

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator

The screenshot displays the EPA National Stormwater Calculator web application. At the top, a navigation bar includes tabs for Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results. The 'Overview' tab is active, showing a welcome message and three paragraphs of introductory text. The text explains that the calculator estimates stormwater runoff based on land parcel characteristics and scenarios, and that it considers local soil, topography, and meteorology. It also notes that the program was produced by the U.S. Environmental Protection Agency and is subject to technical review.

Below the text is a large map of North and Central America, showing the United States, Canada, and Mexico. A red square marker is placed in the central United States. The map includes labels for various seas and oceans, such as the Bering Sea, Gulf of Alaska, and Atlantic Ocean. A scale bar at the bottom right indicates 500 miles and 1000 km. The Bing logo is visible in the bottom left corner of the map area.

At the bottom of the browser window, a taskbar shows icons for various applications, including Google Chrome, Microsoft Office Word, and PowerPoint. The system tray at the bottom right shows the date and time as 11/11/2018 10:00 AM.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator

The screenshot displays the EPA National Stormwater Calculator web application. The browser address bar shows the URL <https://swcweb.epa.gov/location>. The page features a green header with the EPA logo and the text "National Stormwater Calculator", along with navigation links for "NEW", "SAVE", "OPEN", "RESOURCES", and "CONTACT".

The main content area includes a map of the United States with a green location pin in the central region. A "Location" sidebar is open, containing the following sections:

- Directions:** A text box with instructions: "Bring your site into view on the map and then mark its exact location by clicking the mouse pointer over it or entering your address or zip code below." Below this is a "Cancel" button.
- Search by address or zip code:** A search input field with the placeholder text "Enter an address or zip code" and a search icon.
- Enter number of acres for your site:** A numeric input field with the value "0" and a "Go" button.

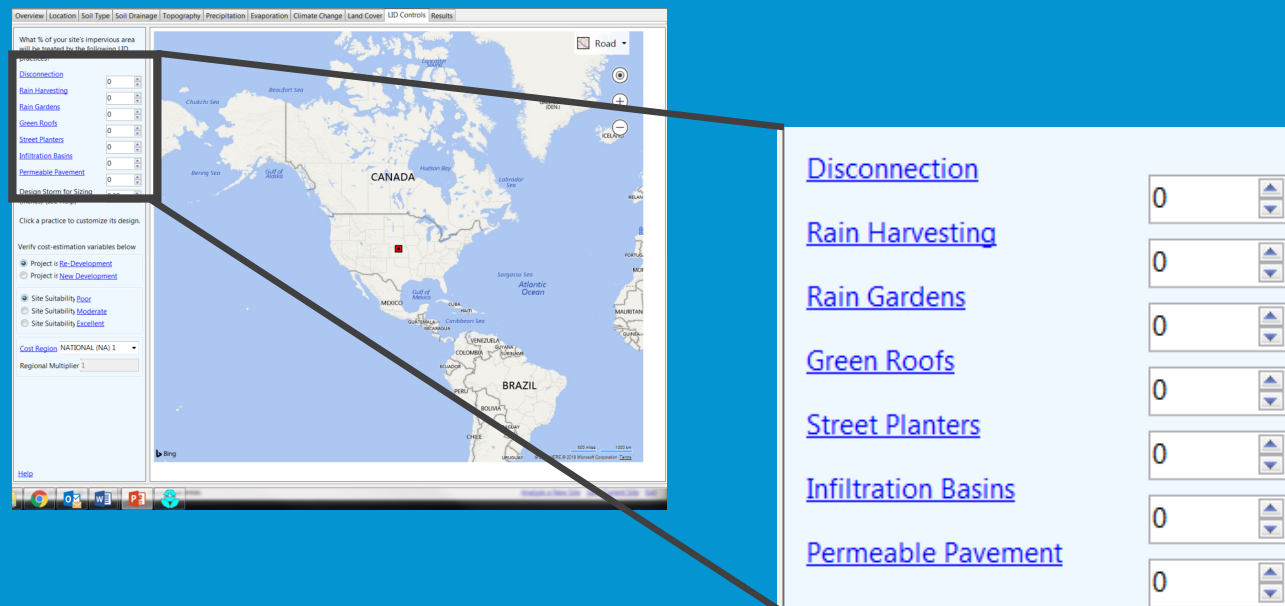
The sidebar also includes a "Use this polygon drawing tool to draw your project area on the map" section with a polygon icon. On the left side of the map, there is a vertical toolbar with icons for location, site, drawing, and other functions. The map itself shows state boundaries and labels for "CANADA" and "UNITED STATES". A scale bar at the bottom right indicates 250 miles and 500 km. The copyright notice at the bottom right reads "© 2016 HERE. © 2018 Microsoft Corporation. Terms".

# GI Grant Program Technical Requirements

**EPA National Stormwater Calculator  
Low Impact Development (LID) Control**

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Low Impact Development (LID) Control

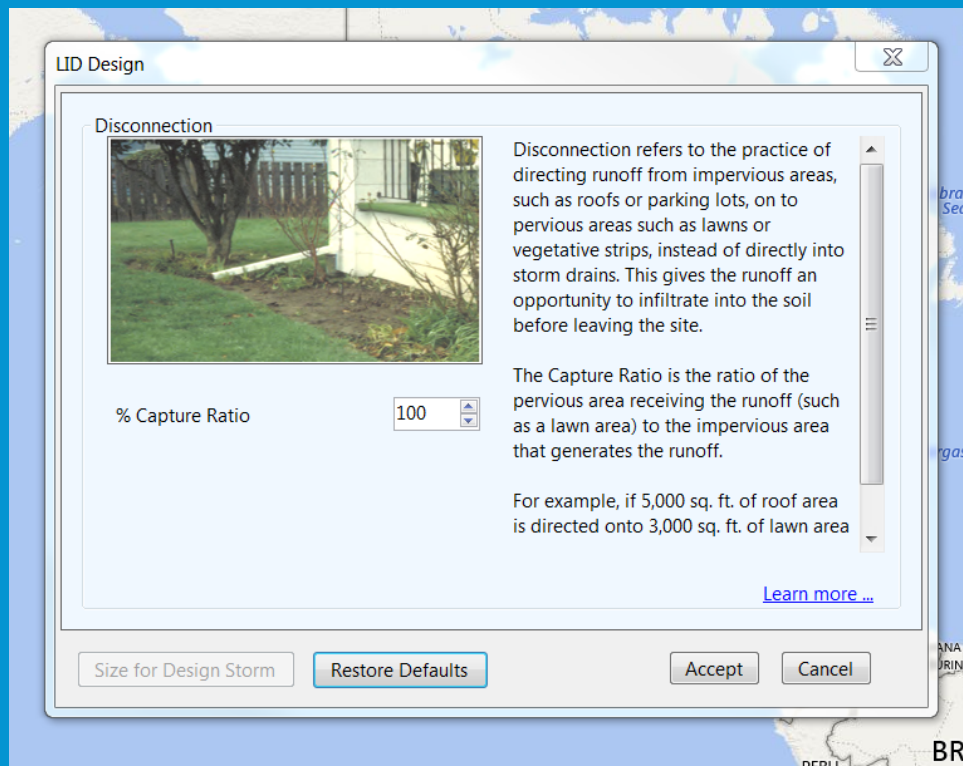


The image shows a screenshot of the EPA National Stormwater Calculator interface. The main window displays a map of North America with a red square indicating a site location in the United States. The interface includes a navigation menu at the top with tabs for Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results. On the left side, there is a list of LID controls with input fields for their values. A callout box on the right side provides a larger view of these controls, listing them with their respective input fields set to 0.

LID Control	Value
<a href="#">Disconnection</a>	0
<a href="#">Rain Harvesting</a>	0
<a href="#">Rain Gardens</a>	0
<a href="#">Green Roofs</a>	0
<a href="#">Street Planters</a>	0
<a href="#">Infiltration Basins</a>	0
<a href="#">Permeable Pavement</a>	0

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator LID Control - Disconnection

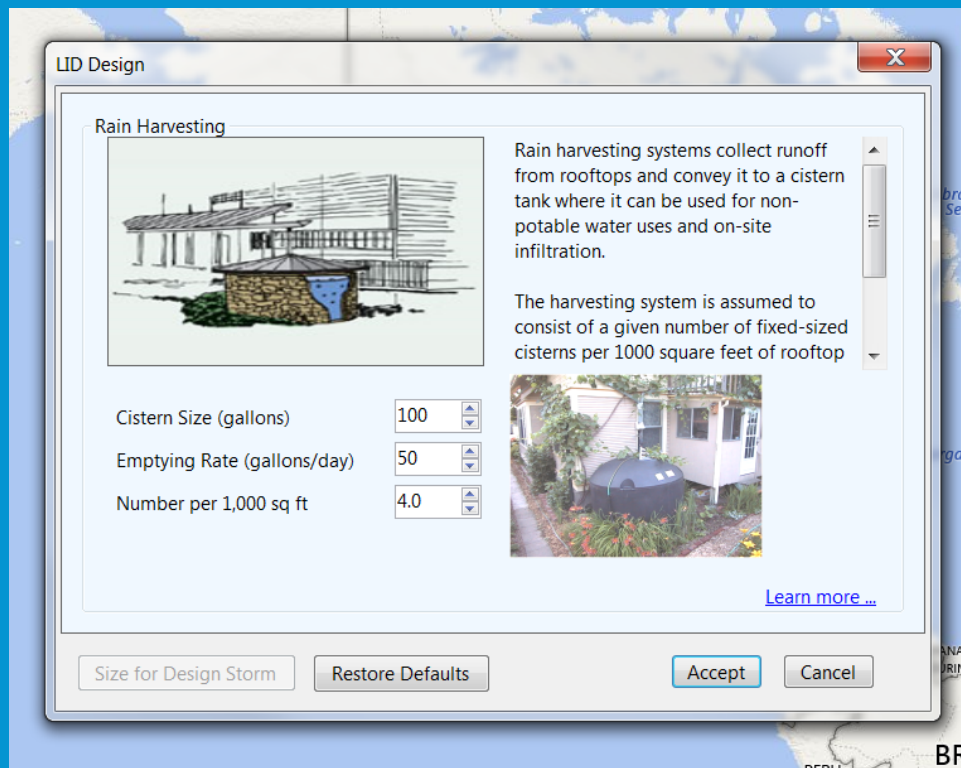


The Capture Ratio is the ratio of the pervious area receiving the runoff (such as a lawn area) to the impervious area that generates the runoff.

