

Table of Contents

Introduction	1
Bud Box Design	1
Additional Plans	1
Conclusion	2
References.....	2
Corral and Working Facilities Dimensions	3
Template Descriptions.....	4
Basic Information	5
Basic Loading Chute Information	6
Curved Alley/Double Alley.....	7
Using or Converting a Round Tub	8
Utilized with Straight Pens.....	9
Angled Pens	10
36 ft. by 60 ft. Building.....	11
Utilized with Pie Shaped Multi-Purpose Pens.....	12
Utilized Angled Entrance and Straight Short Pens.....	13
Pasture Facility.....	14
Located in Corner of Multiple Pastures	15

Introduction

Cattle handling can be a time-consuming and complicated task, which is why many cattle operations invest a substantial amount of money in cattle handling systems. A well-designed system should allow the operator to work more efficiently by saving time and reducing animal and handler stress. When looking at corral layouts, operators should consider available space, cost, and ease of installation. One low-stress design option is the “Bud Box.”

The Bud Box was designed by stockmanship instructor Bud Williams and is essentially a rectangular pen in which the alleyway leading to the chute is placed at a right angle at the point of entry into the box. This type of facility is simple in design and highly effective. Cattle are brought into the box and the position of the handler along the opposite side of the box stimulates cattle to move past the handler and into the alleyway. The gate that is closed behind the cattle as they are moved past the alley forms the box. The handler then takes a position along the fence adjacent to the alley. From here the handler applies pressure to the cattle by moving forward along the fence toward the closed end of the box, stimulating the cattle to move past the handler and into the alleyway.

The effectiveness of this design and the manner in which cattle flow into the alley is a result of several basic principles of cattle behavior and movement: 1) Cattle want to move past the handler; 2) cattle want to be with other cattle (herd instinct), and 3) cattle want to go back

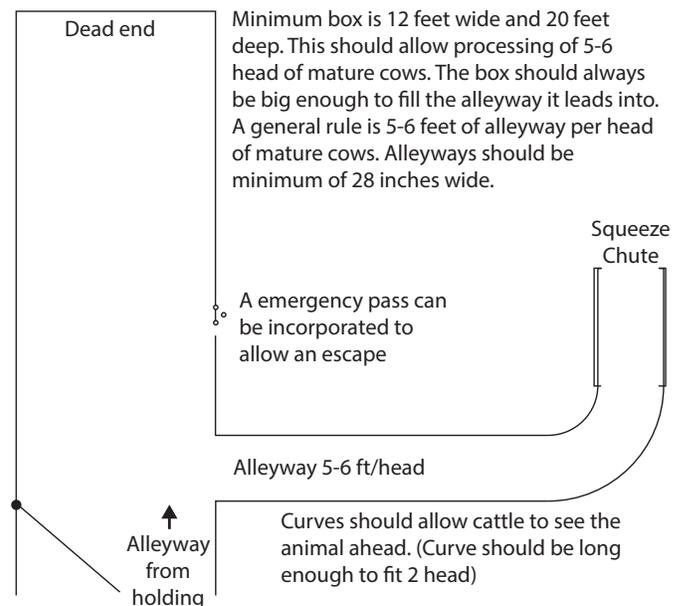
the way they came in. It should also be noted that this design should not be used as a holding pen and only as many cattle that will fit down the alley to the chute should be brought into the Bud Box at one time. The Bud Box requires a basic understanding of cattle handling principles and may require additional training for inexperienced individuals. As with any cattle working facility, the cattle-handling skills and attitude of the handler influence the success of the facility.

Bud Box Design

The Bud Box is a contrast to the large sweeping alleyways found in a conventional circular tub system. The lack of large sweeping fabricated bends makes a Bud Box easier to construct. A Bud Box typically has open sides and does not require the use of multiple crowding gates, which reduces material cost and the overall footprint of the facility. The box is typically 12 feet wide by 20 feet long and closed on one end with a gate at the other. The alleyway is placed perpendicular to the box at the gated end. A Bud Box does not need solid sheeting or sides due to its design. Segments of the design may be covered with sheeting if distractions impair cattle flow, but should remain as open as possible to facilitate natural movement and response to the handler.

The box should be designed to fit the needs and type of operation. On a cow-calf operation, the Bud Box

Figure 1: Simple Bud Box



would be used to fill a chute alley with four or five mature cows. Boxes used for loading semis should be bigger to accommodate the number of cattle that fill trailer compartments. A common size for a loadout box would be a 14-foot-wide alley that is 30 feet deep. A standard Bud Box is shown in Figure 1.

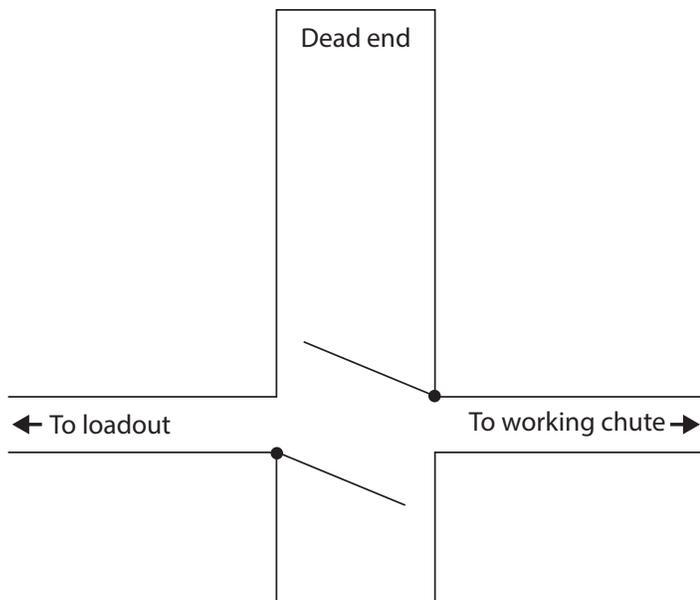
Additional Plans

The simplicity of a Bud Box makes it adaptable to different alleyway configurations. Adding split alleyways or two alleyways opposite each other allows for additional sorting and loading opportunities. It is important to maintain an initial straight alleyway that fits several head of cattle to maintain flow. This is also true of curved alleyways; they should be built so cattle can maintain sight of the animal ahead of them. Thus curved alleyways at a minimum should fit two head. Simple designs for loadout/working chute combinations are provided in this publication and serve as general examples. Remember that alleyway and loadouts can be configured to fit available space and to meet location needs (fit inside a building, align with existing roadways). The table on page 3 provides general dimensions to meet the needs of different-sized cattle. Maintain the dimensions given above for the main Bud Box in each design shown below. Other options can include man gates for escape from the box and rear stops inside the alleyways. These options can be added at the operator's discretion.

Conclusion

A well-designed cattle handling facility is a long-term investment that allows the operator to work more efficiently, saving time and reducing animal stress. There are

Figure 2: Opposite Alleyways



a number of configurations that can be used to allow for more functionality from a Bud Box. Adding split alleyways allows for the box to meet additional needs of operators. Ease of modification allows for operators to work with current locations when installing a box. The incorporation of a well-designed Bud Box should save time and reduce cattle stress on the operation, along with meeting location and budget requirements.

References and Resources

Gill, R. Designing a “Bud Box”. Texas A&M AgriLIFE Extension <http://agrilifecd.n.tamu.edu/beefinfo/files/2014/01/Designing-a-Bud-Box.pdf>

Huhnke, R. L., & Harp, S. (n.d.). Corral and Working Facilities for Beef Cattle. Texas Agriculture Extension Service, 1-2.

