
**Municipal Separate Storm Sewer System (MS4)
Program (Non-Traditional) – Stormwater Pollution
Prevention Plan**

***High Priority Water Quality
Issue #1 – Vehicular Pollutants***

Old Dominion University

Prepared for **Old Dominion University**
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Introduction

Plan Purpose and Summary

This Storm Water Pollution Prevention Plan (SWPPP) has been developed in accordance with the requirements of the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4) (Permit), as defined in General Permit No. VAR04 Effective Date: July 1, 2013 Expiration Date: June 30, 2018. The purpose of this SWPPP is to:

- 1) Identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the Old Dominion University Campus.
- 2) Describe and ensure the implementation of Best Management Practices that will be used to reduce pollutants in stormwater discharges from the Old Dominion University Campus and to assure compliance with the conditions of the Permit.

As specified in Section II(1)(c)(1) of the Permit, an MS4 operator is required to develop a public education and outreach program that identifies at least three(3) high priority water quality issues that have potential to adversely affect stormwater discharges. In addition, as specified in Section II(6)(b)(1) through (3), an MS4 operator is required to identify all municipal high-priority facilities that have a high potential to discharge pollutants into stormwater facilities. A SWPPP is required to be developed for each of these high-priority facilities with the purpose to identify and reduce pollutant discharges. In many cases, an overlap is present between high priority water quality issues and facilities with a high potential for discharge. As a result, a SWPPP has been developed for each of the High Priority Water Quality Issues identified in the ODU MS4 Program Plan.

High Priority Water Quality Issues that have been identified in the ODU MS4 Program Plan include:

1. Vehicular pollutants resulting from vehicle maintenance and leaks in the parking lots and roads located on the ODU Campus. Sediments and pollutants deposited on vehicles that can be washed off during storm events or during cleaning by students, faculty, and staff.
2. Excess fertilizers and pesticides released during nutrient management activities on the ODU grounds by ODU Grounds faculty and staff.
3. Litter and debris throughout campus generated by ODU students, faculty and staff.
4. Erosion and sediment control performed by contractors during land disturbing activities.

This SWPPP will specifically cover vehicular discharges within the paved parking areas of the ODU campus. Included with this SWPPP is a summary of the ODU campus surface parking lots that generate pollutants. In addition, this SWPPP provides a summary of the procedures implemented by ODU to reduce and prevent illicit discharges. Campus maps that show the parking lots throughout the ODU campus are included in *Appendix A: Campus Illicit Discharge Potential Maps*. In addition to illicit discharge potential areas, these maps show drainage areas, flow directions, outfalls, potential pollutants, and existing best management practices. Specific potential pollutant areas and existing BMPs are summarized in *Table 2: Potential Vehicular Pollutant Area Summary*.

Implementation of the components of this SWPPP is required as a condition of the Permit (*Appendix B*). The Department of Environmental Quality (DEQ) has been granted authority to administer the MS4 program and is therefore the regulatory authority overseeing the implementation of this SWPPP.

Background – MS4 General Permit and Regulatory Considerations

In 1972, Congress passed the Federal Water Pollution Control Act (FWPCA), also known as the Clean Water Act (CWA), to restore and maintain the quality of the nation's waterways. The ultimate goal was to make sure that the river and streams were fishable, swimmable, and drinkable. In 1987, the Water Quality Act (WQA) added provisions to the CWA that allowed the EPA to govern stormwater discharges from MS4s. In 1990, the EPA disseminated rules establishing Phase I of the National Pollutant Discharge Elimination System (NPDES) stormwater program.

Under the Phase 1 NPDES regulations, permits for stormwater discharges from municipal separate storm sewer systems were required for eleven "large" and "medium" municipalities in Virginia. The "large" municipalities (250,000+ populations) are Fairfax County, Virginia Beach and Norfolk. The "medium" municipalities (from 100,000 to 250,000 populations) are Arlington County, Prince William County, Henrico County, Chesterfield County, Hampton, Newport News, Portsmouth, and Chesapeake. The Phase 2 stormwater regulations froze the population thresholds for "large" and "medium" municipal separate storm sewer systems at the 1990 Census level, so no additional municipalities will be designated into these categories.

Phase 1 municipal separate storm sewer systems permit applications required the municipalities to propose a comprehensive Stormwater Management Program (SWMP). This program is required to consist of structural and non-structural measures to control the discharge of pollutants from the storm sewer system to the Maximum Extent Practicable (MEP) and to effectively prohibit non-stormwater discharges to separate storm sewer systems. The Phase 1 permits requires the implementation of the SWMP, storm event monitoring to be conducted by the municipality, and the municipality to regularly assess the effectiveness of the various stormwater controls employed by the municipality.

Phase 2 regulations requires permits to be issued to Small Municipal Separate Storm Sewer Systems (MS4s) located in "urbanized areas" (as defined by the U.S. Census Bureau's 2000 Census). Small MS4s include systems owned by municipalities, federal facilities, State facilities (including VDOT), and public universities. In addition, any Small MS4 located in a Phase 1 "large" or "medium" municipality is required to be permitted under the Phase 2 regulations.

Permits for regulated small municipal separate storm sewer systems require the development, implementation and enforcement of a SWMP that includes the following "six minimum control measures":

1. Public education and outreach on stormwater impacts
2. Public involvement/ participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations.

Regulated Small MS4 permit applications require the applicant to identify:

1. Proposed best management practices and measurable goals for each of the "six minimum control measures"
2. The timing of the implementation of each control measure
3. The person or persons responsible for implementing the Stormwater Management Program (SWMP).

The 2004 Virginia legislature unanimously passed House Bill 1177 transferring regulatory authority of the NPDES programs related to MS4s and construction activities from the State Water Control Board to the Soil and Water Conservation Board and transferred oversight of these programs from the Department of Environmental Quality (DEQ) to the Department of Conservation and Recreation (DCR). This transfer became effective January 29, 2005. Program oversight was transferred again from DCR to DEQ effective July 1, 2013. As a result, DEQ is responsible for the issuance, denial, revocation, termination and enforcement of NPDES permits for the control of stormwater discharges from MS4s and land disturbing activities under the VSMP. The General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, in accordance with 9VAC25-890, is effective starting July 1, 2013 and applies to all MS4 Permits for Discharges of Stormwater from Small MS4s until the permit expiration date of June 30, 2018.

SWPPP Coordinator and Duties

SWPPP Coordinator

The SWPPP coordinator for the Old Dominion University campus is Mr. Doug Alexander, Director of Environmental Health and Safety, (phone number: (757)683-4495). Mr. Alexander's duties include the following:

- Implement the SWPPP plan;
- Oversee maintenance practices identified in the SWPPP;
- Implement and oversee employee training;
- Conduct or provide for inspection and monitoring activities;
- Identify other potential pollutant sources and make sure they are added to this SWPPP;
- Identify any deficiencies in this SWPPP and make sure they are corrected;
- Ensure that the SWPPP is available for review in accordance with the Plan Administration requirements in Chapter 3 of the Permit.
- Respond to regulatory agency requests for information about the construction site as it relates to SWPPP and coverage under this permit.

SWPPP Administration

General Information

Plan Availability

In accordance with Section II (B)(6)(b) of the Permit (*Appendix B*):

Copies of this SWPPP must be retained on campus, or at another location easily accessible during normal business hours, along with copies of the registration statement, permit, and acknowledgement letter from the permit issuing authority.

Operators with day to day operational control over SWPPP implementation shall have a copy of the SWPPP available on campus for use by all operators identified as having responsibilities to carry out provisions contained in this SWPPP. The SWPPP shall be made available to the DEQ, permit-issuing authority, and operator of the Municipal Separate Storm Sewer System (MS4) receiving discharges from the site for review at the time of an inspection.

The Operator shall make the SWPPP and all updates available upon request to the DEQ, the permit-issuing authority, EPA, local government officials, or the operator of a MS4 receiving discharges from the campus.

Plan Updates

The Operator shall amend this SWPPP whenever there is a change in design, construction, operation, or maintenance that has a significant effect on the potential for the discharge of pollutants to surface waters and that has not been addressed in the normal implementation of this SWPPP. The Operator must also update this SWPPP whenever it is found to be ineffective in meeting the requirements of the Permit.

Operator Responsibilities

The operator shall be responsible for executing the conditions of the MS4 Permit as defined in Section III of the Permit (*Appendix B*). Specifically, the operator shall be responsible for maintaining a complete record of monitoring, field reports and investigations, notices of noncompliance, etc.

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Specific Requirements

Campus Description

Old Dominion University (ODU) is a public university located in the City of Norfolk, Virginia. The campus covers an area generally bounded by Larchmont/Edgewater to the north, 43th Street to the south, Kellam Avenue to the east, and Lamberts Point Golf Course and the Elizabeth River to the west. The communities of Larchmont/Edgewater, Highland Park, and Lamberts Point are located to the north, east, and south, respectively. For the purposes for this SWPPP, the campus can be generally divided into three areas: Central Campus, East Campus, and West Campus. The total campus area is approximately **173.50 acres**.

The Central Campus is considered the part of the campus bound by Bolling Avenue to the north, 43rd Street to the south, Hampton Boulevard to the east, and Elkhorn Avenue and Bluestone Avenue to the west. This area features a number of buildings/facilities including Foreman Field, Rollins Hall, Webb Center, Kaufman Hall, Perry Library, and Batten Arts and Letters. The Central Campus drains to Outfall #2 to the Lafayette River. The total drainage area to Outfall #2 is approximately **121.09 acres**.

The East Campus or University Village is considered the part of campus bound by the Lafayette River to the north, 38th Street to the south, Kellam Avenue to the east, and Hampton Boulevard to the west. This area features a number of buildings including Rogers and Gresham Residence Halls, Ted Constant Convocation Center, Campus Bookstore, and University Village Apartments. The East Campus drains to Outfall #3 to the Lafayette River. The total drainage area to Outfall #3 is **67.76 acres**.

The West Campus considered the part of campus bound by 49th Street to the north, 38th Street to the south, Elkhorn Avenue to the east, and the Elizabeth River to the west. This area features a number of buildings including the Student Rec Center, Quad Student Housing, Tennis Center, Whitehurst Hall, Facilities Management, and the L.R. Hill Sports Complex, in addition to others. The West Campus drains to Outfall #1 and Outfalls #4 through #9 to the Elizabeth River. The total drainage area to these outfalls is **125.22** acres.

The ODU campus drains by way of closed storm systems to nine total outfalls. The outfalls are summarized in *Table 1: Campus Outfall Summary*.

Table 1: Campus Outfall Summary

Outfall Number	Location	Description	Outfall Drainage Area (ac)
1	West Campus, South of Whitehurst Hall	78" CMP culvert to tidal canal to Elizabeth River	86.90
2	East Campus, North of Rogers Hall	Double 42"x60" RCP box culvert to tidal canal to Lafayette River	121.09
3	East Campus, East of Rogers Hall	Double 48" RCP culvert to tidal canal to Lafayette River	67.76
4	West Campus, South of Whitehurst Hall	36" RCP culvert to tidal canal to Lafayette River	9.49
5	West Campus, South of Whitehurst Hall	18" RCP culvert to tidal canal to Lafayette River	0.61
6	West Campus, South of Whitehurst Hall	15" RCP culvert to tidal canal to Lafayette River	0.84
7	West Campus, South of Whitehurst Hall	24" RCP culvert to tidal canal to Lafayette River	2.90
8	West Campus, Northwest of Whitehurst Hall	18" RCP culvert to Elizabeth River	4.14
9	West Campus, South of L.R. Hill Sports Complex	42" RCP culvert to Elizabeth River	20.34

Note: Outfall Drainage Areas include area outside the ODU campus limits.

The Lafayette River outfalls to the Elizabeth River, which ultimately outfalls to the Chesapeake Bay. As a result, the entire ODU campus drains through the Elizabeth River and ultimately drains to the Chesapeake Bay. The Elizabeth River is listed in the 2014 Impaired Waters – 303(d) List under Cause Category 5A for Estuarine Bioassessments. The hydrologic unit code for the Elizabeth River is **JL56**.

Maps showing drainage areas, flow direction, outfalls, and, existing best management practices are included in *Appendix A*.

Non-Stormwater Discharges

Non-stormwater discharges are considered to be flows generated by other sources other than stormwater runoff that enters the Old Dominion University storm sewer network. These flows often carry pollutants and are generally considered to be illicit unless otherwise certified as a non-stormwater discharge under a MS4 permit issued by DEQ. ODU actively regulates and prohibits non-stormwater discharges as specified in Illicit Discharge Detection and Elimination documentation. The following non-stormwater discharges are recognized by ODU as exempt from prohibitions:

- Flushing of water lines and potable water sources
- Irrigation
- Temporary diversions of stream flows
- Uncontaminated ground water
- Foundation and crawl space pumps and drains
- Condensation from air conditioners
- Springs, wetlands, and riparian habitats
- Non-commercial washing of vehicles
- Non-chlorinated swimming pools
- Firefighting activities
- Water sources that are uncontaminated

In addition, runoff that enters high pollutant areas such as parking lots, loading areas, and service yards has the potential to pick up large quantities of pollutants and to carry them to the storm sewer network. ODU monitors these high risk areas and implements best management practices to ensure that pollutant risks are mitigated. The ODU MS4 Program Plan and subsequent MS4 annual report provides an inclusive campus plan to managing area with high illicit discharge potential.

Vehicular Pollutants

As specified in the MS4 Program Plan, the ODU campus population is approximately 27,000 students, faculty, and staff plus visitors. In addition, ODU issues approximately 21,000 parking passes annually. As a result, it can be assumed that ODU receives a significant amount of vehicular traffic on campus roads and in parking areas. Vehicles that travel through the ODU campus are in various states of operation and may be leaking various fluids such as oil, coolant, and fuel. All of these fluids are considered pollutants. Vehicular maintenance performed in campus parking areas has the potential to generate pollutants through fluid spills, waste debris and other sources. In addition, pollutant laden sediment collects on vehicles during normal use. When these sediments are washed off a vehicle by a storm event or an individual, they enter the storm sewer system.

All of these vehicular pollutants are generated on paved surfaces. However, as vehicles generally spend more time parked than in motion, parking areas are more likely to generate a greater amount of pollutants than roads. ODU implements a number of Best Management Practices (BMPs) to intercept and treat pollutant laden runoff generated in parking areas. These BMPs include wet retention ponds, bioretention basins, and other structural BMPs. A variety of non-structural BMPs are implemented for all parking areas. These BMPs seek to reduce pollutants by reducing them before they enter the ODU storm sewer network. In addition, non-structural BMPs seek to educate the ODU community about pollution prevention and mitigation. *Tables 2a and 2b: Potential Vehicular Pollutant Area Summary* presents a summary of the various parking areas throughout the ODU campus that have the potential generate pollutants. Campus maps showing these areas are included in *Appendix A*. Further discussion of campus BMPs is included in the *Best Management Practices* section of this SWPPP.

Table 2a: Potential Vehicular Pollutant Area Summary – Not Treated by a Structural BMP

Parking Area Name	Parking Area Location	Parking Area Acreage (ac)	Parking Area Use
Lot 1	WHRO	3.37	Commuter
Lot 2	Spong Hall	0.16	Faculty/Staff
Lot 5 through 9	Rollins Hall, Foreman Field	3.19	Faculty/Staff and Visitors
Lot 11 and 33	Rogers Hall and East Annex	0.70	Resident/Commuter
Lot 16 and 18	Gresham Hall and East Annex	0.53	Resident/Commuter
Lot 18, 37, and 56	Nusbaum Apartments	0.25	Resident
Lot 19 and 29	Systems Research Building and Batten Arts and Letters	0.69	Faculty/Staff
Lot 32	Powhatan Apartments I	1.85	Resident
Lot 34 and 35	Hampton Boulevard	0.21	Faculty/Staff
Lot 41	Facilities Management	1.80	Faculty/Staff
Lot 43	West 43rd Street	3.82	Commuter
Lot 44 and Lot 49	49th Street	0.71	Faculty/Staff
Lot 47	Peri Nuclear and Partial Physics Facility	0.53	Commuter
Lot 50	Monarch Inn	0.48	Resident
Lot 58	East 48th Street	0.16	Commuter
Lot L	Perry Library	0.07	Faculty/Staff
Lot V-1, V-2, V-3, Garage C, Garage D	University Village	9.56	Resident/Commuter
VIP Lot and Lot 22	Webb Center	0.49	Faculty/Staff
Total:		28.57	

Table 2b: Potential Vehicular Pollutant Area Summary –Treated by a Structural BMP

Parking Area Name	Parking Area Location	Parking Area Acreage (ac)	Parking Area Use	Type of BMP	Area Treated by BMP (ac)
Lot 3	Residential Dining Facility	0.39	Faculty/Staff	Permeable Pavers	0.39
Lot 10	Tennis Center	0.51	Faculty/Staff	Bioretention Basin	0.25
Lot 23	Athletic Administration Building	0.94	Faculty/Staff	Dry Detention Basin	0.94
Lot 38	Physical Sciences Building	0.37	Faculty/Staff	Water Quality Inlet	0.18
Lot 42	Whitehurst Hall	3.67	Resident/Commuter	Hydrodynamic Separator	2.76
Lot 46	College of Education Building	0.25	Faculty/Staff	Permeable Pavers	0.25
Lot 57	Student Rec Center	0.21	Faculty/Staff	Water Quality Inlet	0.21
Garage A and Garage B	43rd Street	2.33	Metered and Commuter	Hydrodynamic Separator	1.15
Garage E	Foreman Field	1.01	Faculty/Staff and Visitors	Cistern	1.01
Total:		9.68			7.14
Total Campus Parking Area		38.25			7.14

Best Management Practices

In addition to water quality benefits, Best Management Practices (BMPs) are used to provide effective control and mitigation of potential illicit discharges. BMPs are separated into structural and non-structural categories. Structural BMPs include means and methods to physically detain, divert, and treat stormwater runoff. Examples include wet ponds, bioretention basins, permeable pavement, etc. Non-structural BMPs include means and methods to reduce the quantity and severity of pollution events through education and management of potential pollutant sources. Examples include safe storage of chemicals, preventative maintenance to reduce spills and leaks, stormwater management education, etc.

Old Dominion University implements a variety of both structural and non-structural BMPs throughout its campus. Structural BMPs have been designed and constructed as specified in the Virginia BMP Clearinghouse and by standards set in the Virginia Stormwater Handbook. Active structural BMPs are inspected regularly in order to ensure that they are performing as designed and are repaired as necessary. As shown in *Table 2b*, **7.14 acres** of the parking lots on the ODU campus are treated by a variety of structural BMPs including permeable pavements, bioretention and detention basins, and water quality inlets. Approximately **38.25 acres** of the ODU parking lots are not directly treated by a structural BMP. As a result, non-structural BMPs are implemented in order to reduce the quantity of pollutants campus-wide.

Table 3: Non-Structural Best Management Practice Summary summarizes the non-structural BMPs implementation and use on the ODU campus. The ODU MS4 Program Plan and subsequent MS4 annual reports provides an additional inclusive overview of the BMPs currently in on the ODU campus.

Table 3: Non-Structural Best Management Practice Summary

Best Management Practice	Description
Vehicle Maintenance	<ul style="list-style-type: none"> • Vehicle maintenance by faculty, staff, and students is prohibited on the ODU campus except by designated staff in designated areas. • University vehicles are washed in closed bays with drains connected to the campus sanitary sewer system. • University vehicles are serviced by the ODU Motor Pool Department biannually and are checked for leaks at regular intervals. • Spills are reported and cleaned up immediately.
Educational Information	<ul style="list-style-type: none"> • Educational information about potential pollution risks associated with vehicle maintenance and washing is distributed to ODU faculty, staff and students. • Distribution includes educational pamphlets and public service announcements throughout the campus information system. • The ODU Stormwater Management website is available to the public contains the campus MS4 Program and other stormwater management documents.
Storm Drain Markers	<ul style="list-style-type: none"> • All storm inlets to the ODU storm sewer network are marked to dissuade the public from dumping pollutants into the storm drain.
Illicit Discharge Detection and Elimination	<ul style="list-style-type: none"> • ODU maintains an Illicit Discharge Detection and Elimination Plan. This plan provides procedures for identifying pollutant discharges at the various campus stormwater outfalls and methods for eliminating them.

Campus Goals

In order to optimize the reduction vehicular pollutants, a number of goals have been developed. These goals were selected to be measurable and to implement existing non-structural BMPs currently in use on the ODU campus. *Table 4: Campus Pollutant Reduction Goals* summarizes campus goals for reducing vehicular pollutants. The goals listed in *Table 4* are not inclusive and may be modified and expanded following the development of this SWPPP.

Table 4: Campus Pollutant Reduction Goals

Proposed Goal	Metric	Schedule	Compliance Status	Plans for Next Permit Year
1. Reduce or treat surface parking lots not currently treated by a structural BMP.	Demolish or provide new treatment for 10% of the pavement not currently protected.	Ongoing		
2. Move surface parking to parking garages.	Move 10% of the spaces current located in a surface lot.	Ongoing		
3. Provide parking lot sweeping.	Sweep parking lots at least twice annually .	Ongoing		
4. Upgrade standard pavement to permeable pavement.	Upgrade 10% of the existing surface parking lots to permeable pavement.	Ongoing. Construction of permeable pavement is underway at Residential Dining Hall and College of Education		
5. Provide incentives for carpooling and public transportation.	Provide preferred parking spaces for carpooling vehicles equal to 5% of a parking lot or garage footprint.	Public bus services are provided by ODU for the campus community.		
6. Provide incentives for electric and fuel efficient vehicles	Provide preferred parking spaces for electric and fuel-efficient vehicles equal to 5% of a parking lot or garage footprint.	Ongoing		

Operator Certification

All operators who have responsibility for implementing and maintaining the controls identified in this SWPPP must sign the certification statement listed below. The person signing the certification must meet the signatory requirements, as presented in Permit Section III K (*Appendix B*). The certifications must be maintained as part of this SWPPP.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Printed: _____

Signature: _____

Date: _____

Printed: _____

Signature: _____

Date: _____

References

Virginia Stormwater Handbook. First Edition. Virginia Department of Conservation and Recreation, 1999.

Virginia BMP Clearinghouse. Virginia Department of Environmental Quality, April 2014.

Virginia Erosion and Sediment Control Handbook. Third Edition. Virginia Department of Conservation and Recreation, 1992.

Old Dominion University MS4 Program Plan, ODU Office of Environmental Health and Safety, Revised November 2015.

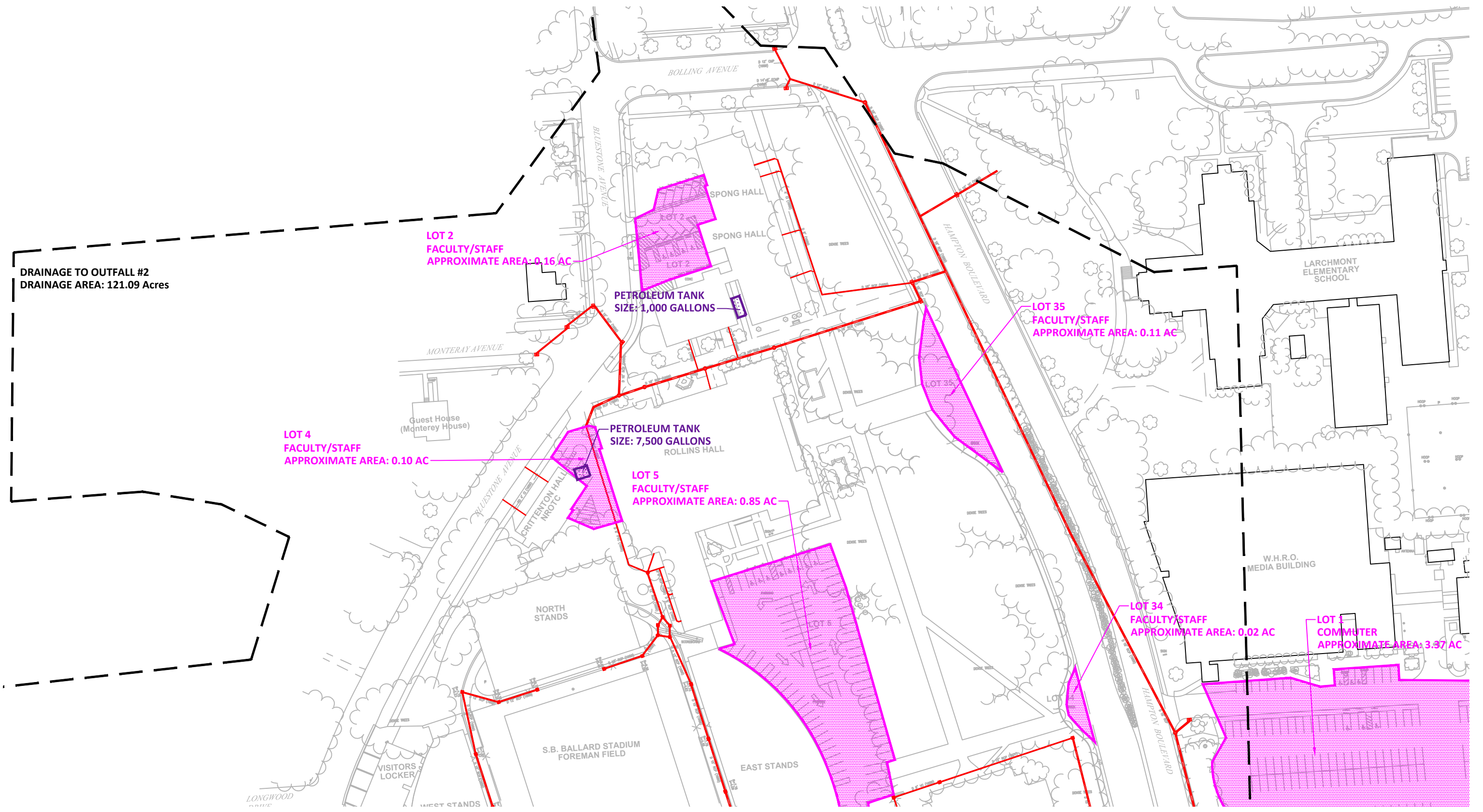
Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, September 30, 2014.

Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, October 1, 2015.

Old Dominion University Illicit Discharge Detection and Elimination Program, ODU Office of Environmental Health and Safety, May 5th, 2008.