For example, if 5,000 sq. ft. of roof area is directed onto 3,000 sq. ft. of lawn area then the Capture Ratio would be  $3,000 / 5,000$  or 60%.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator LID Control – Rain Harvesting



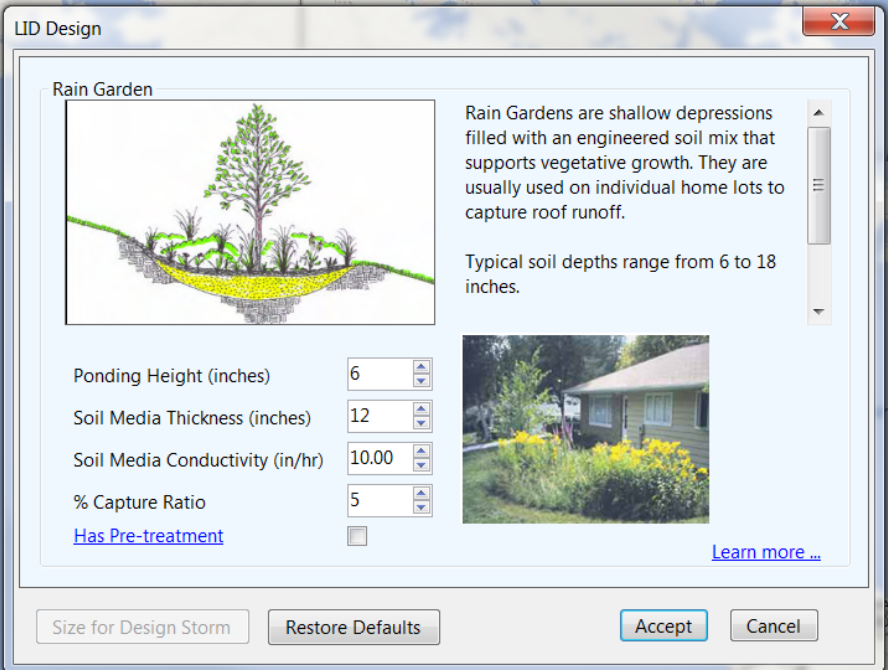
The screenshot shows a software dialog box titled "LID Design" with a close button (X) in the top right corner. The dialog is divided into two main sections. On the left, under the heading "Rain Harvesting", there is an illustration of a building with a rainwater collection system. Below this illustration are three input fields: "Cistern Size (gallons)" set to 100, "Emptying Rate (gallons/day)" set to 50, and "Number per 1,000 sq ft" set to 4.0. On the right side of the dialog, there is a text description: "Rain harvesting systems collect runoff from rooftops and convey it to a cistern tank where it can be used for non-potable water uses and on-site infiltration." Below this text is another paragraph: "The harvesting system is assumed to consist of a given number of fixed-sized cisterns per 1000 square feet of rooftop" followed by a small photograph of a residential property with a large black cistern. At the bottom of the dialog, there are four buttons: "Size for Design Storm", "Restore Defaults", "Accept", and "Cancel". A "Learn more..." link is also present at the bottom right of the text area.

The harvesting system is assumed to consist of a given number of fixed-sized cisterns per 1,000 square feet of rooftop area captured.

The water from each cistern is withdrawn at a constant rate and is assumed to be consumed or infiltrated entirely on-site.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator LID Control – Rain Garden



The screenshot shows a software dialog box titled "LID Design" with a close button (X) in the top right corner. The dialog is divided into several sections:

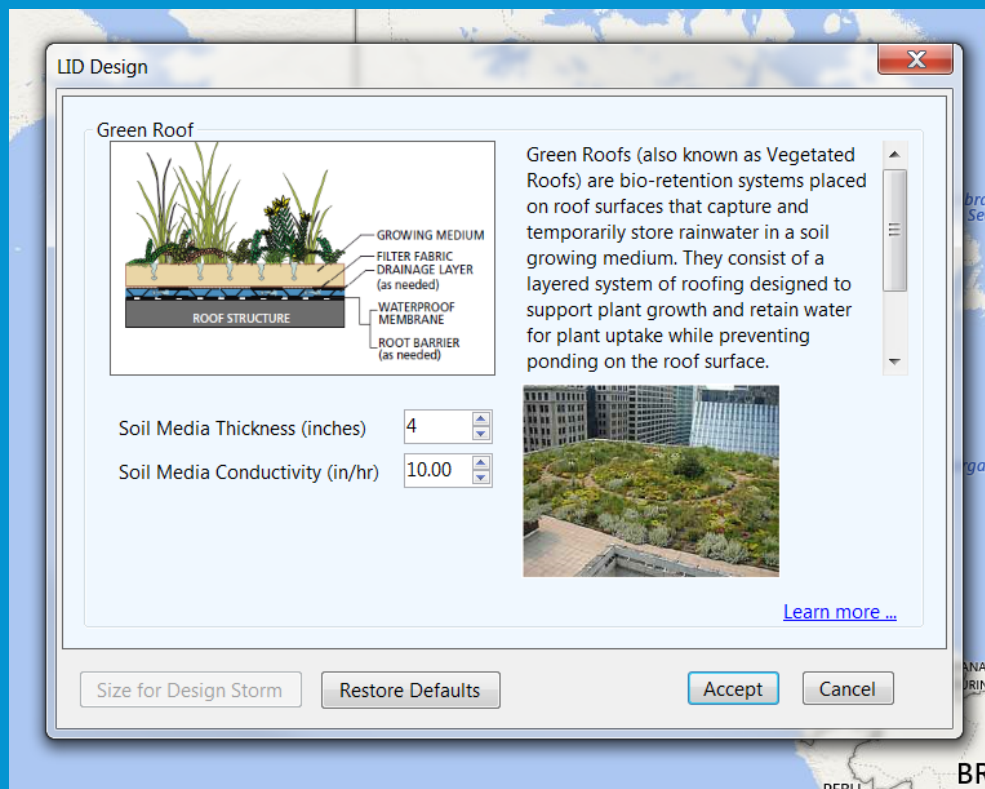
- Rain Garden:** A sub-header above a diagram of a rain garden cross-section showing a tree, plants, and a layer of soil media above a gravel base.
- Description:** Text explaining that rain gardens are shallow depressions filled with an engineered soil mix for vegetative growth, used for capturing roof runoff. It also notes that typical soil depths range from 6 to 18 inches.
- Configuration Fields:** Four spinners for:
  - Ponding Height (inches): 6
  - Soil Media Thickness (inches): 12
  - Soil Media Conductivity (in/hr): 10.00
  - % Capture Ratio: 5
- Has Pre-treatment:** A checkbox that is currently unchecked.
- Buttons:** "Size for Design Storm", "Restore Defaults", "Accept", and "Cancel".
- Additional Elements:** A small photograph of a house with a rain garden, a "Learn more..." link, and a scroll bar on the right side of the text area.

The Capture Ratio is the ratio of the rain garden's area to the impervious area that drains onto it.

For example, if 1,000 sq. ft. of roof area is directed onto 300 sq. ft. of rain garden area then the Capture Ratio would be  $300 / 1,000$  or 30%.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator LID Control – Green Roof

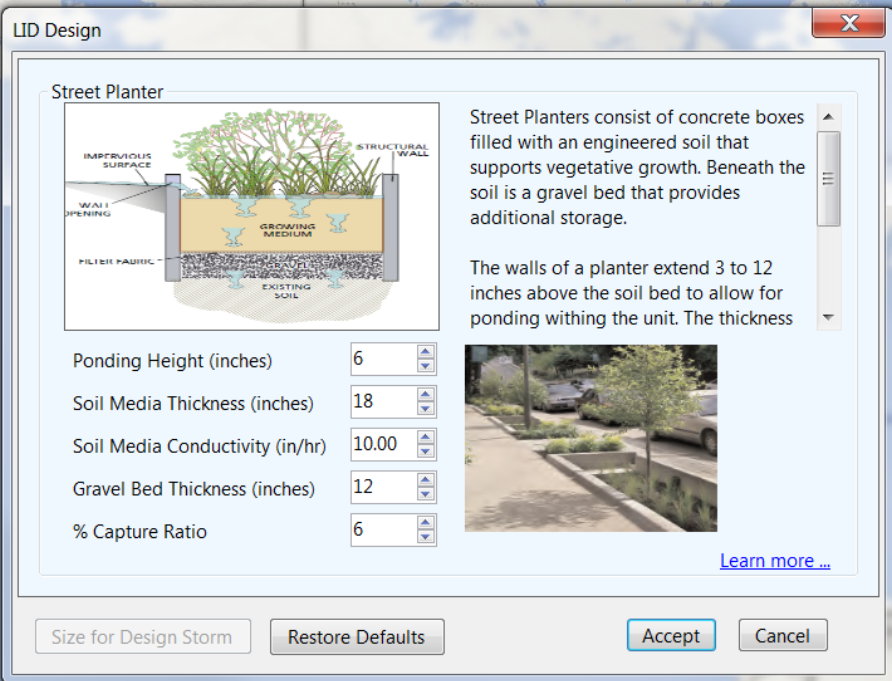


The thickness used for the growing medium typically ranges from 3 to 6 inches.



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator LID Control – Street Planter



The screenshot shows a software window titled "LID Design" with a "Street Planter" tab. On the left, a cross-sectional diagram of a planter box is shown with labels: IMPERVIOUS SURFACE, WALL OPENING, FILTER FABRIC, GROWING MEDIUM, STRUCTURAL WALL, and EXISTING SOIL. To the right of the diagram is a text description: "Street Planters consist of concrete boxes filled with an engineered soil that supports vegetative growth. Beneath the soil is a gravel bed that provides additional storage." Below this is another text block: "The walls of a planter extend 3 to 12 inches above the soil bed to allow for ponding within the unit. The thickness". A small photograph of a street planter is also visible. At the bottom of the window, there are several input fields with numerical values and up/down arrows: Ponding Height (inches) set to 6, Soil Media Thickness (inches) set to 18, Soil Media Conductivity (in/hr) set to 10.00, Gravel Bed Thickness (inches) set to 12, and % Capture Ratio set to 6. At the bottom of the window are buttons for "Size for Design Storm", "Restore Defaults", "Accept", and "Cancel". A "Learn more ..." link is located at the bottom right of the main content area.

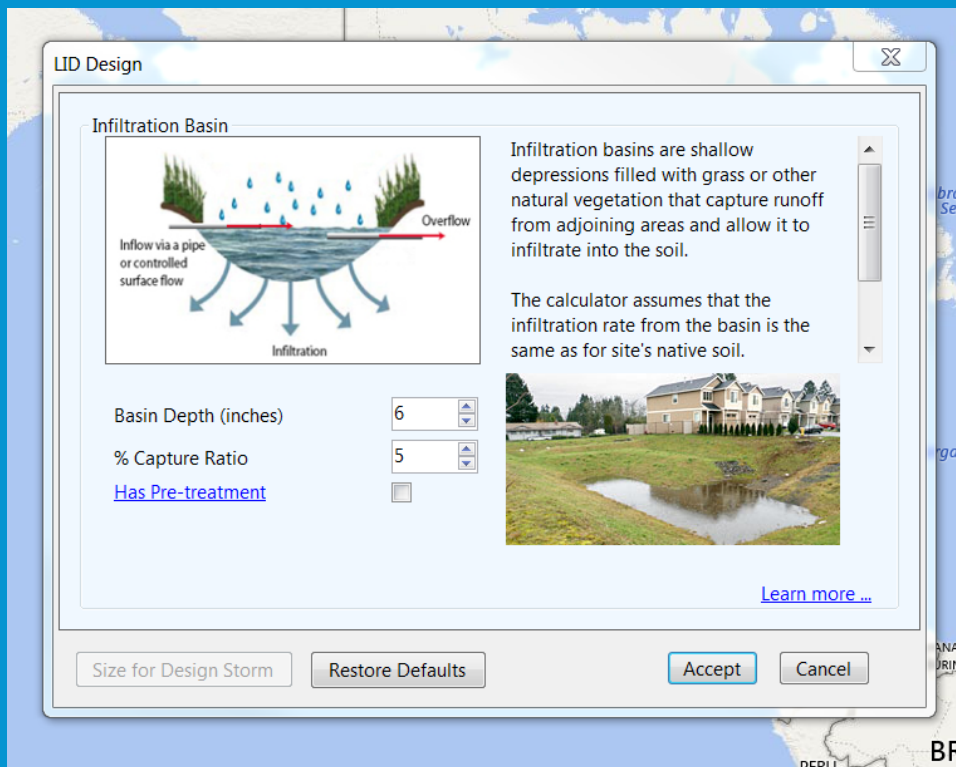
Parameter	Value
Ponding Height (inches)	6
Soil Media Thickness (inches)	18
Soil Media Conductivity (in/hr)	10.00
Gravel Bed Thickness (inches)	12
% Capture Ratio	6

The walls of a planter extend 3 to 12 inches above the soil bed to allow for ponding within the unit. The thickness of the soil growing medium ranges from 6 to 24 inches while gravel beds are 6 to 18 inches in depth.