Mayo, D. 2015. The “Bud Box and Double Alley Design for Cattle Pens. University of Florida. <http://nwdistrict.ifas.ufl.edu/phag/2015/08/07/the-bud-box-and-double-alley-design-for-cattle-pens/>

Proctor, M. 2013. Design corrals to reduce cattle stress. University of Missouri Commercial Agricultural Program. <http://agebb.missouri.edu/commag/news/archives/v22n1/news4.htm>

Whit Hibbard’s Good Stockmanship Series, 2015 <http://onpasture.com/special-collections/whit-hibbards-good-stockmanship-series/>

Williams, B. <http://stockmanship.com/>

Numerous YouTube videos are available on the web

Figure 3: Double Ninety Degree Alleyway

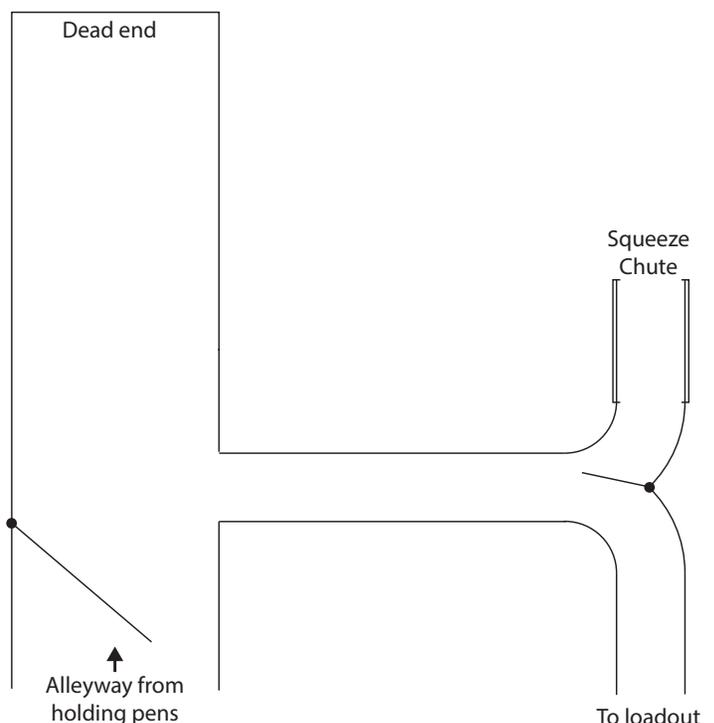


Table 1. Corral and Working Facilities Dimensions

Use dimensions for over 1200 lb for cow-calf operations.

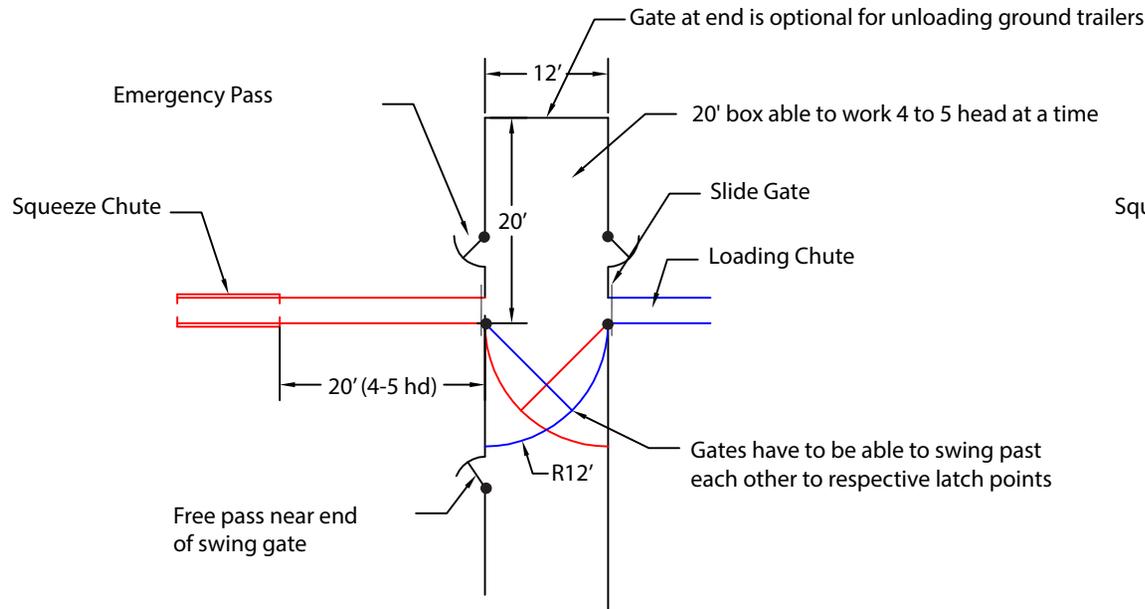
	To 600 lb	600-1200 lb	Over 1200 lb
Holding area sq ft/head	14	17	20
Crowding pen sq ft/head	6	10	20
Working chute with vertical sides			
Width	18"	24"	28"
Length (minimum)	20'	20'	20'
Working chute with sloping sides			
Width at bottom inside clear	13"	15"	16"
Width at top inside clear	20"	24"	28"
Length (minimum)	20'	20'	20'
Working chute fence			
Recommended minimum height	45"	50"	60"
Depth of posts in ground (minimum)	30"	30"	30"
Corral fence			
Recommended height	60"	60"	60"
Depth of posts in ground (minimum)	30"	30"	30"
Loading chute			
Width	26"	26"	26"-30"
Length (minimum)	12'	12'	12'
Rise, in/ft	3 ½	3½	3½
Ramp height for:			
Stock trailer	15"		
Pickup Truck	28"		
Stock Truck	40"		
Tractor-trailer	48"		
Double-deck trailer	100"		

Raymond L. Huhnke; Sam Harp

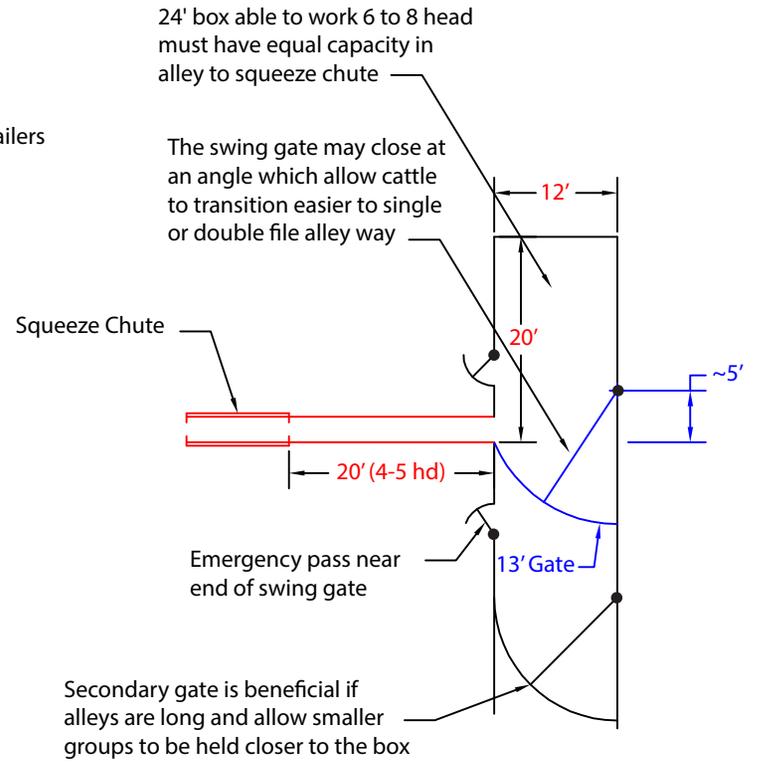
This publication contains 11 templates showing various aspects of a working facility designed using the Bud Box concept. The templates incorporate multiple sorts out of the squeezes and include different options for loading cattle. Many of the alleys are shown at 12 feet wide, which is the minimum recommended width when cattle handlers are on foot. If horses are used to move cattle through the facility, then the recommended alley width is 16 feet.

Concepts obtained from this publication are intended to provide ideas and are not construction drawings. Individuals assume the responsibility for constructing working facilities that protect the well-being of both the handler and the animal. Proper animal handling procedures are critical when working cattle. Facilities may or may not help overcome animal behavior incurred due to improper handling.

