

Chapter Four: Landscape Analysis and Evaluation

CHAPTER 4: LANDSCAPE ANALYSIS AND EVALUATION

Introduction

The following chapter includes an evaluation of the significance of the Grant-Kohrs Ranch NHS based on the information contained in the site's National Register nomination, the NHL boundary study, and on the site physical history and context documented in Chapter Two. This evaluation explains the relationship of the landscape to National Register criteria, proposed historic contexts, and suggests a period of significance.

The analysis and evaluation section assesses integrity of the cultural landscape, and is based upon a comparative analysis of historic features and existing landscape features. Landscape features are assessed as contributing, supporting, or noncontributing to the significance of the cultural landscape. Missing landscape features dating to the period of significance are also identified. It is important to note that although National Register criteria generally do not apply to landscape features or characteristics (i.e., natural features and systems, topography, vegetation, circulations, spatial organization, etc.), this analysis considers these features in order to assess the holistic integrity of the landscape and the larger natural and cultural context within which the buildings, structures, objects, and sites reside.

Based upon this analysis, the historic integrity of the Grant-Kohrs Ranch is assessed based on integrity of location, design, setting, materials, workmanship, feeling, and association. Three additional criteria relating to biotic resources (species composition, biotic community organization, and land management techniques), which replace material, design, and workmanship, respectively, are also considered where appropriate. Integrity is assessed for the overall landscape, as well as for each of the component landscapes.

Statement of Significance

Summary of Previous Evaluations of Significance

Two recent documents, the National Historic Landmark Boundary Study (2001, Approved 2002) for Grant-Kohrs Ranch, and the National Register of Historic Places Registration Form (Listed 2003) for Grant-Kohrs Ranch/Warren Ranch Historic District evaluate significance for portions of the project area and identify contributing and noncontributing resources based upon National Register criteria. The relevant information contained in these documents is summarized below.

National Historic Landmark Boundary Study, Grant-Kohrs Ranch (2001, Approved 2002)

Grant-Kohrs Home Ranch was designated a NHL on December 19, 1960. The site was identified in a 1959 NHL "Westward Expansion: Cattlemen's Empire" theme study for its association with the lives of John Grant and Conrad Kohrs, and for its association with the growth and development of the open-range cattle industry. The ranch was found to be significant under National Historic Landmark Criterion 1 in the areas of Agriculture and Exploration/Settlement (see page 4-3 for a description of NHL Criteria).

The National Historic Landmark Boundary Study for the Grant-Kohrs Ranch was completed in 2001 and approved in 2002. This documentation defines the boundary of the National Historic Landmark District and identifies both contributing and noncontributing resources. The National

Historic Landmark District boundary encompasses approximately 1,600 acres and is identical to the current boundary of the National Historical Site with the following exception: approximately fifteen-acres along the National Historic Site's southeastern boundary, including the Warren Hereford Ranch and the park visitor contact station, rest room, curatorial storage facility, and parking area, are excluded from the National Historic Landmark District because they do not reflect the period of significance. The National Historic Landmark District was found to be nationally significant under Criterion 1 as "representative and harbinger of sweeping changes in the Great Plains cattle industry." The associated Themes for the National Historic Landmark District have been identified as Agriculture, and Developing the American Economy. The Areas of Significance for the National Historic Landmark District have been identified as Agriculture, and Exploration/Settlement. The period of significance for the National Historic Landmark District has been identified as 1862 – 1919.

The National Historic Landmark District reflects two broad types of cultural landscapes, rural and residential, and includes sixty-eight historic resources, twenty-three of which are identified as contributing, and forty-five as noncontributing due to their association with the later twentieth century Warren era. All sixty-eight of these historic resources are also included within the boundary of the Grant-Kohrs/Warren Ranch National Register District, many of which contribute to the National Register District at a state level of significance. The National Historic Landmark documentation identifies a residential landscape, including the original Grant-Kohrs ranch house building cluster, and a rural vernacular landscape including an extensive complex of supporting agricultural buildings, fencing, corrals, pastures, fields, and railroad beds, as nationally significant. The ranch buildings however, have not been evaluated as 'exceptionally' valuable for the study of a period, style, or method of construction and have not been nominated under National Historic Landmark Criterion 4.

National Register of Historic Places Registration Form, Grant-Kohrs Ranch / Warren Ranch Historic District (Listed 2003)

The Grant-Kohrs Ranch was administratively listed on the National Register of Historic Places in August of 1972 when it was designated as a National Historic Site. This designation identified 34 contributing buildings and 20 contributing structures but did not include a list of these resources. The nomination form, approved in 2003, redefined the boundary and amended the resource count for the National Register District, identifying both 72 contributing and 26 noncontributing resources contained within it. Of these 98 historic resources, some were previously listed on the National Register. Because the National Register District encompassed the National Historic Landmark District and all of its nationally significant resources associated with the Grant and Kohrs period of use between 1862-1919, the National Register documentation focused on the resources of the Grant-Kohrs Ranch National Historic Site that had a state (rather than national) level of significance, specifically focusing on those historic resources associated with Conrad Warren's management of the ranch between 1929-1958.

The National Register District boundary encompasses approximately 1,600 acres and includes all of the National Historic Landmark District. The National Register District also includes the Warren Hereford Ranch parcel and is identical to the boundary for the National Historical Site established in 1972 with the following exception: the park Visitor Contact Area, which includes the visitor contact station, rest rooms, curatorial storage building, and parking areas, is excluded from the National Register District because it does not reflect the period of significance.

The Grant-Kohrs/Warren Ranch District was nominated to the National Register of Historic Places at the state and national levels under Criterion A for its significant associations with the history of agriculture, and under Criterion C for its vernacular architecture (see page 4-5 for a

description of National Register Criteria).¹ The National Register District reflects two broad types of cultural landscapes, residential and rural vernacular, and includes ninety-eight historic resources, seventy-five of which are identified as contributing, and twenty-three as noncontributing.² The National Register of Historic Places Registration form identifies two residential complexes, including the original Grant-Kohrs and later Warren ranch house building clusters, and a larger rural vernacular landscape that includes an extensive complex of fencing, irrigation systems, fields, roads and railroad lines. The period of significance for the National Register District is identified as 1929-1958.

Evaluation of Significance by Criteria

A Guide to Cultural Landscape Reports: Contents, Process, and Techniques (1998) states that determining the significance of a property “involves relating findings from the site history and existing conditions to the historic context associated with the landscape.” The CLR statement of significance that follows assesses individual landscape characteristics and features, as well as the landscape as a whole, within the context of their chronological periods and addresses their relationship to the Criteria and Considerations as set forth in the National Historic Landmark Program and the National Register of Historic Places. The ability of the landscape to convey its significance relates to its level of historic integrity.

Significance by National Historic Landmark Criteria

The National Historic Landmarks Program states that a property shall be designated a National Historic Landmark only if it is nationally significant as established by the qualitative framework provided by the following criteria:

- Criterion 1: That area associated with events that have made a significant contribution to, are identified with, or that outstandingly represent, the broad national patterns of U. S. history and from which an understanding and appreciation of those patterns may be gained; or
- Criterion 2: That are associated importantly with the lives of persons nationally significant in the history of the United States; or
- Criterion 3: That represent some great idea or ideal of the American people; or
- Criterion 4: That embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for a study of a period, style or method of construction, or that represent a significant, distinctive or exceptional entity whose components may lack individual distinction; or
- Criterion 5: That are composed of integral parts of the environment not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition but collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture; or
- Criterion 6: That have yielded or may be likely to yield information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States. Such sites are those which have yielded, or which may reasonably be expected to yield, data affecting theories, concepts, and ideas to a major degree.

¹ Several of the historic resources listed on the National Register were found to contribute at both state and national levels of significance, while others were found to contribute at only a state level of significance.

² The twenty three noncontributing structures identified in the National Register District are mostly associated with NPS era new construction or historic re-construction.

Based on the research, analysis, and documentation conducted for preparation of this CLR, we agree with the existing National Historic Landmark Nomination and find that the Grant-Kohrs Ranch NHS cultural landscape possesses national significance according to National Historic Landmark Criterion 1 in the areas of Agriculture and Exploration/Settlement. This significance is summarized below.

The Establishment and Growth of the Home Ranch and the Development of the Ranching Industry on the Northern Plains, 1862-1919.

After several years of wintering his cattle in the luxuriant grass covered Deer Lodge Valley, Johnny Grant permanently settled at the confluence of the Deer Lodge River and Little Blackfoot Creek in 1859. By 1861, he had moved to a bluff overlooking the Clark Fork River, establishing what would subsequently become the Grant Kohrs National Historic Site Home Ranch. During the early 1860s, Grant had laid out the larger spatial relations at his home ranch that were to guide its future agricultural and ranching development through to the twentieth century. Beyond the domestic core, Grant established a vegetable garden, an irrigated field system within the rich bottom lands adjacent to the Clark Fork River, and an extensive fenced pasture land on both sides of the Clark Fork River. The incipient Open Range grazing system, a direct descendent of the cattle trade that flourished under the 'road ranch system' during the 1840s and 1850s, clearly benefited Grant and other regional pioneer ranchers of the northern plains. During his brief tenure in the Deer Lodge Valley, Grant continued to sell and trade horses and cattle with local residents, regional miners, American Indians, U. S. Military expeditions, and immigrants moving west. Grant's livestock trading activities, and the economic relationships he helped to establish, laid the foundation for the corporately dominated Open Range cattle industry that followed.

Conrad Kohrs first came to the Deer Lodge Valley in 1861. Within a few short years, he had purchased Johnny Grant's ranch and owned nearly all of the cattle in the region. Early on, most of the cattle owned by Kohrs supplied his chain of regional butcher outlets, which depended upon the business of gold miners. As the gold miners moved elsewhere by the late 1860s, Kohrs turned exclusively to ranching and cattle breeding. With the help of a number of associates and relatives, Kohrs was able to turn his butcher stock into a highly organized and productive beef ranch dependent on both Open Range, and fenced pasture and cropland.

Conrad Kohrs, and his partner and half-brother John Bielenberg, adopted several key practices that led to their success in livestock ranching. In 1872, Kohrs and Bielenberg purchased larger herds of Longhorn and Shorthorn cattle in an attempt to improve their own stock. By the late 1870s, Kohrs and Bielenberg also purchased thoroughbred and Clydesdale stallions, the former was acquired in an attempt to breed a better ranch horse. During the early 1880s, Kohrs and Bielenberg also imported Hereford and Angus cattle and over the course of a number of years made several breeding experiments. By the mid-1880s, Kohrs and Bielenberg had begun to sell both purebred cattle and horses to local and regional ranchers, thereby improving the overall product of the region wide ranching industry.

Kohrs and Bielenberg were quick to take advantage of any strategy that would benefit their ranch. During the early-to-mid 1880s, Kohrs and Bielenberg abandoned the long cattle drives of the past in favor of convenient railroad stock cars. Kohrs took advantage of the new rail transportation system that linked his ranch to the stockyards of Chicago. The resultant relationships established with Chicago merchants would aid Kohrs in the years to come. Likewise as ranchers began to realize that the Open Range could not support an ever increasing amount of stock, those with foresight adapted. As a result of overgrazing and the hard winter of 1886-1887, Kohrs and Bielenberg adapted by sending their herds farther afield for new range, turning to pooled herds, and adopting pasture ranching and expanding the amount of acreage they owned within and

beyond the Deer Lodge Valley. Simultaneously they also increased their purchase of grain seed and production of native hay. By the first quarter of the 20th century, the Open Range as many regional ranchers had known it had ceased to exist.

While the majority of day-to-day ranch activities were oriented towards the large-scale sale of beef cattle, the Kohrs-Bielenberg Ranch was well diversified, as were Kohrs and Bielenberg individually. The breeding and sale of working, thoroughbred, carriage, imported Clydesdales, Shires and Norman Coach horses, and purebred Shorthorn and Hereford bulls and herd-sires was an integral part of their business.

The physical features of the National Historic Landmark landscape directly reflect the efforts of Grant, Kohrs and Bielenberg in carrying out their ranching activities. The Grant-Kohrs ranch house served as home for Johnny Grant and Conrad and Augusta Kohrs and also doubled as office headquarters for the ranch, with nearby outbuildings supporting the business operations and domestic requirements. Immediately surrounding the residential complex are a number of vernacular barns, sheds, corrals and fencing that served the day to day needs of livestock management. The construction and materials used in these and other structures directly reflects the utilitarian needs and functioning of the ranch, and the successful livestock management strategies of Grant, and subsequently Kohrs and Bielenberg. Further afield are the numerous pastures, fields, fences, and irrigation systems that reflect the evolution and changing use of the larger ranch landscape. This rural landscape directly reflects the transformation from a nearly exclusive Open Range system of ranching, to one that depended more heavily on the development and irrigation of pasture and crop land.

Many of the challenges that Grant, and Kohrs and Bielenberg faced between 1861 and 1919 were identical to those sweeping the ranching industry in the larger northwest. Hard winters, cattle theft, disease, overgrazing and decimation of the Open Range posed problems for all cattle ranchers. In this sense, the Grant-Kohrs Ranch is representative of the cattle ranching industry of the greater northwest. However, in the long-term success of Grant and Kohrs and Bielenberg, the Grant-Kohrs Ranch is also an example of adaptation and the ability to meet the challenges of an increasingly changing industry. As operators of one of the largest ranches in Montana and the larger northwest, Kohrs and Bielenberg were leaders in local and state wide politics and as an advocate for the enhancement and expansion of the regional cattle ranching business.

Significance by National Register Criteria

The National Register of Historic Places states that to be eligible for listing, a property must meet one or more of the following criteria:

- Criterion A: Be associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: Be associated with the lives of persons significant in our past; or
- Criterion C: Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: Have yielded or be likely to yield information important in prehistory or history.

National Register Criteria

The National Register documentation identified the Grant-Kohrs/Warren Ranch District as possessing significance at a state and national level under Criterion A for its significant associations with the history of agriculture, and at a state and national level under Criterion C for its vernacular architecture. The National Register District predominantly focused on the Warren era historic resources that had a state level of significance, but also included all 68 historic resources (23 contributing, 45 noncontributing) that were previously identified as part of the National Historic Landmark District. Based on the research, analysis, and documentation conducted for the preparation of this CLR, we agree with the National Register documentation that the Grant-Kohrs Ranch NHS cultural landscape has been found to possess significance according to National Register Criterion A at a state and national level, and Criterion C at a state and national level, but also find that the Grant-Kohrs Ranch NHS cultural landscape possesses significance according to Criterion B at both a state and national level. The areas of significance associated with Grant-Kohrs Ranch National Historic Site include Agriculture, Architecture, and Engineering. This significance is summarized below.

Criterion A: Association with events, activities or trends that have made a significant contribution to the broad patterns of our history

Grant-Kohrs Ranch National Historic Site possesses significance at a state and national level for its association with events that have made a significant contribution to the broad patterns of our history. In addition to the theme 'Establishment and Growth of the Home Ranch and the Development of the Ranching Industry on the Northern Plains, 1862-1919' identified in the National Historic Landmark significance statement, we also recommend that the Grant-Kohrs Ranch National Historic Site be considered significant at a state and national level for its associations with modern ranching techniques and practices. These events are summarized below.

Modern Ranching: The application of scientific agriculture and advances in veterinary medicine, 1929-1982

After conducting historical research associated with the Cultural Landscape Report, the authors find that the Grant Kohrs Ranch National Historic Site may possess significance at both state and national levels for its associations with modern ranching techniques and practices. The authors recommend redesignation of the National Historic Site under this category at a state and national level. Between 1929 and 1982, Conrad Warren, the grandson of Conrad Kohrs, took on the management and operation of the Conrad Kohrs Co. Ranch. General ranch operations and the physical changes made to the cultural landscape during this period may be characterized as an application of modern scientific ranching practices in the fields of both agriculture and livestock management.

Like his grandfather, Conrad Warren was first and foremost a product of his generation. Sent to the University of Virginia in the mid-1920s to study medicine, Warren thrived but eventually left college to follow his true desire, ranching. Between 1926 and 1928, Warren spent summers at the Kohrs ranch as one of several ranch hands. By 1928 he had begun working at the ranch full time and in late 1931 had taken over as its manager. From 1932 on, Warren was to direct the ranch's development according to his own standards. Perhaps a result of his medical background at the University of Virginia, one of the hallmarks of Warren's herd management was the application of modern science and improved veterinary medicine to increase the overall productivity and economic value of his livestock and to maintain the general health of his herds. Warren's purebred registered herds of Belgians and Herefords required selective breeding, the constant maintenance of siring and birth records, and the selective isolation and feeding of bulls and cows,

and stallions and mares. Warren vaccinated his livestock and regularly tested for the presence of diseases such as tuberculosis, cholera, and brucellosis. As a successful breeding program was integral to the bottom line, Warren and his ranch hands also tested cows and mares for pregnancy and assisted where necessary in birthing and early nourishment of calves and foals. Shortly after World War II, Warren became interested in the manipulation and blending of feeds. During this period he conducted several scientific tests by feeding certain cattle on purchased grains and others on range grassland and hay. The results were compared in terms of both cost and end product. Understanding that he could not effectively compete with much larger cattle operations nationwide, Warren eventually joined the corporate ranching system after the dispersal of his Hereford herd in 1958. This was likely a natural move for Warren as the consolidation and streamlining of the nationwide cattle industry utilized many of the same ranching strategies that he did, including improvement of pasture grass and crop yields through irrigation and fertilization, and a greater reliance on grain feed to fatten cattle. Between 1958 and 1963, Warren engaged in the finishing business, fattening commercial feeder cattle. By 1963 he raised yearling steers and three years later was raising cows and calves.

The changes to the Warren Ranch landscape during this period reflect his approach to modern livestock management. The construction of the numerous bull barns and extensive corrals, pens, cow sheds, and feeding troughs are based in the philosophy of modern cattle management and the need to isolate breeding herds that Warren brought to the ranch.

Warren came to ranching in the second quarter of the twentieth century, a time which saw the implementation of a number of federal, state, and local programs that were designed to stimulate agricultural production by educating farmers nationwide on modern principles and practices, and the conservation and improvement of range and pasture soils. Warren took full advantage of these programs, using them to improve the productivity of his grazing and hay lands, to restore productivity in abandoned lands, and to adapt to the rapidly changing requirements of cattle production in the twentieth century. Like many other farmers, Conrad Warren adopted a rigorous schedule of crop rotation to get the most benefit from his fields, planting crops that did well in drought like conditions and ones that were also essential to the survival of his livestock. Because dry cropping was not economically feasible, irrigation played an important role in the ranch's expansion. Warren improved upon the earlier system of irrigation ditches provided by his grandfather. By the late 1930s he had created a new system of contour irrigation ditches on the west side of the Clark Fork River that relied upon intermittent drainages. This system was enhanced with the addition of a water pump in 1940, and subsequent to that, another one in the early 1960s. Warren also reclaimed the once productive bottom lands adjacent to the Clark River polluted by mine waste. During the 1940s he plowed these lands and added compost and other organic additives, slowly reviving his bottom lands. In addition, the second quarter of the twentieth century saw the widespread adoption of mechanization on farms of all sizes. As soon as Warren realized that the era of horse power on American farms had ended, he sold his herd of purebred registered Belgians. Warren immediately recognized the advantages of mechanization and new technology and applied them where appropriate at the Warren Ranch. Warren also took advantage of a U.S. Forest Service policy that allowed ranchers to graze their livestock on federally owned land. Warren applied for and received a U.S.F.S. grazing allotment on the east side. The allotment supplemented his own range and allowed him to increase the limited carrying capacity of his home ranch.

The physical features of the National Register landscape directly reflect the efforts of Warren in implementing his modern ranching practices. He molded the existing ranch infrastructure to his own needs, demolishing irrelevant and deteriorated structures, updating many with more modern facilities, and building new components that greatly enlarged the utilitarian landscape. The form

and materials used in much of the new construction, frame and concrete, directly reflect the business of a modern cattle breeding and selling complex. The changes to the larger landscape of fields and pasture during this period reflect Warren's application of both science and technology in the expansion and reclamation of agricultural fields. Nearly all of the irrigation ditches on the west side that are still in use today date from the late 1930s through the 1940s when Warren redesigned the existing irrigation system to incorporate new grading and contour ditching, while simultaneously increasing the flow of water throughout the system via pumps. Between the late 1930s and the mid-1950s, Warren also dramatically increased the acreage of irrigated fields and pasture. The productivity of the extensive fields and meadows lining the Clark Fork River now used for grazing and cultivation are a direct result of Warren's efforts at reclamation during the mid-twentieth century.

Due to an increasing bank debt, Warren made the decision to disperse his registered Hereford herd at auction in 1958. After the dispersal auction, Warren subsequently entered the business of feeding and selling (finishing via feedlot) commercial Herefords (feeder cattle) to stockyards, ultimately managing a herd of about 350. By mid-century, as large corporate feed lots began to dominate the cattle business, Con Warren continued to adapt to the times. In 1963, Warren sold his small herd of commercial feeder cattle and entered the yearling steer business. He continued raising yearling steers until 1966 when he shifted to raising cows and calves. Small ranching operations like the Warren Hereford Ranch could not meet the economies of scale demonstrated by corporate feed lots. Ultimately in 1982, Warren sold his remaining stock and ranching equipment and ceased active ranching.

The Warren Ranch is recommended as significant at a national level because it represents the modernization of cattle ranching and the growth of corporate feed lot ranching during the second and third quarters of the twentieth century, periods when sweeping changes dramatically impacted the cattle industry. In order for the Grant-Kohrs Ranch/Warren Ranch to be evaluated as nationally significant, the Keeper of the National Register and NPS National Historic Landmark staff have determined that such a finding would require a national theme study of twentieth-century cattle ranches. This theme study would evaluate the Grant-Kohrs Ranch/Warren Ranch within the broader national context of ranching and agricultural activities in the West, and would need to evaluate the Grant-Kohrs Ranch/Warren Ranch in terms of its significance and physical integrity, as compared to all other historic twentieth century cattle ranches. This process is identical to the theme study that resulted in the designation of Grant-Kohrs Ranch as a National Historic Landmark (for its associations with the open range era of cattle ranching) in 1960. The authors of this Cultural Landscape Report recommend that such a twentieth-century ranching theme study be completed, and believe that it may result in a recommendation of national significance for the Conrad Warren-era resources at the ranch.

Many of the challenges that Warren faced between 1929 and 1982 were identical to those faced by the ranching industry in the larger Northwest: the Great Depression, the region wide drought in the 1930s, the need for scientific management and monitoring of livestock, price caps for beef during the war years, and the influence of increasingly dominant corporate economies of scale. In this sense, the Warren Ranch and the physical features that compose the cultural landscape today are representative of the cattle ranching industry of the greater northwest. Like his grandfather, Warren too met these challenges and ultimately persevered, placing his own personal stamp on the ranching business. Warren's choice to use modern veterinary science to advance his ranching interests, to take advantage of state and federal programs that enabled him to expand his cultivated fields and pasture, and his ability to adapt to and succeed in an increasingly streamlined birth-to-market cattle industry make the Warren Ranch a nationally significant property.

Criterion B: Association with an Important Individual

The existing National Register documentation did not find that the Grant-Kohrs Ranch / Warren Ranch historic district possessed significance according to Criterion B. We believe that the Grant-Kohrs Ranch National Historic Site possesses significance at both a state and national level for its association with three important individuals significant to the cattle ranching industry. The significance of these individuals are summarized below.

Johnny Grant

Even though the Grant-Kohrs Ranch is designated as a NHL under Criterion 1, and listed on the National Register under Criteria A and C, the authors recommend that the site be further evaluated for significance at a state level for its association with the life of Johnny Grant. Like his father, Johnny Grant originally profited from trading fattened and rested cattle with emigrants traveling the Oregon Trail for their worn out livestock. Johnny Grant first came to the Deer Lodge Valley in 1857 when he wintered his growing herd of horses and cattle there. He eventually settled in the Deer Lodge Valley permanently in 1859 at the confluence of the Little Blackfoot Creek and the Deer Lodge River, only twelve miles north of the Grant-Kohrs Ranch NHS. After encouraging other trappers to settle in the Deer Lodge Valley, Grant eventually moved closer to the small but growing community called Cottonwood. In 1862, Johnny Grant formally established his ranch at Cottonwood with the construction of a Greek Revival style vernacular ranch house, surrounded by a cluster of agricultural outbuildings and livestock facilities. Grant's wealth enabled him to construct a ranch house acknowledged by many as one of the finest in the territory.

Johnny Grant must be considered a pioneer in many respects. He was the first European to graze his cattle on the luxuriant bunch grass present in the Deer Lodge Valley. He was also the first European to permanently settle in the Deer Lodge Valley. Circa 1859-1860, Grant became the first Montanan to drive a portion of his cattle herd westward for sale in a distant market. During the early 1860s, he had a strong relationship and carried on an extensive trade with a number of regional Indian tribes. With the advent of the gold rush circa 1862 in the Montana Territory, Grant supplemented his trading with extensive beef sales to local mining communities. Grant eventually sold his ranch to Conrad Kohrs and left the Deer Lodge Valley in 1866.

Conrad Kohrs

Even though the Grant-Kohrs Ranch is designated as a NHL under Criterion 1, and listed on the National Register under Criteria A and C, the authors recommend that the site be further evaluated for significance at a national level for its association with the life of Conrad Kohrs. Conrad Kohrs arrived in Montana in 1862 but only four years later could make the claim of being one of the largest cattle ranchers in the Territory. Kohrs' business prowess was a positive influence on cattle ranching in Montana and the larger northern plains during the late nineteenth and early twentieth centuries. Through his constant pursuit of breeding sturdier, more marketable cattle, Kohrs provided guidance to regional ranchers and actively shaped the direction of herd improvement and breed development throughout the larger region. Conrad Kohrs was also actively involved in the organization and supervision of the Montana Stockgrowers Association, established in 1884. The Montana Stockgrowers Association served to advance the interests of all Montana cattlemen at the state and federal levels and also provided information on day-to-day herd management problems such as disease prevention and minimizing losses on the Open Range. Kohrs was also a member of the first Montana Congress in 1884. This Congress was given the label 'Cowboy Congress' because of the number of representatives who were ranchers. With the increased numbers of Texas cattle arriving on Montana's Open Range throughout the 1880s Conrad Kohrs, like a number of other regional ranchers, became concerned about the

preservation of the grasslands and discussed ways in which the valuable pasturage could be conserved. While Kohrs cattle operation was centered in the Deer Lodge Valley, he was always knowledgeable of ranching beyond western Montana. Kohrs frequently purchased large herds of cattle from Texas, Idaho and other nationwide cattle centers to provide new genetic stock for his own herds. He also grazed his large herds in four states and Canada where the Open Range promised better opportunities. In addition, Kohrs took advantage of late nineteenth century rail access and was one of the first to ship his cattle directly to the Midwest, establishing a long-term and lucrative business relationship with the Chicago stockyards.

As a leader in the development and direction of the late nineteenth century ranching industry at both the regional and national levels, Kohrs should be recognized as a significant individual to the cattle ranching industry.

Conrad Warren

Even though the Grant-Kohrs Ranch/Warren Ranch is listed on the National Register under Criteria A and C, the authors recommend that the site be further evaluated for significance at a national level for its association with the life of Conrad Warren. Warren began working at his grandfather's ranch as a ranch hand in the mid-1920s, but by 1932 was in charge of its day to day operations. His impact was immediately felt as he actively began to acquire new lands adjacent to the ranch to support additional crop and pasture land. Inefficient or old ranching facilities were torn down and new ones erected.