The planter's Capture Ratio is the ratio of its area to the impervious area whose runoff it captures.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator LID Control – Infiltration Basin



The screenshot shows the 'LID Design' window for an 'Infiltration Basin'. It includes a diagram of the basin with labels for 'Inflow via a pipe or controlled surface flow', 'Infiltration', and 'Overflow'. Below the diagram are input fields for 'Basin Depth (inches)' set to 6, and '% Capture Ratio' set to 5. There is a checkbox for 'Has Pre-treatment' which is currently unchecked. A 'Learn more...' link is located below the diagram. At the bottom of the window are buttons for 'Size for Design Storm', 'Restore Defaults', 'Accept', and 'Cancel'.

The basin's Capture Ratio is the area of the basin relative to the impervious area whose runoff it captures.

For example, if 50,000 sq. ft. of roof area is directed into 5,000 sq. ft. of infiltration basin area then the Capture Ratio would be  $5,000 / 50,000$  or 10%.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator LID Control – Permeable Pavement

The screenshot shows the 'LID Design' window with the 'Permeable Pavement' section selected. On the left, there is a cross-sectional diagram of the pavement system. The diagram labels the following layers from top to bottom: 'RIVERLACKS OPEN INTO RECHARGE BED' (with arrows indicating infiltration), 'POROUS ASPHALT PAVEMENT' (with a car parked on it), 'UNCOMPACTED SUBGRADE IS CRITICAL FOR PROPER INFILTRATION', and 'FILTER FABRIC LINES THE SUBSURFACE BED'. A text box within the diagram states: 'UNFORMALLY GRADED STONE AGGREGATE WITH 40% VOID SPACE FOR STORMWATER STORAGE AND RECHARGE'. Below the diagram, there are input fields for 'Pavement Thickness (inches)' set to 6, 'Gravel Layer Thickness (inches)' set to 18, and '% Capture Ratio' set to 100. There is a checkbox for 'Has Pre-treatment' which is currently unchecked. To the right of the diagram, there is descriptive text: 'Continuous Permeable Pavement systems are excavated areas filled with gravel and paved over with a porous concrete or asphalt mix.' and 'Modular Block systems are similar except that permeable block pavers are used instead.' Below this text is a photograph of a paved area with modular block pavers. At the bottom of the window, there are buttons for 'Size for Design Storm', 'Restore Defaults', 'Accept', and 'Cancel'. A 'Learn more...' link is also present.

Normally all rainfall will immediately pass through the pavement into the gravel storage layer below it where it can infiltrate at natural rates into the site's native soil.

Pavement layers are usually 4 to 6 inches in height while the gravel storage layer is typically 6 to 18 inches high.

The Capture Ratio is the percent of the treated area (street or parking lot) that is replaced with permeable pavement.

# GI Grant Program Technical Requirements

## **EPA National Stormwater Calculator Modules**

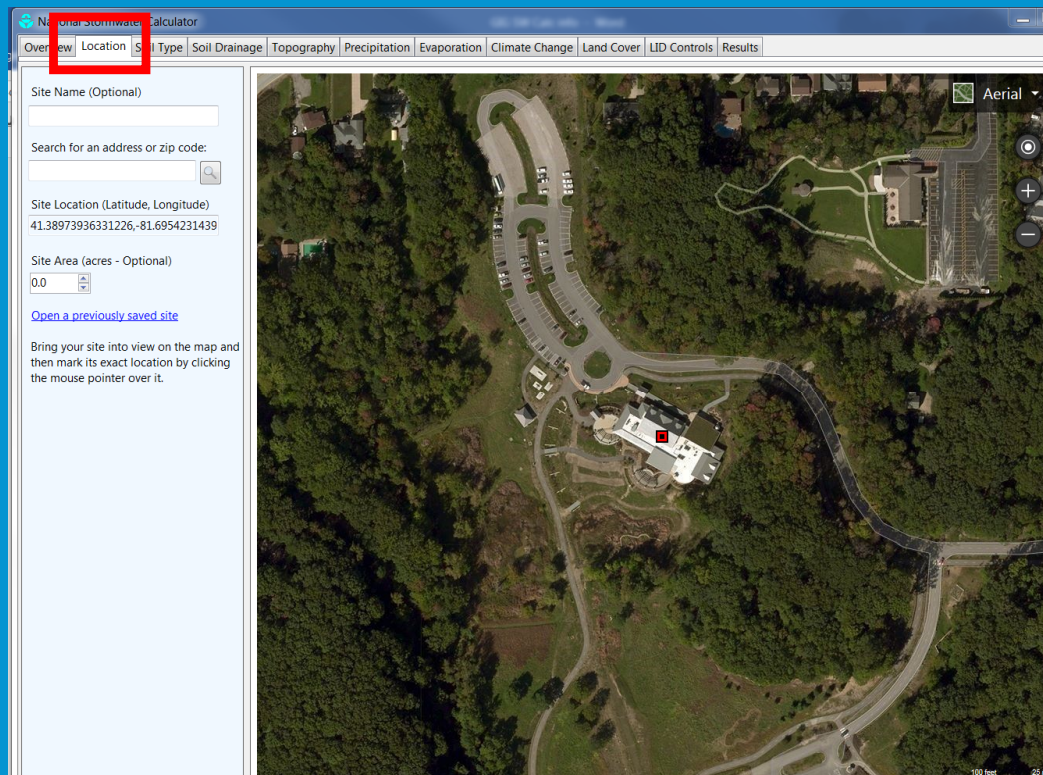
# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Location

The screenshot displays the 'Location' module of the EPA National Stormwater Calculator. The interface is divided into a left-hand control panel and a right-hand map area. The 'Location' tab is highlighted with a red box. The control panel includes a 'Site Name (Optional)' field, a search box for 'Search for an address or zip code:', a 'Site Location (Latitude, Longitude)' field with the value '40,-98.5', and a 'Site Area (acres - Optional)' field with the value '0.0'. Below these fields is a link to 'Open a previously saved site' and a brief instruction: 'Bring your site into view on the map and then mark its exact location by clicking the mouse pointer over it.' The map area shows a satellite-style view of North America, with a red square marker indicating the site location in the central United States. The map includes labels for various geographical features and countries, such as 'CANADA', 'MEXICO', and 'BRAZIL'. A scale bar at the bottom right indicates distances in miles (500) and kilometers (1000). The Bing logo is visible in the bottom left corner of the map area.

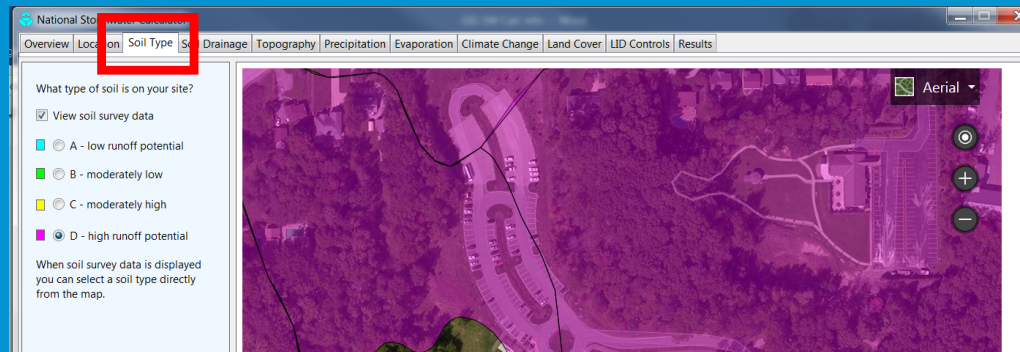
# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Location



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Soil Type



### Hydrologic Soil Group Default Values for Runoff Potential

- A – Sand** (low runoff/high infiltration)
- B – Sandy Loam** (moderately low runoff)
- C – Clay Loam** (moderately high runoff)
- D – Clay** (high runoff/low infiltration)

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Soil Type

**Warning: Soil Ratings Map may not be valid at this scale.**

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:15,800. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

**Tables — Hydrologic Soil Group — Summary By Map Unit**

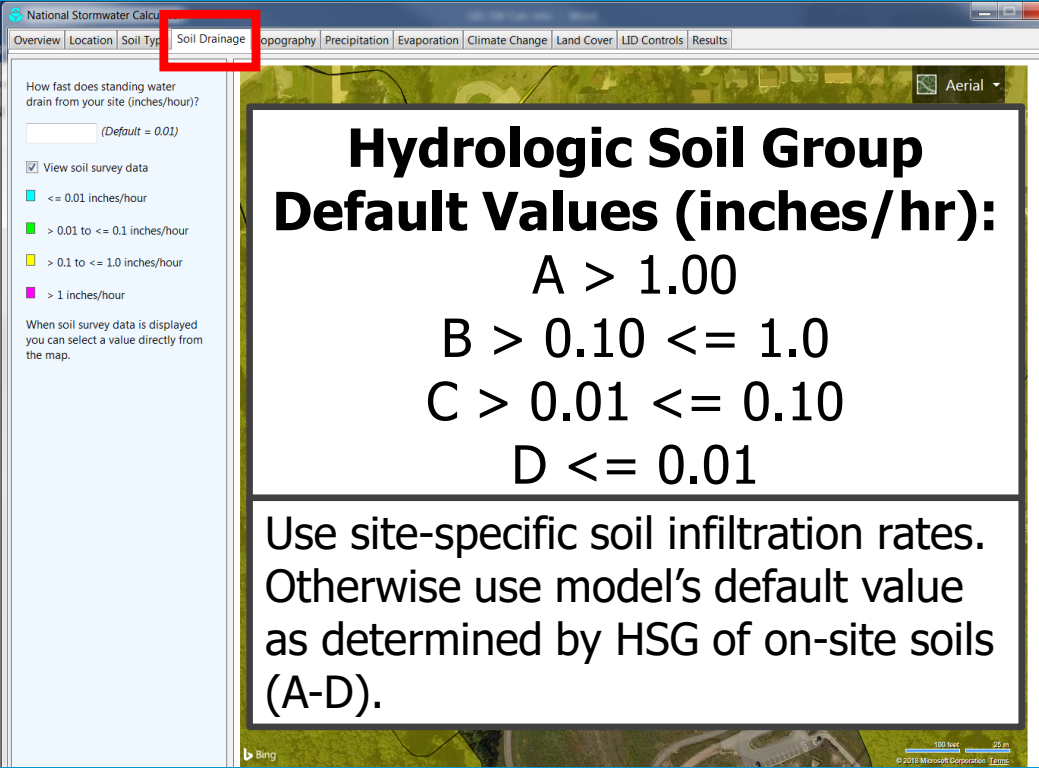
**Summary by Map Unit — Cuyahoga County, Ohio (OH035)**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HrB	Hornell silt loam, 2 to 6 percent slopes	D	0.7	26.7%
HrD	Hornell silt loam, 12 to 18 percent slopes	D	0.7	25.0%
Ua	Udorthents, loamy		1.3	48.3%
<b>Totals for Area of Interest</b>			<b>2.7</b>	<b>100.0%</b>



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Soil Drainage



National Stormwater Calculator

Overview | Location | Soil Type | **Soil Drainage** | Topography | Precipitation | Evaporation | Climate Change | Land Cover | LID Controls | Results

How fast does standing water drain from your site (inches/hour)?

