

Appendix V

# Wildlife Watering Facilities



By

**Jerry Turrentine, NRCS Biologist**

**USDA – Natural Resources Conservation Service**

# WILDLIFE WATERING FACILITIES DESIGNS AND DRAWINGS

Designs for wildlife watering facilities can be simple or very complex. A simple facility works well in many situations by more complex facilities are needed in some situations. Each situation needs to be evaluated and the proper facility recommended to the landuser. To assist in making recommendations and designing these facilities and to supplement the standard and specifications, this technical note outlines specific criteria for a number of facilities.

## GENERAL GUIDELINES

1. Where livestock or larger wildlife species are present, the facilities should be fenced to provide proper protection. One example is shown in drawing number 16.
2. Plastic and PVC materials can be damaged by rodents and ultraviolet light. As little as possible of this material should be left accessible to rodents or sunlight.
3. In areas with hard winter freezes, some facilities can be damaged by hard freezes. Provisions should be made to drain or shut off water supply during these periods.
4. Proper maintenance of equipment will ensure adequate wildlife water and increase life of facilities. As with all equipment, facilities should be checked on a regular basis.
5. Algae growth can be a problem in many facilities. The less sunlight, the less algae growth problems will be encountered. As much as possible, the facility should be shaded. If algae growth becomes too bad, the facility may have to be drained and cleaned.

## NON COST SHARE FACILITIES

### A. PVC (over other flexible type) Pipe Facility (Drawing #1)

#### 1. Materials:

- 7 feet of 2 inch or larger PVC pipe
- 1 end plug to fit PVC pipe
- 1 sink trap to fit PVC pipe
- 1 six foot steel T post
- 2 four inch hose clamps.

#### 2. Construction and Installation:

Cut off 1 inch of the open end of sink trap. Glue end plug and sink trap to PVC pipe. To fill, turn upside down and fill through sink trap. After filling, use hose clamps to fasten PVC pipe to T post. If larger PVC pipe is used, it can be necked down to 2 inch sink trap. A 3 inch PVC will hold 1 gallon, and a 4 inch will hold 4 gallons.

### B. Drum with facet or Float (Drawing #2 and #3)

#### 1. Materials:

- 1 drum (can use metal or plastic).
- 1 facet or float valve
- 1 stand (metal or wood)
- 18 inches of ¼ inch hose
- 1 metal or concrete trough (Should be at least 6" x 6" x 4" deep)

2. Construction and Installation:

Stand should be constructed so as to hold weight of filled drum. Stand should be leveled when installed. Insure that drum did not contain toxic material or is rusted wither inside or outside. If float valve is used, insure that trough is firmly installed and leveled. Most drums hold about 50 gallons.

**B. Small Game Guzzler (Drawing #4)**

1. Materials:

3 sheets corrugated galvanized metal (at least 10 feet long)  
8 feet minimum of 6 inch PVC (over other flexible) pipe  
2 six inch PVC caps or end plugs  
11 feet of 4 inch post  
11 feet of 2x4 inch lumber  
30 one inch sheet metal screws  
30 sixteen penny nails

2. Construction and Installation:

Three posts should be cut 2.5 feet in length and 3 posts cut 1.5 feet in length. Set post level in ground at 1 foot depth. The front post should be 6 inches lower than back post. Nail a 2x4 to top of back post and one to top of front post. Attach sheet metal together, making sure it is square, and attach to 2x4's. Cut a slot 1 inch wide, the same length as width of assembled sheet metal, out of PVC. Make sure the slot is centered in PVC. Six inches from each end of PVC, cut a 6 inch by 3 inch wide slot on the opposite side of the long slot. Install end plugs or caps.

Dig out soil at lower end of sheet metal. Install and level PVC in dug out area with sheet metal inserted into 1 inch slot. Metal should extend into PVC at least 2 inches. Put enough soil around PVC to ensure that it is stable.

A 0.3 inch rain will fill the PVC, and PVC will hold 12.5 gallons.

