



**Thank you for volunteering your time  
to benefit our campus and community!**

Today you will be installing markers on campus storm drains. This is done to educate our students, faculty, staff, and public about water pollution and provides a means to report illicit discharges.

Please follow these procedures when working on today's project:

- 1) **Safety First!** You are working near vehicular traffic. Please wear the provided safety vest so that drivers and others can see you.
- 2) You are working with toxic glues. **Please do not ingest the epoxy and avoid eye contact.**
- 3) You were provided with these materials:
  - Storm Drain Markers
  - Epoxy Glue
  - Cleaning brush
  - Gloves
  - Towels
  - Safety Vest
  - Map & Inventory Forms (via your connected device)
- 4) Take the supplied materials and map and walk to your designated area. **Be careful when crossing streets and other vehicular parking areas.**
- 5) At each storm drain location, complete the Storm Drain Marking Survey (see the provided Storm Drain Marking – Tech Support Document for more information) and install a marker per the provided instruction sheet.
- 6) After you have completed marking the drains in your area, **please return your safety vest, all unused materials, and equipment to your instructor or Environmental Quality Management.**

**Please contact Kevin Lewis (859-257-0093) if you have any questions.**

Thanks again for donating your time!

UK's Stormwater Management Team

# Storm Drain Marking – Tech Support Doc

## Summary

This document is intended to provide directions for how to use the Web Application for the Storm Drain Marking Program. It includes information on how to use this application to perform inspections on Storm Drains as well as how to report an illicit discharge.

- I. [Getting Started](#)
- II. [Inspecting Storm Drain Features](#)
- III. [Reporting Unmapped Storm Drain Features](#)
- IV. [Reporting Illicit Discharge Features](#)

*NOTE: Try to use data, instead of Wi-Fi, especially when reporting Illicit Discharges. Using data will improve GPS accuracy for capturing your location.*

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## Process

- I. **Getting Started** (*NOTE: Be sure you can sign in before going onto campus to survey storm drains*)
  - a. Navigate to the Storm Drain Marking Program App
    - i. <https://ugisportal.uky.edu/arcgis/apps/experiencebuilder/experience/?id=22bf9bca3ab94bdabbb071a778922427>



Scan QR code to view application on your mobile device

- ii. Sign into Facilities Management – ArcGIS Enterprise
        - i. Linkblue Login
          1. Select the blue ‘University of Kentucky’ button
          2. This will take you to the UK Single Sign On portal, enter your linkblue and password as normal
          3. You will be prompted with the Duo account authentication, proceed with ‘Push’ or ‘Passcode’ to authenticate your account
          4. If you have issues contact [geospatial.requests@uky.edu](mailto:geospatial.requests@uky.edu)
        - ii. ArcGIS Login
          1. If you have been provided a username that is appended with ‘\_UKYFM’, select ‘ArcGIS login’ button
          2. Enter your provided username and password you set up
          3. If you have issues, contact [geospatial.requests@uky.edu](mailto:geospatial.requests@uky.edu)

