Green Infrastructure Program

Before You Begin

PLEASE READ BEFORE PROCEEDING

- **Limit your use of bullets and other formatting.**
- **Copy and paste as needed.**
- **Log into your account at https://www.GrantRequest.com/SID_5833?SA=AM to access saved and submitted requests.**
- **Add mail@grantapplication.com to your safe senders list to ensure you receive all system communications.**
- **Anticipate a notice of application receipt within 24 hours of submission**

General Information

Applicant Information

Organization

West Creek Conservancy

Executive Officer Title

Executive Director

Executive Officer First Name

Derek

Executive Officer Last Name

Schafer

Executive Officer Address

West Creek Conservancy
1440 Rockside Road, Suite 329
Cleveland, OH 44134

Executive Officer Phone

216-749-3720

Executive Officer Extension

12

Executive Officer E-mail Address

dschafer@westcreek.org

Project Manager Title

Executive Director

Project Manager First Name

Bob

Project Manager Last Name

Gardin

Office Address

Big Creek Connects
4352 Pearl Road, Suite C
Cleveland, OH 44109

Office Phone

216.661.7706

Extension

Alternate Phone

216.269.6472

E-mail

bgardin@bigcreekconnects.org

Project Information

Parcel Numbers

016-08-001 & 016-07-001

Green Infrastructure SCM’s Proposed

1) Cistern
2) underground chambers
3) porous concrete
4) bioretention

Watershed of Project

Walworth Run (CSO 080)

Project Start Date

January 01, 2020

Project End Date

November 30, 2020

Total Project Cost

467763.64

Requested Grant Amount

249741.80

Project Title

Barrio Distribution Center Green Campus

Project Address

3199 & 3190 W. 65th Street
Cleveland, Ohio 44102

Green Infrastructure SCM's Data.

Provide acre measurements to the nearest hundreth

List each proposed SCM and denote the square footage footprint of each (e.g., Rain Garden – 400 SF).
For "Rain Harvesting", indicate "0" square feet.

1) 500 gallon Cistern
2) 0.034 AF underground chambers
3) 1,445 SF porous concrete
4)600 SF bioretention

List each proposed SCM and denote the drainage area to each to nearest hundredth of an acre.

1) 0.19 (overflows to bioretention)
2) .73
3) 0 (runoff reduction)
4) 0.19 (comes from cistern)

Pre-Construction Impervious Acres

0.92

Post-Construction Impervious Acres:

0.879

Change in Impervious Acres

-0.041

Impervious Acres Draining to each SCM(s)

1) 0.19 (overflows to bioretention)
2) 0.689
3) 0 (runoff reduction)
4) 0.19 (comes from cistern)

*Pre-Construction – Average Annual Runoff (in.) of Project Area

27.72

Post-Construction - Average Annual Runoff (in.) of Project Area

3.43

Annual Runoff Reduction (gal/yr.)

(Runoff Reduction (in.) / 12 x Treated Drainage Area (acre) x 325,851.433 = gal/yr.)
695645

Existing Conditions Results (EPA National Stormwater Calculator Report). For proposed projects that are only adding SCMs to the existing land use, this will serve as your *baseline scenario* and you do not need to upload a report for "Improvements Meeting Minimum Title IV Standards Results" (see below).

Use *Analysis using the US EPA Stormwater Calculator an upload the results here

National stormwater calculator.pdf

Provide the following map:
Show existing project discharge points and corresponding drainage areas and drainage patterns, including offsite areas that drain into the project area. As applicable, show the limits of existing forest, meadow, lawn, and impervious areas and the percentage of the project area comprised by each.

Existing Conditions Map

bario GIG Site Plan-Barrio Pre.pdf

Improvements Meeting Minimum Title IV Standards Results (EPA National Stormwater Calculator Report). The "Existing Conditions Results" and this report must be submitted if a new or re-development project is being proposed that incorporates SCMs. This report will serve as your baseline scenario.

Use *Analysis using the US EPA Stormwater an upload the results here

HydroCAD Report.pdf

Provide the following map:
Show proposed project discharge points and corresponding drainage areas and drainage patterns, including offsite areas that drain into the project area. As applicable, show the limits of existing forest, meadow, lawn, and impervious areas and the percentage of the project area comprised by each.

Post-Development Map with required Title IV SCMs only.

bario GIG Site Plan-bARRIO Post.pdf

Improvements with Proposed SCMs Results (EPA National Stormwater Calculator Report)

Use *Analysis using the US EPA Stormwater Calculator an upload the results here

National stormwater calculator_VER_1.pdf

Provide the following map:
Show proposed project discharge points and corresponding drainage areas and drainage patterns, including areas that drain into the project area. As applicable, show the limits of proposed forest, meadow, lawn, and impervious areas and the percentage of the project area comprised by each.
For each proposed SCM, show the following:
- The total drainage area
- The impervious drainage area, including the % of the site's total Impervious area
- The actual size of the practice (square feet)

Post-Development Map with SCMS

bario GIG Site Plan-Project11x17 Exhibit.pdf

Project Narrative

Project Narrative

Project Introduction

Introduction (100 word maximum)Provide a brief introduction to the organization that would be delivering the proposed GIG project.

Big Creek Connects (BCC) in partnership with West Creek Conservancy (WCC) as the fiscal agent and the property owner Sandy Banks, LLC will be delivering the proposed project. Since 2005 Big Creek Connects has been the watershed stewardship organization for the Big Creek watershed and areas within the City of Cleveland north of the watershed boundary. West Creek Conservancy has a longaccomplished history working within and beyond its watershed, assisting communities and other watershed organizations like BCC with conservation and restoration projects. WCC has an excellent track record working with larger budgeted projects like the one presented here.

Project Summary

Describe the GIG project. Include the following information:

- Objectives and Outcomes;
- Proposed design and installation;

- Drawings or figures of the site and GIG project;
- How the SCM will function;
- Other relevant project details; and,
- Current photos of the GIG project site. If awarded, design documents must be submitted to the District for review, comment, and approval prior to site work.

The proposed project will be installed on a lot directly south of Barrio's Distribution Center facility,
located at 3199 W. 65th Street in Cleveland's Stockyards neighborhood. The Barrio Distribution Center
Facility is owned by Sandy Banks LLC, Barrio CEO's construction company. Sandy Banks LLC is an Ohio
limited liability company whose sole member is Mr. Thomas Leneghan. Big Creek Connects and West
Creek Conservancy are partnering with Barrio to apply for Green Infrastructure Grant funding to construct
bioretention, porous pavement, an aboveground cistern, and underground storage to control
stormwater from the vacant property south of the Barrio Distribution Center. This parcel is currently
owned by the City of Cleveland landbank and will be transferred to Barrio in 2019. Mr. Leneghan has
been in contact with the Chief of Regional Development who has advised that the City anticipates receipt
of the appraisal by September 19th, at which point Mr. Leneghan will move forward with the
purchase. Metro West Community Development Corporation (Metro West) will also be involved with
the project to assist with project-related education and outreach opportunities within the community,
i ncluding the nearby Stockyards Elementary and Middle Constellation Schools.
The project objectives are to encourage neighborhood revitalization and build community in the Stockyards
neighborhood of Cleveland through installation of creative stormwater control measures on the
Barrio Distribution Center (commissary) expansion site at 3199 W. 65th Street. Barrio is a local-owned
business who seeks to improve and expand its existing commissary to better serve its locations and
clientele. Barrio is Spanish meaning "neighborhood" and Mr. Leneghan has built many Barrio "neighbor
h oods" in northeast Ohio since its inception in 2012.
The commissary is sited centrally to Barrio's business in the Stockyards neighborhood. The adjacent
property is the site of a recently demolished structure that the Barrio owner is purchasing for expansion
of their commissary to install a new parking lot and garage structure. They want to manage the
stormwater runoff from the expanded site by installing a porous pavement patio, bioretention, an

aboveground cistern to capture roof runoff to irrigate the bioretention garden (which would include
food grade plantings), and underground storage. The underground storage and cistern would be used
to wash food trucks stored at this commissary.
Overflow from the porous pavement, bioretention and cistern will be directed to underground storage
for additional stormwater detention and capture. The bioretention and landscaping along the frontage
on W. 65th Street will be a bright, vibrant addition to the industrial backdrop and will be used to grow
heirloom peppers and other vegetables for the Barrio menu. The aboveground cistern will function both
as a useful rainwater harvesting system as well as an art installation, with creative use of metalwork and
design to produce a visible landmark in keeping with Barrio's eclectic brand. Barrio currently retains an
artist in residence at this facility. His specialty is metal work and his art will be incorporated into the
cistern. The cistern is proposed to be a set-in-place aboveground metal cistern with an impermeable
liner for containment. Because the set-in-place cisterns come fully assembled, they can be installed in a
matter of hours, and can last up to 75 years or longer with proper maintenance. The SCMs will be
constructed according to the most recent state guidance in Rainwater and Land Development. The
cistern water will only be used for non-potable purposes and will include a sediment treatment device
to eliminate abrasives from the water prior to use. The underground infiltration will include a sediment
pretreatment device to facilitate both effectiveness of the practice and long-term maintenance.
A conceptual design for the SCMs has already been produced (see attachments). The design consultant,
Environmental Design Group (EDG), will be authorized to further the design and provide final
construction drawings, specification, and construction administration support services once the grant is
awarded. Sandy Banks LLC, the owner, will be the general contractor on the non-SCM portions of the
project and will be subcontracting construction of the SCMs to RS Construction, a local firm that has
experience in installation of stormwater control measures such as the bioretention cells at the Flying
Monkey parking lot in Tremont (819 Jefferson Avenue) – which was funded by the NEORSD in 2007. Mr.
Leneghan has purchased and rehabilitated all of his Barrio restaurant locations and is a registered
contractor.
With all of the ability to capture and re-use stormwater, this project will control 695,645 gallons of

stormwater. Existing soil survey in this Walworth Run sewershed (CSO 080) are clay, which will reduce
infiltration, making stormwater re-use more important. This project was also located as a potential site
within the award-winning Walworth Run Green Infrastructure Feasibility Study.
EDG will use existing O&M guidance such as the Northeast Ohio Stormwater Training Council's
Maintaining Stormwater Control Measures: Guidance for Private Owners and Operators in addition to
the manufacturer's guidance on proprietary stormwater systems to produce an O&M manual for the
owners. EDG will also perform an on-site training for the Barrio team with staff certified through The
Ohio State University and Summit SWCD's Inspection and Maintenance Certification for Stormwater
Control Measures in Ohio.

Project Summary Photos

Upload a zip or pdf file containing up to five(5) photos

photo log.pdf

Ability to Provide Long Term Maintenance

Describe the plans for long-term maintenance, addressing ALL the following questions:

- Who owns the land where the GIG project will be located? Does the applicant have site control?
- What is the anticipated design life expectancy of the green infrastructure features for which GIG funding is requested?
- Who is responsible to provide on-going maintenance for the design life of the project and how will maintenance be ensured?
- Provide an anticipated list of routine maintenance tasks/activities, schedule, and estimated annual cost to ensure continued performance of the GIG project.

The land is currently owned outright by the City of Cleveland Industrial-Commercial Land Bank. The
Barrio owners are working with the City Landbank on the purchase and will secure site control by December 2019. As the owner/general contractors, the Barrio team are familiar with the SCMs and will
be responsible for maintaining them over the SCM lifetimes. The Barrio team performs their own
maintenance and landscaping of the commissary, their restaurants, all Sandy Banks LLC buildings, have
access to a vacuum truck and sewer jet, and are well-equipped for SCM maintenance. WCC and BCC will
assist with annual inspections and review of the O&M manual.

Porous pavement, if maintained properly, has lifespans comparable to traditional asphalt, and can function well after 15 to 20 years. Vacuum sweeping and replacement of aggregate should be performed two to four times a year, ideally after winter snow melt and after fall leaf drop. After large (>1") storms, inspect pavement to ensure it is dewatering with no surface water ponding. Annually, inspect the pavement surface for structural integrity and any needed repair.
Bioretention plants should be watered regularly in the first year to ensure establishment. Weeding and pruning of the plants should occur as needed through the bioretention's lifetime. Inspect pretreatment and filter bed areas semi-annually for accumulated sediment or erosion and repair if needed.
Inspections for litter and debris removal should occur monthly, and mulch should be added or replaced annually as needed. Approximately every 3-10 years, depending on the run-on, fine sediments may accumulate in the top few inches of planting soil, which should be corrected by replacing a portion or all of the planting soil and filter layer until better permeability is achieved.
The rainwater harvesting cistern should be inspected quarterly in the first year to assess site loading and verify initial operation, with annual inspections for subsequent years. Pretreatment, inlets, outlets, and overflow structures should be checked for blockages and accumulated sediment, and sediment should be removed when it reaches critical volume. In most cases, maintenance cycles are 5 to 10 years for rainwater harvesting systems.
The underground system should be inspected monthly and after each major (>1") storm event in the first year, with quarterly inspections for subsequent years (preferably after a storm). The manufacturer's guidance for maintenance will be included in the O&M manual.
Total annual costs for maintenance are estimated at $2,600 to $3,000.

