GRAYWATER STANDARD PLAN

For Simple Residential System

(Based on 2023 City of Los Angeles Plumbing Code Chapter 15)

Project Address: _____ **Permit Number:** _____

Scope:

This Plan applies only to simple residential systems meeting the following criteria:

- Simple system: Graywater discharge is 250 gallons or less per day
- Gravity systems: System that do not include pumps to distribute graywater
- Stand alone: your system is not connected to any source of potable water or other irrigation systems
- No storage: graywater is discharged into the irrigation field immediately without being stored

Design Professional information:

Name:	Phone Number: ( ) -	
Address: _____ City: _____ State: _____ Zip _____		
☐ Homeowner	☐ Contractor License #_____ License type: _____	☐ Engineer/ Architect License # _____ License Type: _____

Checklist

Check if Complete	Item	Comments
	Provide a site plan	
	Show the location of the graywater system on the site plan	
	Show the setback distances of graywater irrigation system per 1502.4 (Page 7)	
	Provide a piping riser diagram	
	Provide manufacturer's literature for valves and pipes used	
	Graywater is not connected to any potable water	
	3-way diverter valve is clearly labeled to indicate direction of flow	
	Backwater valve is installed on sewer side of 3-way valve in the horizontal position	
	Drainage piping is sized per Plumbing code Table 703.2 on page 9	
	Irrigation field sizes are shown on site plan and meet minimum requirements	
	Graywater discharge is minimum of 2" below surface or have 2" minimum mulch cover	
	Graywater is not irrigating edible portion of plants (I.E. No root crops)	
	Groundwater depth is below 3ft. and was checked with a test hole	
	Piping material is indicated on the site plan and on the riser diagram	

GRAYWATER STANDARD PLAN
For Simple Residential System

1. **Daily Graywater Flow Calculation**

   a. **Number of bedrooms:** _____

   b. **Number of occupants** (1 + number of bedrooms): _____

   c. **Type of fixtures connected to graywater system** (check all that apply)

   ☐ Lavatory (bathroom sink) ☐ Shower /bath ☐ Washing machine/wash basin

   d. **Daily Graywater flow:** _____ gallons per day. (Shall not exceed 250 gallons)

   Estimate Graywater flow per occupant:

   Any combination of lavatory, shower or bath: 25 gallons per day per occupant

   Laundry (Washing machine or wash basin): 15 gallons/ day per occupant

   Daily graywater flow example: (4 occupants x 25 gals/day) + (4occupants x 15 gals/day) = 160 Gallons per day.

2. **Soil Type** (from Table 1502.4 on page 9): _____
(Note: Written verification of the soil type, from a Professional Engineer, is required for designs involving the following soil types: sandy loam, fine sand, course sand or gravel)

3. **Maximum Absorption capacity of soil** (from column 2 of Table 1502.4 on page 9) _____ gallons/ft^2

4. **Size of irrigation field**

   a. **Minimum required irrigation field size:** _____square feet

   Minimum irrigation field size: Divide total gallons per day (rom step 1d) by the maximum absorption capacity of the soil (step 3).
   Example: 160 gallon/day of graywater in fine sand soil would need 160/4.0 = 40 square feet of irrigation area

   b. **Actual irrigation field size provided**: _____ square feet

Notes:

1. Pipe shall be labeled “NON-POTABLE WATER, DO NOT DRINK” per Department of Public Health (DPH) guidelines.
2. All valves shall be readily accessible.
3. Installation doesn’t violate other codes or damage the building. Any penetration in the building envelope shall be properly sealed.
4. Only pipes approved for waste shall be used in the plumbing drainage system.
5. Upgrades made to plumbing shall comply with the Plumbing Code.

Project Address: _____

PLOT OR SITE PLAN

Indicate where on the property the graywater will be used (see sample site plan on page 7). Indicate setbacks to property lines, house and other structures. Show street frontage.