(Default = 0.01)

View soil survey data

- $\leq 0.01$  inches/hour
- $> 0.01$  to  $\leq 0.1$  inches/hour
- $> 0.1$  to  $\leq 1.0$  inches/hour
- $> 1$  inches/hour

When soil survey data is displayed you can select a value directly from the map.

**Hydrologic Soil Group Default Values (inches/hr):**

- A  $> 1.00$
- B  $> 0.10 \leq 1.0$
- C  $> 0.01 \leq 0.10$
- D  $\leq 0.01$

Use site-specific soil infiltration rates. Otherwise use model's default value as determined by HSG of on-site soils (A-D).

Bing 100 feet 25 m © 2018 Microsoft Corporation Terms

# GI Grant Program Technical Requirements

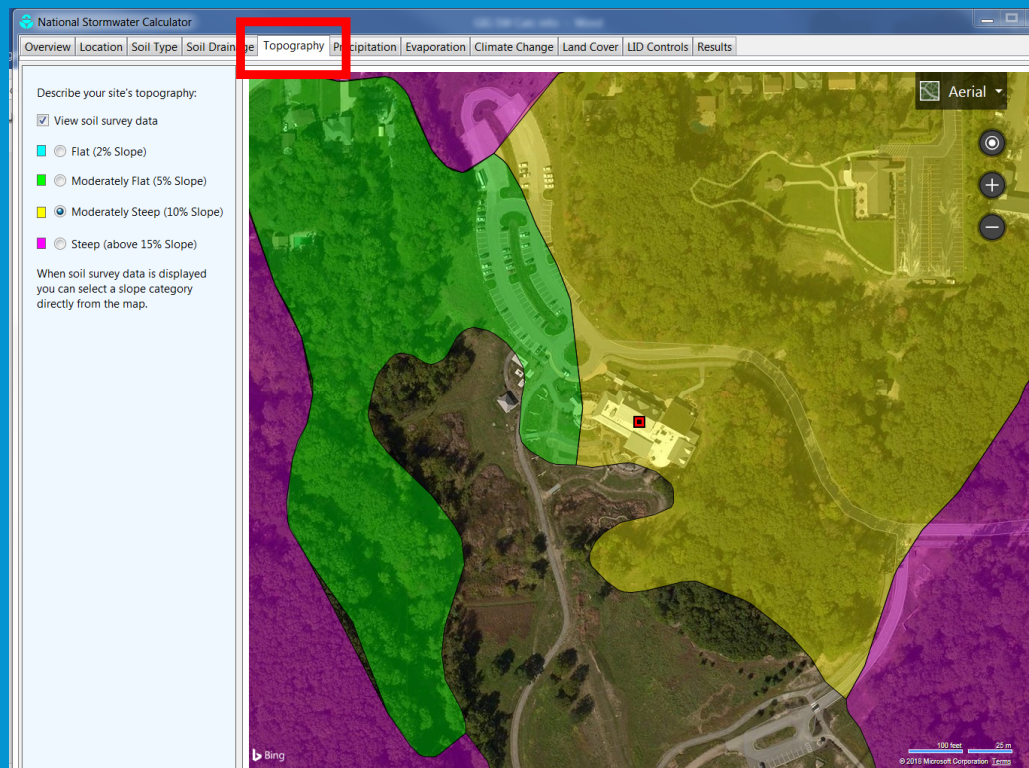
## EPA National Stormwater Calculator Modules – Infiltration Testing

Use site-specific soil infiltration rates. Otherwise use model's default value as determined by HSG of on-site soils (A-D).

- ENSURE INFILTRATING SCMS PROPOSED TO MEET AND/OR EXCEED TITLE IV REQUIREMENTS ARE DESIGNED PER THE RESULTS OF ON-SITE SUBGRADE INFILTRATION TESTING USING APPROVED METHODS FROM THE FOLLOWING SOURCES:
  - Ohio Rainwater and Land Development Manual
  - Other state stormwater management manuals as recognized by the District
  - The District can consider designs that deviate from current standards on a case-by-case basis.

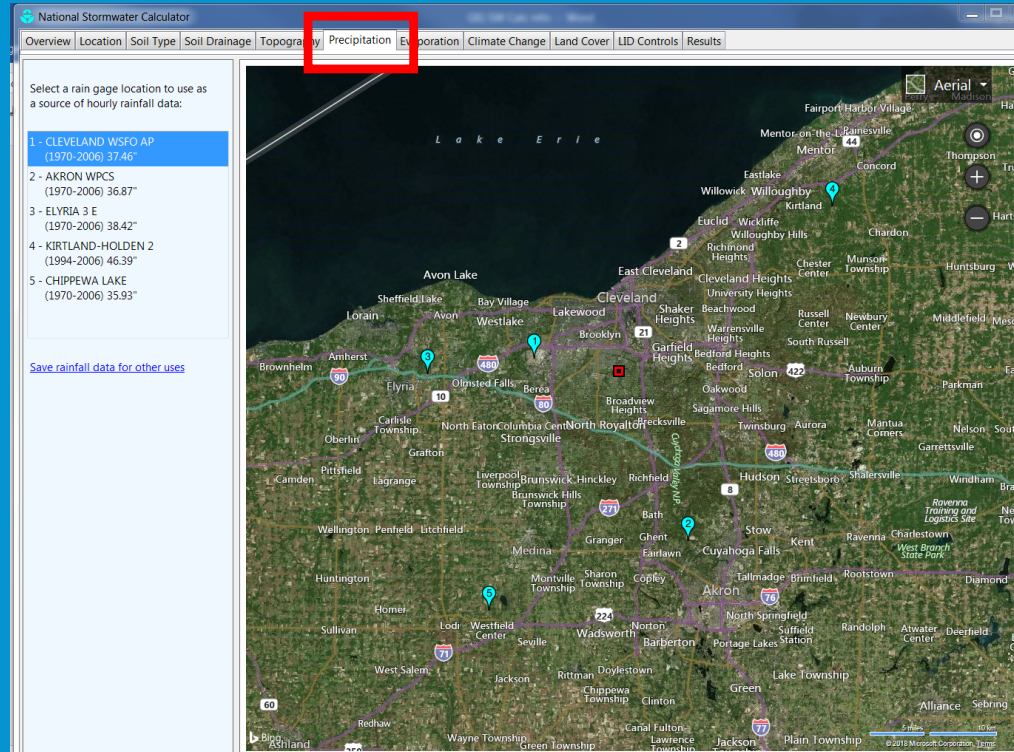
# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Topography



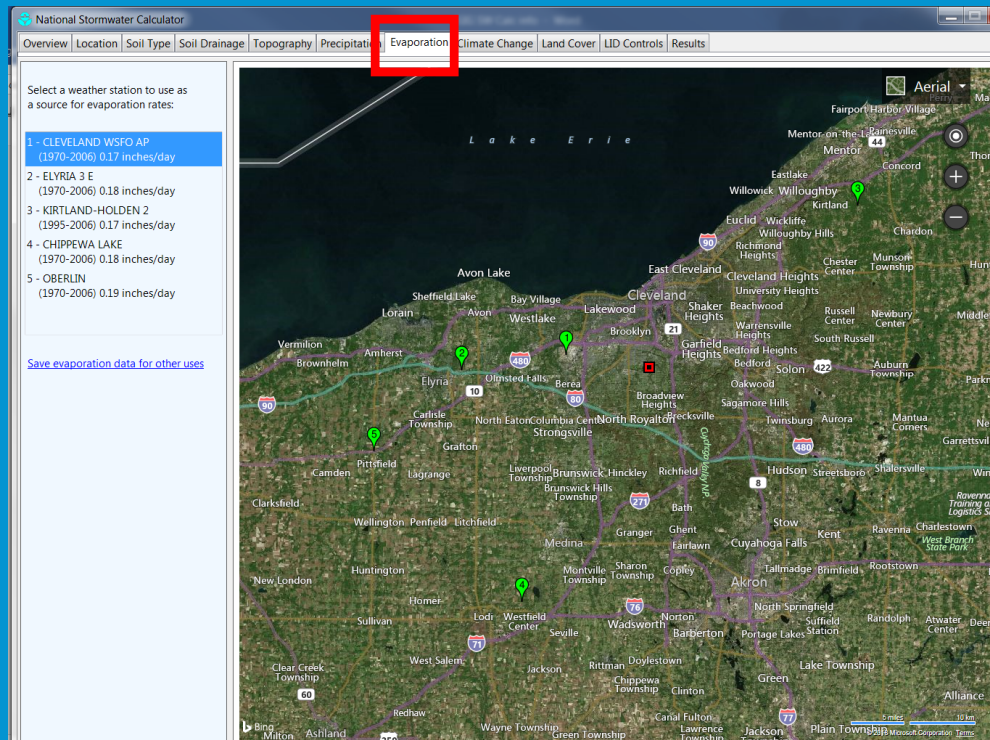
# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Precipitation