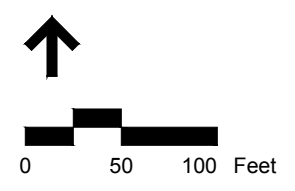
Appendix A

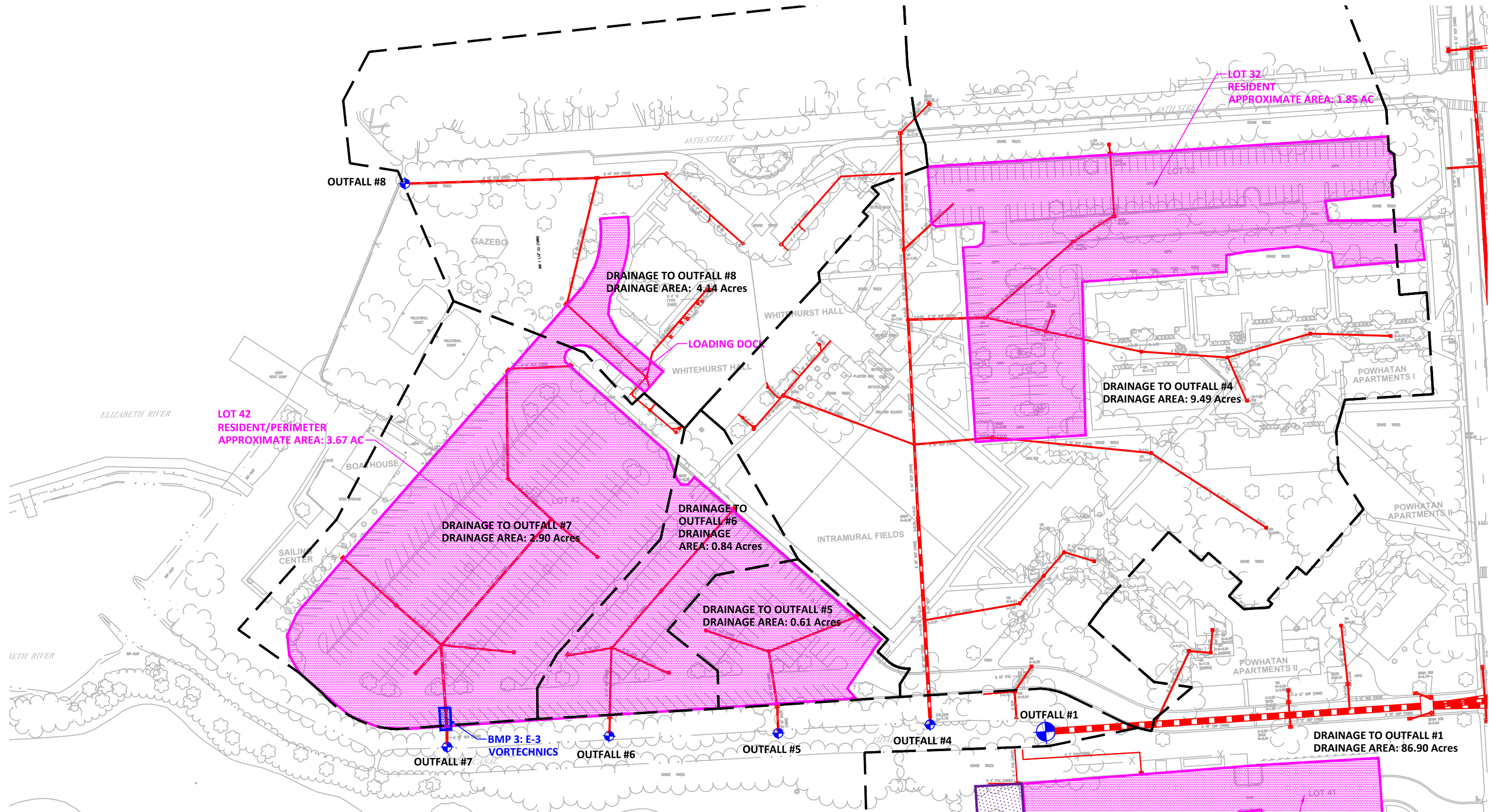
Campus Illicit Discharge Potential Maps














Legend

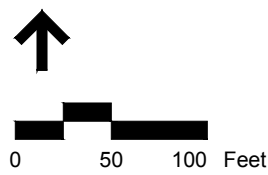
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|--|------------------------------------|--|------------------------------|--|---------------------------------|
| | LOW ILLICIT DISCHARGE POTENTIAL | | MAJOR OUTFALL SAMPLING POINT | | PARKING LOTS AND LOADING DOCKS |
| | MEDIUM ILLICIT DISCHARGE POTENTIAL | | MINOR OUTFALL SAMPLING POINT | | BEST MANAGEMENT PRACTICES |
| | HIGH ILLICIT DISCHARGE POTENTIAL | | MAJOR NODE IN SYSTEM TO TEST | | HIGH POTENTIAL POLLUTANT SOURCE |
| | DRAINAGE AREA DIVIDE | | GROUNDS | | |

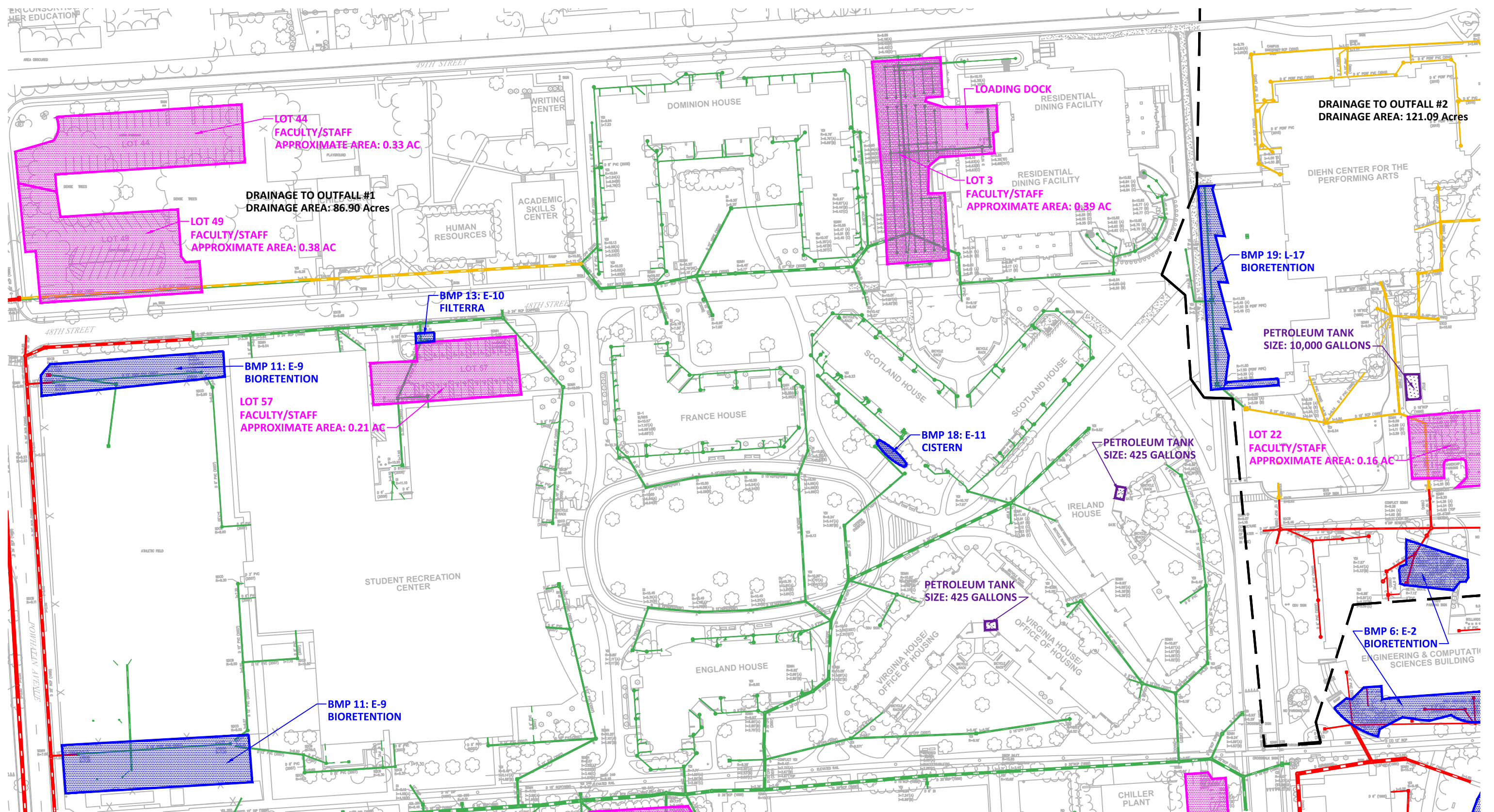




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|  | LOW ILLICIT DISCHARGE POTENTIAL |  | MAJOR OUTFALL SAMPLING POINT |  | PARKING LOTS AND LOADING DOCKS |
|  | MEDIUM ILLICIT DISCHARGE POTENTIAL |  | MINOR OUTFALL SAMPLING POINT |  | BEST MANAGEMENT PRACTICES |
|  | HIGH ILLICIT DISCHARGE POTENTIAL |  | MAJOR NODE IN SYSTEM TO TEST |  | HIGH POTENTIAL POLLUTANT SOURCE |
|  | DRAINAGE AREA DIVIDE |  | GROUNDS | | |





LOT 44
FACULTY/STAFF
APPROXIMATE AREA: 0.33 AC

DRAINAGE TO OUTFALL #1
DRAINAGE AREA: 86.90 Acres

LOT 49
FACULTY/STAFF
APPROXIMATE AREA: 0.38 AC

BMP 11: E-9
BIORETENTION

LOT 57
FACULTY/STAFF
APPROXIMATE AREA: 0.21 AC

BMP 13: E-10
FILTRRA

LOADING DOCK

LOT 3
FACULTY/STAFF
APPROXIMATE AREA: 0.39 AC

BMP 19: L-17
BIORETENTION

PETROLEUM TANK
SIZE: 10,000 GALLONS

BMP 18: E-11
CISTERN

PETROLEUM TANK
SIZE: 425 GALLONS

LOT 22
FACULTY/STAFF
APPROXIMATE AREA: 0.16 AC

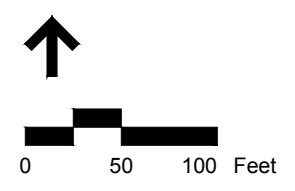
BMP 11: E-9
BIORETENTION

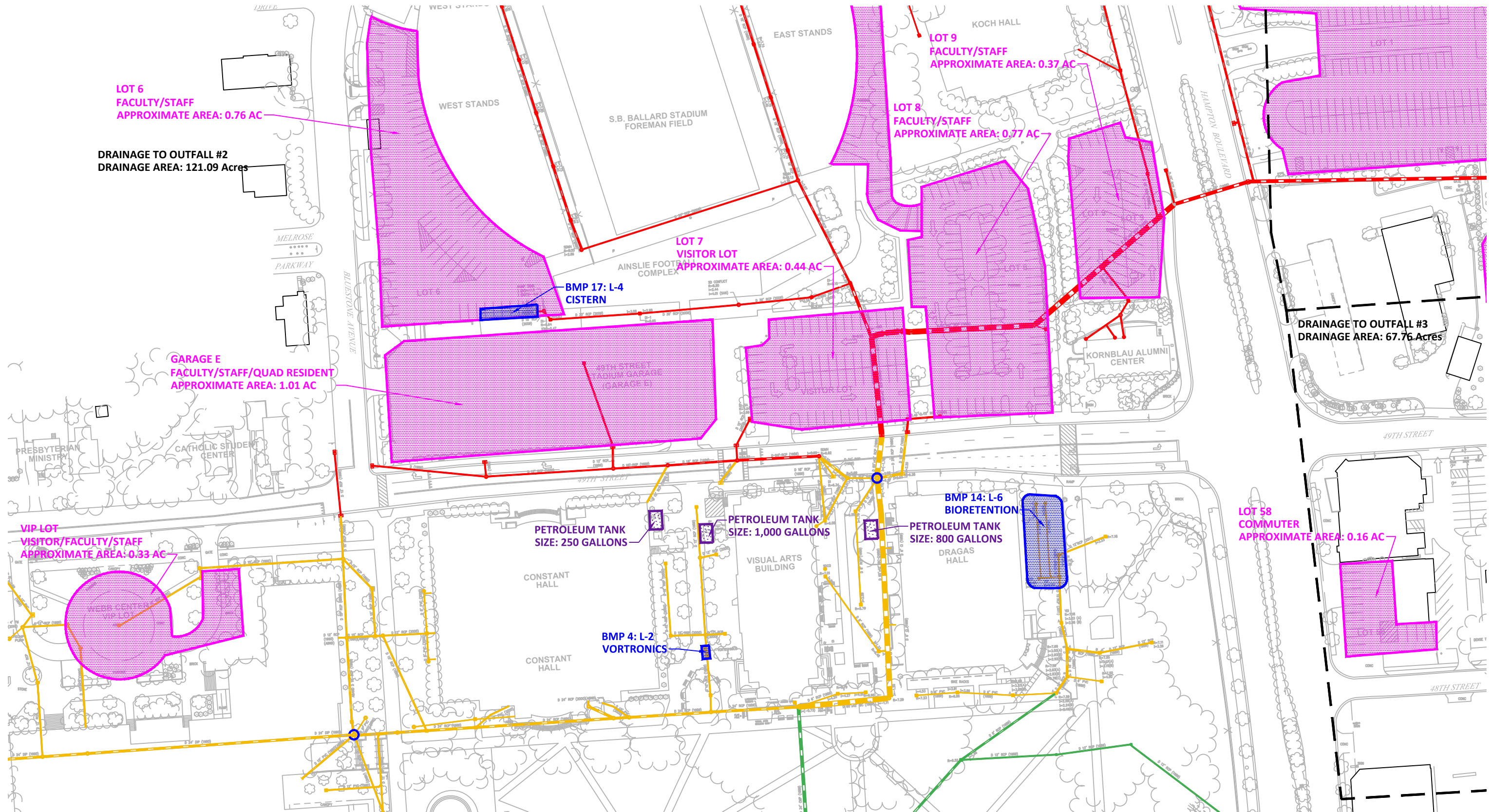
PETROLEUM TANK
SIZE: 425 GALLONS

BMP 6: E-2
BIORETENTION

Legend

- | | | | | | |
|--|------------------------------------|--|------------------------------|--|---------------------------------|
| | LOW ILLICIT DISCHARGE POTENTIAL | | MAJOR OUTFALL SAMPLING POINT | | PARKING LOTS AND LOADING DOCKS |
| | MEDIUM ILLICIT DISCHARGE POTENTIAL | | MINOR OUTFALL SAMPLING POINT | | BEST MANAGEMENT PRACTICES |
| | HIGH ILLICIT DISCHARGE POTENTIAL | | MAJOR NODE IN SYSTEM TO TEST | | HIGH POTENTIAL POLLUTANT SOURCE |
| | DRAINAGE AREA DIVIDE | | GROUNDS | | |





LOT 6
FACULTY/STAFF
APPROXIMATE AREA: 0.76 AC

DRAINAGE TO OUTFALL #2
DRAINAGE AREA: 121.09 Acres

LOT 9
FACULTY/STAFF
APPROXIMATE AREA: 0.37 AC

LOT 8
FACULTY/STAFF
APPROXIMATE AREA: 0.77 AC

LOT 7
VISITOR LOT
APPROXIMATE AREA: 0.44 AC

GARAGE E
FACULTY/STAFF/QUAD RESIDENT
APPROXIMATE AREA: 1.01 AC

DRAINAGE TO OUTFALL #3
DRAINAGE AREA: 67.76 Acres

VIP LOT
VISITOR/FACULTY/STAFF
APPROXIMATE AREA: 0.33 AC

LOT 58
COMMUTER
APPROXIMATE AREA: 0.16 AC

PETROLEUM TANK
SIZE: 250 GALLONS

PETROLEUM TANK
SIZE: 1,000 GALLONS

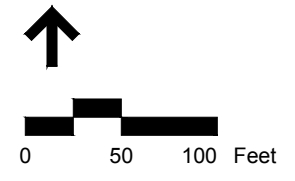
PETROLEUM TANK
SIZE: 800 GALLONS

BMP 4: L-2
VORTRONICS

BMP 14: L-6
BIORETENTION

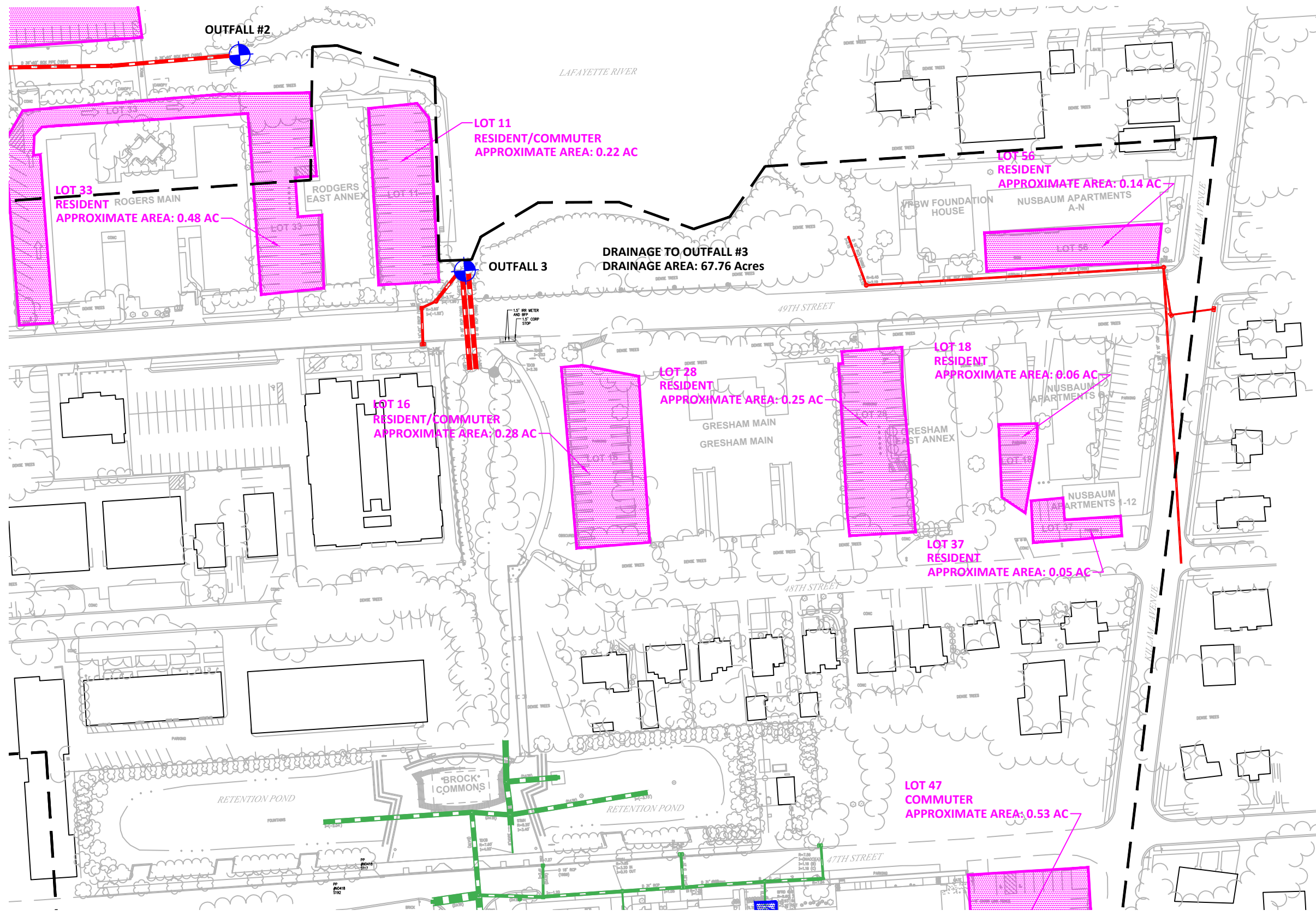
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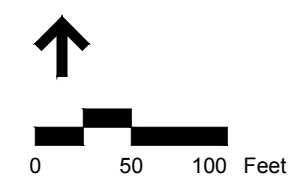
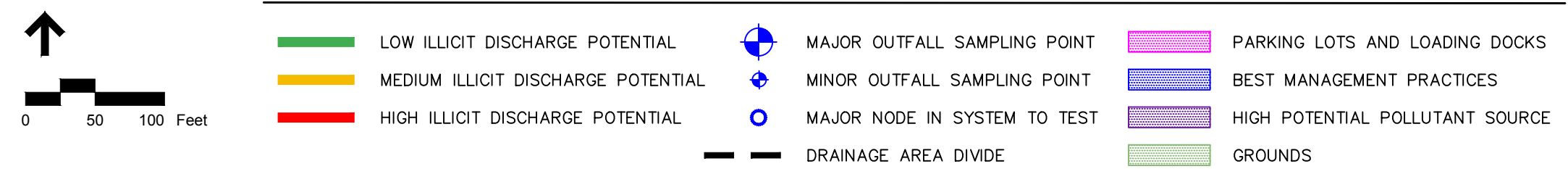


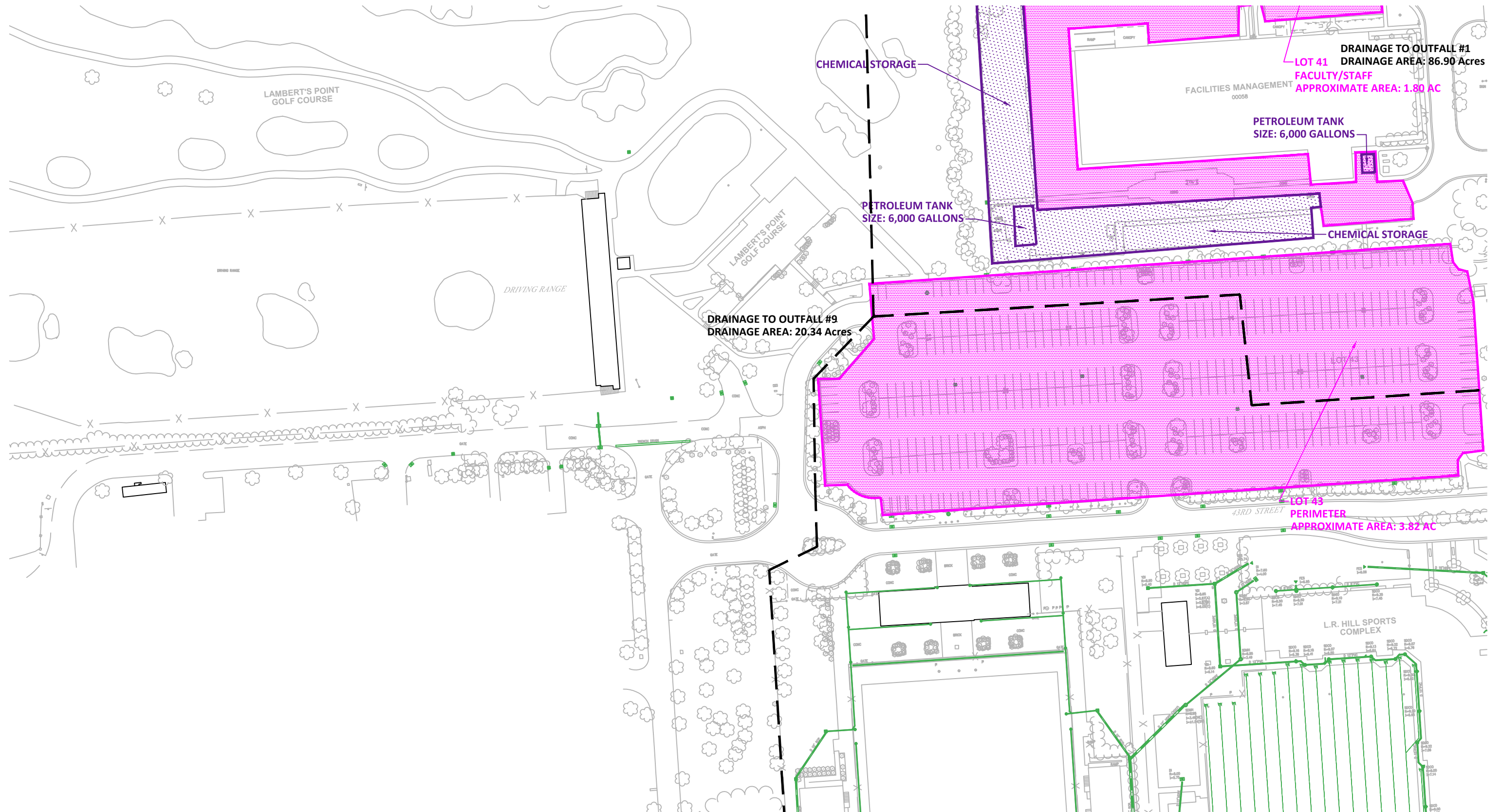
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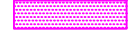










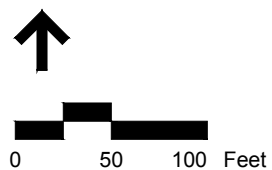
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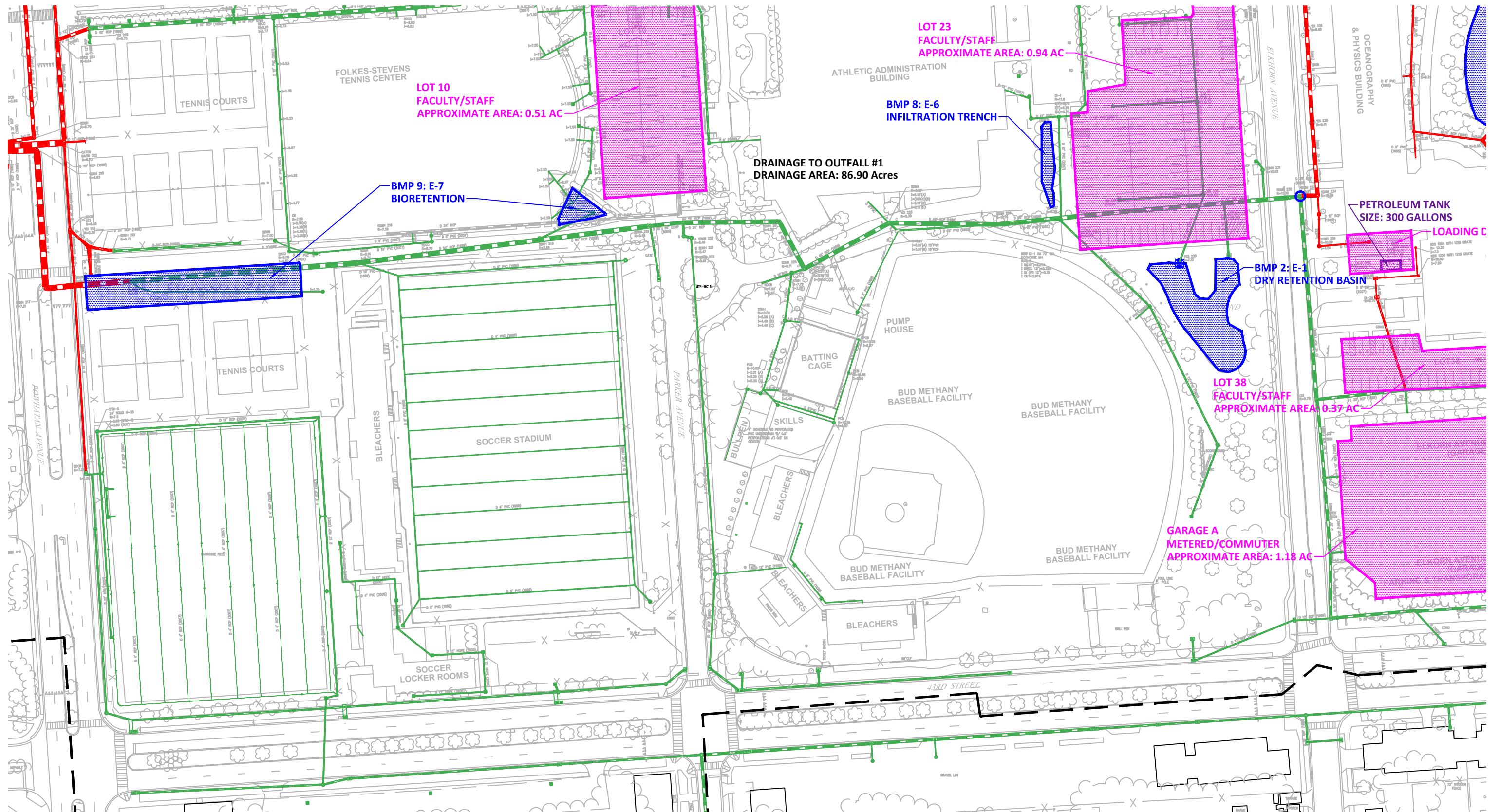




