




Santa Fe County

WATER HARVESTING GUIDELINES



These guidelines are designed to be used in conjunction with the Land Development Code and provide basic standards and ideas for water harvesting techniques for all development within the County. These guidelines are strictly for reuse outdoors.

WHAT IS WATER HARVESTING?

- Water Harvesting is the collection of rainwater from hard surfaces such as roofs, patios, and parking lots that can then be reused.
- Water Harvesting relates to natural precipitation not gray water use.

BENEFITS OF WATER HARVESTING FOR OUTDOOR USE

- Provides an additional source of water for landscape irrigation and could also be used in other applications such as fire protection, indoor plant irrigation, vegetable garden watering and in some cases dust suppression during construction.
- Reduces water demands on water systems, which would otherwise need to provide potable water for these purposes.
- Provides a supply of water that is accessible during most drought restrictions.
- May be used to reduce or replace ponding requirements for stormwater detention/retention.

REQUIREMENTS

COMMERCIAL USE

All commercial development is required to collect all roof drainage into cisterns to be reused for landscape irrigation. The following design standards apply to all commercial development:

- A roof drainage plan shall be submitted.
- Cisterns shall be buried, partially buried or fully enclosed within an insulated building/structure. Partially buried cisterns shall be buried a minimum of 30" and shall be located on the south or southwest side of the structure.
- Any partially buried cistern shall be screened with a solid fence, a wall or landscaping.
- Cisterns shall be sized to hold 1.5 gallons per sq. ft. of roofed area (e.g. a 2,000 sq. ft. roofed area requires a 3,000 gallon cistern). This figure may be adjusted based on landscaping, cisterns shall be sized to provide a months worth of landscape watering.
- A pump and drip irrigation system shall be connected to the cistern. The drip irrigation system shall serve all landscaped areas.
- A maintenance plan shall be provided identifying cleaning schedule.
- All systems shall be installed by a licensed contractor.
- All systems shall be inspected prior to backfill of trenches.
- All systems shall include a level indicator.
- Provide manufacturer specifications for piping and cisterns.
- All systems shall include an overflow outlet.



REQUIREMENTS

RESIDENTIAL

All residential development shall be required to collect roof drainage from a minimum of 85% of roof area to be reused for landscape irrigation on each lot.

RESIDENTIAL DEVELOPMENT OF 2,500 SQ. FT. OF HEATED AREA OR GREATER

The following standards apply to all residential development of 2,500 sq. ft. of heated area or greater:

- A roof drainage plan.
- Cisterns shall be buried, partially buried or fully enclosed within an insulated building/structure. Partially buried cisterns shall be buried a minimum of 30" and shall be located on the south or southwest side of the structure.
- Any partially buried cistern shall be screened with a solid fence, a wall or landscaping.
- Cisterns shall be sized to hold 1 • 15 gallons per sq. ft. of heated area to be captured (e.g. a 2,000 sq. ft. home is required to capture a minimum of 85% of drainage which is 1,700 sq. ft. The cistern shall be sized at $1 \cdot 15 \times 1,700 = 1,955$ gallons). This figure maybe adjusted based on landscaping.
- A pump and drip irrigation system shall be connected to the cistern. The drip system shall serve all landscaped areas.
- All systems shall be installed by a licensed contractor or other qualified individual as approved by the Land Use Administrator.
- All systems shall be inspected prior to backfill of trenches.
- All systems shall include a level indicator.
- All systems shall include an overflow outlet.



REQUIREMENTS

IN ADDITION, THE FOLLOWING APPLIES TO ALL OF THE ABOVE RAINWATER CATCHMENT SYSTEMS:

- All cistern covers or lids shall be locking.
- Any spigots/outlets connected to these systems shall be marked 'non-potable water.'
- All buried systems shall meet berming and backfill compaction standards attached.
- All piping shall be underground to prevent freezing and shall be at a minimum depth of 24 inches.
- All systems shall be designed to drain away from footings/foundations.
- All systems shall install a screen/sediment trap/filter to prevent particles entering the system.
- Clear or white partially buried cisterns shall not be permitted unless painted or enclosed to prevent algae from growing or deterioration of the cistern.
- If commercial development proposes to capture rainwater from parking areas, a catchment and filtering plan shall be submitted with the preliminary development plan for staff review.
- All proposed systems shall be in compliance with Santa Fe County, National Pollutant Discharge Elimination System (NPDES) Program Phase II requirements.
- If cisterns are to be utilized to reduce ponding for stormwater retention/detention, the system shall be sized by a professional engineer.
- Excess storm drainage generated from other impervious surfaces, shall be drained into surface retention/detention ponds as per terrain management requirements.



