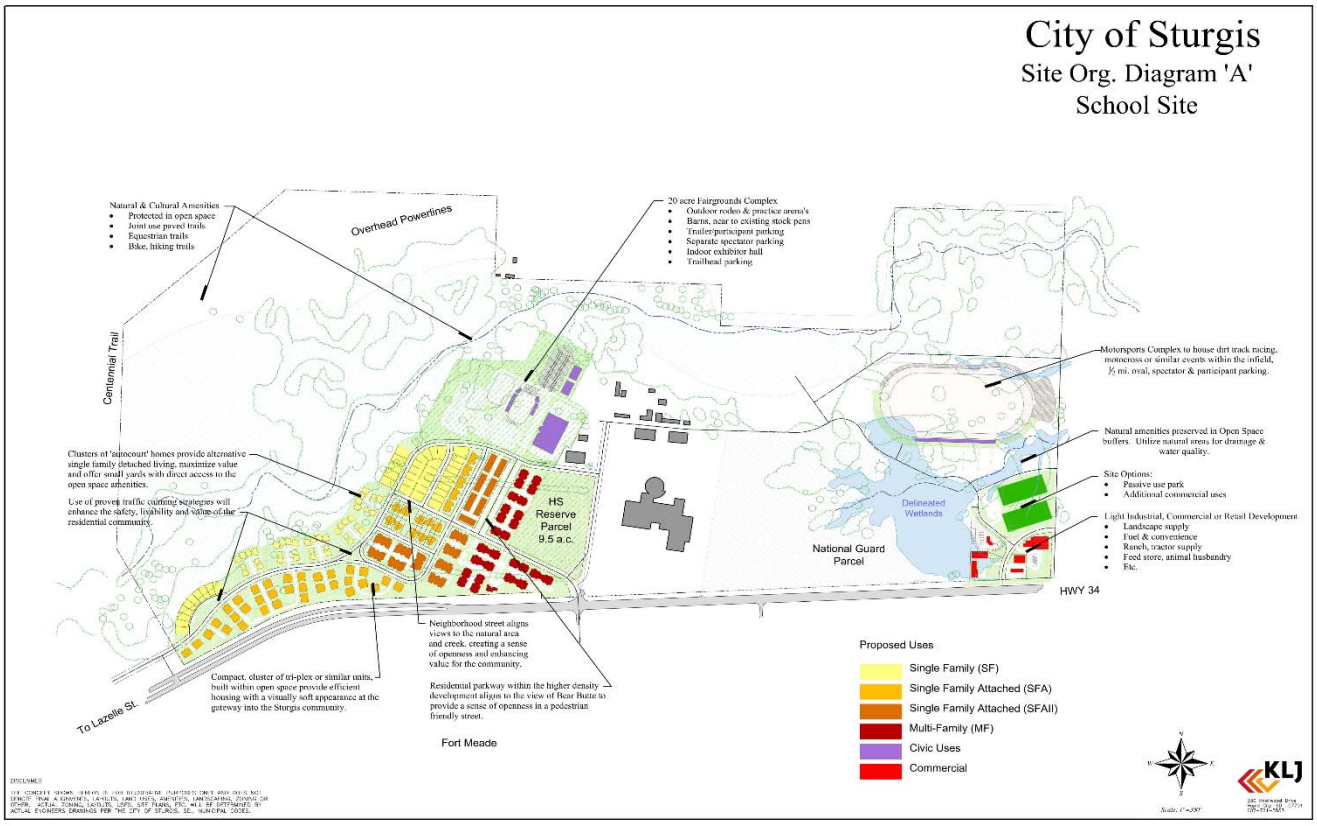
Mixed use residential is provided on the western portion of the site with approximately fifty-six (56) acres shown as developed with single family, single-family attached and multi-family units. The single-family attached is envisioned to accommodate both owner occupied and rental units. The gross density of the plan shown is approximately 11.5 dwelling units per acre. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

The following page contains the Site Organizational Diagram 'A' for the School Parcel **(Figure 4).**

School Parcel Land Use Plan 'A'

11x17

FIGURE 4



School Parcel Land Use Plan 'B'

Overview

The significant difference with this plan as compared to SOD 'A', is the resolution of the concerns with the proximity of the rodeo and fairgrounds to the residential. By locating these recreational and event facilities to the southeast corner of the site, just south of the motorsports complex and adjacent to the highway there are significant improvements to the traffic circulation and an increase in the efficiencies of parking and shared uses. The complete separation of these uses from the residential area significantly improves the quality of life in all of the residential area, primarily by separating the noise, light and traffic impacts from the residential uses. This plan does not contain any active use parkland or fields.

Highlights

The School Parcel Land Use Plan 'B' is attached as **Figure 5** on the following foldout page. The original scaled drawing of this exhibit can be obtained from the City in a 24"x36" (ArchD) format. The list below highlights some of the key elements of this plan:

- Fifty (50) plus acre rodeo & fairgrounds, motorsports and events complex with separate parking for contestants/exhibitors and spectators. Arena seating and event parking for approximately 2,300 guests.
- Approx. 50,000 square foot indoor events space
- Significant open space area for trails, cycling events, trailheads, dog park or other uses
- Minimal impact or development within the floodplain and wooded areas
- Additional park land
- Sixty (60) acres, Mixed Use Residential Development
- Sustainable, compact, cluster development with boulevard streets aligned to preserve views to Fort Meade, Bear Butte and the surrounding wooded hillsides and banks of Bear Butte Creek.
- Numerous open space connections and view corridors into Bear Butte Creek from the residential areas, increasing property values within the community.

Similar to plan 'A' this plan utilizes a portion of the westerly floodplain for development; to build this concept as drawn will require removing some land from the floodplain with suitable fill and the proper permitting from the Federal Government. This plan does not contain any commercial land, which is a significant consideration from both an economic and convenience standpoint.

Approximately sixty (60) acres of mixed use residential is provided in nearly an identical layout as in plan 'A', with the notable exception that the area that was the rodeo and fairgrounds in plan 'A' is utilized for single family detached residential in plan 'B'. The gross density of the plan shown is approximately 11.3 dwelling units per acre. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

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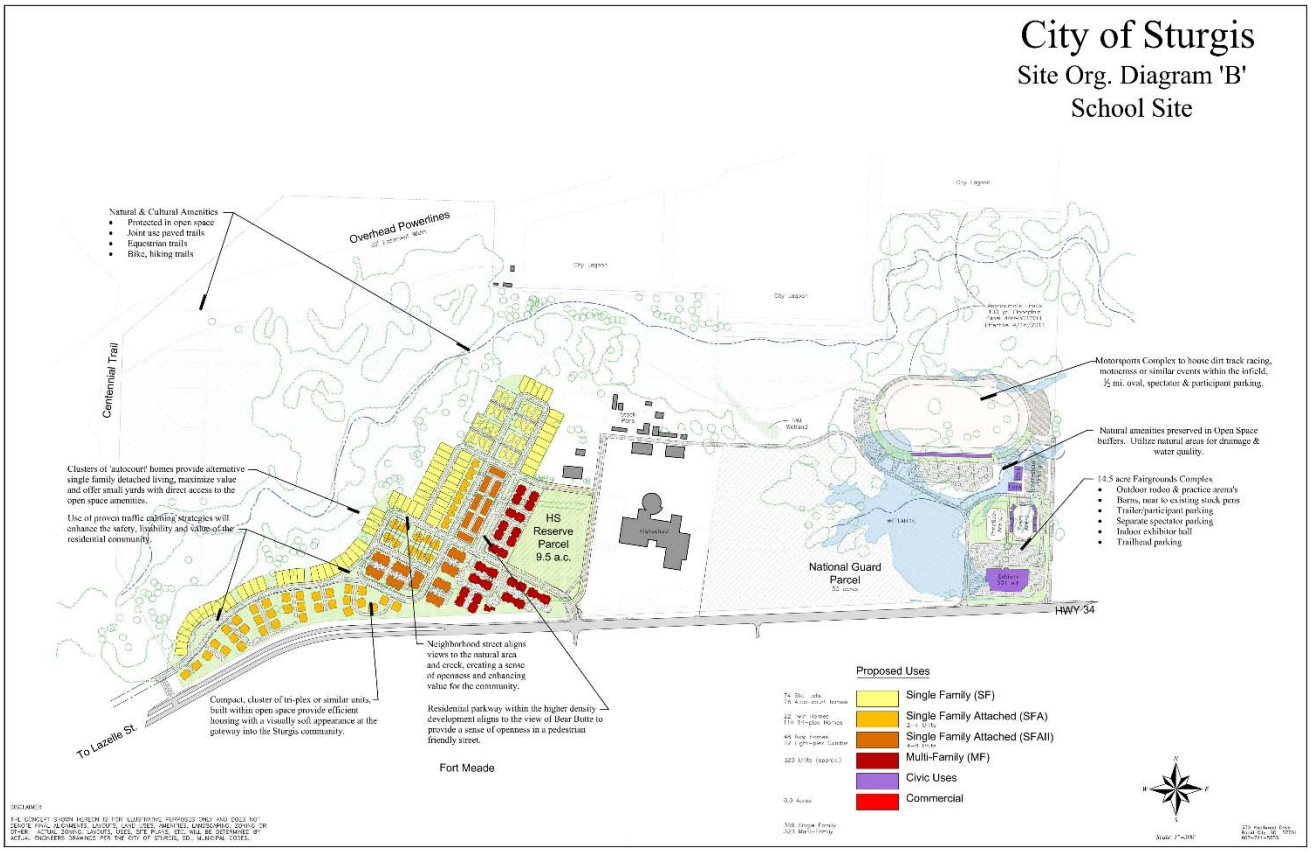
School Parcel Land Use Plan 'B'

11x17

FIGURE 5



School Parcel Land Use Plan 'C'

Overview

Land Use Plan 'C' illustrates a layout that resolves the concerns with the proximity of the rodeo and fairgrounds to the residential by moving these facilities to a location adjacent to the motorsports complex and events center without losing the significant economic opportunity of the commercial sites along the highway at the southeastern corner. The residential components of this plan are identical to those illustrated in plan 'B' and similar to plan 'B', this plan does not include any active use parkland or fields.

Highlights

The School Parcel Land Use Plan 'C' is attached as **Figure 6** on the following foldout page. The original scaled drawing of this exhibit can be obtained from the City in a 24"x36" (ArchD) format. The list below highlights some of the key elements of this plan:

- Fifty-three (53) plus acre rodeo & fairgrounds, motorsports and events complex with separate parking for contestants/exhibitors and spectators. Arena seating and parking for approx. 1,300 spectators
- Approx. 50,000 square foot indoor events space
- Significant open space area for trails, cycling events, trailheads, dog park or other uses
- Minimal impact or development within the floodplain and wooded areas
- Five plus (5.4) acres, commercial development sites
- Sixty (60) acres, mixed use residential development
- Sustainable, compact, cluster development with boulevard streets aligned to preserve views to Fort Meade, Bear Butte and the surrounding wooded hillsides and banks of Bear Butte Creek.
- Numerous open space connections and view corridors into Bear Butte Creek from the residential areas, increasing property values within the community.

Similar to SOD's 'A' and 'B' this plan utilizes a portion of the westerly floodplain for development; to build this concept as drawn will require removing some land from the floodplain with suitable fill and the proper permitting from the Federal Government. Similar to SOD 'A' this does contain commercial land; however, it does not contain any additional active use parkland or fields. With the exception of the latter, this plan accomplishes the strengths presented in both SOD 'A' and SOD 'B'.

The rodeo arena in this plan is tucked in the north central portion of the site. The advantage of this location is that it places these facilities close to existing county and school agricultural facilities. The opportunity to work jointly for a variety of events is considerable, with added adjacent parking via the school's lot a significant advantage. The disadvantage to this layout is the rodeo and fairgrounds are fairly hidden and may require additional infrastructure improvements.

Approximately sixty (60) acres of mixed use residential is provided in nearly an identical layout as in SOD 'A', with the notable exception that the area that was the rodeo and fairgrounds in SOD 'A' is utilized for single family detached residential in SOD 'B'. The gross density of the plan shown is approximately 11.3 dwelling units per acre. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

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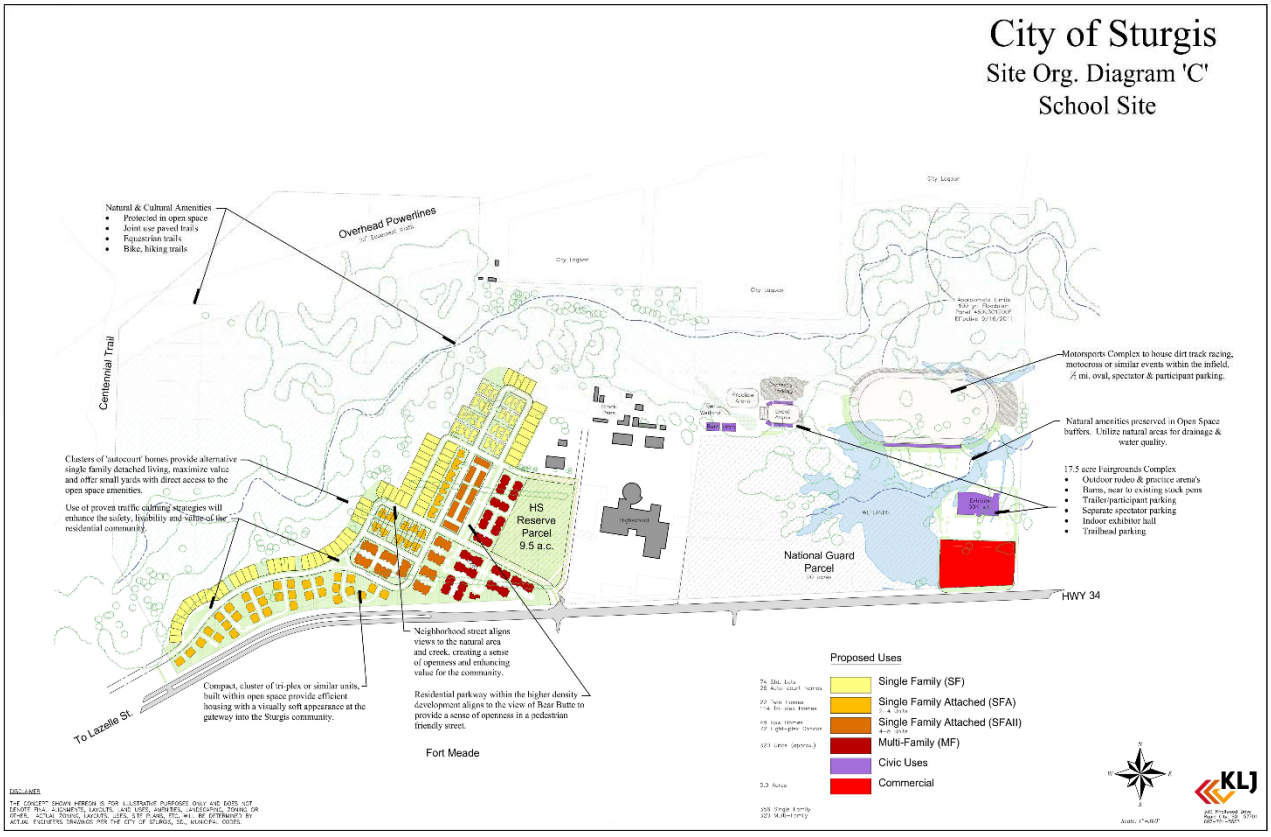
School Parcel Land Use Plan 'C'

11x17

FIGURE 6



CHAPTER FOUR - FAIRGROUNDS PARCEL

Opportunities and Constraints

Overview

The Fairgrounds parcel is the third largest of all parcels studied for this report and contains several existing recreational uses. The portion of the site considered for development in this study contains approximately twenty-two (22) acres. The site is bounded by private, developed land to the north, Ballpark Road to the South, public school to the east and a railroad spur to the west. The site is encumbered by several public uses under management of the City of Sturgis. Principle uses on the site include baseball and softball diamonds, picnic pavilions & facilities and the combined rodeo facility within the confines of a one half mile dirt track oval. The concrete grandstand, fencing, livestock fencing/pens/chutes and lighting are the primary improvements encumbering the portion of the site planned for redevelopment.

All existing improvements related to the baseball and softball fields and picnic pavilions are proposed to remain, leaving the significant developable portion of the land to be that encumbered by the rodeo and fairgrounds, inclusive of the oval dirt track and surrounding native grass fields. This is the area within the chain-link fence on the middle 'bench' of this tiered site.

Access

Access to the site is directly off Ballpark Road, which connects from the south to I-90 via Junction Avenue. Ballpark Road continues to the north, becoming 5th Street as it crosses beneath the railroad, providing quick access to the downtown district. A third access is offered via Dolan Creek Road, tying the Fairgrounds parcel to the primarily residential neighborhoods south and west of Interstate 90.

Non-motorized transportation connections to the site have been established on all three access points via sidewalk and trail connections that are in good to new condition.

Utilities

The site is served by all utilities, sufficient to support the proposed uses. Improving the electric and natural gas service systems to support additional development is feasible and without any noted concerns from the utility provider. Water and sewer service would be provided by the City with minimal to no off-site improvements needed. Sanitary sewer would be the possible concern and a more thorough study, based upon the proposed density of development should be made to ensure adequate sizing of the outfall line(s).

Emergency services are readily available with the fire station across Ballpark Road adding value to this site being developed at higher densities.

Cultural and Environmental

Neither a detailed environmental or cultural study has been performed on the site; however, recent history of heavy use of the site minimizes any chances of there being valuable archeological resources. Similarly, there are no known environmental concerns with the land. A Cultural Resources Assessment has been provided for this site and can be found in **Appendix III**.

Significant views of natural formations exist from the site, making it one of the most significant developable sites within the City. Bear Butte lies in the distance to the northeast, with other significant views of the surrounding National Forests to the southwest to the southeast.

A grant from the Nation Park Service (NPS) was secured by the City to help fund the existing improvements for the rodeo and fairgrounds. The proposed plans herein work on the presumption that the rodeo and fairgrounds functions and much of the existing facilities will be relocated to the School Parcel. For this to occur and retain the grant from the NPS, the City will need to go through a specific process with the State Parks who manages these NPS grants throughout the State. A meeting was held with the City and State Parks and it is confirmed that the grant funding can move with the site once the processing is completed.