Template	Title	Description
1	Bud Box – Basic Information	The most basic bud box design has a single-file alley along one side of the box. However, in some situation it is advantageous to have a single-file alley on both sides due to positioning of the loading chute on one side and squeeze chute along the other side. A double exit has single-file alleys along both sides of the bud box. Template 1 shows a single-exit alley and a double-exit alley.
2	Bud Box – Loading Chute Information	Template 2 shows several options for loading ground or high load trailers. Also shown in template 2 are some examples of emergency fence passes, which enable the handler to step through the fence to escape animals as necessary.
3	Bud Box – Curved Alleys/Double Alleys	Template 3 shows different options from the bud box to the squeeze chute. In some cases a curved chute may work better in space identified for the working facilities. Larger diameter curved alleys work better because the lead animal is always visible to those following. If the diameter is too small, then there will not be enough room in the single-file alley to holding 4 to 5 head. The number of animals moved into the bud box should equal the number of animals or capacity of the single-file alley.
4	The Round Tub	Some operations are turning a round tub configuration into a bud box. Cattle enter the tub and are allowed to turn around and exit through a single-file alley near the entrance point rather than 90 or 180 degrees from the entrance, which is common with half- or quarter-circle tubs. It is important to make sure there is enough space for the animals to easily turn around and try to exit the tub. It is recommended that for a 12-foot diameter half-tub to limit number of head moved into the tub to 4 to 5, or 3 to 4 with 10-foot diameter.
5	Bud Box used with straight pens	The most common and simplest pen configuration is a bud box with straight pens. In template 5, there are three sort pens upon exiting the squeeze chute for normal sorting activities. In most operations, the cattle will be returned to a pasture or pen and the 45-degree-angled fence section aids in turning the cattle around. A ground load chute is shown at the end of the bud box.
6	Bud Box used with angle pens	Many larger operations use curved fence lines to avoid having cattle bunch or encounter a 90-degree turn at the end of a pen. The purpose of the angled fences is to eliminate as many 90-degree turns as possible and improve cattle flow. The single-file alley is at a 60-degree angle from the bud box (most common is 90-degree angle) to improve cattle flow into the single-file alley.
7	Bud Box incorporated into a 36-foot by 60-foot building	Bud boxes can be incorporated into a building such as shown in Template 7. If the building is less than 40 to 48 feet wide, then most likely the squeeze chute will have to be located under an overhang to accommodate a 12-foot wide bud box, a 20-foot single-file alley, and 10 feet for the squeeze chute. In template 7 there is also a special pen under the roof with a head gate and swing-away side gates to use with calving assistance. A larger calving pen or pasture could be adjacent to the building. The other pens could be used as exterior calving pens or sick pens as necessary.
8	Bud Box incorporated with pie-shaped multi-purpose pens	The pie-shaped pen configuration enables smaller operations to use these pens for feeding small groups of cattle such as show cattle or use the pens for holding or sick pens. The advantage to the pie-shaped pen is the extra space along the perimeter to locate feed bunks and/or water troughs. If round bales are used, a bale feeding station along the perimeter should be developed to avoid having equipment enter the pens.
9	Bud Box used with angled entrance and straight short pens	The angle pens shown in Template 9 enable cattle to be moved into the bud box without having to make a 90-degree turn (similar to Template 6 but larger pens). Also a unique feature in Template 9 is the location of two bud boxes — one is used with the squeeze chute and the other is located in a different area to provide better access for the loading chute.
10	Bud Box and working facility located in larger pasture	The working facility in Template 10 is designed for pasture operations where cattle are moved from a large pasture first into a large holding pen and then narrower and smaller holding pens. Two to three of the smaller pens can serve as holding pens, leaving two or three pens available for sorting.
11	Bud Box and working facility located between multiple pastures	Template 11 illustrates how a working facility using a bud box can be located at the corner of two to four adjoining pastures while still maintaining the ability to sort cattle and transport to other locations.

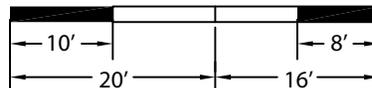


Double Exit Bud Box

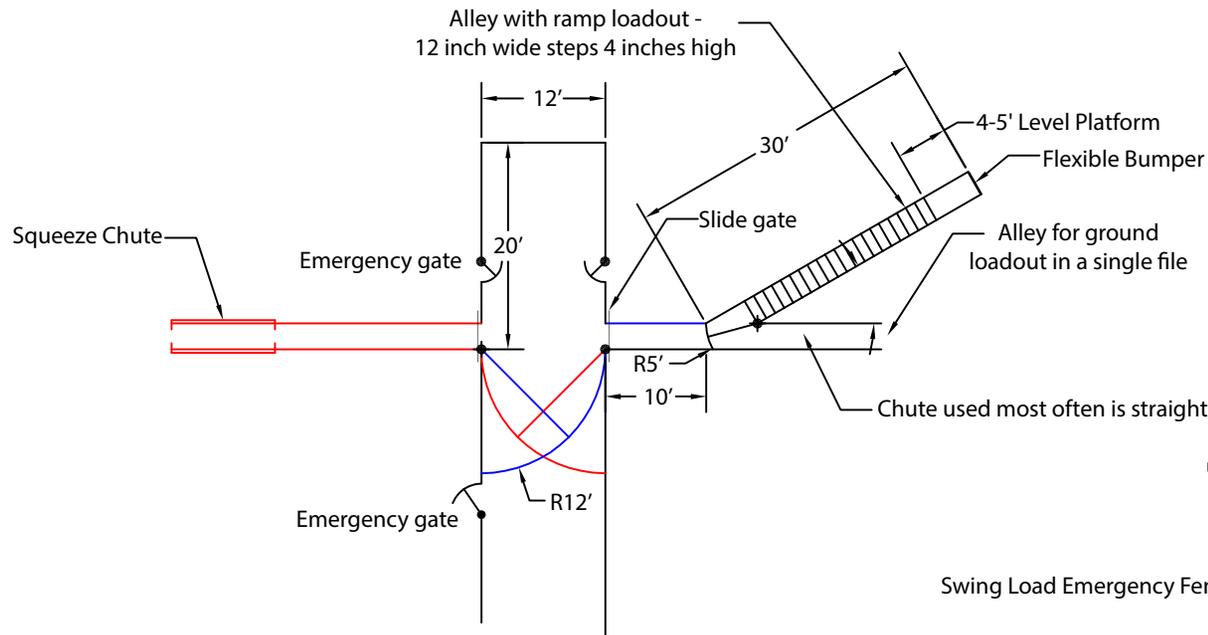


Single Exit Bud Box

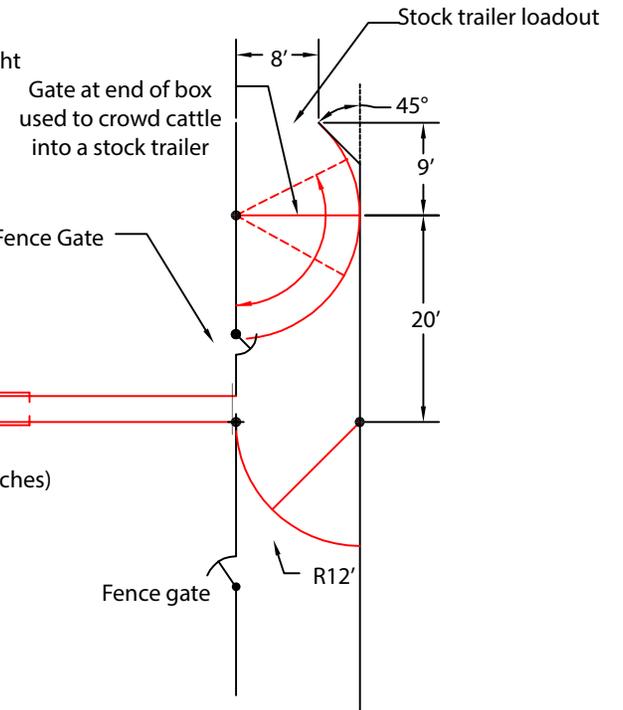
This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



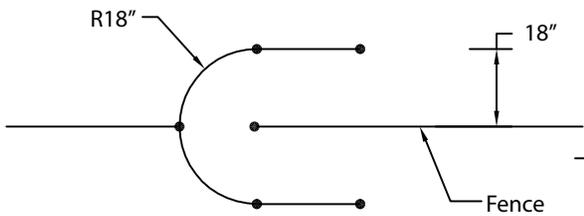
Template 1
Bud Box - Basic Information
 K-State Research and Extension



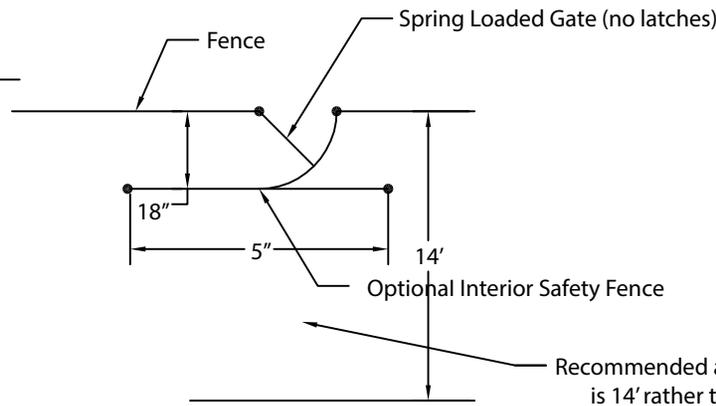
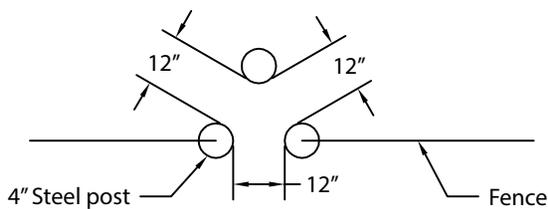
Elevated and Ground Level Single File Chutes using Bud Box