REQUIREMENTS

RESIDENTIAL DEVELOPMENT LESS THAN 2,500 SQ. FT. OF HEATED AREA

The following standards apply to all Residential Development of less than 2,500 sq. ft. of heated area:

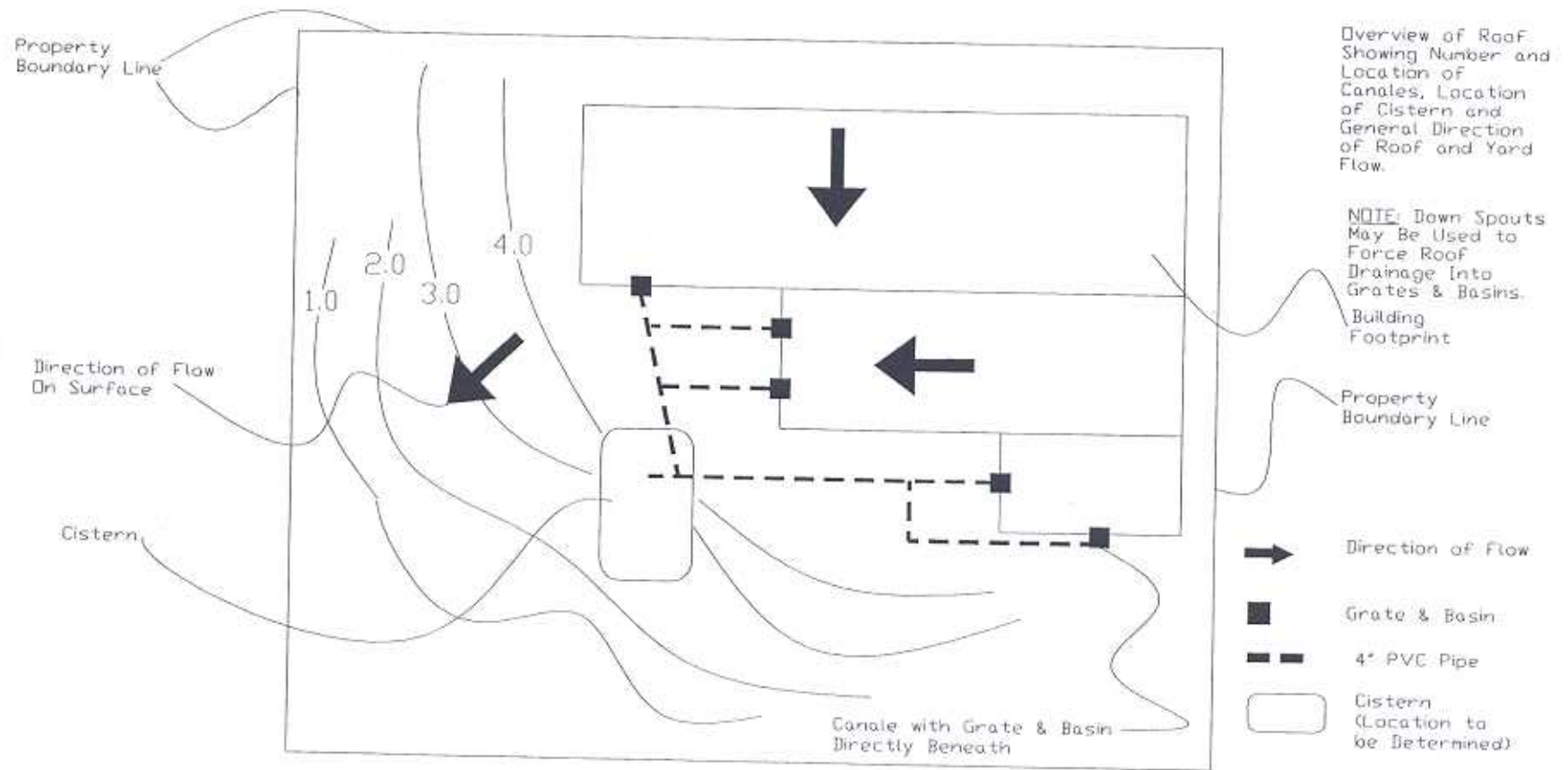
- A rainwater catchment plan shall be submitted with a development permit application.
- Rainbarrels, cisterns or other catchment basins shall capture water from a minimum of 85% of the roofed area.
- If cisterns are used it is advisable to enclose or bury them to prevent algae from growing, deterioration of the cistern by UV rays or freezing of the system. Partially buried cisterns should be buried a minimum of 30" to prevent freezing. Clear or white cisterns shall be painted or enclosed to prevent algae from growing or deterioration of the cistern.
- If rain barrels are used it is suggested that a barrel with a hose bib attachment is utilized.
- Other catchment basins can include directing drainage to landscaped areas by swales, tree wells, raised planters or other permaculture techniques. It is suggested that pumice wicks be utilized in the landscape areas. Pumice is porous and will soak up water which is then available to plant roots over a period of time.
- A rainbarrel may be elevated to allow for gravity feed to landscaping. Small submersible pumps are also available.
- All rainbarrels/cisterns shall be covered by a screen or lath for support and by a fine gauge mesh to prevent mosquito breeding or other unwanted elements.
- Several rainbarrels may be connected together to provide additional storage capacity. Connection kits are available.
- Check homeowners covenants to ensure your barrels/cisterns comply with architectural guidelines.