**C. Windmill Supply Pie Dripper (Drawing #6)**

1. Materials:

3 feet of metal or PVC (over other flexible) pipe (should be ½ inch larger in diameter than water supply pipe)  
1 cloth or sponge bushing  
1 metal or concrete trough

2. Construction and Installation:

Slip metal or PVC pipe sleeve over water supply line. Wedge cloth or sponge bushing between the two pipes. Make sure water discharge will enter trough. The rate of water flow can be regulated by sliding sleeve up or down water supply pipe. Area of pipe and trough should be protected from livestock.

**D. Plastic Container (Drawing #13)**

1. Materials:

- 1 plastic or metal container (smallest size should be 5 gallons)
- 1 commercial spring operated chicken watering bowl
- 2 cement blocks or 6 bricks

2. Construction and Installation:

Install watering bowl to bottom of watering container. Set facility on blocks or bricks at a height that allows target wildlife species to utilize. Make sure facility is level.

## COST SHAREABLE FACILITIES

### A. In Ground Bowl Trough (Drawings #7, #8, #12, #14, and #16)

#### Storage Trough:

1. Trough Material: Concrete will be at least 5 sack cement mix. Concrete will be reinforced using 6" x 6" welded wire. Metal trough using pipe should meet criteria for pipe material listed below under heading "Pipe Material". If the trough is constructed of sheet metal it should be new and at least 12 gauge.
2. Trough Size: Concrete troughs for upland game birds should be at least 1 foot by 4 inches deep at the center (will hold 2 gallons). Concrete troughs for big game should be at least 1.5 foot by 6 inches deep at the center (will hold 6.5 gallons). Metal troughs for upland game birds should be at least 4 inch pipe, 3 feet long (will hold 2 gallons). Metal troughs for big game should be at least 6 inch pipe, 5 feet long (will hold 6.5 gallons).

#### Pipe and Pipeline:

1. Pipe Material: May use existing pipeline or new pipeline and either used shall be at least ¾ inch diameter and can be galvanized steel, aluminum or plastic complying with the following specifications:

Steel A-120 (galvanized)	ABS D-2282 (SDR-PR)
ABS D-1527 (sch. 40 or 80)	PE D-2104 (Sch. 40)
PE D-2239 (SIRD-PR)	PE D-2737 (PE Tubing-PR)
PE D-3035 (SRD-PR)	PVC D-1785 (Sch. 40, 80, or 120)
PVC D-2241 (SDR-PR)	PVC D-2740 (PVC Tubing – PR)
PE D-2247 (Sch. 40 or 80)	

#### Additional Requirements:

If a facet is used it shall be new and shall meet or exceed pipe used. After water volume is set the handle should be removed. If a float is used it should be new and of good quality. If a drip emitter is used it should have the capability of being cleaned out.

Metal pipe trough will be anchored by use of concrete or metal legs buried in the ground at least 18 inches.

**B. Big Game Guzzler ( Drawing #9)**

For specifications to big game guzzler, see supplement to standard and specifications for wildlife watering facility.

**C. Inverted Umbrella Guzzler (Drawing #10)**

This facility is commercially produced. It is available in 2000 to 5000 gallon sizes. The basin diameters are 16 to 32 feet. It takes 8 inches annual rainfall for 2000 to 3000 gallon size and 10 inches for the 5000 gallon size. No float needed if trough and tank set at same level.

**D. Flying Saucer Guzzler (Drawing #11)**

This facility is commercially produced. It is available in 200 to 2100 gallon sizes. It takes 6 inches annual rainfall for 200 gallon size, 8 inches for 1000 gallon size and 17 inches for 2100 gallon size. No float needed if trough and tank set at same level.

