

DESCRIPTION OF SYSTEM

This livestock watering system is designed to collect and pump water from a surface-water source and/or groundwater source and provide a conveyance system to store water and deliver to a watering trough. This system would have to be managed and operated in order to power up pump manually on a weekly basis in order to fill tank for storage. The tank will be located strategically, in order to provide adequate head to support a gravity fed pipeline to the watering trough. The trough will be equipped with a float valve for automatic water shutoff control.

The system includes the following components:

- Water Intake Structure/Screen
- Water Pump and Concrete Base/Housing
- Water Tank (1500 gallons) and 6 foot Tank Stand
- Conveyance Pipeline Water Trough (300 gallons)

This drawing requires supporting technical documentation prior to use and must be adapted to the specific site.

Drawing no to scale.

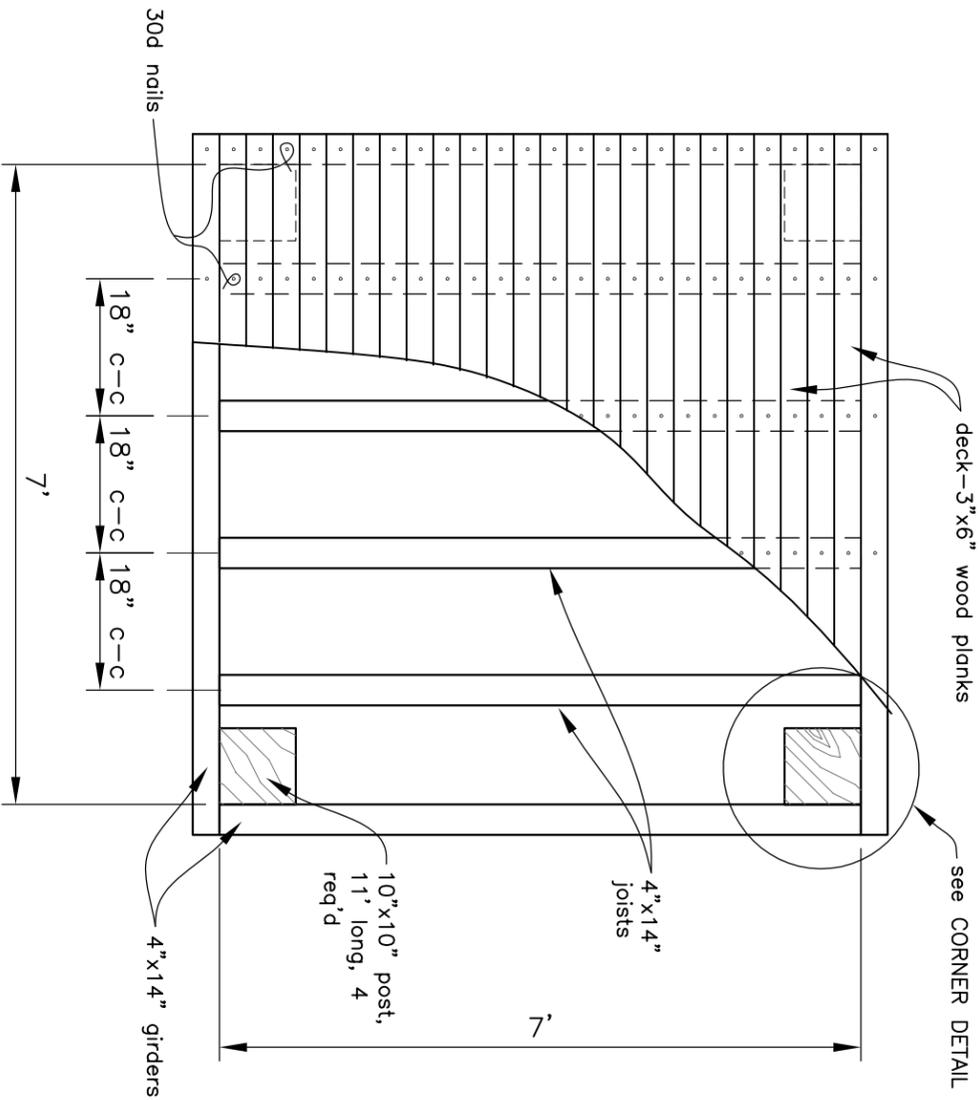


LIVESTOCK WATERING SYSTEM

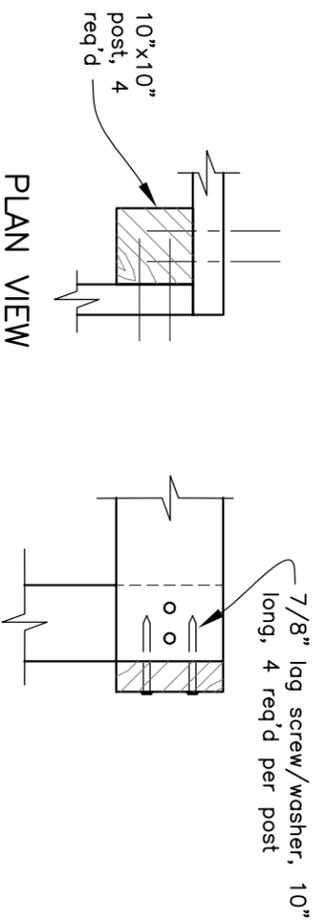
LIVESTOCK FACILITIES

Designed	D. Mehlhoff, P. Bautista	Date	4/02 (8/05)
Drawn	L. Kamna, (K. Yasumi)	Checked	P. Bautista
Approved			
Title			

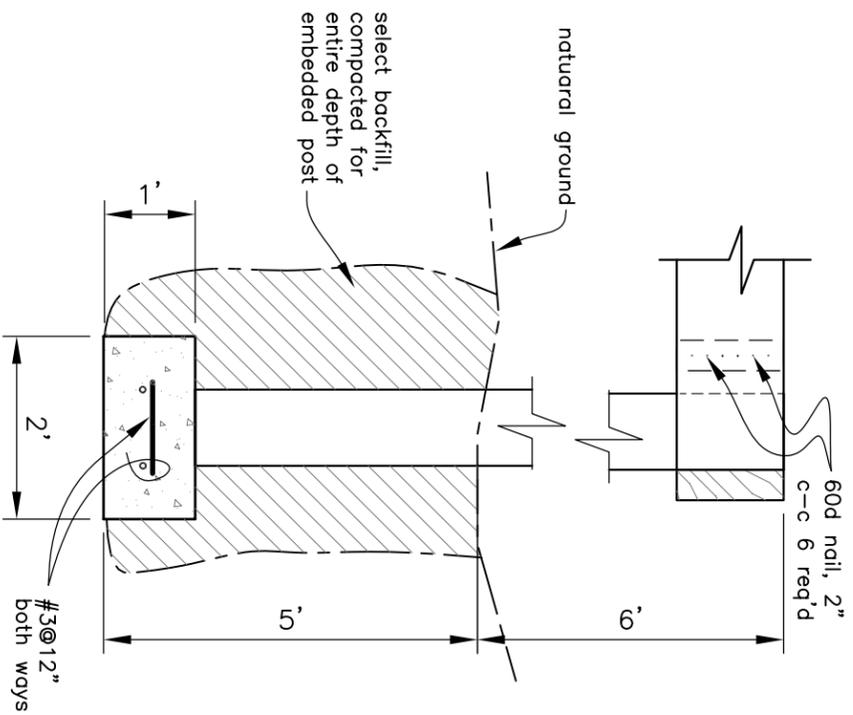
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TANK FRAME PLAN VIEW



CORNERS DETAIL



POST FOOTING DETAILS

TANK FRAME QUANTITIES		
MATERIAL	UNIT	QUANTITY
concrete footing (3,000 psi)	cu. ft.	16
10" x 10" post	ft.	44
4" x 14" treated lumber	ft.	57.5
3" x 6" treated lumber	ft.	117.5
7/8" x 10" lag screws w/washers	each	16
#3 rebar	ft.	16

DESIGN ASSUMPTIONS:

Tank stand was designed for a maximum storage tank of 1500 gallons.

