

# STORM WATER MANAGEMENT PLAN

Wisconsin Airport Warehouse LLC

3237 Airport Road

La Crosse, WI 54603

Wisconsin Airport Warehouse LLC

701 W 246<sup>th</sup> St

Riverdale, NY 10471

October 17, 2022



## TABLE OF CONTENTS

STORM WATER MANAGEMENT PLAN .....	3
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## APPENDICES

APPENDIX A	Aerial Photo
APPENDIX B	Model Output
APPENDIX C	O&M Plan
APPENDIX D	Long Term Maintenance Agreement

*Existing Site Description:*

The property currently consists of about 5.77 acres of mostly developed commercial property. The area of the project is currently about a 1-acre landscaped area on the south west corner of the lot. The proposed project consists of the construction of a ½ acre parking lot. The area subject to ground disturbing activities is about 0.80 acres. All of the areas in the limits of construction are undeveloped and therefore the Project is considered new development. An aerial photo has been included in **Appendix A** showing the site and surrounding areas.

*Project Description:*

The Project includes the construction of 20,744 sf of parking and drive, 197 sf of sidewalk, and the remaining 13,877 sf mostly landscaping and BMP's.

Grading, installation of permanent BMP's, utility installation, new parking construction, and landscaping will constitute most of the new exterior construction. Topsoil stripping, back filling, grading, subbase preparation, paving, and landscaping will constitute a majority of the ground disturbing activities.

*Estimate of construction site area:* The area within the construction limits is about 0.80 acres, and the area of ground disturbing activity is essentially the same.

*Summary of Controls:* Total suspended solids removal requirements are met through the application of bio-infiltration (biofilter) for TSS removal. A single 590 sf biofilter is proposed to treat runoff for TSS and peak discharge from the portion of the site subject to ground disturbing activities.

***Performance Standards***

*Total Suspended Solids:* A single biofilter will be utilized to achieve TSS removal. Because this project is considered new development under City regulations, a TSS reduction of 80% is required from the entire site.

WinSLAMM V 10.4 was used to model the site and determine the amount of TSS carried in runoff from the site. The results are as follows:

Baseline Model (Developed site without controls)

Total TSS = 302 lbs.

Modeled TSS Removal

TSS Removed with Controls = 274 lbs. (302lbs. – 28 lbs.)

The TSS removal is 91%. Model input and output file information are included in **Appendix B**.

*Peak Storm Water Discharge:* The City requires no increase in the developed site runoff as compared to the existing site for the 1 through 10-year storms. This requirement will be met by the biofilter which has been oversized to provide storm detention. HydroCAD models of the existing and proposed site were developed. The results are summarized in the table below:

<u>Return Period, Years</u>	<u>Existing Site, cfs</u>	<u>Developed Site, cfs</u>
1	0.08	0.03
2	0.16	0.06
10	0.65	0.45

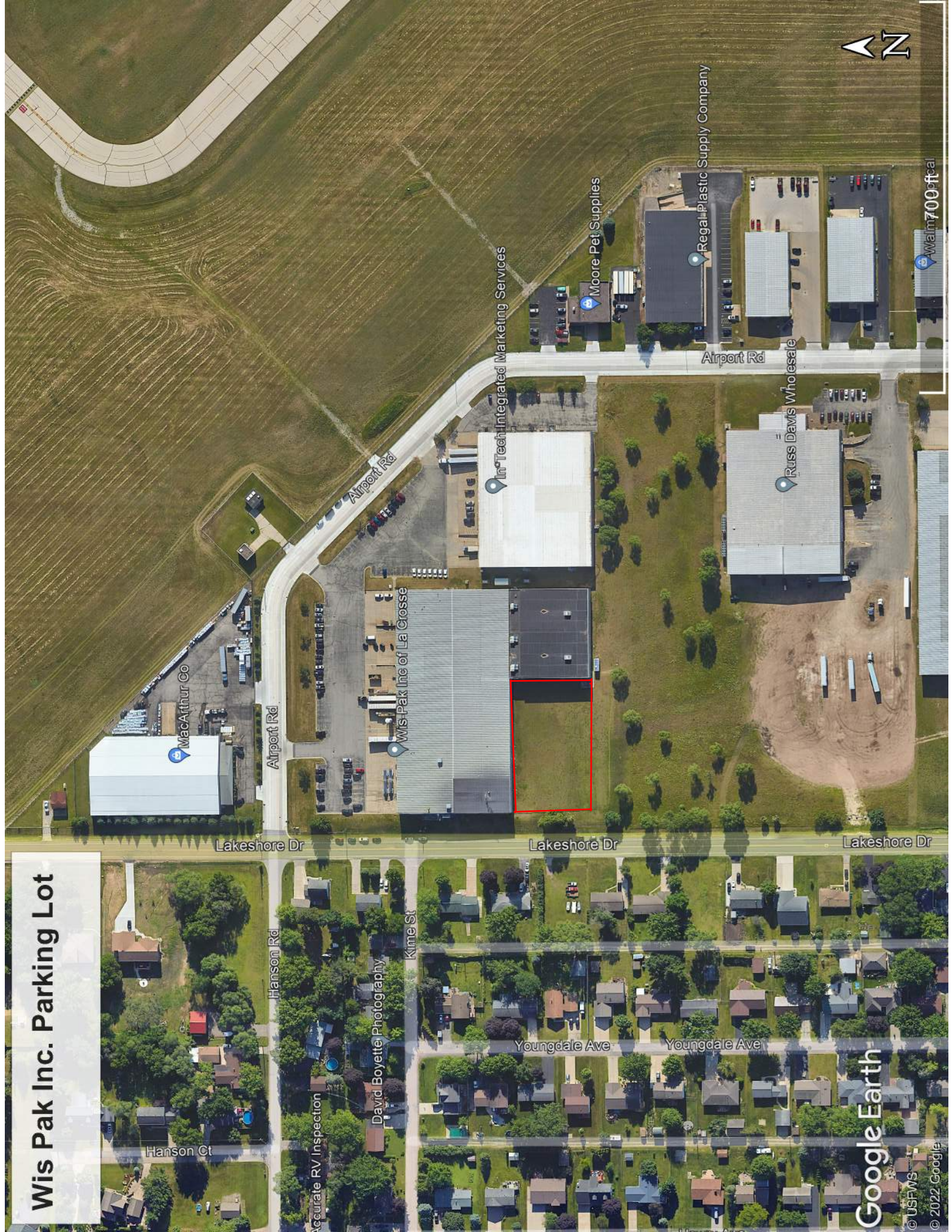
The proposed BMP's easily control the runoff from the site. Model input and output file information is included in **Appendix B**.

*BMP Maintenance:* An O & M Plan has been included in **Appendix C**.

*Post Construction Maintenance Agreement:* A Long Term Maintenance Agreement is pending final design.

## APPENDIX A

# Wis Pak Inc. Parking Lot



Walmart 700 ft

MacArthur Co

Wis Pak Inc of La Crosse

In-Tech Integrated Marketing Services

Moore Pet Supplies

Regal Plastic Supply Company

Russ Davis Wholesale

Lakeshore Dr

Lakeshore Dr

Lakeshore Dr

Hanson Ct

Hanson Rd

Accurate RV Inspection

David Boyette Photography

Kime St

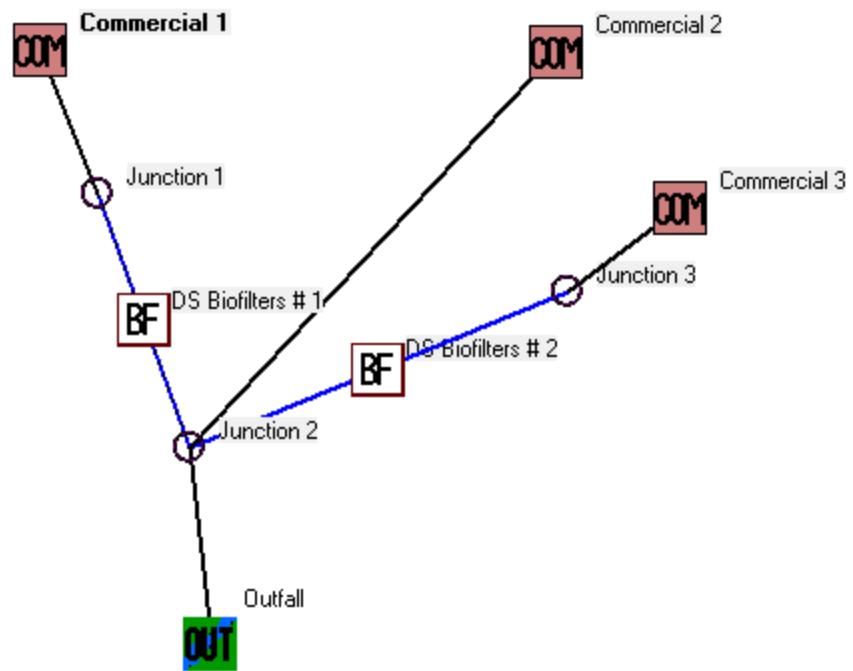
Youngdale Ave

Youngdale Ave

Google Earth

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## APPENDIX B



WinSLAMM Input Diagram

La Crosse Warehouse LLC

Project Nc 22-097



WinSLAMM Input File  
Wisconsin Airport Warehouse LLC  
Project No. 22-097

Data file name: F:\Engineering\Engineering Dwg\2022\22-097 Airport  
WHouse\Storm\Models\WinSLAMM\Proposed.mdb  
WinSLAMM Version 10.4.1  
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN  
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI\_AVG01.pscx  
Runoff Coefficient file name: C:\WinSLAMM Files\WI\_SL06 Dec06.rsvx  
Residential Street Delivery file name: C:\WinSLAMM Files\WI\_Res and Other Urban  
Dec06.std  
Institutional Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust  
Dec06.std  
Commercial Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std  
Industrial Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std  
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI\_Res and Other Urban  
Dec06.std  
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std  
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance:  
False  
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI\_GEO03.ppd  
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source  
Area PSD Files.csv  
Cost Data file name:  
Seed for random number generator: -42  
Study period starting date: 01/01/81 Study period ending date: 12/31/81  
Start of Winter Season: 12/02 End of Winter Season: 03/12  
Date: 10-20-2022 Time: 10:01:06  
Site information:

LU# 1 - Commercial: Commercial 1 Total area (ac): 0.594  
13 - Paved Parking 1: 0.475 ac. Connected Source Area PSD File:  
C:\WinSLAMM Files\NURP.cpz  
31 - Sidewalks 1: 0.005 ac. Connected Source Area PSD File: C:\WinSLAMM  
Files\NURP.cpz  
45 - Large Landscaped Areas 1: 0.100 ac. Normal Sandy Source Area PSD  
File: C:\WinSLAMM Files\NURP.cpz  
70 - Water Body Areas: 0.014 ac. Source Area PSD File:

LU# 2 - Commercial: Commercial 2 Total area (ac): 0.175  
25 - Driveways 1: 0.005 ac. Connected Source Area PSD File: C:\WinSLAMM  
Files\NURP.cpz  
45 - Large Landscaped Areas 1: 0.170 ac. Normal Sandy Source Area PSD  
File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Commercial: Commercial 3 Total area (ac): 0.036  
25 - Driveways 1: 0.005 ac. Disconnected Normal Sandy Source Area PSD  
File: C:\WinSLAMM Files\NURP.cpz  
45 - Large Landscaped Areas 1: 0.031 ac. Normal Sandy Source Area PSD  
File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1  
1. Top area (square feet) = 1626

WinSLAMM Input File  
Wisconsin Airport Warehouse LLC  
Project No. 22-097

2. Bottom area (square feet) = 591  
3. Depth (ft): 4.25  
4. Biofilter width (ft) - for Cost Purposes Only: 10  
5. Infiltration rate (in/hr) = 1  
6. Random infiltration rate generation? No  
7. Infiltration rate fraction (side): 0.1  
8. Infiltration rate fraction (bottom): 1  
9. Depth of biofilter that is rock filled (ft) 0.5  
10. Porosity of rock filled volume = 0.35  
11. Engineered soil infiltration rate: 3.6  
12. Engineered soil depth (ft) = 2  
13. Engineered soil porosity = 0.27  
14. Percent solids reduction due to flow through engineered soil = 80  
15. Biofilter peak to average flow ratio = 3.8  
16. Number of biofiltration control devices = 1  
17. Particle size distribution file: Not needed - calculated by program  
18. Initial water surface elevation (ft): 0  
Soil Data Soil Type Fraction in Eng. Soil  
User-Defined Soil Type 1.000  
Biofilter Outlet/Discharge Characteristics:  
Outlet type: Broad Crested Weir  
1. Weir crest length (ft): 14  
2. Weir crest width (ft): 5  
3. Height of datum to bottom of weir opening: 4