Between 1932 and 1934, a new ranching cluster consisting of stock shelters, feeders and corrals was constructed adjacent to slough bridge, extending the ranching operations westward. By the early 1950s, Warren moved his purebred Hereford ranching operation east of the railroad tracks to higher ground. During this period he built modern cattle management facilities including cattle sheds, feed racks, corrals, and a new cattle barn and sales barn that facilitated his purebred Hereford operation.

Warren initiated the artificial insemination breeding of Belgian horses in the early 1930s. His successful efforts to breed and sell registered Belgian horses introduced this breed to Montana and the larger northwest, and from a strictly financial perspective carried him through the Depression. Ever adaptable, when Warren realized that tractors had come to dominate farming, Warren sold the majority of his Belgian herd, keeping only a few to work his own land. From a small remnant herd of Hereford and Shorthorn cattle, Warren also built up a purebred registered Hereford cattle herd during the fourth and fifth decades of the twentieth century. As a result, he became a major regional supplier of bulls and heifers. Warren was particularly important to ranching in Montana and the larger northwest because he adopted modern, scientific livestock management techniques. On a daily basis he closely monitored the feeding, general care and health of his purebred livestock, and also kept detailed records of siring and birth, practiced artificial insemination, and regularly inoculated his animals against the major health risks of the period including Black Leg and Bang's disease.

Beginning the late 1930s, Warren began to re-engineer land he had acquired on the West Side so that it could be irrigated through the pump and ditch system. In the process he graded and contoured the land and created lateral or contour ditches. Irrigation allowed him to increase crop fields and pasturage. Warren planted many of the West Side fields in grain. After his purchase of the Kohrs Ranch in 1940, Warren began a program of range and pasture improvements initiated by the federal Agricultural Conservation Program. At the Warren Hereford Ranch he reclaimed fields adjacent to the Clark Fork River by implementing soil conservation practices, adding

fertilizers, and planting cover crops. Lastly, by 1954 Warren also initiated a handline irrigation system to reclaim land adjacent to the railroad tracks.

After the sale of his purebred herd in 1958, Warren entered the stockyard system, providing fattened commercial livestock to larger corporate entities. Throughout the 1960s, Warren continued to raise both yearlings, and later cows and calves on his ranch. He ceased active ranching in 1982.

Over the course of his career as a Deer Lodge Valley rancher, Conrad Warren accomplishments proved that he was adaptable to changing conditions and readily adopted new techniques and practices that would advance his interests. Warren also actively promoted the interests of others providing veterinary services to local ranchers, serving as president of the Montana Stock Growers Association, serving on the State Sanitary Board, registering auction yards and brand inspectors, and ensuring Indian registration of brands.

Criterion C: Embodies the Distinctive Characteristics of a Type, Period, or Method of Construction, or Represents the Work of a Master.

In order for the Grant-Kohrs Ranch/Warren Ranch to be evaluated as a nationally significant, the keeper of the National Register and the National Park Service National Historic Landmark staff have determined that such a finding would require a national theme study of twentieth century cattle ranches. This theme study would evaluate the Grant-Kohrs Ranch/Warren Ranch within the broader national context of ranching and agricultural activities in the West, and would need to evaluate the Grant-Kohrs Ranch/Warren Ranch in terms of its significance and physical integrity, as compared to all other historic twentieth-century cattle ranches. This process is identical to the theme study that resulted in the designation of Grant-Kohrs Ranch as a National Historic Landmark (for its associations with the open range era of cattle ranching) in 1960. The authors of this Cultural Landscape Report recommend that such a twentieth-century ranching theme study be completed, and believe that it may result in a recommendation of national significance for the Conrad Warren era resources at the ranch. Two significant landscape types, residential and rural vernacular, are summarized below.

The Grant - Kohrs residential landscape

The Grant-Kohrs residential landscape possesses significance at a national level for because it embodies the distinctive characteristics of a type and period of construction. In 1862, Johnny Grant built two small log structures adjacent to one another just north of the town of Cottonwood. During the same year, the structures were described as being “a good sized log House, or rather two joined together.” At the end of 1862, he contracted with two workmen, Alexander Pambrun and McLeod, to have a more formal Greek Revival Style ranch house constructed on the same site. In 1865, the *Montana Post* described the grand residence as “by long odds, the finest in Montana ...large and two-storied ...as if it had been lifted by the chimneys from the bank of the Saint Lawrence and dropped down in Deer Lodge Valley. It has twenty-eight windows, with green painted shutters, and looks very pretty.” The ranch house was a log house, thirty by sixty-four feet in dimension. “The building is of poteaux en coulisse construction, a French phrase for a system of log construction that includes other terms such as ‘Red River Frame,’ piece-sur-piece, or mortise and tenon log construction. It is also sometimes known as ‘Hudson’s Bay Frame’ construction. ...In the case of the Grant residence, the uprights were set on a sill plate and infilled with horizontal log mortise and tenoned into the uprights; the wall was then capped with a header

or top plate.”³ Conrad Kohrs purchased the Grant ranch in 1866. By 1890, several new additions complimented the original historic core including a formal front entry, four vestibules, and a two-story brick Victorian addition with full basement. By 1907 at the latest, a conservatory addition for Augusta Kohrs was added on the south side. The 1890 Kohrs brick addition is set on a rough dressed stone foundation with mortar infill. The ranch house appears today much as it did in 1890.

Between 1880 and 1890, the landscape surrounding the ranch house was further developed. By 1880 a formal grid-like pattern of cottonwood trees had been planted on the eastern or front side of the house. Late nineteenth century photographs document that the trunks of these trees were eventually painted white for pest control. Underlying the trees was an expanse of grass. The trees and grass received the benefit of a wooden flume irrigation system in the early 1880s that drew from Johnson Creek and emptied into a submerged wooden barrel. In addition a small informal flower garden with stone retaining wall had been established on the south side of the ranch house. Access to the garden was from the east. By the mid-1880s, a white picket fence surrounded the eastern, southern and part of the northern sides of the ranch house, formally demarcating the domestic area from the more utilitarian ranch. Two hitching posts and carriage steps were also added sometime during this period.

At the time of its construction in 1862, the ranch house was indeed an atypical structure for western Montana and was perhaps indeed was the largest and the ‘finest’ in the Montana Territory. While fairly typical in layout, the clapboard veneer painted trim ordered by Grant differed from other log structures both within and beyond Deer Lodge and established that the owner possessed somewhat more refined tastes in architecture. The creation of a more formal landscape surrounding the ranch house by Conrad and Augusta in the 1880s, and the subsequent structural enhancements and brick addition in 1890 transformed the residence into a beautiful example of Victorian refinement.

For the majority of its tenure, the ranch house not only served as a primary residence for Conrad and Augusta, but also served as the ranch’s main office where the business of ranching took place. John Bielenberg was also a resident of the house and a partner in the ranching operation. In this sense, the ranch house was also significant as a base of operations for one of the largest cattle ranching operations in nineteenth century Montana.

The Warren residential landscape

The Warren residential landscape possesses significance at a state level because it embodies the distinctive characteristics of a type and period of construction. With funds provided by his grandmother, Augusta Kohrs, Conrad and Nellie Warren constructed a new frame and stucco ‘cottage’ and adjacent garage on property due east of the ranch house in 1934. The design for the cottage was produced by New York architect Lewis E. Welsh and was published in a 1933 *Woman’s Home Companion* article. The one and a half story structure was an example of a colonial style rural ranch home designed in response to Progressive Era reform and the Domestic Economy movement of the early 20th century. The residence and detached garage, as defined by Welsh, combined the conveniences and necessities of city living in a country home. The Warren residence was enlarged and expanded in 1941 when the roof was raised to create a full second story and a porch on the east side was enclosed and expanded. In 1947, an article in the *Westerner* described the Warren residence as a “modern ranch home.”⁴

³ National Park Service, “National Register of Historic Places Registration Form, Grant-Kohrs Ranch / Warren Ranch,” 7-17.

⁴ Cultural Resources and National Register Program Services, “Conrad and Nellie Warren Residence, Historic Structure Report, Grant-Kohrs Ranch NHS,” (Santa Fe: Intermountain Support Office, 2001), 5.

Shortly after its construction, Con and Nellie Warren began work on the landscape surrounding the new residence. A white picket fence enclosed the immediate yard area on all sides. Nellie added a garden on the west side, and in 1940 a chicken coop was constructed outside of the picket fence, immediately west of the residence. It was not until 1950 that Con also constructed a boat house southwest of the residence. Simultaneous with the construction of the residence, a well was also dug. The well provided water to the house but also irrigated the garden and surrounding vegetation including assorted native and non-native trees, and an expanse of grass. The resultant lush green space created a sheltered and comforting oasis within the larger arid ranch environment. A frame pump house was subsequently built over the well in 1952 and a barbecue pit graced the eastern side of the fenced enclosure by 1958.

The Warren residence is an example of a first quarter of the twentieth century progressive movement that placed a greater emphasis on convenience, health and comfort in the home. The residence appealed to both Con and Nellie. The house exterior possessed simple colonial style lines, however, the interior was designed with modern conveniences including electricity, plumbing and heating and had craftsman-like features such as exposed beams in the ceiling. As reported in 1934, the 'modern improvements' contained in the house would have fit in with the progressive social norms for modernization sweeping rural America.⁵

The Grant-Kohrs Ranch rural vernacular landscape

The Grant-Kohrs Ranch vernacular landscape possesses significance at a state and national level because it embodies the distinctive characteristics of a type and period of construction. The rural vernacular landscape of the 1870s Grant-Kohrs Ranch was designed upon the needs of the ranching industry. Because the Open Range was still a viable if not diminishing option that was utilized by many ranchers through the late nineteenth century; the home ranch's own development was comparatively limited during the 1860s and 1870s. The ranch house and surrounding domestic landscape was clearly separated from the surrounding ranching complex. A few large irrigation ditches watered pastures for grazing--and later haying--on the floodplain lowlands; jack-leg fencing utilizing the plentiful lodge pole pine was erected throughout the ranch to keep cattle in or out of fields, pastures, and other areas; and a limited number of stock shelters, barns, corrals and other livestock support structures were built out of local materials, utilizing log, post and pole, or frame construction, west and north the ranch house. As the loss of a viable Open Range transformed ranching during the last decade and a half of the nineteenth and first two decades of the twentieth century, the development of the home ranch changed in response. From the 1880s onwards, Kohrs and Bielenberg began to place a greater emphasis on growing more hay and other grains and/or purchasing what they needed for winter feed. This directly translated into a greater dependence on irrigated lands and an increase in the amount of cultivated fields and irrigated pasture. By the 1890s and through the first two decades of the twentieth century, the home ranch grew in size as adjacent lands were purchased. Likewise, the quantity of fenced land grew and the type of fencing changed. By 1904, the entire Grant-Kohrs Ranch had been fenced with barbed wire. By the turn of the nineteenth century new structures that represented the changing ranching practices, including granaries, feed racks and cow sheds, began to be constructed with greater frequency at the home ranch.

While Conrad Warren clearly developed and expanded upon the Grant-Kohrs Ranch vernacular landscape, much of the original late nineteenth century spatial relations including the system of irrigation ditches, fields, pastures, building clusters, pedestrian and vehicular circulation routes, and viewsheds remain the same.

⁵ Cultural Resources and National Register Program Services, "Conrad and Nellie Warren Residence, Historic Structure Report, Grant-Kohrs Ranch NHS," 2.

The Warren Hereford Ranch rural vernacular landscape

Even though the Warren Hereford Ranch is listed on the National Register under Criterion C, the authors recommend that its vernacular landscape be further evaluated for significance at a national level. The success of Conrad Warren's ranching tenure was dependent upon his ability to improve the existing facilities of the home ranch and adapt them to changing socio-economic conditions, expand the amount of pasture and crop land he had access to, and overhaul the aging irrigation system. The built environment of the larger cultural landscape, including the vernacularly designed and constructed barns, sheds, feeding houses and troughs, fences, corrals, and circulation and irrigation systems reflect the modern ranching practices adopted by Warren in style, materials, spatial organization, and function. Between 1932 and 1958, Conrad Warren's ranching operations focused nearly exclusively on the home ranch and the management of purebred and registered Hereford and Belgian herds. Because of this, Warren required a larger, more complex system of livestock shelters, feed lots, corrals, and circulation and irrigation systems than his grandfather. The adaptations he made to pre-existing buildings, structures and other landscape features and the extensive new construction carried out during his tenure directly reflected the needs of a mid-twentieth century modern cattle raising and sales operation. Warren utilized the existing building clusters and spatial relationships established in the previous century, but also expanded upon them establishing new circulation routes and building new ranching clusters. Many of Warren's physical improvements utilized modern technology and materials such as concrete, metal, and powerful water pumps--items previously unavailable to a former generation of cattle ranchers. The circulation systems and field patterns in the West Side and along the Clark River bottomlands developed by Warren during the 1930s through 1950s also reflect a renewed emphasis upon the expansion of irrigated acreage and increased production of feed crops and native hay through the efficient re-engineering of an outdated irrigation system and the reclamation and reuse of abandoned and poisoned fields and pastures. The current productivity of these areas must be credited directly to the developments initiated by Con Warren during this period.

Periods of Significance

According to the *National Register Bulletin: How to Prepare National Historic Landmark Nominations*, a period of national significance is defined as “the length of time when a property was associated with nationally significant events, activities, and persons, or attained the national characteristics which qualify it for designation as a NHL.”⁶

National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes offers further guidance:

“Period of significance is the span of time when a property was associated with important events, activities, persons, cultural groups, and land uses, or when it attained important physical qualities or characteristics.

The period of significance begins with the date of the earliest land use or activity that has importance and is reflected by historic characteristics tangible today. The period closes with the date when the events, activities, and construction having historic importance ended. Properties that have evolved and achieved importance during separate periods, some spanning several hundred years, should be given several periods of significance.”⁷

Based on an evaluation of the CLR’s physical history and historic context, the authors recommend a period of significance of between 1862 and 1982 for the Grant-Kohrs Ranch National Historic Site. The 1862-1982 period of significance includes two sub-periods. The first period of significance, as identified in the National Historic Landmark Boundary Study, begins with the establishment of the Johnny Grant ranch in 1862 and ends with the dissolution of Kohrs and Bielenberg cattle empire in 1919. The second period of significance, as identified in the National Register documentation, begins with Conrad Warren’s arrival at the Kohrs Ranch in 1929 and ends with his retirement from active ranching in 1982. This end date of the period of significance extends the end date of the period identified in the National Register documentation (1958) to include the ranching adaptations that Warren made to adjust to economic conditions until his retirement in 1982. These ranching adaptations made by Warren, and the physical features of the Warren Ranch cultural landscape that supported them, are characteristic of small rancher responses to increased corporate control and the implementation of the feedlot system nationwide. During a period of sweeping change in the ranching industry in the greater northwest, the actions of Conrad Warren and the physical features of the Warren Ranch cultural landscape are representative of the larger region and nationwide context of ranching during the mid-twentieth century.

Criteria Consideration G

Because a limited number of contributing resources within the Grant-Kohrs Ranch/Warren Ranch Historic District have achieved significance within the last fifty years, it is our opinion that the standards of Criterion Consideration G need not be met. Criterion Consideration G states that a

⁶ Patty Henry, et al., *National Register Bulletin: How to Prepare National Historic Landmark Nominations* [online document]. Washington, D.C. (US Department of the Interior, National Park Service, 1999) (Accessed March 31, 2003). Available: <http://www.cr.nps.gov/nr/publications/bulletins/nhl/>.

⁷ Linda Flint McClelland, et. al., *National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes*. [online document] (U.S. Department of the Interior, National Park Service, 1999) (Accessed March 31, 2003). Available: <http://www.cr.nps.gov/nr/publications/bulletins/nrb30/>.

property achieving significance within the last fifty years is eligible only if it is of exceptional importance. As defined in the National Register Bulletin 'How to Apply the National Register Criteria for Evaluation,' a property does not need to meet Criteria Consideration G if:

A historic district in which a few properties are newer than fifty-years old, but the majority of properties and the most important Period of Significance are greater than fifty-years old.

Comparative Analysis of Historic and Existing Conditions by Landscape Characteristics

Introduction

In order to better understand the relationship between the existing Grant-Kohrs Ranch NHS landscape and its character during its periods of significance, this chapter includes a comparative analysis of historic and existing conditions. The focus of this section is on identifying the broad patterns and specific features associated with the historic periods, and assessing to what degree they survive today.

Based upon guidance provided in National Register Bulletin 30, *Guidelines for Evaluating and Documenting Rural Historic Landscapes*: “Buildings, structures, objects, and sites are classified as contributing or noncontributing based on their historic integrity and association with a period and area of significance. Those not present during the historic period, not part of the property's documented significance, or no longer reflecting their historic character are noncontributing.⁸ It is important to note that although National Register criteria are generally not applied to landscape features or characteristics, this report considers these features in order to assess the holistic integrity of the landscape and the larger natural and cultural context within which the buildings, structures, objects, and sites reside. As such, there are some identifications of contributing features that are not presently documented as contributing within the National Register or National Historic Landmark nominations. These designations should be considered recommendations.

For the purposes of this report and in association with the scope of work and guidance offered in the NPS Guide to Cultural Landscape Reports: Contents, Process and Techniques (1998), landscape features have been evaluated to determine whether they are:

- Contributing features (C)
- Noncontributing features (NC)
- Supporting features (S)
- Features missing from the periods of significance (M)
- Features whose period of origin could not be determined (ND)

Contributing features are those landscape elements that have been shown to survive from the period of significance, in this case the 1862-1919 Grant-Kohrs Ranch operations, and the 1929-1982 Warren Hereford Ranch operations, and that retain sufficient integrity to represent their historic appearance and function at that time, and which convey the character of the landscape during the period of significance. Noncontributing features are those landscape elements that have become part of the landscape since the periods of significance, or are features surviving from the periods of significance that no longer possess integrity. Supporting features are those resources that post-date the period of significance, but support the historic character because they have been constructed with the same or similar design intent as those features dating from the period of significance. Missing features are those elements of the landscape that existed during the periods of significance but have since been lost or destroyed, or that are no longer recognizable in their current form. Those features whose period of origin could not be

⁸ McClelland, Linda Flint, et. al., National Register Bulletin 30, “How to Apply the National Register Criteria for Evaluation.”

determined are identified as such. Readers should refer to the inventory tables found at the end of this chapter for a summary list of contributing, noncontributing, supporting, missing, and unidentified features.

Natural Systems

At a large scale, the general location and character of major natural systems, such as the Clark Fork River, Cottonwood Creek, Johnson Creek, Taylor Creek, and other creeks, gulches, springs, and sloughs appear much the same as they were at during both periods of significance and are considered contributing features. While the alignment of the Clark Fork River has shifted slightly over time, due to the inherently dynamic nature of this hydrologic feature, as well as accelerated bank erosion and channel migration due to heavy metal contamination, the river has remained in its floodplain throughout the ranch's history.

The most significant difference in the river's channel alignment is the area directly to the north of the Clark Fork River Bridge. In an 1869 survey of this area, the river is depicted as two distinct channels, one on either side of the river's floodplain. These channels came together over time, sometime before 1947. Small sloughs remain in the floodplain that likely depict the historic location of the forked riverbed. The channel of Cottonwood Creek has also appeared to shift approximately 1000' further to the north since the 1869 survey. It is not known if this is the result of natural processes, urbanization, or inaccurate mapping.

Other changes to the floodplain are the result of the large sewage treatment pond that was constructed in 1958-1960 after this land was purchased by the City of Deer Lodge. This feature does not contribute to the historic significance of the landscape. Around 1982 this treatment pond was replaced by four smaller cells further to the north. These latter features are also considered noncontributing.

At a large scale, topography within the Grant-Kohrs Ranch NHS also remains much the same as it was during both periods of significance and serves as a character defining feature for the NHS. The 1869 survey depicts the western foothills as well as the benches which delineate the upland and lowland areas. This topography played a significant role in influencing land use and settlement on the ranch. Smaller scale topographical changes were made to the western hayfields during the 1930s when Con Warren regraded the land to improve contour irrigation in this area. While these changes do not contribute to the Grant-Kohrs period of 1862-1919, they do contribute to the Warren-Hereford Ranch period of 1929-1982.

Topographical changes brought on by the construction of the railroad, such as grading of the railroad beds and excavation of the barrow pits also altered the landscape. As these changes occurred before 1919 and influenced the development of the ranch, they contribute to both periods. The wetlands that are found there also contribute to the historic significance of the site.

Soils throughout most of the ranch have remained essentially the same throughout both periods of significance. Exceptions to this are the heavy metal deposits along the Clark Fork floodplain and the historically-irrigated fields and ditch system, which have changed the composition of soils in this area. These changes are considered noncontributing.

Although beaver are considered pests and negatively impact ranching operations, they are believed to have been present throughout the ranch's history. As J.H. Gerhmann reflects back to 1904, "Now back in here around these creeks, or in the creek, there was a beaver dam. And we

had to go back there every so often and break it up. Otherwise, it would flood these fields.”⁹ In general, evidence of beaver inhabitation contributes to the historic significance of both periods, as does beaver trapping and control.

Vegetation

At a park-wide scale, the natural vegetation found within the Grant-Kohrs Ranch NHS generally reflects the patterns of vegetation found during both historic periods. The riparian zone along the Clark Fork River and other natural waterbodies are more heavily vegetated than the rest of the ranch, and contain native shrubs, trees, and grasses that would have been present during the ranch's early development. Drier upland areas are devoid of shrubs and trees, and contain only grasses. However, species composition of these areas has changed over time as land has been placed in cultivation, heavy metals have been introduced to the floodplain, and non-native plants have out-competed native species.

References dating to the early and mid-19th century note that riparian areas were vegetated with willow, aspen, birch, alder, and wild rye grasses, as well as occasional clusters of currant and gooseberry bushes.¹⁰ Assuming that cottonwoods may have been identified as aspen (which shares the same genus), all these species (except wildrye grass) were present within the riparian zone during the 2002 Rice/Hardin inventory. Geyer willow, sandbar willow, water birch, black cottonwood, and gray alder, as well as Canadian gooseberry and golden currant, are noted within the plant species inventory. All these species are native to the region.¹¹ However, the native plant communities associated with these species no longer comprise the majority of the riparian woodland.

A great deal of research has been conducted in order to gain a better understanding of what type of vegetation may have been present within the riparian zone before toxic metal contamination began in 1884. In a 2002 study conducted by Peter Rice, desirable vegetation was identified for future restoration efforts within the Clark Fork River riparian area. Desirable vegetation is considered to be the baseline native plant species and plant communities that would be present under natural conditions, absent of toxic metal contamination. Based on the information provided in this study, it was found that there are 17 plant communities that comprise the baseline composition goals. When compared to current conditions, it was found that these desirable communities account for only 40.1% of the riparian zone, and that the majority of the riparian area is not occupied by plant communities that are considered desirable.¹² Exotic grass communities, such as those defined by smooth brome and redtop bentgrass, constitute a significant percentage of the non-native/undesirable vegetation. These exotics are also prominent along riparian zones of the smaller creeks and tributaries.

Although these exotic species were present within the riparian zone during the 1984 Rice/Ray study, and it can be assumed that these species have been present within the riparian zone for several decades as smooth brome was seeded-in by Warren in the 1950s, these non-native species are considered noncontributing resources. Preservation guidance provided in the NPS Research/Resources Management Report SER-82, states that “natural resources in historic districts should be preserved in their pristine condition. No attempt should be made to replicate

⁹ Eckberg, 4.

¹⁰ Eckberg, 4.

¹¹ Rice and Hardin, 2002.

¹² Peter Rice, “Baseline Vegetation Types & Restoration Goals for Grant-Kohrs Ranch” (Missoula: University of Montana, March 2002). Refer to this study for specific inventories of desirable native plant communities and species, and study methodology.

the chance, usually destructive impacts of man's historical presence.”¹³ Based upon this guidance, non-native species found in natural plant communities that were present, but not intentionally introduced during the historic period, do not contribute to the historic significance of the site.

In contrast to the riparian woodland, the low-lying areas along the river have been deliberately altered by cultivation of grains and hay. References indicate that as early as 1863, Grant was cultivating “a couple of acres of oats” on his ranch. When Grant sold the ranch to Kohrs, he was harvesting hay from wild hay meadows along the riparian area, as well as using it as natural pasture for livestock.¹⁴ In 1868 Conrad Kohrs was also raising hay in the bottomland area between the ranch home and the river, and plowing the adjoining benchland for grain.¹⁵ It can be assumed that these plowed upland areas containing grain existed along creeks and tributaries.¹⁶ Following the winter of 1872-1873, Kohrs also planted excelsior oats to stock more winter feed for the cattle.

In the 1890s and early 1900s, Kohrs was cultivating non-native hay crops, including timothy, red clover, wheat, alfalfa, and potatoes, as well as oats. Except for timothy, red clover, and alfalfa, which are still present in the hay fields and contribute to the Grant-Kohrs period, the remainder of these crops are no longer cultivated on the ranch.

When Con Warren took over the ranch, he increased the diversity of these crops. Throughout the 1930s and 1940s he cultivated potatoes, barley, peas, oats, wheat, mangels, alfalfa, and intermediate wheatgrass, in addition to native hay, timothy, and clover. In the early 1950s he reseeded his pastures with alsike clover, alfalfa, brome grass, timothy, meadow fescue, ladino clover, orchard grass, and strawberry clover. By the late 1950s, however, Warren abandoned the cultivation of grains, and hay became the predominant crop cultivated in the fields. This remains the case today.

In the 1984 Rice/Ray study, smooth brome, meadow foxtail, redtop bentgrass, Kentucky bluegrass, and white clover were the primary species observed in the hayfields. It is highly likely that these species were present at the end of the period of significance. As all these species are still cultivated in the irrigated hayfields, they contribute to the Warren period of significance. Timothy, red clover, and intermediate wheatgrass, which are also predominant species found in the pasture/hay fields are also considered contributing features as they were cultivated during the period of significance. Non-native species, such as Canadian thistle have also been found in these areas. As this species was not intentionally planted, it is considered noncontributing.

Dry upland grass species in the upland pasture area have changed slightly from the time Johnny Grant first began ranching the land and therefore contribute to the historical significance of the site. Con Kohrs commented that when he first saw Deer Lodge Valley, bunchgrass was abundant throughout the upland area.¹⁷ Since much of the upland pasture area has been primarily used for

¹³ Ian Firth, “Research/Resources Management Report SER-82, Biotic Cultural Resources: Management Considerations for Historic Districts in the National Park System, Southeast Region” (Atlanta: National Park Service, Southeast Region, 1985), 4.

¹⁴ Anonymous, Residence of John F. Grant, purchased by Hon. Conrad Kohrs in 1866, Taken in 1866, Grant-Kohrs Ranch National Historic Site archives, Accession no. GRKO 6269; Eckberg, 2.

¹⁵ Eckberg, 2.

¹⁶ Eckberg, 3, “...that which is most convenient for irrigation is taken up...and very much of it is under fence. The most beautiful and productive of the ranches for grain are those which lie in the recesses of the hills along up the valley where little side streams come down from the mountains, and viewed from the opposite side look like emerald gems set in the niches of the hills,” quoted from Stuart, Granville, *The New North-West*, 6/1/1872.

¹⁷ Eckberg, 1-2.

grazing, it retains much of the character of natural grassland communities (comprised of native bluebunch wheatgrass (*Agropyro spicatum*), western wheatgrass (*Agropyron smithii*), and Sandberg's bluegrass (*Poa secunda*) communities).¹⁸ A few non-native and invasive species are also found in this area, including the spotted knapweed (*Centaurea biebersteinii*), smooth brome, and intermediate wheatgrass (*Agropyron intermedium*).¹⁹ The latter two species were seeded in the hay fields by Warren and have likely spread to the dry ranges. As the exotic species found within the dry ranges are not believed to have been intentionally planted, they are considered noncontributing features.