Posts and footings were designed assuming soils w/a bearing (maximum) pressure of 1000 psi.

LUMBER SPECIFICATIONS:

All shown lumber to be Douglas Fir/Larch, installed as follows.

Grading to in accordance with WWPA Standard Grading Rules and as follows:

- A. Grade No. 2 or better: joists, girders & decking, pressure treated.
- B. Grade No. 2 or better: timber posts, pressure treated.

CONSTRUCTION NOTES:

Layout of water tank stand structure shall be as shown on plan.

3000 psi compressive strength @ 28 days for post footing concrete. Concrete for the 2'x2'x1' post footing shall be placed on a sound foundation free of organic matter. If necessary organic matter will be removed and replaced with granular fill. Reinforcing rebar shall be 40 grade and to be installed as shown on detail.

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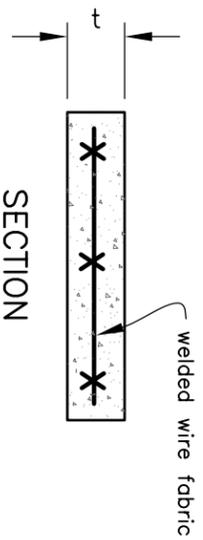
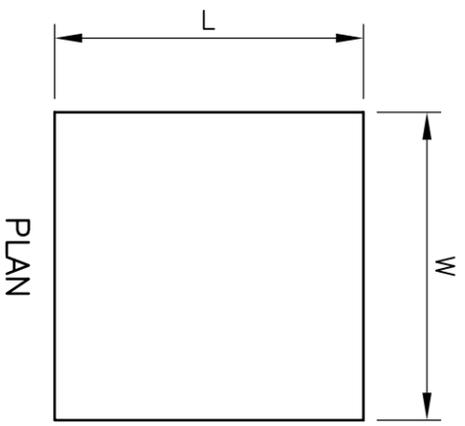
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LIVESTOCK WATERING SYSTEM
TANK FRAME

LIVESTOCK FACILITIES



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PUMP CONCRETE PAD DETAIL

PUMP PAD DIMENSIONS:

- L = _____ ft
- W = _____ ft
- t = _____ ft (4' min)

