TOWN OF HERNDON, VIRGINIA
WORK SESSION AGENDA
HERNDON COUNCIL CHAMBERS BUILDING *
765 LYNN STREET
NOVEMBER 10, 2020
7:00 PM

* The meeting is being held electronically pursuant to Virginia Code Section 2.2-3708.2, as amended; the Governor's Executive Orders, as amended; and in accordance with Ordinance 20-O-23, Continuity of Governmental Operations during Pandemic Disaster (COVID-19), as amended and readopted by the Herndon Town Council on September 8, 2020, which superseded previously adopted amendments. Public comments will be received through the town clerk at town.clerk@herndon-va.gov.

CALL TO ORDER

1. Roll Call & Determination of Quorum
2. Comments from the Town Manager

PUBLIC HEARINGS

3. Resolution 20-G-50, to consider adoption of Comprehensive Plan Amendment CPA #20-01, 315 Elden Street.

4. Ordinance 20-O-62, to consider a zoning map amendment, ZMA #19-02, 1145 Herndon Parkway, Park Place Residential Development, to change the zoning from C-O, Commercial Office, to PD-UR, Planned Development-Urban Residential with proffered conditions allowing the redevelopment of the site with townhouses and multi-family residential uses.

5. Ordinance 20-O-61, to consider an amendment to the Town of Herndon Zoning Ordinance, ZOTA #20-01, to establish new, and clarify, revise and/or delete existing, regulations and definitions in order to change the name of the Heritage Preservation Overlay district to the Historic District Overlay, to allow for the administrative review of certain types of certificates of appropriateness and related measures. The proposed amendments under consideration include multiple sections of Chapter 78 (ZONING) and a new Section 78-155.10 (Certificates of Appropriateness).

6. Resolution 20-G-51, to consider adoption of Revised Heritage Preservation District Guidelines for proposed work to be performed within the Herndon Preservation District.

7. Resolution 20-G-52, to consider a special exception SE #19-05 with conditions for 100, 150, 200 Fairbrook Drive, Fairbrook Business Park, to allow for development within the FPO, Floodplain Overlay district.

8. Resolution 20-G-53, to consider an exception to the Chesapeake Bay Protection Area, RPA #17-01,with conditions for 100, 150, 200 Fairbrook Drive, Fairbrook Business Park, to consider an exception to encroach into the RPA, Resource Protection Area, component of the CBPAO, Chesapeake Bay Preservation Area Overlay district with proposed mitigation.

9. Resolution 20-G-54, to consider a special exception SE #17-03 with conditions for 100, 150, 200 Fairbrook Drive, Fairbrook Business Park, to allow the redevelopment/development of these parcels under the Landmark Business Alternative Option resulting in a maximum 1.25 FAR consisting of 4 buildings with 60 percent multifamily residential including retail and daycare and 40 percent office.

GENERAL

10. Resolution, to consider an amendment to the Comprehensive Agreement dated November 1, 2017 between the Town of Herndon and Comstock Herndon Venture, LC, to establish the closing date and closing conditions for both parties, establish commencement of construction and outside satisfaction dates, and provide licenses for the operation of public facilities in the interim.

ROUNDTABLE

STAFF REPORT

Town Council
November 10, 2020

Title: Resolution to adopt Comprehensive Plan Amendment CPA #20-01, 315 Elden Street.

Staff Contact: Dana Heiberg, Senior Planner; dana.heiberg@herndon-va.gov (703)787-7380

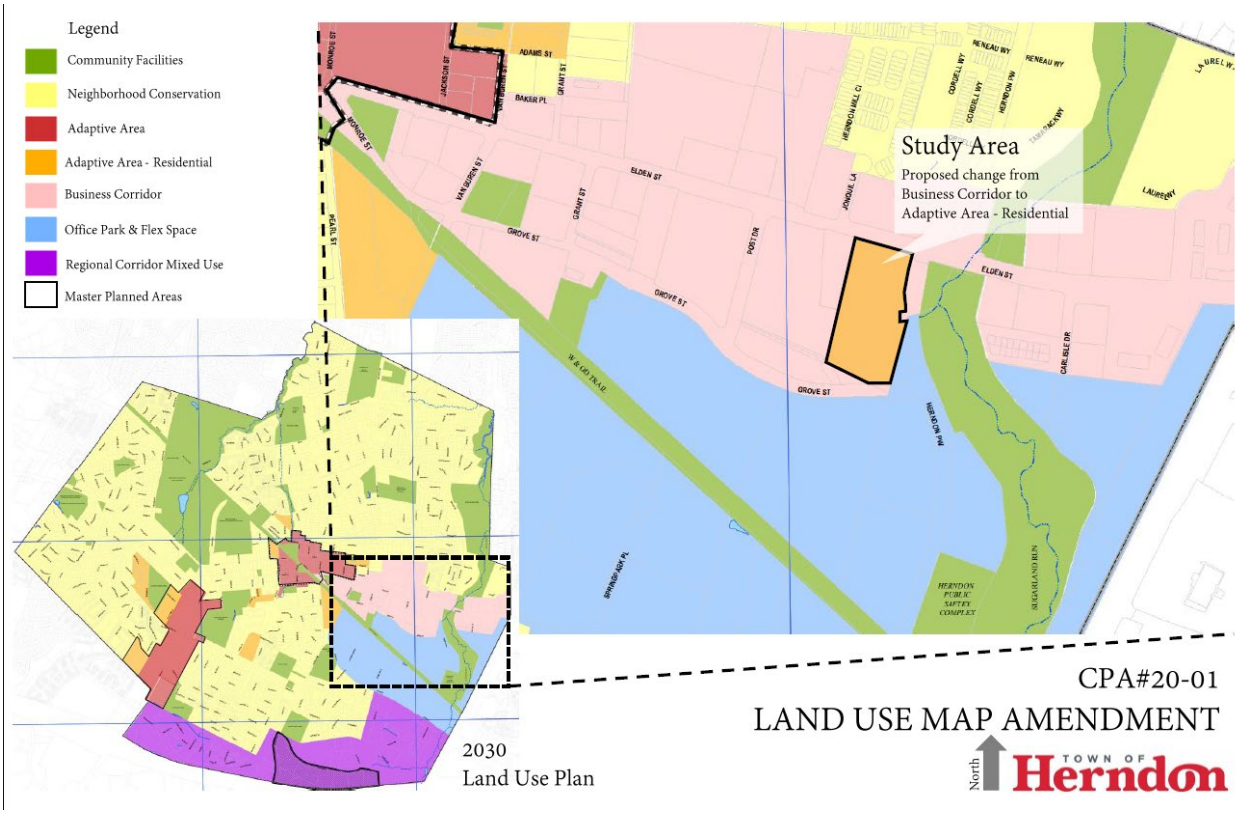
Summary Information

Intent of Action	Amend the comprehensive plan	
Number of Parcels	1 parcel (Tax Map Reference Number 0171-02-0007)	
Total Area	6.48 acres, (282,465 square feet)	
Zoning Districts	Commercial Services (CS)	
Current Comprehensive Plan Land Use Designation	Business Corridor (BC) (map color pink)	
Proposed Comprehensive Plan Land Use Designation	Adaptive Area – Residential (AA-R) (map color orange)	
Existing Use	Extended Stay Hotel	
Future Actions to Implement	Drafting and adoption of a Zoning Text Amendment	Public Hearings
	Zoning Map Amendment to rezone the property from CS-Commercial Services to the new district	Public Hearings
	Submission and Processing of a Site Plan	Administrative
	Submittal and Review of ARB applications for any exterior changes	Public Hearing

Planning Commission Recommendation	Approval recommended at the October 26, 2020 public hearing

Staff Recommendation	Recommend approval of the adopting resolution as drafted.

Location Map



Site Description

The location is at the southwest corner of Herndon Parkway and Elden Street, with Grove Street running along the southern boundary of the property. The site is approximately 1.25 miles from the future Herndon Metrorail Station. The property has existing features 168 hotel units on a site that is 282,465 square feet in land area (6.48 acres). A smaller property that is currently vacant with mature trees lies to the west of the site.

Background

The current development on the site is a first-generation Residence Inn, which no longer meets the brand's standards. The new owners of the property requested that the town consider allowing the repurposing of the development to residential apartments with a significant number of units dedicated to workforce housing. With the extensive need for such housing in the region, and knowing the Town Council's concern over the lack of affordable and workforce housing, the staff is bringing this CPA application forward for consideration. The change in the comprehensive plan designation, makes it possible for the town to consider and potentially support a rezoning of the property to allow residential use.

The current configuration, scale and the presence of exterior on-site recreational amenities is similar to a quality multifamily property. The building floor area is listed in

county records as 118,965 square feet and the owner is Elden Street Owner LLC. The existing density is 25.9 units per acre and the proposed amendment is the same or similar, based on adaptive reuse of the existing buildings. The property as developed is approximately 30 years old with the original zoning approvals dating to the late 1980s.

Proposal

Amend the comprehensive plan to change the property at 315 Elden Street, Herndon, Virginia, Tax Map Reference Number 0171-02-0007, from Business Corridor to Adaptive Area-Residential.

Staff Analysis

This change in comprehensive plan designation could make the property eligible for traditional multifamily residential use; this would typically be under single ownership of the existing property, with rental of the individual units. Condominium ownership of the units would also be compatible with the proposed plan designation of Adaptive Area-Residential, which is designated on the Land Use Plan with the color orange. The repurposing of the property would occur without major changes to the physical structures or site layout.

In terms of process, if the council approves this plan amendment, the property would be on track to convert from the existing hotel to residential land use by requesting a rezoning (Zoning Map Amendment) from the current CS Commercial Services district to a multifamily zoning district. Since the existing density at 25.9 units per acre exceeds the density of the existing multifamily zoning districts, a new variation of the Planning Development-Urban Residential district adopted July 9, 2019 will need to be created and then considered for adoption.

Transportation

Transportation impacts would be analyzed in the review of a Zoning Map Amendment. A multifamily use with a similar number of living units as existing hotel units would not likely have large order of magnitude traffic and pedestrian impacts. Extensive pedestrian facilities abut the site and extend into surrounding areas, for example sidewalks on all adjoining streets and the Sugarland Run paved trail just to the east. Generally, the staff believes that this site is somewhat unique in its access onto three streets, Elden Street, the Herndon Parkway and Grove Street. The multiple access points help to disperse traffic to and from the site.

Schools

The public school impact has been provided in the attached memorandum from the Fairfax County Public Schools, Office of Facilities Planning Services. Total potential impact for elementary, middle and high schools is 56 students. If this site becomes the

subject of a Zoning Map Amendment application, the applicant will provide additional information regarding unit mix to Fairfax County Public Schools to determine if the standard number of estimated students is applicable to the proposed unit mix.

Fiscal Impact

The proposed change in land use designation does not have direct fiscal impact but the change would put the property in position to apply for a rezoning to multifamily. Considering that the property has been experiencing very high vacancy due to the coronavirus pandemic and related economic downturn, the expected outcome if rezoned to a multifamily zoning district would be very positive for the town. If converted to residential use after plan amendment and rezoning (zoning map amendment), the town and county would experience typical costs and revenues associated with multifamily properties. The cessation of the hotel occupancy tax on the property would be significant compared to conditions prior to the 2020 pandemic. The property is outside of the Dulles Rail Phase 2 Transportation Improvement District, so there would not be impact in terms of Metrorail funding.

Street maintenance and refuse removal

Multifamily properties do not have the street maintenance and refuse removal impacts that single family developments cause, because the streets are privately maintained, and the refuse and recycling is also through private contract.

Public Safety

Police and Fire impacts should be similar to existing conditions, since the number of units will not be significantly different.

Alternatives

The Town Council has the following alternatives available for its decision on this case:

- Adoption of CPA #20-01 in accordance with the draft resolution provided (Attachment #1)
- Adoption of CPA #20-01 with certain revisions to the draft resolution provided
- Denial of the CPA #20-01

The Town Council may also opt to continue the public hearing to a future Town Council meeting if the Council believes their review requires additional time.

Planning Commission Recommendation and Comments

At a public hearing on October 26, 2020 the commission recommended that the council adopt the plan amendment.

Staff Recommendation

Staff recommends adoption of CPA #20-01.

Attachments

1. Town Council Resolution to adopt Comprehensive Plan Amendment #20-01
2. Planning Commission Resolution recommending and certifying CPA #20-01 to the Town Council, October 26, 2020
3. Map of CPA #20-01: Land Use Plan from the 2030 Comprehensive Plan showing plan amendment
4. Town Council Resolution 20-G-45, adopted September 22, 2020 (initiation of the plan amendment)
5. Fairfax County Public Schools Memorandum from Pranita Ranbhise of the Office of Facilities Planning Services, September 29, 2020

Staff

Dana E. Heiberg

Dana E. Heiberg, Senior Planner

Elizabeth M. Gilleran

Elizabeth M. Gilleran, AICP
Director of Community Development

TOWN OF HERNDON, VIRGINIA

TOWN COUNCIL

RESOLUTION

NOVEMBER 17, 2020

Resolution –Adopting Comprehensive Plan Amendment CPA #20-01 to change the land use designation for 315 Elden Street to Adaptive Area - Residential.

WHEREAS, On September 22, 2020 the Town Council initiated consideration of a comprehensive plan amendment for 315 Elden Street, also known as the Residence Inn property located at the southwest quadrant of Elden Street and Herndon Parkway and just north of Grove Street, for consideration as a possible amendment to the Herndon 2030 Comprehensive Plan as adopted August 12, 2008 and as amended through February 26, 2019; and

WHEREAS, On September 22, 2020, the Town Council approved Resolution 20-G-45 to formally authorize consideration of the plan amendment and refer the amendment to the Planning Commission for study and recommendation; and

WHEREAS, The Planning Commission held a public hearing on October 26, 2020 with due notice as required under Section 15.2-2225 of the Code of Virginia; and

WHEREAS, The Planning Commission recommended and certified CPA #20-01 on October 26, 2020 by a resolution approved after public hearing.

NOW THEREFORE, BE IT RESOLVED by the Town Council of the Town of Herndon, Virginia that Comprehensive Plan Amendment CPA #20-01 is adopted as an amendment to the Herndon 2030 Comprehensive Plan as adopted August 12, 2008 and as amended through February 26, 2019; the land use designation and associated policy for the property at 315 Elden Street, Herndon, Virginia, Fairfax County Tax Map Reference 0171-02-0007, is therefore changed from Business Corridor to Adaptive Area-Residential on the Chapter III 2030 Land Use Plan map.

TOWN OF HERNDON, VIRGINIA

PLANNING COMMISSION

RESOLUTION

OCTOBER 26, 2020

Resolution – Recommending and certifying a copy of Comprehensive Plan Amendment CPA #20-01, 315 Elden Street, to the Town Council.

WHEREAS, On September 22, 2020 the Town Council initiated consideration of a comprehensive plan amendment for 315 Elden Street, also known as the Residence Inn property located at the southwest quadrant of Elden Street and Herndon Parkway and just north of Grove Street, for consideration as a possible amendment to the Herndon 2030 Comprehensive Plan as adopted August 12, 2008 and as amended through February 26, 2019; and

WHEREAS, On September 22, 2020, the Town Council approved Resolution 20-G-45 to formally authorize consideration of the plan amendment and refer the amendment to the Planning Commission for study and recommendation; and

WHEREAS, The Planning Commission held a public hearing on October 26, 2020 with due notice as required under Section 15.2-2225 of the Code of Virginia.

NOW THEREFORE, BE IT RESOLVED by the Planning Commission of the Town of Herndon, Virginia that:

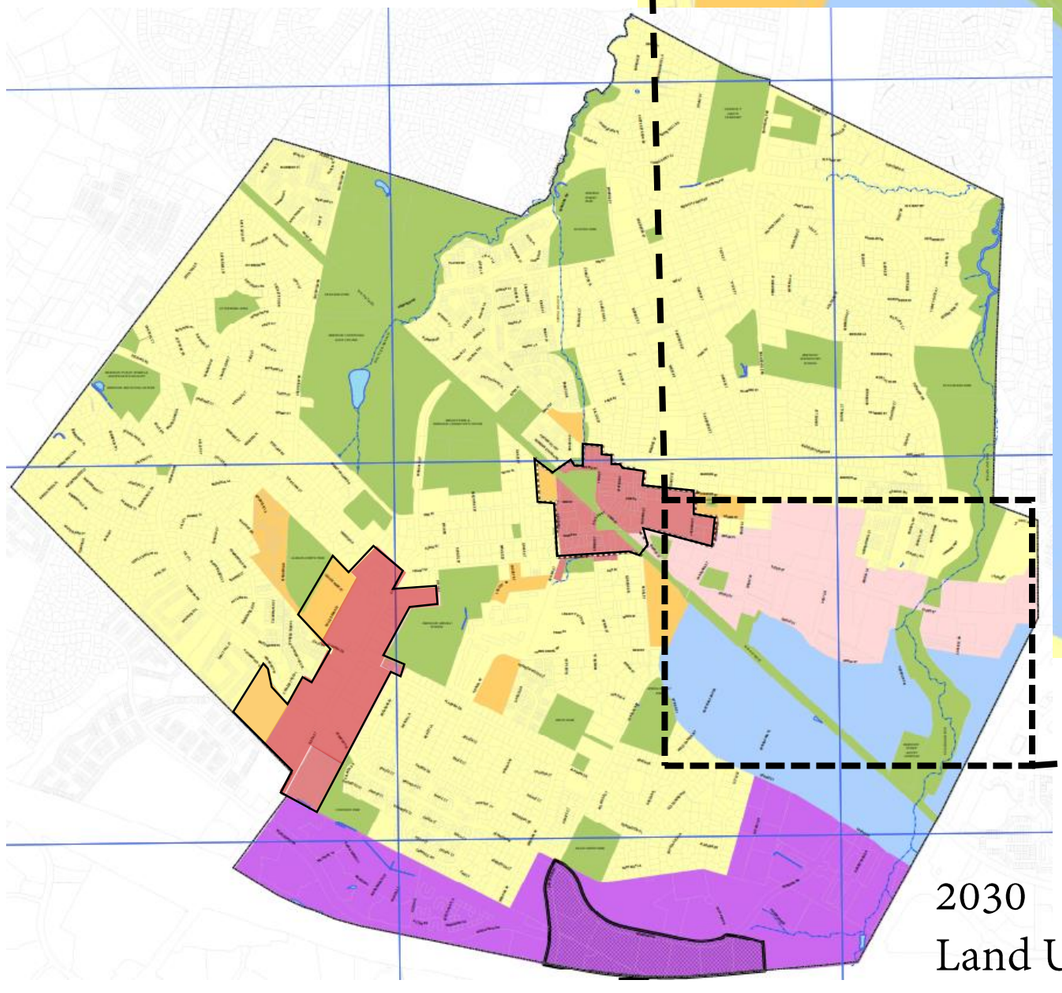
1. The Planning Commission recommends Comprehensive Plan Amendment CPA #20-01 for adoption by the Town Council as an amendment to the Herndon 2030 Comprehensive Plan as adopted August 12, 2008 and as amended through February 26, 2019; and

2. The Planning Commission certifies a copy of the amendment to the Town Council as shown on the attached Herndon 2030 Comprehensive Plan, Chapter III 2030 Land Use Plan, with change to property at 315 Elden Street from Business Corridor to Adaptive Area-Residential.

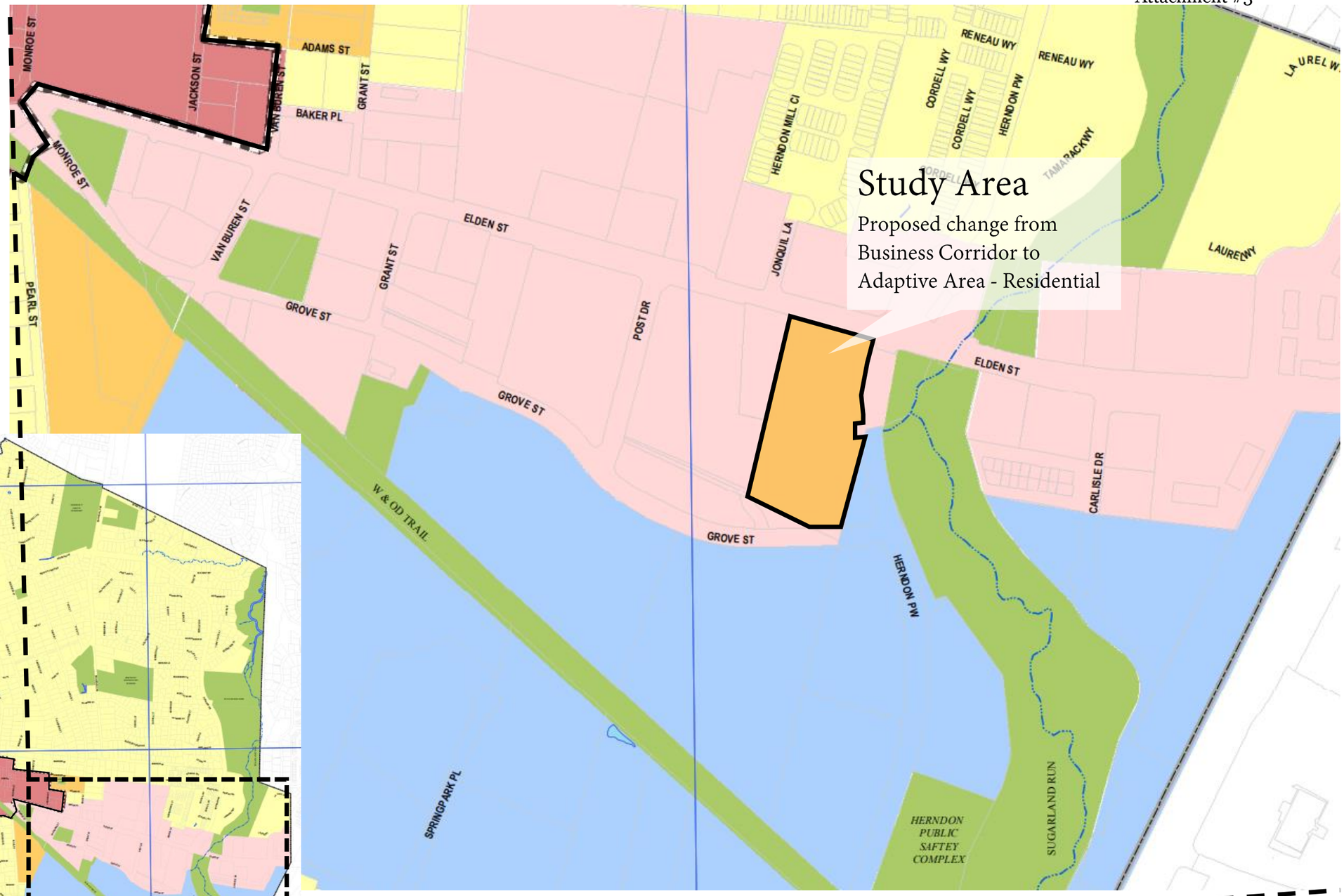
Attachment #3

Legend

- Community Facilities
- Neighborhood Conservation
- Adaptive Area
- Adaptive Area - Residential
- Business Corridor
- Office Park & Flex Space
- Regional Corridor Mixed Use
- Master Planned Areas



2030
Land Use Plan



CPA#20-01

LAND USE MAP AMENDMENT

North

TOWN OF Herndon

TOWN OF HERNDON, VIRGINIA

RESOLUTION

SEPTEMBER 22, 2020

Resolution- to initiate consideration of an amendment to the Town of Herndon 2030 Comprehensive Plan adopted August 12, 2008, as amended through February 26, 2019, to change the land use plan map for the Residence Inn property at 315 Elden Street (Tax Parcel 0171-02-0007, approximately 6.48 acres) from Business Corridor to Adaptive Area-Residential.

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Herndon, Virginia, hereby:

1. Initiates consideration of this comprehensive plan amendment in accord with Article XV, Section 78-150.2 of the Town of Herndon Zoning Ordinance.

2. Requests the review of the Planning Commission and refers the proposed amendment to the Planning Commission for recommendation in accord with Code of Virginia § 15.2-2229. Amendments.

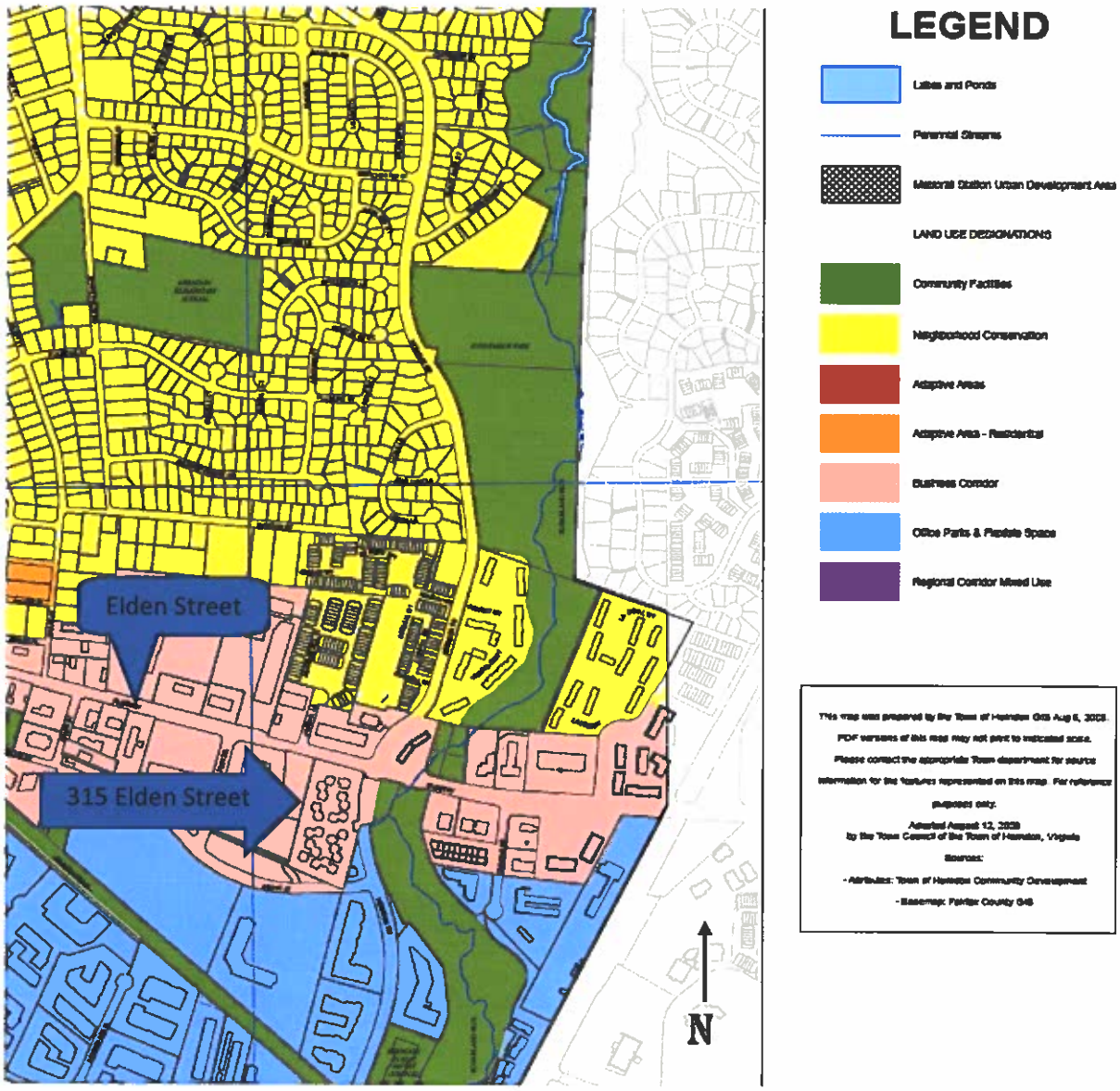
3. Finds that public necessity, convenience, general welfare, or good zoning practice requires the Town Council's consideration of this proposed measure.

This is certified to be a true and accurate copy of Resolution 20-G-45 adopted at a legally convened meeting of the Town Council of the Town of Herndon on September 22, 2020.

Margie C. Tacci, Deputy Town Clerk

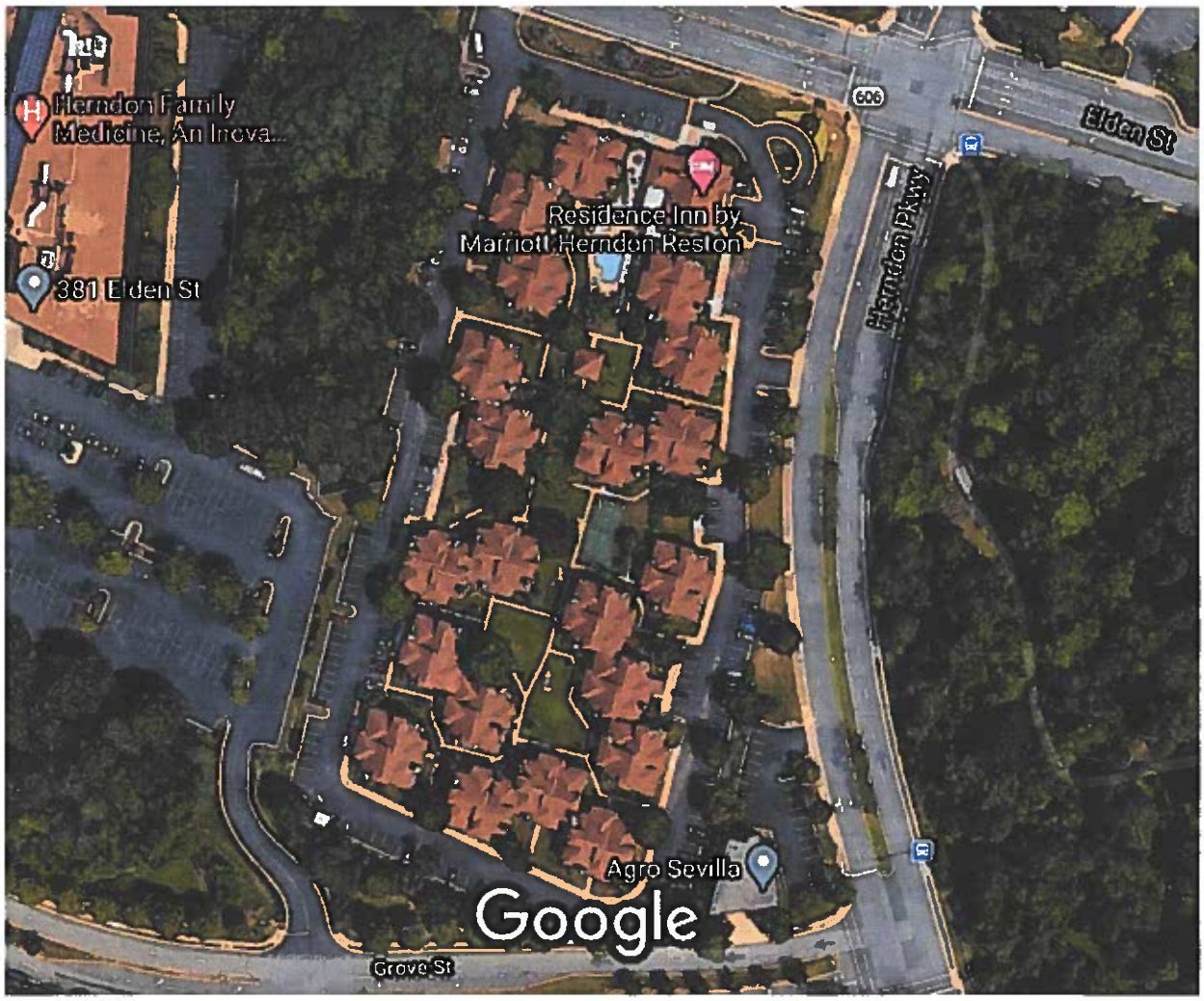
TOWN OF HERNDON, VIRGINIA 1879

Attached for reference from the 2030 Land Use Plan map, as part of the Town of Herndon 2030 Comprehensive Plan adopted August 12, 2008 and as amended through February 26, 2019, are maps showing the subject property and an aerial view of the property.



From the 2030 Land Use Plan map, part of the Town of Herndon 2030 Comprehensive Plan adopted August 12, 2008 and as amended through February 26, 2019.

Aerial view of Residence Inn property at 315 Elden Street:



Fairfax County PUBLIC SCHOOLS
ENGAGE • INSPIRE • THRIVE

Department of Facilities and Transportation Services
Office of Facilities Planning Services
8115 Gatehouse Road, Suite 3400
Falls Church, Virginia 22042-1203

September 29, 2020

TO: Dana Heiberg, Senior Planner
Town of Herndon Department of Community Development

FROM: Pranita Ranbhise, Planner
Office of Facilities Planning Services

SUBJECT: Comprehensive Plan Amendment for 20-01, 315 Elden Street

ACREAGE: 6.48

TAX MAP: 17-1 ((02)) 007

PROPOSAL:
The parcel is currently developed with 168 hotel units. The application proposes to amend the Town of Herndon 2030 Comprehensive Plan by changing the 2030 Land Use Plan map for the Residence Inn property at 315 Elden Street, Herndon, Virginia from Business Corridor to Adaptive Area-Residential, a category which supports redevelopment and residential land use including multi-family. The existing density is 25.9 units per acre and the proposed amendment is the same or similar, based on adaptive reuse of the existing buildings. The application proposes 168 low-rise multi-family housing units.

ANALYSIS:
The schools serving this area are Herndon High School (HS), Herndon Middle School (MS), and Herndon Elementary School (ES). The following projections were published earlier this year by Fairfax County Public Schools (FCPS) and do not reflect the increase in the number of students resulting from the proposed rezoning.

School	Capacity SY 2019-20 / SY 2024-25	Membership (9/30/19)	Program Capacity Utilization SY 2019-20	Projected Membership SY 2024-25	Capacity Utilization SY 2024-25
Herndon HS	2,146 / *2,500*	2,346	**109%**	2,585	***103%***
Herndon MS	1,169	1,131	97%	1,086	93%
Herndon ES	984	836	85%	795	81%

Source: FCPS, *FY 2021-25 Capital Improvement Program*, January 2020.
Note: Numbers in italics are future design capacity and projected capacity utilization percentages after a renovation or capacity enhancement.

The school capacity table shows a snapshot in time (as of January 2020) for student membership and school capacity balances. The five-year student membership projections and individual school capacity evaluations are updated annually by FCPS. Recommended boundary adjustment options, program changes, and potential school expansions and new schools are included in the CIP for future consideration based on the most recent five-year projections and SY 2019-20 capacity evaluations. Any options chosen for potential implementation will be discussed and decided through a transparent process that engages the community, in accordance with School Board Policy and Regulations. This includes adjustments needed for Advanced Academic Program centers at existing facilities and newly identified locations for such programs. At this time, Herndon HS is considered to have a moderate capacity deficit, Herndon MS is approaching a capacity deficit, and Herndon ES is considered to have sufficient capacity for current programs and future growth. If by-right development occurs under the existing zoning and assuming no change to programs and boundaries, Herndon HS would have a slight capacity deficit, Herndon MS would be considered to have sufficient capacity for current programs and future growth, and Herndon ES would be considered to have a capacity surplus by SY 2024-25. Beyond the five-year projection horizon, membership projections are not available. The impact of a plan amendment may occur

beyond the five-year projection horizon and conditions of a school and/or school boundaries may change by the time the residential density proposed by this plan amendment is realized.

Impact
Based on the number of housing units proposed in this application, the table shows the number of potential students by school level, calculated by using the current countywide student yield ratio. The adopted comprehensive plan does not include any residential development, and has a potential yield of zero students.

Proposed Comprehensive Plan Amendment: 168 low-rise multi-family housing units

School Level	Proposed Number of Housing Units	Potential Student Yield
High	168	16
Middle	168	8
Elementary	168	32
Total Student Count		**56**

Source: FCPS, *2015 Countywide Student Yield Ratios,* November 2016.

SUMMARY:
The high school is considered to have a moderate capacity deficit, the middle school is approaching a capacity deficit, and the elementary school is considered to have sufficient capacity for current programs and future growth. For projected membership, assuming no change to programs and boundaries, the high school would have a slight capacity deficit, the middle school would be considered to have sufficient capacity for current programs and future growth, and the elementary school would be considered to have a capacity surplus. With an application that changes the residential composition, such as that proposed in this plan amendment, the membership at these schools will necessarily increase, which may negatively impact the instructional program to the detriment of the students involved. Any future development application would need to be analyzed along with this plan amendment to determine the future impact to capacity.

Capital Improvement Program Potential Solutions
The Capital Improvement Program FY 2021-25 includes potential solutions to consider to alleviate current and projected school capacity deficits. For consideration purposes, as many options as possible have been identified for each school, in no significant order, and may be contingent on other potential solutions listed. Any options chosen for implementation will be discussed and decided through a transparent process with the appropriate stakeholders, in accordance with School Board Policies and Regulations.

Herndon HS: In construction and increase efficiency by reassigning instructional spaces within a school to accommodate increase in membership.

Herndon MS: Monitor student membership.

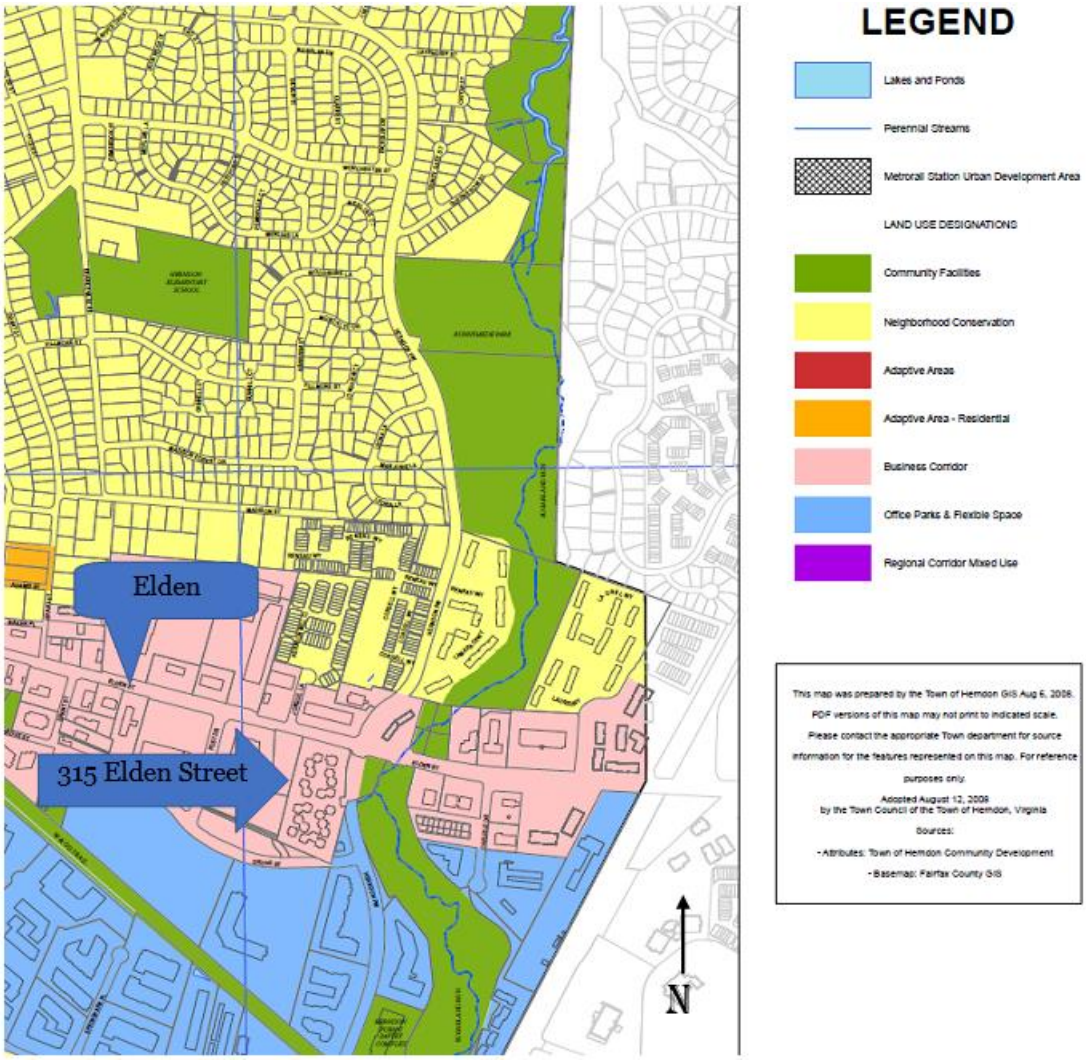
Herndon ES: Monitor student membership.

Based on the identified capacity need for current and projected programs and growth, the FY 2021-25 CIP anticipates the existing need for one new high school in this region to alleviate overcrowding. This is identified as a Future Western HS.

Attachment: Adopted 2030 Land Use Plan Map

cc: Ricardy Anderson, Chairman, School Board Member, Mason District
Elaine Tholen, School Board Member, Dranesville District
Jeffrey Platenberg, Assistant Superintendent, Facilities and Transportation Services
Jessica Gillis, Director, Office of Facilities Planning Services

Adopted 2030 Land Use Plan Map



STAFF REPORT

Town Council
Date: November 10, 2020

Title: Zoning Map Amendment - ZMA #19-02, Park Place

Staff Contact: Bryce A. Perry, Deputy Director of Community Development
bryce.perry@herndon-va.gov (703)787-7380

Elizabeth M. Gilleran, AICP, Director of Community Development
lisa.gilleran@herndon-va.gov (703) 787-7380

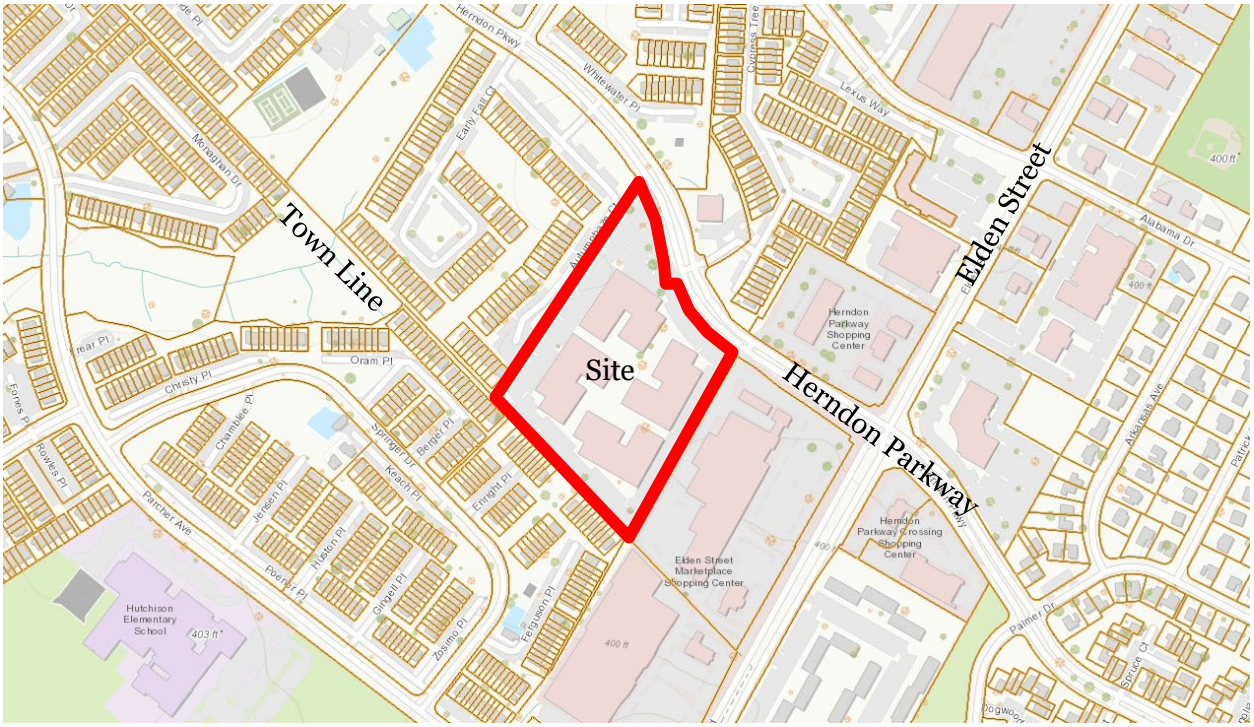
Summary Information

Applicant Request	An application to rezone the subject parcel from C-O, Commercial Office to PD-UR, Planned Development-Urban Residential to allow a mixed product residential development with modifications and proffers.
Address	1145 Herndon Parkway
Owner	FMI Herndon Corporate Center, LLC.
Developer	Stanley Martin Companies, LLC.
Agent	Brian Winterhalter, Cooley, LLP.
Existing Zoning	C-O, Commercial Office
Adjacent Zoning	PD-R, Planned Development-Residential (West) CS, Commercial Service (East) RM, Residential Multifamily (North) Fairfax County R-8 (South)
Land Use Designation	Adaptive Area Residential
Adjacent Land Use Designation	Neighborhood Conservation (West) Business Corridor (East) Neighborhood Conservation (North) Fairfax County (South)
Total Site Area	8.8 acres
Existing Use	Office Park (4 one-story building + surface parking)
Related Cases	CPA #18-01 (South Elden Area Plan)

Planning Commission Recommendation	Recommendation for approval in accordance with Resolution (Attachment #2)

Staff Recommendation	Recommendation for approval in accordance with Resolution (Attachment #1).

Location Map



Site Description

The existing site is approximately 8.8 acres and is improved with four one-story office buildings surrounded by surface parking lots, perimeter landscaping, and a lawned open space area between the buildings. The site was developed in 1986 and the four office buildings have a combined 128,998 Gross Floor Area (GFA). It is comprised of a single parcel with roughly 650 linear feet of frontage along Herndon Parkway and abuts the Town's boundary with unincorporated Fairfax County. It serves as a transition land use between the Elden Street Marketplace shopping center to the east and the Four Seasons town house neighborhood to the west. The property is relatively flat with an approximately 7' difference in grade elevation height east to west.

Background

The subject parcel is included within the South Elden Area Plan, which was adopted as CPA #18-01 by the Town Council on February 12, 2019 and incorporated into the 2030 Comprehensive Plan. This area plan is intended to allow more density and land use flexibility for the commercial and multi-family properties along and near Elden Street roughly between Sterling Road and the south town line, with principal goals of enhancing access and walkability, preserving and increasing housing options, retaining a sustainable non-residential tax base, and allowing mixed use redevelopment in certain areas to help achieve these goals. The area plan provided for 5 density tiers. The subject parcel is located in Tier 2, Transitional Urban Residential. The plan states that Tier 2:

…includes those parcels in the plan area that do not abut Elden Street and contain 7 or more acres. Existing uses include under-utilized office. Allowed future uses: Townhouses and 2 over 2s. Density: Future densities greater than current single-family attached zoning districts provide transition from existing and future Elden Street corridor development. Anticipated densities range from 18 to 20 units per acre for townhouse and 2 over 2 development. To be eligible for density in excess of the parcel's current zoning, redevelopment of the entire site is required to ensure cohesive form and adherence to Plan vision and goals. Design: Transitions to adjacent development and potential development, open space, streetscape and other Tier 2 design guidelines provide core guidance.

Following approval of the area plan, a zoning ordinance text amendment, ZOTA #19-01, was adopted by the Town Council on July 9, 2019. This ZOTA created a new zoning district, PD-UR, Planned Development-Urban Residential, that certain properties included within the South Elden Area Plan would be eligible to rezone to. This ZOTA became Section 78-51.1 of the zoning ordinance and provides for the permitted principal and accessory uses, dimensional standards, and site planning and building design standards.

The Zoning Map Amendment application underwent two submissions that were each reviewed by town staff. The case as proposed and submitted to the Planning Commission is the third submission of the application.

Review Process

Following staff review of this case, the Architectural Review Board (ARB) informally reviewed the building and landscape architecture at its work sessions on June 3, 2020 and October 7, 2020. The ARB chair provided a memo to the Planning Commission chair reporting on the outcome of that review, which was largely positive. The Planning Commission reviewed ZMA#19-02 at its October 5, 2020 work session and its October 26, 2020 public hearing. The Planning Commission recommended approval of the case in accordance with the resolution provided as Attachment #2. The Town Council now reviews the case and renders a final decision. Following approval the project would then require by-right site plan review for each phase of development, followed by ARB review and approval, and then lastly building permits before construction could commence.