Site Conditions

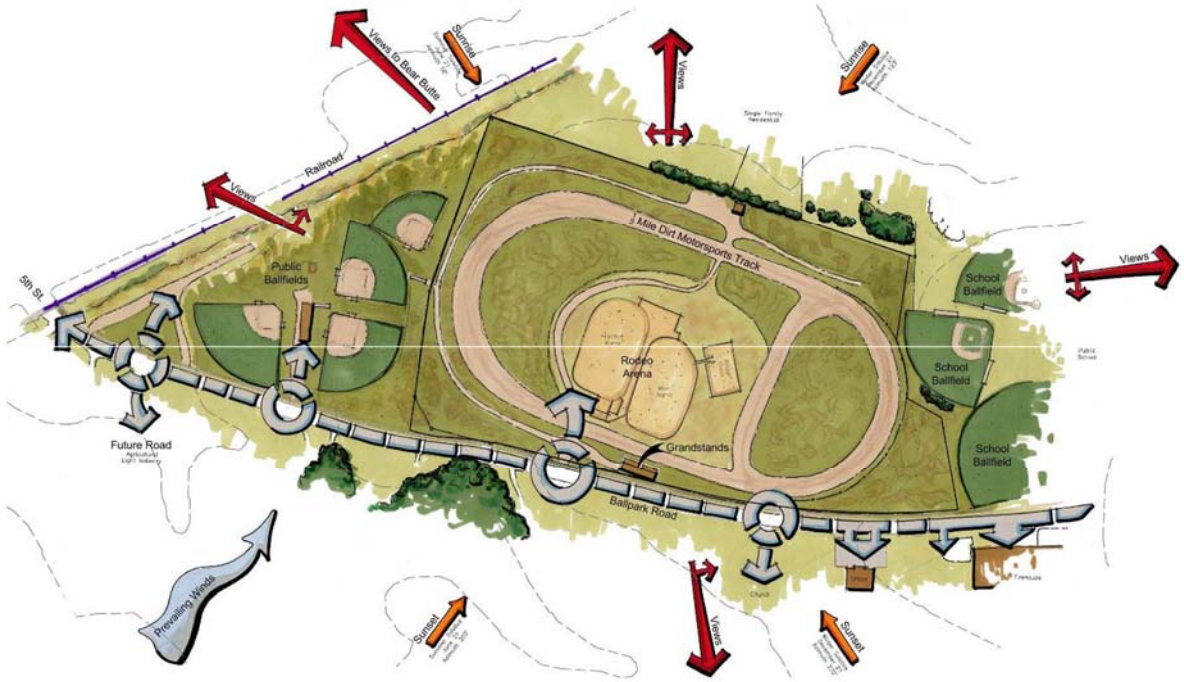
The portion of the overall site considered for development in this planning study lies upon relatively flat ground this is the middle tier to what is a terraced site. Within this middle tier, the land is only moderately vegetated, consisting of loose sands and significant areas of well-compacted soils. Few permanent physical improvements exist on the site and those include the concrete grandstands and surrounding walkways, lighting and chain-link fencing. Other improvements such as sheds, stock fencing, etc. are easily removed.

The following page contains the Opportunities and Constraints Map for the School Parcel **(Figure 7)**.

Fairgrounds Opportunities & Constraints Map

11x17

FIGURE 7



Fairgrounds Parcel Land Use Plan

Overview

This following plan was developed to address the residential concerns that arose during the initial public meetings on this site. Discussion and concerns relating to this site were minor with the consensus being that the site was the best location for higher density residential development. The outline below generally covers the concerns discussed:

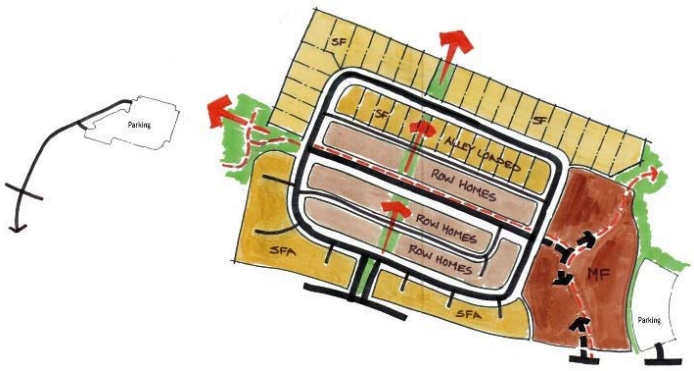


Figure 8
Original Fairgrounds Parcel SOD

- Relocate Rodeo & Fairgrounds to a site with expansion room.
- Use site for additional fields/recreation
- Add more off-street parking for the existing fields.
- Provide residential in a mix of types, Single Family, Single Family Attached, and Multi-Family

Figure 8 above shows the initial SOD presented to the stakeholders at a public meeting. Of those comments listed above, there is a conflict between higher density residential and utilizing the entire site for athletic facilities. Two significant findings are pertinent to the discussion of how the site is best utilized. These findings come from the recently completed Housing Study and the current Comprehensive Master Plan. One is the knowledge that the City is in need of affordable housing; the other is that for the current population the City maintains a significant amount of fields and park space compared to cities of comparable size. From a land use and community planning perspective the location of this site makes it ideal for redevelopment into higher density development, thereby creating a relatively large population within walking distance of existing recreation, jobs and retail opportunities. With the added fact that the infrastructure is already in place, and services are readily available, this site is well situated for affordable, sustainable, in-fill development.

Some discussion took place regarding the inclusion of some retail, perhaps in a mixed-use type of development within the multi-family tract. This idea does have merit and is feasible; however, thought should be given to how much retail/office could be supported, particularly within close proximity to an underutilized downtown area. Should the City desire to include some retail/office in the plan it would be advisable to keep traffic through the residential uses to a minimum.

The plan shows a relatively balanced combination of residential uses; however, it is feasible to increase the density of the plan and include more multi-family. Part of the discussion in this regard was the support for the mix of residential uses and the lack of support for the entire, or majority of the site to be used for multi-family.

Highlights

The Fairgrounds Land Use Plan is attached as **Figure 8** on the following foldout page. The original scaled drawing of this exhibit can be obtained from the City in a 24"x36" (ArchD) format. The list below highlights some of the key elements of this plan:

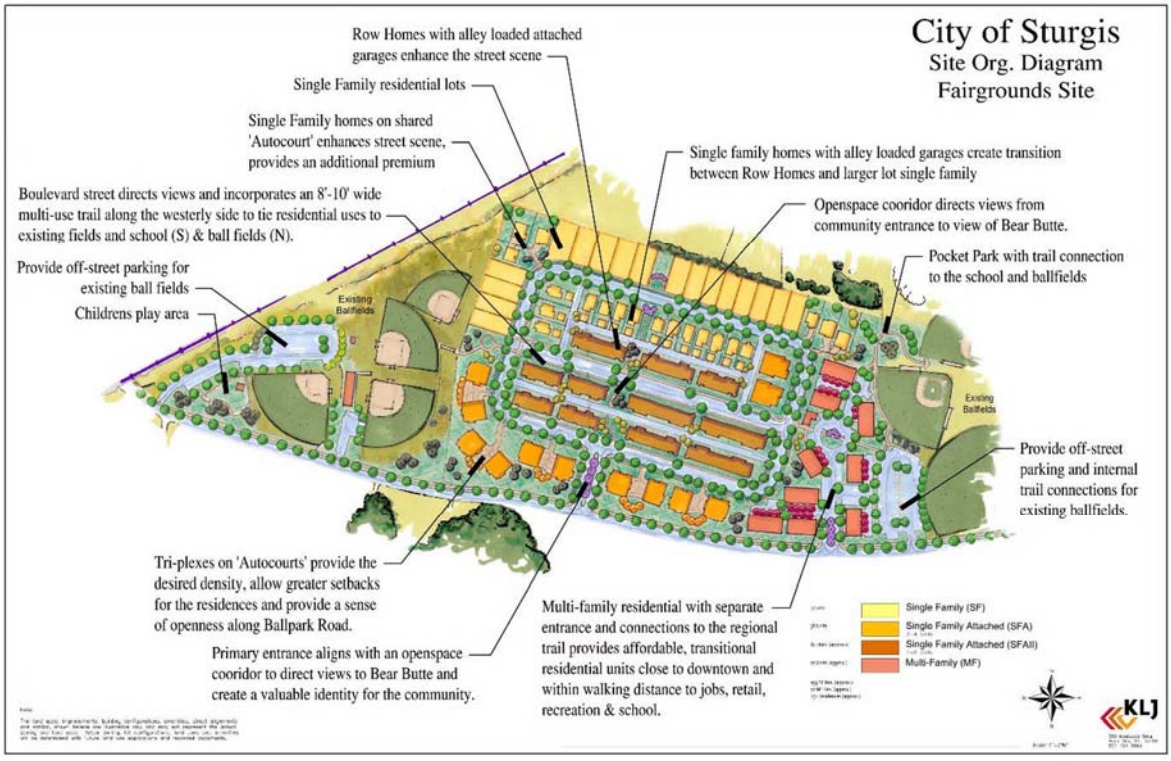
- Twenty (20) plus acres of a mix of residential uses; including:
  - Single Family Detached (front loaded, ally loaded and 'Autocourt' homes)
  - Single Family Attached (Twin Homes, Row Homes/Townhomes, 3-plexes to 8-plexes)
- Additional off-street parking for the existing ball fields and recreational areas
- Internal trail connections tying the recreational, residential, educational uses together.
- Sustainable, compact, cluster development with boulevard streets and open tracts aligned to preserve views to Bear Butte and the surrounding wooded hillsides.

The plan for the Fairgrounds Site shows approximately twenty-two (22) acres as developed with residential units. The gross density of the plan is approximately 10.6 dwelling units per acre. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

Fairgrounds Parcel Land Use Plan

11x17

FIGURE 9



CHAPTER FIVE - MARCOTTE PARCEL

Opportunities and Constraints

Overview

The Marcotte parcel is the second largest of all parcels studied for this report and contains approximately fifty-three (53) acres. The site is bounded by private, developed land to the north, east and west, and State land to the South. The land north is predominantly suburban, single family residential; the east is both single family and multi-family residential; to the west is large lot single family estate residential. Immediately adjacent to the south border of the site is an unimproved access road to public lands. The principle use of the site is undeveloped open space, with the northeasterly half of the site being cultivated.

Access

Access to the site is directly off Elk Road, which connects from the south past residential development to Moose Drive or via Otter Road to Vanocker Road. Access from the south includes a low flow crossing of significant drainage that, per public testimony is subject to periodic flooding. From the north, the access is a circuitous connection through a residential area to Moose Drive and then Dolan Creek Road. The most direct connection to Interstate 90 as well as the downtown area is via the south route where Otter Road connects to Dickson Drive, then to Junction Avenue.
Consideration for future road improvements along the southerly access route should be considered as this site and the area develop further.

Utilities

The site is served by all utilities, sufficient to support the proposed uses. An overhead utility line crosses diagonally on the northeasterly portion of the site. Improving the electric and natural gas service systems, including the undergrounding of the overhead line, to support additional development is feasible and without any noted concerns from the utility provider. Water and sewer service would be provided by the City with minimal to no off-site improvements needed.

Cultural and Environmental

Recent historic use of the site had been as a game production area under the jurisdiction of the South Dakota Game Fish and Parks Department. Wildlife is known to frequent the area and can be seen on the site. Three drainages cross the site from the south to the north, with the westerly two drainages being the most significant. The current FEMA flood maps indicate that a 100-year floodplain does exist for approximately the northerly 150 feet of the central of the three drainages. A detailed flood study is recommended to accurately define the floodplain affecting this site. The easterly drainage is largely undefined, most likely due to recent farming activity; however there is a drainage basin feeding this section of the property and intermittent marshy areas do develop, indicating that this drainage should be addressed with any future development.

The site is partially encumbered by pine forest on the westerly and southwesterly portions, with most of the remaining southern edge being immediately adjacent to the forest. The forest is an amenity to the site, but must also be considered as a potential threat to be mitigated in terms of wildfire.

There are no known cultural or archeological sites on the parcel; however given the significant historic presence of Native cultures there is reasonable predictability to archeological findings in the area. A Cultural Resources Assessment has been provided for this site and can be found in **Appendix III**.

The site sits on the tail slope of the steeply, wooded fringes of the Black Hills. Significant views of natural formations and the mountainous surrounds are prevalent to the north, particularly from the relatively high southern portions of the site.

Site Conditions

The site is undeveloped with minimal constructed constraints or any known required remedial actions. Natural conditions that may need mitigation do exist and include, but may not be limited to flooding and wildfire.

Development to the north of the site appears to have taken place without significant concern for the drainage patterns and flood potential. Addressing these issues is far beyond the scope of this planning study; however, there is an opportunity when developing this site to use portions of the land to mitigate the flooding and protect downstream property. Opportunities exist to integrate improvements into the development of the parcel so that they can be made harmoniously and as an amenity to the site.

As mentioned above, the threat of wildfire is significant to this site and should be considered during development. Development on the site should consider this, particularly in terms of building materials, defensible space/buffer and emergency access for both emergency response as well as evacuation.

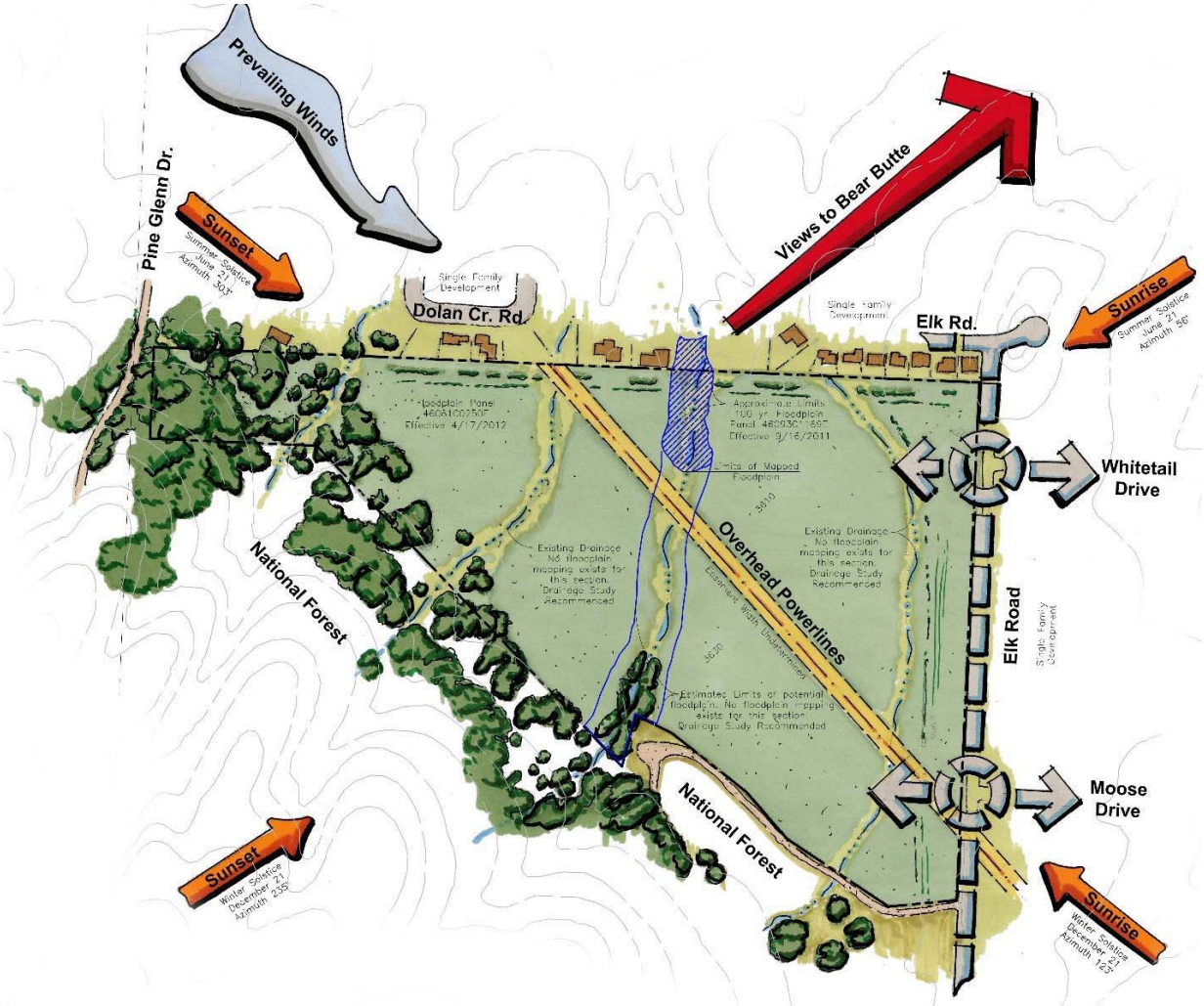
The topography slopes relatively steeply to the north however, the slopes are shallow enough to accommodate residential development, but are less conducive to higher density, multi-family developments.

The following page contains the Opportunities and Constraints Map for the Marcotte Parcel **(Figure 10)**.

Marcotte Opportunities & Constraints Map

11x17

FIGURE 10



Marcotte Parcel Land Use Plans

Overview

Two plans were developed for this site based upon in depth discussions that took place in the public meetings. Discussion relating to the use of this site were significant with the consensus being that the site was the least desirable for significant development. The outline below generally covers the concerns discussed:

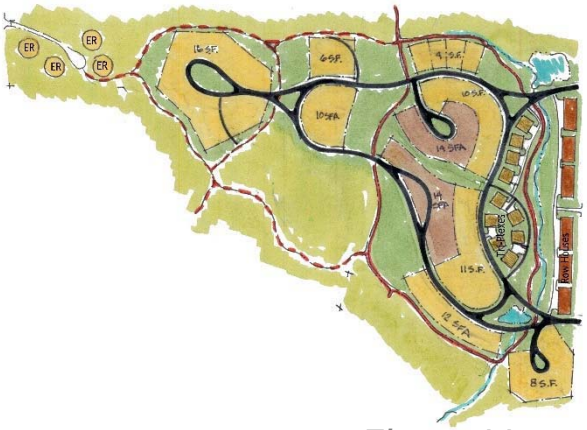


Figure 11
Original Marcotte Parcel SOD

- Park and recreational amenities are needed in the southern part of the City
- Use site for additional fields/recreation
- Traffic to/from the fields area concern, no lighting
- Access to the site is poor
- Maintain existing trailhead (not a part of the actual site), add a trailhead.
- Leave site undisturbed as a wildlife viewing area

- Create a small park on the northeasterly corner for the neighborhood kids to play in.
- Dark sky – minimize light pollution
- Focus development on the eastern edge, pushed to the south.
- Provide residential in a mix of types, Single Family, Single Family Attached, Multi-Family with the latter being placed along the eastern boundary.

Figure 11 above shows one of the draft SODs presented to the stakeholders at public meetings. This sketch was presented in response to the comments received at the first public meeting as a way to illustrate how compact, clusters of development could achieve the same number of residential units as a traditional subdivision layout while providing a mix of housing types and preserving significant open space. The sketch plan provided a good basis for future discussions; the mix of uses and clustering was generally well received, however the overall density was a concern.

It is noted above that there was significant discussion regarding the use of the site for active and passive use recreational space and natural open space. The current Comprehensive Master Plan for the City of Sturgis, as well as the Parks Board confirmed the southern (south of I-90) portion of the City is underserved with active use parks space. It is important to note that this portion of the City is well served by public land offering good access to trails. Other ancillary uses discussed were an amphitheater, playground and picnic pavilion(s).