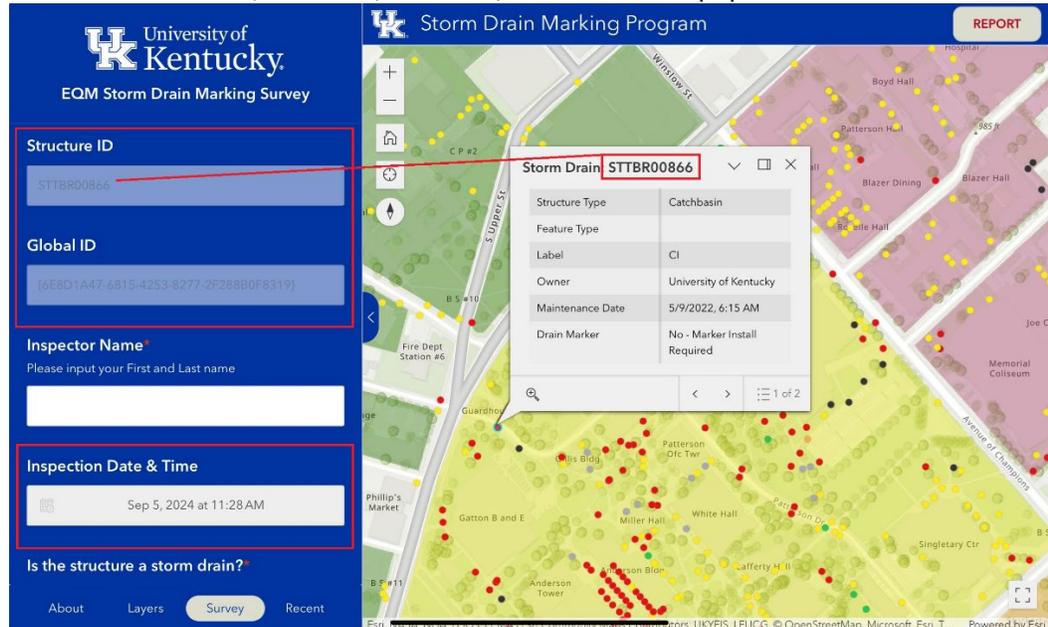
## II. Inspecting Storm Drain Features

- a. Go to your designated zone and locate a storm drain to begin
    - i. Drains are symbolized by their marker status - focus on **red** (No – Marker Install Required), **orange** (Yes – Marker Needs Repair), and **yellow** (To Be Determined)

- |                                |                                   |
|--------------------------------|-----------------------------------|
| ● No - Marker Install Required | ● Yes - Permanently Cast/Lettered |
| ● Yes - Marker Needs Repair    | ● No - Marker Not Required        |
| ● Yes - Temporary Marker       | ● To Be Determined                |

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- b. Open the “Survey” tab on the side panel and select the desired feature on the map. Before proceeding confirm the Structure ID in the pop up and ‘Survey’ panel match and that the Structure ID, Global ID, and Date/Time have auto populated.



- c. Fill out the following fields:
- Inspector Name
  - Is the structure a storm drain?
    - If No, continue to Area Photo section
    - If Yes, fill out the following fields and submit
      - Location Description
      - Is the structure marked as a storm drain? – If the drain was marked or replaced during the survey select “Yes – Temporary Marker”, if you identify a marker that needs repair but are unable to fix at time of survey select “Yes – Marker Needs Repair”
      - Condition – select all that apply
      - Drain Photo, ex:



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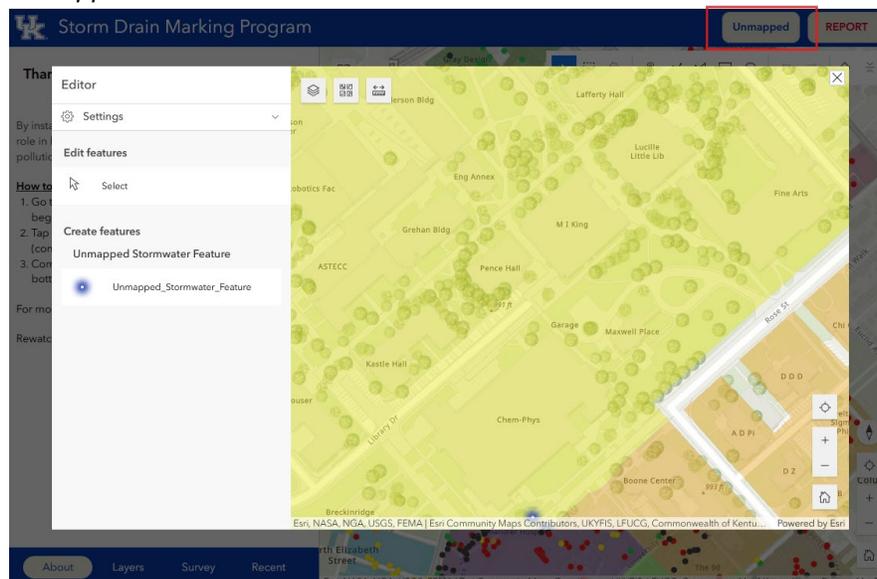
e. Area Photo, ex:



- d. Tap the “Submit” button at the bottom of the survey
  - i. Once the survey has been submitted, another blank survey form will load. Move to the next drain and repeat process. Always be sure the form has the same ‘Structure ID’ as the selected drain on the map.
  - ii. Go to the “Recent” tab if you want to review your submissions from the current day. May need to refresh browser to see recent entries. *Note: if the drain marked field is updated in the form, this change will not reflect on the map until the next day.*