Control Practice 2: Biofilter CP# 2 (DS) - DS Biofilters # 2

1. Top area (square feet) = 183  
2. Bottom area (square feet) = 114  
3. Depth (ft): 3  
4. Biofilter width (ft) - for Cost Purposes Only: 10  
5. Infiltration rate (in/hr) = 1  
6. Random infiltration rate generation? No  
7. Infiltration rate fraction (side): 0.1  
8. Infiltration rate fraction (bottom): 1  
9. Depth of biofilter that is rock filled (ft) 0.5  
10. Porosity of rock filled volume = 0.33  
11. Engineered soil infiltration rate: 3.6  
12. Engineered soil depth (ft) = 2  
13. Engineered soil porosity = 0.27  
14. Percent solids reduction due to flow through engineered soil = 80  
15. Biofilter peak to average flow ratio = 3.8  
16. Number of biofiltration control devices = 1  
17. Particle size distribution file: Not needed - calculated by program  
18. Initial water surface elevation (ft): 0  
Soil Data Soil Type Fraction in Eng. Soil  
User-Defined Soil Type 1.000  
Biofilter Outlet/Discharge Characteristics:  
Outlet type: Broad Crested Weir  
1. Weir crest length (ft): 10  
2. Weir crest width (ft): 2  
3. Height of datum to bottom of weir opening: 2.9

WinSLAMM Output File  
Wisconsin Airport Warehouse LLC  
Project No. 22-097

SLAMM for Windows Version 10.4.1

(c) Copyright Robert Pitt and John Voorhees 2019, All Rights Reserved

Data file name: F:\Engineering\Engineering Dwg\2022\22-097 Airport WHouse\Storm\Models\WinSLAMM\Proposed.mdb

Data file description:

Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN

Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI\_AVG01.pscx

Runoff Coefficient file name: C:\WinSLAMM Files\WI\_SL06 Dec06.rsvx

Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI\_GEO03.ppdX

Residential Street Delivery file name: C:\WinSLAMM Files\WI\_Res and Other Urban Dec06.std

Institutional Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std

Commercial Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std

Industrial Street Delivery file name: C:\WinSLAMM Files\WI\_Com Inst Indust Dec06.std

Other Urban Street Delivery file name: C:\WinSLAMM Files\WI\_Res and Other Urban Dec06.std

Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std

Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False

Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv

Cost Data file name:

Seed for random number generator: -42

Start of Winter Season: 12/02                      End of Winter Season: 03/12

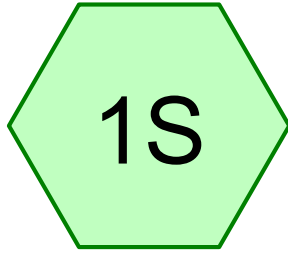
Model Run Start Date: 01/01/81      Model Run End Date: 12/31/81

Date of run: 10-20-2022      Time of run: 10:00:51

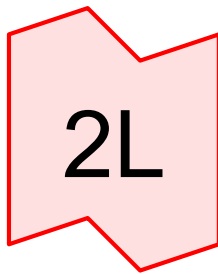
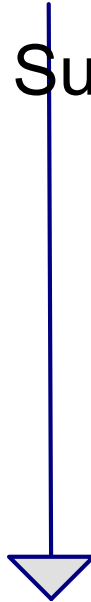
Total Area Modeled (acres): 0.805

Years in Model Run: 1.00

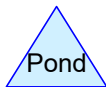
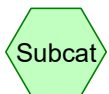
	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	38600	-	125.6	302.6	-
Outfall Total with Controls:	3334	91.36%	134.4	27.98	90.75%
Annualized Total After Outfall Controls:	3343			28.05	



(new Subcat)



(new Link)



**Routing Diagram for Existing Site**

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**Existing Site**

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Page 2

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**Project Notes**

Rainfall events imported from "Atlas-14-Rain.txt" for 1218 WI La Crosse

**Existing Site**

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Page 3

**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.800	61	>75% Grass cover, Good, HSG B (1S)
<b>0.800</b>	<b>61</b>	<b>TOTAL AREA</b>

**Existing Site**

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Page 4

**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.800	HSG B	1S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>0.800</b>		<b>TOTAL AREA</b>

**Existing Site**

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Page 5

**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.800	0.000	0.000	0.000	0.800	>75% Grass cover, Good	1S
<b>0.000</b>	<b>0.800</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.800</b>	<b>TOTAL AREA</b>	



**Existing Site**

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Page 6

**Notes Listing (all nodes)**

Line#	Node Number	Notes
1	Project	Rainfall events imported from "Atlas-14-Rain.txt" for 1218 WI La Crosse

**Existing Site**

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Airport Parking Exist'g  
MSE 24-hr 4 1-Year Rainfall=2.57"

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Page 7

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 1S: (new Subcat)**

Runoff Area=0.800 ac 0.00% Impervious Runoff Depth>0.22"  
Flow Length=271' Tc=21.5 min CN=61 Runoff=0.08 cfs 0.014 af

**Link 2L: (new Link)**

Inflow=0.08 cfs 0.014 af  
Primary=0.08 cfs 0.014 af

**Total Runoff Area = 0.800 ac Runoff Volume = 0.014 af Average Runoff Depth = 0.22"**  
**100.00% Pervious = 0.800 ac 0.00% Impervious = 0.000 ac**

**Existing Site**

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Airport Parking Exist'g  
MSE 24-hr 4 1-Year Rainfall=2.57"

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Page 8

**Summary for Subcatchment 1S: (new Subcat)**

Runoff = 0.08 cfs @ 12.49 hrs, Volume= 0.014 af, Depth> 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
MSE 24-hr 4 1-Year Rainfall=2.57"

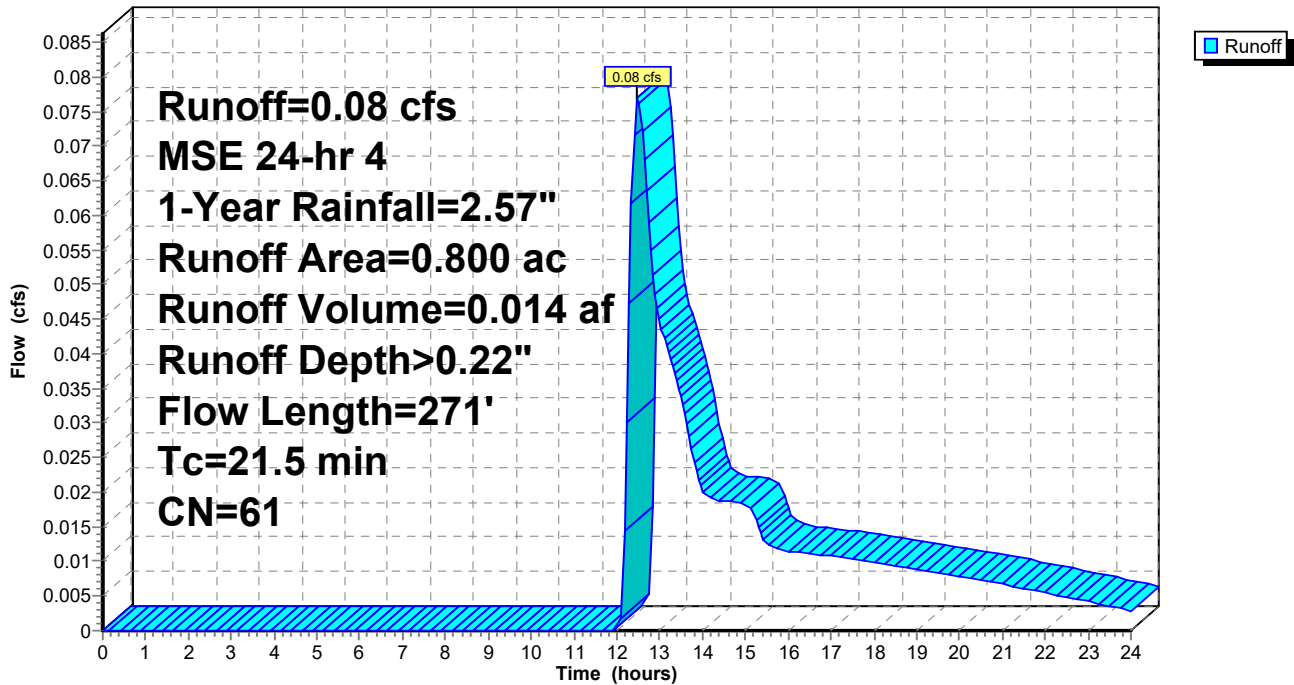
Area (ac)	CN	Description
0.800	61	>75% Grass cover, Good, HSG B
0.800		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.2	100	0.0047	0.09		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.94"
3.2	153	0.0029	0.81		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
0.1	18	0.1222	5.24		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
21.5	271	Total			

**Subcatchment 1S: (new Subcat)**

Hydrograph



### Existing Site

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Airport Parking Exist'g  
MSE 24-hr 4 1-Year Rainfall=2.57"

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Page 9

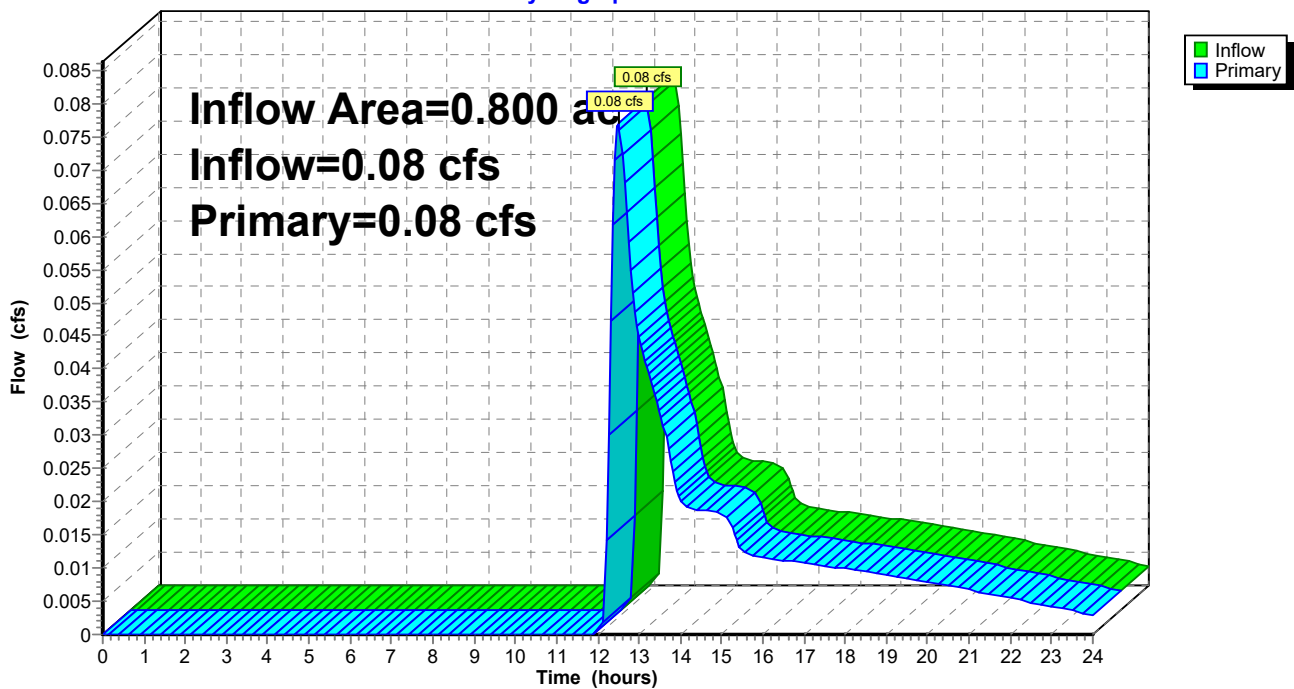
### Summary for Link 2L: (new Link)