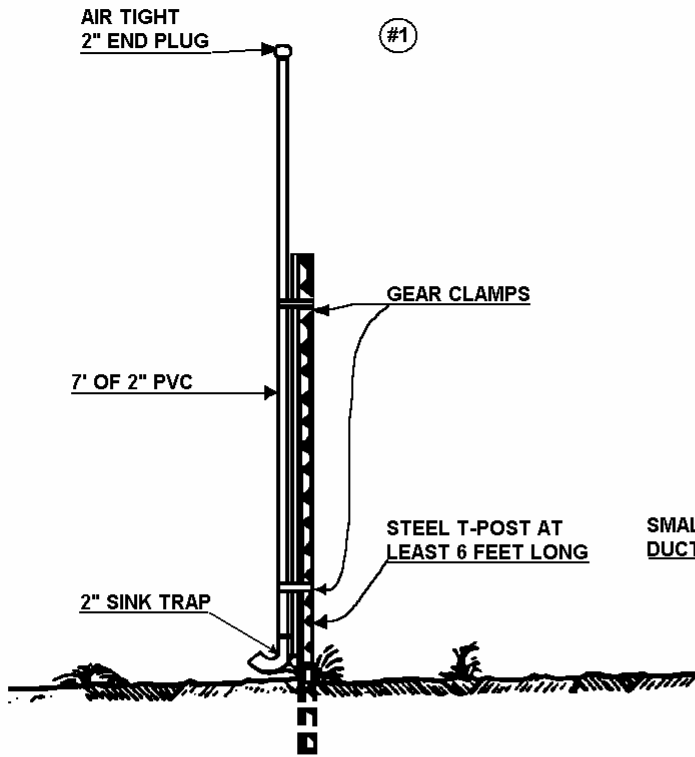
**E. Ranch Specialties Wildlife Waterer (Drawing #15)**

This facility is commercially produced. It holds 9.5 gallons of water. The float is built into the facility. The facility is 42 inches by 42 inches and 7.5 inches deep with a 3 foot diameter bowl. To be eligible for cost share, the facility must be connected to a permanent water source.

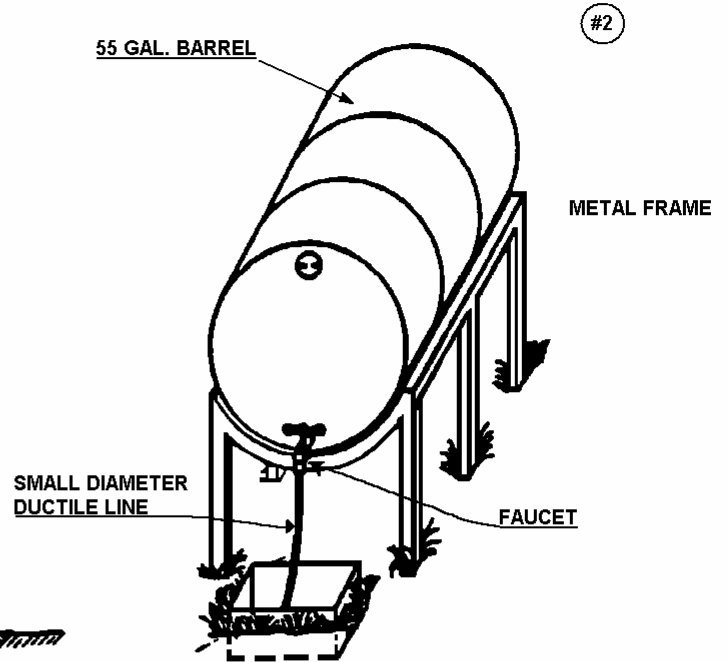
# WILDLIFE WATERING FACILITIES

SCALE: 3/8" = 1'

SCALE: 3/4" = 1'

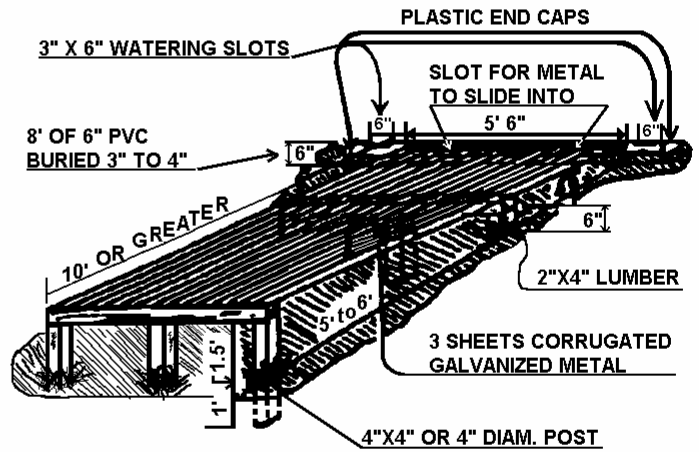
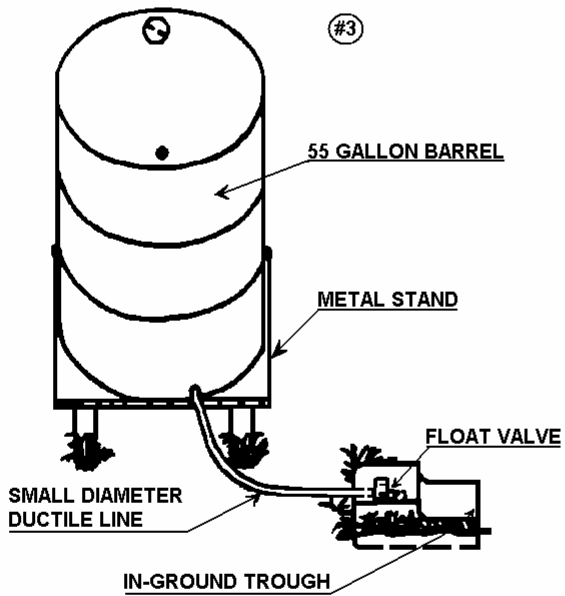