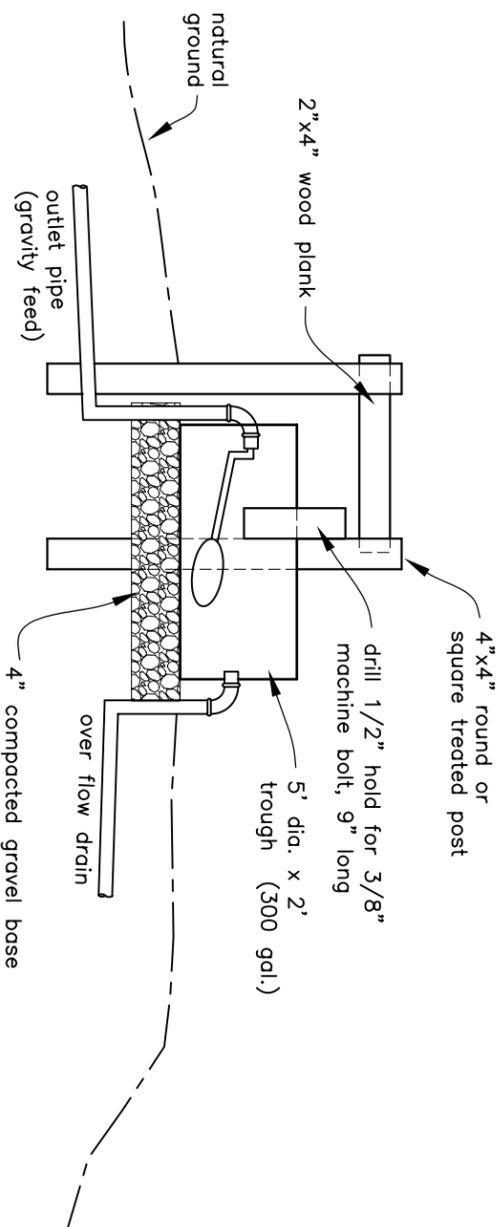
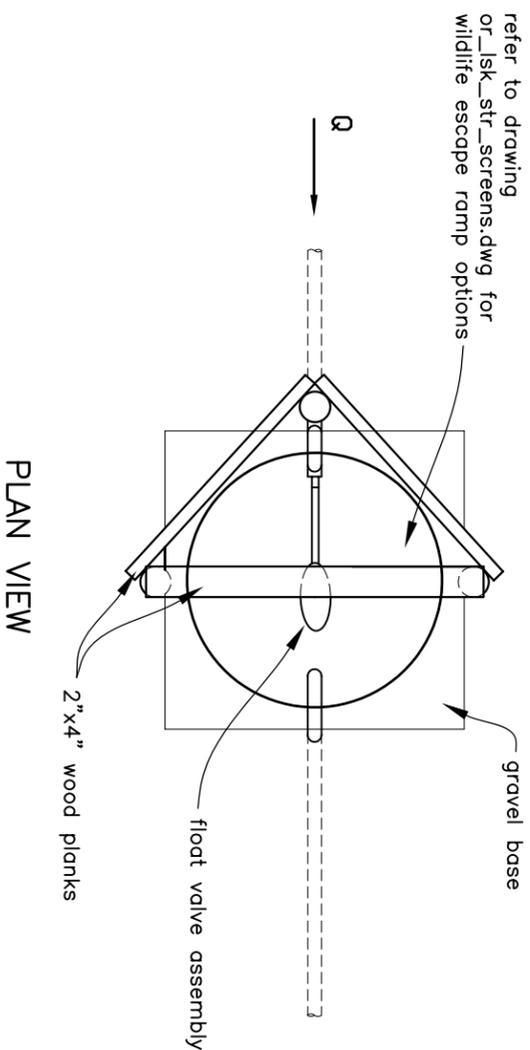
PUMP PAD CONSTRUCTION NOTES:

The concrete will meet the provisions of ASTM C-94. Cement will be type 1 or 1A and will be a minimum of 6 bags per cubic yard. Concrete may be mixed on-site providing concrete is proportioned and mixed to meet the above specifications. Moist cure with approved method for 1 week.

4"x4" 4/4 gauge welded wire fabric meeting ASTM A-185 will be used for floor slab construction. If splicing is necessary, splice by overlapping the pieces so the end cross-wire of each piece is in contact the next cross wire of the next piece. There will be a minimum of 2" clear cover between any reinforcing bar or wire fabric and any concrete surface.

Refer to Oregon CS-42, Reinforced Concrete for Minor Structures.

Pump assembly recommended to be housed and fastened into concrete pad.



TROUGH DETAILS

PIPE:

All pipe installed above ground shall be galvanized steel or Polyethylene Pipe.

All Pipe installed below ground shall be schedule 40 PVC pipe or other plastic pipe meeting Oregon MS 206, Plastic Pipe Specification. Trenching and Backfill requirements shall be met as prescribed in Oregon CS-13, Excavation and Backfill of Trenches for Conduits and Pipelines.

VALVE OPTIONS:

1. Frost Free Hydrant.
2. In-line gate Valve
3. Unrestricted flow
4. Hydrant with float valve

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