### III. Reporting Unmapped Storm Drains

- a. Tap on the button in the upper right corner of the screen that says “Unmapped”- *if you are on a small mobile device, in the lower left corner select the “+” button to add an unmapped drain*



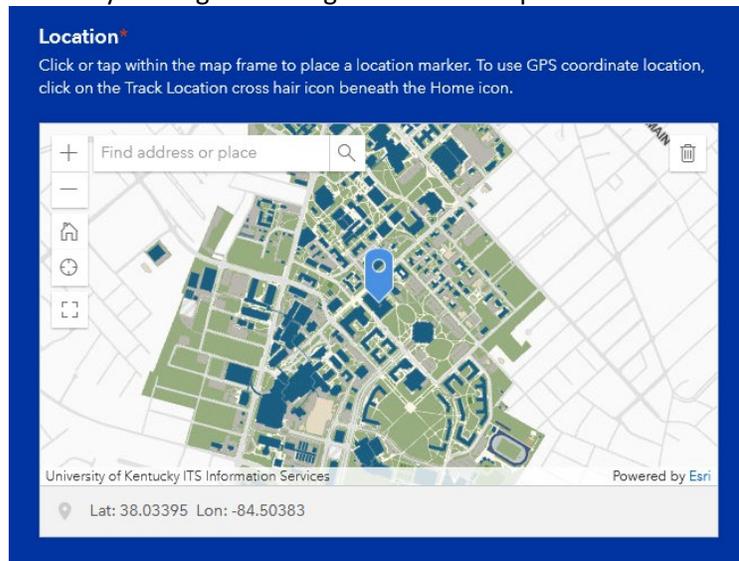
- b. In the new window, select the ‘Unmapped\_Stormwater\_Feature’ button under ‘Create Features’

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- c. Click on the map to add a point for the unmapped storm drain location, add comments as needed, then select the blue 'Create' button in the lower left corner to save
- d. To get out of editing session, press the button in the upper left corner to go back to the menu options or close out of the window
- e. If you need to edit a point that is already on the unmapped map, select the 'Select' button under 'Edit Features' and click on the feature you want to update. Once the feature is selected you can move or delete as needed. If you make changes to an existing feature, be sure to hit 'Update' before leaving the screen to save the changes.

### IV. Reporting Illicit Discharge Features *(NOTE: EQM will review submissions before posted online)*

- a. If you are connected to a Wi-Fi network, disconnect, and use data for better GPS reading
- b. Tap on the button in the upper right corner of the screen that says "REPORT" – *if you are on a small mobile device in the lower left corner select the "red flag" button*
  - i. The Illicit Discharge survey will open in a new tab
  - ii. Fill out the Survey questions
    1. Provide a Brief Description of the Issue
    2. Location
      - a. This should auto-place a marker on your location, if it doesn't you can click on the crosshair icon below the home icon, and it will place the marker on your location.
      - b. If the marker is not accurate, you can tap the map and place the marker yourself.
        - i. Use the zoom tools to zoom in to your location and use your fingers to drag around the map.



3. Location Description
4. Photo Attachment
5. E-Mail Address
- iii. Once all questions have been submitted, tap on "Submit" at the bottom of the survey
  1. A confirmation screen will display once the survey has submitted. Once you see this screen, you can close the tab and go back to the app.

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## Survey Review Dashboard:

<https://survey123.arcgis.com/share/fbaee0482778421f94a74c16ed5034f2/result?portalUrl=https://ugis.portal.uky.edu/arcgis>

## Trouble Shooting:

- If you are experiencing issues with the app, please try to reload the web page, or try a different browser.
- Contact [geospatial.requests@uky.edu](mailto:geospatial.requests@uky.edu) if there are problems with the app or survey form.