SCALE: 3/4" = 1'



#4

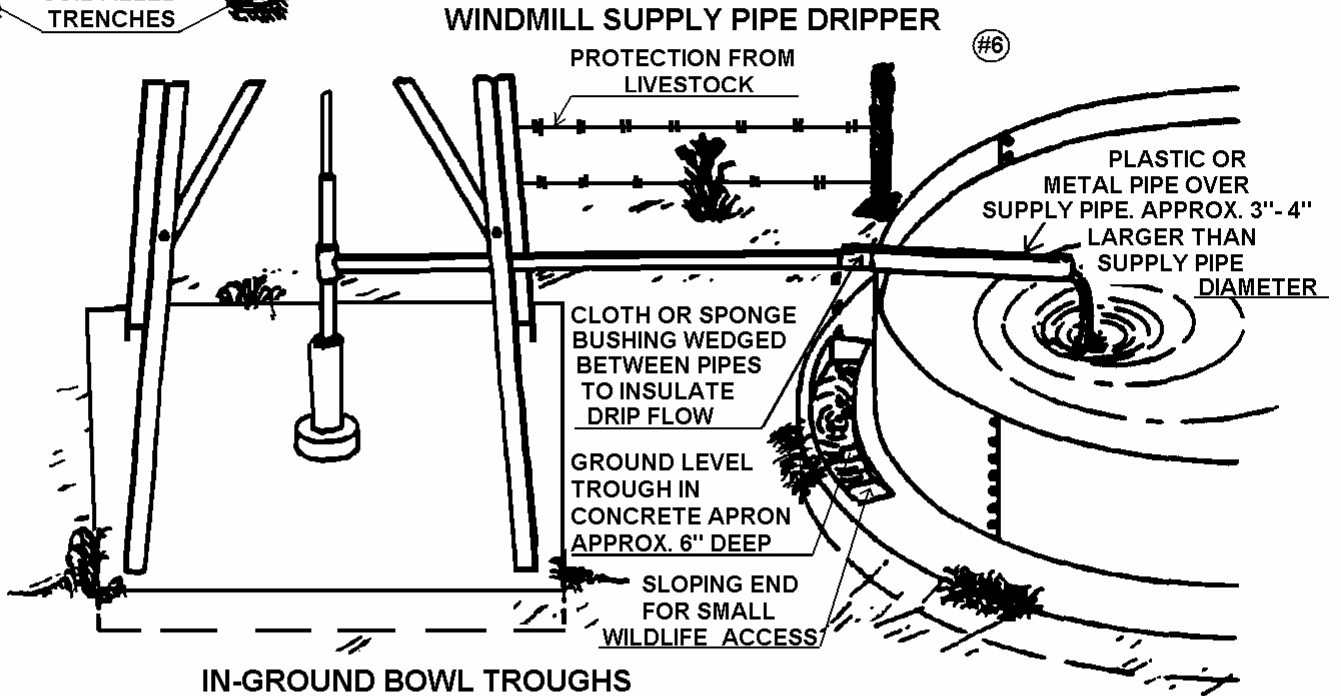
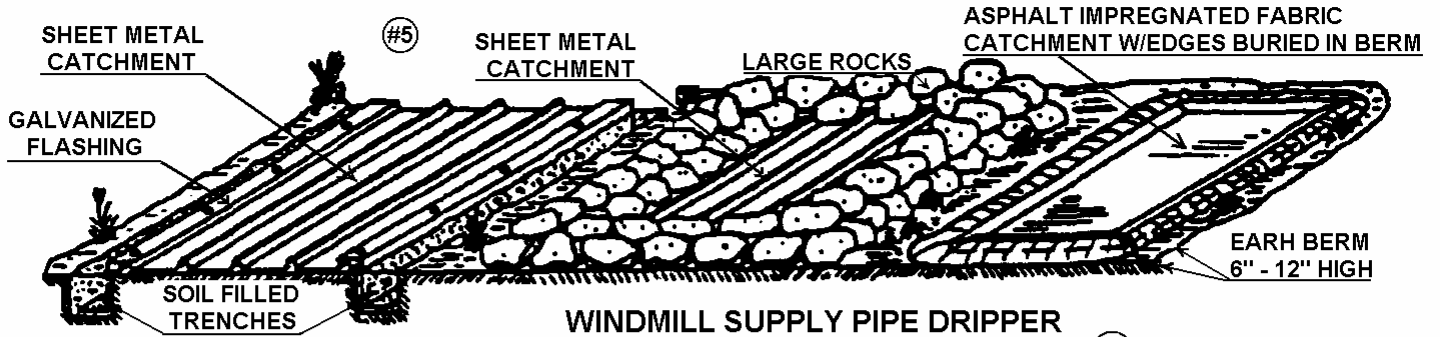
SCALE: 1/4" = 1'



