



Reed College
3203 Southeast Woodstock Blvd.
Portland Oregon 97202-8199

Campus Drain Project

Original: 6/18/02
Fifth Update:03/23/10

The drain project is the collaborative work of several EHS interns and Reed College staff members. Zac Perry of the Grounds Department has been a very good resource regarding problems we face within the Reed Canyon. Zac and student workers also provided much needed help installing signs and plaques. Townsend Angel, Facilities Operations Director, has also provided valuable historic information about many of the details concerning drainage patterns within the canyon. The rest of the staff at the Physical Plant has been very helpful answering our questions and providing time and materials.

Most of the drains in Reed campus lead directly to the canyon. They collect rainwater throughout campus and have pipes that carry the water to the edge of the Reed Lake. Unwanted contaminants will follow the same path. The predominant pattern of the drain systems has a group of drains collected to one outfall. These outfalls are generally north of their field of drains. Most drains have a trap within them that collects about 2 or 3 gallons of substances lighter than water before discharging into the canyon. On the other hand, water-soluble contaminants bypass the trap system and discharge immediately. A few drains have no trap: drain 1 at the corner of the Psychology building, drain 11 in Eliot Circle, and several drains near the Old Dorm Block at the east side of the Commons group.

Drain Blocking Mats

# of Mats	Storage Location	Nearby/Likely Drains
2	Chemistry: Loading Dock	#2 & #3
1	Chemistry: Hazardous Waste Shed	For Mobile Use
1	Physics: Loading Dock	#10
1	Gray Campus Center: Dumpster Area	#15 & #16
1	Physical Plant: Grounds	#42
1	Physical Plant: Maintenance	For Mobile Use
2	28 West: Community Safety vehicles	For Mobile Use
1	East-parking lot: Dumpster area	#70
1	Vollum: Mechanical room	For mobile use
Total = 11	Campus wide	All

The drain protecting mats are made of polyurethane and therefore may degrade under certain environmental conditions like high temperature, humidity, and UV radiation. The best protection methods against these factors include cleaning them with soap and water, replacing the protective covers, and storing them out of the sunlight in their protective tubes after each use. They are not recommended for use in temperatures above 120° F for an extended period of time. The mats will display visible degradation when exposed to inorganic acids, ketones, or halogen compounds. There is a copy of the complete compatibility listing included along with this report.

The drain protecting mats were ordered from Lab Safety Supply Inc., PO Box 1368,

Janesville WI 53547. Lab Safety can also be reached at 1-800-356-0783 or www.labsafety.com. After investigating different suppliers, Lab Safety was found to have the lowest price for mats at \$315.74 each, and \$162.46 each for the cases, shipping included.

afs:reed.edu:departments:EHS:Drain Project:CampusDrainUpdateMarch10.doc

Surface Drains

Considering the whole campus, there are drainage areas of special concern. These drains have a greater risk of accidental release. The following list is an attempt to identify these drains and the risk posed by each one of them. All of these drains empty directly into the canyon.

- Drain 1 at the corner of the Psychology building connects to Outfall #2. This drain does not have a trap within it.
- Drains 2, 3, 92, and 96 in the Chemistry loading dock area connect directly to Outfall #3. Anything that is delivered, or picked up in this area has the potential to collect at these drains.
- Drain 96 is under the freight lift. The two drain blocking mats in the loading dock will serve these drains.
- Drains around the ETC building connect to the existing drain system at Outfall #4.
- Drain 11 in Eliot Circle receives all the run-off from the main entrance and deposits it directly in the canyon at Outfall #6. This drain does not have a trap within it.
- Drain 15 in the dumpster area outside the Commons food service empties into Outfall #9. This drain has the risk of receiving used cooking oil. There is a spill kit in the cooking oil pour off area as well as a drain-blocking mat, which should reduce the risk of this drain causing problems in the future.
- Drain 16 in the Commons delivery driveway area, has a potential to receive harmful substances from truck deliveries.
- Drain 42 on the east side of the Physical Plant empties directly into the Reed Lake at Outfall #10. There is a potential risk here from the Physical Plant and the Grounds Crew activities.
- Drains 132 & 133 on Botsford Drive are located in front of the Sports center and empty into Outfall #11A. Drains 20 & 21 on Botsford Drive are located in front of the theater and empty into Outfall #12. Drains 22 & 23 located at the west end of Botsford Drive empty into Outfall #13. Botsford Drive is a delivery entrance and has the potential to receive most of the harmful substances on campus.
- Drain 82 is located directly below a diesel generator outside Physical Plant. The outfall for this drain (as well as drain 81 in the Physical Plant parking lot) is #11, located downhill from the NW corner of Physical Plant, across the stream from the "Renn Fayre Glade".
- There are a large number of drains on campus (especially in the Commons area) that are surrounded by grassy areas and therefore do not pose a great risk to the future contamination of the canyon. However, we strongly recommend covering all lawn drains while applying lawn care products.
- Drains 106,107,108,109,110,111, & 136 in the cross canyon areas that empty into Naito detention pond (the water treatment facility) is located to the west of the Naito and Sullivan dorms. This facility is a containment basin that collects runoff from the drains around the dormitories and the nearby parking lots. The overflow drain from the containment basin runs directly to outfall #14 in the canyon. There are no immediate concerns about this system; however, anything that goes down these drains does have the potential to reach the Reed Lake if the containment basin is at full capacity.
- In the summer of 2008 the new Spanish house was built in the language house area and a new drain #102 was put in that connects to drain #70 that goes to outfall #3.