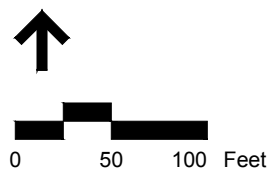
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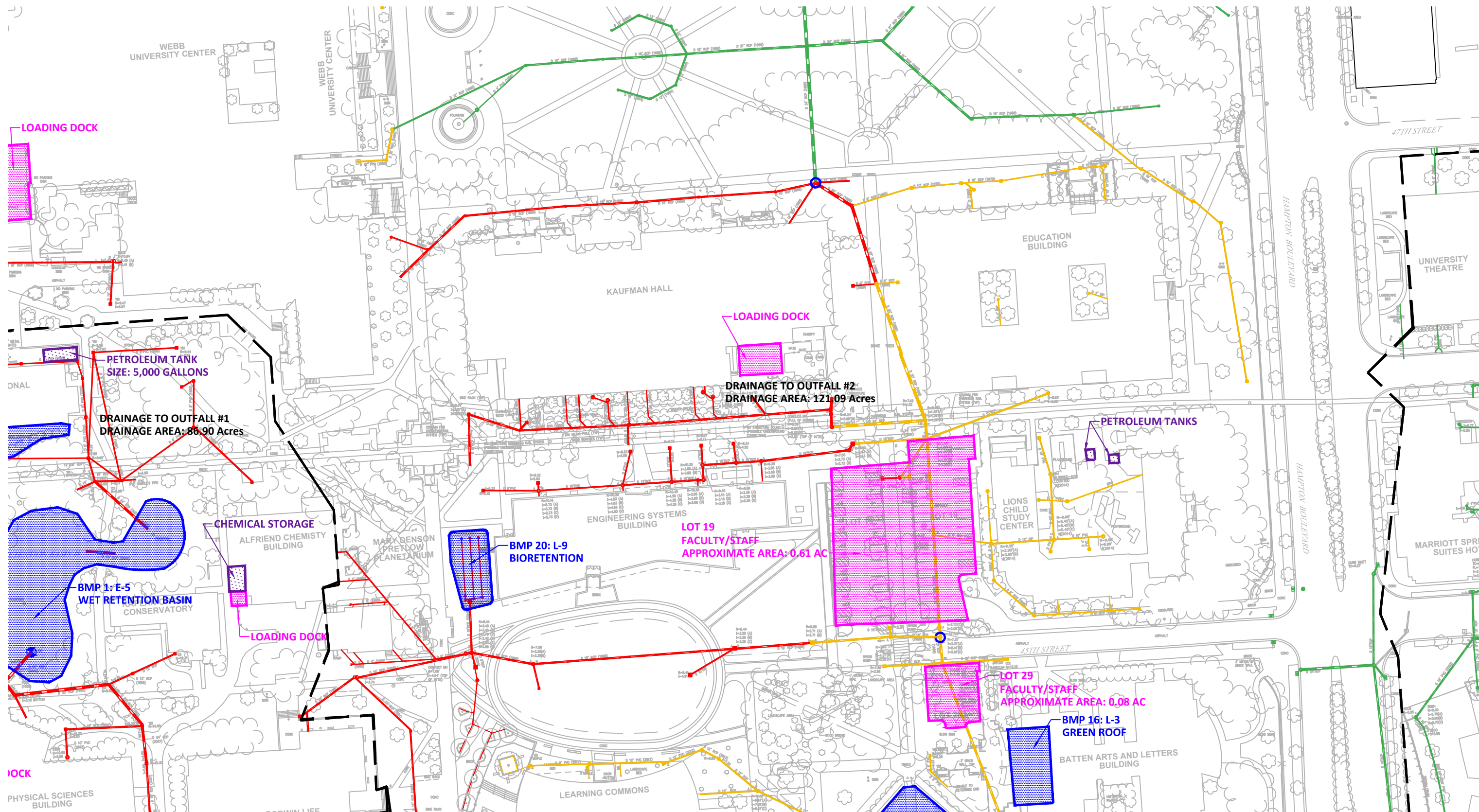


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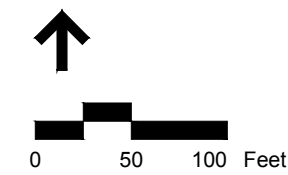
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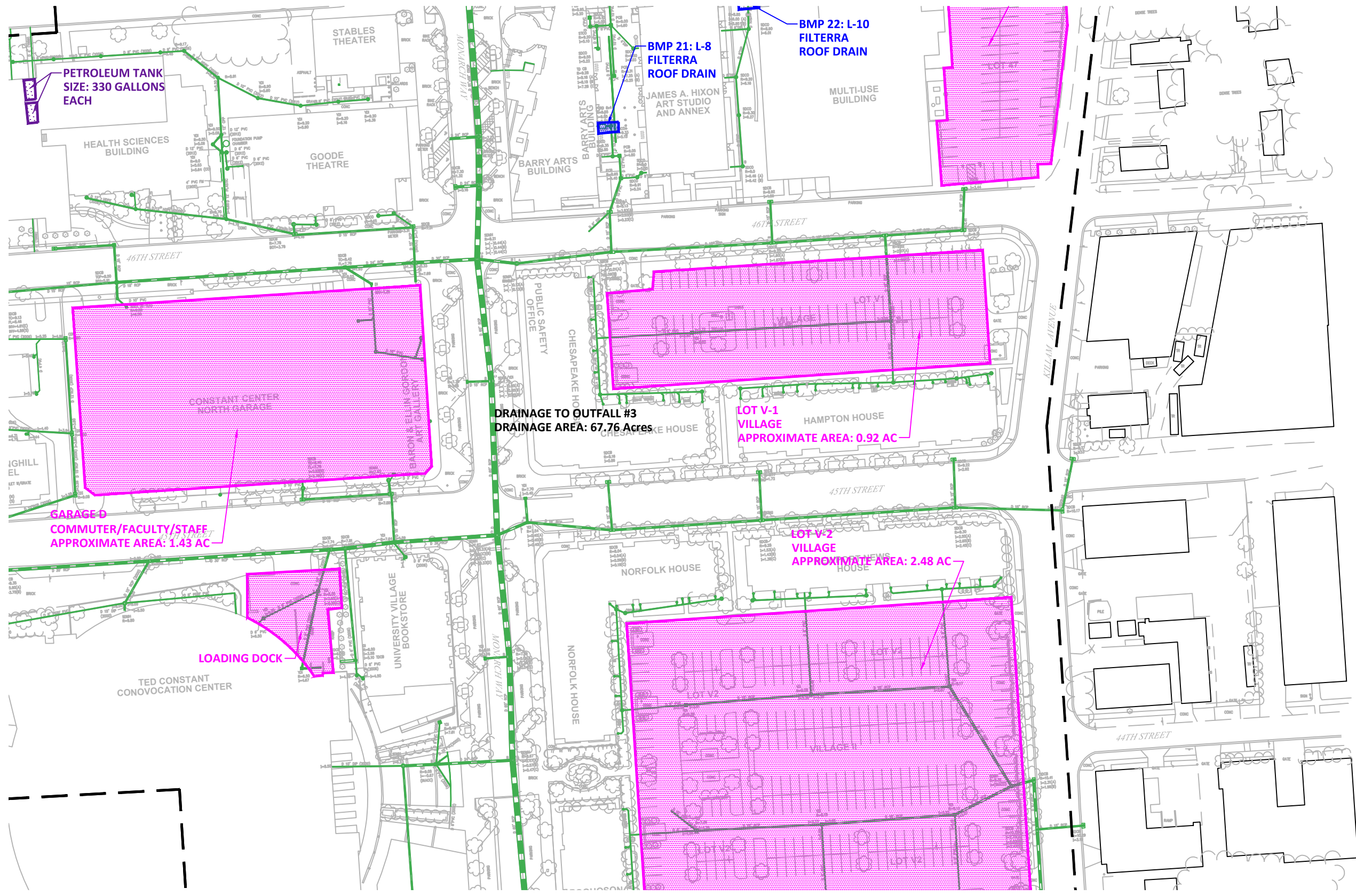




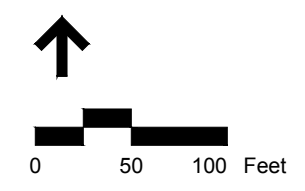
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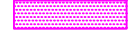










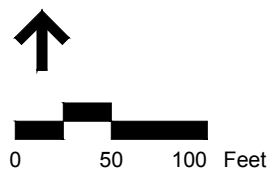
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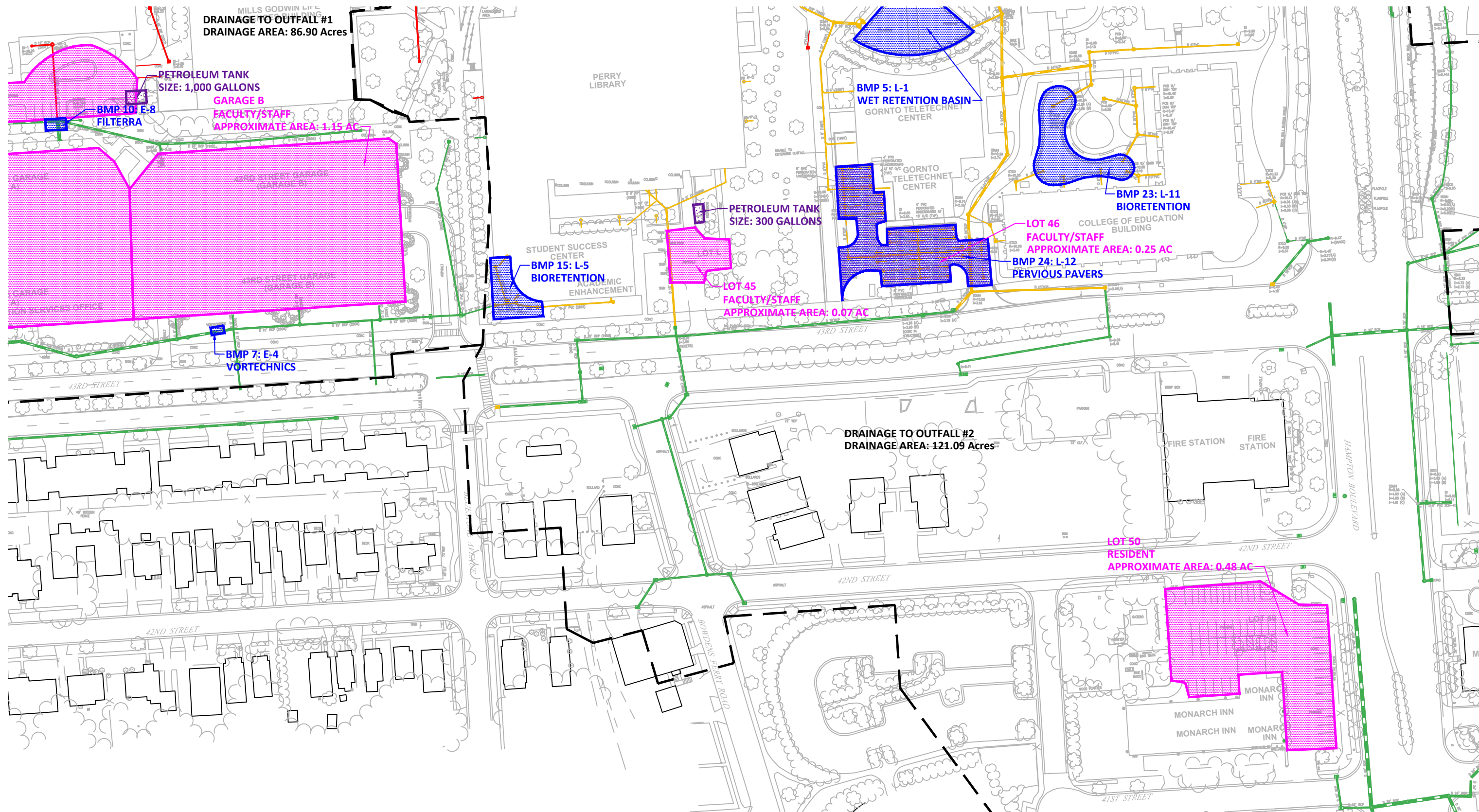




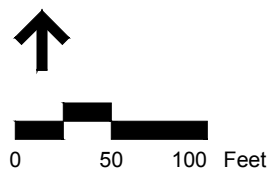
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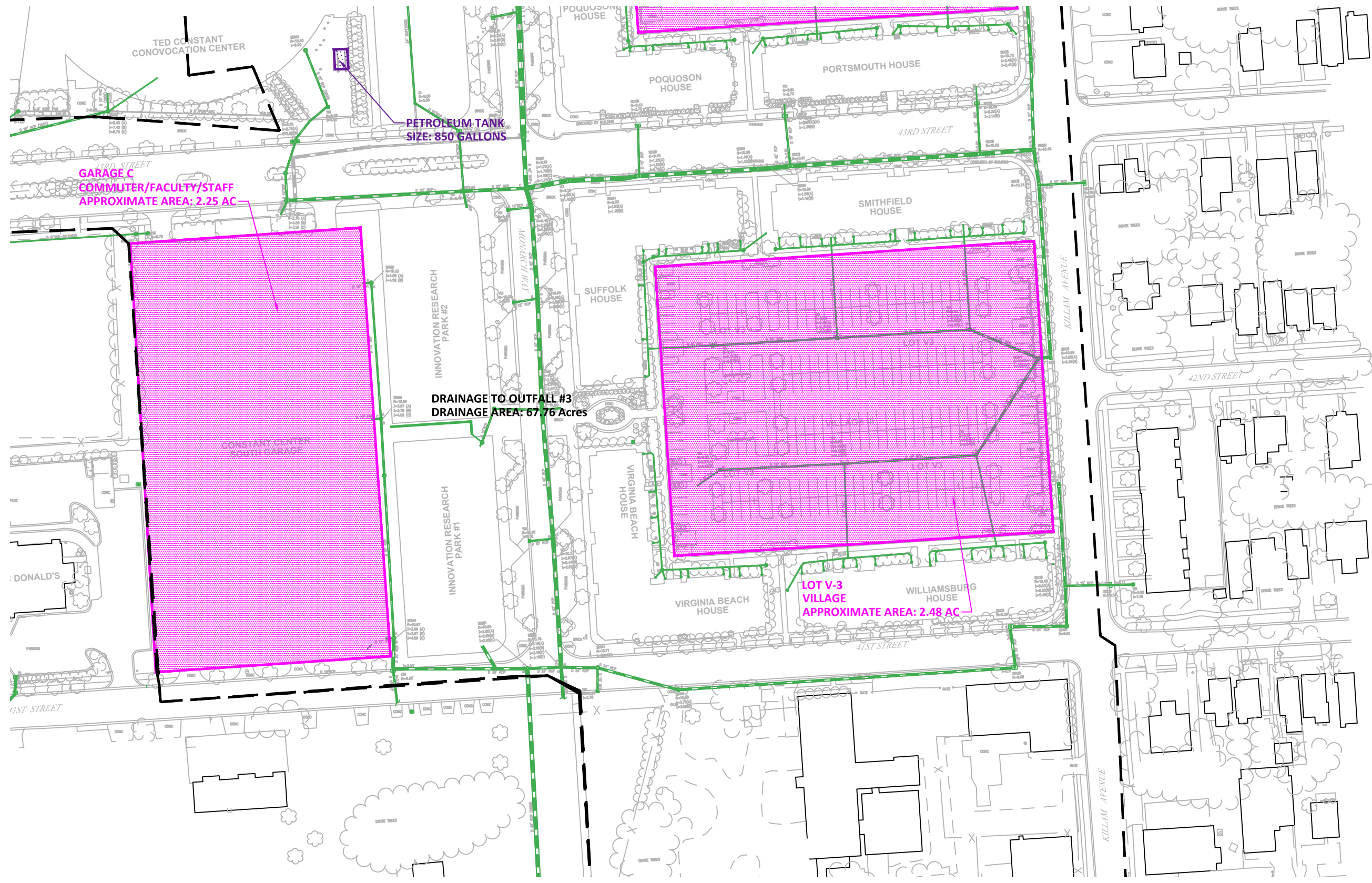


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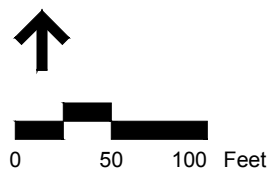













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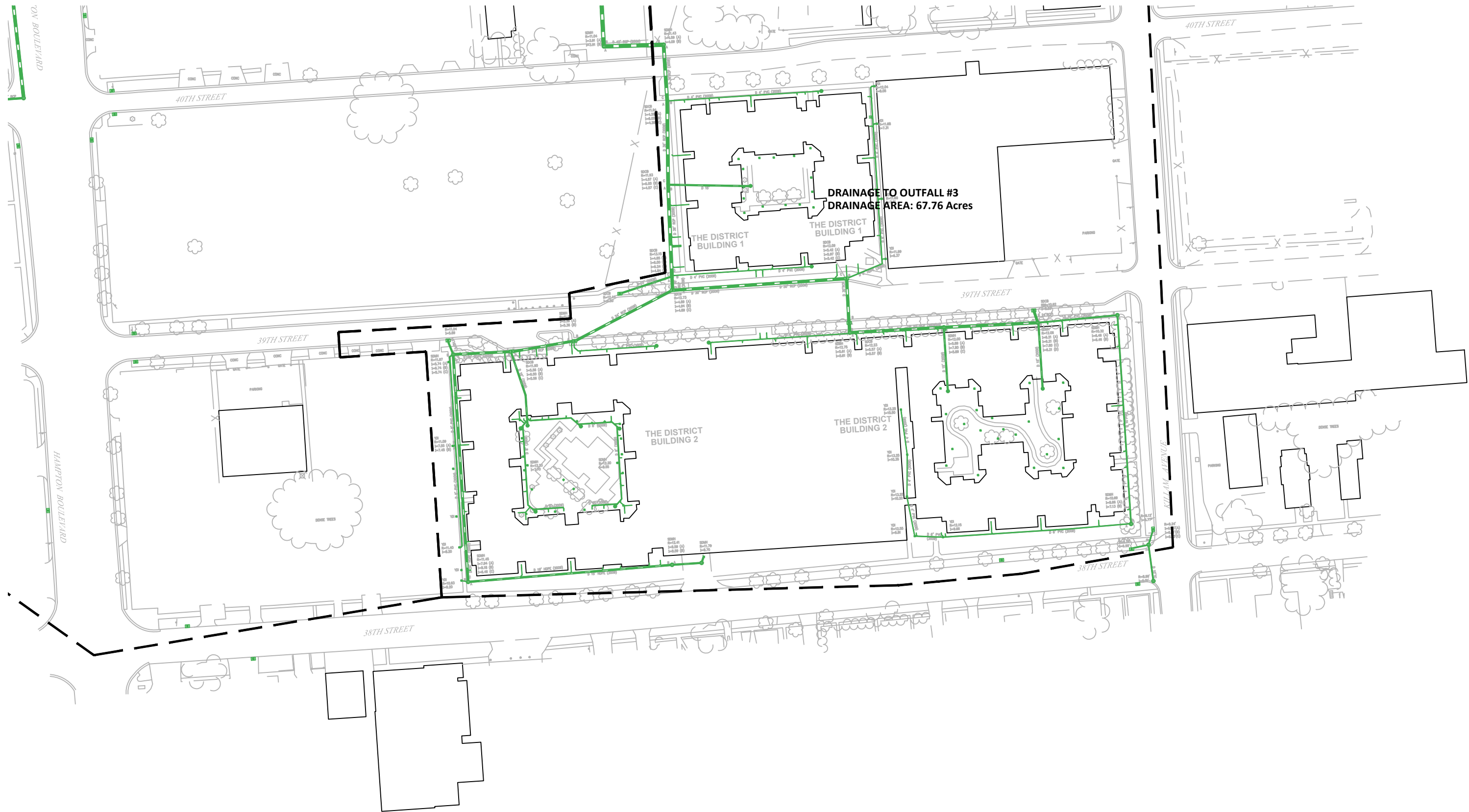


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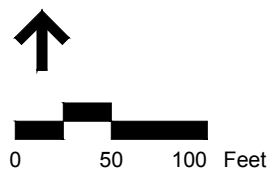
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**Municipal Separate Storm Sewer System (MS4)
Program (Non-Traditional) – Stormwater Pollution
Prevention Plan**

***High Priority Water Quality
Issue #3 – Litter and Debris***

Old Dominion University

Prepared for **Old Dominion University**
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Norfolk, Virginia 23529

Prepared by **VHB**
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August 22nd, 2016

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- Appendix B: General Permit for Discharges from a Small MS4
- Appendix C: Record of Inspection

Introduction

Plan Purpose and Summary

This Storm Water Pollution Prevention Plan (SWPPP) has been developed in accordance with the requirements of the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4) (Permit), as defined in General Permit No. VAR04 Effective Date: July 1, 2013 Expiration Date: June 30, 2018. The purpose of this SWPPP is to:

- 1) Identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the Old Dominion University Campus.
- 2) Describe and ensure the implementation of Best Management Practices that will be used to reduce pollutants in stormwater discharges from the Old Dominion University Campus and to assure compliance with the conditions of the Permit.

As specified in Section II(1)(c)(1) of the Permit, an MS4 operator is required to develop a public education and outreach program that identifies at least three(3) high priority water quality issues that have potential to adversely affect stormwater discharges. In addition, as specified in Section II(6)(b)(1) through (3), an MS4 operator is required to identify all municipal high-priority facilities that have a high potential to discharge pollutants into stormwater facilities. A SWPPP is required to be developed for each of these high-priority facilities with the purpose to identify and reduce pollutant discharges. In many cases, an overlap is present between high priority water quality issues and facilities with a high potential for discharge. As a result, a SWPPP has been developed for each of the High Priority Water Quality Issues identified in the ODU MS4 Program Plan.

High Priority Water Quality Issues that have been identified in the ODU MS4 Program Plan include:

1. Vehicular pollutants resulting from vehicle maintenance and leaks in the parking lots and roads located on the ODU Campus. Sediments and pollutants deposited on vehicles that can be washed off during storm events or during cleaning by students, faculty, and staff.
2. Excess fertilizers and pesticides released during nutrient management activities on the ODU grounds by ODU Grounds faculty and staff.
3. Litter and debris throughout campus generated by ODU students, faculty and staff.
4. Erosion and sediment control performed by contractors during land disturbing activities.

This SWPPP will specifically cover the generation of litter and debris on the ODU campus. Included with this SWPPP is a summary of the ODU campus parking lots. It is expected that litter and debris is generated heavily in parking areas. However, litter and debris is also generated campus-wide. In addition, this SWPPP provides a summary of the procedures implemented by ODU to reduce and prevent the generation of litter and debris. Campus maps that show the parking lots throughout the ODU campus are included in *Appendix A: Campus Illicit Discharge Potential Maps*. In addition to illicit discharge potential areas, these maps show drainage areas, outfalls, potential pollutants, and existing best management practices. Specific potential pollutant areas and existing BMPs are summarized in *Table 2: Potential Litter and Debris Area Summary*.

Implementation of the components of this SWPPP is required as a condition of the Permit (*Appendix B*). The Department of Environmental Quality (DEQ) has been granted authority to administer the MS4 program and is therefore the regulatory authority overseeing the implementation of this SWPPP.

Background – MS4 General Permit and Regulatory Considerations

In 1972, Congress passed the Federal Water Pollution Control Act (FWPCA), also known as the Clean Water Act (CWA), to restore and maintain the quality of the nation's waterways. The ultimate goal was to make sure that the river and streams were fishable, swimmable, and drinkable. In 1987, the Water Quality Act (WQA) added provisions to the CWA that allowed the EPA to govern stormwater discharges from MS4s. In 1990, the EPA disseminated rules establishing Phase I of the National Pollutant Discharge Elimination System (NPDES) stormwater program.

Under the Phase 1 NPDES regulations, permits for stormwater discharges from municipal separate storm sewer systems were required for eleven "large" and "medium" municipalities in Virginia. The "large" municipalities (250,000+ populations) are Fairfax County, Virginia Beach and Norfolk. The "medium" municipalities (from 100,000 to 250,000 populations) are Arlington County, Prince William County, Henrico County, Chesterfield County, Hampton, Newport News, Portsmouth, and Chesapeake. The Phase 2 stormwater regulations froze the population thresholds for "large" and "medium" municipal separate storm sewer systems at the 1990 Census level, so no additional municipalities will be designated into these categories.

Phase 1 municipal separate storm sewer systems permit applications required the municipalities to propose a comprehensive Stormwater Management Program (SWMP). This program is required to consist of structural and non-structural measures to control the discharge of pollutants from the storm sewer system to the Maximum Extent Practicable (MEP) and to effectively prohibit non-stormwater discharges to separate storm sewer systems. The Phase 1 permits requires the implementation of the SWMP, storm event monitoring to be conducted by the municipality, and the municipality to regularly assess the effectiveness of the various stormwater controls employed by the municipality.

Phase 2 regulations requires permits to be issued to Small Municipal Separate Storm Sewer Systems (MS4s) located in "urbanized areas" (as defined by the U.S. Census Bureau's 2000 Census). Small MS4s include systems owned by municipalities, federal facilities, State facilities (including VDOT), and public universities. In addition, any Small MS4 located in a Phase 1 "large" or "medium" municipality is required to be permitted under the Phase 2 regulations.

Permits for regulated small municipal separate storm sewer systems require the development, implementation and enforcement of a SWMP that includes the following "six minimum control measures":

1. Public education and outreach on stormwater impacts
2. Public involvement/ participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations.

Regulated Small MS4 permit applications require the applicant to identify:

1. Proposed best management practices and measurable goals for each of the "six minimum control measures"
2. The timing of the implementation of each control measure
3. The person or persons responsible for implementing the Stormwater Management Program (SWMP).

The 2004 Virginia legislature unanimously passed House Bill 1177 transferring regulatory authority of the NPDES programs related to MS4s and construction activities from the State Water Control Board to the Soil and Water Conservation Board and transferred oversight of these programs from the Department of Environmental Quality (DEQ) to the Department of Conservation and Recreation (DCR). This transfer became effective January 29, 2005. Program oversight was transferred again from DCR to DEQ effective July 1, 2013. As a result, DEQ is responsible for the issuance, denial, revocation, termination and enforcement of NPDES permits for the control of stormwater discharges from MS4s and land disturbing activities under the VSMP. The General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, in accordance with 9VAC25-890, is effective starting July 1, 2013 and applies to all MS4 Permits for Discharges of Stormwater from Small MS4s until the permit expiration date of June 30, 2018.

SWPPP Coordinator and Duties

SWPPP Coordinator

The SWPPP coordinator for the Old Dominion University campus is Mr. Doug Alexander, Director of Environmental Health and Safety, (phone number: (757)683-4495). Mr. Alexander's duties include the following:

- Implement the SWPPP plan;
- Oversee maintenance practices identified in the SWPPP;
- Implement and oversee employee training;
- Conduct or provide for inspection and monitoring activities;
- Identify other potential pollutant sources and make sure they are added to this SWPPP;
- Identify any deficiencies in this SWPPP and make sure they are corrected;
- Ensure that the SWPPP is available for review in accordance with the Plan Administration requirements in Chapter 3 of the Permit.
- Respond to regulatory agency requests for information about the construction site as it relates to SWPPP and coverage under this permit.

SWPPP Administration

General Information

Plan Availability

In accordance with Section II (B)(6)(b) of the Permit (*Appendix B*):

Copies of this SWPPP must be retained on campus, or at another location easily accessible during normal business hours, along with copies of the registration statement, permit, and acknowledgement letter from the permit issuing authority.

Operators with day to day operational control over SWPPP implementation shall have a copy of the SWPPP available on campus for use by all operators identified as having responsibilities to carry out provisions contained in this SWPPP. The SWPPP shall be made available to the DEQ, permit-issuing authority, and operator of the Municipal Separate Storm Sewer System (MS4) receiving discharges from the site for review at the time of an inspection.

The Operator shall make the SWPPP and all updates available upon request to the DEQ, the permit-issuing authority, EPA, local government officials, or the operator of a MS4 receiving discharges from the campus.

Plan Updates

The Operator shall amend this SWPPP whenever there is a change in design, construction, operation, or maintenance that has a significant effect on the potential for the discharge of pollutants to surface waters and that has not been addressed in the normal implementation of this SWPPP. The Operator must also update this SWPPP whenever it is found to be ineffective in meeting the requirements of the Permit.