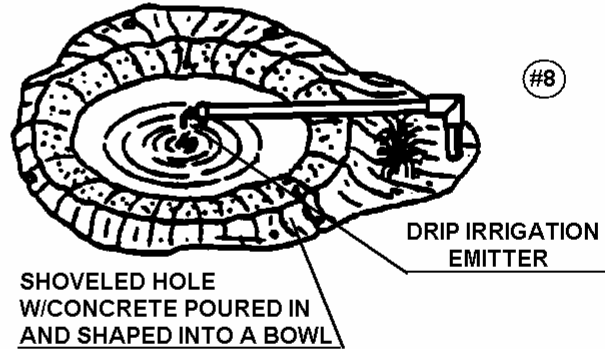
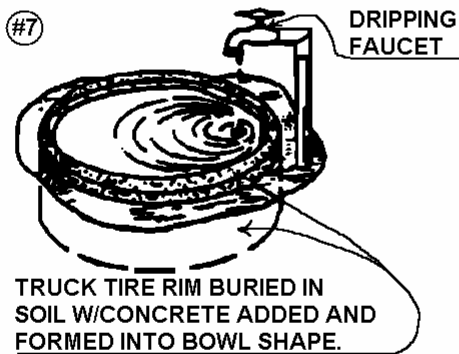
DRAWINGS BY TODD A. MAREK  
SEPT. 1991