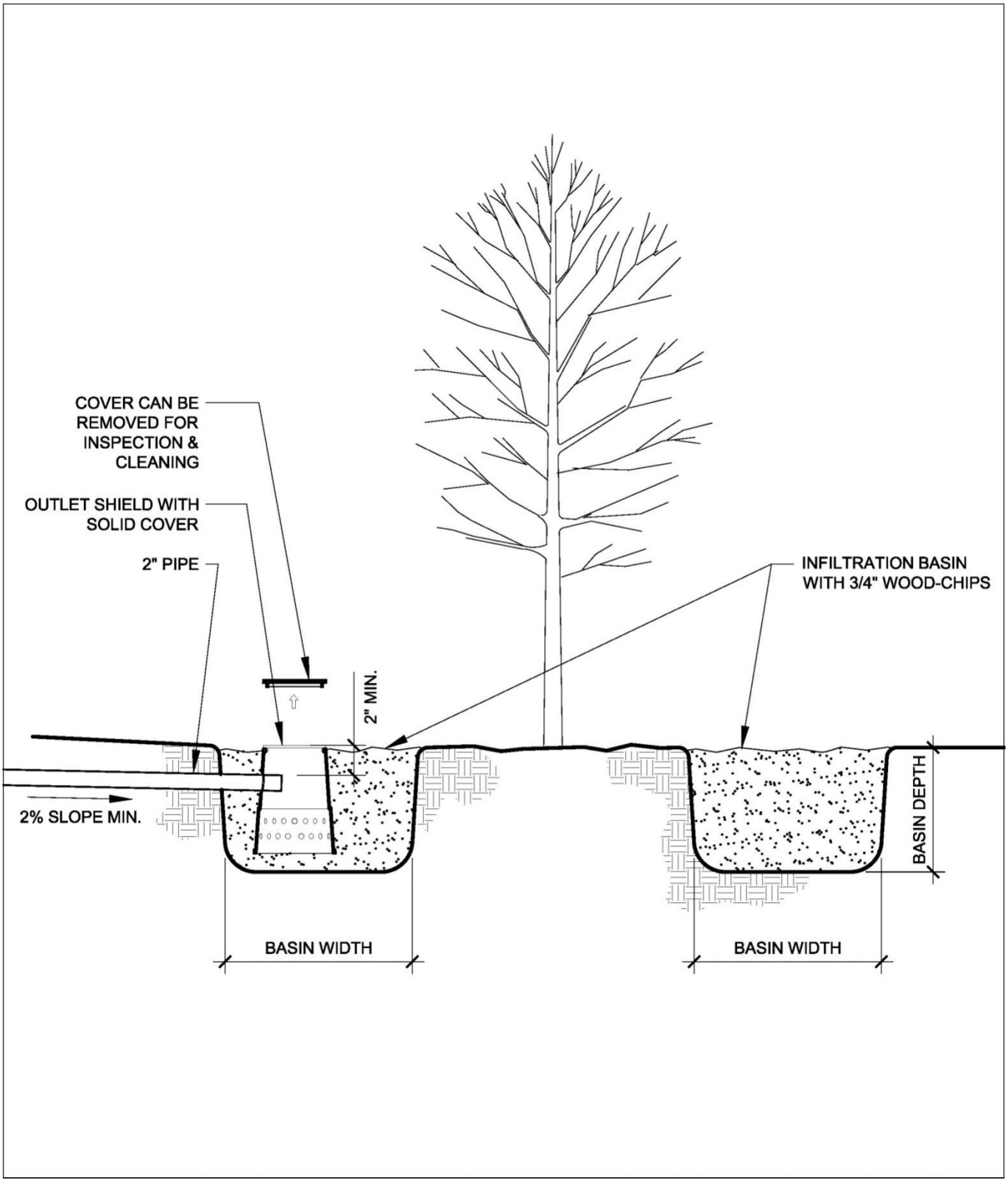
Project Address: _____

PIPING RISER DIAGRAM FOR GRAYWATER SYSTEM

Show fixtures draining to the graywater system including waste & vent piping and valves. See sample drawing on page 8