Maintaining or improving the existing trailhead to the public land was desired by multiple users and advocacy groups. The existing access and trailhead does not encumber this parcel, and while it would be possible to include on-site improvements to support the trailhead, the actual access to the public land is managed by other jurisdictions.

Traffic impacts on surrounding neighborhoods due to the relatively circuitous routes to the site are an important consideration with any development plan for the parcel. Developed ball fields, particularly if used for tournament play would have a tremendous impact with respect to noise, light and traffic in

the area. From a land-use and planning standpoint, residential development with some passive use recreational amenities would be the most compatible use.

Highlights

The Marcotte Site Land Use Plans are attached as **Figure 10** on the following foldout page. The original scaled drawing of this exhibit can be obtained from the City in a 24"x36" (ArchD) format. The plans provided show only the residential components of the development however, this is not to infer that recreational uses cannot be included and be made compatible with the layouts. The intent of the plans is to illustrate two residential options, both of which address the key points taken from the public input. These key points are:

- Focus the residential development along the easterly edge
  - Multi-family along Elk Road
  - Single Family and Single Family Attached decreasing in density as the development moves into the site
- Preserve the marshy/wetland area on the northeast corner
- Preserve the views to the south from the existing homes adjoining the north boundary
- Preserve a majority of the site as open space.

Passive use recreational amenities can be included west of the residential development with either site plan. Moving forward it is desirable to have the recreational uses programmed, via collaboration with the City and the Parks Board and included within the actual layout of the overall site and residential plan. This will ensure that adequate roads, parking, views, pedestrian access, etc. are fully utilized and become an integral part of the community. Compatible, recreational uses recommended for consideration on this site include, but are not limited to:

- Small amphitheater (seating for 50-100 people) within the wooded area along the central drainage, at the south property line.
- Paved or granular educational/experiential path meandering through the open space.
  - Can include education placards/bollards
  - Can provide multiple points of access to the public land
- Un-paved 'single-track' hiking and biking trail meandering through the open space with access to the public lands.
- Picnic pavilion for small family groups (25 people)
- Small playground for children within the residential development
- Wetlands/naturalized area as a part of the storm water management plan in the northeast corner of the site.
- Passive-use turf play field/park.

The Site Organizational Diagrams for the Marcotte parcel are shown in **Figure 12**, on page 38 of this report.

Marcotte SOD – Residential Mixed Use

The list below highlights some of the key elements of this plan:

- Ninety-five (95) homes in a mix of residential uses
  - Single Family Detached
  - Single Family Attached
    - Ally loaded townhomes/row homes along Elk Road.
    - Tri-plexes clustered along drainage
  - Optional estate residential lots, west side, accessed by a private driveway (requires agreement with private land owners)
- Open space connections retain the open feel of the community.
- Natural drainages preserved, utilized for water quality.
- Buffers to forest provide wildfire mitigation.
- Undergrounding of power lines is optional.
- Sustainable, compact, cluster development with quaint neighborhood streets and open tracts aligned to preserve views to the surrounding wooded hillsides.

The residential mixed-use plan for the Marcotte Site shows approximately fourteen (14) acres as developed with residential units, preserving approximately 75% of the site as open space. The gross density of the developed portion plan is approximately 6.8 dwelling units per acre. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

Marcotte SOD – Single Family Residential

The list below highlights some of the key elements of this plan:

- Sixty-three (63) single family residences
  - Single family detached – traditional lots
  - Single family detached – 'Autocourt' lots
  - Single Family Attached – tri-plexes
  - Optional estate residential lots, west side, accessed by a private driveway (requires agreement with private land owners)
- Open space connections retain the open feel of the community.
- Natural drainages preserved, utilized for water quality.
- Buffers to forest provide wildfire mitigation.
- Undergrounding of power lines is optional.
- Sustainable, compact, cluster development with quaint neighborhood streets and open tracts aligned to preserve views to the surrounding wooded hillsides.

The single-family residential plan for the Marcotte Site shows approximately sixteen (16) acres as developed with residential units, preserving approximately 70% of the site as open space. The gross density of the developed portion plan is approximately four (4) dwelling units per acre. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

The following page contains the Land Use Plans for the Marcotte Parcel **(Figure 12)**.

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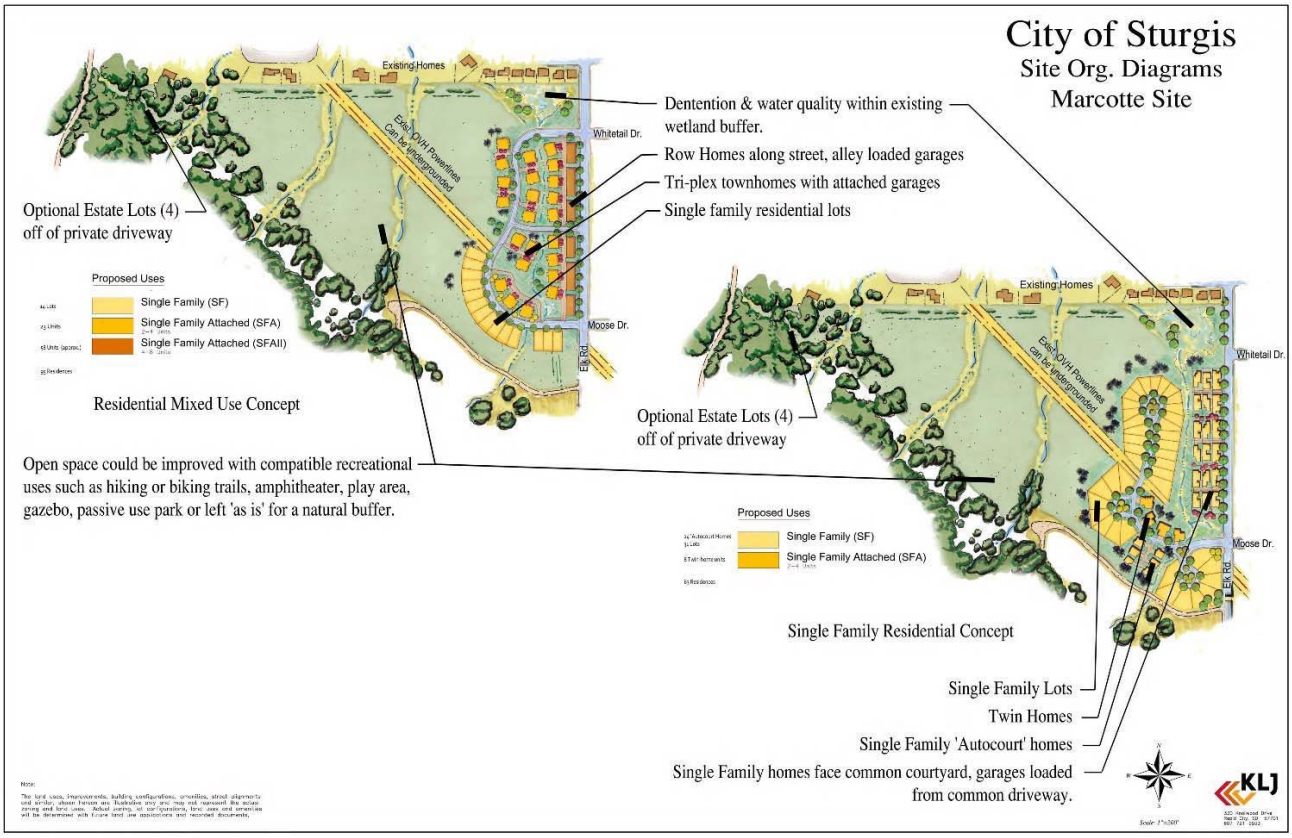
Marcotte Parcel Land Use Plans

11x17

FIGURE 12



CHAPTER SIX - SOUTH PARCEL

Opportunities and Constraints

Overview

The South parcel is the smallest of all parcels studied for this report and contains approximately five (5) acres. The site is bounded by private, developed land to the north and west, undeveloped private land to the east and public land to the south. The land north is predominantly large lot suburban single family residential, the west is acreage lots with agricultural/light industrial uses; to the east is currently undeveloped commercial property. Immediately adjacent to the south border of the site is public lands. The principle use of the site is cultivated fields, with the northwesterly corner containing a naturalized drainage.

Access

Access to the site is directly off Pineview Drive, which connects to Interstate 90 and the downtown area to the north via Vanocker Road as well as Vanocker Canyon Road/Junction Avenue. The latter provides direct access to the I-90 interchange.

Utilities

The site is served by all utilities, sufficient to support the proposed uses. Water main was installed in early 2014 within the southerly extension of Vanocker Road. Improving the electric and natural gas service systems to support additional development is feasible and without any noted concerns from the utility provider. Water and sewer service would be provided by the City with no off-site improvements anticipated.

Cultural and Environmental

One natural drainage crosses the site from the south to the north. The current FEMA flood maps indicate that a 100-year floodplain does exist for this channel; however, the study appears to have been terminated at Pineview Drive. A detailed drainage and flood study is recommended to define the floodplain affecting this site south of Pineview Drive.

The site is situated on the northerly fringes of the Black Forest with approximately 100 to 250 foot grassland buffer between the site and the pine forest.

There are no known cultural or archeological sites on the parcel. A Cultural Resources Assessment has been provided for this site and can be found in **Appendix III**.

Moderate views of the mountainous are prevalent to the north, with the views to the pine forest south of the site being unencumbered.

Site Conditions

The site is undeveloped with minimal constructed constraints or any known required remedial actions. Natural conditions that may need mitigation do exist and include, but may not be limited to flooding and wildfire.

The City has constructed a potable water facility on the northeast corner of the site. The facilities cover approximately one-tenth (0.1) of an acre and shall remain in service.

As mentioned above, the site sits adjacent to a pine forest. Threat of wildfire to this site does exist and should be considered with any development. Development considerations include but are not limited to building materials, defensible space/buffer and emergency access for both emergency response as well as evacuation.

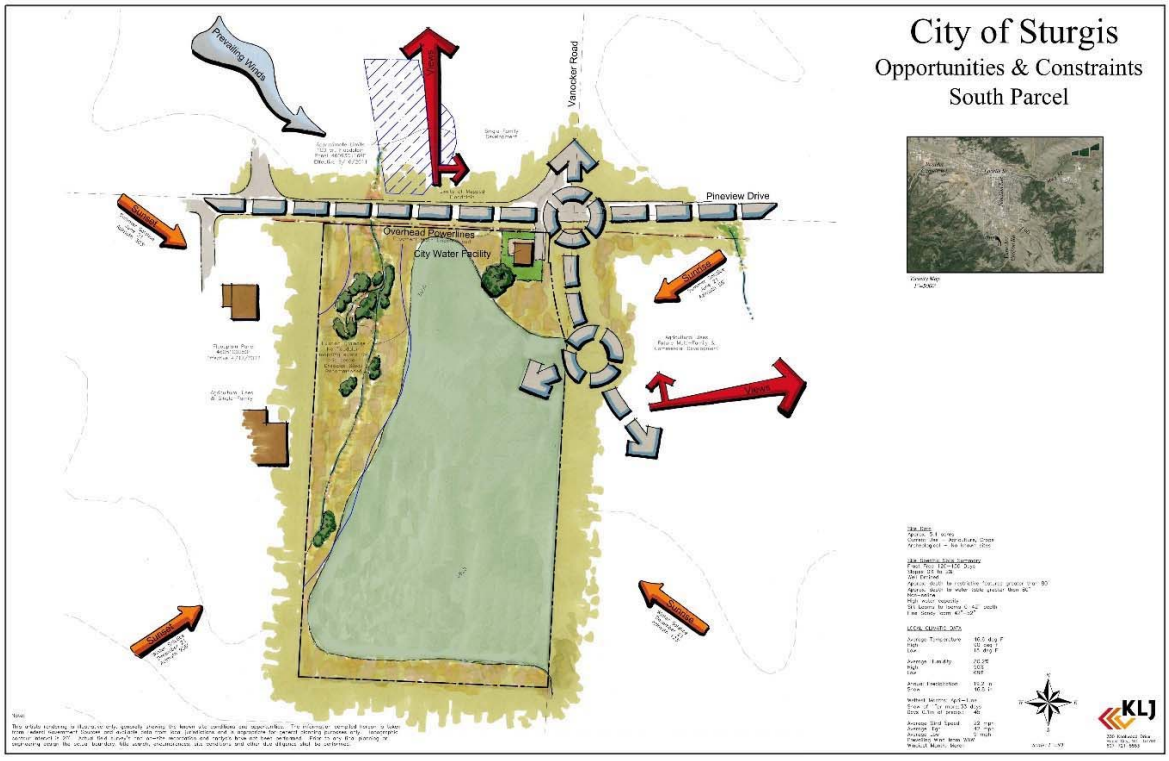
The configuration of this site and the alignment of Vanocker Road creates a wedge shaped parcel of land that is relatively difficult to develop. It is beyond the scope of this planning study to address the development of adjacent land; however, there are opportunities to combine a portion of the land to the east with the South site and develop both together. Another, perhaps less desirable option to consider would be to provide cross access between the east tract(s) and the South site to provide better emergency access via another connection further south on the future extension of Vanocker Road.

The following page contains the Opportunities and Constraints Map for the South parcel **(Figure 13)**.

South Parcel Opportunities & Constraints Map

11x17

FIGURE 13



South Parcel Land Use Plans

Overview

Minimal public comment was received on this parcel. The consensus is that this site is ready to develop and is appropriate for any type of residential uses. Three plans were developed for this site to illustrate the opportunities that exist with a variety of product types. Due to the smaller size of the site, it was determined that a mixed-use residential type of development was not feasible with any efficiencies, thus the plans are relatively homogeneous in the proposed uses. Each plan will be discussed separately.

Highlights

The South Parcel Land Use Plans are attached as **Figure 14** on the following foldout page. The original scaled drawing of this exhibit can be obtained from the City in a 24"x36" (ArchD) format.

Consistent from plan to plan is the incorporation of a small trailhead with a paved multi-use trail spur along the easterly drainage providing access to the public land to the south. The trailhead can be incorporated in many ways with the recommendation being that it exist at the northerly edge of the site to minimize the traffic from the trail users that would travel further into the residential area. Improving the existing City water facility to include additional parking for trail users is a viable option that minimizes the land committed to this activity. On-street parallel or head-in parking is another option. The goal should be to develop a trailhead that serves the greater community and acts as a welcome amenity to the neighborhood.

Several development opportunities exist for the site. In the current state, the single-family detached alternative may appear to be more compatible; however as the commercial land to the east develops the higher density options become more appropriate and more desirable. There is an economic and social advantage to having higher density residential close to the jobs and retail opportunities.

The Land Use Plans for the South parcel are shown in **Figure 14**, on page 46 of this report.

South Parcel – Single Family

The list below highlights some of the key elements of this plan:

- Eighteen (18) homes
- Shared/Common driveways allow for additional premium lots.
- Trail connection to public lands
- Open space buffer along the western edge
- Natural drainage preserved/utilized for water quality
- Reduced street section for pedestrian friendly neighborhood court.

The single-family residential plan for the South site has a net density of approximately 3.6 dwelling units per acre. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

South Parcel – Twin-homes

The list below highlights some of the key elements of this plan:

- Twenty-eight (28) homes
- Trail connection to public lands
- Open space buffer along the western edge
- Natural drainage preserved/utilized for water quality
- Reduced street section with planted islands and parking for pedestrian friendly neighborhood court.

As drawn, this plan contains twenty-eight residential units and utilizes on street parking for the trailhead access and a landscaped island to buffer the parking from the view of nearby homes. An option to this layout would be to eliminate one of the twin-homes, losing two units but gaining land to place trailhead parking at the City water facility. The twin-home residential plan for the South site has a net density of approximately 5.6 dwelling units per acre.

As the density increases on this small site it is recommended to preserve the sense of openness by using shorter fencing for yards, or better to leave side yards open, with fencing being limited to patio areas behind the units. The strategy used may be dependent upon the target market, for example, an 'empty nester' or retirement/patio home style of development would have different objectives than a starter home for new families.

The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

South Parcel – Single Family Attached

The list below highlights some of the key elements of this plan:

- Forty-seven (47) homes
    - Tri-plexes
    - Eight-plexes
    - Attached garages
- Can be owner occupied and/or rental units
- Two access points enhance emergency access.
- Trail connection to public lands
- Open space buffer along the western edge
- Natural drainage preserved/utilized for water quality
- Reduced street section with planted islands and parking for pedestrian friendly neighborhood court.

The single-family attached plan for the South site has a net density of approximately 9.4 dwelling units per acre. The plan is a combination of three-plexes and eight-plexes all with attached garages. When developing a small site at this density it is preferable to be diligent in keeping the views to the open space and public lands unobscured. This strategy is evident in the plan where the primary entrance off Vanocker Road ends into a tee intersection with a view to the open space and trail connection. The internal access has an open view to the south toward the public land.

On-street parking for guests should be formalized in this type of a plan, such as shown with parallel parking bays and quality landscaping is recommended to increase the aesthetics and value of the community. The livability and affordability of this plan is maintained via the use of compact, clustered development that includes the lifestyle enhanced development strategies outlined in the recommendations section of this report.

The following page contains the Site Organizational Diagrams for the South parcel **(Figure 14)**.