Vegetation surrounding the Warren residential complex has changed since Con Warren retired from ranching in 1982. Based upon research and analysis of historic aerial photos, the cottonwoods that historically lined the entry lane were removed sometime between 1983 and 1990. These trees are considered missing features. In 1994 an inventory of vegetation within and around the fenced lawn area documented several more trees and shrubs, particularly around the foundation of the house. Assuming that these plants (and several documented stumps) would have existed in 1982, the following vegetation is missing from the Warren period: additional spruce trees, cottonwood trees, Siberian peas, ponderosa pine, juniper shrub, weeping birch, lilac shrubs, currants, mountain alder, maple, lodgepole pine, bishop's weed, clematis, and peonies. Also missing is the small flower and vegetable garden that was located somewhere to the west of the house. The vegetation that remains on the site contributes to the period of significance.

Based upon research conducted for the Cultural Landscape Inventory (CLI), the primary vegetation features within the Grant-Kohrs Residence landscape include a formal arrangement of cottonwood trees, specimen tree and shrubs, turf grass and ornamental garden plantings. These plantings have evolved over the years. Due to NPS preservation and restoration efforts there are many contributing and supporting features within this landscape.

Although none of the original black cottonwoods (*Populus trichocarpa*) found in the front lawn of the ranch home survive from the period of significance, the NPS planted the same species of trees in the historic grid pattern (approximately 15 feet on center) to reflect the original pattern that dates back to the 1870's. A single row of trees edges each side of the walkway and side yard. A double row edges the front. Three green ash (*Fraxinus pennsylvanica*) were also planted just east of the fence, as part of the 2002-2003 restoration efforts.²⁰ These trees support the historic significance of the landscape.

In addition to the geometric patterning of cottonwoods in the front lawn, plantings of specimen tree and shrub species were interspersed throughout the Ranch House landscape during the period of significance. Stumps of honeysuckle (*Lonicera spp.*), reportedly planted during the Grant years, as well as a weeping birch stump (*Betula pendula*) in the northeast corner of the property offer clues as to the types of ornamental vegetation cultivated.²¹

Two specimen trees of note include the large black willow (*Salix scoulerana*) and a blue spruce (*Picea pungens*) north of the main house. The willow was planted by Conrad Warren for his grandmother, Augusta Kohrs, in 1935. The spruce tree was reportedly planted by John

¹⁸ Rice and Hardin, 2002.

¹⁹ Janet Hardin, "Plant Species & Locations, GRKO Database, Westside Ranges" (Missoula: University of Montana, Division of Biological Sciences, June 3, 2003).

²⁰ Shapins 2003, 33.

²¹ Shapins 2003, 33.

Bielenberg, who “dug it up and brought it back from afar in the “California cart.”²² Both these trees contribute to the historic significance of the landscape.

The cluster of junipers (*Juniperus occidentalis*) in the southeastern corner of the property are considered contributing features because they historically framed a path leading from the lawn to the planting beds within the lower garden.²³ The double row of lilacs and other specimen plantings contained within the lower garden also date from the period of significance and are considered contributing features. The barberry shrubs flanking the steps leading to the lower garden were planted in 1934 by Con Warren. These plants are also considered contributing features.

Although a variety of flowers and vegetables were grown within the lower garden, it is not known if all of the species currently represented there contribute to the historic significance of the landscape. Those that have been documented as being cultivated by Augusta Kohrs during the period of significance, and which are currently found in the garden, include peonies, sweet peas, monkshood, daffodils, hyacinths, tulips, crocuses, and roses.²⁴ As these plants are known to date to the historic period, they are considered contributing features. Some ornamental plants, such as Granny's Bonnet (*Aquilegia*), Johnny Jump Ups (*Viola tricolor*), Heart's Ease (*Viola x wittrockiana*), and several varieties of roses are known to be missing, as are the vegetables that were planted west of the sweet pea trellis.²⁵ Other plants currently found in the garden have an undetermined association.

Spatial Organization

The spatial organization of the landscape has evolved substantially since the ranch was first settled by Johnny Grant in 1862. Defined by only a few roads, buildings, and fences, this landscape is now a complex system of spaces defined by building complexes, irrigation ditches, railroad corridors, paved and unpaved ranch roads, pastures, and most importantly, fences. By the end of the Grant-Kohrs Ranch operations in 1919 the bunkhouse yards (spaces defined by the buildings and fences located north of the bunkhouse) were already well established. Although a few structures were added (HS-6, HS-9, HS-35, and HS-36), some removed (chicken house and turkey house), and fences likely rearranged, this space has remained much the same since the close of the Grant-Kohrs period. Other spaces that have remained essentially the same throughout the latter part of the Grant-Kohrs period and throughout the Warren period are the Lower House Yard, defined by the buggy shed, stallion barns (HS-19 and HS-16) and the thoroughbred barn (HS-15); and Johnson Creek Field, (defined by fencing, riparian vegetation, and Johnson Creek road on the south side). As these spaces have changed little--except for the addition of a few buildings on the perimeter of the Lower House Yard, which include the Blacksmith Shop (HS-3), Coal Shed (HS-4), Chicken Coop (HS-22), and Brooding House (HS-21), they contribute to the historic periods. The fencing and gates surrounding the Chicken Coop Field were first built by the NPS in 1976, and rebuilt in 1981. Originally this field was surrounded by an all board fence.

As little information is available regarding the location and type of historic fencing throughout the remainder of the home ranch area at the close of the Grant-Kohrs period, it is not known what other fields may have been well-defined by fences during this time. Based upon analysis of the 1907 drawing of the Deer Lodge Townsite, it is likely that the Lower Yard area was enclosed by

²² Shapins 2003, 33.

²³ Shapins 2003, 34.

²⁴ Shapins 2003, 35-36.

²⁵ Shapins 2003, 35.

fencing and defined by ranch structures, the bench, and the Kohrs-Manning Ditch. It is likely that the L-Barn South Field was also enclosed during this period, as HS-13 dates to 1908.

It is also likely that the West Corrals were historically defined by fencing, Johnson Creek, and the Kohrs-Manning Ditch, and enclosed an area serving the stallion and thoroughbred barns. These corrals became more developed during the Warren period with the addition of the feed bunks, feed storage house, and squeeze chute (HS-45, 46, 31, and 47 respectively), as well as a cow shed and several feed racks (A-12-16) that are no longer extant. The conditions currently present within this area more closely reflect the historic conditions found at the end of the Warren period, and as such, contribute to the historic significance of the site.

Additional changes to these spaces during the Warren period include the construction of the Clark Fork River Bridge Road and the Kohrs-Manning Ditch Road—both of which further enclosed and defined the West Corrals and the Lower Yards. Since these changes occurred before the close of the 1982 period of significance and little changes in spatial organization have occurred since, the Lower Yards and the West Corrals contribute to the period of significance. While the West Feedlot was not present during the Grant-Kohrs period, it was constructed by Warren and has changed little since 1982. It too contributes to the significance of the ranch.

The ranch house domestic yard and garden was enclosed by the picket fence, and the lower garden, front yard, and side yards were well defined by the close of the Grant-Kohrs period. By the end of 1982, spatial organization surrounding the ranch house had changed some; the fence was expanded to include the service area in 1934. The most significant change occurred in the front and side yards in early 1950s when the grid of cottonwood trees had been removed and the spaces became less enclosed by their dense overhead canopies. Some additional changes were made up until the 1970s. As the NPS has actively pursued restoration of the domestic yard in recent years, current spatial organization of the ranch home reflects the landscape conditions found in 1919, rather than those of 1982. Current conditions support the significance of this earlier period.

Little has changed regarding the spatial organization of the Warren Hereford Ranch since 1982. The spaces defined by the corrals, alleys, and circulation systems, to include the railroad corridor and its associated barrow pits, all contribute to the period of significance. Likewise, the domestic yard and fields surrounding the Warren residence reflect 1982 conditions and are considered contributing features. As the Visitor Center area and the spaces associated with it are not part of the property's documented significance, and have been altered due to the circulation system and visitor services provided there, they do not contribute to the historic significance of the landscape. An exception to this is the Johnson Creek riparian area, which likely remains in much the same condition as during the historic period.

Pastures and hay fields located on the east side of the Clark Fork River, particularly the Lower Yard Fields, L-Barn Fields, Stuart Field, and North Meadows have remained essentially the same in terms of use and configuration through both the Grant-Kohrs and Warren periods. These spaces are considered contributing features. Minor changes, such as the fencing of the riparian area in 1994, have reinforced the edges along this zone. The only significant change to the east side of the ranch since the Grant-Kohrs period has been the reduction of the size of Front Field, as the southern boundary of this area was developed for the establishment of the Warren Residence, Warren Hereford Ranch, and later the Visitor Center area. That which remains of Front Field has been further subdivided by cross-fencing installed by the NPS in 1999, which does not contribute to the historic significance of the Warren period.

The spatial organization of pastures and hay fields on the west and north sides of the ranch have evolved since the time Con Warren took over operations of the ranch in 1929. The Western Hay Fields were expanded in 1930s when Con Warren realigned the country road approximately 1000 feet to the west. However, as these conditions remain the same today, they are considered contributing features. The cross-fencing that currently subdivides the western hay fields was installed by the NPS in 1997 to control cattle grazing. This field subdivision does not contribute to the historic significance of the landscape.

Between 1958 and 1960, the City of Deer Lodge constructed the sewage treatment pond located along the Clark Fork River. This pond was abandoned sometime around 1983 when four smaller effluent ponds were built on the northern edge of this feature. As these newer ponds were constructed within the boundaries of the older pond, they did not alter the spatial organization of the fields surrounding them. Therefore, the organization of Olson Field East, Olson Field West, and Treatment Pond Field contributes to the historic significance of the landscape.

Although little information is available regarding the spatial organization of the fields and ranges located within the Upper Pasture area, the current organization is most directly influenced by the historic topography and irrigation ditches which were regraded in the 1930s when Con Warren acquired the lands associated with this area. As such, the spatial organization of these fields and ranges have likely changed little since the close of the period of significance. Some of the fencing that surrounds these sub-spaces, however, such as the cross-fence that parallels the Hartz and West Side ditches and crosses between Little Gulch field and Lower Taylor Field, was installed by the NPS in 1998. The ca. 2002 electric fence contained within this area also alters the spatial organization of the area. These fences do not contribute to the historic significance of the landscape.

The spatial organization of the riparian zone has changed slightly over time. Although it is not known for certain if the riparian woodland was fenced during the Grant-Kohrs period, it is assumed that cattle had been allowed to freely access this area. No fencing appears in the 1947 aerial photograph, or in historic photographs of the Western Hay Fields dating to the 1930s. As such, the riparian woodland extended beyond the bounds of the current fenceline, particularly within the northern half of the ranch. Some fencing on the west side of the Clark Fork River, and through the middle of the riparian area, is evident in the early 1980s. This fenced area increased to include the east side, along the west edge of both Stuart Field and the Lower Yard Fields, in the mid-1980s. Complete fencing of the riparian area, north of the L-Barn and Lower Yard Fields, occurred in 1994 due to contamination concerns for staff, visitors, and livestock. This eastern and northern fencing of the riparian area altered the spatial organization of the riparian zone, and does not contribute to the landscape's historic significance.

Land Use

Land uses within the Grant-Kohrs Ranch have changed little over time. Originally begun as a ranch sustaining both cattle and horses, the NPS actively continues these operations, although on a much smaller scale. Use of the low-lying lands along the east side of the Clark Fork River for the production of hay and pasture has continued since the Grant-Kohrs period. Likewise, the bench lands above the Kohrs Ditch and Kohrs-Manning Ditch continue to be used for pasture. As these lands are used for the same purposes today, they contribute to the site's historic significance.

As mentioned earlier, the lands directly to the west of the Clark Fork River were not fully irrigated and cultivated for hay until the Warren period. During the 1940s, Warren began

plowing, fertilizing, and rotating his crops to increase yields. As these lands have continued to be used for hay production or pasture since the close of the historic period, they contribute to the significance of the site.

The hay and pasture lands of the Upland Pasture area are believed to reflect the uses during both the Grant-Kohrs and Warren periods. As construction of the Westside Ditch dates to 1887, it is assumed that some portions of the Upland Pasture area were irrigated shortly after this time. As this ditch would have provided irrigation to Little Gulch, Big Gulch, and Lower Taylor Field, it is believed that these fields, although not owned by Kohrs at the time, were under cultivation. These fields, as well as the Western Hay Fields, were improved for hay production by Warren in the 1930s when he regraded the lands for contour irrigation. Although the NPS does not typically plow or rotate crops today, some fields (such as Upper Taylor Field) have been re-established by plowing, tilling, and planting of hay. The irrigation and use of these fields contribute to the period of significance.

In the early 1980s, the park began to address the problem of pests and exotic and invasive weeds found in the fields and pastures. These included spot counts of Columbian ground squirrels, application of poisoned baits, and the removal of beavers from the ranch. Studies also began to identify invasive exotic weeds, such as spotted knapweed and leafy spurge. As natural treatment methods were tested, such as the introduction of Gall flies, fungus, seed head weevils and moths, etc., as well as manual removal, and found to be ineffective, the NPS introduced chemical treatment of impacted areas beginning in the 1980s. Chemical treatment is more effective in managing the species composition of the hayfields and grassland plant communities. As historical evidence indicates that Warren sprayed the ranch for noxious weeds as early as 1955, this management practice contributes to the period of significance.

Historical evidence also suggests that beaver dams and lodges that interfered with ranching operations--such as those impeding irrigation--were removed by hand and dynamite.²⁶ According to Gerhmann, Con Warren dynamited beaver dams once the young were old enough to survive without the ponds they created.²⁷ Currently, the NPS authorizes trapping by special use permits authorized to control beaver populations. Other management practices have also been employed by the NPS (such as culvert installation, elevation of roadways, fencing of important trees, etc.). Although it is not known if live trapping and relocation of beaver reflects historic land management traditions, control of beaver populations certainly reflects historic management needs.

Although there is historical evidence suggesting that reduction of rodents through the distribution of poison grain baits corresponds with tested animal control methods during the Warren period, the use of poison was discontinued after it started to infiltrate the food chain and result in unintended consequences. According to Con Warren II, it was his job to control the populations of gophers, skunks, porcupines, rabbits, magpies, pigeons, cats, and dogs, which used to prey upon the livestock. His method of choice was a .22 rifle.²⁸

During the period of significance, there was much diversity in livestock maintained on the ranch. During the Grant-Kohrs period, Conrad Kohrs and John Bielenberg raised longhorn cattle, shorthorn cattle, Hereford cattle, thoroughbred horses, Clydesdale horses, Percheron-Norman draft horses, Yorkshire hogs, Holstein cows, and chickens and turkeys. Documentation also

²⁶ NPS comments, 75% draft CLR review.

²⁷ Lyndel Meikle, NPS comments, 95% draft CLR review.

²⁸ Chris Ford, NPS comments, 95% draft CLR review.

suggests that Angus bulls, Ayrshire dairy cows, merino rams, and sheep may also have been kept on the ranch. Con Warren maintained this diversity until the 1950s, raising both registered and commercial Hereford cattle, Durham and Holstein dairy cows, Belgian horses, hogs, chickens, milch cows, and a mule. In the mid-1950s he expanded the Warren Hereford Ranch to the east of the railroad tracks and began raising primarily purebred and commercial Herefords.

After the NPS took over operations of the ranch in 1972, the Park permitted Warren to lease portions of the home ranch for grazing his cattle, and for general ranching activities that supported the care and maintenance of his stock. Before Con Warren retired from ranching in 1982, he grazed 150 head of cattle (multiple mixes and breeds) on the land leased from the Park. During this time, the Park also grazed their own small herd of 19 cattle and 10 horses.

In 1989 the NPS began an Agricultural Use lease program. Special use permits for grazing privileges are issued by the ranch to private individuals on a competitive basis for a fee, based upon Animal Unit Months (AUMs) allocations. Although the numbers of livestock fluctuate from year to year, the ranch currently maintains approximately 94 head of cattle (or animal units, based upon an allocation of 1128 AUMs for the calendar year), including the breed yearlings born each spring. Breeds include Hereford, English Shorthorn, Longhorn, and Angus, as well as cross-breeds of the four types.²⁹ These livestock breeds and land uses contribute to the historical significance of the landscape.

The NPS also maintains nine horses on the ranch, to include Quarter horses and Belgian draft horses (NPS), as well as five USFS horses that lease pasture from the Park. The NPS horses are pastured within the Home Ranch complex, and the USFS horses are pastured in the Warren Hereford Ranch complex. The care of cattle and horses on the ranch contribute to the historic significance of the landscape.

Although NPS interpretative and administrative uses of the Grant-Kohrs Ranch began in the mid-1970s (shortly after the creation of the NHS), these uses of the site do not contribute to the landscape's historic significance. Missing uses associated with the Grant-Kohrs and Warren periods include residential occupation of the Kohrs and Warren homes, as well as the use and occupation of the bunkhouse by ranch hands.

Constructed Water Features

The beginning of the elaborate irrigation system found within the Grant-Kohrs Ranch NHS dates back to Johnny Grant's efforts to improve the land for the cultivation of crops. These efforts included the construction of irrigation ditches sometime between 1862 and 1866. Although the extent and location of these ditches is unknown, it is believed that these features were incorporated into the Kohrs-Manning Ditch in 1872.

Water rights to Johnson Creek date to 1874.³⁰ It is assumed that the Johnson Ditch (which feeds into the Kohrs-Manning Ditch) was constructed around this time. Likewise, the West Deer Lodge Ditch (known as the Westside Ditch) was excavated ca. 1889-1891 by CA. J. Kading. These ditches are believed to have remained in use throughout both the Grant-Kohrs and Warren periods. As they are believed to remain essentially the same today, they contribute to the site's period of significance.

²⁹ NPS Comments, 75% CLR draft review; Email correspondence with Ben Bobowski, December 17, 2003.

³⁰ National Park Service (author unknown), "Landscape Features by Date/Era" (unpublished spreadsheet maintained by the Grant-Kohrs Ranch NHS archives, August 1997).

Historical research conducted to date has not established dates of construction for the Kohrs “Big Ditch” located along the edge of the western benchland. However, water rights to Taylor Creek were appropriated for the “Kohrs-Manning” Ditch in 1885.³¹ It may be assumed that since the Kohrs Ditch is sourced by Taylor Creek, it was this ditch, rather than the “Kohrs-Manning Ditch,” that was constructed sometime shortly after this date. While the date of construction of the Hartz/Kading Ditch is also unknown, it can be also be assumed that this ditch was constructed around the same time as the Westside Ditch (ca. 1890), as it too is associated with C.J. Kading and his property. As both ditches have remained in use through both the Grant-Kohrs and Warren periods, they contribute to the site’s historic significance.

In the 1930s Con Warren acquired the Kading and D’Alton properties contained within the Upland Pasture area, which included the ditches and water rights located there. Shortly after he began regrading the fields and contouring the lands to improve irrigation. This process included the construction of the many lateral ditches contained in this area, as well as the filling in of old ditches. Current ditch alignments generally reflect those visible in the 1947 aerial photos, though the precise location of laterals may have been changed since that time as they are traditionally repaired or rebuilt after a number of harvests. The Warren Ditch, located along the far northwestern edge of the NHS boundary is also believed to date to this period. All these ditches contribute to the site’s historic significance, as do both water pumps constructed by Warren in 1960, which are housed within historic structures HS-86 and HS-87.

Ditches that have an undetermined date of origin include the Salmonson Waste Ditch along the southern edge of the NHS boundary, the Taylor Ditches found in lower Taylor Field, and other abandoned ditches dispersed throughout the site.

Aside from the Kohrs-Manning Ditch Flume (HS-51), which was constructed in 1974 to replace the original flume (HS-50, no longer extant), the date of origin of most all other associated irrigation structures--diversion dams, pipes, headgates, culverts, pumps, and flumes--is undetermined. However, it can be assumed that the majority of these features have been repaired or replaced over the years with features of same or similar function (most of the headgates were replaced by the NPS ca. 1990), and thus support the historic significance of the site.

The hand line system that provides irrigation to the effluent fields was installed by the NPS in the mid-1990s. It was intended to improve water quality of the Clark Fork River, as well as to re-irrigate pastures that had been historically irrigated by Con Warren. This historic system, installed by Warren in 1954, consisted of a diversion point out of the Kohrs-Manning Ditch, a 40 horsepower Connel pump, a wooden pump house (HS-86), buried 6-inch and 8-inch mainline, 4-inch risers, 4-inch hand line sets, and various valves and hardware. Water was diverted from the Kohrs-Manning Ditch with a gate. From there, it flowed through an underground pipe to a hole, and was lifted from the hole by the pump into the mainline. Lateral hand line sets ran out from mainline risers.³² Although the modern water source (effluent ponds) differs from the historic source (Kohrs-Manning Ditch), the NPS irrigation system is considered a supporting feature because it provides water to two pastures (Front Field and North Field) that were historically irrigated by hand-line for livestock grazing in the 1950s. The blue water troughs are considered noncontributing features.

³¹ National Park Service (author unknown), “Landscape Features by Date/Era” (unpublished spreadsheet maintained by the Grant-Kohrs Ranch NHS archives, August 1997).

³² Grant-Kohrs Ranch National Historic Site, “Info on Hand Line,” Portion of report prepared to describe impacts associated with installation of hand line system (On file at the Grant-Kohrs Ranch NHS archives, No date).

The historic irrigation system serving the ranch house (HS-1) and garden is no longer extant—it was abandoned in 1934 and the land regraded. The only known surviving contributing feature associated with this system is the siphon (HS-57), which passes under the railroad corridor.

Circulation

Circulation features within the Grant-Kohrs Ranch NHS have evolved along with the expansion of ranching operations. Two of the earliest roads still extant within, or adjacent to, the ranch are Business Loop 90 (formally US Highway 10 and the Road to Hell Gate), and the entry road referred to as Kohrs-Warren Lane. Both these features appear on the 1869 Government Land Office (GLO) survey and contribute to the historic significance of the landscape. The western segment of the Kohrs-Warren Lane, west of the railroad tracks, was removed shortly after the new NPS Service Entry road was constructed ca. 1973 for safety reasons. This segment connected the lane with the road passing between the bunkhouse and the ranch home, and is considered missing.

Other early roads that were likely constructed ca. 1862-1880 were those associated with the complex of barns located north of the bunkhouse complex. Although the exact configuration of these roads is not known, it is likely that they connected to the entry lane to each of the structures located here and were subsequently reconfigured as new buildings, fences, and gates were added to the complex. The roads currently existing within this area--Bunkhouse Road and Dairy Loop Road--appear to reflect conditions present in the 1947 aerial photograph, and therefore contribute to the historic significance of the site. Based upon historic photographs, it appears as though Bunkhouse Road traversed behind the coal shed ca. 1900, and then was closed off sometime around 1937-1938. The current conditions reflect those of the earlier period.

Other Grant-Kohrs period roads that remain essentially the same today include the Lower House Yard Road and parking area for the Buggy Shed (HS-17) and the extension of this road (Johnson Creek Road), which continues past the Throughbred Barn (HS-15) and over Johnson Creek. Both these roads likely date to ca. 1870s when Kohrs began developing structures to house his horses. These roads remained essentially unchanged throughout the Warren period. They are considered contributing features.

A shorter and earlier version of the current Warren Pumphouse Road was likely constructed ca. 1890, connecting the bunkhouse area to the Machine Shed (HS-12). The 1947 aerial photo depicts this road ending in the North Fields, approximately 900 feet past the L-Barn (HS-13). It was likely lengthened and realigned in 1960 to service the pumphouse. This road contributes to the period of significance. The ca. 1879 Utah Northern Railroad corridor and the ca. 1908 Milwaukee Railroad corridor are also considered contributing features.

Soon after Con Warren took over ranch operations in 1929, he extended the Johnson Creek Road west, past the West Corrals and Stuart Field. This road crossed the Clark Fork River and connected the east and west sides of the ranch. This road remains essentially the same today and is considered a contributing feature. In the late 1930s Warren also moved the county road located along the Clark Fork River approximately 1000 feet further to the west. Over time, this county road became obliterated and incorporated into the Western Hay Fields. It is considered a missing feature. The new road (now referred to as the Kohrs "Big Ditch" Road) has remained essentially the same since its construction and therefore contributes to the Warren Period. It is assumed that the South Park Entry Road, connecting to MTSR 4691, was also constructed at this time, if not earlier.

Little information is known about the unimproved roads located within the Upper Pasture area, to include Ridge Road, Little Gulch Road, Big Gulch Road, and Upland Pasture Road, although they likely date to the Kading and D'Alton time periods (ca. 1890). Portions of these roads can be seen in the 1947 and 1979 aerial photographs, although their configurations have likely changed over time. These roads are considered contributing features. The South Warren Pumphouse Road, also located in the area, dates to 1960. It too contributes to the period of significance. Roads accessing the Kading and D'Alton homesites have not been identified.

In the late 1950s, the City of Deer Lodge began excavating gravel in the southwest portion of the ranch. A road was constructed off of the Kohrs "Big Ditch" Road to access this area. Although the gravel operations have ceased, this road remains today and is considered a contributing feature.

All the circulation features associated with the Warren Residence and Warren Hereford Ranch are considered contributing features. These include both the driveway and sidewalk leading to the house (ca. 1934), the alleys associated with the corrals (ca. 1952), the gravel parking area located near the Sales Barn and Warren Barn (ca. 1954), and the Stuart Pasture Road (accessing the pasture area south of the Warren Residence). One exception is the new NPS gravel parking area located in the historic Whiskey field. This is considered a noncontributing feature.

Several new circulation features were constructed by the NPS in the mid-1970s. These include the NPS Service Entrance (located between Highway 10 and the bull barns, connecting to the historic Bull Barn Road developed by Warren in the 1950s). The NPS road was constructed ca. 1973 to provide staff access to the rest of the ranch without having to travel in front of the Warren Residence. The Kohrs-Manning Ditch Road was also constructed during this time. These roads are not considered contributing features. Other noncontributing features include the NPS parking areas in the Visitor Center area (ca. 1975 and 2002), the access trail and underpass (ca. 1978), and Cottonwood Trail (1993).

Missing circulation features include several unimproved roads that appear on the 1947 aerial photograph. These access the Lower Yard Fields and the North Meadows. The date of origin of these roads is unknown. Both were obliterated before 1960.

Within the Grant-Kohrs Residence landscape, several historic circulation features have been maintained by the NPS. These include the historic drop off area in the front of the house, as well as the road leading between the ranch house and the bunkhouse. These circulation features contribute to the period of significance. The historic approach road from Business Loop 90 was removed ca. 1973 when the park built the NPS Service Entrance through the Warren Hereford Ranch. This historic axial access road is considered a missing feature. The service area historically located to the northwest of the residence was also removed in the 1930s by Con Warren. This too is considered a missing feature.

The original pathway system, established shortly after Kohrs purchased the Ranch, consisted of three-foot wide wooden planks set flush in the ground. The early boardwalks led guests from the gate in the picket fence to the front door. Additional paths extended north and south along the house providing connections to both the service area and the southern portion of the property. The boardwalks were later replaced with brick pavers dry-laid in sand (ca. 1905). The NPS has since replaced the brick pavers on the front yard with a reproduction of the wooden boardwalks in 1975 and 1986.³³ These changes support the historic significance of the landscape.