Rain Harvesting Roof & Site Plan

N.T.S.

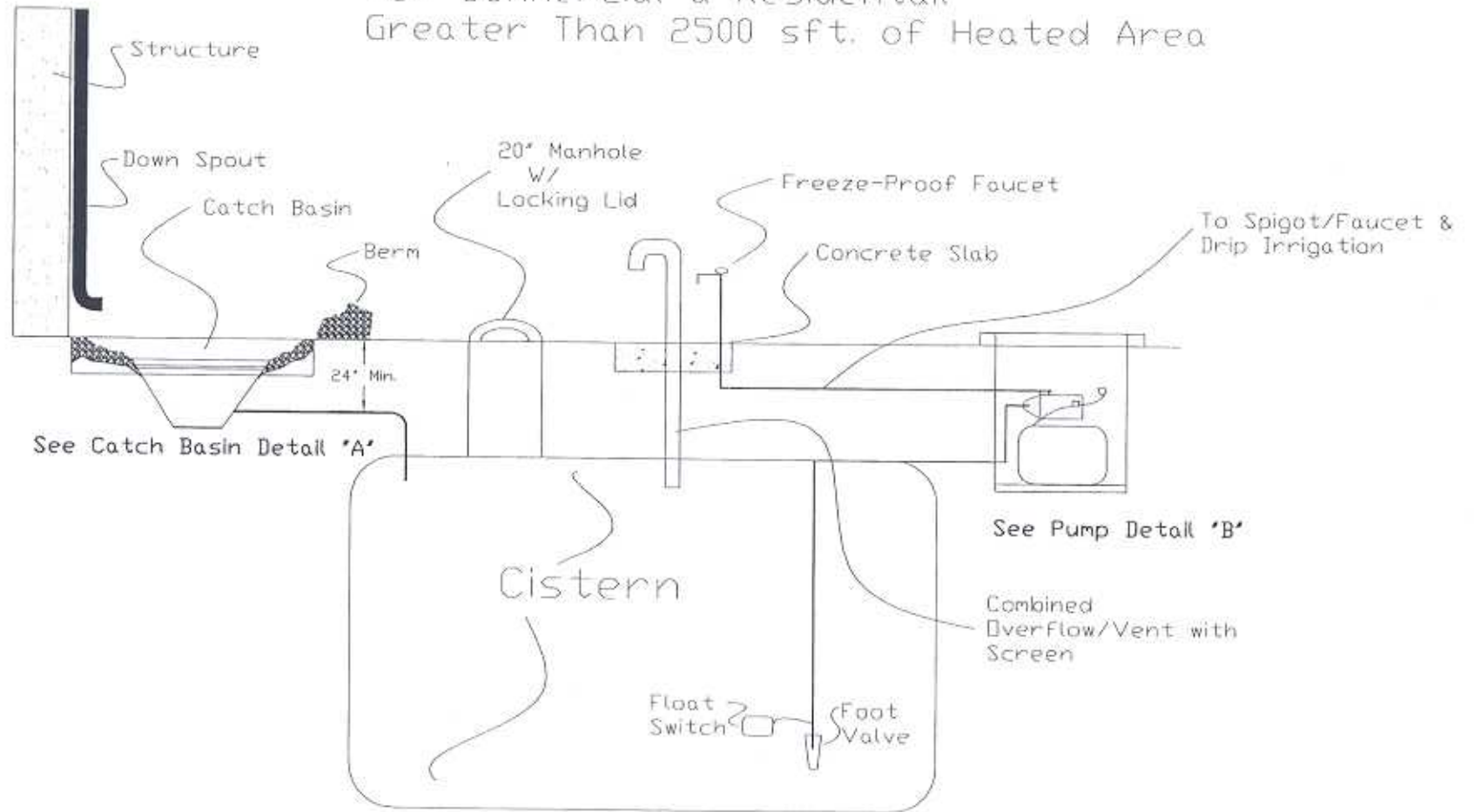
For Commercial & Residential Greater Than 2500 sft. of Heated Area



Rain-Harvesting System Schematic

N.T.S.

