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How to Use This Guide
This guide supports the Community Waters Science Unit Teacher Manual with information, maps, and images specific to your school and neighborhood. It is written for teachers; its goal is to provide a better understanding of what is happening with stormwater in and around your school. The points of interest and walking field trip route are suggestions and should be adapted as desired.

If you have any questions about these maps, accompanying lessons, or stormwater around your school, contact IslandWood staff at communitywaters@islandwood.org.
Stormwater in the Schoolyard – Lesson 3

This map and points of interest (photos and info) can be used to guide your class’ exploration of the schoolyard. You will find the student worksheet for this lesson following the teacher guide version. Please use the extra space on the pages to add your own notes and questions! 😊

The red squares indicate some of the storm drains present.

A. Storm drain

This drain looks different – and is in a different place – than many “regular” stormdrains. Why might that be? Can students see water in the drain?

This drain may lead to an underground cistern, or to pipes leading somewhere else. This picture shows soapy water from cleaning draining into it.

B. (NO PICTURE) Storm drain in sunken play area

Does this drain work well, or do puddles ever form here, making it hard to use the area to play in?
C. School garden
How do the gardens help with stormwater, or not? What would be different if they were not there? How does the garden absorb water differently than the lawn around it (and how compacted is the lawn)?

D. Sloped ground
This sloped ground leads right to the building... does water ever end up at the bottom of this slope, or does it all soak in? How well does the grass/soil on this slope absorb water?

E. Stormdrain (and sunken drain and entry)
Why might this drain be here even though it’s surrounded by pervious surface (lawn)? Is this drain covered by anything (leaves, trash)?
Also check out the drain in the entryway ... what might happen here if there is a lot of rain that doesn’t soak into the lawn nearby?
F. Sloped ground and View

From the top of the hill, you can see Puget Sound beyond! This is where all of Seattle’s stormwater ends up. Have students think about how helping with stormwater in the Gatewood neighborhood can help Puget Sound.

G. Gutters and Downspouts

These portables have visible gutter/downspout systems, but on the school building itself, those systems are less obvious. Can students tell where the downspouts are on the school building? The two downspouts in these pictures lead to different types of surfaces – how will that affect the amount of runoff from the buildings?
H. Storm drains and field

These storm drains are placed all around the perimeter of the field: why? Notice how some are almost completely filled in with dirt: what happens to stormwater that would have gone into those drains?

Also, have students pour water on the field and observe how much water it can absorb. It seems very compacted, making it essentially impervious!
Mapping Your Schoolyard – Gatewood

Name: _______________ Date: __________

Include on your map:

- Symbols from the Key including flow of water, surfaces, and storm drains.
- Partially pervious surfaces can be shown with less dots.
- Label locations of litter, pollution and places where puddles form.
- Sketch any specific stormwater problems you see or are aware of.
- Sketch larger plants and bushes.

Map Key

- Direction of water flow
- Pervious Surface
- Impervious Surface
- Storm Drain

Add your own symbol here!
Local Stormwater Systems – Lesson 5

What happens with the Stormwater Pipes around your school?

- Water from your school’s roof as well as most of the stormwater from the surrounding neighborhood that goes into stormdrains enters stormwater pipes (green on map).
- These stormwater pipes then flow west towards Lowman Beach Park, collecting more stormwater from your community along the way.

What happens to the stormwater runoff?

- Stormwater runoff from your school’s property follows a direct path via stormwater drains and pipes to Lowman Beach Park.
- The stormwater runoff from these pipes gets released directly into the waters of Puget Sound, only a short distance off the shore of the Beach Park!
- Since the stormwater from your school ends up in Puget Sound, we suggest watching the “Drained: Urban Stormwater Pollution” video (OPTION B) from 0:00 to 2:11 during Lesson 5. You can find this video linked on communitywaters.org or at https://vimeo.com/51603152.