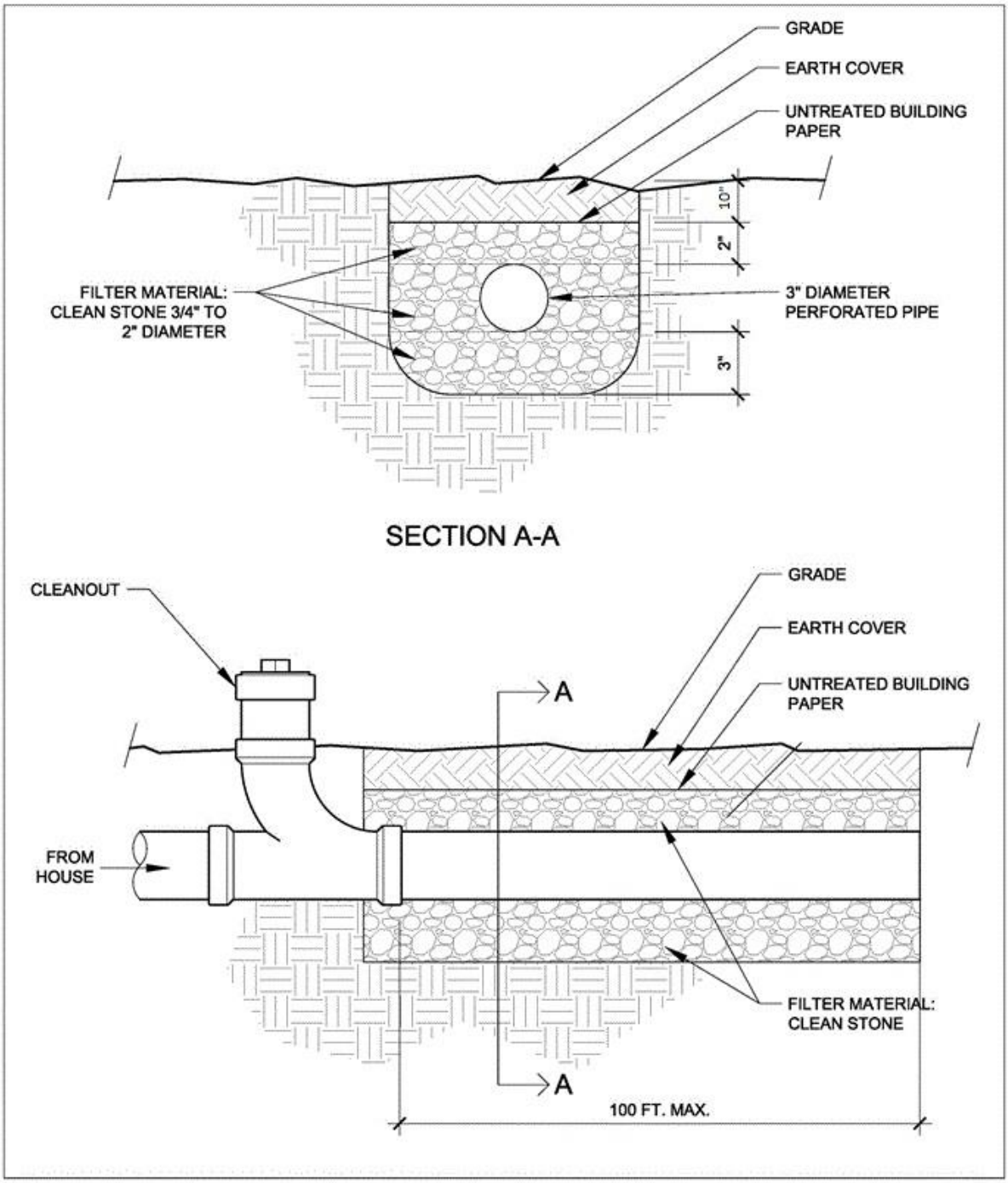
Project Address: _____

Detail 1: Typical detail for irrigation field



Project Address: _____

Detail 2: Typical detail for disposal field piping



Project Address: _____

GRAYWATER STANDARD PLAN
For Simple Residential Systems

Sample Plot Plan

This drawing is for reference only

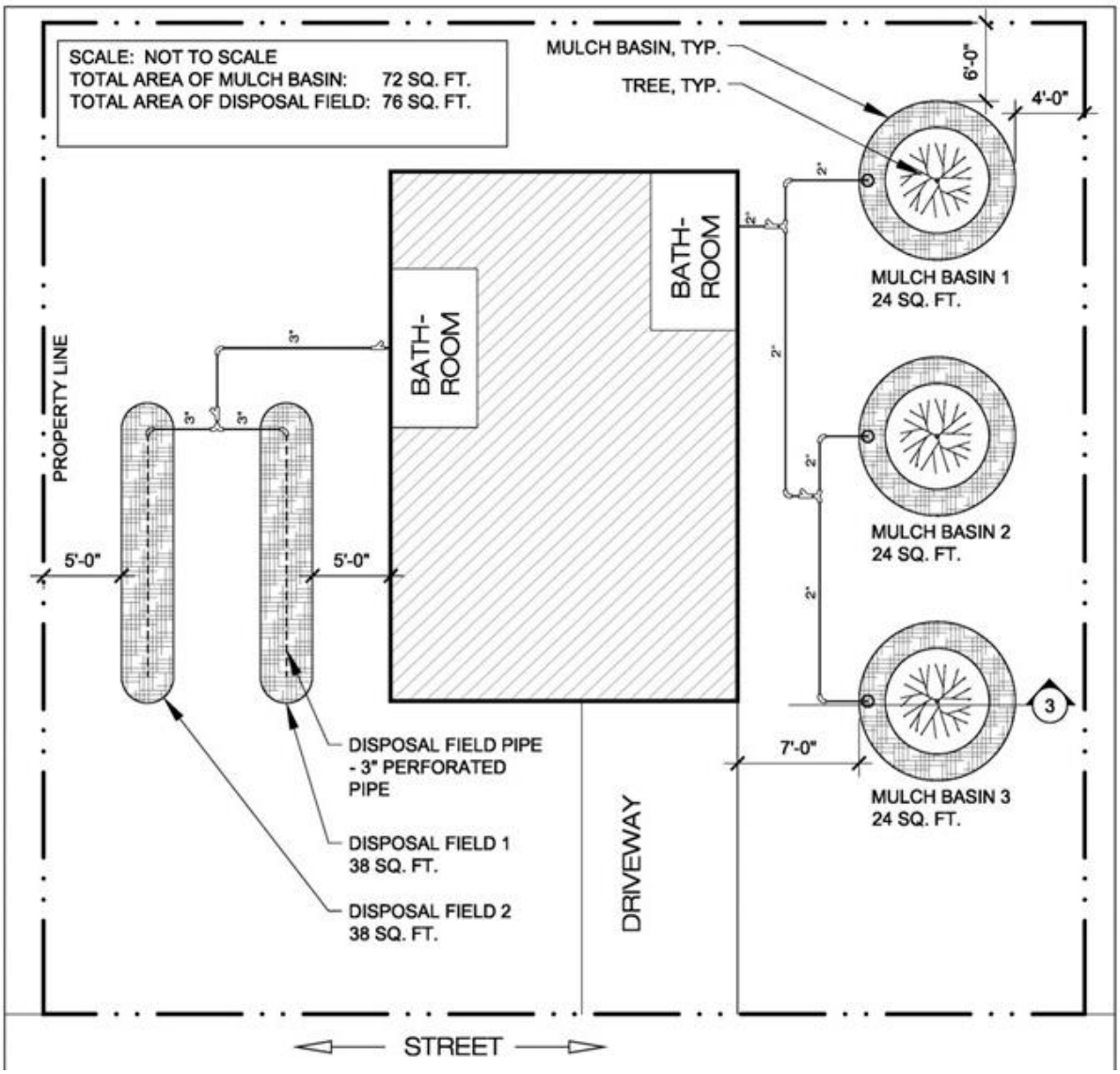


TABLE 1503.4
LOCATION OF GRAY WATER SYSTEM

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SURGE TANK (feet)	SUBSURFACE AND SUBSOIL IRRIGATION FIELD AND MULCH *BASIN* (feet)	*DISPOSAL FIELD*
Building structures[1]	5[2, 3, 9]	2[3, 8]	*5*
Property line adjoining private property	5	5[8]	*5*
Water supply wells[4]	50	100	*100*
Streams and lakes[4]	50	*100*[5, 10]	*100*[5]
Sewage pits or cesspools	5	5	*5*
Sewage disposal field[10]	5	4[6]	*4*[6]
Septic tank	0	5	*5*
On-site domestic water service line	5	*0*	*0*
Pressurized public water main[7]	10	10	*10*[7]