Proposal

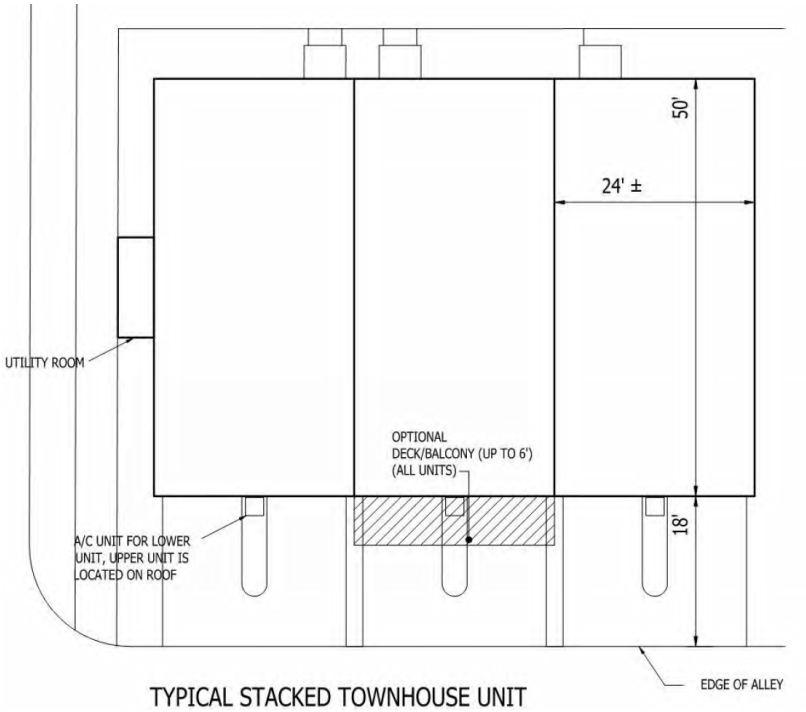
Program*

Proposed Density	16 Dwelling Units per Acre
Total Square Feet	115,220SF
Use Mix	85 Townhouses, 56 2-over-2 Condominiums
Open Space	118,915SF (31%)

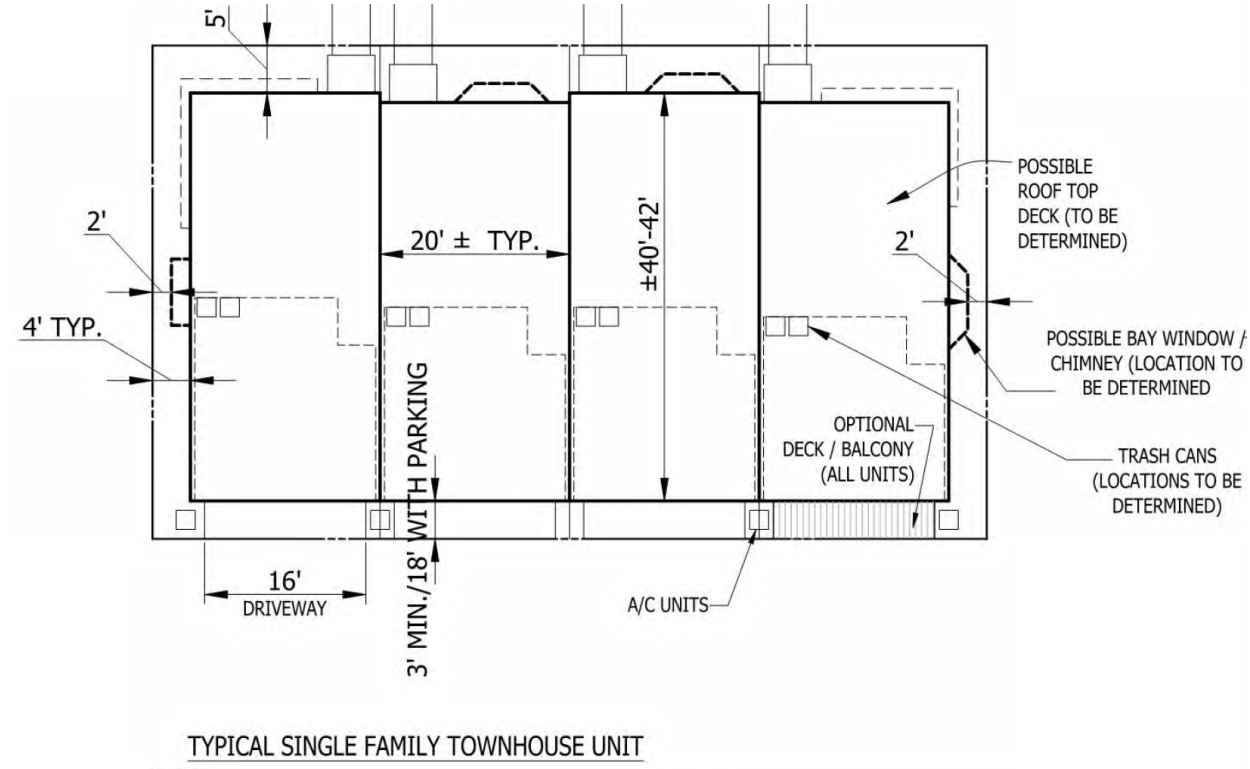
Building Heights	Townhouses- 40' (3 floors); 2-over-2 Condominiums- 50' (4 floors)
Parking	325 Required, 352 Provided

**The program as shown accounts for full build-out of the project. As proposed, the project would have two development phases which may be separated over a relatively long period of time. The first phase includes a retention of one of the office buildings which houses a tenant on a long-term lease. The second phase includes the redevelopment of that remaining office building. For more information refer to Sheets C-07, C-07A, C-07B of the GDP and Proffer #5.*

Typical Residential Units:



TYPICAL STACKED TOWNHOUSE UNIT



Architecture, Urban & Open Space Design

The building design of both housing types are contemporary in style though some more traditional forms such as gable roofs and traditional materials such as clay brick are employed. The 2-0ver-2 condominium buildings have partial flat roofs and partial sloped roofs masked by a flat parapet. Roof-top patios with penthouses are an option for purchasers of upper level 2-0ver-2 condominiums. The townhouses have low-pitch side gable roofs with some false flat parapet forms on the front facades. The primary cladding materials for both include brick veneer, fiber-cement lap siding, fiber-cement paneling, and asphalt roof shingles. It appears as though other siding materials may be used on the rear facades. The 2-over-2 condominiums feature recessed entries, bay windows, rear balconies, rear inset patios, and two one-car garages, one for each unit. The townhouses feature covered entries, bay windows, rear balconies, and a two-car garage. Both housing types have three different front façade designs, the order of which would vary across the development.

The site design is focused around five open space areas and then the connections between these areas. These areas include an outward-facing publicly accessible park along Herndon Parkway, two internal courtyard type parks, a publicly accessible linear recreational park along the western and southern boundaries, and a tot lot. These spaces provide mostly passive recreation opportunities. The open space is also defined by streetscapes containing sidewalks and street trees along each of the private roads fronting

the units and a larger streetscape along Herndon Parkway that also includes a two-way cycle track.

The applicant has offered provision of universal design considerations and green building practices in the proffer statement. Both of these design approaches and accommodations are specifically referenced in the zoning ordinance as necessary components of redevelopment within the proposed zoning district.

For more information, refer to Sheets A-01, A-02, L-01, L-02, L-03 of the GDP and Proffers #6, #9, #12, #17.

Transportation

The current development is accessible via two curb cuts off Herndon Parkway. The proposed redevelopment consolidates access to a singular egress/ingress location aligned with the Cypress Tree Place intersection. Full turning movements into and out of the site are proposed from this single curb cut. Traffic at this intersection would remain as controlled today. A traffic signal is not warranted based on the analysis completed by the applicant's traffic consultant and confirmed by the Town's consultant. Internal to the site, a grid of private streets will provide access to the front and rear of most units with garage access from the rear and parallel on-street parking along the fronts.

According the Traffic Impact Analysis the traffic generated by this development is less than the existing by-right development and that many of the surrounding intersections already operate at failing levels of service (LOS) including the intersection at Cypress Tree Place, where the existing development point of access will be located. The by-right development, while the industry standard for traffic impact analysis, is greater than traffic currently being generated by the existing development due to many of the tenant spaces being vacant. The proposed developed increases the trip counts from the existing conditions and therefore will worsen the LOS at nearby intersections, however mitigation is not being proposed given the modeling conclusion that the increase traffic is still below what the site is currently allowed to have by-right.

For more information on the modeled traffic, refer to the Traffic Impact Analysis (TIA) Executive Summary and Conclusions. (Attachment #5). The full TIA will be available at the Town Council work session and can be provided to Council upon request.

This development also provides dedicated bicycle and pedestrian network infrastructure, some of which would be accessible by the public via dedication or easements. Those improvements include a two-way cycle track and sidewalk within the Herndon Parkway Streetscape, a path within a linear park that runs along the western and southern boundaries of the project, and numerous internal sidewalk within the streetscapes, between buildings, and across and around open spaces throughout the development.

The application provides for inter-parcel access and connectivity through the site up the property lines that would allow future vehicle, pedestrian, and cycling connections to abutting properties.

Modifications
The applicant is requesting three zoning ordinance modifications as part of this case. These modifications would exempt the application from the specific zoning ordinance requirement specified in each modification. Refer to the modification requests within the Statement of Justification (Attachment #3) for specificity and suggested justifications regarding each of the three requests.

Proffers
A proffer statement with a number of provisions and commitments volunteered by the applicant to help offset the impacts of the development has been provided. See Attachment #4.

Staff Analysis

Zoning Ordinance Compliance
Apart from the three modifications requested, this application as proposed appears to comply with the applicable provisions and requirements of the Zoning Ordinance. This includes compliance with dimensional standards, principal and accessory land use allowances, open space provisions, site planning standards, and building design standards as specified in Section 78-51.1.

Modifications
The town zoning staff supports the three modifications (Attachment #3) as requested. They are limited in scope and do not run counter to the intent of the PD-UR zoning district. They allow reasonable deviations from the specific requirements and do not have any detrimental impact to the development, adjacent properties, the surrounding neighborhood, or the Town.

Comprehensive Plan Adherence
The application as proposed appears to adhere to the applicable principles, goals, and objectives outlined in the 2030 Comprehensive Plan and particularly the intent and goals incorporated as part of the South Elden Area Plan. The project offers a diversity of housing types and its design focuses on multi-modal transportation accessibility and connectivity and thoughtful open spaces. It also infuses the town with more residential units while replacing a dated low-vacancy office park which is isolated from other office environments in town.

Transportation

The proposed development will increase traffic along Herndon Parkway and nearby intersections compared to traffic levels seen today as generated from an underutilized office park, however that increase will not reduce service levels any more than the traffic allowed by the current by-right use would.

Also, it should be noted that the project originally included two entrances into the proposed development however staff did not support the second entrance because its location did not meet minimum distance standards from other entrances along Herndon Parkway and it presented an additional point of conflict between motorists, pedestrians, and cyclists. In addressing that comment, the applicant removed the second entrance.

Staff is supportive of the cyclist and pedestrian accommodations provided throughout the site and the multi-modal access provided across the site for future connectivity to adjacent properties. With this site's proximity to a Metrorail station, inter-parcel connectivity is important to ensure and improve access to mass transit.

Design

The ARB and ARB staff offered general support for the project architecture. The applicant made revisions to address comments provided at the first ARB review. The revised designs were presented at the second ARB review and are consistent with the design as included in the proposed GDP. The ARB had some specific input regarding the design that it encouraged the applicant to address when refining the design as part of the ARB's formal review after the rezoning case and site plan review is completed. Those comments are summarized as follows:

1. Only three elevation options are proposed for the town houses and 2-over-2 units. For the 2-over-2's which appear more as multi-family buildings, the limited number of elevation options seem more appropriate. For the townhouses however, only three façade designs to choose from seems limiting and, given the length of several townhouse sticks, could create an overly repetitive and simplified image for the neighborhood.

2. Façade articulation remains a concern. Breaking up wall planes with more-than-surface-level reveal depths and utilizing recessed and protruding forms in addition to utilizing various cladding materials with differing colors and textures are all important solutions for dealing with the shallowness and flatness that in sometime inherent with some contemporary architecture and buildings with simple building forms.

3. There is an awkward juxtaposition between with townhouse façade roofline and the actual roof form. The roof line is comprised of a broken flat parapet while the roofs are low-pitch side gables. Applying cosmetic contemporary details to a highly visible and more traditional building form seems to undermine the design intent and is

incompatible with the contemporary design of the development. Furthermore the use of a singular side gable roof across the townhouse sticks creates a building mass that is inconsistent with the scale of the development and is reminiscent of dated suburban colonial townhouse designs. To address these concerns, the roofs should be converted to flat forms or, as done with the 2-over-2s, the flat parapet forms should continue across the entire front facades as varying heights and wall planes and wrapped along the side elevations.

Fiscal Impact

This project would replace office uses with single family and multi-family residential uses and will thus have tax implications. The number of properties will grow exponentially with the new use that would be broken up into 141 separate taxable properties, however the town would lose the BPOL taxes inherent with commercial uses.

The project would build the Herndon Parkway streetscape and dedicate 10,072SF of land area for the right-of-way, as required. This however removes the financial burden from the town for those improvements in the future.

This project will have financial impacts to town and county service infrastructure and capacity. Public schools, public utilities, public community facilities, and public safety services are the major components of local governments that are directly impacted with new development. The applicant has proffered $1,800 per unit for recreation, which amounts to a total of $253,800. Also proffered are $5,665 per townhouse and $4,034 per condominium for capital improvements and capacity enhancements towards the FCPS Herndon pyramid schools. Lastly, the applicant has proffered a $17,500 contribution to be used to partially equip a Herndon Police Officer. Each of these contributions were generated by town-or county suggested formulas that quantify the financial burden of new developments on local services. Public utility impacts are largely offset by user tap fees. Also, the proffers state that the future property owners association would contract for private trash service.

Proffers

The proffer statement (Attachment #4) includes many of the typical proffers that the town has seen with other recent rezoning applications and also several more site-specific proffers for this development. The proffers will be attached to the ordinance approving this zoning map amendment and, if approved, will become part of the zoning regulating any future development of the site. To summarize, the proffer statement requires the development to remain in substantial conformance with the Generalized Development Plan, lays out the means for minor modifications, construction phases, sets the timing for and extent of easements and dedications, expresses the parameters and design principles for open spaces, provides specific provisions for universal design, green building practices, multi-modal connections, recreational amenities, and other development

components highlighted to provide assurances that the development will meet the intent of the PD-UR zoning district and all the other applicable zoning, planning, and design standards.

Town Council Alternatives

The Town Council has the following alternatives available for its decision on this case:

- Approval of ZMA#19-02 in accordance with the draft resolution provided (Attachment #1).
- Approval of ZMA#19-02 with revisions to the draft resolution provided (Attachment #1).
- Denial of ZMA#19-02.

The Town Council may also opt to continue the public hearing to a future Town Council meeting if the Council believes their review requires additional time.

Planning Commission Recommendation and Comments

The Planning Commission recommended approval of ZMA#19-02 in accordance with the resolution dated October 26, 2020 and provided as Attachment #2 to this report.

During its review, the Planning Commission discussed the following items and voiced some concerns that they hoped the applicant would resolve prior to final approval:

a. The intended market for the housing products proposed and how this housing fits within the existing housing in Herndon and the housing needs for Herndon. The applicant explained that residential products proposed would be for sale market-priced housing with varying typology to include approximately 1,500SF stacked units, approximately, 2,000SF townhouses, and approximately 2,200SF stacked units.

b. The disposition of the current office building under lease that would remain on-site as part of Phase 1 of development. The applicant clarified that the current tenants, Verizon and GSA, are currently under lease and at least one of the leases is five years with an option for another 5 years.

c. Whether the proffers included a sunset clause that required no further leases to be signed or extended beyond the 10 years of the existing lease terms and thus set a maximum time in which the construction of Phase 2 may begin. The applicants clarified that the proffers do not include a sunset clause prohibiting new or extended leases of the existing office tenants though did explain that Stanley Martin Companies is under contract to redevelop the entire site, including the Phase 2 area if and when the office leases end.

d. Public access through the site for pedestrians. It was requested to provide an east-west pedestrian connection through the middle of the site. It was also requested to construct a proposed future publically-accessible pedestrian connection at the southern edge of the property with the redevelopment to provide access right away to the Elden Street Marketplace shopping center property. The applicant amended the GDP and proffers to account for both of these requests.

e. How the traffic modeling was generated. The applicant clarified that the modeling assumed full capacity of the existing office and not actual traffic generation from the largely vacant property, as a matter of standard practice. The traffic analysis concluded that the traffic generated from the proposed project is less that what is currently allowed by-right and less than the traffic generated from background growth without the proposed development.

f. The use of vinyl siding. The project proposes to use vinyl siding on rear and some side elevations. Concern for the durability of vinyl was expressed. The applicant clarified that the use of vinyl siding is intended to keep project costs lower and that it is not intended for any building elevations that are outwardly or otherwise highly visible. Planning Commission members stressed that vinyl posed issues due to the tendency of people to grill on decks and the reflective heat of the microclimates within alleyways. Such issues were cited as a potential safety concern and added upkeep costs for future owners. The applicant has not responded to this concern.

Staff Recommendation

Staff is recommending approval of ZMA#19-02 in accordance with the draft resolution dated November 17, 2020 and provided as Attachment #1 to this report.

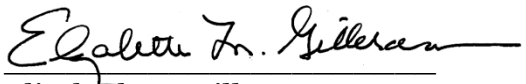
Attachments

1. Draft Ordinance
2. Planning Commission Resolution
3. Statement of Justification & Modifications
4. Proffer Statement
5. Traffic Impact Analysis Executive Summary & Conclusions
6. Generalized Development Plan

Staff Signatures



Bryce A. Perry
Deputy Director of Community Development



Elizabeth M. Gilleran, AICP
Director of Community Development

TOWN OF HERNDON, VIRGINIA

TOWN COUNCIL

ORDINANCE

NOVEMBER 17, 2020

Ordinance – to approve Zoning Map Amendment #19-02, to change the zoning classification of the property located at 1145 Herndon Parkway and identified as Fairfax County Tax Map Reference Number 0161-02-0015G, from CO (Commercial Office) to PD-UR (Planned Development – Urban Residential) with zoning modifications and development proffers. The property's land use designation in the Comprehensive Plan is Adaptive Area Residential.

In adopting this Ordinance, the Town Council has considered the factors set out in 15.2-2284, Code of Virginia (1950) as amended.

BE IT ORDAINED by the Town Council of the Town of Herndon, Virginia that:

A. The zoning of the property described below, lying in the Town of Herndon, Fairfax County, Virginia, is amended to allow residential development with zoning ordinance modifications as proposed in the Park Place Stanley Martin Companies LLC/FMI Herndon Corporate Center LLC./Cooley, LLP/ VIKA Virginia LLC Generalized Development Plan dated October 19, 2020, and the Proffer Statement dated October 29, 2020 of ZMA #19-02, , and in accordance with Sections 78-51.1 and 78-155.1 of the Town of Herndon Zoning Ordinance.

The Property is shown in the above referenced Generalized Development Plan and described in the land records of Fairfax County in Deed Book 15970 on page 2178. The total land area of the property is 8.817 acres.

B. This rezoning shall be governed by this ordinance, the Town of Herndon Zoning Ordinance, the above referenced Proffer Statement for ZMA #19-02, and the above referenced Generalized Development Plan for ZMA #19-02. The Proffer Statement is included as an attachment to this ordinance. This Zoning Map Amendment is consistent with the adopted 2030 Comprehensive Plan of the Town of Herndon.

C. The Town Council approves the following modifications to the zoning regulations, as allowed under Section 78-50.2(d):

- A modification to Section 78-51.1(g)(1) to allow ground-mounted mechanical equipment.
- A modification to Section 78-51.1(e) to allow the distance between building and public right-of-way to exceed the maximum distance.
- A modification to Section 78-51.1(e) to allow the distance between buildings and a side property line to be less than the required minimum distance.

D. As to the modifications set out in item C. above, The Town Council finds that such modifications will afford equal or greater assurance of meeting the goals of the zoning ordinance, Town of Herndon, Virginia, as set out in the preamble of that ordinance.

E. This ordinance shall be effective on and after its adoption.

[ATTACH PROFFERS]

TOWN OF HERNDON, VIRGINIA

PLANNING COMMISSION

RESOLUTION

October 26, 2020

Resolution – Recommending approval of Zoning Map Amendment #19-02, 1145 Herndon Parkway, Park Place residential development, to the Town Council

WHEREAS, Cooley, LLP, the applicant, has submitted a zoning map amendment, ZMA #19-02, requesting redevelop of a parcel of land, identified as Fairfax County Tax Map Reference Number 0161-02-0015G and containing four office buildings, with a mixed single family and multi-family residential development containing 141 dwelling units; and

WHEREAS, The request includes a proffer statement dated August 25, 2020 and amended through October 19, 2020, and a generalized development plan dated October 2, 2019 and amended through October 19, 2020; and

WHEREAS, The request adheres to the South Elden Area Plan as integrated and adopted into the Town of Herndon 2030 Comprehensive Plan and complies with the Tier 2 land use provisions included within the South Elden Area Plan; and

WHEREAS, The applicant is requesting modifications to the following sections of the zoning ordinance: Section 78-51.1(g)(1) regarding the location of mechanical equipment, Section 78-51.1(e) regarding the maximum distance from a public right-of-way, and Section 78-51.1(e) regarding the minimum distance between buildings and development boundaries; and

WHEREAS, On October 26, 2020, the Planning Commission held a public hearing to consider ZMA #19-02; and

WHEREAS, The Planning Commission has determined that the applicant has demonstrated that the above referenced Proffer Statement and generalized development plan adheres to applicable sections of the Town of Herndon Zoning Ordinance, dependent upon a modification of aforementioned sections; and

WHEREAS, The Planning Commission has determined that the applicant has demonstrated that the requested modifications afford equal or greater assurances of meeting the applicable goals of the zoning ordinance.

NOW THEREFORE, BE IT RESOLVED by the Planning Commission of the Town of Herndon, Virginia that the Commission recommends to the Town Council of the Town of Herndon, Virginia approval of ZMA #19-02.

[insert proffers]

This is certified to be a true and accurate copy of the above ordinance, with proffers for ZMA#19-02 adopted at a legally convened meeting of the Planning Commission of the Town of Herndon on October 26, 2020.



Erika Orellana, Clerk of the Boards & Commissions

Park Place
ZMA #19-02
Statement of Justification
October 3, 2019
Revised March 30, 2020
Revised August 25, 2020

Introduction

Stanley Martin Companies, LLC ("Stanley Martin") is an innovative home builder with more than 60 years of experience building high-quality homes throughout the greater Washington, DC area. One of the 50 largest homebuilders in the Country, Stanley Martin remains committed to Northern Virginia and the Town of Herndon specifically, having developed Darlington Oaks along the W&OD Trail and, most recently, Metro Square, a short walk to the future Herndon Metro Station.

Building upon those successful infill projects in Herndon, both of which are sold out, Stanley Martin closely followed the Town's discussions about the South Elden Street Corridor Plan (the "Elden Street Plan") and Council's desire to reinvigorate that area of town with the addition of residential units. Per the Elden Street Plan vision, the desired new residents will walk to the existing shops along an improved streetscape, which will include enhanced bike and pedestrian connections, as well as micro-parks, all designed to create an invigorated sense of place in that part of Town. Stanley Martin desires to be part of developing that vision and has entered into a purchase agreement to convert an aging, underutilized office complex into the desired residential community.

The property is located just west of the Herndon Parkway/Elden Street intersection, at 1145 Herndon Parkway and is further identified as Fairfax County Tax Map 0161 02 0015G (the "Property"). It is approximately 8.8 acres. Stanley Martin (the "Applicant") seeks a zoning map amendment to change the existing zoning from the Commercial Office ("CO") district to the Planned Development Urban Residential ("PD-UR"), to permit the construction of an unified residential project, consistent with the Elden Street Plan.

Description of the Site

The Property, commonly referred to as Herndon Corporate Center, was developed in 1986 with four office buildings that still exist today. More than 30 years old, the buildings are struggling to attract new tenants, partly due to their age, their location and the lack of proximate amenities that office workers demand today. Just 600 feet from Elden Street, the Property is oriented toward Herndon Parkway with two existing points of access to that street. Its southern border is the Town's boundary with Fairfax County. The Property is encompassed on three sides by townhouses; the fourth side is the retail center that fronts on Elden Street. Today, the environ that includes the Property is best-described as an auto-dependent suburban commercial corridor. Existing uses are strip retail centers, various classes of office, auto-oriented retail and restaurants and multifamily residential.

Comprehensive Plan Recommendations

Recognizing the potential the two Metro stations bring to Herndon, the Town Council embraced the Elden Street Plan as a way to revitalize the 76 acres in which the Property is located, all of which is within 1.25 miles of the Metro stations. The Elden Street Plan looks to institute a more urban landscape by encouraging the establishment of a vibrant, mixed-use community infused with a variety of housing types. The vision calls for a cohesive pedestrian and bicycle friendly streetscape that encourages current and future residents within the entire corridor to walk and bike to the Metro stations. On a more granular level, the Elden Street Plan establishes five subareas, or tiers, to guide specific development. The Property is designated as Tier 2 – Transitional Urban Residential, which calls for 18 to 20 townhouses and/or stacked townhouse units ("STUs") per acre. New development within the Tier 2 subarea are to provide transitions to adjacent projects, provide open space and enhance the streetscape. The Property is the only portion within the Elden Street Plan to be earmarked for purely residential development. The other four tiers call

for maintaining existing residential, adding stand-alone commercial or adding horizontally and vertically integrated mixed-use.

Proposed Rezoning

The Applicant seeks to rezone the Property from the CO district to the PD-UR district to achieve the desired vision of the Elden Street Plan. Taking advantage of the rectangular shape of the parcel, the Applicant is proposing a project designed around a rectilinear grid network of streets with central, easily accessible green space.

In total, the applicant is proposing 85 townhouses and 56 two-over-two units, for a total of 141 units. This results in 16 units per acre, which is in conformance with the PD-UR standards that allows up to 20 units per acre. The townhouses will be three story and are sited along the western boundary, adjacent to the existing Four Seasons townhouse community. The site builds in intensity as it moves west to east with two-over-two units proposed as a transition to the existing commercial that fronts Elden Street. This design technique achieves the Elden Street Plan guidance for effective transitions.

Heights at the Property will range from 40 to 50 feet depending on the location. Consistent with Table 78-51.1(e), units within 50 feet of the Four Seasons development will be no greater than 40 feet in height; the rest of the development can reach heights of 50 feet. As such, the townhouses will be a maximum height of 40 feet; the stacked townhouses, each which will contain two residential units, can be up to 50 feet tall.

Of the 8.8 acre site, more than two and a half acres are open space, which exceeds the 20 percent minimum established in the PD-UR zoning standards by 10 percent. Of the open space, 10 percent of it is set aside for recreational uses; the PD-UR district calls for 8 percent of a site to be for recreation.

The Applicant is meeting the Ordinance requirements for landscape buffers, providing in excess of the required 10 feet on the east, south and west sides and at least 28 feet adjacent to Herndon Parkway. Canopy trees every 35 feet will be planted along Herndon Parkway. The required type A-10 buffer can be accommodated on the three sides of the Property that are not adjacent to right of way and the Applicant looks to preserve much of the existing perimeter buffer.

The existing development has two access points to Herndon Parkway. The proposal will close one of those, creating the single point of access aligned with Cypress Terrace Place across Herndon Parkway.

Proffered Plan

The Applicant proffers to the layout, unit count and site details reflected on the plan set, including the open spaces and amenities. Elevations are also provided and represent the quality and character of the proposed units; we remain committed to working with the ARB on finalizing the architecture.

Modifications

At this time, there are three anticipated modifications, each detailed and justified below.

1. **Section 78-51.1(g)(1) Utilities. All mechanical equipment shall be located on the roof or incorporated into the façade of each unit.**

   Proposed Modification. Allow the mechanical equipment associated with the lower two-over-two units to be placed on the ground and not incorporated into the façade or be placed on the roof.

   Justification. The two-over-two units are designed to appear as four-level townhouses, yet one family will own and occupy the lower two levels and another family will own and occupy the upper two levels. Therefore, the owner of the lower unit will not have access to the roof, were the mechanical equipment located there and needed to be serviced or replaced. Rather than

create potential conflict (i.e. if the lower unit malfunctions and impacts the upper unit) or require the need for the property owners to coordinate access, the Applicant requests the ability to locate the mechanical equipment associated with the lower-level units on the ground, as is permitted in the Town's other zoning districts. This modification only applies to the 56 stacked units, so this request is to allow 28 units to be placed on the ground. None of the equipment would be visible from Herndon Parkway. Whatever visual impact may be created by this request, the residents who are most impacted would prefer the visual impact than the negative consequences of needing to maintain and/or replace a rooftop unit some 50 feet in the air. We seek this relief per Section 78-50.2(d) of the Town's Zoning Ordinance, which allows the Town Council to modify any planned development district standard.

2. **Section 78-51.1(e) Maximum Distance from Public Right of Way: 15'; may be increased to 40' to accommodate a landscaped park for no more than 30% of the linear frontage.**

   Proposed Modification. Allow a building setback of up to 93 feet for units along Herndon Parkway in the central stick of units, recognizing that the curvature of that road precludes a standard setback.

   Justification. The project has been designed to create a strong street edge along Herndon Parkway, with residential units aligning the street. For building diversity and articulation, the front of the units vary from one to the next, so the setbacks to Herndon Parkway are not consistent. Additionally, although many units are at or about 15 feet from the proposed right of way, the curvature of Herndon Parkway pushes some units farther back. To address those larger setbacks, the Applicant has added public park space in front of those units, including Units 27 through 34 and the stacked townhouse Units 106-111. Open Space 1 extends between the right of way and Units 27 through 34, with a smaller pocket park adjacent to Units 106-111, such that some of those units are 80+ feet from Herndon Parkway. This extended setback creates a nearly 10,000-square-foot pocket park that more than mitigates the enlarged setback area, as it encourages its own relationship with the street by inviting passersby into the project. Front stoops and paths more than mitigate the increased setback, as they enhance the interaction between the buildings and the street that the smaller setback looks to create. We seek this setback relief per Section 78-50.2(d) of the Town's Zoning Ordinance, which allows the Town Council to modify any planned development district standard.

3. **Section 78.51.1(e) Minimum distance between buildings and the boundaries of the development: 18 feet.**

   Proposed Modification. Allow six of the two-over-two units to be located 15 feet from the eastern boundary, rather than 18 feet from that property line.

   Justification. The Applicant has established a rectilinear project with consistent street edges and building alignments throughout the 8-acre site. There are six rows of two-over-two units that will load off the easternmost north-south drive aisle. Those rows are uniformly sited to ensure a consistent pedestrian experience with a sidewalk and street plantings. As such, the three rows of units to the north are all at least 18 feet from the property line, as required. However, the property jogs as it moves from north to south, so the three southern rows of units (six units) are closer to the Property line, such that three of the stacked units are 15 feet away. To maintain the consistent pedestrian experience along the internal travelway and provide an adequate setback and turning movement for vehicles along the southern property line, we seek a minor modification to allow three of the STUs to be within 15 feet of the side property line.

Summary

The proposed infill project is consistent with the objectives of both the Elden Street Plan and the PD-UR zoning district as it provides additional housing diversity within a convenient and safe distance from existing shopping, dining, and employment opportunities. The rezoning converts underutilized CO land

and allows it to be developed in a complementary manner to the existing residential uses in this part of Herndon. Furthermore, it achieves the Town's goal of providing additional residential units proximate to the future Metro stations and existing commercial centers, in a setting with enhanced streetscape improvements that encourages pedestrian movement.

PARK PLACE
PROFFER STATEMENT
ZMA #19-02

August 25, 2020
October 29, 2020

Stanley Martin Companies, LLC ("Stanley Martin") is the contract purchaser of certain property described as Fairfax County Tax Map 161-02-0015G (the "Property"), that is located in the Town of Herndon (the "Town") and consists of approximately 8.81 acres. Stanley Martin, along with the Property's owner, FMI Herndon Corporate Center LLC (the "Owner") (collectively, the "Applicant") hereby voluntarily proffer, pursuant to Section 15.2-2303 of the Code of Virginia (1950), as amended, and Section 78-51.1 of the Zoning Ordinance of the Town of Herndon (the "Zoning Ordinance"), that in the event the Property is rezoned by the Herndon Town Council to the Planned Development –Urban Residential ("PD-UR") zoning district pursuant to zoning map amendment application ZMA #19-02 (the "Application"), the development of the Property will be in substantial conformance with the following proffered terms and conditions (the "Proffers"). Said proffered terms and conditions supersede any prior proffers that have been offered for any portion of the Property. Stanley Martin and the Owner, for themselves, their successors and assigns, agree that these proffers will be binding on the future development of the Property unless modified, waived, or rescinded in the future by the Herndon Town Council in accordance with applicable Town and State statutory procedures. In the event that the application is denied, these proffers will be immediately null and void and of no further force and effect.

1. Generalized Development Plan. Development of the Property will be in substantial conformance with the Generalized Development Plan dated October 2, 2019, and revised through October 19, 2020, prepared by VIKA Virginia LLC, and consisting of 40 sheets (the "GDP"). The GDP will control the use, layout, and configuration of the Property with reasonable allowances to be made for engineering and design alterations to meet applicable regulations and policies governing land development within the Town, unless modified by the language of this approval. Should there be any inconsistencies between the GDP and these Proffers, the Proffers shall govern.

2. Minor Modifications. Minor modifications to the GDP may be permitted without the need for an amendment to this Application when necessitated by sound engineering or final site design or engineering provided that the development is in substantial conformance with the GDP, and as approved by the Town of Herndon Architectural Review Board ("ARB"). Substantial conformity will be determined by the Zoning Administrator as provided in the Zoning Ordinance.

3. Future Applications. Any portion of the Property may be the subject of a Proffered Condition Amendment ("PCA"), Zoning Map Amendment ("ZMA"), Special Exception ("SE"), Master Sign Plan ("MSP"), Variance or other zoning action without the joinder and/or consent of the owners of the other land areas, provided that such application complies with Section 15.2-2302 of the Code of Virginia, as applicable. Previously approved proffered conditions or development conditions applicable to a particular portion of the Property that are not the subject of such an application will remain in full force and effect.

4. Proposed Development. The Property will be developed in accordance with the PD-UR standards, unless modified pursuant to this Application, to permit up to 85 single family townhouse units (the "Townhouses") and up to 56 stacked townhouse units (the "Stacked Townhouses"), for a total of 141 residential units (collectively, the "Proposed Development").

5. Phasing of Development. The Property may be developed in phases such that the existing office building in the southwest corner of the Property identified as 1165 Herndon Parkway (the "Existing Building") may remain as an interim condition as described herein and shown on the GDP, as follows:

A. Existing Building. The Existing Building, surface parking areas, driveways, sidewalks/trails, landscaping, and stormwater management facilities existing within the Property as of the date of the approval of this Application will collectively be referred to herein as the "Existing Development." The Existing Development is shown on Sheet C-03 of the GDP and may remain in operation in its existing condition. The Applicant may make minor modifications to the Existing Development in accordance with Article XV of the Zoning Ordinance without the need for a PCA or ZMA. Any modifications or improvements to the Existing Development, including but not limited to interior and exterior improvements, the securing of site plan approvals, the issuance of building permits, the issuance of occupancy permits, or any other land development approvals or permits will not trigger any monetary contributions, on-site improvements, or off-site improvements identified in these Proffers and will not require any physical changes to the Existing Development. Any exterior modifications to the Existing Development may be subject to the approval of the ARB, unless determined otherwise by the Zoning Administrator.

B. Phase 1. The development proposed with Phase 1 under this Application consists of 55 Townhouses, identified as Units 1 – 55, and 56 Stacked Townhouses, identified as Units 56 – 111, as shown on Sheet C-07 of the GDP. The Existing Building and associated portions of the Existing Development shown on Sheets C-03 and C-07 of the GDP may remain in operation in their existing condition during Phase 1 in accordance with Proffer 5.A above, provided, however, that during Phase 1 the Applicant also will have the right to make modifications to the Existing Development within the Phase 2 area of the Property identified as "Interim Improvements in Phase 2 to be provided in Phase 1" as shown on Sheet C-07 of the GDP. The Applicant may develop any portion of Phase 1 at any time, provided, however, that prior to the development of Phase 2 the Applicant will provide the site improvements associated with the Existing Building, including access, parking, and landscaping, as shown on Sheet C-07 of the GDP and further described in the Proffers.

C. Phase 2. The development proposed with Phase 2 under this Application consists of 30 Townhouses, identified as Units 112 – 141, as shown on Sheet C-07A of the GDP. The Applicant may develop any portion of Phase 2 at any time.

6. Building Design. The Proposed Development will be developed in substantial conformance with the architectural design shown on Sheets A-01 and A-02 of the GDP (the "Conceptual Elevations"). The Conceptual Elevations are conceptual and may be modified by the Applicant as part of final architectural engineering and building design, provided such modifications are in substantial conformance with the GDP and these Proffers as determined by the Zoning Administrator. Notwithstanding anything to the contrary contained in this Proffer 6, the Applicant will be permitted to develop the Proposed Development in conformance with any review and approval as may be required by the ARB without the need to secure a PCA or ZMA.

7. Right of Way Dedication Along Herndon Parkway. The Applicant will dedicate right-of-way along the Property's frontage, at no public cost, as depicted on Sheet C-03B of the GDP and labeled "R.O.W. Dedication (9,639 S.F.)." The Applicant also will grant any related easements, at no public cost, outside of such dedicated right-of-way necessary to accommodate the construction of the public road (such as slope maintenance, storm drainage, temporary construction, and utility relocation easements), provided the Applicant will have no obligation to grant any such easements that are reasonably expected to have a material adverse impact on the development or ongoing operation of the Proposed Development. The Applicant will dedicate the right-of-way and grant any required easements to the Town prior to or concurrent with the approval of the first record plat or site plan for the Proposed Development, whichever occurs first. The Applicant may reserve intensity/density credits as may be permitted by the provisions or regulations of the Zoning Ordinance for any eligible dedication as may be required by the Town, the Virginia Department of Transportation or any other public entity.

8. Herndon Parkway Streetscape and Cycle Track. Prior to the issuance of: (i) the first occupancy permit for Lots 1-8, Lots 27-34, or Stacked Townhouses 106-111, or (ii) the 30th occupancy permit for the Proposed Development, whichever occurs first, the Applicant will construct streetscape improvements along Herndon Parkway, consisting of a minimum 6-foot wide street tree zone with street trees, a 9-inch concrete band, an 8-foot wide asphalt cycle track, a 9-inch concrete band, and a minimum 6-foot wide concrete sidewalk (the "Streetscape"), as shown on Sheets C-03B, C-06 and L-02 of the GDP. Notwithstanding the foregoing, the Applicant will have the right, subject to site plan approval, to provide an interim construction access to the Property from Herndon Parkway through the Streetscape area during Phase 1 to facilitate the Applicant's construction of the Proposed Development.

9. Open Space and Recreational Amenities. The Applicant will provide a minimum of five open space areas with recreational features/amenities as shown on Sheets C-06, C-06A, C-06B, C-06C and L-03 of the GDP as follows:

A. Open Space 1. The Applicant will install an approximately 9,000-square-foot park and open space area proximate to Herndon Parkway to serve as an entry feature and gathering area for the Property generally as depicted on Sheets C-06 and C-06A of the GDP ("Open Space 1"). Open Space 1 will include features for passive recreation including, but not limited to, lawn areas, hardscape, landscape areas, benches/seating areas, a bicycle amenity/repair station, and similar amenities as conceptually shown on Sheet C-06A of the GDP. The Applicant may adjust the type and location of vegetation, the design of the open space, and the features/amenities comprising Open Space 1, provided the character and quality of

Open Space 1 is consistent with Sheet C-06A of the GDP. The Applicant also may adjust the extent of Open Space 1, provided such open space is in substantial conformance with the Sheet C-06A of the GDP as determined by the Zoning Administrator. The Applicant will install Open Space 1 prior to the issuance of the first occupancy permit for Lots 27-34.

B. Open Space 2. The Applicant will install an approximately 22,000-square-foot linear park and open space area along the western boundary of the Property generally as depicted on Sheets C-06 and C-06C of the GDP ("Open Space 2"). Open Space 2 will include features for active recreation including, but not limited to, a five-foot (5') wide trail, a minimum of six (6) exercise stations, lawn areas, landscape areas, and similar amenities as conceptually shown on Sheet C-06 of the GDP. The Applicant may adjust the type and location of vegetation, the design of the open space, and the features/amenities comprising Open Space 2, provided the character and quality of Open Space 2 is consistent with Sheet C-06 of the GDP. The Applicant also may adjust the extent of Open Space 2, provided such open space is in substantial conformance with the Sheets C-06 and C-06C of the GDP as determined by the Zoning Administrator. The Applicant will install Open Space 2 in phases, installing the portion within Phase 1 prior to the issuance of the eleventh (11th) occupancy permit for Lots 1 and 9-18, and install the portion within Phase 2 prior to the issuance of the eleventh (11th) occupancy permit for Lots 129-141.

C. Open Space 3. The Applicant will install an approximately 2,600-square-foot park and open space area along the southern boundary of the Property generally as depicted on Sheets C-06 and C-06C of the GDP ("Open Space 3"). Open Space 3 will include features for passive and active recreation including, but not limited to, lawn areas, landscape areas, a children's play area (tot lot), and similar amenities as conceptually shown on Sheet C-06 of the GDP. The Applicant may adjust the type and location of vegetation, the design of the open space, and the features/amenities comprising Open Space 3, provided the character and quality of Open Space 3 is consistent with Sheet C-06 of the GDP. The Applicant also may adjust the extent of Open Space 3, provided such open space is in substantial conformance with the Sheets C-06 and C-06C of the GDP as determined by the Zoning Administrator. The Applicant will install Open Space 3 prior to the issuance of the first occupancy permit for Lots 56-71.

D. Open Space 4. The Applicant will install an approximately 17,000-square-foot park and open space area in the center of the Property generally as depicted on Sheets C-06 and C-06B of the GDP ("Open Space 4"). Open Space 4 will include features for passive and active recreation including, but not limited to, lawn areas, hardscape/stamped concrete, landscape areas, benches/seating areas, and similar amenities as conceptually shown on Sheets C-06 and C-06B of the GDP. The Applicant may adjust the type and location of vegetation, the design of the open space, and the features/amenities comprising Open Space 4, provided the character and quality of Open Space 4 is consistent with Sheet C-06B of the GDP. The Applicant also may adjust the extent of Open Space 4, provided such open space is in substantial conformance with the Sheets C-06 and C-06B of the GDP as

determined by the Zoning Administrator. The Applicant will install Open Space 4 in phases, installing the portion within Phase 1 and the interim portion of Open Space 4 within the Phase 2 area identified as "Interim improvements in Phase 2 to be provided in Phase 1" as shown on Sheet C-07 of the GDP prior to the issuance of the first occupancy permit for Lots 43-46, and the ultimate portion of Open Space 4 within Phase 2 as shown on Sheet C-07A of the GDP prior to the issuance of the first occupancy permit for Lots 112-114.

E. Open Space 5. The Applicant will install an approximately 5,000-square-foot open space area along the eastern boundary of the Property generally as depicted on Sheets C-06 and C-06C of the GDP ("Open Space 5"). Open Space 5 will include landscaping and hardscaping to invite residents outside, as conceptually shown on Sheets C-06 and C-06C of the GDP. The Applicant may adjust the type and location of vegetation, the design of the open space, and the features/amenities comprising Open Space 5, provided the character and quality of Open Space 5 is consistent with Sheets C-06 and C-06B of the GDP. The Applicant also may adjust the extent of Open Space 5, provided such open space is in substantial conformance with Sheet C-06 of the GDP as determined by the Zoning Administrator. The Applicant will install Open Space 5 prior to the issuance of the seventh occupancy permit for Lots 94-105.

F. Remaining Open Space Areas. The Applicant will install the remainder of the open space areas and landscaping not designated as Open Spaces 1 – 5 above concurrently with the development of the Townhouses and/or Stacked Townhouses adjacent to or in the vicinity of such open space areas on a phased basis with the occupancy of each grouping of Townhouses or Stacked Townhouses as shown on Sheet L-03A of the GDP.

G. Public Access. As part of site plan approval for the Proposed Development, the Applicant will grant a public access easement for Open Space 1 to the Town of Herndon as shown on Sheet C-03A of the GDP. The public access easement will provide that Open Space 1 will, at a minimum, be open to the general public from dawn to dusk, provided that the Applicant reserves the right to: (i) establish reasonable rules and regulations governing the use of Open Space 1, (ii) temporarily limit access to Open Space 1 for reasonable periods of time for purposes of construction and/or maintenance, and (iii) temporarily limit access to Open Space 1 as may be necessary to host programmed events for residents of the Proposed Development and/or the local community. Within ninety (90) days of a request by the Town of Herndon, the Applicant also will grant a public access easement for pedestrian and vehicular ingress and egress through the Property in the locations shown on Sheet C-03A of the GDP, provided that the Applicant reserves the right to: (i) establish reasonable rules and regulations governing the pedestrian and vehicular connections, (ii) temporarily limit access to the pedestrian and vehicular connections for reasonable periods of time for purposes of construction and/or maintenance, and (iii) include a condition in the easement that the right of access by the public will not commence until the establishment of the first pedestrian or vehicular connection identified as "Future Pedestrian Connection" and "Future

Road Connection" as shown on Sheet C-06 of the GDP in accordance with Proffer 13 below.

10. Monetary Recreational Contribution. Due to the increase in demand that the Townhouses and Stacked Townhouses will place of the Town of Herndon's recreational facilities and services, the Applicant will contribute $1,800 per residential unit to the Town of Herndon prior to the issuance of the occupancy permit for each such residential unit. The Applicant also will provide recreational facilities within the Property with a minimum expenditure of $1,800 per residential unit for such on-site recreational facilities.

11. Landscape Plan. Landscaping and tree preservation will be provided on the Property as shown on Sheets L-02 and L-04 of the GDP. The Applicant may modify the landscaping design during site plan review to allow for final engineering and design considerations, provided that such modifications are in substantial conformance with the quality and quantity of plantings and materials as shown on the GDP. With the exception of open lawn areas consisting of turf, the Applicant will use principally native species, to be determined by the Applicant in consultation with the Town, for landscaping in Open Space 1, Open Space 2, Open Space 3, Open Space 4, and Open Space 5.

12. Green Building Certification. To promote energy conservation and green building techniques, all new dwelling units on the Property will be constructed to achieve the following program or an alternative third-party certification as approved by the Town's Department of Community Development. Selection of one of the following certification methods, or an alternative, will be within the Applicant's sole discretion at time of site plan submission:

A. Earth Craft. Certification in accordance with the Earth Craft House Program as demonstrated through documentation provided to the Town prior to the issuance of the residential occupancy permit for each dwelling unit; or

B. National Green Building Standard. Certification in accordance with the National Green Building Standard (NGBS) using the ENERGY STAR® Qualified Homes path for energy performance, as demonstrated through documentation submitted to the Town from a home energy rater certified through Home Innovation Research Labs that demonstrates that the dwelling unit has attained the certification prior to the issuance of the occupancy permit for each dwelling; or

C. Alternative Program. Where the Applicant has provided evidence sufficient for the Town to find that an alternative green building program that is administered by an independent third party or a proprietary homebuilders certification program or set of building standards (including, but not limited to, the Stanley Martin Homes Green Living Program) has demonstrated equivalence to Earth Craft, NGBS, or another independent third party rating system and will ensure that equivalent environmental and energy efficiency will be achieved in the project, the Zoning Administrator may approve the use of such alternative program, subject to such conditions as may be reasonably necessary to ensure that the alternative program will achieve the goals of this proffer prior to the issuance of the first building permit.

13. Future Pedestrian and Vehicular Connections.

A. Eastern Boundary. The Applicant will grant interparcel access easements and temporary construction and grading easements to the owner(s) of the property identified on the Fairfax County Tax Map as 16-1 ((2)) 15D and 15E (collectively, the "Shopping Center Property") in the general locations identified as "Future Pedestrian Connection" and "Future Road Connection" as shown on Sheet C-06 of the GDP within ninety (90) days of a request by the Town of Herndon, provided that such easements may include a condition that the owner(s) of the Shopping Center Property will not be permitted to install physical improvements to effectuate any pedestrian and/or vehicular connection(s) utilizing such temporary construction and grading easements or interparcel access easements prior to the owner(s) of the Shopping Center Property having obtained approval of a Zoning Map Amendment by the Town of Herndon that requires such interparcel access connection(s). Notwithstanding the general location of the interparcel access easements and temporary construction and grading easements identified on Sheet C-06 of the GDP, the final location of such easements may be adjusted as mutually agreed upon by the Applicant, the Town of Herndon, and the owner(s) of the Shopping Center Property. Notwithstanding the foregoing, the Applicant will construct the southernmost eastern pedestrian connection to the eastern boundary line of the Property and grant an interparcel access easement to the owner(s) of the Shopping Center Property prior to the issuance of the first occupancy permit for Lots 72 – 77, provided that the owner(s) of the Shopping Center Property concurrently grant an interparcel access easement for the benefit of the Property to access the Shopping Center Property.

B. Western Boundary. The Applicant will grant an interparcel access easement and temporary construction and grading easement to the owner of the property identified on the Fairfax County Tax Map as 16-1 ((15)) C (the "Four Seasons Property") in the general location identified as "Future Pedestrian Connection" along the western boundary of the Property, as shown on Sheet C-06 of the GDP within ninety (90) days of a request by the Town of Herndon, provided that the granting of such easements will be subject to the approval of the owner of the Four Seasons Property. Notwithstanding the general location of the interparcel access easement and temporary construction and grading easement identified on Sheet C-06 of the GDP, the final location of such easements may be adjusted as mutually agreed upon by the Applicant, the Town of Herndon, and the owner of the Four Seasons Property.

C. Southern Boundary. The Applicant will grant an interparcel access easement to the owner of the property identified on the Fairfax County Tax Map as 16-1 ((08)) B (the "Reflection Lake Townhouse Property") in the general location identified as "Future Pedestrian Connection" along the southern boundary of the Property, as shown on Sheet C-06 of the GDP and install a gate to allow access through the existing fence within ninety (90) days of a request by the Town of Herndon, provided that the granting of such easement and installation of the gate will be subject to the approval of the owner of the Reflection Lake Townhouse Property.

Notwithstanding the general location of the interparcel access easement and identified on Sheet C-06 of the GDP, the final location of such easement may be adjusted as mutually agreed upon by the Applicant, the Town of Herndon, and the owner of the Reflection Lake Townhouse Property.

14. Bicycle Racks. The Applicant will provide at least two bicycle racks to accommodate a minimum of eight total bicycles within the Property generally as shown on Sheet C-06A of the GDP. The Applicant will determine the final locations of the bicycle racks in consultation with Town of Herndon prior to site plan approval for the Proposed Development. The bicycle racks will be designated on the site plan and installed prior to the issuance of the first occupancy permit for the Proposed Development.

15. Property Owners Association.

A. Purpose. All property owners at the Property will be a member of a Property Owners Association ("POA") established to provide standards for the construction, landscaping, and use of privately-owned land and structures within the Property. The Applicant intends to establish an overall, umbrella POA at the Property (referred to herein as the "POA").

