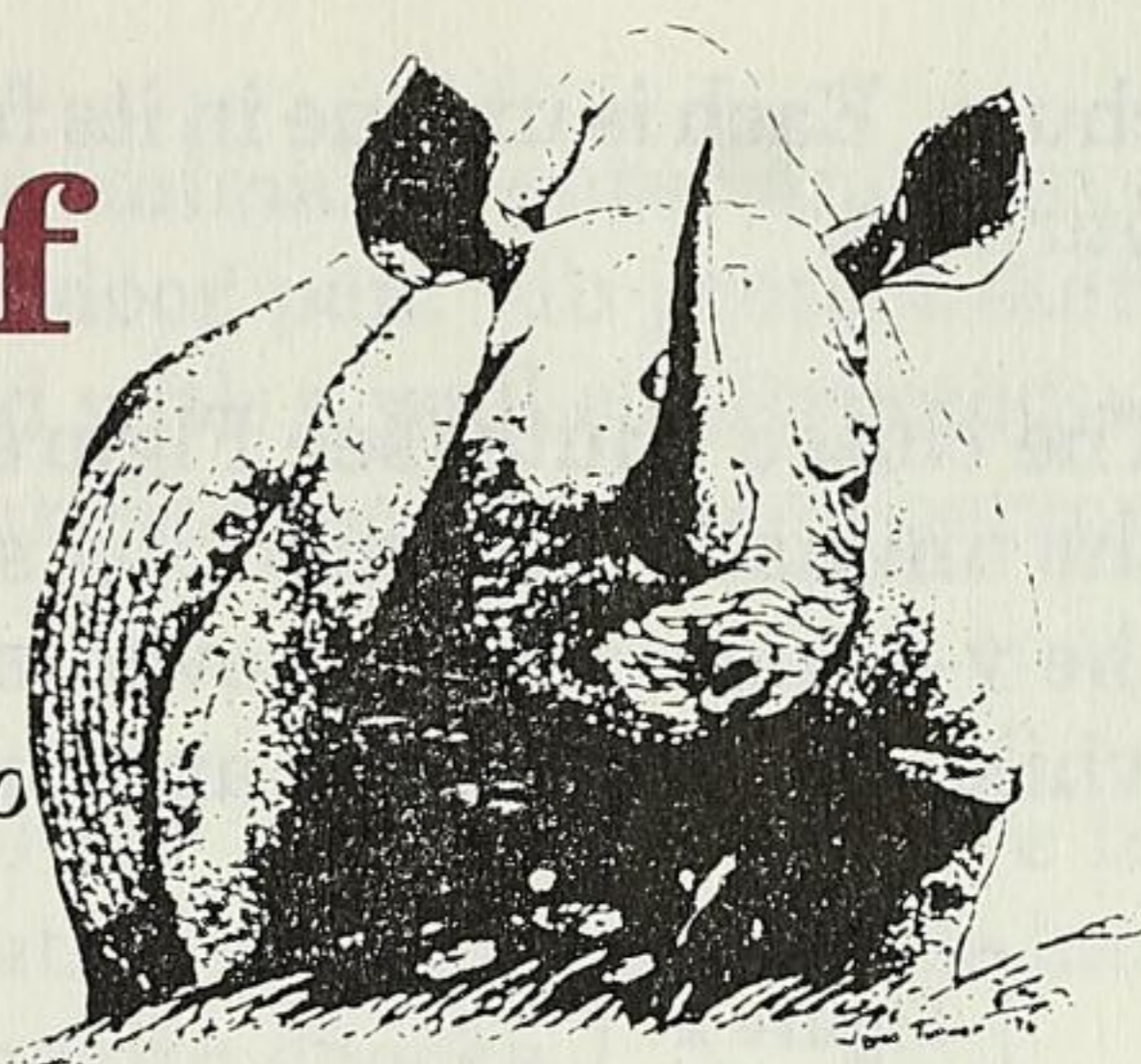


# Chute Restraint of White Rhinoceros



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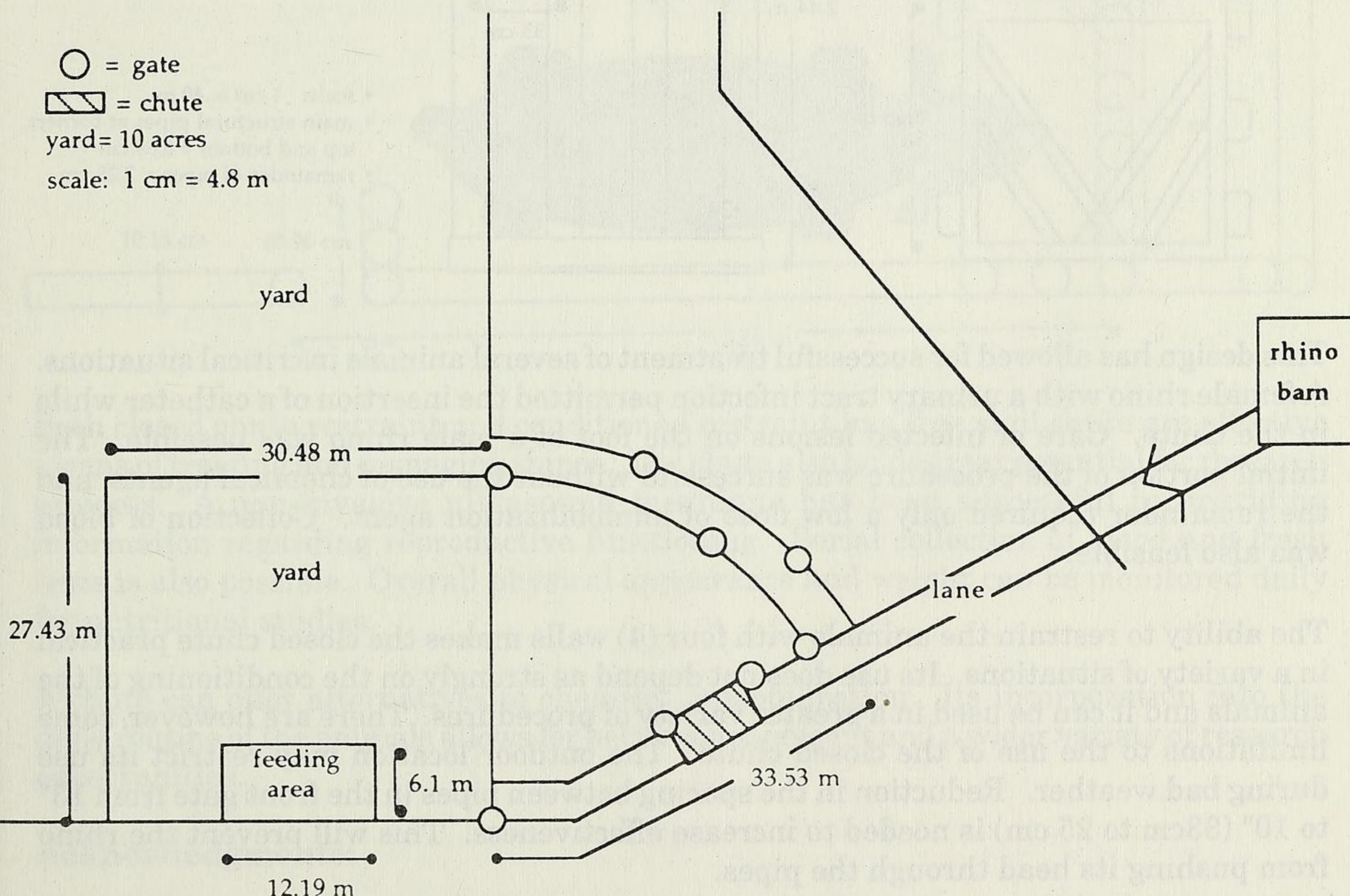
The management of white rhinoceros (*Ceratotherium simum simum*) at Fossil Rim incorporates exposure to a chute into the rhinos' daily routine. Many procedures which normally require immobilization of an animal can be performed in a chute without use of chemical agents. This can both decrease stress to the animal and increase the effectiveness of many treatments. These include skin care, foot care, and blood collections as well as other less invasive activities.