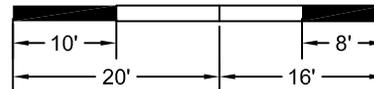
Stock Trailer loadout at End of Bud Box



Examples of Fence Passes

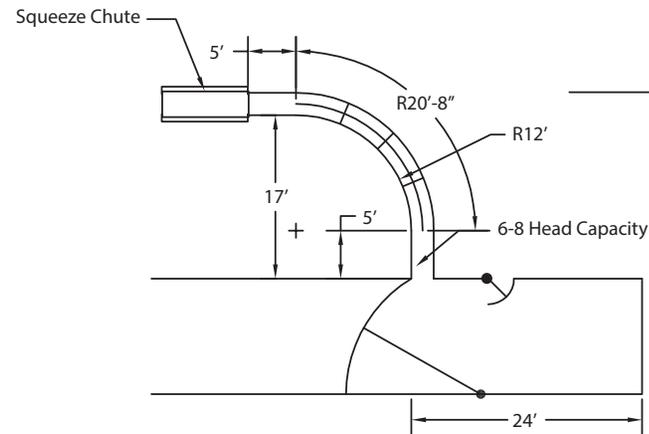
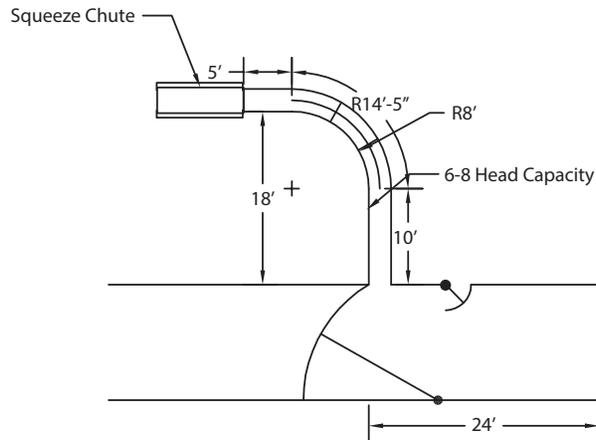
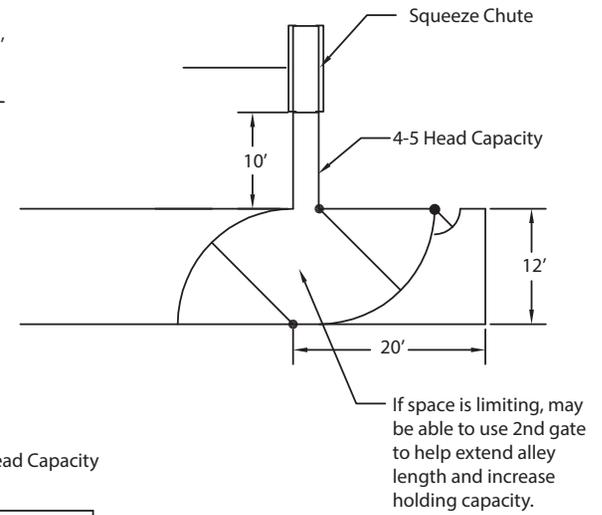
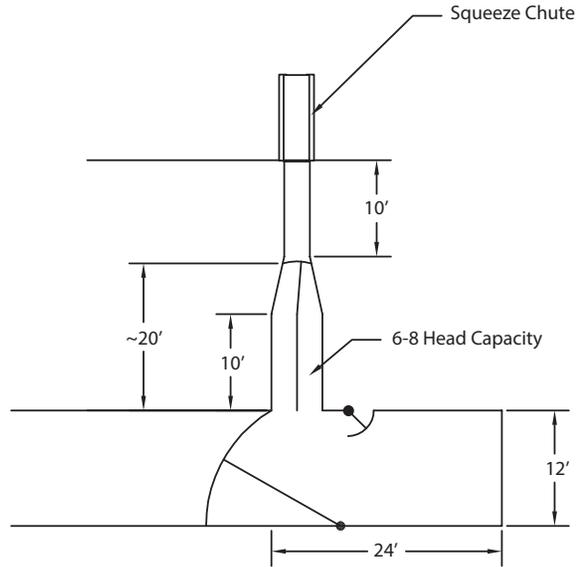
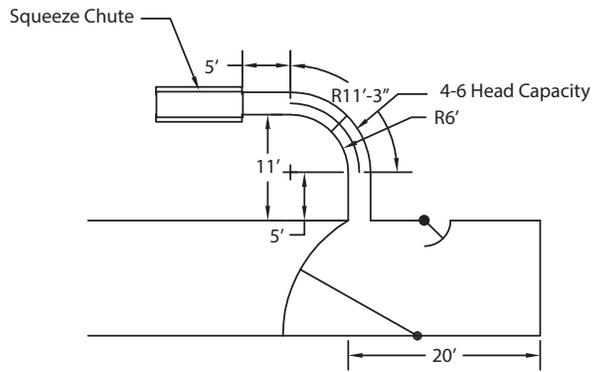


Recommended alley width is 14' rather than 12'



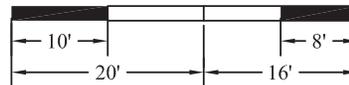
This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.

Template 2
Bud Box - Basic Loading Chute Information
K-State Research and Extension

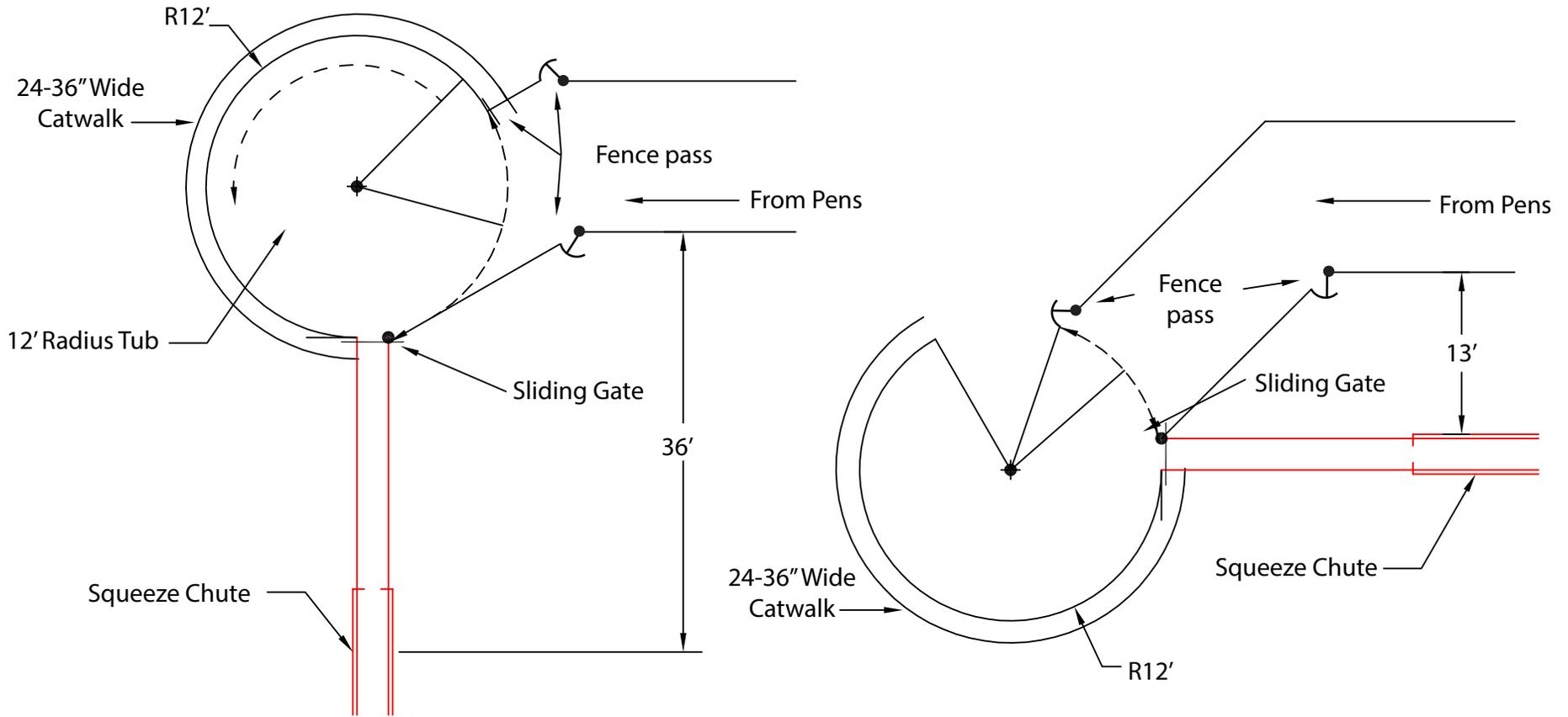


R=Radius of circle

This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.