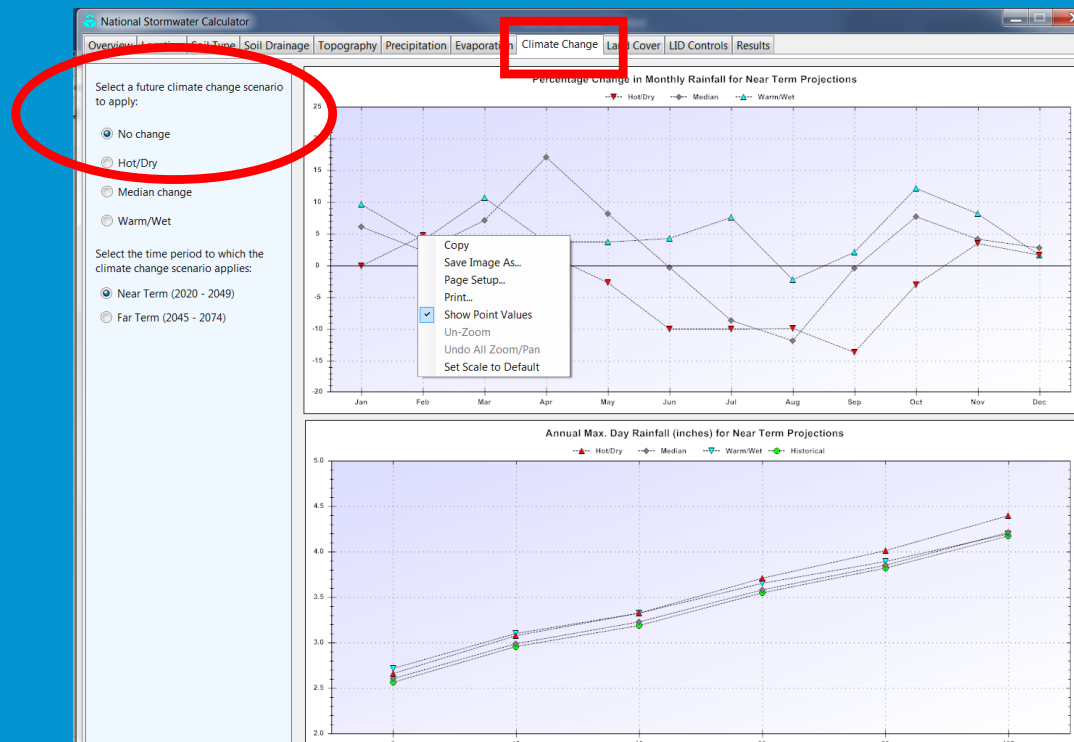
# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Evaporation



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Climate Change



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Land Cover

The screenshot displays the National Stormwater Calculator software interface. The 'Land Cover' tab is selected and highlighted with a red box. The interface includes a navigation menu at the top with tabs for Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, Controls, and Results. The main area is divided into a left sidebar and a central map.

**Left Sidebar:**

Describe the site's land cover for the development scenario being analyzed:

% Forest	5
% Meadow	36
% Lawn	41
% Desert	0
% Impervious	18

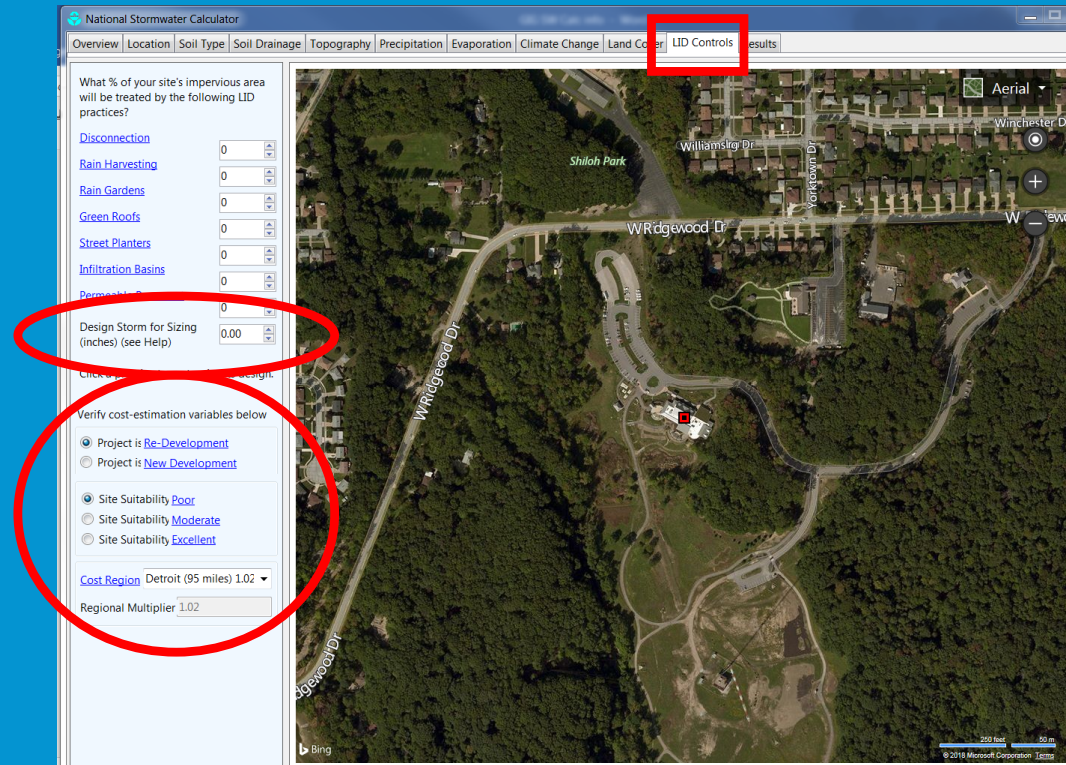
Hover the mouse over a cover category to see a more detailed description.

**Central Map:**

The map shows an aerial view of a residential area with a red square indicating the site location. Labeled streets include Shiloh Park, Williamsburg Dr, Parktown Dr, W Ridgewood Dr, and W...evo. A scale bar at the bottom right indicates 200 feet and 50 meters. The Bing logo is visible in the bottom left corner.

# GI Grant Program Technical Requirements

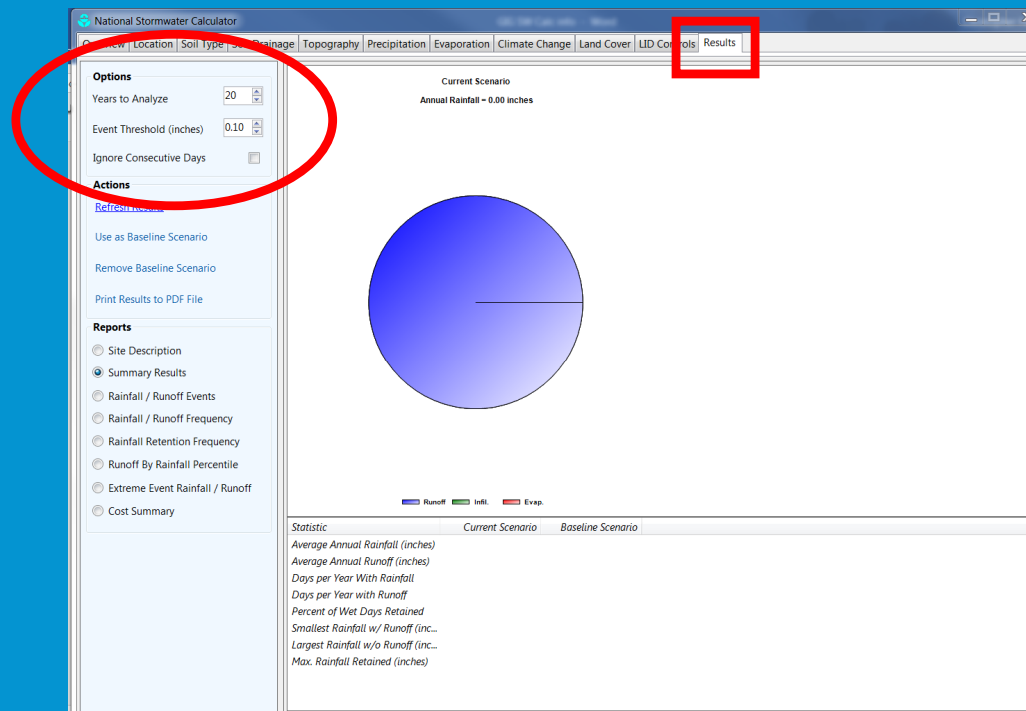
## EPA National Stormwater Calculator Modules – LID Controls





# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Results



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions

National Stormwater Calculator

Overview | **Location** | Site Type | Soil Drainage | Topography | Precipitation | Evaporation | Climate Change | Land Cover | LID Controls | Results

Site Name (Optional)  
Test - GIM

Search for an address or zip code:

Site Location (Latitude, Longitude)  
41.503254543263,-81.658545427322

Site Area (acres - Optional)  
1.0

[Open a previously saved site](#)

Bring your site into view on the map and then mark its exact location by clicking the mouse pointer over it.

Locate the site on the map.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions

National Stormwater Calculator

Overview | Location | **Soil Type** | Drainage | Topography | Precipitation | Evaporation | Climate Change | Land Cover | LID Controls | Results

What type of soil is on your site?

View soil survey data

A - low runoff potential

B - moderately low

C - moderately high

D - high runoff potential

When soil survey data is displayed you can select a soil type directly from the map.

[Help](#)

Select a soil type for the site.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions

The screenshot displays the EPA National Stormwater Calculator software interface. The window title is "National Stormwater Calculator". The menu bar includes: Overview, Location, Soil Type, **Soil Drainage** (highlighted with a red box), Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results.

The main interface is divided into a left sidebar and a central map area.

**Left Sidebar:**

- Question: "How fast does standing water drain from your site (inches/hour)?"
- Input field: ".01 (Default = 0.01)"
- Checkbox: "View soil survey data" (unchecked)
- Legend:
  - Blue square: " $\leq 0.01$  inches/hour"
  - Green square: " $> 0.01$  to  $\leq 0.1$  inches/hour"
  - Yellow square: " $> 0.1$  to  $\leq 1.0$  inches/hour"
  - Purple square: " $> 1$  inches/hour"
- Text: "When soil survey data is displayed you can select a value directly from the map."
- Link: "Help"

**Central Map Area:**

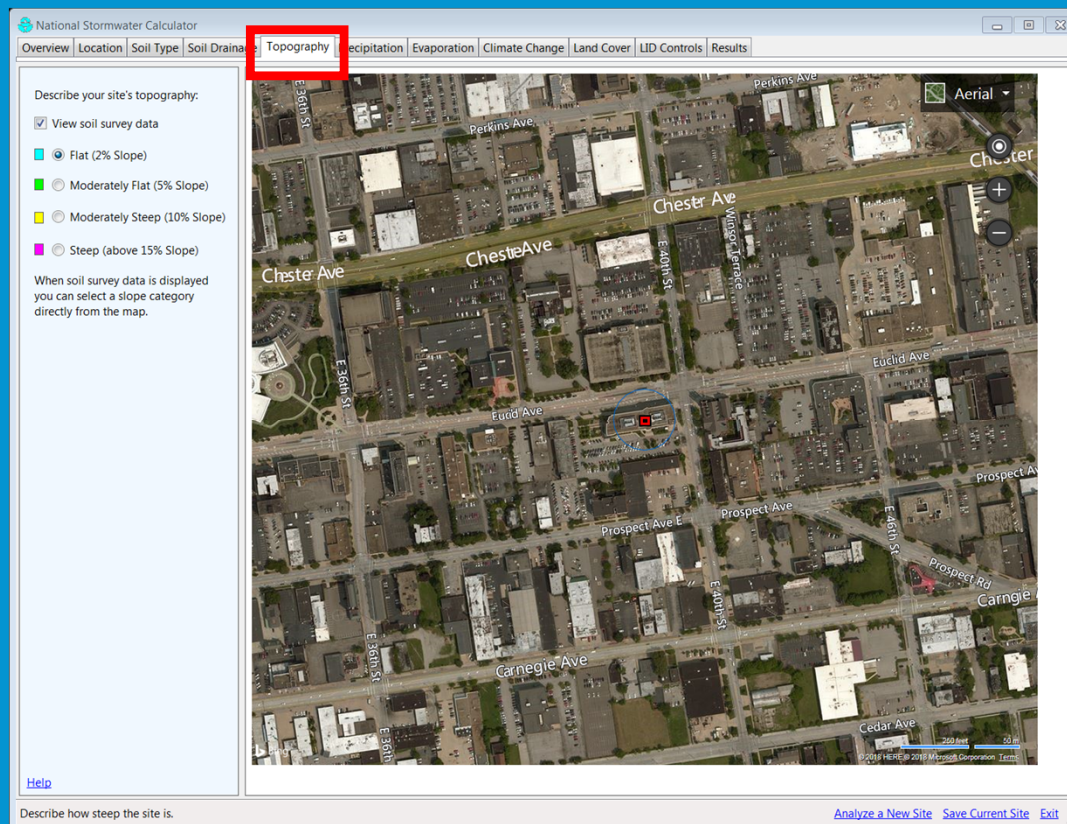
- Shows an aerial view of a city street grid.
- Streets labeled include: Perkins Ave, Chester Ave, Euclid Ave, Prospect Ave, Carnegie Ave, and Cedar Ave.
- A red square icon is placed on the map, indicating the selected site location.
- Map controls: "Aerial" dropdown, zoom in (+) and zoom out (-) buttons, and a scale bar (0 to 250 feet).