Inflow Area = 0.800 ac, 0.00% Impervious, Inflow Depth > 0.22" for 1-Year event  
Inflow = 0.08 cfs @ 12.49 hrs, Volume= 0.014 af  
Primary = 0.08 cfs @ 12.49 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

### Link 2L: (new Link)

Hydrograph



**Existing Site**

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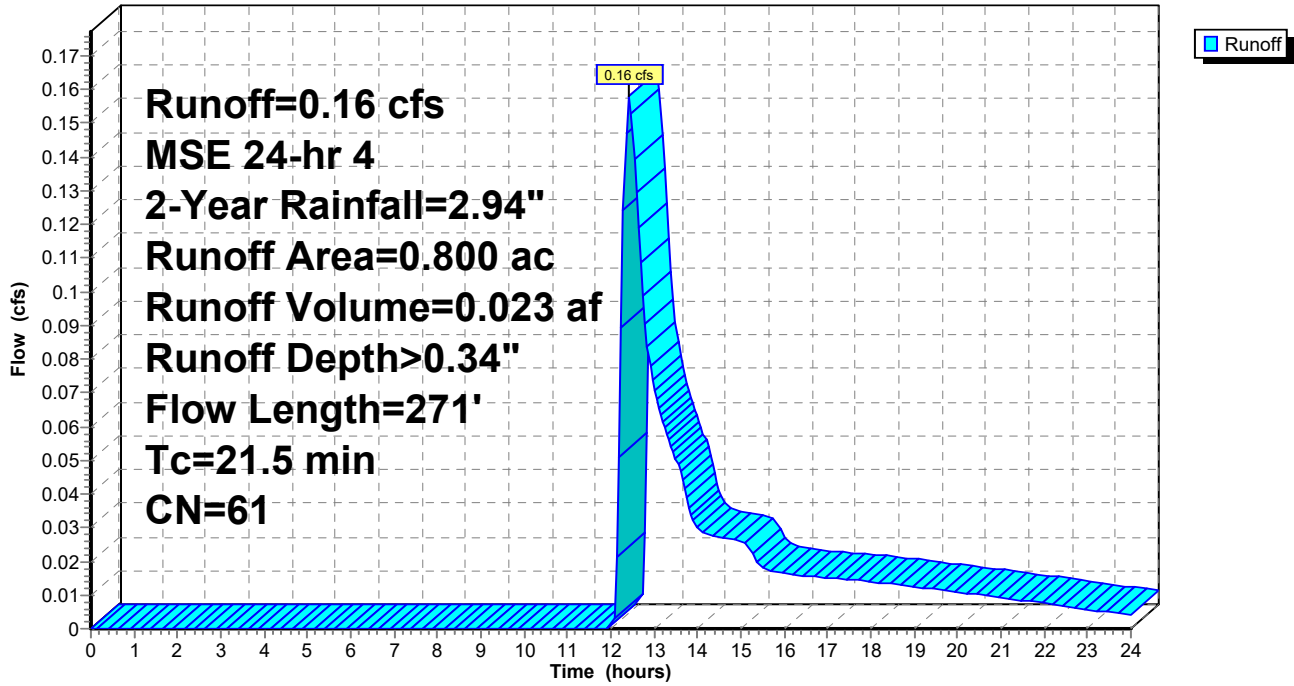
Airport Parking Exist'g  
MSE 24-hr 4 2-Year Rainfall=2.94"

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Page 1

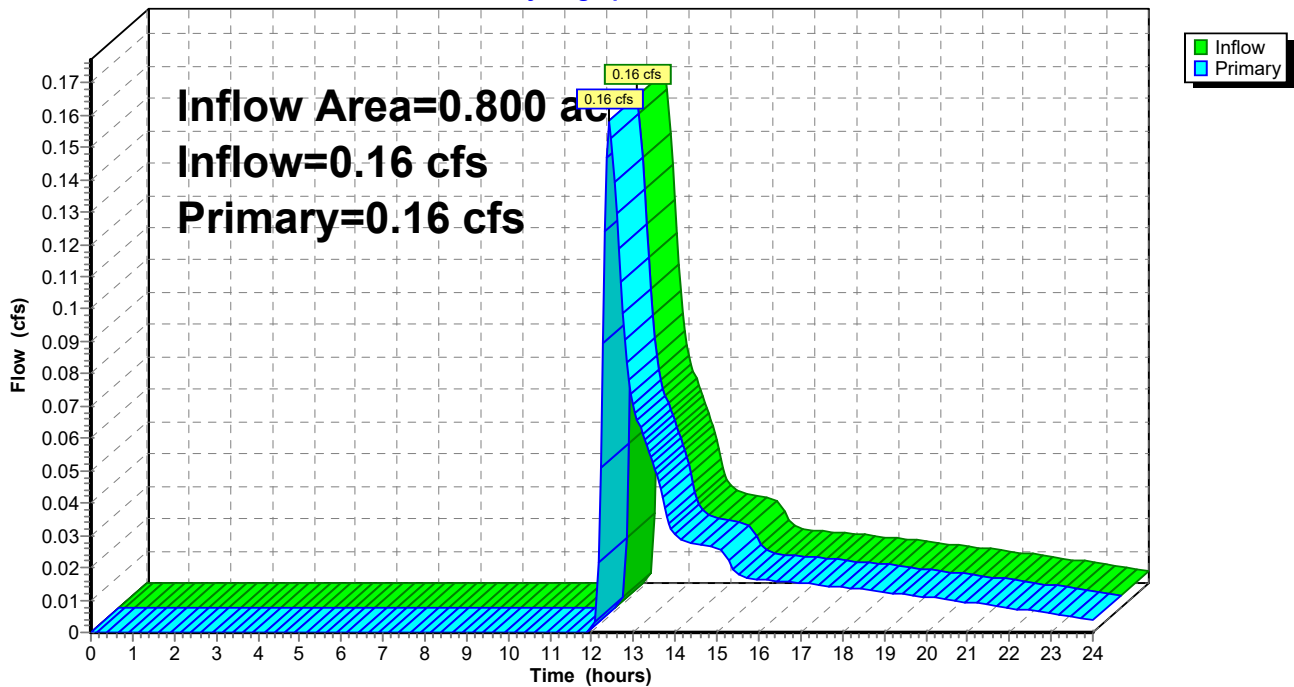
**Subcatchment 1S: (new Subcat)**

Hydrograph



**Link 2L: (new Link)**

Hydrograph



**Existing Site**

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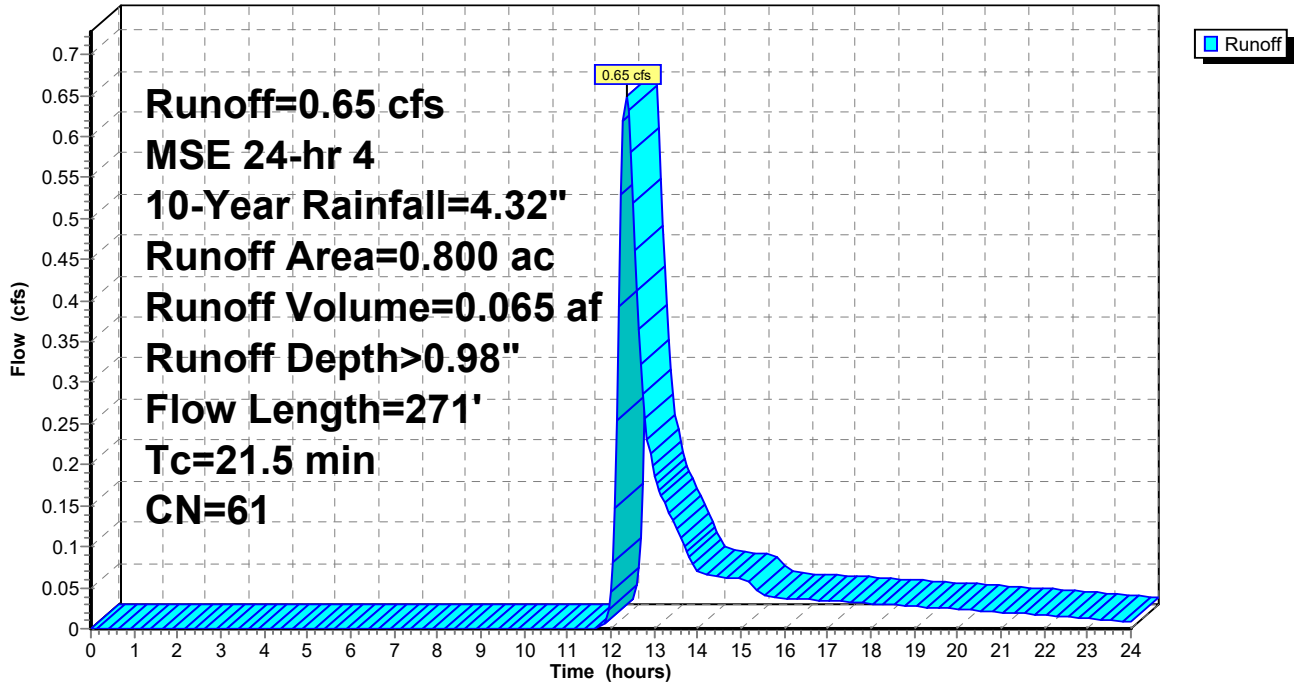
Airport Parking Exist'g  
MSE 24-hr 4 10-Year Rainfall=4.32"

Printed 10/20/2022

Page 2

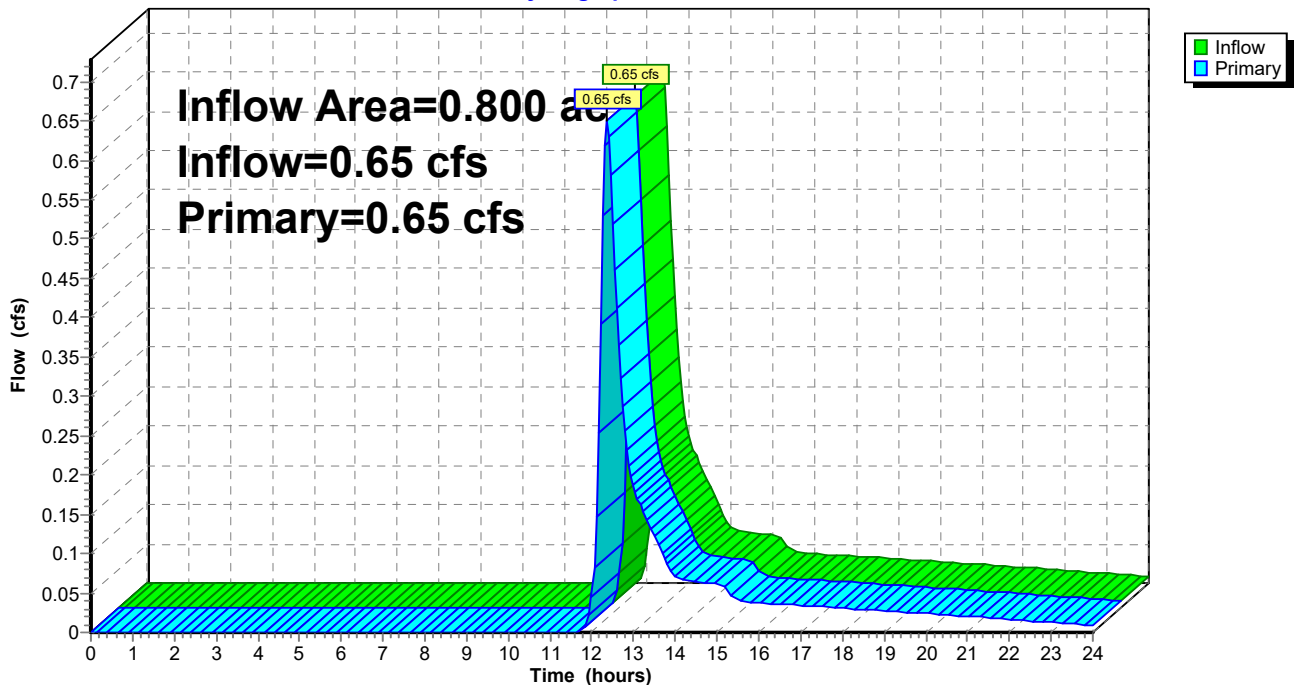
**Subcatchment 1S: (new Subcat)**

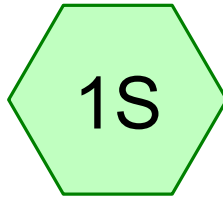
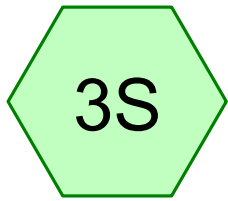
Hydrograph