Visibility and Public Outreach

What audiences will be exposed specifically to the green infrastructure components of this project (neighbors, students, community groups, public)?

- Describe how these audiences will interact with the GIG project and include methods of exposure, frequency, and education components.

Barrio has a commitment to community revitalization, as evidenced by anchoring their primary production facility in the Stockyards neighborhood and creating 40 jobs as a result. The nearby Stockyard

Community Elementary and Middle Constellation Schools afford a unique opportunity for Barrio to
engage local students on stormwater education. Over 340 students in grades K-8 attend the schools
and the combined student body is over 51% Hispanic, most from the local Clark-Fulton and Stockyards
neighborhoods. The schools actively partner with Metro West CDC and consider being involved in the
community to be a vital part of each student's education. The bioretention and water storage can function
as a "land lab" for the students, with interpretive signage to assist them in understanding the reason
behind and function of the stormwater control measures. The proximity of the bioretention to the schools allows the students to observe its function throughout the seasons and
Barrio can host field trips where Big Creek and West Creek can demonstrate the SCMs to the students.
The project site itself is located along W. 65th, a major north-south corridor on the near west side of
Cleveland. The road is well-traveled and, based on 2015 NOACA traffic-count information, sees an
average daily traffic total of 7,126 vehicles in the project area's location between Clark Avenue and
Storer Avenue. SCMs located along this corridor will be highly visible and serve as a gateway landmark
for the Stockyards and Detroit-Shoreway neighborhoods, which share a border at Clark Avenue.

Tasks and Deliverables

Submit a schedule of GIG project tasks and deliverables with start dates and end dates for the significant benchmarks with project completion date defined.

Barrio_Tasks&Deliverables.docx

Letters of Support

- Applications must include one letter of support from the applicable councilperson.
- Applications must include a letter of support from each non-municipal project partner named in the application. Please note this applies to non-municipal partners only. Please do not include letters of support from various municipal departments unless specifically required.
- Applications proposing work on publicly-owned property, including within the right-of-way, must include a letter of support from the applicable public office with control over the property. For the City of Cleveland, a GIG project in the right-of-way in the City of Cleveland must include a support letter from the Mayor's Office of Capital Projects.
- Do not include any letters of support beyond those specified above. The Sewer District does not want extraneous letters of support.

support barrio.pdf

Budget

Budget Information

Budget Summary

The Budget Summary and Budget represent the green infrastructure components of the project exclusively. Include details on the provider for all in-kind services and/or materials including specific material cost and hourly rate. If there is a volunteer component, please identify the source of volunteers.

An Opinion of Probable Project Costs is uploaded in this application. It is based on available information and the Landscape Architect's experience and qualifications. This opinion represents the Landscape Architect's best judgment based on experience with the construction of similar projects.

GIG PROJECT INCOME

NEORSD Anticipated

NEORSD Committed

NEORSD Total

NEORSD Description

Foundations Anticipated

Foundations Committed

Foundations Total

Foundations Description

Government Grants or Contracts Anticipated

Government Grants or Contracts Committed

Government Grants or Contracts Total

Government Grants or Contracts Description

Organizational Budget Anticipated

Organizational Budget Committed

Organizational Budget Total

Organizational Budget Description

In-kind Support Anticipated

In-kind Support Committed

In-kind Support Total

In-kind Support Description

Other Anticipated

Other Committed

Other Total

Other Description

GIG PROJECT EXPENSES

Professional Services

NEORSD Request

56285

Other Funding

Total

56285

Line Item Description

Labor

NEORSD Request

Other Funding

Total

Line Item Description

Plants

NEORSD Request

Other Funding

Total

Line Item Description

Equipment Rental

NEORSD Request

Other Funding

Total

Line Item Description

Materials

NEORSD Request

Other Funding

Materials Total

Line Item Description

Other

NEORSD Request

193715

Other Funding

219670.17

Other Total

413385.17

Line Item Description

Construction

Upload Engineer's Estimate (If applicable)

Barrio_Cost Estimate.pdf

CITY OF CLEVELAND
Office of the Council
www.clevelandcitycouncil.org

Kerry McCormack COUNCIL MEMBER, WARD 3
COMMITTEES: Health & Human Services • Development, Planning & Sustainability • Safety

August 26, 2019

Northeast Ohio Regional Sewer District
GJM Administration Building
3900 Euclid Avenue
Cleveland, Ohio 44115

RE: NEORSD Green Infrastructure Grant for 3190 West 63rd Street

Dear NEORSD Grant Committee:

I am writing you to express my full support for West Creek Conservancy's request for funding through the NEORSD Green Infrastructure Grant for improvements at the Barrio Commissary site located at 3190 West 63rd Street, Cleveland, Ohio 44102. Barrio Bros, LLC owns and operates the Barrio Commissary and is looking to expand their existing location through the acquisition and improvement of the adjacent property. With restaurant locations throughout the Cleveland Area, including in the Downtown and Tremont neighborhoods, and the Commissary in the Stockyards neighborhood, Barrio has been an asset to the city since 2012.

Barrio has worked with my office and Metro West Community Development Organization during the improvements to their existing building and on the acquisition of the adjacent site from the City of Cleveland. I believe their use of the site for building expansion, parking and vegetable gardens using green infrastructure by capturing and reusing stormwater will bring the site to life and add to beautification efforts along West 63rd and 65th Streets.

Through NEORSD Green Infrastructure funding, using green infrastructure on the site will further connect the business to the community and will provide an excellent opportunity to educate community members and nearby students of the Stockyard Community Elementary school about green infrastructure and the benefits of its use.

Thank you for your time and please contact me with any additional questions.

Sincerely,

Kerry McCormack

Councilman Kerry McCormack

City Hall 601 Lakeside Avenue N. E., Room 220, Cleveland, OH 44114 • **Phone** (216) 664-2691 • **Fax** (216) 664-3837
Email kmccormack@clevelandcitycouncil.org

METRO WEST
COMMUNITY DEVELOPMENT ORGANIZATION

August 26, 2019

Northeast Ohio Regional Sewer District
McMonagle Administration Building
3900 Euclid Avenue
Cleveland, Ohio 44115

RE: NEORSD Green Infrastructure Grant for 3190 West 63rd Street

Dear NEORSD Grant Committee:

I am writing you to express Metro West Community Development's full support for Barrio Tacos' request for the funding through the NEORSD Green Infrastructure Grant for improvements to their site located at 3190 West 63rd Street, Cleveland, Ohio 44102. Barrio has run the Barrio Commissary at their West 63rd Street site within the Stockyard neighborhood since 2015, providing jobs to local residents including refugees and immigrants who live within close proximity to their site.

Barrio has worked with Metro West Community Development Organization and Councilman McCormack's office throughout the improvements to their existing building and with the acquisition of the adjacent site from the City of Cleveland. I believe their use of the site for building expansion, parking and vegetable gardens using green infrastructure by capturing and reusing stormwater will bring the site to life and add to beautification efforts along West 63rd and 65th Streets. This area has suffered from vacancy and dilapidation, and we believe this investment would inspire additional improvements along this high-trafficked but often overlooked corridor. The proposed infrastructure would also provide educational opportunities for area schools, one of which, Stockyard Elementary, is directly across the street.

Through NEORSD Green Infrastructure funding, using green infrastructure on the site will further connect the business to the community and will provide an excellent opportunity to educate community members and visitors about green infrastructure and the benefits of its use.

Thank you for your time and please contact me with any additional questions.

Sincerely,

Ricardo León
Executive Director
Metro West Community Development Organization

3167 FULTON ROAD, SUITE 303, CLEVELAND, OHIO 44109 | TEL (216) 961-9073 | FAX (216) 961-9387

Tasks & Deliverables

September 6, 2019 .....NEORSD Grant Due. Big Creek Connects to upload;
September 2019 thru December 2019 .....NEORSD review of grant applications;

December 31, 2019 .....Notice of grant approval;
January 31,2020 .....contract between BCC/WCC & NEORSD;

February 1, 2020. ..... contract with EDG;
May 20, 2020 ..... Survey, infiltration testing, and design finalized to 90% level;
June 31, 2020 …….90% design, draft drainage report, draft O&M manual, draft interpretive signage to be sent to NEORSD for review and approval;
July 15, 2020 .....finalization of construction drawings, interpretive signs;

July 15, 2020 .....Permits procured from City;
August 1, 2020 ..... Begin work with owner and subcontractor (owner will be general contractor);
November 30, 2020 Construction Completion; As Built Drawings; final O&M manual, Interpretation signage installed;

December 22, 2020 ..... Project Construction End Deadline

Environmental Design Group	PARKS GROUP Akron, Ohio	Date: 9/2/2019					
		Project Title: **Barrio Distribution Center Green Retrofits**					
		Project No.					
		Description: Conceptual Class 3 design qty. estimate					
Prepared by: K. Holmok	**Approved By:**						
PHASE DESCRIPTION: CONCEPTUAL PLANS (CLASS 3)			NO. UNITS	UNIT MEAS.	UNIT COSTS	SUBTOTAL COST	Item Requested for NEORSD GIG Grant Reimbursement
Item #							
201 & 624	Clearing & grubbing/Mobilization/demo		1	LS	$12,500.00	$12,500.00	
203	Excavation and Embankment (including all excavation hauled)		1	LS	$29,269.33	$29,269.33	$29,269.33
253	Asphalt Pavement - Heavy Duty		3136	SY	$35.00	$109,760.00	
SPEC	Concrete drive apron		1	LS	$2,800.00	$2,800.00	
SPEC	Porous Concrete		1445	SF	$12.00	$17,340.00	$17,340.00
609	6" x 18 " Concrete Curbing		343	LF	$27.00	$9,261.00	
641	Parking Lot Markings		1	LS	$1,250.00	$1,250.00	
653	Topsoil Furnished and Placed (repair seeding)		24	CY	$70.00	$1,657.96	
SPEC	Concrete Curb Stop		28	EA	$90.00	$2,520.00	
SPEC	ADA Signage & Handicap Marker		3	EA	$200.00	$600.00	
SPEC	Storm sewer connection to W. 63rd existing sewer		1	LS	$12,500.00	$12,500.00	$12,500.00
SPEC	Catch basin with concrete collar		2	EA	$1,800.00	$3,600.00	
SPEC	Downspout Diconnection (PVC for disconnection)		250	LF	$50.00	$12,500.00	$12,500.00
SPEC	Raise bioretention with decorative gabion basket seat walls (including soil, stone, sand, underdrainage, overflow, mulch)		1	LS	$48,351.00	$48,351.00	$48,351.00
SPEC	4" PVC underdrain cleanouts w/caps		85	LF	$35.00	$2,975.00	$2,975.00
SPEC	Stormwater PPP		1	LS	$750.00	$750.00	
SPEC	Underground chambers		1	LS	$61,567.17	$61,567.17	$61,567.17
SPEC	Stainless Steel Cistern (500 gallons)		1	LS	$2,962.50	$2,962.50	$2,962.50
SPEC	Interpretive Sign		2	EA	$850.00	$1,700.00	$1,700.00
SPEC	Shrubs		35	EA	$60.00	$2,100.00	$2,100.00
SPEC	Trees		7	EA	$350.00	$2,450.00	$2,450.00
SPEC	Lawn (tree lawn repair)		284	SY	$1.50	$426.33	
	Contingency (20%)					$67,768.06	
	Permits (2%)		1	LS	$6,776.81	$6,776.81	
	Design, Survey, CA, interpretive sign design and Infiltration testing		1	LS	$56,285.00	$56,285.00	$56,285.00
					PROJECT COSTS SUBTOTAL	**$469,670.17**	
						NEORSD GIG Grant Request Total	$250,000.00

The above Opinion of Probable Project Costs is based on available information and the Landscape Architect's experience and qualifications. This opinion represents the Landscape Architect's best judgment based on experience with the construction of similar projects. The Landscape Architect has no control over the cost of labor, materials, equipment or services furnished by others or over competitive bidding or market conditions and, therefore, does not guarantee that this project cost estimate will approximate the actual project costs.