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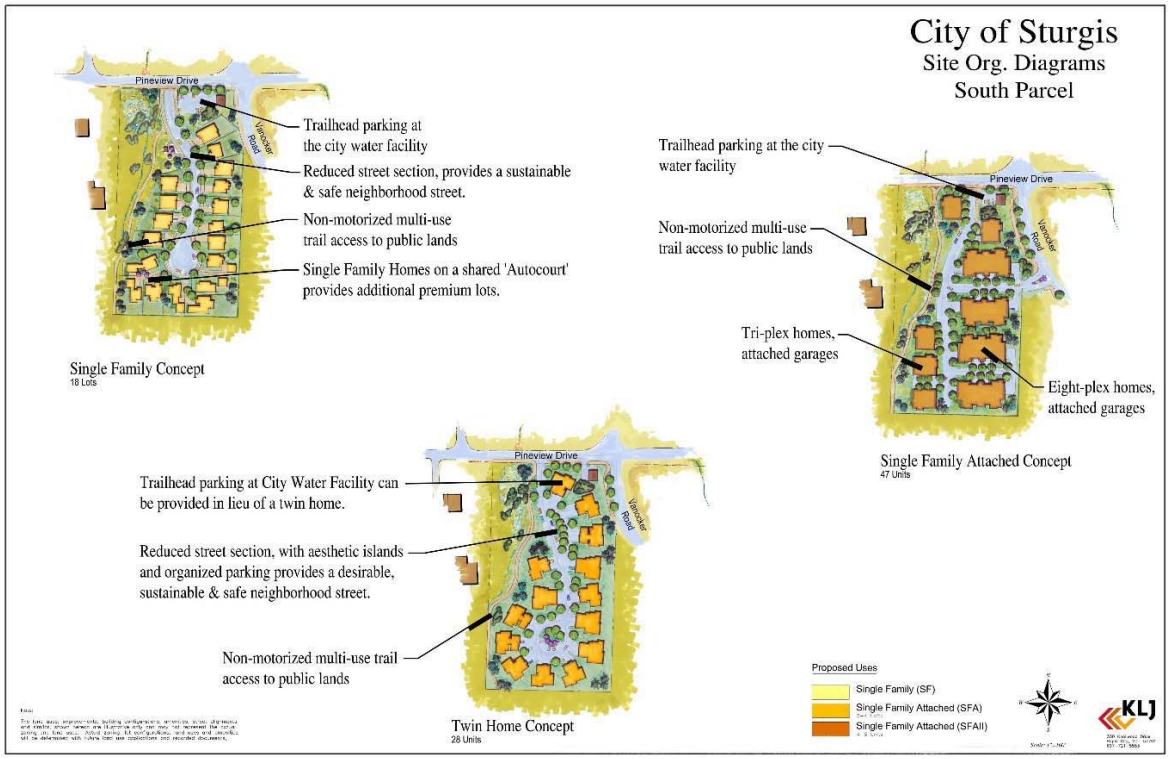
South Parcel Land Use Plans

11x17

FIGURE 14



APPENDICES

City of Sturgis, South Dakota – Comprehensive Land Use Plan

APPENDIX I

Climate Data

Climate data

USA.COM

Sturgis, SD Weather

Historical Weather

Heating Cost Index, #119

Sturgis, SD	345.79
South Dakota	363.66
U.S.	212.91

Cooling Cost Index, #246

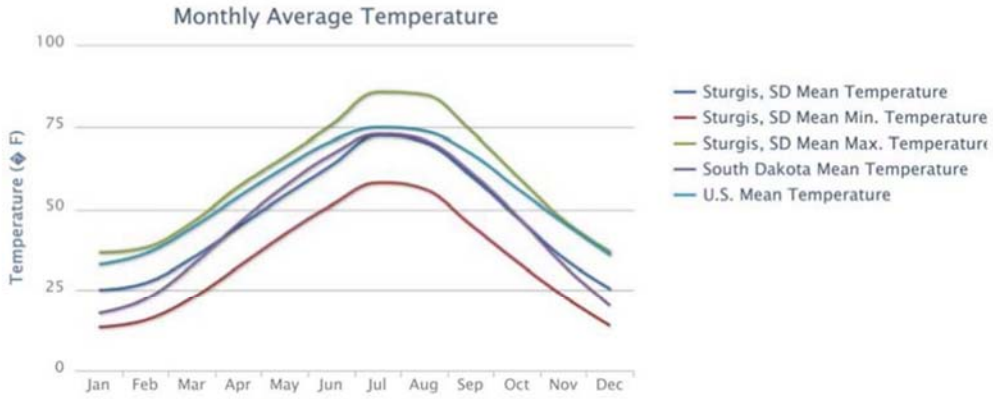
Sturgis, SD	79.70
South Dakota	78.34
U.S.	139.42

The Heating Cost Index and the Cooling Cost Index are indicators of the relative heating and cooling cost of an area. They were calculate based on the average temperate and duration of the hot and cold days for the area. Please note, the actual heating cost and cooling cost also dependent on other factors specific to individual residences such as the size of the house, the insulation condition, and the equipme efficiency, etc.

Average Temperature

Annual Average Temperature, #147

Sturgis, SD	46.6 °F
South Dakota	45.5 °F
U.S.	54.5 °F

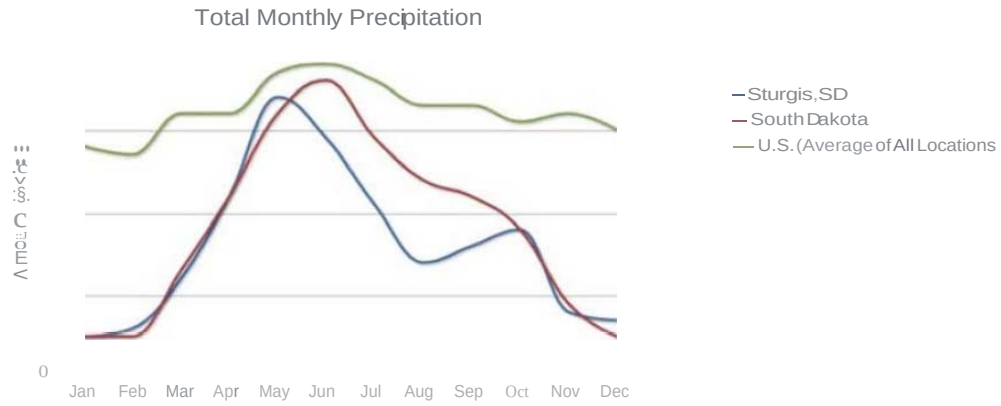


Ranks: Average Max. Temperature: #128, Average Min. Temperature: #207

Precipitation

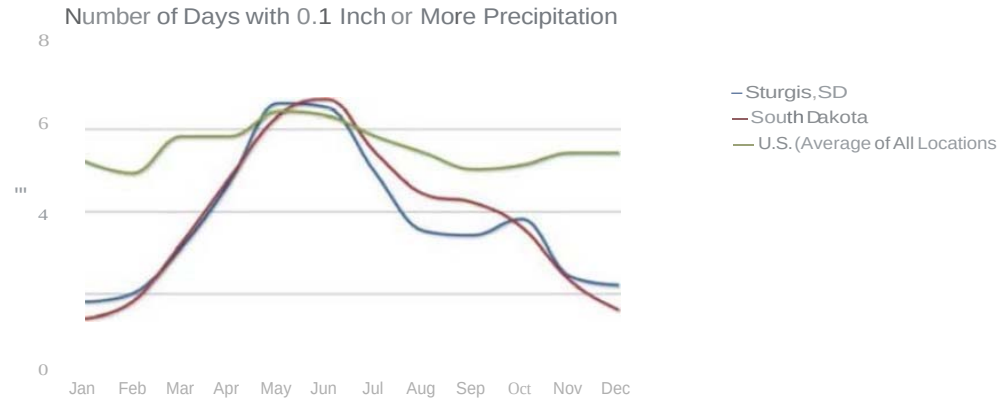
Average Annual Precipitation, #327

Sturgis, SD	19.16 inches
South Dakota	22.02 inches
U.S.	38.67 inches



Average Number of Days with 0.1 Inch or More Precipitation In a Year (this gives an indication of the number of days in a year U is useful to have an umbrella), #250

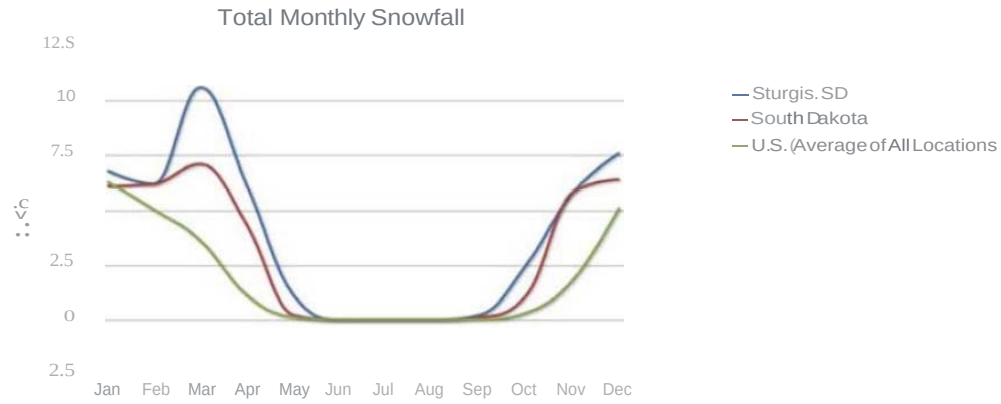
Sturgis, SD	44.92 days
South Dakota	45.75 days
U.S.	66.51 days



Snow

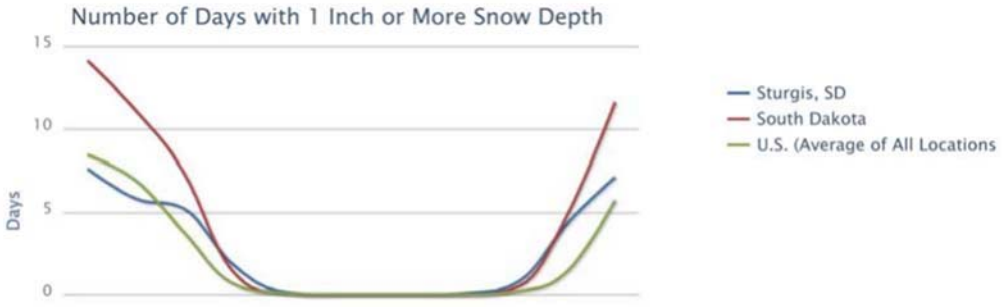
Average Annual Snowfall, #27

Sturgis, SD	46.76 inches
South Dakota	37.48 inches
U.S.	23.27 inches



Average Number of Days with 1 Inch or More Snow Depth In a Year, #401

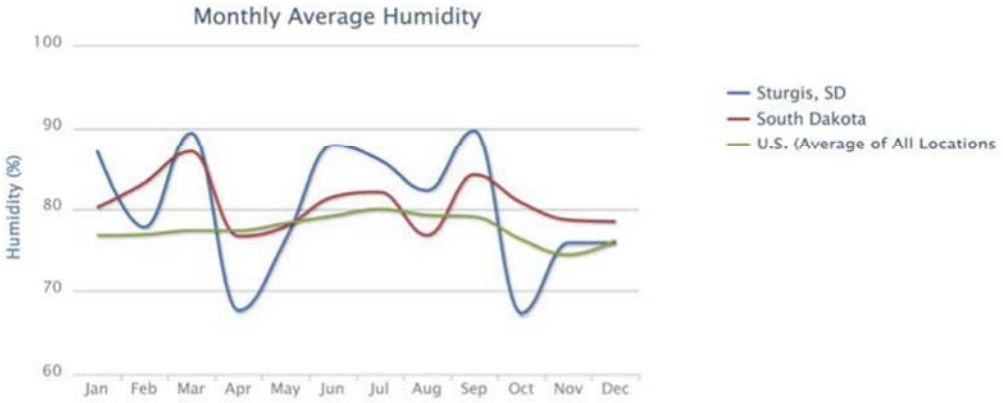
Sturgis, SD	32.92 days
South Dakota	51.03 days
U.S.	27.17 days



Humidity

Annual Average Humidity, #241

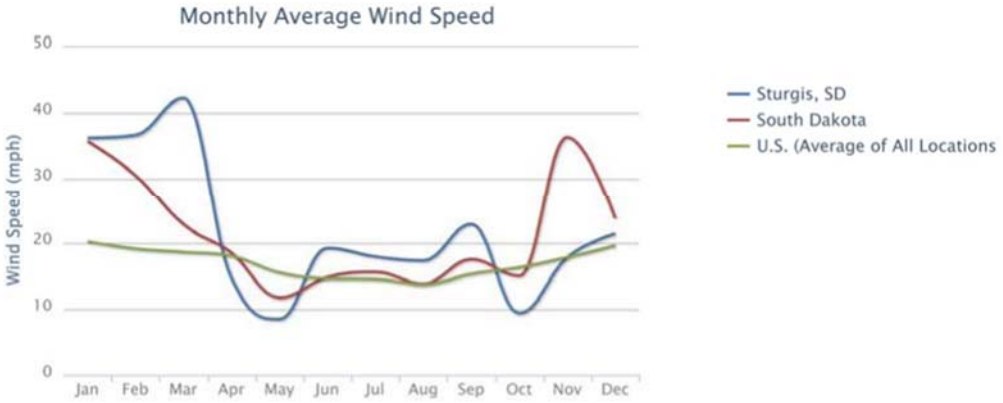
Sturgis, SD	80.19%
South Dakota	80.54%
U.S.	77.52%



Wind Speed

Annual Average Wind Speed, #133

Sturgis, SD	21.99 mph
South Dakota	21.32 mph
U.S.	16.93 mph



* The temperature, snow fall, and precipitation information on this page were calculated from the historical data of 18,000+ U.S weather stations for the period of time from 1980 to 2010. The humidity and wind speed information were calculated from data from 15,000 worldv stations for the period of time from 1980 to 2010.

Climatic Wind Data – Sturgis, SD

Direction/Ave. Speed/Gust

NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW	NNW
11	11	13	13	12	11	10	10	11	11	11	11	11
68	70	66	67	61	67	72	69	70	73	63	71	73
JAN	FEB	MAR	APR	MAY	JUN	JLY	AUG	SEP	OCT	NOV	DEC	AVE

The climatic wind data contained in this summary was extracted from the NCDC's Local Climatological Data publication, Navy & Air Force climatic briefs, and other sources. Locations are not all inclusive and wind data may be available for sites not listed in this summary. The total period of this summary is 1930-1996. The period of record (POR) for which wind data is summarized varies for individual sites and may begin and end at any time during the 1930-1996 period. All available wind data is provided regardless of POR or source. Updated data for many sites can be obtained from post 1996 Local Climatological Data annual publications. In the table, prevailing wind directions (DIR) are given in compass points; mean wind speeds (SPD) and peak gust (PGU) are in miles per hour (mph). When peak gust (PGU) wind velocities are not available, fastest-mile or 5-second winds may be substituted. This will be indicated by a $ for fastest-mile and # for 5-second winds preceding PGU (ie: $PGU = fastest-mile winds). Wind types may be combined to reflect the highest reported wind. When appropriate wind data is not available, an N/A will appear in lieu of data. Conversion tables of miles per hour to knots and compass points to degrees are provided at the end of this wind table.

Sturgis, SD Weather

The average temperature of Sturgis is 46.57°F, which is higher than the South Dakota average temperature of 45.54°F and is much lower than the national average temperature of 54.45°F.

Historical Weather

Heating Cost Index

Sturgis, SD	345.79
South Dakota	363.66
U.S.	212.91

Cooling Cost Index

Sturgis, SD	79.70
South Dakota	78.34
U.S.	139.42

The Heating Cost Index and the Cooling Cost Index are indicators of the relative heating and cooling cost of an area. They were calculated based on the average temperate and duration of the hot and cold days for the area. Please note, the actual heating cost and cooling cost are also dependent on other factors specific to individual residences such as the size of the house, the insulation condition, and the equipment efficiency, etc.

Average Temperature

Annual Average Temperature

Sturgis, SD	46.6 °F
South Dakota	45.5 °F
U.S.	54.5 °F

Precipitation

Average Annual Precipitation

Sturgis, SD	19.16 inches
South Dakota	22.02 inches
U.S.	38.67 inches

Average Number of Days with 0.1 Inch or More Precipitation in a Year (this gives an indication of the number of days in a year that it is useful to have an umbrella)

Sturgis, SD	44.92 days
South Dakota	45.75 days
U.S.	66.51 days

Snow

Average Annual Snowfall

Sturgis, SD	46.78 inches
South Dakota	37.43 inches
U.S.	23.27 inches

Average Number of Days with 1 Inch or More Snow Depth in a Year

Sturgis, SD	32.92 days
South Dakota	51.03 days
U.S.	27.17 days

Humidity

Annual Average Humidity

Sturgis, SD	80.19%
South Dakota	80.54%
U.S.	77.52%

Wind Speed

Annual Average Wind Speed

Sturgis, SD	21.99 mph
South Dakota	21.32 mph
U.S.	16.93 mph

- SunEarthTools.com

Tods for consumers and designers of solar

Solar Disk 621 Analenvna E2l Solsbce 621

year morth day hour minute

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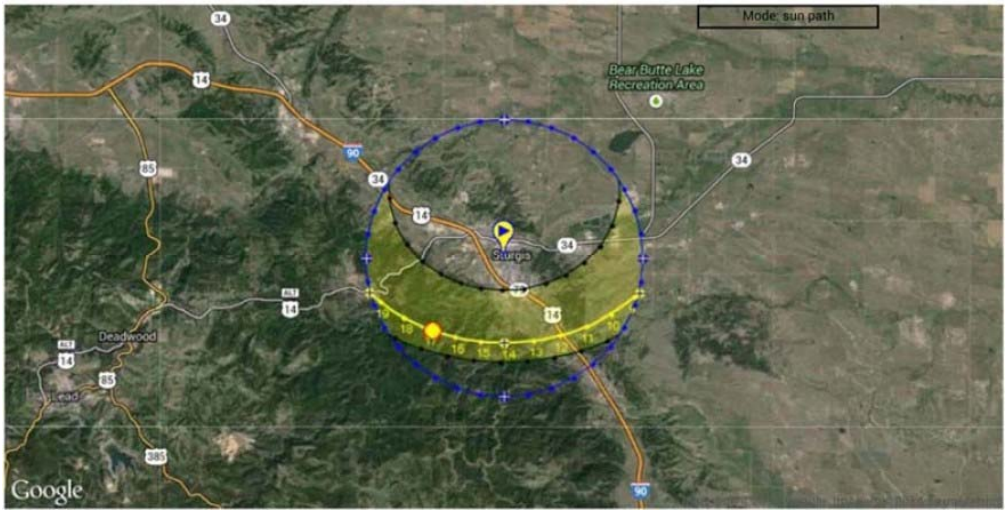