The rhinos are moved from the indoor facility to the outdoor pens each morning. Passage from the barn into the yard requires the rhinos to walk through the chute (see Figure 1). Once the rhinos are conditioned to the structure, further steps are taken to prepare them for the procedures. The animals are detained in the chute with either the front or back gate closed. They are released if they become uncomfortable. While in the chute, they are fed sweet feed and alfalfa hay continuously. The rhinos are given their daily feeding of hay and pellets after they leave the chute.

Figure 1

•Yard Design•

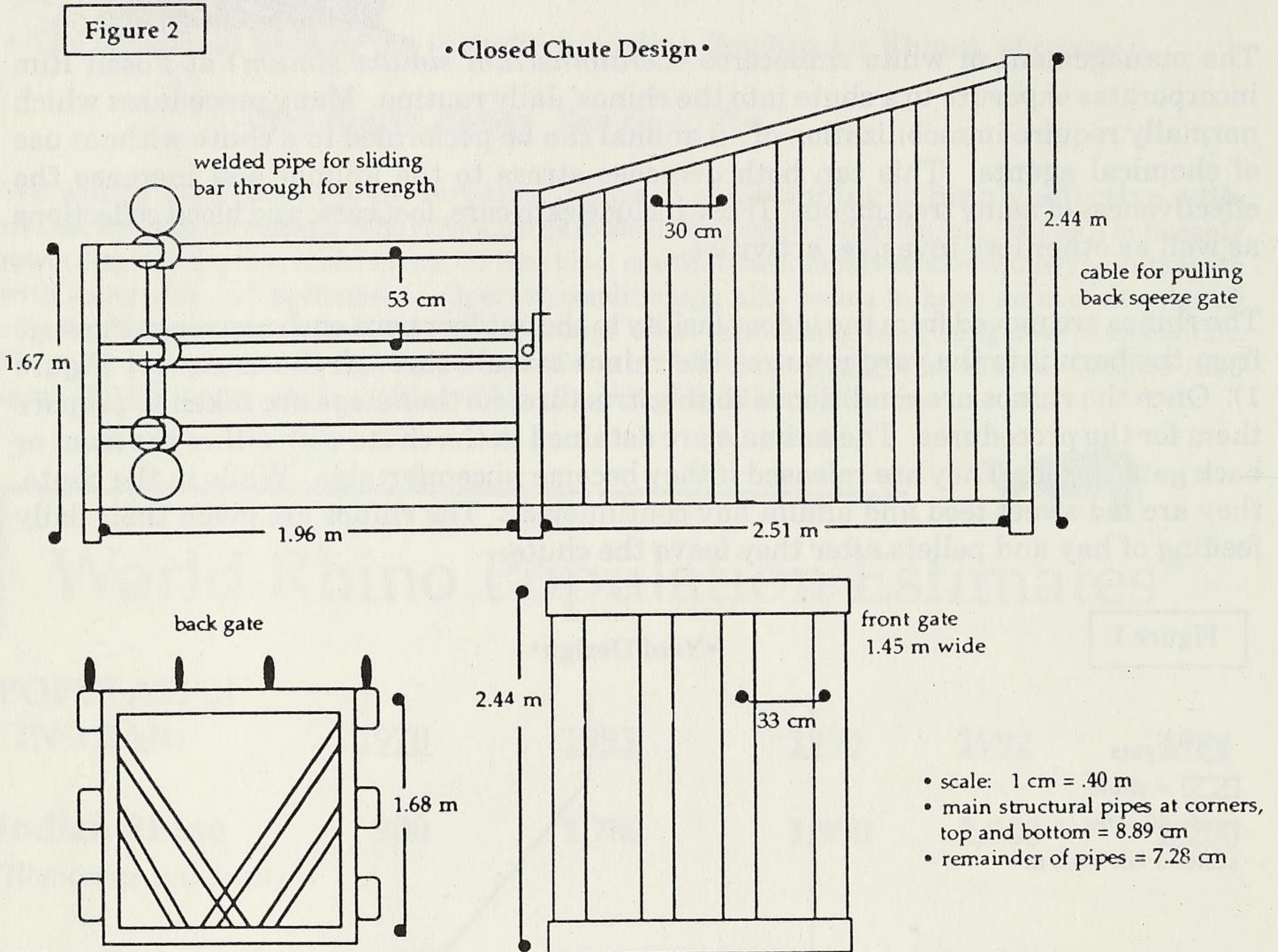
○ = gate  
 ▨ = chute  
 yard = 10 acres  
 scale: 1 cm = 4.8 m