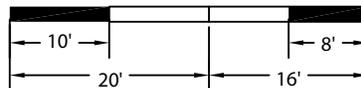


Template 3
Bud Box - Curved Alley/Double Alley
 K-State Research and Extension

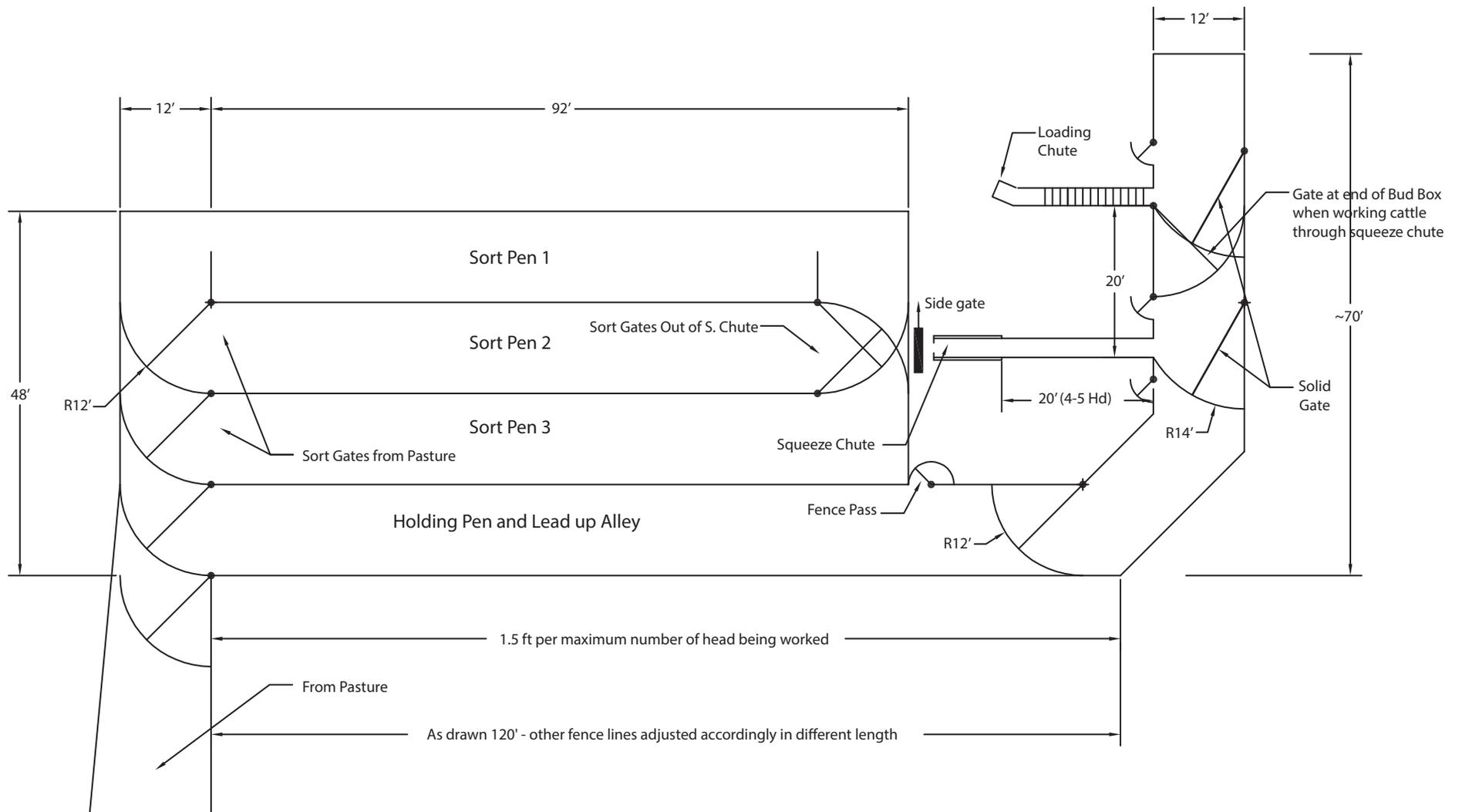


Note: Several companies are marketing a low cost handling round tub that works similar to a rectangular bud box.

This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



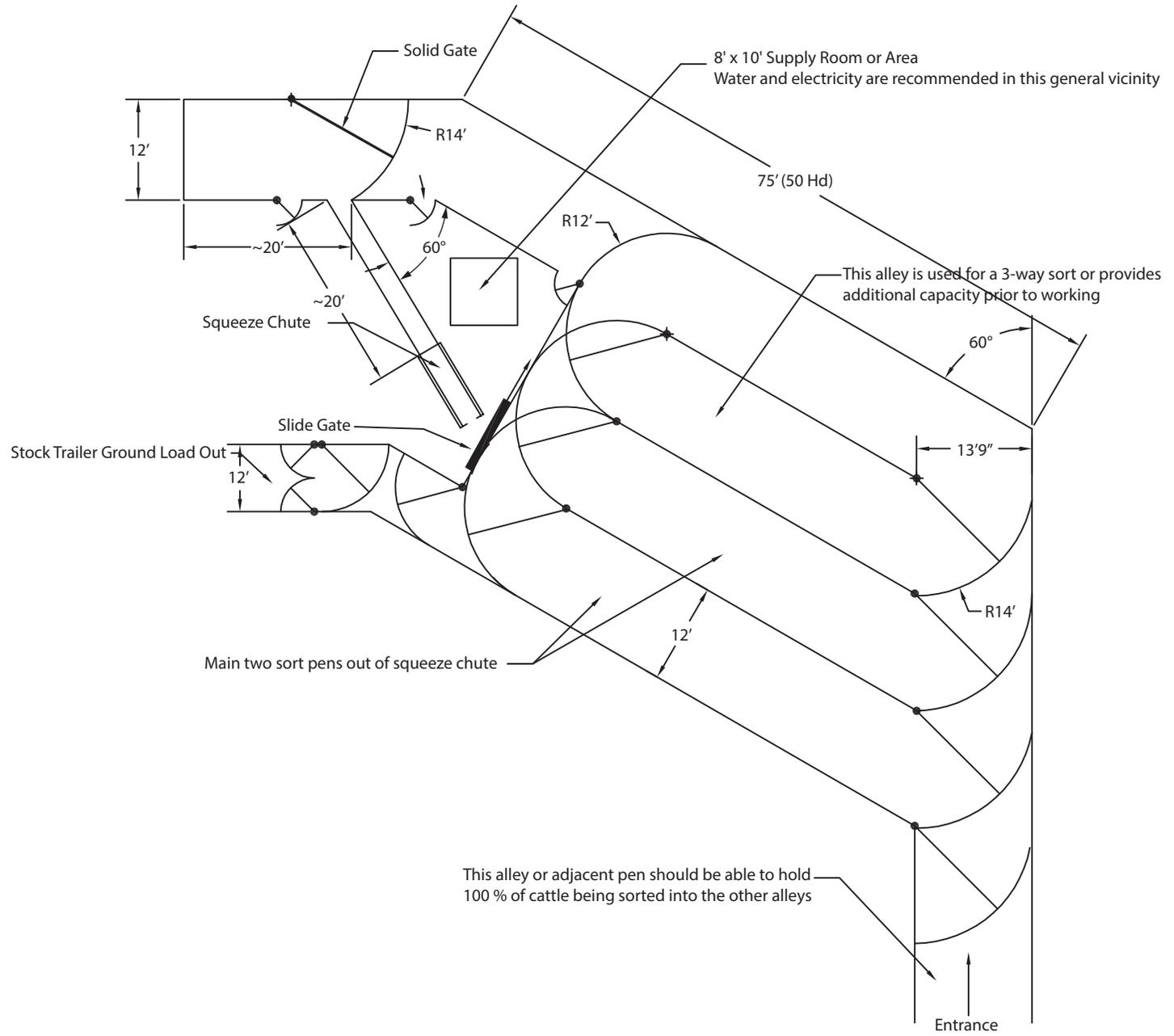
Template 4
Bud Box - Using or Converting a Round Tub
 K-State Research and Extension