³³ Shapins 2003, 38.

Access to the garden has changed significantly over time. Originally, a stone path led from the porch east across the slope to the garden. The path gradually descended through the open lawn, into a grove of junipers before emerging in Augusta's garden. This circulation pattern changed in the 1930s when Warren built a set of stone stairs in the middle of the lilac rows. The stairs descended to the flower beds, providing a more direct route from the house to the lower garden.³⁴ This stairway was rehabilitated by the NPS in 1987 and supports the historic significance of the landscape. Additional stone stairs were constructed by Warren in 1934 to connect the access drive with the pathway leading to the kitchen vestibule.³⁵ These stairs remain and contribute to the period of significance.

Modifications to the then-existing dirt pathways were made between 1997 and 1998 with the construction of a new flagstone pathway leading south from the southwest porch stairs. Another path was constructed to link the new garden paths to the blacksmith garage. These new garden paths replaced an earlier path that had become a safety hazard. Another pathway was rebuilt by the NPS to connect the Kohrs addition to the top of the stone stairs in the service area. All these paths are considered supporting features.

The asphalt sidewalk built in the 1970s to connect the visitor center complex with the home ranch is considered a noncontributing feature, as it does not reflect the historical significance of the site.

Views and Vistas

Information that exists regarding historic views and vistas is derived from drawings dating from latter part of the 19th-century. In the 1865 Granville Stuart drawing, the 1866 (anonymous) drawing of the ranch home, and the ca. 1880 Leeson drawing, the western foothills and Flint Creek Mountain ranges figure prominently, as does the vegetated riparian corridor. As this land remains open and undeveloped, these expansive views remain much the same today as they did throughout both the Grant-Kohrs and Warren periods. As a result, they play an important role in establishing the character of the Grant-Kohrs Ranch, and are considered contributing features. It is important to note that although some of middleground views characterized by the western viewshed are within the park boundary (the Upland Pasture Area), much of this viewshed is not in park ownership. The acquisition of scenic easements for this land has been recommended in several park planning documents.³⁶ Degradation of these views would have significant negative impacts on the park's visual resources and their ability to interpret the historic character of the ranch.

Of additional importance is the forested backdrop of Mount Powell and Deer Lodge Mountain. Park planning documents also acknowledge the importance of sustaining this forested mountain backdrop by establishing the need to work with the Montana State Prison and US Forest Service regarding timber harvest plans and silviculture practices to maintain this important landscape.³⁷

³⁴ Shapins 2003, 38-39.

³⁵ Shapins 2003, 39.

³⁶ National Park Service. "Cultural Landscape Analysis, Grant-Kohrs Ranch National Historic Site." (Denver: National Park Service, Rocky Mountain Region, 1987); Koehan; and U. S. Department of the Interior, National Park Service Rocky Mountain Region, *Grant-Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan* (Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, March 1993).

³⁷ U. S. Department of the Interior, National Park Service Rocky Mountain Region, *Grant-Kohrs Ranch National Historic Site Environmental Impact Statement for a General Management Plan and Development Concept Plan*. (Grant-Kohrs Ranch National Historic Site, Deer Lodge, Montana, March 1993). GMP, 6-7, 14; and Amphion, 28.

Based upon historic drawings and photographs, other visual resources that contribute to historic views include the pastures and hayfields found along either side of the Clark Fork River, a variety of ranch structures, fencing types (defining corrals and pastures), as well as the livestock contained within these areas. While buildings and structures have been added to the landscape over time, and the location of fencing has changed over the years, all these features continue to figure prominently within contemporary views and help define the character of the ranch. Certainly the presence of livestock contributes to the historic significance of the landscape.

Views of the Hillcrest Cemetery located to the south of the ranch also contribute to the historic significance of the landscape. The grave sites of the Kohrs, Bielenberg, and Warren families are found here. White birch and fir trees are planted throughout the cemetery and are the dominant landscape features that can be seen from miles around.³⁸

While views of modern commercial and residential development located to the west and east of the Ranch (along Business Loop 90), would not have been prevalent during the Grant-Kohrs period, much of this development (particularly the fairgrounds) was already constructed by the end of the Warren period and therefore contribute to the site's historic significance. An exception to this is the new commercial development located directly east of the Warren Hereford Ranch, along the curve of Business Loop 90, directly north of the fairgrounds. Based upon aerial photo analysis, this area was developed in the early 1990s and does not contribute to the significance of the period.

³⁸ Amphion, 27.

Buildings and Structures

There are 72 contributing, 20 supporting, and six noncontributing historic buildings and structures located within the Grant-Kohrs Ranch NHS. Together these buildings and structures represent all the structures necessary for the operation of a cattle ranch and the raising of horses. They include living quarters, barns, storage sheds, outhouses, stock shelters, feed bunks, and squeeze chutes, and illustrate the continuum of cattle ranching operations from the mid-19th-century through the latter part of the 20th-century. It is important to note that this list of contributing buildings and structures contains all the buildings, structures, and objects listed as contributing resources within the Grant-Kohrs Ranch/Warren Ranch National Register Historic District. It does not include landscape features, such as the railroad lines, domestic yard, or ditches that are evaluated separately under different landscape characteristics (i.e. constructed water features, circulation features, etc.). There are also some features that are considered structures within the CLR, which are not listed in the National Register documentation (such as landscape retaining walls, railroad trestles, etc.). Based upon the scope of work this document, unlike the National Register documentation, also evaluates supporting features.

Contributing, noncontributing, and supporting buildings and structures are summarized on the following table. These resources are cross-referenced to numbers found on component landscape existing conditions and contributing resources inventory maps. Generally, supporting features are post-1982 reconstructions of historic structures that reflect the same or similar design characteristics as those features dating from the period of significance.

Building/ Structure Number	Name	Component Landscape	C/NC/S	Date of Origin	Historic Structure Number
B-1	Bunkhouse Row	HR	C	1862- 1907	HS-2
B-2	Ice House	HR	C	1880	HS-5
B-3	Coal Shed	HR	C	1915	HS-4
B-4	Blacksmith Shop/Garage	HR	C	1935	HS-3
B-5	Granary/Roller Mill	HR	C	1935	HS-6
B-6	Draft Horse Barn	HR	C	1870	HS-7
B-7	Privy	HR	C	1934	HS-8
B-8	Dairy	HR	C	1932	HS-9
B-9	Oxen Barn	HR	C	ca. 1870	HS-10
B-10	Bielenberg Barn	HR	C	1880	HS-11
B-11	Machine Shed	HR	C	1890	HS-12
B-12	Cow Shed	HR	C	1908	HS-13
B-13	Thoroughbred Barn	HR	C	1883	HS-15

B-14	Stallion Barn	HR	C	1870s	HS-14
B-15	Stallion Barn	HR	C	1870s	HS-16
B-16	Stallion Barn	HR	C	1870s	HS-19
B-17	Stallion Barn	HR	C	1870s	HS-30
B-18	Not Used	NA	NA	NA	NA
B-19	Feed Storage House	HR	C	1932	HS-31
B-20	Buggy Shed	HR	C	ca. 1883	HS-17
B-21	Privy	HR	C	ca. 1890	HS-20
B-22	Granary	HR	C	ca. 1890	HS-18
B-23	Brooding House	HR	C	1935	HS-21
B-24	Chicken House	HR	C	1935	HS-22
B-25	Metal Granary	HR	C	ca. 1910	HS-23
B-26	Feed Storage House	HR	C	1933	HS-28
B-27	West Feedlot Storage Shed	HR	C	ca. 1930	HS-34
B-28	Not Used	NA	NA	NA	NA
B-29	Not Used	NA	NA	NA	NA
B-30	Warren Barn	WHR	C	1952	HS-64
B-31	Bull Barn	WHR	C	1952	HS-62
B-32	Bull Barn	WHR	C	1952	HS-63
B-33	Sales Barn	WHR	C	1954	HS-65
B-34	Resource Building/Office	WHR	NC	2000	BLDG 003
B-35	Scale House	WHR	C	1952	HS-66
B-36	Cow Shed	WHR	C	1952	HS-70
B-37	Cow Shed	WHR	C	1952	HS-71
B-38	Cow Shed	WHR	C	1952	HS-72
B-39	Cow Shed	WHR	C	1952	HS-73
B-40	Cow Shed	WHR	C	1952	HS-74
B-41	Cow Shed	WHR	C	1952	HS-75
B-42	Cow Shed	WHR	C	1952	HS-76

B-43	Cow Shed	WHR	C	1952	HS-77
B-44	Grant-Kohrs Residence	GKR	C	1862-1890	HS-1
B-45	Warren Residence	WR	C	1934	HS-58
B-46	Garage	WR	C	ca. 1934	HS-61
B-47	Warren Residence Pump House	WR	C	1954	HS-88
B-48	Chicken Coop	WR	C	1940	HS-59
B-49	Boat House	WR	C	ca. 1950	HS-60
B-50	Pump House South	RW	C	1960	HS-87
B-51	Warren Pump House	RR	C	1960	HS-86
B-52	Curation Storage Facility (CSF)	DZ	NC	2002	BLDG 004
B-53	Visitor Contact Station	DZ	NC	1975	BLDG 002
B-54	Restroom	DZ	NC	1975	BLDG 001
B-55	Hazmat Building	WHR	NC	2003	BLDG 005
S-1	Cattle Scale	HR	C	1935	HS-35
S-2	Feed Rack	HR	S	1984	HS-36
S-3	Feed Rack	HR	S	1984	HS-37
S-4	Feed Rack	HR	S	1984	HS-38
S-5	Manure Pit	HR	C	1932	HS-39
S-6	Beef Hoist	HR	C	1982	HS-40
S-7	Squeeze Chute	HR	S	1984	HS-41
S-8	Feed Rack	HR	S	1998	HS-42
S-9	Feed Rack	HR	C	1982-83	HS-43
S-10	Feed Rack	HR	C	1982-83	HS-44
S-11	Feed Bunk	HR	S	1991	HS-45
S-12	Feed Bunk	HR	S	1991	HS-46
S-13	West Corrals Squeeze Chute	HR	C	1984	HS-47
S-14	Stock Shelter	HR	C	1933	HS-24
S-15	Stock Shelter	HR	C	1933	HS-27
S-16	Stock Shelter	HR	C	1933	HS-29

S-17	Stock Shelter	HR	S	2000	HS-25
S-18	Hay Storage	HR	S	2000	HS-26
S-19	Feed Bunk	HR	S	1987	HS-48
S-20	Feed Bunk	HR	S	1987	HS-49
S-21	Active/Irrigation Flume	HR	C	1974	HS-50
S-22	Kohrs-Manning Ditch Bridge	HR	S	1982	HS-55
S-23	West Feedlot Stock Shelter	HR	C	1934	HS-32
S-24	West Feedlot Stock Shelter	HR	C	1932	HS-33
S-25	West Feedlots Squeeze Chute	HR	S	1984	HS-53
S-26	West Feedlots Feed Bunk	HR	S	1987	HS-52
S-27	Slough Bridge	RW	C	1930	HS-90
S-28	Not Used	HR	NA	NA	NA
S-29	Feed Rack	HR	ND	ND	
S-30	Loading Chute	WHR	C	1952	HS-69
S-31	Squeeze Chute	WHR	S	1990s	HS-67
S-32	Feed Rack	WHR	S	1998	HS-68
S-33	Feed House	WHR	C	1952	HS-78
S-34	Feed House	WHR	C	1952	HS-79
S-35	Feed House	WHR	C	1952	HS-80
S-36	Feed House	WHR	C	1952	HS-81
S-37	Feed House	WHR	C	1952	HS-82
S-38	Feed House	WHR	C	1952	HS-83
S-39	Feed House	WHR	C	1952	HS-84
S-40	River Cobble Wall	GKR	C	ND	
S-41	Stone Terraces	GKR	S	ND	
S-42	Cut Stone Retaining Wall	GKR	C	1934	
S-43	Jensen Hay Stacker	PHF	S	ND	
S-44	Clark Fork Bridge	RW	C	1930	HS-89
S-45	Not Used	HR	NA	NA	NA

S-46	Not Used	HR	NA	NA	NA
S-47	Siphon	RR	C	1908	HS-57
S-48	Cattle Car ca. 1923	RR	S	1986	GRKO-970
S-49	Cattle Car ca. 1929	RR	S	1985	GRKO-862
S-50	Railroad trestles	RR	NC	1978	

Objects and Small-scale Features

For the most part, fences and gates found within the Grant-Kohrs Ranch NHS contribute to or support the historic significance of the site, particularly within the Home Ranch Complex. As fence and gate materials deteriorate relatively quickly, routine maintenance and replacement of these features has been common throughout the ranch's history. As it is beyond the scope of this study to identify the specific construction date for every fence line and evaluate the significance of their construction method or style with what existed throughout the Grant-Kohrs and Warren periods, general evaluations compare the existence of fence lines with what existed at the end of the period of significance. Where dates of specific fence construction and/or specific fence types or styles at the close of the period of significance are known, they are evaluated against the current conditions.

Based upon analysis of 1983 aerial photographs, it appears as though some fence patterns within the ranch reflect the conditions present at the end of the period of significance. This is certainly true along the outer boundaries of Front Field, the western edge of the Western Hay Fields, and around the Railroad Corridor and Barrow pits. While the historic fencing materials for these areas is not known, it is assumed that these fences were constructed of split cedar wood posts and barbed wire.³⁹ Some of the metal posts used on the ranch date back to the 1940s—these may have replaced older wooden posts.⁴⁰ Since both wood and metal barbed wire fencing were used on the ranch during the historic period, contemporary fencing materials used by the NPS would be considered supporting to the Warren period.

Current post and wire cross-fences subdividing the Western Hay Fields and Front Fields, and fencing surrounding the North Meadows, L-Barn North Field, and the Riparian Woodland (north of the L-Barn Field) do not appear in the 1983 aerial photos. Jack-leg fencing found along the eastern side of the riparian woodland also appears to post-date the period of significance. These fences are considered noncontributing features. As mentioned earlier, the metal post and wire fences (cross-fences) and electrical fence subdividing the Upland Pasture area post-date the period of significance and are considered noncontributing features. As the entire park boundary was fenced by the NPS, it can be assumed the outer fence boundary currently existing on the perimeter of the NHS does not contribute to the period of significance.

Jack-leg fences found along both sides of the Kohrs-Manning Ditch (along the western boundary of Stuart Field), along the northern edge of the Cottonwood Creek riparian woodland, and along the western edge of the Kohrs-Manning Ditch Road do not appear in the 1983 aerial photo. As such, they are considered noncontributing features.

³⁹ NPS comments, 75% draft CLR review.

⁴⁰ NPS comments (Mike McWright), 75% draft CLR review.

Most of the fence types found within the Home Ranch Complex are either jack-leg or 5-rail stacked-end fence. These fence types are prominent within and around the smaller fields, corrals, and feedlots. Several other fence types, such as the vertical board fence and stacked log fence, are also found in this area, although to a lesser degree. In the 1977 *Historic Resource Study*, four prominent fence types were described. These included the jack-leg (historically the most prominent), and standard post and pole fences. The latter fence type was described as “vertical poles sunk into the ground with horizontal members nailed on them.” It is assumed that this description is interchangeable with the simple post and rail fence described in this report. Other fence types mentioned in the HRS include a very small number of wood post and barbed wire, as well as sheep wire fences. Today, virtually no wood post and wire, nor sheep wire fences, are found within the Home Ranch Complex. It is not known if these changes were made by Warren prior to 1982.

Based upon comparison of existing conditions with the 1983 aerial photograph, it appears as though most of the fence lines present within the Home Ranch Complex at the end of the period of significance appear in the same location today, and are considered contributing features. Some new fences have been added since that time, particularly within the West Corrals along Johnson Creek in 1996, and the Lower Yards, around the chicken coop field, in 1981. A few others have been removed--such as those near HS-30, and in between HS-7 and HS-9.

When comparing current fence types with those documented in the 1977 HRS, and historic photographs dating from 1985, several changes have been made. In some cases, such as on the north and west edges of the Lower House Yard, and the east edge of the West Feedlot, jack-leg fencing has been replaced with other fence types. Likewise, vertical plank fencing has replaced post and pole along the south edge of the west feedlot, the east edge of the bunkhouse yards, and the north edges of the West Corrals. Jack-leg fencing has also replaced the post and pole fencing along the eastern edge of Johnson Creek Field. Specific dates of these changes are not known.

Based upon review of historic photographs, fences within the 1950s Warren Hereford Ranch Complex were historically constructed of milled-lumber (assumed to be representative of the flat rail and post fence described in this report), as well as the 5-rail locked end fence (see description in Chapter Three). It appears as though these fences and gates remain essentially the same today (both location and type), and are considered contributing features.

The white picket fence surrounding the yard at the main house (HS-1) has been reconstructed by the NPS to reflect conditions present during the Grant-Kohrs period. As such, it supports the historic significance of the landscape. The picket fence surrounding the Warren house (HS-58), also reconstructed by the NPS in 2001, is considered a supporting feature. The electrical fence surrounding the perimeter of the yard is not considered a contributing feature.

Fences and gates located within the Visitor Center area were constructed in 1975 and 1978. Although these features reflect the historic fences and gates found elsewhere throughout the ranch, they are considered noncontributing features.

Refer to the Inventory Tables of Existing Conditions and Contributing Resources found in this chapter for identification of other contributing/noncontributing small-scale features.

Missing Features

Missing buildings and structures are identified on the component landscape “Missing Features” maps and described in the existing conditions sections found in Chapter Three. Missing features

were present on the ranch during the site's period of significance (1862-1982), but are no longer extant. Most missing features were once located within the Home Ranch complex, and were removed as new structures were built to replace them, or as their functions became outdated. Features designated with a "NES" number are documented as Non-Extant Structures in the 1977 Historic Resource Study.⁴¹

⁴¹ Albright, 209-211.

Inventory Tables of Existing Conditions and Contributing Resources

The following “Inventory of Existing Conditions and Contributing Resources” tables summarize the analysis of contributing (C), noncontributing (NC), supporting (S), and missing (M) features documented in the previous sections. Each feature/system has been assigned a reference number based upon abbreviations used in the inventory and can be cross-referenced to the existing conditions maps found in Chapter Three. Major historic periods associated with each contributing resource are identified. Where known/appropriate, the date of origin of each contributing feature is also listed. Features whose date of origin has not been identified are delineated as not determined (ND). It is important to note that because the Cultural Landscape Report recommends a period of significance spanning 1862-1982, there are some features post-dating 1958 that have been identified as contributing the period, and which have not been identified as contributing features to the National Register Historic District. These designations should be considered as recommendations for further consideration.

Home Ranch: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Period					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-1	Natural Systems and Features								
	NS-1	Bench	C	X	X	X			
	NS-2	Johnson Creek	C	X	X	X			
	NS-3	North Fork of Johnson Creek	C	X	X	X			
	NS-4	Springs	C	X	X	X			
EC-1	Vegetation								
	VE-1	Riparian vegetation	C	X	X	X			
		<i>willow sp.</i>		X	X	X		N	<i>Salix sp.</i>
		<i>smooth brome</i>				X		E	<i>Bromus inermis</i>
		<i>black cottonwood</i>		X	X	X		N	<i>Populus trichocarpa</i>
		<i>cattail</i>		X	X	X		N	<i>Typha latifolia</i>
	VE-2	Lower Yard Garden	NC			X	1981		to be removed/reseeded
	VE-3	Row of cottonwoods	C						<i>Populus trichocarpa</i>
	VE-4	Mix of native/non-native grasses/forbs	ND						detailed species not inventoried
EC-2	Spatial Organization								
	SO-1	Lower yards	C	X	X	X			
	SO-2	Lower house yards	C	X	X	X			
	SO-3	Bunkhouse yards	C	X	X	X			
	SO-4	L-Barn South	C	X	X	X			
	SO-5	West Corrals	C	X	X	X			
	SO-6	Johnson Creek Field	C	X	X	X			
	SO-7	West feedlot	C		X	X			
	SO-8	Clark Fork Bridge Road	C		X	X	ca. 1930		
	SO-9	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973		constructed by NPS
EC-3	Land Uses								
	L-1	Interpretation	NC		X	X	1975		
	L-2	Visitor services	NC		X	X	1975		
	L-3	Livestock grazing	C	X	X	X	ca. 1862		
	L-9	Ranching operations	C	X	X	X	ca. 1862		
EC-1	Constructed Water Features								
	CW-1	Kohrs-Manning Ditch	C	X	X	X	ca. 1870		

EC-2	Circulation							
	C-1	Clark Fork River Bridge Road	C		X	X	ca. 1930	
	C-2	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973	constructed by NPS
	C-3	Bunkhouse Road	C	X	X	X	ca. 1862	
	C-4	Dairy Loop Road	C	X	X	X	ca. 1870-1880	reconfigured after 1932
	C-5	Warren Pumphouse Road	C	X	X	X	ca. 1890	lengthened to access HS-86 ca. 1960
	C-6	Lower House Yard Road	C	X	X	X	ca. 1870	
	C-7	Johnson Creek Road	C	X	X	X	ca. 1870	
EC-5	Views and Viewsheds							
	V-1	Views of western foothills	C	X	X	X		
	V-2	Views of Deer Lodge Mt. and Mt. Powe	C	X	X	X		
	V-3	Views of riparian corridor	C	X	X	X		
	V-4	Views of Grant-Kohrs residence	C	X	X	X		
	V-5	Views within fields, feedlots, and corral	C	X	X	X		
EC-3,4	Buildings and Structures							
	B-1	Bunkhouse Row	C	X	X	X	1862 - 1907	HS-2
	B-2	Ice House	C	X	X	X	1880	HS-5
	B-3	Coal Shed	C	X	X	X	1915	HS-4
	B-4	Blacksmith Shop/Garage	C		X	X	1935	HS-3
	B-5	Granary/Roller Mill	C		X	X	1935	HS-6
	B-6	Draft Horse Barn	C	X	X	X	1870	HS-7
	B-7	Privy	C		X	X	1934	HS-8
	B-8	Dairy	C		X	X	1932	HS-9
	B-9	Oxen Barn	C	X	X	X	ca. 1870	HS-10
	B-10	Bielenberg Barn	C	X	X	X	1880	HS-11
	B-11	Machine Shed	C	X	X	X	1890	HS-12
	B-12	Cow Shed	C	X	X	X	1908	HS-13
	B-13	Thoroughbred Barn	C	X	X	X	1883	HS-15
	B-14	Stallion Barn	C	X	X	X	1870s	HS-14
	B-15	Stallion Barn	C	X	X	X	1870s	HS-16
	B-16	Stallion Barn	C	X	X	X	1870s	HS-19
	B-17	Stallion Barn	C	X	X	X	1870s	HS-30
	B-19	Feed Storage House	C		X	X	1932	HS-31
	B-20	Buggy Shed	C	X	X	X	ca. 1883	HS-17
	B-21	Privy	C	X	X	X	ca. 1890	HS-20
	B-22	Granary	C	X	X	X	ca. 1890	HS-18
	B-23	Brooding House	C		X	X	1935	HS-21
	B-24	Chicken House	C		X	X	1935	HS-22
	B-25	Metal Granary	C	X	X	X	ca. 1910	HS-23

	B-26	Feed Storage House	C		X	X	1933		HS-28
	B-27	West Feedlot Storage Shed	C		X	X	ca. 1930		HS-34
	S-1	Cattle Scale	C		X	X	1935		HS-35
	S-2	Feed Rack	S			X	1984		HS-36
	S-3	Feed Rack	S			X	1984		HS-37
	S-4	Feed Rack	S			X	1984		HS-38
	S-5	Manure Pit	C		X	X	1932		HS-39
	S-6	Beef Hoist	C	X	X	X	ca. 1880		HS-40; rehab. 1982
	S-7	Squeeze Chute	S			X	1984		HS-41
	S-8	Feed Rack	S			X	1998		HS-42
	S-9	Feed Rack	S			X	1982-83		HS-43
	S-10	Feed Rack	S			X	1982-83		HS-44
	S-11	Feed Bunk	S			X	ca. 1937		HS-45; reconstructed 1991; 16173L
	S-12	Feed Bunk	S			X	ca. 1937		HS-46; reconstructed 1991; 16173L
	S-13	West Corrals Squeeze Chute	S			X	1984		HS-47
	S-14	Stock Shelter	C		X	X	1933		HS-24
	S-15	Stock Shelter	C		X	X	1933		HS-27
	S-16	Stock Shelter	C		X	X	1933		HS-29
	S-17	Stock Shelter	S			X	2000		HS-25
	S-18	Hay Storage	S			X	2000		HS-26
	S-19	Feed Bunk	S			X	1987		HS-48
	S-20	Feed Bunk	S			X	1987		HS-49
	S-21	Active/Irrigation Flume	C		X	X	1974		HS-50
	S-22	Kohrs-Manning Ditch Bridge	S			X	1982		HS-55
	S-23	West Feedlot Stock Shelter	C		X	X	1934		HS-32
	S-24	West Feedlot Stock Shelter	C		X	X	1932		HS-33
	S-25	West Feedlots Squeeze Chute	S			X	1984		HS-53
	S-26	West Feedlots Feed Bunk	S			X	1987		HS-52
	S-27	Slough Bridge	C		X	X	1930		HS-90
	S-28	Not used							
	S-29	Feed House	C		X	X	ca. 1945		M. McWright info, 2004
EC-6 Objects and Small-scale Features									
	SS-1	Jack-Leg Fence	C/S	X	X	X	ca. 1982		G. Stuart drawing; refer to park GIS database for details
	SS-2	Vertical Board Fence	C		X	X	pre-1937		16173L; fence likely dates to same period as HS-45 and HS-46.
	SS-3	5-Rail Stacked-end Fence	C		X	X	pre-1940		16841H
	SS-4	Simple Post and Rail Fence	C		X	X	pre-1940		16160H/16158H
	SS-5	Chicken Wire Fence	NC			X	1981		
	SS-6	Chicken Wire Gates	NC			X	1981		
	SS-7	Stacked Log Fence	C		X	X	pre-1938		16841H

	SS-8	Overhead Gate	C		X	X	pre-1938		16841H
	SS-9	Red Wood Gate	C		X	X	pre-1938		16841H
	SS-10	5-Rail Braced Gate	C	X	X	X	ca. 1866		1866 dwg, GRKO 6269
	SS-11	Vertical Board Gate	ND			X	ND		
	SS-116	Water trough	NC			X	1995		
	SS-117	Water bar	NC			x	2001		
	O-1	Fire Hydrants	NC			X	1980		Administrative History
	O-2	Fire Box	NC			X	ca. 1985		Administrative History
	EC-7	Archeological & Missing Resources							
	A-1	Irrigation system	M	X			ca. 1883		HRS, 215-216; CLI
	A-2	Drainage ditch to Johnson Creek	M	X			ca. 1890		1907 map of townsite
	A-3	Hydraulic Ram	M	X			ca. 1890		HRS, 194
	A-4	Kohrs-Manning Flume	M		X		1947		HS-51
	A-5	Bridge	M		X		ca. 1930		HS-54
	A-6	Machine Shed	M	X			pre-1907		NES-B
	A-7	Open Cow-Shed	M	X			pre-1907		NES-C
	A-8	Cow Stable	M	X			pre-1907		NES-D
	A-9	Cow Barn	M	X			pre-1907		NES-E
	A-10	Chicken House	M	X	X		pre-1884		NES-G, Leeson dwg
	A-11	Turkey House	M	X	X		pre-1884		11400L, Leeson dwg
	A-12	Cow Shed	M		X		pre-1930		NES-L
	A-13	Feed Rack	M		X		pre-1930		NES-H
	A-14	Feed Rack	M		X		pre-1930		NES-I
	A-15	Feed Rack	M		X		pre-1930		NES-J
	A-16	Feed Rack	M		X		pre-1930		NES-K
	A-17	Wooden box or flume	M				ND		NES-M
	A-18	Foundations, unknown	M		X		pre-1930		NES-N
	A-19	Watering Trough	M				ND		NES-O
	A-20	Log Retaining Wall	M		X		pre-1935		NES-P
	A-21	NPS trailer	M			X	1970		NPS Caretaker, removed 1976
	A-22	NPS trailer	M			X	1971		NPS Caretaker Office, removed 1976
	A-23	NPS trailer	M			X	1974		NPS Historian, moved near HS-15 in 1976 and removed 2002
	A-47	Slaughter House	M	X			ca. 1904		Gerhmann, 1974
	A-54	Building, unknown function	M		X		ca. 1937		GRKO 15884.12, GRKO 15884.14