For Commercial & Residential
Greater Than 2500 sft. of Heated Area

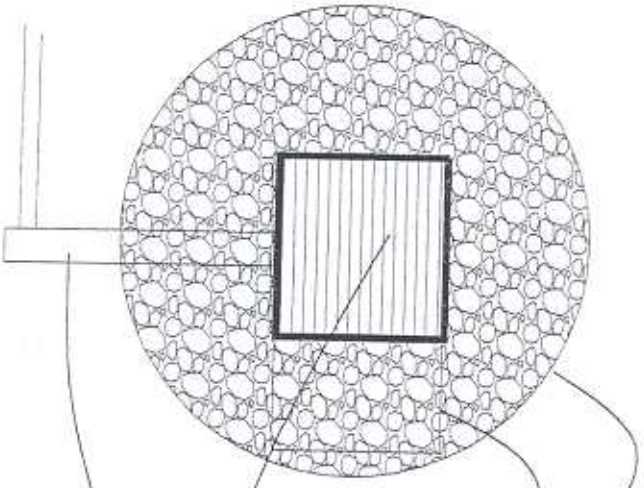


Detail "A"

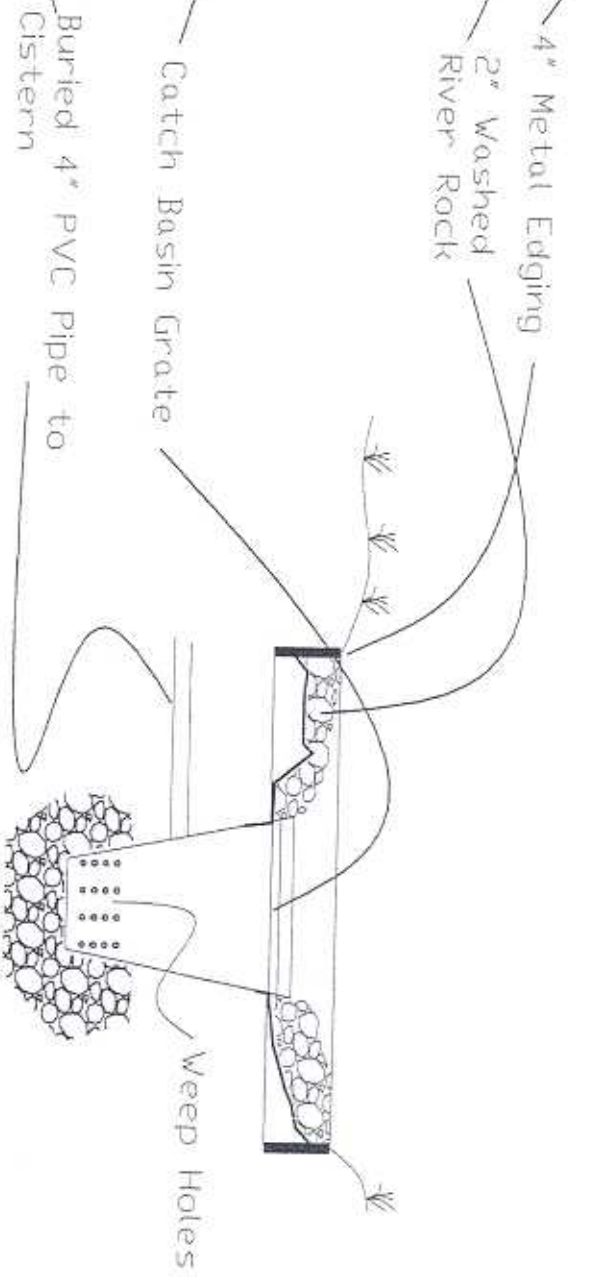
Catch-Basin Detail

N.T.S.