Two different chute designs are used in conditioning the rhinos: closed and free stall

chute. Each is unique in its function and structure and was designed to serve a particular purpose.

The closed chute (see Figure 2) has both front and back gates. The back gate restricts the animal's movement by sliding forward. The hind end of the rhino is supported by the v-design which prevents it from lying down, allowing additional safety to the staff while working on the animal.



This design has allowed for successful treatment of several animals in critical situations. A female rhino with a urinary tract infection permitted the insertion of a catheter while in the chute. Care of infected lesions on the foot of a male rhino was possible. The initial portion of the procedure was successful without the use of chemical agents, and the remainder required only a low dose of immobilization agent. Collection of blood was also feasible.

The ability to restrain the animals with four (4) walls makes the closed chute practical in a variety of situations. Its use does not depend as strongly on the conditioning of the animals and it can be used in a greater variety of procedures. There are however, some limitations to the use of the closed chute. The outdoor location may restrict its use during bad weather. Reduction in the spacing between pipes in the front gate from 13" to 10" (33cm to 25 cm) is needed to increase effectiveness. This will prevent the rhino from pushing its head through the pipes.

The free stall chute (see Figure 3) was designed for an animal more sensitive to a

confined enclosure. The open back of this chute allows the animal to enter and leave the structure at will. It has been incorporated into the indoor pen. To protect staff working on the rhino, the back end of the chute is equipped with a wall constructed of vertical pipes. If the animal leaves the chute at any time during procedures, the person need only step out the 15 -inch (38cm) gap and behind the wall.

