



EcoHouse
Clothes Washer Greywater System User's Manual
As of 9/19/10

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1. CA Code and Berkeley Permitting

On 7/8/10 Beck Cowles of the Ecology Center spoke to Roger Rushing, the City of Berkeley Senior Green Building Inspector, Phone: (510) 981-7457, email: rrrushing@cityofberkeley.info. Roger confirmed that a permit was not required for a laundry to landscape system that was a straight line out. If it involved a holding tank then a permit would be required. He indicated that the 12 points related to laundry systems of the CA Nonpotable Water Reuse Systems Code should be followed, as below.

CA Code: "Nonpotable Water Reuse Systems" of the California Plumbing Code, approved by the California Building Standards Commission (CBSC) on July 30, 2009.

1603A.1 System Requirements. [Clothes Washer Systems]

1603A.1.1 Clothes Washer System. A clothes washer system in compliance with all of the following is exempt from the construction permit specified in Section 108.4.1 and may be installed or altered without a construction permit:

1. If required, notification has been provided to the Enforcing Agency regarding the proposed location and installation of a graywater irrigation or disposal system.

Note: A city, county, or city and county or other local government may, after a public hearing and enactment of an ordinance or resolution, further restrict or prohibit the use of graywater systems. For additional information, see Health and Safety Code Section 18941.7.

2. The design shall allow the user to direct the flow to the irrigation or disposal field or the building sewer. The direction control of the graywater shall be clearly labeled and readily accessible to the user.