Warren Hereford Ranch: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Periods					Comments
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	
EC-8	Natural Systems and Features								
	NS-5	Drainage swale	C		X	X			
EC-8	Vegetation								
	VE-5	Mix of native/non-native pasture grasses	C						detailed species not inventoried
EC-8	Spatial Organization								
	SO-10	Alleys	C		X	X	1952		
	SO-11	Square Corrals	C		X	X	1952		
	SO-12	Chute area	C/NC		X	X	1952		metal chute system NC
	SO-13	Shop/barn yards	C		X	X	1952		
	SO-14	West pasture	C		X	X	1952		
	SO-15	Bull barn corrals	C		X	X	1952		
	SO-16	Whiskey pasture	C		X	X	1952		NPS converted to parking area, 2003
	SO-17	Kohrs-Warren lane	C	X	X	X	ca. 1862		
	SO-18	Bull Barn Rd./NPS Service Entrance	C/NC		X	X	1953		Road modified by NPS in 1973
EC-9	Land Uses								
	L-4	NPS administration /storage/maintenance	NC		X	X	1974		
	L-3	Livestock grazing	C		X	X	ca. 1954		
	L-9	Ranching operations	C		X	X	ca. 1954		
	L-10	Water Treatment/Effluent Irrigation	S		X	X	1999		
EC-9	Constructed Water Features								
	CW-2	Heated water troughs	C/NC			X	ca. 1956		NPS added 2nd trough to some pens ca. 1995
EC-8	Circulation								
	C-8	Bull Barn Rd./NPS Service Entrance	C/NC		X	X	1953		Road modified by NPS in 1973
	C-9	Kohrs-Warren lane	C	X	X	X	ca. 1862		
	C-10	Gravel parking areas	C/NC		X	X	1952		HS-64/65 est. by Warren; Whiskey Pasture parking is NC, est. by NPS
	C-11	Alleys	C		X	X	1952		
	C-12	Business Loop 90	C	X	X	X	pre-1862		Road to Hell Gate; Montana Hwy 10

EC-8	Views and Viewsheds							
	V-6	Views to fairgrounds	C		X	X		
	V-7	Views of railroad corridor	C	X	X	X	ca. 1879	
	V-8	Views to Warren Residence	C		X	X		
	V-9	Views to Home Ranch complex	C	X	X	X		
EC-9	Buildings and Structures							
	B-30	Warren Barn	C		X	X	1952	HS-64
	B-31	Bull Barn	C		X	X	1952	HS-62
	B-32	Bull Barn	C		X	X	1952	HS-63
	B-33	Sales Barn	C		X	X	1954	HS-65
	B-34	Resource Building/Office	NC			X	2000	BLDG-003
	B-35	Scale House	C		X	X	1952	HS-66
	B-36	Cow Shed	C		X	X	1952	HS-70
	B-37	Cow Shed	C		X	X	1952	HS-71
	B-38	Cow Shed	C		X	X	1952	HS-72
	B-39	Cow Shed	C		X	X	1952	HS-73
	B-40	Cow Shed	C		X	X	1952	HS-74
	B-41	Cow Shed	C		X	X	1952	HS-75
	B-42	Cow Shed	C		X	X	1952	HS-76
	B-43	Cow Shed	C		X	X	1952	HS-77
	B-55	Hazmat Building	NC			X	2003	GRKO-005
	S-30	Loading Chute	C		X	X	1952	HS-69
	S-31	Squeeze Chute	S			X	1990s	HS-67
	S-32	Feed Rack	S			X	1998	HS-68
	S-33	Feed House	C		X	X	1952	HS-78
	S-34	Feed House	C		X	X	1952	HS-79
	S-35	Feed House	C		X	X	1952	HS-80
	S-36	Feed House	C		X	X	1952	HS-81
	S-37	Feed House	C		X	X	1952	HS-82
	S-38	Feed House	C		X	X	1952	HS-83
	S-39	Feed House	C		X	X	1952	HS-84
	S-51	Portable Chute System	NC			X	2000	
EC-10	Objects and Small-scale Features							
	SS-3	5-Rail Stacked-end Fence	C		X	X	ca. 1952	15916.41 ("rub rails")
	SS-8	Overhead Gate	C		X	X	ca. 1952	16171W
	SS-9	Red Wood Gate	C		X	X	ca. 1952	16193A
	SS-10	5-Rail Braced Gate	C		X	X	ca. 1952	16193A
	SS-11	Not Used						
	SS-12	Not Used						
	SS-13	Concrete slabs/blocks						probably airplane tie-downs; added per NPS comments

	SS-14	Plank and Post Fence	C		X	X	pre-1972		16114F
	SS-15	Flat Rail and Post Fence	C		X	X	ca. 1952		TREELAWN photo
	SS-16	Woven Wire Fence	C		X	X	ca. 1945		16171W
	SS-17	Metal Pipe Fence	NC			X	2000		
	SS-18	Metal Pipe Gates	NC			X	2000		
	SS-19	Lumber Stack	NC			X	ca. 1980s		
	SS-20	Hitching Post	NC			X	ca. 1980s		
	SS-21	Stop sign/RR crossing sign	NC			X	ca. 1970		
	SS-22	Wood Trough	C		X	X	ca. 1950s-1970s		
	SS-23	Material piles	C/NC		X	X	ca. 1970s /1988		NW corner pile dates to Warren period
	SS-24	Wood Chutes and Gates	C		X	X	ca. 1954		used with HS-65
	O-1	Fire Hydrants	NC			X	ca. 1985		
EC-10	Archeological & Missing Resources								
	A-24	Pump house	M		X	X	pre-1958		HS-85, moved 10' west from original location in 1990; removed 2002
	A-55	Warren Hereford Entry Sign	M		X	X	ca. 1952		16193A; removed by Warren

Grant-Kohrs Residence: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Period					Comments
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	
EC-11	Natural Systems and Features								
	NS-1	Bench	C	X	X	X			
EC-11	Vegetation								
	VE-6	Grid of cottonwood trees	S	X	X	X	ca. 1870s	N	<i>Populus trichocarpa</i> ; restored by NPS 2002
	VE-7	Ornamental vegetation (historical association derived from CLI, 2003)							
		<i>black willow</i>	C		X	X	ca. 1935		<i>Salix scoulerana</i>
		<i>green ash</i>	S	X	X	X			<i>Fraxinus Pennsylvanica</i> ; restored by NPS 2002
		<i>juniper</i>	C	X	X	X			<i>Juniperus occidentalis</i>
		<i>blue spruce</i>	C	X	X	X	pre-1922		<i>Picea pungens</i>
		<i>boxelders</i>	C	X	X	X			<i>Acer negundo</i>
		<i>lilac shrubs</i>	C	X	X	X	pre-1934		<i>Syringa vulgaris</i>
		<i>twinberry honeysuckle</i>	C	X	X	X			<i>Lonicera involucrata</i>
		<i>lanceleaf cottonwoods</i>	C	X	X	X			<i>Populus accuminata</i>
		<i>barberry shrubs</i>	C		X	X	ca. 1934		<i>Berberis thunbergii</i> 'Atropurpurea'
		<i>gooseberry shrubs</i>	C		X	X			<i>Ribes sp.</i>
		<i>cotoneaster shrub</i>	C		X	X			<i>Cotoneaster acutifolius</i>
	VE-8	Perennial Garden (historical association derived from CLI, 2003)							
		<i>babies breath</i>	ND			X			
		<i>bachelor buttons</i>	ND			X			
		<i>columbines</i>	ND			X			
		<i>crocuses</i>	C	X		X			
		<i>daffodils</i>	C	X		X			
		<i>daisies</i>	ND			X			
		<i>delphiniums</i>	ND			X			
		<i>flox</i>	ND			X			
		<i>forget-me-nots</i>	ND			X			
		<i>geraniums</i>	ND			X			
		<i>goldenrods</i>	ND			X			
		<i>hairbells</i>	ND			X			
		<i>hemerocalis</i>	ND			X			
		<i>hens and chicks</i>	ND			X			
		<i>hyacinths</i>	C	X		X			
		<i>irises</i>	ND			X			
		<i>dwarf irises</i>	ND			X			
		<i>lilies</i>	C	X		X			
		<i>monk's hood</i>	C	X		X			
		<i>peonies</i>	C	X		X			
		<i>pink poppies</i>	ND			X			
		<i>yellow raniculus</i>	ND			X			

		<i>rhubarb, soapwoods</i>	ND			X		
		<i>sweet peas</i>	C	X		X		
		<i>sweet williams</i>	ND			X		
		<i>tea roses</i>	C	X		X		
		<i>orange poppies</i>	ND			X		
		<i>tulips</i>	C	X		X		
	VE-9	Lawn	C	X	X	X	ca. 1880	
EC-13	Spatial Organization							
	SO-19	Front lawn	C	X	X	X	ca. 1880	
	SO-20	Side yards	C		X	X	ca. 1890	north side yard served as former service area until 1934
	SO-21	Lower garden	C	X	X	X	ca. 1890	re-established by NPS mid-1980s
	SO-22	Bunkhouse Road Corridor	C	X	X	X	ca. 1865	
EC-12	Land Uses							
	L-1	Interpretation	NC		X	X	1975	
	L-4	NPS Admin/Storage	NC			X	1975	
EC-13	Circulation							
	C-13	Asphalt Sidewalk	NC			X	1976	
	C-14	Wood Plank Walk	S	X		X	1975/ 1986	reconstructed by NPS
	C-15	Brick Walk	S	X	X	X	ca. 1912	reconstructed by NPS ca. 1975
	C-16	Flagstone Walk	S			X	1997-98	reconstructed by NPS
	C-17	Wide Stone Staircase	C		X	X	1934	
	C-18	Narrow Stone Staircase	S		X	X	1987	reconstructed by NPS
	C-19	Wooden Stairs	S	X	X	X	1977	reconstructed by NPS
	C-20	Remnant Stone Steps	C	X			ca. 1890	abandoned ca. 1930
	C-21	Bunkhouse Row Loop Road	C	X	X	X	ca. 1865	
	C-45	Kitchen Stairs	ND	X	X	X	ca. 1890	reconstructed by NPS
	C-46	Stone Path	ND		X	X	ca. 1934	
EC-12	Views and Viewsheds							
	V-10	Views of Railroad Corridor & Warren Residence	C	X	X	X	1883 and 1934	
	V-11	Views to lower ranch, riparian corridor, and western foothills	C	X	X	X		
	V-12	Views to Bunkhouse Row	C	X	X	X		
	V-13	Views from within lower garden	C	X	X	X		
	V-27	Views to Hillcrest Cemetery	C	X	X	X		

EC-12	Buildings and Structures							
	B-44	Main Residence	C	X	X	X	1862/1890	HS-1
	S-40	River Cobble Wall	C	X	X	X	ND	
	S-41	Stone Terraces	S	X	X	X	ND	reconstructed by NPS ca. 1983-85
	S-42	Cut Stone Retaining Wall	C		X	X	1934	
EC-14	Objects and Small-scale Features							
	SS-25	White Picket Fence	S	X	X	X	2002-2003	originally built 1882; replaced 1934; original reconstructed by NPS
	SS-26	Wire Mesh Gate	C		X	X	ca. 1934	6835
	SS-27	Manhole Cover	NC			X		
	SS-28	Wood Benches	S	X	X	X	ND	reconstructed by NPS ca. 1980
	SS-29	Stanchion Pipe	NC			X		
	SS-30	Trash Barrel - Small	NC			X		
	SS-32	Wooden Raised-Bed Frames	S	X	X	X	ca. 1980s	reconstructed by NPS
	SS-33	Wooden Trellises	S	X	X	X	1984	reconstructed by NPS
	SS-34	Capped Pipes	NC			X		
	SS-35	Utility Meters	NC			X		
	SS-36	Yellow Stand-pipe	NC			X		
	SS-37	Sign	NC			X	1997	
	SS-38	Wood Cellar Covers	S	X	X	X	ca. 1890	reconstructed by NPS
	SS-39	Wood hand rail	S		X	X	1987	reconstructed by NPS
	O-1	Fire Hydrant	NC			X		
	O-2	Fire Box	NC			X		
	O-3	Utility Cover	NC			X		
	O-4	Wheelbarrow	NC			X	ca. 1995	NPS reproduction of period piece
EC-14	Archeological & Missing Resources							
	A-1	Irrigation system	M	X			ca. 1883	HRS, 215-216; CLI
	A-2	Drainage Ditch	M	X			ca. 1890	
	A-22	NPS trailer	M			X	1970	
	A-48	Ornamental vegetation	M					(Shappins, 2003), 35; specific locations not determined
		<i>Granny's Bonnet (Aquilegia)</i>						
		<i>Johnny Jump Ups (Viola tricolor),</i>						
		<i>Heart's Ease (Viola x wittrockiana)</i>						
		<i>Roses (various species)</i>						
		<i>orange Zinnias</i>						speculative
		<i>yellow Marigolds</i>						speculative
		<i>blue Ageratum,</i>						speculative
		<i>pink Wax Begonias</i>						speculative

		<i>white Allysum</i>							speculative
		<i>scarlet Salvia</i>							speculative
		<i>purple Petunias</i>							speculative
	A-49	Vegetable garden	M						(Shappins, 2003), 35.
		<i>string beans</i>							
		<i>rhubarb</i>							
		<i>red potatoes</i>							
		<i>scallions</i>							
		<i>onions</i>							
		<i>leaf lettuce</i>							
		<i>carrots</i>							
		<i>radishes</i>							
		<i>yellow corn,</i>							
		<i>squash (hubbard)</i>							
		<i>parsnips</i>							
		<i>strawberries</i>							

Warren Residence: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Period					Comments
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	
EC-15	Natural Systems and Features								
	NS-6	North Fork of Johnson Creek	C	X	X	X			
	NS-1	Bench	C	X	X	X			
EC-15	Vegetation								
	VE-10	Ornamental vegetation	C						
		<i>Black cottonwood</i>			X	X		N	<i>Populus trichocarpa</i>
		<i>Spruce</i>			X	X		N	<i>Picea sp.</i>
		<i>Mountain alder</i>			X	X			<i>Alnus incana</i>
		<i>Mountain ash</i>			X	X		N	<i>Sorbus aucuparia</i>
		<i>Maple</i>			X	X			<i>Acer sp.</i>
		<i>Green ash</i>			X	X			<i>Fraxinus pennsylvanica</i>
		<i>Juniper tree</i>			X	X			<i>Juniperus sp.</i>
		<i>Juniper shrub</i>			X	X			<i>Juniperus sp.</i>
		<i>Cotoneaster</i>			X	X			<i>Cotoneaster sp.</i>
	VE-11	Riparian zone vegetation	C						
		<i>willow sp.</i>		X	X	X		N	<i>Salix sp.</i>
		<i>smooth brome</i>				X		E	<i>Bromus inermis</i>
		<i>black cottonwood</i>		X	X	X		N	<i>Populus trichocarpa</i>
	VE-12	Non-irrigated pasture grasses	C						
		<i>bluebunch wheatgrass</i>		X	X	X		N	<i>Agropyron spicatum</i>
		<i>moss phlox</i>		X	X	X		N	<i>Phlox muscoides</i>
		<i>needle-and-thread grass</i>		X	X	X		N	<i>Stipa comata</i>
		<i>Missouri goldenrod</i>		X	X	X		N	<i>Solidago missouriensis</i>
		<i>hairy goldenaster</i>		X	X	X		N	<i>Chrysopsis villosa</i>
		<i>desert alyssum</i>				X		E	<i>Alyssum desertorum</i>
		<i>blue grama</i>		X	X	X		N	<i>Bouteloua gracilis</i>
	VE-13	Lawn			X	X			
EC-16	Spatial Organization								
	SO-23	Domestic yard	C		X	X	1934		
	SO-24	Chicken coop field	C		X	X	1940		
	SO-25	East field	C		X	X	1934		
	SO-26	West field	C		X	X	1934		
	SO-27	Stuart pasture	C		X	X	1934		spatial org. altered after visitor center area development
	SO-17	Kohrs-Warren lane	C	X	X	X	ca. 1862		
	SO-28	Riparian zone (North Fork of Johnson Creek)	C	X	X	X			
EC-16	Land Uses								
	L-4	NPS administration/storage	NC			X	1994		
	L-3	Livestock grazing	C	X	X	X	ca. 1884		
	L-1	Interpretation	NC			X	ca. 1994		

EC-16	Constructed Water Features							
	CW-3	Well	C		X	X	1934	
	CW-4	Culvert	C		X	X	pre-1947	
	CW-5	Old Ditch	C		X	X	ND	
EC-16	Circulation							
	C-7	Kohrs-Warren lane	C	X	X	X	ca. 1862	
	C-19	Driveway	C		X	X	1934	
	C-20	Sidewalk	C		X	X	1934	Concrete replaced flagstone walk ca. 1956 (16004.152)
	C-21	Stuart pasture road	C		X	X	pre-1947	
	C-22	Steps	C		X	X	1956	HSR
	C-23	Patio	C		X	X	ca. late 1940s	
	C-45	Remnant stone path	C		X	X		locations approximate
	C-46	Chicken Coop road	C		X	X		
EC-17	Views and Viewsheds							
	V-14	Views within yard	C		X	X		
	V-15	Views of riparian zone	C	X	X	X		
	V-16	Views to Grant-Kohrs Residence	C	X	X	X		
	V-17	Views to Warren Hereford Ranch	C		X	X		
	V-18	Views of railroad corridor	C	X	X	X		
	V-19	Views of Visitor Center Complex	NC			X		
EC-16	Buildings and Structures							
	B-45	Warren Residence	C		X	X	1934	HS-58
	B-46	Garage	C		X	X	1934	HS-61
	B-47	Warren Residence Pump House	C		X	X	1954	HS-88
	B-48	Chicken Coop	C		X	X	1940	HS-59
	B-49	Boat House	C		X	X	ca. 1950	HS-60
EC-18	Objects and Small-scale Features							
	SS-40	Picket Fence	S		X	X	1934	5992HS; reconstructed by NPS ca. 2001
	SS-41	Electric Fence	NC			X	ca. 2000	
	SS-42	Picket Double Gate	C		X	X	1934	15884.22
	SS-43	Picket Single Gate	C		X	X	1934	
	SS-44	Wire Mesh Gate	C		X	X	ca. 1952	15882
	SS-45	Wood Post and Woven Wire Fence	C		X	X	pre-1943	1588421
	SS-46	Red Wood Gate	C				ca. 1934	
	SS-47	Jack-Leg Fence	NC				ca. 1975	NPS construction
	SS-48	5-Rail Braced Gate	C		X	X	ca. 1934	
	SS-49	Stepping Stones	NC		X	X		Not in original location; stones removed by NPS 2003; 5891
	SS-50	NPS Mailbox	NC			X	2002	
	SS-51	BBQ foundation/burn barrel	C		X	X	ca. 1958	
	SS-52	Clothesline	C		X	X	pre-1964	16058A

	SS-53	Concrete trough	ND				pre-1972	
	SS-54	Magpie trap	ND				ca. 1955	
	SS-55	Birdbath	C		X	X	pre-1964	16058A
	O-1	Fire hydrant	NC			X	1998	
	O-6	Antenna	NC			X	ND	
	O-7	Meter	NC			X	ND	
EC-18	Archeological & Missing Resources							
	A-1	Irrigation Ditch (GK residence)		X	X		ca. 1883	HRS, 215-216; CLI
	A-23	Warren Lane irrigation system			X		ND	NPS review comments (need source)
	A-24	Granary foundation remains			X		ca. 1950-60	1947 and 1960 aerials
	A-25	Ornamental vegetation			X		1934 and later	
	A-26	Garden			X		ca. 1934	location approximate
	A-27	Allee of cottonwoods			X		ca. 1870	16114H
	A-47	Berg Trailer			X		pre-1982	1983 aerial
	A-48	Creep Feeder			X		ND	location approximate; removed by NPS
	A-49	Wooden Bridge			X		ca. 1940	15882.20
	A-50	Flagstone Walk			X		ca. 1940	15882.20; full extent NC
	A-51	Swing set			X		ca. 1938	5964
	A-52	Dog House			X		ca. 1939	5879; location approximate
	A-53	Sweet Pea Trellis			X		ca. 1937	5936; 5881; location approximate

Pasture/Hayfield: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Period					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-19,20	Natural Systems and Features								
	NS-1	Bench	C	X	X	X			
	NS-7	Springs	C	X	X	X			
	NS-8	No-name Creek	C	X	X	X			
	NS-9	Spring Gulch	C	X	X	X			
	NS-10	West Gulch	C	X	X	X			
	NS-11	East Gulch	C	X	X	X			
	NS-17	Beaver Lodges	C	X	X	X			
EC-19,20	Vegetation								
	VE-13	Irrigated hay grasses							
		<i>smooth brome</i>	C		X	X	ca. 1950	E	<i>Bromus inermis</i>
		<i>common timothy</i>	C	X	X	X	1893	E	<i>Phleum pratense</i>
		<i>Kentucky bluegrass</i>	C		X	X		E	<i>Poa pratensis</i>
		<i>red clover</i>	C	X	X	X	1894	E	<i>Trifolium pratense</i>
		<i>Canada thistle</i>	NC		?	X		E	<i>Cirsium arvense</i>
		<i>crested wheatgrass</i>	C		X	X	1951	E	<i>Agropyron cristatum</i>
		<i>white clover</i>	ND		X	X	?	E	<i>Trifolium repens</i>
		<i>redtop bentgrass</i>	C		X	X	?	E	<i>Agrostis stolonifera</i>
		<i>intermediate wheatgrass</i>	C		X	X	ca. 1939-49	E	<i>Agropyron intermedium</i>
	VE-14	Non-irrigated pasture grasses							
		<i>bluebunch wheatgrass</i>	C	X	X	X		N	<i>Agropyron spicatum</i>
		<i>moss phlox</i>	C	X	X	X		N	<i>Phlox muscoides</i>
		<i>needle-and-thread grass</i>	C	X	X	X		N	<i>Stipa comata</i>
		<i>Missouri goldenrod</i>	C	X	X	X		N	<i>Solidago missouriensis</i>
		<i>hairy goldenaster</i>	C	X	X	X		N	<i>Chrysopsis villosa</i>
		<i>desert alyssum</i>	NC		?	X		E	<i>Alyssum desertorum</i>
		<i>blue grama</i>	C	X	X	X		N	<i>Bouteloua gracilis</i>
	VE-15	Irrigated pasture grasses (effluent fields)							
		<i>smooth brome</i>	C		X	X	ca. 1950	E	<i>Bromus inermis</i>
		<i>spotted knapweed</i>	NC		X	X		E	<i>Centaurea biebersteinii</i>
		<i>bluebunch wheatgrass</i>	C	X	X	X		N	<i>Agropyron spicatum</i>
		<i>moss phlox</i>	C	X	X	X		N	<i>Phlox muscoides</i>
		<i>needle-and-thread grass</i>	C	X	X	X		N	<i>Stipa comata</i>
		<i>Missouri goldenrod</i>	C	X	X	X		N	<i>Solidago missouriensis</i>
		<i>hairy goldenaster</i>	C	X	X	X		N	<i>Chrysopsis villosa</i>
		<i>desert alyssum</i>	NC			X		E	<i>Alyssum desertorum</i>
		<i>blue grama</i>	C	X	X	X		N	<i>Bouteloua gracilis</i>
		<i>orchard grass</i>	NC			X	ca. 1950	E	<i>Dactylis glomerata</i>
		<i>western sticktight</i>	C	X	X	X		N	<i>Lappula occidentalis</i>

EC-21,22	Spatial Organization							
	SO-29	Stuart Field	C	X	X	X		aka Stuart Meadow
	SO-30	Lower Yard Fields	C	X	X	X		
	SO-31	North Meadows	C	X	X	X		aka Lower Meadows
	SO-32	L-Barn Field North	C	X	X	X		
	SO-33	Western Hay Fields	C		X	X	ca. 1930	aka Pumphouse Fields, Lower Meadow Fields (1-4), River Bridge Field, West Side Fields
	SO-34	Front Field	C	X	X	X		spatial organization altered by WH Ranch, 1952
	SO-35	Olson Field, East	C	X	X	X		
	SO-36	Olson Field, West	C	X	X	X		
	SO-37	Treatment Pond Field	C	X	X	X		spatial organization altered by sewage pond, 1958-60
	SO-38	L-Barn Field	C	X	X	X		
	SO-39	Kohrs "Big" Ditch Road	C		X	X	late 1930s	
	SO-40	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973	constructed by NPS
	SO-41	Warren Pumphouse Road	C	X	X	X	ca. 1890	
	SO-42	Clark-Fork River Bridge Road	C		X	X	ca. 1930	
	SO-43	Sewage treatment service road	C		X	X	1958-60	
	SO-44	South park entry road	C		X	X	late 1930s	
EC-21,22	Land Uses							
	L-3	Livestock grazing	C	X	X	X	1860s+	
	L-5	Hay production	C	X	X	X	1860s+	
	L-10	Water treatment/Effluent irrigation	NC			X	1999	
EC-23,24	Constructed Water Features							
	CW-1	Kohrs-Manning Ditch	C	X	X	X	ca. 1870	
	CW-6	Kohrs "Big" Ditch	C	X	X	X	ca. 1885	assumed by water rights
	CW-7	Johnson Ditch	C	X	X	X	ca. 1874 or earlier	assumed by water rights
	CW-8	Lateral ditches	C		X	X	1930-50	
	CW-9	Old/abandoned ditches	C		X	X	ND	
	CW-10	Irrigation Risers	S		X	X	1999	Original irrigation system by Warren, 1954; NPS reconstructed with co-op agreement
	CW-11	Irrigation Headgates	S		X	X	1999	Original irrigation system by Warren, 1954; NPS reconstructed with co-op agreement
	CW-12	Effluent Wells	NC			X	1999	Co-op agreement