Top View



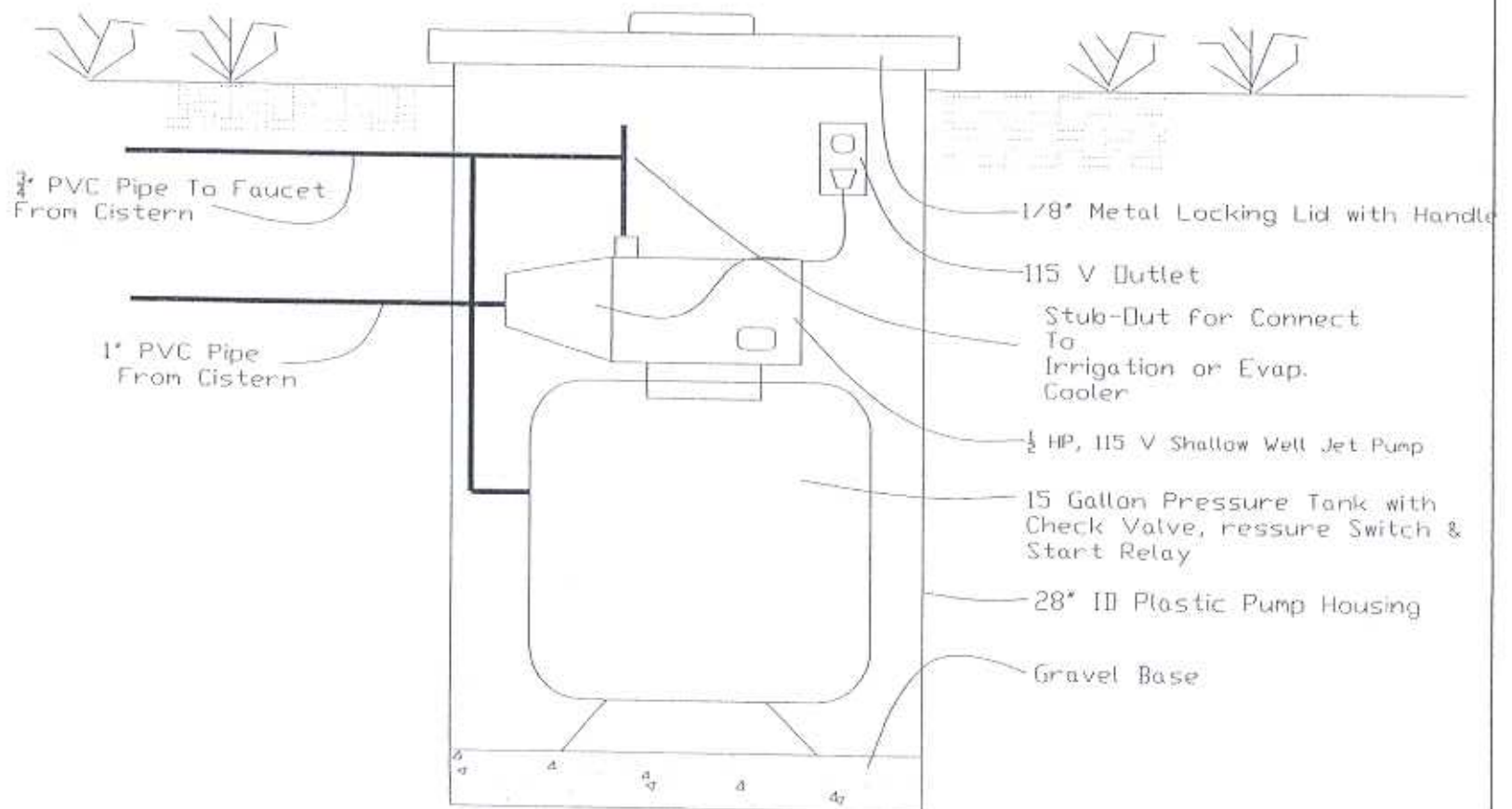
Side View



Detail "B"