Additional Notes:

- While your school’s local stormwater drains directly into Puget Sound, there are also combined sewer and stormwater pipes that converge on Lowman Beach before entering a pipe destined for the Wastewater Treatment Plant at Discovery Park. These pipes include sewer water from your area and combined water from other areas. During big storm events the combined water can end up flowing directly into Puget Sound near Lowman Beach.
- To reduce the number of combined sewer overflows, King County built the “Murray Wet Weather Facility” across the street from Lowman Park with an underground million gallon holding tank. It has interpretive signs and might be worth a visit! You can learn more about it at: http://kingcounty.gov/depts/dnrp/wtd/capital-projects/completed/murray-cso-control.aspx

Please Note: The pipes information provided here is our best estimate of the stormwater flow in your community based on the information we have currently. If you encounter more information in the course of your investigation please let us know so we can update future versions of this document.
Lesson 5: Stormwater Runoff Destination Map

Gatewood Elementary has a yellow star around it on the map.
Stormwater in Our Community – Lesson 6

Please use this map and points of interest as suggestions for your walking field trip, recognizing there may be other things of importance to note in other areas. It may be useful to bring the stormwater pipes map with you for reference. Questions posed are intended to be posed to students as desired.

Suggested Route: Walk up Frontenac St hill and cross California Ave to check out view uphill (A), drains (B) and C (7008 California). Walk along the east side of California to view D and F; turn left on Myrtle to view G & H, then go back toward California and cross Myrtle to view I. Cross California and Myrtle again to walk up California to J at Café Ladro.

Points of Interest

A. View, Steep slope

This can be a great opportunity to visualize how stormwater would move over a landscape on a large scale. What is up the hill from here? Who or what might be impacted by stormwater going down the hill from this area?
B. Storm drain and drain cover

Storm Drains move water into underground pipes to take it somewhere else. Anything that gets carried into the drain may end up in a local stream, lake, or Puget Sound. Why do you think the drain was built in this location? Where does water come from that goes into this drain? Is the drain working properly? What is in the drain?

The drain cover is in the middle of the street but on rainy days (or a day after rain), can you hear water rushing underground?

C. Disconnected Downspout

This downspout has been “disconnected” from the underground pipes so that the roof water drains into ground instead of into sewer system. How does this help with stormwater runoff problems?

Rock Wall on slope

Consider how stormwater flows down this hill or off this building. Can students recall what happens to steep slopes in heavy rain (erosion)? Do these rock walls help keep the ground in place? What do you see that will help slow stormwater? What might speed it up?

How do the water from the downspout interact with the rock wall?

D. Pervious pavers (sidewalk)

Pavers are tiles made from brick, stone or concrete, which are arranged with spaces in between that allow water to soak through. What happens when water hits the surface of the pavers? Where will the water go from here? Why do you think the builder of this place put these pavers here?
E. Pervious Surfaces/Pavers

This is a good spot to consider how lots of types of pervious and impervious surfaces interact. How do these pervious surfaces differ?

Notice the cars parked on the pervious surface: if they leak oil, what happens to it? What would happen if the cars were parked on an impervious surface?

Where is the nearest stormdrain?

F. Storm Drain and gravel road

Even though this road is not paved, how pervious is it? Test it out by pouring water on it and comparing with pavement and/or grass.

G. Disconnected Downspout

Here’s another downspout that’s draining water onto the ground, into the gravel. Could any problems be caused by this water pouring onto the ground? How is it helping with stormwater problems downhill?
H. Rain Barrel

Rain barrels collect water that flows off the roof of a building. Usually, they are connected to downspouts to collect the water coming off of the roof. Were the students aware of this rain barrel and its purpose? Do they know if it is working or how it could be more effective (collect more water?) How are these rain barrels helping with stormwater? Where do they collect water from? What kind of building is it attached to? Who might have put it there? Is there anything that directs water into them, or do they simply catch the water that falls on them? Where might the water collected go or get used for?

(A student ambassador or a few could go inside to ask the Café Ladro staff about this rain barrel!)