B. Responsibilities. The POA will provide landscaping and lawn maintenance for all common areas and snow removal on all private streets, and will contract for trash removal services. The POA will be responsible for the maintenance of all common recreational facilities and buildings, all stormwater management facilities, all private streets, and all sidewalks and trails, not otherwise maintained by the Town or VDOT.

C. Establishment. Prior to the approval of the first site plan for the Proposed Development, the Applicant will submit draft documents for the establishment of the POA to the Town for review and approval. The POA will be established prior to recordation of the first record plat for the Proposed Development.

16. Public Schools Contribution. Per the Residential Development Criteria Implementation Motion adopted by the Fairfax County Board of Supervisors on January 7, 2003, prior to the issuance of a building permit for each residential unit, the Applicant will contribute $5,665 per Townhouse unit and $4,034 per Stacked Townhouse unit (based on an assumed rate of 0.462 students per Townhouse unit and 0.329 students per Stacked Townhouse unit included in such building permit application multiplied by $12,262.00 per new student generated) to the Town of Herndon for transfer to the Fairfax County School Board to be utilized for capital improvements and capacity enhancements to schools in the Herndon School Pyramid that serve the Property. The Applicant will provide documentation of the payment of such contributions to the Town of Herndon Zoning Administrator. The contributions will be based on the actual number of units constructed, so the total amount may vary. Following approval of this Application and prior to the first site plan approval for the Proposed Development, if Fairfax County should modify the ratio of students per Townhouse unit or Stacked Townhouse unit or the amount of contribution per student on a Countywide basis, the Applicant will pay the modified contribution amount to reflect the then-current ratio and/or contribution. Prior to the commencement of construction for the

Proposed Development, the Applicant will notify the Fairfax County Public Schools of the intended construction and anticipated completion date for the Townhouses and Stacked Townhouse on the Property.

17. Universal Design. The Applicant will offer the following Universal Design Options in all residential units on the Property:

A. At the time of initial purchase, for units that have not yet been constructed, each purchaser will be offered the following Universal Design Options in all residential units on the Property at no additional cost to the purchaser:

1. Blocking for reinforcement of fall grab bars;

2. Front entrance doors that are a minimum of 36 inches wide;

3. Electrical outlets that are a minimum of 18 inches high on the wall;

4. Light switches and thermostats that are located a maximum of 48 inches high on the wall. Thermostats will be relocated to a maximum of 48 inches high on the wall at the request of the original home purchaser at the time of sale;

5. Clear knee space under the kitchen sink; and

6. Lever door handles instead of door knobs.

B. In addition to the Universal Design Options offered pursuant to Proffer 17.A above, at the time of initial purchase, and prior to construction, each purchaser will be offered the following additional Universal Design options at the purchaser's sole cost, which will include, but not necessarily be limited to:

1. A curb-less shower or a shower with a maximum two inch high curb;

2. Step-less entry for ground floor residential units from the garage to the house, to the extent permitted by the then current edition of the Virginia Statewide Building Code;

3. A turning radius of five feet near the first floor bathroom commode;

4. ADA-compliant grab bars in the bathrooms; and

5. A first floor bathroom console sink in lieu of a cabinet-style vanity.

18. Garage Use Restrictions. Any conversion or use of garages that precludes the parking of vehicles and the storage of trash and recycling containers within such garages is prohibited. Owners of the Townhouses and Stacked Townhouses will be required to store trash and recycling containers inside their garages, except on collection days. A covenant setting forth these restrictions will be recorded among the land records of Fairfax County in a form approved by the

Town Attorney, which may be part of any recorded HOA/COA declaration, prior to the sale of any Townhouses or Stacked Townhouses and will run to the benefit of the HOA/COA and the Town of Herndon. These restrictions will be included in the marketing materials for the initial sales of the units and disclosed in the HOA/COA documents. Prospective purchasers will be advised of these restrictions, in writing, prior to entering into a contract of sale for any unit.

19. Recreational Vehicle Restrictions. A covenant prohibiting the parking of recreational vehicles within the Property will be recorded among the land records of Fairfax County in a form approved by the Town Attorney, which may be part of any recorded HOA/COA declaration, prior to the sale of any Townhouse or Stacked Townhouse and will run to the benefit of the HOA/COA and the Town of Herndon. This restriction will be included in the marketing materials for the initial sales of the units and disclosed in the HOA/COA documents. Prospective purchasers will be advised of this restriction, in writing, prior to entering into a contract of sale for any unit.

20. Public Safety Contribution. Prior to the issuance of the 30th occupancy permit for the Proposed Development, the Applicant will contribute $17,500 to the Town of Herndon toward the cost of the Town equipping a uniformed police officer.

21. Herndon Parkway Signage. Prior to the issuance of the 30th occupancy permit for the Proposed Development, the Applicant will install signage along Herndon Parkway, to be determined in consultation with the Town prior to site plan approval, to warn drivers on Herndon Parkway of turning vehicles exiting the Property.

22. Zoning Administrator Extensions. Notwithstanding the foregoing commitments in these Proffers, upon demonstration by the Applicant that, despite diligent efforts by the Applicant or due to factors beyond the Applicant's control, any improvements and/or contributions required under these Proffers have been delayed or will be delayed beyond the time frames specified for the completion of such improvements and/or contributions, the Zoning Administrator may extend the timeframes for completion to a later date as determined by the Zoning Administrator.

23. Successors and Assigns. These Proffers will bind and inure to the benefit of the Applicant and its successors and assigns. Each reference to "Applicant" in this proffer statement will include within its meaning and will be binding upon Applicant's successor(s) in interest and/or developer(s) of the Property or any portion of the Property.

24. Counterparts. These proffers may be executed in one or more counterparts, each of which when so executed and delivered will be deemed an original, and all of which taken together will constitute but one and the same instrument.

25. Escalator. Unless otherwise specified in these Proffers, all cash contributions enumerated in these Proffers will be subject to an annual adjustment based on the Consumer Price Index for all urban consumers (CPI-U), 1982-1984=100 (not seasonally adjusted) as published by the Bureau of Labor Statistics, U.S. Department of Labor, Washington-DC-MD-VA-WV with a base year of 2020, in accordance with Section 15.2-2303.3 of the Code of Virginia. This adjustment will take effect on January 1, 2021, and will be applied effective each January 1 thereafter.

[SIGNATURE PAGES TO FOLLOW]

The undersigned hereby warrant that all owners with any legal interest in the Property have signed this Proffer Statement, that no signature from any additional party is necessary for these proffers to be binding and enforceable in accordance with their terms, that they, together with any others signing this document, have full authority to bind the Property to these conditions, and that the Proffers are entered into voluntarily.

OWNER:

FMI HERNDON CORPORATE CENTER LLC

BY: _____

NAME: _____

TITLE: _____

STATE OF _____)

) to-wit:

COUNTY/CITY OF _____)

The foregoing Proffer Statement was acknowledged before me this _____ day of _____, 2020, by

_____
Notary Public

My Commission Expires: _____

APPLICANT:

STANLEY MARTIN COMPANIES, LLC

BY: _____

NAME: _____

TITLE: _____

STATE OF _____)

) to-wit:

COUNTY/CITY OF _____)

The foregoing Proffer Statement was acknowledged before me this _____ day of _____, 2020, by

_____
Notary Public

My Commission Expires: _____

Traffic Impact Statement

Herndon Corporate Center

Town of Herndon, Virginia

October 3, 2019
Revised: September 17, 2020

Prepared For:
Stanley Martin Companies, LLC

GOROVE / SLADE
Transportation Planners and Engineers

EXECUTIVE SUMMARY

This report presents the findings of a traffic impact study conducted for the proposed redevelopment of the Herndon Corporate Center site in the Town of Herndon, Virginia. The study was developed in accordance with the Town of Herndon's Traffic Impact Study Guidelines.

Site Location and Study Area

The site is located in the Town of Herndon, Virginia on the south side of Herndon Parkway, between Wintergreen Lane and Elden Street. The vehicular study area includes six (6) intersections along Herndon Parkway.

Description of Proposed Development

The site is currently occupied by 128,998 SF of office that is to be removed in two phases:

- Phase 1: Remove 95,998 SF of office and add 111 residential units
- Phase 2: Remove remaining 33,000 SF of office and add 30 additional residential units (141 units total)

Total site buildout is planned for the year 2025.

Principal Findings and Conclusions

The analysis presented in this report supports the following major conclusions:

Existing (2018) Conditions:

- The following intersections currently operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements):
  - Intersection #3: Herndon Parkway and Cypress Tree Place/HCC Eastern Driveway
  - Intersection #5: Herndon Parkway and Giant Western Entrance/Northern Driveway
  - Intersection #6: Herndon Parkway and Elden Street

Future Conditions (2025) Without Development:

The 2025 Future without Development traffic volumes were developed by adding the existing traffic volumes plus a one (1) percent regional growth rate to the approved background development traffic forecasts. This scenario also includes the by-right condition where the existing 128,998 SF of office at Herndon Corporate Center is fully occupied.

- The following background developments were considered for the future without development conditions:
  - Elden Corner Center: 10,000 SF of retail
  - Arrowbrook Centre: 2,331,359 SF of mixed-use development consisting of 640,000 SF of office, 91,450 SF of retail, 1,084 residential units, and 150,000 SF of hotel
  - Woodland Park Waterview: 295 multifamily units, 56 two-over-two units, and 32 single family attached units
  - Junction Square: 22 townhouses and 4,000 SF of retail
  - 555 Herndon Parkway: 400 residential units, 430,000 SF of office, and 25,000 SF of retail

- The following intersections operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements). The intersections in **BOLD** also operate at unacceptable levels under existing conditions:
  - Intersection #1: Herndon Parkway and Summerfield Drive/Early Fall Court
  - **Intersection #3: Herndon Parkway and Cypress Tree Place/HCC Eastern Driveway**
  - **Intersection #5: Herndon Parkway and Giant Western Driveway/Northern Driveway**
  - **Intersection #6: Herndon Parkway and Elden Street**

Future Conditions (2025) With Development Phase 1:

- The proposed Phase 1 development plan includes 111 residential units (55 single family attached and 56 stacked two-over-two condos). 33,000 SF of existing office will remain.
- The following intersections operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements). The intersections in **BOLD** also operate at unacceptable levels in the Future without Development scenario:
  - **Intersection #1: Herndon Parkway and Summerfield Drive/Early Fall Court**
  - **Intersection #3: Herndon Parkway and Cypress Tree Place/Site Entrance**
  - **Intersection #5: Herndon Parkway and Giant Western Driveway/Northern Driveway**
  - **Intersection #6: Herndon Parkway and Elden Street**
- The traffic generated by the proposed development is less than the by-right condition.

Future Conditions (2025) With Development Phase 2:

- The proposed Phase 2 development plan includes 141 residential units (85 single family attached and 56 stacked two-over-two condos).
- The following intersections operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements). The intersections in **BOLD** also operate at unacceptable levels in the Future without Development scenario:
  - **Intersection #1: Herndon Parkway and Summerfield Drive/Early Fall Court**
  - **Intersection #3: Herndon Parkway and Cypress Tree Place/Site Entrance**
  - **Intersection #5: Herndon Parkway and Giant Western Driveway/Northern Driveway**
  - **Intersection #6: Herndon Parkway and Elden Street**
- The traffic generated by the proposed development is less than the by-right condition.

CONCLUSIONS

This report presents the findings of a traffic impact study for the proposed redevelopment of the Herndon Corporate Center site located in Town of Herndon, Virginia.

Existing (2018) Conditions:

- The following intersections currently operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements):
  - Intersection #3: Herndon Parkway and Cypress Tree Place/HCC Eastern Driveway
  - Intersection #5: Herndon Parkway and Giant Western Entrance/Northern Driveway
  - Intersection #6: Herndon Parkway and Elden Street

Future Conditions (2025) Without Development:

The 2025 Future without Development traffic volumes were developed by adding the existing traffic volumes plus a one (1) percent regional growth rate to the approved background development traffic forecasts. This scenario also includes the by-right condition where the existing 128,998 SF of office at Herndon Corporate Center is fully occupied.

- The following background developments were considered for the future without development conditions:
  - Elden Corner Center: 10,000 SF of retail
  - Arrowbrook Centre: 2,331,359 SF of mixed-use development consisting of 640,000 SF of office, 91,450 SF of retail, 1,084 residential units, and 150,000 SF of hotel
  - Woodland Park Waterview: 295 multifamily units, 56 two-over-two units, and 32 single family attached units
  - Junction Square: 22 townhouses and 4,000 SF of retail
  - 555 Herndon Parkway: 400 residential units, 430,000 SF of office, and 25,000 SF of retail
- The following intersections operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements). The intersections in **BOLD** also operate at unacceptable levels under existing conditions:
  - Intersection #1: Herndon Parkway and Summerfield Drive/Early Fall Court
  - **Intersection #3: Herndon Parkway and Cypress Tree Place/HCC Eastern Driveway**
  - **Intersection #5: Herndon Parkway and Giant Western Driveway/Northern Driveway**
  - **Intersection #6: Herndon Parkway and Elden Street**

Future Conditions (2025) With Development Phase 1:

- The proposed Phase 1 development plan includes 111 residential units (55 single family attached and 56 stacked two-over-two condos). 33,000 SF of existing office will remain.
- The following intersections operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements). The intersections in **BOLD** also operate at unacceptable levels in the Future without Development scenario:

- **Intersection #1: Herndon Parkway and Summerfield Drive/Early Fall Court**
- **Intersection #3: Herndon Parkway and Cypress Tree Place/Site Entrance**
- **Intersection #5: Herndon Parkway and Giant Western Driveway/Northern Driveway**
- **Intersection #6: Herndon Parkway and Elden Street**

- The traffic generated by the proposed development is less than the by-right condition.

Future Conditions (2025) With Development Phase 2:

- The proposed Phase 2 development plan includes 141 residential units (85 single family attached and 56 stacked two-over-two condos).
- The following intersections operate below the Town of Herndon's acceptable level of service (LOS D for overall intersections or LOS E for individual movements). The intersections in **BOLD** also operate at unacceptable levels in the Future without Development scenario:
  - **Intersection #1: Herndon Parkway and Summerfield Drive/Early Fall Court**
  - **Intersection #3: Herndon Parkway and Cypress Tree Place/Site Entrance**
  - **Intersection #5: Herndon Parkway and Giant Western Driveway/Northern Driveway**
  - **Intersection #6: Herndon Parkway and Elden Street**
- The traffic generated by the proposed development is less than the by-right condition.

Attachment #6

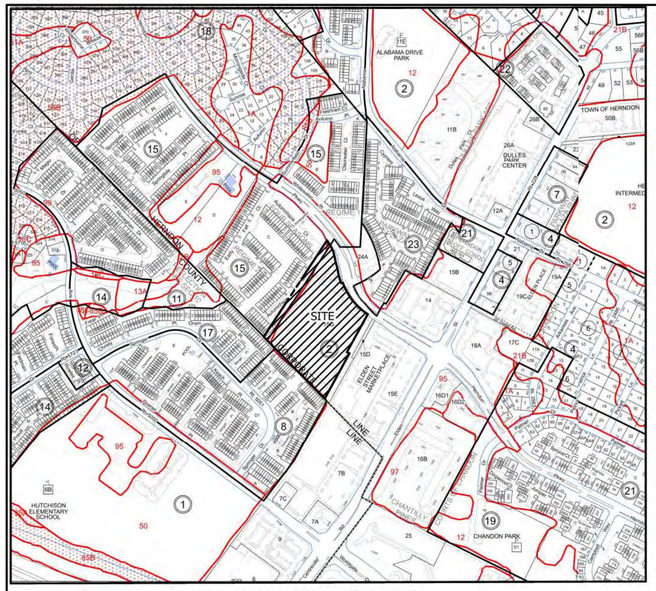
PARK PLACE

ZONING MAP AMENDMENT

ZMA-19-02

TOWN OF HERNDON,
VIRGINIA

OCTOBER 2, 2019
MARCH 27, 2020
AUGUST 25, 2020
SEPTEMBER 18, 2020
OCTOBER 19, 2020



SOIL TYPE CLASSIFICATION
95 - URBAN LAND

SITE SOILS MAP
1"=500'



VICINITY MAP 1" = 2000'

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TAX MAP NO.
161-02-0015G

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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT B. COCHRAN
Lic. No. 2012
LAND SURVEYOR

VIKA NUMBER VV8011D
SHEET C-01

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D COVER SHEET.dwg USER: rinek DATE: October 19, 2020 TIME: 4:39:09 PM

NOTES

1. THE PROPERTY THAT IS THE SUBJECT OF THIS ZONING MAP AMENDMENT CONSISTS OF THE PARCELS IDENTIFIED ON THE FAIRFAX COUNTY TAX ASSESSMENT MAP AS 0161 ((2)) PARCEL 15G. THE PROPERTY IS CURRENTLY ZONED CO. THE PURPOSE OF THIS APPLICATION IS TO REZONE THE PROPERTY TO PD-UR AND DEVELOP THE PARCELS WITH SINGLE FAMILY TOWNHOUSE UNITS (SFTHU) AND STACKED TOWNHOUSE UNITS (STU).
2. THE HORIZONTAL DATUM IS VIRGINIA STATE GRID NORTH VCS83.
3. THE TOPOGRAPHY SHOWN HEREON WAS FROM AN AERIAL SURVEY WITH LIMITED FIELD VERIFICATION BY VIKA VIRGINIA, LLC. AND THE CONTOUR INTERVAL IS TWO (2) FEET. NGVD 1929
4. THE BOUNDARY INFORMATION WAS PREPARED BY FIRST ORDER, LLC AND CHECKED BY VIKA VIRGINIA, LLC FROM RECORD INFORMATION.
5. PUBLIC WATER AND SANITARY SEWER ARE AVAILABLE TO SERVE THE DEVELOPMENT.
6. STORM WATER MANAGEMENT AND BMP FACILITIES FOR THE PROPOSED DEVELOPMENT WILL BE PROVIDED ON SITE AND AN ADEQUATE STORM DRAINAGE SYSTEM WILL BE PROVIDED IN ACCORDANCE WITH THE APPLICABLE ORDINANCES AND PRACTICES OF THE TOWN OF HERNDON STANDARDS AS WELL AS VIRGINIA DEQ STANDARDS AS SHOWN ON THE SWM SHEETS.
7. TO THE BEST OF OUR KNOWLEDGE, NO GRAVE SITES OR STRUCTURES MARKING A BURIAL SITE ARE PRESENT ON THE SUBJECT PROPERTY.
8. TO THE BEST OF OUR KNOWLEDGE, NO HAZARDOUS OR TOXIC SUBSTANCES ARE KNOWN TO EXIST ON THE SUBJECT PROPERTY.
9. THERE ARE EXISTING OFFICE STRUCTURES ON THE SUBJECT PROPERTY.
10. THERE IS NO R.P.A. ON THE SUBJECT PROPERTY. THERE NO MAJOR AND NO MINOR FLOODPLAIN AND NO ENVIRONMENTAL QUALITY CORRIDORS ON THE SUBJECT PROPERTY.
11. LIMITS OF CLEARING AND GRADING SHOWN ARE PRELIMINARY AND ARE SUBJECT TO MODIFICATION WITH FINAL ENGINEERING, PARTICULARLY IN THE AREA OF PUBLIC RIGHTS OF WAY, UTILITY RELOCATIONS AND INSTALLATIONS, TRAILS, AND EASEMENT AREAS. THE DEVELOPMENT OF THE SITE WILL BE IN GENERAL CONFORMANCE WITH THESE LIMITS. FINAL LIMITS OF CLEARING AND GRADING WILL TAKE INTO CONSIDERATION FINAL SITE ENGINEERING AND SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE TOWN'S ARBORIST AT THE TIME OF SITE PLAN REVIEW.
12. DEVELOPMENT WILL COMMENCE UPON COMPLETION OF ALL REQUIRED TOWN OF HERNDON PROCESSING AND APPROVALS. PHASING WILL PROCEED BASED ON MARKET CONDITIONS AND AS DETERMINED BY THE APPLICANT.
13. OPEN SPACE AREAS SHOWN HEREON ARE CONCEPTUAL AND MAY BE MODIFIED AT THE TIME OF SITE PLAN IN ACCORDANCE WITH THE ZONING ORDINANCE.
14. THE BUILDING FOOTPRINTS, GARAGES, RETAINING WALLS, PLAZAS, PARKS AND ROADS REPRESENTED HEREON ARE APPROXIMATE AND ARE SUBJECT TO MODIFICATION WITH THE FINAL SITE PLAN. BUILDING FOOTPRINTS MAY BE INCREASED OR DECREASED AND THE NUMBER OF PARKING SPACES OUTSIDE AND IN THE STRUCTURES MAY BE MODIFIED, (INCREASED OR DECREASED), SO LONG AS THE MINIMUM PARKING REQUIREMENT IS MET AND THE OPEN SPACE PROVIDED IN THE TABULATION, AND THE AMOUNT OF LANDSCAPING AND THE MINIMUM DIMENSIONS TO THE PERIPHERAL LOT LINES ARE NOT DIMINISHED.
15. THE PROPOSED DEVELOPMENT ON THE SUBJECT PROPERTY WILL NOT POSE ADVERSE EFFECT ON ADJACENT OR NEIGHBORING PROPERTIES.
16. THE PROJECT WILL MEET THE MINIMUM PARKING REQUIREMENTS AS APPROVED WITH THIS APPLICATION.
17. SIGNAGE WILL BE PROVIDED IN ACCORDANCE WITH THE TOWN OF HERNDON ORDINANCES.
18. PARKING LOT LANDSCAPING AND TREE COVER REQUIREMENTS WILL BE PROVIDED IN ACCORDANCE WITH Z.O. UNLESS WAIVED BY THE TOWN OF HERNDON.
19. THE FINAL LOCATION AND TYPE OF ACCESSIBLE RAMPS AND STREET ACCESSIBLE PARKING SPACE LOCATIONS SHALL BE DETERMINED AT SITE PLAN.
20. ALL ENTRANCES ON PUBLIC STREETS SHALL TYPICALLY BE CONSTRUCTED AS VDOT STANDARD ENTRANCES UNLESS INDICATED OTHERWISE AND AS DETERMINED BY VDOT AND THE TOWN OF HERNDON.
21. ALL LANDSCAPING INSTALLED WILL BE OF NON-INVASIVE SPECIES (INCLUDING TEMPORARY AND PERMANENT SEED).
22. BUILDING EXTERIOR ENTRANCE LOCATIONS AND NUMBER INDICATED ON THESE PLANS ARE ILLUSTRATIVE AND WILL BE DETERMINED AT FINAL SITE PLAN.
23. SPECIAL AMENITIES FOR THE SITE INCLUDE ACTIVE AND PASSIVE OPEN SPACE, LANDSCAPE AREAS.
24. ALL FENCING IS NOT SHOWN BUT THIS DEVELOPMENT WILL CONFORM TO TOWN OF HERNDON STANDARDS.
25. BUILDING ARCHITECTURE SHOWN IS ILLUSTRATIVE AND IS MEANT TO SHOW QUALITY OF DESIGN.
26. FINAL SITE DESIGN AND ENGINEERING SHOWN SHALL BE IN GENERAL CONFORMANCE BUT MAY CHANGE DURING THE FINAL SITE PLAN
27. AT THE TIME OF SITE PLAN SUBMISSION, THE ENGINEER SHALL VERIFY THAT ADEQUATE CLEAR WIDTH IS PROVIDED TO ALLOW MAINTENANCE FOR ALL TOWN-MAINTAINED UTILITIES. WIDTH OF UTILITY EASEMENTS MUST BE APPROVED BY THE TOWN OF HERNDON.
28. APPROVAL OF THIS ZONING MAP AMENDMENT DOES NOT CONSTITUTE A WAIVER OF APPLICABLE STATE AND LOCAL DESIGN REQUIREMENTS.

WAIVERS AND MODIFICATIONS

ZONING ORDINANCE MODIFICATIONS REQUESTED

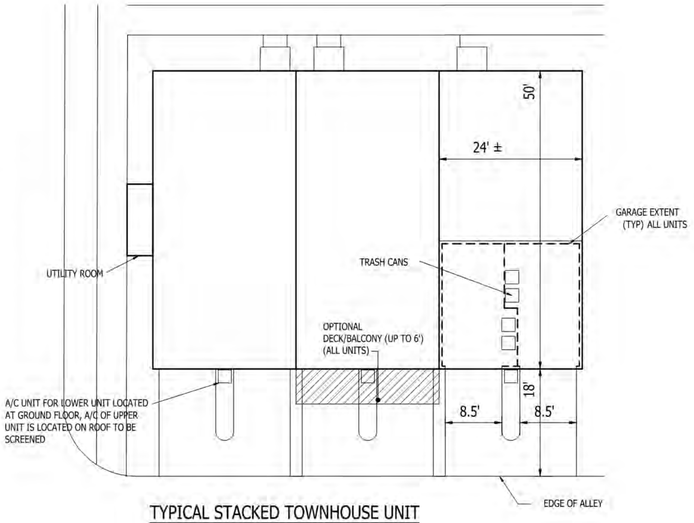
ZONING ORDINANCE (PD-UR)

1. SECTION 78.51.1 (G)(1) UTILITIES. MODIFICATION THAT ALL MECHANICAL EQUIPMENT SHALL BE LOCATED ON THE ROOF OR INCORPORATED INTO THE FACADE OF EACH UNIT.
   JUSTIFICATION: ALL UNITS WILL HAVE MECHANICAL EQUIPMENT ON THE ROOF EXCEPT THE LOWER UNIT OF STACKED TOWNHOUSE. THE OWNER DOES NOT HAVE ACCESS TO THE ROOF FOR REPAIRS
2. SECTION 78.51.1 (E) MODIFICATION OF THE DISTANCE FROM A PUBLIC RIGHT-OF-WAY:15'; MAY BE INCREASED TO 93' TO ACCOMMODATE A LANDSCAPE PARK/SITTING AREAS FOR NO MORE THAN 30% OF THE LINEAR FRONTAGE TO THAT SHOWN OF THE CONCEPT PLAN.
   JUSTIFICATION: THE CURVATURE OF HERNDON PARKWAY ALONG WITH THE LAYOUT PREVENTS THE UNITS BEING IN THE REQUIRED SETBACK. PARK SPACES ARE PROVIDED TO ENHANCE PUBLIC ROW SPACE.
3. SECTION 78.51.1(e) MODIFICATION TO THE MINIMUM DISTANCE BETWEEN BUILDING AND THE BOUNDARY ON THE EASTERN PROPERTY LINE FROM 18' TO 15' AS SHOWN.
   JUSTIFICATION: THE JOG IN THE PROPERTY LINE ALLOWS FOR THREE UNITS WHERE WE MAINTAIN THE CONSISTENT PEDESTRIAN EXPERIENCE WITH LITTLE IMPACT TO THE ADJACENT COMMERCIAL USE.

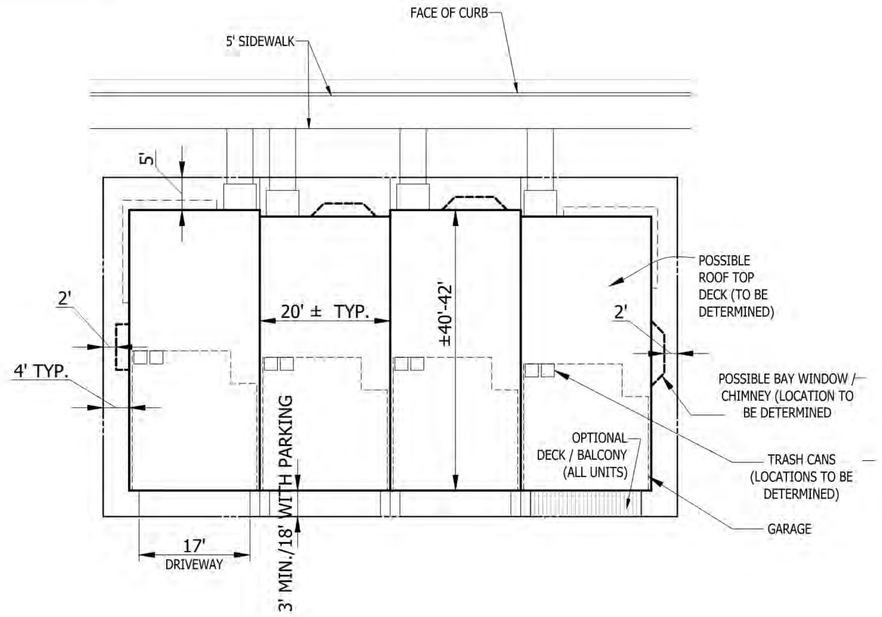
TABULATION

REQUIRED		PROPOSED	
		SITE AREA:	8.8170AC. OR 384,068 SF.
		AREA OF DEDICATION:	9,639 SF.
		SITE AREA AFTER DEDICATION:	8.59 AC. OR 374,429 SF.
ZONE:	PD-UR	ZONE:	PD-UR
MIN. DISTRICT SIZE:	2.5 AC.	DISTRICT SIZE:	8.81 AC
USE:		USE:	SINGLE FAMILY TOWNHOUSE UNITS (SFTHU)
MAX. DENSITY:		DENSITY:	16 DU/AC.
1) HOUSING TYPE	15 DU/AC		
2) HOUSING TYPE	20 DU/AC		
MIN. SETBACKS	10' FROM PUBLIC RIGHT OF WAY; 5' FROM PRIVATE RIGHT OF WAY	MIN. SETBACKS	
		FRONT:	5'
		SIDE:	4'
		REAR:	3' OR 18' WITH PARKING
LOT WIDTH:		LOT WIDTH:	20' INTERIOR; 24' CORNER LOT
UNITS:		UNITS:	141
		SINGLE FAMILY ATTACHED	85 UNITS
		STACKED 2 OVER 2 CONDOS	56 UNITS
BUILDING LOT COVERAGE:		BUILDING LOT COVERAGE	115,220 (30%)
MIN. OPEN SPACE:	20% OF SITE	OPEN SPACE:	118,915 SF (31%)
MIN. SPACE FOR RECREATION:	8% OF SITE	RECREATION OPEN SPACE:	38,410 (10%)
PARKING:	2.33/UNIT	PARKING (2.49/UNIT)	352 SPACES
		GUEST PARKING:	56 SPACES
		GARAGE PARKING:	226 SPACES
		DRIVEWAY:	88 SPACES
MAX. BUILDING HEIGHT:	40' WHEN LOCATED WITHIN 50' OF THE PROPERTY ZONED R-15, R-10, PD-R, OR RTC; OTHERWISE 50'	BUILDING HEIGHT:	
		SINGLE FAMILY ATTACHED:	40'
		STACKED TOWNOUSE UNITS	50'
NUMBER OF FLOORS:	ONE FLOOR	NUMBER OF FLOORS:	
		TOWNHOUSES:	3 FLOORS
		2 OVER 2S:	4 STORIES
MAX. DISTANCE FROM RIGHT OF WAY	15'; MAY BE INCREASED TO 40' TO ACCOMMODATE A LANDSCAPE PARK FOR NO MORE THAN 30% OF THE LINEAR FOOTAGE	MAX. DISTANCE FROM RIGHT OF WAY	87' See Sheet C-07
MIN. DISTANCE BETWEEN BUILDINGS AND THE BOUNDARIES OF THE DEVELOPMENT	18'	MIN. DISTANCE BETWEEN BUILDINGS AND THE BOUNDARIES OF THE DEVELOPMENT	18'
MIN. DISTANCE (FEET) BETWEEN PAVED SURFACES AND THE BOUNDARIES OF THE DEVELOPMENT	SUBJECT TO BUFFER REQUIREMENTS IN ARTICLE XI, DEVELOPMENT STANDARDS	MIN. DISTANCE (FEET) BETWEEN PAVED SURFACES AND THE BOUNDARIES OF THE DEVELOPMENT	0' See Sheet C-07

* SEE MODIFICATIONS



TYPICAL STACKED TOWNHOUSE UNIT



TYPICAL SINGLE FAMILY TOWNHOUSE UNIT

*NOTES:
1. FINAL LOT WIDTH SUBJECT TO CHANGE WITH FINAL ENGINEERING PLANS AND PLATS.
2. SETBACKS ARE MEASURED TO THE OUTER VERTICAL FACADES AND DO NOT INCLUDE ANY ARCHITECTURAL ELEMENTS SUCH AS BAY WINDOWS, COVERED BALCONIES, PORCHES, CHIMNEYS, EAVES, ETC.

VIKA

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LANDSCAPE ARCHITECTS GEOMATICS

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COMMONWEALTH OF VIRGINIA
10/1/20
ROBERT B. COCHRAN
LIC. NO. 2012

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

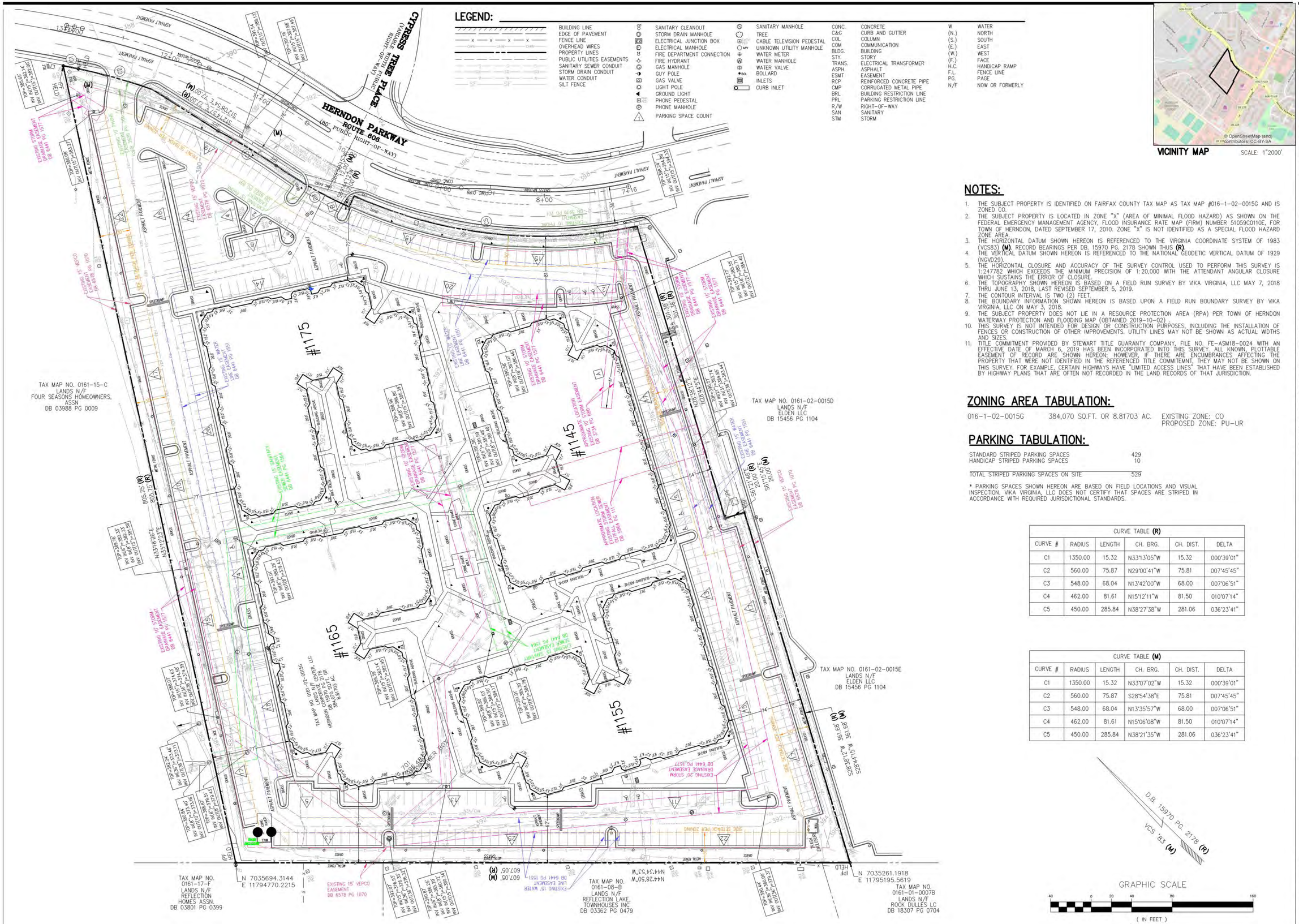
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

NOTES AND TABULATIONS

DRAWN BY:
DESIGNED BY: PR
DATE ISSUED: OCTOBER 2, 2019
DWG. SCALE: AS SHOWN
JOB NO.: VV8011D
SHEET NO.: C-02

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D NOTES.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:42:08 PM LAYOUT: C-02 NOTES AND TABULATIONS



VICINITY MAP SCALE: 1"2000'

NOTES:

1. THE SUBJECT PROPERTY IS IDENTIFIED ON FAIRFAX COUNTY TAX MAP AS TAX MAP #016-1-02-0015G AND IS ZONED CO.
2. THE SUBJECT PROPERTY IS LOCATED IN ZONE "X" (AREA OF MINIMAL FLOOD HAZARD) AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP (FIRM) NUMBER 51059C0110E, FOR TOWN OF HERNDON, DATED SEPTEMBER 17, 2010. ZONE "X" IS NOT IDENTIFIED AS A SPECIAL FLOOD HAZARD ZONE AREA.
3. THE HORIZONTAL DATUM SHOWN HEREON IS REFERENCED TO THE VIRGINIA COORDINATE SYSTEM OF 1983 (VCS83) **(M)**. RECORD BEARINGS PER DB. 15970 PG. 2178 SHOWN THUS **(R)**.
4. THE VERTICAL DATUM SHOWN HEREON IS REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29)
5. THE HORIZONTAL CLOSURE AND ACCURACY OF THE SURVEY CONTROL USED TO PERFORM THIS SURVEY IS 1:247782 WHICH EXCEEDS THE MINIMUM PRECISION OF 1:20,000 WITH THE ATTENDANT ANGULAR CLOSURE WHICH SUSTAINS THE ERROR OF CLOSURE.
6. THE TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN SURVEY BY VIKA VIRGINIA, LLC MAY 7, 2018 THRU JUNE 13, 2018, LAST REVISED SEPTEMBER 5, 2019.
7. THE CONTOUR INTERVAL IS TWO (2) FEET.
8. THE BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON A FIELD RUN BOUNDARY SURVEY BY VIKA VIRGINIA, LLC ON MAY 3, 2018.
9. THE SUBJECT PROPERTY DOES NOT LIE IN A RESOURCE PROTECTION AREA (RPA) PER TOWN OF HERNDON WATERWAY PROTECTION AND FLOODING MAP (OBTAINED 2019-10-02) .
10. THIS SURVEY IS NOT INTENDED FOR DESIGN OR CONSTRUCTION PURPOSES, INCLUDING THE INSTALLATION OF FENCES OR CONSTRUCTION OF OTHER IMPROVEMENTS. UTILITY LINES MAY NOT BE SHOWN AS ACTUAL WIDTHS AND SIZES.
11. TITLE COMMITMENT PROVIDED BY STEWART TITLE GUARANTY COMPANY, FILE NO. FE-ASM18-0024 WITH AN EFFECTIVE DATE OF MARCH 6, 2019 HAS BEEN INCORPORATED INTO THIS SURVEY. ALL KNOWN, PLOTTABLE EASEMENT OF RECORD ARE SHOWN HEREON; HOWEVER, IF THERE ARE ENCUMBRANCES AFFECTING THE PROPERTY THAT WERE NOT IDENTIFIED IN THE REFERENCED TITLE COMMITMENT, THEY MAY NOT BE SHOWN ON THIS SURVEY. FOR EXAMPLE, CERTAIN HIGHWAYS HAVE "LIMITED ACCESS LINES" THAT HAVE BEEN ESTABLISHED BY HIGHWAY PLANS THAT ARE OFTEN NOT RECORDED IN THE LAND RECORDS OF THAT JURISDICTION.

ZONING AREA TABULATION:

016-1-02-0015G 384,070 SQ.FT. OR 8.81703 AC. EXISTING ZONE: CO
PROPOSED ZONE: PU-UR

PARKING TABULATION:

STANDARD STRIPED PARKING SPACES	429
HANDICAP STRIPED PARKING SPACES	10
TOTAL STRIPED PARKING SPACES ON SITE	529

* PARKING SPACES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND VISUAL INSPECTION. VIKA VIRGINIA, LLC DOES NOT CERTIFY THAT SPACES ARE STRIPED IN ACCORDANCE WITH REQUIRED JURISDICTIONAL STANDARDS.

CURVE TABLE **(R)**

CURVE #	RADIUS	LENGTH	CH. BRG.	CH. DIST.	DELTA
C1	1350.00	15.32	N33°13'05"W	15.32	000°39'01"
C2	560.00	75.87	N29°00'41"W	75.81	007°45'45"
C3	548.00	68.04	N13°42'00"W	68.00	007°06'51"
C4	462.00	81.61	N15°12'11"W	81.50	010°07'14"
C5	450.00	285.84	N38°27'38"W	281.06	036°23'41"

CURVE TABLE **(M)**

CURVE #	RADIUS	LENGTH	CH. BRG.	CH. DIST.	DELTA
C1	1350.00	15.32	N33°07'02"W	15.32	000°39'01"
C2	560.00	75.87	S28°54'38"E	75.81	007°45'45"
C3	548.00	68.04	N13°35'57"W	68.00	007°06'51"
C4	462.00	81.61	N15°06'08"W	81.50	010°07'14"
C5	450.00	285.84	N38°21'35"W	281.06	036°23'41"

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

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JOHN A. WALSH
Lic. No. 2778
8/25/20
LAND SURVEYOR

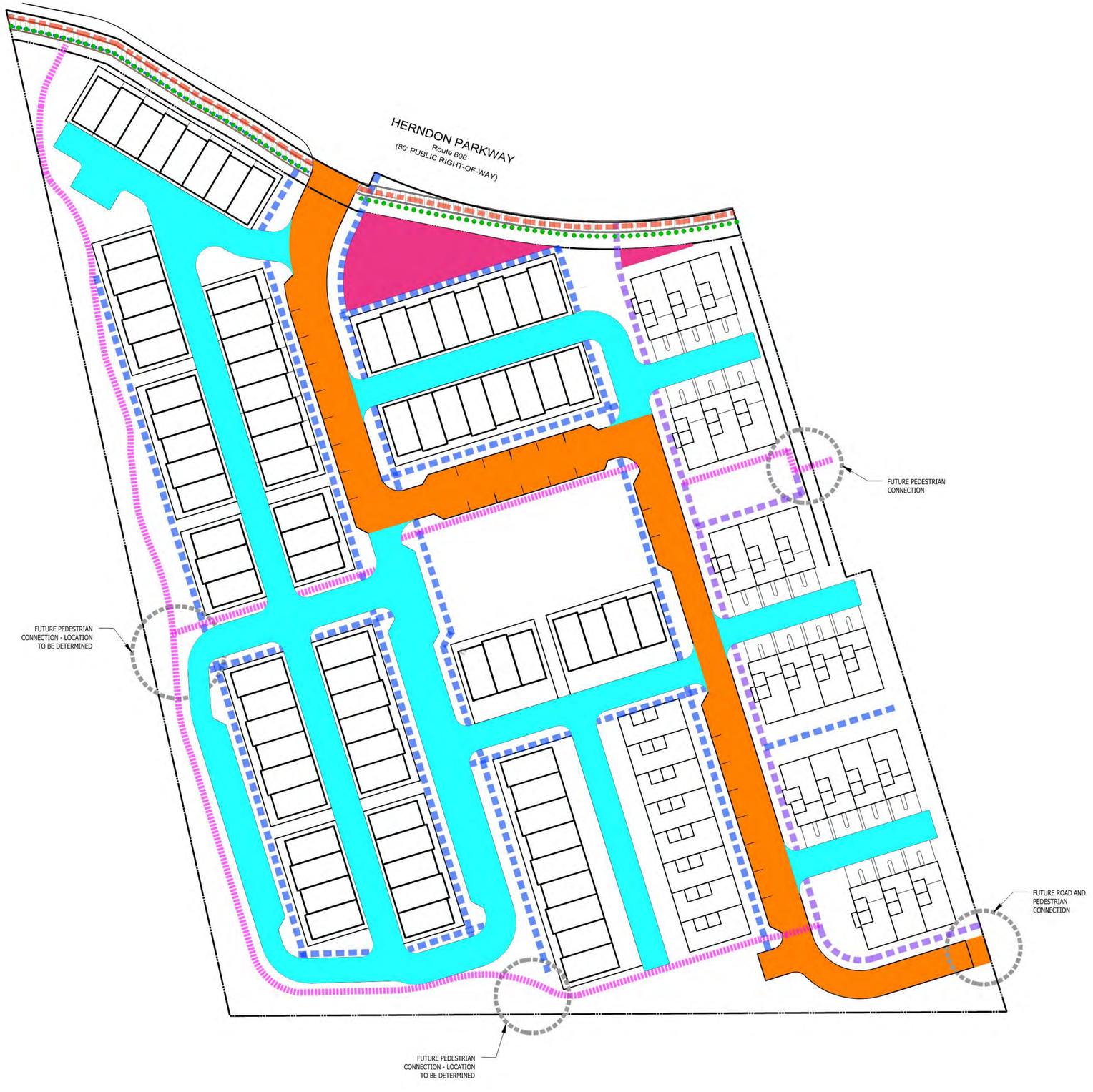
REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT
TOWN OF HERNDON, VA

EXISTING CONDITIONS

DRAWN BY:
DESIGNED BY: PR
DATE ISSUED: OCTOBER 2, 2019
DWG. SCALE 1" = 40'
JOB NO. VV8011D
SHEET NO. C-03

FILE: P:\projects\8011\8011D\CADD\SURVEYS\BASE DRAWINGS\8011 D 701.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:42:21 PM LAYOUT: C-03 EXISTING CONDITIONS



LEGEND:

PUBLIC ACCESS EASEMENTS

- PUBLIC VEHICLE INGRESS / EGRESS EASEMENT
- PUBLIC ACCESS PARK AREA / OPEN SPACE
- LIMITED INGRESS-EGRESS EASEMENT FOR OWNERS AND VISITORS
- LOCATION OF FUTURE ROAD AND PEDESTRIAN CONNECTIONS
- 5' PEDESTRIAN SIDEWALK
- 5' PEDESTRIAN SIDEWALK W/ PUBLIC ACCESS EASEMENT
- 5' PEDESTRIAN TRAIL W/ PUBLIC ACCESS EASMENT
- 8' CYCLE TRACK
- 6' SIDEWALK

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA
ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS
VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
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TYSONS, VA. GERMANTOWN, MD.

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OWNER:
FM HERNDON CORPORATE CENTER LLC.
7200 WISCONSIN AVENUE, SUITE 100
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NEIL MARKUS
301-915-9460

APPLICANT:
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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
CIVIL SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

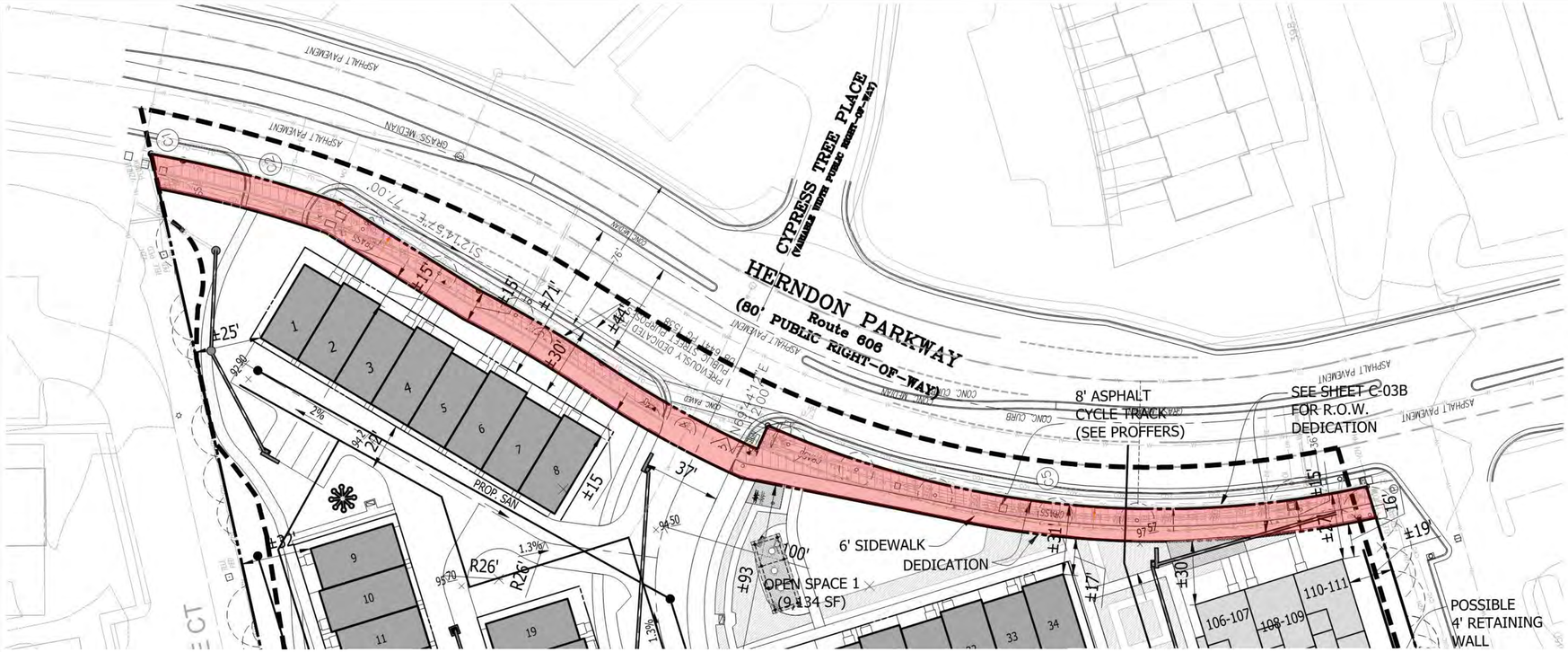
PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

PEDESTRIAN ACCESS

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-03A

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011 D ACCESS.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:42:28 PM LAYOUT: C-03A PEDESTRIAN ACCESS

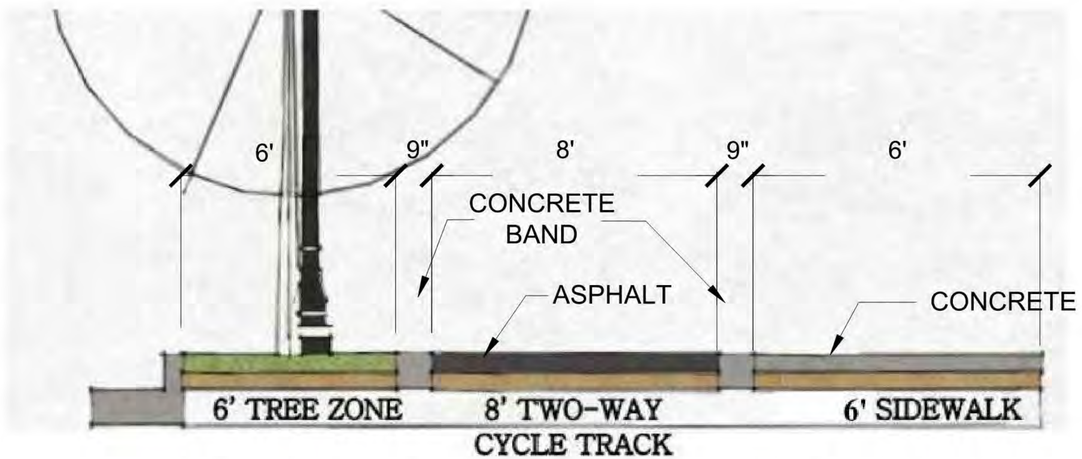


LEGEND

R.O.W. DEDICATION (9,639 S.F.)