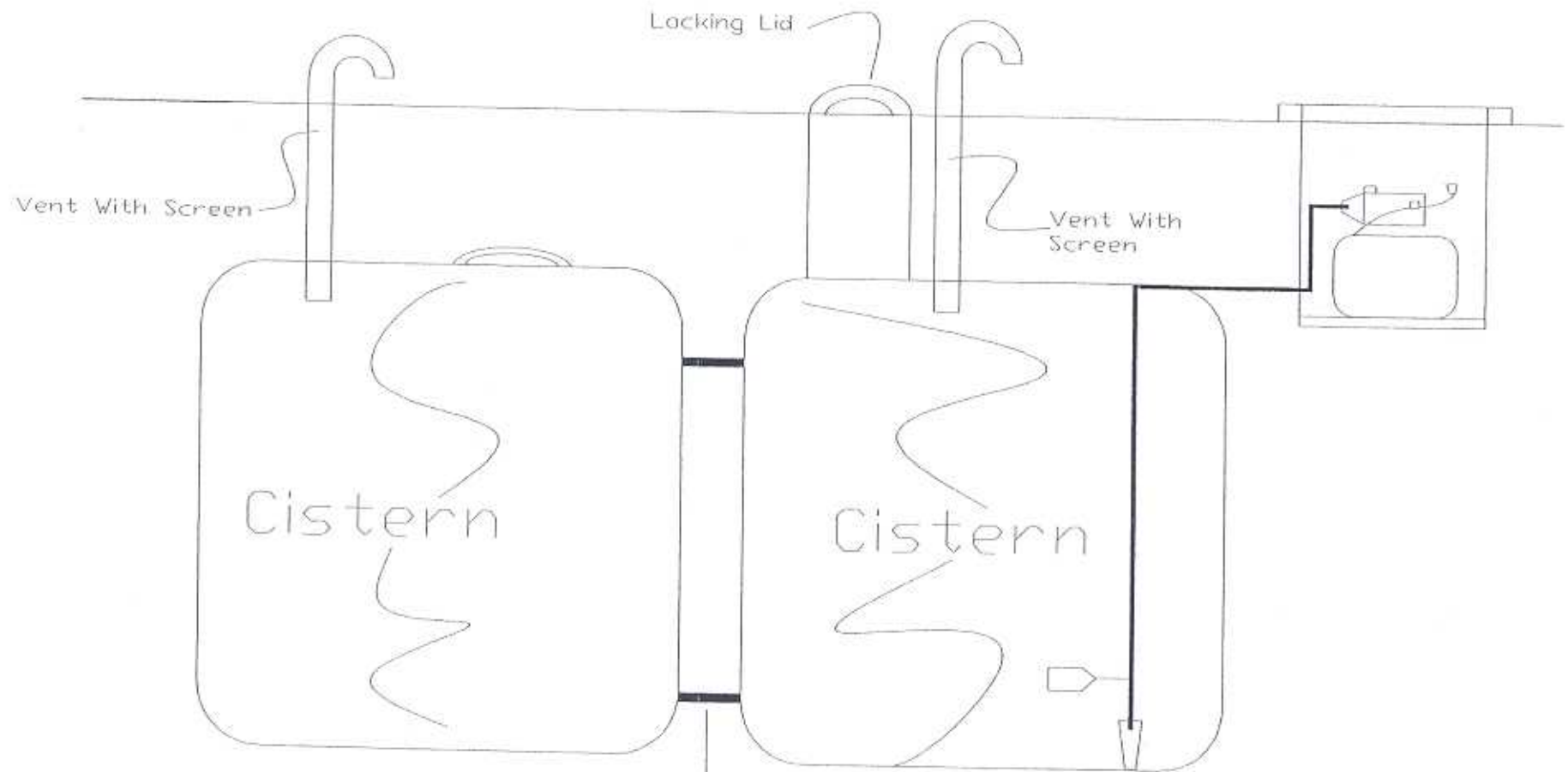
Pump Detail

N.T.S.



Inter-Connection of Two Cisterns To Form Large Cistern

N.T.S.



4" Connection @ Base & Top of Cisterns
NOTE: Cisterns must have same top elevations

Corrugated Cistern Detail

N.T.S.