	CW-13	Irrigation Mainline	S		X	X	1999		Original irrigation system by Warren, 1954; NPS reconstructed with co-op agreement
	CW-14	Test Wells	NC			X	1997		Special use permit
	CW-15	Culverts	ND			X	ND		Not individually analyzed
	CW-16	Warren Ditch	C		X	X	pre-1947		1947 aerial photo
EC-21,22	Circulation								
	C-23	Kohrs Ditch Road	C		X	X	late 1930s		
	C-24	Kohrs-Manning Ditch Road	NC		X	X	ca. 1973		constructed by NPS
	C-25	Warren Pumphouse Road	C	X	X	X	ca. 1890		
	C-26	Clark-Fork River Bridge Road	C		X	X	ca. 1930		
	C-27	Sewage treatment service road	C		X	X	1958-60		
	C-28	South park entry road	C		X	X	late 1930s		
	C-29	Cottonwood Trail	NC			X	1993		
EC-25,26	Views and Viewsheds								
	V-20	Views to riparian corridor	C	X	X	X			
	V-21	Views to western foothills	C	X	X	X			
	V-22	Views of Deer Lodge	C	X	X	X			
	V-23	Views of sewage treatment ponds	C		X	X	1958-60		
	V-24	Views of Home Ranch Complex	C	X	X	X			
	V-25	Views of Business Loop 90 corridor	C	X	X	X			
	V-26	Views of Railroad Corridor	C	X	X	X	1879+		
	V-27	Views of Hillcrest Cemetery	C	X	X	X			
EC-19,20	Buildings and Structures								
	S-43	Jensen Hay Stacker	S			X	ND		
EC-27,28	Objects and Small-scale Features								
	SS-56	Jack-Leg Fence	C/S/NC	X	X	X	1860s+		Not individually analyzed; refer to park GIS database for details
	SS-57	Metal Post and Wire Fence	C/S/NC		X	X	ND		Not individually analyzed; refer to park GIS database for details; cross fence NC (1990s)
	SS-58	Wood Post and Wire Fence	C/S/NC		X	X	ND		Not individually analyzed; refer to park GIS database for details
	SS-59	Overhead Gates	ND			X			
	SS-60	Double 5-Rail Braced Gate	ND			X			

	SS-61	Metal Pipe Gate	NC			X	ca. 1999		
	SS-62	Metal Pipe and Mesh Gates	NC			X	ca. 1999		
	SS-63	Wood Post and Woven Wire Fence	C/S		X	X	ND		Not individually analyzed; refer to park GIS database for details
	SS-64	Blue water troughs	NC			X	ca. 1999		
EC-27, 28	Archeological & Missing Resources								
	A-29	Wood frame structure, ruins	M				ND		
	A-30	Road to Hell Gate	M	X	X		pre-1868		aka "Old County Road"; moved late 1930s

Upland Pasture: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Periods					Comments
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	
EC-29	Natural Systems and Features								
	NS-1	Bench	C	X	X	X			
	NS-12	Hilltops	C	X	X	X			
	NS-13	Taylor Creek	C	X	X	X			
EC-30	Vegetation								
	VE-13	Irrigated hay grasses							
		<i>smooth brome</i>	C		X	X	ca. 1950	E	<i>Bromus inermis</i>
		<i>common timothy</i>	C	X	X	X	1893	E	<i>Phleum pratense</i>
		<i>Kentucky bluegrass</i>	ND		X	X		E	<i>Poa pratensis</i>
		<i>red clover</i>	C	X	X	X	1894	E	<i>Trifolium pretense</i>
		<i>Canada thistle</i>	NC			X		E	<i>Cirsium arvense</i>
		<i>crested wheatgrass</i>	C		X	X	1951	E	<i>Agropyron cristatum</i>
		<i>white clover</i>	ND			X	ND	E	<i>Trifolium repens</i>
		<i>redtop bentgrass</i>	C		X	X	ND	E	<i>Agrostis stolonifera</i>
		<i>intermediate wheatgrass</i>	C		X	X	ca. 1939-1945	E	<i>Agropyron intermedium</i>
	VE-16	Dry range/pasture grasses							
		<i>common yarrow</i>	C	X	X	X		N	<i>Achillea millefolium</i>
		<i>crested wheatgrass</i>	NC			X		E	<i>Agropyron cristatum</i>
		<i>fringed sagebrush</i>	C	X	X	X		N	<i>Artemisia frigida</i>
		<i>standing milkvetch</i>	C	X	X	X		N	<i>Astragalus adsurgens</i>
		<i>blue grama</i>	C	X	X	X		N	<i>Bouteloua gracilis</i>
		<i>smooth brome</i>	NC		X	X		E	<i>Bromus inermis</i>
		<i>spotted knapweed</i>	NC			X		E	<i>Centaurea biebersteinii</i>
		<i>waveleaf thistle</i>	C	X	X	X		N	<i>Cirsium undulatum</i>
		<i>rubber rabbitbush</i>	C	X	X	X		N	<i>Ericameria nauseosa</i>
		<i>shaggy fleabane</i>	C	X	X	X		N	<i>Erigeron pumilus</i>
		<i>cultleaf daisy</i>	C	X	X	X		N	<i>Erigeron compositus</i>
		<i>rough fescue</i>	C	X	X	X		N	<i>Festuca campestris</i>
		<i>scarlet gaura</i>	C	X	X	X		N	<i>Gaura coccinea</i>
		<i>prairie smoke</i>	C	X	X	X		N	<i>Geum triflorum</i>
		<i>curly-cup gumweed</i>	C	X	X	X		N	<i>Grindelia squarrosa</i>
		<i>broom snakeweed</i>	C	X	X	X		N	<i>Gutierrezia saothrae</i>
		<i>baby's breath</i>	NC			X		E	<i>Gypsophia paniculata</i>
		<i>needle-and-thread</i>	C	X	X	X		N	<i>Hesperostipa comata</i>
		<i>little-leaf alumroot</i>	C	X	X	X		N	<i>Heuchera parvifolia</i>
		<i>winterfat</i>	C	X	X	X		N	<i>Krascheninnikovia lanata</i>
		<i>bitterroot</i>	C	X	X	X		N	<i>Lewisia rediviva</i>
		<i>yellow sweetclover</i>	NC			X		E	<i>Mellilotus officinalis</i>
		<i>plains pricklypear</i>	C	X	X	X		N	<i>Opuntia polyacantha</i>
		<i>Bessey's locoweed</i>	C	X	X	X		N	<i>Oxytropis besseyi</i>
		<i>western wheatgrass</i>	C	X	X	X		N	<i>Agropyron smithii</i>

		<i>longleaf phlox</i>	C	X	X	X		N	<i>Phlox longifolia</i>
		<i>moss phlox</i>	C	X	X	X		N	<i>Phlox muscoides</i>
		<i>sandberg's bluegrass</i>	C	X	X	X		N	<i>Poa juncifolia</i>
		<i>bluebunch wheatgrass</i>	C	X	X	X		N	<i>Agropyron spicatum</i>
		<i>tall tumbledustard</i>	NC			X		E	<i>Sisymbrium altissimum</i>
		<i>Missouri goldenrod</i>	C	X	X	X		N	<i>Solidago missouriensis</i>
		<i>scarlet globemarrow</i>	C	X	X	X		N	<i>Sphaeralcea coccinea</i>
		<i>dandelion</i>	NC			X		E	<i>Taraxacum officinale</i>
		<i>spineless horsebrush</i>	C	X	X	X		N	<i>Tetradymia canescens</i>
		<i>intermediate wheatgrass</i>	NC		X	X		E	<i>Agropyron intermedium</i>
	VE-17	Apple tree cluster	C		X	X	ca. 1890	E	<i>Malus sp.</i>
	VE-18	Cottonwood tree cluster	C		X	X	ca. 1890	N	<i>Populus trichocarpa</i>
EC-30	Spatial Organization								
	SO-45	Big Gulch	C		X	X	1930s		
	SO-46	Little Gulch	C		X	X	1930s		
	SO-47	Lower Taylor Field	C		X	X	1930s		aka Taylor meadow
	SO-48	Upper Northwest Range	C		X	X	1930s		
	SO-49	Taylor Ridge Range	C		X	X	1930s		
	SO-50	Gravel Pit Range	C		X	X	1930s		
	SO-51	Ridge Road Range	C		X	X	1930s		
	SO-52	Upper Taylor Field	C		X	X	1930s		
EC-30	Land Uses								
	L-3	Livestock Grazing	C		X	X	1930s		
	L-5	Hay production	C	X	X	X	1860s+		
EC-29	Constructed Water Features								
	CW-6	Kohrs "Big" Ditch	C	X	X	X	ca. 1885		
	CW-8	Lateral ditches	C		X	X	1930-50		
	CW-9	Old/abandoned ditches	C		X	X	ND		
	CW-13	Irrigation Mainline	NC			X	ND		location approximate
	CW-17	West-side Ditch	C	X	X	X	1887		
	CW-18	Hartz Ditch	C	X	X	X	ca. 1890		assumed association with Kading homesite
	CW-19	Taylor Ditches	C			X	ca. 1885		GRKO water rights
	CW-20	Salmonson Waste Ditch	ND			X	ND		
	CW-21	Irrigation Headgates	S/NC		X	X	ND		Most headgates in original location but reconstructed; not individually analyzed based on NPS comments
	CW-22	Earthen Dam	ND			X	ND		
EC-31	Circulation								
	C-23	Kohrs Ditch Road	C		X	X	late 1930s		
	C-30	Upland Pasture Road	C		X	X	ca. 1890		assumed association with Kading homesite
	C-31	Ridge Road	C		X	X	ca. 1890		assumed association with Kading homesite

	C-32	MTR-4691	C		X	X	ND		
	C-33	Gravel Pit Road	C		X	X	late 1950s		
	C-34	Little Gulch Road	C		X	X	ND		
	C-35	Big Gulch Road	C		X	X	ND		
EC-31	Views and Viewsheds								
	V-28	Views of the ranch and riparian zone	C	X	X	X			
	V-29	Views of Deer Lodge/Hillcrest Cemetery	C	X	X	X			
	V-30	Views to Deer Lodge Mountain/Mt. Powell	C	X	X	X			
	Buildings and Structures								
		N/A							
EC-32	Objects and Small-scale Features								
	SS-65	Metal Post and Barbed Wire Fence	NC			X	1998		
	SS-66	Wood Post and Barbed Wire	C/S		X	X	ca. 1930s		not individually analyzed
	SS-67	Electric Fence	NC			X	ca. 2002		
	SS-68	5-Rail Stacked-End Fence	C		X	X	ND		
	SS-69	Wire Gates	ND			X	ND		
EC-32	Archeological & Missing Resources								
	A-31	Dump Areas	M		X		ND		
	A-32	Pig Farm Foundation	M		X		ND		
	A-33	Kading Homestead	M	X	X		ca. 1890		
	A-34	Excavations	M		X		ND		gravel pit excavated late-1950s, reclaimed 1994
	A-35	Brickyard	M		X		ND		
	A-36	Archeological-Tipi	M				ND		
	A-56	Hilltop (removed for road grade)	M	X	X	X	ND		NPS removed ca. 1992

Riparian Woodland: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Period					Comments
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	
EC-33	Natural Systems and Features								
	NS-2	Johnson Creek	C	X	X	X			
	NS-7	Springs	C	X	X	X			
	NS-14	Clark Fork River	C	X	X	X			
	NS-15	Cottonwood Creek	C	X	X	X			
	NS-16	Sloughs	C	X	X	X			
	NS-17	Beaver Lodges	C	X	X	X			
EC-33	Vegetation								
	VE-19	Riparian vegetation communities							
		<i>geyer willow</i>	C	X	X	X		N	<i>Salix geyeriana</i>
		<i>water birch</i>	C	X	X	X		N	<i>Betula occidentalis</i>
		<i>sandbar willow</i>	C	X	X	X		N	<i>Salix exigua</i>
		<i>western snowberry</i>	C	X	X	X		N	<i>Symphoricarpos occidentalis</i>
		<i>Bebb willow</i>	C	X	X	X		N	<i>Salix bebbiana</i>
		<i>woods rose</i>	C	X	X	X		N	<i>Rosa woodsii</i>
		<i>smooth brome</i>	NC		X		ca. 1950	E	<i>Bromus inermis</i>
		<i>Baltic rush</i>	C	X	X	X		N	<i>Juncus balticus</i>
		<i>redtop bentgrass</i>	NC		X	X	?	E	<i>Agrostis stolonifera</i>
		<i>beaked sedge</i>	C	X	X	X		N	<i>Carex utriculata</i>
		<i>black cottonwood</i>	C	X	X	X		N	<i>Populus trichocarpa</i>
		<i>Rocky Mountain juniper</i>	C	X	X	X		N	<i>Juniperus scopulorum</i>
		<i>cattail</i>	C	X	X	X		N	<i>Typha latifolia</i>
EC-34	Spatial Organization								
	SO-53	Clark Fork River Riparian Zone	C	X	X	X			
	SO-54	Cottonwood Creek Riparian Zone	C	X	X	X			
	SO-55	Johnson Creek Riparian Zone	C	X	X	X			
	SO-56	Slickens	NC	X	X	X	pre-1908		J. Eckberg, 2001
	SO-57	Cottonwood Trail	NC			X	1993		
	SO-58	Clark Fork River Bridge Road	C		X	X	ca. 1930		
EC-34	Land Uses								
	L-6	Conservation	NC			X	early 1980s		
	L-1	Interpretation	NC		X	X	1975		
	L-11	Recreation	NC			X	ND		
EC-35	Constructed Water Features								
	CW-1	Kohrs-Manning Ditch	C	X	X	X	ca. 1870		
	CW-7	Johnson Ditch	C	X	X	X	ca. 1874		assumed by water rights
	CW-9	Old/abandoned ditches	C		X	X	ND		

EC-34	Circulation								
	C-29	Cottonwood Trail	NC			X	1993		
	C-26	Clark Fork River Bridge Road	C		X	X	ca. 1930		
EC-35	Views and Viewsheds								
	V-31	Views of pastures and hay fields	C	X	X	X			
	V-32	Views within riparian woodland	C	X	X	X			
	V-33	Views to sewage treatment ponds	C		X	X	1958-60		
EC-35	Buildings and Structures								
	S-27	Slough Bridge	C		X		1930		HS-90
	S-44	Clark Fork Bridge	C		X		1930		HS-89
	B-50	Pump House South	C		X		1960		HS-87
EC-36	Objects and Small-scale Features								
	SS-3	4-rail stacked end fence	ND			X	ND		
	SS-56	Jack-Leg Fence	C/NC		X	X	ca. 1980		NC along SE and N sides of river, and along KM ditch
	SS-57	Metal Post and Barbed Wire fence	NC			X	1994		
	SS-63	Wood Post and Woven Wire Fence	ND			X	ND		
	SS-70	Metal Post and Hog Panel Fence	ND			X	ND		
	SS-71	Double-Rail and Post Fence	ND			X	ND		
	SS-72	5-rail braced gate	ND			X	ND		
	SS-73	Old Fence Remnants	C		X	X	ND		
	SS-74	Health warning signs	NC			X	1988		
	SS-75	Wooden sign	NC			X	ND		
	SS-76	Wooden interpretive markers	NC			X	ca. 1993		
	SS-77	Wooden bench	NC			X	1994		
	O-5	Metal pump drum	ND			X	ND		
EC-37	Archeological & Missing Resources								
	A-37	wagon tongues	M				ND		
	A-38	wagon wheels	M				ND		
	A-39	old logs	M				ND		
	A-40	old bridge	M				ND		
	A-41	historic dump	M				ND		
	A-42	berm dam	M				ND		
	A-43	old wooden flume	M				ND		

Railroad/Barrow Pit: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Period					Comments
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	
EC-38	Natural Systems and Features								
	NS-2	Johnson Creek	C	X	X	X			
	NS-11	East Gulch	C	X	X	X			
	NS-18	Beaver Lodges	C	X	X	X			
EC-38	Vegetation								
	VE-20	Railroad bed grasses							
		<i>bluebunch wheatgrass</i>	C	X	X	X		N	<i>Agropyron spicatum</i>
		<i>moss phlox</i>	C	X	X	X		N	<i>Phlox muscoides</i>
		<i>needle-and-thread grass</i>	C	X	X	X		N	<i>Stipa comata</i>
		<i>Missouri goldenrod</i>	C	X	X	X		N	<i>Solidago missouriensis</i>
		<i>hairy goldenaster</i>	C	X	X	X		N	<i>Chrysopsis villosa</i>
		<i>desert alyssum</i>	C	X	X	X		N	<i>Alyssum desertorum</i>
		<i>blue grama</i>	C	X	X	X		N	<i>Bouteloua gracilis</i>
		<i>spring whitlow-grass</i>	C	X	X	X		N	<i>Draba verna</i>
		<i>common sagewort</i>	C	X	X	X		N	<i>Artemisia campestris</i>
		<i>spotted knapweed</i>	NC			X		E	<i>Centaurea biebersteinii</i>
		<i>baby's breath</i>	NC			X		E	<i>Gypsophila paniculata</i>
	VE-21	Barrow pit vegetation							
		<i>cattails</i>	C	X	X	X		N	<i>Typha latifolia</i>
		<i>softstem bulrush</i>	C	X	X	X		N	<i>Scheuchzeria palustris</i>
		<i>forget-me-nots</i>	C	X	X	X		N	<i>Myosotis scorpioides</i>
		<i>cottonwoods</i>	C	X	X	X		N	<i>Populus trichocarpa</i>
		<i>willows</i>	C	X	X	X		N	<i>Salix sp.</i>
		<i>western serviceberry</i>	C	X	X	X		N	<i>Amelanchier alnifolia</i>
		<i>yellow rocket</i>	NC			X		E	<i>Barbarea vulgaris</i> *)
		<i>ballhead waterleaf</i>	C	X	X	X		N	<i>Hydrophyllum capitatum</i>
		<i>Utah honeysuckle</i>	C	X	X	X		N	<i>Lonicera utahensis</i>
		<i>blunt-leaf yellowcress</i>	C	X	X	X		N	<i>Rorippa curvipes</i>
		<i>redosier dogwood</i>	C	X	X	X		N	<i>Cornus sericea</i>
		<i>chokecherry</i>	C	X	X	X		N	<i>Prunus virginiana</i>
		<i>violet</i>	C	X	X	X		N	<i>Viola sp.</i>
	VE-22	Ungrazed prairie							
		<i>bluebunch wheatgrass</i>	C	X	X	X		N	<i>Agropyron spicatum</i>
		<i>giant wildrye</i>	C	X	X	X		N	<i>Elymus canadensis</i>
		<i>needle-and-thread grass</i>	C	X	X	X		N	<i>Hesperostipa comata</i>
		<i>Indian ricegrass</i>	C	X	X	X		N	<i>Oryzopsis hymenoides</i>
		<i>moss phlox</i>	C	X	X	X		N	<i>Phlox muscoides</i>
		<i>long-leaf phlox</i>	C	X	X	X		N	<i>Phlox longifolia</i>
		<i>land larkspur</i>	C	X	X	X		N	<i>Delphinium nuttallianum</i>
		<i>woolypod milkvetch</i>	C	X	X	X		N	<i>Astragalus purshii</i>
		<i>plains pricklypear</i>	C	X	X	X		N	<i>Opuntia polyacantha</i>

EC-38	Spatial Organization								
	SO-59	Railroad corridor	C	X	X	X	1879/1908		
	SO-60	Barrow pit	C	X	X	X	1908		
	SO-61	Ungrazed prairie	C	X	X	X			
EC-39	Land Uses								
	L-6	Conservation	NC			X	ND		
	L-7	Transportation	C	X	X	X	1879		
	L-8	Utilities	C	X	X	X	ND		
	L-1	Interpretation	NC			X	1985		
EC-39	Constructed Water Features								
	CW-12	Effluent Wells	NC			X	1999		
	CW-13	Irrigation Mainline	NC			X	1999		
EC-39	Circulation								
	C-33	Burlington Northern Railroad line	C	X	X	X	1879		previously Montana Western RR
	C-34	Old Milwaukee Railroad road	C	X	X	X	1908		tracks removed 1982
	C-35	NPS Service Road/at-grade crossing	C		X	X	1979		
	C-36	Sewage treatment service road/at-grade crossing	C		X	X	1958-60		
EC-40	Views and Viewsheds								
	V-34	Views to Ranch complexes	C	X	X	X			
	V-35	Views to Visitor Center complex	NC		X	X			
	V-36	Views framed by vegetation	C	X	X	X			
	V-37	Views to riparian corridor and mountains	C	X	X	X			
EC-39	Buildings and Structures								
	S-47	Siphon	C	X	X	X	1908		HS-57
	S-48	Cattle Car ca. 1923	S		X	X	1986		GRKO-970
	S-49	Cattle Car ca. 1929	S		X	X	1985		GRKO-862
	S-50	Railroad trestles	NC		X	X	1978		
	B-51	Warren Pumphouse	C		X	X	1960		HS-86

EC-40	Objects and Small-scale Features								
	SS-78	Metal Post and Wire Fence	NC			X	ND		
	SS-79	Jack-Leg Fence	S			X	ND		
	SS-80	4-Rail Stacked-end Fence	ND			X	ND		
	SS-81	5-Rail Braced Gate	ND			X	ND		
	SS-82	Galvanized Metal Gate	ND			X	ND		
	SS-83	Metal Pipe Gate	ND			X	ND		
	SS-84	Wood and Metal Post and Wire Fence	S			X	ND		reconstructed by NPS ca. 1995
	SS-85	Wheel flange detector system	ND			X	ND		
EC-40	Archeological & Missing Resources								
	A-44	Dump areas	M		X	X	ND		
	A-57	Maintenance Shed	M		X	X	ND		Used by Milwaukee RR; removed ca. 1982
	A-58	Gravel excavation remains	M		X	X	ND		
	A-59	Oil barrel	M		X	X	ND		Used by Milwaukee RR

Development Zone: Inventory of Existing Conditions and Contributing Resources

C = Contributing; NC = Non-Contributing; S=Supporting; ND=Not Determined				Associated Historic Period					
Map #	CLR/Map ID#	Feature	C/NC/S/ND	Grant-Kohrs 1862-1919	Warren 1929-1982	NPS Post 1982	Date of Origin	Native or Exotic	Comments
EC-41	Natural Systems and Features								
	NS-1	Bench	C	X	X	X			
	NS-2	Johnson Creek	C	X	X	X			
EC-41	Vegetation								
	VE-23	Riparian vegetation							
		<i>willow sp.</i>	C	X	X	X		N	<i>Salix sp.</i>
		<i>smooth brome</i>	NC		X	X		E	<i>Bromus inermis</i>
		<i>black cottonwood</i>	C	X	X	X		N	<i>Populus trichocarpa</i>
	VE-24	Non-irrigated pasture grasses		X	X	X		N	
		<i>bluebunch wheatgrass</i>	C	X	X	X		N	<i>Agropyron spicatum</i>
		<i>moss phlox</i>	C	X	X	X		N	<i>Phlox muscoides</i>
		<i>needle-and-thread grass</i>	C	X	X	X		N	<i>Stipa comata</i>
		<i>Missouri goldenrod</i>	C	X	X	X		N	<i>Solidago missouriensis</i>
		<i>hairy goldenaster</i>	C	X	X	X		N	<i>Chrysopsis villosa</i>
		<i>desert alyssum</i>	NC			X		E	<i>Alyssum desertorum</i>
		<i>blue grama</i>	C	X	X	X		N	<i>Bouteloua gracilis</i>
EC-42	Spatial Organization								
	SO-62	Developed area	NC		X	X	1975		
	SO-63	Johnson Creek riparian area	C	X	X	X			
	SO-64	Visitor center field	NC	X	X	X			
	SO-65	Asphalt sidewalk/Interpretive trail	NC		X	X	1975/ 1977		
EC-41	Land Uses								
	L-2	Visitor services	NC		X	X	1975		
	L-1	Interpretation	NC		X	X	1975		
	L-4	NPS administration/storage	NC		X	X	1975		
	L-6	Conservation	NC		X	X	1975		
EC-41	Constructed Water Features								
	CW-9	Old/abandoned ditches	C		X	X	ND		
EC-42	Circulation								
	C-40	Visitor Entry Drive	NC		X	X	1975		
	C-41	Parking areas	NC		X	X	1975/ 2002		
	C-42	Asphalt sidewalk/trail	NC		X	X	1975/ 1977		
	C-43	Traffic islands	NC		X	X	1975		
	C-44	Pedestrian underpass	NC		X	X	1977		

EC-42	Views and Viewsheds							
	V-38	Views of riparian area	C	X	X	X		
	V-39	Views of railroad tressels/corridor	NC		X	X	1975	
	V-40	Views within developed area	NC		X	X	1975	
	V-41	Views of fairgrounds and Business Loop 90	NC		X	X		
	V-42	Views of Grant-Kohrs Ranch	C	X	X	X		
EC-41	Buildings and Structures							
	B-52	Curation Storage Facility (CSF)	NC			X	2002	GRKO-004
	B-53	Visitor Contact Station	NC		X	X	1975	GRKO-002
	B-54	Restroom	NC		X	X	1975	GRKO-001
EC-43	Objects and Small-scale Features							
	SS-87	Entrance Sign	NC			X	1987	
	SS-88	Jack-Leg Fence	NC			X	1975/ 1978	
	SS-89	Overhead Gate	NC			X	1992	
	SS-90	5-Rail Braced Gate	NC			X	1992	
	SS-91	Typical Ranch Gate	NC			X	ND	
	SS-92	Entrance Bollards	NC			X	ND	
	SS-93	Wayfinding Signage	NC			X	1982	
	SS-94	Large Interpretive Sign	NC			X	1992	
	SS-95	Information Kiosk	NC			X	ND	
	SS-96	Deer Lodge Valley Sign	NC			X	ND	removed 2003
	SS-97	Flagpole/Flag	NC			X	1982	
	SS-98	Concrete Curb	NC			X	1975	
	SS-99	Interpretive Grain Wagon	ND			X	ND	
	SS-100	Trash Cans	NC			X	ND	
	SS-101	Trash Barrels (Large)	NC			X	ND	
	SS-102	Trash Barrels (Small)	NC			X	ND	
	SS-103	Fire Hydrant	NC			X	1980	
	SS-104	Manhole Cover	NC			X	ND	
	SS-105	TIS Pole	NC			X	ND	
	SS-106	Fire Box	NC			X	1980	
	SS-107	Picnic Table	NC			X	2003	
	SS-108	Transformer	NC			X	ND	
	SS-109	Cord wood	NC			X	ND	
	SS-110	Storage Shed	NC			X	ND	

	SS-111	Interpretive Trail waysides	NC		X	X	1977/ 1992/ 1992		
	SS-112	Wooden Bench	NC			X	1994		
	SS-113	Small informational signs	NC			X	1982		
	SS-114	Metal plaque	NC			X	2000		
	SS-116	Electric Fence	NC			X	2002		location approximate
EC-41	Archeological & Missing Resources								
	A-45	Stuart cabin	M	X			pre-1884		removed ca. 1935
	A-46	Weather Station	M			X	1979		location unknown

Integrity Assessment

Introduction

[comparative photos of historic and existing conditions follow this chapter]

Numerous sources of guidance are available to assist in evaluating the integrity of a historic property. For example, National Register Bulletin 15: *How to Apply the National Register Criteria for Evaluation* states that:

Integrity is the ability of a property to convey its significance. . . . Historic properties either retain integrity (convey their significance) or they do not. Within the concept of integrity, the National Register criteria recognize seven qualities, or aspects, that in various combinations, define integrity. The seven aspects of integrity are: **location, design, setting, materials, workmanship, feeling, and association**. To retain historic integrity a property will always possess several, and usually most, of the aspects. According to guidance contained in National Register Bulletin 15: *How to Apply the National Register Criteria for Evaluation*:

Location is the place where the historic property was constructed or the place where the historic event occurred. The relationship between the property and its location is often important to understanding why the property was created or why something happened. The actual location of a historic property, complemented by its setting, is particularly important in recapturing the sense of historic events and persons.

Design is the combination of elements that create the form, plan, space, structure, and style of a property. Design includes such elements as organization of space, proportion, scale, technology, ornamentation, and materials. Design can also apply to districts, whether they are important primarily for historic association, architectural value, information potential, or a combination thereof. For districts significant primarily for historic association or architectural value, design concerns more than just the individual buildings or structures located within the boundaries. It also applies to the way in which buildings, sites, or structures are related.