NOTE:

1. DEDICATION SHOWN VARIES, BUT ADHERES TO HERNDON'S STANDARD CYCLE TRACK SECTION (SEE HERNDON PARKWAY STREETSCAPE DETAIL ON THIS SHEET).
2. STREET LIGHTS IN THE R.O.W. WILL CONFORM TO THE HERNDON STREETSCAPE MANUAL.



HERNDON PARKWAY STREETSCAPE SECTION

NO SCALE

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA

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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

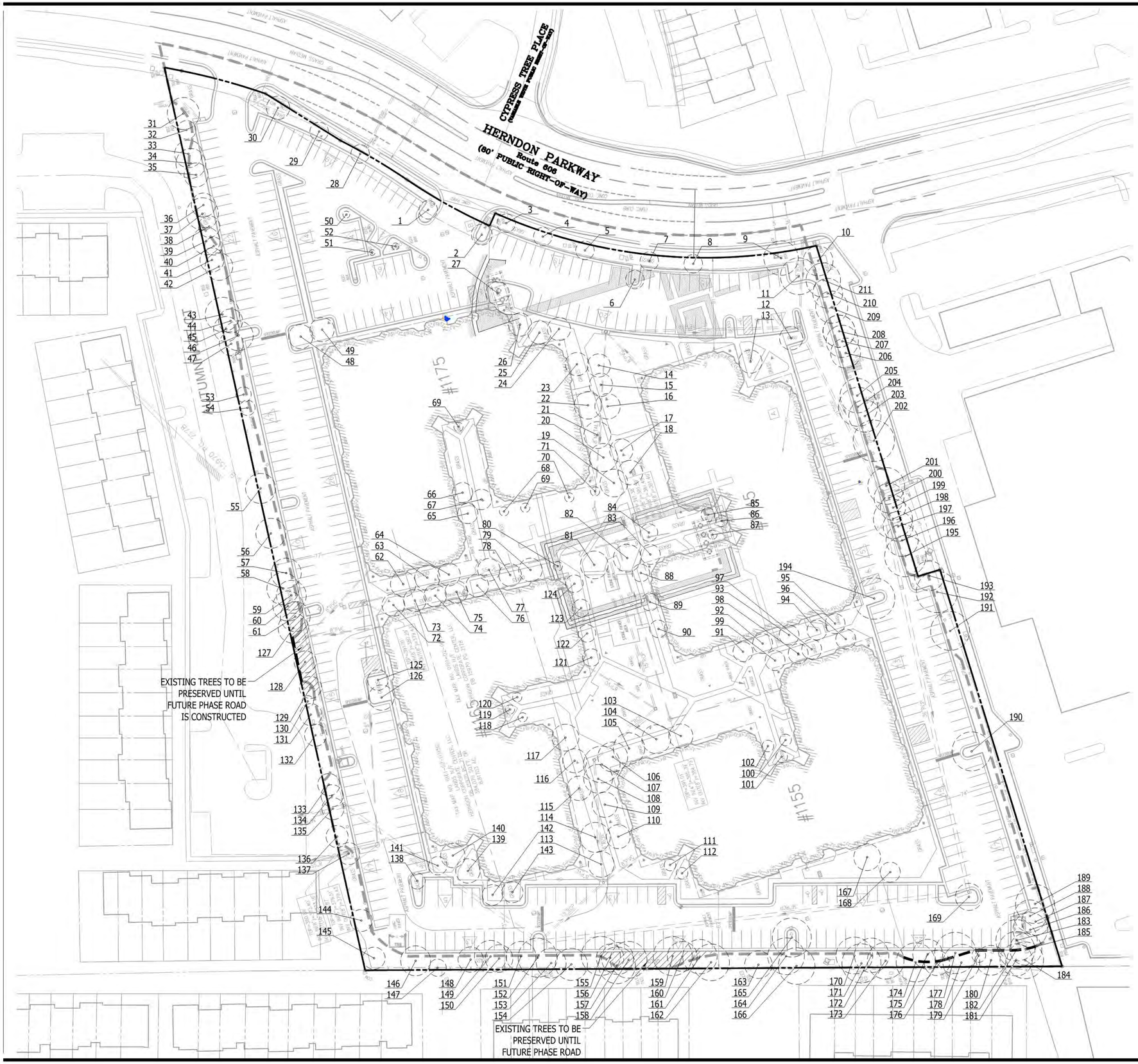
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

R.O.W. DEDICATION EXHIBIT

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-03B

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D PROP ROW DEDICATION.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:43:00 PM LAYOUT: C-03B R.O.W. EASEMENT EXHIBIT



LEGEND

LIMITS OF CLEARIDNG AND GRADING

EXISTING TREE CANOPY COVER = 57,292 SF

PLAN PREPARED BY: NELSON P. KIRCHNER, RLA
ISA CERTIFIED ARBORIST No. MA-4720AM

SIGNATURE: _____

DATE: 02/14/2020

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA

ENGINEERS PLANNERS SURVEYORS
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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

EXISTING TREE INVENTORY

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-04

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D EXISTING TREE CONSERVATION.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:43:25 PM LAYOUT: C-04 EXISTING TREE INVENTORY

Tree No.	Species	Size	CRZ	Condition	Canopy Position	Crown Desnsity	Average Crown Radius	Existing Conditions / Observations
		*DBH (in)	R (ft)	%		%	R (ft)	
1	Acer rubrum, red Maple	7.2	8	0.63	Codominant	0.50	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
2	Acer rubrum, red Maple	9.0	9	0.53	Codominant	0.55	14.0	NO SEVERE BIOTIC ISSUES OBSERVED. SLIGHT BARK EXFOLIATE.
3	Acer rubrum, red Maple	9.0	9	0.50	Codominant	0.50	14.0	NO SEVERE BIOTIC ISSUES OBSERVED. OPEN CANKER AT ROOT CROWN.
4	Acer rubrum, red Maple	9.0	9	0.20	Codominant	0.50	14.0	TREE SHOWS DECLINE & DECAY AT ROOT CROWN.
5	Acer rubrum, red Maple	9.5	10	0.58	Codominant	0.45	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
6	Acer rubrum, red Maple	7.0	8	0.58	Codominant	0.55	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
`	Acer rubrum, red Maple	9.0	9	0.60	Codominant	0.55	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
8	Acer rubrum, red Maple	8.3	9	0.40	Codominant	0.60	12.0	NO SEVERE BIOTIC ISSUES OBSERVED. UPPER BRANCH STEM W/ VERTICLE CRACK.
9	Acer rubrum, red Maple	12.0	12	0.58	Codominant	0.55	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
10	Pinus Virginiana, Virginia Pine	13.5	14	0.54	Codominant	0.40	13.0	NO APPARENT BIOTIC ISSUES OBSERVED. LOW/MODERATE CANOPY RATO.
11	Platanus occidentalis, American Sycamore	9.3	10	0.63	Codominant	0.60	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
12	Platanus occidentalis, American Sycamore	16.8	17	0.65	Dominant	0.65	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
13	Crataegus spp, Hawthorn	10.8	11	0.58	Intermediate	0.55	12.0	NO APPARENT BIOTIC ISSUES OBSERVED. EXPOSED ROOT ZONES AT GRADE.
14	Prunus xyedoensis, Yoshino Cherry	9.3	10	0.54	Intermediate	0.45	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
15	Prunus xyedoensis, Yoshino Cherry	8.3	9	0.57	Intermediate	0.45	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
16	Prunus xyedoensis, Yoshino Cherry	10.0	10	0.53	Intermediate	0.45	14.0	NO APPARENT BIOTIC ISSUES OBSERVED.
17	Prunus xyedoensis, Yoshino Cherry	8.2*	9	0.56	Intermediate	0.50	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
18	Prunus xyedoensis, Yoshino Cherry	14*	14	0.60	Intermediate	0.50	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
19	Prunus serrulata, Kwanzan Cherry	10.5*	11	0.58	Intermediate	0.55	17.0	NO SEVERE BIOTIC ISSUES OBSERVED.
20	Prunus x yedonensis,	16*	16	0.59	Intermediate	0.55	17.0	NO SEVERE BIOTIC ISSUES OBSERVED
21	Prunus x yedonensis,	10.0	10	0.52	Intermediate	0.55	15.0	NO SEVERE BIOTIC ISSUES . OPEN CANKER AT ROOT CROWN.
22	Prunus x yedonensis,	11.2	12	0.52	Intermediate	0.55	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. OPEN CAVITY AT LOW TRUNK STEM.
23	Prunus x yedonensis,	12.2	13	0.60	Intermediate	0.55	17.0	NO APPAERNT BIOTIC ISSUES OBSERVED.
24	Prunus x yedonensis,	14.5*	15	0.59	Intermediate	0.55	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
25	Crataegus spp, Hawthorn	11.5	12	0.60	Intermediate	0.55	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
26	Crataegus spp, Hawthorn	6.5	7	0.50	Intermediate	0.30	10.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/GOOD SCAFFOLD BRANCHING. CAVITY AT ROOT CROWN.
27	Crataegus spp, Hawthorn	11.5	12	0.57	Intermediate	0.40	16.0	NO SEVERE BIOTIC ISSUES OBSERVED.
28	Acer rubrum, red Maple	9.5	10	0.54	Codominant	0.60	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. OPEN CAVITY FROM STORM DAMAGE IN CANOPY.
29	Acer rubrum, red Maple	9.0	9	0.60	Codominant	0.60	17.0	NO APPARENT BIOTIC ISSUES OBSERVED. SLIGHT ROOT GIRDLE.
30	Acer rubrum, red Maple	9.3	10	0.57	Codominant	0.60	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
31	Pinus Virginiana, Virginia Pine	12.0	12	0.30	Codominant	0.25	14.0	TREE 31 SHOWS DECLINE AND STRESS. NEAR NECROSIS.
32	Pinus Virginiana, Virginia Pine	14.5	15	0 - 0.50	Codominant	0.65	13.0	TREE 32 IN DECLINE. NEAR NECROSIS.
33	Pinus Virginiana, Virginia Pine	9.5	10	0.00	Codominant	0.75	12.0	NECROTIC
34	Pinus Virginiana, Virginia Pine	14.0	14	0.00	Codominant	0.75	13.0	NECROTIC
35	Pinus Virginiana, Virginia Pine	12.3	13	0.00	Codominant	0.75	14.0	NECROTIC
36	Pinus Virginiana, Virginia Pine	13.7	14	0.53	Codominant	0.75	15.0	NO SEVERE BIOTIC ISSUES OBSERVED. TREE 36 SHOWS STRESS.
37	Pinus Virginiana, Virginia Pine	12.4	13	0.00 - 0.05	Codominant	0.75	14.0	TREE 37 IS IN DECLINE, NEAR NECORSIS.
38	Pinus Virginiana, Virginia Pine	11.0	11	0.00	Codominant	0.50	10.0	NECROTIC
39	Pinus Virginiana, Virginia Pine	10.8	11	0.00 - 0.05	Codominant	0.65	12.0	TREE 39 SHOWS IN DECLINE, NEAR NECROSIS.
40	Pinus Virginiana, Virginia Pine	13.5	14	0.57	Codominant	0.60	13.0	NO SEVERE BIOTIC ISSUES OBSERVED.
41	Pinus Virginiana, Virginia Pine	11.5	12	0.53	Codominant	0.60	15.0	NO SEVERE BIOTIC ISSUES OBSERVED. TREE 41 SHOWS SLIGHT STRESS.
42	Pinus Virginiana, Virginia Pine	9.6	10	0.57	Codominant	0.60	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
43	Pinus Virginiana, Virginia Pine	11.6	12	0.53	Codominant	0.45	15.0	TREE 43 SHOWS ASPECTS OF STRESS.
44	Pinus Virginiana, Virginia Pine	11.8	12	0.50	Codominant	0.60	12.0	TREE 44 SHOWS SLIGHT STRESS.
45	Pinus Virginiana, Virginia Pine	9.5	10	0.00	Codominant	0.45	11.0	NECROTIC
46	Pinus Virginiana, Virginia Pine	15.5	16	0.00	Codominant	0.55	13.0	NECROTIC
47	Pinus strobus, White Pine	12.0	12	0.60	Intermediate	0.75	11.0	NO APPARENT BIOTIC ISSUES OBSERVED.
48	Fraxinus americans, White Ash	13.0	13	0.62	Dominant	0.60	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
49	Platanus occidentalis, American Sycamore	15.7	16	0.64	Dominant	0.60	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
50, 52	Lagerstroemia indica, Crapemyrtle	1-3" (multi-stem)	8	0.58	Intermediate	0.40	3.0	NO APPARENT BIOTIC ISSUES OBSERVED.
51	Lagerstroemia indica, Crapemyrtle	1" (multi-stem)	8	0.30	Intermediate	0.45	2.5	VEGETATION SHOWS STRESS & DECLINE.
53	Pinus strobus, White Pine	5.5	8	0.61	Intermediate	0.75	11.0	NO APPARENT BIOTIC ISSUES OBSERVED.
54	Pinus strobus, White Pine	6.5	8	0.61	Intermediate	0.75	11.0	NO APPARENT BIOTIC ISSUES OBSERVED.
55	Pinus Virginiana, Virginia Pine	14.5	15	0.60	Codominant	0.60	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
56	Quercus palustris, Pin Oak	15.7	16	0.62	Codominant	0.75	14.0	NO APPARENT BIOTIC ISSUES OBSERVED.
57	Pinus Virginiana, Virginia Pine	13.7	14	0.59	Codominant	0.75	15.0	NO APPARENT BIOTIC ISSUES OBSERVED. SHOWS SLIGHT STRESS.
58	Pinus Virginiana, Virginia Pine	12.4	13	0.58	Codominant	0.75	14.0	NO SEVERE BIOTIC ISSUES OBSERVED.
59	Pinus Virginiana, Virginia Pine	11.8	12	0.59	Codominant	0.70	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
60	Pinus Virginiana, Virginia Pine	11.0	11	0.58	Codominant	0.65	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/GOOD SCAFFOLD BRANCHING.
61	Pinus Virginiana, Virginia Pine	18.6	19	0.43	Codominant	0.70	13.0	TREE 61 SHOWS STRESS & DECLINE.
62	Prunus serrulata, Kwanzan Cherry	10.6	11	0.40	Codominant	0.50	18.0	OPEN CANKER AT ROOT CROWN. DECAY WOOD ON TRUNK STEM. ROOT GIRDLE.
63	Prunus serrulata, Kwanzan Cherry	9.8	10	0.50	Codominant	0.50	17.0	TREE WITH ROOT GIRDLE & WATERSPROUTS.
64	Prunus serrulata, Kwanzan Cherry	15*	15	0.52	Codominant	0.50	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
65	Fraxinus americans, White Ash	14.0	14	0.00	Dominant	0.30	17.0	NECROTIC
66	Fraxinus americans, White Ash	15.5	16	0.00	Dominant	0.25	16.0	NECROTIC
67	Fraxinus americans, White Ash	13.4	14	0.00	Dominant	0.60	16.0	NECROTIC
68, 69, 70, 71	Lagerstroemia indica, Crapemyrtle	2 -4" (multi-stem)	8	0.60	Intermediate	0.30	4.0	NO APPARENT BIOTIC ISSUES OBSERVED.
72	Prunus serrulata, Kwanzan Cherry	11.0	11	0.30	Codominant	0.50	16.0	TREE 72 SHOWS CANOPY DECLINE. STORM DAMAGE / DEADWOOD.
73	Prunus serrulata, Kwanzan Cherry	10.4	11	0.59	Codominant	0.60	17.0	NO APPARENT BIOTIC ISSUES OBSERVED. SHOWS SLIGHT STORM DAMAGE.
74	Prunus serrulata, Kwanzan Cherry	10.8	11	0.52	Codominant	0.50	16.0	NO APPARENT BIOTIC ISSUES OBSERVED. WATERSPROUTS & ROOT GIRDLE.
75	Prunus serrulata, Kwanzan Cherry	10.7	11	0.30	Codominant	0.50	16.0	TREE 75 HAS CANOPY STORM DAMAGE W/ OPEN STEM CAVITY.
76	Prunus serrulata, Kwanzan Cherry	10.4	11	0.25	Codominant	0.50	15.0	TREE 76 SHOWS STRUCTURE STORM DAMAGE W/ UPPER SPLT STEM.
77	Prunus serrulata, Kwanzan Cherry	10.5	11	0.45	Codominant	0.50	15.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/GOOD SCAFFOLD BRANCHING.
78	Prunus serrulata, Kwanzan Cherry	11.5	12	0.57	Codominant	0.60	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
79	Prunus serrulata, Kwanzan Cherry	12.6	13	0.60	Codominant	0.60	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
80	Lagerstroemia indica, Crapemyrtle	2 - 3" (multi-stem)	8	0.60	Intermediate	0.40	4.0	NO APPARENT BIOTIC ISSUES OBSERVED.
81	Platanus occidentalis, American Sycamore	8.3	9	0.62	Dominant	0.55	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
82	Gleditsia triacanthos, Honeylocust	16.7	17	0.62	Dominant	0.60	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
83	Prunus serrulata, Kwanzan Cherry	8.0	8	0.58	Intermediate	0.45	12.0	NO SEVERE BIOTIC ISSUES OBSERVED.
84	Prunus serrulata, Kwanzan Cherry	6.0	8	0.53	Intermediate	0.40	11.0	NO SEVERE BIOTIC ISSUES OBSERVED.
85	Lagerstroemia indica, Crapemyrtle	2 -4" (multi-stem)	8	0.63	Intermediate	0.60	6.0	NO APPARENT BIOTIC ISSUES OBSERVED.
86	Lagerstroemia indica, Crapemyrtle	2 -4" (multi-stem)	8	0.63	Intermediate	6.00	5.0	NO APPARENT BIOTIC ISSUES OBSERVED.
87	Lagerstroemia indica, Crapemyrtle	2 -4" (multi-stem)	8	0.63	Intermediate	0.50	4.0	NO APPARENT BIOTIC ISSUES OBSERVED.
88	Prunus serrulata, Kwanzan Cherry	8.6	9	0.40	Intermediate	0.45	14.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/POOR SCAFFOLD BRANCHING W/ DEADWOOD & ROOT GIRDLE.
89	Prunus serrulata, Kwanzan Cherry	9.7	10	0.44	Intermediate	0.45	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/POOR SCAFFOLD BRANCHING W/ DEADWOOD & DEADWOOD.
90	Prunus serrulata, Kwanzan Cherry	11.3	12	0.57	Intermediate	0.50	15.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/GOOD (F/G)SCAFFOLD BRANCHING W/ DEADWOOD.
91	Prunus x yedonensis,	9.8	10	0.53	Intermediate	0.50	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. EXPOSED ROOT ZONES AT GRADE W/ F/G SCAFFOLD BRANCHING.
92	Prunus x yedonensis,	13.5	14	0.54	Intermediate	0.50	18.0	NO SEVERE BIOTIC ISSUES OBSERVED. CANOPY W/ STROM DAMAGE.
93	Prunus x yedonensis,	9.8	10	0.54	Intermediate	0.50	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. F/G SCAFFOLD BRANCHING W/ STORM DAMAGE.
94	Prunus x yedonensis,	5.6	8	0.40	Intermediate	0.40	12.0	TREE 94 SHOWS DECAY AT ROOT CROWN & STORM DAMAGE.
95	Prunus x yedonensis,	10.8	11	0.49	Intermediate	0.50	17.0	OPEN CAVITY AT MID-TRUNK STEM W/ STORM DAMAGE. NO SEVERE BIOTIC ISSUES OBSERVED.
96	Prunus x yedonensis,	11.4	12	0.54	Intermediate	0.55	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. EXPOSED ROOT ZONES AT GRADE. DEADWOOD W/ STORM DAMAGE.
97	Prunus x yedonensis,	10.7	11	0.40	Intermediate	0.50	14.0	NECROSIS IN CANOPY W/ FAIR/POOR (F/P) SCAFFOLD BRANCHING.
98	Prunus x yedonensis,	10.0	10	0.40	Intermediate	0.55	15.0	DEADWOOD IN CANOPY W/ F/P SCAFFOLD BRANCHING. ROOT GIRDLE.

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10/4/20
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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

EXISTING TREE INVENTORY

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-04A

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011C EXISTING TREE CONSERVATION INVENTORY.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:43:39 PM LAYOUT: C-4A EXISTING TREE CONSERVATION INVENTORY

Tree No.	Species	Size	CRZ	Condition	Canopy Position	Crown Desnsity	Average Crown Radius	Existing Conditions / Observations
		*DBH (in)	R (ft)	%		%	R (ft)	
99	Prunus x yedonensis,	11.5	12	0.50	Intermediate	0.55	16.0	NO SEVERE BIOTIC ISSUES OBSERVED.
100	Lagerstroemia indica, Crapemyrtle	3 -4" (multi-stem)	8	0.60	Intermediate	0.55	7.0	NO APPARENT BIOTIC ISSUES OBSERVED.
101	Lagerstroemia indica, Crapemyrtle	3 -4" (multi-stem)	8	0.60	Intermediate	0.55	7.0	NO APPARENT BIOTIC ISSUES OBSERVED.
102	Lagerstroemia indica, Crapemyrtle	3 -4" (multi-stem)	8	0.60	Intermediate	0.55	7.0	NO APPARENT BIOTIC ISSUES OBSERVED.
103	Prunus x yedonensis,	14.5	15	0.57	Intermediate	0.55	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
104	Prunus x yedonensis,	14.0	14	0.59	Intermediate	0.55	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
105	Prunus x yedonensis,	14.0	14	0.56	Intermediate	0.50	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
106	Prunus x yedonensis,	12.0	12	0.50	Intermediate	0.55	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. CANOPY STORM DAMAGE & ROOT GIRDLE.
107	Prunus x yedonensis,	12*	12	0.55	Intermediate	0.50	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
108	Prunus x yedonensis,	13*	13	0.58	Intermediate	0.50	17.0	NO SEVERE BIOTIC ISSUES OBSERVED.
109	Prunus x yedonensis,	10.5	11	0.56	Intermediate	0.50	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
110	Prunus x yedonensis,	14.0	14	0.51	Intermediate	0.50	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. OPEN CANKER AT LOW TRUNK STEM. ROOT GIRDLE.
111	Lagerstroemia indica, Crapemyrtle	2 -4" (multi-stem)	8	0.60	Intermediate	0.45	5.0	NO APPARENT BIOTIC ISSUES OBSERVED.
112	Lagerstroemia indica, Crapemyrtle	3 -4" (multi-stem)	8	0.60	Intermediate	0.40	6.0	NO APPARENT BIOTIC ISSUES OBSERVED.
113	Prunus x yedonensis,	13*	13	0.53	Intermediate	0.50	17.0	NO SSEVERE BIOTIC ISSUES OBSERVED. SHOWS TRUNK STEM DAMAGE. ROOT GIRDLE.
114	Prunus x yedonensis,	16.5	17	0.54	Intermediate	0.50	17.0	NO SEVERE BIOTIC ISSUES OBSERVED. SHOWS A 4VF CANKER.
115	Prunus x yedonensis,	11.0	11	0.52	Intermediate	0.50	17.0	OPEN CANKER ON TRUNK STEM (~2.5 VF). ROOT GIRDLE.
116	Prunus x yedonensis,	12.5	13	0.40	Intermediate	0.55	16.0	TREE 116 SHOWS DECLINE AND DECAY W/ TRUNK STEM CANKER.
117	Prunus x yedonensis,	13.0	13	0.58	Intermediate	0.50	15.0	NO SEVERE BIOTIC ISSUES OBSERVED.
118	Lagerstroemia indica, Crapemyrtle	2 - 3" (multi-stem)	8	0.60	Intermediate	0.50	4.0	NO APPARENT BIOTIC ISSUES OBSERVED.
119	Lagerstroemia indica, Crapemyrtle	2 - 3" (multi-stem)	8	0.60	Intermediate	0.50	4.0	NO APPARENT BIOTIC ISSUES OBSERVED.
120	Lagerstroemia indica, Crapemyrtle	2 - 3" (multi-stem)	8	0.60	Intermediate	0.50	4.0	NO APPARENT BIOTIC ISSUES OBSERVED.
121	Prunus serrulata, Kwanzan Cherry	9.4	10	0.46	Intermediate	0.45	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. F/P SCAFFOLD BRANCHING W/ DEADWOOD & STORM DAMAGE.
122	Prunus serrulata, Kwanzan Cherry	9.8	10	0.52	Intermediate	0.50	16.0	NO SEVERE BIOTIC ISSUES OBSERVED.
123	Prunus serrulata, Kwanzan Cherry	8.6	9	0.52	Intermediate	0.50	16.0	NO SEVERE BIOTIC ISSUES OBSERVED.
124	Prunus serrulata, Kwanzan Cherry	6.8	7	0.38	Intermediate	0.50	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. F/P SCAFFOLD BRANCHING W/ DEADWOOD & STORM DAMAGE.
125	Quercus palustris, Pin Oak	10.6	11	0.60	Codominant	0.70	9.0	NO APPARENT BIOTIC ISSUES OBSERVED.
126	Quercus palustris, Pin Oak	11.4	12	0.60	Codominant	0.70	11.0	NO APPARENT BIOTIC ISSUES OBSERVED.
127	Pinus Virginiana, Virginia Pine	13.0	13	0.55	Codominant	0.65	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. OPEN CANKER AT LOW TRUNK STEM.
128	Pinus Virginiana, Virginia Pine	15.2	16	0.56	Codominant	0.60	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. TREE SHOWS SLIGHT CHLORSIS.
129	Pinus strobus, White Pine	5.5	8	0.60	Intermediate	0.75	10.0	NO APPARENT BIOTIC ISSUES OBSERVED.
130	Juniperus virginiana, Eastern Redcedar	3.0	8	0.65	Intermediate	100.00	6.0	NO APPARENT BIOTIC ISSUES OBSERVED.
131	Pinus strobus, White Pine	3.8	8	0.60	Intermediate	100.00	7.0	NO APPARENT BIOTIC ISSUES OBSERVED.
132	Pinus Virginiana, Virginia Pine	11.5	12	0.57	Codominant	0.50	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. TREE SHOWS SLIGHT CHLORSIS.
133	Pinus Virginiana, Virginia Pine	16.6	17	0.57	Codominant	0.55	14.0	NO SEVERE BIOTIC ISSUES OBSERVED.
134	Pinus Virginiana, Virginia Pine	11.5	12	0.47	Codominant	0.50	15.0	NO SEVERE BIOTIC ISSUES OBSERVED. TREE SHOWS SLIGHT CHLORSIS.
135	Pinus Virginiana, Virginia Pine	16.0	16	0.47	Dominant	0.50	17.0	TREE SHOWS CHLORSIS & DECLINE.
136	Pinus Virginiana, Virginia Pine	18.8	19	0.42	Dominant	0.75	18.0	TREE SHOWS CHLORSIS & DECLINE.
137	Pinus Virginiana, Virginia Pine	14.5	15	0.59	Codominant	0.55	16.0	NO SEVERE BIOTIC ISSUES OBSERVED.
138	Lagerstroemia indica, Crapemyrtle	2 - 3" (multi-stem)	8	0.60	Intermediate	0.40	7.0	NO APPARENT BIOTIC ISSUES OBSERVED.
139	Crataegus spp, Hawthorn	10.0	10	0.38	Intermediate	0.15	10.0	NO SEVERE BIOTIC ISSUES OBSERVED. VERY POOR SYMMETRY & SCAFFOLD BRANCHING.
140	Crataegus spp, Hawthorn	11.0	11	0.58	Intermediate	0.35	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
141	Crataegus spp, Hawthorn	9.0	9	0.10	Intermediate	0.20	8.0	TREE 141 IS IN DECLINE.
142	Quercus palustris, Pin Oak	9.0	9	0.50	Codominant	0.50	15.0	NO SEVERE BIOTIC ISSUES OBSERVED. TREE WITH ~13° LEAN. FUNGUS ON MID-TRUNK STEM.
143	Quercus rubra, Northern Red Oak	12.0	12	0.53	Codominant	0.75	16.0	NO APPARENT BIOTIC ISSUES OBSERVED. TREE 143 HAS A MID-TRUNK STEM CRACK & ROOT GIRDLE.
144	Pinus Virginiana, Virginia Pine	14.0	14	0.60	Codominant	0.70	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
145	Pinus Virginiana, Virginia Pine	16.3	17	0.60	Codominant	0.70	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
146	Pinus Virginiana, Virginia Pine	12.5	13	0.54	Codominant	0.50	15.0	NO SEVERE BIOTIC ISSUES OBSERVED.
147	Tilia cordata, Littleleaf Linden	12.6	13	0.35	Codominant	0.60	16.0	TREE 147 SHOWS DECLINE. OPEN CANKER, EXFOLIATING BARK & ROOT GIRDLE.
148	Pinus Virginiana, Virginia Pine	9.4	10	0.35	Codominant	0.35	11.0	TREE 148 HAS POOR SCAFFOLD BRANCHING BUT SHOWS NO SEVERE BIOTIC ISSUES OBSERVED.
149	Tilia cordata, Littleleaf Linden	10.5	11	0.58	Codominant	0.60	14.0	NO SEVERE BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
150	Pinus Virginiana, Virginia Pine	12.5	13	0.59	Codominant	0.50	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
151	Pinus Virginiana, Virginia Pine	12.3	13	0.59	Codominant	0.60	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
152	Pinus Virginiana, Virginia Pine	16.4	17	0.60	Codominant	0.65	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
153	Pinus Virginiana, Virginia Pine	11.4	12	0.50	Codominant	0.45	13.0	TREE 148 HAS POOR SCAFFOLD BRANCHING BUT SHOWS NO SEVERE BIOTIC ISSUES OBSERVED.
154	Pinus Virginiana, Virginia Pine	11.4	12	0.58	Codominant	0.45	14.0	NO APPARENT BIOTIC ISSUES OBSERVED.
155	Tilia cordata, Littleleaf Linden	13.0	13	0.60	Codominant	0.65	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
156	Pinus Virginiana, Virginia Pine	10.0	10	0.58	Codominant	0.45	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
157	Pinus Virginiana, Virginia Pine	15.8	16	0.60	Dominant	0.75	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
158	Pinus Virginiana, Virginia Pine	13.3	14	0.58	Dominant	0.75	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
159	Tilia cordata, Littleleaf Linden	14.3	15	0.60	Dominant	0.75	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
160	Pinus Virginiana, Virginia Pine	10.5	11	0.54	Codominant	0.60	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/GOOD SCAFFOLD BRANCHING.
161	Pinus Virginiana, Virginia Pine	12.7	13	0.59	Codominant	0.55	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
162	Pinus Virginiana, Virginia Pine	19.5	20	0.62	Codominant	0.75	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
163	Pinus Virginiana, Virginia Pine	13.3	14	0.54	Codominant	0.60	12.0	NO APPARENT BIOTIC ISSUES OBSERVED. FAIR/GOOD SCAFFOLD BRANCHING.
164	Pinus Virginiana, Virginia Pine	17.2	18	0.58	Codominant	0.65	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
165	Tilia cordata, Littleleaf Linden	14.8	15	0.60	Codominant	0.75	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
166	Pinus Virginiana, Virginia Pine	15.7	16	0.62	Codominant	0.75	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
167	Tilia cordata, Littleleaf Linden	12.7	13	0.60	Codominant	0.60	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
168	Crataegus spp, Hawthorn	7.5*	8	0.60	Intermediate	0.50	12.0	NO APPARENT BIOTIC ISSUES OBSERVED.
169	Platanus occidentalis, American Sycamore	9.0	9	0.60	Codominant	0.50	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
170	Tilia cordata, Littleleaf Linden	12.2	13	0.60	Codominant	0.55	16.0	NO APPARENT BIOTIC ISSUES OBSERVED. ROOT GIRDLE.
171	Pinus Virginiana, Virginia Pine	14.0	14	0.60	Dominant	0.55	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
172	Pinus Virginiana, Virginia Pine	10.7	11	0.57	Codominant	0.65	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
173	Pinus Virginiana, Virginia Pine	13.0	13	0.53	Codominant	0.55	16.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/GOOD SCAFFOLD BRANCHING.
174	Pinus Virginiana, Virginia Pine	12.3	13	0.60	Codominant	0.65	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
175	Pinus Virginiana, Virginia Pine	13.0	13	0.57	Codominant	0.55	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
176	Pinus Virginiana, Virginia Pine	11.3	12	0.40	Codominant	0.20	11.0	NO SEVERE BIOTIC ISSUES OBSERVED. LOW CANOPY RATIO W/ F/P SCAFFOLD BRANCHING.
177	Tilia cordata, Littleleaf Linden	11.5	12	0.60	Codominant	0.60	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
178	Pinus Virginiana, Virginia Pine	10.5	11	0.60	Codominant	0.55	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
179	Pinus Virginiana, Virginia Pine	5.2	8	0.00 - 0.05	Intermediate	0.20	6.0	TREE 179 IS IN DECLINE. NEAR NECROSIS.
180	Pinus Virginiana, Virginia Pine	10.2	11	0.40	Codominant	0.25	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. F/P SCAFFOLD BRANCHING.
181	Pinus Virginiana, Virginia Pine	10.0	10	0.53	Codominant	0.60	14.0	NO APPARENT BIOTIC ISSUES OBSERVED. F/G SCAFFOLD BRANCHING.
182	Pinus Virginiana, Virginia Pine	12.2	13	0.60	Codominant	0.40	16.0	NO APPARENT BIOTIC ISSUES OBSERVED.
183	Platanus occidentalis, American Sycamore	9.1	10	0.60	Codominant	0.50	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
184	Platanus occidentalis, American Sycamore	7.5	8	0.58	Codominant	0.65	16.0	NO APPARENT BIOTIC ISSUES OBSERVED. ASYMMETRIC CANOPY & CANOPY STORM DAMAGE.
185	Pinus Virginiana, Virginia Pine	11.5	12	0.59	Codominant	0.60	14.0	NO APPARENT BIOTIC ISSUES OBSERVED. F/G SCAFFOLD BRANCHING.
186	Pinus Virginiana, Virginia Pine	12.0	12	0.59	Codominant	0.65	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.
187	Pinus Virginiana, Virginia Pine	10.5	11	0.56	Codominant	0.40	12.0	NO APPARENT BIOTIC ISSUES OBSERVED. ASYMMETRIC CANOPY & CANOPY STORM DAMAGE.
188	Pinus Virginiana, Virginia Pine	11.5	12	0.57	Codominant	0.55	14.0	NO APPARENT BIOTIC ISSUES OBSERVED.
189	Pinus Virginiana, Virginia Pine	15.0	15	0.58	Codominant	0.60	17.0	NO APPARENT BIOTIC ISSUES OBSERVED. CODOM TRUNK STEMS AT 3.5VF (INCLUDED).
190	Platanus occidentalis, American Sycamore	9.0	9	0.63	Dominant	0.50	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
191	Pinus Virginiana, Virginia Pine	12.0	12	0.58	Dominant	0.35	17.0	NO APPARENT BIOTIC ISSUES OBSERVED. DEADWOOD IN CANOPY.

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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

EXISTING TREE INVENTORY

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-04B

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011C EXISTING TREE CONSERVATION INVENTORY.dwg LAYOUT: C-04B EXISTING TREE CONSERVATION INVENTORY 2 USER: Masangkay DATE: October 19, 2020 TIME: 4:43:43 PM

Tree No.	Species	Size	CRZ	Condition	Canopy Position	Crown Desnsity	Average Crown Radius	Existing Conditions / Observations
		*DBH (in)	R (ft)	%		%	R (ft)	
192	Pinus Virginiana, Virginia Pine	14.0	14	0.63	Dominant	0.75	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
193	Pinus Virginiana, Virginia Pine	13.0	13	0.59	Dominant	0.45	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. DEADWOOD IN CANOPY.
194	Platanus occidentalis, American Sycamore	12.0	12	0.65	Dominant	0.60	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
195	Platanus occidentalis, American Sycamore	11.0	11	0.63	Dominant	0.65	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
196	Pinus Virginiana, Virginia Pine	14.0	14	D	Dominant	0.60	14.0	FAIR/POOR VIGOR & VITALITY. F/P SCOFFOLD BRANCHING
197	Pinus Virginiana, Virginia Pine	11.3	12	0.58	Dominant	0.70	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
198	Platanus occidentalis, American Sycamore	11.8	12	0.63	Dominant	0.65	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
199	Pinus Virginiana, Virginia Pine	11.5	12	0.40	Codominant	0.15	11.0	NO SEVERE BIOTIC ISSUES OBSERVED. LOW CANOPY RATIO. FAIR/POOR SCAFFOLD BRANCHING.
200	Pinus Virginiana, Virginia Pine	13.3	14	0.59	Codominant	0.75	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
201	Pinus Virginiana, Virginia Pine	15.4	16	0.60	Dominant	0.25	14.0	NO APPARENT BIOTIC ISSUES OBSERVED.
202	Pinus Virginiana, Virginia Pine	18.0	18	0.63	Codominant	0.75	18.0	NO APPARENT BIOTIC ISSUES OBSERVED.
203	Pinus Virginiana, Virginia Pine	12.0	12	0.54	Codominant	0.25	14.0	NO SEVERE BIOTIC ISSUES OBSERVED. DEADWOOD & LOW CANOPY RATIO.
204	Platanus occidentalis, American Sycamore	9.0	9	0.60	Codominant	0.50	17.0	NO APPARENT BIOTIC ISSUES OBSERVED.
205	Pinus Virginiana, Virginia Pine	12.5	13	0.60	Codominant	0.75	14.0	NO SEVERE BIOTIC ISSUES OBSERVED. CANOPY DEADWOOD & STORM DAMAGE.
206	Pinus Virginiana, Virginia Pine	11.0	11	0.54	Codominant	0.65	13.0	NO SEVERE BIOTIC ISSUES OBSERVED. FAIR/GOOD SCAFFOLD BRANCHING.
207	Pinus Virginiana, Virginia Pine	13.5	14	0.60	Codominant	0.75	14.0	NO APPARENT BIOTIC ISSUES OBSERVED.
208	Pinus Virginiana, Virginia Pine	10.2	11	0.58	Codominant	0.70	14.0	NO APPARENT BIOTIC ISSUES OBSERVED.
209	Pinus Virginiana, Virginia Pine	13.4	14	0.58	Codominant	0.70	14.0	NO APPARENT BIOTIC ISSUES OBSERVED. CODOM TRUNK STEMS AT ~10VF (INCLUDED).
210	Pinus Virginiana, Virginia Pine	8.7	9	0.58	Codominant	0.70	13.0	NO APPARENT BIOTIC ISSUES OBSERVED.
211	Pinus Virginiana, Virginia Pine	11.2	12	0.62	Codominant	0.70	15.0	NO APPARENT BIOTIC ISSUES OBSERVED.

DBH = Diameter at Breast Height (measured 4.5 feet above ground).

CRZ =Critical Root Zone (1 foot of radius per inch of tree diameter). CRZ for trees with multiple stems are calculated based on the diameter of a tree with the basal area equal to the sum of the basal areas for all stems measured.

* = Indicates that low branching precludes trunk caliper measurement at 4.5 feet. Measurement is from smallest circumference below the lowest branching.

Conditions Ratings are provided as percentages and are based on methods outlined in the "Guide for Plant Appraisal", 9th edition, published by the International Socielty of Arboriculture.

P:\projects\8011\8011D\DATA\Landscape & Trees\Ex Tree Inventory\[Ex Tree Invtory (2020.02.25).xls]Sheet1

VIKA

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COMMONWEALTH OF VIRGINIA
10/9/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

EXISTING TREE INVENTORY

DRAWN BY:
DESIGNED BY: PR
DATE ISSUED: OCTOBER 2, 2019

DWG. SCALE: 1" = 40'
JOB NO.: VV8011D
SHEET NO.: C-04C

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011C EXISTING TREE CONSERVATION INVENTORY.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:43:48 PM LAYOUT: C-04C EXISTING TREE CONSERVATION INVENTORY 3



VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

250 0 125 250 500 1000

(IN FEET)
1 inch = 250 ft.

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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

CONTEXT MAP

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 250'
JOB NO.	VV8011D
SHEET NO.	C-05

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D CONTEXT.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:44:13 PM LAYOUT: C-05 CONTEXT MAP



LEGEND

- PROPOSED SINGLE FAMILY TOWNHOUSES
- PROPOSED STACKED TOWNHOUSES
- PROPOSED SIDEWALK
- PROPOSED TRAIL
- PROPOSED SPECIAL PAVING
- PROPOSED 8' ASPHALT CYCLE TRACK
- PROPOSED LIMITS OF CLEARING AND GRADING
- PROPERTY LINE
- MAILBOX
- STAMPED COLORED ASPHALT CROSSWALK
- PROPOSED BENCH

NOTES:

- ALL INTERNAL STREETS WILL HAVE A POSTED SPEED LIMIT OF 25 MPH.
- ALL CURB RAMPS, GUTTER PANELS, AND CROSSWALKS WILL ADHERE TO ADA DESIGN AND STANDARDS.
- ALL CROSSWALKS TO BE STAMPED ASPHALT.
- PROPOSED SIGNS AND EASEMENTS WILL BE PROVIDED AT FUTURE ROAD AND PEDESTRIAN CONNECTIONS AT THE TIME OF FINAL SITE PLAN.
- SCHOOL BUSES ARE NOT EXPECTED TO ENTER THE SITE. SCHOOL BUS STOP WILL BE LOCATED ON HERNDON PARKWAY
- EXERCISE LOCATIONS TO BE DETERMINED AT SITE PLAN.
- FUTURE PEDESTRIAN/ROAD CONNECTIONS TO BE PROVIDED BY OTHERS WITH ADJACENT REDEVELOPMENT.

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

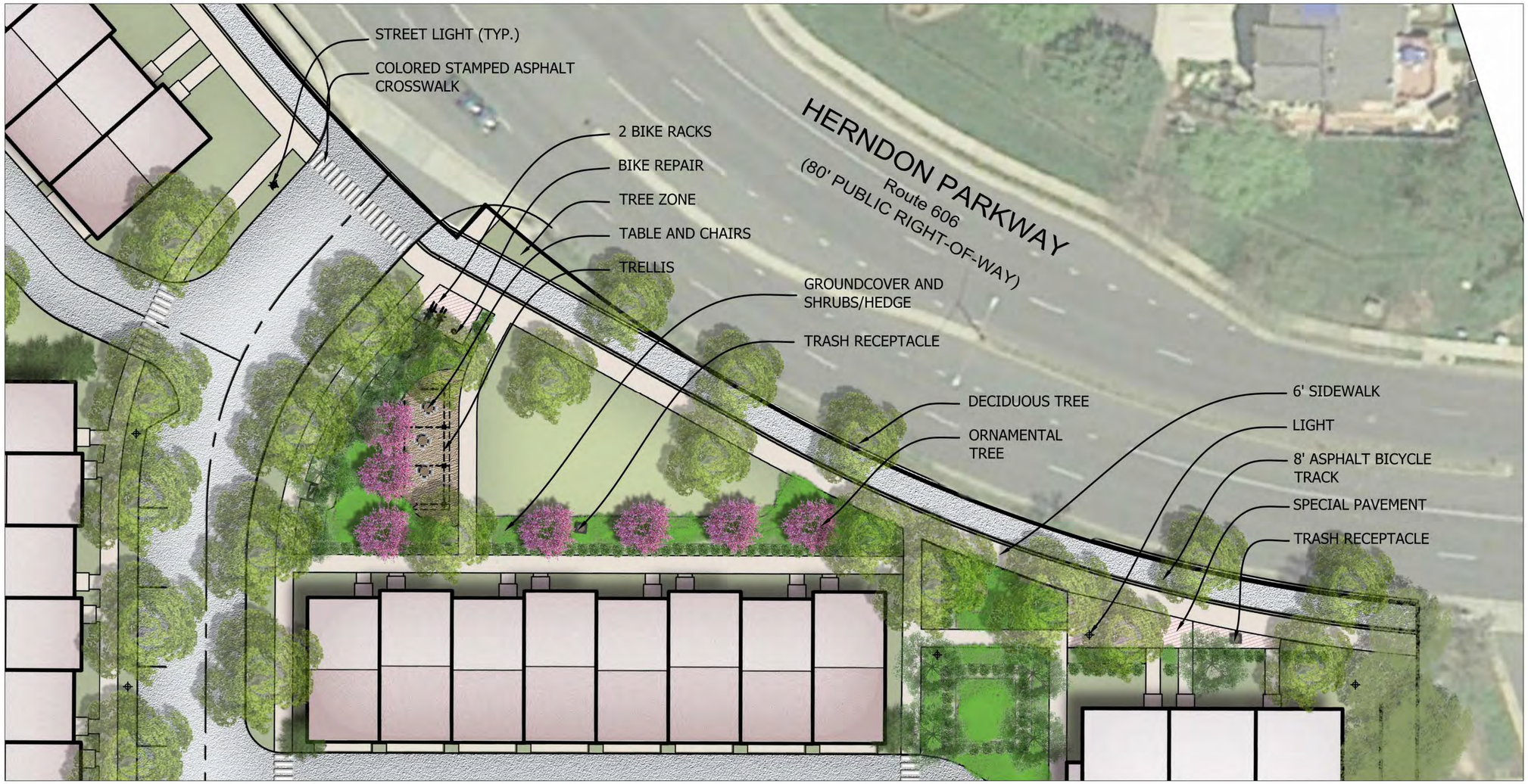
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

OVERALL CONCEPT PLAN

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-06

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D OVERALL CONCEPT PLAN.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:44:42 PM LAYOUT: C-06 OVERALL CONCEPT PLAN





BICYCLE REPAIR STATION



GARBAGE BIN



STREET LIGHT



PARK BENCH

NOTE: SITE FURNISHINGS TO CONFORM TO THE HERNDON STREETSCAPE MANUAL.

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

15 0 7.5 15 30 60

(IN FEET)
1 inch = 15 ft.