# Web Application – Quick Guide

*View may vary depending on device*

The screenshot shows the 'Storm Drain Marking Program' web application. On the left, there is a text panel with a thank-you message and instructions. The main area is a map of the University of Kentucky campus with various colored markers and zones. A bottom navigation bar contains 'About', 'Layers', 'Survey', and 'Recent' buttons. A 'REPORT' button is in the top right corner. Several callout boxes with red arrows point to specific features:

- Zoom Tools** - These will Zoom the map in and out
- Home Extent** - This will center and zoom the map to the starting extent
- GPS Location** - This will center the map on your location
- Collapse Panel** - This will close the side panel to show more of the map
- Illicit Discharge Form** - link to the Illicit Discharge Survey Form
- Survey** - open Survey123 Drain Marking Survey form for selected feature
- Recent** - view recent submissions
- About** - Displays information about the Web App and links to help documentation
- Layer List** - Allows you to turn on/off layers and display the legend for the layers that are turned on
- Report an Illicit Discharge** - link to report an illicit discharge

# Installation Instructions

## das Curb Markers® Adhesive #RS-222

### Please Read Before Installation

- Read Cautionary Statement and First Aid Procedures.
- Surfaces to be bonded must be clean, dry and free of any loose debris.
- If the application surface is painted, all loose paint should be removed. An installation should then be made and tested for adhesion before proceeding further.
- Follow installation instructions carefully.
- Application surface must be flat. The das Curb Marker will not conform to uneven or curved surfaces.

**Please contact das Manufacturing, Inc. if you have ANY questions regarding proper installation technique or special requirements.**



Clean application surface with wire brush. Surface must be clean, dry, and free of any loose debris. *The presence of any foreign material (paint, oil, etc.) may affect adhesion.*



Apply adhesive to the back of the marker as shown. Start 1/8" in from the outside edge, applying an even bead around the entire edge, and then work to the center.



Place the marker on the application surface. Push down **HARD** with a twisting motion, forcing adhesive out from the edge. It is important that the entire edge of the marker is sealed to the application surface.

*At 75°F, adhesive will skin over in 1 hour, become hard to the touch in 4 hours, and achieve a full cure in 18 hours.*

### Hints for Use

- It is not necessary to use a large amount.
- Push down on the marker so that it is “tight” to the surface. Large amounts of adhesive trapped under the surface of the marker can retard cure time.
- Make sure that the edge has approximately 1/8" of adhesive all around to seal edge to the surface.
- Wash hands with hand cleaner, then soap and water.

**DANGER:** Extremely flammable. Vapor harmful. Vapors may ignite explosively. Use only in well-ventilated area. Keep away from and do not use near heat, sparks, and open flame. Do not smoke. Extinguish or remove from area all sources of ignition during use and until all vapors are gone. Keep container closed when not in use and store at room temperature. Do not swallow or breathe vapor. Can cause respiratory irritation, dizziness, headache, nausea, unconsciousness. Avoid contact with skin, eyes or clothing. Can cause irritation and burns. **KEEP OUT OF REACH OF CHILDREN.**

**FIRST AID PROCEDURES:** **Inhalation:** Remove to fresh air, administer oxygen or artificial respiration. Contact physician. **Eyes:** Flush eyes with water for at least 15 minutes. **Skin Contact:** Wash with soap and water. Contact physician if irritation persists. **Ingestion:** Do not include vomiting. Contact physician immediately.

Hazardous ingredients: Toluene C.A.S. No. 108-88-3

**NOTICE TO PURCHASER:** The following warranty is in lieu of all other expressed or implied warranties, specifically all goods manufactured of first class materials and by competent workmen. We have no control over the use and application of the contents herein. Our liability shall not exceed the purchase price of this product.

This document is intended to assist participants of Environmental Quality Management's Storm Drain Marking program. Use this guide as a reference when performing a storm drain survey and completing the associated inspection form.

## Is the structure a storm drain?

The first question that needs to be answered when performing a survey of a location is "is the structure a storm drain?". There are many different types of storm drains located throughout campus. All specifically designed to drain excess rainfall runoff from streets and other impervious surfaces to local streams, rivers, and lakes via a system of ditches and underground pipes. Storm drains are commonly located in curbs and low-lying areas but can be found elsewhere depending on the specific area needs.

**Note:** Solid lid manholes might be part of the storm sewer system, but they are not storm drain inlets and should not be marked as part of this program. If a solid lid manhole is mapped as a storm drain on the GIS web app, under the "Is the structure a storm drain?" question, please select "no" and provide photos.