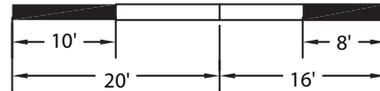
This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



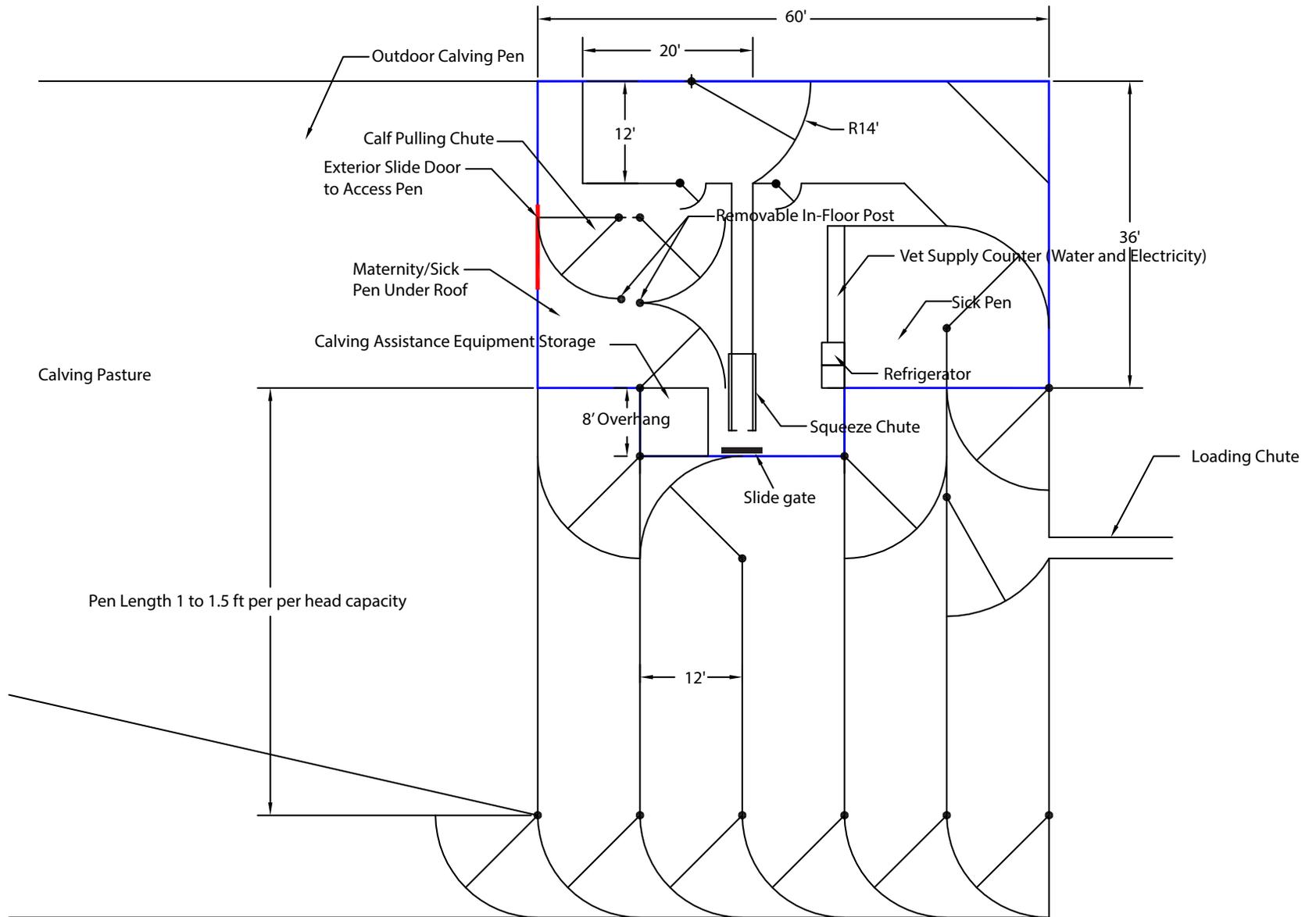
Template 5
Bud Box - Utilized w/Straight Pens
K-State Research and Extension



This conceptual drawing is based on field experiences and interactions with catUe producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



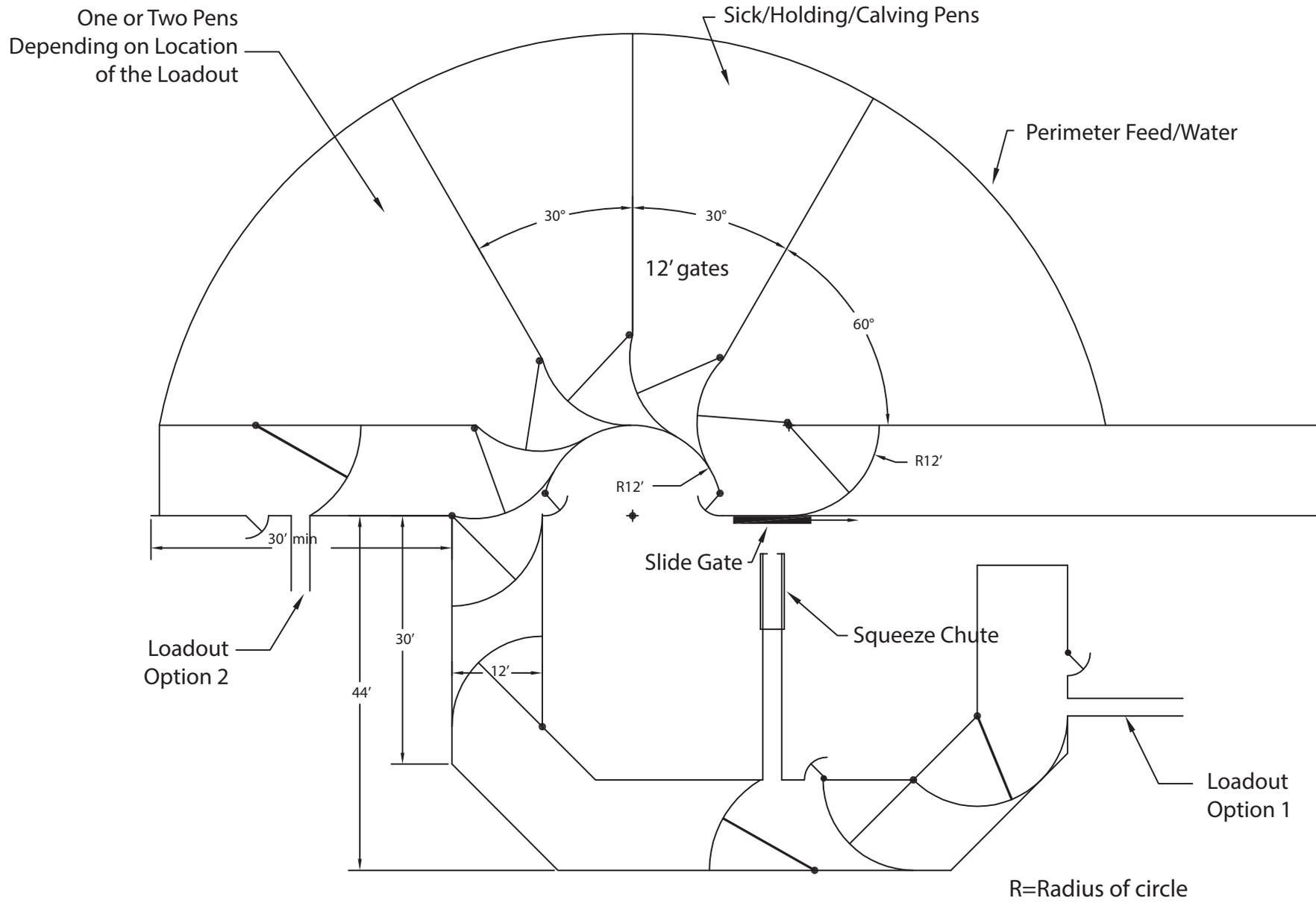
Template 6
Bud Box - Angled Pens
 K-State Research and Extension



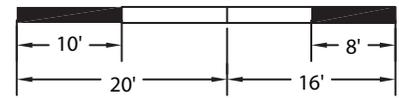
This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