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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

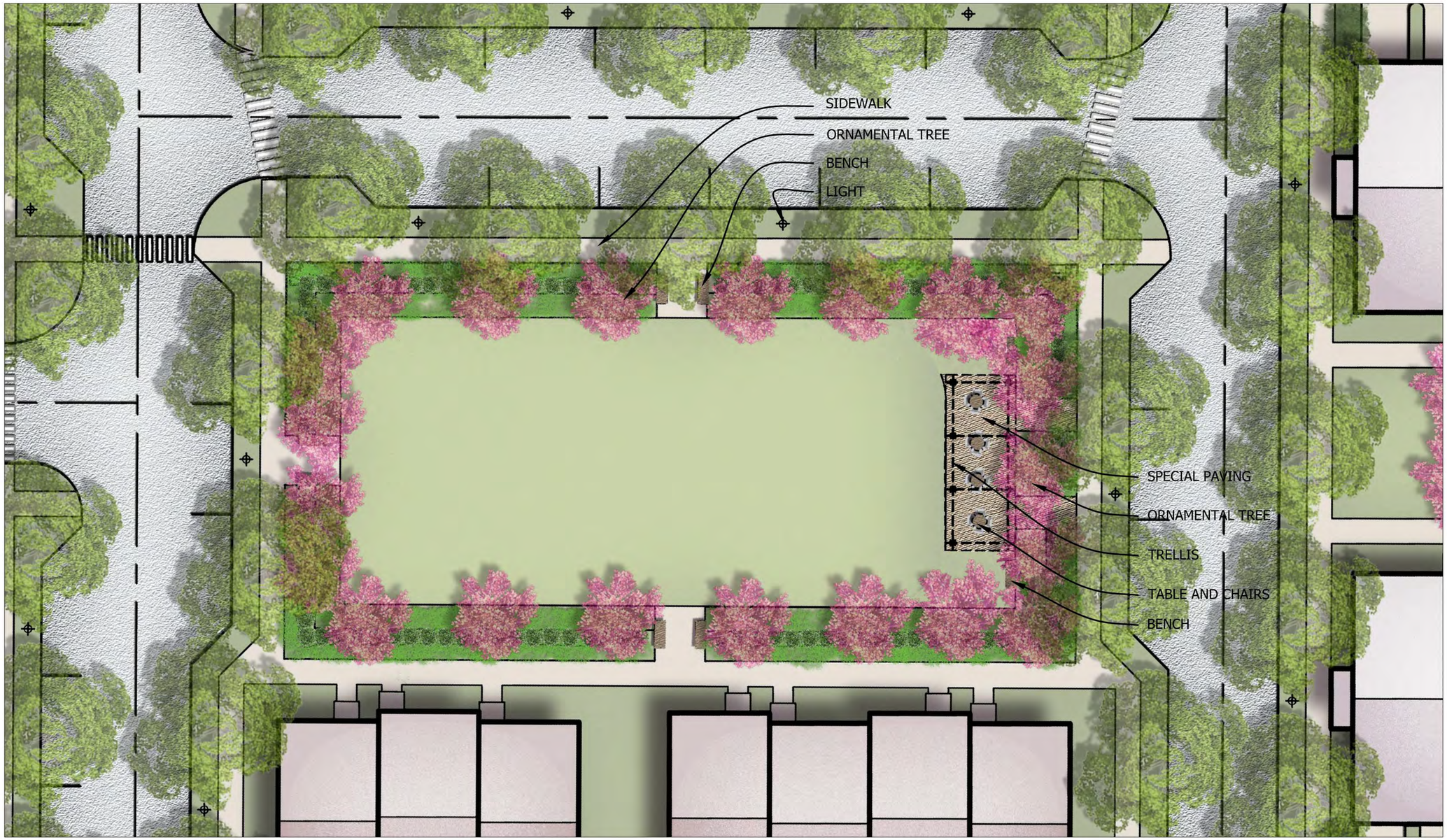
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

ENLARGEMENT OPEN SPACE 1

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS SHOWN
JOB NO.	VV8011D
SHEET NO.	C-06A

FILE: P:\projects\80111D\CADD\PLANNING\PLANNING DRAWINGS\80111D OVERALL CONCEPT PLAN.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:45:02 PM LAYOUT: C-06A ENLARGEMENT OPEN SPACE 1



VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

VIKA
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LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

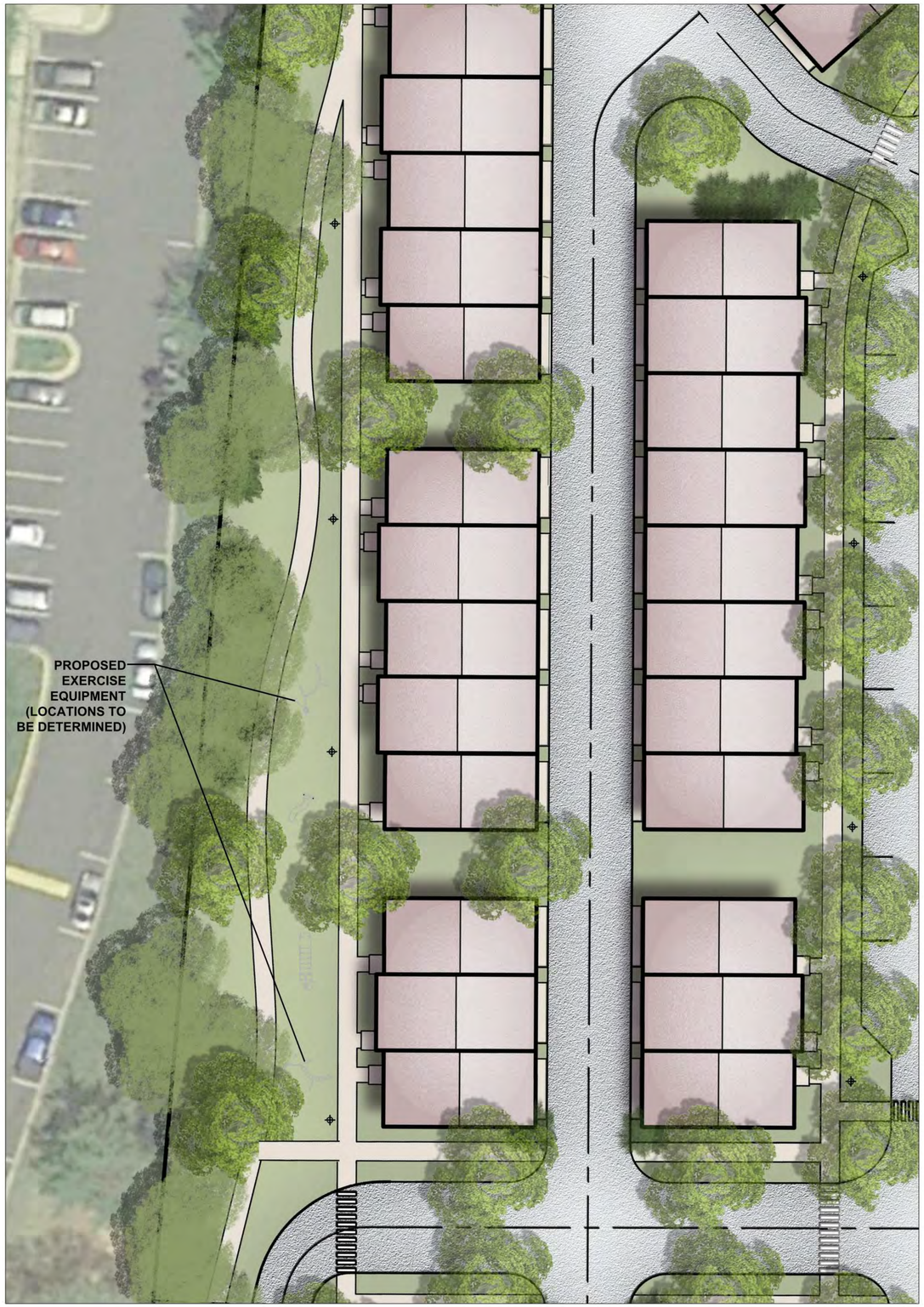
PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

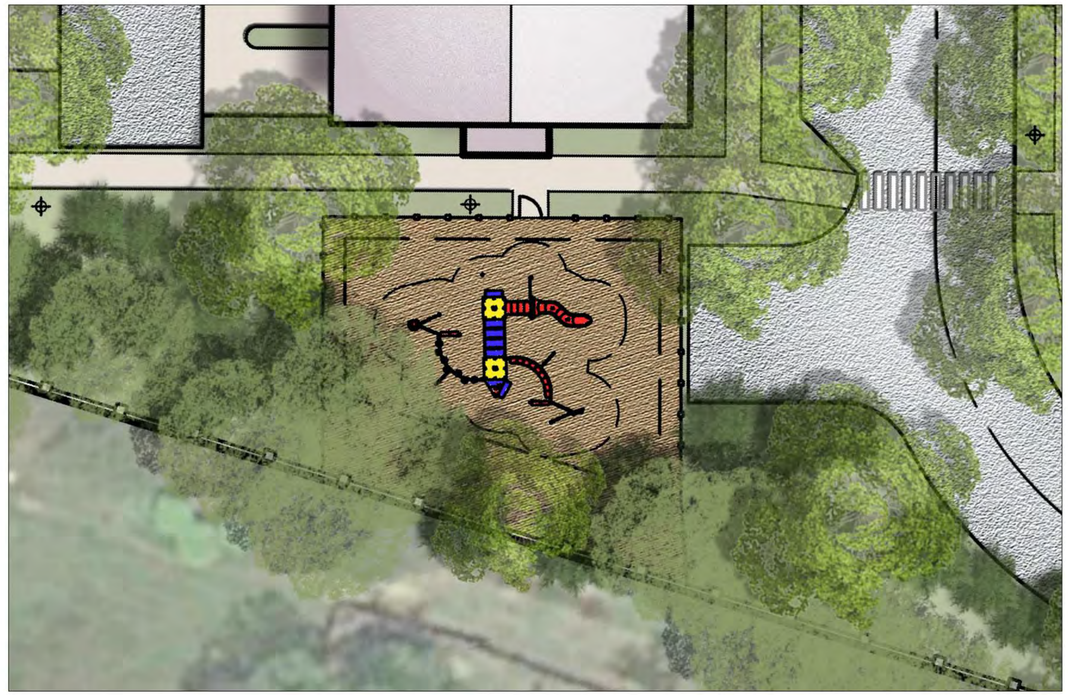
ENLARGEMENT OPEN SPACE 4

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS SHOWN
JOB NO.	VV8011D
SHEET NO.	C-06B

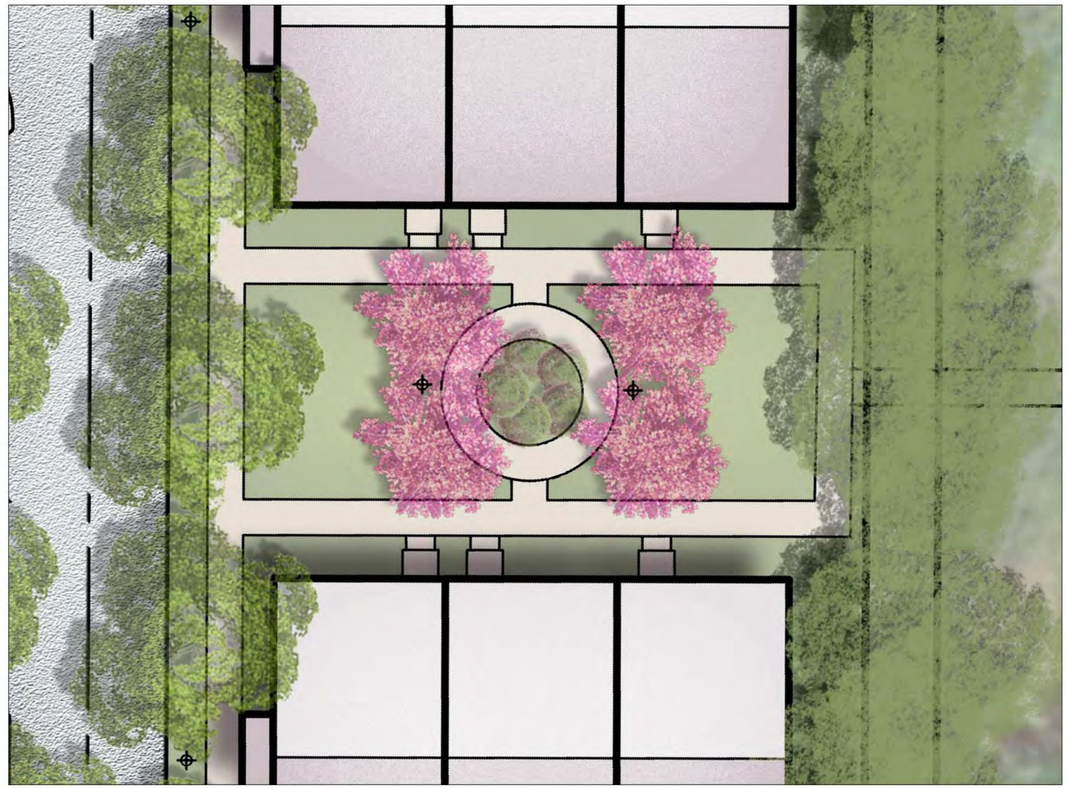
FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D OVERALL CONCEPT PLAN.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:45:23 PM LAYOUT: C-06B ENLARGEMENT OPEN SPACE 4



PROPOSED TRAIL - OPEN SPACE 2



PROPOSED TOTLOT - OPEN SPACE 3



PROPOSED OPEN SPACE 5

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10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

ENLARGEMENT OPEN SPACE 2, 3 AND 5

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS SHOWN
JOB NO.	VV8011D
SHEET NO.	C-06C

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D OVERALL CONCEPT PLAN.dwg USER: Masingkay DATE: October 19, 2020 TIME: 4:45:48 PM LAYOUT: C-06C ENLARGEMENT OPEN SPACE



OPEN SPACE 1



COURTYARD GREEN SPACE



PANORAMIC VIEW - OPEN SPACE 1

ENGINEERS PLANNERS SURVEYORS
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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

PERSPECTIVE VIEWS

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS SHOWN
JOB NO.	VV8011D
SHEET NO.	C-06D

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D OVERALL CONCEPT PLAN.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:45:54 PM LAYOUT: C-06D MODEL VIEWS



LEGEND

- PROPOSED SINGLE FAMILY TOWNHOUSES
- PROPOSED STACKED TOWNHOUSES
- PROPOSED SIDEWALK
- PROPOSED TRAIL
- PROPOSED SPECIAL PAVING
- PROPOSED 8' ASPHALT CYCLE TRACK
- PROPOSED LIMITS OF CLEARING AND GRADING
- PHASE 1 LINE
- PROPERTY LINE
- MAILBOX
- STAMPED COLORED ASPHALT CROSSWALK
- PROPOSED BENCH
- INTERIM IMPROVEMENTS IN PHASE 2 TO BE PROVIDED IN PHASE 1

PHASE 1 TABULATION

REQUIRED		PROPOSED	
		SITE AREA	8.8170AC. OR 384,068 SF.
		AREA OF DEDICATION	9,639 SF.
		SITE AREA AFTER DEDICATION	8.59 AC. OR 374,429 SF.
ZONE:	PD-UR	ZONE:	PD-UR
MIN. DISTRICT SIZE:	2.5 AC.	DISTRICT SIZE:	8.81 AC.
USE:		USE:	SINGLE FAMILY TOWNHOUSE UNITS (SFTHU), STACKED TOWNHOUSE (STU), OFFICE
MAX. DENSITY:		DENSITY:	12.6 DU/AC.
1) HOUSING TYPE	15 DU/AC		
2) HOUSING TYPE	20 DU/AC		
3) EX. OFFICE		31,580 sf	NON CONFORMING
MIN. SETBACKS	10' FROM PUBLIC RIGHT OF WAY; 5' FROM PRIVATE RIGHT OF WAY	MIN. SETBACKS	
		FRONT:	5'
		SIDE:	4'
		REAR:	3' OR 18' WITH PARKING
LOT WIDTH:		LOT WIDTH:	20' INTERIOR; 24' CORNER LOT
UNITS:		UNITS:	111
		SINGLE FAMILY ATTACHED	55 UNITS
		STACKED 2 OVER 2 CONDOS	56 UNITS
BUILDING LOT COVERAGE:		BUILDING LOT COVERAGE	79430 (29%)
MIN. OPEN SPACE:	20% OF SITE	OPEN SPACE:	89459 SF (23%)
MIN. SPACE FOR RECREATION:	8% OF SITE	RECREATION OPEN SPACE:	27,050(10%)
PARKING: HOUSING	2.33/UNIT	PARKING (2.63/UNIT)	269 SPACES
		GUEST PARKING:	34 SPACES
		GARAGE PARKING:	166 SPACES
		DRIVEWAY:	82 SPACES
PARKING: OFFICE	1/300 GFA	1/300 GFA	106 SPACES
MAX. BUILDING HEIGHT:	40' WHEN LOCATED WITHIN 50'OF THE PROPERTY ZONED R-15, R-10, PD-R, OR RTC; OTHERWISE 50'	BUILDING HEIGHT:	
		SINGLE FAMILY ATTACHED:	40'
		STACKED TOWNHOUSE UNITS	50'
NUMBER OF FLOORS:	ONE FLOOR	NUMBER OF FLOORS:	
		TOWNHOUSES:	3 FLOORS
		2 OVER 2S:	4 FLOORS
		OFFICE	1 FLOOR
MAX. DISTANCE FROM RIGHT OF WAY	15', MAY BE INCREASED TO 40' TO ACCOMMODATE A LANDSCAPE PARK FOR NO MORE THAN 30% OF THE LINEAR FOOTAGE	MAX. DISTANCE FROM RIGHT OF WAY	87' See Sheet C-07
MIN. DISTANCE BETWEEN BUILDINGS AND THE BOUNDARIES OF THE DEVELOPMENT	18'	MIN. DISTANCE BETWEEN BUILDINGS AND THE BOUNDARIES OF THE DEVELOPMENT	18'
MIN. DISTANCE (FEET) BETWEEN PAVED SURFACES AND THE BOUNDARIES OF THE DEVELOPMENT	SUBJECT TO BUFFER REQUIREMENTS IN ARTICLE XI, DEVELOPMENT STANDARDS	MIN. DISTANCE (FEET) BETWEEN PAVED SURFACES AND THE BOUNDARIES OF THE DEVELOPMENT	0' See Sheet C-07

VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

PHASING PLAN PHASE 1

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-07

FILE: P:\projects\80110\CADD\PLANNING\PLANNING DRAWINGS\80110 PHASING PLAN-1.dwg LAYOUT: C-07 PHASING PLAN PHASE 1
USER: Masangkay DATE: October 19, 2020 TIME: 4:46:28 PM



LEGEND

- PROPOSED SINGLE FAMILY TOWNHOUSES
- PROPOSED STACKED TOWNHOUSES
- PROPOSED SIDEWALK
- PROPOSED TRAIL
- PROPOSED SPECIAL PAVING
- PROPOSED 8' ASPHALT CYCLE TRACK
- PROPOSED LIMITS OF CLEARING AND GRADING
- PHASE 1 LINE
- PROPERTY LINE
- MAILBOX
- STAMPED COLORED ASPHALT CROSSWALK
- PROPOSED BENCH

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

VIKA

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10/19/20
ROBERT R. COCHRAN
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LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

PHASING PLAN PHASE 2

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-07A

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Lic. No. 2012
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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

OVERALL ILLUSTRATIVE PLAN

DRAWN BY:	PR
DESIGNED BY:	
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 50'
JOB NO.	VV8011D
SHEET NO.	C-07B

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LEGEND

- PROPOSED LIMITS OF CLEARING AND GRADING
- PROPERTY LINE
- PHASE 1 LINE

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA

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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

GRADING AND UTILITY PHASE 1

DRAWN BY:	PR
DESIGNED BY:	
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-08

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LEGEND

- PROPOSED LIMITS OF CLEARING AND GRADING
- PROPERTY LINE

CYPRESS TREE PLACE (VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)

HERNDON PARKWAY ROUTE 606 (90' PUBLIC RIGHT-OF-WAY)

AUTUMNHAZE CT

EXISTING WATERMAIN

CONNECT TO EX. STORM

CONNECT TO EX. WATER

PROP. B.O.V.

PROP. WATER

PROP. SAN

PROP. STORM

CONNECT TO EX. SANITARY

PROPOSED MANHOLE WITH FLOW SPLITTER TO BYPASS PUBLIC STORM

PROP. STORM VAULT

3 TYP.

20' TYP.

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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10/19/20
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Lic. No. 2012
CIVIL ENGINEER

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

GRADING AND UTILITY PHASE 2

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-08A

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D GRAD & UTIL.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:47:30 PM LAYOUT: C-08A GRADING AND UTILITY PHASE 2


CYPRESS TREE PLACE
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)
HERNDON PARKWAY
Route 606 (MINOR ARTERIAL)
(80' PUBLIC RIGHT-OF-WAY)
ASPHALT PAVEMENT
GRASS MEDIAN
CONC. CURB
AUTUMNHAZE CT
D.B. 19970 PG. 2178
EX. FH TO REMAIN IN PHASE 1
EX. FDC TO REMAIN
3 TYP.
20' TYP.
100'±
1-2
3-4
5-6
7-8
9-10
11-12
13-14
15-16
17-18
19-20
21-22
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67-68
69-70
71-72
73-74
75-76
77-78
79-80



LEGEND:

EMERGENCY VEHICLE ACCESS PATH (TO BE PAINTED AND SIGNED AS NEEDED)

FIRE ACCESS SHEET REQUIREMENTS

1. ALL ROADS PROPOSED BY THE PROJECT, AS WELL AS ADJOINING ROADS; THE CLASSIFICATIONS OF THE ROADS (I.E. ARTERIAL, COLLECTOR, ETC.) SHOULD BE NOTED. (PROVIDED)
2. LOCATION AND DIMENSIONS OF ALL FIRE ACCESS LANES AND TURNAROUNDS; VEHICLE ACCESS TO THE REAR OF BUILDINGS, INCLUDING INTERIOR COURTYARDS FOR STICK-BUILD, DONUT-SHAPED BUILDINGS, NEEDS TO BE SHOWN. (TO BE PROVIDED)
3. ARROW DIAGRAMS INDICATING WHERE EMERGENCY VEHICLES CAN ACCESS BUILDINGS. (TO BE PROVIDED)
4. DIMENSIONS OF THE DISTANCE BETWEEN THE PORTIONS OF THE ROADWAY THAT ARE ACCESSIBLE TO FIRE TRUCKS AND THE FAÇADES OF THE BUILDINGS. THE TARGET DISTANCE IS BETWEEN 15 AND 30 FEET SEPARATION. (PROVIDED)
5. IMPROVEMENTS PLANNED FOR THE AREA BETWEEN THE PORTIONS OF THE ROADWAY THAT ARE ACCESSIBLE TO FIRE TRUCKS AND THE FACADES OF THE BUILDINGS, INCLUDING PARKING LANES, GARAGE PODIUMS, LANDSCAPED AREAS, STEEP SLOPES, SIDEWALKS, PLAZAS, YARDS, OUTDOOR SEATING AREAS, STEPS, PLANTERS, SCULPTURES, ETC. (PROVIDED)
6. CLEAR IDENTIFICATION OF BUILDING FOOTPRINTS, CANTILEVERED EXTENSIONS, PENTHOUSES, BALCONIES, PATIOS, ETC. (PROVIDED)
7. HEIGHTS OF THE PROPOSED BUILDINGS; FOR BUILDINGS WITH MULTIPLE HEIGHTS DUE TO STEP BACKS, THE HEIGHT AND NUMBER OF STORIES OF EACH BUILDING SEGMENT SHOULD BE CLEARLY NOTED. (PROVIDED)
8. LOCATION OF OVERHEAD UTILITY LINES. (PROVIDED)
9. IDENTIFICATION OF CONSTRUCTION TYPE FOR EACH BUILDING; FOR MULTIPLE BUILDINGS LOCATED ON A SINGLE GARAGE PODIUM, THE CONSTRUCTION TYPE FOR EACH BUILDING MUST BE IDENTIFIED - THE GARAGE PODIUM CAN BE IDENTIFIED AS A BLOCK, WITH EACH BUILDING IDENTIFIED SEPARATELY. EACH PORTION OF STRUCTURE WITH A DIFFERENT CONSTRUCTION TYPE IS CONSIDERED A SEPARATE BUILDING. STRUCTURES THAT ARE SEPARATED BY A FIRE WALL ARE ALSO CONSIDERED SEPARATE BUILDINGS. (PROVIDED)
10. TYPE OF BUILDING SKIN MATERIAL (COMBUSTIBLE/NON-COMBUSTIBLE), TYPE OF SPRINKLERS (TYPE NFPA 13; IF 13R PLEASE EXPLAIN), AND ROOF TYPE (CLASS A PREFERRED). (PROVIDED)
11. LOCATION OF PROPOSED BUILDING ENTRANCES, BOTH PEDESTRIAN AND VEHICULAR; ACCESS DOORS AND ELEVATORS, INCLUDING MEDEVAC ELEVATORS, SHOULD BE SHOWN ON THE FDP. ALSO, ANY INTERIOR ROUTES AVAILABLE FOR EMERGENCY VEHICLE USE, SUCH AS SUITABLY SIZED DRIVEWAYS THROUGH PARKING GARAGES AND COURTYARDS, SHOULD BE DELINEATED (PROVIDED)
12. LOADING AREAS AND WHETHER THEY ARE ACCESSIBLE TO EMERGENCY VEHICLES. (PROVIDED)
13. ACCESS TO ACTIVE COURTYARDS (ESPECIALLY WITH POOLS, TENNIS COURTS, ETC.) NEEDS TO BE SHOWN - HOW WILL THE MEDICAL STAFF GET THERE, WITH THEIR EQUIPMENT, QUICKLY (PROVIDED)

NOTES

1. ALL AREAS IDENTIFIED AS FIRE LANES, FIRE DEPARTMENT TURNAROUNDS, FIRE DEPARTMENT ACCESS AREAS OR OTHER RESTRICTED AREAS WILL HAVE BOLLARDS, PAINT, SIGNAGE AND OTHER REQUIRED IDENTIFICATION INSTALLED AS REQUIRED PRIOR TO STRUCTURE OCCUPANCY.
2. THE SITE DOES NOT EXCEED 6% IN GRADE ALONG FIRE ACCESS ROUTES
3. STAIR AND ELEVATOR LOCATIONS ARE CONCEPTUAL. FINAL LOCATIONS TO BE DETERMINED AT FINAL SITE PLAN.

VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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OWNER:
FM HERNDON CORPORATE CENTER LLC.
7200 WISCONSIN AVENUE, SUITE 100
BETHESDA, MD 20814
NEIL MARKUS
301-915-9460

APPLICANT:
STANLEY MARTIN COMPANIES, INC.
14200 PARK MEADOW DRIVE, SUITE 100N
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APPLICANTS REPRESENTATIVE:
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703-456-8168

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8180 GREENSBORO DRIVE, SUITE 200
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PETER RINEK
703-442-7800

TRAFFIC CONSULTANT:
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CHANTILLY, VA 20151
MARIA LASHINGER
703-787-9595

COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
AND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

PHASE 2 FIRE ACCESS PLAN

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-09A

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D FIRE ACCESS.dwg LAYOUT: C-09A PHASE 2 FIRE A
USER: Masangkay DATE: October 19, 2020 TIME: 4:48:10 PM



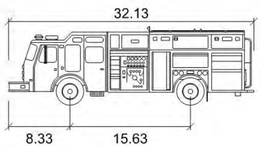
SCALE: 1" = 40'



SCALE: 1" = 20'



SCALE: 1" = 20'



PUMPER TRUCK	feet
Width	: 8.00
Track	: 7.89
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

LEGEND

- FRONT TIRES
- REAR TIRES
- VEHICLE BODY

VA STATE GRID NORTH (VSC 83)

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
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TYSONS, VA. GERMANTOWN, MD.

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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

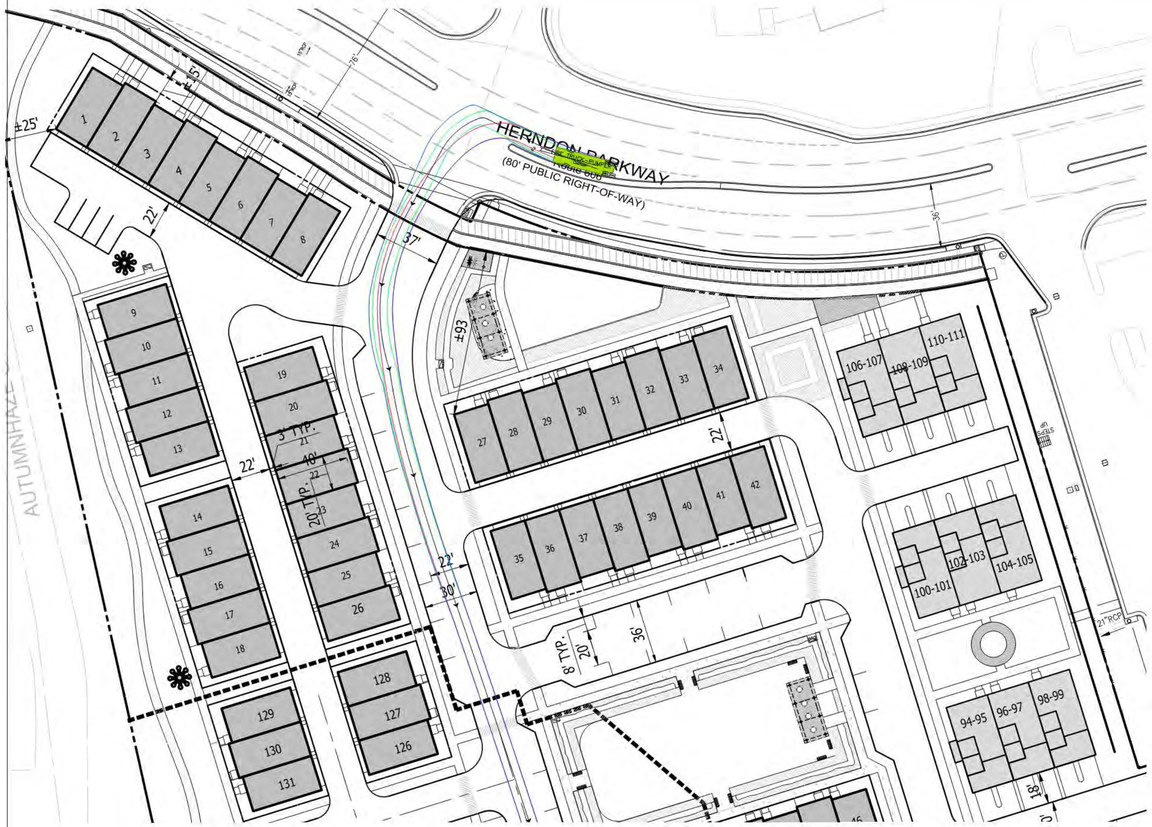
PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

AUTOTURN EXHIBIT PHASE 1

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS NOTED
JOB NO.	VV8011D
SHEET NO.	C-09B

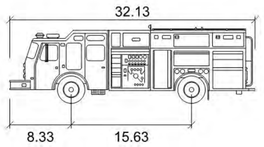
FILE: P:\projects\80111D\CADD\PLANNING DRAWINGS\80111D AUTOTURN EXHIBITS.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:48:36 PM LAYOUT: AUTOTURN EXHIBIT PHASE 1



SCALE: 1" = 40'



SCALE: 1" = 30'



PUMPER TRUCK	feet
Width	: 8.00
Track	: 7.89
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

LEGEND

FRONT TIRES

REAR TIRES

VEHICLE BODY

VA STATE GRID NORTH (VSC 83)

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

AUTOTURN EXHIBIT PHASE 2

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS NOTED
JOB NO.	VV8011D
SHEET NO.	C-09C

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D AUTOTURN EXHIBITS.dwg LAYOUT: AUTOTURN EXHIBIT PHASE 2 USER: Masangkay DATE: October 19, 2020 TIME: 4:48:45 PM



LEGEND:

- PUBLIC VEHICULAR ACCESS (NO IMPROVEMENTS)
- PRIVATE VEHICULAR ACCESS
- 5' PEDESTRIAN SIDEWALK
- 5' PEDESTRIAN TRAIL
- 8' CYCLE TRACK
- 6' SIDEWALK

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

PHASE 1 PEDESTRIAN & VEHICULAR CIRCULATION PLAN

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-10

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D TRAFFIC & PED.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:49:07 PM LAYOUT: C-10 PHASE 1 PEDESTRIAN & VEHICULAR CIRCULATION PLAN



LEGEND:

- PUBLIC VEHICULAR ACCESS (NO IMPROVEMENTS)
- PRIVATE VEHICULAR ACCESS
- 5' PEDESTRIAN SIDEWALK
- 5' PEDESTRIAN TRAIL
- 8' CYCLE TRACK
- 6' SIDEWALK

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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MARIA LASHINGER
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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

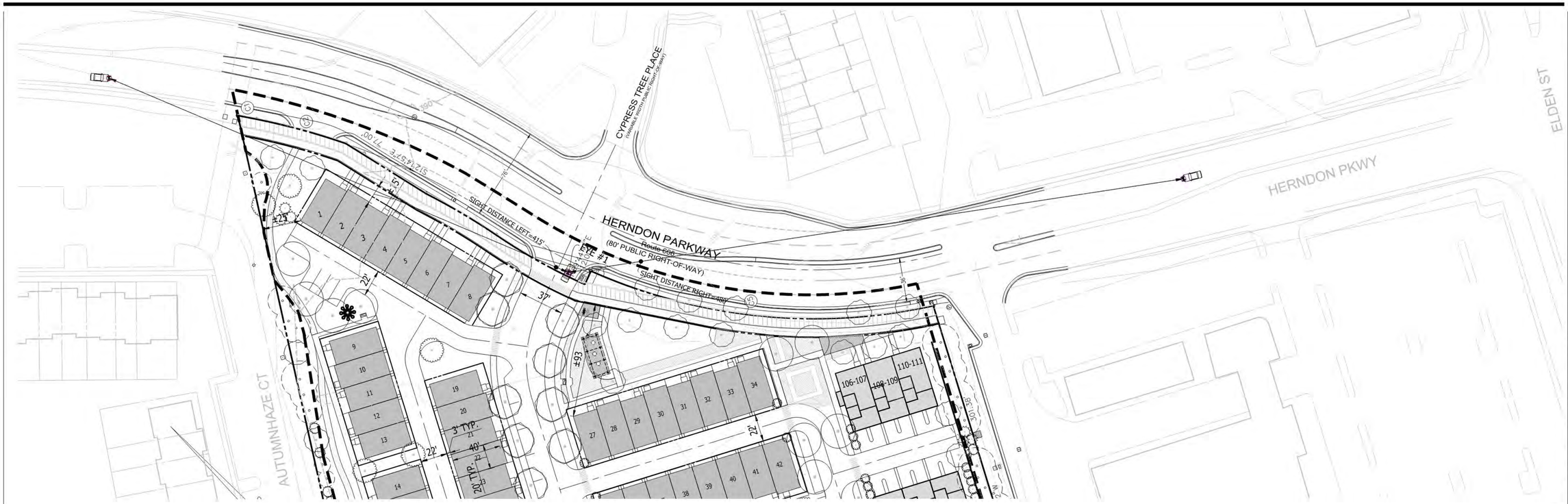
ZONING MAP AMENDMENT

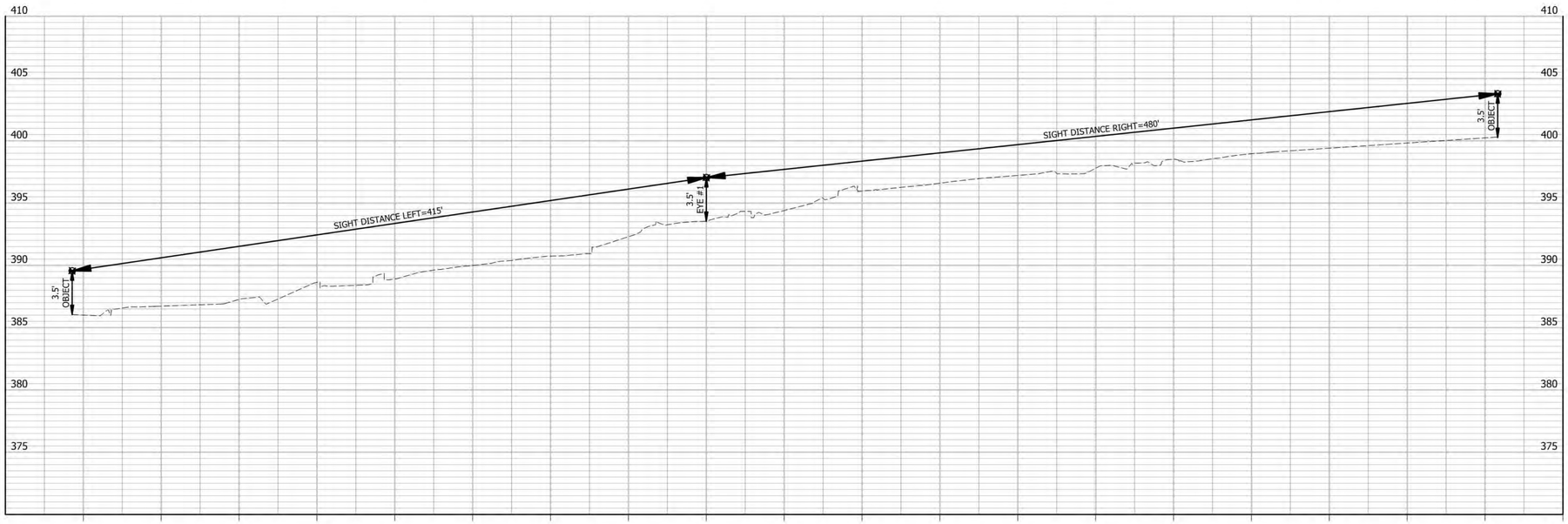
TOWN OF HERNDON, VA

PHASE 2 PEDESTRIAN & VEHICULAR CIRCULATION PLAN

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-10A

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D TRAFFIC & PED.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:49:13 PM LAYOUT: C-10A PHASE 2 PEDESTRIAN & VEHICULAR CIRCULATION PLAN





POSTED SPEED 35 MPH

VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

VIKA

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
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LANDSCAPE ARCHITECT:
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MARIA LASHINGER
703-787-9595

COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

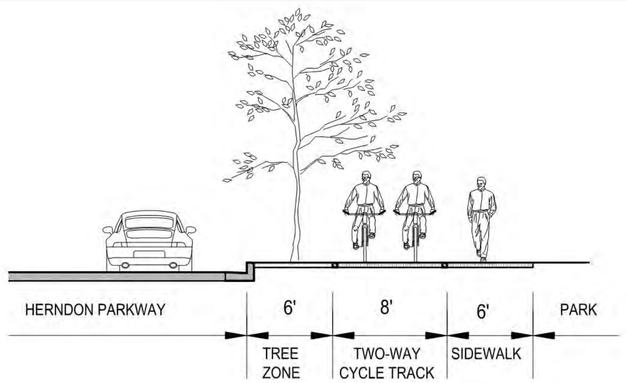
TOWN OF HERNDON, VA

SIGHT DISTANCE PLAN

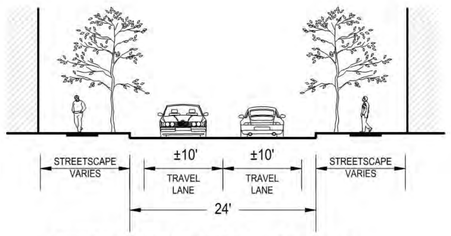
DRAWN BY:
DESIGNED BY: PR
DATE ISSUED: OCTOBER 2, 2019
DWG. SCALE: H:1" = 40'; V: 1"=5'
JOB NO.: VV8011D
SHEET NO.: C-11

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D SIGHT DISTANCE P&P.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:49:34 PM LAYOUT: C-11 SIGHT DISTANCE PLAN

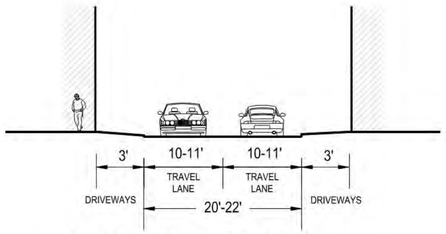




TYPICAL STREET SECTION E - E
SCALE: 1' = 5'



TYPICAL STREET SECTION A - A
SCALE: 1' = 10'



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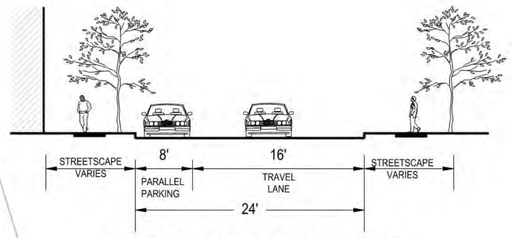
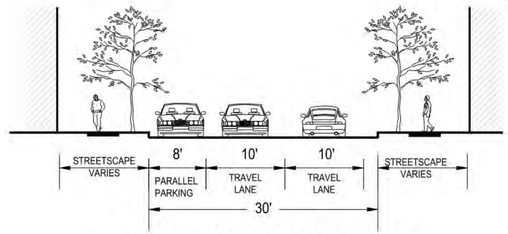
SCALE: 1' = 10'

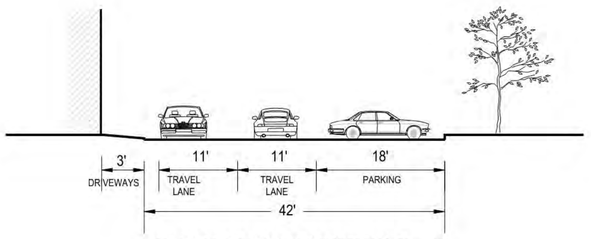


TYPICAL STREET SECTION F - F
SCALE: 1' = 10'

SEE PLAN FOR BUILDING LOCATIONS



TYPICAL STREET SECTION C - C
SCALE: 1' = 10'



TYPICAL STREET SECTION D - D
SCALE: 1' = 10'

* FINAL SITE DESIGN AND ENGINEERING SHOWN SHALL BE IN GENERAL CONFORMANCE BUT MAY CHANGE DURING THE FINAL SITE PLAN

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS
VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
FAX: (703) 761-2787
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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

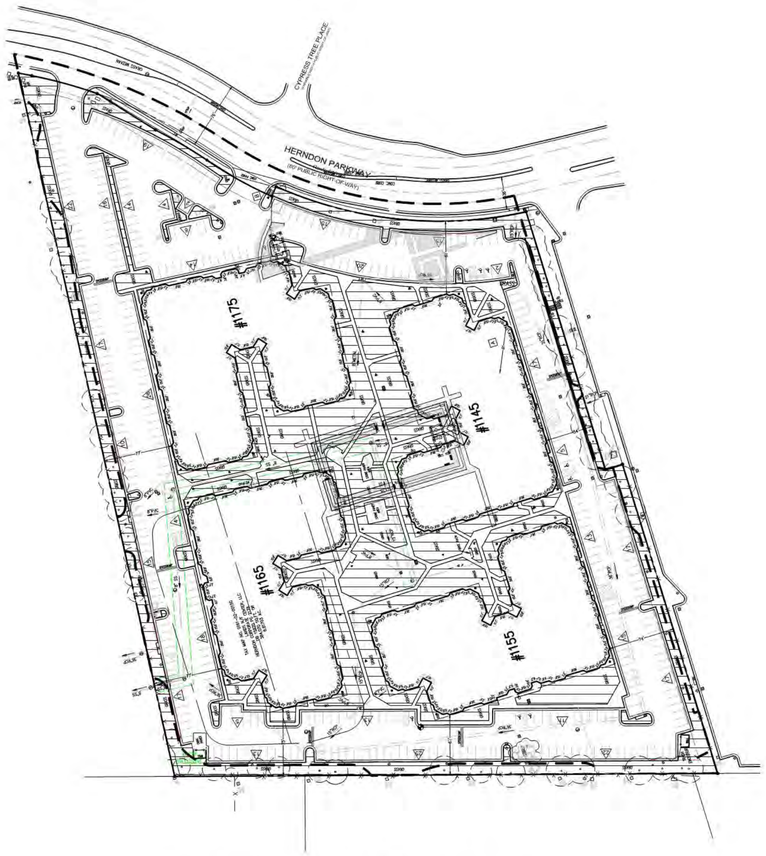
REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT
TOWN OF HERNDON, VA

TYPICAL STREET CROSS SECTIONS

DRAWN BY:
DESIGNED BY: PR
DATE ISSUED: OCTOBER 2, 2019
DWG. SCALE: 1" = 50'
JOB NO.: VV8011D
SHEET NO.: C-12

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D ROAD SECTION.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:50:04 PM LAYOUT: C-11 TYPICAL STREET CROSS SECTIONS





LEGEND

PRE DEVELOPMENT MANAGED TURF AREA

POST DEVELOPMENT IMPERVIOUS AREA

PRE-DEVELOPMENT DRAINAGE AREA TABULATION

IMPERVIOUS AREA = 6.53 ACRES
MANAGED TURF = 2.29 ACRES
TOTAL AREA = 8.82 ACRES

POST-DEVELOPMENT DRAINAGE AREA TABULATION - ULTIMATE CONDITIONS

IMPERVIOUS AREA = 5.60 ACRES
MANAGED TURF = 3.22 ACRES
TOTAL AREA = 8.82 ACRES

VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
CIVIL ENGINEER

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

PRE & POST DEVELOPMENT DRAINAGE AREA TABULATION

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 80'
JOB NO.	VV8011D
SHEET NO.	C-13

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D SWM.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:50:32 PM LAYOUT: C-12 PRE & POST DEVELOPMENT DRAINAGE AREA TABULATION



STORMWATER LEGEND

DEVICE	DCR STD./SPEC (COMMON NAME)
	CONTRIBUTING DRAINAGE TO PROPRIETARY BMP DEVICE

STORMWATER MANAGEMENT NARRATIVE

EXISTING SITE CONDITIONS:
THE EXISTING SITE MAINLY CONSISTS OF OFFICE BUILDINGS AND AN ASPHALT PARKING LOT. THE EXISTING GROUND COVER IS 74% IMPERVIOUS. NO CRITICAL OR STEEP SLOPES EXIST ON SITE. THE SITE RUNOFF IS CAPTURED VIA STORM DRAIN SYSTEM AND OUTFALLS INTO TWO STORM PIPES TO THE WEST OF THE SITE. OFFSITE RUNOFF IS CAPTURED AND CONVEYED THROUGH THE STORM DRAIN SYSTEM.

PROPOSED SITE CONDITIONS:
THE REDEVELOPMENT PROPOSES DEMOLITION OF THE EXISTING OFFICE BUILDINGS AND ASPHALT PARKING LOT AND BUILD APPROXIMATELY 150 TOWNHOUSES IN THREE PHASES. THE SITE PROPOSES A REDUCTION OF IMPERVIOUS AREA FROM THE EXISTING CONDITION.

ADJACENT PROPERTIES:
RUNOFF FROM THE EAST PROPERTY (ELDEN STREET MARKETPLACE) WILL BE CAPTURED BY THE PROPOSED UNDERGROUND STORM DRAIN SYSTEM AND CONVEYED TO THE OUTFALLS AT THE WEST SIDE OF THE SITE.

DETENTION REQUIREMENTS:
SITE RUNOFF WILL BE CAPTURED BY THE PROPOSED STORM DRAIN SYSTEM AND CONVEYED TO AN UNDERGROUND VAULT AT THE SITE'S MAIN OUTFALL. THE VAULT WILL BE OFFLINE OF THE STORM DRAIN SYSTEM AND STORM DRAIN MANHOLES WITH FLOW SPLITTERS WILL BE USED TO CONTROL THE OUTFLOW. THE VAULTS HAVE BEEN SIZED TO REDUCE THE 10 YEAR DESIGN STORM OUTFLOW 25% BELOW THE PRE-DEVELOPMENT.

WATER QUALITY REQUIREMENTS:
THE PROPOSED REDEVELOPMENT REDUCES THE IMPERVIOUS COVER FROM 6.53 ACRES TO 5.60 ACRES IN THE ULTIMATE CONDITION. THE WATER QUALITY REQUIREMENT WAS CALCULATED USING THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) FOR REDEVELOPMENT SPREADSHEET. THE PHOSPHORUS REMOVAL REQUIREMENT WILL BE MET USING THE PROPOSED STORMWATER MANAGEMENT VAULT. DUE TO THE PROPOSED DEVELOPMENT PHASING, THE SWM VAULT HAS BEEN SIZED AND DESIGNED TO MEET THE REQUIREMENTS OF THE ULTIMATE SITE CONDITIONS (1.21 LB/YR IN PHASE 1 < 1.61 LB/YR IN ULTIMATE CONDITION).

ADEQUATE OUTFALL ANALYSIS:
THE PROPOSED REDEVELOPMENT WILL UTILIZE TWO EXISTING OUTFALLS ON SITE. BOTH OUTFALLS ARE PART OF AN UNDERGROUND STORM DRAIN SYSTEM. SEE SHEET C-16 FOR OUTFALL MAP AND NARRATIVE.

INSPECTION AND MAINTENANCE:
ALL STORMWATER MANAGEMENT FACILITIES SHALL BE INSPECTED NO LESS THAN ONCE EVERY 5 YEARS PER TOWN OF HERNDON SECTION 26-330(d)(4). A MAINTENANCE AGREEMENT SHALL BE PROVIDED FOR PRIVATE STORMWATER MANAGEMENT FACILITIES PER TOWN OF HERNDON SECTION 26-330(d).

STORMWATER MANAGEMENT BMP ACCESS:
A 12' WIDE ACCESS EASEMENT IS PROVIDED FOR ALL STORMWATER MANAGEMENT FACILITIES.

NOTES:

1. THIS PLAN IS A CONCEPTUAL PLAN AND AS SUCH THE FINAL DESIGN OF UTILITIES, STORMWATER (SWM) FACILITIES, AND SITE FEATURES MAY BE SUBJECT TO MINOR MODIFICATIONS WITH FINAL CONSTRUCTION DOCUMENTS. AS SUCH, THE APPLICANT RESERVES THE RIGHT TO MODIFY THE TYPE, NUMBER, SHAPE, LOCATION, SIZE AND ALL OTHER CHARACTERISTICS OF THE SWM FACILITIES SHOWN HEREON, SO LONG AS THE ULTIMATE REQUIREMENTS FOR PHOSPHOROUS LOAD REDUCTION AND POST DEVELOPED PEAK RELEASE RATES ARE MET. IT SHALL ALSO BE UNDERSTOOD THAT THE APPLICANT RESERVES THE RIGHT TO USE ANY STORMWATER CONTROL FACILITY ALLOWED IN THE PFM AT THE TIME OF FINAL CONSTRUCTION DOCUMENTS, EVEN IF IT IS NOT DEPICTED IN THIS PLAN, SO LONG AS ALL REQUIRED DESIGN CRITERIA FOR SUCH FACILITY IS MET. DETENTION VAULTS AND FILTERING SYSTEM VAULTS MAY BE RELOCATED THROUGHOUT THE SITE WITH FINAL CONSTRUCTION PLANS TO MORE EFFICIENTLY OR EFFECTIVELY PROVIDE THE REQUIRED QUALITY/QUANTITY TREATMENT WITH FINAL CONSTRUCTION DOCUMENTS. IN ADDITION, SUCH FACILITIES MAY BE ELIMINATED (OR ADDITIONAL FACILITIES ADDED) WITH FINAL CONSTRUCTION DOCUMENTS.
2. COMPUTATIONS HEREON ARE BASED ON APPROXIMATIONS OF PROPOSED PERVIOUS/IMPERVIOUS AREA. AT THE TIME OF FINAL CONSTRUCTION PLANS, BASED ON FINAL PERVIOUS/IMPERVIOUS AREAS, THE FINAL SWM VOLUME REQUIREMENTS WILL BE DETERMINED. THE METHODOLOGY USED SHALL BE CONSISTENT WITH THAT SHOWN HEREON.
3. ALL GRADING SHOWN IS CONCEPTUAL AND SUBJECT TO CHANGE WITH THE FINAL SITE PLAN.
4. THE SWM SYSTEM AND BMP PRACTICES PROPOSED IN THE PLAN SHALL MEET ALL STATE AND LOCAL TOWN OF HERNDON REQUIREMENTS AT THE TIME OF SITE PLAN REVIEW. ALL SWM QUALITY AND QUANTITY REQUIREMENTS FOR THE PROJECT (INCLUDING REQUIREMENTS GENERATED BY OFFSITE DISTURBED AREAS AND FRONTAGE IMPROVEMENT AREAS) SHALL BE MET ON-SITE. ALL PROPOSED SWM FACILITIES SHALL BE PROVIDED ON-SITE AND WILL BE PRIVATELY MAINTAINED.