Setting is the physical environment of a historic property. Whereas location refers to the specific place where a property was built or an event occurred, setting refers to the *character* of the place in which the property played its historical role. It involves *how*, not just *where*, the property is situated and its relationship to surrounding features and open space.

Setting often reflects the basic physical conditions under which a property was built and the functions it was intended to serve. The physical features that constitute the setting of a historic property can be either natural or manmade, including such elements as:

- Topographic features (a gorge or the crest of a hill);
- Vegetation;
- Simple manmade features (paths or fences); and

- Relationships between buildings and other features or open space.

These features and their relationships should be examined not only within the exact boundaries of the property, but also between the property and its *surroundings*. This is particularly important for districts.

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. The choice and combination of materials reveal the preferences of those who created the property and indicate the availability of particular types of materials and technologies. A property must retain the key exterior materials dating from the period of its historic significance. If the property has been rehabilitated, the historic materials and significant features must have been preserved.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. It is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site. Workmanship can apply to the property as a whole or to its individual components. It can be expressed in vernacular methods of construction and plain finishes or in highly sophisticated configurations and ornamental detailing. It can be based on common traditions or innovative period techniques.

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character.

Association is the direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character.

While the above criteria were developed primarily for buildings, structures and objects, it is necessary to consider three additional qualities that apply more directly to biotic resources. Biotic cultural resources are communities of plants and animals associated with human settlement and land use in historic districts, whereas biotic natural resources are those that have escaped deliberate alteration, although affected by human presence in a historic period. The three criteria appropriate for evaluation of biotic resource integrity include: species composition, community organization, and land management techniques, which substitute for material, design, and workmanship, respectively.⁴²

Species Composition is the integrity of species present on the site compared to those present during the site's period of significance. As stated in NPS Research/Resources Management Report SER-82, "A managed biotic community is usually composed of a mixture of native and introduced species. It is very difficult, if not impossible, to catalogue all the species in a biotic community, and this is not necessary. Instead, the dominant and the introduced species, which were the focus of management activities in the historic period, should be the focus for inventory

⁴² Firth, 4.

and preservation. This inventory should not only identify the species, but also the variety of plants and breeds of animals. Where possible, the origins of introduced species and the histories of varieties and breeds should be known.”⁴³

Community Organization “can be described in terms of the size, structure and distribution of each of its plant and animal populations, plus the cyclical patterns in these characteristics. The size of a population can be derived from a count of individuals or from an estimate based on area occupied. For example, trees in an orchard and livestock in a pasture can be counted, while the size of grain crops is given as an acreage accompanied by a yield per acre....Distributions may be described in terms of a fixed layout, a general density or a movement between points....Many cyclical patterns affect the size, structure, and distribution of plant and animal populations. These cycles are controlled by natural rhythms and by management. For example, daily and seasonal cycles in the movement of livestock, annual cycles in the replanting of vegetable and the regeneration of most livestock, a four or five-year cycle in the rotation of some field crops, etc.”⁴⁴

Land Management Techniques “are the practices by which biotic resources are cared for. They result in the physical evidence of the steward’s labor and skill in managing or altering biotic resources, the types of equipment used and the timing of the various activities. “Agriculture, silviculture, and other land management systems employ a variety of techniques, which can be described under five headings:

- regeneration—including the maintenance of population numbers and promotion of desirable characteristics by selection of parent stock;
- intermediated care—such as the cultivation of crops, thinning of timber and feeding of stock;
- protection—the prevention of losses to weather, disease, insect and animal predation;
- harvest—the optimization of production by controlling the length of the life cycle and determining the place and time of harvest; and
- use—including the conservation and consumption of the products.”⁴⁵

Integrity assessments follow for the overall landscape as well as for each of the component landscapes. Assessments of biotic resources are included, where appropriate. Recognizing the park’s desire for identification of specific themes, or historic periods of time that each landscape represents, this section also includes discussion of each component landscape’s period of association, or current physical conveyance of a particular period of history.

⁴³ Firth, 11.

⁴⁴ Firth, 12.

⁴⁵ Firth, 13.

Grant-Kohrs Ranch Integrity

The Grant-Kohrs Ranch retains a relatively high degree of integrity to the recommended 1862-1982 period of significance. The landscape resources present on the ranch illustrate a 120 year continuum of cattle ranching operations that includes the Grant, Kohrs, Warren, and NPS periods of ownership, and represent their responses to the natural and cultural environment. Encompassing the core of the historic domestic and working landscape, the ranch clearly retains integrity of *location* and *association*. The rural character of the ranch, which also retains patterns of spatial organization, landform/topography, vegetation, and natural systems, survives and enhances the ranch's ability to convey the *setting* and *feeling* of the historic period. The integrity of setting and feeling is also strengthened by the active ranching practices that continue within the landscape.

Because the spatial relationships of buildings and structures, road systems, field patterns, fences, and irrigation ditches continue to reflect the functions of everyday ranching operations for which they were created, the ranch also retains a high degree of *design*. Although several buildings and structures have been removed over the years while others have been added, the remaining manmade features represent the majority of the constructed features present on the ranch throughout its 120 year period of significance. The log, wood frame, and board-and-batten structures retain a high degree of integrity of *materials* and *workmanship*, and continue to reflect a range of vernacular architectural styles and methods of construction typical of the region, and illustrate ranch function and use. Under NPS management, the extant buildings and structures have been maintained, restored, or reconstructed according to the *Secretary of Interior's Standards for the Treatment of Historic Properties*.

Overall, the Grant-Kohrs Ranch retains a moderate degree of integrity of native plant *species composition*. While some of the native bunchgrass prevalent throughout the Deer Lodge Valley when John Grant and Conrad Kohrs first settled in the region remains today, its species composition has been compromised by the spread of both the non-native cultivated grasses planted in the hay fields as well as the non-native weeds and invasive exotic species that have taken root in disturbed areas. The Upland Pasture area and the remnant prairie fenced near the railroad corridor are the best representative examples of the native plant community. Likewise, the integrity of the natural riparian plant community has been compromised by the metal toxins deposited from the mining operations upstream as well as from years of grazing, allowing non-native plant species to spread and dominate in these areas.

The integrity of cultural plant *species composition*, however, is relatively high. Although less diverse in the types of plants cultivated throughout the ranch's history, the almost exclusive cultivation of hay and the species of grasses in the hayfields generally reflect that found at the end of the period of significance and contain several plants that represent both Kohrs and Warren period cultivation. Due to NPS preservation and restoration efforts, the species of ornamental planting surrounding the Grant-Kohrs residence also reflects those found during the Grant-Kohrs period of significance.

Because the ranch continues to cultivate hay for harvest and grazing, it retains a relatively high degree of integrity of plant *community organization*. Although Kohrs and Bielenberg raised approximately 30,000 tons of hay at the close of their cattle operations, this number reflected the total amount needed to winter feed the cattle on their land (to include land other than the Home Ranch). This number dropped significantly during Warren's years of operation, reflecting the reduction in the size of the ranch, the size of his herd, and his feedlot operations. Before NPS acquisition of the ranch, Warren was harvesting between 500-1500 tons of hay from his fields.

This number has fluctuated during the NPS operation of the ranch, ranging between 76 tons at the close of the period of significance, to over 900 tons in 1993, to 468 tons in 2001.⁴⁶ In recent years, this number has been dependent upon the amount of hay leased for pasture versus harvest. Overall, the Park's seasonal hay production, to include irrigation, fertilization, cultivation, harrowing, and harvest--cutting, baling and stacking-- supports the historic integrity of the ranch.

As mentioned earlier, the ranch currently maintains approximately 94 head of cattle, including several breed yearlings born in the spring. Breeds include Hereford, English Shorthorn, Longhorn, and Angus, as well as cross-breeds of the four types. This number fluctuates annually, based upon resource availability and market conditions. Nine horses are also cared for on the ranch. These include three saddle horses (quarter horses), two Belgian draft horses, and five USFS horses that lease the pasture. During visitor season, the ranch also usually cares for a few chickens, ducks and turkeys.

During the Grant-Kohrs period, Conrad Kohrs and John Bielenberg raised longhorn cattle, shorthorn cattle, Hereford cattle, thoroughbred horses, Clydesdale horses, Percheron-Norman draft horses, Yorkshire hogs, Holstein cows, and chickens and turkeys. Documentation also suggests that Angus bulls, Ayrshire dairy cows, merino rams, and sheep were also kept on the ranch. Con Warren maintained this diversity until the 1950s, raising both registered and commercial Hereford cattle, Durham and Holstein dairy cows, Belgian horses, hogs, chickens, milch cows, and a mule. In the mid-1950s he expanded the Warren Hereford Ranch to the east of the railroad tracks and began raising primarily purebred and commercial Herefords.

Based upon this information, the integrity of animal *species composition*--or in this case livestock breeds--managed on the ranch is moderate. While the cattle breeds currently represented on the ranch reflect those present during the period of significance (particularly the breeding and commercial operations of the late Warren period), the diversity of other livestock species and breeds represented throughout the larger period of significance is lacking. These include dairy cows, hogs, oxen, sheep, rams, ducks, and mules, as well as a greater diversity of horse breeds, such as thoroughbreds, Clydesdales, Shire, and Percheron-Norman draft horses.

Although the diversity of livestock species and breeds may not necessarily be representative of the larger period of significance, historical research indicates that the numbers of livestock and diversity of breeds fluctuated considerably throughout the period of significance as both Kohrs and Warren adapted their herd to market conditions and resource availability. This is the case today, as NPS operations seek to balance interpretation with revenue flow needed to keep the program viable. AUMs and hay lease contracts are also determined by market conditions and resource availability; agricultural and ranching management practices are interwoven, as hay and pasture use is determined by park staff to prevent overgrazing and to protect resources. As a result of these traditional seasonal practices (which include field irrigation, ditch maintenance, fertilization, harrowing, and harvesting, as well as calving, feeding, vaccinating, branding, grazing, etc.) the integrity of *community organization* and *land management techniques* is considered high.

Home Ranch Integrity

The Home Ranch Complex component landscape retains a high degree of integrity of *location, design, setting, materials, workmanship, feeling, and association* to the recommended 1862-1982

⁴⁶ Refer to crop tables found at the end of Chapter Two. This study assumes that the average weight per bale is 93 pounds. This weight has been derived from 2002 hay bale statistics.

period of significance. Responses to natural features and systems, patterns of spatial organization, physical construction, and functional relationships of buildings, structures, fences, fields, corrals, views, roads, and constructed water features very well convey the organization and operation of the ranch to Park visitors. While the integrity of *species composition*, *biotic community organization* and *land management techniques* is relatively moderate due to reduction in intensity of use and number of livestock within the Home Ranch Complex (this area would have housed the greatest diversity of livestock species--to include dairy cows, hogs, oxen, mules, chickens, etc., and a greater diversity of horse breeds), the landscape still conveys the character and use of the historic period.

Physically, the period of association most strongly represented by the Home Ranch Complex is ca. 1870-1954. This period reflects the early development of the Bunkhouse Yards, Lower Yards, Lower House Yards, and West Corrals, including construction of their associated buildings, development of spatial organization, and determination of function as initiated by Kohrs and Bielenberg. The end of this period of association is defined by Con Warren's 1930s infill construction of buildings, structures, feedlots, fences, and roads, and his operation of the ranch before moving cattle operations to the east feed lots in 1954.

East Feed Lot/Warren Hereford Ranch Integrity

The East Feed Lot/Warren Hereford Ranch component landscape retains a high degree of integrity of *location*, *design*, *setting*, *association*, *materials* and *workmanship*. Spatial organization, physical construction and functional relationships of buildings, structures, fences, fields, corrals, views, roads, and water troughs very well convey the organization and operation of the Warren Hereford Ranch to Park visitors. All feedlots, pastures, and alleys remain essentially as they were originally constructed. While some of the fencing is in poor condition, continual repair of these features was ongoing throughout the period of significance. While the NPS made some changes to the landscape (such as the construction of the NPS Service Entrance, the addition of the Resource Building/Office, and the removal of the pumphouse HS-85), these alterations are minor to the overall landscape and do not detract from the complex's ability to convey significance. The integrity of *feeling*, however, has been reduced within this component landscape. Once a working ranch with some equipment (aerials show this area to be very neat and tidy), a few hired hands, and Hereford and Holstein cows, the NPS presence (staff, maintenance shop, offices, vehicles, equipment, supplies, new buildings, etc.) has changed this area from a working ranch to a hustling and bustling administrative and management center for the Park. While the Warren Barn, which historically housed Warren's best bull calves, is no longer used for such a purpose, the integrity of *species composition*, *biotic community organization* and *land management techniques* is relatively high within this component landscape. Corrals continue to be used for calving in the early spring, temporary containment before sale, and some feed storage. All breed and breed mixes occupy this area, and the use of the bull barns has been continuous.

The period of association most strongly represented by the Warren Hereford Ranch Complex is 1952-1982. This period reflects the early development of the feedlots, corrals, and pastures under Con Warren, including construction and spatial relationships of their associated cow sheds, feed bunks, barns, fences, and gates. The end of this period of association is defined by Con Warren's sale of the ranch to the NPS, curtailment of his cattle operations on the site, and adaptation of some of the buildings in response to changes in function.

Grant-Kohrs Residence Integrity

The Grant-Kohrs Residence component landscape retains a high degree of integrity of *location, design, setting, feeling, association, materials* and *workmanship*, as well as a moderate degree of integrity of *species composition* and *biotic community organization*. The spatial organization and relationships to topography/landform, natural features, circulation features, and surrounding buildings and structures has remained essentially the same since Con and Augusta Kohrs lived in the ranch home. The retaining walls and stairways built by Con Warren in 1934 also helped define new circulation patterns that were in place throughout the Warren period of significance.

In recent years the NPS has expended a great deal of energy and resources to research the domestic landscape surrounding the Grant-Kohrs Residence. This research has informed restoration and reconstruction efforts of the grounds to reflect the conditions present at the turn of the 20th-century. These efforts have included the planting of cottonwood trees in the front and along the sides of the house as well as restoring the lower garden based upon historic photographs and plant records. Reconstruction efforts have also included repair of the cobble wall and reconstruction of the stone terrace and the white picket fence that originally surrounded the domestic yard. Some circulation features have also been restored to reflect their historic materials, such as the wood plank walk in the front yard.

While some of these features are not original to the site, such as the flagstone paths built by the NPS, these features do not significantly detract from the landscape's ability to convey its significance. The immaturity of the cottonwood trees does minimize the integrity of feeling of the front lawn and entry sequence, but over time, this will improve. Although there are a few missing features, such as the irrigation system that provided water to the house and grounds and the historic service area on the north side, the overall integrity of this landscape is relatively high.

The period of association most strongly represented by the Grant-Kohrs Residence is 1890-1934. The beginning of this period reflects the major changes that occurred to the house and grounds—including the brick addition, conservatory, fence, and cottonwood grove. The end of this period of association is defined by the modifications made to the landscape by Con Warren.

Warren Residence Integrity

The Warren Residence component landscape retains a high degree of integrity of *location, setting, association, materials* and *workmanship*. Overall, the spatial organization of the site and its relationships to natural features, circulation features, and the Warren Hereford Ranch has remained essentially the same since Con Warren retired from ranching in 1982. This is also true of the buildings and structures on the site, although their uses have changed since the NPS moved their administrative headquarters to the Warren Residence. Although the site generally retains integrity of *design*, the removal of several large trees within the domestic landscape, the loss of the cottonwood allee along Warren Lane, the removal of the vegetable garden, and clearing of ornamental plantings around the foundation of the residence, has diminished the integrity of *species composition* and *biotic community organization*. Likewise, as the use of this landscape is no longer residential, but rather administrative, the integrity of *feeling* associated with the site's residential use has been slightly reduced. This integrity is, however, still supported to some degree by those small scale features that are common to residential landscapes, such as the picket fence, birdbath, burn barrel, and clothesline, which still remain.

The period of association most strongly represented by the Warren Residence is 1952-1993. The beginning of this period reflects the completion of the major buildings and structures found within the Warren Residence landscape, as well as the development of the Warren Hereford Ranch to the north, which strongly influences the setting of the residential landscape. The end of this period of association is defined by the death of Con Warren and the end of the use of this property as a residence.

Pasture/Hayfield Integrity

Overall, the pastures and hayfields within the Grant-Kohrs Ranch NHS have a high degree of integrity. The low lying lands on either side of the Clark Fork River, as well as drier lands found along the upper benches, have been used by Grant, Kohrs, Warren, and the NPS throughout the site's history for both hay and pasture to sustain the livestock of the ranch. As such, these lands clearly retain integrity of *location* and *association*. The buildings and structures of the Home Ranch Complex, the Warren Hereford Ranch, the natural features and systems, circulation features, and the complex irrigation system, also remain essentially the same today as they were at the end of the period of significance, and therefore enhance the pastures and hayfields ability to convey the *setting* and *feeling* of the historic period. The integrity of setting and feeling is also strengthened by the active ranching practices, such as hay harvesting and livestock grazing, that continue within this component landscape. To some extent, NPS subdivision of the Western Hay Fields and the Front Fields with cross-fencing has diminished the integrity of feeling slightly, as these lands were open and expansive during the period of significance.

The irrigated pastures and hayfields also retain a moderately high integrity of cultural plant *species composition, biotic community organization, and land management techniques*. The same hay species found to be predominant in the 1984 Rice/Ray study and likely present at the end of the Warren period, generally remain the predominant hay species today. Likewise, the cyclical pattern of irrigation and fertilization in the spring, grazing and hay cultivation throughout the spring and summer, and harvest--cutting, baling, and stacking--in the late summer also supports the integrity of *community organization*, as does the continued cultivation of hay averaging 500 tons per year. This number reflects the smaller hay harvests undertaken by Con Warren during the ranch's latter period of significance. The presence of smooth brome, common timothy, red clover, crested wheatgrass, and intermediate wheatgrass help convey both the Kohrs and Warren periods of significance, which were intentionally introduced during their care of the ranch. This integrity is reduced slightly by the presence of invasive exotic weeds, such as Canadian thistle, which has spread throughout the hayfields.

Although the grasses and forbs found in the non-irrigated pastures have not changed significantly since 1982, the species composition of the effluent-irrigated pastures, particularly the L-Barn Field and the Front Fields, are beginning to acquire non-native species that were not intentionally cultivated in this area, such as smooth brome, which is found in the other irrigated areas of the ranch. These fields were reseeded in 2000. The integrity of species composition of these irrigated pastures is also being diminished by invasive exotic weeds, such as spotted knapweed. These changes have diminished the integrity of species composition.

Within the pastures and hayfield, the integrity of livestock (breed) *composition, community organization and land management techniques* remains relatively high. Cattle pastured within this component landscape generally represent the major breeds found at the close of the period of significance. As mentioned earlier, pasturing occurs 12 months a year, and is based upon Best Management Practices (BMPs), the needs of the park, and the resources available. Cattle

rotations between various pastures are based upon economic and natural resource conditions, as was done during the period of significance.

The period of association most strongly represented by the Pasture/Hayfield component landscape is the late 1950s-1972. The beginning of this period reflects Con Warren's abandonment of the cultivation of grains and his focus on hay as the predominant crop cultivated in the fields. It also encompasses the general design and organization of his contour irrigation system, which he began in the 1930s and worked toward refining over the next twenty years. The end of this period of association is defined by Con Warren's sale of the Home Ranch to the NPS.

Upland Pasture Integrity

Like the previous component landscape, the dry range pastures and irrigated hay fields found in the Upland Pasture area retain integrity of *location*, *association*, and *setting*. Purchased by Con Warren in the 1930s, this land and the irrigation ditches he sought control of have changed little since the end of the historic period. A few modern small scale features, such as electric fences, diminish the integrity of *feeling* slightly, as does the subdivision of the fields and ranges with cross fences. Overall, these features generally do not detract from the landscape's ability to convey its significance.

The Upland Pasture area also retains a moderately high integrity of *species composition*. Several of the same hay species planted by Con Warren, such as brome, timothy, and clover, are still found to be predominant in the irrigated gulches. With the exception of some invasive exotic species found in the dry range pastures, most grasses found here belong to the native bluebunch wheatgrass, western wheatgrass, and Sandberg's bluegrass communities. Like the Pasture/Hayfield component landscape, the integrity of livestock (breed) *composition*, *community organization* and *land management techniques* is relatively high.

The period of association most strongly represented by the Upland Pasture area is the 1930s-1972. The beginning of this period reflects Con Warren's acquisition of this land, the removal of the Kading and pig farm structures, and the regrading of the gulches to improve irrigation for hay production. The end of this period of association is defined by Con Warren's sale of the Home Ranch to the NPS.

Riparian Woodland Integrity

Overall the Riparian Woodland component landscape has moderate integrity. Because this area has long been defined by the Clark Fork River and its alluvial soils, its integrity of *location* is high. However, because of toxic metal contamination dating back to 1884, (which still remains on the site) the presence of exotic, noncontributing plant communities, such as those defined by smooth brome and redbud bentgrass, constitute the majority of vegetation within this component landscape. Research conducted in 2002 has determined that these non-native, non-desirable species would not be present under natural conditions, absent of toxic metal contamination. While native species and plant communities remain within the riparian woodland, they only account for approximately 40% of the vegetation found within this zone. As such, the integrity of *species composition* and *biotic community organization* of the riparian area can be considered moderate. Because of impacts to species composition and community organization, the Riparian Woodland's integrity of *feeling* has also been somewhat reduced. Feeling is influenced by the composition and distribution of plant communities, as well as by manmade features such as fences. As the entire riparian woodland was not fenced until 1993 (particularly the area north of the Home Ranch Complex and along the southeast), these features have slightly diminished

integrity of *feeling*. Likewise, as the riparian woodland was not entirely fenced during the historic period, livestock were free to roam throughout this area and within the river itself. Historic accounts discuss how livestock would take shelter along the river, which was afforded by the vegetation found there. As these conditions are no longer present due to health and safety concerns, the riparian woodland also has slightly diminished its integrity of *association* and *land management techniques*.

The period of association most strongly represented by the Riparian Woodland is 1972 to the present. The beginning of this period reflects the NPS management of this land, which was primarily focused on conservation. Fencing of the riparian woodland begins shortly after this time.

Railroad Corridor & Barrow Pit/Wetland Integrity

The Railroad Corridor and Barrow Pit/Wetland component landscape maintains a high degree of integrity of *location* and *setting*. The corridor remains in the same location as it was originally constructed, and its context remains essentially unchanged. As the corridor also maintains its historic spatial organization and construction, it has a high degree of integrity of *design* and *materials*. Since the tracks of the Old Milwaukee Railroad line are no longer in use (and no longer transport livestock to market), the landscape maintains a reduced integrity of *association* and *feeling*. While the integrity of plant *community organization* is high, integrity of plant *species composition* is considered moderate. While the barrow pits are comprised of mostly native wetland species and the ungrazed prairie remnant represents a native plant community that would have been present during the early period of significance, the species composition of the larger corridor has been impacted by disturbance and invasive species, such as spotted knapweed.

The period of association most strongly represented by the Railroad Corridor & Barrow pit/Wetland is 1908 to 1982. The beginning of this period reflects the construction of the Old Milwaukee Railroad line along side the Montana Western corridor and the excavation of the barrow pits. The end of the period reflects the removal of tracks and discontinuation of service along the Old Milwaukee line.

Development Zone Integrity

Aside from most of the natural features and views found within this component landscape, all of the resources associated with the Visitor Center Complex do not contribute to the historical significance of the ranch. As this component landscape was entirely developed by the NPS, it does not represent the historic uses associated with this landscape and therefore lacks historic integrity.

The period of association for this component landscape dates from 1975-present. The beginning of this period is associated with the NPS development of this site, to include relocation of historic structures serving as the visitor contact station and restroom, and development of the parking and circulation system.

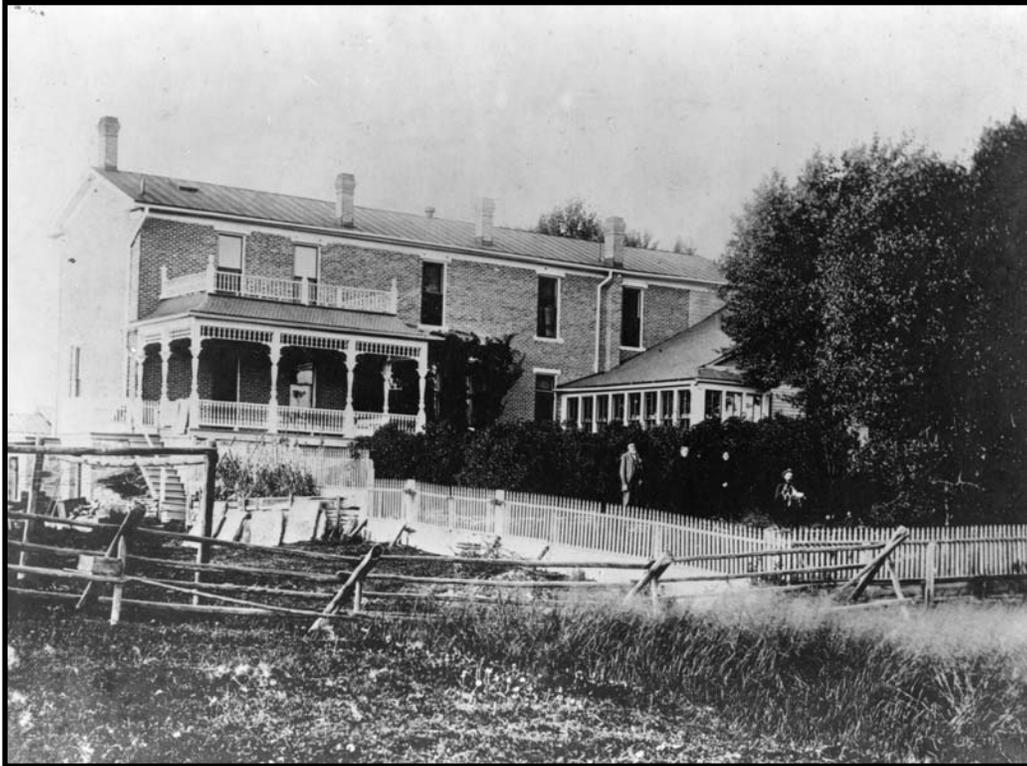


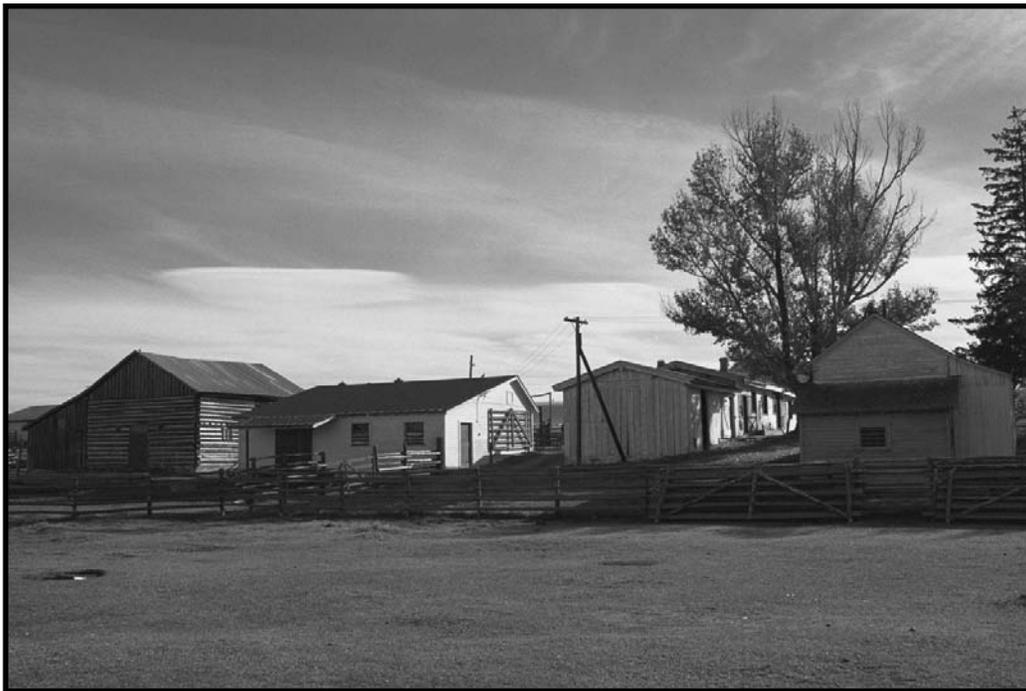
Figure 4-1 : Rear yard of Grant Kohrs Ranch House with Conrad and Augusta, circa 1890. (Grant Kohrs Ranch NHS Archives 6280H)



Figure 4-2 : (COMP 10) View of rear yard of Grant Kohrs Ranch House from similar vantage point. (JMA, 2002)



Figure 4-3 : (11400L) Lower Ranch Yard circa 1900. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-4 : (COMP 21) View of Lower Ranch Yard from similar vantage point. (JMA, 2002)

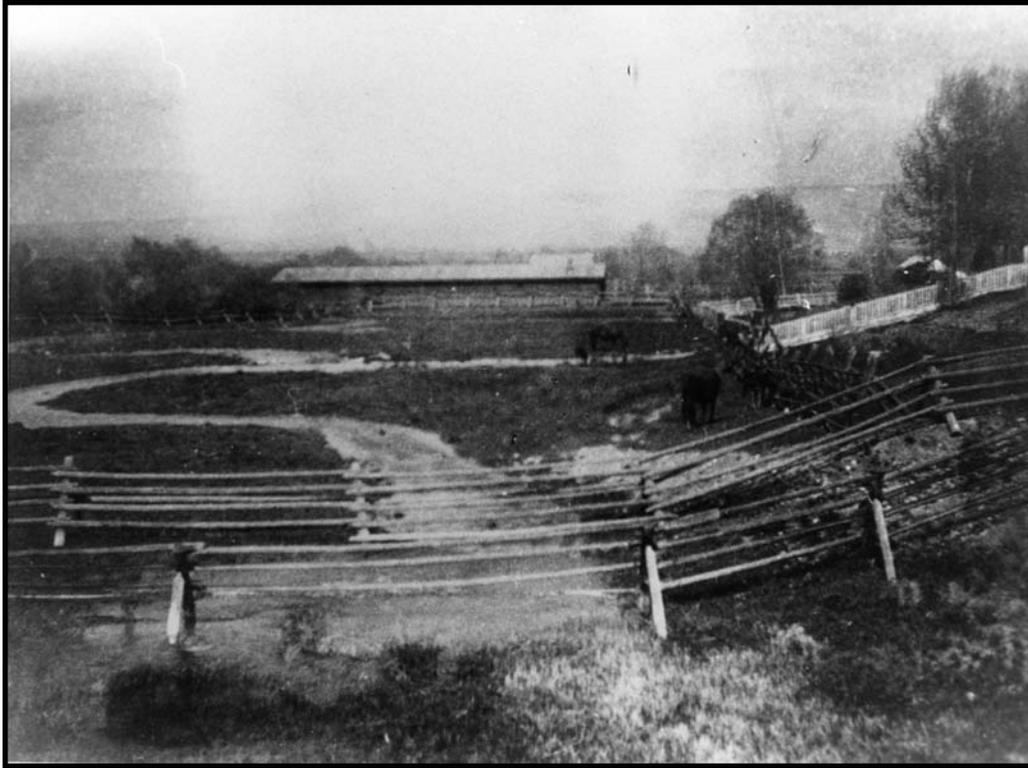


Figure 4-5 : (CI, X) General view of ranch, Montana Historical Society Print, circa 1900. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-6 : (COMP 13) View of Ranch from similar vantage point. (JMA, 2002)

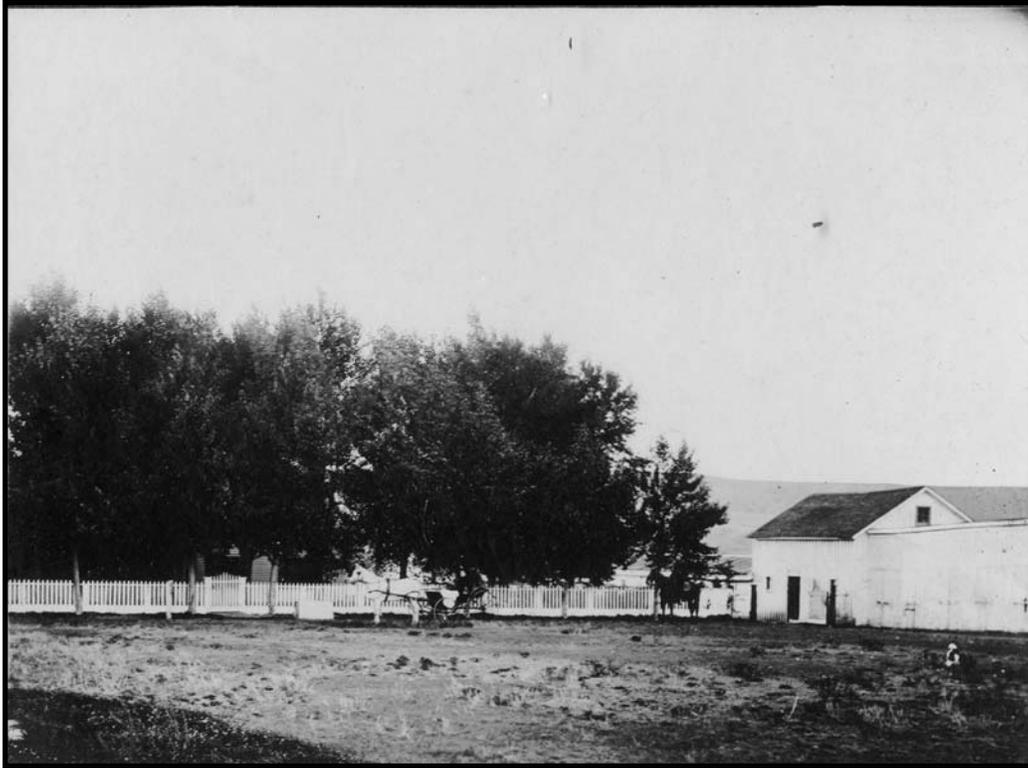


Figure 4-7 : (16281) Area in front of Grant Kohrs Ranch House, easterly view with phaeton buggy, circa 1900. (Source: Grant Kohrs Ranch NHS Archives)



Figure 4-8 : (COMP 6) Front of Grant Kohrs Ranch House from similar vantage point. (JMA, 2002)



Figure 4-9 : (Bache.12) Auntie in drive, Anna Kohrs Boardman, no date, possibly 1925. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-10 : (COMP 16) View of Bunkhouse Row from similar vantage point. (JMA, 2002)



Figure 4-11 : (5993) Warren House, 1934. (Source: Grant Kohrs Ranch NHS Archives)



Figure 4-12 : (COMP 30) Warren Residence from similar vantage point. (JMA, 2002)

JMA, 2002

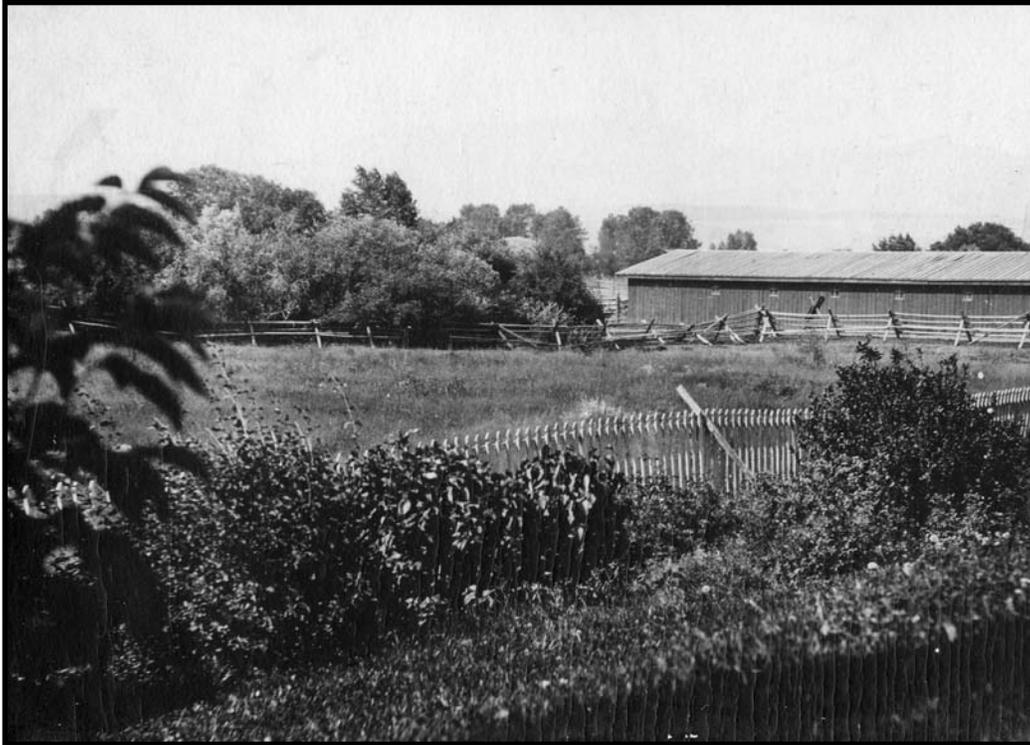


Figure 4-13 : (16270H) Flower garden and shrubs, south side of Grant Kohrs Ranch House, Thoroughbred Barn in background. No date, possibly 1935. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-14 : (COMP 12) View of south side of house from similar vantage point. (JMA, 2002)



Figure 4-15 : (16841H) General view of ranch from the east, circa 1938. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-16 : (COMP 24) View of ranch from the east from similar vantage point. (JMA, 2002)

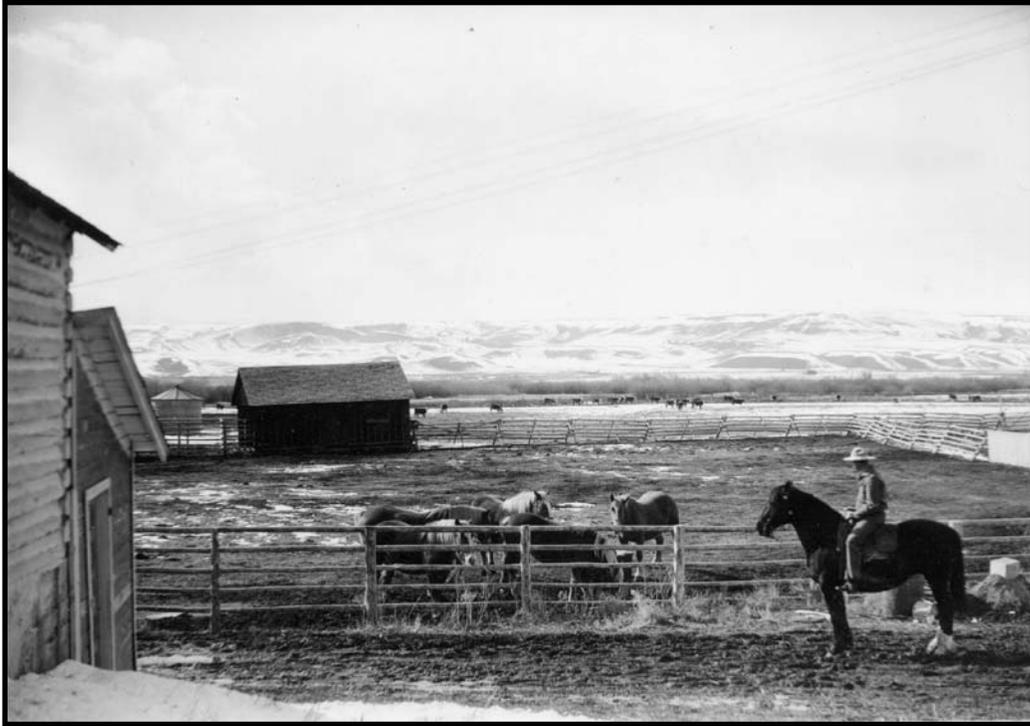


Figure 4-17 : (16158H) Conrad Warren on Sin, circa 1940. (Source: Grant Kohrs Ranch NHS Archives)

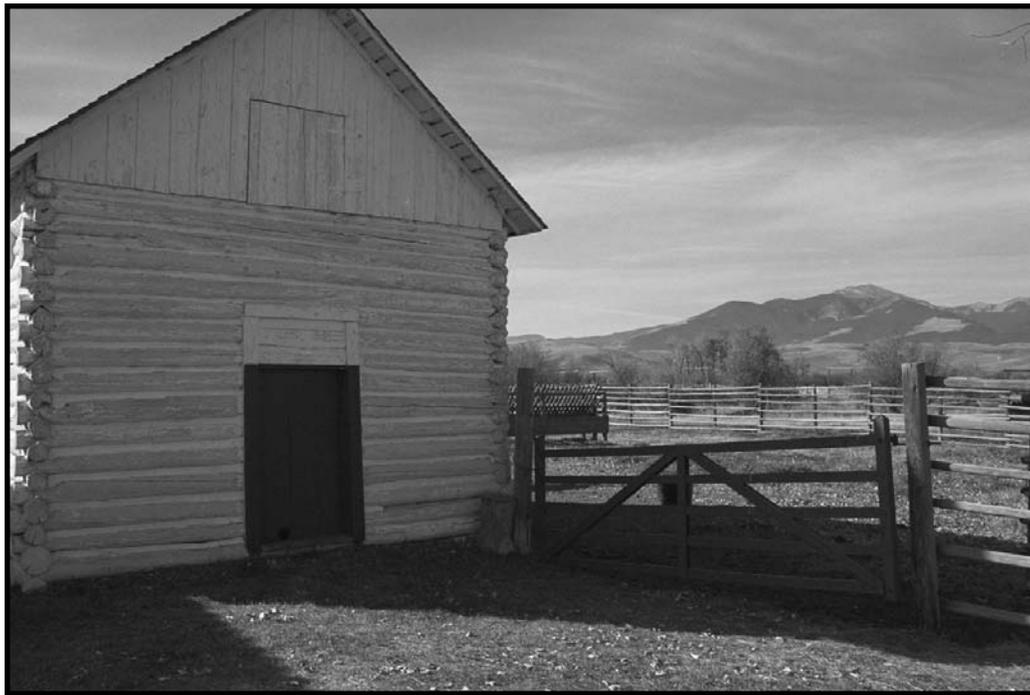


JMA, 2002

Figure 4-18 : (COMP 22) View of Lower Yards from similar vantage point. (JMA, 2002)



Figure 4-19 : (16160H) Stallion Barn, circa 1940. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-20 : (COMP 25) Stallion Barn from similar vantage point. (JMA, 2002)



Figure 4-21 : (16172L) Conrad Warren with calves in corral, circa 1940. (Source: Grant Kohrs Ranch NHS Archives)



Figure 4-22 : (COMP 26) View of corral from similar vantage point. (JMA, 2002)

JMA, 2002



Figure 4-23 : (15969H) Warren Ranch House, circa 1945. (Source: Grant Kohrs Ranch NHS Archives)



Figure 4-24 : (COMP 32) Warren Residence from similar vantage point. (JMA, 2002)

JMA, 2002



Figure 4-25 : (16171W) Herefords in pasture, north of Warren Ranch, circa 1945.
(Source: Grant Kohrs Ranch NHS Archives)



Figure 4-26 : (COMP 35) View of Pasture, north of Warren house from similar vantage point. (JMA, 2002)

JMA, 2002



Figure 4-27 : (15967H) Grant Kohrs Ranch House and Bunkhouse Row, circa 1945.
(Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-28 : (COMP 4) Front of Grant-Kohrs Ranch House from similar vantage point.
(JMA, 2002)



Figure 4-29 : (15916H1) Cattle in corral near sales barn. No Date, possibly 1952.
(Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-30 : (COMP 33) View of corral near sales barn from similar vantage point.
(JMA, 2002)

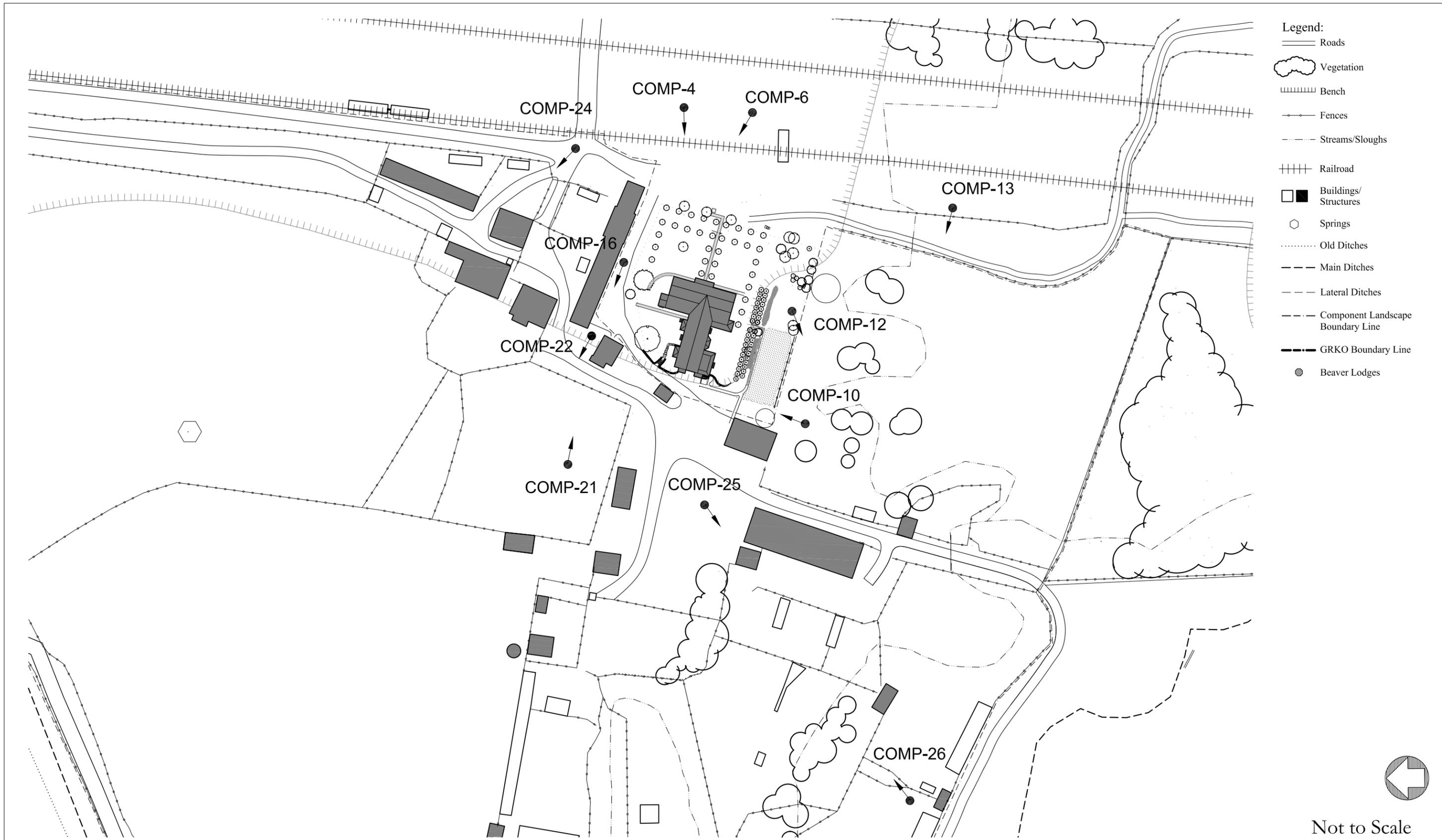


Figure 4-31 : (16193A) Warren Hereford Ranch sign and barn, 1952. (Source: Grant Kohrs Ranch NHS Archives)



JMA, 2002

Figure 4-32 : (COMP 36) View of pasture and barn from similar vantage point. (JMA, 2002)



- Legend:**
- Roads
 - ☁ Vegetation
 - ▤ Bench
 - Fences
 - Streams/Sloughs
 - ⊥ Railroad
 - ▭ Buildings/ Structures
 - ⬡ Springs
 - ⋯ Old Ditches
 - - - Main Ditches
 - - - Lateral Ditches
 - - - Component Landscape Boundary Line
 - - - GRKO Boundary Line
 - Beaver Lodges

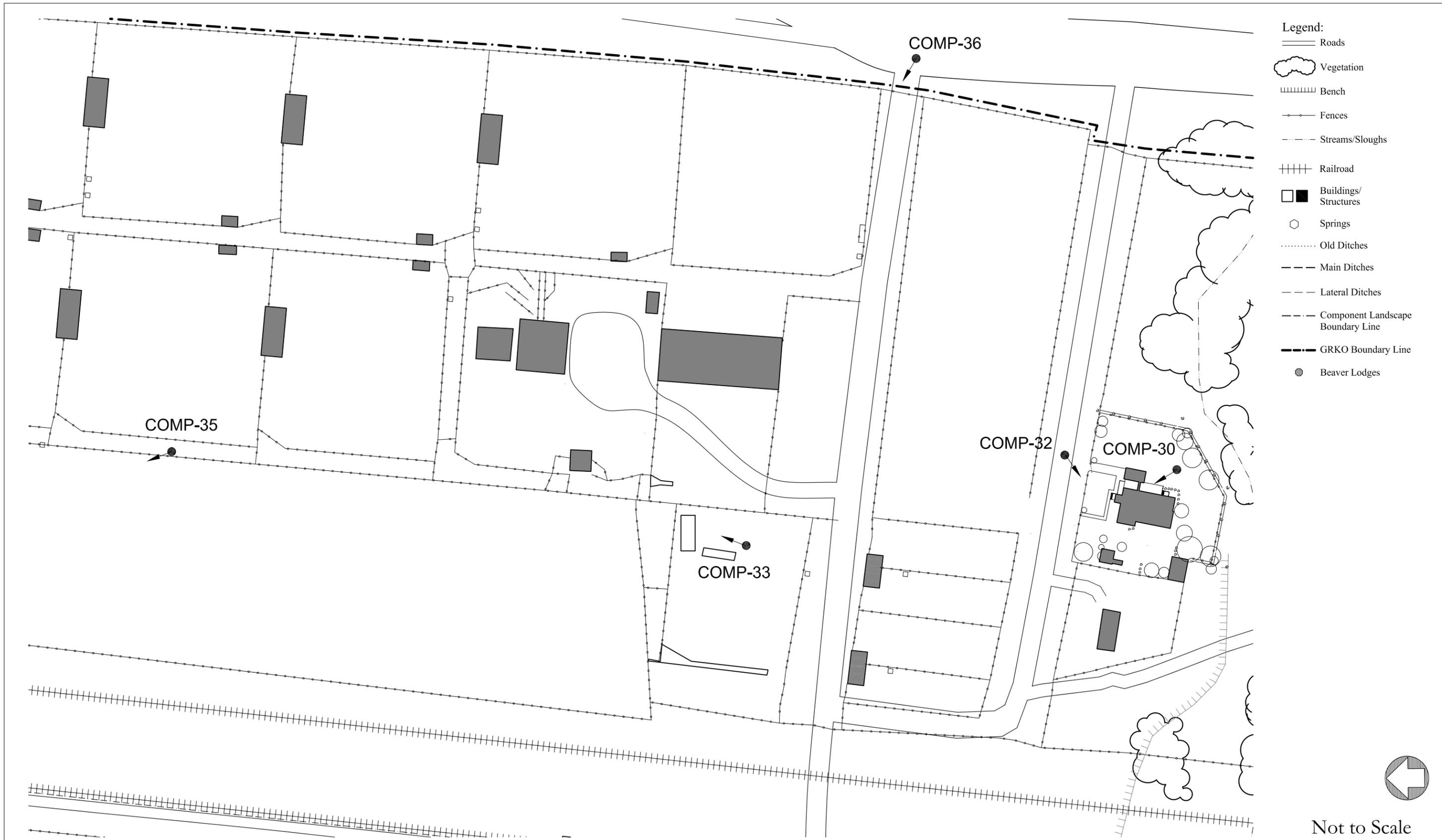


Not to Scale

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

The following data was provided by the National Park Service, Grant-Kohrs Ranch National Historic Site GIS Program (shapefile format), which was compiled 1998 and updated/field-checked by OCULUS/JMA during the October 2002 site visit: fences and gates; boundary lines; utility lines; fire hydrants; irrigation ditches, headgates, pipes, and risers; culverts; river boundaries; roads; railroad tracks; unvegetated slickens and tailings; fields; trails; cottonwood trees; beaver lodges and dams; hydrology; and groundwater monitoring wells. Metadata for this data is available from World Wide Web: [<http://www.nps.gov/gis/metadata/grko/>]. Wetlands, hypsography (topography), and Montana 1:24,000 scale State Plane DRG quadrangles were derived from Montana State Library Natural Resource Information System, metadata available from: [<http://nris.state.mt.us/gis/datalist.html>].

A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED:	SUB SHEET NO. P-12	EXISTING CONDITIONS INVENTORY		DRAWING NO.
	DRAWN:		HOME RANCH COMPARATIVE PHOTO STATION POINT MAP (1 OF 2) GRANT-KOHR'S RANCH NATIONAL HISTORIC SITE	PKG. NO.	SHEET
	TECH. REVIEW:			OF	
	KLS, RMM DATE: JULY 2004				



- Legend:**
- Roads
 - ☁ Vegetation
 - ▤ Bench
 - Fences
 - Streams/Sloughs
 - +++ Railroad
 - ▣ Buildings/ Structures
 - Springs
 - ⋯ Old Ditches
 - - - Main Ditches
 - - - Lateral Ditches
 - - - Component Landscape Boundary Line
 - - - GRKO Boundary Line
 - Beaver Lodges



Not to Scale

Map Sources: Albright, John. *Historic Resources Study and Historic Structure Report Historical Data, Kohrs and Bielenberg Home Ranch, Grant-Kohrs Ranch National Historic Site, Montana*. Denver: Denver Service Center, National Park Service, 1977. Base mapping referenced to Grant-Kohrs Ranch National Historic Site 1994 aerial photographs and Montana 1:24,000 scale State Plane DRG quadrangles. GIS data was exported into Autocad format for production of base maps and further further detailed with additional data collected in the field.

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A/E FIRM PRIME NAME: Susan Maxman Architects CITY, STATE: Philadelphia, PA SUBCONTRACTOR NAME: John Milner Associates, Inc. CITY, STATE: Charlottesville, VA	DESIGNED:	SUB SHEET NO. P-13	EXISTING CONDITIONS INVENTORY		DRAWING NO.
	DRAWN:		WARREN HEREFORD RANCH COMPARATIVE PHOTO STATION POINT MAP (2 OF 2) GRANT-KOHR'S RANCH NATIONAL HISTORIC SITE	PKG. NO.	SHEET
	TECH. REVIEW:			—	—
	KLS, RMM DATE: JULY 2004			—	OF