Screened Overflow

4' PVC Pipe
From Basin With
Overflow Tee

$\frac{1}{8}$ " Thick, 30" Diameter Metal
Locking Lid With Handle

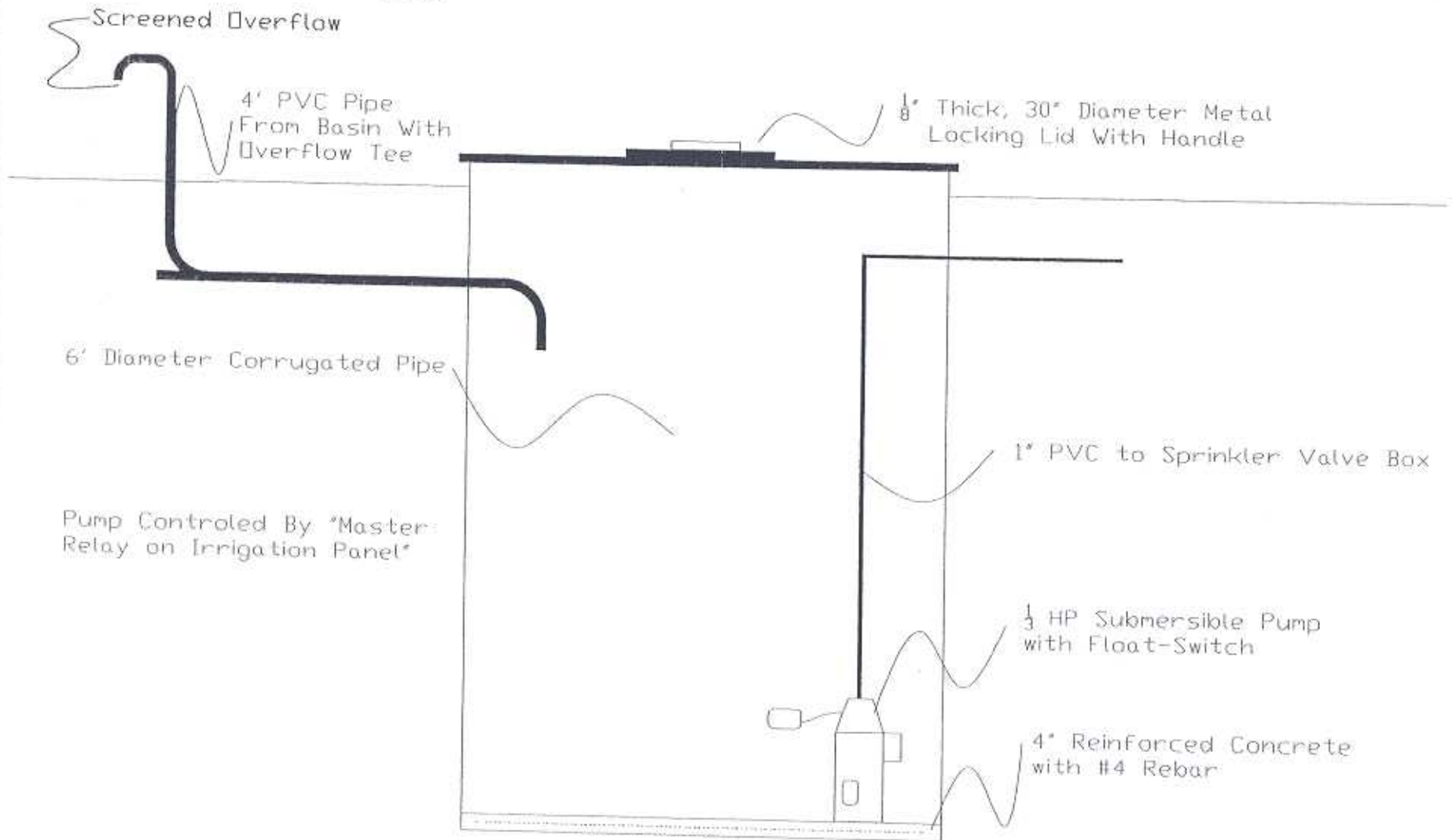
6' Diameter Corrugated Pipe

1" PVC to Sprinkler Valve Box

Pump Controlled By "Master
Relay on Irrigation Panel"

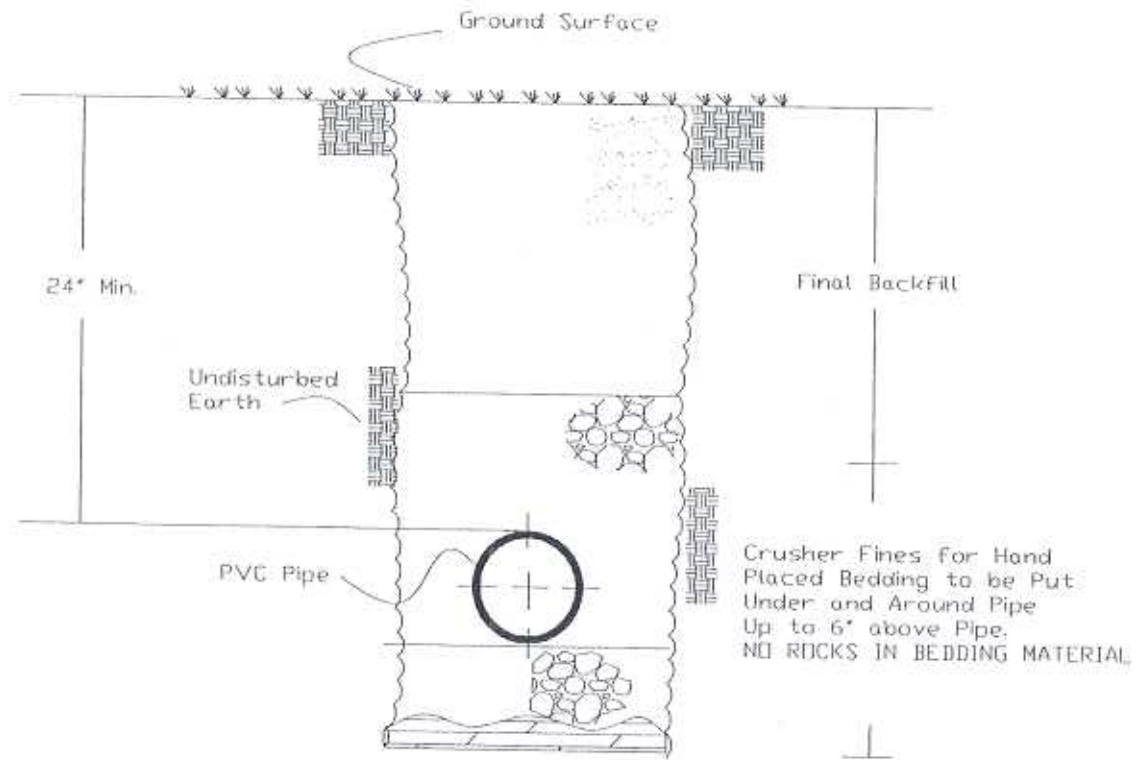
$\frac{1}{3}$ HP Submersible Pump
with Float-Switch