The large map used for this project was produced during the summer of 2004 from existing digital maps of campus. The small maps used for this project were produced in May of 1996 from existing maps dated July 1983, with revisions in summer of 2004. The Birchwood apartments and the old Eastmoreland Hospital property were added to the layout. New drains and outfalls were also added to the map, and many old drains and outfalls were renumbered.

Pond Drains

In the summer of 2008, the Sitka, Sequoia, Aspen, and Bidwell dorms were built on the old Eastmoreland Hospital property. Drains 112 -126 around these dorms drain to a catch basin, that catch basin has drain 128 inside of it that drains to a bioswale, and drains 129 – 131 also drain to the same bioswale, that drains to the Grove detention pond (upper holding pond) that finely drains to The Springs (lower pond) that has a natural spring in it. The upper holding pond has a shut-off valve in a manhole on the land bridge that connects to the lower pond; so if there should ever be a substantial spill from the grove area, it could be held in the upper pond until clean up.

Miscellaneous

There are a number of steam vent covers located around campus, especially near the Old Dorm Block and Eliot, which may easily be confused with storm drains. The easiest way to tell the difference is that all of the steam vent covers are either chained or welded in place to prevent access to the tunnels below, while the storm drains are not.

Spare blank drain plaques are stored in a metal cabinet in the EHS break room (available M-F 8:30 a.m.-noon & 1:00 p.m.-5:00 p.m. or by request) and additional plaques may be ordered through EHS, or directly from the vendor:

Bardy Trophy Co.(For light duty)

2500 N.E. MLK Jr. Blvd.

Phone: (503) 282-7787

Fax: (503) 282-3182

4"x2" satin silver aluminum plaques with round corners and 4 holes

Letters engraved pt/ox reads: DUMP NO WASTE DRAINS TO LAKE

ALMETEK Industries,Inc. (For Heavy Duty)

2 Joy Drive, Hackettstown, NJ

Debi Coale CSM Storm Water Division

Phone: (908) 850-9700 x 107 or 1800-248-2080 x107

Round 4" Stainless Steel Drain Markers: NO DUMPING DRAINS TO LAKE
(Blue Fish) & NO DUMPING DRAINS TO POND (Green Frog)

Copies of this report and the associated drain map are kept in the EHS office, Physical Plant, and by Community Safety.

**An Emergency!!
What Are We Going To Do??**

Stockpiles of adsorbent materials including pads, pillows, booms, ultrasorb (kitty litter) and a total of eleven drain-blocking mats are available throughout campus. The Environmental Health and Safety office has ordered these supplies from Safety and Supply Company, 595 N. Columbia Blvd, Portland OR 97217. We do not have a designated representative with the company, but they can be reached by phone at (503) 282-9500, by fax at (503) 283-1382, by voicemail at (503) 849-2922, or through their website www.safetyandsupply.com.

Stockpile Location	Ultrasorb	Pads	Pillows	Socks	Booms	Oil Spill Kit
28 West (Community Safety)		X	X	X	X	X
HazMat Shed (EHS)		X	X	X	X	X
Oil Shed (Facilities)	X	X	X		X	
Gas Shack (Facilities)						
Old Warehouse (Facilities)	X					
Commons (Bon Appétit)						X
Vollum (Mechanical room)						X

Only a limited number of people on campus have OSHA HAZWOPER certification to take care of a spill of hazardous materials. The Environmental Health and Safety office can provide important chemical hazard information as well as information about proper personal protective equipment and containment choices. Foss Environmental at (503) 978-7274 has provided support for clean up. Their emergency response number is 1-800-FE SPILL.