

## Observe & Design Stormwater BMPs for NKU

As urbanization transforms our nation's landscape, stormwater from paved and compacted surfaces is degrading the health of our surface waters. In most developed areas, stormwater is drained through engineered collection systems and discharged into nearby waterbodies. The stormwater carries trash, bacteria, heavy metals, and other pollutants from the urban landscape, degrading water quality. Higher flows can also cause erosion and flooding in nearby streams, damaging habitat, property, and infrastructure.

Green infrastructure uses vegetation, soils, and natural processes to manage water and create healthier urban environments. While single-purpose "gray" stormwater infrastructure is largely designed to move urban stormwater away from the built environment, green infrastructure uses vegetation and soil to manage rainwater where it falls. By weaving natural processes into the built environment, green infrastructure not only manages stormwater, but can also cleanse the air, reduce urban heat island impacts, reduce energy consumption, and provide community amenities.

### Observe the following stormwater BMP designs at NKU

- Rain gardens
- Green roofs
- Bioswales
- Can you find more?

### Lab Work 3 (LW3)

**REPORT DUE:** Upload to Canvas by Wed., Oct. 16<sup>th</sup>, 11:59 pm

#### **REPORT**

***First, address the following inquiries about NKU:***

1. Describe the land cover of NKU – use your own knowledge, Google Earth/Map satellite, the SD1 Three-mile Creek Watershed Characterization Report, etc. to write a thoughtful paragraph.
2. Describe where the water runoff flows from NKU – we know water flows towards Three-Mile Creek, but does it stop there? Where is the ultimate resting place, and what route does it take to get there? Be descriptive in your answer.
3. Describe the current stormwater BMPs you have observed on NKU's campus. Include descriptions of where these are located on campus.
4. Explain the science behind how stormwater BMPs work, improves water quality and then, how this cleaner water impacts our daily lives. (hint: think about wetlands)

**Second, design a stormwater BMP to reduce surface water runoff from NKU:**

5. Describe the stormwater BMP(s) you would create on campus. What is it and how would it function to reduce water runoff? Be descriptive in the specific BMP you would put on campus – at least 1-2 paragraphs.
6. Where exactly would the BMP(s) be placed on campus and why? Be specific. What size would it/they be?
7. Explain why you chose to implement this/these BMP(s) to campus. What about this/these specific BMP(s) make you think they are the best option/solution to NKU water runoff?
8. What would the value be to campus? To northern Kentucky? Beyond?

**Report Details:**

The assignment should be all one document uploaded to Canvas. Use Microsoft Word, double-spacing, 1” margins, and 12-point font. There are no minimum or maximum page limitations. You want to be sure that you are ***thoroughly and thoughtfully answering each item*** (#1-8).

Feel free to ***use as many or as few photographs you take, figures, pictures from online***, etc. that you would like to use to communicate your responses/information in the assignment – just be sure to cite all sources where you obtain information, figures, etc.

Be sure to include a **Reference section** at the end of your report for all citations. No plagiarism allowed. *Be sure you are citing the information in the text of the document and then have the matching citation in the Reference Section* – the Reference Section can be in any format that you feel comfortable with (MLA, etc.). Be sure you understand how to paraphrase from a source using your own words. There is an excellent (and free) writing center on campus: <https://inside.nku.edu/plus/tutoring/wc.html>

**Grading Rubric**

*Total = 100 points*

10 points each (30)	Thorough and thoughtful responses for questions 1-3
10 points	#4, Thorough response in paragraph form explaining how the science behind how stormwater BMPs work improves water quality and our daily lives
10 points	#5, Thorough response in paragraph form to explaining the function of the BMP
10 points	#5, Thorough response, do not only include location, but approximate size of BMP
20 points	#7, Thorough response, why is this a solution for NKU
10 points	#8, Thorough response addressing value to both campus and beyond
5 points	Followed format guidelines, proofread, etc.
5 points	Cited sources and included reference section