VA STATE GRID NORTH (VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

OVERALL STORMWATER MANAGEMENT PLAN

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	C-14

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D SWM.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:50:42 PM LAYOUT: C-13 OVERALL STORMWATER MANAGEMENT PLAN

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

☐ 2011 BMP Standards and Specifications ☑ 2013 Draft BMP Standards and Specifications

Project Name: Herndon Gateway Phase 1/1A
Date: 8/25/2020
Linear Development Project? No

CLEAR ALL

data input cells | constant values | calculation cells | final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 8.82

Check:

Maximum reduction required:	20%	BMP Design Specifications List:	2013 Draft Stds & Specs
The site's net increase in impervious cover (acres) is:	0	Linear project?	No
Post-Development TP Load Reduction for Site (lb/yr):	1.21	Land cover areas entered correctly?	✔
		Total disturbed area entered?	✔

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				2.29	2.29
Impervious Cover (acres)				6.53	6.53
					8.82

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				3.47	3.47
Impervious Cover (acres)				5.35	5.35
Area Check	OK.	OK.	OK.	OK.	8.82

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	**Listed**	**Adjusted[1]**
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	2.29	2.29
Weighted Rv(turf)	0.25	0.25
% Managed Turf	26%	26%
Impervious Cover (acres)	6.53	6.53
Rv(impervious)	0.95	0.95
% Impervious	74%	74%
Total Site Area (acres)	**8.82**	**8.82**
Site Rv	**0.77**	**0.77**

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)		*Land Cover Summary-Post*		*Land Cover Summary-Post*	
Post ReDev. & New Impervious		**Post-ReDevelopment**		**Post-Development New Impervious**	
Forest/Open Space Cover (acres)	0.00	Forest/Open Space Cover (acres)	0.00		
Weighted Rv(forest)	0.00	Weighted Rv(forest)	0.00		
% Forest	0%	% Forest	0%		
Managed Turf Cover (acres)	3.47	Managed Turf Cover (acres)	3.47		
Weighted Rv (turf)	0.25	Weighted Rv (turf)	0.25		
% Managed Turf	39%	% Managed Turf	39%		
Impervious Cover (acres)	5.35	ReDev. Impervious Cover (acres)	5.35	New Impervious Cover (acres)	0.00
Rv(impervious)	0.95	Rv(impervious)	0.95	Rv(impervious)	--
% Impervious	61%	% Impervious	61%		
Final Site Area (acres)	**8.82**	**Total ReDev. Site Area (acres)**	**8.82**		
Final Post Dev Site Rv	**0.67**	**ReDev Site Rv**	**0.67**		

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.5647	0.5647	**Final Post-Development Treatment Volume (acre-ft)**	0.4958	**Post-ReDevelopment Treatment Volume (acre-ft)**	0.4958	**Post-Development Treatment Volume (acre-ft)**	--
Pre-ReDevelopment Treatment Volume (cubic feet)	24,597	24,597	**Final Post-Development Treatment Volume (cubic feet)**	21,599	**Post-ReDevelopment Treatment Volume (cubic feet)**	21,599	**Post-Development Treatment Volume (cubic feet)**	--
Pre-ReDevelopment TP Load (lb/yr)	**15.45**	**15.45**	**Final Post-Development TP Load (lb/yr)**	**13.57**	**Post-ReDevelopment Load (TP) (lb/yr)***	**13.57**	**Post-Development TP Load (lb/yr)**	--
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.75	1.75	Final Post-Development TP Load per acre (lb/acre/yr)	1.54	Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.54		
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*3.62*			**Max. Reduction Required (Below Pre-ReDevelopment Load)**	20%		
					TP Load Reduction Required for Redeveloped Area (lb/yr)	**1.21**	**TP Load Reduction Required for New Impervious Area (lb/yr)**	**0**

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	**1.21**

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	110.56	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	97.08

1 C-15 PHASE 1 STORMWATER MANAGEMENT COMPUTATIONS
NOT TO SCALE

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

☐ 2011 BMP Standards and Specifications ☑ 2013 Draft BMP Standards and Specifications

Project Name: Herndon Gateway Phase 2
Date: 8/25/2020
Linear Development Project? No

CLEAR ALL

data input cells | constant values | calculation cells | final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 8.82

Check:

Maximum reduction required:	20%	BMP Design Specifications List:	2013 Draft Stds & Specs
The site's net increase in impervious cover (acres) is:	0	Linear project?	No
Post-Development TP Load Reduction for Site (lb/yr):	1.61	Land cover areas entered correctly?	✔
		Total disturbed area entered?	✔

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				2.29	2.29
Impervious Cover (acres)				6.53	6.53
					8.82

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				3.22	3.22
Impervious Cover (acres)				5.60	5.60
Area Check	OK.	OK.	OK.	OK.	8.82

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	**Listed**	**Adjusted[1]**
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	2.29	2.29
Weighted Rv(turf)	0.25	0.25
% Managed Turf	26%	26%
Impervious Cover (acres)	6.53	6.53
Rv(impervious)	0.95	0.95
% Impervious	74%	74%
Total Site Area (acres)	**8.82**	**8.82**
Site Rv	**0.77**	**0.77**

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)		*Land Cover Summary-Post*		*Land Cover Summary-Post*	
Post ReDev. & New Impervious		**Post-ReDevelopment**		**Post-Development New Impervious**	
Forest/Open Space Cover (acres)	0.00	Forest/Open Space Cover (acres)	0.00		
Weighted Rv(forest)	0.00	Weighted Rv(forest)	0.00		
% Forest	0%	% Forest	0%		
Managed Turf Cover (acres)	3.22	Managed Turf Cover (acres)	3.22		
Weighted Rv (turf)	0.25	Weighted Rv (turf)	0.25		
% Managed Turf	37%	% Managed Turf	37%		
Impervious Cover (acres)	5.60	ReDev. Impervious Cover (acres)	5.60	New Impervious Cover (acres)	0.00
Rv(impervious)	0.95	Rv(impervious)	0.95	Rv(impervious)	--
% Impervious	63%	% Impervious	63%		
Final Site Area (acres)	**8.82**	**Total ReDev. Site Area (acres)**	**8.82**		
Final Post Dev Site Rv	**0.69**	**ReDev Site Rv**	**0.69**		

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.5647	0.5647	**Final Post-Development Treatment Volume (acre-ft)**	0.5104	**Post-ReDevelopment Treatment Volume (acre-ft)**	0.5104	**Post-Development Treatment Volume (acre-ft)**	--
Pre-ReDevelopment Treatment Volume (cubic feet)	24,597	24,597	**Final Post-Development Treatment Volume (cubic feet)**	22,234	**Post-ReDevelopment Treatment Volume (cubic feet)**	22,234	**Post-Development Treatment Volume (cubic feet)**	--
Pre-ReDevelopment TP Load (lb/yr)	**15.45**	**15.45**	**Final Post-Development TP Load (lb/yr)**	**13.97**	**Post-ReDevelopment Load (TP) (lb/yr)***	**13.97**	**Post-Development TP Load (lb/yr)**	--
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.75	1.75	Final Post-Development TP Load per acre (lb/acre/yr)	1.58	Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.58		
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*3.62*			**Max. Reduction Required (Below Pre-ReDevelopment Load)**	20%		
					TP Load Reduction Required for Redeveloped Area (lb/yr)	**1.61**	**TP Load Reduction Required for New Impervious Area (lb/yr)**	**0**

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	**1.61**

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	110.56	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	99.94

2 C-15 PHASE 2 STORMWATER MANAGEMENT COMPUTATIONS
NOT TO SCALE

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COMMONWEALTH OF VIRGINIA
10/19/20
ROBERT R. COCHRAN
Lic. No. 2012
CIVIL ENGINEER/SURVEYOR

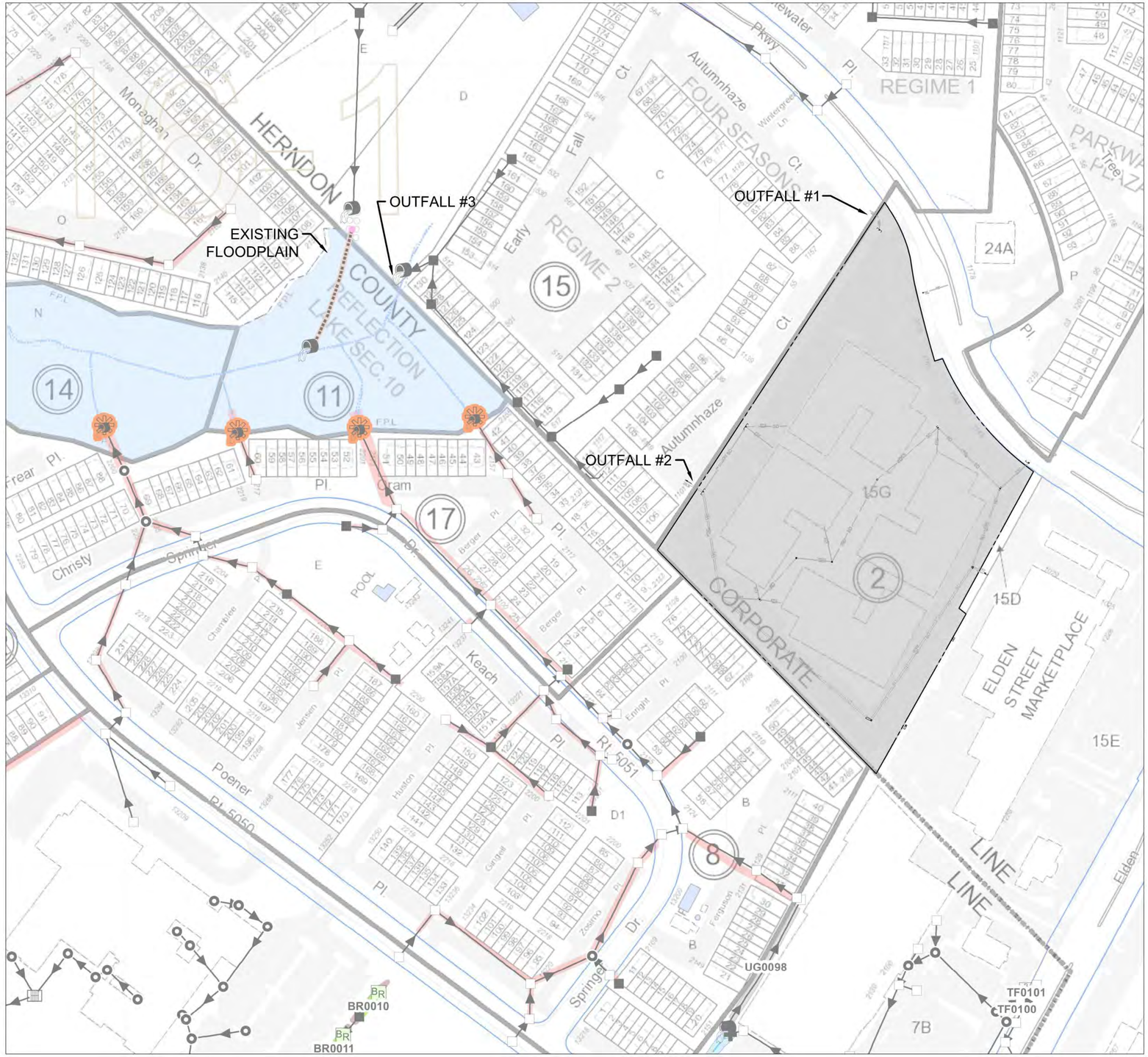
REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT
TOWN OF HERNDON, VA

PHASE 1 STORMWATER MANAGEMENT COMPUTATIONS

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	N/A
JOB NO.	VV8011D
SHEET NO.	C-15

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D SWM COMPS.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:50:56 PM LAYOUT: C-14 STORMWATER MANAGEMENT COMPUTATIONS



* FINAL SITE DESIGN AND ENGINEERING SHOWN SHALL BE IN GENERAL CONFORMANCE BUT MAY CHANGE DURING THE FINAL SITE PLAN

ADEQUATE OUTFALL NARRATIVE

ONSITE STORMWATER PRACTICES INCLUDING BUT NOT LIMITED TO DETENTION VAULTS SHALL REDUCE THE POST DEVELOPMENT PEAK DISCHARGE AND RUNOFF TO EQUAL OR LESS THAN THE EXISTING CONDITIONS. STORM DRAIN COMPUTATIONS SHALL BE PROVIDED AT FINAL ENGINEERING SITE PLAN TO ENSURE DOWNSTREAM UNDERGROUND STORM DRAIN SYSTEMS HAVE ADEQUATE CAPACITY AND WILL NOT BE NEGATIVELY IMPACTED WITH THIS DEVELOPMENT. THE FINAL COMPUTATIONS AND DESIGN SHALL ENSURE REQUIREMENTS OF SECTION 26-329 OF THE TOWN CODE RELATED TO TECHNICAL DESIGN CRITERIA (INCLUDING CHANNEL PROTECTION AND FLOOD PROTECTION) ARE MET WITH THE FINAL DESIGN. APPLICANT RESERVES THE RIGHT TO PROVIDE ADDITIONAL SWM CONTROL MEASURES AS NECESSARY TO ACHIEVE THIS COMPLIANCE WITH FINAL DESIGN WITHOUT THE NEED TO AMEND THE SUBJECT ENTITLEMENT PLAN.

STORMWATER PRACTICES USED MAY CHANGE WITH FINAL ENGINEERING SITE PLAN.

THE PROPOSED REDEVELOPMENT WILL UTILIZE TWO EXISTING OUTFALLS ON SITE. BOTH OUTFALLS ARE PART OF AN UNDERGROUND STORM DRAIN SYSTEM. THE STORMWATER IS THEN CONVEYED THROUGH THE OFFSITE STORM DRAIN SYSTEM AND OUTFALLS INTO AN EXISTING FLOODPLAIN.

OUTFALL 1 IS AN EXISTING 18" REINFORCED CONCRETE PIPE (RCP) AND OUTFALL 2 IS AN EXISTING 36" RCP. OUTFALLS 1 AND 2 TIE INTO THE EXISTING UNDERGROUND STORM DRAIN SYSTEM OFFSITE AND THEN OUTFALL INTO THE REFLECTION LAKE FLOODPLAIN OFFSITE AT OUTFALL 3.

VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

ADEQUATE OUTFALL ANALYSIS AND NARRATIVE 2

DRAWN BY:	
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DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 100'
JOB NO.	VV8011D
SHEET NO.	C-16

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D ADEQUATE OUTFALL.dwg LAYOUT: C-15 ADEQUATE OUTFALL ANALYSIS AND NARRATIVE 2 TIME: 4:51:13 PM DATE: October 19, 2020 USER: Masangkay

TOWNHOUSE





SIDE ELEVATION



REAR ELEVATION



SIDE ELEVATION - HIGH VISIBILITY

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ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
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PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

ARCHITECTURAL IMAGES

DRAWN BY:	
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DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	A.01

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2 OVER 2





TYPICAL SIDE ELEVATION
(HIGH VISIBILITY SIDE ELEVATION)



TYPICAL REAR ELEVATIONS



TYPICAL SIDE ELEVATION WITH
OPT. ROOFTOP TERRACE & UTILITY SHED

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ACCEPTANCE COMMENTS	03/27/2020
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REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

ARCHITECTURAL IMAGES

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SHEET NO.	A-02

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ILLUSTRATIVE PURPOSES ONLY

VA STATE
GRID NORTH
(VSC 83)

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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE

ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

OVERALL ILLUSTRATIVE PLAN

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	
JOB NO.	VV8011D
SHEET NO.	L-01

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D OVERALL RENDERING.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:51:37 PM LAYOUT: L-01 OVERALL ILLUSTRATIVE PLAN


CYPRESS TREE PLACE
(VARIABLE WIDTH PUBLIC RIGHT-OF-WAY)
EXISTING WATERMAIN
HERNDON PARKWAY
Route 5000
(80' PUBLIC RIGHT-OF-WAY)
GRASS MEDIAN
PROP. B.O.V.
EX. B.O.V.
EX. CURB
PROP. CURB
EX. WATER
PROP. WATER
EX. STORM
PROP. STORM
EX. SANITARY
PROP. SANITARY
EX. GAS
PROP. GAS
EX. UTILITIES
PROP. UTILITIES
EX. TREE LINE
PROP. TREE LINE
EX. CONTOUR
PROP. CONTOUR
EX. SPOT ELEV.
PROP. SPOT ELEV.
EX. STORM MANHOLE
PROP. STORM MANHOLE
EX. SANITARY MANHOLE
PROP. SANITARY MANHOLE
EX. WATER VALVE
PROP. WATER VALVE
EX. GAS VALVE
PROP. GAS VALVE
EX. FIRE HYDRANT
PROP. FIRE HYDRANT
EX. LIGHT POLE
PROP. LIGHT POLE
EX. TRAFFIC SIGNAL
PROP. TRAFFIC SIGNAL
EX. TELEPHONE PEDESTAL
PROP. TELEPHONE PEDESTAL
EX. TELEPHONE MANHOLE
PROP. TELEPHONE MANHOLE
EX. ELECTRIC MANHOLE
PROP. ELECTRIC MANHOLE
EX. ELECTRIC VAULT
PROP. ELECTRIC VAULT
EX. ELECTRIC BOX
PROP. ELECTRIC BOX
EX. TELEPHONE BOX
PROP. TELEPHONE BOX
EX. GAS METER
PROP. GAS METER
EX. GAS MANHOLE
PROP. GAS MANHOLE
EX. GAS BOX
PROP. GAS BOX
EX. MAILBOX
PROP. MAILBOX
EX. SIGN
PROP. SIGN
EX. BENCH
PROP. BENCH
EX. TRASH CAN
PROP. TRASH CAN
EX. BOLLARD
PROP. BOLLARD
EX. FENCE
PROP. FENCE
EX. RETAINING WALL
PROP. RETAINING WALL
EX. BUILDING
PROP. BUILDING
EX. CONCRETE
PROP. CONCRETE
EX. ASPHALT
PROP. ASPHALT
EX. GRAVEL
PROP. GRAVEL
EX. CURB INLET
PROP. CURB INLET
EX. STORM INLET
PROP. STORM INLET



LEGEND

TOTAL OPEN SPACE (20% REQUIRED, 31% 118,915 SF PROVIDED)

BUILDING COVERAGE (60% MAXIMUM, 30% 115,220 SF PROVIDED)

RECREATION AREAS (8% REQUIRED, 10% (38,410 SF PROVIDED)

NOTE:
THE DRAWINGS AND IMAGES SHOWN HEREON ARE INTENDED TO REPRESENT TYPICAL LANDSCAPE ARCHITECTURAL CONCEPTS THAT PORTRAY THE GENERAL APPEARANCE AND CHARACTER FOR THE PROJECT. THE APPLICANT RESERVES THE OPTION TO MODIFY THE PLAN PER FINAL SITE DESIGN, PROVIDED OVERALL QUALITY AND DESIGN INTENT ARE MAINTAINED.
THESE DRAWINGS ARE NOT TO BE USED FOR CONSTRUCTION.

VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

OPEN SPACE PLAN

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	L-03

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VA STATE
GRID NORTH
(VSC 83)

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

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ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
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PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

OPEN SPACE DISTRIBUTION

DRAWN BY:	RYM
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	1" = 40'
JOB NO.	VV8011D
SHEET NO.	L-03A

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DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER
	AR	35	ACER RUBRUM `ARMSTRONG`	RED MAPLE	2" CAL.	B&B
	CK	36	CLADRASTIS KENTUKEA	AMERICAN YELLOWWOOD	2" CAL.	B&B
	OA	37	OXYDENDRUM ARBOREUM	SOURWOOD TREE	2" CAL.	B&B
	TA	35	TILIA AMERICANA	AMERICAN BASSWOOD	2" CAL.	B&B
EVERGREEN TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**
	IAQ	46	ILEX AQUAFOLIUM	ENGLISH HOLLY	6` HT.	B&B
	IA	44	ILEX OPACA	AMERICAN HOLLY	6` HT.	B&B
	JE	37	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	6` HT.	B&B
	CL	49	X CUPRESSOCYPARIS LEYLANDII	LEYLAND CYPRESS	6` HT.	B&B
ORNAMENTAL TREES	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**CONTAINER**
	AL	12	AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY	1.5" CAL.	B&B
	CC	11	CERCIS CANADENSIS	EASTERN REDBUD MULTI-TRUNK	1.5" CAL.	B&B
	CF	8	CORNUS FLORIDA	EASTERN DOGWOOD	1.5" CAL.	B&B
	MS	37	MAGNOLIA VIRGINIANA	SWEET BAY	1.5" CAL.	B&B

NOTE: PLANT TYPES MAY CHANGE AT SITE PLAN

Herndon Corporate Center
Perimeter Buffer Planting

Buffer	Length (Lin. Ft.)	Required Buffer	Required Plantings				Provided Plantings			
			Canopy Trees	Evergreen Trees	Understory Trees	Total	Canopy Trees	Evergreen Trees	Understory Trees	Total
West	775	A-10	26	26	15	67	8	45	0	53
South	592	A-10	20	20	12	52	8	44	0	52
East	629	A-10	21	21	13	55	8	51	4	63

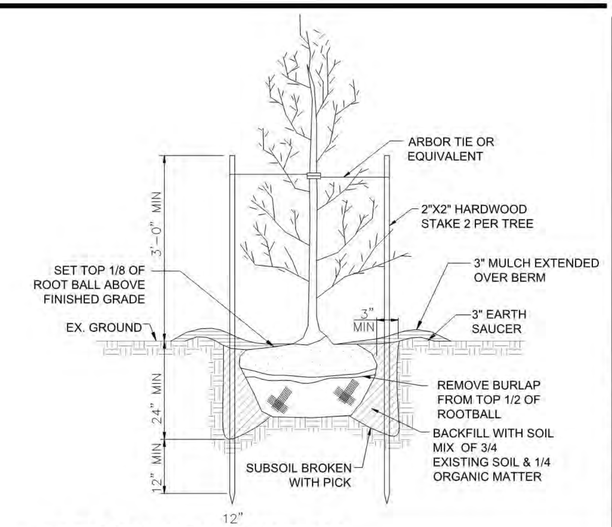
NOTE: AT TIME OF SITE PLAN PERIMETER EVERGREENS WILL BE REEVALUATED TO DETERMINE IF THEY WILL STAY. IF REMOVED THEY WILL BE REPLACED WITH REQUIRED BUFFER PLANTINGS TO CODE.

TABLE 78-110.3(a): REQUIRED SITE LANDSCAPE PLANTINGS	
TYPE OF USE	**REQUIRED PLANTINGS***
SINGLE-FAMILY DETACHED DWELLING, TWO-FAMILY DWELLING, GROUP HOME, OR QUADRUPLEX	4 canopy trees, 3 evergreen trees, and at least 12 shrubs per dwelling unit
TOWNHOUSE DWELLING	1 canopy tree, 1 evergreen tree, and at least 10 shrubs per dwelling unit lot
TOWNHOUSE DEVELOPMENT COMMON AREA	16 canopy trees + 10 evergreen trees per acre, and at least one shrub per each 5 feet of outer building perimeter
MULTIPLE-FAMILY DWELLING, AND HOME FOR THE ELDERLY	12 canopy trees + 7 evergreen trees per acre, and at least 1 shrub per each 5 feet of outer building perimeter
PUBLIC AND INSTITUTIONAL USES	16 canopy trees + 10 evergreen trees per acre, and at least 1 shrub per each 5 feet of outer building perimeter
BUSINESS USES	16 canopy trees + 10 evergreen trees per acre, and at least 1 shrub per each 5 feet of outer building perimeter
*For purposes of calculating required plantings, the acreage of the entire site shall be used.	

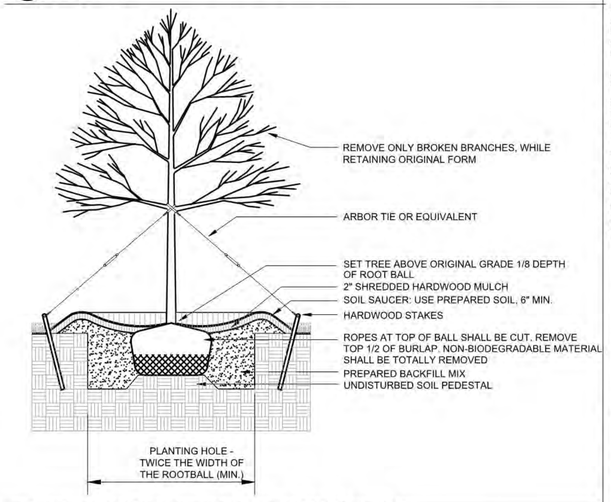
Herndon Corporate Center
Site Landscaping

Townhouse Lots(SFA,SFTHU):	85	**TH Common Area :**	1.75 AC	**Multi-Family:**	0.94 AC				
Landscaping Required						**Total Landscape Requried**		**Total Landscaping Provided**	
Canopy Trees	85	Canopy Trees	28	Canopy Trees	12	Canopy Trees	125	Canopy Trees	173
Evergreen Trees	85	Evergreen Trees	18	Evergreen Trees	7	Evergreen Trees	110	Evergreen Trees	176
		Per 5' of Adjacent Building Perimeter (1,820')		Per 5' of Adjacent Building Perimiter (1,948')					
Shrubs	850	Shrubs	364	Shrubs	3,901	Shrubs	1,604	Shrubs	1,604 (AT SITE PLAN)

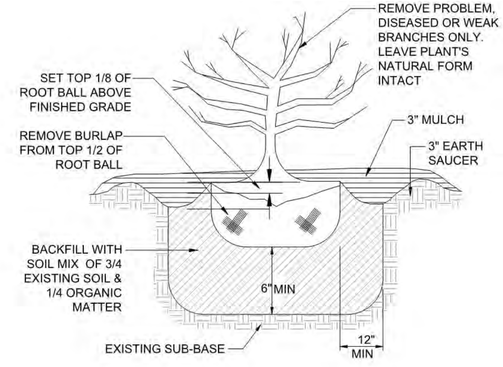
NOTE:
1) SHRUBS WILL BE PROVIDED IN FULL AT TIME OF SITE PLAN
2)BUFFER PLANTING INCLUDED IN TOTAL TREES PROVIDED



1 EVERGREEN PLANTING
SCALE: NTS



2 DECIDUOUS TREE PLANTING
SCALE: NTS



3 SHRUB PLANTING DETAIL
SCALE: NTS

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS
VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
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COMMONWEALTH OF VIRGINIA
10/8/20
ROBERT R. COCHRAN
Lic. No. 2012
SURVEYOR

REVISIONS	DATE
ACCEPTANCE COMMENTS	03/27/2020
REVISIONS	08/25/2020
REVISIONS	09/18/2020
REVISIONS	10/19/2020

PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

LANDSCAPE CALCULATIONS AND DETAIL

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS SHOWN
JOB NO.	VV8011D
SHEET NO.	L-04

FILE: P:\projects\8011\8011D\CADD\PLANNING\PLANNING DRAWINGS\8011D LANDSCAPE CALCULATIONS AND DETAILS.dwg USER: Masangkay DATE: October 19, 2020 TIME: 4:52:54 PM LAYOUT: L-04 LANDSCAPE CALCULATIONS AND DETAIL













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ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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10/19/20
ROBERT R. COCHRAN
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LAND SURVEYOR

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PARK PLACE
ZONING MAP AMENDMENT

TOWN OF HERNDON, VA

LIFESTYLE IMAGES

DRAWN BY:	
DESIGNED BY:	PR
DATE ISSUED:	OCTOBER 2, 2019
DWG. SCALE	AS SHOWN
JOB NO.	VV8011D
SHEET NO.	L-05

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TOWN OF Herndon VIRGINIA

STAFF REPORT

Town Council
November 10, 2020

Title: Zoning Ordinance Text Amendment – ZOTA #20-01 – Renaming Heritage Preservation Overlay district to Historic District Overlay.

Staff Contact: David Stromberg, AICP, Zoning Administrator
david.stromberg@herndon-va.gov (703)787-7380

Bryce Perry, Deputy Director of Community Development
Bryce.perry@herndon-va.gov (703) 787-7380

Summary Information:

The town council approved initiating resolution 20-G-44 on September 22, 2020 directing staff to bring this item before the planning commission for review and consideration. The planning commission recommend this item for approval on October 26, 2020.

This zoning ordinance text amendment will rename the heritage preservation overlay district (HPO) to the historic district overlay (HDO). Changing the name to the historic district overlay will allow for a clearer identification of the district and align the district with the typical term used throughout Virginia and the United States.

The proposed change will require the heritage preservation review board (HPRB) to be renamed the historic district review board (HDRB). The name change requires edits to multiple sections of chapter 78.

In addition, the proposed text amendment authorizes the staff to issue certain Certificates of Appropriateness (COA), negating the need for public hearings on those matters. Furthermore, the amendment clarifies the intent of the district and establishes a clear demarcation between an alteration to a structure and new construction or demolition. The amendment also provides for potential relief from the filing of a single lot development plan for certain residential additions. In several instances the amendment clarifies or simplifies language.

Background:

The town council expressed interest in renaming the heritage preservation overlay district after a joint meeting in December of the council and heritage preservation review board regarding the draft update to the guidelines. In addition, statements by members of the council, as well as public comment, have indicated a desire for some reviews and decisions to become administrative.

While staff, the consultants and the Department of Historic Resources worked to resolve several fundamental issues relative to the revision of the guidelines, it became apparent that to allow administrative approvals for particular types of applications, staff would have to be authorized to issue a COA. Currently, the zoning ordinance restricts the issuance of COAs to the review board. The proposed text amendment institutes this change of procedure. In addition, staff has identified areas of the ordinance that lack clarity and has taken this opportunity to clarify the language of Section 78-60.3, as well as permit certain residential additions an exemption from the requirement to file a single lot development plan. The need for clarification, and flexibility regarding single lot development plans comes from staff's own experience with the ordinance language and feedback from applicants and applicant agents.

Staff Analysis:

As currently named, the heritage preservation overlay district causes confusion. Staff frequently receives questions asking what the difference is between the heritage district and the historic district. Other questions include asking why Herndon has a heritage district, while other places have a historic district. Renaming the district to the historic district overlay should reduce this confusion.

In Virginia and nationwide, "historic district" is the typical term used for locally designated zoning overlay areas that are designed to allow the establishment of additional regulation directed towards the architectural and historical preservation of areas with historic and architectural value. The Virginia State Historic Preservation Office and Department of Historic Resources strictly uses the term "historic district" for these types of locally designated overlay districts. Staff and the consultants working on the new guidelines are unaware of any other similar districts in Virginia that use the term "heritage preservation" in the district name.

The legal authority for localities to regulate historic landmarks, buildings, and other structures through zoning is granted by Virginia Code §15.2-2306. State code does not mandate the name of the district or review board, however the legislation uses the term "historic district".

The proposed name change is meant to more accurately reflect the type of district as enabled by state code and allow for a clearer recognition and identification of the district as akin to other historic districts in Virginia.

The amendment to permit staff to issue COAs for specific types of applications is being instituted to provide for an easier and less time-consuming process. The consultants heard from several members of the community that the public hearing process and the time involved was undesirable. The town council requested that the process be altered to allow applications to be decided at the staff level, to shorten the process and reduce the number of

applicants required to appear at public hearing. The proposed amendment provides the necessary authorization to permit this change. At this time, it is anticipated that the majority of administratively approved COAs will be for material changes or significant like-for-like repairs and replacements, but the amendment has been drafted to allow the administrative COA process to expand without the need for future text amendment. The amendment also stipulates that any appeal of a staff COA decision would go to the review board for consideration.

Language is being retained to allow the review board to adopt specific standards for certain types of applications and allow staff review and approval of applications that meet the stated criteria. This process is already in place for paint and fences, and the board and staff have been working to expand the allowance to cover additional types of applications.

The amendment includes new language stating that when more than 49% of the original or historic facades or roofs are removed, then new construction or demolition sections of the ordinance or guidelines apply. This provides needed delineation between types of applications and the applicable ordinance sections and guidelines. Such clarification helps to decrease time lost due to misunderstanding or miscommunication.

The proposed language stating that certain residential additions may be excused from submitting a single lot development plan has the potential to save applicants tens of thousands of dollars. A building location survey would still be required. Building location surveys require less engineering and are considerably less expensive to obtain. Per the proposed language, the request to be excused from the single lot development requirement would require approval from the zoning administrator and town engineer. This requirement ensures against any adverse impacts on abutting public or private property and compliance with the Chesapeake Bay requirements. Applicants have indicated that under the current ordinance, they have designed additions in a manner as to avoid submittal of a single lot development plan. By designing to avoid the submittal of a single lot development plan, the applicants have arrived at designs that are not appropriate per the guidelines and are not the applicant's preferred choice.

The language also extends the validity period of an approved certificate of appropriateness from the current 1 year to 5 years. Staff has seen an increasing number of requests for extensions of certificates of appropriateness or applicants who were not able to request an extension in the allotted timeframe and were required to obtain a new certificate appropriateness for the same application. Reasons provided by applicants for extension requests are typically related to regulatory plan/permit review, funding, availability of construction materials or labor. Any certificate of appropriateness for new construction (new single family, major additions, new nonresidential building) is almost always tied to an approved site plan, which has a state-mandated validity period of 5 years. Extending the

validity of a COA to 5 years will correlate the approval period with the site plan approval period for new construction.

As indicated above, several of the amendments are proposed to clarify ordinance language. These changes incorporate more direct sentence structure and clarity of thought and intent.

Town Council Alternatives:

The following alternatives are available to the town council for its decision on Zoning Ordinance Text Amendment ZOTA #19-02:

1. Approve ZOTA #20-01
2. Refer ZOTA #20-01 back to the Planning Commission for further review
3. Deny ZOTA #20-01

The town council may also opt to continue the public hearing to a future town council meeting if the council believes their review requires additional time.

Planning Commission Recommendation:

The planning commission expressed support for reducing the time required for applicants within the historic district to receive approval for improvements to their properties and for the reduced burden on staff. The commission recommended approval at the October 26, 2020 public hearing.

Staff Recommendation:

Staff recommends the planning commission approve the draft ordinance for ZOTA #20-01 in accordance with **alternative 1**.

Attachment:

1. Draft Ordinance

David Stromberg, AICP
Zoning Administrator

Bryce Perry
Deputy Director of Community Development

TOWN OF HERNDON, VIRGINIA

ORDINANCE

November 17, 2020

Ordinance – to amend Chapter 78 (ZONING), Article I (Introductory Provisions), Section 78-10.3 (Purpose and Intent), Article II (Zoning Districts), Section 78-20.2 (Establishment of Overlay Zoning Districts), Section 78-20.3 (Relationship of Base Districts to Overlay Zoning Districts), Section 78-20.5 (Transition to New Zoning Districts), Article V (Planned Development Districts), Section 78-50.2 (Standards for all Planned Development Districts), Section 78-50.6 (PD-D, Planned Development-Downtown), Section 78-50.7 (PD-TD, Planned Development-Traditional Downtown), Article VI (Overlay Districts), Section 78-60.2 (Floodplain Overlay District (FPO)), Section 78-60.3 (Heritage Preservation Overlay District (HP District), Section 78-60.4 (Chesapeake Bay Preservation Area Overlay District (CBPAO)), Article VII (Use Regulations), Section 78-71.13 (Commercial Utilities Use Category), Article VIII (Accessory Uses), Section 78-80.3 (Accessory Structure Standards), Section 78-80.4 (Standards for Specific Accessory Uses and Structures by Use Type), Article XI (Development Standards), Section 78-110.3 (Site Landscaping (Not Contained in Perimeter Buffer Strips and Vehicular Use Areas)), Section 78-114.1 (Additional Screening Requirements), Section 78-115.1 (Retaining Walls), Section 78-115.2 (Fencing, Walls (Except Retaining Walls) and Hedges, Article XIV (Signs), Section 78-140.4 (Prohibited Signs), Section 78-140.5 (Sign License Required), Section 78-141.6 (Sign Standards for Downtown and Mixed-Use Districts), Article XV (Decision-Making Authorities, Application Review and Permitting), Section 78-150.1 (Town Council), Section 78-150.2 (Planning Commission), Section 78-150.4 (Heritage Preservation Review Board), Section 78-150.5 (Architectural Review Board), Section 78-150.6 (Zoning Administrator) Section 78-151. (Summary Table of Development Review Responsibilities), Section 78-152.2 (Application Submission, Requirements and Acceptance), Section 78-153.2 (Review Process for Applications Requiring a Public Hearing (Approval by Decision Making Body)), Section 78-155.1 (Zoning Map Amendment (ZMA)), Article XVI (Nonconformities), Section 78-160.1 (Generally), Section 78-160.3 (Nonconforming Structures), Article XVII (Enforcement, Violations and Remedies), Section 78-170.3 (Types of Violations), Section 78-170.4 (Penalties, Fines and Remedies for Violations), Article XVIII (Definitions), Section 78-180. (Definitions), and adding a new Section 78-155.10 (Certificates of Appropriateness) to change the name of the Heritage Preservation Overlay district to the Historic District Overlay and to allow for the administrative review of certain types of certificates of appropriateness.

BE IT ORDAINED by the Council for the Town of Herndon that:

1. Chapter 78 (ZONING) of the Herndon Town Code is amended and reenacted as follows.

Section 78-10.3 – Purpose and Intent.

***

(b) Intent. *This chapter is intended to:*

***

(5) Protect against destruction of or encroachment upon historic ~~and heritage~~ areas.

***

(19) Enhance the unique characteristics of historic ~~and heritage~~ resources and ensure a built environment that is ~~a~~ *historically* worthy ~~heritage~~ for future generations.

***

Section 78-20.2 – Establishment of overlay zoning districts.

The overlay zoning districts established in this chapter are shown in Table 78-20.2: Overlay Zoning Districts.

TABLE 78-20.2: OVERLAY ZONING DISTRICTS

Abbreviations	District Name
FPO	Floodplain Overlay ~~District~~
~~HPO~~ *HDO*	~~Heritage Preservation~~ *Historic District* Overlay ~~District~~
CBPAO	Chesapeake Bay Preservation Area Overlay ~~District~~

Section 78-20.3 – Relationship of base districts to overlay zoning districts.

Three overlay districts are established in addition to the base zoning districts: The Floodplain Overlay (FPO) ~~District~~, the ~~Heritage Preservation~~ *Historic District* Overlay ~~(HPO)~~ *(HDO)* ~~District~~, and the Chesapeake Bay Preservation Area *Overlay* (CBPAO) ~~district~~. Where land is classified into an overlay district as well as a base zoning district, the regulations governing the development in the overlay district shall apply in addition to the regulations governing the development in the underlying base zoning district. In the event of an express conflict, as determined by the zoning administrator, between the standards governing an underlying base zoning district and those governing an overlay district, the standards governing the overlay district shall control.

***

Section 78-20.5 – Transition to new zoning districts.

Upon adoption of this chapter, land that was zoned within a zoning district classification existing prior to July 1, 2006, shall be classified within one of the zoning district classifications set forth in Article II, Zoning Districts, and as shown in Table 78-20.5, Transition to New Zoning Districts. The following table summarizes the transition from former zoning ordinance districts to new districts set forth in this chapter.

TABLE 78-20.5: TRANSITION TO NEW ZONING DISTRICTS	
Overlay Districts:	
Floodplain Overlay ~~District~~ (FPO)	Floodplain Overlay ~~District~~ (FPO)
~~Heritage Preservation~~ *Historic District* Overlay ~~District~~ ~~(HPO)~~ *(HDO)*	~~Heritage Preservation~~ *Historic District* Overlay ~~District~~ ~~(HPO)~~ *(HDO)*
Chesapeake Bay Preservation Area Overlay ~~District~~ (CBPAO)	Chesapeake Bay Preservation Area Overlay ~~District~~ (CBPAO)

***

Section 78-50.2 – Standards for all planned development districts.

***

(b) Review board approval for PD development. Development located within a planned development district and outside of the ~~heritage preservation~~ *historic district* overlay ~~district~~, other than single-family detached units, shall be subject to the approval of the architectural review board. Development within a planned development district in the ~~heritage preservation~~ *historic district* overlay ~~district~~ shall be subject to the approval of the ~~heritage preservation~~ *historic district* review board.

***

Section 78-50.6 – Planned development downtown district.

(a) Purpose and intent. The intent of the PD-D district is to encourage revitalization and creative design for residential and commercial lands located in the Downtown Overlay of the Herndon 2030 Comprehensive Plan (adopted August 12, 2008), as may be amended, and to provide flexibility in land planning for residential and commercial development located in the downtown area.

(1) Objectives. Objectives of the PD-D district include:

***

e. Adhering to the standards and guidelines of the Herndon 2030 Comprehensive Plan (adopted August 12, 2008), as may be amended, and the Herndon ~~Heritage Preservation Handbook, revised July 1990, as may be amended from time to time (the Heritage Preservation Handbook).~~ *Historic District Overlay Guidelines, as amended.*

(2) Additional considerations to ensure purpose and intent are met. Decisions on PD-D zoning map amendments shall involve consideration of the existence or provision of an adequate road network and parking facilities, provision of public facilities and amenities, the use or mix of uses offered in proposed development plans, the merit of proposed site design in achieving the goals of the comprehensive plan and the ~~heritage preservation handbook~~ *Historic District Overlay Guidelines*, and the contribution of the proposed development to revitalization of the downtown. The flexibility of PD-D district regulations does not mean that an applicant is entitled to such a rezoning by meeting the minimum requirements of this division or that proposals approaching the maximum permitted density are entitled to a PD-D zoning map amendment.

***

(f) Dimensional Standards. The PD-D district shall be subject to the following dimensional standards:

***

(2) Increases in intensity. The floor area ratio of development shall not exceed 0.5 in the Downtown Overlay in the Herndon 2030 Comprehensive Plan (adopted August 12, 2008), as may be amended, except as allowed in section 78-50.6(f)(2), increases in intensity. The town council may, as part of the review of the PD-D district, increase the floor area ratio (i) up to 2.50 in sectors 1, 2 and 6 or (ii) up to 0.7 in sectors 3 and 4 of the Downtown Overlay, if the PD-D development meets three or more of the following criteria.

***

(d.) Building façade design that excels at meeting the objectives and guidelines contained in the ~~Herndon Heritage Preservation Handbook~~ *Historic District Overlay Guidelines*, subject to preliminary review by the ~~heritage preservation~~ *historic district* review board as provided in section 78-155.1(i)(a).

***

(h) Site planning and building design in PD-D. Sites and buildings within the PD-D district shall meet the following standards:

***

(6) ~~*HPRB*~~ *HDRB review required for increased FAR.* Site and building design shall comply with guidelines in the ~~Herndon Heritage Preservation Handbook~~ *Historic District Overlay Guidelines* as determined by the ~~HPRB~~ *HDRB* prior to the planning commission public hearing when the increased floor area ratio is considered.

Section 78-50.7 – PD-TD – Planned development traditional downtown district.

(h) *Site planning and building design in PD-TD.* Sites and buildings within the PD-TD district shall meet the following standards:

***

(5) ~~*HPRB*~~ *HDRB review required.* Site and building design shall comply with guidelines in the ~~Herndon Heritage Preservation Handbook~~ *Historic District Overlay Guidelines* as determined by the ~~HPRB~~ *HDRB* prior to the planning commission public hearing in accordance with section 78-155.1(h)(2).

***

Section 78-60.2 – Floodplain overlay ~~district~~ (FPO).

***

Section 78-60.3 – ~~Heritage Preservation~~ Historic District Overlay ~~district~~ (~~HP~~ HDO ~~district~~).

(a) *Purpose and intent.* The ~~heritage preservation~~ *historic district* overlay ~~district~~ (~~HP~~ *HDO* ~~district~~) is *established pursuant to the authority granted to localities by Virginia Code § 15.2-2306. It is intended to promote and protect the unique character of the town through the identification, preservation and enhancement of buildings, structures, settings, neighborhoods, places and features with historical architectural significance to the town. The HDO further intends to:* ~~intended to provide for the establishment of historic landmarks and preservation districts as a means of preserving the historical, cultural, and architectural heritage of the town and protecting designated historic resources and is adopted pursuant to the authority granted to localities by Virginia Code §15.2-2306.~~

(1) *Ensure that additions, repairs, modifications, and new construction enhance rather than detract from the town's historic architectural settings.*

(2) *Preserve the architectural, artistic, and historic merit of individual structures.*

(3) *Protect historic resources from neglect and demolition.*

(4) Retain important townscapes, streetscapes, and viewsheds integral to the identity of Herndon.

(b) *Applicability*. No building, structure, or sign located in the ~~HP~~ historic district *overlay* shall be erected, reconstructed, altered, demolished, moved, expanded or restored except in accordance with the provisions of 78-60.3(g), certificate of appropriateness in the ~~heritage preservation~~ *historic district* overlay. ~~district~~.

(c) *District boundaries and maps*. The boundaries of the ~~HP district~~ *historic district overlay* shall be shown on the town's official zoning map and on the appropriate comprehensive plan maps after action by the planning commission and town council.

(d) *Revision of ~~HP district~~ historic district overlay boundary and designation of landmarks*. The boundaries of the ~~HP district~~ *HDO* may be amended or areas, sites, buildings, and structures may be designated as historic landmarks in compliance with the following:

(1) *Amendment procedures*. The procedures for amendment of the ~~HP district~~ *HDO* boundaries or designation of historic landmarks shall be as provided for as an amendment to the official zoning map pursuant to section 78-155.1, zoning map amendment. In addition, the following procedures shall apply:

a. The planning commission shall conduct or delegate a survey of the town. The survey shall identify and inventory all landmarks, buildings, or structures, in areas being proposed within the proposed district boundaries. The planning commission shall also prepare reports recommended to be included in the ~~HP district~~ *HDO*.

b. Prior to establishing or expanding the ~~HP district~~ *HDO* the town council shall:

1. Provide for public input from the community and affected property owners in accordance with Code of Virginia, § 15.2-2204;

2. Follow the written criteria set out below to be used to determine which properties should be included within the ~~HP district~~ *HDO*; and

3. Review the inventory and the criteria to determine which properties in the areas being considered for inclusion within the proposed district meet the criteria to be included in the ~~HP district~~ *HDO*.

c. Upon the inclusion of an area in the ~~HP district~~ *HDO*, the owner of each property within the established district boundaries therein shall be given written notification, including a description of the factors justifying the designation.

(2) *Review of ~~HP district~~ HDO boundary amendments*. The advisability of amending the ~~HP district~~ *HDO* boundary is a matter committed to the legislative discretion of the town council and is not controlled by any one factor. The following shall be considered by the town council, and its advisory bodies as part of the deliberation process:

a. In considering an amendment to ~~HP district~~ *the HDO* boundary, the town council may adopt a change for only part of the area surveyed by the planning commission. The town council may amend the ~~HP district~~ *HDO* boundary to include any area that has been considered by the planning commission.

b. The following criteria shall be used by the historic ~~preservation~~ *district* review board, planning commission, and town council in evaluating the potential expansion of the ~~HP district~~ *HDO*. The historic ~~preservation~~ *district* review board and planning commission may recommend, and the town council may so ordain, a landmark, building, or structure, for designation as ~~a HP district which~~ *within the HDO, provided it* meets one or more of the following criteria:

***

5. The property or properties are closely related to or contiguous with properties that meet criteria a-d as related to their visual character or historic pattern of development; or otherwise contribute to the historic and architectural context of the proposed or existing ~~HP district~~ *HDO*.

c. Such ~~HP district~~ *HDO* boundaries may be adjusted to exclude properties along the perimeter that do not meet the criteria. The town council shall include only the geographical areas in the ~~HP district~~ *HDO* where a majority of the properties meet the criteria established below by the town in accordance with this section. However, parcels of land contiguous to arterial streets or highways found by the town council to be significant routes of tourist access to the town or to be designated historic landmarks, buildings, structures, or districts therein, or in a contiguous locality, may be included in the ~~HP district~~ *HDO* notwithstanding the provisions of this subsection.

***

(e) *Reduction of setback*. In the ~~HP district~~ *HDO*, the front setback for a single-family detached dwelling may be reduced from 35 feet to a lesser amount but not less than 20 feet, in instances where the ~~HPRB~~ *HDRB* makes a finding that such reduction shall cause the subject structure to be more compatible with nearby contributing structures.