# WILDLIFE WATERING FACILITIES

## 3 METHODS OF ANCHORING ON-THE-GROUND CATCHMENTS

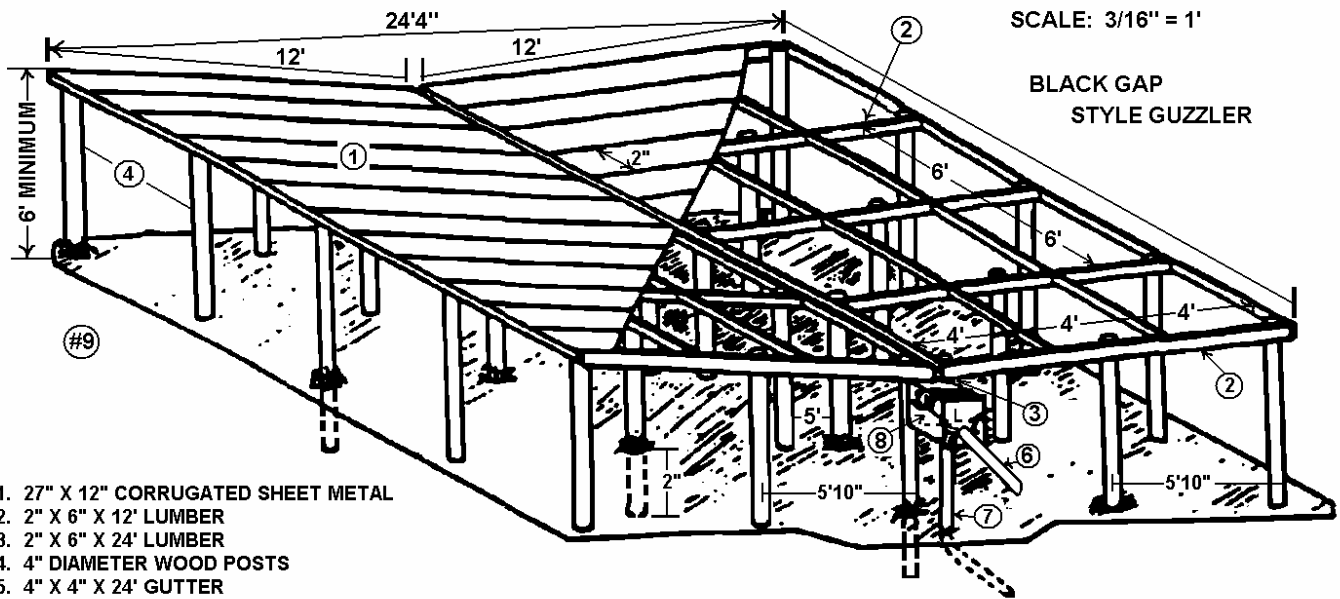


### IN-GROUND BOWL TROUGHS



DRAWINGS BY TODD A. MAREK SEPT 1991

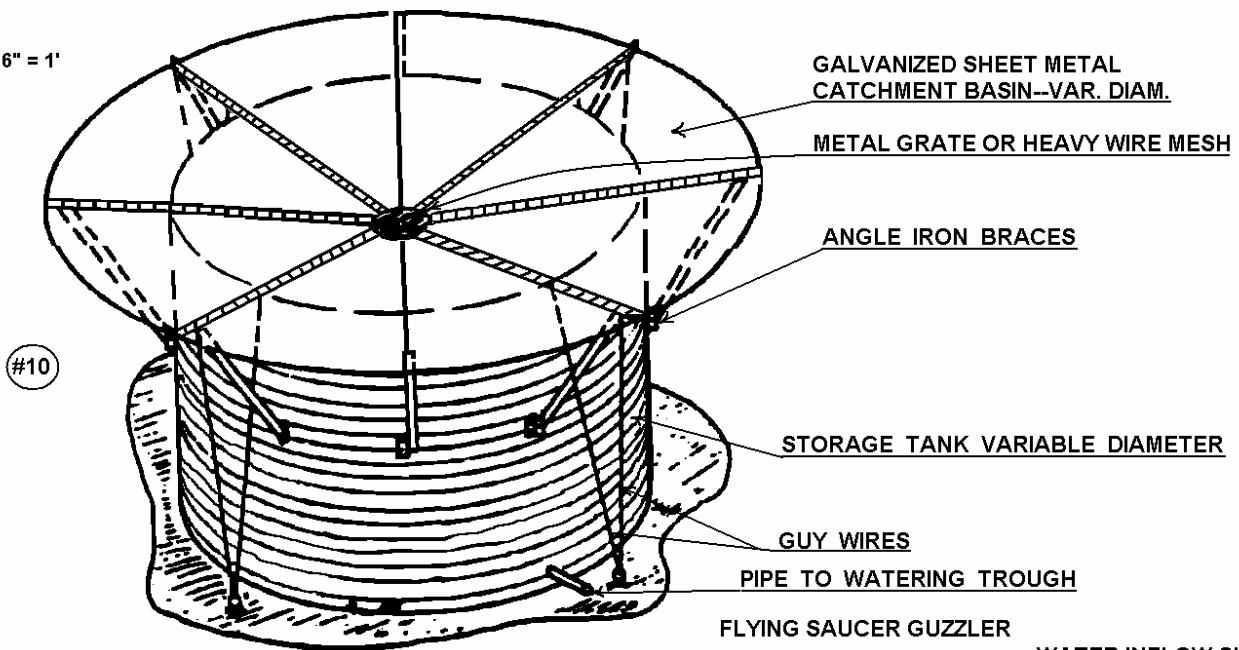
# WILDLIFE WATERING FACILITIES



1. 27" X 12" CORRUGATED SHEET METAL
2. 2" X 6" X 12' LUMBER
3. 2" X 6" X 24' LUMBER
4. 4" DIAMETER WOOD POSTS
5. 4" X 4" X 24' GUTTER
6. 3" MINIMUM DOWNSPOUT
7. ALTERNATE DIRECTION FOR DOWNSPOUT
8. 1'6" X 1'6" X 1' SUMP COVERED WITH 1/4" - 1/2" HARDWARE CLOTH