Operator Responsibilities

The operator shall be responsible for executing the conditions of the MS4 Permit as defined in Section III of the Permit (*Appendix B*). Specifically, the operator shall be responsible for maintaining a complete record of monitoring, field reports and investigations, notices of noncompliance, etc.

4

Specific Requirements

Campus Description

Old Dominion University (ODU) is a public university located in the City of Norfolk, Virginia. The campus covers an area generally bounded by Larchmont/Edgewater to the north, 43th Street to the south, Kellam Avenue to the east, and Lamberts Point Golf Course and the Elizabeth River to the west. The communities of Larchmont/Edgewater, Highland Park, and Lamberts Point are located to the north, east, and south, respectively. For the purposes for this SWPPP, the campus can be generally divided into three areas: Central Campus, East Campus, and West Campus. The total campus area is approximately **173.50 acres**.

The Central Campus is considered the part of the campus bound by Bolling Avenue to the north, 43rd Street to the south, Hampton Boulevard to the east, and Elkhorn Avenue and Bluestone Avenue to the west. This area features a number of buildings/facilities including Foreman Field, Rollins Hall, Webb Center, Kaufman Hall, Perry Library, and Batten Arts and Letters. The Central Campus drains to Outfall #2 to the Lafayette River. The total drainage area to Outfall #2 is approximately **121.09 acres**.

The East Campus or University Village is considered the part of campus bound by the Lafayette River to the north, 38th Street to the south, Kellam Avenue to the east, and Hampton Boulevard to the west. This area features a number of buildings including Rogers and Gresham Residence Halls, Ted Constant Convocation Center, Campus Bookstore, and University Village Apartments. The East Campus drains to Outfall #3 to the Lafayette River. The total drainage area to Outfall #3 is **67.76 acres**.

The West Campus considered the part of campus bound by 49th Street to the north, 38th Street to the south, Elkhorn Avenue to the east, and the Elizabeth River to the west. This area features a number of buildings including the Student Rec Center, Quad Student Housing, Tennis Center, Whitehurst Hall, Facilities Management, and the L.R. Hill Sports Complex, in addition to others. The West Campus drains to Outfall #1 and Outfalls #4 through #9 to the Elizabeth River. The total drainage area to these outfalls is **125.22** acres.

The ODU campus drains by way of a closed storm system to nine total outfalls. The outfalls are summarized in *Table 1: Campus Outfall Summary*.

Table 1: Campus Outfall Summary

Outfall Number	Location	Description	Outfall Drainage Area (ac)
1	West Campus, South of Whitehurst Hall	78" CMP culvert to tidal canal to Elizabeth River	86.90
2	East Campus, North of Rogers Hall	Double 42"x60" RCP box culvert to tidal canal to Lafayette River	121.09
3	East Campus, East of Rogers Hall	Double 48" RCP culvert to tidal canal to Lafayette River	67.76
4	West Campus, South of Whitehurst Hall	36" RCP culvert to tidal canal to Lafayette River	9.49
5	West Campus, South of Whitehurst Hall	18" RCP culvert to tidal canal to Lafayette River	0.61
6	West Campus, South of Whitehurst Hall	15" RCP culvert to tidal canal to Lafayette River	0.84
7	West Campus, South of Whitehurst Hall	24" RCP culvert to tidal canal to Lafayette River	2.90
8	West Campus, Northwest of Whitehurst Hall	18" RCP culvert to Elizabeth River	4.14
9	West Campus, South of L.R. Hill Sports Complex	42" RCP culvert to Elizabeth River	20.34

Note: Outfall Drainage Areas include area outside the ODU campus limits.

The Lafayette River outfalls to the Elizabeth River, which ultimately outfalls to the Chesapeake Bay. As a result, the entire ODU campus drains through the Elizabeth River and ultimately drains to the Chesapeake Bay. The Elizabeth River is listed in the 2014 Impaired Waters – 303(d) List under Cause Category 5A for Estuarine Bioassessments. The hydrologic unit code for the Elizabeth River is **JL56**.

Maps that show drainage areas, flow direction, outfalls, and, existing best management practices are included in *Appendix A*.

Non-Stormwater Discharges

Non-stormwater discharges are considered to be flows generated by other sources other than stormwater runoff that enters the Old Dominion University storm sewer network. These flows often carry pollutants and are generally considered to be illicit unless otherwise certified as a non-stormwater discharge under a MS4 permit issued by DEQ. ODU actively regulates and prohibits non-stormwater discharges as specified in Illicit Discharge Detection and Elimination documentation. The following non-stormwater discharges are recognized by ODU as exempt from prohibitions:

- Flushing of water lines and potable water sources
- Irrigation
- Temporary diversions of stream flows
- Uncontaminated ground water
- Foundation and crawl space pumps and drains
- Condensation from air conditioners
- Springs, wetlands, and riparian habitats
- Non-commercial washing of vehicles
- Non-chlorinated swimming pools
- Firefighting activities
- Water sources that are uncontaminated

In addition, runoff that enters high pollutant areas such fertilized lawns and athletic fields and has the potential to pick up large quantities of pollutants and to carry them to the storm sewer network. ODU monitors these high risk areas and implements best management practices to ensure that pollutant risks are mitigated.

The ODU MS4 Program Plan and subsequent MS4 annual report provides an inclusive campus plan to managing area with high illicit discharge potential.

Litter and Debris

As specified in the MS4 Program Plan, the ODU campus population is approximately 27,000 students, faculty, and staff plus visitors. Due to the size of the campus population, the day-to-day activities of the ODU community has the potential to generate significant amounts of litter and debris. This potential is particularly significant during large campus activities, such sporting events or concerts. Litter and debris has the potential to clog storm drains and pipes and is slowly broken down by natural processes. The byproducts generated by the decomposition of litter and debris are often harmful pollutants. In the event that litter or debris enters the storm sewer network and reaches downstream outfalls, it will collect in surface waters, potentially damaging the environment. Sediments and pollutants attached to litter and debris will enter surface waters as well.

ODU implements a number of Best Management Practices (BMPs) to intercept and treat runoff carrying litter and debris. These BMPs include wet retention ponds, bioretention basins, and other structural BMPs. Structural BMPs are often equipped with a trash rack or similar device that filters out litter and debris. A variety of non-structural BMPs are also implemented throughout the ODU campus. These BMPs seek to reduce litter and debris by cleaning it up before it can enter the ODU storm sewer network or a structural BMP. In addition, non-structural BMPs seek to educate the ODU community about pollution prevention and mitigation. While litter and debris is generated campus-wide, it is expected that it is generated most heavily in parking areas. *Tables 2a and 2b: Potential Litter and Debris Area Summary* presents a summary of the various managed turf areas throughout the ODU campus that have the potential generate litter and debris. Campus maps showing these areas are included in *Appendix A*. Further discussion of campus BMPs is included in the *Best Management Practices* section of this SWPPP.

Table 2a: Potential Litter and Debris Area Summary – Not Treated by a Structural BMP

Parking Area Name	Parking Area Location	Parking Area Acreage (ac)	Parking Area Use
Lot 1	WHRO	3.37	Commuter
Lot 2	Spong Hall	0.16	Faculty/Staff
Lot 5 through 9	Rollins Hall, Foreman Field	3.19	Faculty/Staff and Visitors
Lot 11 and 33	Rogers Hall and East Annex	0.70	Resident/Commuter
Lot 16 and 18	Gresham Hall and East Annex	0.53	Resident/Commuter
Lot 18, 37, and 56	Nusbaum Apartments	0.25	Resident
Lot 19 and 29	Systems Research Building and Batten Arts and Letters	0.69	Faculty/Staff
Lot 32	Powhatan Apartments I	1.85	Resident
Lot 34 and 35	Hampton Boulevard	0.21	Faculty/Staff
Lot 41	Facilities Management	1.80	Faculty/Staff
Lot 43	West 43rd Street	3.82	Commuter
Lot 44 and Lot 49	49th Street	0.71	Faculty/Staff
Lot 47	Peri Nuclear and Partial Physics Facility	0.53	Commuter
Lot 50	Monarch Inn	0.48	Resident
Lot 58	East 48th Street	0.16	Commuter
Lot L	Perry Library	0.07	Faculty/Staff
Lot V-1, V-2, V-3, Garage C, Garage D	University Village	9.56	Resident/Commuter
VIP Lot and Lot 22	Webb Center	0.49	Faculty/Staff
Total:		28.57	

Table 2b: Potential Litter and Debris Area Summary –Treated by a Structural BMP

Parking Area Name	Parking Area Location	Parking Area Acreage (ac)	Parking Area Use	Type of BMP	Area Treated by BMP (ac)
Lot 3	Residential Dining Facility	0.39	Faculty/Staff	Permeable Pavers	0.39
Lot 10	Tennis Center	0.51	Faculty/Staff	Bioretention Basin	0.25
Lot 23	Athletic Administration Building	0.94	Faculty/Staff	Dry Detention Basin	0.94
Lot 38	Physical Sciences Building	0.37	Faculty/Staff	Water Quality Inlet	0.18
Lot 42	Whitehurst Hall	3.67	Resident/Commuter	Hydrodynamic Separator	2.76
Lot 46	College of Education Building	0.25	Faculty/Staff	Permeable Pavers	0.25
Lot 57	Student Rec Center	0.21	Faculty/Staff	Water Quality Inlet	0.21
Garage A and Garage B	43rd Street	2.33	Metered and Commuter	Hydrodynamic Separator	1.15
Garage E	Foreman Field	1.01	Faculty/Staff and Visitors	Cistern	1.01
Total:		9.68			7.14
Total Campus Parking Area		38.25			7.14

Best Management Practices

In addition to water quality benefits, Best Management Practices (BMPs) are used to provide effective control and mitigation of potential illicit discharges. BMPs are separated into structural and non-structural categories. Structural BMPs include means and methods to physically detain, divert, and treat stormwater runoff. Examples include wet ponds, bioretention basins, permeable pavement, etc. Non-structural BMPs include means and methods to reduce the quantity and severity of pollution events through education and management of potential pollutant sources. Examples include safe storage of chemicals, preventative maintenance to reduce spills and leaks, stormwater management education, etc.

Old Dominion University implements a variety of both structural and non-structural BMPs throughout its campus. Structural BMPs have been designed and constructed as specified in the Virginia BMP Clearinghouse and by standards set in the Virginia Stormwater Handbook. Active structural BMPs are inspected regularly in order to ensure that they are performing as designed and are repaired as necessary. As shown in *Table 2b*, **7.14 acres** of the parking lots on the ODU campus are treated by a variety of structural BMPs including permeable pavements, bioretention and detention basins, and water quality inlets. Approximately **38.25 acres** of the ODU parking lots are not directly treated by a structural BMP. As a result, non-structural BMPs are implemented in order to reduce the quantity of pollutants campus-wide.

Table 3: Non-Structural Best Management Practice Summary summarizes the non-structural BMPs implementation and use on the ODU campus. The ODU MS4 Program Plan and subsequent MS4 annual reports provides an additional inclusive overview of the BMPs currently in on the ODU campus.

Table 3: Non-Structural Best Management Practice Summary

Best Management Practice	Description
Litter Collection	<ul style="list-style-type: none"> • Litter is collected daily throughout the ODU campus. • Street and parking lot sweeping is performed at least 12 times annually and after every major campus event.
Educational Information	<ul style="list-style-type: none"> • Educational information about potential pollution risks associated with litter and debris is distributed to ODU faculty, staff and students. • Distribution includes educational pamphlets and public service announcements throughout the campus information system. • The ODU Stormwater Management website is available to the public and contains the campus MS4 Program and other stormwater management documents.
Storm Drain Markers	<ul style="list-style-type: none"> • All storm inlets to the ODU storm sewer network are marked to dissuade the public from dumping litter and debris into the storm drain.

Operator Certification

All operators who have responsibility for implementing and maintaining the controls identified in this SWPPP must sign the certification statement listed below. The person signing the certification must meet the signatory requirements, as presented in Permit Section III K (*Appendix B*). The certifications must be maintained as part of this SWPPP.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Printed: _____

Signature: _____

Date: _____

Printed: _____

Signature: _____

Date: _____

Printed: _____

Signature: _____

Date: _____

References

Virginia Stormwater Handbook. First Edition. Virginia Department of Conservation and Recreation, 1999.

Virginia BMP Clearinghouse. Virginia Department of Environmental Quality, April 2014.

Virginia Erosion and Sediment Control Handbook. Third Edition. Virginia Department of Conservation and Recreation, 1992.

Old Dominion University MS4 Program Plan, ODU Office of Environmental Health and Safety, Revised November 2015.

Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, September 30, 2014.

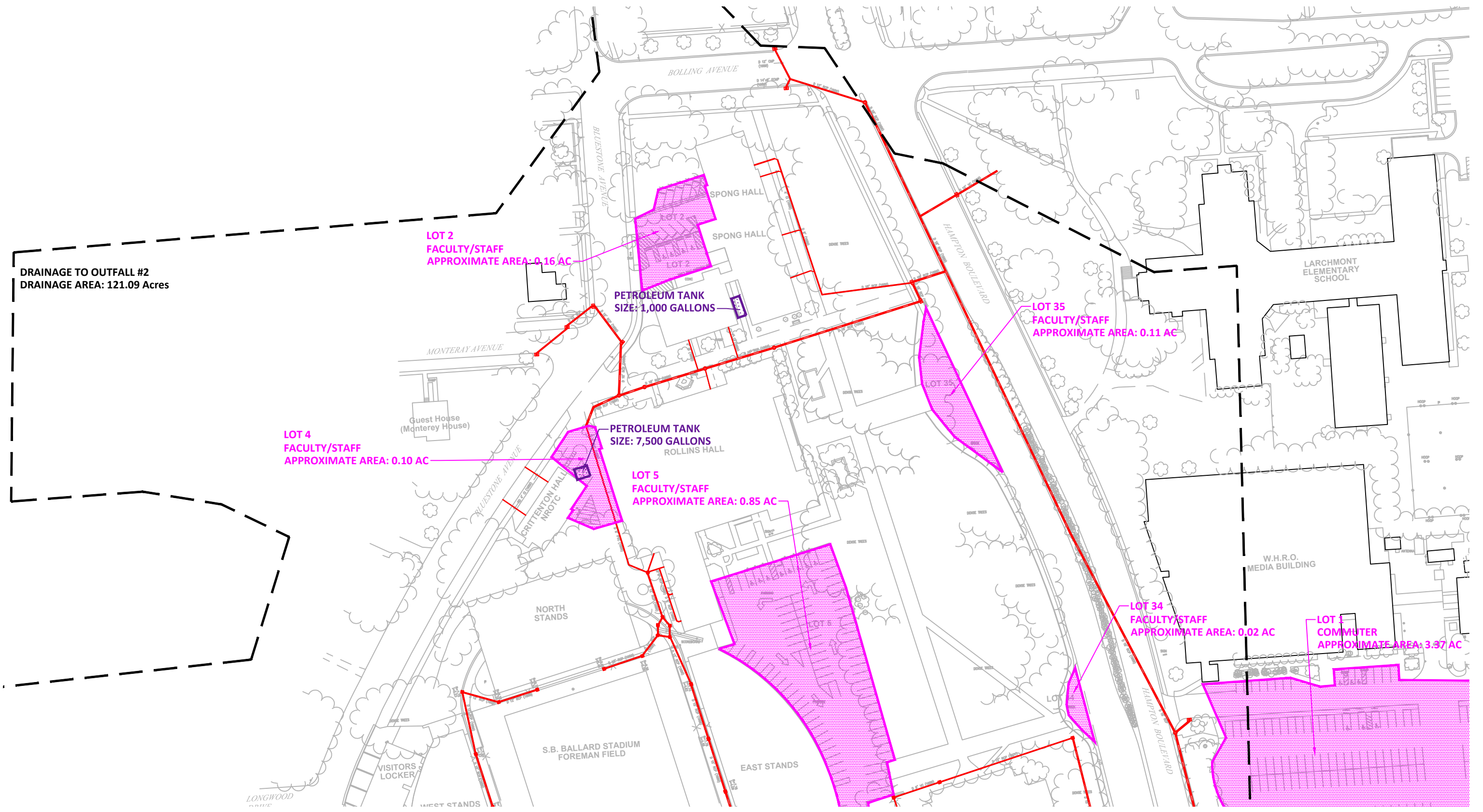
Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, October 1, 2015.

Old Dominion University Illicit Discharge Detection and Elimination Program, ODU Office of Environmental Health and Safety, May 5th, 2008.

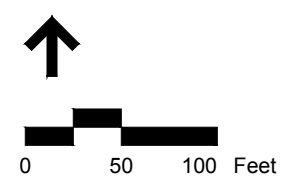
Old Dominion University Nutrient Management Program, ODU Office of Environmental Health and Safety, October 1st, 2015.












Appendix A

Campus Illicit Discharge Potential Maps

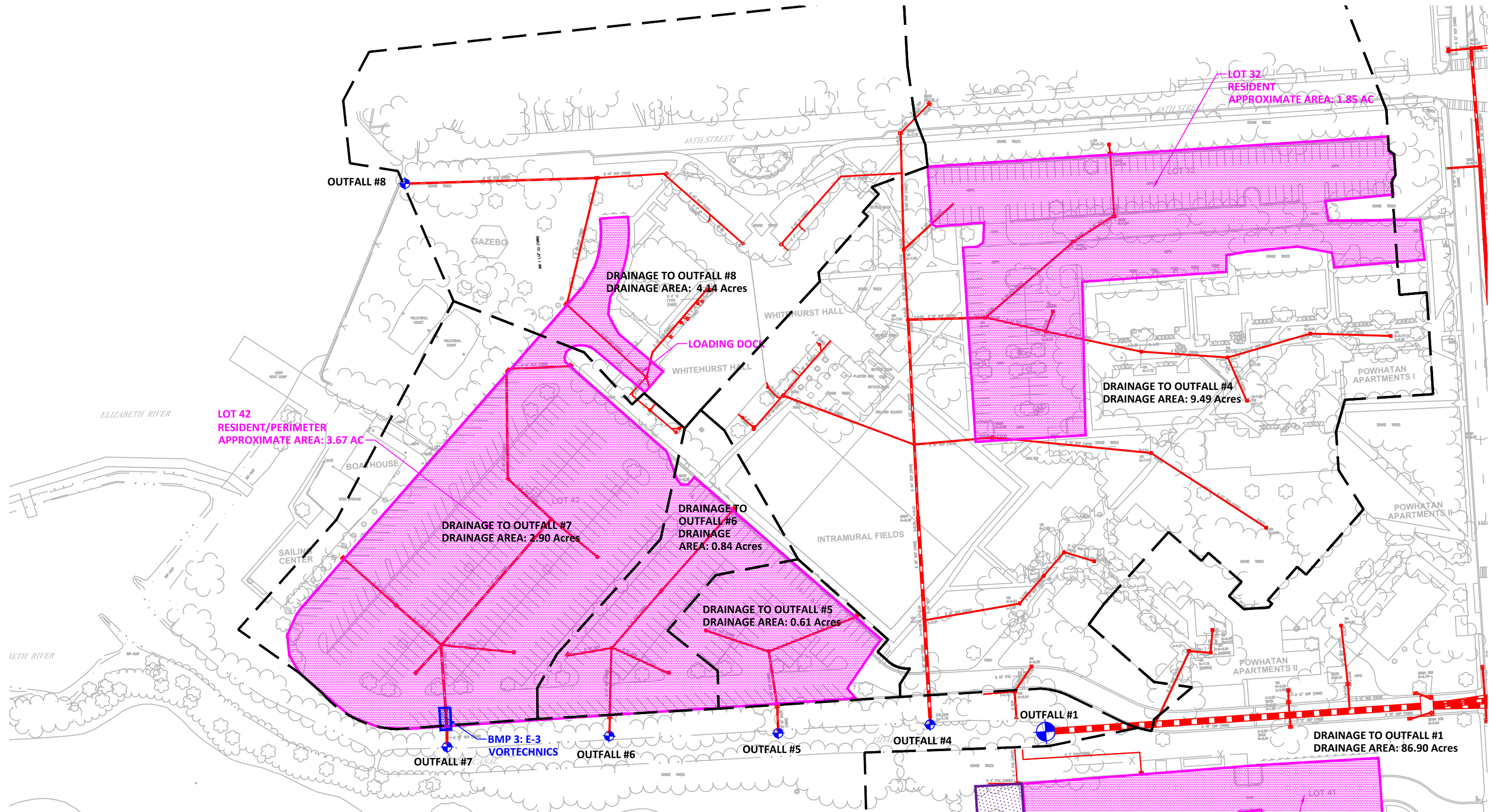


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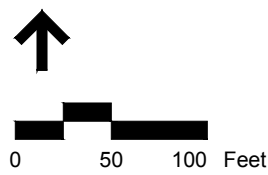
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	HIGH ILLICIT DISCHARGE POTENTIAL		MAJOR NODE IN SYSTEM TO TEST		HIGH POTENTIAL POLLUTANT SOURCE
	DRAINAGE AREA DIVIDE		GROUNDS		

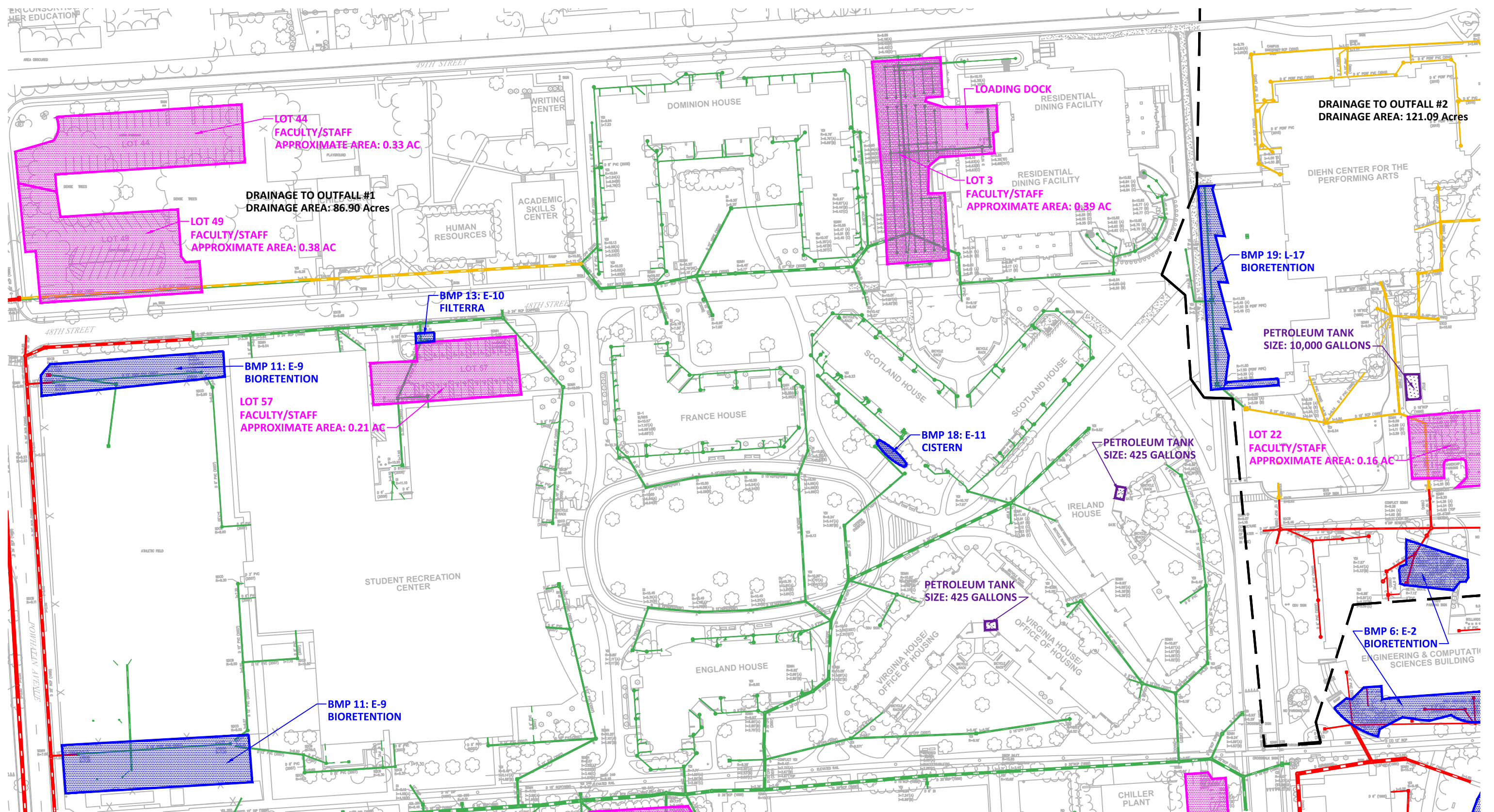




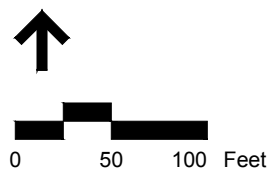
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|  | MEDIUM ILLICIT DISCHARGE POTENTIAL |  | MINOR OUTFALL SAMPLING POINT |  | BEST MANAGEMENT PRACTICES |
|  | HIGH ILLICIT DISCHARGE POTENTIAL |  | MAJOR NODE IN SYSTEM TO TEST |  | HIGH POTENTIAL POLLUTANT SOURCE |
|  | |  | DRAINAGE AREA DIVIDE |  | GROUNDS |



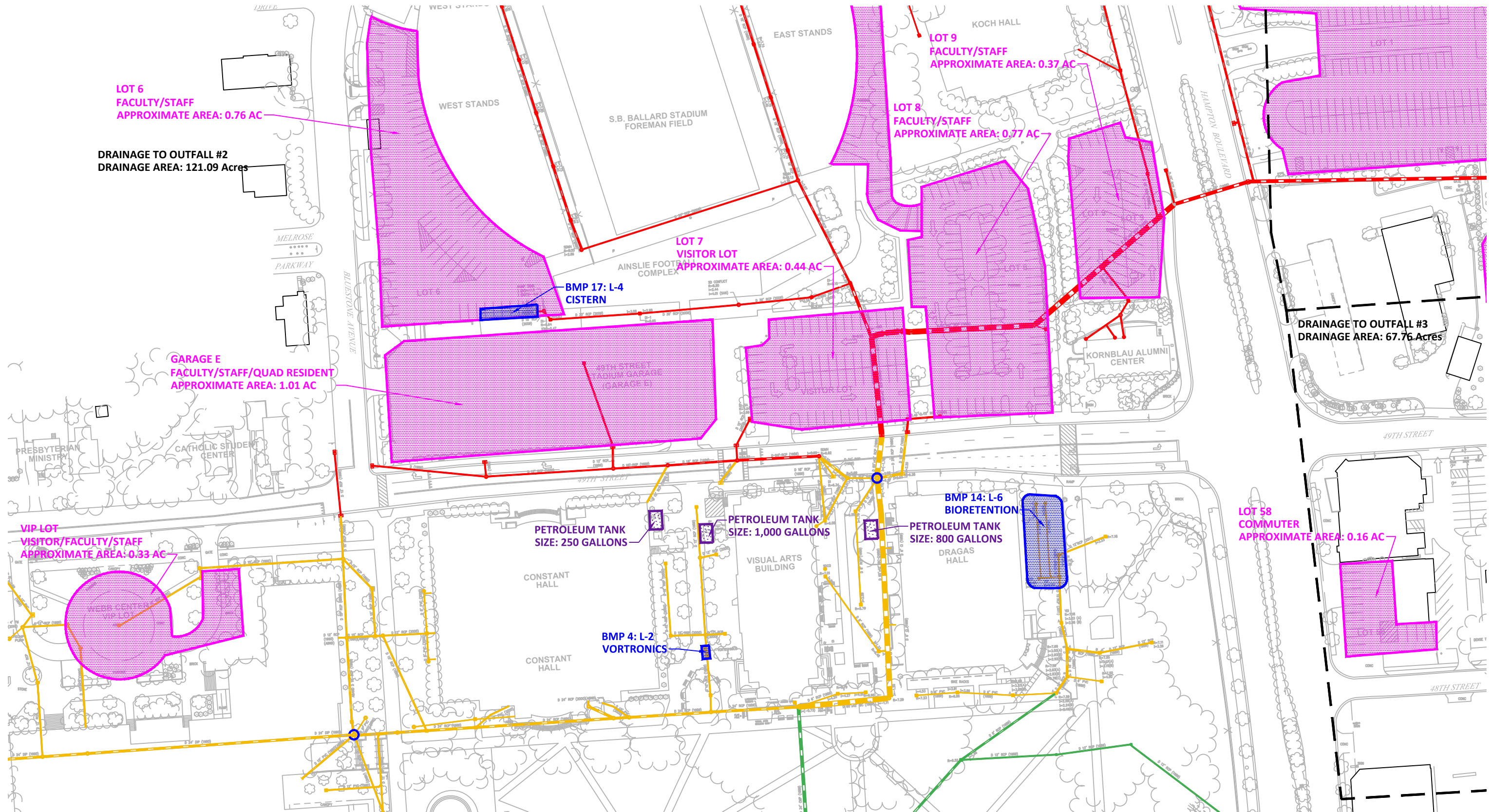


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| | HIGH ILLICIT DISCHARGE POTENTIAL | | MAJOR NODE IN SYSTEM TO TEST | | HIGH POTENTIAL POLLUTANT SOURCE |
| | DRAINAGE AREA DIVIDE | | GROUNDS | | |