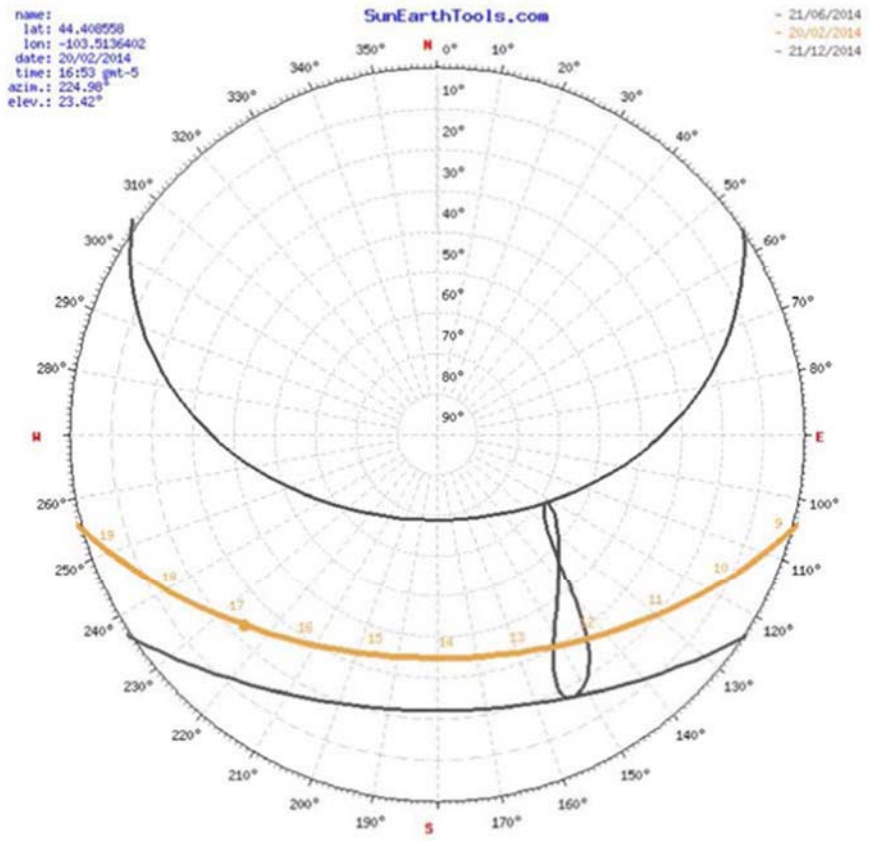
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elev.: 23.42°
- 21/06/2014
- 20/02/2014
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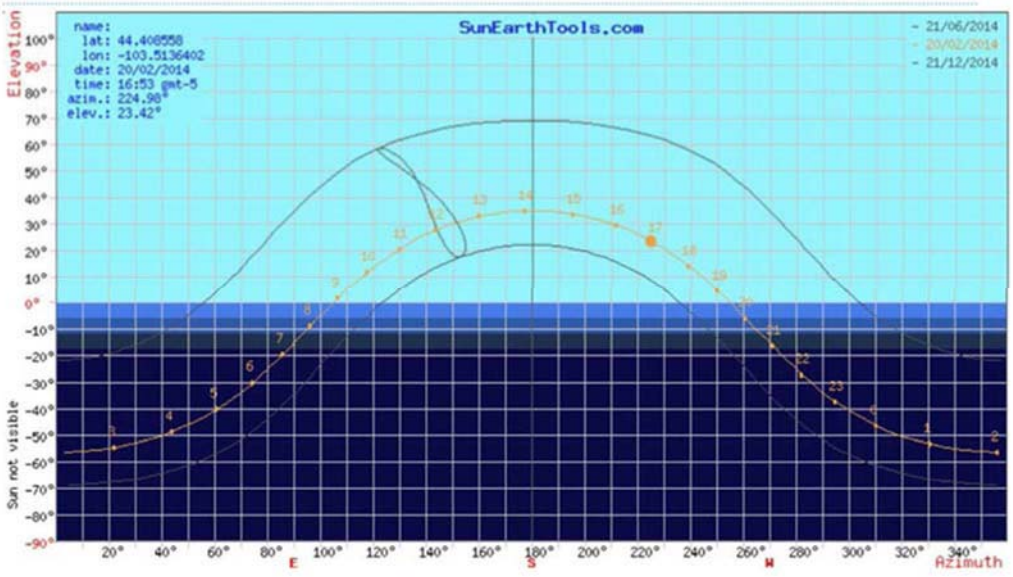
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elev.: 23.42°
- 21/06/2014
- 20/02/2014
- 21/12/2014
Elevation
Sun not visible
Azimuth

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APPENDIX II

Soils Data

Soils data was compiled from the USDA/NRCS website

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/ nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http:// offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/? cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design

of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil- landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Building Site Development

Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Corrosion of Concrete (Corrosive to Concrete)

"Risk of corrosion" pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens concrete. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the concrete in installations that are entirely within one kind of soil or within one soil layer. The risk of corrosion is expressed as "low," "moderate," or "high"

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series.

The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha- Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

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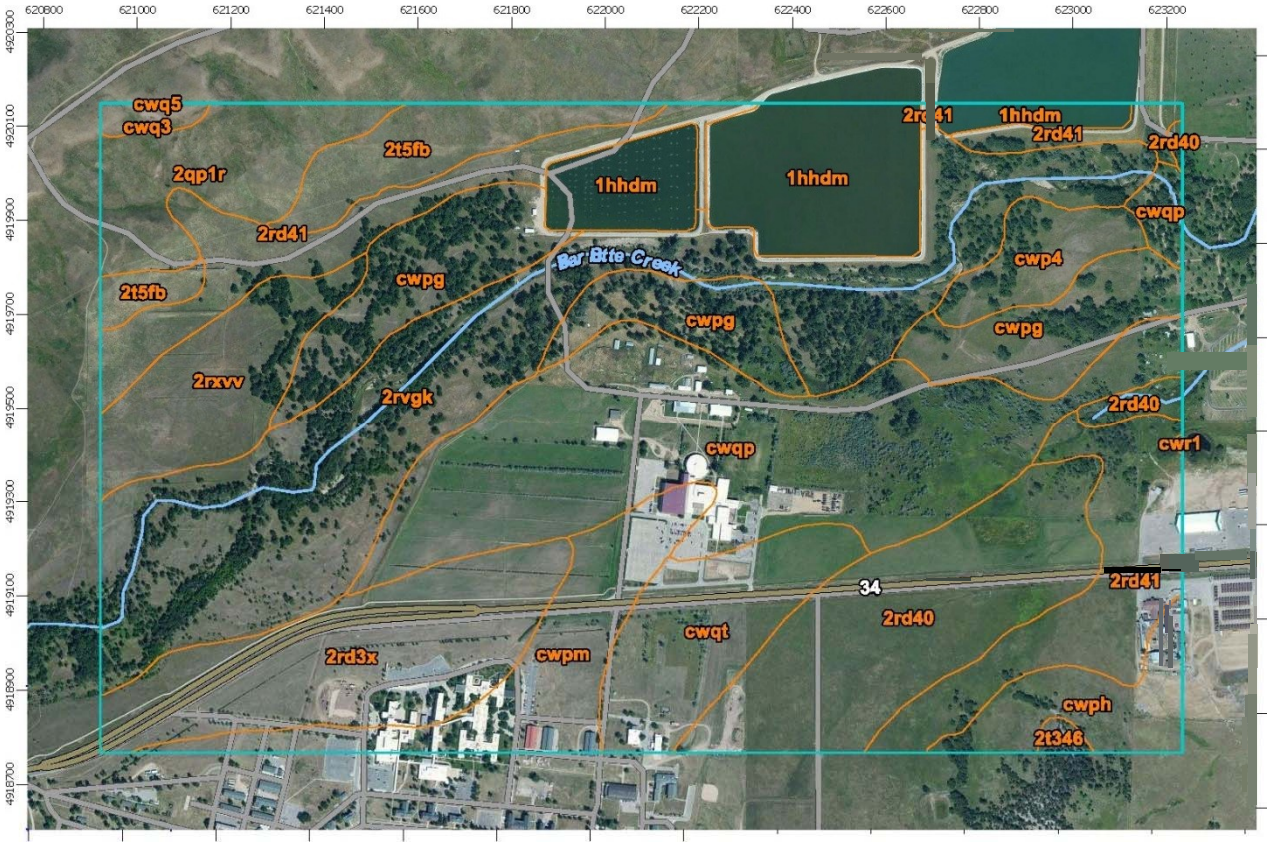
Glossary

The terms relating to landforms, geology, and geomorphology are defined in the "National Soil Survey Handbook."

School Parcel – Soils Data



School Parcel Soils Classifications			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1hhdm	Miscellaneous water	54.7	6.9%
2qp1r	Samsil clay, 15 to 40 percent slopes	30.7	3.9%
2rd3x	Altvan loam, 0 to 2 percent slopes	58.3	7.4%
2rd40	Kyle clay, 0 to 2 percent slopes	68.0	8.6%
2rd41	Kyle clay, 2 to 6 percent slopes	78.5	9.9%
2rvgk	Rapidcreek gravelly loam, warm, 1 to 3 percent slopes, occasionally flooded	139.6	17.6%
2rxvv	St. Onge loam, 0 to 2 percent slopes, rarely flooded	31.5	4.0%
2t346	Grummit-Rock outcrop complex, 6 to 40 percent slopes	1.6	0.2%
2t5fb	Pierre clay, 6 to 20 percent slopes	25.8	3.3%
cwp4	Bankard soils	15.2	1.9%
cwpg	Glenberg soils	69.9	8.8%
cwph	Grummit clay, 6 to 15 percent slopes	19.3	2.4%
cwpm	Keith silt loam, 0 to 2 percent slopes	37.7	4.8%
cwq3	Nihill gravelly loam, 9 to 40 percent slopes	3.2	0.4%
cwq5	Nunn clay loam, 2 to 6 percent slopes	0.0	0.0%
cwqp	St. Onge loam	124.2	15.7%
cwqt	Tilford silt loam, 0 to 2 percent slopes	34.4	4.3%
cwr1	Water	0.1	0.0%
Totals for Area of Interest		**792.8**	**100.0%**

1hhdm—Miscellaneous water

Map Unit Composition - *Miscellaneous water:* 100 percent
Description of Miscellaneous Water
Interpretive groups
Farmland classification: Not prime farmland
Ecological site: Non-site (R060AY999SD)

2qp1r—Samsil clay, 15 to 40 percent slopes

Map Unit Composition

Samsil and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 2 inches: Clay
2 to 7 inches: Clay
7 to 17 inches: Very parachannery clay
17 to 79 inches: Bedrock

2rd3x—Altvan loam, 0 to 2 percent slopes

Map Unit Composition

Altvan and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 7 inches: Loam
7 to 20 inches: Clay loam
20 to 31 inches: Gravelly loam
31 to 79 inches: Very gravelly sand

2rd40—Kyle clay, 0 to 2 percent slopes

Map Unit Composition

Kyle and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 4 inches: Clay
4 to 25 inches: Clay
25 to 79 inches: Clay

2rd41—Kyle clay, 2 to 6 percent slopes

Map Unit Composition

Kyle and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 4 inches: Clay
4 to 25 inches: Clay
25 to 79 inches: Clay

2rvgk—Rapidcreek gravelly loam, warm, 1 to 3 percent slopes, occasionally flooded

Map Unit Composition

Rapidcreek, warm, occasionally flooded, and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 5 inches: Gravelly loam
5 to 30 inches: Very gravelly sandy loam
30 to 60 inches: Stratified extremely cobbly coarse sandy loam to extremely gravelly fine sandy loam to very cobbly loam

2rxvv—St. Onge loam, 0 to 2 percent slopes, rarely flooded

Map Unit Composition

St. onge, rarely flooded, and similar soils: 80 percent
Minor components: 20 percent

Typical profile

0 to 7 inches: Loam
7 to 17 inches: Silt loam
17 to 24 inches: Loam
24 to 42 inches: Loam
42 to 52 inches: Fine sandy loam
52 to 60 inches: Silt loam

2t346—Grummit-Rock outcrop complex, 6 to 40 percent slopes

Map Unit Composition

Grummit and similar soils: 50 percent *Rock outcrop, acid shale:* 30 percent *Minor components:* 20 percent

Typical profile

0 to 3 inches: Clay
3 to 17 inches: Parachannery clay
17 to 79 inches: Bedrock

Description of Rock Outcrop, Acid Shale

Typical profile

0 to 1 inches: Extremely parachannery clay
1 to 79 inches: Bedrock

2t5fb—Pierre clay, 6 to 20 percent slopes

Map Unit Composition

Pierre and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 5 inches: Clay
5 to 19 inches: Clay
19 to 26 inches: Clay
26 to 31 inches: Parachannery clay
31 to 79 inches: Bedrock

cwp4—Bankard soils

Map Unit Composition

Bankard and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 5 inches: Very fine sandy loam
5 to 60 inches: Stratified loamy sand to sandy loam

cwpg—Glenberg soils

Map Unit Composition

Glenberg and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 6 inches: Fine sandy loam
6 to 26 inches: Stratified loamy sand to loam
26 to 60 inches: Stratified loamy sand to loam

cwph—Grummit clay, 6 to 15 percent slopes

Map Unit Composition

Grummit and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 4 inches: Clay
4 to 15 inches: Clay
15 to 60 inches: Weathered bedrock

cwpm—Keith silt loam, 0 to 2 percent slopes

Map Unit Composition

Keith and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 5 inches: Silt loam
5 to 17 inches: Silty clay loam
17 to 60 inches: Silty clay loam

cwq5—Nunn clay loam, 2 to 6 percent slopes

Map Unit Composition

Nunn and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 7 inches: Clay loam
7 to 32 inches: Clay loam
32 to 60 inches: Clay loam

cwqp—St. Onge loam

Map Unit Composition

St. onge and similar soils: 80 percent
Minor components: 20 percent

Typical profile

0 to 6 inches: Loam
6 to 29 inches: Loam
29 to 60 inches: Loam

cwr1—Water

Map Unit Composition

Water: 100 percent

Fairgrounds Parcel – Soils Data

Fairgrounds Parcel Soils Classification			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
P014B	Altvan loam, moist, 2 to 6 percent slopes	19.5	18.1%
P256D	Nevee-Spearfish silt loams, 6 to	27.7	25.8%
P488A	St. Onge loam, 0 to 2 percent slopes, rarely	7.7	7.2%
P514B	Tilford silt loam, 2 to 6 percent slopes	52.7	49.0%
Totals for Area of Interest		**107.7**	**100.0%**

P014B—Altvan loam, moist, 2 to 6 percent slopes

Map Unit Composition

Altvan, moist, and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 7 inches: Loam
7 to 22 inches: Clay loam
22 to 32 inches: Fine sandy loam
32 to 60 inches: Gravelly sand

P256D—Nevee-Spearfish silt loams, 6 to 20 percent slopes

Map Unit Composition

Nevee and similar soils: 60 percent
Spearfish and similar soils: 25 percent
Minor components: 15 percent

Typical profile - Nevee

0 to 4 inches: Silt loam
4 to 8 inches: Silt loam
8 to 24 inches: Silt loam
24 to 39 inches: Silt loam
39 to 48 inches: Silt loam
48 to 60 inches: Bedrock

Typical profile - Spearfish

0 to 3 inches: Loam
3 to 8 inches: Loam
8 to 16 inches: Loam
16 to 60 inches: Weathered bedrock

P488A—St. Onge loam, 0 to 2 percent slopes, rarely flooded

Map Unit Composition

St. onge, rarely flooded, and similar soils: 80 percent
Minor components: 20 percent

Typical profile

0 to 7 inches: Loam
7 to 17 inches: Silt loam
17 to 24 inches: Loam
24 to 42 inches: Loam
42 to 52 inches: Fine sandy loam
52 to 60 inches: Silt loam

P514B—Tilford silt loam, 2 to 6 percent slopes

Map Unit Composition

Tilford and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 9 inches: Silt loam
9 to 26 inches: Silt loam
26 to 40 inches: Loam
40 to 60 inches: Loam

Marcotte Parcel – Soils Data

Marcotte Parcel Soils Classification			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
P014B	Altvan loam, moist, 2 to 6 percent slopes	1.9	1.8%
P256D	Nevee-Spearfish silt loams, 6 to	20.6	18.7%
P344B	Rapidcreek very cobbly sandy loam, warm, 1 to 6 percent slopes,	11.4	10.4%
P514B	Tilford silt loam, 2 to 6 percent slopes	59.0	53.7%
Q0553E	Rockerville, moist-Rock outcrop complex, 6 to 40 percent slopes	16.8	15.3%
Q0560C	Rapidreek gravelly loam, 2 to 10 percent slopes,	0.1	0.1%
Totals for Area of Interest		**109.9**	**100.0%**

P014B—Altvan loam, moist, 2 to 6 percent slopes

Map Unit Composition

Altvan, moist, and similar soils: 90 percent
Minor components: 10 percent

Typical profile

0 to 7 inches: Loam
7 to 22 inches: Clay loam
22 to 32 inches: Fine sandy loam
32 to 60 inches: Gravelly sand

P256D—Nevee-Spearfish silt loams, 6 to 20 percent slopes

Map Unit Composition

Nevee and similar soils: 60 percent
Spearfish and similar soils: 25 percent
Minor components: 15 percent

Nevee profile

0 to 4 inches: Silt loam
4 to 8 inches: Silt loam
8 to 24 inches: Silt loam
24 to 39 inches: Silt loam
39 to 48 inches: Silt loam
48 to 60 inches: Bedrock

Spearfish profile

0 to 3 inches: Loam
3 to 8 inches: Loam
8 to 16 inches: Loam
16 to 60 inches: Weathered bedrock

P344B—Rapidcreek very cobbly sandy loam, warm, 1 to 6 percent slopes, nonflooded

Map Unit Composition

Rapidcreek, warm, nonflooded, and similar soils: 80 percent
Minor components: 20 percent

Typical profile

0 to 4 inches: Very cobbly sandy loam
4 to 36 inches: Extremely cobbly sand
36 to 60 inches: Stratified very gravelly sandy loam to very cobbly sand

P514B—Tilford silt loam, 2 to 6 percent slopes

Map Unit Composition

Tilford and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 9 inches: Silt loam
9 to 26 inches: Silt loam
26 to 40 inches: Loam
40 to 60 inches: Loam

Q0553E—Rockerville, moist-Rock outcrop complex, 6 to 40 percent slopes

Map Unit Composition

Rockerville, moist, and similar soils: 55 percent
Rock outcrop, limestone: 20 percent
Minor components: 25 percent

Rockerville profile

0 to 1 inches: Slightly decomposed plant material
1 to 4 inches: Channery silt loam
4 to 7 inches: Channery silt loam
7 to 15 inches: Extremely flaggy silt loam
15 to 80 inches: Bedrock

Rock outcrop profile

0 to 80 inches: Unweathered bedrock

Q0560C—Rapidreek gravelly loam, 2 to 10 percent slopes, rarely flooded

Map Unit Composition

Rapidcreek, rarely flooded, and similar soils: 75 percent
Minor components: 25 percent

Typical profile

0 to 2 inches: Gravelly loam
2 to 8 inches: Stratified very gravelly clay loam to fine sandy loam
8 to 15 inches: Stratified very gravelly loam
15 to 20 inches: Very gravelly sandy loam
20 to 62 inches: Extremely cobbly loamy coarse sand
62 to 70 inches: Stratified gravelly fine sandy loam to gravelly very fine sandy loam
70 to 80 inches: Extremely cobbly coarse sand

South Parcel – Soils Data


618570
618610
618650
618690
618730
618770
618810
4916080
4916040
4916000
4915960
4915920
4915880
4915840
4915800
4915760
4915720
P488A
P514B
Vanocker Dr
Pine View Rd
Vanocker Canyon Rd

South Parcel - Soils Data			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
P488A	St. Onge loam, 0 to 2 percent slopes, rarely	0.5	3.6%
P514B	Tilford silt loam, 2 to 6 percent slopes	13.4	96.4%
Totals for Area of Interest		**13.9**	**100.0%**

P488A—St. Onge loam, 0 to 2 percent slopes, rarely flooded

Map Unit Composition

St. onge, rarely flooded, and similar soils: 80 percent
Minor components: 20 percent

Typical profile

0 to 7 inches: Loam
7 to 17 inches: Silt loam
17 to 24 inches: Loam
24 to 42 inches: Loam
42 to 52 inches: Fine sandy loam
52 to 60 inches: Silt loam

P514B—Tilford silt loam, 2 to 6 percent slopes

Map Unit Composition

Tilford and similar soils: 85 percent
Minor components: 15 percent

Typical profile

0 to 9 inches: Silt loam
9 to 26 inches: Silt loam
26 to 40 inches: Loam
40 to 60 inches: Loam

APPENDIX III

Archeological Findings

3/7/2014

Sturgis Parcels – Cultural Resource Assessment

Marcotte Tract:

This parcel has been inventoried for cultural resources twice in the past 14 years (2002 and 2012), with three cultural resources identified. One cultural resource was tested in 2012 and recommended *Not Eligible* for the National Register of Historic Places (NRHP). The other two sites are *unevaluated*.