**Bottom of the window:**

- Text: "Enter the soil's drainage rate."
- Buttons: "Analyze a New Site", "Save Current Site", and "Exit".

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions

The screenshot displays the National Stormwater Calculator software interface. The 'Precipitation' tab is selected and highlighted with a red box. The interface includes a menu bar with options: Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, LID Controls, and Results. On the left, a list of rain gage locations is provided:

- 1 - CLEVELAND WSFO AP (1970-2006) 37.46"
- 2 - KIRTLAND-HOLDEN 2 (1994-2006) 46.39"
- 3 - ELYRIA 3 E (1970-2006) 38.42"
- 4 - AKRON WPCS (1970-2006) 36.87"
- 5 - PAINESVILLE 4 NW (1970-2006) 37.81"

A link for [Save rainfall data for other uses](#) is located below the list. The main map area shows an aerial view of the Cleveland, Ohio region, with Lake Erie to the north and various municipalities labeled. A red square on the map indicates the selected location for the precipitation data. At the bottom of the window, there are links for [Analyze a New Site](#), [Save Current Site](#), and [Exit](#).

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | Precipitation | **Evaporation** | Climate Change | Land Cover | LID Controls | Results

Select a weather station to use as a source for evaporation rates:

- 1 - CLEVELAND WSFO AP (1970-2006) 0.17 inches/day
- 2 - KIRTLAND-HOLDEN 2 (1995-2006) 0.17 inches/day
- 3 - ELYRIA 3 E (1970-2006) 0.18 inches/day
- 4 - PAINESVILLE 4 NW (1970-2005) 0.18 inches/day
- 5 - CHARDON (1970-2006) 0.16 inches/day

[Save evaporation data for other uses](#)

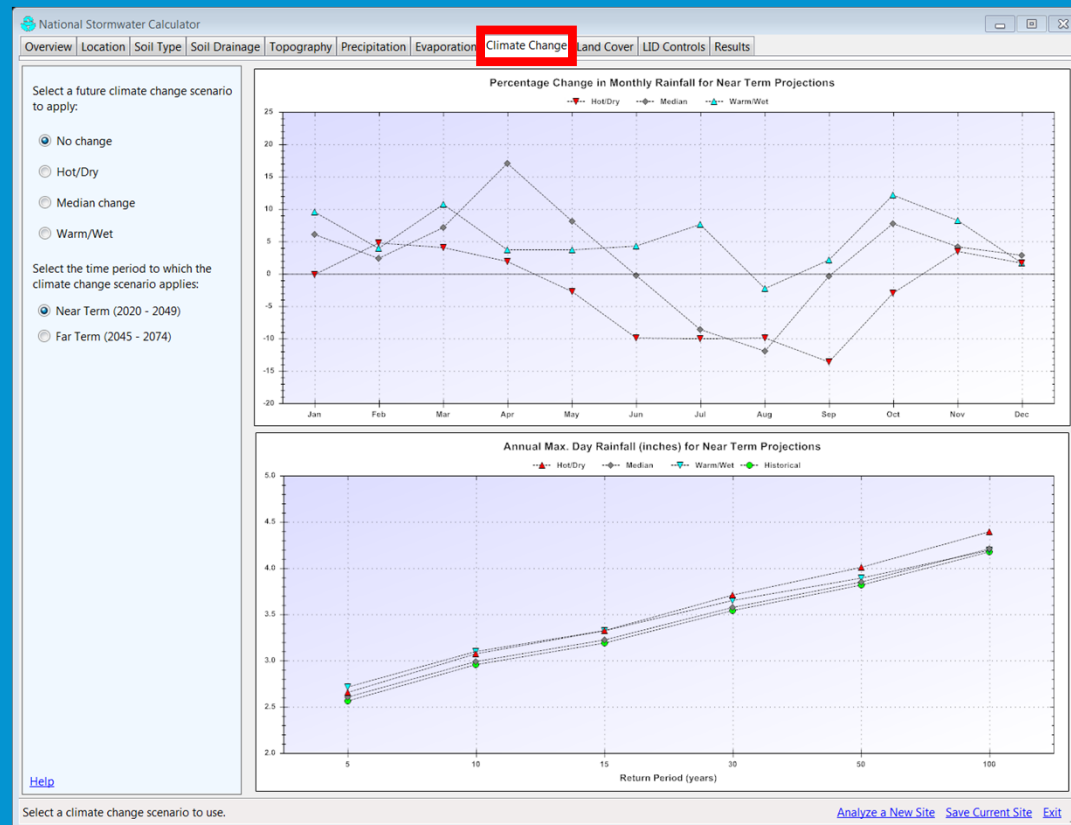
[Help](#)

Select a source of monthly average evaporation rates.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions





# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions

The screenshot displays the National Stormwater Calculator software interface. The 'Land Cover' tab is selected and highlighted with a red box. The interface includes a navigation menu at the top with tabs for Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, ID Controls, and Results. On the left side, there is a panel titled 'Describe the site's land cover for the development scenario being analyzed:' containing a table of land cover categories and their percentages:

Category	Percentage
% Forest	40
% Meadow	20
% Lawn	25
% Desert	0
% Impervious	15

Below the table, a note states: 'Hover the mouse over a cover category to see a more detailed description.' At the bottom left of the panel is a 'Help' link. The main area of the window shows an aerial satellite map of a city street grid. A red square on the map indicates the selected site location. At the bottom of the window, there are three buttons: 'Analyze a New Site', 'Save Current Site', and 'Exit'. The status bar at the very bottom reads 'Describe the site's land cover.'

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions

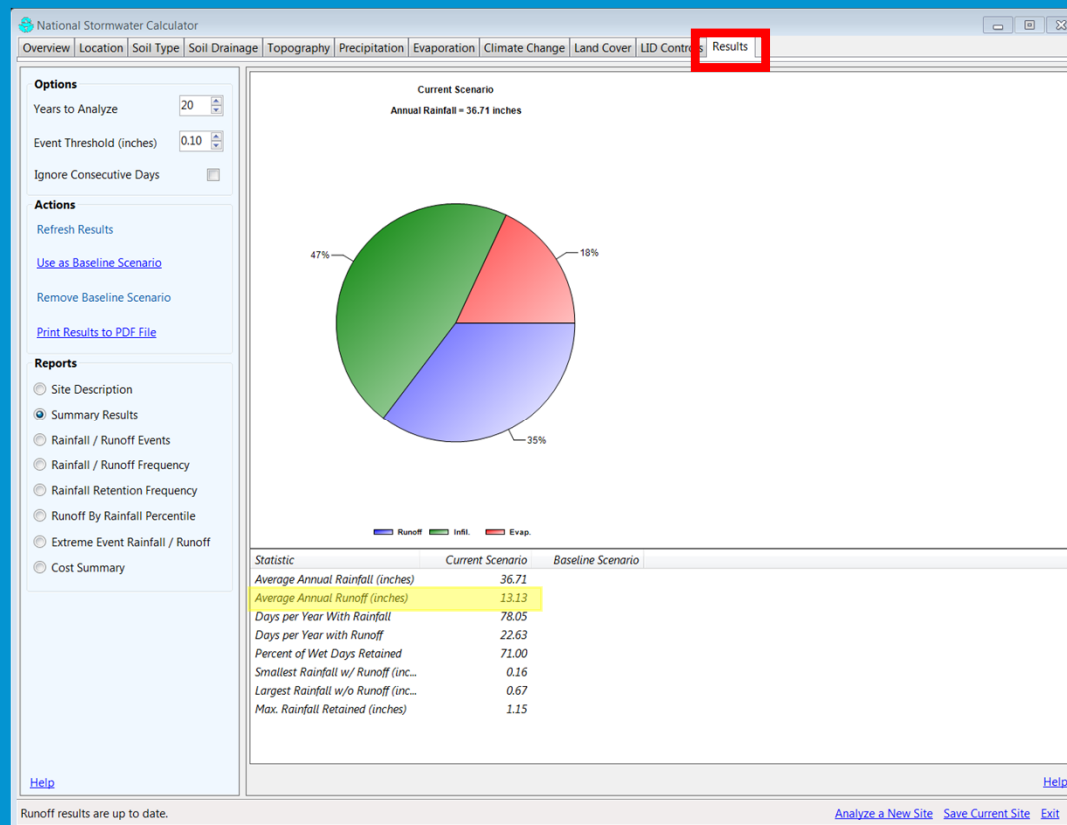
The screenshot displays the National Stormwater Calculator software interface. The 'LID Controls' tab is selected and highlighted with a red box. The interface is divided into several sections:

- Navigation Menu:** Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, Land Cover, **LID Controls**, Results.
- Question:** "What % of your site's impervious area will be treated by the following LID practices?"
- LID Practices List:**
  - Disconnection: 0
  - Rain Harvesting: 0
  - Rain Gardens: 0
  - Green Roofs: 0
  - Street Planters: 0
  - Infiltration Basins: 0
  - Permeable Pavement: 0
- Design Storm for Sizing:** 0.00 (inches)
- Cost Region:** Detroit (91 miles) 1.02
- Regional Multiplier:** 1.02
- Site Suitability:** Poor (selected), Moderate, Excellent
- Project Type:** Re-Development (selected), New Development

The central part of the interface features a satellite map of a city street grid, with a red square indicating the site location. The map shows streets such as Chester Ave, Euclid Ave, and Prospect Ave. At the bottom of the window, there are links for "Analyze a New Site", "Save Current Site", and "Exit".