LOT 6
FACULTY/STAFF
APPROXIMATE AREA: 0.76 AC

DRAINAGE TO OUTFALL #2
DRAINAGE AREA: 121.09 Acres

LOT 9
FACULTY/STAFF
APPROXIMATE AREA: 0.37 AC

LOT 8
FACULTY/STAFF
APPROXIMATE AREA: 0.77 AC

LOT 7
VISITOR LOT
APPROXIMATE AREA: 0.44 AC

BMP 17: L-4
CISTERN

GARAGE E
FACULTY/STAFF/QUAD RESIDENT
APPROXIMATE AREA: 1.01 AC

DRAINAGE TO OUTFALL #3
DRAINAGE AREA: 67.76 Acres

VIP LOT
VISITOR/FACULTY/STAFF
APPROXIMATE AREA: 0.33 AC

PETROLEUM TANK
SIZE: 250 GALLONS

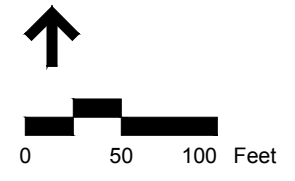
PETROLEUM TANK
SIZE: 1,000 GALLONS

BMP 14: L-6
BIORETENTION

LOT 58
COMMUTER
APPROXIMATE AREA: 0.16 AC

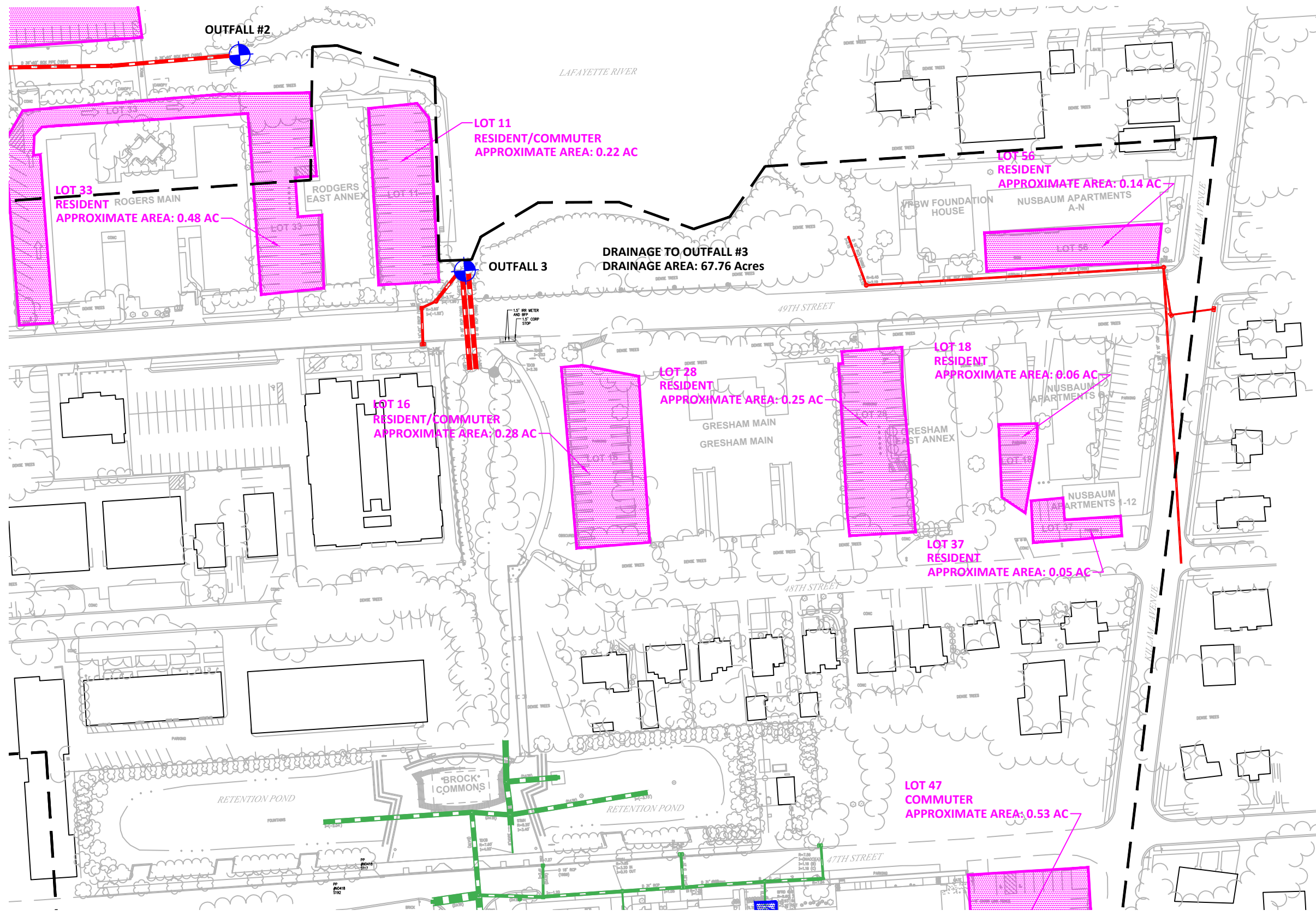
BMP 4: L-2
VORTRONICS

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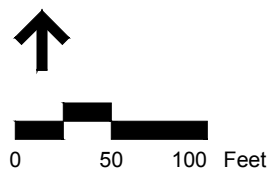


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| | DRAINAGE AREA DIVIDE | | GROUNDS | | |



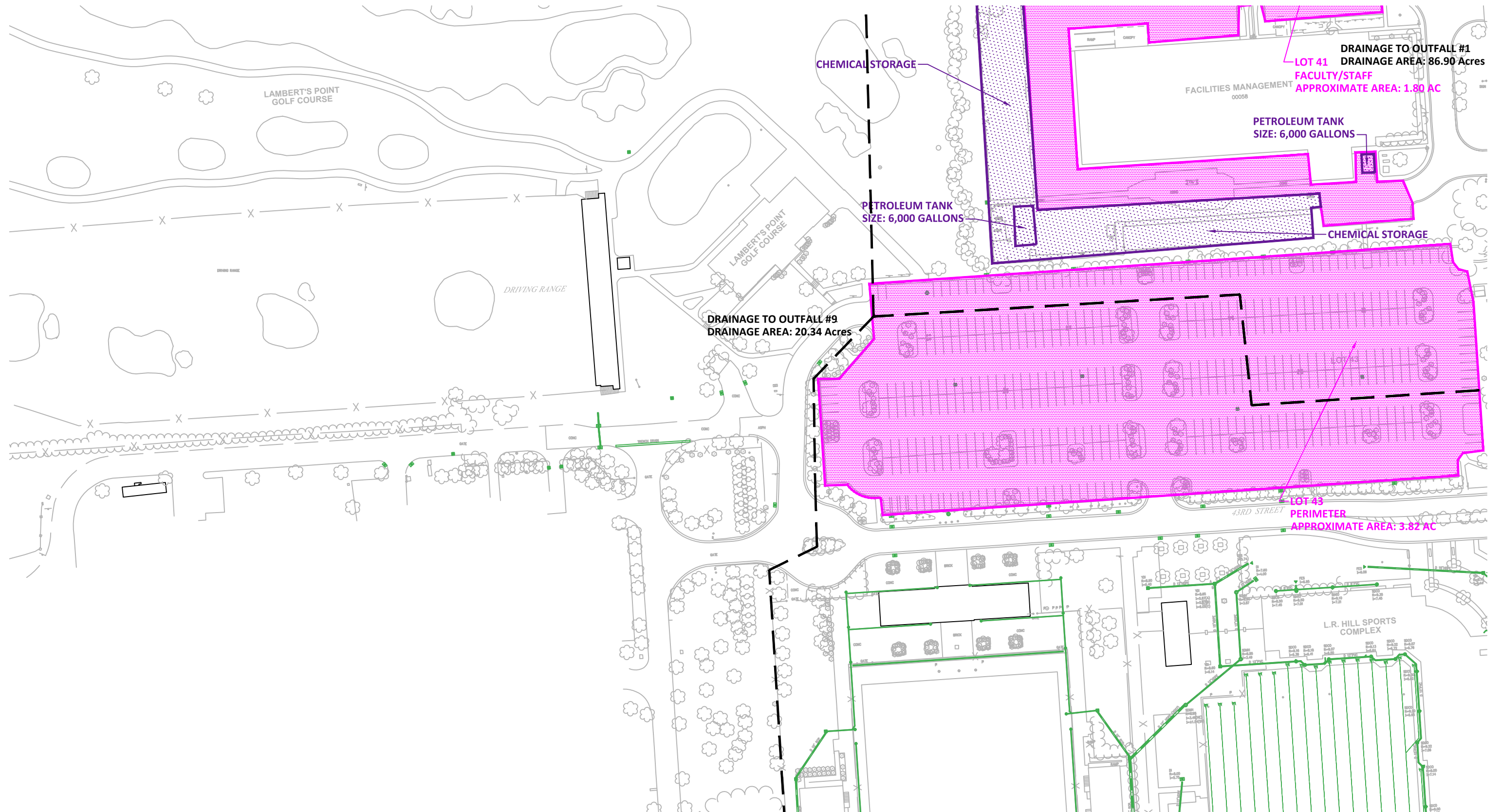


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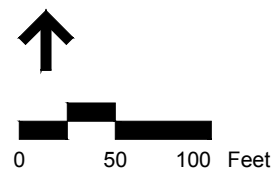













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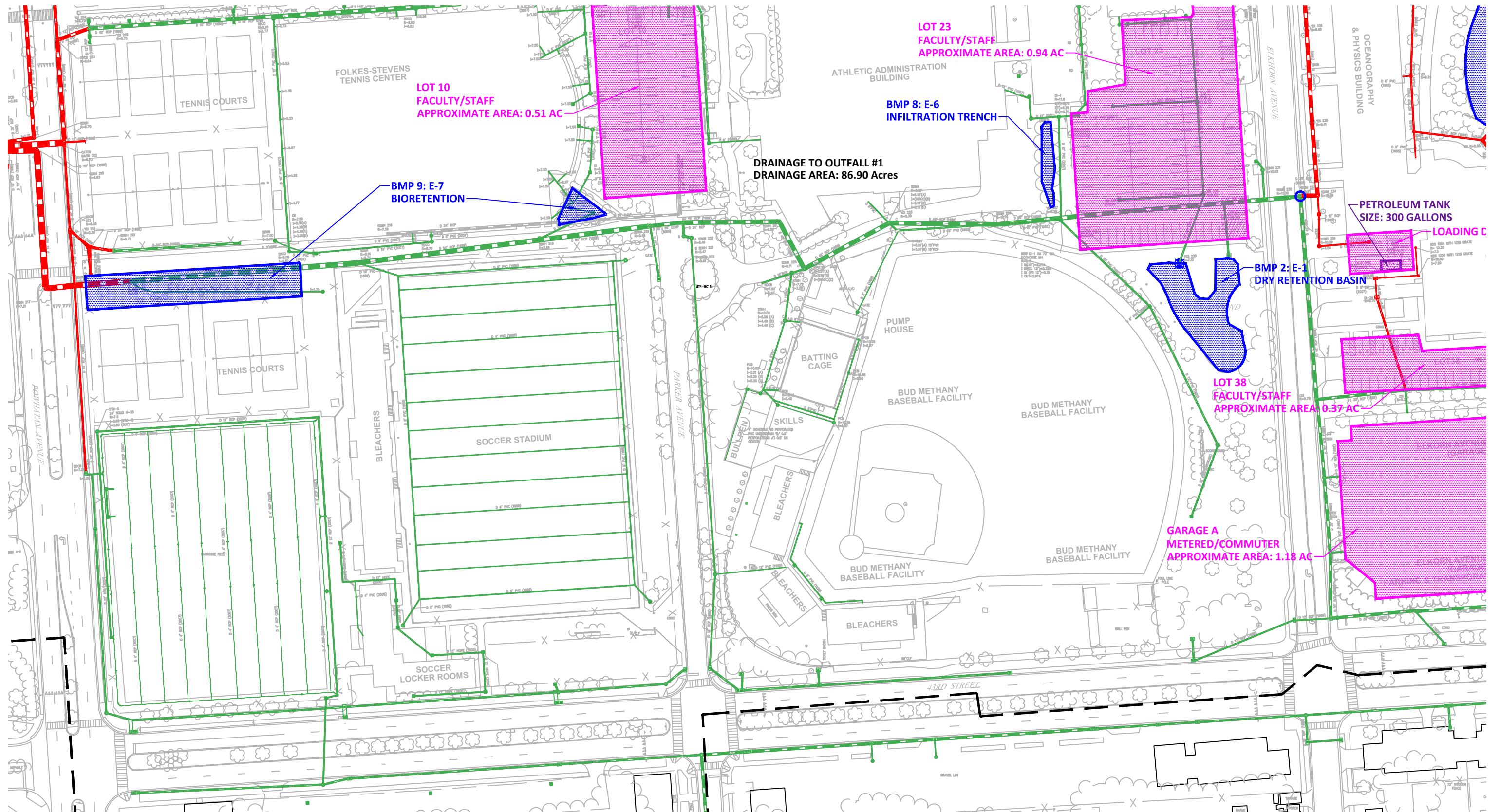


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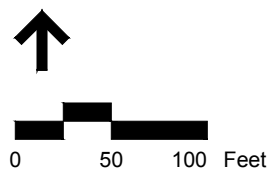













	LOW ILLICIT DISCHARGE POTENTIAL		MAJOR OUTFALL SAMPLING POINT		PARKING LOTS AND LOADING DOCKS
	MEDIUM ILLICIT DISCHARGE POTENTIAL		MINOR OUTFALL SAMPLING POINT		BEST MANAGEMENT PRACTICES
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	DRAINAGE AREA DIVIDE		GROUNDS		



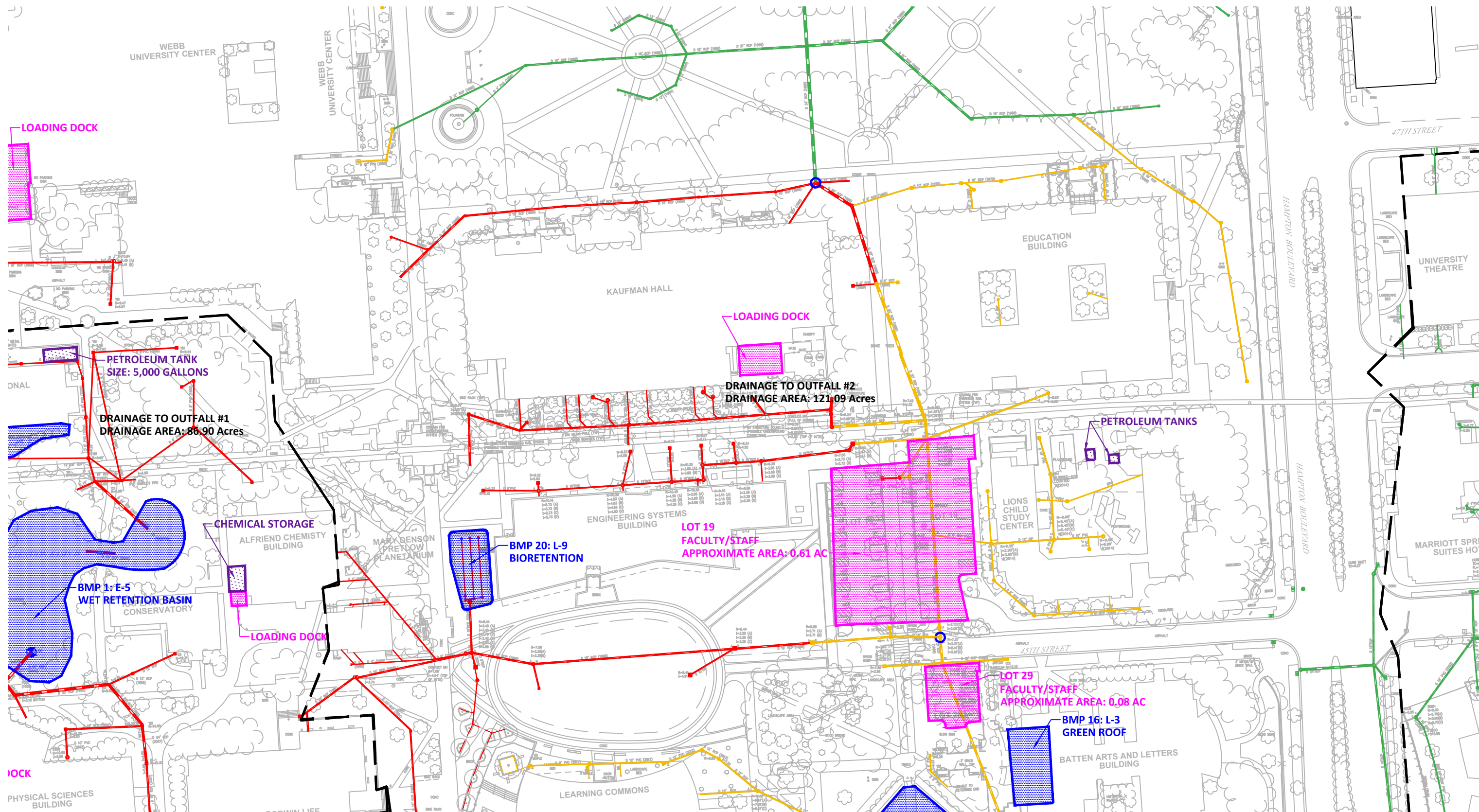


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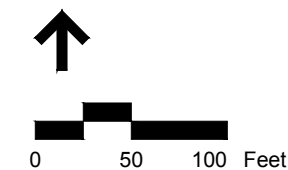
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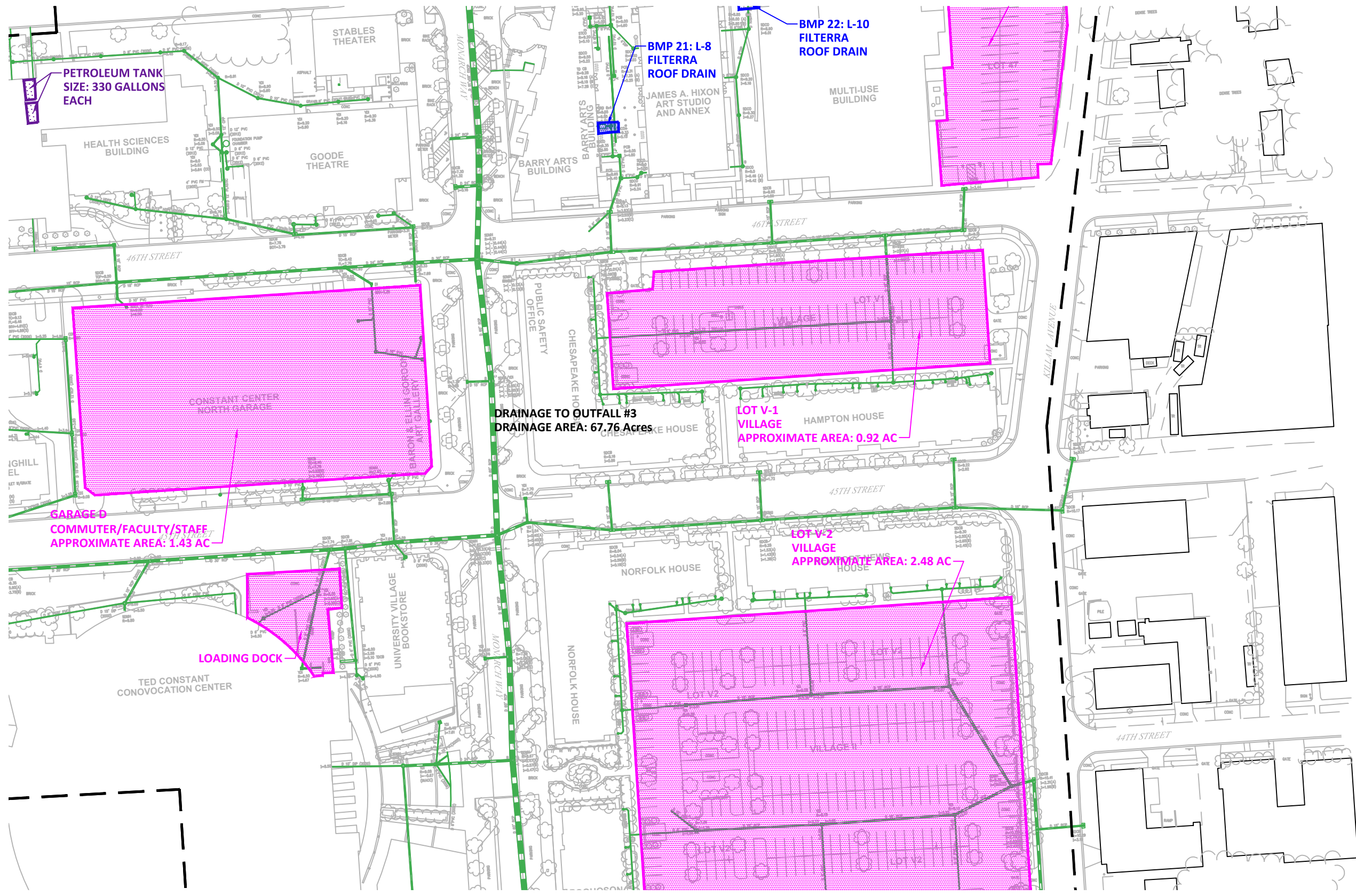




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| | DRAINAGE AREA DIVIDE | | | | GROUNDS |





DRAINAGE TO OUTFALL #3
DRAINAGE AREA: 67.76 Acres

BMP 22: L-10
FILTERRA
ROOF DRAIN

BMP 21: L-8
FILTERRA
ROOF DRAIN

PETROLEUM TANK
SIZE: 330 GALLONS
EACH

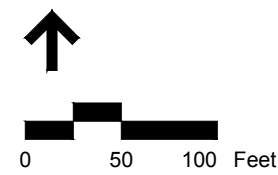
GARAGE D
COMMUTER/FACULTY/STAFF
APPROXIMATE AREA: 1.43 AC












LOT V-1
VILLAGE
APPROXIMATE AREA: 0.92 AC

LOT V-2
VILLAGE
APPROXIMATE AREA: 2.48 AC

LOADING DOCK

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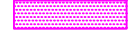










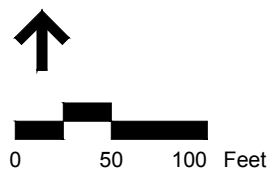
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	DRAINAGE AREA DIVIDE		GROUNDS		

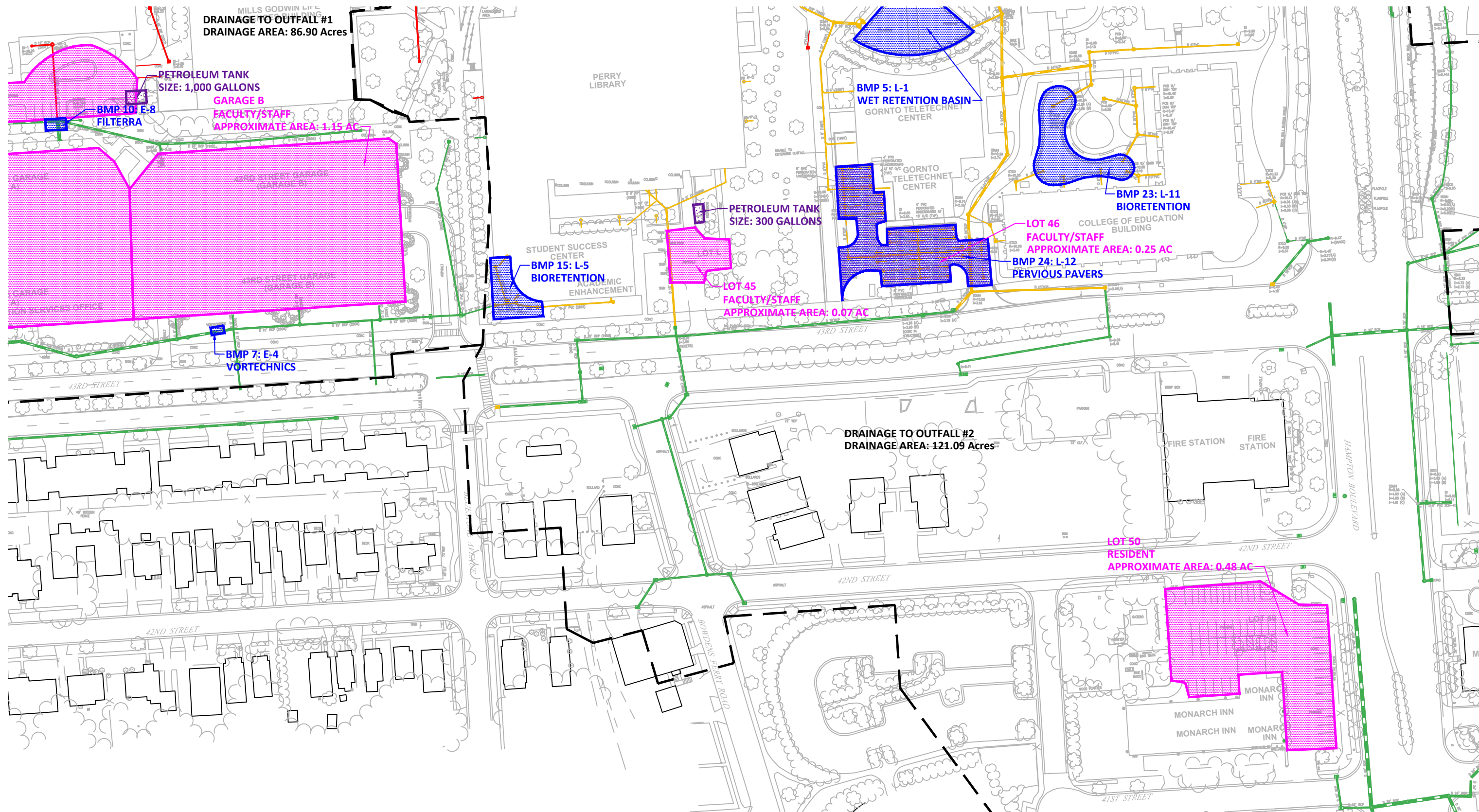




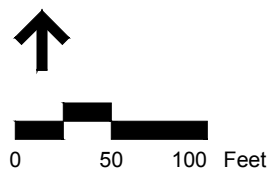
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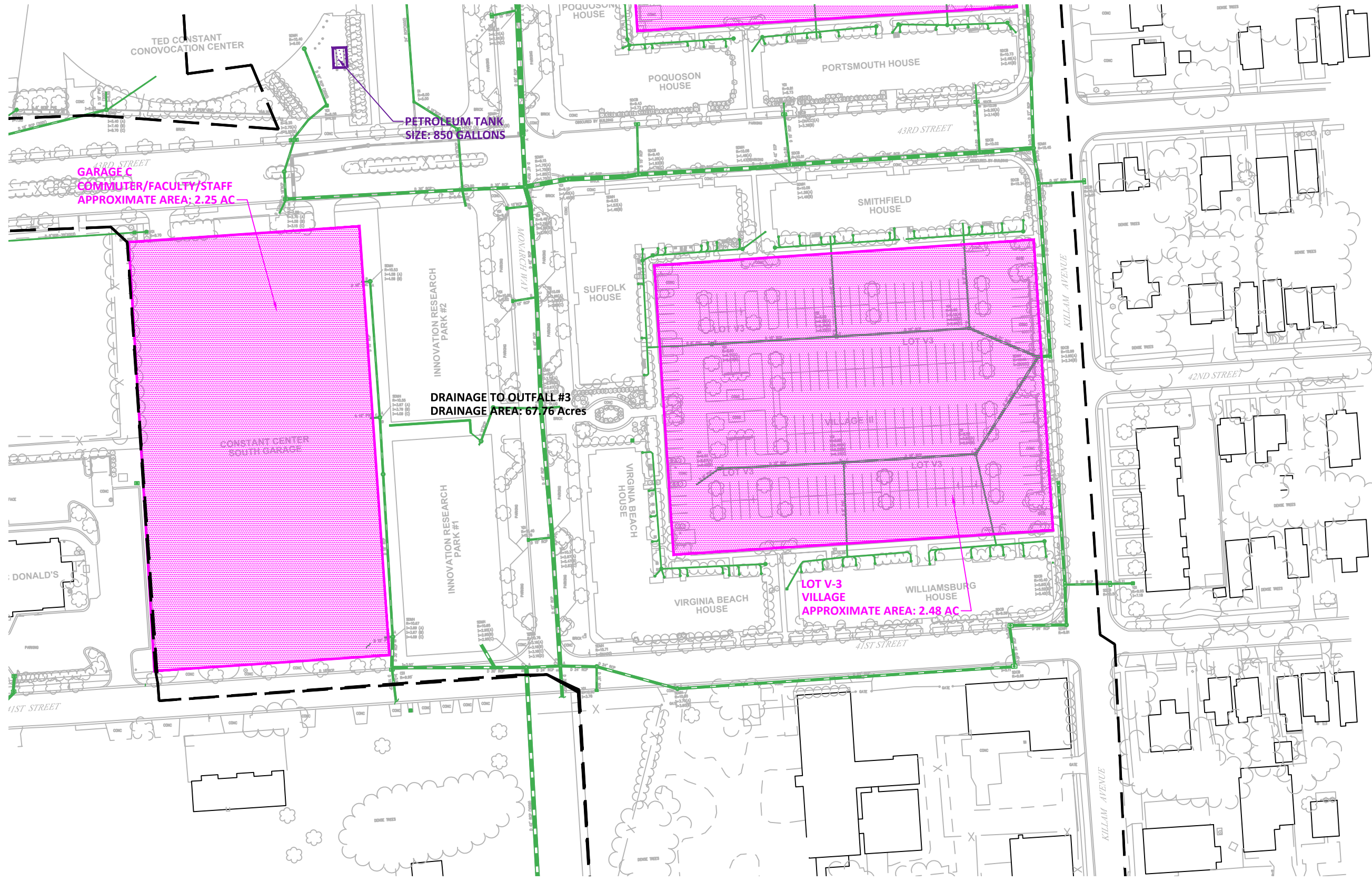