**Link 2L: (new Link)**

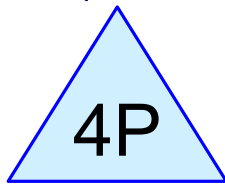
Hydrograph



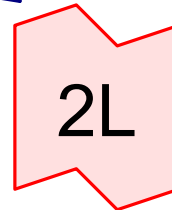


Parking and Drives

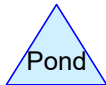
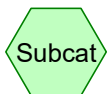
Landscaping



(new Pond)



(new Link)



**Proposed SitePond2**

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Page 2

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**Project Notes**

Rainfall events imported from "Atlas-14-Rain.txt" for 1218 WI La Crosse



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Page 3

**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.306	61	>75% Grass cover, Good, HSG B (1S, 3S)
0.475	98	Paved parking, HSG B (3S)
0.019	98	Water Surface, 0% imp, HSG B (3S)
<b>0.800</b>	<b>84</b>	<b>TOTAL AREA</b>

**Proposed SitePond2**

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.800	HSG B	1S, 3S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>0.800</b>		<b>TOTAL AREA</b>

**Proposed SitePond2**

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Page 5

**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.306	0.000	0.000	0.000	0.306	>75% Grass cover, Good	1S, 3S
0.000	0.475	0.000	0.000	0.000	0.475	Paved parking	3S
0.000	0.019	0.000	0.000	0.000	0.019	Water Surface, 0% imp	3S
<b>0.000</b>	<b>0.800</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.800</b>	<b>TOTAL AREA</b>	

**Proposed SitePond2**

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**Notes Listing (all nodes)**

Line#	Node Number	Notes
1	Project	Rainfall events imported from "Atlas-14-Rain.txt" for 1218 WI La Crosse

## Proposed SitePond2

Prepared by Paragon Associates Inc.

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Airport Parking Prop  
MSE 24-hr 4 1-Year Rainfall=2.57"

Printed 10/20/2022

Page 7

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

### Subcatchment1S: Landscaping

Runoff Area=0.206 ac 0.00% Impervious Runoff Depth=0.22"  
Flow Length=152' Tc=8.3 min CN=61 Runoff=0.03 cfs 0.004 af

### Subcatchment3S: Parking and Drives

Runoff Area=0.594 ac 79.97% Impervious Runoff Depth=1.76"  
Tc=5.0 min CN=92 Runoff=1.63 cfs 0.087 af

### Pond 4P: (new Pond)

Peak Elev=649.22' Storage=1,920 cf Inflow=1.63 cfs 0.087 af  
Discarded=0.08 cfs 0.087 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.087 af

### Link 2L: (new Link)

Inflow=0.03 cfs 0.004 af  
Primary=0.03 cfs 0.004 af

**Total Runoff Area = 0.800 ac Runoff Volume = 0.091 af Average Runoff Depth = 1.36"**  
**40.63% Pervious = 0.325 ac 59.38% Impervious = 0.475 ac**

**Proposed SitePond2**

Prepared by Paragon Associates Inc.

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Airport Parking Prop  
MSE 24-hr 4 1-Year Rainfall=2.57"

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Page 8

**Summary for Subcatchment 1S: Landscaping**

Runoff = 0.03 cfs @ 12.22 hrs, Volume= 0.004 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs  
MSE 24-hr 4 1-Year Rainfall=2.57"

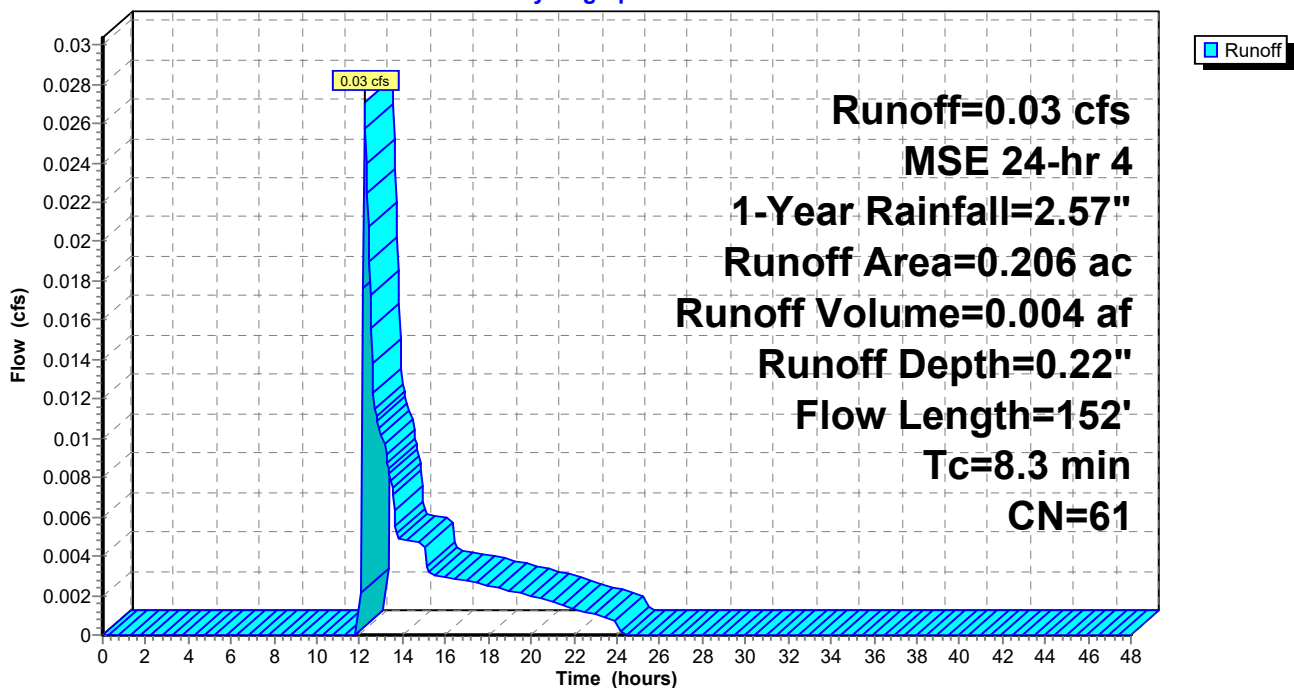
Area (ac)	CN	Description
0.206	61	>75% Grass cover, Good, HSG B
0.206		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0330	0.22		<b>Sheet Flow,</b> Range n= 0.130 P2= 2.94"
0.8	52	0.0049	1.05		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
8.3	152	Total			

**Subcatchment 1S: Landscaping**

Hydrograph



# Proposed SitePond2

Prepared by Paragon Associates Inc.

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Airport Parking Prop  
MSE 24-hr 4 1-Year Rainfall=2.57"

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Page 9

## Summary for Subcatchment 3S: Parking and Drives

[49] Hint:  $T_c < 2dt$  may require smaller dt

Runoff = 1.63 cfs @ 12.11 hrs, Volume= 0.087 af, Depth= 1.76"

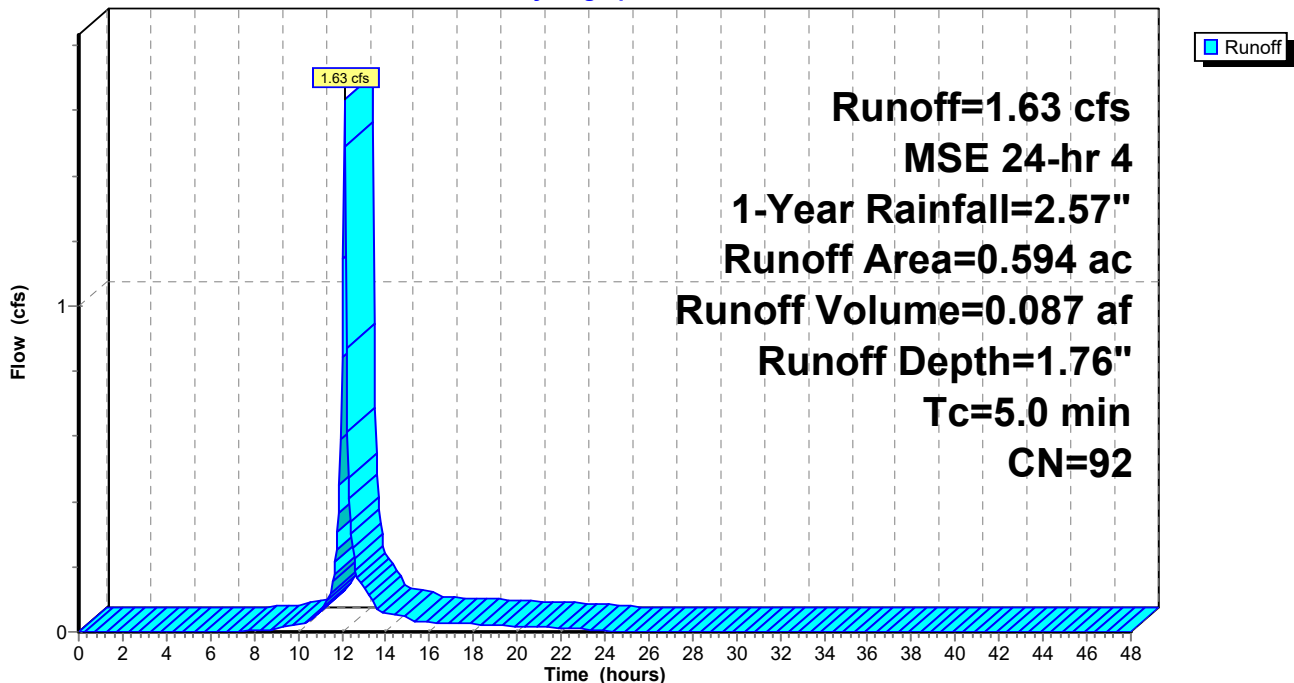
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs  
MSE 24-hr 4 1-Year Rainfall=2.57"

Area (ac)	CN	Description
0.475	98	Paved parking, HSG B
0.100	61	>75% Grass cover, Good, HSG B
0.005	98	Water Surface, 0% imp, HSG B
0.014	98	Water Surface, 0% imp, HSG B
0.594	92	Weighted Average
0.119		20.03% Pervious Area
0.475		79.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

## Subcatchment 3S: Parking and Drives

Hydrograph



**Proposed SitePond2**

Prepared by Paragon Associates Inc.

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**Summary for Pond 4P: (new Pond)**

Inflow Area = 0.594 ac, 79.97% Impervious, Inflow Depth = 1.76" for 1-Year event  
 Inflow = 1.63 cfs @ 12.11 hrs, Volume= 0.087 af  
 Outflow = 0.08 cfs @ 11.20 hrs, Volume= 0.087 af, Atten= 95%, Lag= 0.0 min  
 Discarded = 0.08 cfs @ 11.20 hrs, Volume= 0.087 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 649.22' @ 13.54 hrs Surf.Area= 2,848 sf Storage= 1,920 cf

Plug-Flow detention time= 211.6 min calculated for 0.087 af (100% of inflow)  
 Center-of-Mass det. time= 211.6 min ( 1,006.9 - 795.3 )

Volume	Invert	Avail.Storage	Storage Description			
#1	648.25'	4,281 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
648.25	591	96.4	0	0	591	
648.50	648	100.0	155	155	652	
648.60	1,895	163.0	122	277	1,971	
648.70	2,519	210.0	220	496	3,366	
648.80	2,715	223.8	262	758	3,843	
649.75	3,021	232.0	2,723	3,481	4,211	
650.00	3,381	255.0	800	4,281	5,104	

Device	Routing	Invert	Outlet Devices											
#1	Primary	649.75'	<b>14.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b>											
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00											
			2.50 3.00 3.50 4.00 4.50 5.00 5.50											
			Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65											
			2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88											
#2	Discarded	648.25'	<b>0.05 cfs Exfiltration at all elevations</b>											
#3	Discarded	648.25'	<b>0.03 cfs Exfiltration at all elevations</b>											

**Discarded OutFlow** Max=0.08 cfs @ 11.20 hrs HW=648.27' (Free Discharge)

↑ **2=Exfiltration** (Exfiltration Controls 0.05 cfs)

↑ **3=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=648.25' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



# Proposed SitePond2

Prepared by Paragon Associates Inc.

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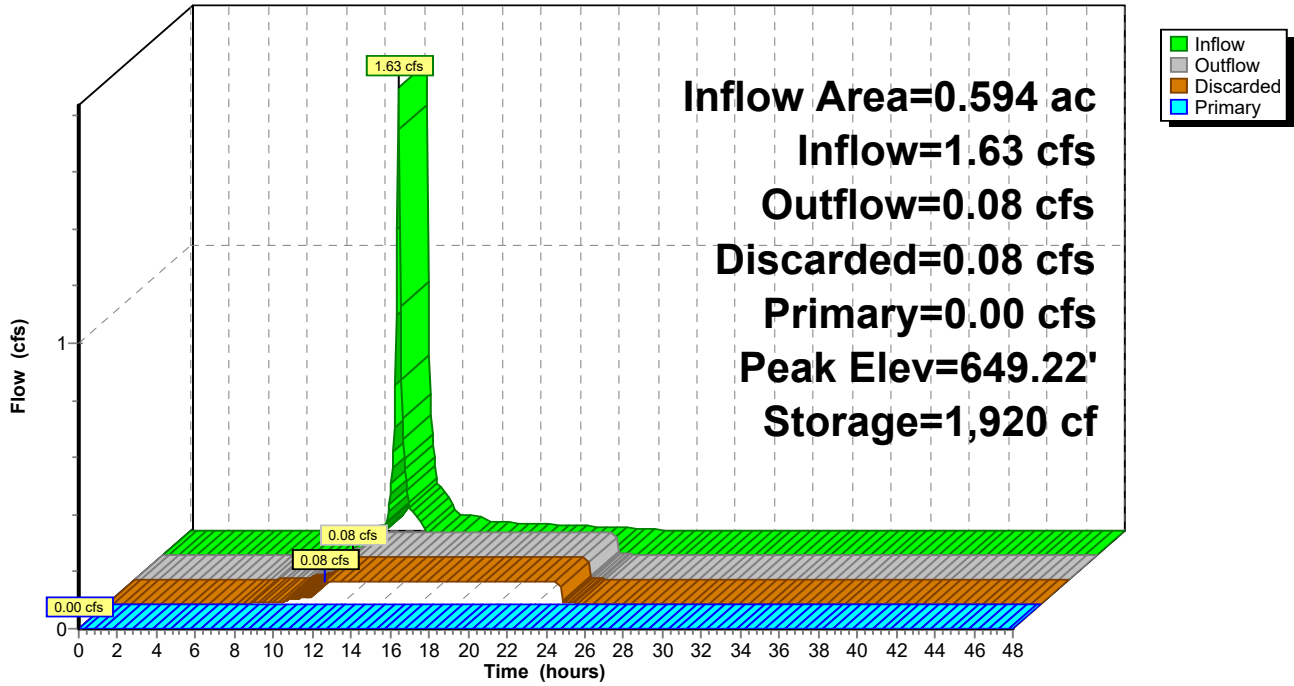
Airport Parking Prop  
MSE 24-hr 4 1-Year Rainfall=2.57"

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Page 11

## Pond 4P: (new Pond)

Hydrograph



# Proposed SitePond2

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Airport Parking Prop  
MSE 24-hr 4 1-Year Rainfall=2.57"

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Page 12

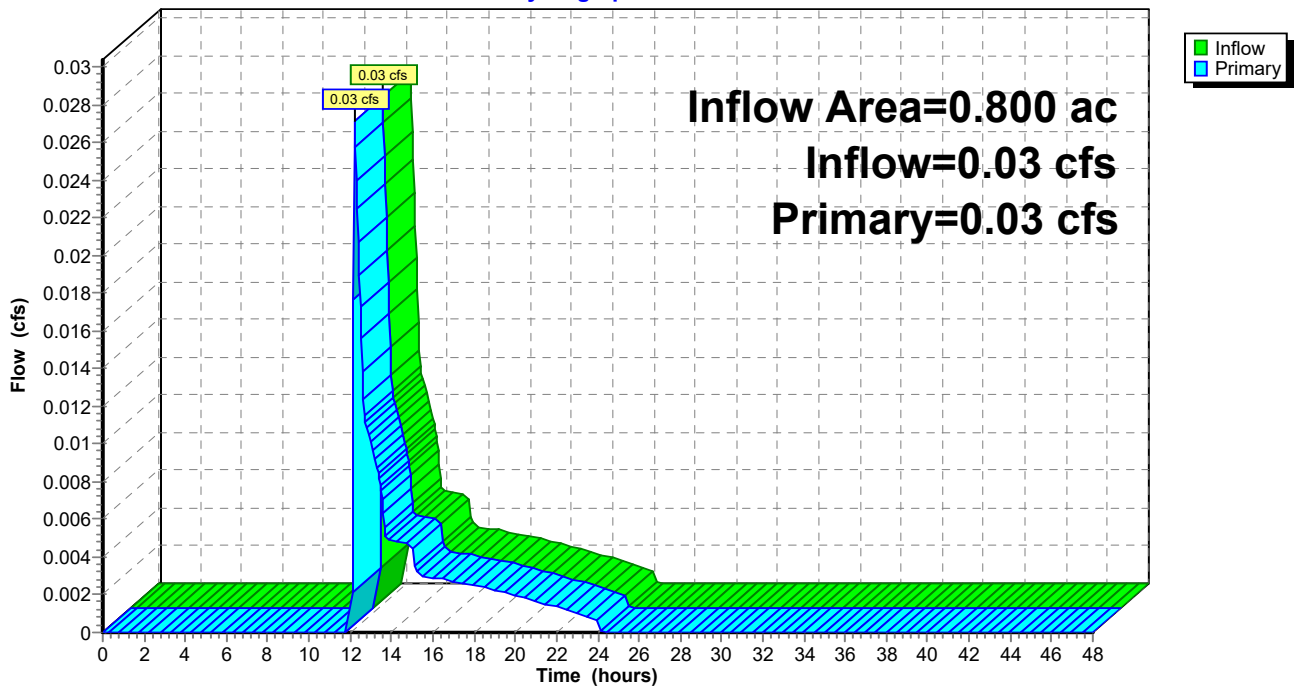
## Summary for Link 2L: (new Link)

Inflow Area = 0.800 ac, 59.38% Impervious, Inflow Depth = 0.06" for 1-Year event  
Inflow = 0.03 cfs @ 12.22 hrs, Volume= 0.004 af  
Primary = 0.03 cfs @ 12.22 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

### Link 2L: (new Link)

Hydrograph



**Proposed SitePond2**

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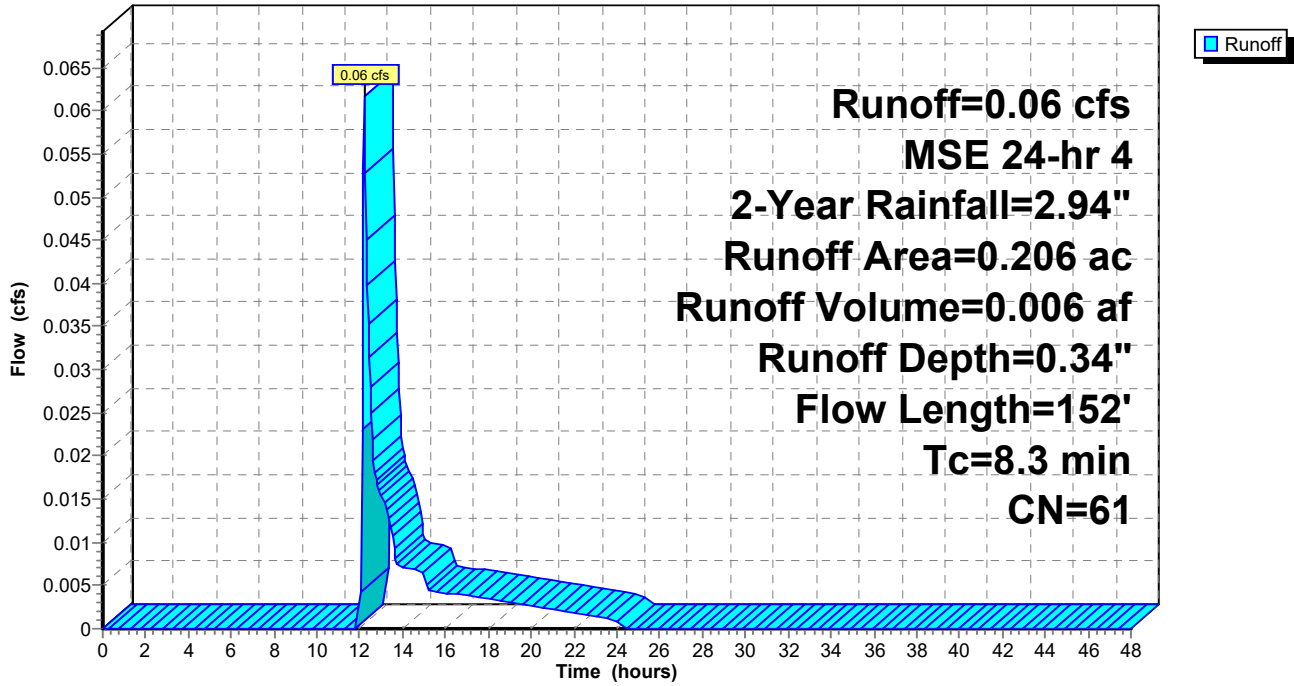
Airport Parking Prop  
MSE 24-hr 4 2-Year Rainfall=2.94"

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Page 1

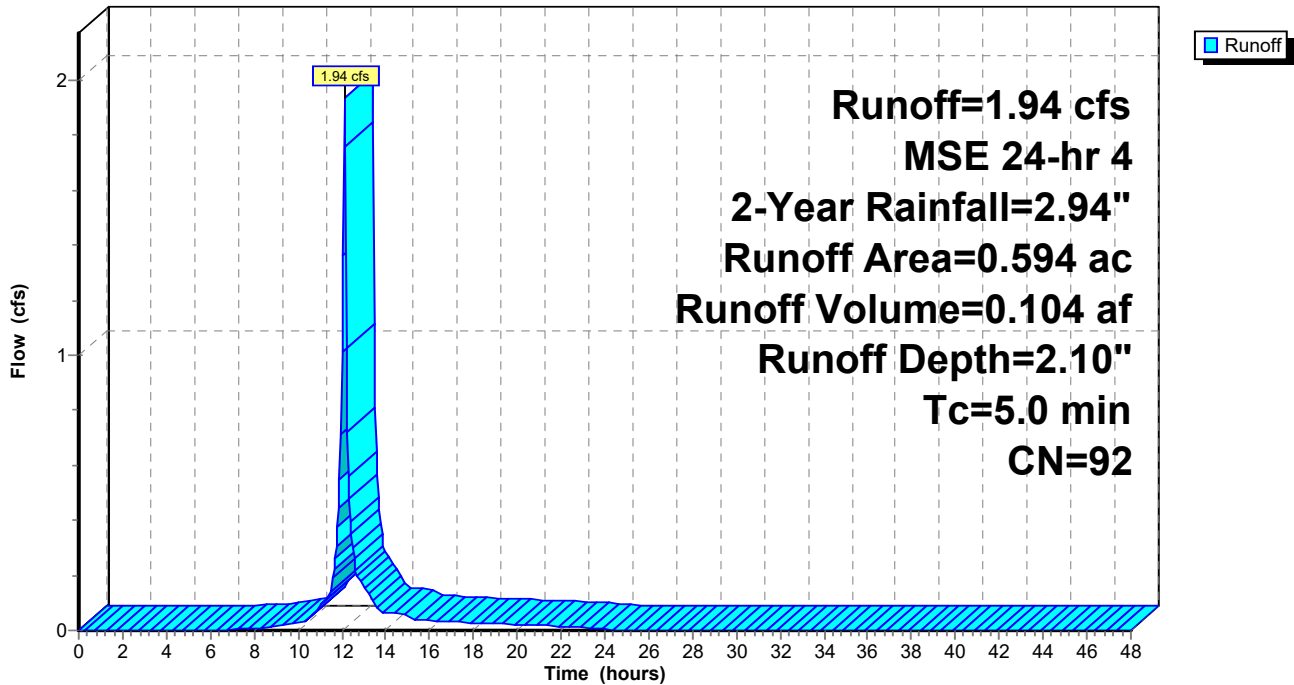
**Subcatchment 1S: Landscaping**

Hydrograph



**Subcatchment 3S: Parking and Drives**

Hydrograph



# Proposed SitePond2

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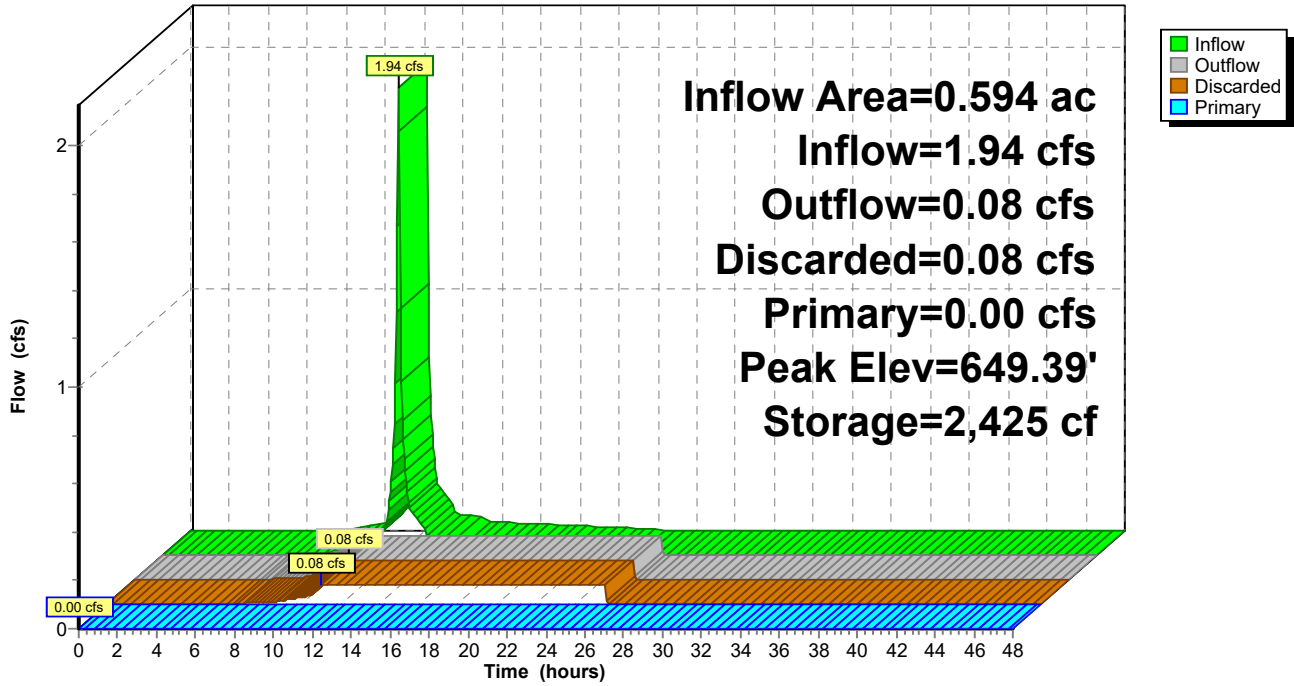
Airport Parking Prop  
MSE 24-hr 4 2-Year Rainfall=2.94"

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Page 2

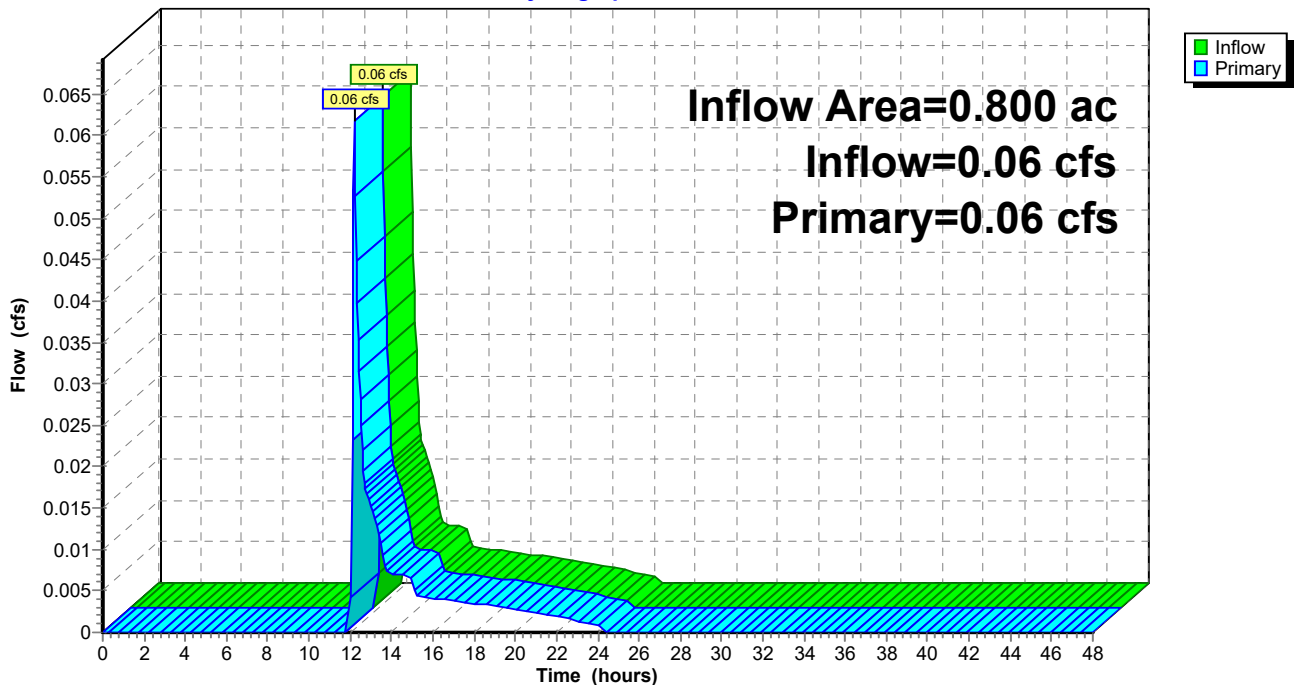
## Pond 4P: (new Pond)

Hydrograph



## Link 2L: (new Link)

Hydrograph



**Proposed SitePond2**

Prepared by Paragon Associates Inc.

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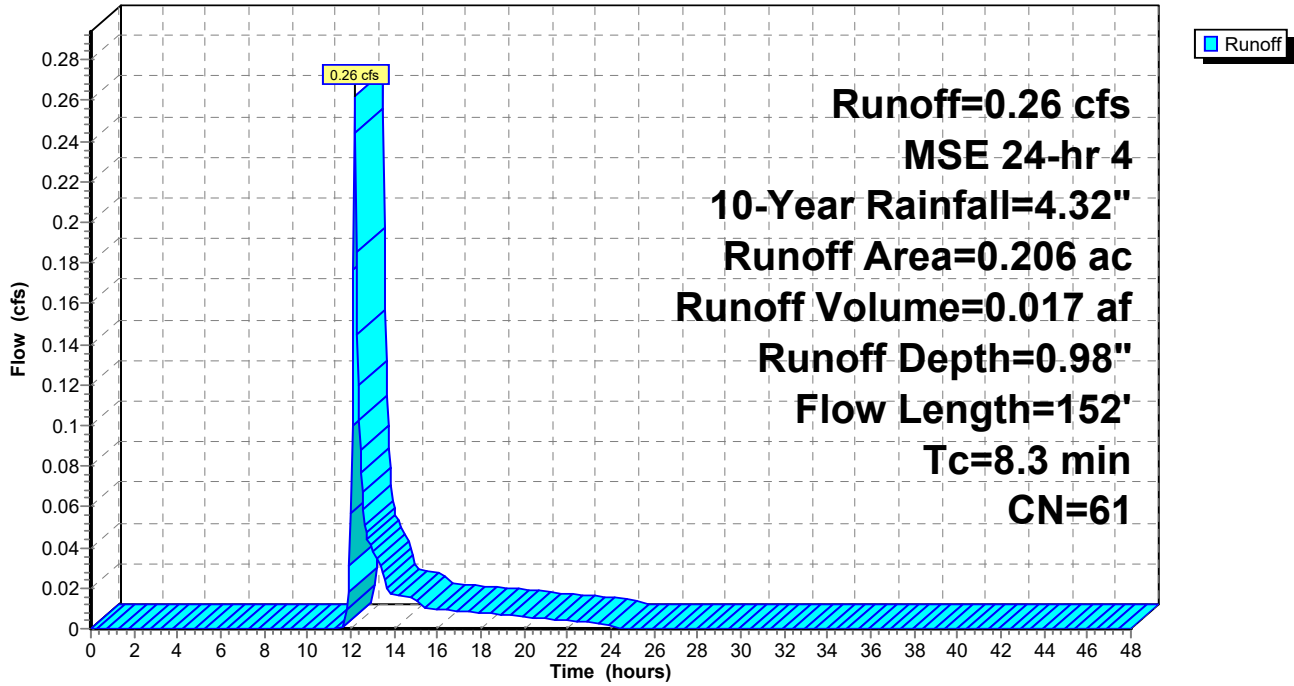
Airport Parking Prop  
MSE 24-hr 4 10-Year Rainfall=4.32"

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Page 3

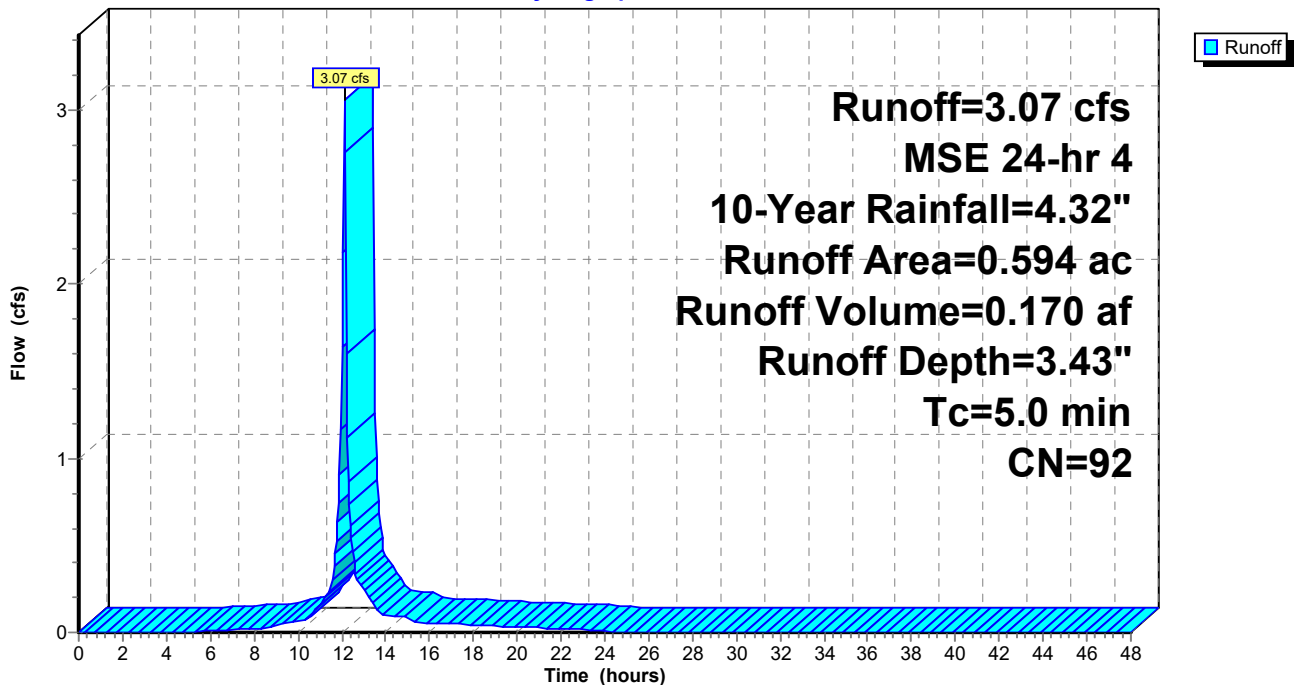
**Subcatchment 1S: Landscaping**

Hydrograph



**Subcatchment 3S: Parking and Drives**

Hydrograph



# Proposed SitePond2

Prepared by Paragon Associates Inc.

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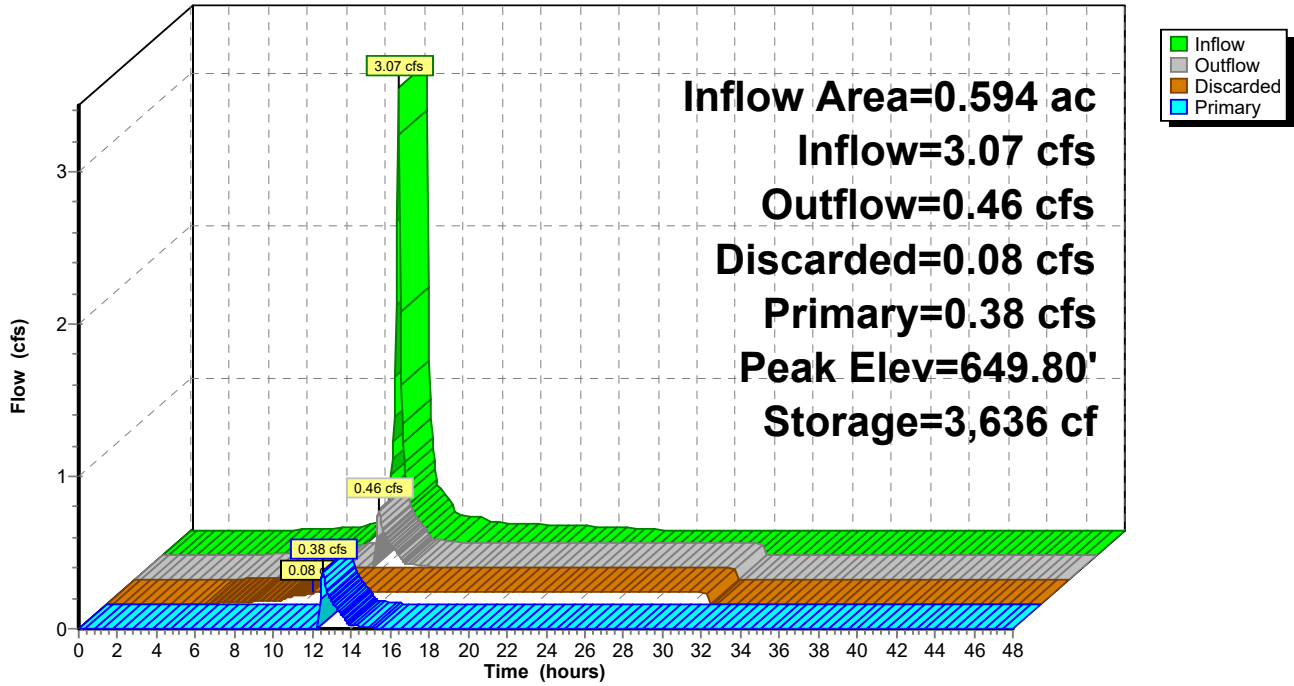
Airport Parking Prop  
MSE 24-hr 4 10-Year Rainfall=4.32"

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Page 4

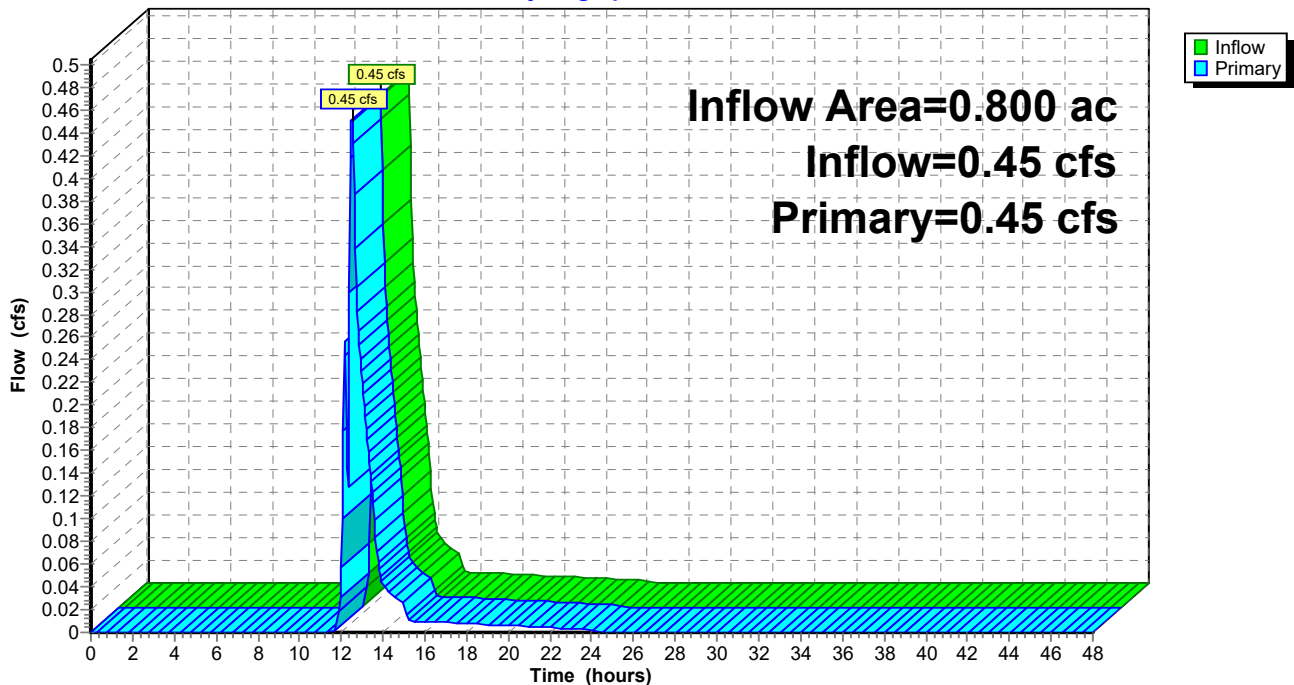
## Pond 4P: (new Pond)

Hydrograph



## Link 2L: (new Link)

Hydrograph



## APPENDIX C

# **OPERATION AND MAINTENANCE PLAN**

## **WISCONSIN AIRPORT WAREHOUSE LLC**

The intent of this plan is to set forth maintenance procedures in order to ensure proper operation of storm water facilities on the site. A copy of this plan shall be kept onsite at all times and be available for inspection if requested. Written record of inspection activities and maintenance shall be retained for the life of the facilities discussed in this plan.

### **BIOINFILTRATION DEVICE:**

#### **1) Accumulated solids or byproduct removal requirements**

Practices shall include removal of all trash and excess sediment from within the site's bioinfiltration devices; periodic removal of sediment may be required to insure proper operation. Repair erosion as necessary on the outer banks of the basins. Remove fall leaves prior to first snow fall. Do not use bioinfiltration areas for snow storage during winter months. Limit the use sodium chloride salt based applications for snow and ice removal on contributing parking and drive areas as this may contribute to quick failure of the device. A calcium chloride salt-based application may be used moderately for snow and ice removal on contributing parking and drive areas.

#### **2) Identification of safety hazards**

Verify that the system is operating properly by inspecting after every one inch or more of rain for the first year and then annually in the spring at one of the first rain events of the growing season each succeeding year. If standing water is observed over the basin floor 2 days after rainfall stops, the basin may be clogged. Note in spring the biofilter may temporarily hold water if unusual weather conditions have caused ice to form in the mulch or media. This will correct itself as warmer weather thaws out the biofilter.

#### **3) Inspection and routine maintenance schedule**

Clear all debris from the overflow weir after all significant rainfall events to ensure adequate capacity. Note the condition of the biofilter during annual inspections. Identify and replace ailing vegetation. Replace mulch in void areas as determined during inspections. Check for runoff pooling areas or blockages of flow. Check and water plants as necessary in bioinfiltration devices during dry conditions.



#### **4) Inspection and maintenance checklist**

- a) **Filters** – Constructed and Planted Bioinfiltration Device
- b) **Disinfection units** - does not apply to this system
- c) **Sedimentation chambers** - does not apply to this system
- d) **Detention devices** - does not apply to this system
- e) **Infiltration systems**

##### **i) Native Vegetation Planting**

(1) Establishment - Immediately after the completion of cell construction, water plant material for 14 consecutive days unless there is sufficient natural rainfall. Bi-weekly weeding will be required for the first one to two years. Carefully remove by hand plants certain to be weeds. Remove entire root of the weedy plants. If chemical weed treatment is required, use the least toxic approach. Application of pesticides and fertilizers shall be minimal. Biological, physical, and cultural controls shall be used prior to chemical pesticide and fertilizer use.

(2) Mowing (cutting) or burning (where permitted by local ordinance) shall be used to maintain the vegetation.

##### **(a) Mowing**

Mowing shall reduce the height of plants to 5 to 6 inches. After establishment, if burning is not allowed or cannot be accommodated, mowing shall occur once in the spring (after March 1). The area can be mowed to a height of 5 to 6 inches.

##### **ii) Restoration Procedures**

(1) Twice a year, from March 15th to April 30th and October 1st to November 30th, remove and replace all dead and diseased vegetation considered beyond treatment.

(2) Once every 2 to 3 years or as needed, apply new mulch in the spring to restore plan thickness and cover bare spots.

#### **5) Start up and shutdown procedures**

In fall, leave the mature biofilter vegetation uncut and intact to encourage infiltration during freezing weather. Perform inspection and routine maintenance in early spring to ensure system is ready for warm weather.

**6) Vector control requirements**

Abate potential vectors by filling holes in the ground in and around the bioinfiltration device and by insuring that there are no areas where water stands longer than two days following a storm. If any obstructions develop (e.g. debris accumulation, invasive vegetation, growth of woody or shrubby vegetation, clogging of outlets and/or under drains) within the device, appropriate maintenance activities shall be implemented to remove the obstructions.

**7) Contingency plan in the event of system failure**

If the system has failed as the result of erosion, immediate measures should be employed to sandbag the area and stabilize any lawn areas as soon as possible until the system can be evaluated and reconstructed to plan.

If the biofilter appears to be clogged as identified in paragraph 2, it is likely the media has been clogged by fine sediment. To correct this, remove the mulch to expose the soil media. Carefully remove the top inch or two of media, being careful not to contaminate the newly exposed media with the clogged media. Replace the removed media with fresh media available from a local landscaper familiar with rain gardens and biofilters. **Do not use topsoil.** Reinstall or replace the mulch with new. This should restore the infiltrative capacity to the biofilter. If it continues to show signs of clogging, contact Paragon associated Inc. or another qualified engineer or landscape architect to help determine the cause.

Comply with all local and state regulatory requirements and the stipulations of the Long Term Maintenance Agreements for inspection, maintenance, and failure reporting requirements.

## APPENDIX D

**DECLARATION OF CONDITIONS, COVENANTS AND RESTRICTIONS  
FOR MAINTENANCE OF STORMWATER MANAGEMENT MEASURES**

**RECITALS:**

- A. Wisconsin Airport Warehouse LLC, is the owner of AIRPORT INDUSTRIAL PARK LOT PRT LOT 6, more particularly described on Exhibit A attached hereto (“Property”).
- B. Owner desires to construct buildings and/or parking facilities on the Property in accordance with certain plans and specifications approved by the City.
- C. The City requires Owner to record this Declaration regarding maintenance of stormwater management measures to be located on the Property. Owner agrees to maintain the stormwater management measures and to grant to the City the rights set forth below.