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator Modules – Existing Conditions



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator - Baseline Scenario

### Meeting Minimum Title IV Requirements

The screenshot displays the National Stormwater Calculator software interface. The 'Land Cover' tab is selected and highlighted with a red box. The interface is divided into several sections:

- Navigation Tabs:** Overview, Location, Soil Type, Soil Drainage, Topography, Precipitation, Evaporation, Climate Change, **Land Cover**, ID Controls, Results.
- Land Cover Description:** A text area for describing the site's land cover for the development scenario being analyzed.
- Input Fields:** Spinners for setting percentages for Forest (0), Meadow (0), Lawn (10), Desert (0), and Impervious (90).
- Existing Conditions:** A section with spinners for Forest (40), Meadow (20), Lawn (25), Desert (0), and Impervious (15).
- Map:** An aerial map showing a city street grid with a red square indicating the site location. Street names include Chester Ave, Euclid Ave, and Prospect Ave.
- Footer:** 'Describe the site's land cover.' and navigation links: 'Analyze a New Site', 'Save Current Site', 'Exit'.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator - Baseline Scenario

### Meeting Minimum Title IV Requirements

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | Precipitation | Evaporation | Climate Change | Land Cover | **LID Controls** | Results

What % of your site's impervious area will be treated by the following LID practices?

- [Disconnection](#) 0
- [Rain Harvesting](#) 0
- [Rain Gardens](#) 0
- [Green Roofs](#) 0
- [Street Planters](#) 0
- [Infiltration Basins](#) 0
- [Permeable Pavement](#) 0

Design Storm for Sizing (inches) (see Help) 0.00

Click a practice to customize its design.

Verify cost-estimation variables below

- Project is [Re-Development](#)
- Project is [New Development](#)

- Site Suitability [Poor](#)
- Site Suitability [Moderate](#)
- Site Suitability [Excellent](#)

[Cost Region](#) Detroit (91 miles) 1.02

Regional Multiplier 1.02

[Help](#)

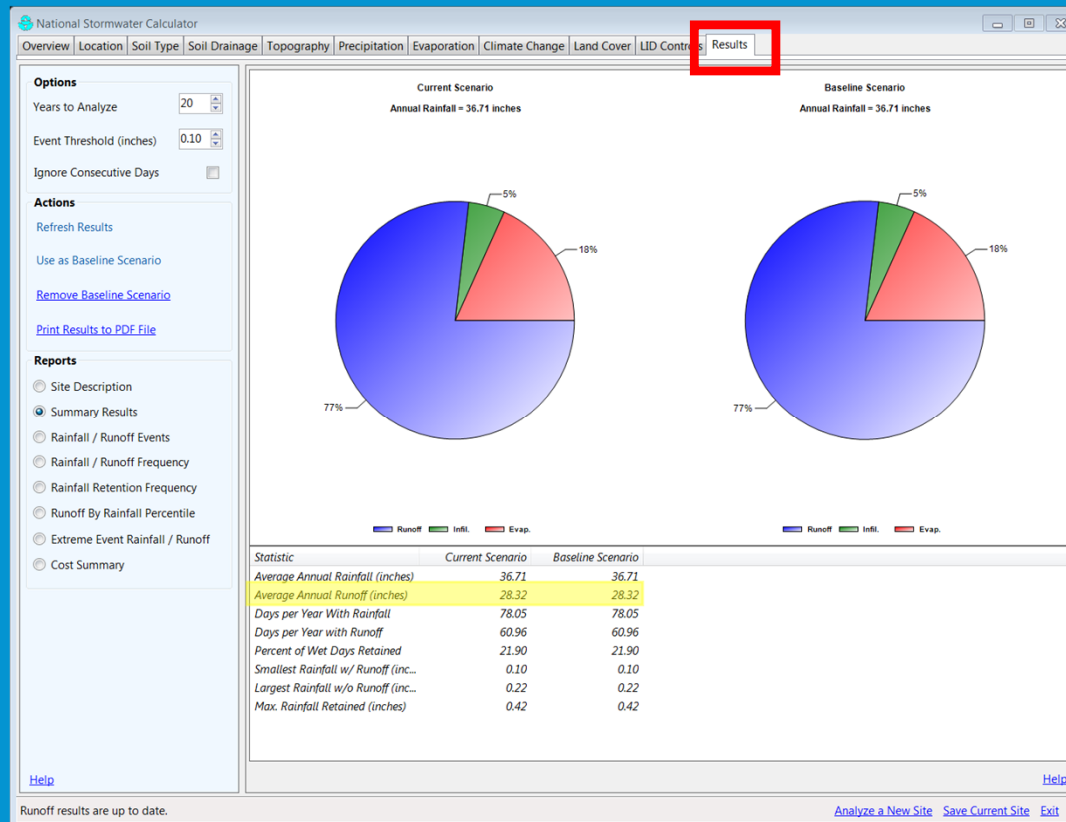
Assign LID practices to capture runoff from impervious areas.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator - Baseline Scenario

### Meeting Minimum Title IV Requirements



Runoff results are up to date.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – with Green Infrastructure

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | Precipitation | Evaporation | Climate Change | **Land Cover** | Controls | Results

Describe the site's land cover for the development scenario being analyzed.

% Forest	0
% Meadow	0
% Lawn	10
% Desert	0
% Impervious	90

Hover the mouse over a cover category to see a more detailed description.

Describe the site's land cover.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – with Green Infrastructure

The screenshot displays the EPA National Stormwater Calculator interface. The 'LID Controls' tab is selected and highlighted with a red box. The left sidebar contains a list of LID practices with their respective values:

- Disconnection: 0
- Rain Harvesting: 0
- Rain Gardens: 0
- Green Roofs: 0
- Street Planters: 75 (highlighted with a red oval)
- Infiltration Basins: 0
- Permeable Pavement: 0

Below the practices, the 'Design Storm for Sizing (inches) (see Help)' is set to 0.00. The 'Verify cost-estimation variables below' section includes radio buttons for 'Project is Re-Development' (selected) and 'Project is New Development'. The 'Site Suitability' section has radio buttons for 'Poor' (selected), 'Moderate', and 'Excellent'. The 'Cost Region' is set to 'Detroit (91 miles) 1.02' and the 'Regional Multiplier' is 1.02.

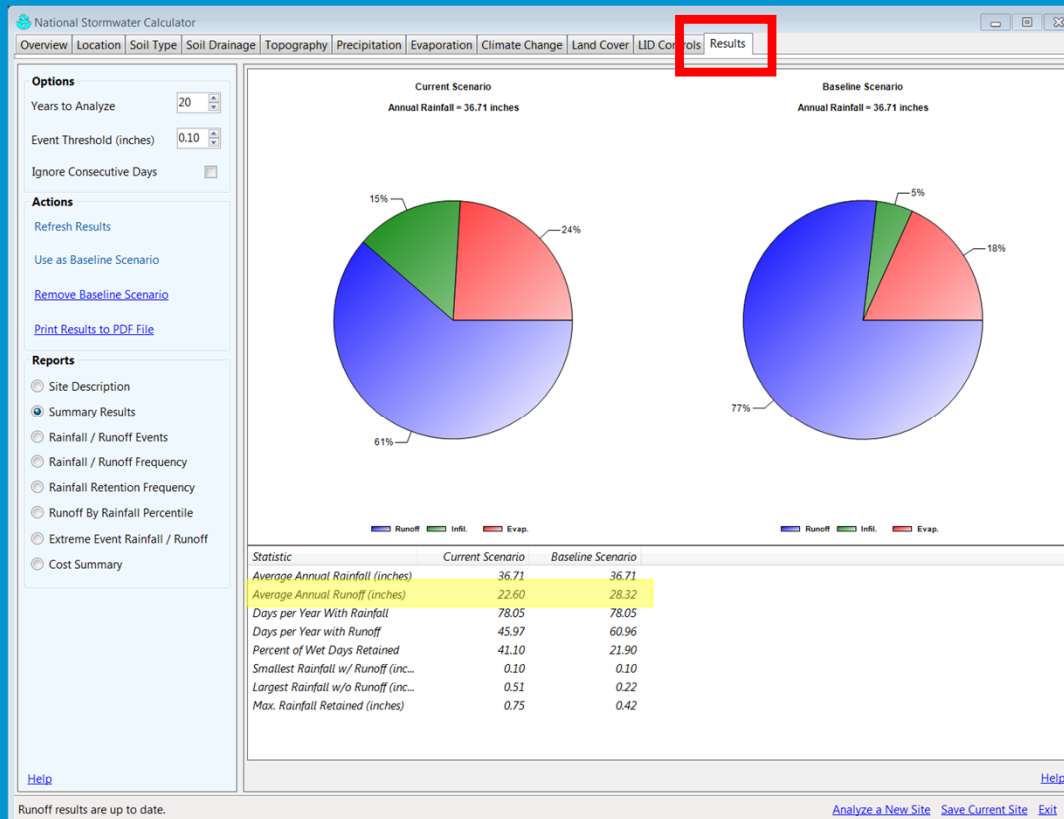
The main area shows an aerial map of a city street grid. A red square on the map indicates the site location. At the bottom of the window, there are links for 'Analyze a New Site', 'Save Current Site', and 'Exit'.



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – with Green Infrastructure

75% of Impervious Area to Street Planters



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – with Green Infrastructure

### Multiple LID Controls

National Stormwater Calculator

Overview | Location | Soil Type | Soil Drainage | Topography | Precipitation | Evaporation | Climate Change | Land Cover | **LID Controls** | Results

What % of your site's impervious area will be treated by the following LID practices?

Disconnection	0
Rain Harvesting	25
Rain Gardens	0
Green Roofs	25
Street Planters	50
Infiltration Basins	0
Permeable Pavement	0

Design Storm for Sizing (inches) [Help](#): 0.00

Click a practice to customize its design.

Verify cost-estimation variables below

Project is [Re-Development](#)  
 Project is [New Development](#)

Site Suitability [Poor](#)  
 Site Suitability [Moderate](#)  
 Site Suitability [Excellent](#)

[Cost Region](#) Detroit (91 miles) 1.02  
Regional Multiplier 1.02

[Help](#)

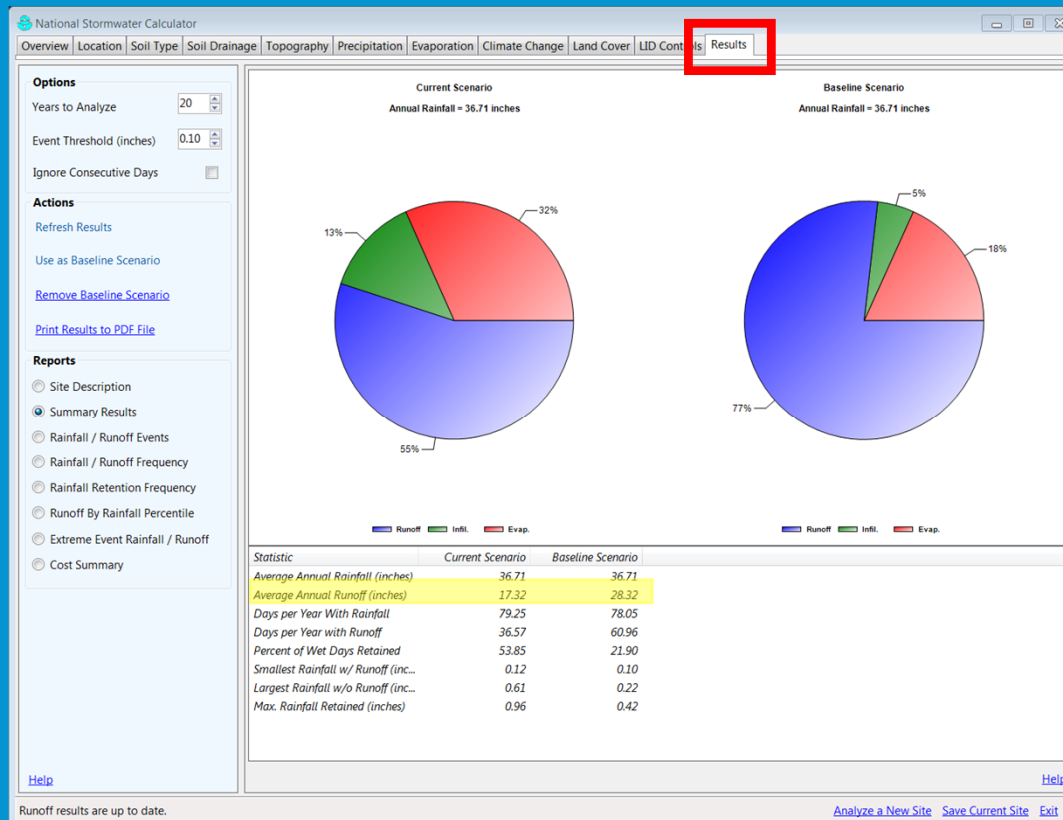
Assign LID practices to capture runoff from impervious areas.