(f) *Development within the ~~heritage preservation~~ historic district overlay ~~district~~.* Development located within ~~a preservation district~~ *the historic district overlay* shall be completed in accordance with the ~~Herndon Heritage Preservation Handbook~~ *Historic District Overlay Guidelines*, and the following standards:

(1) ~~Alteration, restoration or reconstruction.~~ *Standards for Alterations.* A certificate of appropriateness ~~for altering, restoring, or reconstruction of~~ *to* a building or structure shall be approved only after ~~considering the following standards, as well as other appropriate matters:~~ *meeting the following standards:*

a. ~~Whether or not reasonable~~ *Reasonable* effort ~~shall be~~ *is* made to alter the site, building, ~~or~~ structure, and its environment to the minimal extent practicable.

b. ~~Whether or not alteration~~ *Alteration* of the original*,* distinguishing qualities or character of a site, building, ~~or~~ structure*,* and its environment and the removal or alteration of any historic material or distinctive architectural features ~~shall be~~ *is* avoided to the greatest extent practicable.

c. ~~Whether all sites, buildings and structures shall be recognized as products of their own time, with alterations~~ *Alterations* ~~and reconstruction~~ to existing buildings*,* ~~and~~ structures*, and sites* ~~to be~~ *are* consistent with the original style of such buildings and structures.

d. ~~Whether or not distinctive~~ *Distinctive* stylistic features or examples of skilled craftsmanship that characterize a building*,* ~~or~~ structure*,* or site shall be retained and restored to the greatest extent practicable.

e. ~~Whether or not deteriorated~~ *Deteriorated* architectural features shall be repaired, rather than replaced, wherever reasonably possible.~~, and, if~~ *If* replacement is necessary, ~~whether or not~~ new materials shall match the material being replaced in composition, design, color, texture*,* and other visual qualities to the greatest extent practicable.

f. ~~Whether or not repair or replacement~~ *Repair or replacement* of missing architectural features shall, to the greatest extent possible, be based on accurate duplications of the original features, substantiated by historic, physical, or pictorial evidence, rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.

g. ~~Whether or not the surface cleaning~~ *Cleaning* of buildings and structures constituting historic landmarks shall be undertaken with the gentlest means practicable; provided, however, that sandblasting and other cleaning methods that may damage the existing building materials shall not be approved.

h. *When more than 49 percent of the original or historic facades or roofs on the structure are removed, the provisions of Section 78-60.3(f)(2), New Construction, or Section 78-60.3(f)(4), Demolition, apply.* ~~Whether or not partial demolition of buildings or structures within preservation districts may be approved when one or more of the existing facades are retained for the purpose of integrating new construction into existing historic buildings or structures when such is appropriate and in accordance with the intent of this article. The town does not advocate this procedure, as it goes against the Secretary of the Interior's guidelines for rehabilitation and credits would not be allowed in such projects.~~

i. ~~Whether or not, to the greatest extent practicable, every~~ *Every* effort shall be made to protect and preserve archeological resources within or adjacent to the ~~heritage preservation overlay~~ *historic* district~~.~~ *to the greatest extent practicable.*

j. ~~Whether or not contemporary~~ *Contemporary* design ~~for~~ *of* alterations ~~and additions~~ to existing buildings and structures ~~is~~ *shall be* compatible with the size, scale, color, material *texture*, and character of the building and structures within preservation districts~~,~~*.* ~~and whether or not such~~ *Such* alterations ~~and additions would~~ *shall not* destroy *or negatively impact* significant historical, architectural, or cultural material.

k. ~~Whether or not the proposed additions or alterations~~ *Alterations* to existing buildings and structures shall be done in such a manner that, if such additions or alterations were to be removed in the future, the essential form and integrity of the *original* building or structure would be unimpaired. ~~Whenever possible, new additions or alterations to existing buildings and structures shall be done in such a manner that, if such additions or alterations were to be removed in the future, the essential form and integrity of the building or structure would be unimpaired.~~

(2) *New Construction.* A certificate of appropriateness for new construction of a building or structure may be approved only after ~~considering~~ *meeting* the following standards~~, as well as other appropriates matters~~:

a. ~~Whether or not the design will~~ *The design shall* be architecturally compatible with the historic landmarks, buildings, and structures in the ~~heritage preservation~~ *historic district* overlay ~~district~~ in terms of size, scale, color, material, and character.

b. No specific architectural style shall be adopted or imposed on the administration of this section.

c. Alterations of more than 49 percent of the original or historic facades, or more than 49 percent of the roof of the structure, as determined by the zoning administrator, shall be considered new construction.

(3) *Moving or relocating a building*. A certificate of appropriateness to move or relocate a building or structure may be approved only after ~~considering the following, as well as other appropriate matters~~ *meeting the following standards*:

a. ~~Whether or not the proposed relocation may~~ *The relocation shall not* have a detrimental effect on the structural soundness of the building~~;~~*.*

b. ~~Whether or not the proposed relocation would have a negative or positive~~ *The relocation shall not have a negative* effect on other historic landmarks or on other sites, buildings*,* or structures located within the ~~heritage preservation overlay district~~ *historic district overlay*~~;~~*.*

c. ~~Whether or not the~~ *The* proposed relocation ~~would~~ *shall* provide new surroundings that would be compatible with the architectural aspect of the building or structure~~;~~*.*

d. ~~Whether or not the~~ *The* proposed relocation is the only practicable means of saving the structure from demolition~~; and~~*.*

e. ~~Whether or not the~~ The building or structure ~~will~~ *shall* be relocated to another site within the corporate limits of the town or to another adjacent site that is subject to ~~preservation control~~ *protections enumerated in the district*.

(4) *Demolition*. A certificate of appropriateness to demolish a building or structure may be approved, only after ~~reviewing and considering the circumstances and conditions of the structure or building or the part proposed for demolition, and considering the following factors as well as all other appropriate matters~~ *meeting the following standards*:

a. ~~Whether or not the~~ *The* building or structure ~~is an historic landmark or is a building within the heritage preservation overlay district that~~ *does not contribute* ~~contributes~~ to the character of the ~~heritage preservation overlay~~ *historic* district~~;~~*.*

b. ~~Whether or not the~~ *The* building or structure ~~is of such interest or significance that it~~ would *not* qualify as a national or state landmark building or structure listed on the National Register of Historic Places or the Virginia Landmarks Register~~;~~*.*

c. ~~Whether or not the building or structure is of such old or uncommon design, texture or scarce material that it could not be reproduced or could be reproduced only with great difficulty and expense;~~ *The building or structure has a common design that could reasonably be reproduced.*

d. ~~Whether or not historic events occurred in the building or structure;~~ *No historic events occurred in the building or structure.*

e. ~~Whether or not the building or structure is structurally unsound and to what extent;~~ *It is determined the building or structure has a degree of structural unsoundness.*

f. ~~Whether or not a relocation of the building or structure or a portion thereof would be to any extent practicable as a preferable alternative to demolition;~~ *It is not practicable to relocate the building or structure, or portion thereof.*

g. ~~Whether or not the~~ *The* proposed demolition ~~could potentially~~ *does not* adversely affect other historic landmarks located within ~~a preservation district~~ *the historic district overlay* or adversely affect the character of ~~a preservation district~~ *the historic district overlay*~~;~~*.*

~~h. If a building is damaged by a fire or other natural hazard, the building inspector shall determine if a building is structurally sound and is in imminent danger to public safety and should be demolished;~~

~~i.~~*h.* ~~The reason for demolishing the building or structure and whether or not any alternatives to demolition exist.~~ *Practicable alternatives to demolition do not exist.*

~~j.~~*i.* ~~Whether or not there has been a professional, economic, and structural feasibility study for rehabilitating or reusing the structure and whether or not its findings support the proposed demolition.~~ *An economic and structural feasibility study prepared by a qualified professional is submitted that concludes rehabilitating or reusing the building or structure is not a practicable alternative.*

(g) *Certificate of appropriateness (COA) in the ~~heritage preservation overlay district~~ historic district overlay*. The purpose of this section is to establish the procedures and standards for the review of certificates of appropriateness in the ~~heritage preservation overlay district~~ *historic district overlay*.

(1) *Applicability*. Unless exempted pursuant to section 78-60.3(g)*(2)*, exemptions, a certificate of appropriateness must be approved prior to:

a. ~~Erecting, reconstructing, altering, or restoring~~ *New construction or alterations to* any building or structure in the ~~heritage preservation overlay district~~ *historic district overlay*; or

b. Demolishing, or moving any historic landmark, building, or structure located in the ~~heritage preservation district~~ *historic district overlay*.

c. ~~Signs in the heritage preservation overlay district are reviewed pursuant to the applicable procedures in Article XIV, Signs.~~ *The installation of any sign not subject to Section 78-140.5(f).*

(2) *Exemptions from COA*. The following minor development, which has been determined not to have permanent effects on the character of the *building or sites within the* ~~heritage preservation district~~ *historic district overlay*, is exempted from the requirements of this section. In the event the scope or nature of the development changes during the improvement process, ~~the zoning administrator shall have the authority to order all work to be stopped and that an appropriate application for a certificate of appropriateness be filed.~~ *a violation may be issued pursuant to Article XVII (Enforcement, Violations, and Remedies).*

***

c. Landscaping, grading, walks, swimming pools and related mechanical equipment, retaining walls of less than 12 inches in height, or temporary fencing in place for one year or less, when it does not significantly affect the character of the ~~heritage preservation overlay district~~ *historic district overlay* or an historic landmark and its surroundings.

***

(3) *Relationship of certificate of appropriateness to* ~~site~~ *administrative plan review*.

a. An application for a certificate of appropriateness in the ~~heritage preservation overlay district~~ *historic district overlay* for a development that requires site plan*, subdivision site plan,* single lot development plan*, or building location survey* approval pursuant to ~~s~~*S*ection 78-155.6, ~~site~~ plan *(Site Plans, Subdivision Plans, Single Lot Development Plans, and Building Location Surveys)* shall not be reviewed formally by the ~~heritage preservation~~ *historic district* review board (~~HPRB~~ *HDRB*) until the site plan*, subdivision site plan,* ~~or~~ single lot development plan*, or building location survey* is approved. ~~However, applicants~~ *Applicants* may meet informally with the ~~HPRB~~ *HDRB* prior to ~~site~~ *administrative* plan approval.

b. ~~In instances where development requires site plan or single lot development plan approval (section 78-155.6), upon recommendation of the zoning administrator or the town council, an applicant may present the substance of the plan for development for which a certificate of appropriateness is required at a work session of the HPRB prior or concurrent with the review of the site plan or single lot development plan.~~ *On properties zoned and used for single family residential within the historic district overlay, additions that comply with the applicable standards in Section 78-60.3(f), and with a footprint between 750 square feet and 1,250 square feet, and disturb less than 2,500 square feet of land, may not be required to submit a single lot development plan. Relief from the submission of a single lot development plan shall be*

determined by the concurrence of the zoning administrator and town engineer.

(4) Certificate of appropriateness review procedure. The approval of a certificate of appropriateness shall be subject to the *Historic District Procedure Guide, Section 78-153.2 (Review Process for Applications Requiring a Public Hearing (Approval by a Decision Making Body)), and the* following:

~~a. Prior to submitting an application for a certificate of appropriateness, applicants are encouraged to seek advice from the HPRB during one or more work sessions. At the work session, the HPRB will review the proposed plan for development and provide the applicant comments about its general conformance with the requirements for a certificate of appropriateness. The comments are advisory and do not confer development rights on the applicant or bind the HPRB, town staff, or any other entity of the town providing comments.~~

~~b. The procedures and requirements for submittal and review of an application, scheduling the public hearing and public notification are established in Section 78-153.2.~~

~~c. All applications for a certificate of appropriateness shall include the items required in section 78-152.2, submittal requirements, as well as the following:~~

~~1. Architectural drawings or renderings drawn to scale (for new construction, rehabilitation or building alterations);~~

~~2. Site plan drawn to scale (including landscaping);~~

~~3. Samples of materials and colors to be used;~~

~~4. Written statements concerning the following:~~

~~(a) Construction methods to be employed;~~

~~(b) A description of proposed materials;~~

~~(c) Any proposed signs, with appropriate details;~~

~~(d) Any proposed exterior lighting arrangements;~~

~~(e) Elevations of all portions of structures and their relationships to public view;~~

~~(f) Design of doors and windows;~~

~~(g) The colors to be utilized and their relationships to adjacent structures;~~

~~(h) All other exhibits and reports deemed necessary by the board for a full review of the application; and~~

~~(i) If an application for demolition is submitted for a building or structure and is defined as a contributing building in the heritage preservation district, the interior and exterior of the building must be thoroughly documented with black and white photographs and measured drawings including floor plans and elevations following the standards of the Historic American Buildings Survey.~~

a. Certain certificates of appropriateness may be reviewed and approved, approved with conditions, or denied administratively. Review of such certificates of appropriateness shall be based upon the Herndon Historic Preservation Guidelines, the standards in Section 78-60.3(f), and the standards listed below:

1. A list of improvements that may receive administrative review of a certificate of appropriateness shall be established by the zoning administrator maintained in the Office of Community Development.

2. Improvements eligible for an administrative review shall be of a common and recurring nature.

3. Improvements eligible for administrative review shall have only a minor impact on the design, character, or historic fabric of building, structure, or site.

4. Applications may be forwarded to the HDRB if the zoning administrator determines the application does not meet the aforementioned criteria.

~~d~~*b*. ~~After~~ *For those applications requiring HDRB review, following* public notification and the scheduling of a public hearing, the ~~HPRB~~ *HDRB* shall conduct a public hearing on the application. At the public hearing, the ~~HPRB~~ *HDRB* shall consider the application, the relevant support materials, the staff report, and the public testimony and evidence given at the hearing. After the close of the public hearing, the ~~HRPB~~ *HDRB* shall either approve or disapprove the application based on the standards in section 78-60.3(~~g~~*f*), development within the ~~heritage preservation~~ *historic district* overlay ~~district as follows~~ *and the following standards*:

1. If the ~~HRPB~~ *HDRB* finds the application complies with the standards in section 78-60.3(~~g~~*f*)~~,~~ ~~development within the heritage preservation overlay district and the applicable guidelines found in the Herndon Heritage Preservation Handbook,~~ *and the Historic*

District Guidelines the ~~HRPB~~ *HDRB* shall approve a certificate of appropriateness.

2. If the ~~HRPB~~ *HDRB* determines the application fails to comply with the standards in section 78-60.3(g*f*), ~~development within the Heritage Preservation Overlay District, and the applicable guidelines found in the Herndon Heritage Preservation Handbook,~~ *and the Historic District Guidelines,* it may either disapprove the application or continue the public hearing. In either case, it shall explain why the application fails to comply with the review standards. It shall recommend revisions to the plans and specifications that would bring the application into conformance with section 78-60.3(g*f*), ~~development within the heritage preservation overlay district~~ and the ~~applicable guidelines found in the Herndon Heritage Preservation Handbook~~ *Historic District Guidelines*. The applicant may request or agree to a continuation of the public hearing in accordance with section 78-152.6, deferral of application and section 78-153.2(i)(2), continuation of public hearing.

(5) *Certificate of appropriateness for minor improvements.* At its discretion, the ~~HPRB~~ *HDRB* may adopt a certificate of appropriateness providing design guidance for certain minor improvements such as changes in color of materials or fences, dumpster enclosures, and similar screening. The staff may review applications for eligible minor improvements addressed in the certificate of appropriateness for compliance with the certificate of appropriateness. The staff shall then notify the applicant in writing whether or not the application successfully complies with the certificate of appropriateness and the improvements shall be authorized under that certificate of appropriateness, without a public hearing before the ~~HPRB~~ *HDRB*.

(6) *Certificate of appropriateness review standards.* Development located within ~~a preservation district~~ *the historic district overlay* shall be completed in accordance with the ~~Herndon Heritage Preservation Handbook~~ *Historic District Overlay Guidelines* and the standards set forth in section 78-60.3(f), development within the ~~heritage preservation overlay district~~ *historic district overlay*.

(7) Appeal of COA administrative decision to the historic district review board. The applicant may appeal the final decision of an administrative COA to the HDRB.

(a) An appeal shall be initiated by filing a written notice of appeal with the zoning administrator specifying the grounds for the appeal within 30 days of the final decision.

(b) If a written notice of appeal on an administrative certificate of appropriateness is received by the zoning administrator then anything on the administrative COA application shall be stayed.

(~~7~~*8*) *Appeal of COA decision to town council.* The applicant or any person aggrieved by the decision with a property interest in land abutting or across the street from property which is the subject of a final decision of the ~~HPRB~~ *HDRB* on a certificate of appropriateness, may appeal the decision to the town council, as follows.

(a) An appeal shall be initiated by filing a written notice of appeal with the zoning administrator specifying the grounds for the appeal within 14 days of the final decision of the ~~HPRB~~ *HDRB*.

(b) No action shall be taken until 15 days after the final decision of the ~~HPRB~~ *HDRB* on a certificate of appropriateness. If a written notice of appeal on a certificate of appropriateness is initiated pursuant to this section, action on the certificate of appropriateness shall be stayed pending the final decision by town council.

***

(e) After the conclusion of the hearing, the town council may affirm, modify, or reverse the decision of the ~~HPRB~~ *HDRB*, in whole or in part, or may remand the case to the ~~HPRB~~ *HDRB*. The decision shall be based on the standards in section 78-60.*3*(f), development within the ~~Historic Preservation Overlay District~~ *historic district overlay*. The town council decision shall be subject to the following standards:

(1.) A decision shall not be reversed or modified unless there is evidence in the record that the decision of the ~~HPRB~~ *HDRB* is not correct, based on the review standards for a certificate of appropriateness.

(2.) In determining whether or not to remand a case to the ~~HPRB~~ *HDRB*, the town council shall be guided by the following factors: the completeness of the record; the appropriateness of further review by the ~~HPRB~~ *HDRB* of certain points or facts; and any amendments to the application after the decision of the ~~HPRB~~ *HDRB*. Town council recognizes that revisions to an application for the purpose of clarifying issues, or addressing concerns raised during the public hearing are positive and will not necessarily result in a remand, except that significant and substantive revisions to the application may serve as a basis for remand.

(~~8~~*9*) *Appeal of town council decision to circuit court.* The applicant, any person jointly or severally aggrieved with a property interest in land abutting or across the

street from property which is the subject of a final decision of the town council pursuant to subsection (~~7~~*8*) above, any person with a property interest in land in the ~~Heritage Preservation District~~ *historic district overlay*, who is aggrieved by a final decision of the town council, pursuant to subsection (~~7~~*8*) above, or the town, may appeal the decision to the Circuit Court of Fairfax County pursuant to Code of Virginia § 15.2-2306. If appealed, a petition at law shall be filed setting forth the alleged illegality of the action by the town council, provided that such petition shall be filed within 30 days after the final decision is rendered by the town council. The filing of the petition shall stay the decision of the town council pending the outcome of the appeal to the court, except that the filing of the petition shall not stay a decision of the town council denying the right to raze or demolish a historic landmark, building or structure.

(~~9~~*10*) *Submittal of new COA application after disapproval.* If the ~~HPRB~~ *HDRB* disapproves a certificate of appropriateness, the applicant may, at any time, submit a new application with new information addressing the written reasons for disapproval.

(~~10~~*11*) *Transfer of certificate of appropriateness.* A certificate of appropriateness shall be transferable to subsequent owners of the property for which the certificate is issued.

(~~11~~*12*) *Expiration of certificate of appropriateness.* Development activity or demolition approved pursuant to a certificate of appropriateness must begin within ~~one~~ *five* year*s* of the issuance of the certificate *of appropriateness, unless a shorter timeframe is included as a condition of approval on the certificate of appropriateness*. Failure to begin the activity within ~~one~~ *five* year*s, or the timeframe conditioned on the approval,* shall render the certificate of appropriateness void.

(~~12~~*13*) *Extension of approved certificate of appropriateness.* Upon written application submitted to the zoning administrator by the applicant at least ~~6~~*30* days prior to the expiration of the certificate, ~~the~~ ~~HRPB~~ *staff* shall consider and may grant one extension not to exceed ~~one~~ *five* year*s* upon a showing of good cause. In determining good cause, ~~the~~ ~~HPRB~~ *staff* shall take into consideration the scope of the proposed work and the laws, ordinances, and regulations in effect at the time of the request for extension. ~~The approval shall be deemed extended until the HRPB has acted upon the request.~~ *An administrative decision to disapprove a certificate of appropriateness may be appealed to the HDRB by the applicant pursuant to section 78-60.3(g)(7).* Failure to apply for an extension within the time limits established by this section shall render the certificate of appropriateness void.

(h) *Demolition, relocation and alteration of structures in the ~~heritage preservation overlay district~~ historic district overlay*. As provided in the Code of Virginia § 15.2-2306, in addition to the right of appeal outlined in this section, the owner of any building or

structure shall be permitted to demolish, alter or relocate a building, structure or historic landmark in the ~~heritage preservation overlay district~~ *historic district overlay* provided that:

***

(5) *Hazardous properties*. A contributing landmark, building or structure, or historic landmarks, shall not be razed, demolished or moved until the razing, demolition or moving thereof is approved by the ~~heritage preservation review board (HPRB)~~ *historic district review board (HDRB)* or, on appeal, by the town council after consultation with the ~~HPRB~~ *HDRB*, unless the building official consistent with the Uniform Statewide Building Code, Part III Maintenance, determines that the contributing structure constitutes such a hazard that it shall be razed, demolished or moved.

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Section 78-60.4 – Chesapeake Bay Preservation Area Overlay ~~district~~ (CBPAO).

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Section 78-71.13 – Commercial utilities use category.

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(d) *Commercial utilities category specific use standards*. In addition to the applicable requirements in this chapter, the following standards apply:

***

(3) *Small cell facilities on a new utility distribution or transmission pole less than 50 feet*. Any new utility distribution or transmission pole of less than 50 feet in height above grade and designed to support small cell facilities is an administrative review-eligible project (AREP) as defined by the Code of Virginia § 15.2-2316.3. An AREP is subject to approval by the zoning administrator and shall comply with the following standards:

(a.) ~~*Heritage preservation*~~ *Historic district overlay review*. Small cell facilities in the ~~heritage preservation overlay~~ *historic district overlay* are subject to the following:

(1.) *Certificate of appropriateness*. A certificate of appropriateness must be obtained from the ~~heritage preservation~~ *historic district* review board unless all of the following conditions are met.

***

(b.) *Architectural review*. Small cell facilities outside of the ~~heritage preservation~~ *historic district* overlay must receive approval by the architectural review board unless the following conditions are met:

***

Section 78-80.3 – Accessory structure standards.

***

(b) *Accessory structures in multi-family and nonresidential districts*. Accessory structures in multi-family and nonresidential districts shall meet the following standards:

(1) *General requirements*. Structures accessory to multi-family and nonresidential uses shall be subject to the approval of a site plan and approved through the site plan review process, section 78-155.6. and shall be subject to approval by the architectural review board under Chapter 58 of the Code of Ordinances or the ~~heritage preservation~~ *historic district* review board under section 78-~~155.7~~*60.3*.

***

(c) *Accessory features (such as fences, walls, retaining walls, gate houses, trash enclosures, refuse containers, screening enclosures, storage sheds, and swimming pools) in all zoning districts*. Standards stated elsewhere in this chapter shall govern for specific accessory structures or uses. The following standards shall apply to features such as fences, walls, retaining walls, gate houses, trash enclosures, refuse containers and screening enclosures:

(1) *Within ~~heritage preservation overlay district~~ historic district overlay*. A certificate of appropriateness may be required in the ~~heritage preservation overlay district~~ *historic district overlay*.

(2) *ARB review*. Approval by the architectural review board may be required for multi-family and nonresidential properties outside of the ~~heritage preservation overlay district~~ *historic district overlay.*

***

Section 78-80.4 – Standards for specific accessory uses and structures by type.

***

(c) *Antenna of all kinds, except commercial communication towers, freestanding*. The following standards are adopted to comply with applicable state and federal law, including the Federal Telecommunications Act of 1996 and the "Spectrum Act", and to control the location and screening of antennae to mitigate impact on surrounding properties.

***

(2) *Large satellite dish antennae*. Satellite dish antennae measuring one meter or more are permitted accessory uses in nonresidential districts. Such dishes are subject to the standards set forth below to the maximum extent feasible, but only where there is no impairment of acceptable signal quality. These regulations are not intended to impose unreasonable delays or impose unreasonable costs on the installation, maintenance, or use of satellite dishes, and shall not be interpreted or enforced in any manner contrary to federal or state law.

(a) Within the ~~heritage preservation overlay district~~ *historic district overlay*, satellite dishes shall be screened or located so as to not be visible from any public streets.

***

(3) *Commercial antennae*. Antennae may be located on existing structures provided the following standards are met:

***

(c) Must receive a certificate of appropriateness when located within the ~~heritage preservation overlay~~ *historic district overlay* and visible from a public right-of-way.

***

(d) *Bed and breakfast establishment*. Bed and breakfast establishments are permitted by special exception in accordance with the provisions of section 78-155.3, special exceptions and Article VIII, Accessory Use Regulations, as follows:

(1) *Limited to certain housing types and zoning districts* . Bed and breakfast establishments may be established in owner- or operator-occupied single-family detached homes, including normal residential accessory structures existing as of March 1, 2007, in the R-15 and R-10 zoning districts; and in the ~~heritage preservation overlay district~~ *historic district overlay*.

***

(n) *Outdoor serving areas accessory to an enclosed use providing food or beverage for sale or tasting*. Outdoor serving areas providing or allowing outdoor consumption of food or beverage accessory to an established enclosed use food or beverages for sale or tasting shall comply with the following standards:

***

(10) *Limit on outdoor kitchen/bar equipment*. No exterior kitchen or bar service equipment shall be permitted abutting a public right-of-way unless permitted in association with, and for the duration of, a permitted temporary use permit. If such equipment, when not associated with a permitted temporary use permit, is

visible from the adjacent right-of-way, landscaping or other screening as approved by either the ~~HPRB~~ *HDRB* or ARB, shall be installed to screen the equipment from the right-of-way.

***

Section 78-110.3 – Site landscaping (not contained in perimeter buffer strips and vehicular use areas).

***

(c) *Certain exemptions for downtown*. Properties zoned PD-D and PD-TD shall be exempt from section 78-110.4(c) except as follows:

***

(3) *Nonresidential development and mixed-use residential development located in the PD-D and PD-TD*. Nonresidential development and mixed-use residential development located in the PD-D and PD-TD shall provide:

a. Commercial grade planting containers designed to complement (as determined by the ~~heritage preservation review board~~ *historic district review board* using recognized standards) the architecture of the building, or planting beds, planted and maintained with evergreen shrubs or live plants affording seasonal color. Such containers or planting beds shall not extend into the required 12-foot public streetscape.

***

Section 78-114.1 – Additional screening requirements.

***

(b) *Review* . In addition to review as part of a site plan or subdivision plan application, all screening structures shall be subject to review and decision by the architectural review board or ~~heritage review board~~ *historic district review board*, as appropriate.

***

Section 78-115.1 – Retaining walls.

***

(c) *Review and approval of retaining walls*. Retaining walls shall be reviewed and approved, if they are approved, in accordance with the following provisions, as applicable:

(1) *Properties within the ~~heritage preservation overlay district~~ historic district overlay*. The ~~heritage preservation~~ *historic district* review board shall be the

reviewing authority for retaining walls on any property within the ~~heritage preservation overlay district~~ *historic district overlay*.

(2) *Townhouse, multifamily or commercial uses outside the ~~heritage preservation overlay district~~ historic district overlay*. The architectural review board shall be the reviewing authority for walls on property developed with townhouses, multi-family uses, or commercial uses outside of the ~~heritage preservation overlay district~~ *historic district overlay*.

***

Section 78-115.2 – Fencing, walls (except retaining walls) and hedges.

***

(c) *Approvals*. A certificate of appropriateness may be required for fencing or walls in ~~the heritage preservation overlay district~~ *historic district overlay*. ~~(see "certificate of appropriateness in the heritage preservation overlay district" in Article II, Administration).~~ Approval may be required from the architectural review board for fencing, walls or hedges associated with all uses under the purview of the architectural review board ~~(see Chapter 58 of the Herndon Town Code, section 58-62, approval of construction, reconstructions and alterations in architectural control districts required)~~.

***

(e) *Fencing, wall and hedge standards*. The following standards shall apply within all zoning districts throughout the town unless otherwise stated.

***

(6) *Fencing and wall materials*. The following provisions shall apply to wall and fence materials:

a. Fences or walls shall be constructed of customary fencing or wall materials, including solid wood, masonry, stone, brick, wrought iron, decorative metal materials, or products designed to resemble these materials. Any fence or wall material may be further restricted in the ~~heritage preservation district~~ *historic district overlay*. ~~by the heritage preservation review board.~~

b. Chain link fencing is permitted only for the following purposes:

1. To surround tennis courts, ball fields, playgrounds, other recreational facilities not located on a lot with a single-family detached or single-family attached dwelling, and schools not associated with a home-based child care business subject to the following:

(a) Chain link fencing used for recreational use within the ~~heritage preservation district~~ *historic district overlay* shall be coated with black or dark green vinyl and shall be screened from public rights-of-way and abutting properties by landscaping with a growth habit adequate to screen the fencing.

(b) Installation of the screening and fencing shall be dependent upon review and approval by the ~~heritage preservation~~ *historic district* review board.

***

Section 78-140.4 – Prohibited Signs.

(a) General prohibitions. In addition to signs prohibited elsewhere in this Code or by applicable state or federal law, the following signs are prohibited:

***

(7) Signs painted directly on a building, except in the ~~Heritage Preservation Districts~~ *historic district overlay* when approved by the ~~HPRB~~ *HDRB*.

***

Section 78-140.5 – Sign license required.

***

(b) *License types and approving authorities*. Sign licenses shall be approved by either the zoning administrator or the appropriate review board as follows:

(1) *Administrative approvals*. Following approval by the ~~HPRB~~ *HDRB* or ARB, the zoning administrator or designee conducts final review of applications for all sign licenses other than those provided for in section 78-140.5(n). The following administratively approvable signs, not requiring review by the ~~HPRB~~ *HDRB* or ARB, are subject to review by the zoning administrator or designee, temporary sign licenses, master sign plan conformance licenses (after approval of a master sign plan license) and any sign which complies with uniform standards adopted by the ~~HPRB~~ *HDRB* and ARB for administratively approved signs. Signs for all arts businesses, as defined in section 7-2 of the Herndon Town Code and licensed to operate as a business in the Herndon Arts District may receive administrative approval of the sign license if the signs comply with the ~~HPRB~~ *HDRB* and ARB approved uniform design standards.

(2) *Review Board Approvals*. The architectural review board or ~~Heritage Preservation Review Board~~ *historic district review board* also conducts final review of sign licenses that do not conform to the adopted uniform standards, as

determined by the zoning administrator, within their respective overlay districts. ~~(Architectural Control District for the ARB and Heritage Preservation Overlay District for the HPRB).~~

***

(e) ~~*Heritage District Overlay zoning district regulations.* Herndon overlay zoning districts may require overlay specific sign standards and regulations in addition to the general requirements and district specific standards detailed in this article.~~ *Reserved.*

(f) ~~*Heritage Preservation District*~~ *Historic district overlay*. Permanent signs installed within the ~~Heritage Preservation Districts~~ *historic district overlay* shall comply with the relevant design guidelines, as interpreted by the ~~HPRB~~ *HDRB*, and the uniform standards for administrative approval of signs as approved by the ~~HPRB~~ *HDRB* and interpreted by the zoning administrator, or adopted superseding documents.

(g) ~~*Arts district.* Permanent signs installed within the arts districts shall comply with the relevant design guidelines, as interpreted by the HPRB and ARB, and the uniform standards for administrative approval of signs as approved by the HPRB and ARB and interpreted by the zoning administrator, or adopted superseding documents.~~ *Reserved.*

***

Section 78-141.6 – Sign standards for downtown mixed-use districts.

***

(c) *Compliance with design guidelines*. Signs installed within the central commercial (CC), planned development-downtown (PD-D), planned development-traditional downtown (PD-TD) zoning districts shall comply with the relevant design guidelines of the ~~Herndon Heritage Preservation Handbook~~ *Historic District Overlay Guidelines* and Downtown Herndon Pattern Book, or adopted superseding documents.

***

Section 78-150.1 – Town Council

(a) *Powers and duties*. The town council shall have the powers and duties specified in Code of Virginia ~~tit.~~ *Title* 15.2, ~~ch.~~ *Chapter* 22 and the Town Charter, as well as the following powers and duties under this chapter

***

(2) Appeals. The town council shall review and decide appeals from:

***

c. Final decisions of the ~~Heritage Preservation Review Board (HPRB)~~ *historic district review board (HDRB)* on certificates of appropriateness (section 78-60.~~G~~*3(g)*);

***

(3) *Historic designation*. The town council shall review and decide whether or not to designate any site, building or structure as an historic landmark or an area as a ~~heritage preservation overlay district.~~ *historic district overlay*.

(4) *Implementation authority not otherwise delegated*. The town council shall have the authority to take any other action not delegated to the planning commission, board of zoning appeals, architectural review board, ~~heritage preservation review board~~ *historic district review board*, town manager, town attorney, zoning administrator, or heads of town departments, as the town council may deem desirable and necessary to implement the provisions of this chapter.

***

Section 78-150.2 – Planning Commission

(a) *Powers and duties*. The planning commission shall have the powers and duties specified in Code of Virginia ~~tit.~~ *Title* 15.2, ~~ch.~~ *Chapter* 22, as well as the powers and duties under this chapter.

(1) *Application review*. The planning commission shall review and make recommendations to the town council to approve or disapprove applications for:

***

f. Designation of any site, building or structure as an historic landmark or an area as a ~~heritage preservation overlay district~~ *historic district overlay*.

***

Section 78-150.4 – ~~Heritage preservation~~ Historic district review board.

(a) *Establishment*. There hereby is established a ~~heritage preservation~~ *historic district* review board (~~HPRB~~ *HDRB*).

(b) *Powers and duties*. The ~~HPRB~~ *HDRB* shall have the following powers and duties under this chapter:

(1) *Recommendations*. The ~~HPRB~~ *HDRB* shall provide recommendations to the planning commission and the town council on the establishment, expansion, reduction, or elimination of ~~heritage preservation overlay districts~~ *the historic district overlay*.

(2) *Application review*. The ~~HPRB~~ *HDRB* shall review and decide applications for properties within the ~~heritage preservation overlay district~~ *historic district overlay* for:

***

(e) Appeals of administratively approved certificates of appropriateness.

***

(3) *Special knowledge and expertise*. The ~~HPRB~~ *HDRB* shall make its special knowledge and expertise available upon its own initiative or upon request by the town council or any official, department, board, commission or agency of the town.

(c) *Membership*. The membership of the ~~HPRB~~ *HDRB* shall be established as follows*:*

(1) *Number*. The ~~HPRB~~ *HDRB* shall consist of seven members. It shall be comprised of the five members of the town's architectural review board (ARB), along with two additional members.

(2) *Qualifications*. The two additional members of the ~~HPRB~~ *HDRB* who are not on the ARB shall meet the following minimum qualifications:

***

(3) *Residency*. No more than two of the members on the combined ARB/~~HPRB~~ *HDRB* with the required professional qualifications for an architect or an architectural historian may be nonresidents of the town. The other members on the combined ARB/~~HPRB~~ *HDRB* shall be town residents.

(4) *Appointment*. The ARB members serving on the ~~HPRB~~ *HDRB* shall be appointed pursuant to Part I, Charter, of the Code of Ordinances, section 7.4:1(b). The two additional members shall be appointed by a majority of the town council.

(5) *Term*. The term of office of the ARB members serving on the ~~HPRB~~ *HDRB* shall be concurrent with their membership on the ARB. The terms of the two additional ~~HPRB~~ *HDRB* members shall be three years.

(6) *Removal*. Any member of the ~~HPRB~~ *HDRB* may be removed from office by the town council for malfeasance, misfeasance or nonfeasance in office.

***

(9) *Training*. Newly appointed members of the ~~HPRB~~ *HDRB* shall be offered training ~~and certification by the Citizens Planning Education Association of Virginia or similar certification to be completed~~ *by the Virginia Department of Historic Resources* within two years of appointment.

(d) Officers. Officers of the ~~HPRB~~ *HDRB* shall be established as follows:

(1) *Chair and vice-chair*. The ~~HPRB~~ *HDRB* shall elect from its members a chair and a vice-chair.

***

(3) *General duties of officers*. The duties of the chair and vice-chair of the ~~HPRB~~ *HDRB* shall be as follows:

a. The chair shall preside at meetings of the ~~HRPB~~ *HDRB*, decide points of order on procedure, and take such action as shall be necessary to preserve the order and integrity of proceedings before the ~~HPRB~~ *HDRB*.

***

c. In the absence of the chair and vice-chair, the most senior ~~HPRB~~ *HDRB* member shall act as chair and shall have powers of the chair.

(e) *Staff*. The zoning administrator or the zoning administrator's designee shall serve as the professional staff to the ~~HPRB~~ *HDRB* and provide it with administrative support.

(f) *Meetings, hearings and procedures*. Meetings of the ~~HPRB~~ *HDRB* ordinarily shall be held monthly and at such other times as a quorum of the ~~HPRB~~ *HDRB* may determine subject to the following:

(1) *Open meetings*. All meetings of the ~~HPRB~~ *HDRB* shall be open to the public.

(2) *Quorum and necessary vote*. Four members of the ~~HPRB~~ *HDRB* shall constitute a quorum, and no action of the ~~HPRB~~ *HDRB* shall be valid unless authorized by a majority vote of those present and voting.

(3) *Rules and records of proceedings*. The ~~HPRB~~ *HDRB* shall document proceedings as follows:

a. The ~~HPRB~~ *HDRB* shall keep minutes of its proceedings, showing the vote of each member upon each question or, if absent or abstaining from a vote, indicating that fact.

b. The ~~HPRB~~ *HDRB* shall keep records of its official actions, which shall be immediately filed in the office of the zoning administrator and shall be a public record.

c. The ~~HPRB~~ *HDRB* may, by a majority vote of the entire membership, draft and approve such additional bylaws governing its procedure as it may deem necessary or advisable.

Section 78-150.5 – Architectural review board.

***

(b) *Powers and duties*. The ARB shall have the following powers and duties under this chapter:

(1) *Review and approval*. Generally, the ARB is empowered by the Town Charter and the town council to review and approve structures, buildings, signs, major landscape features and other improvements for development excluding: (i) the ~~heritage preservation overlay district~~ *historic district overlay*, (ii) single-family detached residences in the R-15 and R-10 zoning districts, and (iii) single-family detached residences in planned development districts after initial construction.

***

Section 78-150.6 – Zoning Administrator.

***

(b) *Powers and duties*. The zoning administrator or an appropriate designee acting as zoning administrator shall have the following jurisdiction, powers, and duties under this chapter:

(1) *Application review*. The zoning administrator shall review and decide applications for:

***

d. Administrative sign conformance permit for signs that are part of an approved master sign plan or that conform to the adopted requirements of the ARB or ~~HPRB~~ *HDRB*, whichever applies (section 78-140.5(b).

***

j. Administrative certificates of appropriateness pursuant to Section 78-60.3(3)(g).

***

(3) *Application*. The zoning administrator shall establish application requirements and schedules for review of applications and appeals, to review and make recommendations to the town council, planning commission, ~~HPRB~~ *HDRB*, and ARB on applications for development permits and approvals, and take any other action necessary to administer the provisions of this chapter.

***

(6) *Expertise and technical assistance*. The zoning administrator shall provide expertise and technical assistance to the town council, planning commission, BZA, ~~HPRB~~ *HDRB*, and ARB, upon request.

Section 78-151 – Summary table of development review responsibilities.

TABLE 78-151: DEVELOPMENT PERMIT REVIEW PROCEDURES
(S = Staff Review, R = Review and Advise, D = Final Decision, A = Appeal)

PROCESS	ZONING ADMINISTRATOR	ARCHITECTURAL REVIEW BOARD (ARB)	~~HERITAGE PRESERVATION~~ *Historic District* REVIEW BOARD ~~(HPRB)~~ *(HDRB)*	PLANNING COMMISSION	TOWN COUNCIL	BOARD OF ZONING APPEALS (BZA)	CIRCUIT COURT
***							
OUTSIDE THE ~~HERITAGE PRESERVATION OVERLAY DISTRICT~~ *HISTORIC DISTRICT OVERLAY*:							
***							
INSIDE THE ~~HERITAGE PRESERVATION OVERLAY DISTRICT~~ *HISTORIC DISTRICT OVERLAY*:							
ADMINISTRATIVE ELIGIBLE CERTIFICATE OF APPROPRIATENESS	*D*		*A*				
***							

[1] Appeals are limited to technical determinations. Appeals to the uniform standards shall be heard by the ~~HPRB~~*HDRB*/ARB.

Section 78-152.2 – Pre-application procedures.

***

(b) *Neighborhood meeting*. A neighborhood meeting is strongly encouraged prior to filing certain types of development applications, as follows.

***

(3) *Timing of meeting for other applications requiring public hearings*. Neighborhood meetings generally are encouraged prior to, or shortly after, submittal of other applications requiring a public hearing. The town council, planning commission, architectural review board or ~~heritage preservation~~ *historic district* review board may encourage an applicant to conduct a neighborhood meeting on an application if, in the determination of the review board, the proposed development could affect neighboring properties

***

Section 78-152.2 – Application submission, requirements and acceptance.

***

TABLE 78-152.2(b)(3): FEES FOR DEVELOPMENT APPLICATIONS	
TYPE OF FEE	AMOUNT
***	
~~HERITAGE PRESERVATION~~ *HISTORIC DISTRICT* REVIEW BOARD	
***	

***

Section 78-153.2 – Review process for applications requiring a public hearing (approval by decision making body).

***

(f) *Staff report*. The staff shall prepare a report for the reviewing body or bodies as follows:

***

(2) *Staff report availability*. The staff report shall be available to the applicant and the public a minimum of five days before the first scheduled work session for applications to the architectural review board, ~~heritage preservation~~ *historic district* review board, planning commission and town council. For the board of zoning appeals, the staff report shall be available to the applicant and the public a minimum of five days before the first scheduled public hearing.

(g) *Public hearing requirements*. The appropriate decision-making authority shall hold a minimum of one public hearing for a development application as follows:

***

(2) *Certificate of appropriateness*. The ~~heritage preservation~~ *historic district* review board shall conduct at least one public hearing for applications for certificates of appropriateness.

***

(h) *Public hearing notification*. All applications requiring public hearing(s), in addition to major site plans and subdivision plans, shall comply with the Code of Virginia and the other provisions of this section with regard to public notification.

***

(2) *Written/mailed notice*. When the provisions of this chapter (see section 78-153.2(h)(5)) require that written or mailed notice be provided, the preparation and transmittal of the written notice shall comply with this section, unless expressly stated otherwise.

***

b. Notice shall be mailed to:

***

6. The zoning administrator shall be responsible for providing written notice when the public hearing is before the board of zoning appeals, the ~~heritage preservation~~ *historic district* review board, or the architectural review board. The zoning administrator shall prepare a list of property owners and registrants to whom notice was mailed via first class mail and an affidavit affirming that notice meeting the content requirements of section 78-153.2(h)(1) was mailed pursuant to this section. The affidavit shall be conclusive that notice has been given pursuant to the terms of this section. A copy of the mailed notice shall be maintained in the office of the zoning administrator for public inspection during normal business hours.

***

(4) *Posted/placard notice*. When the provisions of section 78-153.2(h)(5), require that notice be posted on the land subject to the application, notice for applications other than those pertaining to the architectural review board or the ~~heritage preservation~~ *historic district* review board (which do not require placard notice) shall comply with the following requirements:

***

(5) *Required notice and timing*. Notice shall be provided as required in the Code of Virginia, § 15.2-2204. Such notice shall not be required for sign permit applications before the architectural review board or ~~heritage preservation~~ *historic district* review board.

***

Section 78-155.1 – Zoning map amendment (ZMA).

***

(h) *Procedures for zoning map amendments.*

***

(2) *Proffer review by ARB or ~~HPRB~~ HDRB prior to planning commission public hearing (if applicable)* . If an application for a zoning map amendment includes a proffer or proffers dealing with a building's exterior appearance or materials, the application and proffers shall be reviewed by the architectural review board, or ~~heritage preservation~~ *historic district* review board if ~~in a heritage preservation overlay district~~ *within the historic district overlay,* as follows:

***

Section 78-155.10 – Certificates of Appropriateness

(a) Intent. The purpose of a certificate of appropriateness is to ensure proposed changes to a building or site within the historic district overlay comply with the Historic District Guidelines and this chapter.

(b) Applicability. A certificate of appropriateness is required for any development within the historic district overlay unless exempted pursuant to Section 78-60.3(g)(2).

Section 78-160.1 – Generally

***

(c) *Adaptive reuse.* The town council intends to allow the adaptive reuse and convenient and efficient utilization of structures in the ~~heritage preservation districts~~ *historic district overlay* and other older areas that may have been developed under different standards, by allowing some flexibility in the treatment of nonconformities where the specific nonconformity is not increased.

***

Section 78-160.3 – Nonconforming Structures.

***

(e) *Specific provisions for changes to nonconforming structures.* Permitted changes to nonconforming structures shall be subject to the following specific provisions:

***

(4) *Restoration of a nonconforming structure damaged by casualty (excluding "Acts of God" or natural disaster).* A nonconforming structure damaged by casualty (as distinguished from ordinary wear and tear) may be restored in accordance with the following provisions:

***

(c) A nonconforming structure that is damaged by any casualty to an extent more than 50 percent of its assessed value (exclusive of foundations) at the time of the casualty according to the records maintained by the county department of tax administration shall not be restored except as follows:

***

2. If the nonconforming structure is within the ~~heritage preservation district~~ *historic district overlay*, or is designed and used as a single-family detached or single-family attached dwelling and such single-family detached or single-family attached use is allowed in the zoning district in which the nonconforming structure exists, restoration of such structures shall be permitted. The restoration shall begin within 12 months of the date of the casualty and shall be completed within 24 months of the casualty. The structure shall occupy the same space that it occupied prior to such casualty. In no instance shall any residential structure covered by this subsection 78-160.3(e)(4) be used to accommodate a greater number of dwelling units than such structure accommodated prior to any such work.

***

Section 170.3 – Types of violations.

(a) *Violations, generally*. The following constitute general violations of this chapter.

***

(2) *Noncompliance with permit*. Permits issued on the basis of plans and applications approved by the town council, planning commission, board of zoning appeals, ~~heritage preservation~~ *historic district* review board, zoning administrator, or other officials or agencies where additional approval is required, authorize the use, arrangement, alteration, location, and construction set forth in such permits and development approvals, and no other use, arrangement, alteration, location, or construction.

***

(b) *Specific violations*. In addition to the offenses listed in Table 78-170.4(a)(5), it shall be a violation of this chapter to do any of the following:

(7) *Failure to comply with terms of approval*. Fail to comply with any terms, conditions, or limitations placed by the town council, planning commission, board of zoning appeals, ~~heritage preservation~~ *historic district* review board, or zoning administrator upon any development approval, including designation of a

planned development (PD) zoning district classification and preliminary PD plan, special exception, variance, administrative adjustment, certificate of appropriateness, sign permit, temporary use permit, zoning inspection permit, zoning appropriateness permit, site plan, single lot development plan, building location plan, final PD plan, final plat for minor subdivision, preliminary plat for subdivision, final plat for subdivision, site grading permit, excavation permit, street name or name change, or other form of authorization.

***

Section 78-170.4 – Penalties, fines and remedies for violations.

(a) *Penalties, fines and remedies for civil violations.*

***

(5) Summary table of common violations and fines.

TABLE 78-170.4(a)(5): SUMMARY OF COMMON CIVIL VIOLATIONS AND PENALTIES		
OFFENSE	Penalty for Initial Summons (in $)	Penalty for Each Additional Summons (in $)
***		
Erecting, reconstructing, demolishing, altering or restoring a building or structure in a ~~Heritage Preservation District~~ *historic district overlay* without obtaining a current, valid Certificate of Appropriateness	200.00	500.00
***		

***

Section 78-180 – Definitions

***

Board. May refer to the board of zoning appeals, the architectural review board, or the ~~heritage preservation~~ *historic district* review board of the town, where the context so indicates.

***

Certificate of appropriateness. A certificate issued by the ~~heritage preservation~~ *zoning administrator, historic district* review board*,* or on appeal by the town council, indicating its approval of plans for alterations, *new* construction, removal or demolition of a landmark or of a building or structure within ~~a preservation district~~ *the historic district overlay*.

***

Construction, new.

(1) For ~~Heritage preservation~~ *historic district overlay* purposes: Any construction *of a building or structure* within ~~a preservation district~~ *the historic district overlay* which is independent and exclusive of an existing building or structure*,* or part thereof*,* in the ~~preservation district~~ *historic district overlay*.

***

~~*Heritage preservation district*~~ *Historic district overlay*. ~~Preservation districts~~ *the historic district overlay* shall be designated by town council. ~~Preservation district~~ ~~*b*~~*Boundaries* shall encompass and may include areas adjacent to historic landmarks.

***

Sign related terms. The following definitions pertain to signs and signage in all zoning districts:

***

(8) *Design guidelines*. Design guidelines mean the guidelines found in either the ~~Herndon Heritage Preservation Handbook~~ *Historic District Overlay Guidelines*, the Downtown Herndon Pattern Book or the Urban Design & Architectural Guidelines for the Herndon Transit-Oriented Core.

***

(26) *Review board*. Review board means either the ~~*A*~~*architectural* ~~*R*~~*review* ~~*B*~~*board* or the ~~Heritage Preservation~~ *historic district* ~~*R*~~*review* ~~*B*~~*board*.

***

2. This ordinance shall be effective on and after the date of its adoption.

TOWN OF Herndon VIRGINIA

STAFF REPORT

Town Council
November 10, 2020

Title: Historic District Guidelines

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Summary Information

Request	Town adoption of preservation and design guidelines for the Herndon Heritage Preservation Overlay District[1].
Location	All properties located within the Herndon Heritage Preservation Overlay District[2]. See district map provided as Attachment #4 of this report.
Project Consultants	Mel Price, Principal, Work Program Architects Paige Pollard, Commonwealth Preservation Group Katie Paulson, Commonwealth Preservation Group
Implementation Schedule	Immediately upon Town Council adoption.
Public Engagement Schedule	Consultant Open House – October 19, 2018 Business Owners Meeting – October 19, 2018 Public Workshop – October 20, 2018 Joint Town Council/HPRB work session – December 2, 2019 Virtual Public Meeting – October 29, 2020 Town Council Public Hearing – November 17, 2020
Project Websites	Town hosted: www.herndon-va.gov/heritagepreservation Consultant hosted: www.herndon-preservation.com

Staff Recommendation	Staff recommends approval of the Historic District Overlay Guidelines in accordance with the resolution provided in this report as Attachment #1

[1] The district name is proposed to be changed to "Historic District Overlay" pursuant to ZOTA#20-01.
[2] See footnote No. 1.