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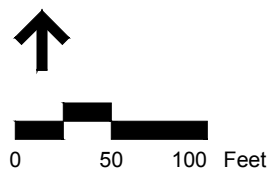













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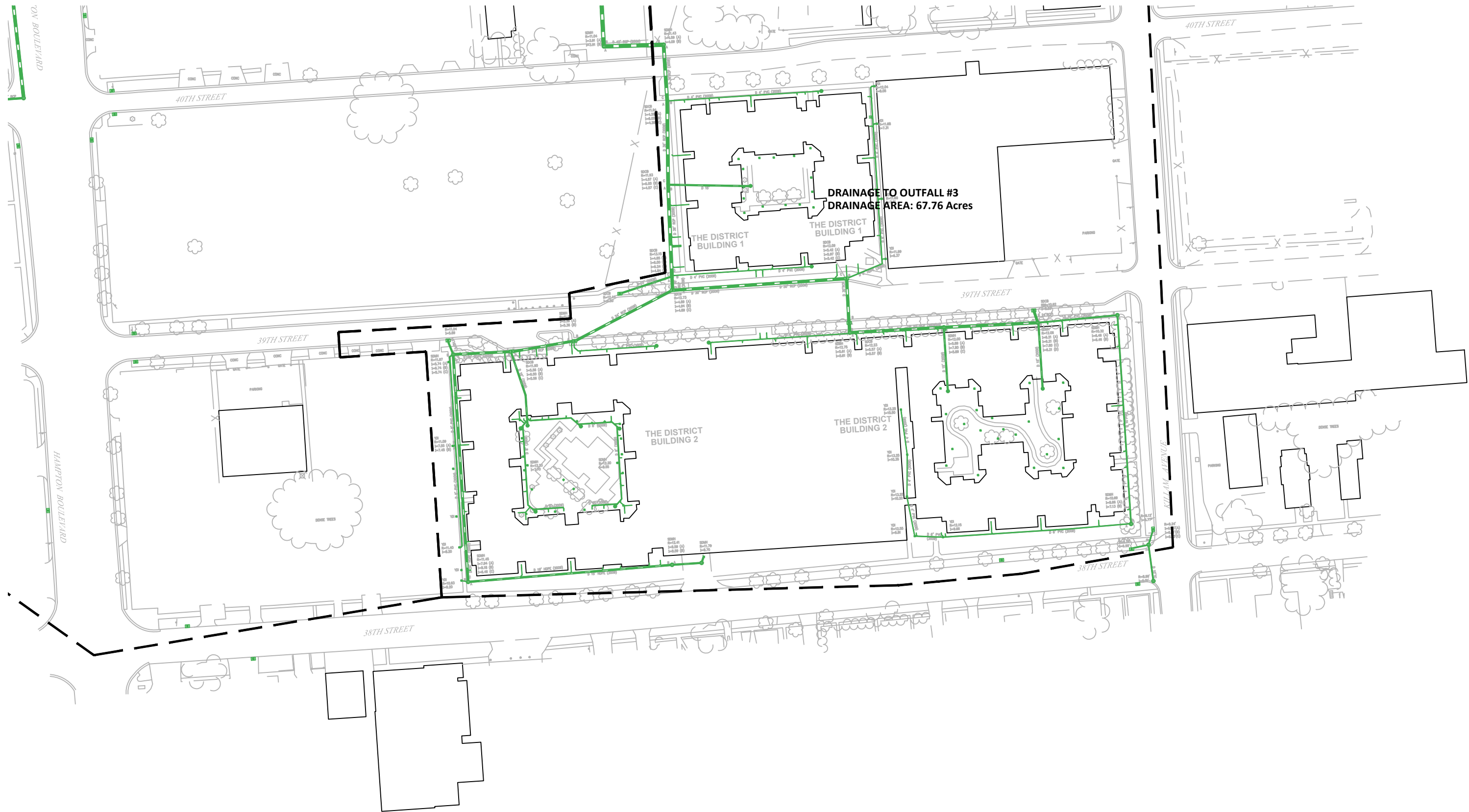


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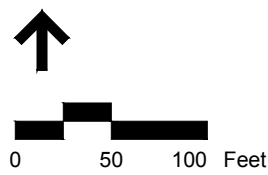
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|  | DRAINAGE AREA DIVIDE |  | GROUNDS | | |



**Municipal Separate Storm Sewer System (MS4)
Program (Non-Traditional) – Stormwater Pollution
Prevention Plan**

***High Priority Water Quality
Issue #2 – Nutrient Pollutants***

Old Dominion University

Prepared for **Old Dominion University**
Department of Environmental Health and Safety
5255 Hampton Boulevard
Spong Hall Room 2501
Norfolk, Virginia 23529

Prepared by **VHB**
Two Columbus Center
4500 Main Street, Suite 400
Virginia Beach, Virginia 23462
757.490.0132

August 22th, 2016

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- Table 2b: Potential Nutrient Pollutant Area Summary – Treated by a Structural BMP
- Table 3: Non-Structural Best Management Practice Summary

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- Appendix A: Campus Illicit Discharge Potential Map
- Appendix B: General Permit for Discharges from a Small MS4
- Appendix C: Record of Inspections

Introduction

Plan Purpose and Summary

This Storm Water Pollution Prevention Plan (SWPPP) has been developed in accordance with the requirements of the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4) (Permit), as defined in General Permit No. VAR04 Effective Date: July 1, 2013 Expiration Date: June 30, 2018. The purpose of this SWPPP is to:

- 1) Identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the Old Dominion University Campus.
- 2) Describe and ensure the implementation of Best Management Practices that will be used to reduce pollutants in stormwater discharges from the Old Dominion University Campus and to assure compliance with the conditions of the Permit.

As specified in Section II(1)(c)(1) of the Permit, an MS4 operator is required to develop a public education and outreach program that identifies at least three(3) high priority water quality issues that have potential to adversely affect stormwater discharges. In addition, as specified in Section II(6)(b)(1) through (3), an MS4 operator is required to identify all municipal high-priority facilities that have a high potential to discharge pollutants into stormwater facilities. A SWPPP is required to be developed for each of these high-priority facilities with the purpose to identify and reduce pollutant discharges. In many cases, an overlap is present between high priority water quality issues and facilities with a high potential for discharge. As a result, a SWPPP has been developed for each of the High Priority Water Quality Issues identified in the ODU MS4 Program Plan.

High Priority Water Quality Issues that have been identified in the ODU MS4 Program Plan include:

1. Vehicular pollutants resulting from vehicle maintenance and leaks in the parking lots and roads located on the ODU Campus. Sediments and pollutants deposited on vehicles that can be washed off during storm events or during cleaning by students, faculty, and staff.
2. Excess fertilizers and pesticides released during nutrient management activities on the ODU grounds by ODU Grounds faculty and staff.
3. Litter and debris throughout campus generated by ODU students, faculty and staff.
4. Erosion and sediment control performed by contractors during land disturbing activities.

This SWPPP will specifically cover pollutants generated from current fertilization and nutrient management plans implemented within the managed turf areas of the ODU campus. Included with this SWPPP is a summary of the ODU campus lawns and athletic fields that generate pollutants. In addition, this SWPPP provides a summary of the procedures implemented by ODU to reduce and prevent illicit discharges. Campus maps that show the managed turf areas throughout the ODU campus are included in *Appendix A: Campus Illicit Discharge Potential Maps*. In addition to illicit discharge potential areas, these maps show drainage areas, outfalls, potential pollutants, and existing best management practices. Specific potential pollutant areas and existing BMPs are summarized in *Table 2: Potential Nutrient Pollutant Area Summary*.

Implementation of the components of this SWPPP is required as a condition of the Permit (*Appendix B*). The Department of Environmental Quality (DEQ) has been granted authority to administer the MS4 program and is therefore the regulatory authority overseeing the implementation of this SWPPP.

Background – MS4 General Permit and Regulatory Considerations

In 1972, Congress passed the Federal Water Pollution Control Act (FWPCA), also known as the Clean Water Act (CWA), to restore and maintain the quality of the nation's waterways. The ultimate goal was to make sure that the river and streams were fishable, swimmable, and drinkable. In 1987, the Water Quality Act (WQA) added provisions to the CWA that allowed the EPA to govern stormwater discharges from MS4s. In 1990, the EPA disseminated rules establishing Phase I of the National Pollutant Discharge Elimination System (NPDES) stormwater program.

Under the Phase 1 NPDES regulations, permits for stormwater discharges from municipal separate storm sewer systems were required for eleven "large" and "medium" municipalities in Virginia. The "large" municipalities (250,000+ populations) are Fairfax County, Virginia Beach and Norfolk. The "medium" municipalities (from 100,000 to 250,000 populations) are Arlington County, Prince William County, Henrico County, Chesterfield County, Hampton, Newport News, Portsmouth, and Chesapeake. The Phase 2 stormwater regulations froze the population thresholds for "large" and "medium" municipal separate storm sewer systems at the 1990 Census level, so no additional municipalities will be designated into these categories.

Phase 1 municipal separate storm sewer systems permit applications required the municipalities to propose a comprehensive Stormwater Management Program (SWMP). This program is required to consist of structural and non-structural measures to control the discharge of pollutants from the storm sewer system to the Maximum Extent Practicable (MEP) and to effectively prohibit non-stormwater discharges to separate storm sewer systems. The Phase 1 permits requires the implementation of the SWMP, storm event monitoring to be conducted by the municipality, and the municipality to regularly assess the effectiveness of the various stormwater controls employed by the municipality.

Phase 2 regulations requires permits to be issued to Small Municipal Separate Storm Sewer Systems (MS4s) located in "urbanized areas" (as defined by the U.S. Census Bureau's 2000 Census). Small MS4s include systems owned by municipalities, federal facilities, State facilities (including VDOT), and public universities. In addition, any Small MS4 located in a Phase 1 "large" or "medium" municipality is required to be permitted under the Phase 2 regulations.

Permits for regulated small municipal separate storm sewer systems require the development, implementation and enforcement of a SWMP that includes the following "six minimum control measures":

1. Public education and outreach on stormwater impacts
2. Public involvement/ participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations.

Regulated Small MS4 permit applications require the applicant to identify:

1. Proposed best management practices and measurable goals for each of the "six minimum control measures"
2. The timing of the implementation of each control measure
3. The person or persons responsible for implementing the Stormwater Management Program (SWMP).

The 2004 Virginia legislature unanimously passed House Bill 1177 transferring regulatory authority of the NPDES programs related to MS4s and construction activities from the State Water Control Board to the Soil and Water Conservation Board and transferred oversight of these programs from the Department of Environmental Quality (DEQ) to the Department of Conservation and Recreation (DCR). This transfer became effective January 29, 2005. Program oversight was transferred again from DCR to DEQ effective July 1, 2013. As a result, DEQ is responsible for the issuance, denial, revocation, termination and enforcement of NPDES permits for the control of stormwater discharges from MS4s and land disturbing activities under the VSMP. The General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, in accordance with 9VAC25-890, is effective starting July 1, 2013 and applies to all MS4 Permits for Discharges of Stormwater from Small MS4s until the permit expiration date of June 30, 2018.

SWPPP Coordinator and Duties

SWPPP Coordinator

The SWPPP coordinator for the Old Dominion University campus is Mr. Doug Alexander, Director of Environmental Health and Safety, (phone number: (757)683-4495). Mr. Alexander's duties include the following:

- Implement the SWPPP plan;
- Oversee maintenance practices identified in the SWPPP;
- Implement and oversee employee training;
- Conduct or provide for inspection and monitoring activities;
- Identify other potential pollutant sources and make sure they are added to this SWPPP;
- Identify any deficiencies in this SWPPP and make sure they are corrected;
- Ensure that the SWPPP is available for review in accordance with the Plan Administration requirements in Chapter 3 of the Permit.
- Respond to regulatory agency requests for information about the construction site as it relates to SWPPP and coverage under this permit.

SWPPP Administration

General Information

Plan Availability

In accordance with Section II (B)(6)(b) of the Permit (*Appendix B*):

Copies of this SWPPP must be retained on campus, or at another location easily accessible during normal business hours, along with copies of the registration statement, permit, and acknowledgement letter from the permit issuing authority.

Operators with day to day operational control over SWPPP implementation shall have a copy of the SWPPP available on campus for use by all operators identified as having responsibilities to carry out provisions contained in this SWPPP. The SWPPP shall be made available to the DEQ, permit-issuing authority, and operator of the Municipal Separate Storm Sewer System (MS4) receiving discharges from the site for review at the time of an inspection.

The Operator shall make the SWPPP and all updates available upon request to the DEQ, the permit-issuing authority, EPA, local government officials, or the operator of a MS4 receiving discharges from the campus.

Plan Updates

The Operator shall amend this SWPPP whenever there is a change in design, construction, operation, or maintenance that has a significant effect on the potential for the discharge of pollutants to surface waters and that has not been addressed in the normal implementation of this SWPPP. The Operator must also update this SWPPP whenever it is found to be ineffective in meeting the requirements of the Permit.

Operator Responsibilities

The operator shall be responsible for executing the conditions of the MS4 Permit as defined in Section III of the Permit (*Appendix B*). Specifically, the operator shall be responsible for maintaining a complete record of monitoring, field reports and investigations, notices of noncompliance, etc.

4

Specific Requirements

Campus Description

Old Dominion University (ODU) is a public university located in the City of Norfolk, Virginia. The campus covers an area generally bounded by Larchmont/Edgewater to the north, 43th Street to the south, Kellam Avenue to the east, and Lamberts Point Golf Course and the Elizabeth River to the west. The communities of Larchmont/Edgewater, Highland Park, and Lamberts Point are located to the north, east, and south, respectively. For the purposes for this SWPPP, the campus can be generally divided into three areas: Central Campus, East Campus, and West Campus. The total campus area is approximately **173.50 acres**.

The Central Campus is considered the part of the campus bound by Bolling Avenue to the north, 43rd Street to the south, Hampton Boulevard to the east, and Elkhorn Avenue and Bluestone Avenue to the west. This area features a number of buildings/facilities including Foreman Field, Rollins Hall, Webb Center, Kaufman Hall, Perry Library, and Batten Arts and Letters. The Central Campus drains to Outfall #2 to the Lafayette River. The total drainage area to Outfall #2 is approximately **121.09 acres**.

The East Campus or University Village is considered the part of campus bound by the Lafayette River to the north, 38th Street to the south, Kellam Avenue to the east, and Hampton Boulevard to the west. This area features a number of buildings including Rogers and Gresham Residence Halls, Ted Constant Convocation Center, Campus Bookstore, and University Village Apartments. The East Campus drains to Outfall #3 to the Lafayette River. The total drainage area to Outfall #3 is **67.76 acres**.

The West Campus considered the part of campus bound by 49th Street to the north, 38th Street to the south, Elkhorn Avenue to the east, and the Elizabeth River to the west. This area features a number of buildings including the Student Rec Center, Quad Student Housing, Tennis Center, Whitehurst Hall, Facilities Management, and the L.R. Hill Sports Complex, in addition to others. The West Campus drains to Outfall #1 and Outfalls #4 through #9 to the Elizabeth River. The total drainage area to these outfalls is **125.22** acres.

The ODU campus drains by way of a closed storm system to nine total outfalls. The outfalls are summarized in *Table 1: Campus Outfall Summary*.

Table 1: Campus Outfall Summary

Outfall Number	Location	Description	Outfall Drainage Area (ac)
1	West Campus, South of Whitehurst Hall	78" CMP culvert to tidal canal to Elizabeth River	86.90
2	East Campus, North of Rogers Hall	Double 42"x60" RCP box culvert to tidal canal to Lafayette River	121.09
3	East Campus, East of Rogers Hall	Double 48" RCP culvert to tidal canal to Lafayette River	67.76
4	West Campus, South of Whitehurst Hall	36" RCP culvert to tidal canal to Lafayette River	9.49
5	West Campus, South of Whitehurst Hall	18" RCP culvert to tidal canal to Lafayette River	0.61
6	West Campus, South of Whitehurst Hall	15" RCP culvert to tidal canal to Lafayette River	0.84
7	West Campus, South of Whitehurst Hall	24" RCP culvert to tidal canal to Lafayette River	2.90
8	West Campus, Northwest of Whitehurst Hall	18" RCP culvert to Elizabeth River	4.14
9	West Campus, South of L.R. Hill Sports Complex	42" RCP culvert to Elizabeth River	20.34

Note: Outfall Drainage Areas include area outside the ODU campus limits.

The Lafayette River outfalls to the Elizabeth River, which ultimately outfalls to the Chesapeake Bay. As a result, the entire ODU campus drains through the Elizabeth River and ultimately drains to the Chesapeake Bay. The Elizabeth River is listed in the 2014 Impaired Waters – 303(d) List under Cause Category 5A for Estuarine Bioassessments. The hydrologic unit code for the Elizabeth River is **JL56**.

Maps that show drainage areas, flow direction, outfalls, and, existing best management practices are included in *Appendix A*.

Non-Stormwater Discharges

Non-stormwater discharges are considered to be flows generated by other sources other than stormwater runoff that enters the Old Dominion University storm sewer network. These flows often carry pollutants and are generally considered to be illicit unless otherwise certified as a non-stormwater discharge under a MS4 permit issued by DEQ. ODU actively regulates and prohibits non-stormwater discharges as specified in Illicit Discharge Detection and Elimination documentation. The following non-stormwater discharges are recognized by ODU as exempt from prohibitions:

- Flushing of water lines and potable water sources
- Irrigation
- Temporary diversions of stream flows
- Uncontaminated ground water
- Foundation and crawl space pumps and drains
- Condensation from air conditioners
- Springs, wetlands, and riparian habitats
- Non-commercial washing of vehicles
- Non-chlorinated swimming pools
- Firefighting activities
- Water sources that are uncontaminated

In addition, runoff that enters high pollutant areas such fertilized lawns and athletic fields and has the potential to pick up large quantities of pollutants and to carry them to the storm sewer network. ODU monitors these high risk areas and implements best management practices to ensure that pollutant risks are mitigated.

The ODU MS4 Program Plan and subsequent MS4 annual report provides an inclusive campus plan to managing area with high illicit discharge potential.

Nutrient Pollutants

As specified in the ODU Nutrient Management Plan, approximately 17.74 acres of the ODU campus grounds receive fertilizer. These areas include the various lawns and non-synthetic turf sports fields throughout the ODU campus. Fertilizers contain chemicals that provide extra nutrients for plants beyond what is available in the natural environment. They are applied to ensure that campus lawns and sports fields are healthy throughout the year. In the event that excess fertilizer is applied to an area, chemical nutrients can enter the storm sewer network during rainfall events. Nutrients that outfall to surface waters have the potential to alter natural process and damage the environment.

In addition to fertilizer, ODU uses pesticides throughout the campus in order to control and remove hazardous and unwanted plants. Similar to over-applications of fertilizers, excess and residual pesticides can enter the storm sewer network during rainfall events. The noxious chemicals present in pesticides are potentially damaging to the environment.

ODU implements a number of Best Management Practices (BMPs) to intercept and treat nutrient laden runoff. These BMPs include wet retention ponds, bioretention basins, and other structural BMPs. A variety of non-structural BMPs are also implemented for all managed turf areas. These BMPs seek to reduce pollutants by intercepting them before they enter the ODU storm sewer network. In addition, non-structural BMPs seek to educate the ODU community about pollution prevention and mitigation. *Tables 2a and 2b: Potential Nutrient Pollutant Area Summary* presents a summary of the various managed turf areas throughout the ODU campus that have the potential generate nutrient pollutants. Campus maps showing these areas are included in *Appendix A*. Further discussion of campus BMPs are included in the *Best Management Practices* section of this SWPPP.

Table 2a: *Potential Nutrient Pollutant Area Summary – Not Treated by a Structural BMP*

Managed Turf Name	Managed Turf Location	Managed Turf Acreage (ac)	Managed Turf Use
Whitehurst Hall Lawn	Whitehurst Hall	1.12	Lawn
Runte Quad	In front of Student Rec Building	0.87	Lawn
Kaufman Mall	In front of Student Webb Center	5.28	Lawn
Williamsburg Lawn	In front of Spong Hall and Rollins Hall	2.66	Lawn
Baseball Field	Between Soccer complex and Elkhorn Garage	2.13	Athletic Field
Soccer Field	Corner of Powhatan Ave. and 43 rd Street	2.30	Athletic Field
Soccer Practice Field	Corner of Powhatan Ave. and 43 rd Street	1.61	Athletic Field
Total:		15.97	

Table 2b: *Potential Nutrient Pollutant Area Summary –Treated by a Structural BMP*

Managed Turf Name	Managed Turf Location	Managed Turf Acreage (ac)	Managed Turf Use	Type of BMP	Area Treated by BMP (ac)
Rec Sports Field	Behind Student Rec Building	1.77	Athletic Field	Bioretention	1.77
Total:		1.77	1.77		

Total Campus Managed Turf Area		17.74	1.77		
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Best Management Practices

In addition to water quality benefits, Best Management Practices (BMPs) are used to provide effective control and mitigation of potential illicit discharges. BMPs are separated into structural and non-structural categories. Structural BMPs include means and methods to physically detain, divert, and treat stormwater runoff. Examples include wet ponds, bioretention basins, permeable pavement, etc. Non-structural BMPs include means and methods to reduce the quantity and severity of pollution events through education and management of potential pollutant sources. Examples include safe storage of chemicals, preventative maintenance to reduce spills and leaks, stormwater management education, etc.

Old Dominion University implements a variety of both structural and non-structural BMPs throughout its campus. Structural BMPs have been designed and constructed as specified in the Virginia BMP Clearinghouse and by standards set in the Virginia Stormwater Handbook. Active structural BMPs are inspected regularly in order to ensure that they are performing as designed and are repaired as necessary. As shown in *Table 2b*, **1.77 acres** of the managed turf areas on the ODU campus are treated by bioretention basins. Approximately **15.97 acres** of the ODU managed turf areas are not directly treated by a structural BMP. As a result, non-structural BMPs are implemented in order to reduce the quantity of pollutants campus-wide.

Table 3: Non Structural Best Management Practice Summary summarizes the non-structural BMPs implementation and use on the ODU campus. The ODU MS4 Program Plan and subsequent MS4 annual reports provides an additional inclusive overview of the BMPs currently in on the ODU campus.

Table 3: Non Structural Best Management Practice Summary

Best Management Practice	Description
Nutrient Management	<ul style="list-style-type: none"> • Fertilizer is applied using guidelines and plans established in the Old Dominion University Nutrient Management Plan. • Soil test results included in the Nutrient Management Plan are used to optimize and reduce fertilizer use. Only nutrients that are missing from soils are introduced during the application of pesticide and fertilizer. • The ODU storm sewer network is covered during fertilizing to keep excess nutrients out of the storm sewer network. • Organic and naturally derived pesticides are used to lessen impacts of potential pollution generated by pesticides suspended in runoff.

Operator Certification

All operators who have responsibility for implementing and maintaining the controls identified in this SWPPP must sign the certification statement listed below. The person signing the certification must meet the signatory requirements, as presented in Permit Section III K (*Appendix B*). The certifications must be maintained as part of this SWPPP.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Printed: _____

Signature: _____

Date: _____

Printed: _____

Signature: _____

Date: _____

Printed: _____

Signature: _____

Date: _____

References

Virginia Stormwater Handbook. First Edition. Virginia Department of Conservation and Recreation, 1999.

Virginia BMP Clearinghouse. Virginia Department of Environmental Quality, April 2014.

Virginia Erosion and Sediment Control Handbook. Third Edition. Virginia Department of Conservation and Recreation, 1992.

Old Dominion University MS4 Program Plan, ODU Office of Environmental Health and Safety, Revised November 2015.

Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, September 30, 2014.

Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, October 1, 2015.

Old Dominion University Illicit Discharge Detection and Elimination Program, ODU Office of Environmental Health and Safety, May 5th, 2008.

Old Dominion University Nutrient Management Program, ODU Office of Environmental Health and Safety, October 1st, 2015.