My recommendation for the development of this parcel is to avoid the designated area (Figure 1). If this area is avoided it is unlikely that additional cultural work would be needed.

South Tract:

The South tract has approximately 0.45 acres that has been previously inventoried along the southern edge. There are no previously recorded cultural resources within the boundaries. The majority of the area appears to have been previously disturbed reducing the chances of surface features. An approximately 1.3 acre area along the northwestern portion of the tract has not been disturbed and is considered a high probability area for both surface features and buried cultural deposits.

Due to the high density of cultural sites surrounding the area and lack of cultural inventories, I would recommend a Level III cultural resource inventory before the area is developed. I would also recommend that shovel probes be placed within the high probability area (Figure 2).

Sturgis Fairgrounds:

This tract has never been inventoried and there are no previously recorded cultural resources within the boundary. It is unlikely that there are buried or prehistoric features at this location since it has been historically disturbed. If the Sturgis Fairgrounds are over 50 years of age, they should be recorded. The recordation of the fairgrounds does not mean that the site would be considered *Eligible*, or that development could not occur.

I would recommend a Level III inventory so that the fairgrounds could be documented before removal.

High School Property:

West -

Since the 1970s, three cultural inventories have been completed within this parcel; approximately 103 acres has not been previously inventoried. The entire parcel is located within the site boundary for Fort Meade, an *Eligible* site. Additionally, there are historic features visible on aerial maps within the tract. The section of the parcel nearest to the school (Figure 4) appears to have been plowed and disturbed so it is less likely to contain *Eligible* cultural components.

East -

None of this parcel has been previously inventoried, though the entire area is within the site boundary for Fort Meade. Since most of the tract appears to be undisturbed, there is high potential for intact surface and buried cultural materials. In addition to being located within an *Eligible* site and the Fort Meade Historic District, these parcels have high potential for additional surface and buried features to be discovered. I would recommend a Level III cultural resource inventory for the entirety of the high school parcels with shovel probe testing. The use of magnetometry near the historic features west of the creek would also help to establish the extent of the feature boundaries.

Please note that the identification of additional cultural resources within these parcels does not mean that development cannot occur. By working with the State Historic Preservation Office, a plan could be developed to evaluate any features. Many features could be determined to be 'noncontributing portion of the Eligible site' allowing the land to still be developed.

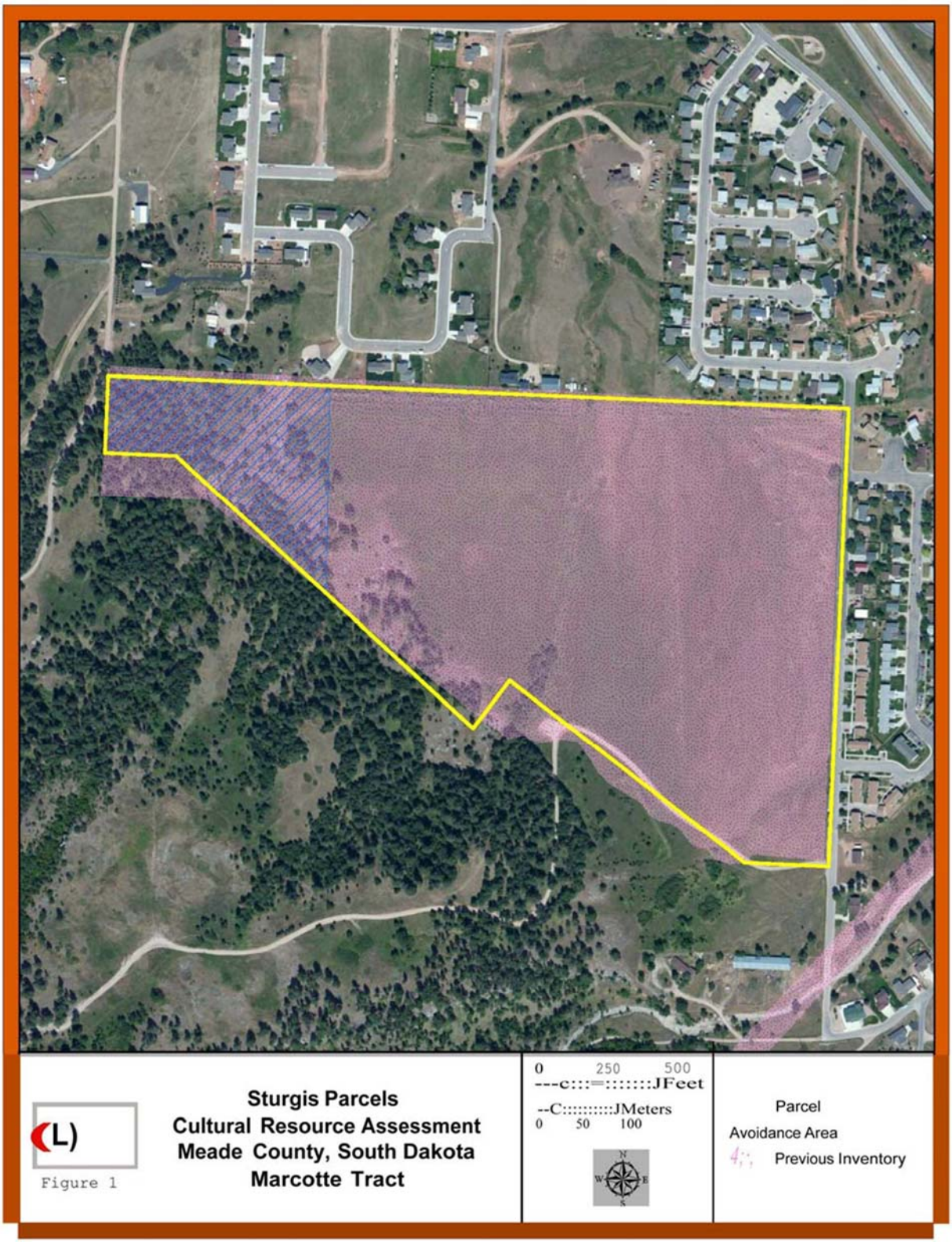


Figure 1
Sturgis Parcels
Cultural Resource Assessment
Meade County, South Dakota
Marcotte Tract
0 250 500
Feet
0 50 100
Meters
N
W
E
S
Parcel
Avoidance Area
Previous Inventory

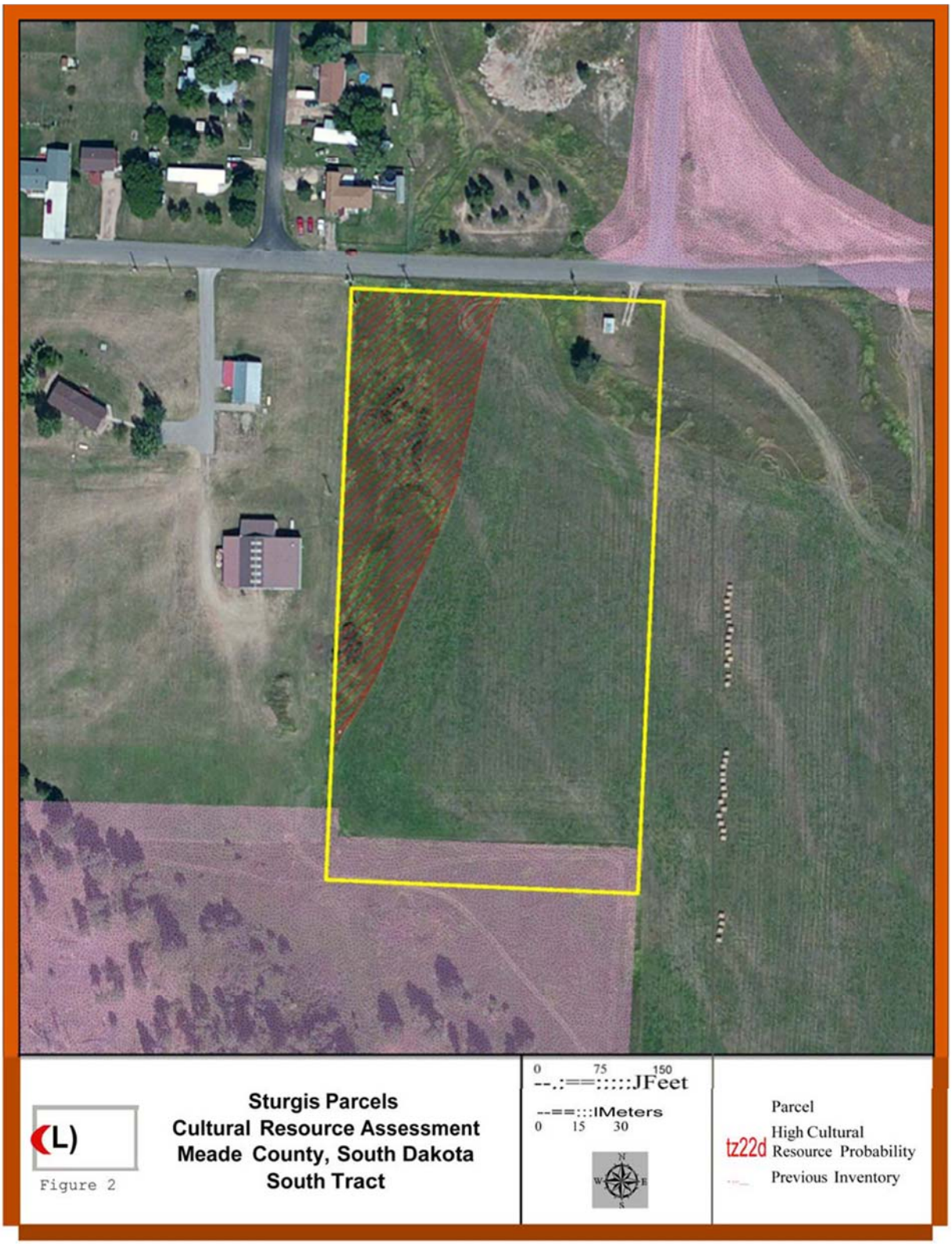
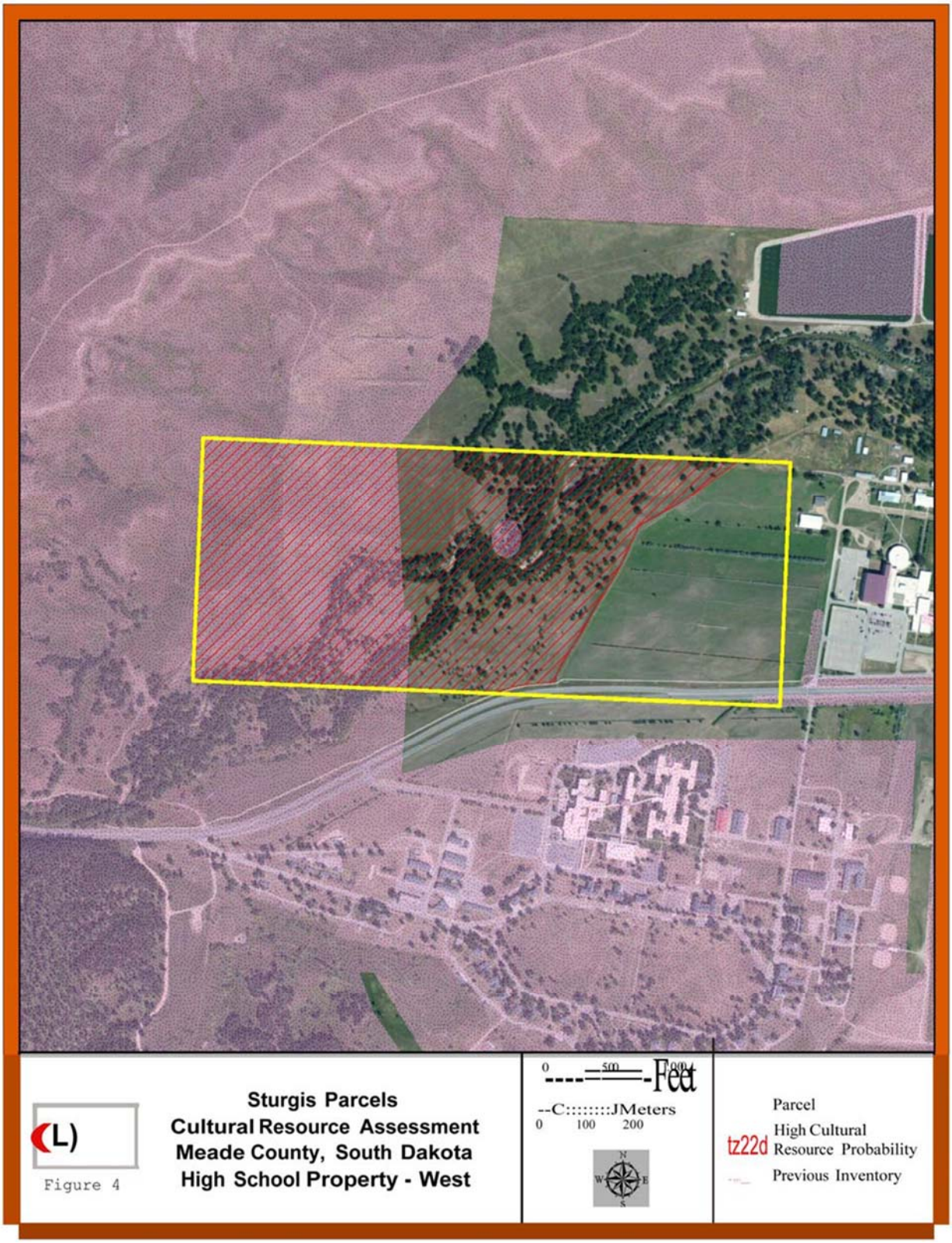

(L)
Figure 2
Sturgis Parcels
Cultural Resource Assessment
Meade County, South Dakota
South Tract
0 75 150
Feet
0 15 30
Meters
N
W
E
S
Parcel
tz22d
High Cultural
Resource Probability
Previous Inventory


Figure 3
Sturgis Parcels
Cultural Resource Assessment
Meade County, South Dakota
Sturgis Fairgrounds
0 150 300
Feet
Meters
0 25 50
N
W E
S
Parcel
Previous Inventory


(L)
Figure 4
Sturgis Parcels
Cultural Resource Assessment
Meade County, South Dakota
High School Property - West
0 500 1000 Feet
--C::::::::JMeters
0 100 200
N
W E
S
Parcel
tz22d High Cultural Resource Probability
Previous Inventory


lL)
Figure 5
Sturgis Parcels
Cultural Resource Assessment
Meade County, South Dakota
High School Property - East
0 20 500
---C::=::::IFcct
--C:::::::IMeters
0 50 100
N
W
E
S
Parcel
High Cultural
tz22d Resource Probability
Previous Inventory

APPENDIX IV

Resources & Contacts

The following organizations provided valuable support and information:

The City of Sturgis
1040 2nd Street
Sturgis, South Dakota 57782 605-347-4422

- **Mayor and City Council**
- **Planning Commission**
- **Parks Board**
- **Fairgrounds Committee**

Sturgis Chamber of Commerce
2040 Junction Avenue
Sturgis, South Dakota 57782
605-347-2556

Sturgis Economic Development Corp.
P.O. Box 218
Sturgis, South Dakota 57782 605-347-4906

South Dakota Department of Transportation
Becker-Hansen Building
70 East Broadway Avenue
Pierre, South Dakota 57501 605-773-3265

Meade County School District
1230 Douglas Street
Sturgis, South Dakota 57785
605-347-2523

South Dakota Game, Fish & Parks
523 East Capitol Avenue
Pierre, South Dakota 57501 605-773-3391

Bicycling Advocacy

The following documents are referenced in this planning study:

"Sturgis 2030: A Comprehensive Plan", RDG Planning & Design.
" City of Sturgis Housing Study", April 2014, Community Partners Research, Inc.

Additional Resources:

National Forest Service
Bureau of Land Management
Federal Emergency Management (FEMA)
Army Corp of Engineers
Meade County

Special thanks to the citizens and stakeholders in the City of Sturgis, S.D. The knowledge, input and ideas gathered during the public meetings was an invaluable contribution to this Land Use Study.

APPENDIX V

School Site – Wetland Delineation

WETLAND DELINEATION

Sturgis School Site - Proposed Development

Sturgis, South Dakota

Prepared for:

City of Sturgis
1040 2nd Street
Sturgis, South Dakota

Prepared by:

Andrea Hewitt
KLJ

July 2014

CONTENTS

I. INTRODUCTION

KLJ was contracted by City of Sturgis to conduct a field wetlands delineation for a proposed development on school lands as part of the City's land use plan in Meade County, South Dakota on the Fort Meade Reservation. The study area occurred in Sections 1 & 12 in Township 5 North, Range 5 East. Please refer to ***Figure 1, Project Location Map***. The wetland delineation and GPS data collection were conducted on July 1, 2014 by Andrea Hewitt of KLJ. A study area of approximately 105 acres was surveyed.