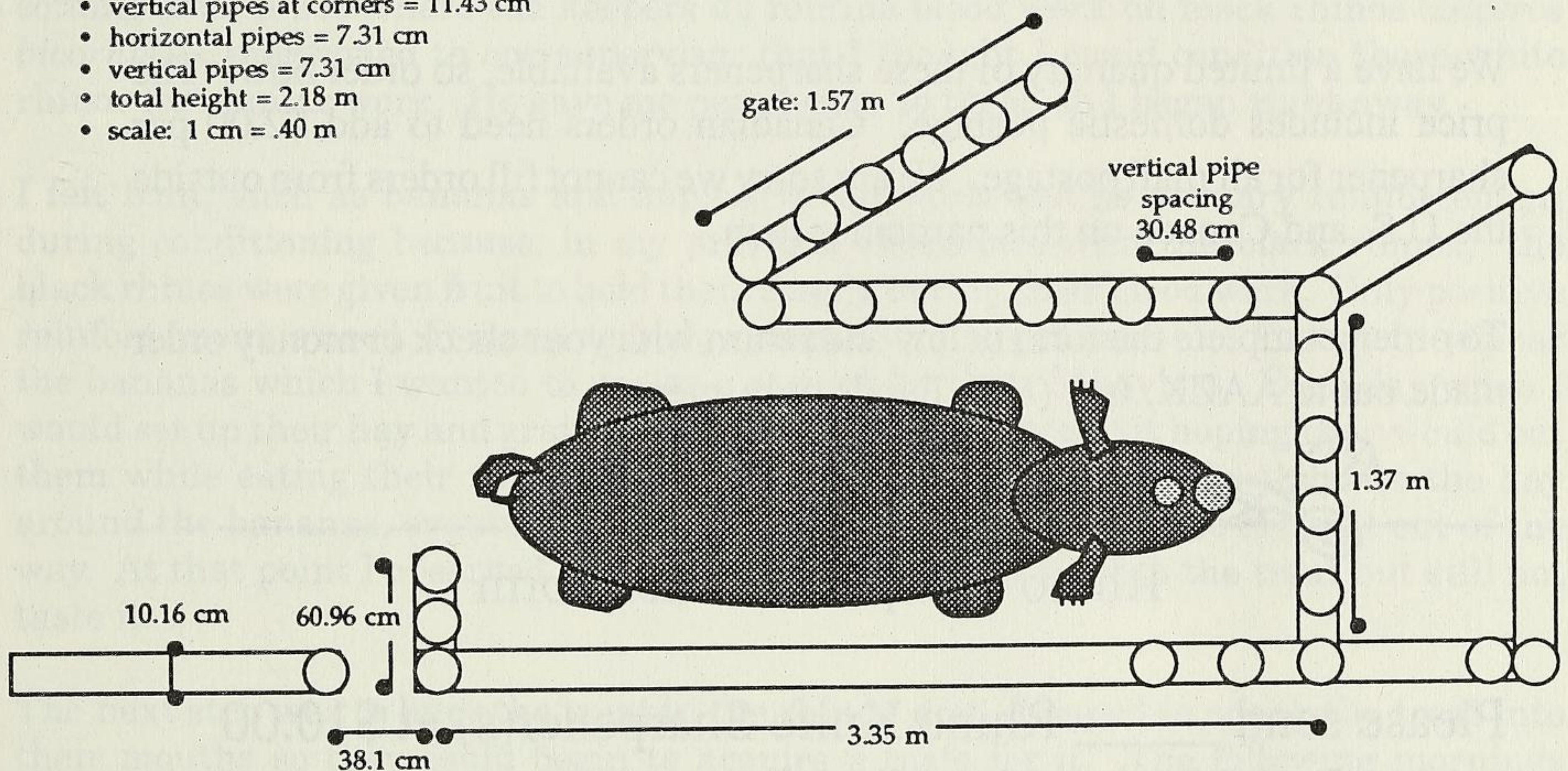
With the freedom offered by the free stall, the rhino is calmer and more receptive to procedures, therefore the risk of self-inflicted injury is greatly reduced. This chute has also been used for minor medical procedures and routine health checks.

The free stall chute design is specific to conditioned animals and relatively non-invasive procedures. While this limits its use, a more sensitive animal is much more receptive to treatments with no threat of complete four-wall restraint. An additional benefit to the free stall is the indoor location. Weather will not restrict use of this chute.

Figure 3

•Free-Stall Chute Design•

- vertical pipes at corners = 11.43 cm
- horizontal pipes = 7.31 cm
- vertical pipes = 7.31 cm
- total height = 2.18 m
- scale: 1 cm = .40 m



Both closed chute restraint and conditioned restraint in a free stall chute are effective means of treating and managing rhinos. The chute also holds great potential for research projects. A non-invasive ultrasound technique has been successful in providing information regarding reproductive functioning. Serial collection of blood and fresh feces is also possible. Overall physical appearance and weight can be monitored daily for nutritional studies.

A chute can offer alternatives to chemical immobilization. Its incorporation into the daily routine of the animals allows for better management and a wider variety of research opportunities.

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