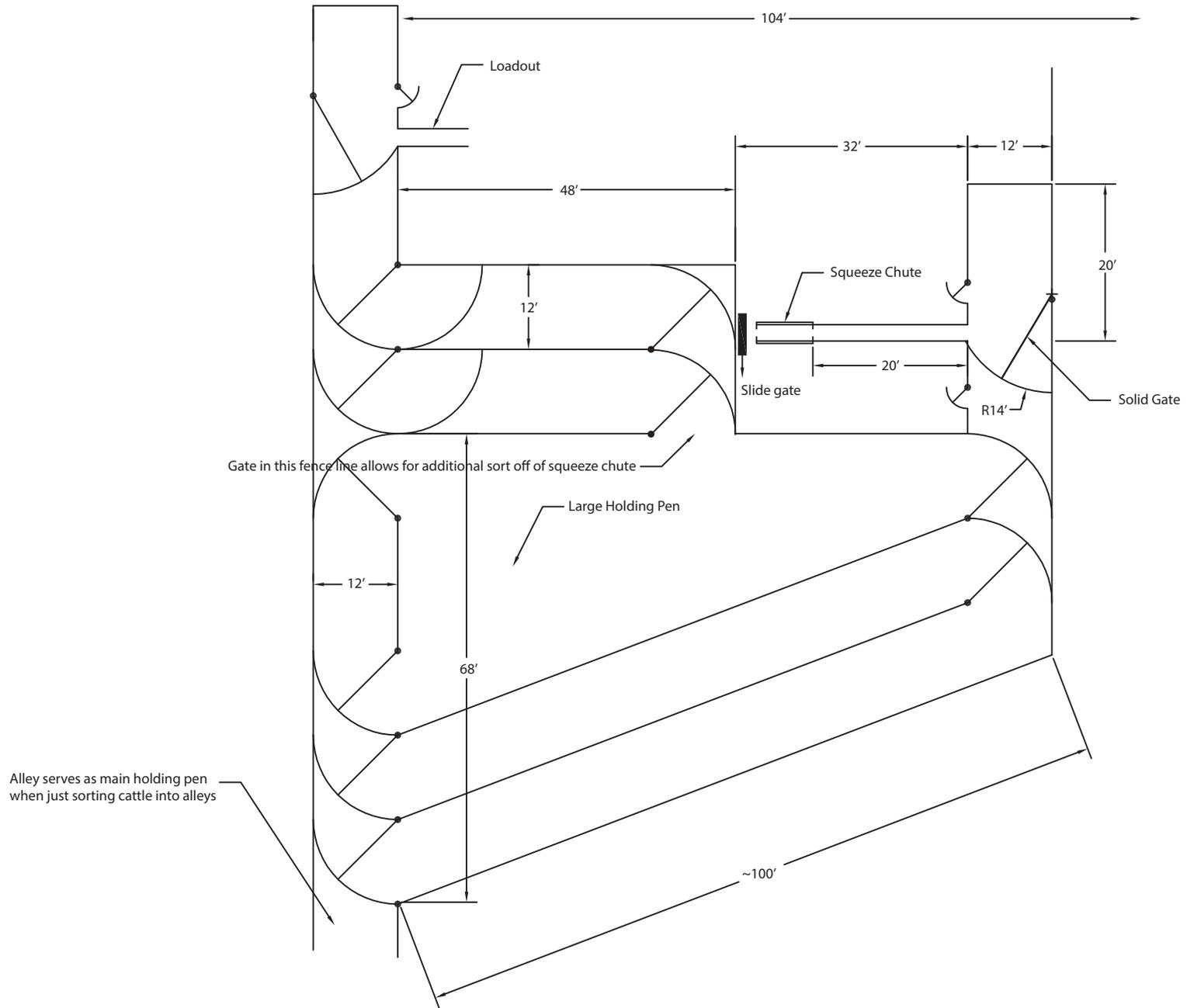
Template 7
Bud Box - 36ft by 60ft Building
 K-State Research and Extension



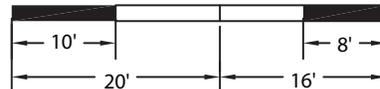
This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



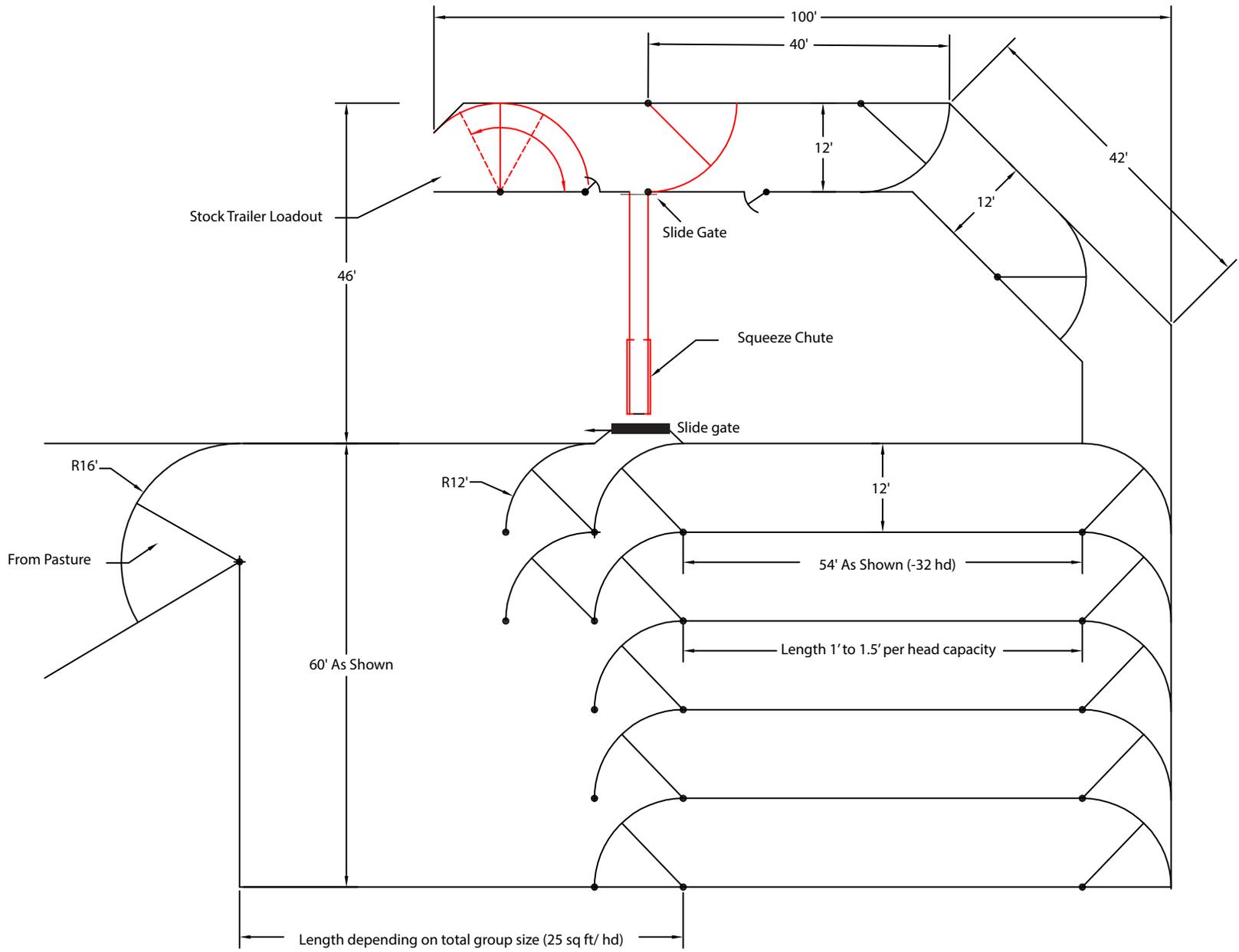
Template 8
Bud Box - Utilized With Pie Shaped Multi Purpose Pens
 K-State Research and Extension



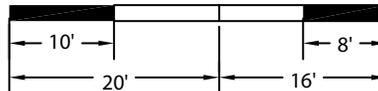
This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