NOW, THEREFORE, in consideration of the declarations herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the owner agrees as follows:

- 1. Maintenance. Owner and its successors and assigns shall be responsible to repair and maintain the stormwater management measures located on the Property in good condition and in working order and such that the measures comply with the approved plans on file with the City Engineer. Said maintenance shall be at the Owner’s sole cost and expense. Owner will conduct such maintenance or repair work in accordance with all applicable laws, codes, regulations, and similar requirements, and pursuant to the Maintenance Provisions attached hereto as Exhibit B.
- 2. Easement to City. If Owner fails to maintain the stormwater management measures as required in Section 1, then City shall have the right, after providing Owner with written notice of the maintenance issue (“Maintenance Notice”) and thirty (30) days to comply with the City’s maintenance request, to enter the Property in order to conduct the maintenance specified in the Maintenance Notice. City will conduct such maintenance work in accordance with all applicable laws, codes, regulations, and similar requirements and will not unreasonably interfere with Owner’s use of the Property. All costs and expenses incurred by the City in conducting such maintenance may be charged to the owner of the Property by placing the amount on the tax roll for the Property as a special charge in accordance with Section 66.0627, Wis. Stats.
- 3. Term/Termination. The term of this Agreement shall commence on the date that this Agreement is filed of record with the Register of Deeds Office for La Crosse County, Wisconsin, and except as otherwise herein specifically provided, shall continue in perpetuity. Notwithstanding the foregoing, this Agreement may be terminated by recording with the Register of Deeds Office for La Crosse County, Wisconsin, a written instrument of termination signed by the City and all of the then-owners of the Property.
- 4. Miscellaneous.
  - (a) Notices. Any notice, request or demand required or permitted under this Agreement shall be in writing and shall be deemed given when personally served or three (3) days after the same has been deposited with the United States Post Office, registered or certified mail, return receipt requested, postage prepaid and addressed as follows:  
  
If to Owner: Wisconsin Airport Warehouse LLC  
W 701 245<sup>th</sup> St  
Riverdale, NY 10471  
  
If to City: City of La Crosse  
Engineering Department  
400 La Crosse Street  
La Crosse, WI 54601  
Attention: City Engineer

Any party may change its address for the receipt of notice by written notice to the other.

- (b) Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Wisconsin.
- (c) Amendments or Further Agreements to be in Writing. This Agreement may not be modified in whole or in part unless such agreement is in writing and signed by all parties bound hereby.
- (d) Covenants Running with the Land. All of the easements, restrictions, covenants and agreements set forth in this Agreement are intended to be and shall be construed as covenants running with the land, binding upon, inuring to the benefit of, and enforceable by the parties hereto and their respective successors and assigns.
- (e) Partial Invalidity. If any provisions, or portions thereof, of this Agreement or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such provision, or portion thereof, to any other persons or circumstances shall not be affected thereby and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

This space is reserved for recording data

Return to:

City of La Crosse  
Engineering Department  
400 La Crosse Street  
La Crosse, Wisconsin 54601

Tax Parcel No.: 251-\_\_\_\_-\_\_\_\_-\_\_\_\_-

IN WITNESS WHEREOF, we have hereunto set our hands and seals this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
STATE OF WISCONSIN  
COUNTY OF LA CROSSE ) SS

Personally came before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, the above named \_\_\_\_\_, to me known to be the person(s) who executed the foregoing instrument and acknowledged the same.

\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: \_\_\_\_\_

Drafted by: City of La Crosse  
Engineering Department  
400 La Crosse Street  
La Crosse, Wisconsin 54601

**EXHIBIT A**  
Legal Description

AIRPORT INDUSTRIAL PARK PRT LOT 6 BEG SW COR N0D31M 47SW ALG W LN 543.17FT  
ALG CURV N44D28M13SE 21.21FT N89D28M13SE ALG N LN 375.33 FT ALG CURV  
S68D5M12.5SE 68.72FT S45D38M38SE 21.5FT S44D21M22SW 26.33FT S0D30M 24SE 498.34FT  
TO S LN LOT 6 S89D29M51SW ALG S LN 450.14 FT TO POB T/W ING/EG ESMT & T/W ESMT  
IN DOC NO. 1786002 LOT SZ: 5.77 AC.

**EXHIBIT B**  
Maintenance Provisions

# **OPERATION AND MAINTENANCE PLAN**

## **WISCONSIN AIRPORT WAREHOUSE LLC**

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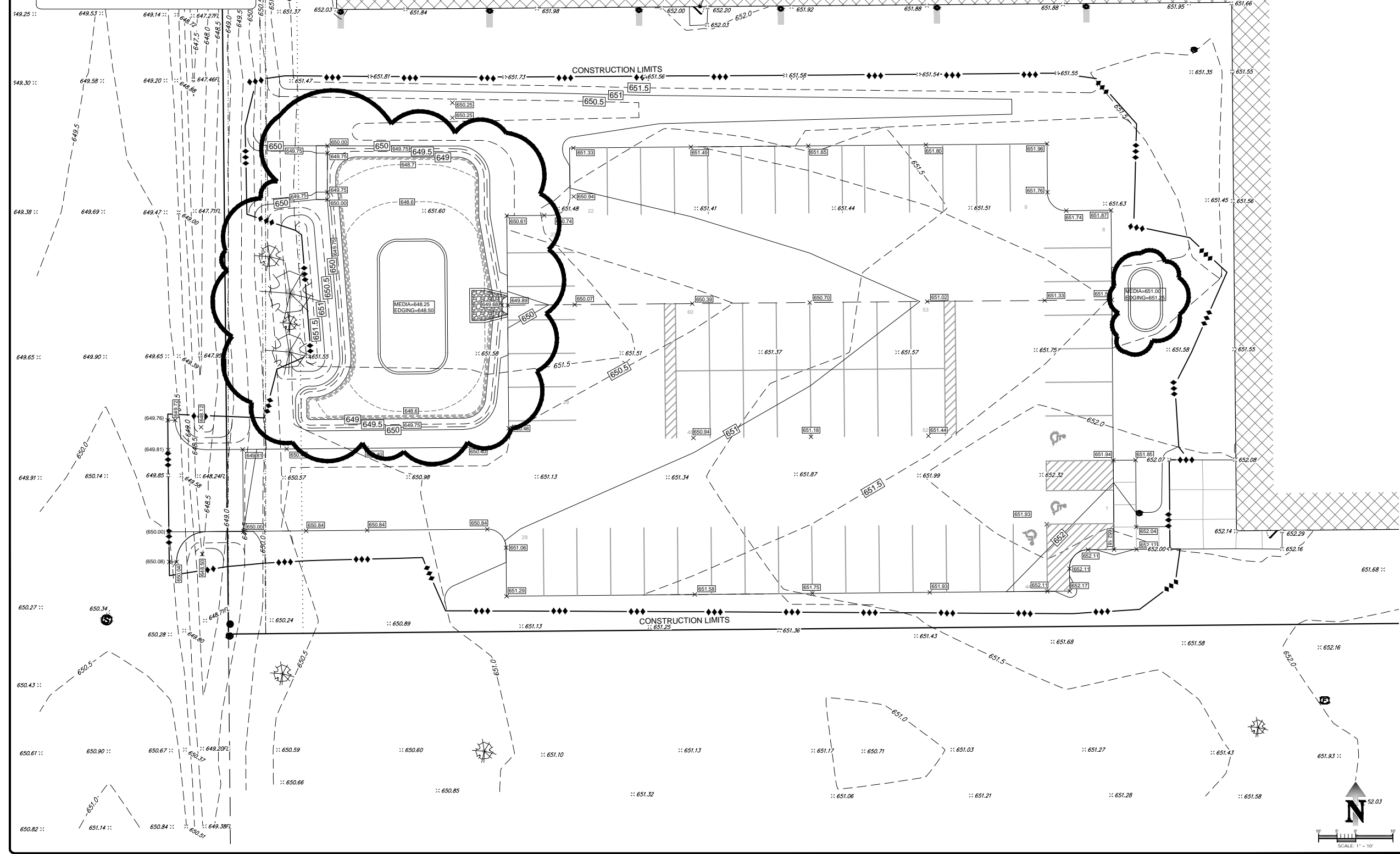
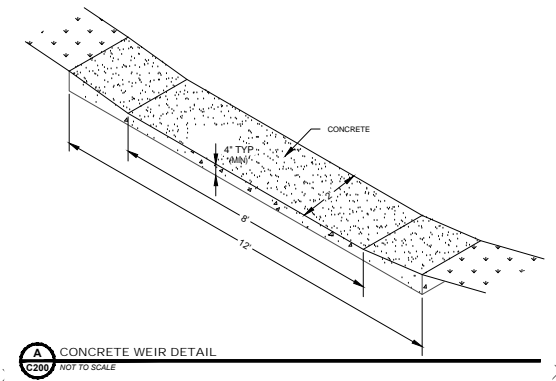
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Comply with all local and state regulatory requirements and the stipulations of the Long Term Maintenance Agreements for inspection, maintenance, and failure reporting requirements.

- C200 GENERAL NOTES**
- THE LOCATION OF EXISTING UTILITIES, BOTH UNDERGROUND AND OVERHEAD ARE APPROXIMATE ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. CALL DIGGERS HOTLINE (800) 242-8511.
  - THE UNDERGROUND LOCATIONS OF THE PUBLIC UTILITIES WERE MARKED BY REPRESENTATIVES OF THOSE COMPANIES. THE LOCATIONS OF THE PRIVATELY OWNED UNDERGROUND UTILITIES WERE NOT MARKED.
  - THERE MAY BE MORE UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
  - IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR ANY NECESSARY INSPECTIONS BY LOCAL GOVERNMENT THAT MAY BE REQUIRED.
  - ANY AND ALL PARTIES UTILIZING VERTICAL DATUM SHALL ALWAYS CHECK INTO AT LEAST TWO (2) BENCHMARKS TO AVOID MISTAKES DUE TO HORIZONTAL ADJUSTMENTS OR TRANSPORTATION ERRORS. FAILURE TO DO SO WILL BE CONSIDERED TANTAMOUNT TO GROSS NEGLIGENCE AND SUBJECT TO THE OFFERING PARTY TO ANY DAMAGES RESULTING THEREFROM.
  - CONTOURS SHOWN ARE FOR FINISHED SURFACES. ANY ADJUSTMENT TO SUBGRADE IS THE CONTRACTOR'S RESPONSIBILITY.
  - ALL DISTURBED AREAS THAT ARE UNPAVED ARE TO BE LANDSCAPED OR SEEDED AND MULCHED AS INDICATED ON THE EROSION CONTROL PLAN.
  - ALL LANDSCAPED OR LAWN AREAS SHALL HAVE A MINIMUM OF 6" OF TOPSOIL.
  - SPOT ELEVATIONS SHALL TAKE PRECEDENCE OVER CONTOURS AND SLOPES SHOWN. HOWEVER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF SPOT ELEVATIONS DO NOT APPEAR TO AGREE WITH THE CONTOURS AND SLOPES LABELED. SPOT ELEVATIONS AND SPECIFIC PROFILE INFORMATION SHALL BE USED FOR ESTABLISHING THE ELEVATION OF CURBS, DRIVEWAYS, AND OTHER UTILITIES.
  - ALL FINISHED GRADING SHALL PROVIDE FOR A SMOOTH TRANSITION TO UNGRADED AREAS.
  - EXISTING TREES TO REMAIN SHALL BE PROTECTED DURING CONSTRUCTION BY PLACING TEMPORARY FENCING AT THE DRIP LINE OF THE TREE CANOPY. IF IMPROVEMENTS NEED TO BE MADE WITHIN THE DRIP LINE, THE FENCE SHALL BE TEMPORARILY REMOVED AND REPLACED IMMEDIATELY FOLLOWING THE COMPLETION OF THE WORK.

**C200 HEX NOTE KEY**

- INSTALL CONCRETE WEIR. SEE DETAIL



REVISIONS:	DATE:

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PREPARED FOR:  
**WISCONSIN AIRPORT WAREHOUSE, LLC**  
 SITE ADDRESS:  
 3235 AIRPORT RD  
 LA CROSSE, WI 54603

PROJECT NAME:  
**PARKING LOT ADDITION**  
 SHEET NAME:  
**GRADING PLAN**

PROJECT No.	22-097
DRAWN BY:	C.M.G.
CHECKED BY:	J.S.M.
DATE:	10/20/2022
CAD FILE:	
SCALE:	1" = 10'
SHEET No.	C200
PROJ. DATE:	10/20/2022 4:47 PM