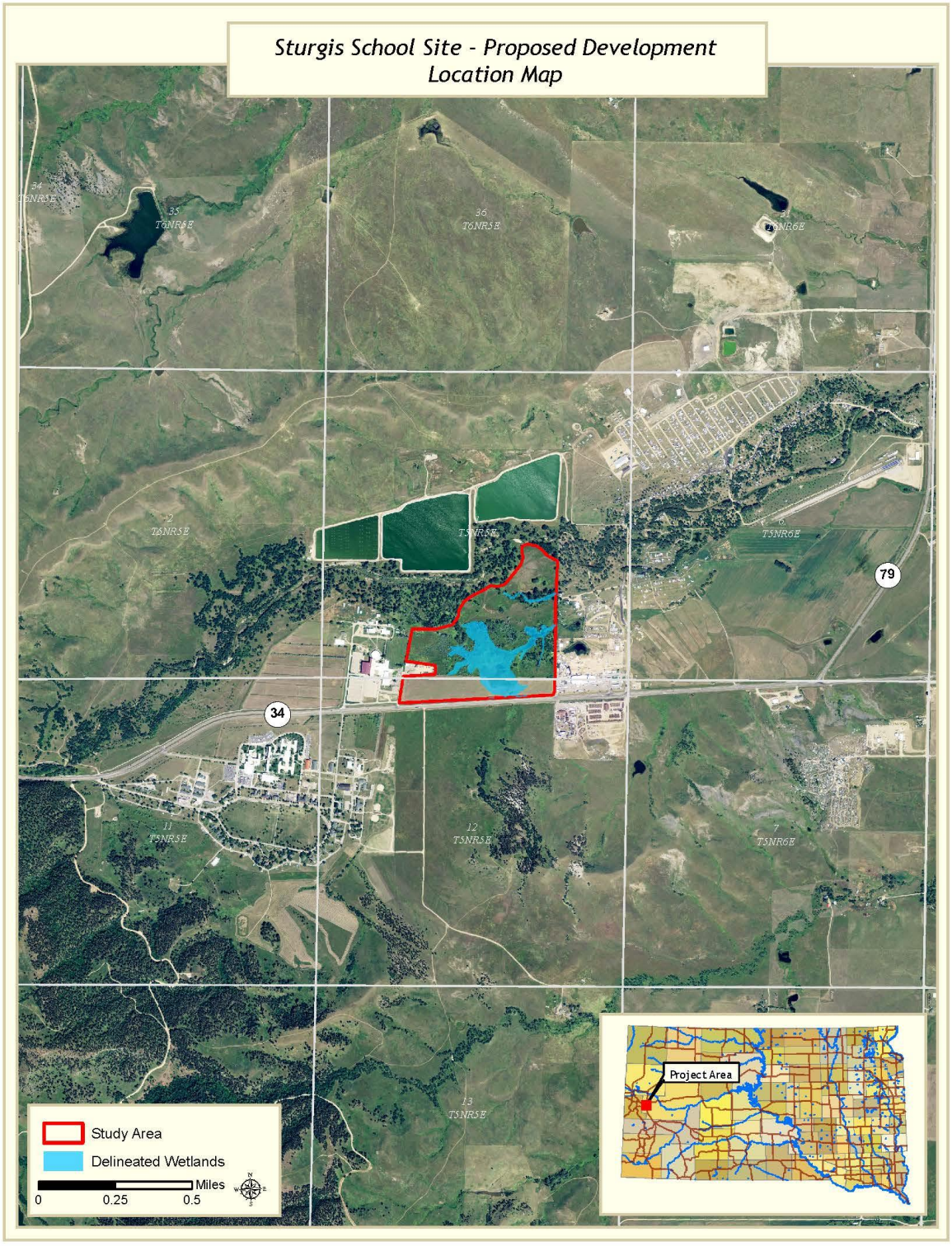


Figure 1, Project Location Map

II. WETLAND DELINEATION

A. Definitions and Methods

The wetland delineation was conducted by KLJ in accordance with the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual and the USACE March 2010 Regional Supplement: Great Plains Region (Version 2.0). The routine approach with onsite inspection was utilized, including the standard multi-parameter approach (vegetation, hydrology, and soils) for wetland identification. An area is considered to be a wetland if hydrophytic vegetation, wetland hydrology, and hydric soils are all present. Sample locations were determined using United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps along with visual inspection of sites that supported a hydrophytic plant community, wetland hydrology and hydric soils. Definitions and methodologies for determining each of these three parameters are summarized below:

1. Hydrophytic Vegetation

Definition: The prevalence (>50%) of dominant plant species that are adapted to life in saturated soil conditions.

Method: To determine if vegetation was hydrophytic, the scientific name and indicator status of dominant plant species at each wetland were recorded on USACE data sheets. Dominance refers to the spatial extent of a species that is directly observed in the field. Dominance is calculated by identifying the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum as well as any other species that, by itself, accounts for at least 20 percent of the total. Where 50 percent or more of all dominant species were hydrophytic, the hydrophytic vegetation parameter was met. Absolute percent cover[1] of dominant species within each stratum is listed on data sheets.

2. Wetland Hydrology

Definition: Fourteen or more consecutive days of flooding, ponding, or water table within 12 inches of the surface during the growing season at a minimum frequency of 5 out of 10 years (50%).

Method: Wetland hydrology was determined by observing the presence of primary and/or secondary indicators listed on the USACE data sheet. If one primary indicator or two secondary indicators were present, the wetland hydrology parameter was met.

[1] Absolute percent cover within each stratum is not required to add up to 100 percent on the data sheets.

3. Hydric Soils

Definition: Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper 12 inches.

Method: Soils from each sample location were characterized using Munsell Soil Color Charts and soil texturing. Soil samples were also compared with the USDA (United States Department of Agriculture) Soil Survey for Meade County and South Dakota Hydric Soils List. If one or more of the hydric soil indicators on the USACE data sheet were identified, the soil was considered to be hydric.

Base field maps were developed using Farm Service Agency National Agriculture Imagery Program (NAIP) aerial photography in combination with information from the USFWS NWI maps, Natural Resources Conservation Service (NRCS) soil survey data from Meade County, SD and United States Geological Survey (USGS) quadrangle maps.

Wetland boundaries at each wetland were determined based on the USACE wetland delineation process through completing paired sample points and investigating vegetation, hydrology, and/or hydric soils parameters. The wetland boundaries were surveyed using GPS data collection.

B. Results and Discussion

The study area is located in the ecoregion identified by the USGS as the Black Hills Region of South Dakota. The soil within this ecoregion consists primarily of Assinniboine Blackpipe, Delphill, Nunn, Santanta, Savo and Zigweid soils. This area is dominated by semiarid rolling plains composed of shale, siltstone, and sandstone punctuated by forested hills. The proposed project encompasses approximately 105 acres and occurs in both rural and urban settings. Land use in the study area consisted of residential and commercial lots located next to Fort Meade east of Sturgis, South Dakota. It is comprised of mixed grass and trees along the southern side of Bear Butte Creek.

The wetlands totaling approximately 20.54 acres were delineated by KLJ within the study area. Please refer to ***Table 1, Summary of Delineated Wetlands***. Wetland boundaries that extended beyond the study area limits were not delineated to their full extents. Wetlands 1 and 2 occurred in the form of lowlands and drainages with wetland 3 being a drainage ditch. Maps of the study area and delineated wetlands can be found in ***Appendix A, Delineated Wetland Maps***. A visual overview of each wetland can be found in ***Appendix B, Site Photos***. Additional information regarding vegetation dominance and hydrologic indicators can be found in ***Appendix C, Data Sheets***. According to the Web Soil Survey of Meade County, South Dakota (NRCS 2012), the sample points occurred in soil map units with a hydric rating of either predominately non-hydric or non-hydric/water. Please refer to **Table 2, Summary of Soil Type.**

Table 1, Summary of Delineated Wetlands

WETLAND NUMBER	TEST HOLE (IN WETLAND)	LOCATION	LONG / LAT (DEC. DEG.)	COWARDIN CLASSIFICATION	WETLAND TYPE	WETLAND SIZE (ACRES)	WETLAND FEATURE
1	1A	Sec 1, T5N, R5E	-103.455900 W 44.416649 N	PEMA	Lowland	19.80	Natural
1	1A1	Sec 1, T5N, R5E	-103.454039 W 44.417479 N	PEMA	Drainage		Natural
1	1A2	Sec 1, T5N, R5E	-103.453077 W 44.419025 N	PEMC	Intermittent Stream		Natural
1	1A3	Sec 1, T5N, R5E	-103.457307 W 44.418056 N	PEMA	Lowland		Natural
1	1A4	Sec 1, T5N, R5E	-103.459524 W 44.417724 N	PEMA	Depression		Natural
1	1A5	Sec 12, T5N, R5E	-103.457923 W 44.416352 N	PEMA	Lowland		Natural
2	2A	Sec 1, T5N, R5E	-103.456460 W 44.420523 N	PEMC	Drainage	0.73	Natural
3	3A	Sec 12, T5N, R5E	-103.457085 W 44.415607 N	PEMAx	Drainage Ditch	0.01	Artificial
					TOTAL	**20.54**	

Table 2, Summary of Soil Type

MAP UNIT	SOIL NAME	HYDRIC RATING	HYDRIC CRITERIA
Ba	Bankard loamy fine sand	Predominantly Non-Hydric	A
Ga	Glenberg soils	Predominantly Non-Hydric	B
GbD	Grummit clay, 6 to 15 percent slope	Non-Hydric/water	D
GcE	Grummit-Rock outcrop complex, 6 to 40 percent slopes	Non-Hydric/water	D
KaA	Keith silt loam, 0 to 2 percent slope	Predominantly Non-Hydric	B
KbA	Kyle clay, 0 to 2 percent slope	Predominantly Non-Hydric	D
KbB	Kyle clay, 2 to 6 percent slope	Non-Hydric/water	D
P342A	Rapidcreek gravelly loam, warm, 1 to 3 percent slope	Non-Hydric/water	A
So	St. Onge loam	Non-Hydric/water	BG
TaA	Tilford silt loam, 0 to 2 percent slope	Non Hydric/water	B

C. Conclusion

Approximately 20.54 acres of delineated wetlands were identified within the study area. Final determination of jurisdictional wetlands within the study area is ultimately the decision of the USACE. All necessary permits shall be acquired in the event that any of the delineated wetlands within the study area are determined to be jurisdictional by the USACE and would be affected by the proposed construction.

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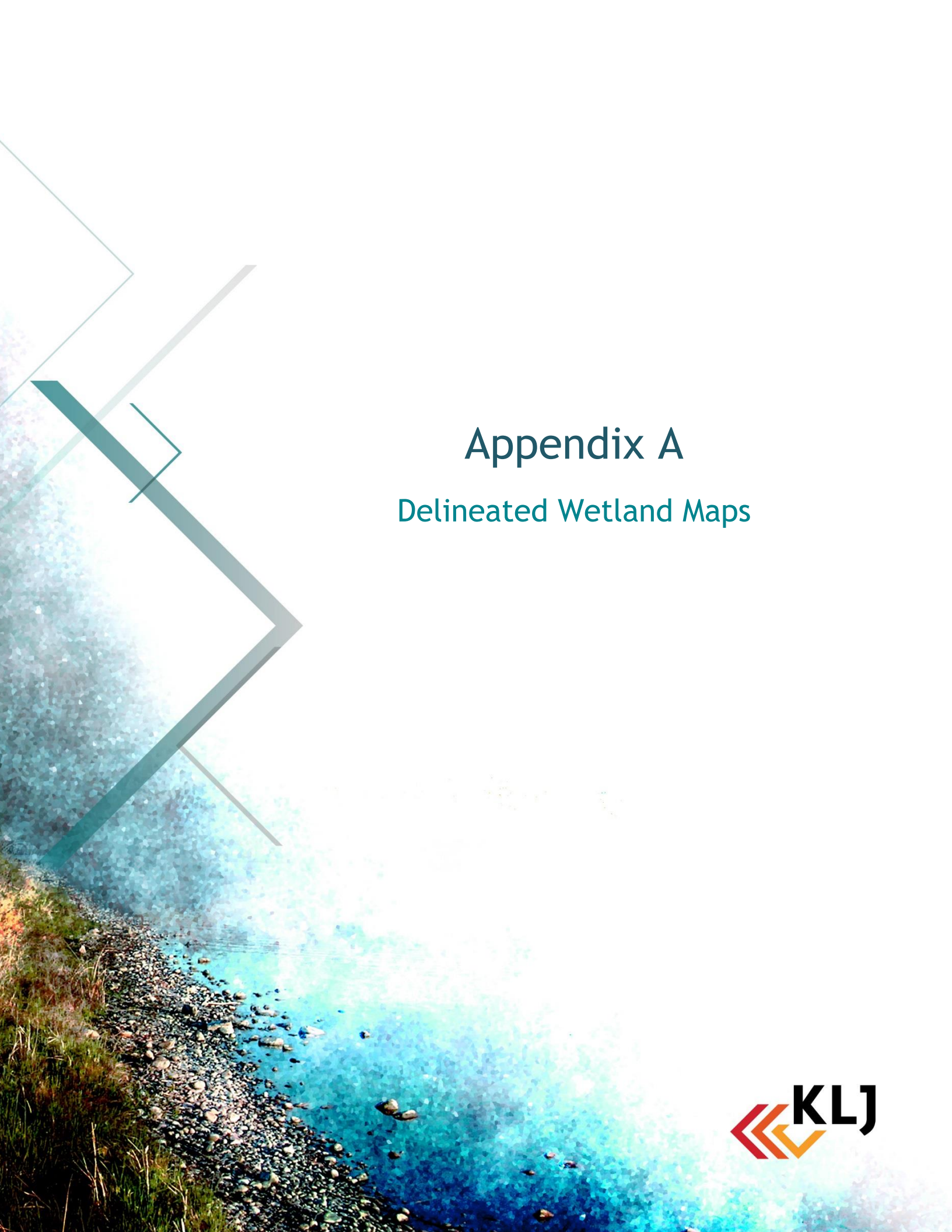
III. DELINEATOR/ENVIRONMENTAL SCIENTIST'S CREDENTIALS

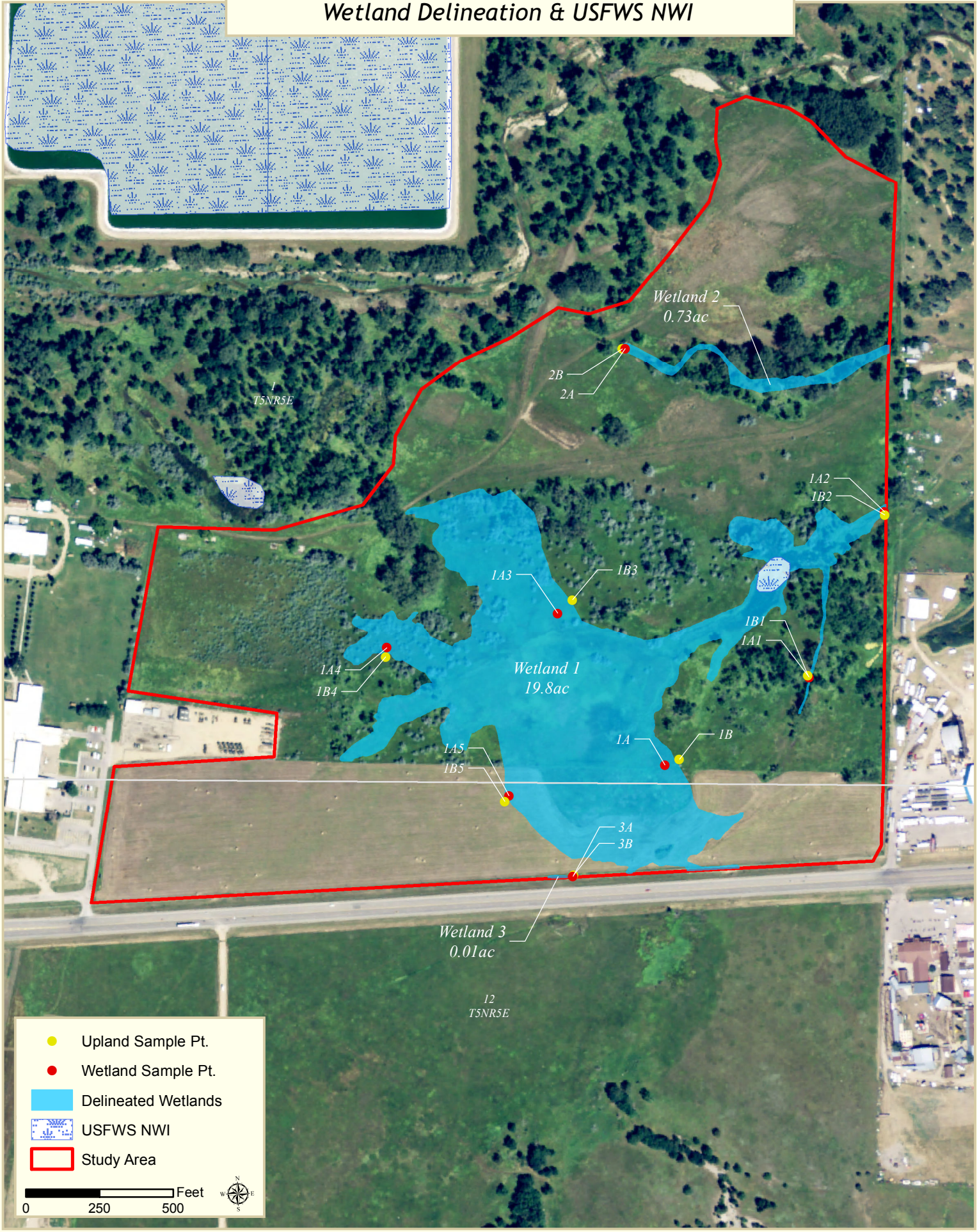
ANDREA HEWITT	
Education:	› University of North Dakota – Masters of Environmental Management › University of North Dakota – BS Fisheries and Wildlife Biology
Certifications:	› Richard Chinn Environmental Training, Inc.: Successfully completed training requirements for the 38 Hour Army Corps of Engineers Wetland Delineation Training Program. (April 2013)
Professional Memberships:	› National Association of Environmental Professionals › Wildlife Society – ND Chapter