For SI units: 1 foot = 304.8 mm

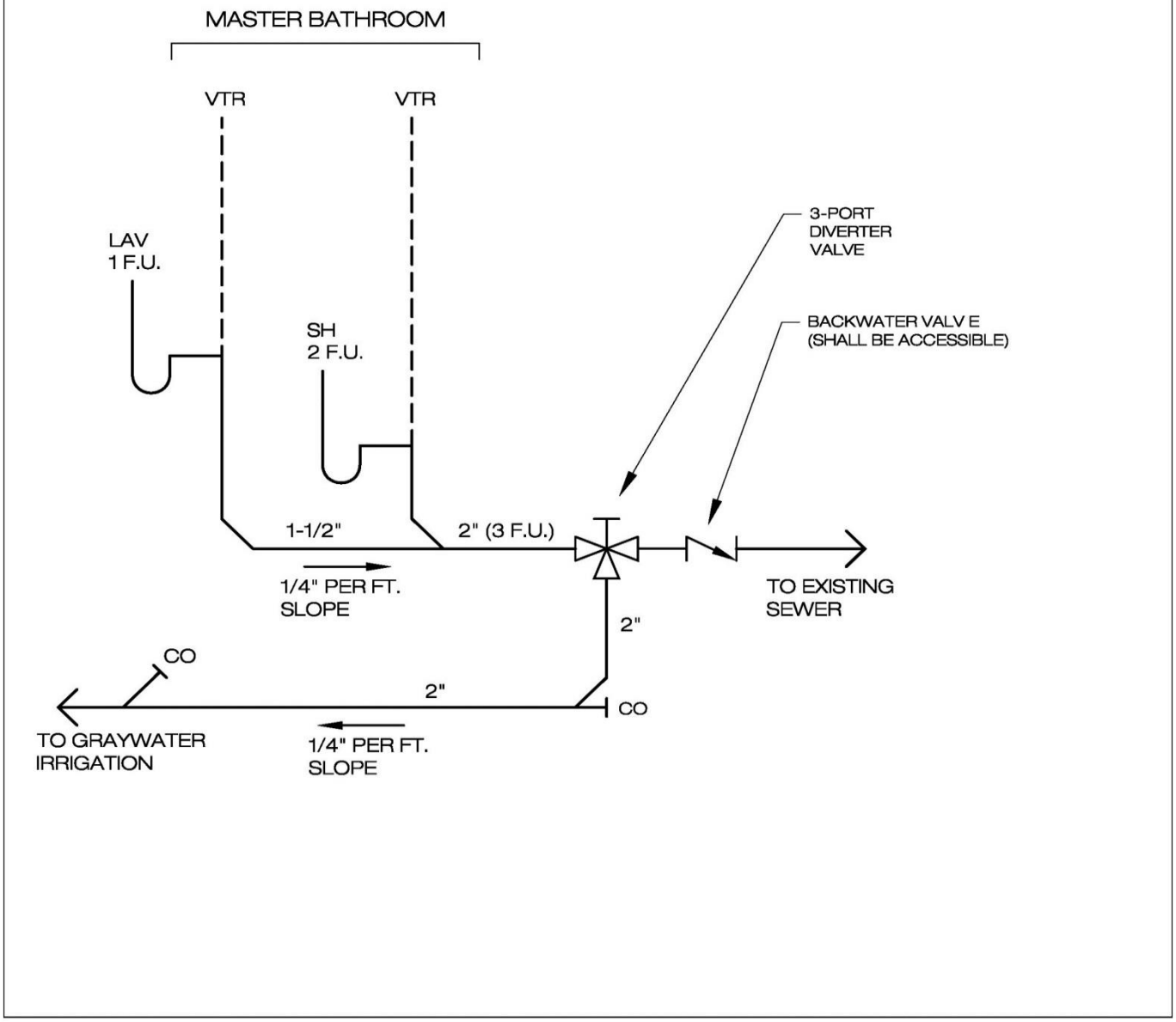
Project Address: _____

Sample piping rise diagram for graywater system

This drawing is for reference only

ABBREVIATIONS

BT	BATHTUB
CO	CLEANOUT
F.U.	FIXTURE UNITS
KS	KITCHEN SINK
LAV	LAVATORY (BATHROOM SINK)
SH	SHOWER
VTR	VENT THROUGH ROOF
WC	WATER CLOSET (TOILET)
WM	WASHING MACHINE



Project Address: _____

Table 1504.2 **(2023 Los Angeles Plumbing code)**

Soil Type (Column 1)	Maximum absorption capacity in gallons per square foot of irrigation area per day (Column 2)
Course sand or gravel	5.0
Fine sand	4.0
Sandy loam	2.5
Sandy clay	1.7
Clay with considerable sand or gravel	1.1
Clay with small amounts of sand or gravel	0.8

TABLE 703.2 (2023 Los Angeles Plumbing Code)
MAXIMUM UNIT LOADING AND MAXIMUM LENGTH OF DRAINAGE AND VENT PIPING

SIZE OF PIPE, inches (mm)	1 ¼ (32)	1 ½ (40)	2 (50)	3 (80)	4 (100)	5 (125)	6 (150)	8 (200)	10 (250)	12 (300)
Maximum Units										
Drainage piping										
Vertical	1	2[2]	16[3]	48[4]	256	600	1380	3600	5600	8400
Horizontal	1	1	8[3]	35[4]	216[5]	428[5]	720[5]	2640[5]	4680[5]	8200[5]
Maximum Length										
Drainage Piping										
Vertical, feet	45	65	85	212	300	390	510	750		
(m)	(14)	(20)	(26)	(65)	(91)	(119)	(155)	(228)		
Horizontal (unlimited)										
Vent Piping										
Horizontal and Vertical										
Maximum Units	1	8[3]	24	84	256	600	1380	3600		
Maximum Lengths, ft.	45	60	120	212	300	390	510	750		
(m)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)		

1 Excluding trap arm.
2 Except sinks, urinals, and dishwashers - exceeding one (1) fixture unit.
3 Except six-unit traps or water closets.
4 Only four (4) water closets or six-unit traps allowed on any vertical pipe or stack; and not to exceed three (3) water closets or six-unit traps on any horizontal branch or drain.
5 Based on one-fourth (1/4) inch per foot (20.8 mm/m) slope. For one-eighth (1/8) inch per foot (10.4 mm/m) slope, multiply horizontal fixture units by a factor of eight-tenths (0.8).

Note: The diameter of an individual vent shall be not less than one and one-fourth (1 1/4) inches (32 mm) nor less than one-half (1/2) the diameter of the drain to which it is connected. Fixture unit load values for drainage and vent piping shall be computed from Tables 702.1 and 702.2(b). Not to exceed one-third (\;3) of the total permitted length of any vent may be installed in a horizontal position. When vents are increased one (1) pipe size for their entire length, the maximum length limitations specified in this table do not apply. This table complies with the requirements of Section 901.2.

Project Address: _____

Project Address: _____