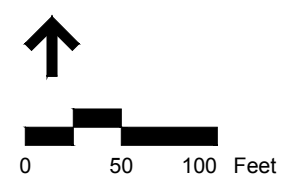
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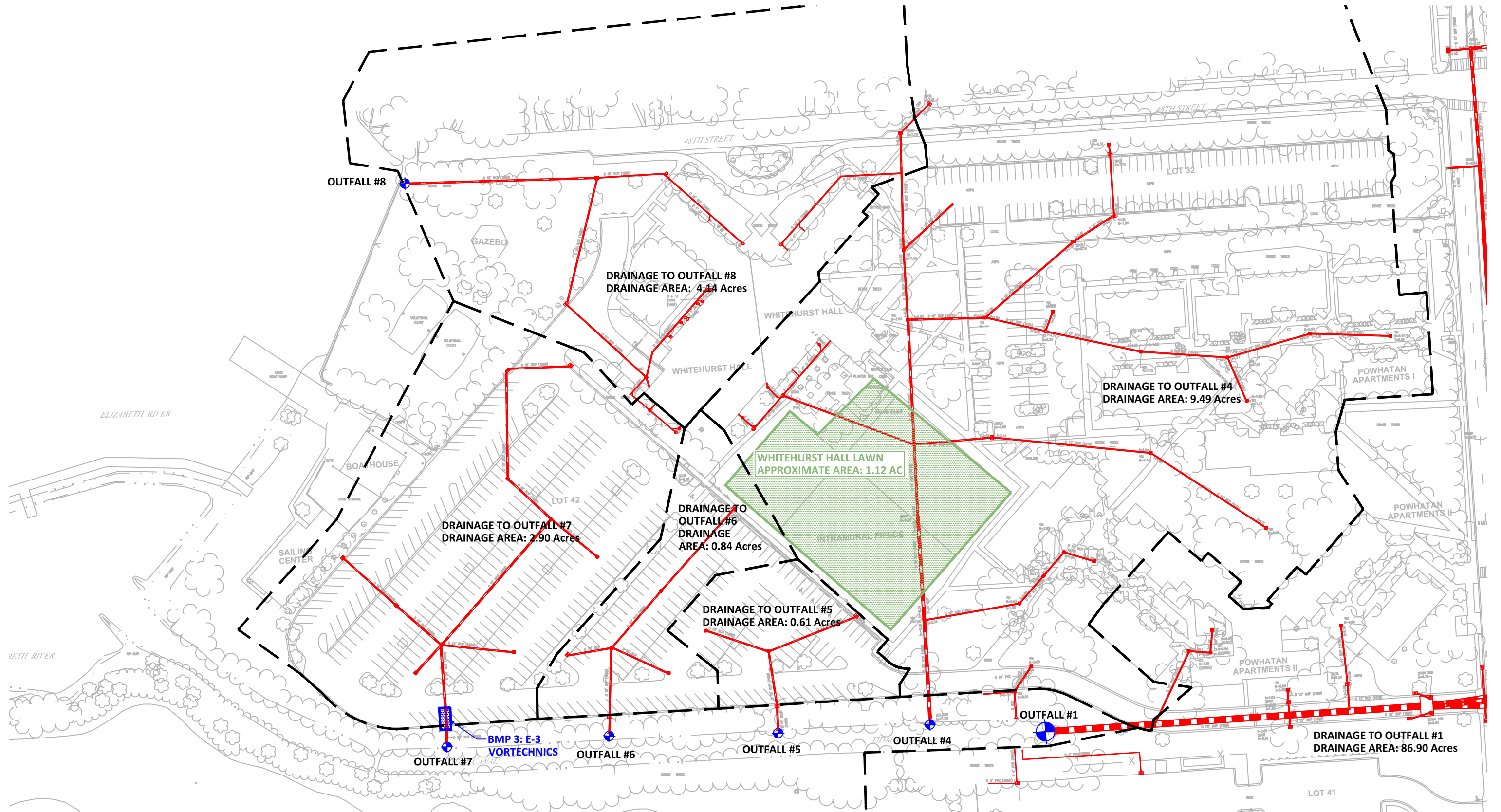
Campus Illicit Discharge Potential Maps



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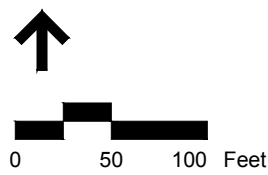
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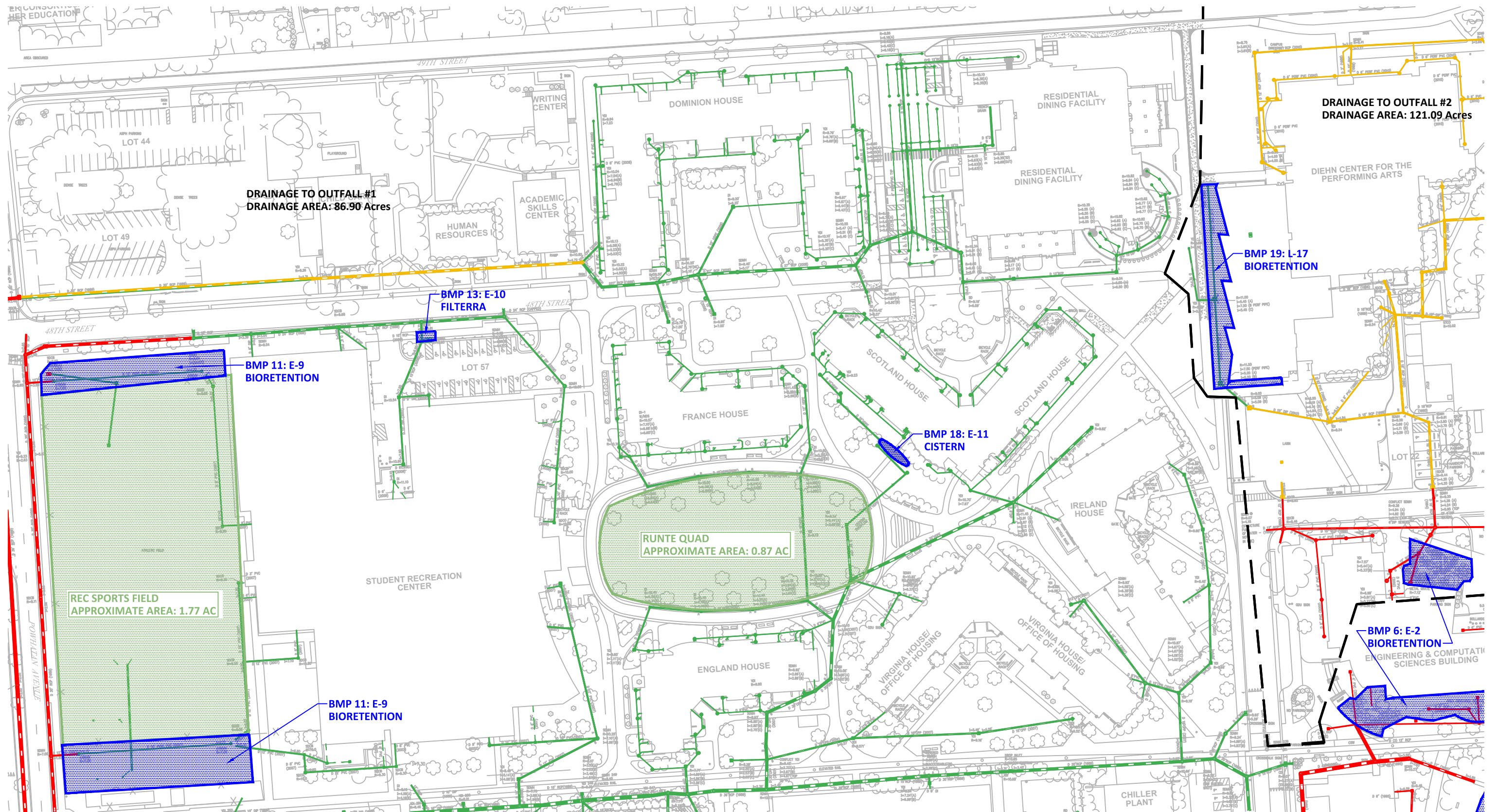




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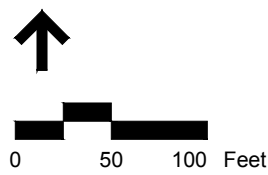
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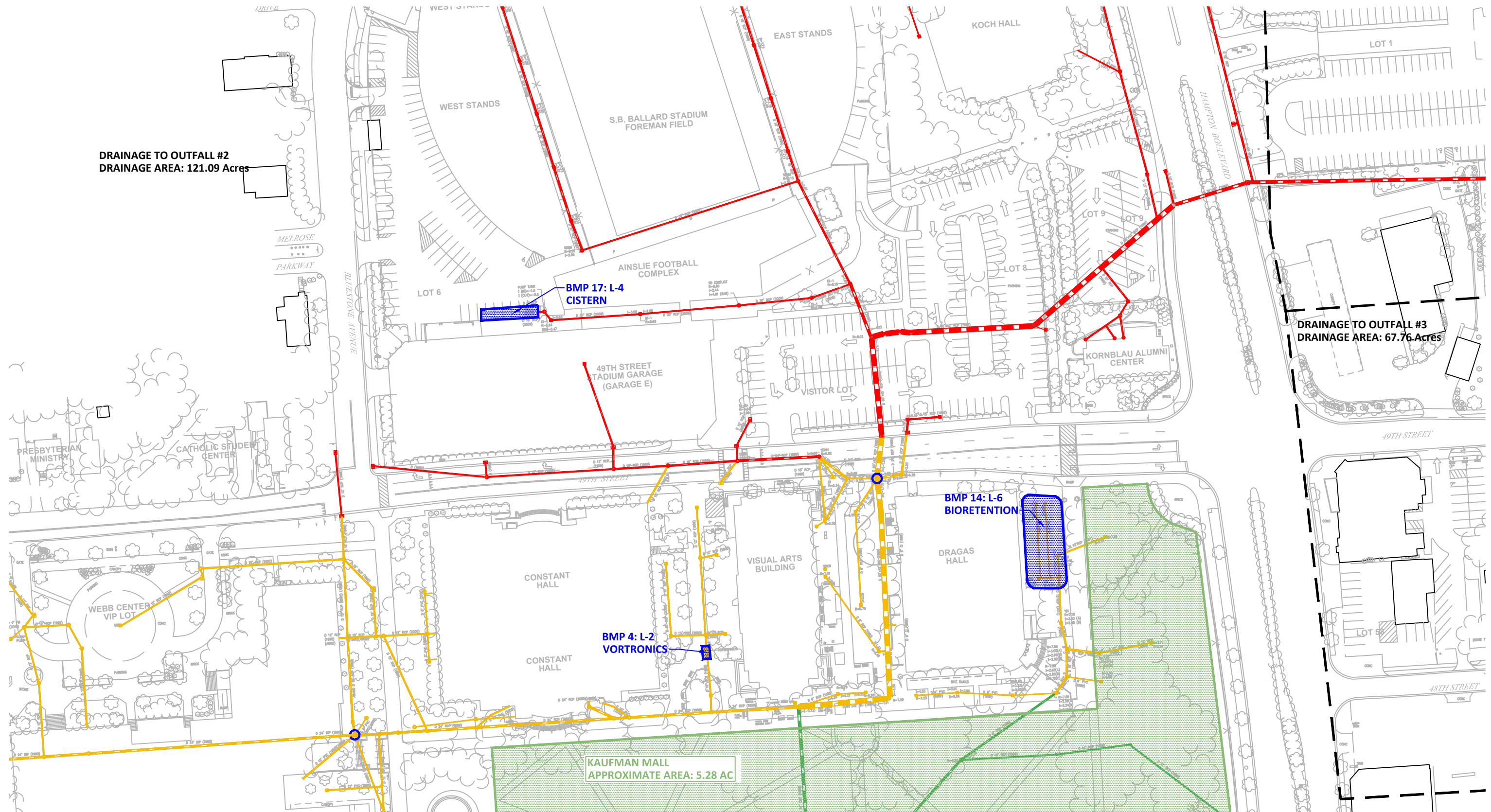




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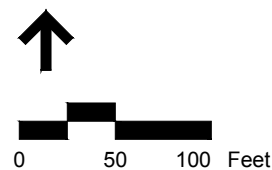
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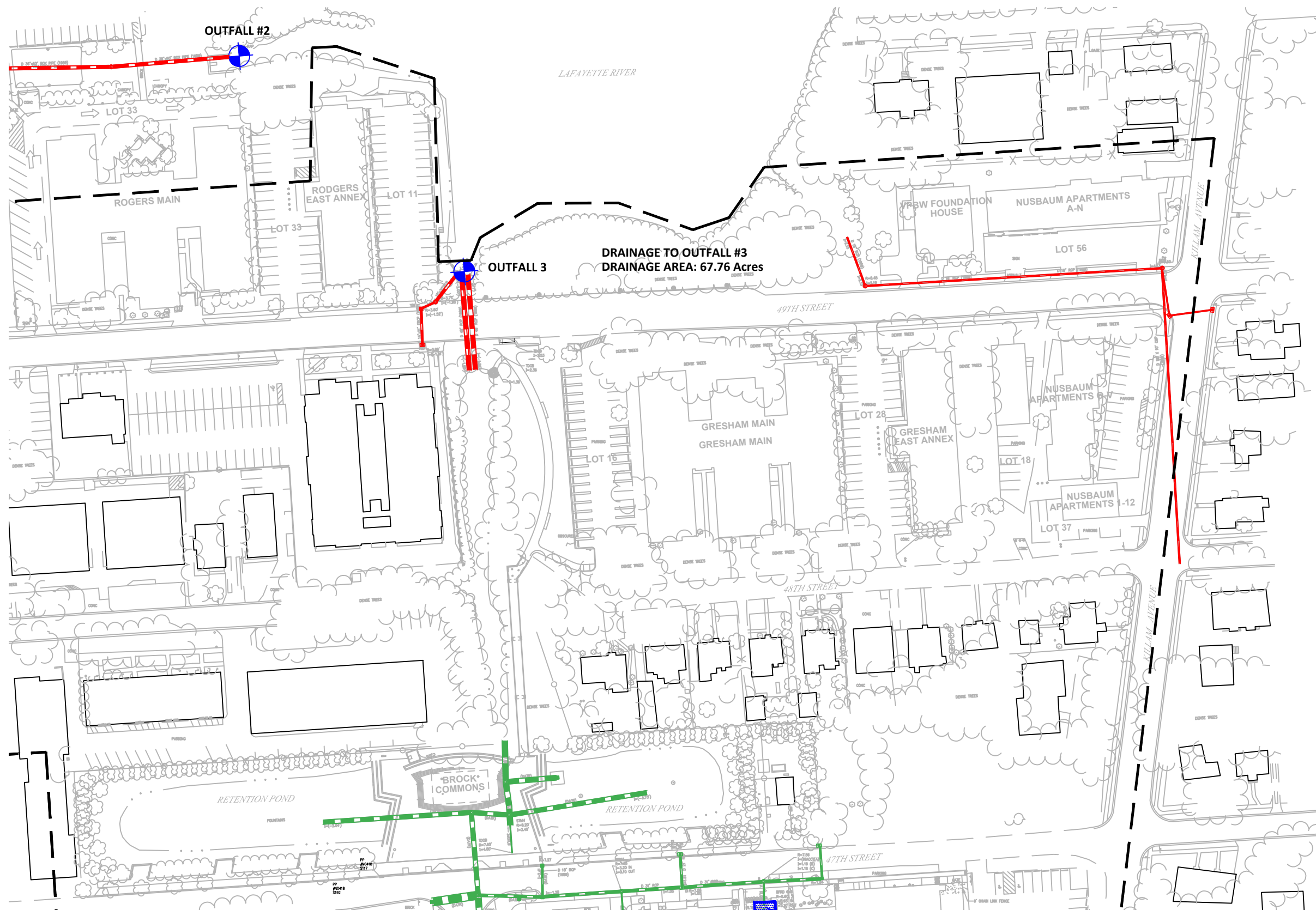




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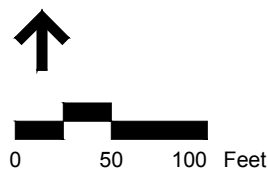
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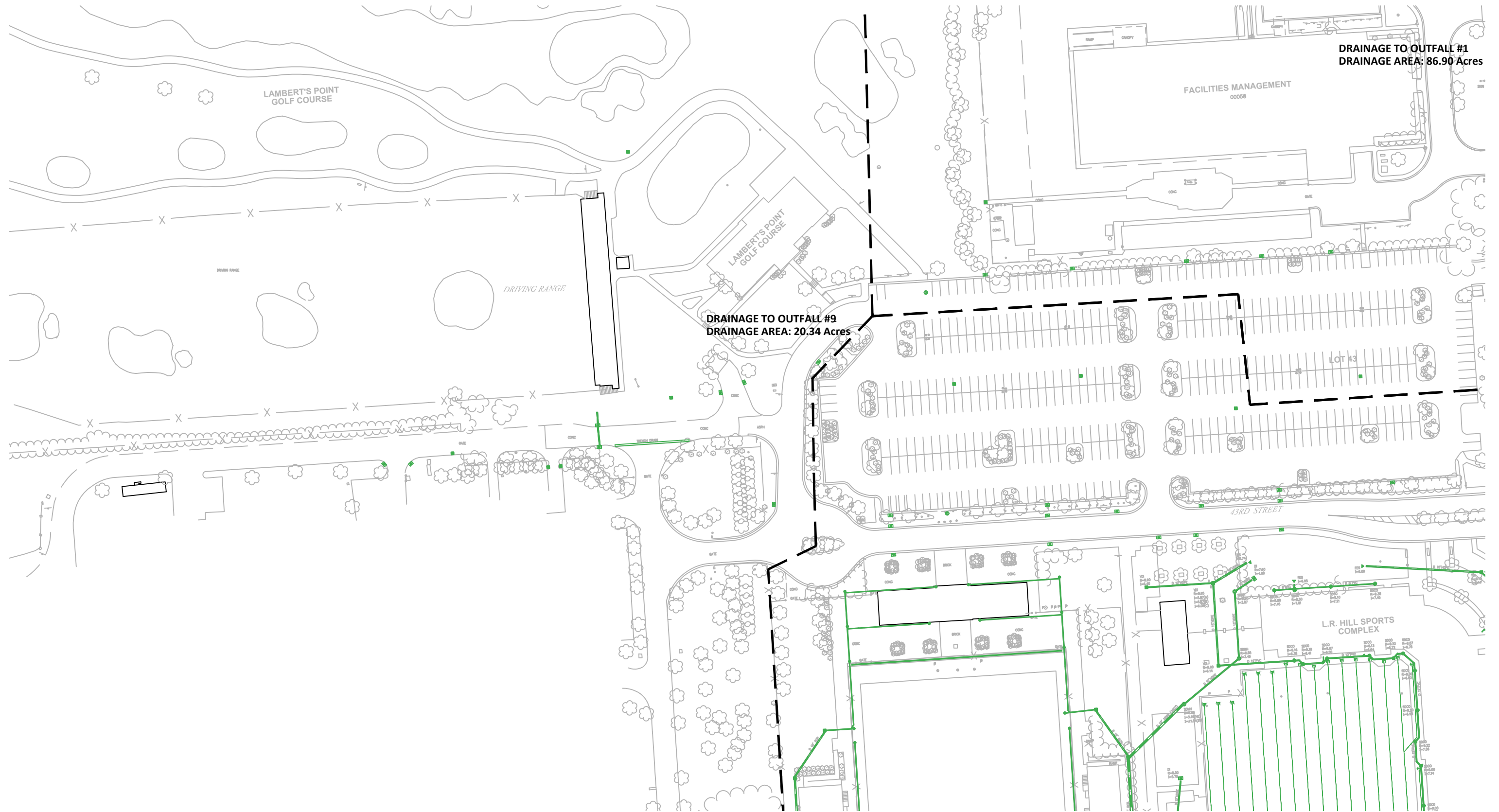
**DRAINAGE TO OUTFALL #3
DRAINAGE AREA: 67.76 Acres**

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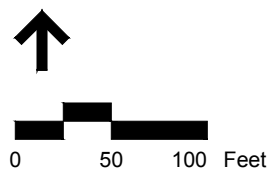


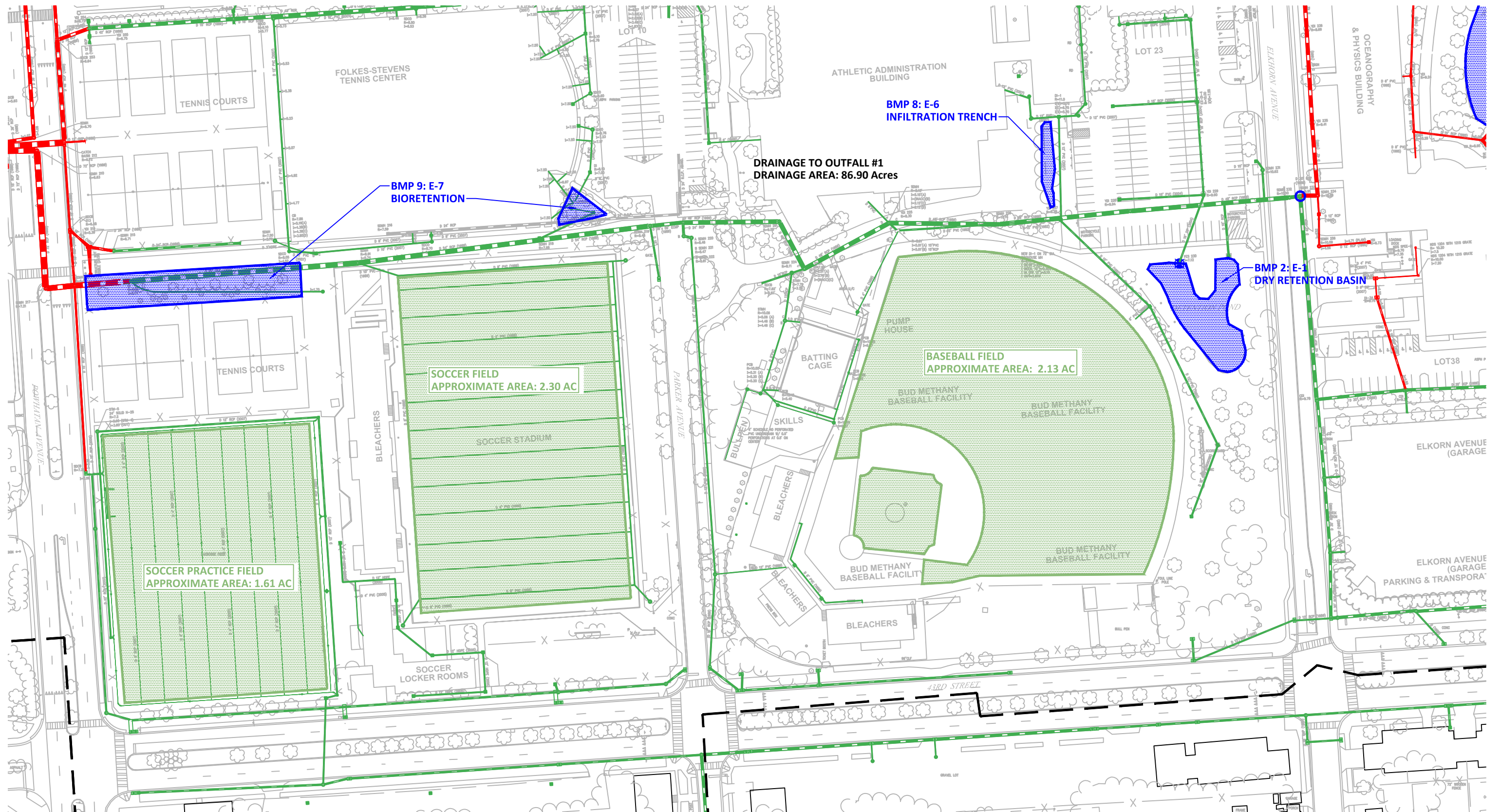
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DRAINAGE TO OUTFALL #9
DRAINAGE AREA: 20.34 Acres












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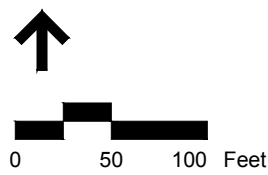
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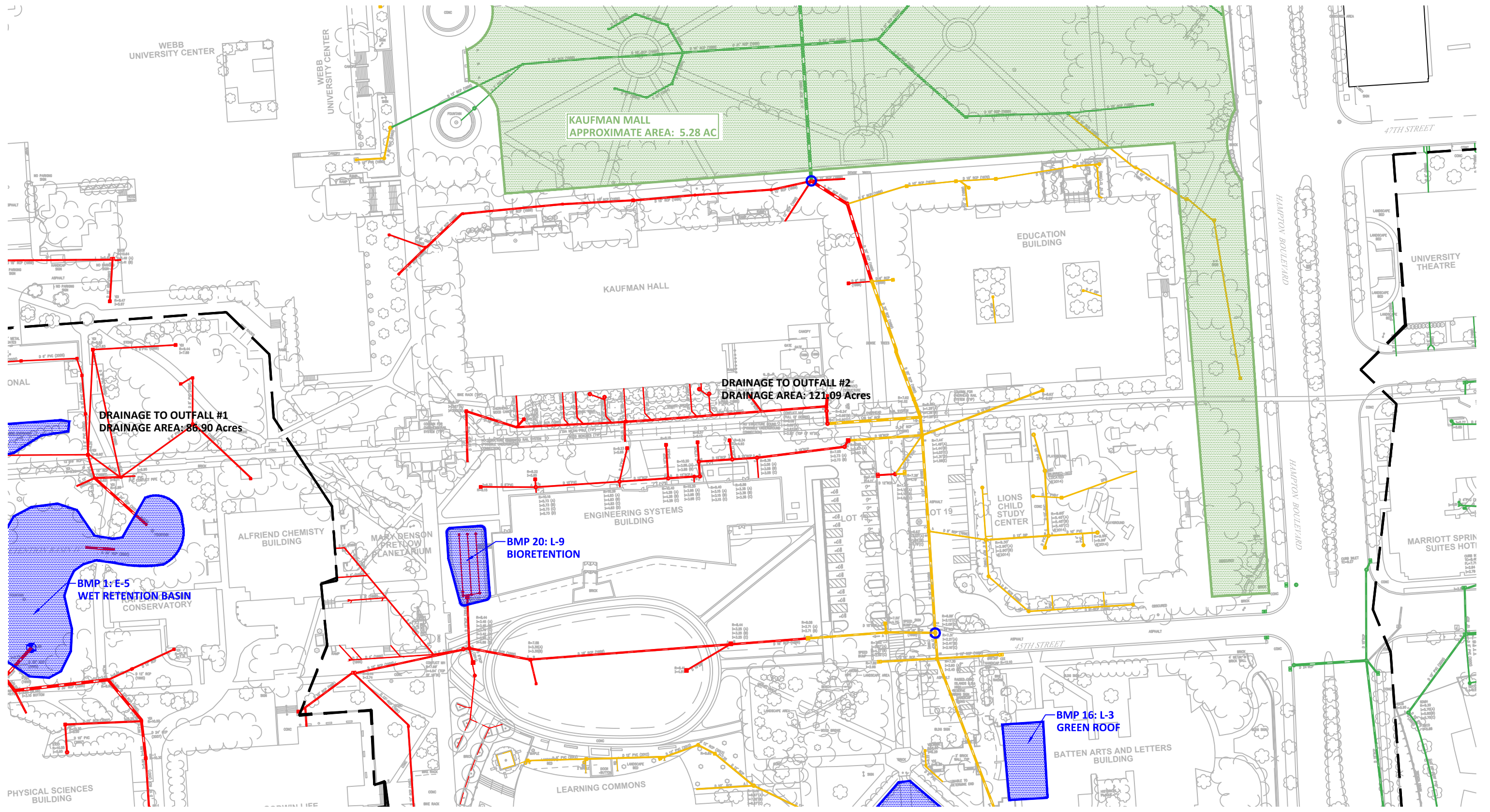