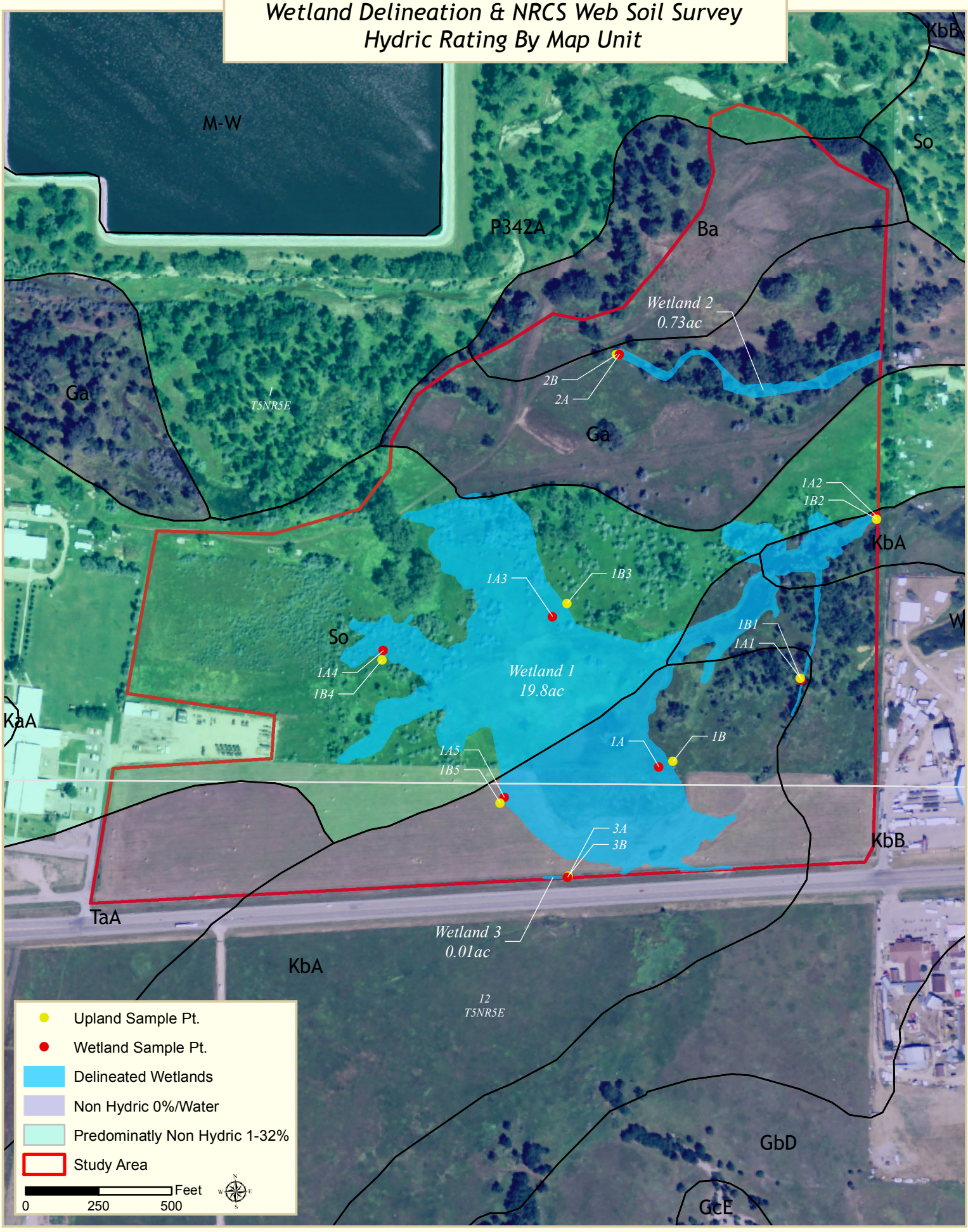
Appendix A

Delineated Wetland Maps

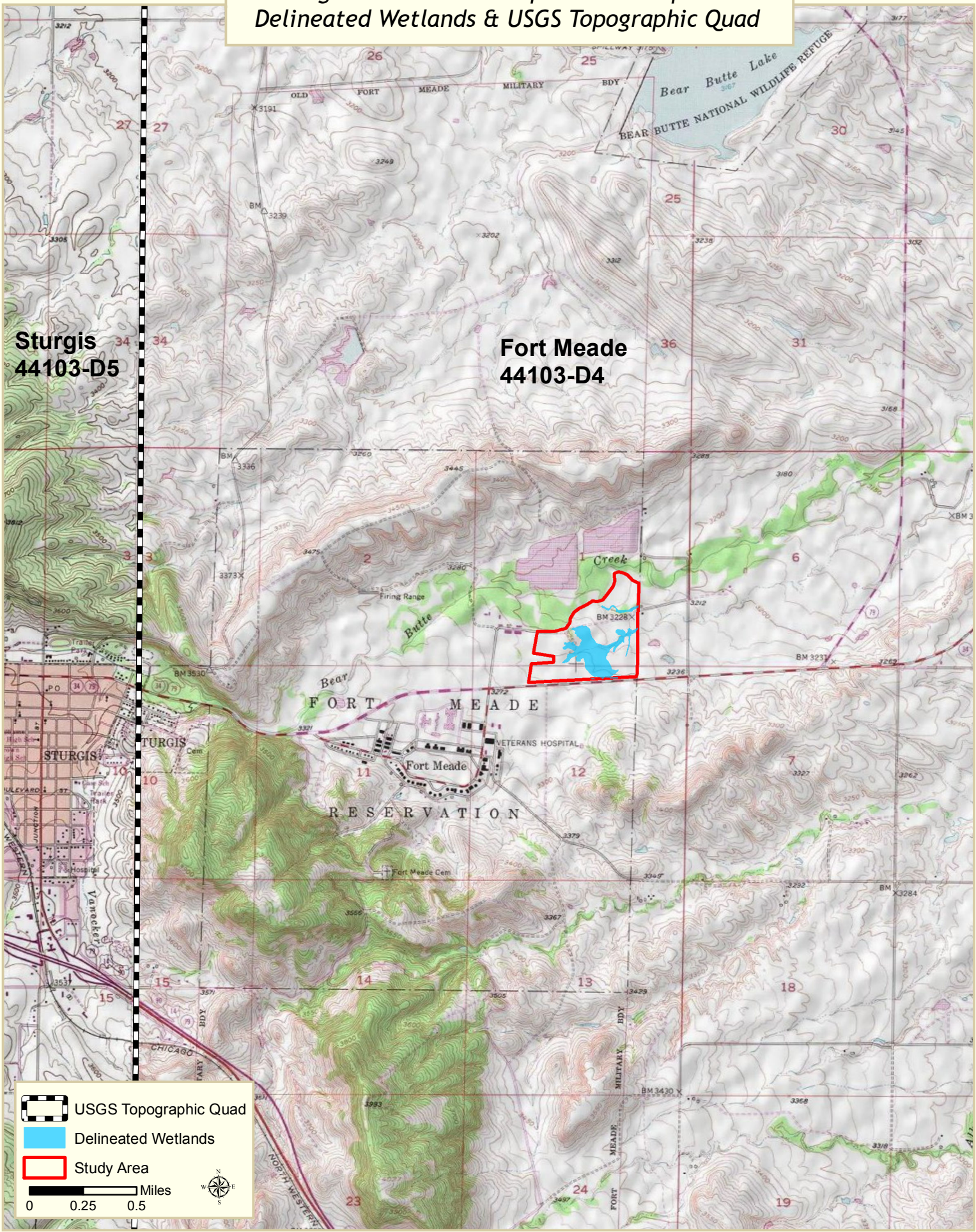
Sturgis School Site - Proposed Development
Wetland Delineation & USFWS NWI



Sturgis School Site - Proposed Development
Wetland Delineation & NRCS Web Soil Survey
Hydric Rating By Map Unit



Sturgis School Site - Proposed Development
Delineated Wetlands & USGS Topographic Quad



Appendix B

Site Photos

WETLAND 1, SAMPLE POINT 1A, VIEW SOUTHEAST

WETLAND 1, SAMPLE POINT 1A1, VIEW NORTH

WETLAND 1, SAMPLE POINT 1A2, VIEW WEST

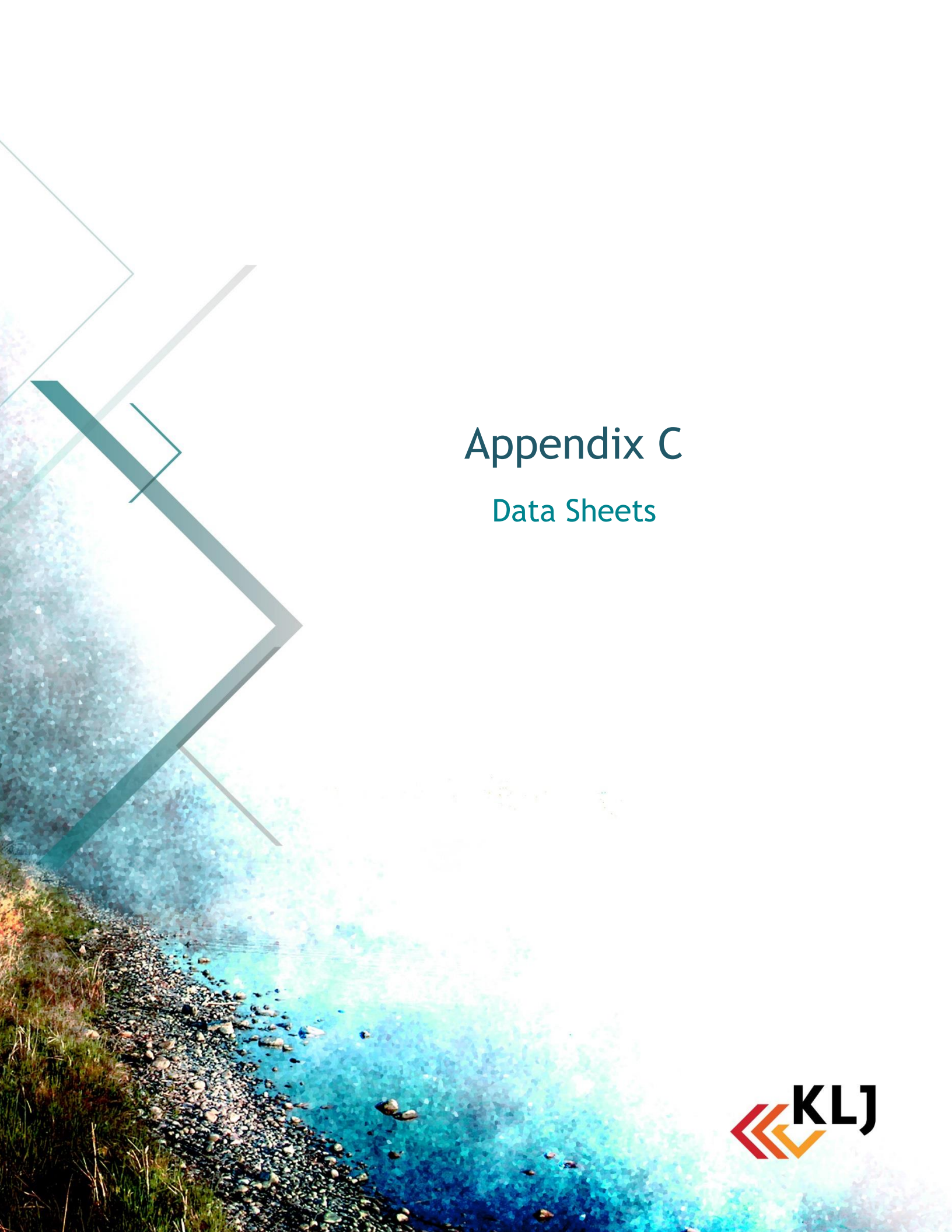
WETLAND 1, SAMPLE POINT 1A3, VIEW NORTH

WETLAND 1, SAMPLE POINT 1A4, VIEW EAST

WETLAND 1, SAMPLE POINT 1A5, VIEW EAST

WETLAND 2, SAMPLE POINT 2A, VIEW EAST

WETLAND 3, SAMPLE POINT 3A, VIEW WEST



Appendix C

Data Sheets

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1A

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): lowland Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 44.416649 Long: -103.455900 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Alopecurus arundinaceus	50%	Yes	FACW
2. Carex aquatilis	20%	Yes	OBL
3. Bromus inermis	20%	Yes	UPL
4. Elymus repens	5%	No	FACU
5. Poa pratensis	5%	No	FACU
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/1	100%					CL	
4-16"	10YR 4/1	90%	10YR 4/6	10%	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☑ No ☐ Depth (inches): 12"

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 10"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1B

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 44.416704 Long: -103.455713 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	60%	Yes	UPL
2. Poa pratensis	20%	Yes	FACU
3. Elymus repens	10%	No	FACU
4. Alopecurus arundinaceus	10%	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"	7.5YR 3/1	100%					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☐ No ☑ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): —

Wetland Hydrology Present? **Yes** ☐ **No** ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1A1

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 3%

Subregion (LRR): G Lat: 44.417479 Long: -103.454039 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Spartina pectinata	40%	Yes	FACW
2. Alopecurus arundinaceus	20%	Yes	FACW
3. Elymus repens	20%	Yes	FACU
4. Poa pratensis	20%	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 15%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	0	x 3 =	0
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	4 (A)		12 (B)

Prevalence Index = B/A = 3

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 1A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	7.5YR 3/1	100%					CL	
4-16"	7.5 YR 4/1	90%	7.5 YR 4/4	10%	C	M	CL	distinct redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☑ No ☐ Depth (inches): 10"

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 8"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1B1

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10%

Subregion (LRR): G Lat: 44.417493 Long: -103.454055 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	90%	Yes	UPL
2. Poa pratensis	10%	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: 1B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"	10YR 3/1	100%					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☐ No ☑ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): —

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1A2

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): intermittent stream Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): G Lat: 44.419025 Long: -103.453077 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Schoenoplectus tabernaemontani	50%	Yes	OBL
2. Spartina pectinata	30%	Yes	FACW
3. Eleocharis palustris	10%	No	OBL
4. Elymus repens	10%	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 1A2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-0.5"	Gley 2.5/N	100%						muck

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☑ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Soils too saturated to color. Definite wetland boundary and presence of dominant obligate hydrophyte community.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☑ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☑ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?	Yes ☑	No ☐	Depth (inches):	5"
Water Table Present?	Yes ☑	No ☐	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes ☑	No ☐	Depth (inches):	surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water observation taken within 5ft radius.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1B2

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 2%

Subregion (LRR): G Lat: 44.418994 Long: -103.453071 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	50%	Yes	UPL
2. Elymus repens	40%	Yes	FACU
3. Alopecurus arundinaceus	10%	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: 1B2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"	10YR 3/1	100%					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☐ No ☑ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): —

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1A3

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): lowland Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 44.418056 Long: -103.457307 Datum: NAD 83

Soil Map Unit Name: St. Onge loam NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Calamagrostis canadensis	60%	Yes	FACW
2. Carex aquatilis	20%	Yes	OBL
3. Schoenoplectus pungens	20%	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 1A3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2"	10YR 3/1	100%					CL	
2-16"	5YR 4/1	85%	5YR 4/6	15%	C	M	CL	prominent redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☑ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☑ No ☐ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1B3

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 44.418184 Long: -103.457120 Datum: NAD 83

Soil Map Unit Name: St. Onge loam NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	40%	Yes	UPL
2. Calamagrostis canadensis	40%	Yes	FACW
3. Cirsium arvense	20%	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	3 (A)		11 (B)

Prevalence Index = B/A = 3.666666666

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: 1B3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"	10YR 3/1	100%					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☐ No ☑ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): —

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1A4

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR): G Lat: 44.417724 Long: -103.459524 Datum: NAD 83

Soil Map Unit Name: St. Onge loam NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Carex aquatilis	30%	Yes	OBL
2. Alopecurus arundinaceus	20%	Yes	FACW
3. Eleocharis palustris	15%	No	OBL
4. Bromus inermis	10%	No	UPL
5. Poa pratensis	10%	No	FACU
6. Glycyrrhiza lepidota	10%	No	FACU
7. Equisetum laevigatum	5%	No	FAC
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

☑ 1 - Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 1A4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/1	100%					CL	
4-16"	10YR 5/1	90%	7.5YR 4/6	10%	C	M	CL	prominent redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☑ No ☐ Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/1/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1B4

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5%

Subregion (LRR): G Lat: 44.417639 Long: -103.459535 Datum: NAD 83

Soil Map Unit Name: St. Onge loam NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	40%	Yes	UPL
2. Poa pratensis	40%	Yes	FACU
3. Symphoricarpos occidentalis	20%	Yes	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

Vegetation heavily grazed

SOIL

Sampling Point: 1B4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"	10YR 3/1	100%					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☐ No ☑ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): —

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/2/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1A5

Investigator(s): A. Hewitt Section, Township, Range: Sec 12, T5N, R5E

Landform (hillslope, terrace, etc.): lowland Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 44.416352 Long: -103.457923 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: PEMA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Alopecurus arundinaceus	50%	Yes	FACW
2. Calamagrostis canadensis	20%	Yes	FACW
3. Poa pratensis	15%	No	FACU
4. Dactylis glomerata	15%	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 1A5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14"	10YR 2/1	100%					CL	
14-20"	10YR 4/1	95%	10YR 3/6	5%	C	M	CL	prominent redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☑ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☑ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☑ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☑ No ☐ Depth (inches): 14"

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 12"

Wetland Hydrology Present? **Yes** ☑ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/2/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 1B5

Investigator(s): A. Hewitt Section, Township, Range: Sec 12, T5N, R5E

Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): none Slope (%): 0%

Subregion (LRR): G Lat: 44.416299 Long: -103.457978 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	80%	Yes	UPL
2. Dactylis glomerata	20%	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: 1B5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-25"	10YR 2/1	50%					CL	
	10YR 3/1	50%					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): —

Water Table Present? Yes ☐ No ☐ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 25"

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/2/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 2A

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 40%

Subregion (LRR): G Lat: 44.420523 Long: -103.456460 Datum: NAD 83

Soil Map Unit Name: Glenberg soils NWI classification: PEMC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑	No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑	No ☐	
Wetland Hydrology Present?	Yes ☑	No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Scirpus atrovirens	40%	Yes	OBL
2. Carex aquatilis	20%	Yes	OBL
3. Schoenoplectus pungens	20%	Yes	OBL
4. Bromus inermis	10%	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): (A)

Total Number of Dominant Species Across All Strata: (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

☑ 1 - Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 3/1	25%	10YR 3/6	5%	C	M	SL	prominent redox
	10YR 2/1	70%					SL	
4-16"	10YR 4/1	90%	10YR 3/6	10%	C	M	SL	prominent redox

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 2"

Water Table Present? Yes ☑ No ☐ Depth (inches): 8"

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 5"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water observation taken within 5ft radius.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/2/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 2B

Investigator(s): A. Hewitt Section, Township, Range: Sec 1, T5N, R5E

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5%

Subregion (LRR): G Lat: 44.420522 Long: -103.456497 Datum: NAD 83

Soil Map Unit Name: Glenberg soils NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	40%	Yes	UPL
2. Poa pratensis	40%	Yes	FACU
3. Alopecurus arundinaceus	10%	No	FACW
4. Schoenoplectus pungens	10%	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"	10YR 3/2	100%					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☐ No ☑ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): —

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/2/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 3A

Investigator(s): A. Hewitt Section, Township, Range: Sec 12, T5N, R5E

Landform (hillslope, terrace, etc.): drainage ditch Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR): G Lat: 44.415607 Long: -103.457085 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: PEMAx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Eleocharis palustris	50%	Yes	OBL
2. Alopecurus arundinaceus	20%	Yes	FACW
3. Hordeum jubatum	10%	No	FACW
4. Bromus inermis	10%	No	UPL
5. Poa pratensis	10%	No	FACU
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = 0
FACW species _____	x 2 = 0
FAC species _____	x 3 = 0
FACU species _____	x 4 = 0
UPL species _____	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

☑ 1 - Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

SOIL

Sampling Point: 3A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-0.5"	Gley 2.5/N	100%						muck

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☑ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Presence of dominant obligate hydrophyte community and definite wetland boundary.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☑ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☑ No ☐ Depth (inches): 4"

Water Table Present? Yes ☑ No ☐ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): surface

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water observation taken within 5ft radius.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Sturgis School Site - Proposed Development City/County: Sturgis/Meade Sampling Date: 7/2/14

Applicant/Owner: City of Sturgis State: SD Sampling Point: 3B

Investigator(s): A. Hewitt Section, Township, Range: Sec 12, T5N, R5E

Landform (hillslope, terrace, etc.): ditch slope Local relief (concave, convex, none): convex Slope (%): 15%

Subregion (LRR): G Lat: 44.415620 Long: -103.457074 Datum: NAD 83

Soil Map Unit Name: Kyle clay, 0 to 2 percent slopes NWI classification: —

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 FT)			
1. Bromus inermis	100%	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 = 0
FACW species	x 2 = 0
FAC species	x 3 = 0
FACU species	x 4 = 0
UPL species	x 5 = 0
Column Totals: 0 (A)	0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks:

SOIL

Sampling Point: 3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16"	10YR 3/2	100%					CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D5)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): —

Water Table Present? Yes ☐ No ☑ Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): —

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: