

**Rocky Mountain National Park (ROMO)  
Beaver Creek Exclosure Fence**

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**OVERVIEW OF WORK**  
**September 7, 2023**  
**Rocky Mountain National Park (ROMO)**  
**Beaver Creek Exclosure Fence**

**PERFORMANCE PERIOD**

The work shall begin following issuance of the task order, proceed in accordance with the schedule for submittals, and be completed no later than November 30, 2023.

**PROJECT IDENTIFICATION**

**POINTS OF CONTACT**

Rocky Mountain Conservancy (RMC)

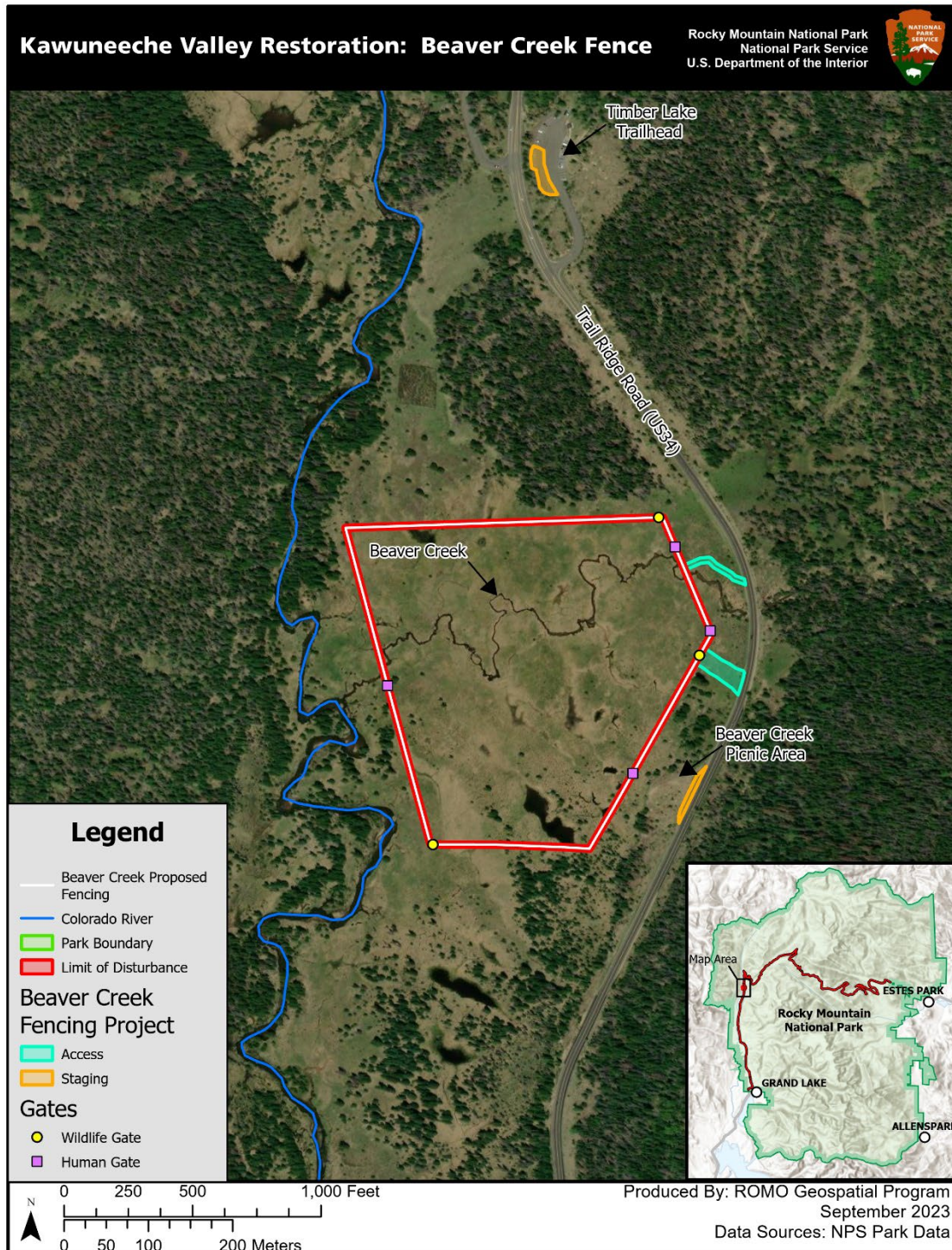
- Contracting Officer and Director of Administration: Carolyn Carlson, 970-232-4673, [carolyn.carlson@rmconservancy.org](mailto:carolyn.carlson@rmconservancy.org)
- Park POC's:
  - Project Manager: Isabel de Silva Shewell, 970-586-1508, [isabel\\_shewell@nps.gov](mailto:isabel_shewell@nps.gov)
  - Design and Construction Contact: Amy Peabody, 970-586-1426, [amy\\_peabody@nps.gov](mailto:amy_peabody@nps.gov)

**BACKGROUND/PROJECT DESCRIPTION**

This contract shall provide for installation of an approximate 31-acre/4,600 linear foot ungulate exclosure fence around Beaver Creek in Rocky Mountain National Park (ROMO). The aim of this project is to facilitate the restoration of native vegetation, specifically willow species (*Salix* spp.), in the riparian wetland. This work will support an overarching management goal of restoring the Beaver Creek riparian wetland area from a grassland state with short sparse willows and exotic plant prevalence to a beaver-willow state with tall dense willows and high prevalence of native wetland understory species.

Contractor will install exclosure fencing, approximately 4,600 linear feet, that will enclose an estimated 31-acres (as shown in Map 1 and Drawing 121 sub sheet C2). The fence will consist of metal and wildlife-safe wire. The fence will be installed by contract, using heavy equipment (e.g. compact track loader, mechanized fence post driver), hand tools (e.g. pliers, wrenches, and hammers) and motorized tools (e.g. power drills with battery packs). No concrete or other fill will be used to secure the fence or corners. The fence will include a gap at the bottom to allow access to smaller animals. Gates will provide access for people as well as wildlife movement, should larger wildlife get inside the fence. The entire paved pull-off at the Beaver Creek Picnic Area will be utilized for materials/equipment staging. A secondary pre-designated materials/equipment staging area at the Timber Lake trailhead parking lot can be used if needed.

**Map 1.** Beaver Creek project area near 40.3929573543959, -105.84595387301214. White polygon perimeter indicates desired fence location with limits of disturbance in red. Green polygons indicate access routes. Purple squares indicate human gate locations and yellow dots indicate wildlife gate locations.



## DATA AND MATERIALS TO BE PROVIDED BY THE GOVERNMENT

The following items are examples of the material that shall be provided by the government at the request of the Contractor for their use in completing the services specified:

**Table 1.** Documents for Contractor review, to be held in confidentiality (i.e. shall not be distributed to any outside entities or individuals) when not publicly distributed (i.e. when not hosted by nps.gov).

Document/Data	Location
Desired fence specifications and installation practices	Sections 010000, 311000, 323114, and 'Drawings' section of this document
Elk and Vegetation Management Plan Environmental Impact Statement, Rocky Mountain National Park (2007)	<a href="https://nps.gov/romo/learn/management/upload/ROMO-EVMP-FEIS-Complete-Report.pdf">nps.gov/romo/learn/management/upload/ROMO-EVMP-FEIS-Complete-Report.pdf</a>
Rocky Mountain National Park Exotic Plant Management Plan (NPS 2018)	<a href="https://nps.gov/romo/learn/management/upload/Final-NPS-Public-Review-Exotic-Plant-Management-EA-11012018-508.pdf">nps.gov/romo/learn/management/upload/Final-NPS-Public-Review-Exotic-Plant-Management-EA-11012018-508.pdf</a>
Geospatial data of desired perimeter of enclosure, gate locations, staging areas, and access routes	Upon award
Rocky Mountain National Park Beaver Creek Restoration Rare and Exotic Plant Survey (2022)	Upon award

## GENERAL TERMS

### QUALITY STANDARDS

Quality Standards shall be in accordance with the base contract, commercial practices and as described in this statement of work.

If the Contractor has concerns regarding meeting any of the following quality standards, the Project Manager must be notified in writing with an explanation and possible corrective actions at the earliest opportunity. A determination of the most effective corrective action as mutually agreed upon will be made, which may result in a modification of this contract.

### INFORMATION SHARING RESTRICTIONS

All persons working under this contract are prohibited from revealing information on the nature and location of archeological resources, if discovered, to the general public. This includes social media postings.

The Contractor shall not publish or present of the results of the work conducted under this contract unless granted written approval by the Project Manager.

The Contractor shall grant the Project Manager, or his/her representative, full access to the work area specified in this contract at any time the Contractor is in the field, for purposes of examining the work area. The Contractor shall not negotiate, make commitments, cause harm to relationships with the NPS and other parties, or otherwise give the appearance of speaking for or exercising NPS authority.

### CONFIDENTIALITY

Any information developed under this task order is the property of the U.S. government and shall be kept in strict confidence.

# **BIDDING**

## **INSTRUCTIONS TO OFFERORS**

Proposals should be sent to:  
Carolyn Carlson, Director of Administration  
Rocky Mountain Conservancy  
Carolyn.Carlson@RMConservancy.org  
970-586-0108

Proposals must include:

- 1) The name, title, email address and direct phone number of the person to whom future correspondence should be directed
- 2) Three references for similar jobs
- 3) Summary of proposed approach including size and type of equipment to be used, with acknowledgement of requirements listed in Sections 010000 (including 1.1 E), 311000, and 323114
- 4) Identify potential subcontractors, if any
- 5) Proposed Schedule
- 6) Pricing - inclusive of all costs, separated into Line Items (see Section 010000 1.1 C)

The proposal narrative shall not exceed 1,500 words.

## **FEE AND PAYMENT**

The Rocky Mountain Conservancy obligation for performance of this task order beyond this price is contingent upon the availability of funds from which payment for contract purposes can be made. No legal liability on the part of the Rocky Mountain Conservancy for any payment may arise for performance under this contract beyond the amount that has been authorized through the issuance of written task orders.

After completion of the work and as a prerequisite to the final payment on each task order, the Contractor shall furnish to the Contracting Officer a Release of Claims. Such claims as are asserted by the Contractor and excepted from operation of the Release shall be listed in spaces provided after the word "except" and shall be referenced to correspondence or other identifying data, together with monetary amount for each major claim item.

Contractors shall submit a final invoice within 15 business days after all closeout procedures are successfully completed (see Section 010000 3.14). The final invoice shall be submitted via email to:  
[carolyn.carlson@rmconservancy.org](mailto:carolyn.carlson@rmconservancy.org) and [isabel\\_shewell@nps.gov](mailto:isabel_shewell@nps.gov).



# SECTION 010000 - GENERAL REQUIREMENTS

## PART 1 - GENERAL

### 1.1 SUMMARY OF WORK

#### A. Project Location:

1. This project is located at Rocky Mountain National Park, Grand Lake, Colorado. The project is in the Beaver Creek area of the park, located approximately 11 miles north of Grand Lake, CO on US Highway 34.

#### B. Work Covered by the Contract Documents:

1. The work includes:
  - a. Constructing approximately 4,600 linear feet of new wildlife enclosure fencing to exclude elk and/or moose from willow dominated wetlands.
  - b. Constructing four new human gates to allow hiker access and constructing three 12-foot-wide wildlife gates to allow for the extraction of wildlife that may enter the fence.
  - c. Installation of access mats for ground protection in the southwestern section of the fence: 100ft to the west of Corner 3 to Human Gate 3.
  - d. Construction of temporary water crossings for access to the work area if necessary and approved by the Project Manager.

#### C. Definition of Contract Line Items: Contractor proposal shall list each line item.

##### 1. Contract Line Item 1 – New Fence and Gates

- a. This item consists of all labor, equipment, and materials necessary for installing approximately 4,600 linear feet of new wildlife fencing and installing of four human gates and three wildlife gates as specified and shown on the Drawings.
- b. Measurement for payment will be on a lump sum basis as a single item of work.
- c. Payment will be made at the contract lump sum price.

##### 2. Contract Line Item 2 – Access Mats

- a. This item consists of all labor, equipment, and materials necessary for installing and removing, after work is complete, access mats as needed for ground protection. Use of access mats is required in the southwestern section of the fence: approximately 100 feet to the west of Corner 3 extending to Human Gate #3.
- b. Measurement will be the actual number of square feet in place. The geospatial estimate for the section is approximately 480 feet.
- c. Two weeks prior to construction, the Project Manager can require additional access mat areas due to potential ground saturation, applying the contract unit price per square foot.
- d. Payment will be made at the contract unit price per square foot of access mat in place.

3. Contract Line Item 3 – Temporary Water Crossing
  - a. This item consists of all labor, equipment and materials necessary for installing and removing, after work is complete, up to two temporary water crossings for the work on the fence over Beaver Creek. Need for a temporary water crossing is dependent on intermittent stream flow at the time of work. The Project Manager may direct Contractor to install a temporary water crossing after evaluation of the site conditions, two weeks prior to the scheduled date that on-site construction will begin.
  - b. Measurement for payment will be on a lump sum basis as a single item of work.
  - c. Payment will be made at the contract lump sum price.
4. Project will be constructed under a single prime contract.

D. Contractor's Use of Premises

1. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings. Limit use of the premises to the use areas described below and as indicated on Drawings. Do not disturb portions of the Project site beyond areas in which the Work is indicated.
  - a. Limits of work include the Staging Areas and Access Routes as indicated on the Drawings.
    - 1) The fence perimeter access route limit of work is 20 feet wide centered on the fence line. All equipment operation and material staging shall occur within this limit of work.
  - b. Limit clearing of vegetation to 10 feet wide centered on the fence line.
  - c. To minimize impact to the park's natural and cultural environment, use lowest impact methodologies for all work.
  - d. All Terrain Vehicles (ATVs) are not allowed in the park.
  - e. Utility Task Vehicles (UTVs) with side-by-side riding are allowed in the park.
  - f. Areas within the limits of work include saturated wetlands.
  - g. Minimize damage to existing vegetation by using floating or other vegetation-friendly type tires, non-marking rubber tracks on construction equipment or approved equivalent.
2. Storage of Materials:
  - a. Confine storage of materials to Staging Areas designated on the Drawings, unless directed otherwise by the Project Manager.
    - 1) The Beaver Creek Picnic Area paved pull-off shall be the primary staging area. The Timber Lake parking lot staging area shall be used as a secondary staging area, only to be used for periodic (non-frequent) transport of materials and equipment to either the fence work area or the Beaver Creek Picnic Area pull-off/staging area.
    - 2) Contractor is responsible for securing and restricting public access to construction site and staging areas.
  - b. Any materials staged on-site must be placed within 10 feet of the fence line and in uplands, as determined by NPS, or on wetland mats. When possible, place materials on asphalt, paved areas, alluvium, planks or tarps to reduce ground and vegetation disturbance.
  - c. To the extent possible, equipment will be kept on hardened surfaces.

3. Use of Site: Limit use of premises to areas within the limits of work, as indicated on Drawings. Use areas are delineated as “Staging Areas,” “Access Routes,” and “Construction Area”.
  - a. Site Access
    - 1) Park staff will flag off-road Access Routes and the fence corners prior to construction. The Contractor is responsible for flagging the entire limits of disturbance along the fence line at 50 feet intervals and ensuring all activities remain within the limits of disturbance.
    - 2) The Construction Area and Access Routes are composed of dryer upland areas as well as saturated wetland areas. Access to the fence work site may require a four-wheel drive vehicle.
    - 3) Fencing material and equipment can be dropped off, and picked up, utilizing vehicles driving off-road on the Access Routes. At other times, vehicles and equipment must be parked and stored in the designated Staging Area.
    - 4) The entire project area can be saturated depending on the time of year, snow melt, and precipitation. A rubber tracked Bobcat T450 or similar should be able to access the site, with use of access mats on all non-paved work areas.
  - b. Preservation of Natural Features:
    - 1) Prevent damage to natural surroundings. Restore damaged areas, repairing or replacing damaged trees and plants, at no additional expense to the Government.
    - 2) Avoid trees and shrubs that have been flagged for protection by the park.
    - 3) Do not remove, injure, or destroy trees or other plants without prior approval. Some vegetation may require removal to allow for construction. Consult with the Project Manager and remove agreed upon roots and branches of woody species (trees, shrubs) that interfere with construction.
    - 4) Do not fasten ropes, cables, or guys to existing trees.
    - 5) Carefully supervise excavating, grading, filling, and other construction operations near trees to prevent damage.
    - 6) Do not remove or relocate natural resources. Items such as antler sheds, skulls, feathers, rocks and flowers must remain in place and inside the park.
  - c. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Government, Government's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
4. Hauling Restrictions: Comply with all DOT and NPS load restrictions in the hauling of materials. Load restrictions on park roads are identical to the state load restrictions with such additional regulations as may be imposed by the Chief of Visitor and Resource Protection. Information regarding rules and regulations for vehicular traffic on park roads may be obtained from the Office of the Park Superintendent. A special permit will not relieve Contractor of liability for damage which may result from moving of equipment.
5. Fueling: Any fueling of equipment or vehicles shall be done in the staging areas on paved surfaces only.



6. Leak and Spill Prevention: Repair leaks on equipment immediately. Do not use equipment that is leaking. Keep a supply of acceptable absorbent materials at the job site in the event of spills. Acceptable absorbent materials are those that are manufactured specifically for the containment and clean up of hazardous materials.

E. Equipment

1. This project site is in designated wilderness. Approved tools/equipment used for the installation of ungulate exclosure fencing within wilderness include:
  - a. Medium duty HDPE ground protection mats such as Liberty Mat Ground Protection Mats
  - b. A compact rubber tracked loader such as a Bobcat T450
  - c. A mechanized post driver attachment for a compact track loader
  - d. A fence stretching attachment for a compact track loader
  - e. Utility Task Vehicles (UTVs) with side-by-side riding
  - f. Hand tools such as pliers, wrenches, hammers, power drills with battery packs, and loppers
  - g. Chainsaws
  - h. Portable pumps and generators
  - i. Welding equipment
2. A full equipment list is required to be submitted to the Project Manager for the Pre-construction Conference. The Contractor must get written approval from Project Manager for all equipment.

F. Government and Public Use of Site

1. Contractor can utilize only 10 parking spaces within the designated staging area for additional parking at the Timber Lake Trailhead parking lot. Public and NPS employee access to the Timber Lake Trailhead vault toilet and parking spaces shall be maintained.

G. Work Restrictions

1. On-Site Work Hours: Work shall be generally performed during normal business working hours of 7 a.m. to 5 p.m., Monday through Friday, excluding Federal Holidays, unless otherwise approved by the Project Manager in writing.
2. Special Construction Requirements
  - a. Wetlands Protection
    - 1) On-site work shall be scheduled between **September 15 - November 30**, at a typically dry part of the year after the growing season and before the ground is frozen to minimize potential impacts to wetland vegetation and soils.
  - b. Invasive Exotic Species Mitigation
    - 1) Equipment and Personal Protective Equipment Cleaning:
      - a) Clean vehicles and construction equipment prior to entry into the Park to minimize the potential for introduction and/or proliferation of whirling disease, chytrid fungus, New Zealand mudsnails, and invasive

non-native weeds through project actions. The contractor is required to wash equipment, with emphasis on undercarriages, with a high-pressure spray prior to transporting such equipment to Rocky Mountain National Park.

- b) To avoid the proliferation of *Batrachochytrium dendrobatidis* (chytrid fungus), following the high-pressure wash, all equipment or mat surfaces that will make contact with the ground on Access Routes and Construction Areas (in the wetland), as delineated on Drawings, shall be decontaminated by spraying with a 50/50 water and bleach solution prior to being used to conduct the Work. Bleach solution shall be allowed to dry before equipment or mats enter the wetland. If equipment or mats are moved outside the park for another project, cleaning and decontamination procedures must be reapplied before reentry.
- c) All vehicles and construction equipment entering Rocky Mountain National Park shall be inspected and approved by the Project Manager prior to entering the park.
- d) Equipment not deemed clean by the Project Manager will not be allowed to enter the park. The contractor remains liable for additional transportation fees incurred when equipment fails inspection.
- e) Follow Rocky Mountain National Park Aquatic Disinfection Guidelines for all personal protective equipment (e.g. boots, waders) to prevent infection or spread of whirling disease, chytrid fungus, New Zealand mudsnails, and invasive non-native weeds.

c. Avoid Soil Compaction

- 1) Avoid compaction from heavy equipment to surrounding area by keeping equipment inside the limits of work. If work outside the limit of work is necessary, do so only when the soil is dry and with approval from the Project Manager.
- 2) Compacted soils must be decompacted post construction to enable vegetation growth and restoration, to a 4 inch depth or as instructed by the Project Manager.
- 3) All disturbances must be returned to grade and any tracks from equipment must be raked out. If soil or site disturbance in excess of contract specifications occur, the Contractor will be responsible for restoring the site to previous conditions as determined by the Project Manager. Rutting will be hand raked to the original grade as deemed necessary by the Project Manager. Tire or track rutting is an example of site disturbance which must be rehabilitated and stabilized prior to completion and payment.

d. Rare plants

- 1) Surveys detected occurrences of rare plants in the project area. Prior to start of work, Contractor is to confirm knowledge of location of flagged plants for avoidance. Contractor to provide this confirmation in writing.

e. Bird Protection Acts

- 1) In order to protect birds under the Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703–712), all construction work performed between February 1 and

August 31 requires a site survey, to be performed by a trained park employee. The survey must be completed within two weeks prior to the start of construction. Additional surveys will be required when all activities are not completed within the two-week timeframe from the date of the survey. The Contractor will be required to avoid cutting down trees with active nests, however, other work would be permitted to continue. Some species may also require a buffer around active nests where work cannot occur. Request site survey a minimum of one month prior to work.

- 2) In order to protect eagles under the Bald and Golden Eagle Protection Act (BGEPA, 16 U.S.C. 668-668c), all construction work requires a site survey, to be performed by a trained park employee. The survey must be completed within two weeks prior to the start of construction. If an active bald eagle or golden eagle nest is found, the Contractor may have to work in areas that are 100 meters or more away from the active nest. If avoiding work in the 100-meter area around the active nest is not possible, the Contractor may be required to postpone work in the area until a repeat survey indicates no impact to nesting eagles. If an active or inactive nest is found, the Contractor will be required to avoid cutting down trees with nests. Request site survey a minimum of one month prior to work.

f. Wildlife

- 1) Do not feed or disturb wildlife within the Park boundaries. Do not approach or remain within 25 yards of any wildlife. If a minimum of 25 yards cannot be maintained from elk, moose, bighorn sheep, or bears, the Contractor must stop work until the animals leave the area.
- 2) All construction personnel working in the field must follow park food storage regulations, 36 CFR 2.10. All food, garbage, toiletry, or other bear attractants must not be left unattended for any length of time.
  - a) These items shall be stored inside vehicle trunks.
  - b) In vehicles with no trunk, place these items as low in the vehicle compartment as possible and covered from sight, with all windows and doors closed and locked.
- 3) On-site construction personnel are required to report all bear sightings in the work area to the Project Manager.
- 4) This project is expected to take place in the meadow during the elk rut. NPS technical representative will provide safety information to contractor.

3. Existing Utilities

- a. Notify Project Manager and utility companies of proposed locations and times for excavation and driving of t-posts.
- b. Contractor shall be responsible for locating and preventing damage to known utilities. If damage occurs, repair utility at no additional expense to the Government.
- c. If damage occurs to an unknown utility, repair utility. An equitable adjustment will be made in accordance with the Changes clause of the contract.

## PART 3 - EXECUTION

### 3.1 PROJECT MANAGEMENT AND COORDINATION

#### A. Project Meetings

1. Pre-construction Conference: Before start of construction, Project Manager will arrange an on-site meeting with Contractor. The meeting agenda shall include the following:
  - a. Roles and Responsibilities/Lines of Authority.
  - b. Park rules and regulations.
  - c. Coordination of Subcontractors.
  - d. Modifications.
  - e. Payments to Contractor.
  - f. Contract time.
  - g. Notice to proceed.
  - h. Construction Schedule.
  - i. Correspondence procedures.
  - j. Acceptance/rejection of work.
  - k. Progress meetings.
  - l. Submittal procedures.
  - m. As-constructed Drawings/operation and maintenance (O&M) manuals.
  - n. Saturday, Sunday, holiday and night work.
  - o. Submittals required prior to or at Preconstruction Conference:
    - 1) Proposed construction schedule.
    - 2) Schedule of values.
    - 3) Equipment list.
    - 4) Accident Prevention Plan/Safety Plan.
    - 5) A list of Subcontractors for this project.
    - 6) Satisfactory evidence of liability insurance coverage and workman's compensation for the Contractor and all subcontractors.
    - 7) Storm Water Pollution Prevention Plan.
  - p. Project closeout requirements.
2. Progress Meetings: The Project Manager may schedule weekly meetings with the Contractor and subcontractors. The meeting agenda may include the following:
  - a. Submittal status.
  - b. Review of offsite fabrication and delivery schedules.
  - c. Requests for information (RFI) and other issues.
  - d. Modifications.
  - e. Work in progress and projected.
  - f. Construction Schedule update.
  - g. Status of Project Record Drawings and O&M manuals.
  - h. Other business relating to work

### 3.2 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
  - 1. RFI number, numbered sequentially.
  - 2. Project name.
  - 3. Contract number.
  - 4. Date.
  - 5. Name of Contractor.
  - 6. RFI subject.
  - 7. Specification Section number and title and related paragraphs, as appropriate.
  - 8. Drawing number and detail references, as appropriate.
  - 9. Field dimensions and conditions, as appropriate.
  - 10. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  - 11. Contractor's signature.
  - 12. Requested date for response.
  - 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination Drawings, and other information necessary to fully describe items needing interpretation.

### 3.3 SCHEDULES

- A. After contract award and before the Pre-Construction Conference submit:
  - 1. Schedule of Values
    - a. Breakdown each lump-sum item into component parts of work for which progress payments may be requested. The total costs for the component parts of work shall equal the contract price for that lump-sum item. The Project Manager may request data to verify accuracy of dollar values. Include mobilization, general condition costs, overhead and profit in the total dollar value of unit price items and in the component parts of work for each lump-sum item. Do not include mobilization, general condition costs, overhead or profit as a separate item.
    - b. Do not break down unit price items. Use only the contract price for unit price items.
    - c. The total cost of all items shall equal the contract price. The Schedule of Values will form the basis for progress payments.
    - d. An acceptable Schedule of Values shall be agreed upon by the Contractor, Contracting Officer, and Project Manager before the first progress payment is processed.
  - 2. Construction Schedule
    - a. Prepare a list of all activities required to complete the Work.

- b. Upon acceptance of the Construction Schedule by the Project Manager, the Construction Schedule will be used to evaluate the Contractor's monthly applications for payment.

### 3.4 SUBMITTALS

#### A. Submittal Procedures

1. Prepare and submit Submittals required by individual Specification Sections. Transmit each submittal using National Park Service transmittal form CM-16, which can be obtained from Project Manager.
2. Processing Time: Allow enough time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Project Manager's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.
  - a. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
  - b. Re-submittal Review: Allow 10 days for review of each re-submittal.

#### 3. Approved Equals

- a. For each item proposed as an approved equal, submit supporting data, including:
  - 1) Drawings and samples as appropriate.
  - 2) Comparison of the characteristics of the proposed item with that specified.
  - 3) Changes required in other elements of the work because of the substitution.
  - 4) Name, address, and telephone number of vendor.
  - 5) Manufacturer's literature regarding installation, operation, and maintenance.
- b. A request for approval constitutes a representation that Contractor:
  - 1) Has investigated the proposed item and determined that it is equal or superior in all respects to that specified.
  - 2) Will provide the same warranties for the proposed item as for the item specified.
  - 3) Has determined that the proposed item is compatible with interfacing items.
  - 4) Will coordinate the installation of an approved item and make all changes required in other elements of the work because of the substitution.
  - 5) Waives all claims for additional expenses that may be incurred as a result of the substitution.

B. Contractors Review: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions.

C. Project Manager's Action: Project Manager or his/her authorized representative will review each submittal, make marks to indicate corrections or modifications required, and return one copy.



D. Shop Drawings, Product Data, and Samples

1. As specified in the individual sections, forward submittals to Project Manager at least ten (10) days before need for approval.
2. After approving submittals, Project Manager will return one copy to the Contractor.
3. If submittals are not approved, Project Manager will return one copy to Contractor with reasons for rejection. Resubmit and identify changes.

E. Manufacturer's Installation Instructions - When contract documents require compliance with manufacturer's printed instructions, provide one complete set of instructions for Project Manager and keep another complete set of instructions at the project site until substantial completion.

3.5 ARCHEOLOGICAL PROTECTION

A. General: The work consists of protecting archeological resources contained in soil deposits.

B. Discovery of Resources

1. Archeological Findings

- a. Petroglyphs, artifacts, burial grounds or remains, structural features, ceremonial, domestic, and archeological objects of any nature, historic or prehistoric, found within the construction area, are the property of and will be removed only by the Government. Should Contractor's operations uncover or his employees find any archeological remains, Contractor shall suspend operations at the site of discovery; notify Project Manager immediately of the findings; and continue operations in other areas. Included with the notification shall be a brief statement of the location and details of the findings. Should the temporary suspension of work at the site result in delays, or the discovery site require archeological studies resulting in delays or additional work for Contractor, the Contractor shall be compensated by an equitable adjustment under the General Provisions of the Contract.
- b. The NPS will identify and document the discovered resource and an appropriate mitigation strategy will be developed if necessary. If necessary, the NPS Cultural Resource Specialist will consult with the State Historic Preservation Officer (SHPO) in accordance with 36 CFR Part 800.13, Post-review Discoveries.
- c. In the event that human remains are discovered, the NPS Cultural Resource Specialist will follow procedures outlined in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect the site.
- d. All archeological discoveries are confidential and information about those discoveries shall not be shared with anyone outside the Government.

2. In addition to archeological findings uncovered by Contractor's operations, if an NPS Cultural Resource Specialist, NPS Natural Resource Specialist, Project Manager or Inspector discover resources (natural or cultural) in the area of work, suspend operations at the site of discovery as specified above. Delays; mitigation, if necessary; and further compliance consultation will be handled as specified above.

### 3.6 SAFETY REQUIREMENTS

- A. Description: The work consists of establishing and implementing an effective accident prevention program and providing a safe environment for all personnel and visitors.
- B. Submittals
  - 1. Accident Prevention Plan - The Plan shall be written to comply with OSHA and project requirements including but not limited to the following:
    - a. Name of responsible supervisor to carry out the program.
    - b. Weekly safety meetings.
    - c. First aid procedures.
    - d. Outline the work and associated hazards, and the methods proposed to ensure property protection and safety of the public, National Park Service personnel, and Contractor's employees.
    - e. Planning for possible emergency situations (Emergency Action Plan).
    - f. Fire Protection.
    - g. Hot Work Plan.
  - 2. Traffic Control Plan – The plan shall address safety procedures to be used for crossing Trail Ridge Road with construction equipment and vehicles.
    - a. 'Construction ahead' and 'be prepared to stop' signs, provided by the Contractor, must be present at: 1) 500ft north of the junction of the Colorado River Trailhead winter closure gate and Trail Ridge Road and 2) 1/4mi south of the Beaver Creek Picnic Area alerting vehicles to upcoming construction activity.
    - b. A certified flagger, provided by the Contractor, shall be used by the contractor any time equipment and/or materials transport occurs using Trail Ridge Road (US 34), if traffic impacts are needed to complete the transport. Traffic stops shall not exceed 15 minutes per transport event and shall be confined to the beginning and end of the contract to the best extent possible. Usage of Trail Ridge Road shall be minimized by laying out fence materials on site at the beginning of the contract and leaving equipment at the fence perimeter during the contract period.
- C. Qualification of Employees
  - 1. Ensure that employees are physically qualified to perform assigned duties in a safe manner.
  - 2. Do not allow employees to work whose ability or alertness is impaired because of drugs, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury.
  - 3. Operators of vehicles, mobile equipment, hoisting equipment, and hazardous plant equipment shall be able to understand signs, signals, and operating instructions, and be capable of operating such equipment. Provide operating instructions for all equipment.
- D. Accident Reporting
  - 1. Reportable Accidents: A project reportable accident is defined as medical attention beyond first aid, death, occupational disease, traumatic injury to employees or the public, fires, and property damage by accident in excess of \$100. Notify Project Manager immediately in the event of a reportable accident. Within 7 days of a reportable accident, fill out and

forward to Project Manager an Accident/Property Damage Report (Form CM-22). Form may be obtained from the Project Manager.

- a. Follow OSHA guidelines for recordkeeping and reporting of reportable accidents sustained by employees of the Contractor and Sub-Contractors.
  2. All Other Accidents: The Contractor shall report all other accidents to the Project Manager as soon as possible and assist the Project Manager and other officials as required in the investigation of the accident.
- E. Personnel Protective Equipment: Meet requirements of OSHA.
- F. Emergency Instructions: Maintain telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at the work site.
- G. Protective Equipment
1. Inspect personal protective equipment daily and maintain in a serviceable condition. Clean, sanitize, and repair, as appropriate, personal items before issuing them to another individual.
  2. Inspect and maintain other protective equipment and devices before use and on a periodic basis to ensure safe operation.
  3. It is the Contractor's responsibility to require all those working on or visiting the site to wear hard hats and other necessary protective equipment at all times.

### 3.7 QUALITY REQUIREMENTS

- A. Testing and inspecting services are the responsibility of the Contractor and are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements. The quality of all work shall be the responsibility of the Contractor.
- B. Submittals
1. Contractor's Quality Control Daily Reports: Submit showing all inspections and tests on the first workday following the date covered by the report.
  2. Test Reports
- C. Quality Assurance
1. The Contractor's Quality Control Supervisor may also perform the duties of Project Superintendent.
  2. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
  3. Testing Agency Qualifications: An NRTL or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by Contract, is acceptable to the Project Manager.

### 3.8 REFERENCES

#### A. Industry Standards

1. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
2. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

### 3.9 TEMPORARY FACILITIES AND CONTROLS

#### A. Temporary Facilities

1. Contractor to provide a temporary toilet and wash facility for use by construction personnel.
  - a. Sufficiently lighted and ventilated toilet facilities in weatherproof, sight proof, handicap accessible, sturdy enclosures with privacy locks. Maintain and clean at least weekly. NPS recommends a lock be installed to prevent visitor use of the toilet.

#### Temporary Utilities

2. Potable water is available in the park, within ten miles of the site. Make connections to existing facilities as needed with communication to the Project Manager. Facilities must be cleaned and maintained in a condition acceptable to the National Park Service. At Substantial Completion, restore these facilities to condition existing before initial use.
  - a. Up to 500 gallons per day of water from existing water system is available for use without metering and without payment of use charges with prior approval from Project Manager. Provide connections and extensions of services as required for construction operations.
3. Electric Power Service: Electric power is not available at the site.
4. Telephone Service: No telephone service is available on site for Contractor's use. Cell phone coverage is not dependable.

#### B. Security and Protection of Facilities

1. Tree and Plant Protection: Install temporary fencing outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
2. Barricades, Warning Signs, and Lights: Comply with requirements of MUTCD, part IV, current edition, for erecting structurally adequate barricades, including warning signs and lighting.

3. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
  - a. Responsible Person: A capable and qualified person shall be placed in charge of fire protection. The responsibilities shall include locating and maintaining fire protective equipment and establishing and maintaining safe torch cutting and welding procedures.
  - b. Smoking: Smoking on the project site, including the Staging Area is not permitted.
  - c. Supervise welding or torch cutting operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of the National Park Service. Welding and torch cutting work in the park requires a welding permit (see Section 9.5). Coordinate park welding permit with the Project Manager a minimum of one week prior to welding or torch cutting work. Welding and torch cutting work may not commence without park approved welding permit.
  - d. Hazard Control: Take all necessary precautions to prevent fire during construction. Do not store flammable or combustible liquids in existing buildings. Provide adequate ventilation during use of volatile or noxious substances.
  - e. Spark Arresters: Equip all gasoline or diesel-powered equipment used during periods of potential fire hazards or in potential forest and grass fire locations with spark arresters approved by the USDA Forest Service.
    - 1) Written determinations of periods and areas of potential fire hazard will be issued by Project Manager.
4. Fire Extinguishers: Portable, unexpired, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
  - a. Vehicles and Equipment: Provide one extinguisher on each vehicle or piece of equipment.

### 3.10 TEMPORARY STORM WATER POLLUTION PREVENTION

- A. Federal Regulations for controlling discharges of pollutants (including chemicals, erodible material, and trash) from municipal separate storm sewer systems, construction sites, and industrial activities, were brought under the National Pollution Discharge Elimination System (NPDES) permit process by amendments to the Clean Water Act (CWA), and promulgation of federal stormwater regulations issued by the United States Environmental Protection Agency (USEPA). The USEPA uses amount of ground disturbance as a measure of a project potential to generate pollution from erosion. NPDES Phase I regulates discharges from construction sites that disturb 5 acres or more. NPDES Phase II regulations expand existing General Permit requirements under Phase I to include/regulate discharges from construction sites that disturb land equal to or greater than one (1) acre and less than 5 acres, known as Small Construction Activity. Construction disturbances 1 acre and above typically require a formal NPDES permit and a formal Stormwater Pollution Prevention Plan (SWPPP) must be submitted to Agency(ies)

with Jurisdiction for review and approval. National Park Service (NPS) Standards and Guidelines require water quality be protected to ensure compliance with Organic Act. Contractor shall prepare an Under-An-Acre Pollution Prevention Plan (UPPP) for each project resulting in less than 1 acre of soil disturbance or not otherwise subject to requirements of NPDES program. ([UPPP Guideline](#))

B. Implement measures to prevent storm water pollution during construction activities.

C. SUBMITTAL

- a. After contract award and before pre-construction conference, prepare and submit:
- b. A SWPPP showing SWPPP satisfies Federal and State NPDES permit requirements.
- c. A UPPP in conformance with NPS guidelines and adherence to applicable construction storm water management practices.
- d. Submit manufacturer's product information and installation recommendations for silt fence, filter fabric, erosion control blanket, straw bales, and other materials proposed for use on this project.

2. PRODUCT

- a. Provide SWPPP which satisfies Federal and State NPDES permit requirements and includes:
  - 1) Site description.
  - 2) Identification and contract information for Pollution Prevention and Erosion Control Manager.
  - 3) Expected sequencing of operations and construction schedule.
  - 4) Weather monitoring procedure.
  - 5) Descriptions and details Best Management Practices for of pollution prevention and erosion controls, including dust control.
  - 6) Pollution prevention and erosion control plans.
  - 7) Controls for other potential onsite storm water pollutants.
  - 8) Applicable specifications.
  - 9) Maintenance and inspection procedures and forms.
  - 10) Description of potential non-storm water discharges at site.
  - 11) Notice of Intent (NOI) form.
  - 12) Notice of Termination (NOT) form.
  - 13) Contractor and Sub-contractor Certification forms.
  - 14) Other record keeping forms and procedures.
  - 15) Housekeeping Best Management Practices, including vehicle wash-down areas, protection of equipment storage and maintenance areas, and sweeping of roadways related to hauling activities.
- b. Provide UPPP which conforms to NPS requirements (utilize [UPPP template](#)) and include:
  - 1) Responsible Parties
  - 2) General Information: Project Scope, Project Details, Site Information, and Spill Prevention
  - 3) Standards and Constraints
  - 4) Project Scheduling
  - 5) Known Data on Soil and Fill
  - 6) Activities with Potential to Generate Sediment
  - 7) Activities and Materials with Potential to Pollute Storm Water
  - 8) Management and Reporting BMPs



- 9) Waste Management BMPs
- 10) Non-Storm Water Pollution Control BMPs
- 11) Soil Stabilization BMPs
- 12) Sediment Control BMPs
- 13) Other Pollution Control BMPs
- 14) References
- 15) Preparer's Certification
- 16) Appendices: Contact Information, Pollution Prevention Control Map or Sheet(s), Standard Installation Specifications for each BMP, and Blank forms.

D. Erosion Control Products

- 1) Acceptable Erosion Control Products: Use of straw or rice products shall not be permitted. Acceptable materials for erosion control blankets and sediment logs include excelsior or coir fiber products. Jute or cotton shall be used as netting in erosion control blankets and sediment logs; plastic netting is not permitted in blankets or sediment logs.
- 2) Acceptable manufactures for erosion control blankets and sediment logs include;
  - 3) American Excelsior (Curlex)
  - 4) Tensar
  - 5) Approved Equal
- b. Sediment Logs
  - 1) Fully biodegradable.
  - 2) Fiber: Great Lakes Aspen, naturally seed free, curled, interlocking fibers with barbed edges,
  - 3) Netting: Totally encased, durable biodegradable tubular netting with knotted ends. Netting shall be burlap or other plant fiber. Biodegradable plastic is not acceptable.
  - 4) Sediment log shall be Curlex Sediment Log as manufactured by American Excelsior Company, Arlington, TX, 76011, (800) 777-SOIL or approved equal.
- c. Erosion Control Blankets
  - 1) Blanket
  - 2) Naturally seed free Great Lakes Aspen curled wood excelsior with 80% of the fiber  $\geq$  6-inches in length.
  - 3) 100% biodegradable.
  - 4) Excelsior wood fiber
  - 5) Top and bottom of blanket covered with biodegradable jute netting.
  - 6) Staples shall be 100% biodegradable with a U-shaped top.
  - 7) Erosion Control Blanket shall be Curlex II FibreNet as manufactured by American Excelsior Company, Arlington, TX, 76011, (800) 777-SOIL or approved equal.
  - 8) Staples
  - 9) Staples shall be E-Staple as manufactured by American Excelsior Company, Arlington, TX, 76011, (800) 777-SOIL or approved equal.

E. Before commencing construction activities, Contractor shall install sediment and erosion control measures, as approved by the Project Manager. The measures shall consist of any Best Management Practices (BMPs) for storm water discharges, including but not limited to silt fencing, straw bales, temporary soil retention blankets, drainage filters, sediment traps and berms.

- F. Ensure erosion and sediment control structures remain effective throughout construction operations.

### 3.11 PRODUCT REQUIREMENTS

- A. **Product Delivery, Storage, and Handling:** Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. **Packaging:** Where Contractor has the option to provide one of the listed products or equal, preference shall be given to products with minimal packaging and easily recyclable packaging as defined in ASTM D5834.
- C. **Protection After Installation:** Provide adequate coverings as necessary to protect installed materials from damage resulting from natural elements, traffic, and subsequent construction. Remove when no longer needed.

### 3.12 EXECUTION

- A. **Examination:** The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Investigate and verify existence and location of utilities and other construction.
- B. **Preparation:** Take field measurements as required to fit the work properly. Where portions of the work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication.
- C. **Construction Layout:** Verify layout information shown on Drawings, if discrepancies are discovered, notify Project Manager promptly. Park Staff will flag areas of work as specified above in Use of Site paragraphs above.

### 3.13 CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT – NOT USED

### 3.14 CLOSEOUT PROCEDURES

- A. **Closeout Requirements:**
  - 1. Submit specific warranties, guarantees, workmanship bonds, final certifications, and similar documents.
  - 2. Submit Project Record Drawings.
    - a. Maintain one complete full-size set of contract Drawings and one full-size set of vendor-supplied Drawings. Clearly mark changes, deletions, and additions to show actual construction conditions. Show additions in red, deletions in green, and special instructions in blue.
  - 3. Submit Operation and maintenance manuals and data.

- a. Manuals: Include a title page which includes project title, location, contract number, prime contractors name and address, and date of substantial completion. Organize each manual with a separate section for each system or product.
  - b. Include manufacturer's data, vendor furnished Drawings, equipment data sheets, schedules, emergency instructions, etc.
  - c. Include operational requirements such as operating standards, procedures, controls, etc.
  - d. Include maintenance requirements such as maintenance procedures, repair materials, warranties, reordering information, environmental requirements, etc.
4. Deliver tools, spare parts, and extra materials as required.
  5. Terminate and remove temporary facilities from Project site.
  6. Complete final cleaning requirements.
  7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
  8. Instruct National Park Service personnel in operation, adjustment, and maintenance of products.

B. Substantial Completion and Final Inspection

1. When project is substantially complete, request, in writing, a final inspection. Upon receipt of written request that project is substantially complete, the Project Manager will proceed with inspection within 10 days of receipt of request or will advise the Contractor of items that prevent the project from being designated as substantially complete.
2. If, following final inspection, the work is determined to not be substantially complete, Project Manager will prepare a Punch List to be corrected before final acceptance and issue a Letter of Substantial Completion. Contractor shall complete the work described on the Punch List within 30 calendar days, as weather permits. If the Contractor fails to complete the work within this time frame, the Project Manager may either replace or correct the work with an appropriate reduction in the contract price.
3. If, following final inspection, the work is not determined to be substantially complete; Project Manager will notify Contractor in writing. After completing work, Contractor shall request a new final inspection.
4. After all deficiencies have been corrected, a Letter of Final Acceptance will be issued.

C. Final Cleaning

1. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
2. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
3. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Government property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

D. Post-Construction Inspection - Before expiration of warranty period, Project Manager will inspect project and notify Contractor in writing of all deficiencies.

**END OF SECTION 010000**

## SECTION 311000 - SITE CLEARING

### PART 4 - GENERAL

#### 4.1 SUMMARY

##### A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.

#### 4.2 MATERIAL OWNERSHIP

- A. Cleared materials shall become Contractor's property and shall be removed from Project site.

#### 4.3 FIELD CONDITIONS

- A. Traffic: As specified in Section 010000 "General Requirements", minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
- B. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place as specified in Section 010000 "General Requirements."
- C. Construction equipment: As specified in Section 010000 "General Requirements", construction equipment shall be kept within the limits of work. Under no circumstances will any vehicle be allowed outside the limits of work. Whenever possible, keep equipment on hardened surfaces.
- D. Burning of debris is not permitted.

#### 4.4 ACCESS

- A. Access to the work area shall be on designated Access Routes as specified in Section 010000 "General Requirements".
- B. Access mats shall be installed on Access Routes as specified in Section 010000 "General Requirements".

## PART 5 - PRODUCTS

### 5.1 ACCESS MATS

- A. Low profile, medium duty HDPE ground protection mat, flexible for following ground contours, with traction surface design, and load bearing capacity for equipment to be used on project. Access mat shall be Liberty Mat Ground Protection Mat, as manufactured TuffTrack or approved equal.

### 5.2 LOW WATER CROSSINGS

- A. Temporary low water crossings may need to be constructed to access all areas of the Construction Areas. If these are approved by the Project Manager, the contractor will supply all materials for the construction of temporary water crossing structures and will remove these materials from the site following their use unless otherwise directed by the Project Manager.
- B. Temporary low water crossing structures shall be constructed a minimum of 8 ft. wide consisting of a minimum of eight 3 ½" diameter pipes with 3" x 12" bridge planks placed perpendicular across the pipes, as shown in Drawings. Pipes shall be secured to pipes. The crossing shall be secured to the ground at the corners, in a method approved by the Project Manager. The Contractor may submit alternative design for approval.
- C. Temporary low water crossing structures shall not be anchored to the soil.
- D. The installation and use of temporary low water crossings shall minimize ground disturbance, vegetation damage and soil erosion.
- E. Contractor may propose an alternative, for approval, to the low water crossing specified and as shown on the Drawings.

## PART 6 - EXECUTION

### 6.1 PREPARATION

- A. Verify, with the Project Manager, that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed.
- B. Do not remove trees until approval has been obtained from the Project Manager or trees have been flagged for removal by the NPS.

### 6.2 ACCESS MATS

- A. Install access mats as recommended by manufacturer. Drawings display the approximate area where mats are required. Install access mats in each work area only long enough to accomplish the work. Access mats shall be removed as quickly as feasible, to avoid damage and as approved by the Project Manager.



### 6.3 CLEARING AND GRUBBING

- A. The Contractor may remove woody vegetation – trees and shrubs - that have been flagged by the NPS within the maximum ten foot (10') wide path centered on the fence line, as shown in Construction Areas on Drawings, to allow equipment access to permit installation of new construction. Any additional woody vegetation removal will require the approval of the Project Manager.
- B. Where possible, woody vegetation removal will occur on the interior of the fence line, to facilitate vegetation restoration to be conducted by the NPS after the completion of the Work.
- C. Vegetation removal will be kept to the minimum needed to construct the fence. No other vegetation will be allowed to be removed without prior approval from the Project Manager.
- D. Trees and shrubs may be removed by cutting with excavation equipment or by hand. Trees should be cut flush to the ground. Shrubs do not need to be cut flush to the ground and should be trimmed only as much as needed to access the fence line and install fence. Do not pull roots.
- E. If branches need to be removed, branches shall be cut flush to trunk using 3 cut technique.
- F. Vegetation materials shall be left on site and scattered to appear natural as directed by the Project Manager.
- G. Fill depressions caused by clearing and grubbing operations with material excavated for fence construction. Grade areas to blend into surrounding grade.

### 6.4 DISPOSAL

- A. Remove surplus soil material, unsuitable topsoil and waste materials and legally dispose of them off Government's property.

**END OF SECTION 311000**

## SECTION 323114 – WILDLIFE EXCLOSURE FENCES AND GATES

### PART 7 - GENERAL

#### 7.1 SUMMARY

##### A. Section Includes:

1. Metallic-coated-steel, woven wire fence fabric
2. Fence Framing
3. Gates

#### 7.2 PREINSTALLATION MEETINGS

- ##### A. Preinstallation Conference: Conduct conference at Project site.

#### 7.3 ACTION SUBMITTALS

- ##### A. Product Data: Fence fabric and appurtenances, fence framing and appurtenances, and gate products. Include manufacturer's installation instructions, if applicable.

- ##### B. Shop Drawings: For fencing and gates.

1. Submit shop Drawings showing the fence, gates, each pipe brace and size, and details of post installation, gates, hardware and accessories.

- ##### C. Shop Drawings and Product Data for low water crossing if required per Section 010000 "General Requirements".

- ##### D. Samples:

1. Submit one 18" x 18" piece of woven steel fabric showing color.
2. Submit one welded hinge example

#### 7.4 INFORMATIONAL SUBMITTALS

- ##### A. Fence installers qualifications.

#### 7.5 CLOSEOUT SUBMITTALS

- ##### A. Maintenance Data: For gate operators to include in maintenance manuals.

## 7.6 QUALITY ASSURANCE

- A. Installer Qualifications: Fencing installer shall have successfully completed at least three projects of similar scope or larger, within the last five years. Projects shall include the installation of wire fence fabric, specifically.

## 7.7 SITE CONDITIONS

### A. Field Layout

- 1. The NPS shall stake out and flag the fence corners. After the Notice to Proceed, the Contractor will be invited to attend and give input to the layout and locations of the fence lines. The Contractor is responsible for flagging the entire limits of disturbance along the fence line at 50 feet intervals and ensuring all activities remain within the limits of disturbance. Flagging must be inspected and approved by Project Manager prior to the start of work.

### B. River Crossings

- 1. River width and depth can increase, and marsh areas broaden with snowmelt runoff. Snowmelt runoff typically peaks in early June but is entirely dependent on amount of snowpack and local weather conditions. This area is within a wetland, and portions are wet year-round. Access requirements shall be as specified in Section 010000 "General Requirements".

## PART 8 - PRODUCTS

### 8.1 METALLIC-COATED-STEEL, WOVEN WIRE FENCE FABRIC

#### A. Fence Fabric: Woven Wire Steel

- 1. Wire fence fabric shall have galvanized coating/finish. Woven wire shall be 12 ½ gauge, high tensile, rust-proof and fire-resistant. Fence vertical stays shall be no more than 6-inches apart. The grid should be 6-inches maximum at the bottom of the fence to discourage elk calves from trying to gain access to no more than 12-inch grids at the top of the fence.
- 2. Fabric shall be Solidlock® Pro Professional Strength High Tensile, 12.5 g diameter wire, fixed knot, with 95% zinc, 5% aluminum Benzinal® coating meeting or exceeding ASTM A121, ASTM A116 and ASTM A621, with 30 year coating guarantee, part number 180546, Fence Design 2096-6, 96-inches height, 6" vertical spacing, as manufactured by Bekaert Corporation, Marietta, GA, (800) 241-4126, [www.bekaertfence.com](http://www.bekaertfence.com) or approved equal.

#### B. Wire Ties and T Post Clips

- 1. Finish of wire ties and clips shall be 12.5 g, class three galvanized.

## 8.2 FENCE FRAMWORK

- A. Fence Height: Above ground height, in place, of all pipe and posts shall be eight (8) feet.
- B. Fence Framework:
  - 1. Fence framework shall be ASTM A53 seamless black steel pipe, continuous weld, Type F Grade A Schedule 40, plain ends.
  - 2. Provide members with minimum dimensions and wall thickness according to ASTM A53, Schedule 40 based on the following:
    - a. Brace Posts and Corner Posts: 3” diameter
    - b. Cross Members: 2” diameter
    - c. Angle Brace: 2” diameter
    - d. Angle Brace Foot: 3” diameter
    - e. Line Posts
      - 1) T-posts: Heavy duty posts weighing minimum 1.33 lbs. per foot, Line Bosses: 2”, diameter
- C. Coatings/Finish:
  - 1. All pipe and caps for brace assemblies shall be black finished that shall rust over time. Finish must be consistent for all pipe used to complete the Work.
  - 2. T-posts will be green in color with no white top.
- D. End Caps
  - 1. Cap all 2” diameter pipe with a pressed steel cap to prevent water from rusting the inside of pipe. Weld a steel cap on all 3” diameter pipe ends.

## 8.3 GATES

- A. General
  - 1. Each gate must swing outward from the enclosure, have a secure means of latching and a means of padlocking.
    - a. Human gate shall have a closer installed that will cause the gate to close and remain closed when released even if it is not latched.
    - b. Human gate shall be a minimum of three (3) feet wide by six (6) feet tall. Gate latch height shall be 36 inches above ground. The bottom of the gate shall be sixteen inches measured from the ground to allow small animals to pass under.
    - c. Wildlife gate shall be a minimum of 11’-6” feet wide by 6’-4” tall. Gate latch height shall be 42” above ground. The bottom of the gate shall be sixteen inches measured from the ground to allow small animals to pass under.
- B. Gate
  - 1. Posts: Brace Posts as specified above and shown on the Drawings.
  - 2. Metal angle bars

- a. Provide materials with smooth, flat surfaces, without seam marks, roller marks or blemishes.
  - b. Steel Plates, Shapes and Bars: ASTM A36.
- 3. Gate Frame: 2" diameter, Schedule 40, as specified above.
- 4. Hinge: 180 Degree Industrial as shown on Drawings
  - a. Provide fixed hinges welded to gate frame and hinge post capable of resisting the dead load of the gate
  - b. Sized to fit 3" terminal pipe post on brace assembly and 2" gate pipe.
  - c. Coating: Zinc, hot dip galvanized
  - d. Install per manufacturer instructions. The Contractor is responsible for ensuring 180 degree hinge fits terminal pipe post of brace assembly and gate frame assembly.
- 5. Latch: Heavy Duty 2-Way Lockable Gate Latch
  - a. Shall be 4" wide x 7 5/8" long SureLatch® Lockable two-way latch and pin, with a 2" to 2 3/4" spacing between the gate frame assembly and terminal post of the brace assembly, which allows the gate to swing 180 degrees, allows for one handed operation, or approved equal.
  - b. Angle Bar for Mounting Gate Latch: 2" x 2" Angle Bar
  - c. Coating: Zinc, hot dip galvanized
  - d. Install per manufacturer instructions
- 6. Gate Fence Fabric: Fence Fabric as specified above.
- 7. Gate Closers:
  - a. Cast iron body, full complement bearing, 1 1/2" diameter piston with all-weather fluid, adjustable spring size, metal cover, through bolt fasteners, top jamb pull side, regular arm black finish with special rust inhibitor.
  - b. Closer shall be LNC 4040XP Series, as manufactured by Allegion, us.allegion.com, (877) 671-7011 or approved equal.
  - c. Installation plate LNC 4040XP-18TJ, or approved equal for mounting on angle bar.
  - d. Adjustable so that the gate can be opened with less than 5 lbs of pulling pressure.

#### 8.4 STEEL AND TURNBUCKLE

- A. Turnbuckle: 5/8" x 6" Hot dipped galvanized Eye x Eye Turnbuckle, meeting the requirements of ASTM F1145.
- B. Steel Cable: Galvanized steel wire rope 1/4-inch diameter, 7 x 19 construction, conforming to US Federal Specification RR-W-410H. Breaking strength 7000 lbs, working load limit 1,400 lbs. ‘
- C. Shoulder Eyebolt, washers, wire rope thimble, wire rope clip: galvanized, sized for cable.

## PART 9 - EXECUTION

### 9.1 EXAMINATION

- A. Pre-installation conference shall be scheduled with the Project Manager a minimum of 2 days before installation to confirm layout and access.

### 9.2 SITE ACCESS

- A. As specified in Section 010000 "General Requirements".

### 9.3 FENCE INSTALLATION

#### A. General

1. Except as specified below or as shown on the Drawings install fence enclosure in accordance with fence material manufacturer's installation instructions.
  - a. Some requirements of these specifications and Drawings exceed the manufacturer specifications to accommodate the parks environmental, terrain and altitude conditions.
2. To indicate driven pipe depth, the Contractor shall paint a white line approximately one quarter inch (1/4") wide around all vertical pipes and posts that will be driven into the ground. All pre-marked pipes and posts shall be inspected and accepted by the Project Manager before transporting into the field.
3. The fence enclosure shall be specified tensile woven wire steel mounted on metal posts with the bottom of the woven wire sixteen inches (16") above the ground to allow access to animals other than elk.
4. The bottom edge of all fencing and supports shall be free of any sharp edges or points that could catch or tear an animal's hide or fur while passing under the fence. The top edge of all fence fabric shall be free of sharp edges or points that could catch an animal's hide were it to jump over the fence.
5. The Contractor will ensure that the woven wire remains consistently 16" above the ground in uneven terrain. Low areas may need to be filled in with fence material.
6. The fence material shall be attached to the posts on the outside of the enclosure.
7. Fence material ends shall overlap one full square and be tied at each end.
8. At H-braces, fence material shall overlap one full section and tie to the opposite post.

#### B. Post Setting

1. Brace Assemblies:
  - a. Pipe braces assemblies shall consist of: a vertical end post set nine feet (9') apart from brace posts, and angle foot posts with two cross members connecting end and brace posts, and an angle foot brace connecting each brace post and angle foot post.
  - b. Construct pipe brace assemblies as recommended by manufacturer of fencing material and as shown on Drawings.

- c. Set a pipe brace assembly in both directions where fence corners approach 90 degrees (2 brace assemblies total per corner). Pipe braces are required at all corners and at all definite angles (15 degrees or greater) in the fence.
- d. Brace assemblies shall be set no more than 1300 feet apart when long, straight runs of fence are installed.
- e. Brace assemblies will be used on either side of a stream crossing (2 brace assemblies total per stream crossing).
- f. Vertical pipe for brace assemblies will be driven into the soil a minimum of six feet (6') deep. Concrete shall not be used to set vertical pipes or posts. The Contractor may use an auger to pre-drill before driving the vertical pipes. The auger diameter shall not exceed the outside diameter of the pipe being driven.
- g. Pre-drilling does not apply to T posts; T posts shall only be driven.
- h. When solid rock is encountered, without a sufficient depth of overburden soil to withstand anticipated loading, set posts in the solid rock. The depth of hole below the top surface of solid rock shall be three feet. The diameter of the hole shall be 4" to 9". Force pipe to the bottom of the hole and plumb and half-fill the void in the rock with anchoring cement. Thoroughly work additional concrete into the hole so as to leave no voids. The Contractor shall backfill and compact the soil around the pipe if overburden soil was removed to set the post in rock.
- i. All cross members will be welded solid to vertical pipe.

## 2. Line Posts

- a. Set line posts at thirteen foot (13') intervals unless otherwise noted on the drawings or details.
- b. Line bosses and T-posts will be set with the ratio of T-posts to line bosses not to exceed a six to one ratio.
- c. Set additional posts on top of all high points and in the bottom of all dips to maintain a 16-inches of clearance under the fence.
- d. Line bosses shall be driven a minimum of three and one half feet (3.5') deep.
- e. T-posts shall be driven a minimum of fourteen inches (14") deep.
- f. Top of line posts shall be meet or exceed top of fence fabric height.
- g. Attach woven fence fabric to line boss with minimum of twelve (12) twisted wire clips or wire ties.
- h. Attach woven fence fabric to T-post with a minimum of twelve (12) T post clips.
- i. Wire ties must be tightened sufficiently to prevent the fence from moving vertically.

## 9.4 GATE INSTALLATION:

- A. Gate construction must meet or exceed the confinement standards of the adjoining fence.

- B. Gates shall swing out from elk enclosure. Human gates shall be self-closing. Construct as shown on the Drawings.
- C. Gate closers on human gates shall be installed at the top of the gate as shown on the drawings.
- D. Closer shall be adjusted to operate with 5 lbs of pressure.
- E. The bottom of the gate shall be no higher than 16” from the ground.
- F. Posts on both sides of gate opening shall be pipe brace assemblies.
- G. Install gate plumb with tops of posts level.
- H. Adjust hinges and bracing, allowing gate to hang level and swing freely.

#### 9.5 WELDING

- A. Hot Work Permit as specified in Section 010000 “General Requirements” is required prior to welding work.
  - 1. The Contractor shall have a fire extinguisher in the welding vicinity and moisten the ground cover in the welding area before and after welding.
- B. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
  - 5. When possible, complete welding in paved staging area and transport to work area.

#### 9.6 RIVER CROSSING

- A. Up to two river crossings may be located and agreed up by the Contractor and the Project Manager to facilitate access to all areas of the Construction Area associated with Contract Line Item 3.
- B. A brace assembly shall be constructed on either side of the river crossing, with a ¼” diameter steel cable and turnbuckle with 6” minimum take up secured to the top of each terminal post, across the stream, as shown in Drawings. The bottom of the fence fabric installed across the stream shall be no higher than 3’6” above the low water line, as marked by the Project Manager. The placement on the stream bank of each brace assembly shall be located and agreed upon by the contractor and the Project Manager to facilitate stability of the river crossing structure.
- C. Once a river crossing site has been selected, agreed upon and marked any deviation from these sites must be approved by the Project Manager.



- D. Temporary water crossings will be assessed and executed as specified in Section 010000 “General Requirements”. The Contractor will be invited to provide input on the necessity of constructing temporary water crossings on site at the pre-construction meeting.

#### 9.7 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding. Confirm that gate closer functions properly, brings gate to a complete close, and engages latch completely.

#### 9.8 DEMONSTRATION

- A. In the presence of the Project Manager, demonstrate gate operation of each gate.

#### 9.9 SITE RESTORATION

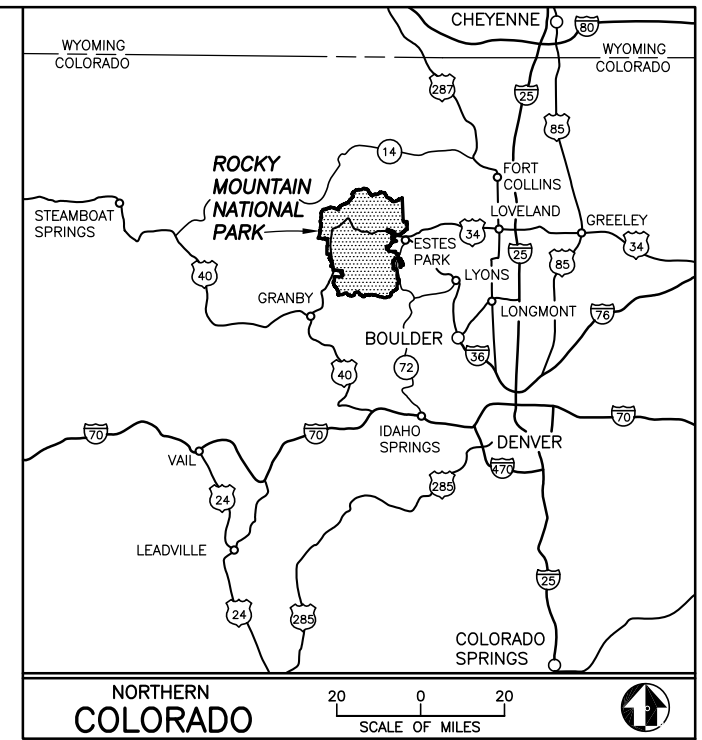
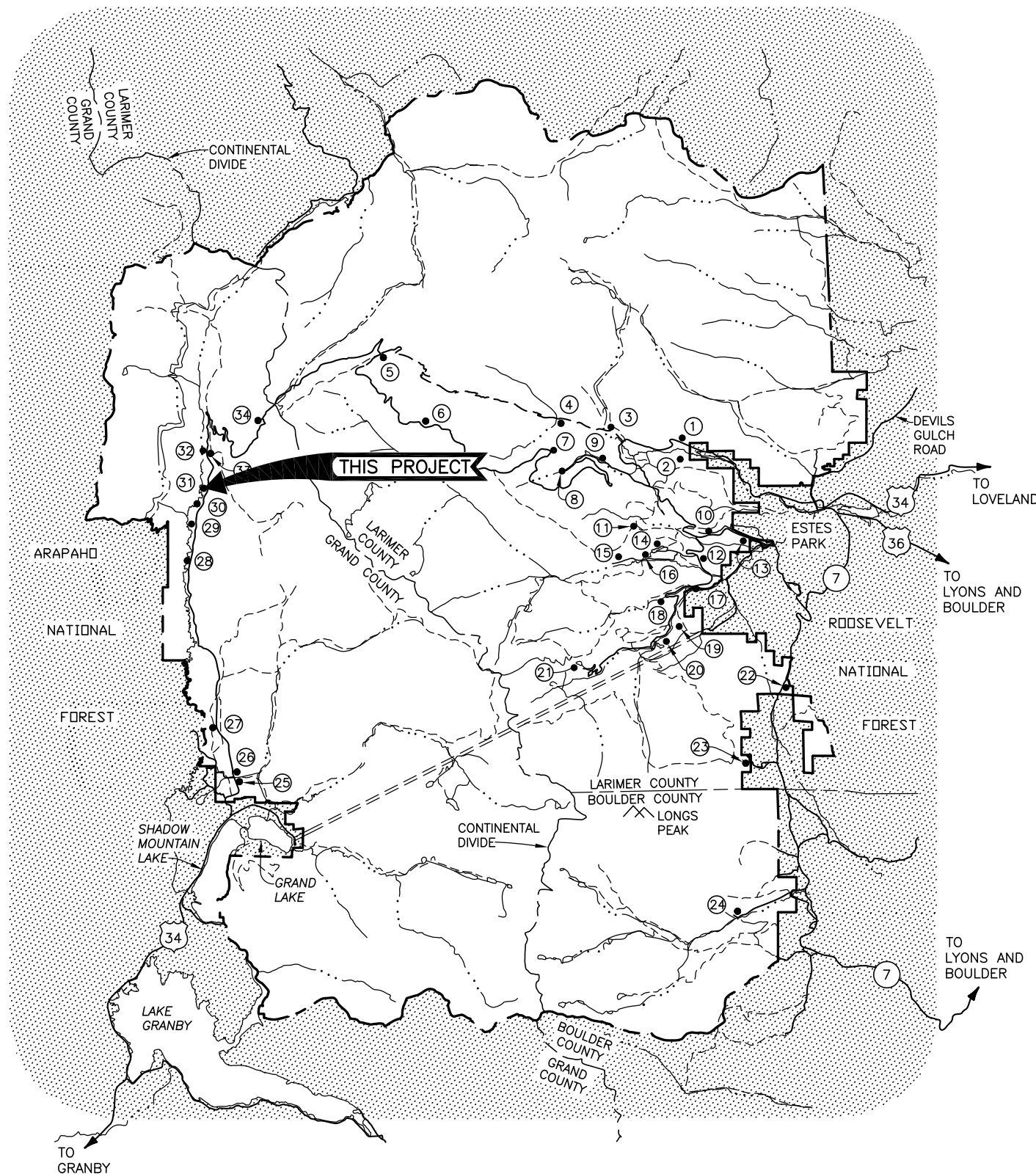
- A. The Contractor shall be responsible to rehabilitate vehicular off-road traffic damaged areas by the Project Manager approved method of restoration.
- B. The NPS shall perform revegetation of disturbed areas, as needed. If the contractor does not adhere to the strict use of access mats in the required access mat areas within the limits of disturbance, they will be fiscally responsible for revegetation costs as determined by the park. If the contractor causes disturbance outside of the limits of disturbance, they will be fiscally responsible for revegetation costs as determined by the park.

**END OF SECTION 323114**

**LEGEND**

- PARK BOUNDARY
- STATE LINE
- COUNTY LINE
- PAVED ROAD
- UNPAVED ROAD
- TRAIL
- CREEK OR RIVER
- ALVA B. ADAMS TUNNEL

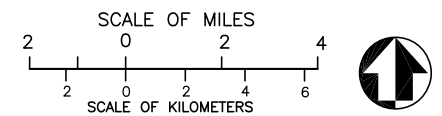
FACILITY LEGEND								
FACILITY LOCATION	ENTRANCE STATION	RANGER STATION	PICNIC AREA	CAMPGROUND	RESTROOMS	MUSEUM	LIVERY	VISITOR CENTER
1 FALL RIVER	•	•						
2 ASPENGLLEN			•					
3 LAWN LAKE					•			
4 ENDOVALLEY			•					
5 ALPINE		•			•			•
6 TUNDRA					•			
7 RAINBOW CURVE					•			
8 HIDDEN VALLEY			•					
9			•					
10 BEAVER MEADOWS	•	•						
11 UPPER BEAVER MEADOWS			•					
12 MORAINE PARK					•	•		
13 PARK HEADQUARTERS	•				•			•
14 MORAINE PARK			•					
15 CUB LAKE TRAILHEAD			•					
16 MORAINE PARK STABLES							•	
17 MORAINE PARK MUSEUM			•					
18 HOLLOWELL PARK			•					
19 GLACIER BASIN				•				
20 SPRAGUE LAKE			•		•		•	
21 BEAR LAKE					•			
22 LILY LAKE		•			•			•
23 LONGS PEAK		•	•		•			
24 WILD BASIN		•	•		•			
25 KAWUNEECHE		•			•			•
26 GRAND LAKE	•	•						
27 ONAHU CREEK TRAILHEAD			•					
28 BOWEN/BAKER			•					
29 NEVER SUMMER RANCH			•					
30 TIMBER CREEK					•			
31			•					
32 COLORADO RIVER			•					
33 TIMBER LAKE			•		•			
34 LAKE IRENE			•		•			



**SHEET INDEX**

SHEET	SUB SHEET	TITLE OF SHEET
1		COVER
2	C1	OVERALL SITE PLAN
3	C2	DETAILED SITE PLAN
4	C3	HUMAN GATE DETAILS
5	C4	WILDLIFE GATE AND RIVER CROSSING DETAILS

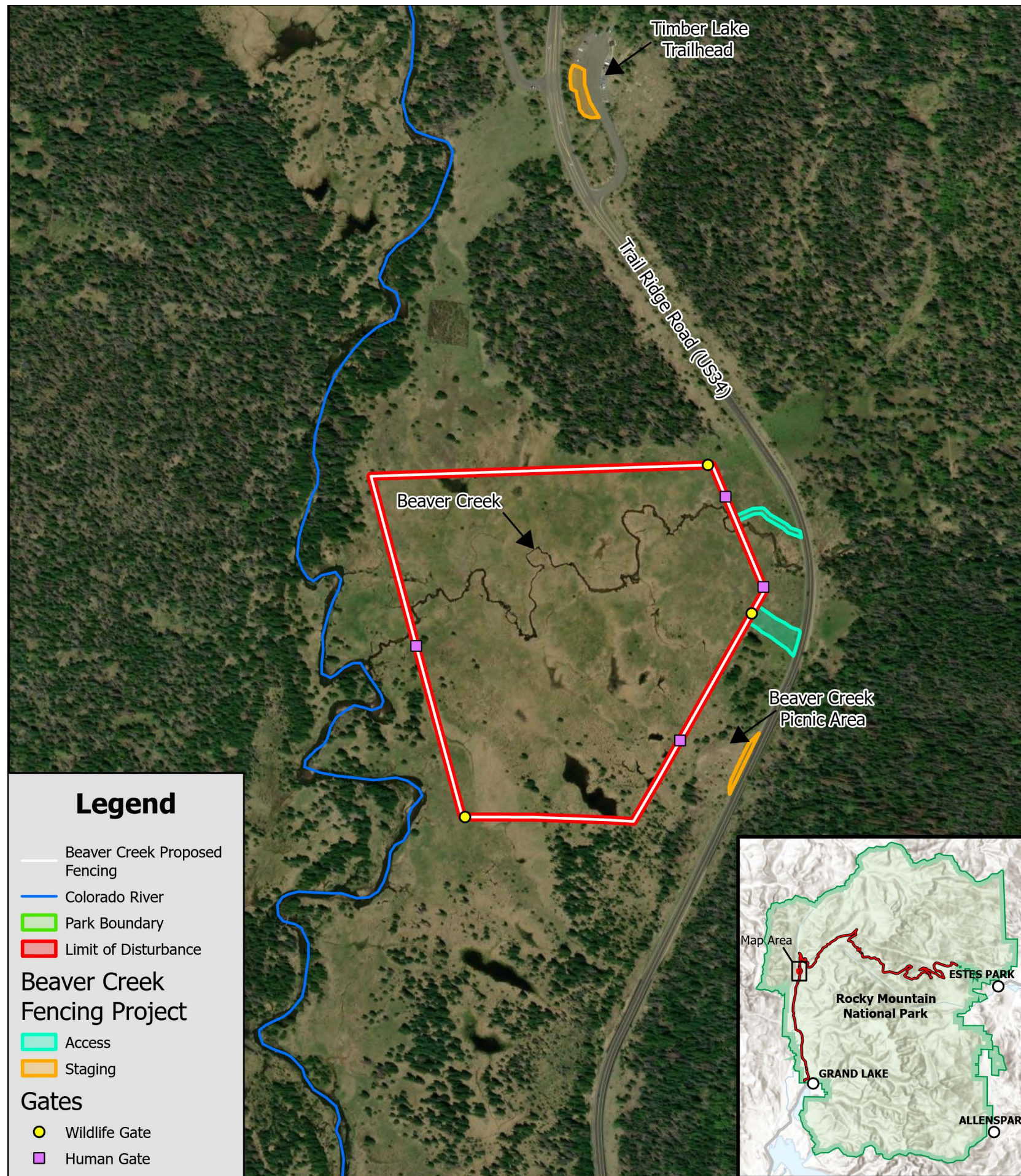
**ROCKY MOUNTAIN NATIONAL PARK**



BASIC DATA: USGS TOPO MAP 1987; WILDERNESS PLAN 121/20,015E; PARK MINI FOLDER 1994; REDRAWN 2/95. UPDATED 11/98. SGS.

RECOMMENDED: _____ Project Manager                      Date		<b>CONSTRUCTION DRAWINGS</b>	TITLE OF PROJECT <b>KVERC WILDLIFE ENCLOSURE FENCE</b>	DRAWING NO. <b>121</b>
APPROVED: _____ Chief of Resources                      Date		UNITED STATES DEPARTMENT OF THE INTERIOR  NATIONAL PARK SERVICE ROCKY MOUNTAIN NATIONAL PARK	LOCATION WITHIN PARK <b>BEAVER CREEK</b>  NAME OF PARK <b>ROCKY MOUNTAIN NATIONAL PARK</b> REGION: INTERMOUNTAIN    COUNTY: LARIMER    STATE: COLORADO	PMIS/PKG NO.  SHEET <b>1 of 5</b>





**Legend**

- Beaver Creek Proposed Fencing
- Colorado River
- Park Boundary
- Limit of Disturbance

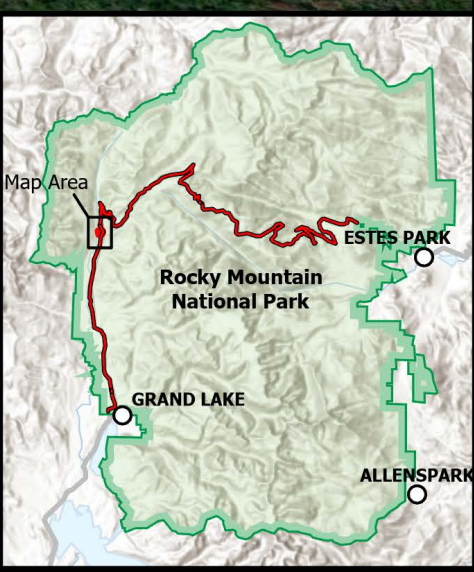
**Beaver Creek Fencing Project**

- Access
- Staging

**Gates**

- Wildlife Gate
- Human Gate

OVERALL SITE PLAN

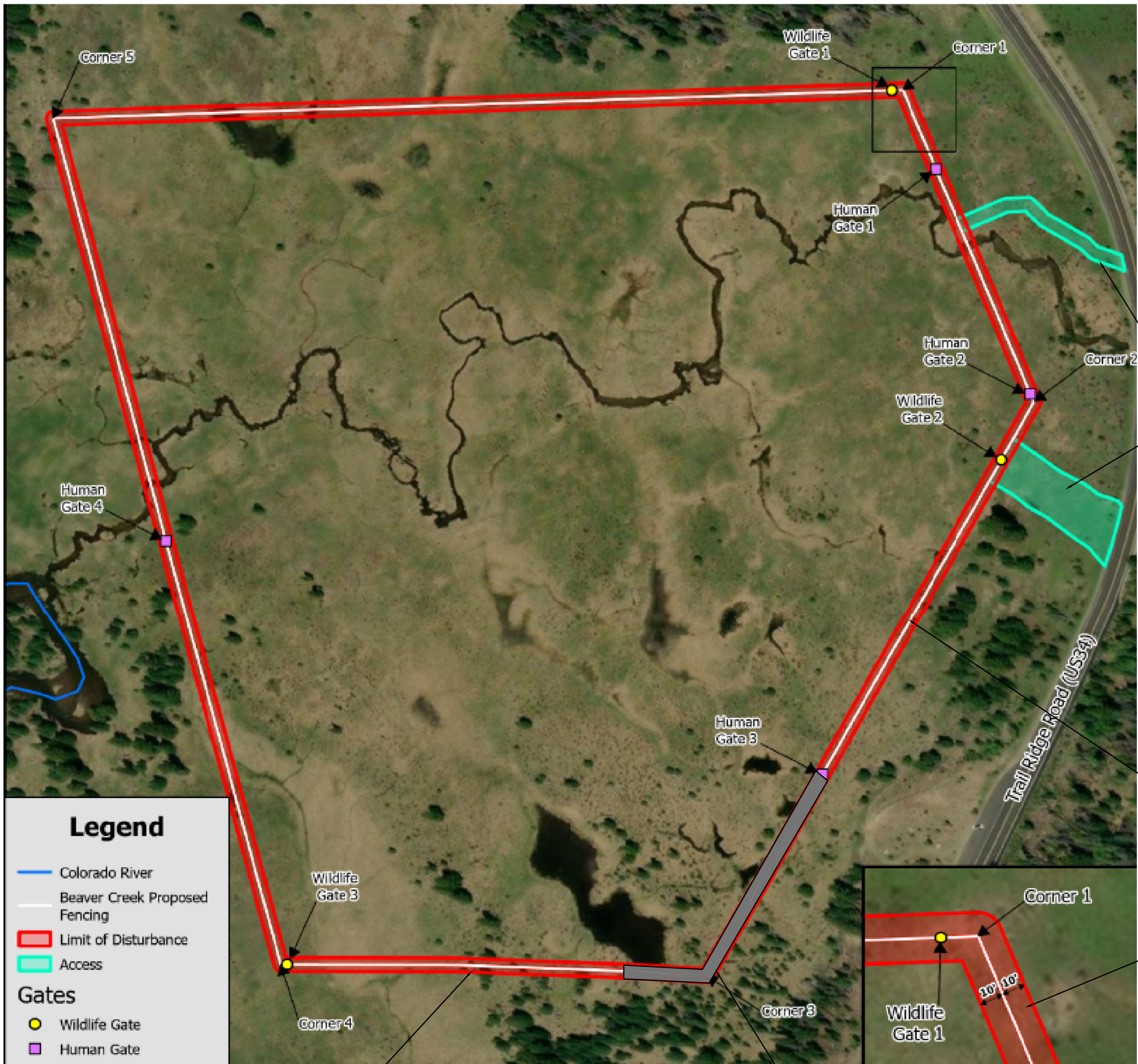


**A** TYPICAL TEMPORARY WATER CROSSING  
C1 NO SCALE

- NOTES:
1. TYPICAL TEMPORARY WATER CROSSING AS REQUIRED FOR CONTRACT MINIMUM 8 FT. WIDE
  2. MINIMUM EIGHT 3 1/2" DIAMETER PIPES WITH 3"x12" BRIDGE PLANKS PLACED PERPENDICULAR ACROSS PIPES
  3. SECURE PLANKS TO PIPES
  4. SECURE CROSSING TO GROUND AT CORNERS, IN A METHOD APPROVED BY PROJECT MANAGER
  5. CONTRACTOR MAY SUBMIT ALTERNATIVE DESIGN FOR APPROVAL

DESIGNED: K.NYDICK	C1	TITLE OF SHEET <b>OVERALL SITE PLAN</b>	DRAWING NO. <b>121</b>
W. MCHUGH		PMIS/PKG NO.	
TECH. REVIEW: W. MCHUGH		SHEET	
DATE: 08/2023		<b>2</b> of <b>5</b>	
KVERC WILDLIFE EXCLOSURE FENCE ROCKY MOUNTAIN NATIONAL PARK			





**Legend**

- Colorado River
- Beaver Creek Proposed Fencing
- Limit of Disturbance
- Access

**Gates**

- Wildlife Gate
- Human Gate

TREES TO REMAIN AND BE PROTECTED IN PLACE  
FENCE TO BE INSTALLED AROUND THEM

**DETAILED SITE PLAN**

APPROXIMATE LOCATION OF REQUIRED ACCESS MATTING  
OTHER AREAS WILL BE DETERMINED BY CO PRIOR TO  
START OF CONSTRUCTION

**CORNER AND GATE COORDINATES**

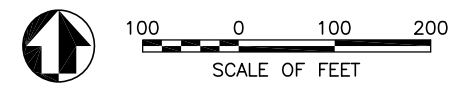
ACCESS ROUTES – CONTRACTING  
OFFICER WILL MARK ACCESS ROUTE  
PRIOR TO START OF CONSTRUCTION

**NOTES:**

1. CONTRACTOR SHALL KEEP ALL CONSTRUCTION ACTIVITIES INCLUDING DRIVING WITHIN THE LODs AND ACCESS ROUTES AT ALL TIMES. ANY DISTURBANCE OUTSIDE OF THE LODs WILL BE RESTORED TO PRE-CONSTRUCTION CONDITION AT THE EXPENSE OF THE CONTRACTOR
2. THE USE OF WETLANDS/ACCESS MATS WILL BE REQUIRED FOR APPROXIMATELY 100 FEET TO THE WEST OF CORNER 3 EXTENDING TO HUMAN GATE 3. APPROXIMATELY 450 LF OF THE LODs ALONG THE FENCE. ACCESS MATS MAY BE REQUIRED IN OTHER AREAS IF IT IS DETERMINED TO BE WET BY THE PROJECT MANAGER.
3. INSTALL APPROXIMATELY 4600 LF OF NEW FENCE
4. INSTALL FOUR (4) HUMAN GATES AND THREE (3) WILDLIFE GATES AT COORDINATES SHOWN ABOVE. FINAL LOCATION TO BE APPROVED BY PROJECT MANAGER. SEE DETAILS NEXT SHEETS
5. WILDLIFE GATE 1 SHALL OPEN OUT OF ENCLOSURE EXTENDS OUTWARDS AWAY FROM THE ROAD, HINGES WILL BE ON THE EAST PART OF THE GATE
6. WILDLIFE GATE 2 SHALL OPEN OUT OF ENCLOSURE, HINGES WILL BE ON THE NORTH PART OF THE GATE
7. WILDLIFE GATE 3 SHALL OPEN OUT OF ENCLOSURE EXTENDS OUTWARDS TOWARDS THE ROAD, HINGES WILL BE ON THE WEST PART OF THE GATE.
8. CONFIRM FINAL CONFIGURATION OF GATES WITH PROJECT MANAGER

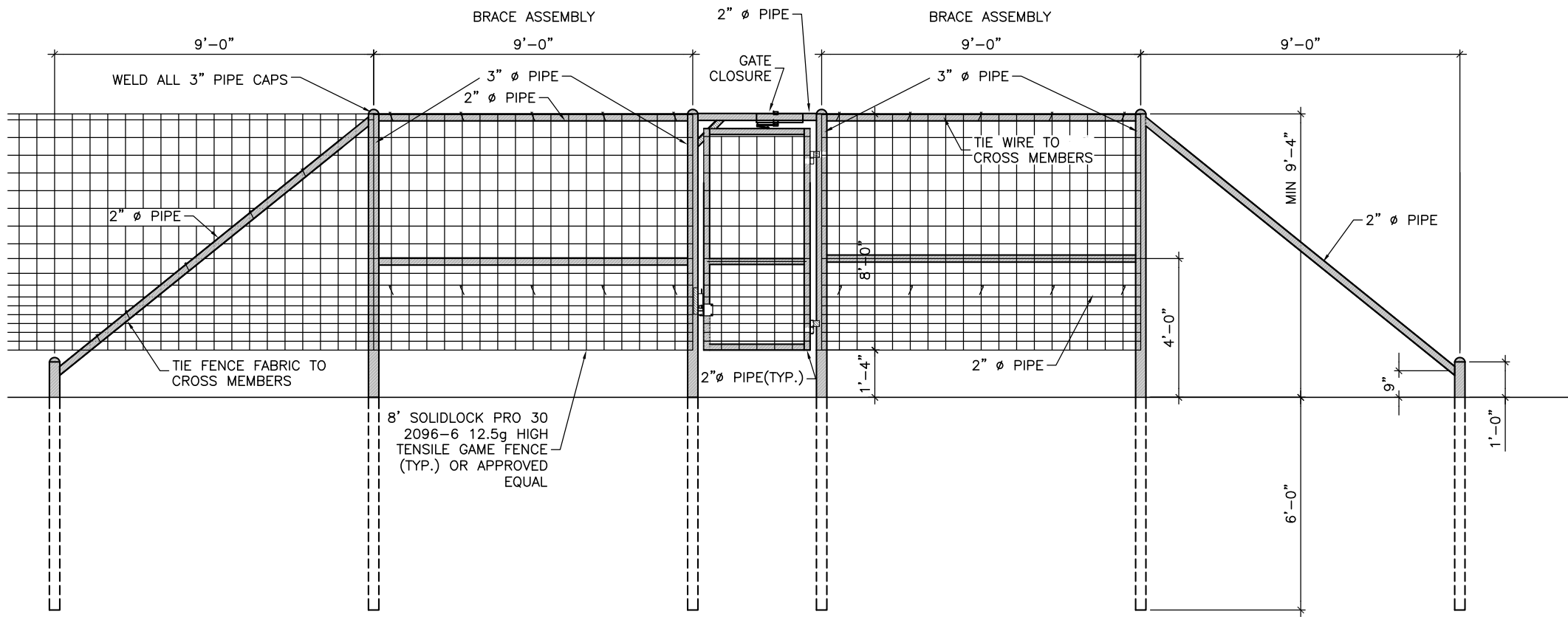
NEW FENCE  
APPROXIMATELY 4600 LF

LIMITS OF DISTURBANCE 10FT  
EITHER SIDE OF FENCE LINE (TYP.)



DESIGNED: K. NYDICK	SUB SHEET NO. <b>C2</b>	TITLE OF SHEET <b>DETAILED SITE PLAN</b>	DRAWING NO. <b>121</b>
W. MCHUGH			PMIS/PKG NO.
TECH. REVIEW: W. MCHUGH			SHEET <b>3 of 5</b>
DATE: 08/2023		KVERC WILDLIFE ENCLOSURE FENCE ROCKY MOUNTAIN NATIONAL PARK	



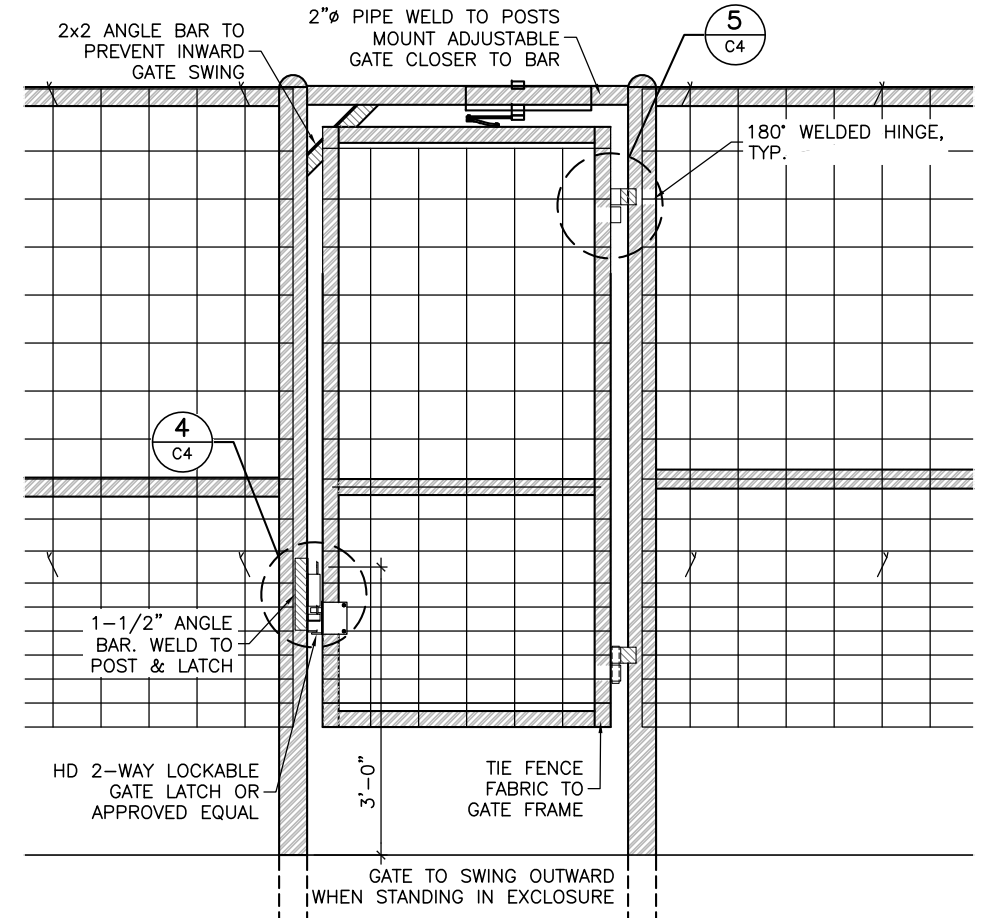


1 HUMAN GATE WITH H-BRACE GATE ASSEMBLY  
SCALE (A)

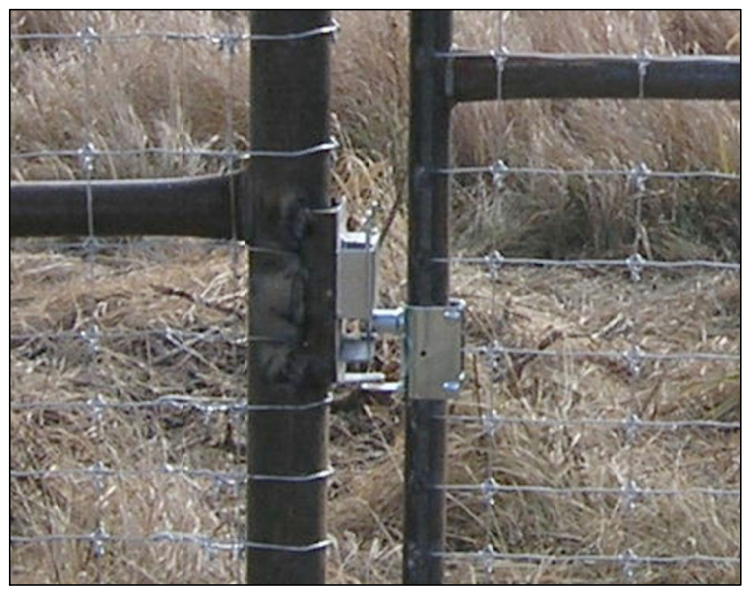
- NOTES:
1. FENCE FRAMEWORK SHALL BE ASTM A53, GRADE B, SCHEDULE 40 BLACK STEEL PIPE, OR APPROVED EQUAL
  2. MOUNT GATE LATCH MECHANISM 3'-0" ABOVE EXISTING GROUND AT GATE
  3. ALIGN LATCH HOLES TO ALLOW FOR PADLOCK INSERTION
  4. GATE TO HAVE 3'-0" MINIMUM WIDTH CLEAR OPENING WHEN FULLY OPEN
  5. WELD 3 INCH PIPE CAPS TO TOP OF ALL PIPES



3 3-FOOT HUMAN GATE  
NO SCALE



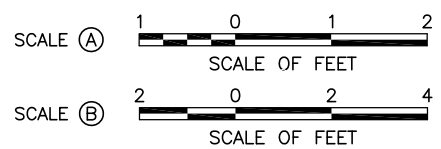
2 3-FOOT HUMAN GATE  
SCALE (B)



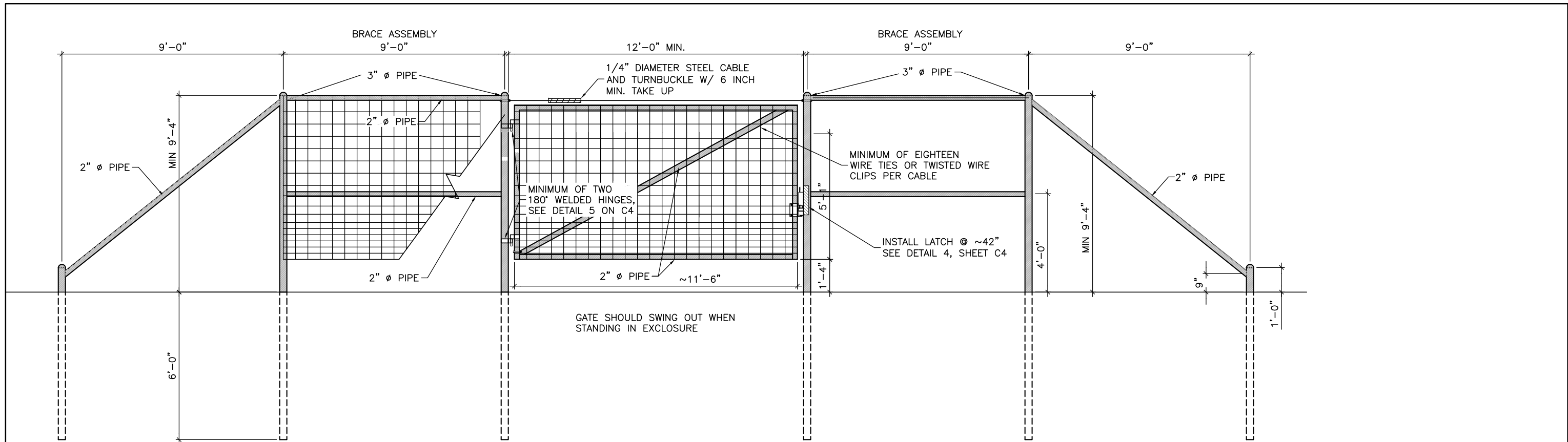
4 LATCH DETAIL  
NO SCALE



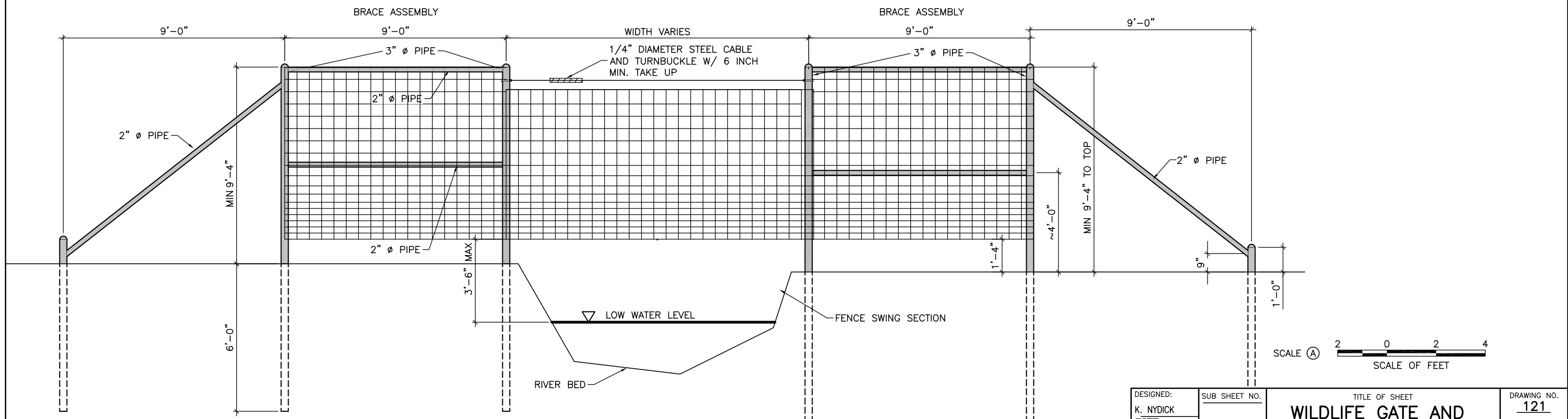
5 HINGE DETAIL  
NO SCALE



DESIGNED: K. NYDICK	SUB SHEET NO. <b>C3</b>	TITLE OF SHEET <b>HUMAN GATE DETAILS</b>	DRAWING NO. <b>121</b>
TECH. REVIEW: W. MCHUGH			PMIS/PKG NO.
DATE: 08/2023		KVERC WILDLIFE ENCLOSURE FENCE ROCKY MOUNTAIN NATIONAL PARK	SHEET <b>4</b> OF <b>5</b>



1 WILDLIFE GATE  
C5 SCALE (A)



2 RIVER CROSSING  
C5 SCALE (A)



DESIGNED: K. NYDICK	SUB SHEET NO. <b>C4</b>	TITLE OF SHEET <b>WILDLIFE GATE AND RIVER CROSSING DETAILS</b>	DRAWING NO. <b>121</b>
TECH. REVIEW: W. MCHUGH			PMIS/PKG NO.
DATE: 08/2023			SHEET <b>5 of 5</b>