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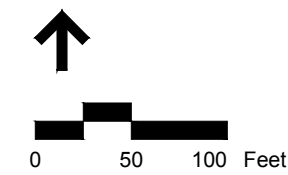
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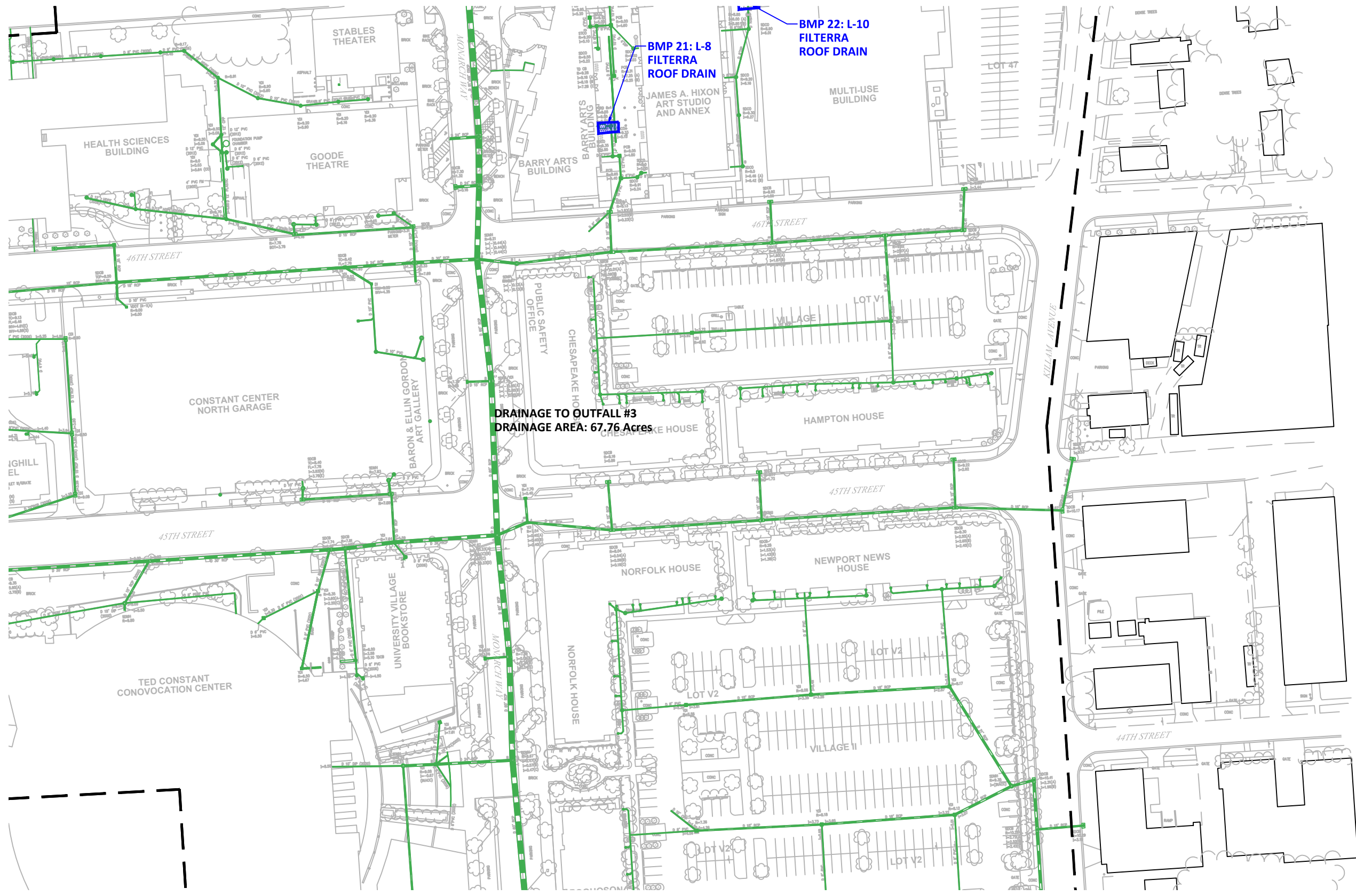




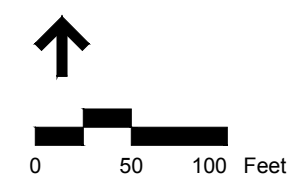
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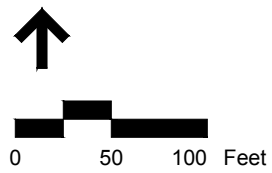
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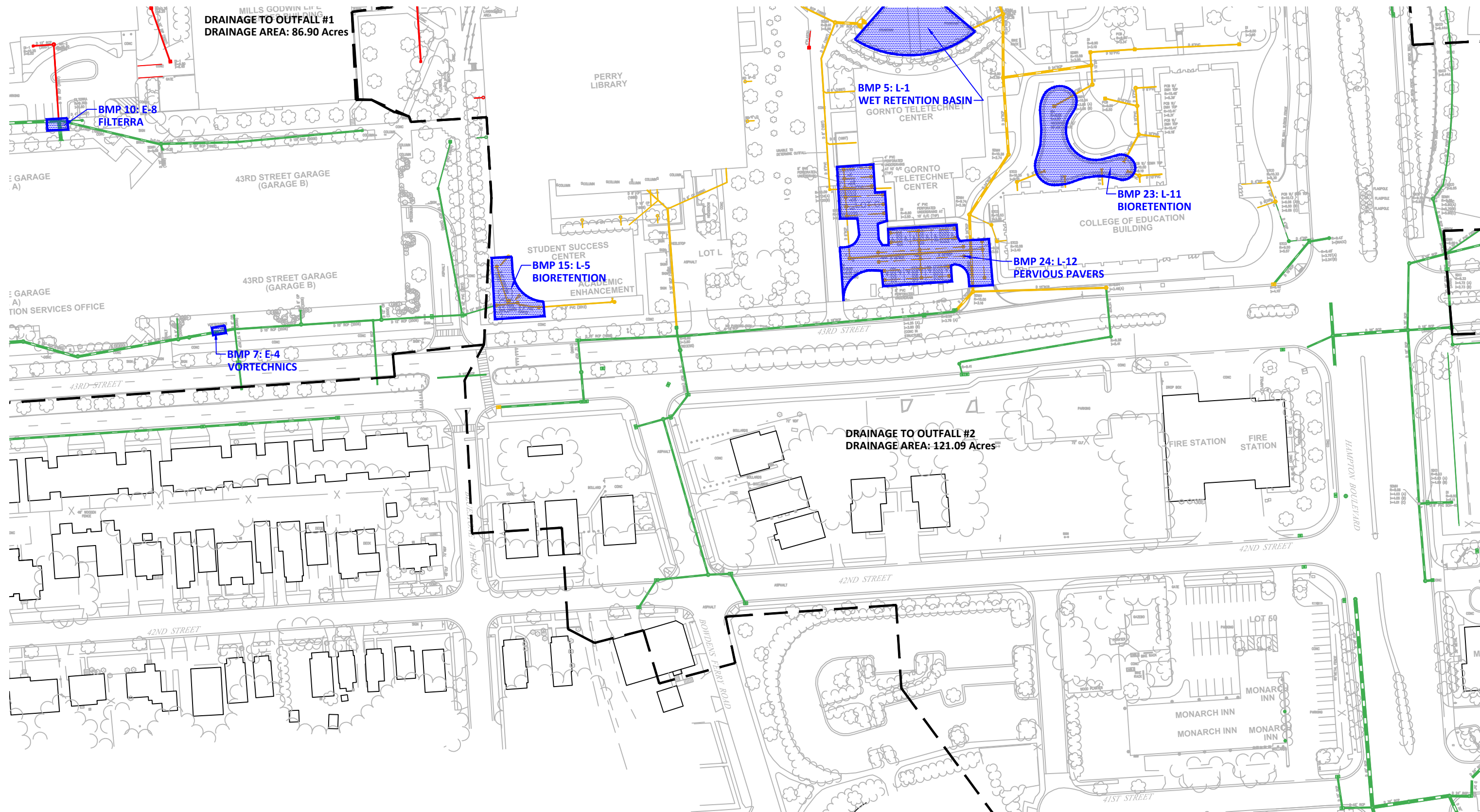




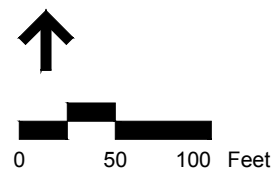
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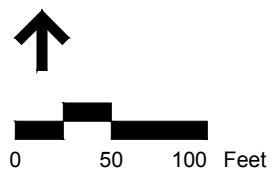
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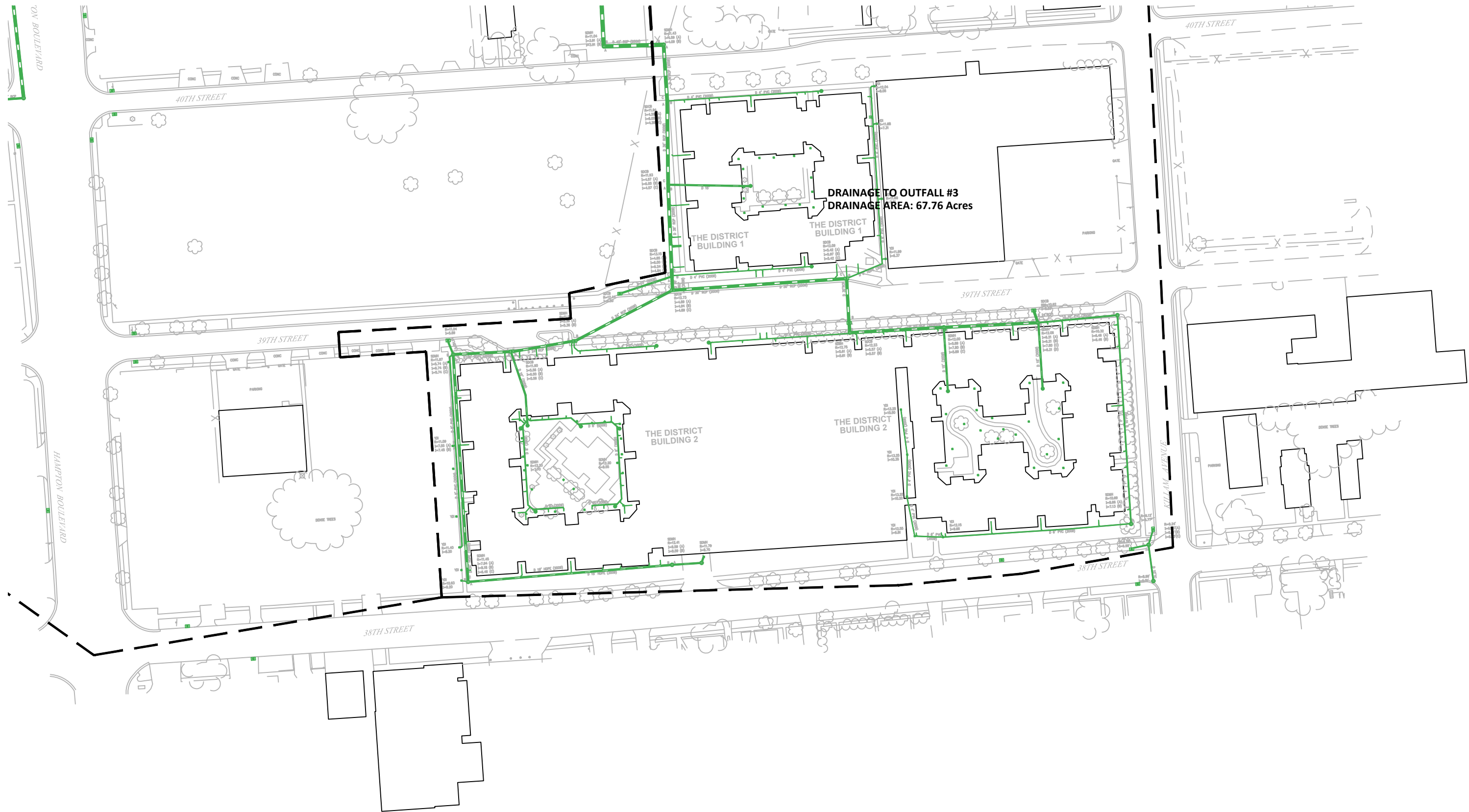
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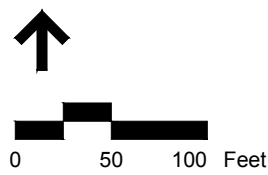
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**Municipal Separate Storm Sewer System (MS4)
Program (Non-Traditional) – Stormwater Pollution
Prevention Plan**

***High Priority Water Quality
Issue #4 – Sediment Deposition
from Land Disturbing Activities***

Old Dominion University

Prepared for **Old Dominion University**
Department of Environmental Health and Safety
5255 Hampton Boulevard
Spong Hall Room 2501
Norfolk, Virginia 23529

Prepared by **VHB**
Two Columbus Center
4500 Main Street, Suite 400
Virginia Beach, Virginia 23462
757.490.0132

August 22nd, 2016

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- Table 2: Non-Structural Best Management Practice Summary

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- Appendix II: General Permit for Discharges from a Small MS4

Introduction

Plan Purpose and Summary

This Storm Water Pollution Prevention Plan (SWPPP) has been developed in accordance with the requirements of the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4) (Permit), as defined in General Permit No. VAR04 Effective Date: July 1, 2013 Expiration Date: June 30, 2018. The purpose of this SWPPP is to:

- 1) Identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the Old Dominion University Campus.
- 2) Describe and ensure the implementation of Best Management Practices that will be used to reduce pollutants in stormwater discharges from the Old Dominion University Campus and to assure compliance with the conditions of the Permit.

As specified in Section II(1)(c)(1) of the Permit, an MS4 operator is required to develop a public education and outreach program that identifies at least three(3) high priority water quality issues that have potential to adversely affect stormwater discharges. In addition, as specified in Section II(6)(b)(1) through (3), an MS4 operator is required to identify all municipal high-priority facilities that have a high potential to discharge pollutants into stormwater facilities. A SWPPP is required to be developed for each of these high-priority facilities with the purpose to identify and reduce pollutant discharges. In many cases, an overlap is present between high priority water quality issues and facilities with a high potential for discharge. As a result, a SWPPP has been developed for each of the High Priority Water Quality Issues identified in the ODU MS4 Program Plan.

High Priority Water Quality Issues that have been identified in the ODU MS4 Program Plan include:

1. Vehicular pollutants resulting from vehicle maintenance and leaks in the parking lots and roads located on the ODU Campus. Sediments and pollutants deposited on vehicles that can be washed off during storm events or during cleaning by students, faculty, and staff.
2. Excess fertilizers and pesticides released during nutrient management activities on the ODU grounds by ODU Grounds faculty and staff.
3. Litter and debris throughout campus generated by ODU students, faculty and staff.
4. Erosion and sediment control performed by contractors during land disturbing activities.

This SWPPP will specifically cover sediment deposition and erosion and sediment control during land disturbing activities. In addition, this SWPPP provides a summary of the procedures implemented by ODU to reduce and prevent illicit discharges associated with excess sediment deposition. A construction SWPPP template to be implemented during land disturbing activities is included in *Appendix I*. This template provides guidelines to reduce and mitigate illicit sediment discharges.

Implementation of the components of this SWPPP is required as a condition of the Permit (*Appendix II*). The Department of Environmental Quality (DEQ) has been granted authority to administer the MS4 program and is therefore the regulatory authority overseeing the implementation of this SWPPP.

Background – MS4 General Permit and Regulatory Considerations

In 1972, Congress passed the Federal Water Pollution Control Act (FWPCA), also known as the Clean Water Act (CWA), to restore and maintain the quality of the nation's waterways. The ultimate goal was to make sure that the river and streams were fishable, swimmable, and drinkable. In 1987, the Water Quality Act (WQA) added provisions to the CWA that allowed the EPA to govern stormwater discharges from MS4s. In 1990, the EPA disseminated rules establishing Phase I of the National Pollutant Discharge Elimination System (NPDES) stormwater program.

Under the Phase 1 NPDES regulations, permits for stormwater discharges from municipal separate storm sewer systems were required for eleven "large" and "medium" municipalities in Virginia. The "large" municipalities (250,000+ populations) are Fairfax County, Virginia Beach and Norfolk. The "medium" municipalities (from 100,000 to 250,000 populations) are Arlington County, Prince William County, Henrico County, Chesterfield County, Hampton, Newport News, Portsmouth, and Chesapeake. The Phase 2 stormwater regulations froze the population thresholds for "large" and "medium" municipal separate storm sewer systems at the 1990 Census level, so no additional municipalities will be designated into these categories.

Phase 1 municipal separate storm sewer systems permit applications required the municipalities to propose a comprehensive Stormwater Management Program (SWMP). This program is required to consist of structural and non-structural measures to control the discharge of pollutants from the storm sewer system to the Maximum Extent Practicable (MEP) and to effectively prohibit non-stormwater discharges to separate storm sewer systems. The Phase 1 permits requires the implementation of the SWMP, storm event monitoring to be conducted by the municipality, and the municipality to regularly assess the effectiveness of the various stormwater controls employed by the municipality.

Phase 2 regulations requires permits to be issued to Small Municipal Separate Storm Sewer Systems (MS4s) located in "urbanized areas" (as defined by the U.S. Census Bureau's 2000 Census). Small MS4s include systems owned by municipalities, federal facilities, State facilities (including VDOT), and public universities. In addition, any Small MS4 located in a Phase 1 "large" or "medium" municipality is required to be permitted under the Phase 2 regulations.

Permits for regulated small municipal separate storm sewer systems require the development, implementation and enforcement of a SWMP that includes the following "six minimum control measures":

1. Public education and outreach on stormwater impacts
2. Public involvement/ participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations.

Regulated Small MS4 permit applications require the applicant to identify:

1. Proposed best management practices and measurable goals for each of the "six minimum control measures"
2. The timing of the implementation of each control measure
3. The person or persons responsible for implementing the Stormwater Management Program (SWMP).

The 2004 Virginia legislature unanimously passed House Bill 1177 transferring regulatory authority of the NPDES programs related to MS4s and construction activities from the State Water Control Board to the Soil and Water Conservation Board and transferred oversight of these programs from the Department of Environmental Quality (DEQ) to the Department of Conservation and Recreation (DCR). This transfer became effective January 29, 2005. Program oversight was transferred again from DCR to DEQ effective July 1, 2013. As a result, DEQ is responsible for the issuance, denial, revocation, termination and enforcement of NPDES permits for the control of stormwater discharges from MS4s and land disturbing activities under the VSMP. The General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, in accordance with 9VAC25-890, is effective starting July 1, 2013 and applies to all MS4 Permits for Discharges of Stormwater from Small MS4s until the permit expiration date of June 30, 2018.

SWPPP Coordinator and Duties

SWPPP Coordinator

The SWPPP coordinator for the Old Dominion University campus is Mr. Doug Alexander, Director of Environmental Health and Safety, (phone number: (757)683-4495). Mr. Alexander's duties include the following:

- Implement the SWPPP plan;
- Oversee maintenance practices identified in the SWPPP;
- Implement and oversee employee training;
- Conduct or provide for inspection and monitoring activities;
- Identify other potential pollutant sources and make sure they are added to this SWPPP;
- Identify any deficiencies in this SWPPP and make sure they are corrected;
- Ensure that the SWPPP is available for review in accordance with the Plan Administration requirements in Chapter 3 of the Permit.
- Respond to regulatory agency requests for information about the construction site as it relates to SWPPP and coverage under this permit.

SWPPP Administration

General Information

Plan Availability

In accordance with Section II (B)(6)(b) of the Permit (*Appendix II*):

Copies of this SWPPP must be retained on campus, or at another location easily accessible during normal business hours, along with copies of the registration statement, permit, and acknowledgement letter from the permit issuing authority.

Operators with day to day operational control over SWPPP implementation shall have a copy of the SWPPP available on campus for use by all operators identified as having responsibilities to carry out provisions contained in this SWPPP. The SWPPP shall be made available to the DEQ, permit-issuing authority, and operator of the Municipal Separate Storm Sewer System (MS4) receiving discharges from the site for review at the time of an inspection.

The Operator shall make the SWPPP and all updates available upon request to the DEQ, the permit-issuing authority, EPA, local government officials, or the operator of a MS4 receiving discharges from the campus.

Plan Updates

The Operator shall amend this SWPPP whenever there is a change in design, construction, operation, or maintenance that has a significant effect on the potential for the discharge of pollutants to surface waters and that has not been addressed in the normal implementation of this SWPPP. The Operator must also update this SWPPP whenever it is found to be ineffective in meeting the requirements of the Permit.

Operator Responsibilities

The operator shall be responsible for executing the conditions of the MS4 Permit as defined in Section III of the Permit (*Appendix II*). Specifically, the operator shall be responsible for maintaining a complete record of monitoring, field reports and investigations, notices of noncompliance, etc.

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Specific Requirements

Campus Description

Old Dominion University (ODU) is a public university located in the City of Norfolk, Virginia. The campus covers an area generally bounded by Larchmont/Edgewater to the north, 43th Street to the south, Kellam Avenue to the east, and Lamberts Point Golf Course and the Elizabeth River to the west. The communities of Larchmont/Edgewater, Highland Park, and Lamberts Point are located to the north, east, and south, respectively. For the purposes for this SWPPP, the campus can be generally divided into three areas: Central Campus, East Campus, and West Campus. The total campus area is approximately **173.50 acres**.

The Central Campus is considered the part of the campus bound by Bolling Avenue to the north, 43rd Street to the south, Hampton Boulevard to the east, and Elkhorn Avenue and Bluestone Avenue to the west. This area features a number of buildings/facilities including Foreman Field, Rollins Hall, Webb Center, Kaufman Hall, Perry Library, and Batten Arts and Letters. The Central Campus drains to Outfall #2 to the Lafayette River. The total drainage area to Outfall #2 is approximately **121.09 acres**.

The East Campus or University Village is considered the part of campus bound by the Lafayette River to the north, 38th Street to the south, Kellam Avenue to the east, and Hampton Boulevard to the west. This area features a number of buildings including Rogers and Gresham Residence Halls, Ted Constant Convocation Center, Campus Bookstore, and University Village Apartments. The East Campus drains to Outfall #3 to the Lafayette River. The total drainage area to Outfall #3 is **67.76 acres**.

The West Campus considered the part of campus bound by 49th Street to the north, 38th Street to the south, Elkhorn Avenue to the east, and the Elizabeth River to the west. This area features a number of buildings including the Student Rec Center, Quad Student Housing, Tennis Center, Whitehurst Hall, Facilities Management, and the L.R. Hill Sports Complex, in addition to others. The West Campus drains to Outfall #1 and Outfalls #4 through #9 to the Elizabeth River. The total drainage area to these outfalls is **125.22** acres.

The ODU campus drains by way of closed storm systems to nine total outfalls. The outfalls are summarized in *Table 1: Campus Outfall Summary*.

Table 1: Campus Outfall Summary

Outfall Number	Location	Description	Outfall Drainage Area (ac)
1	West Campus, South of Whitehurst Hall	78" CMP culvert to tidal canal to Elizabeth River	86.90
2	East Campus, North of Rogers Hall	Double 42"x60" RCP box culvert to tidal canal to Lafayette River	121.09
3	East Campus, East of Rogers Hall	Double 48" RCP culvert to tidal canal to Lafayette River	67.76
4	West Campus, South of Whitehurst Hall	36" RCP culvert to tidal canal to Lafayette River	9.49
5	West Campus, South of Whitehurst Hall	18" RCP culvert to tidal canal to Lafayette River	0.61
6	West Campus, South of Whitehurst Hall	15" RCP culvert to tidal canal to Lafayette River	0.84
7	West Campus, South of Whitehurst Hall	24" RCP culvert to tidal canal to Lafayette River	2.90
8	West Campus, Northwest of Whitehurst Hall	18" RCP culvert to Elizabeth River	4.14
9	West Campus, South of L.R. Hill Sports Complex	42" RCP culvert to Elizabeth River	20.34

Note: Outfall Drainage Areas include area outside the ODU campus limits.

The Lafayette River outfalls to the Elizabeth River, which ultimately outfalls to the Chesapeake Bay. As a result, the entire ODU campus drains through the Elizabeth River and ultimately drains to the Chesapeake Bay. The Elizabeth River is listed in the 2014 Impaired Waters – 303(d) List under Cause Category 5A for Estuarine Bioassessments. The hydrologic unit code for the Elizabeth River is **JL56**.

Non-Stormwater Discharges

Non-stormwater discharges are considered to be flows generated by other sources other than stormwater runoff that enters the Old Dominion University storm sewer network. These flows often carry pollutants and are generally considered to be illicit unless otherwise certified as a non-stormwater discharge under a MS4 permit issued by DEQ. ODU actively regulates and prohibits non-stormwater discharges as specified in Illicit Discharge Detection and Elimination documentation. The following non-stormwater discharges are recognized by ODU as exempt from prohibitions:

- Flushing of water lines and potable water sources
- Irrigation
- Temporary diversions of stream flows
- Uncontaminated ground water
- Foundation and crawl space pumps and drains
- Condensation from air conditioners
- Springs, wetlands, and riparian habitats
- Non-commercial washing of vehicles
- Non-chlorinated swimming pools
- Firefighting activities
- Water sources that are uncontaminated

In addition, runoff that enters high pollutant areas such as parking lots, loading areas, and service yards has the potential to pick up large quantities of pollutants and to carry them to the storm sewer network. ODU monitors these high risk areas and implements best management practices to ensure that pollutant risks are mitigated. The ODU MS4 Program Plan and subsequent MS4 annual report provides an inclusive campus plan to managing area with high illicit discharge potential.

Sediment Deposition from Land Disturbing Activities

Erosion and sediment control during land disturbance activities on the ODU campus is maintained by contractors performing the land disturbing activity. As a result of land disturbing activities, sediments are exposed to storm water runoff. Without erosion and sediment control, sediment laden runoff will drain to the storm sewer network and will eventually reach surface waters. Suspended sediments will increase the turbidity of receiving waters. Turbid waters restrict sunlight and are detrimental to aquatic ecosystems. Contractors are required to minimize discharges of sediments from construction sites and are subject to inspections by the City of Norfolk and Virginia Department of Environmental Quality (DEQ). As specified in Part II of 9VAC25-880-70, contractors are required to maintain a construction SWPPP on-site for project sites that disturb greater than or equal to 2,500 square feet. A construction SWPPP provides guidelines for erosion and sediment control activities. In the event of an illicit discharge, the SWPPP also acts as a logbook.

ODU has two site inspectors that perform regular inspections and report discrepancies to site superintendents. These inspectors are trained as specified by DEQ to identify problems with on-site erosion and sediment control measures. In addition, this SWPPP provides a construction SWPPP template (*Appendix I*) that will be used to develop uniform construction SWPPPs for future land disturbing activities. The template will include information as outlined in Part II of 9VAC25-880-70 as to provide guidance to minimize potential sediment discharges from future construction sites.

Operator Certification

All operators who have responsibility for implementing and maintaining the controls identified in this SWPPP must sign the certification statement listed below. The person signing the certification must meet the signatory requirements, as presented in Permit Section III K (*Appendix II*). The certifications must be maintained as part of this SWPPP.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Printed: _____

Signature: _____

Date: _____

Printed: _____

Signature: _____

Date: _____

References

Virginia Stormwater Handbook. First Edition. Virginia Department of Conservation and Recreation, 1999.

Virginia BMP Clearinghouse. Virginia Department of Environmental Quality, April 2014.

Virginia Erosion and Sediment Control Handbook. Third Edition. Virginia Department of Conservation and Recreation, 1992.

Old Dominion University MS4 Program Plan, ODU Office of Environmental Health and Safety, Revised November 2015.

Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, September 30, 2014.

Old Dominion University MS4 General Permit Annual Report. ODU Office of Environmental Health and Safety, October 1, 2015.

Old Dominion University Illicit Discharge Detection and Elimination Program, ODU Office of Environmental Health and Safety, May 5th, 2008.

Appendix I

Construction SWPPP Template