4" Reinforced Concrete
with #4 Rebar



Trench/Backfill Installation Detail

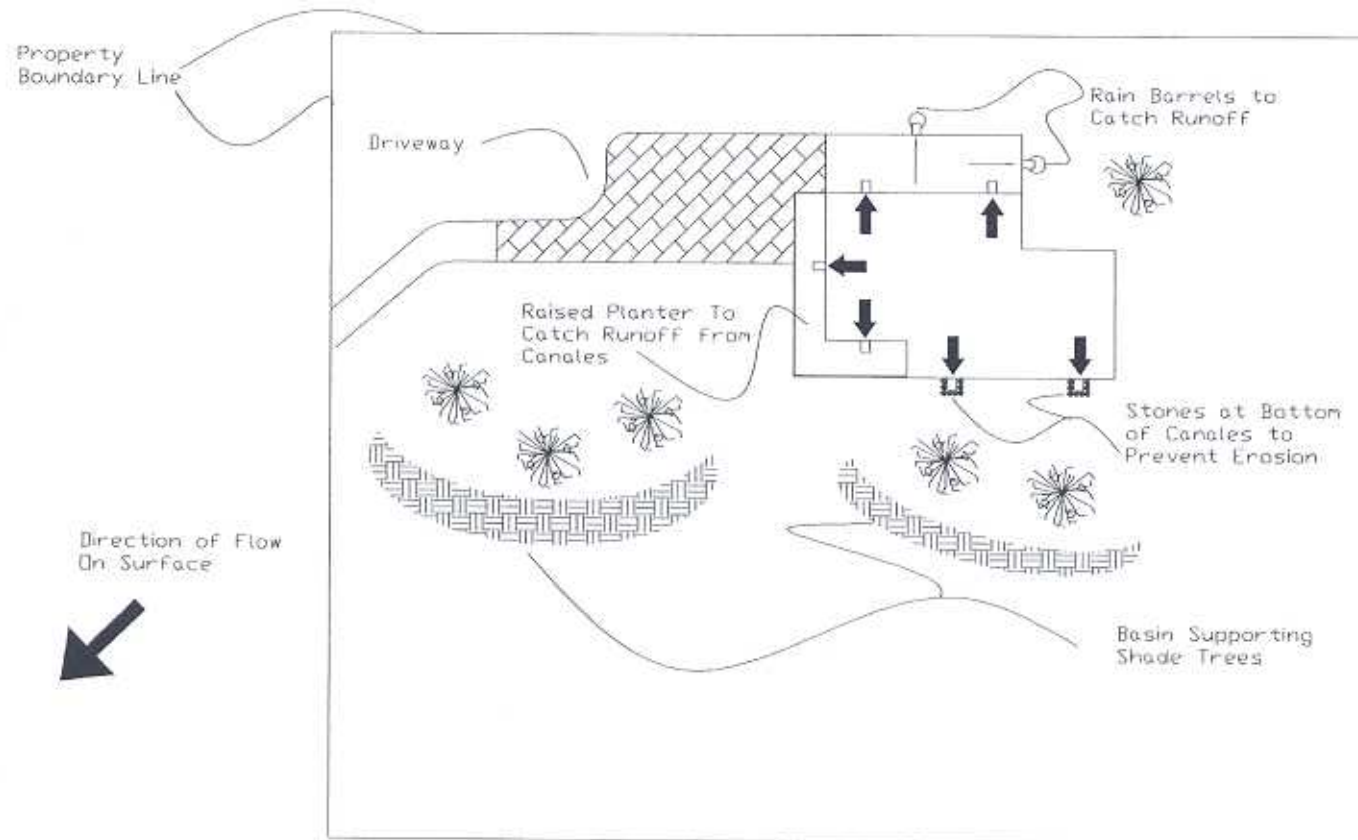
N.T.S.



Rain Harvesting Roof & Site Plan

N.T.S.

For Residential Less Than 2500 sft. of Heated Area



Rain Barrell Detail

N.T.S.