3. The installation, change, alteration or repair of the system does not include a potable water connection or a pump and does not affect other building, plumbing, electrical or mechanical components including structural features, egress, fire-life safety, sanitation, potable water supply piping or accessibility. Note: The pump in a clothes washer shall not be considered part of the graywater system.

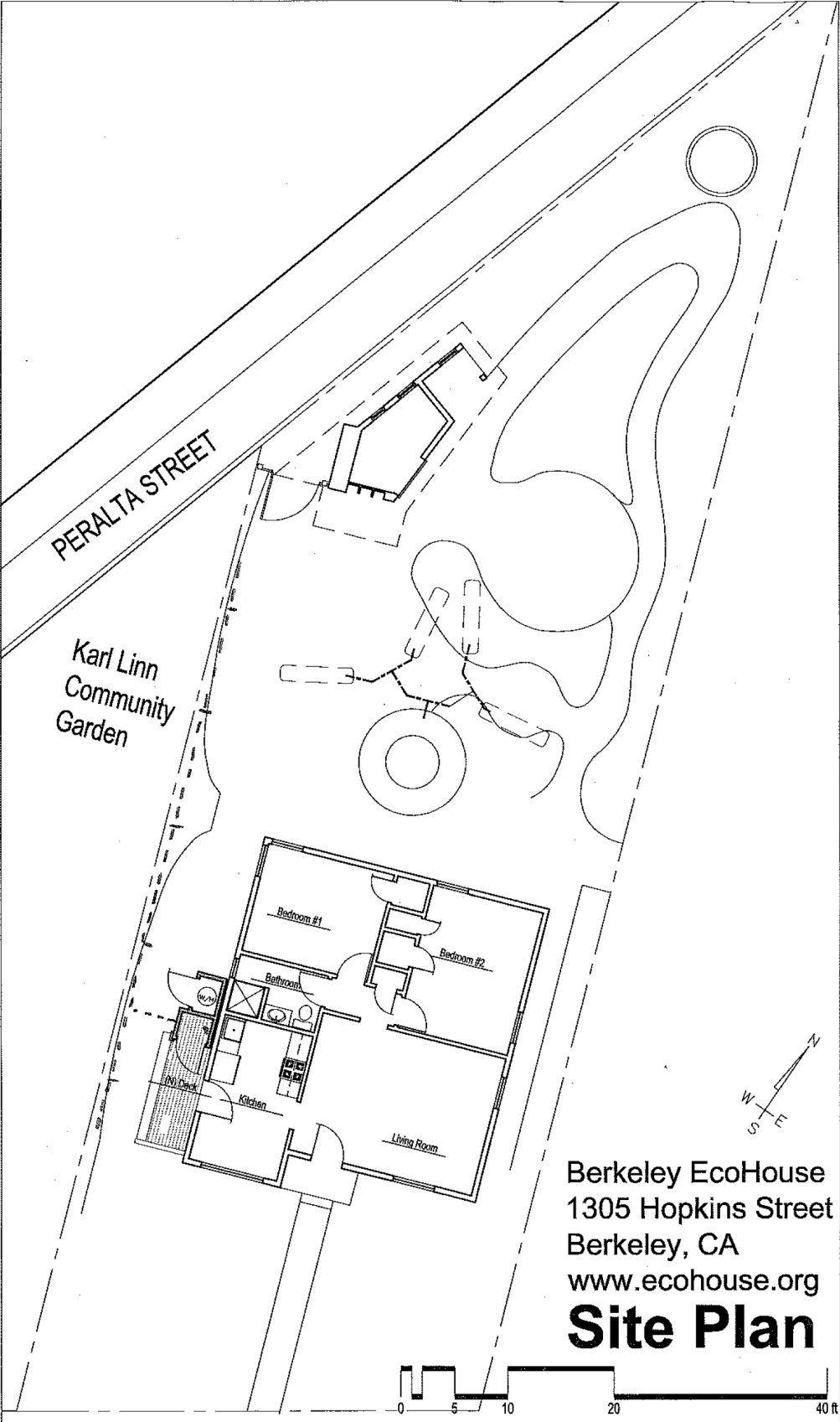
4. The graywater shall be contained on the site where it is generated.
5. Graywater shall be directed to and contained within an irrigation or disposal field.
6. Ponding or runoff is prohibited and shall be considered a nuisance.
7. Graywater may be released above the ground surface provided at least two (2) inches (51 mm) of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.
8. Graywater systems shall be designed to minimize contact with humans and domestic pets.
9. Water used to wash diapers or similarly soiled or infectious garments shall not be used and shall be diverted to the building sewer.
10. Graywater shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions from home photo labs or similar hobbyist or home occupational activities.
11. Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any graywater system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Enforcing Agency.
12. An operation and maintenance manual shall be provided. Directions shall indicate the manual is to remain with the building throughout the life of the system and indicate that upon change of ownership or occupancy, the new owner or tenant shall be notified the structure contains a graywater system.