ASSUMPTIONS

a. Cost estimates and ranges are developed to the Association for the Advancement of Cost Consulting International (AACE) Class 3 estimate level. Construction cost estimates utilize ODOT 2018 prices, and local public bid prices for similar work. Unit costs include direct, indirect costs, contractor overhead and profit.
b. Excavation and Haul: It is assumed that soil is clean fill. Phase I/II screening would have to occur on any non-roadway property prior to purchase/project.
c. Assumed Soil Conditions: Unknown
d. No bedrock conflicts
e. No existing utility conflicts, repairs or upgrades are known.
f. Maintenance costs are not included
g. The cost estimate does not include fire and all risk insurance.
h. The listed 20% construction cost contingency was based upon these assumptions and risks.
i. Non-Construction Costs (Permitting, environmental, security, etc.) is unknown and an allowance of 2% of construction costs is included.

LANDSCAPE ARCHITECT:

Katherine Gluntz Holmok

Signature
Katherine Gluntz Holmok, ASLA

8/30/2019
Date

SEAL

PHOTO LOG	3199 W. 65th Street – Barrio Expansion	Project No. No. ----
Site Visit Date: 06-18-2019	**Site Location:** Parcel Number: 016-08-001 & 016-07-001	

Photo No. 1	**Date:** 06-18-2019

Old building recently demolished (grassy area). New parking area with subsurface stormwater storage will be placed onsite with ability to re-use stormwater for truck washing.

Photo No. 2	**Date:** 06-18-2019

Existing roof runoff will also be collected from Barrio building and controlled in proposed SCMs.

PHOTO LOG	3199 W. 65th Street – Barrio Expansion	Project No. No. ----
Site Visit Date: 06-18-2019	**Site Location:** Parcel Number: 016-08-001 & 016-07-001	

Photo No. 3	**Date:** 06-18-2019

Existing Constellation elementary school is located across the street and will be able to utilize proposed educational signs and front bioretention cells along W 65th street.

Photo No. 4	**Date:** 06-18-2019

Existing street frontage will have pavement removed and a pepper garden planted that will be irrigated by the roof runoff.

National Stormwater Calculator Report

Site Description

Barrio

Parameter	Current Scenario	Baseline Scenario
Site Area (acres)	1.05	1.33
Hydrologic Soil Group	B	B
Hydraulic Conductivity (in/hr)	1	1
Surface Slope (%)	2	2
Precip. Data Source	CLEVELAND WSFO AP	CLEVELAND WSFO AP
Evap. Data Source	CLEVELAND WSFO AP	CLEVELAND WSFO AP
Climate Change Scenario	None	None
% Forest	0	0
% Meadow	0	0
% Lawn	20	0
% Desert	0	0
% Impervious	80	100
Years Analyzed	13	13
Ignore Consecutive Wet Days	False	False
Wet Day Threshold (inches)	0.10	0.10

LID Control	Current Scenario	Baseline Scenario
Disconnection	0	0
Rain Harvesting	2 / 4	0
Rain Gardens	0	0
Green Roofs	0	0
Street Planters	3 / 6	0
Infiltration Basins	85 / 5	0
Porous Pavement	10 / 100	0

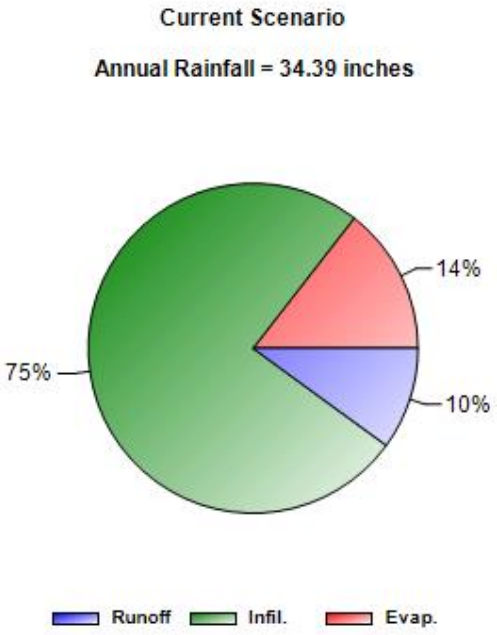
% of impervious area treated / % of treated area used for LID

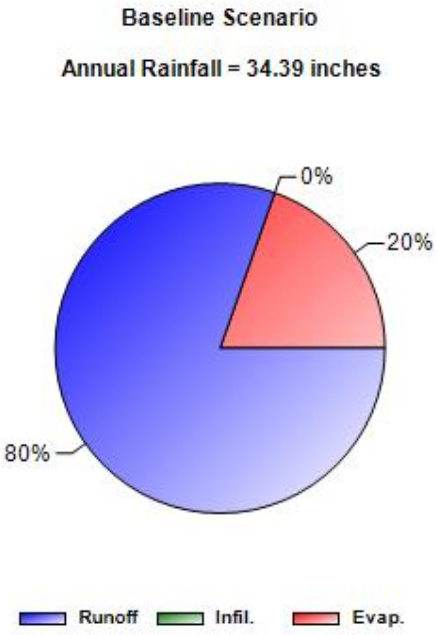
National Stormwater Calculator Report

Summary Results

Barrio

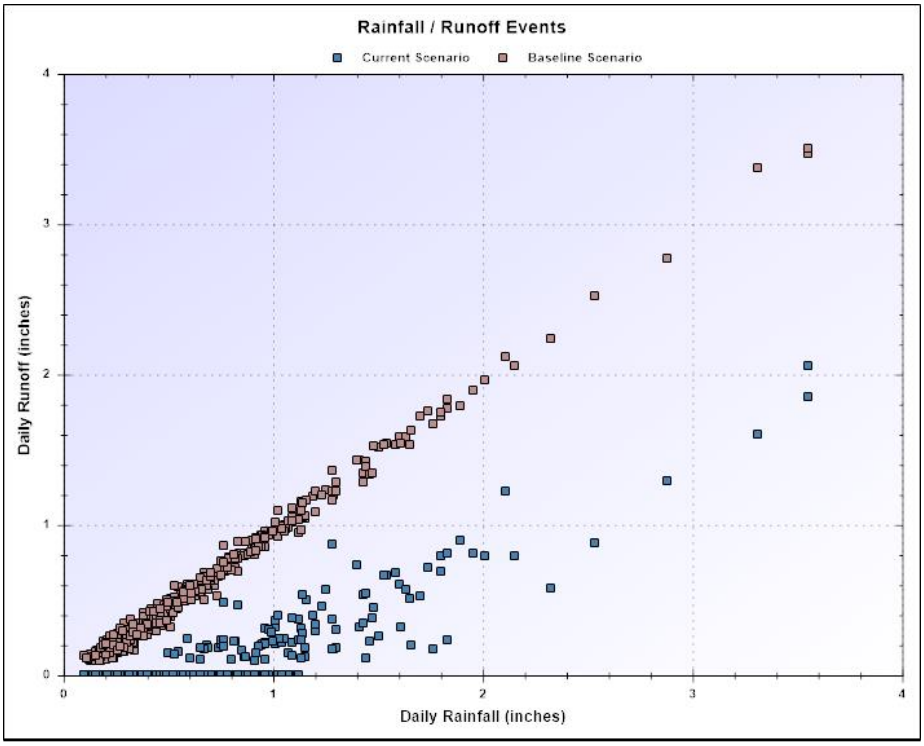
Statistic	Current Scenario	Baseline Scenario
Average Annual Rainfall (inches)	34.39	34.39
Average Annual Runoff (inches)	3.43	27.72
Days per Year With Rainfall	74.03	74.03
Days per Year with Runoff	8.07	60.04
Percent of Wet Days Retained	89.10	18.90
Smallest Rainfall w/ Runoff (inches)	0.50	0.10
Largest Rainfall w/o Runoff (inches)	1.12	0.22
Max. Rainfall Retained (inches)	1.74	0.20

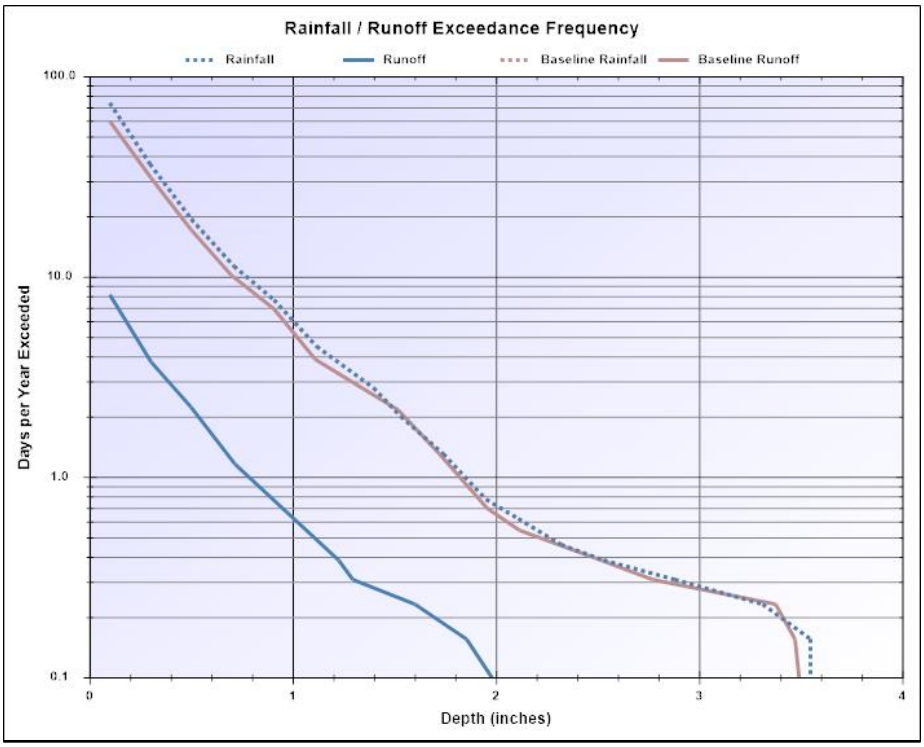




National Stormwater Calculator Report

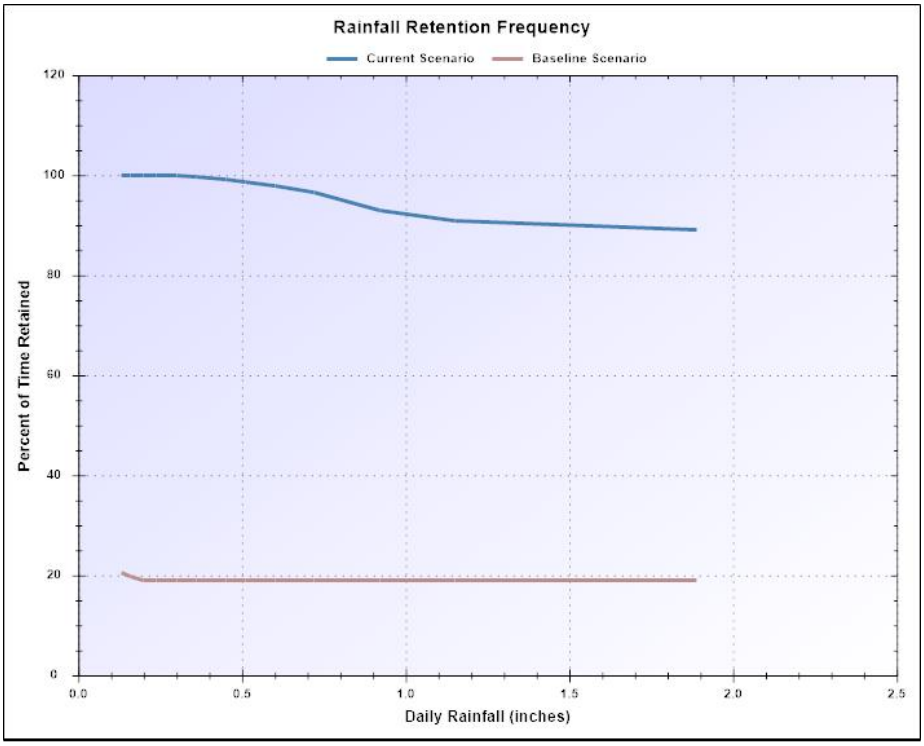
Barrio

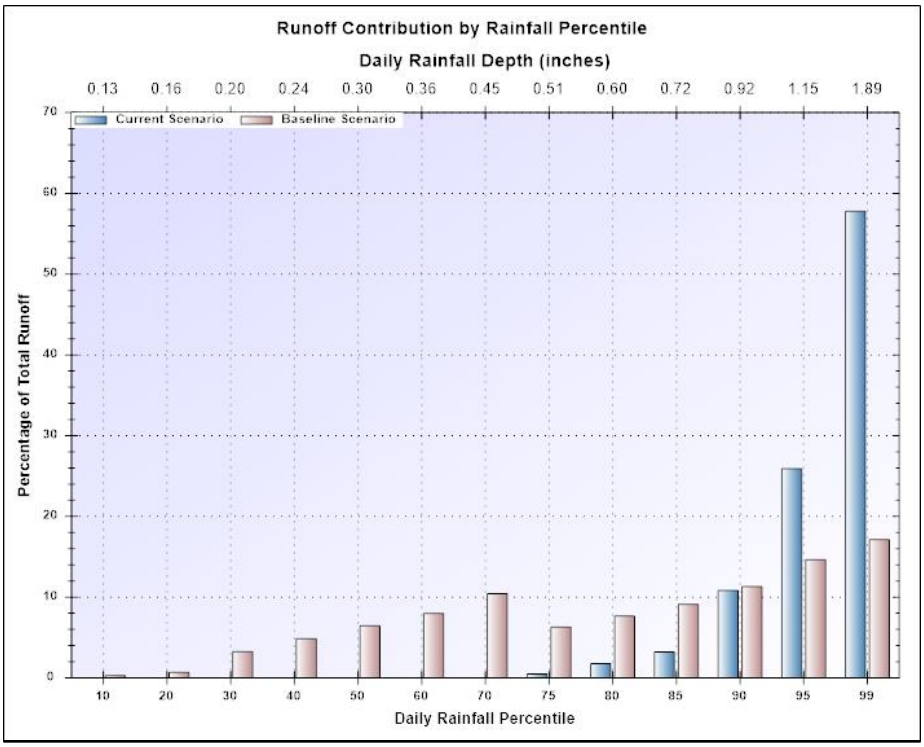




National Stormwater Calculator Report

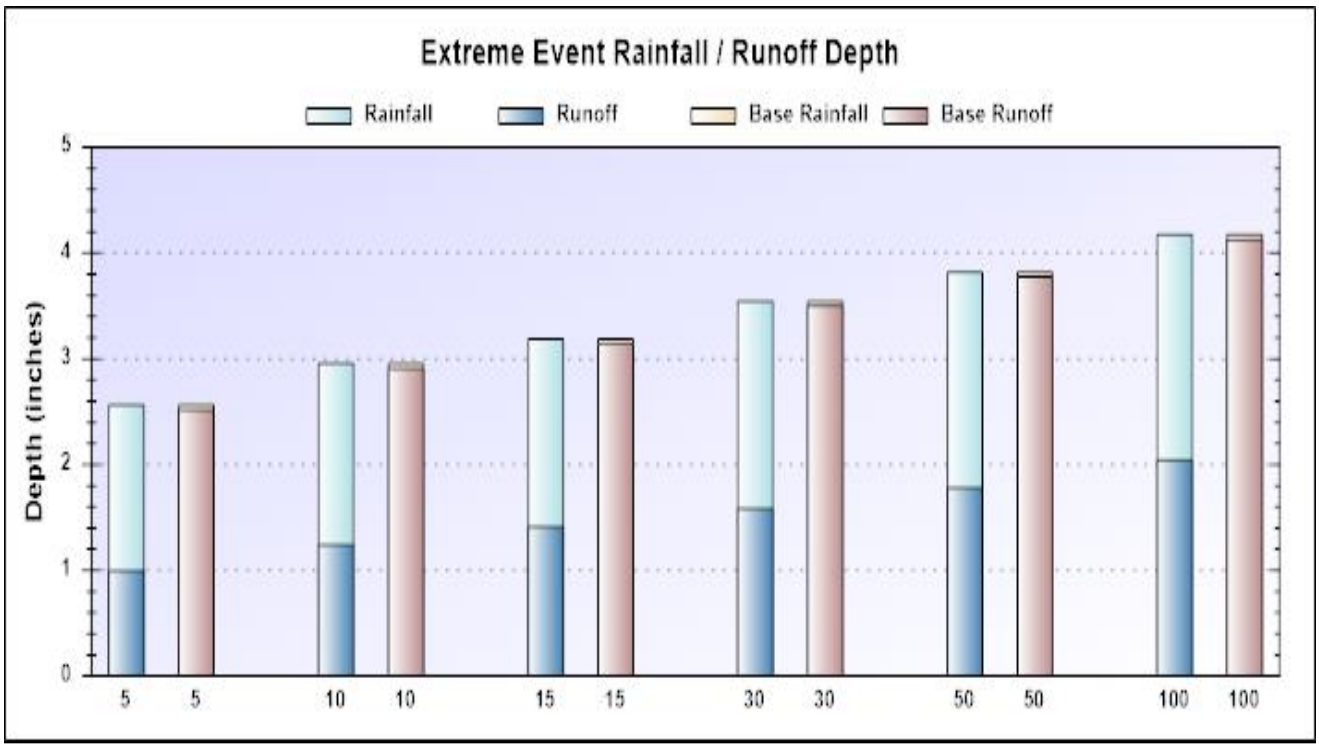
Barrio

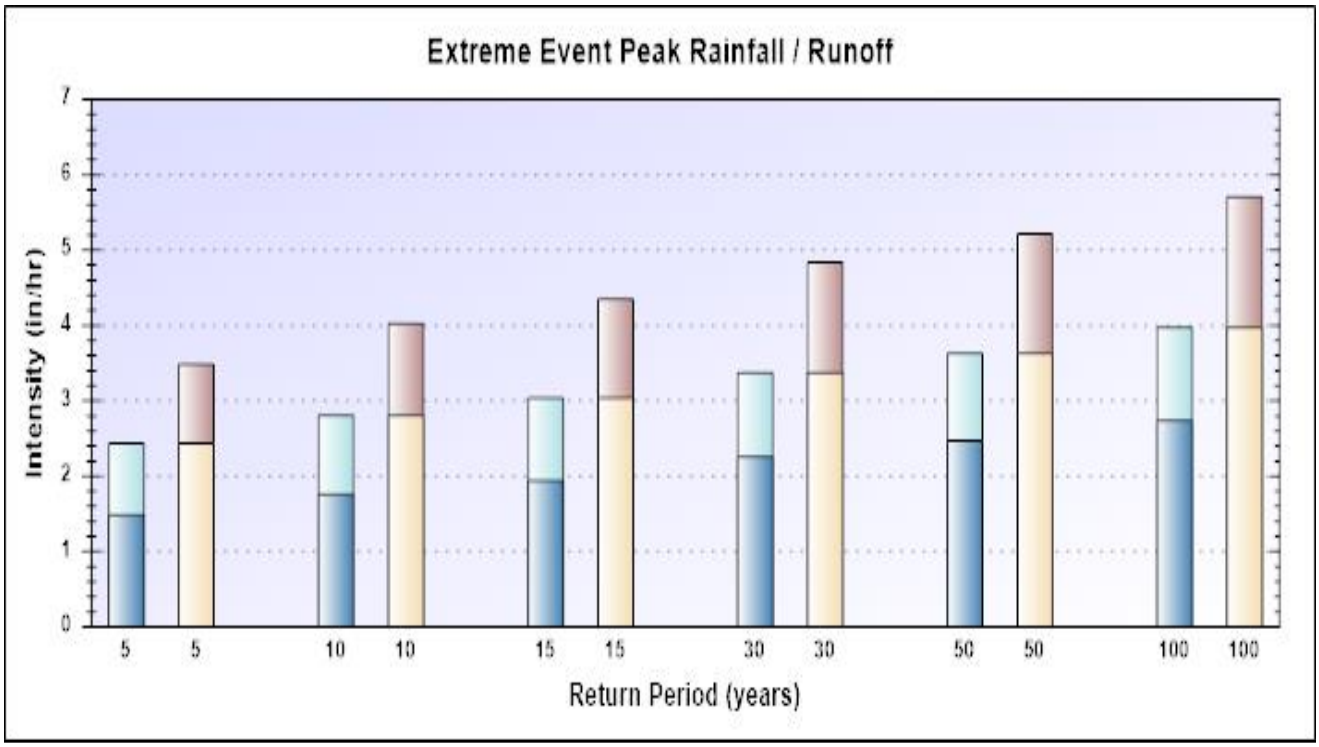




National Stormwater Calculator Report

Barrio





National Stormwater Calculator Report

Estimate of Probable Costs

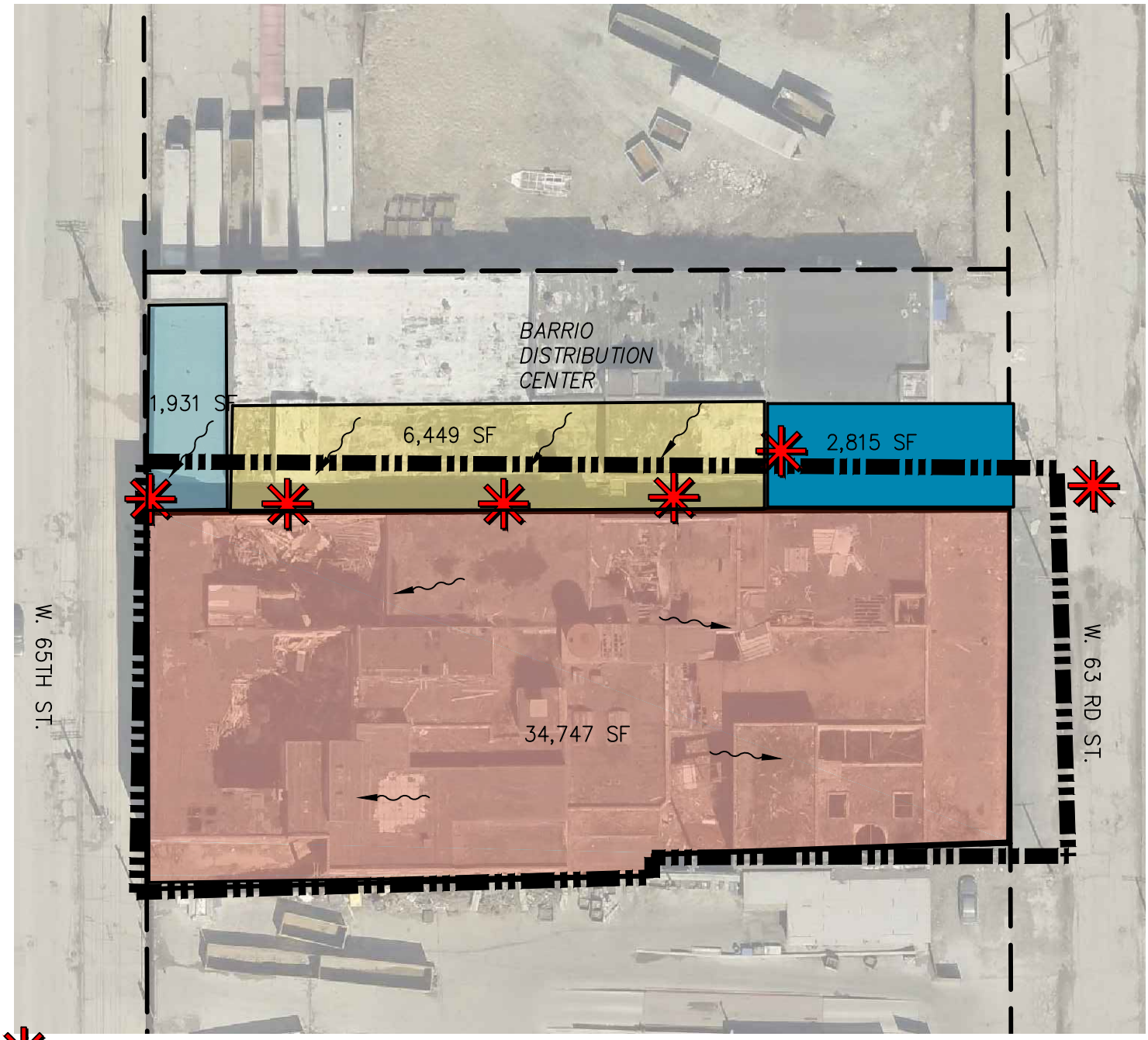
Barrio

Capital Costs

LID Control	Current Scenario	Baseline Scenario	Cost Difference
Disconnection	$ - $	$ - $	$ - $
Rainwater Harvesting	$ 4,000 - $ 4,500	$ - $	$ 4,000 - $ 4,500
Rain Gardens	$ - $	$ - $	$ - $
Green Roofs	$ - $	$ - $	$ - $
Street Planters	$ 2,900 - $ 9,300	$ - $	$ 2,900 - $ 9,300
Infiltration Basins	$ 5,700 - $ 13,400	$ - $	$ 5,700 - $ 13,400
Permeable Pavement	$ 24,300 - $ 32,800	$ - $	$ 24,300 - $ 32,800
Total	$ 37,000 - $ 60,100	$ - $	$ 37,000 - $ 60,100

Maintenance Costs

LID Control	Current Scenario	Baseline Scenario	Cost Difference
Disconnection	$ - $	$ - $	$ - $
Rainwater Harvesting	$ - $ 100	$ - $	$ - $ 100
Rain Gardens	$ - $	$ - $	$ - $
Green Roofs	$ - $	$ - $	$ - $
Street Planters	$ - $ 100	$ - $	$ - $ 100
Infiltration Basins	$ 100 - $ 3,600	$ - $	$ 100 - $ 3,600
Permeable Pavement	$ 300 - $ 1,500	$ - $	$ 300 - $ 1,500
Total	$ 400 - $ 5,200	$ - $	$ 400 - $ 5,200



LEGEND

PROJECT LIMITS

FLOW DIRECTION

DOWNSPOUT/CATCH BASIN

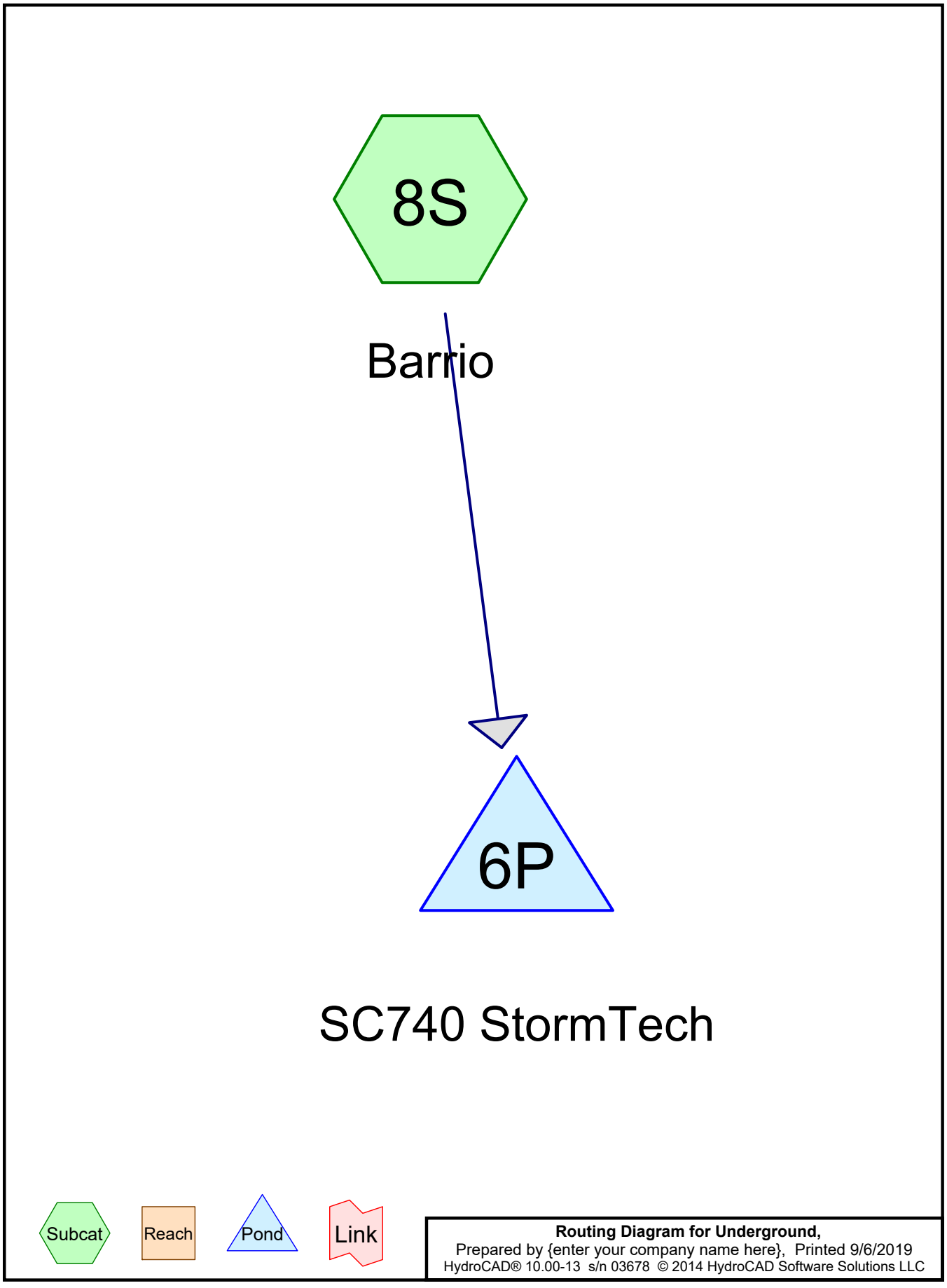
BARRIO DISTRIBUTION CENTER
PRE-DEVELOPMENT
DRAINAGE MAP

N

0 50 100

GRAPHIC SCALE IN FEET

Environmental Design Group
450 Grant Street Phone 330.375.1390
Akron, OH 44311 Fax 330.375.1590
www.envdesigngroup.com


8S
Barrio
6P
SC740 StormTech
Subcat
Reach
Pond
Link
Routing Diagram for Underground,
Prepared by {enter your company name here}, Printed 9/6/2019
HydroCAD® 10.00-13 s/n 03678 © 2014 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.041	89	<50% Grass cover, Poor, HSG D (8S)
0.689	98	Paved parking, HSG D (8S)
0.730	**97**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.730	HSG D	8S
0.000	Other	
0.730		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.041	0.000	0.041	<50% Grass cover, Poor	8S
0.000	0.000	0.000	0.689	0.000	0.689	Paved parking	8S
0.000	**0.000**	**0.000**	**0.730**	**0.000**	**0.730**	**TOTAL AREA**	

Time span=5.00-95.00 hrs, dt=0.01 hrs, 9001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 8S: Barrio Runoff Area=0.730 ac 94.38% Impervious Runoff Depth>2.09"
Flow Length=830' Tc=10.8 min CN=97 Runoff=2.10 cfs 0.127 af

Pond 6P: SC740 StormTech Peak Elev=3.11' Storage=0.055 af Inflow=2.10 cfs 0.127 af
Discarded=0.00 cfs 0.001 af Primary=0.18 cfs 0.121 af Secondary=0.34 cfs 0.005 af Outflow=0.52 cfs 0.127 af

Total Runoff Area = 0.730 ac Runoff Volume = 0.127 af Average Runoff Depth = 2.09"
5.62% Pervious = 0.041 ac 94.38% Impervious = 0.689 ac

Summary for Subcatchment 8S: Barrio

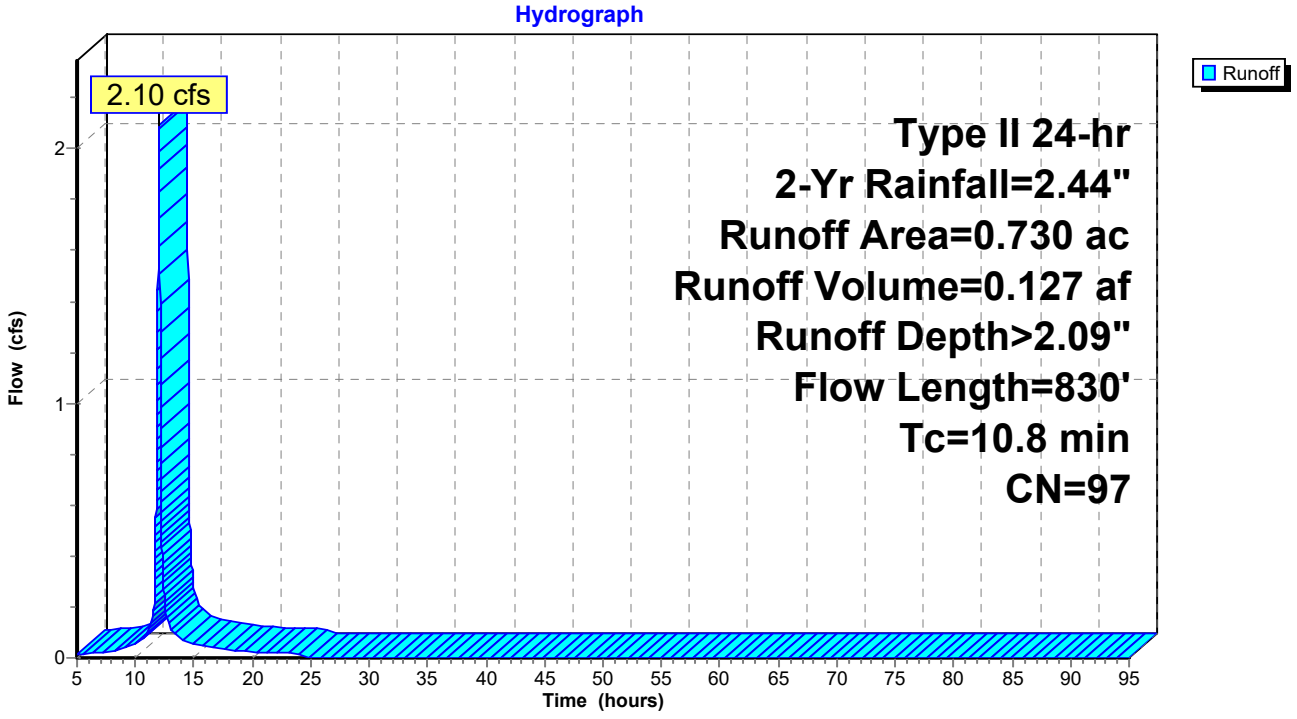
Runoff = 2.10 cfs @ 12.02 hrs, Volume= 0.127 af, Depth> 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-95.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-Yr Rainfall=2.44"

Area (ac)	CN	Description
0.689	98	Paved parking, HSG D
0.041	89	<50% Grass cover, Poor, HSG D
0.730	97	Weighted Average
0.041		5.62% Pervious Area
0.689		94.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	65	0.0150	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.44"
1.9	765	0.1100	6.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.8	830	Total			

Subcatchment 8S: Barrio



Summary for Pond 6P: SC740 StormTech

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.730 ac, 94.38% Impervious, Inflow Depth > 2.09" for 2-Yr event
Inflow = 2.10 cfs @ 12.02 hrs, Volume= 0.127 af
Outflow = 0.52 cfs @ 12.24 hrs, Volume= 0.127 af, Atten= 75%, Lag= 13.1 min
Discarded = 0.00 cfs @ 5.45 hrs, Volume= 0.001 af
Primary = 0.18 cfs @ 12.24 hrs, Volume= 0.121 af
Secondary = 0.34 cfs @ 12.24 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-95.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 3.11' @ 12.24 hrs Surf.Area= 0.028 ac Storage= 0.055 af

Plug-Flow detention time= 137.0 min calculated for 0.127 af (100% of inflow)
Center-of-Mass det. time= 136.9 min (915.7 - 778.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	0.00'	0.025 af	**20.50'W x 59.40'L x 3.50'H Field A** 0.098 af Overall - 0.034 af Embedded = 0.064 af x 40.0% Voids
#2A	0.50'	0.034 af	**ADS_StormTech RC-750** x 32 Inside #1 Effective Size= 45.4"W x 30.0"H => 6.49 sf x 7.12'L = 46.2 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 6.49 sf x 4 rows
		0.060 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**0.010 in/hr Exfiltration over Surface area**
#2	Primary	0.00'	**2.0" Vert. Orifice/Grate** C= 0.600
#3	Secondary	3.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.00 cfs @ 5.45 hrs HW=0.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.24 hrs HW=3.11' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 0.18 cfs @ 8.37 fps)

Secondary OutFlow Max=0.33 cfs @ 12.24 hrs HW=3.11' (Free Discharge)
└**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.33 cfs @ 1.06 fps)

Pond 6P: SC740 StormTech - Chamber Wizard Field A

Chamber Model = ADS_StormTech RC-750 (ADS StormTech® RC-750)
Effective Size= 45.4"W x 30.0"H => 6.49 sf x 7.12'L = 46.2 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
Row Length Adjustment= +0.44' x 6.49 sf x 4 rows

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

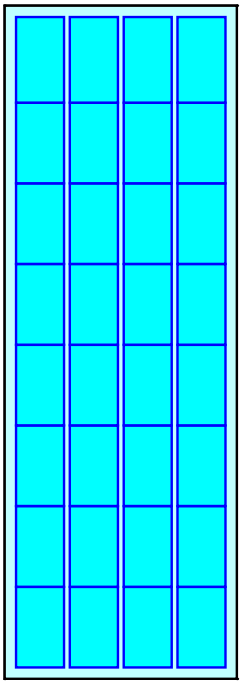
8 Chambers/Row x 7.12' Long +0.44' Row Adjustment = 57.40' Row Length +12.0" End Stone x 2 = 59.40' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

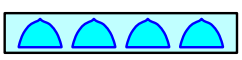
32 Chambers x 46.2 cf +0.44' Row Adjustment x 6.49 sf x 4 Rows = 1,491.0 cf Chamber Storage

4,261.8 cf Field - 1,491.0 cf Chambers = 2,770.8 cf Stone x 40.0% Voids = 1,108.3 cf Stone Storage

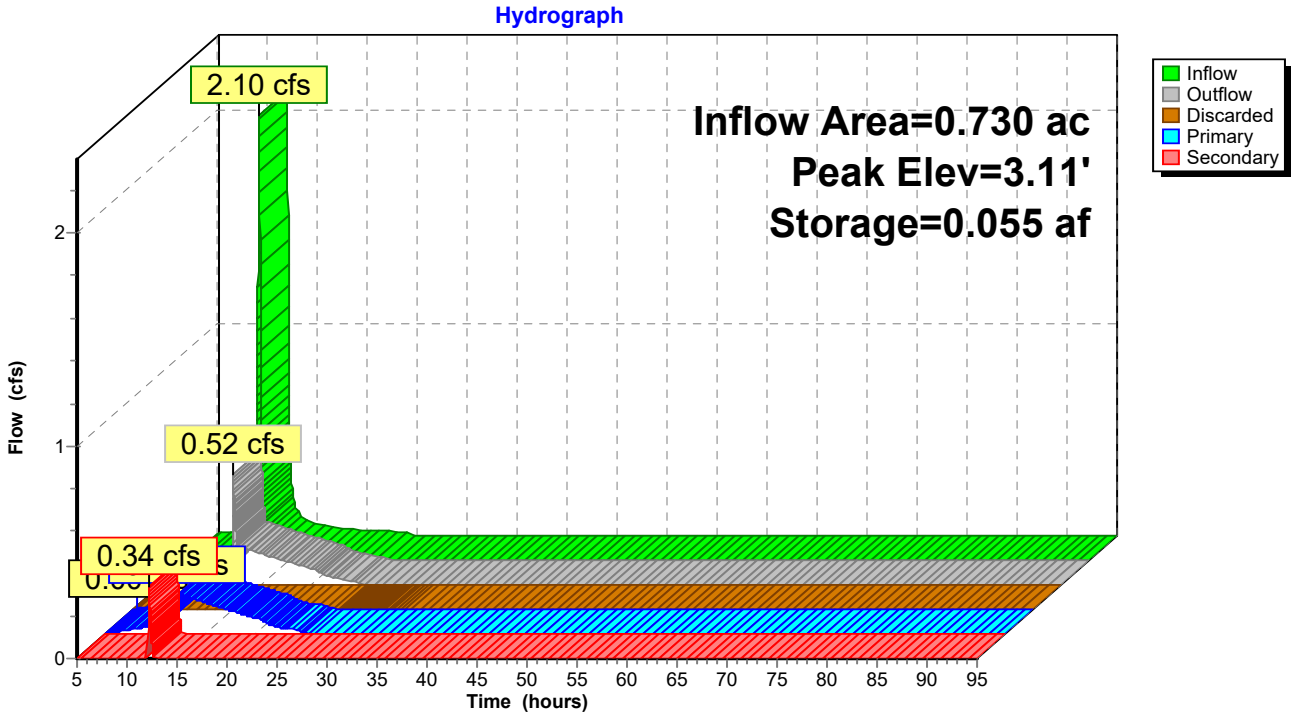
Chamber Storage + Stone Storage = 2,599.4 cf = 0.060 af
Overall Storage Efficiency = 61.0%

32 Chambers @ $ 2,000.00 /ea = $ 64,000.00
157.8 cy Field Excavation @ $ 16.00 /cy = $ 2,525.53
102.6 cy Stone @ $ 85.00 /cy = $ 8,722.87
Total Cost = $ 75,248.40





Pond 6P: SC740 StormTech



BIORETENTION (RAINGARDEN) CALCULATIONS USING OHIO EPA APPROVED METHODS (FROM CONSTRUCTION PERMIT OHC000005)

Enter data in shaded cells only, other cells will be automatically calculated — **ODNR CALCULTAOR**

Date:	9/2/2019
Project Name:	Barrio - just the bioretention, not including removal of water from cistern
Number:	na
Type Of Project:	Redevelopment
Location of Device:	3199 W. 65th Street

Upstream Drainage Area (A) — 0.19 acres

Required Filter Bed Size of the Bioretention (Equation from: ONDR, 2014. "*Rainwater and Land Development*"):

Upstream Drainage Area (A)					0.19	acres
Proposed Impervious Area:		8380	sq.ft.		0.192	acres
Percent:	100%	<25%	WQv/1 Ft Max (sq.ft.)	560.622		
		>= 25%	5% of Imp Area (sq.ft)	419	x 560	sq.ft. minimum Filter Bed

Proposed Bioretention Area Design:

Proposed Device Area Size (sq.ft.)	600	sq.ft.
Device Storage Depth (Above Ground)(feet)	0.75	ft
Soil depth (feet) 2 to 4 feet	2	ft
Concrete Sand depth (feet) - 3 inches	0.25	ft
Pea Gravel depth (feet) - 3 inches	0.25	ft
Stone depth (feet) - 10 to 12 inches	0.8333333	ft
WQv	450	cuft

0.408555674

Required Size of the Bioretention to meet drain time of WQv:

A (sq. ft.) = (WQv)(ds)/[(k)(hs + ds)(ts)]	407.725	sq. ft.
where:		
WQv = water quality volume (cf)	561	cu.ft.
ds = planting soil depth (feet)(note: typical minimum is 2')	2	ft
k = coefficient of permeability of planting soil media (ft/day)(note: settled soil media (0.5in/hr) 1 ft/day)	1	ft/day
hs = height of water above planting soil and mulch (feet)	0.75	ft
ts = design filter bed drain time (days) (note: 1 day (24 hrs) is required by OEPA)	1	days
does design draw down in 24 hours or less?	YES	

Required WQv (Equation from: ONDR, 2014. "*Rainwater and Land Development*"):

WQv=C*P*A/12			0.013	acre ft.
where:			560.622	
WQv = water quality volume (cu.ft.f)				
C= Weighted C or planned site imp				
Weighted C		0.80	0.892	picked C
Planned Site Impervious where	C=0.858i^3-0.78i^2+0.774i+0.04	0.892		
Redevelopment Project?If yes, then 20% of WQv	Yes x		112.1244	Redevelopment WQv (cu.ft.)
	No		560.622	New Development WQv (cu.ft.)
New Development Required Ponding depth for WQv			12.01	inches
Re-Development Required Ponding depth for WQv			2.40	inches

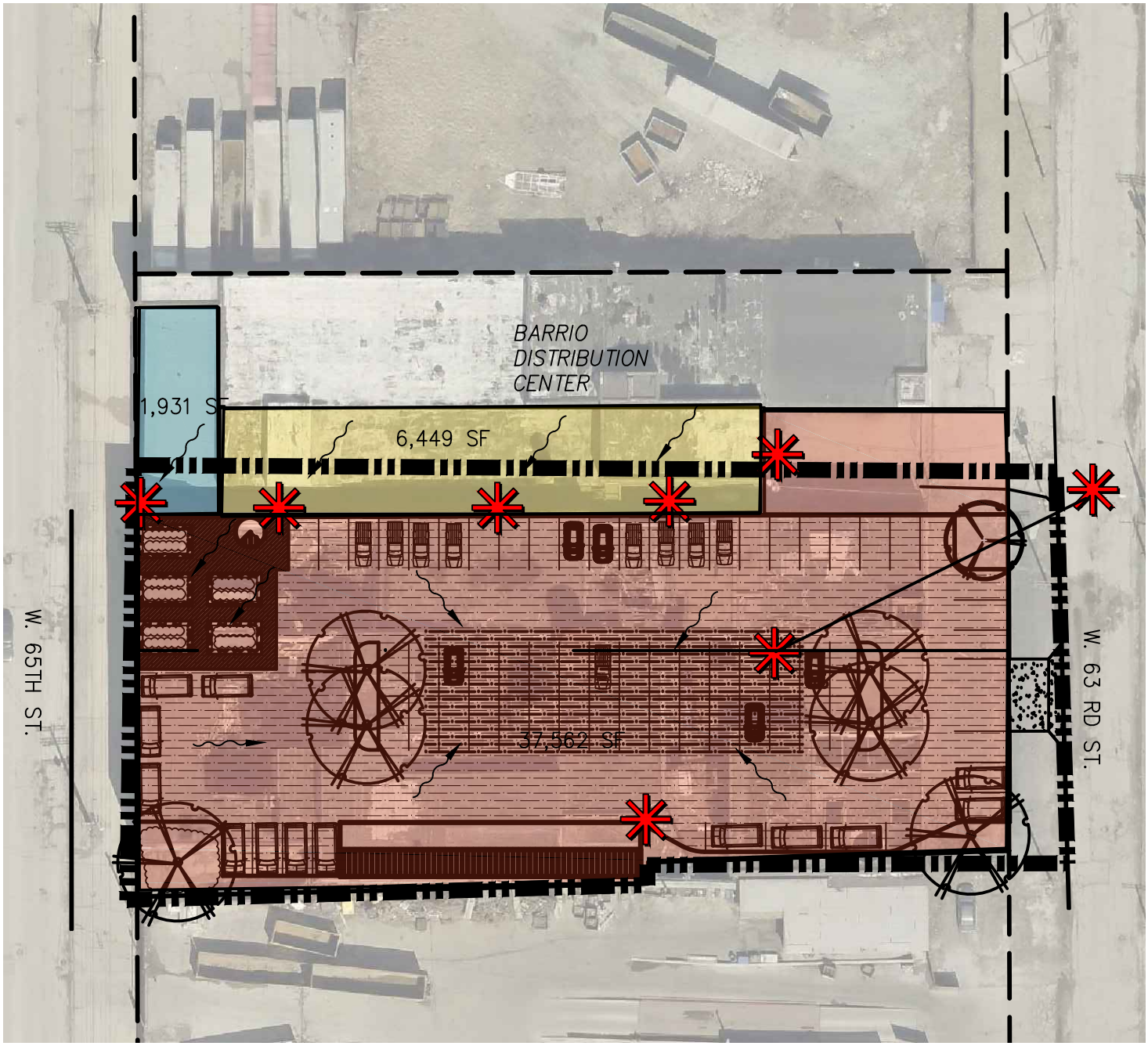
Ohio EPA Weighted Runoff Coefficient Calculations From Construction Permit (OHC000004)(Expires 4/20/2018):

Land use	Project Drainage Area (acres)*	% Total Drainage Area	C Value Per Land Use Area
Industrial & Commercial	0.192378329	1.00	0.80
High Density Residential (>8 dwellings/ac)	0	0.00	0.00
Medium Density Residential (4-8 dwellings/ac)	0	0.00	0.00
Low Density Residential (<4 dwellings/ac)	0	0.00	0.00
Open space and Recreational Areas	0	0.00	0.20
Total Acres*:	0.192378329	**Weighted C:**	0.80

Table 1 - OEPA Runoff Coefficients Based upon Type of Land Use	
Industrial & Commercial	0.8
High Density Residential (>8 dwellings/ac)	0.5
Medium Density Residential (4-8 dwellings/ac)	0.4
Low Density Residential (<4 dwellings/ac)	0.3
Open space and Recreational Areas	0.2

* **This Total Area must match the Upstream Drainage Area**

WQv Rainfall (P) (in)
0.90



LEGEND

PROJECT LIMITS

FLOW DIRECTION

DOWNSPOUT/CATCH BASIN

BARRIO DISTRIBUTION CENTER
POST-DEVELOPMENT
DRAINAGE MAP

N

0 50 100

GRAPHIC SCALE IN FEET

Environmental Design Group
450 Grant Street Phone 330.375.1390
Akron, OH 44311 Fax 330.375.1590
www.envdesigngroup.com

National Stormwater Calculator Report

Site Description

Barrio

Parameter	Current Scenario	Baseline Scenario
Site Area (acres)	1.05	1.33
Hydrologic Soil Group	B	B
Hydraulic Conductivity (in/hr)	1	1
Surface Slope (%)	2	2
Precip. Data Source	CLEVELAND WSFO AP	CLEVELAND WSFO AP
Evap. Data Source	CLEVELAND WSFO AP	CLEVELAND WSFO AP
Climate Change Scenario	None	None
% Forest	0	0
% Meadow	0	0
% Lawn	20	0
% Desert	0	0
% Impervious	80	100
Years Analyzed	13	13
Ignore Consecutive Wet Days	False	False
Wet Day Threshold (inches)	0.10	0.10

LID Control	Current Scenario	Baseline Scenario
Disconnection	0	0
Rain Harvesting	2 / 4	0
Rain Gardens	0	0
Green Roofs	0	0
Street Planters	3 / 6	0
Infiltration Basins	85 / 5	0
Porous Pavement	10 / 100	0

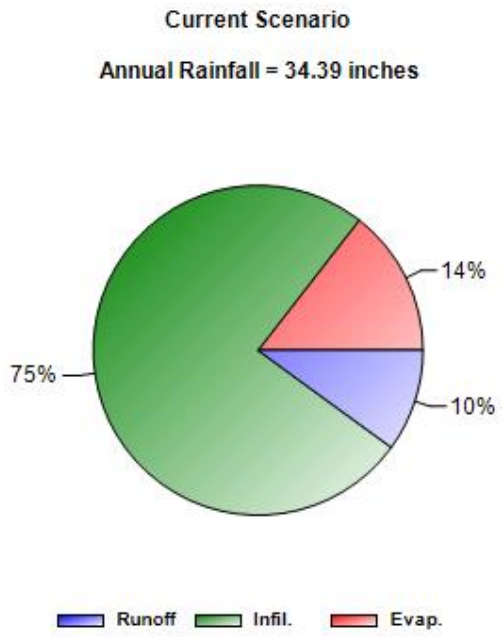
% of impervious area treated / % of treated area used for LID

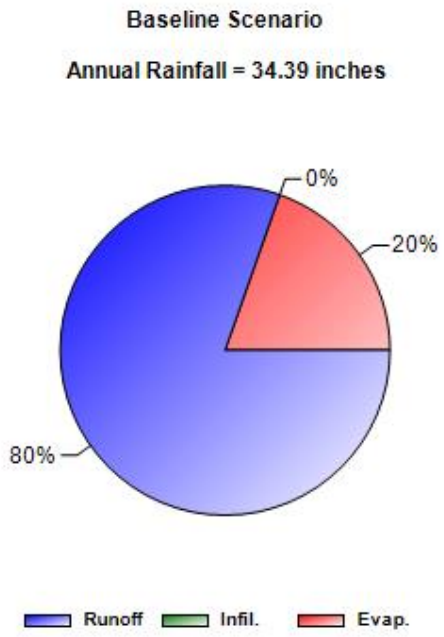
National Stormwater Calculator Report

Summary Results

Barrio

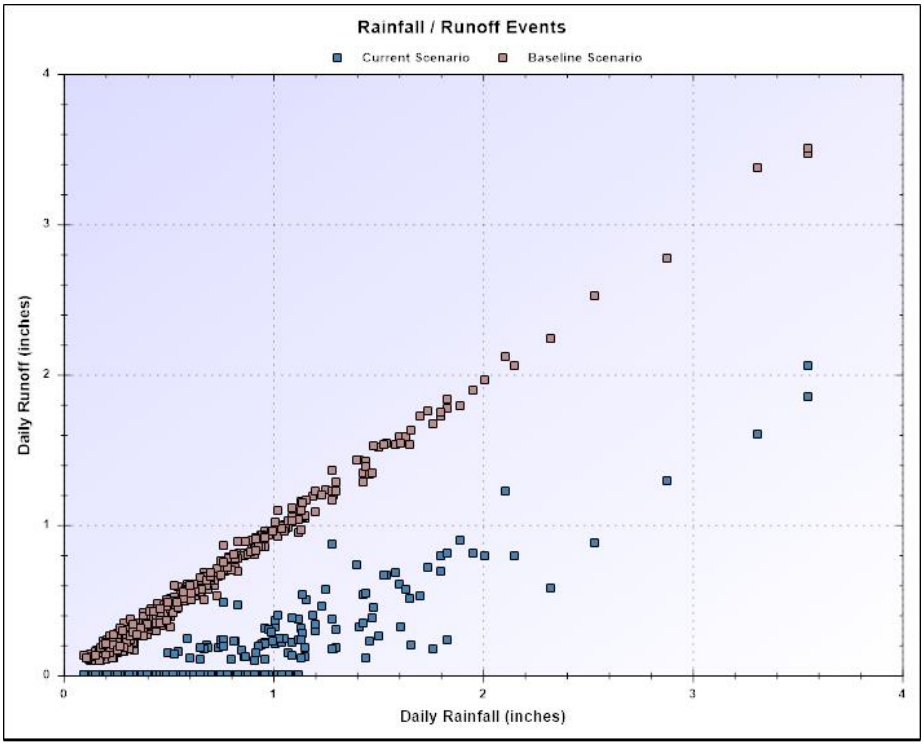
Statistic	Current Scenario	Baseline Scenario
Average Annual Rainfall (inches)	34.39	34.39
Average Annual Runoff (inches)	3.43	27.72
Days per Year With Rainfall	74.03	74.03
Days per Year with Runoff	8.07	60.04
Percent of Wet Days Retained	89.10	18.90
Smallest Rainfall w/ Runoff (inches)	0.50	0.10
Largest Rainfall w/o Runoff (inches)	1.12	0.22
Max. Rainfall Retained (inches)	1.74	0.20

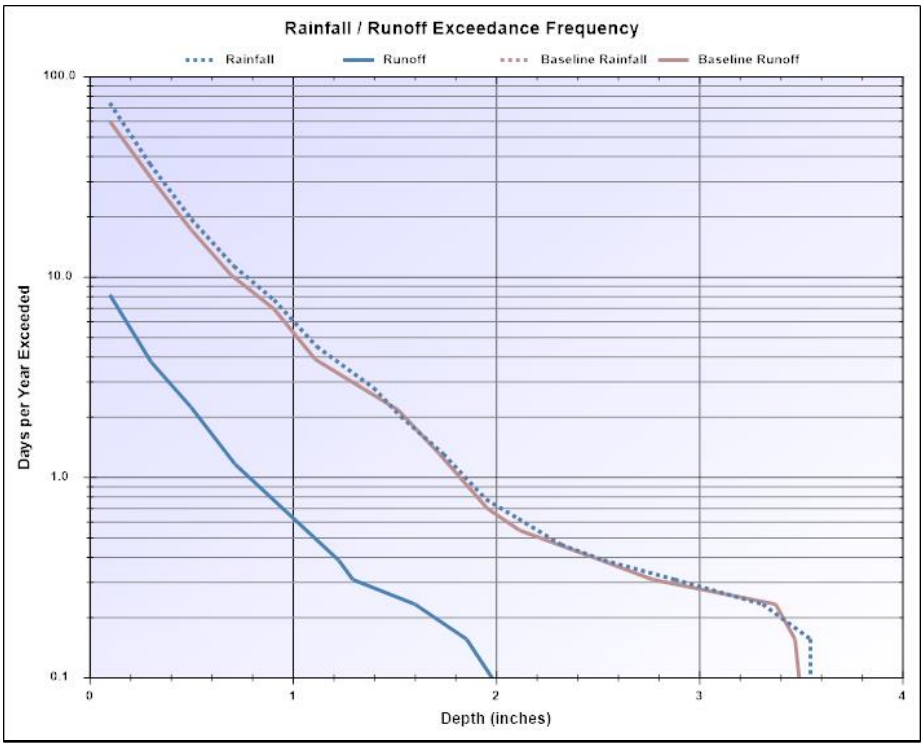




National Stormwater Calculator Report

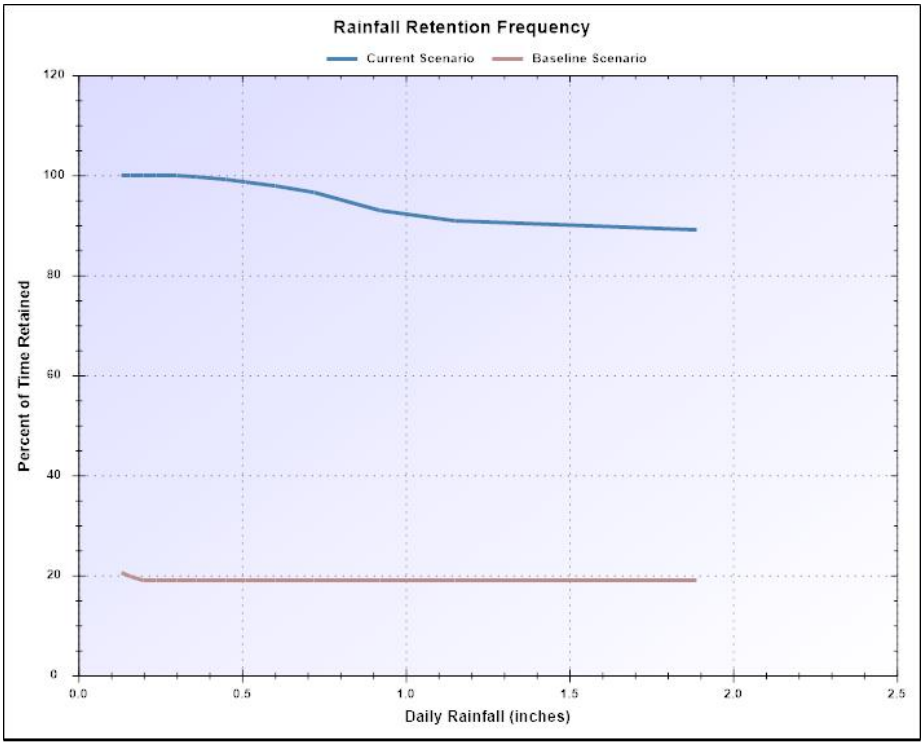
Barrio

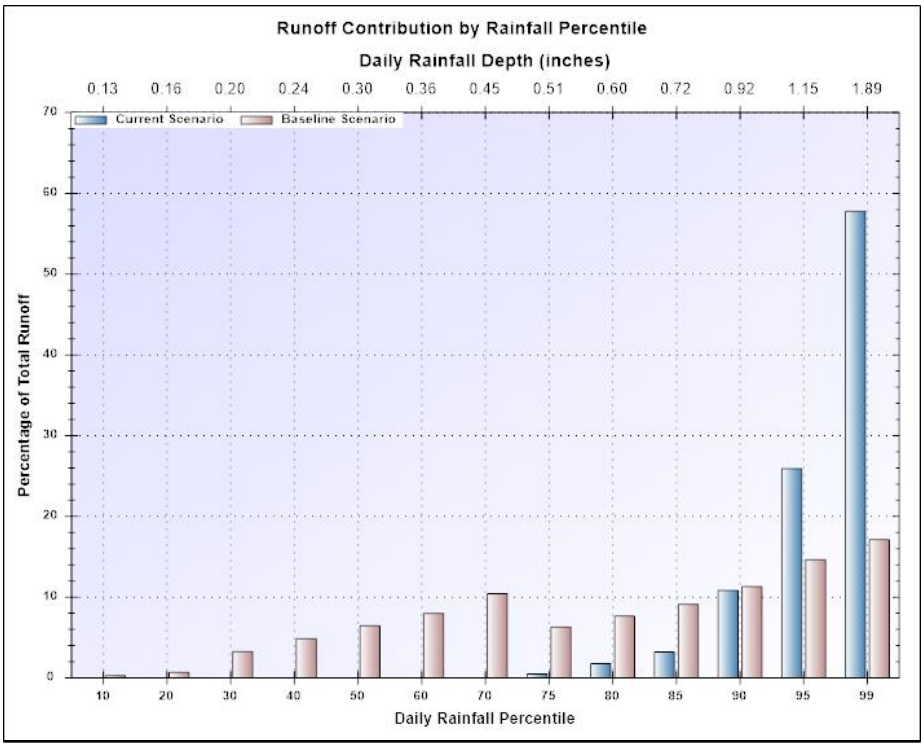




National Stormwater Calculator Report

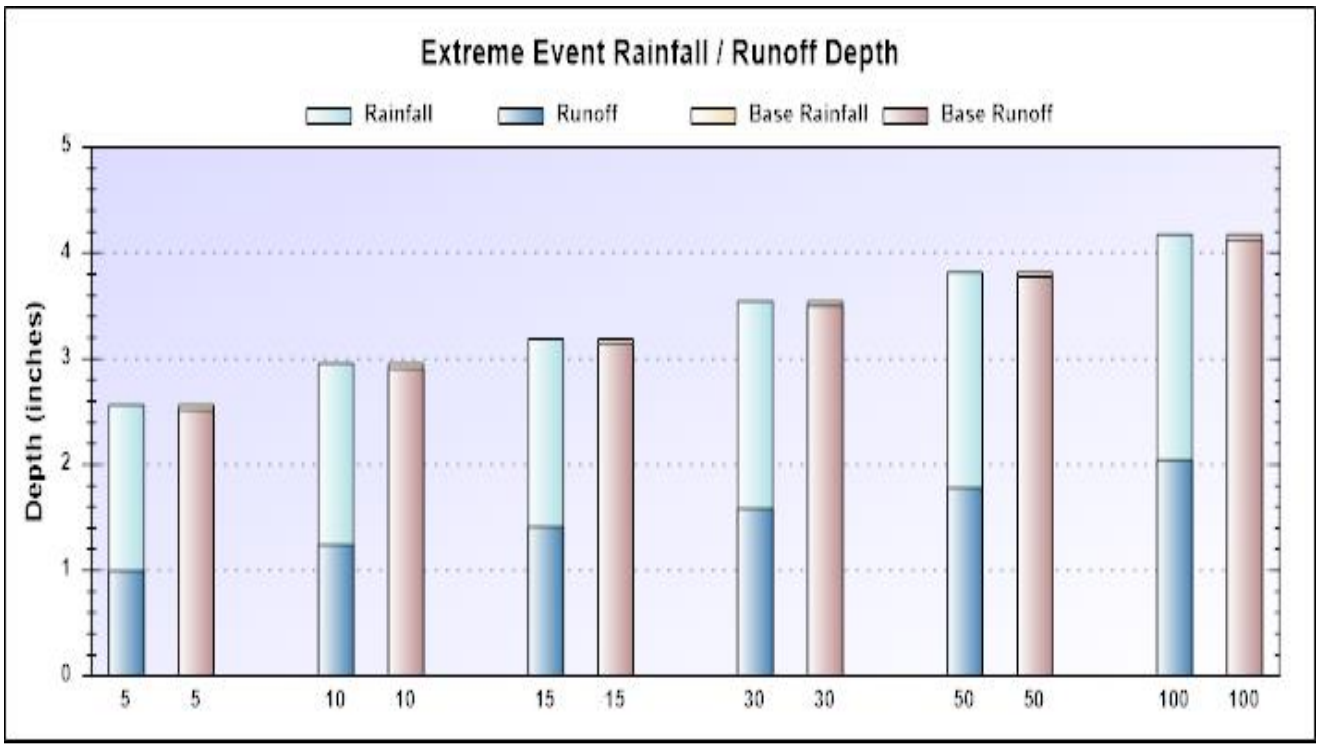
Barrio

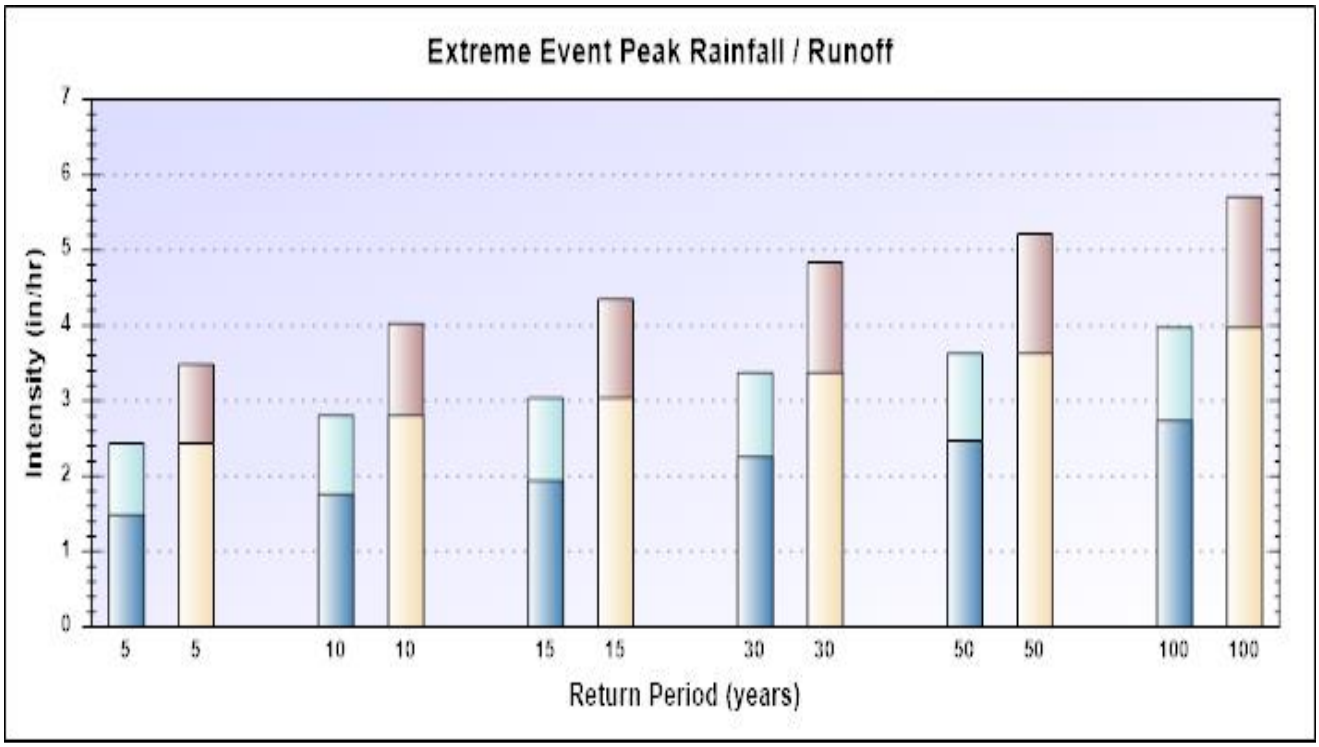




National Stormwater Calculator Report

Barrio





National Stormwater Calculator Report

Estimate of Probable Costs

Barrio

Capital Costs

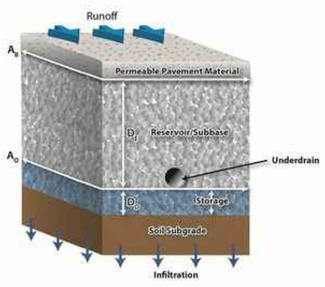
LID Control	Current Scenario	Baseline Scenario	Cost Difference
Disconnection	$ - $	$ - $	$ - $
Rainwater Harvesting	$ 4,000 - $ 4,500	$ - $	$ 4,000 - $ 4,500
Rain Gardens	$ - $	$ - $	$ - $
Green Roofs	$ - $	$ - $	$ - $
Street Planters	$ 2,900 - $ 9,300	$ - $	$ 2,900 - $ 9,300
Infiltration Basins	$ 5,700 - $ 13,400	$ - $	$ 5,700 - $ 13,400
Permeable Pavement	$ 24,300 - $ 32,800	$ - $	$ 24,300 - $ 32,800
Total	$ 37,000 - $ 60,100	$ - $	$ 37,000 - $ 60,100

Maintenance Costs

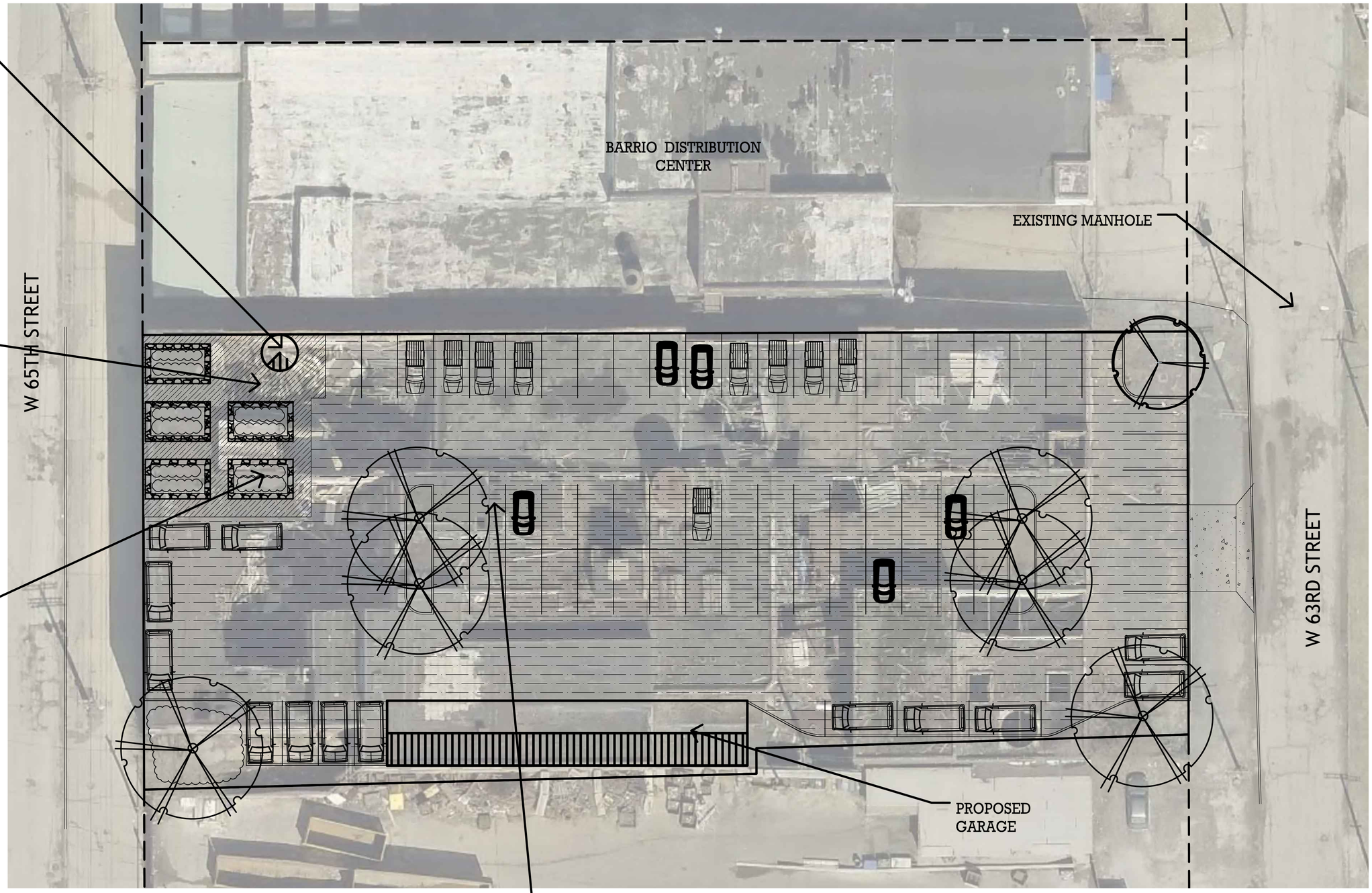
LID Control	Current Scenario	Baseline Scenario	Cost Difference
Disconnection	$ - $	$ - $	$ - $
Rainwater Harvesting	$ - $ 100	$ - $	$ - $ 100
Rain Gardens	$ - $	$ - $	$ - $
Green Roofs	$ - $	$ - $	$ - $
Street Planters	$ - $ 100	$ - $	$ - $ 100
Infiltration Basins	$ 100 - $ 3,600	$ - $	$ 100 - $ 3,600
Permeable Pavement	$ 300 - $ 1,500	$ - $	$ 300 - $ 1,500
Total	$ 400 - $ 5,200	$ - $	$ 400 - $ 5,200

PROPOSED CISTERN
(ROOF WATER)

POROUS PAVEMENT PATIO



PROPOSED PEPPER
GARDEN/SEATING



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COLUMBUS
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W ENVDESIGNGROUP.COM

Barrio Distribution Center

GREEN INFRASTRUCTURE CAMPUS RETROFITS

0 20 40
GRAPHIC SCALE IN FEET

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