[Analyze a New Site](#) [Save Current Site](#) [Exit](#)

# GI Grant Program Technical Requirements

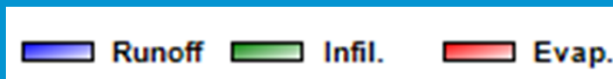
## EPA National Stormwater Calculator – with Green Infrastructure

### Multiple LID Controls

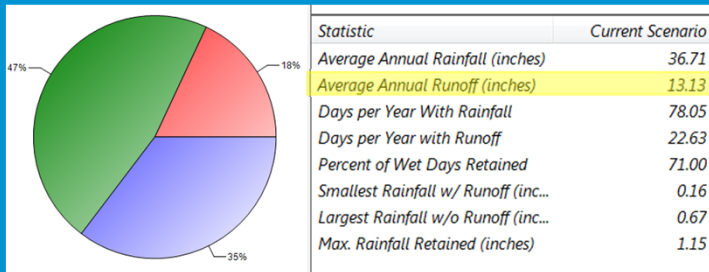


# GI Grant Program Technical Requirements

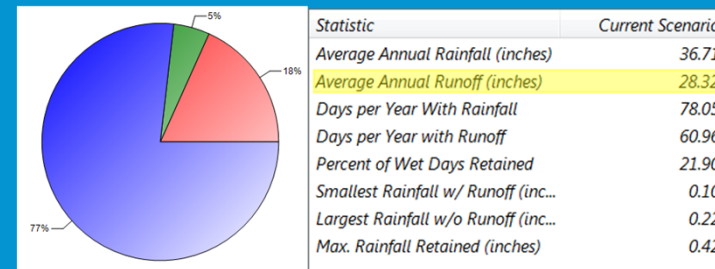
## EPA National Stormwater Calculator



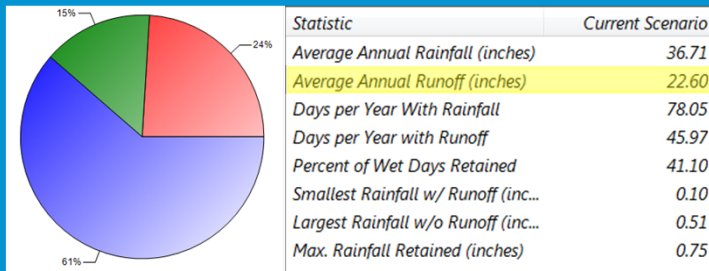
Existing Conditions



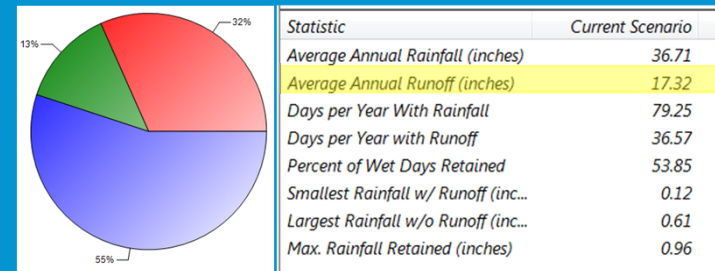
Minimum Title IV Requirements  
(Baseline Scenario)



75% of Impervious Area to  
Street Planters



Multiple LID Controls



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### Baseline Scenario

- Use existing conditions (pre-development) when impervious area does not increase
- Use proposed conditions that meet the minimum NEORSD Title IV requirements when impervious area increases

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### Treatment Trains

- The SWC does not model treatment trains...beyond its capabilities
- Use Stormwater Management Model (SWMM); or...
- Be creative...justify your assumptions

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### Treatment Trains

- A 15,000 sq.ft. Green Roof (GR) discharges to Permeable Pavement (PP)
- **Step 1:** Run the model for just the GR and its drainage area. Results in 45% capture; so assume 8,250 sq.ft. of the GR (55% of 15,000 sq.ft.) continues to behave as impermeable and goes to the PP.
- **Step 2:** Run the model for just the PP and its drainage area, but also take into account the additional 8,250 sq.ft. of impervious area from the GR.
- The results from the PP model run should be used as your final result.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### Underdrains

- Unless ideal soil conditions exist, underdrains are a necessary design feature for street planters and permeable pavement.
- Proposed standard underdrains will not negatively affect your grant application.
- Encouraged to alter the design of your underdrains to maximize infiltration potential (e.g., adding an upturned elbow).

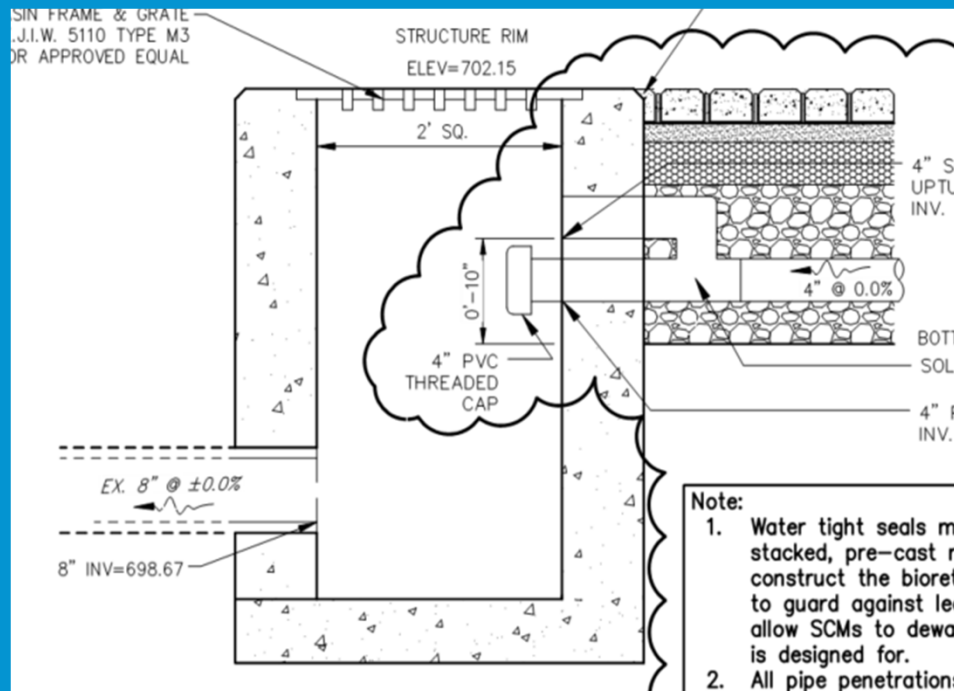




# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### Upturned Elbow



# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### Unique Control Practices

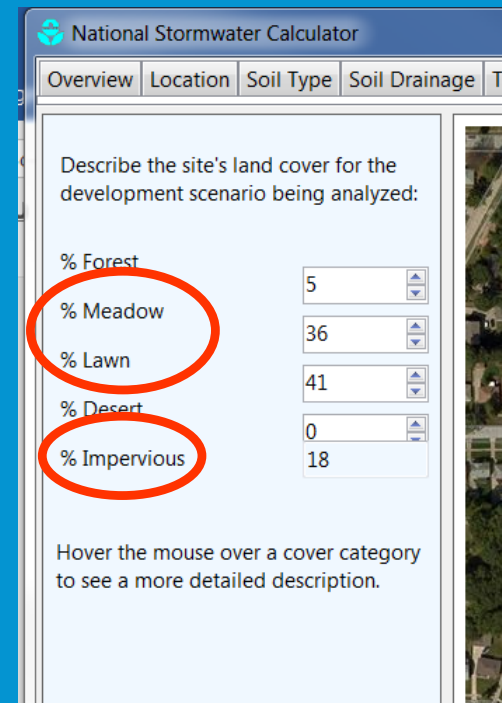
- If a proposed practice does not fit the mold of any of the calculator's options, use best professional judgement to select one or more of the seven LID Controls, and provide a brief narrative to justify selection.

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### Land Cover Module

- Account for footprints of rain gardens, street planters and infiltration basins as Meadow or Lawn.
- Account for footprints of permeable pavement and green roofs as Impervious



The screenshot shows the 'National Stormwater Calculator' interface, specifically the 'Land Cover Module'. The window title is 'National Stormwater Calculator'. The navigation tabs are 'Overview', 'Location', 'Soil Type', 'Soil Drainage', and 'Topography'. The main content area is titled 'Describe the site's land cover for the development scenario being analyzed:'. Below this, there is a list of land cover categories with corresponding percentage values in input fields:

Land Cover Category	Percentage
% Forest	5
% Meadow	36
% Lawn	41
% Desert	0
% Impervious	18

Red circles are drawn around the labels for '% Meadow' and '% Impervious'. Below the input fields, there is a note: 'Hover the mouse over a cover category to see a more detailed description.'

# GI Grant Program Technical Requirements

## EPA National Stormwater Calculator – Helpful Hints

### LID Controls Module

- Bioretention cells & infiltration trenches = Street Planters
- Footprints of rain gardens, street planters and infiltration basins = Meadow or Lawn
- Footprints of permeable pavement and green roofs = Impervious

Overview | Location | Soil Type | Soil Drainag

What % of your site's impervious area will be treated by the following LID practices?

<a href="#">Disconnection</a>	0
<a href="#">Rain Harvesting</a>	0
<a href="#">Rain Gardens</a>	0
<a href="#">Green Roofs</a>	0
<a href="#">Street Planters</a>	0
<a href="#">Infiltration Basins</a>	0
<a href="#">Permeable Pavement</a>	0
Design Storm for Sizing (inches) (see Help)	0.00

Jessica S. Cotton, GISP, GIP  
Grant Programs Administrator (GIG Point of Contact)  
216.881.6600 x6458  
[CottonJ@neorsd.org](mailto:CottonJ@neorsd.org)

Christopher Hartman, CPESC, CPSWQ, CESSWI  
Stormwater Technical Specialist  
216.881.6600 x6656  
[HartmanC@neorsd.org](mailto:HartmanC@neorsd.org)