INVERTED UMBRELLA GUZZLER

SCALE: 3/16" = 1'



GALVANIZED SHEET METAL CATCHMENT BASIN--VAR. DIAM.

METAL GRATE OR HEAVY WIRE MESH

ANGLE IRON BRACES

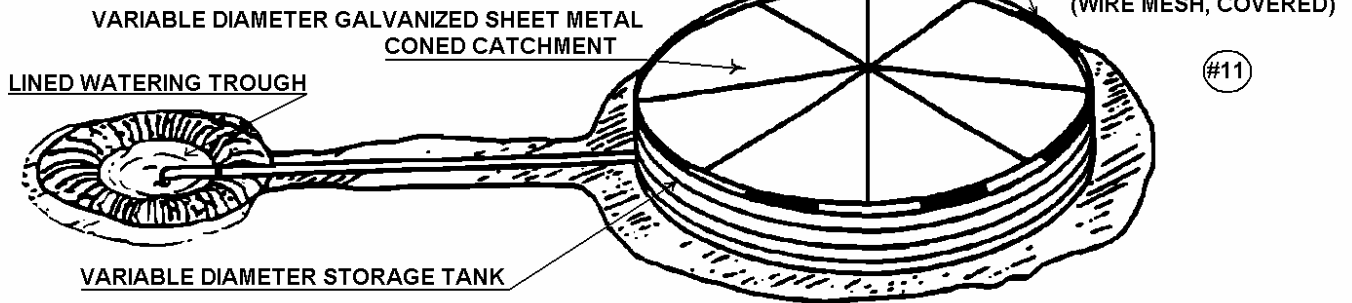
STORAGE TANK VARIABLE DIAMETER

GUY WIRES

PIPE TO WATERING TROUGH

FLYING SAUCER GUZZLER

SCALE: 3/16" = 1'



VARIABLE DIAMETER GALVANIZED SHEET METAL CONED CATCHMENT

LINED WATERING TROUGH

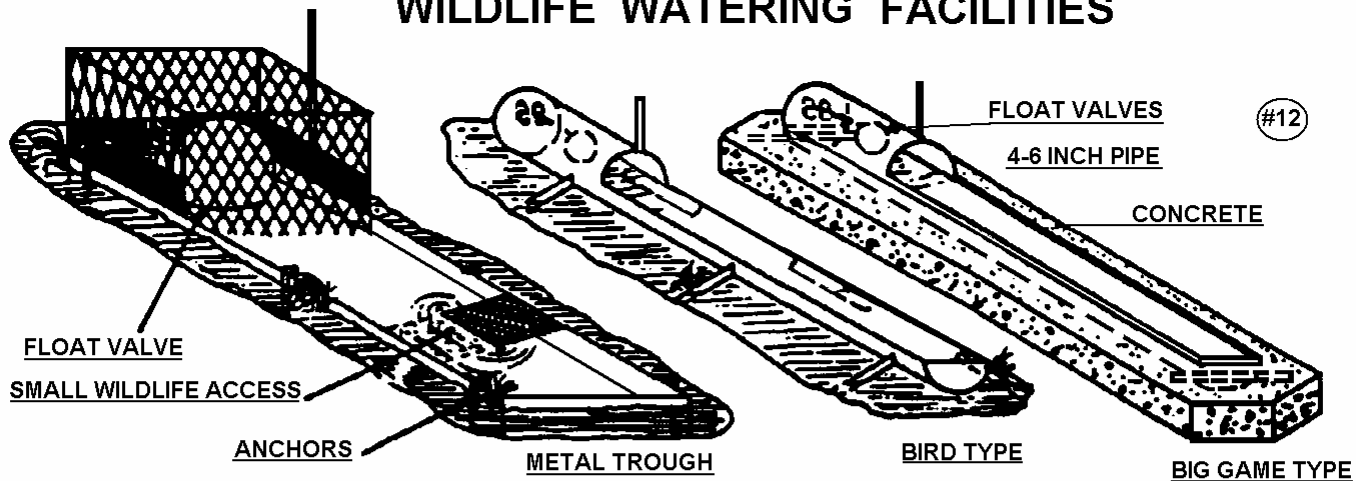
WATER INFLOW SLOTS (WIRE MESH, COVERED)