*Figure 1: Photos of common storm drain types found around campus.*



Similar in appearance to storm drains are structures we will refer to as "utility vents". Often associated with steam lines or emergency generators, these structures are covered with similar grating, but are often placed above the water line (higher than the surrounding area) or have wire mesh protecting the vent from debris. These structures should not be marked. If unsure whether a structure is a storm drain or vent, do not mark the drain and select "To be Determined" under the "Is the structure marked as a storm drain?" survey question.

*Figure 2: Photos of different utility vents. Utility vents should not be marked.*



## Where should a marker be placed?

Markers should be placed on an area of the drain where they can firmly adhere to the structure. If the drain is incorporated into the sidewalk, the marker should be placed on or as close to the curb as possible. This will help prevent the marker from being damaged during snow removal activities. If no curbing or concrete surround is present, the marker can be placed on the cast iron portion of the drain, ideally on a flat area that does not interfere with its functionality. Storm drains that have a permanent identifier (i.e. cast/lettered with “No dumping, drains to stream/river”) do not need a temporary marker. **Drains in roadways without adjacent curbing and other hazardous areas should not be marked.**

Figure 3: Photos of properly marked storm drains.



## Is the structure marked as a storm drain?

When completing the survey inspection form, you will be asked “Is the structure marked as a storm drain?”. Use the chart below to make the appropriate selection from the dropdown menu. If you select “To Be Determined”, please enter a detailed description in the Location Description portion of the inspection form.

Selection Guide						
Description	Yes – Permanently Cast/Lettered	Yes - Temporary Marker	Yes – Marker needs repair	No – Marker Install Required	No – Marker Not Required.	To Be Determined
Storm drains with a permanent identifier (i.e. cast/lettered with “No Dumping, Drains to Stream/River”).	✓					
The storm drain is not permanently cast/lettered and was marked during this survey.		✓				
Storm drains that already have a temporary marker in good condition.		✓				
Storm drains that already have a temporary marker, but the marker is in poor condition and was not replaced during this survey.			✓			
Storm drains that are inspected but are not marked during the survey.				✓		
Drains in roadways without adjacent curbing, or other hazardous areas.					✓	
If you are uncertain that what you are inspecting is a storm drain, or don’t know if a temporary marker is necessary (please enter a detailed description).						✓
If you encounter a structure that appears to have been marked in error (please enter a detailed description).						✓

## Examples

Below are examples of storm drains that have been assessed through the Storm Drain Marking program. Helpful information has been included in the image captions.

Drain Photo



Area Photo



Figure 4: Drains in roadways without adjacent curbing or other hazardous areas should not be marked. They should be designated as **No-Marker Not Required**.

Drain Photo



Area Photo



Figure 5: Solid lid manholes are not storm drains. They should **not** be marked as part of this program.

Drain Photo



Area Photo



Figure 6: Drains that are not permanently cast/lettered and were marked as part of this survey, should be designated as **Yes-Temporary Marker**

Drain Photo

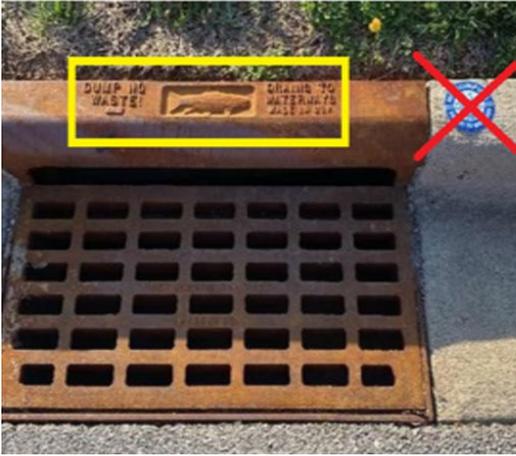


Area Photo



Figure 7: Drains that are not permanently cast/lettered and were marked as part of this survey, should be designated as **Yes-Temporary Marker**

Drain Photo



Area Photo



Figure 8: Storm drains with a permanent identifier (i.e. cast/lettered with “No Dumping, Drains to Stream/River”) should not be marked, they should be designated as **Yes-Permanently Cast/Lettered**

Drain Photo



Area Photo



Figure 9: Storm drains with a permanent identifier (i.e. cast/lettered with “No Dumping, Drains to Stream/River”) should not be marked, they should be designated as **Yes-Permanently Cast/Lettered**