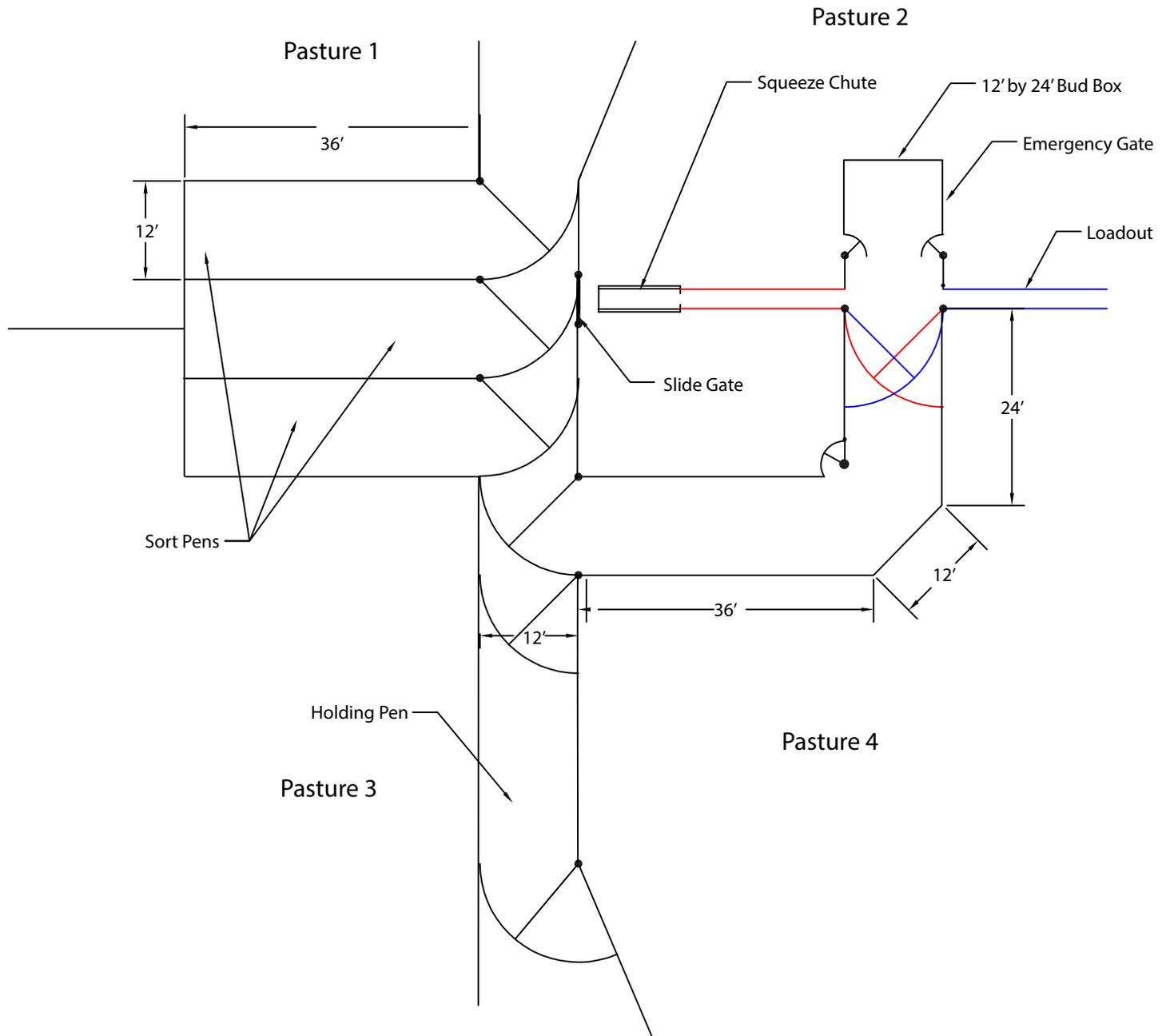
Template 9
Bud Box - Utilized Angle Entrance and Straight Sort Pens
 K-State Research and Extension



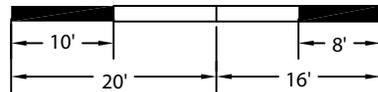
This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



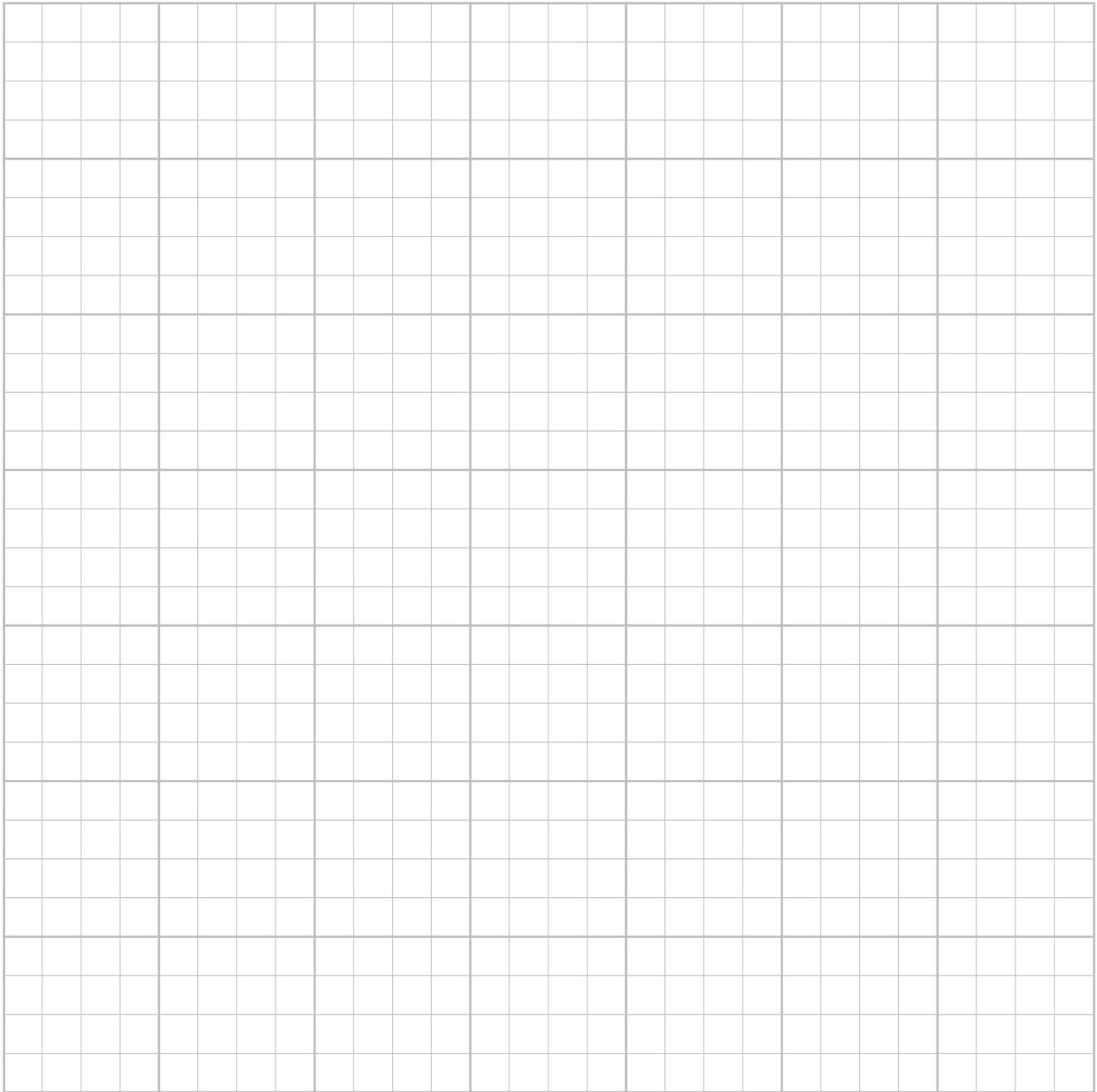
Template 10
Bud Box - Pasture Facility
 K-State Research and Extension



This conceptual drawing is based on field experiences and interactions with cattle producers. Appropriate handling and stockmanship are necessary to ensure animal welfare recommendations are implemented and followed. Users of any part of this information or ideas assume full responsibility for worker and animal safety, adequacy of the site and construction materials and practices.



Template 11
Bud Box - Located in Corner of Multiple Pastures
 K-State Research and Extension



A. J. Tarpoff, Justin Waggoner, Christopher Reinhardt, Joel DeRouchey,
Sandy Johnson, Eli Sheppard, and Joe Harner
Departments of Animal Sciences and Industry and Biological and Agricultural Engineering,
Kansas State University, Manhattan, Kansas

Publications from Kansas State University are available at: www.bookstore.ksre.ksu.edu

Date shown is that of publication or last revision. Contents of this publication may be freely reproduced for educational purposes. All other rights reserved. In each case, credit A. J. Tarpoff , et. al, *Designing a Bud Box for Cattle Handling*, Kansas State University, September 2017.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

MF3349

September 2017

K-State Research and Extension is an equal opportunity provider and employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, Extension Districts, and United States Department of Agriculture Cooperating, John D. Floros, Director.