VARIABLE DIAMETER STORAGE TANK

DRAWINGS BY TODD MAREK SEPT. 1991



# WILDLIFE WATERING FACILITIES



SCALE: 1 1/2" = 1'

SCALE: 1" = 1'

#13

PLASTIC CONTAINER

FLOAT VALVE

3 FT. DIAMETER BOWL APPROX. 8 IN. DEEP

SCALE 3/4" = 1'

#14

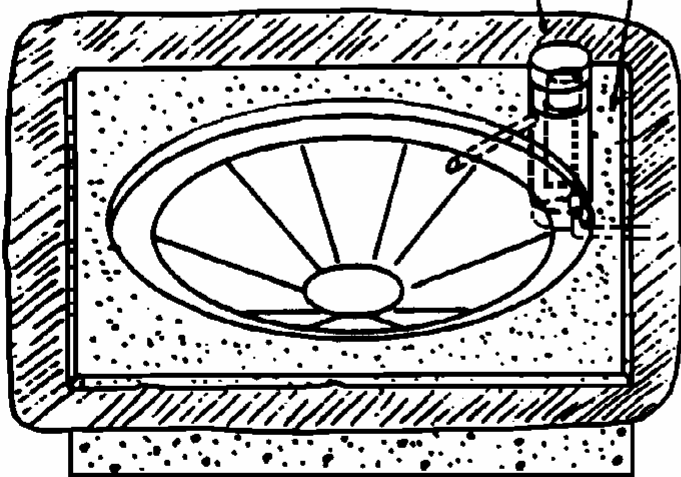
SCALE: 1" - 1'

SHALLOW WADING AREA

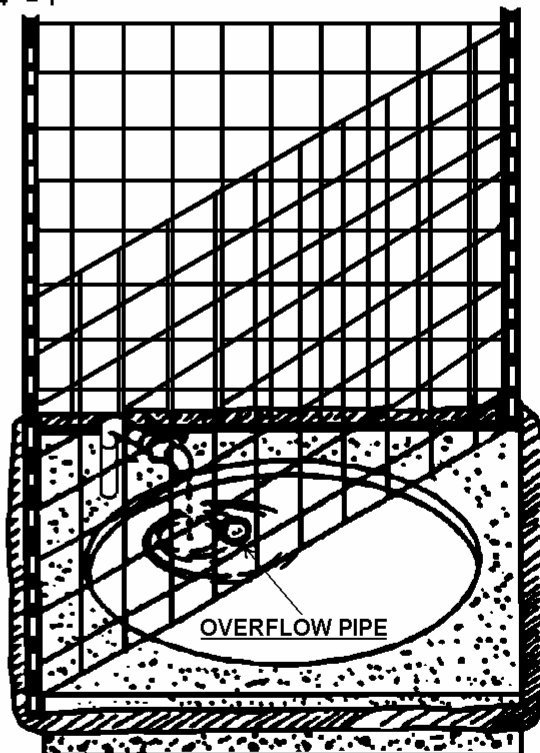
#15

TOILET TYPE FLOAT VALVE

CONCRETE



RANCH SPECIALTIES



3 FT. DIAM. BOWL APPROX 8 IN. DEEP

#16

DRAWINGS BY TODD A. MAREK