2. Design

System was designed by Babak Tondre.

Drawings included:

1. Site drawing with greywater line marked in dash line
2. Greywater plumbing drawing



PERALTA STREET

Karl Linn
Community
Garden

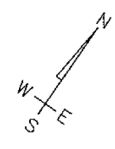
Bedroom #1

Bedroom #2

Bathroom

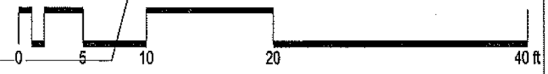
Kitchen

Living Room



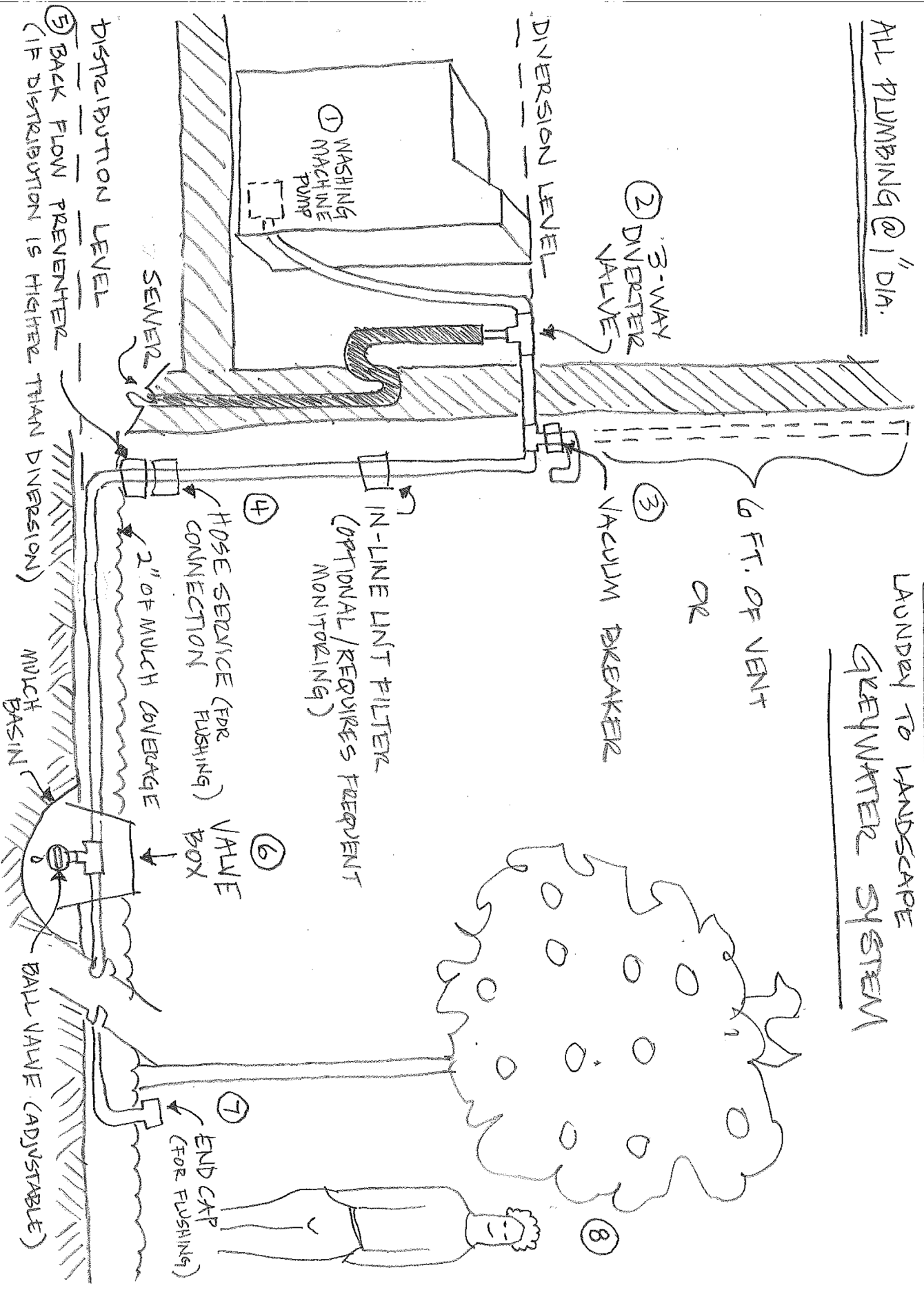
Berkeley EcoHouse
1305 Hopkins Street
Berkeley, CA
www.ecohouse.org

Site Plan



ALL PLUMBING @ 1" DIA.

ECHOHOUSE
LAUNDRY TO LANDSCAPE
GREYWATER SYSTEM



③ BACK FLOW PREVENTER (IF DISTRIBUTION IS HIGHER THAN DIVERSION)

3. Installation

System was installed on Sep 19, 2010 by a work party of students with Babak Tondre and Co-Teacher Nik Bertulis leading.

4. Use

Soaps and detergents - Avoid laundry soaps, detergents, and additives that contain borax, boron, chlorine, artificial colors, fragrances, and preservatives, sodiums, salts. For a more detailed list, see our *Guide to Cleaning Products and Greywater*. When in doubt, or when dyeing clothes or doing a special laundry job, flip your 3-way switch to the sewer.

The **three-way valve** located on the wall next to the washing machine can be used to direct washing machine outlet water to either the sewer or to the landscape as greywater. As specified in the code:

- Water used to wash diapers or similarly soiled or infectious garments shall not be used and shall be diverted to the building sewer.
- Graywater shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions from home photo labs or similar hobbyist or home occupational activities.
- Do not plant food root crops or leafy greens in the greywater garden. Plant flowers, herbs, and above ground fruiting vegetables, and wash food before eating and wash hands after working in the soil.
- Do not use greywater when members of the household or guests have a communicable disease such as Staph, Hepatitis, or E. coli.

Maintenance and Troubleshooting

Cover drip emitter tubing covered with 2 inches of mulch and/or soil at all times to assure greywater does not surface or pond.

If soil becomes overly saturated with greywater from heavy use, turn off the 3-way valve and give the soil a chance to drain.

Further Resources

[Create an Oasis with Greywater](#), Art Ludwig

<http://www.oasisdesign.net>
<http://greywateralliance.org>
<http://greywateraction.org>