Background

Project History

The proposed district guidelines, to be known as the "Historic District Overlay Guidelines", are part of a broader effort to update the Town's preservation program. In addition to the guidelines, that effort has included revised Heritage Preservation Review Board (HPRB) by-laws, changes to the HPRB meeting and Certificate of Appropriateness (COA) application schedule, improved access to district information, public outreach and awareness events, training events for the review board members, new architectural surveys of district properties, a proposed zoning ordinance text amendment clarifying the zoning code regulating the district and allowing the administrative review of COAs, development of a resource guide for district property owners, and development of a process guide for use by district property owners. Some of these items are on-going while others have already been implemented.

Public Outreach

The development of the guidelines went through a multi-staged public input process. The various public events are listed in the table on page 1 of this report. Public feedback was one of the primary drivers of the scope and intent of the guidelines as developed. The majority of the public input was provided directly to the consultants which guided them during their review of existing guidelines and procedures and during the drafting of the new guidelines. Public input, and the consultants' expertise in current best practices within the field of historic presentation provided the foundation for the proposed guidelines.

Project Need

Public input, along with staff and board members observations, has strongly indicated that updated guidelines are needed. The current district guidelines are over 30 years old. Though it has been an important tool, this document has become outdated in form and practice. Guidelines that rely more on visual presentation and which are better aligned with the Town's preference for increased flexibility of design and building materials were identified as a need. New guidelines, it was determined, also needed to have clear direction for both district property owners, staff, and HPRB members reviewing proposed changes to properties in the district. A clear basis of review, as intended, would assist with review consistency, improve decision transparency, and help set expectations for maintaining and making changes to properties within a historic district.

Proposal

Intended Use of the Guidelines

The guidelines document serves three primary functions.

- It provides a basis for the evaluation of appropriateness for proposed changes to properties within the district. This evaluation is conducted by staff and the HPRB when reviewing applications.
- It provides recommendations to property owners on how to upkeep their district properties and gives insight to those owners on how proposed changes will be evaluated.
- It serves as an educational tool providing background information for district property owners regarding the specifics of the district and what it means to own property in the district.

Content of the Guidelines

The draft guidelines include the following:

- Summary of the application and review process
- Explanation of contributing versus non-contributing resources
- A brief history of the district and its period of significance
- General descriptions of the district's historic buildings
- General description of the district's non-historic buildings
- Explanations of common district building types and architectural styles
- Recommendations for maintenance and repair of district properties
- Guidance on the use of alternative materials
- Preservation and design guidelines for material and design changes to district properties
- Design guidelines for new construction, building relocation, and demolition in the district
- Summaries of tax incentive programs for rehabilitation
- References to the regulatory framework for historic districts

District Resource Guide

Though not part of the guidelines document the, Historic District Resource Guide, provided as Attachment #3 to this report, will serve as an important companion document especially for district property owners. The Resource Guide offers a toolkit of pertinent information for property owners looking to maintain, improve, or update their property with helpful links to online sources including a craftsmen listing and sources to find craftsmen.

Staff Analysis

Zoning Ordinance Compliance

Section 78-60.3 of the zoning ordinance provides the legal basis for the required use of the guidelines. This code references the Heritage Preservation Handbook, which is the official name of the current guidelines document. The Zoning Ordinance Text

Amendment, ZOTA#20-01, also scheduled to be reviewed by the Town Council in November, proposes to change the name of the document to the Historic District Overlay Guidelines for consistency with the proposed district name change from Heritage Preservation Overlay District to the Historic District Overlay as well as enabling improvements to the process. The improvements stem from public input and streamlines several types of applications, the result of which will save property owners time and money as well as provide increased confidence in the outcome of the process.

Comprehensive Plan Adherence

The guidelines as proposed follow the guidance and principles set forth in the Heritage Preservation chapter of the Herndon 2020 Comprehensive Plan. The guidelines specifically meet Goals #1 and #2 and their associated objectives. Goal 1 is to *Preserve and enhance heritage features, structures, areas and other elements deemed worthy representations of the town's heritage*. Goal #2 is to *Strengthen the positive image that is projected through Herndon's heritage districts and that distinguish the town from its surroundings*.

Improvements from Existing Handbook

There are several ways in which the proposed Historic District Overlay Guidelines improve upon the existing Heritage Preservation Handbook. Most obvious is the look and feel. The proposed guidelines are less text-reliant and provides much more visual support. The document also offers a new organization of the information that is color-coded with more distinction and clarity expressed on the purpose of each chapter. This approach was a project focus to ensure enhanced user-friendliness.

The proposed guidelines document is also more heavily focused on providing "how to" guidance specific for property owners and application reviewers rather than background information and district history. This is achieved by providing links to other sources of background information and moving background information into the appendix or Resource Guide.

Another significant difference is the clear distinction between contributing and noncontributing district properties. The document makes this distinction in the introduction and carries it through the guidelines by separating the treatment of contributing and noncontributing resources into separate chapters.

Assisted by the separate guidelines for contributing and noncontributing district properties and a deliberate separation of maintenance and repair recommendations, material change guidelines and design change guidelines within each of the property treatment subsections, the proposed guidelines provide a clearer basis for COA decisions. This is meant to help the review board and staff consistently apply the same criteria when evaluating cases.

The proposed guidelines offer much more flexibility in material options that may be available for both existing buildings in the district and new buildings. This is a major change from the existing guidelines. The allowance for considering alternative or non-traditional materials is meant to address the inclusion of more modern materials currently available or may be available in the future that can serve as suitable replacements for traditional materials used in the district.

Allowance for Minor Modifications to Guidelines

The proposed guidelines document is very large with a high degree of detail especially in those chapters providing maintenance recommendations and design guidelines for district properties. The use of the guidelines document is also somewhat tied to the various processes involved for owning, maintaining, improving, and changing district properties. Given the size of the document and its close association to administrative and legislative processes, staff believes it is important that some allowance is made for minor administrative adjustments without the need to return to the Town Council for further adoption. Minor administrative adjustments would be preferred in certain instances to improve message clarity, fix clerical errors, update graphics and other visuals, and keep the document aligned with current procedures and protocols. The proposed draft resolution includes a provision to allow minor administrative adjustments to the documents under those circumstances. Such adjustments would not alter the principal substance, intent, or purpose of the preservation and design guidelines within the document.

Alternatives

The Town Council has the following alternatives available for its decision on this item:

- Approval of the Town of Herndon Historic District Overlay Guidelines as written by the consultants and in accordance with the draft resolution provided (Attachment #1).
- Approval of the Town of Herndon Historic District Overlay Guidelines as submitted with revisions to the draft resolution provided (Attachment #1).
- Denial of the proposed Town of Herndon Historic District Overlay Guidelines.

The Town Council may also opt to continue the public hearing to a future Town Council meeting if the Council believes their review requires additional time.

Staff Recommendation

Staff is recommending approval of Town of Herndon Historic District Overlay Guidelines as submitted and in accordance with the draft resolution dated November 17, 2020 and provided as Attachment #1 to this report.

Attachments

1. Draft Town Council Resolution – Dated November 17, 2020
2. Draft Historic District Guidelines – Dated October 29, 2020
3. District Resource Guide
4. District Map

Signatures

Elizabeth M. Gilleran, AICP
Director of Community Development

Bryce A. Perry
Deputy Director of Community Development

TOWN OF HERNDON, VIRGINIA

TOWN COUNCIL

RESOLUTION

NOVEMBER 17, 2020

Resolution – to adopt the Town of Herndon Historic District Overlay Guidelines to replace the Heritage Preservation Handbook.

WHEREAS, the Town of Herndon Zoning Ordinance Section 78-60.3 requires the use of guidelines to be used in the evaluation of certain changes proposed for properties within the Herndon Historic District zoning overlay; and

WHEREAS, the Historic District Overlay Guidelines would be adopted by reference in Section 78-60.3 of the Town of Herndon Zoning Ordinance in accordance with Section 15.2-2306 of the Virginia State code regarding the preservation of historical site and architectural areas; and

WHEREAS, the Town of Herndon 2030 Comprehensive Plan sets forth goals for the preservation and enhancement of the town's historic resources, the management of appropriate alterations to the town's historic district, and the promotion of appropriate infill development within the town's historic district; and

WHEREAS, public meetings were held on October 19, 2018, October 20, 2018, December 2, 2019, and October 29, 2020 to present updates on the development of the guidelines and collect public comment; and

WHEREAS, a Town Council public hearing to review the proposed Town of Herndon Historic District Overlay Guidelines was held on November 17, 2020.

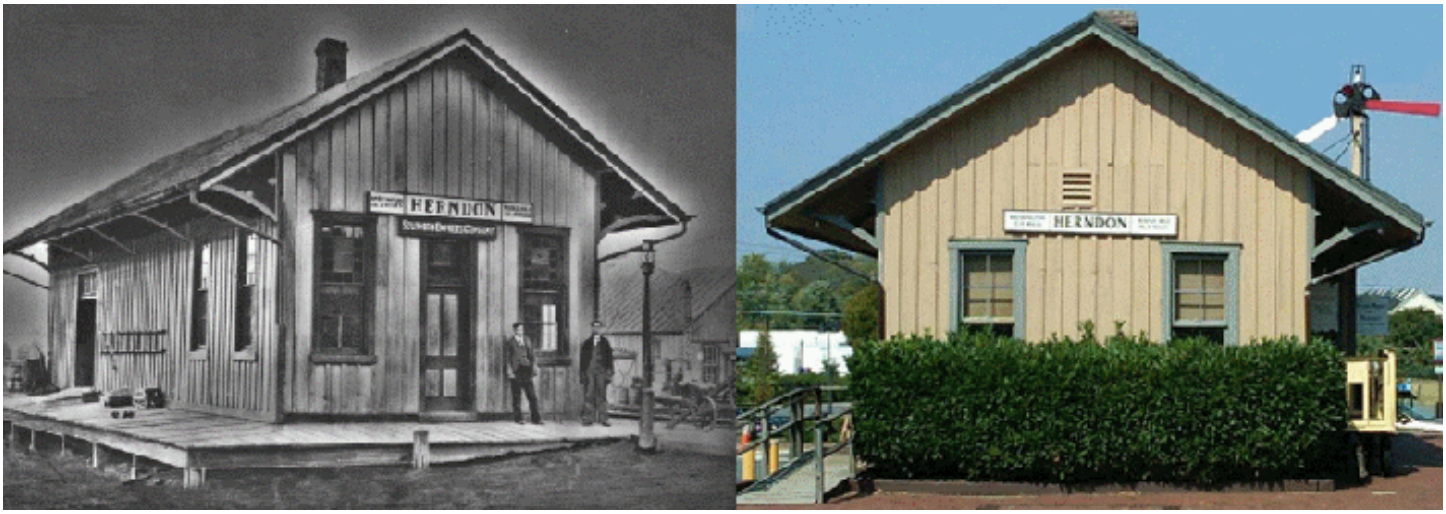
NOW THEREFORE, BE IT RESOLVED by the Town Council of the Town of Herndon, Virginia that the Herndon Historic District Overlay Guidelines, dated October 29, 2020 are hereby adopted.

BE IT FURTHER RESOLVED by the Town Council of the Town of Herndon, Virginia that Town of Herndon staff is hereby authorized to make certain administrative adjustment to Herndon Historic District Overlay Guidelines, dated October 29, 2020, as adopted, to improve clarity, correct clerical errors, update graphics and other visual exhibits, keep the document consistent with current processes, incorporate changes based on emerging best practices and modern materials, and other similar minor modifications.

DRAFT | 10.26.2020

HISTORIC DISTRICT OVERLAY

GUIDELINES



TOWN OF Herndon VIRGINIA

HISTORIC DISTRICT OVERLAY

GUIDELINES

2020

THE HERNDON TOWN COUNCIL

Lisa Merkel, Mayor
Sheila A. Olem, Vice Mayor
Jennifer K. Baker, Councilmember
Cesar del Aguila, Councilmember
Pradip Dhakal, Councilmember
Signe Friedrichs, Councilmember
Bill McKenna, Councilmember

THE HERNDON HISTORIC DISTRICT REVIEW BOARD

Robert B. Walker, Chairman
Leslie Blaker-Glass, Vice Chair
Eric Boll, Board Member
Eric Fielding, Board Member
Mike McFarlane, Board Member
Matthew Ossolinski, Board Member/Architect
Hiren Shah, Board Member/Architect

THE HERNDON DEPARTMENT OF COMMUNITY DEVELOPMENT

COMMONWEALTH PRESERVATION GROUP

WORK PROGRAM ARCHITECTS

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1 INTRODUCTION TO THE GUIDELINES

The Town of Herndon is an anomaly in the current landscape of modern-day Fairfax County, Virginia. Situated between Dulles International Airport and Reston Town Center, Herndon is one of the last remaining vestiges of the quaint small town in what is now the sprawling suburbs of Washington, D.C. Originally developed around a small railroad depot to support the surrounding agricultural area, Herndon differs in character from other historic Northern Virginia towns and cities. **Residents value the small town feel of Herndon, and the Heritage District Design Guidelines have been written to protect the aspects of the town that the residents value most.**



In 1987, Herndon became a designated Certified Local Government (CLG), which is a program that is jointly administered by the National Park Service (NPS) and State Historic Preservation Offices (SHPOs) to assist communities with local preservation efforts. The CLG program is designed to recognize localities which have established preservation programs which meet professional standards. A requirement for maintaining CLG status is to adopt a historic district ordinance, establish a review board, and identify standards for review; Herndon began meeting these requirements when the Historic District Overlay (HPOD) was put in place in 1989 and the Heritage Preservation Handbook was adopted. Shortly after, Herndon's historic district was listed in the Virginia Landmarks Register and the National Register of Historic Places in the early 1990s.

In 2020, the district was renamed the Herndon Historic District Overlay (HDO) to more accurately reflect its compliance with the CLG program.

These guidelines replace the Heritage Preservation Handbook, and, like the Handbook, principally function to articulate how to best preserve Herndon's historic character with appropriate design consideration. Property owners, developers, business owners, and design professionals should reference these design guidelines while planning modifications to historic resources and designing new construction within the HDO. These guidelines are the basis of decision making for the Historic District Review Board (HDRB), the body responsible for reviewing projects for appropriateness; consistent review by the HDRB is reliant upon applicants providing the documentation outlined and required in this document. Town staff and officials will use these guidelines to make recommendations to the HDRB and for reviewing appeals.

In addition to the design guidelines, a resource guide, available here, has also been developed to help inform preservation projects within the HDO. The resource guide contains general guidance from the Town of Herndon, the Virginia Department of Historic Resources, and the National Park Service, as well as specific information relating to preservation education and material studies. This information was provided in a single document in order to act as a toolkit for both Town of Herndon staff and residents and design professionals planning renovation projects in the HDO.

The design guidelines set forth expectations which will ensure the integrity of the district remains intact over time and the architectural history of the Town is preserved.

When should the guidelines be used?

WHO SHOULD USE THE GUIDELINES?

These guidelines should be used when changes are being considered for properties within Herndon's HDO. Different sections of this publication should be referenced depending on the type of resource:

1. **Contributing properties (historic buildings)**
2. **Noncontributing properties (non-historic buildings)**
3. **New construction**

Property owners who are making exterior alterations or additions to contributing properties should reference Chapter 4 and Chapter 5 to ensure scale, massing, material selections, and placement are compatible with their historic buildings.

- Property owners who are making exterior alterations or additions to noncontributing properties should reference Chapter 7. Since these properties are not historic, the guidance is more lenient for these resources. However, changes to these buildings should be consistent with the resource type and style.
- Property owners or developers who are designing new buildings for construction within the boundaries of the HDO should consult Chapter 8 throughout the process to ensure that these new buildings are compatible with other district resources and features, and do not negatively impact the overall character of the district.
- If someone wants to relocate a building from, to, or within the HDO, or demolish a building within the district, Chapter 10 should be referenced to obtain necessary approvals prior to conducting the work.
- The HDRB and Town of Herndon staff will use all aspects of the guidelines to evaluate the appropriateness of exterior changes to properties in the HDO.
- Developers, builders, and design professionals will utilize the guidelines to guide the design parameters, narrative, approach, form, details, materials, and all other aspects of design when developing proposals for changes to existing properties or designing new construction within the HDO.

The Historic District Review Board

The Historic District Review Board (HDRB) consists of seven local citizens appointed by the Town Council. Of the members, one is required to be an architect, one is required to have professional historic preservation experience and knowledge, and one is required to be an attorney. The HDRB is granted the authority to review applications for exterior changes to properties within the HDO and determine appropriateness based on these guidelines and zoning code criteria. If the HDRB approves changes, a Certificate of Appropriateness (COA) is issued. The HDRB meets twice a month, for a work session and a public hearing. Both meetings are open to the public, however, public comments can only be made at the hearing.

In addition to reviewing applications and issuing COAs, the HDRB advises the Planning Commission on the appropriateness of any proffered design elements that are part of a rezoning application within the HDO, and advises the Planning Commission and Town Council on special projects related to the HDO.



Certificate of Appropriateness (COA)

A Certificate of Appropriateness or COA is the name of the approval that is granted by the Town for certain exterior changes to existing buildings and structures and the construction of new buildings and structures in the HDO. Some improvements require Town staff approved COAs, some improvements require HDRB approved COAs, and some improvements are exempt from receiving a COA. The Town maintains a list of the typical types of improvements that fall under each category as part of the HDO Procedure Guide. This guide also lays out the suggested and the necessary steps to follow when altering and improving a property within the HDO. The COA application form is available on the Town's website and includes a checklist of items that are typically required for submission as part of the application.

The Review Process

Town staff maintains an HDO Procedure Guide that clarifies and summarizes the review process for any improvements proposed to HDO properties. This guide is aimed at property owners, business owners, and anyone else who lives or works in the HDO, or their representatives, who are planning alterations to an existing building or structure in the HDO or the construction of new buildings or structures in the HDO. The HDO Procedure Guide, like the Herndon Historic District Guidelines, is most beneficial when employed as a resource during the earliest phases of a project, including the design phase. It provides a straightforward explanation of each step of the process, and includes helpful tips for navigating the review process. It also identifies the items that are exempt from review and the items that can be administratively approved by Town staff. Town staff periodically re-evaluates the process, and implements updates as necessary to enhance and streamline the experience for applicants and the HDRB. The HDO Procedure Guide is actively maintained to reflect the current procedural protocols.

While the HDO Procedure Guide is the best source for process information, some key process considerations for applicants are highlighted below.

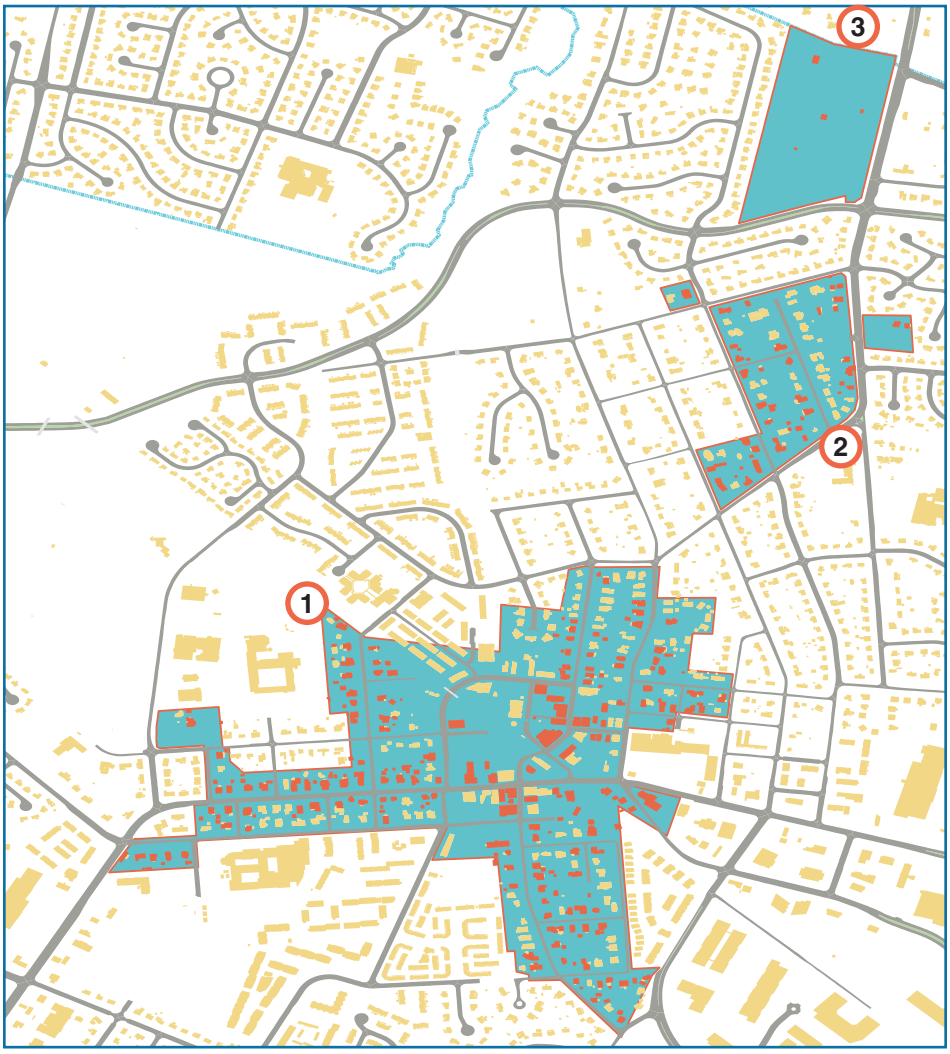
- Familiarize yourselves with the guidelines and process early in the planning and coordination phases of any project.
- Use the online resources available on the Historic District's webpage at www.herndon-va.gov/heritagepreservation including the HDO Procedure Guide, the Historic District Guidelines, and the HDRB meeting schedule.
- Engage with Town staff. Visit, call, or email Community Development staff with any questions. They are available to assist with the review process and can provide helpful tips regarding your project.
- Improvements to HDO properties fall into three distinct review process categories;
  - improvements that are exempt from review and only need staff verification of their exemption;
  - improvements that require a staff approved COA, which is completed administratively, and
  - alterations and new construction that require a HDRB approved COA, which is completed through a public meeting process.
- If an HDRB approved COA is necessary, the application will go to both an HDRB work session and a public hearing. Applicant attendance at these meetings is important, as the work session provides the applicant and the HDRB a less formal opportunity to discuss the project, while the public hearing is when the HDRB makes a formal decision. The two-meeting format allows applicants time to address any possible issues raised at the work session before the hearing and increases the likelihood of an approval.

**See staff for current list of administrative approvals, subject to change.*

Historic District Overlay Boundaries

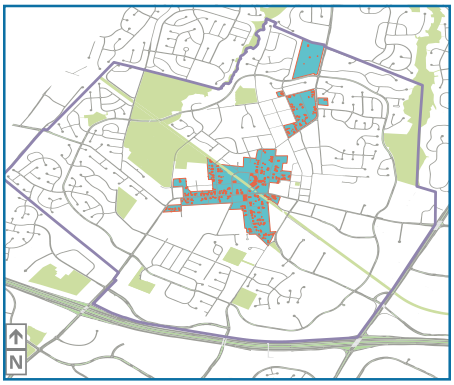
The boundaries of the Historic District Overlay (HDO) were established in 1989. The maps below show the extents of the HDO with contributing properties highlighted dark orange and noncontributing properties highlighted yellow. The HDO consists of three areas: (1) the downtown district, which includes the commercial center and immediate surrounding residential neighborhoods, and is roughly aligned with the state and national registered historic districts; (2) Van Vleck's addition, a historic residential subdivision; and (3) Chestnut Grove Cemetery, which is an active twenty-five acre cemetery established in 1872.

Herndon Historic District Overlay Map



Herndon Historic District Overlay (HDO)
Contributing building
Noncontributing building

Key Map



Town of Herndon boundary
HDO
Contributing building

Contributing and Noncontributing Resources

The National Park Service (NPS) describes how to determine if resources are to be considered contributing or noncontributing to a historic district or an individually listed property. This information is used by those preparing National Register nominations; the National Register nomination form identifies which resources within the nominated boundary contribute or do not contribute to its significance. For the Herndon HDO, this information is provided in the National Register nomination form for the Herndon Historic District.

An important part of determining if a resource is contributing or noncontributing to a National Register historic district or individual property is based on whether or not a property or structure retains its architectural, historic, or cultural integrity. Integrity is defined by NPS as the "authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic period." Integrity is measured based on seven qualities:

1. **Location**: the place where the historic property was built, or where the historic event took place.
2. **Design:** the composition of elements that constitute the form, plan, space, structure, and style of a property.
3. **Setting:** the physical environment of a historic property that illustrates the character of the place.
4. **Materials:** the physical elements of a property combined in a particular pattern or configuration.
5. **Workmanship:** the physical evidence of the crafts of a particular culture or people during any given period of history.
6. **Feeling:** the quality that a historic property has in evoking the aesthetic of historic sense of a past period of time.
7. **Association:** the direct link between a property and the event or person for which the property is significant.

For historic resources within the HDO that retain their historic integrity and are contributing to the significance of the district, keeping these qualities is of the utmost importance in order to maintain the overall character of the district.

Contributing Resources	Noncontributing Resources
A contributing resource adds to the historic significance of the HDO. A contributing resource: • Was present during the period of significance, • Relates to the documented significance of the district, • Retains historic integrity (as outlined in the qualities listed above), • Or, it independently meets the National Register criteria.	A noncontributing resource relates to and is part of the HDO, but does not contribute to the district's historic significance. A noncontributing resource: • Was not constructed during the period of significance, • Does not relate to the documented significance of the district, • No longer retains its historic integrity (as outlined in the qualities listed above), due to significant alterations, additions, or other changes, • And, does not independently meet the National Register criteria.

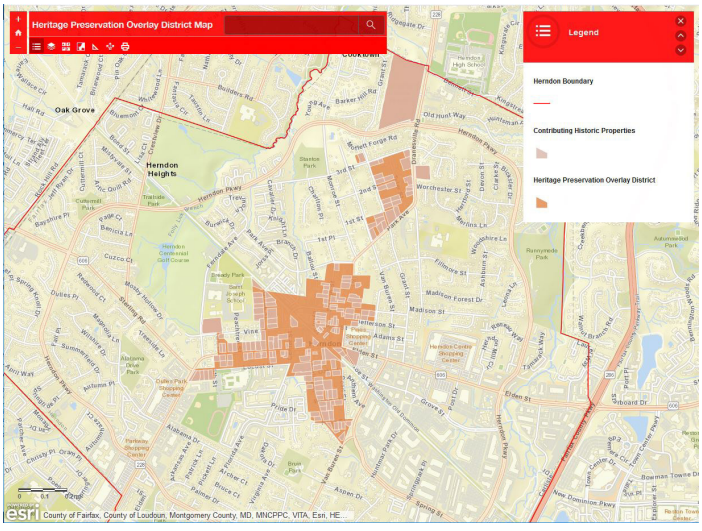
Some guidelines are applicable to both contributing and noncontributing resources; however, most are distinct and separate. Guidelines for contributing resources are outlined in Chapter 5, while guidelines for noncontributing resources can be found in Chapter 7.

Is my property in the district? Is my property contributing or noncontributing?

The Department of Community Development has an online map where you can search for your property by address and find out whether it is included in the Historic District Overlay, and whether it is a contributing or noncontributing resource.

The map can be found on the Herndon Community Development website under Map Resources, or by clicking here.

Enter the address of the property on which you plan to perform work, or zoom in and located it on the map, and click on the building footprint. A small box will pop up on screen and indicate whether the building is inside the district, and whether it is contributing or noncontributing.



Historic Development of Herndon

HISTORY OF THE TOWN OF HERNDON

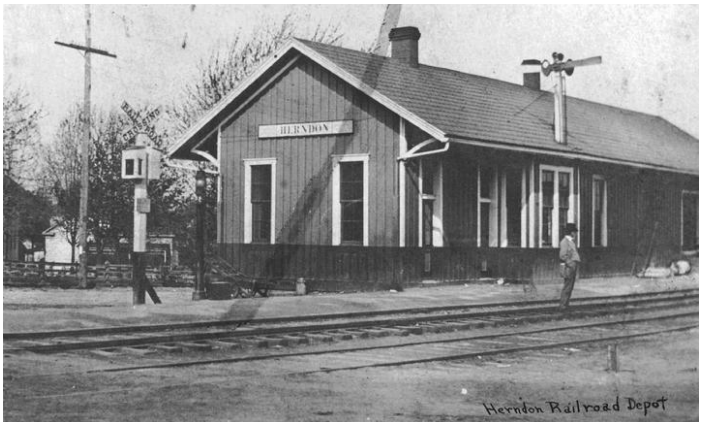
Herndon is a town located in Fairfax County, Virginia, in the Washington, D.C. metropolitan area. The town is situated between Dulles International Airport and Reston Town Center, and in sharp contrast to these modern developments, Herndon retains its quaint small-town feel.

Fairfax County was largely agricultural and Herndon remained undeveloped during the early nineteenth century, until a mill was constructed near present-day Elden and Locust Streets. The mill provided a central location for local farmers to congregate and acted as a magnet for other development, which eventually became a settlement. Construction of the Alexandria, Loudoun & Hampshire Railroad began in 1855, and by 1857 this settlement was selected as a pass-through site for the rail line. A post office followed in 1858; it was at this time that the settlement was given the name Herndon, for Captain William Lewis Herndon. The twenty-seven-mile Alexandria, Loudoun & Hampshire Railroad lie to Herndon was completed in 1859 and the Herndon Depot was constructed that same year; it is the earliest remaining resource in the district. The rail line was renamed the Washington & Ohio Railroad in 1870, and again in 1911 when it became the Washington & Old Dominion Railroad.

The first map of Herndon was printed in 1878 in G.M. Hopkins's Atlas of Fifteen Miles Around Washington D.C.; shortly after, in 1879, the town was legally incorporated, keeping the name Herndon. Town council meetings were held in the depot. The town's commercial district continued to grow as the railroad provided a means of transporting the raw agricultural goods (primarily dairy products) to other locations for processing and distribution. The gridded street pattern was cut by the diagonal rail line, which ran from southeast to northwest. This feature is still present in Herndon today, as the rail line was converted into a utility right-of-way and recreational trail; the same rail line which helped in Herndon's early establishment is the same resource that has ignited its resurgence, as the W&OD Trail is a draw for both residents and tourists alike.



View from R. R. Station, Herndon, Va.



Images courtesy of the Herndon Historical Society

Residential neighborhoods began to develop on the outskirts of the commercial core, primarily to the west, in the late 1800s, with the majority of the resources dating from 1890 through 1920. Van Vleck's Addition, a subdivision to the north of the primary district, was also established during this time in 1895. Typical residential architectural styles are Queen Anne, Craftsman, and Colonial Revival, as well as a number of vernacular examples.

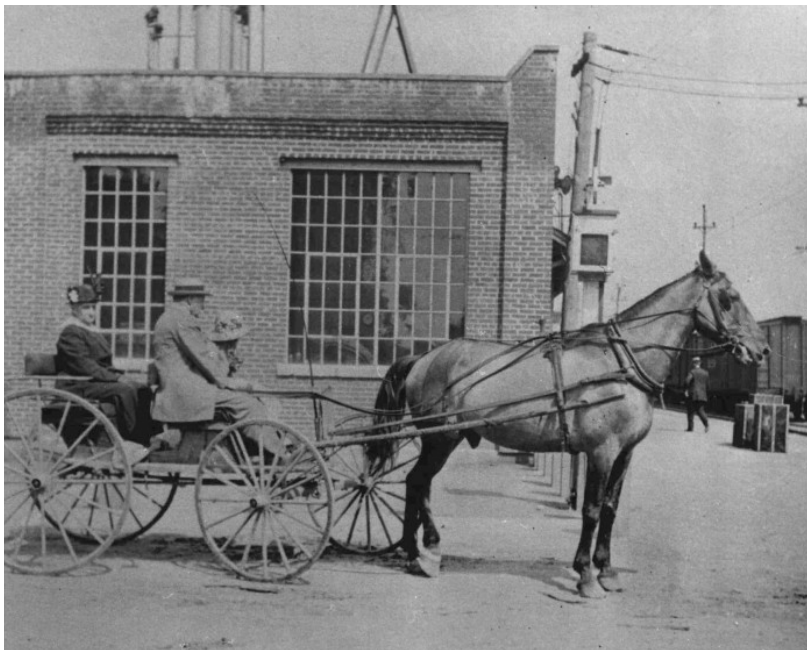
A fire in the spring of 1917 destroyed nearly twenty buildings in downtown Herndon. Prior to the fire, the majority of the buildings in Herndon were frame construction; however, after the fire, the buildings that were lost were quickly rebuilt using brick instead of wood. By this time, Fairfax County was already beginning to see development geared towards Washington, D.C. commuters. Residential development has steadily continued through the period of significance of the district and to the present, with the remaining large historically agricultural lots being subdivided to accommodate new residential construction.

The Periods of Significance

The overall period of significance for the National Register listed Herndon Historic District spans between 1855 and 1940. Those dates are also used to set the extents of the HDO's period of significance. The beginning date, 1855, is when the railroad was constructed and a flurry of development around the Herndon depot began. The end date, 1940, marks the approximate time when the typically-used 50-year-old threshold for qualification as a contributing resource was met when the district was established in 1989. Within that period, the majority of historic development that exists today took place during two specific eras. The first is the residential development around the downtown and in Van Vleck's subdivision that occurred between 1890 and 1920. The second is the downtown commercial development that occurred following the fire of 1917. The majority of the contributing resources in the HDO were built during these two phases of development. Of course, development in the HDO steadily took place after 1940 and infill development continues today. The maps on the following pages explore each notable phase of development in the HDO.



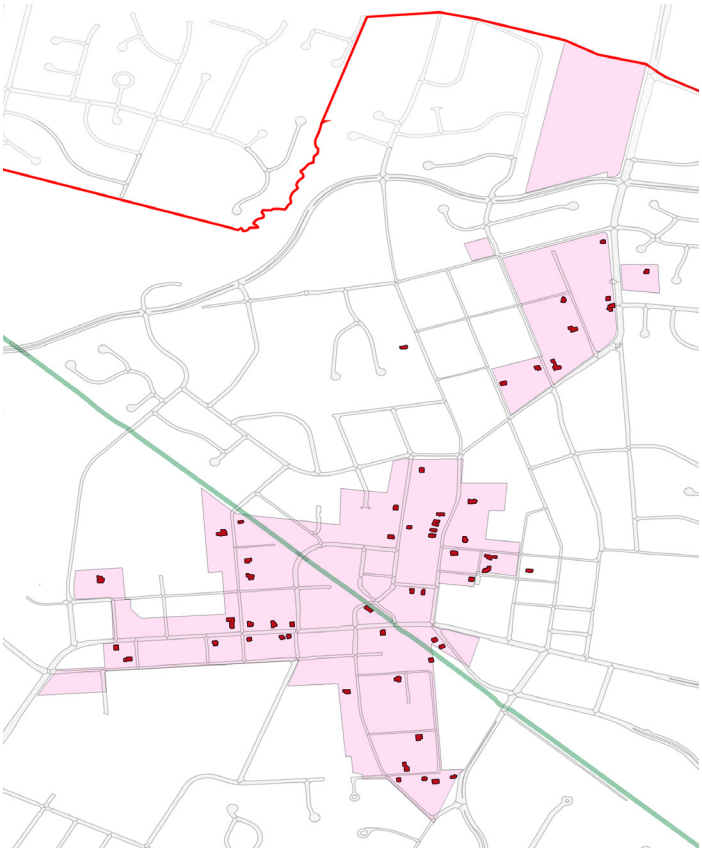




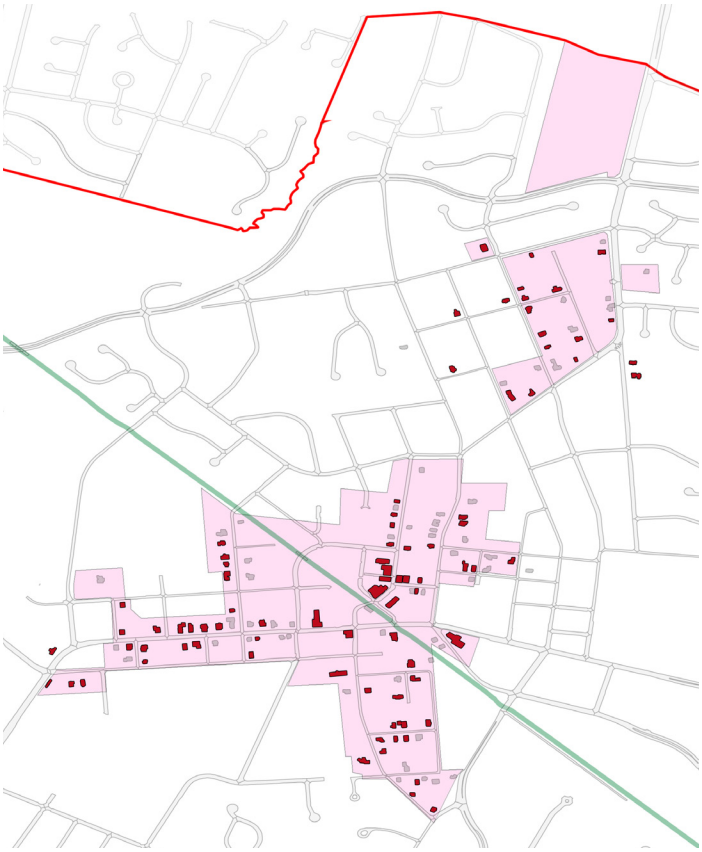
Images courtesy of the Herndon Historical Society

The Periods Of Significance

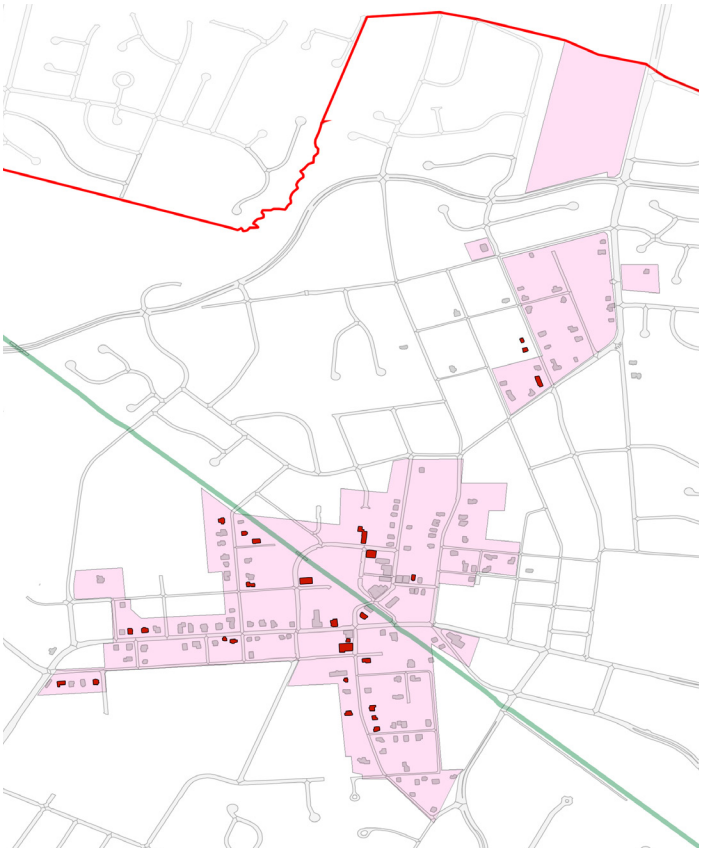
The following maps illustrate the development of Herndon. Buildings constructed during each phase are highlighted in red to illustrate the areas and directions of expansion over time.



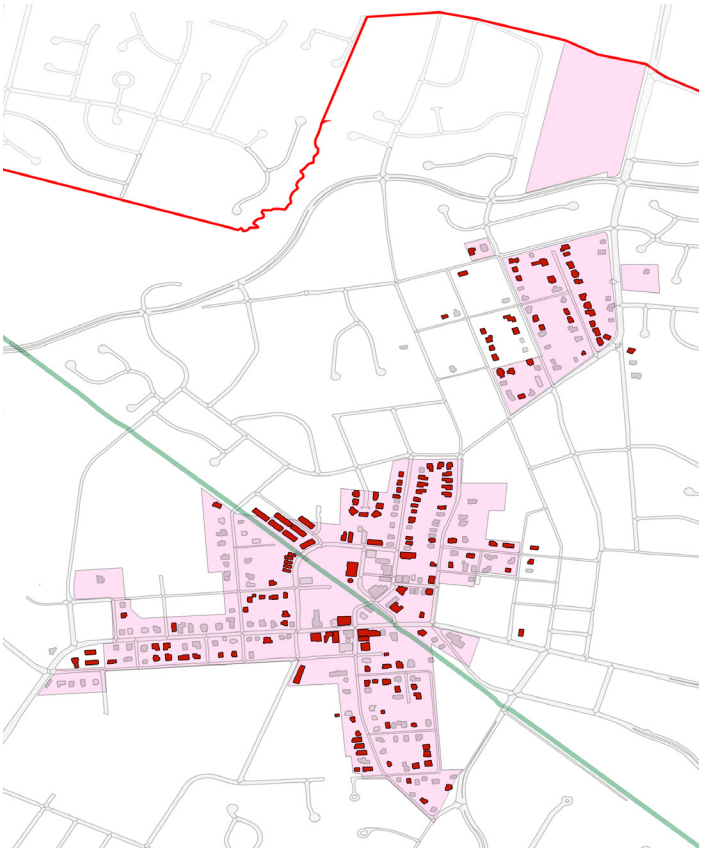
Phase 1: 1855-1890 Limited development centered around the rail depot; includes the earliest resources in the district, including Herndon Depot.



Phase 2: 1890-1920 Some commercial development, but primarily residential, including Van Vleck's addition, which lies northeast of the core district.



Phase 3: 1917-1940 Commercial reconstruction after the 1917 fire, and continued residential development, albeit at a slower pace.



Phase 4: 1940-present day Modern infill, including both residential and commercial development. Examples include mid-century modern architectural styles, as well as mixed use and multi-family development.

CHAPTER 2
HISTORIC DISTRICT OVERLAY








APPLICATION AND REVIEW PROCESS

1 Familiarize Yourself with Process and Guidelines

As with any project, early planning and coordination are critical for success. When a potential applicant starts planing their next project, it's important to first visit the town's HDO web page and review the HDO Process Guide. The website provides the most up-to-date info necessary to understand the process and will contain the current meeting and application deadline schedule. If assistance is needed determining whether a project requires HDRB approval or administrative approval, call or email the Department of Community Development, and staff can assist.

2 Visit Town Staff

Stop by the Community Development Division of the Department of Planning at the Herndon Municipal Center to pick up an application for your project and learn more about the HDO, and HDRB review process. Town staff will be able to answer any questions you have about the review process and provide the application form itself.

3 Fill out and submit your Certificate of Appropriateness (COA) application to the Department of Community Development, providing all required materials:

The submission requirements for a COA application differ depending on the type of improvement proposed. The HDO Process Guide lists the various materials required for each improvement type. Please note that some proposed improvements require submission of standard scale plans and architectural drawings.

Note: Additional documentation is required for an application for demolition of a contributing building in the Historic District Overlay; this information is provided in Chapter 10.

4 Provide any additional documentation requested by Staff

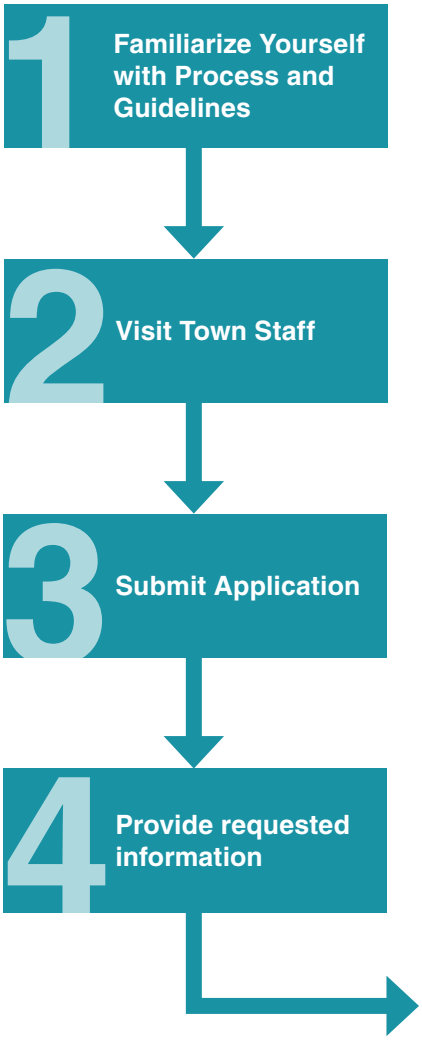
Upon submission of a COA application, staff will review it for completeness and may request the submission of additional information before the application is scheduled for HDRB review. Note that applications with issues associated to zoning ordinance compliance may not be scheduled for HDRB review nor can applications that have not received required prior approvals be scheduled for HDRB review. In cases where a COA application is not fully ready for HDRB consideration at a public hearing, applicants can request to be placed on a work session agenda as a discussion item. Discussion items can receive preliminary advisory input from staff and the HDRB, but those reviews do not serve as the official HDRB review.

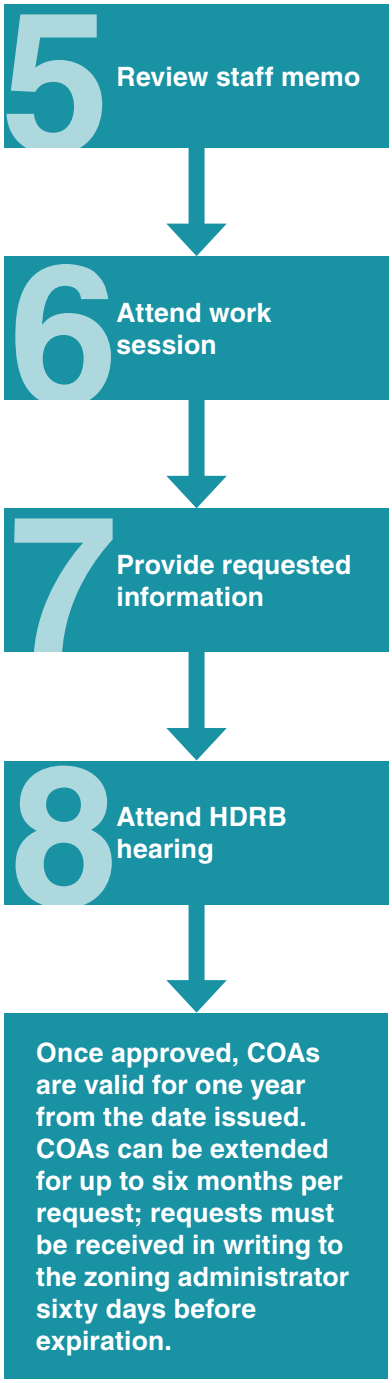


Herndon Municipal Center
777 Lynn Street
Herndon, VA 20170

Department of Community Development
(703) 787-7380

HDRB Review Path





5 Receive and review the Staff Memo

Once a COA application is complete and scheduled for HDRB review at a public hearing, staff will write a report which will explain the proposed project, identify possible issues, and include a recommendation for HDRB action. This report will be reviewed by HDRB before the meeting, so you should familiarize yourself with the contents.

6 Attend a work session

After submitting an application, you are encouraged to attend one or more of the HDRB work sessions to discuss your project. During these meetings, the HDRB reviews the proposed plans and provides comments to help guide the applicant towards a successful COA application. The HDRB may request additional information, drawings, images, or samples at the meeting.

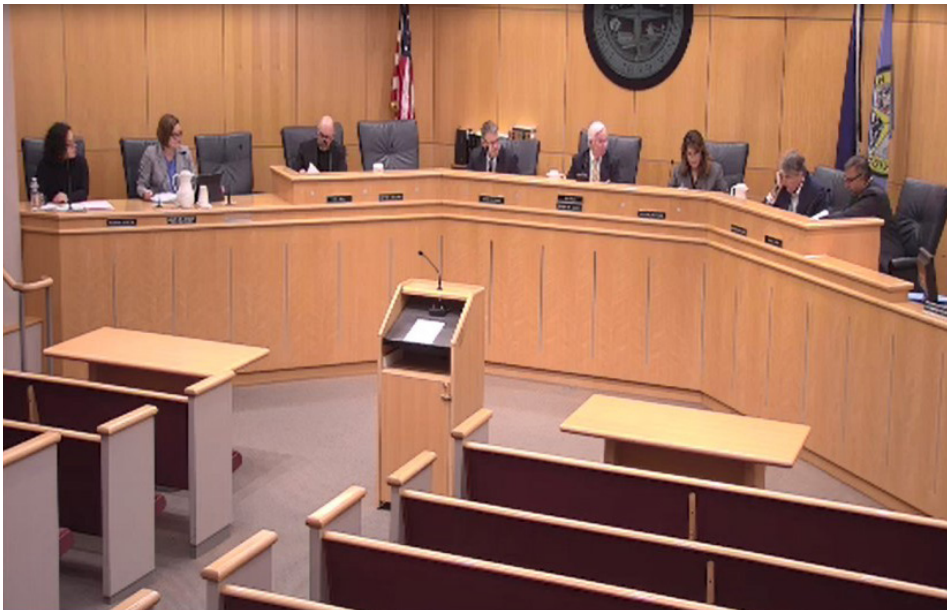
7 Provide any additional documentation requested by HDRB

During the work session, HDRB may request additional information in order to make their formal decision. This additional information should be provided to Community Development Staff in a timely manner, prior to the scheduled HDRB hearing.

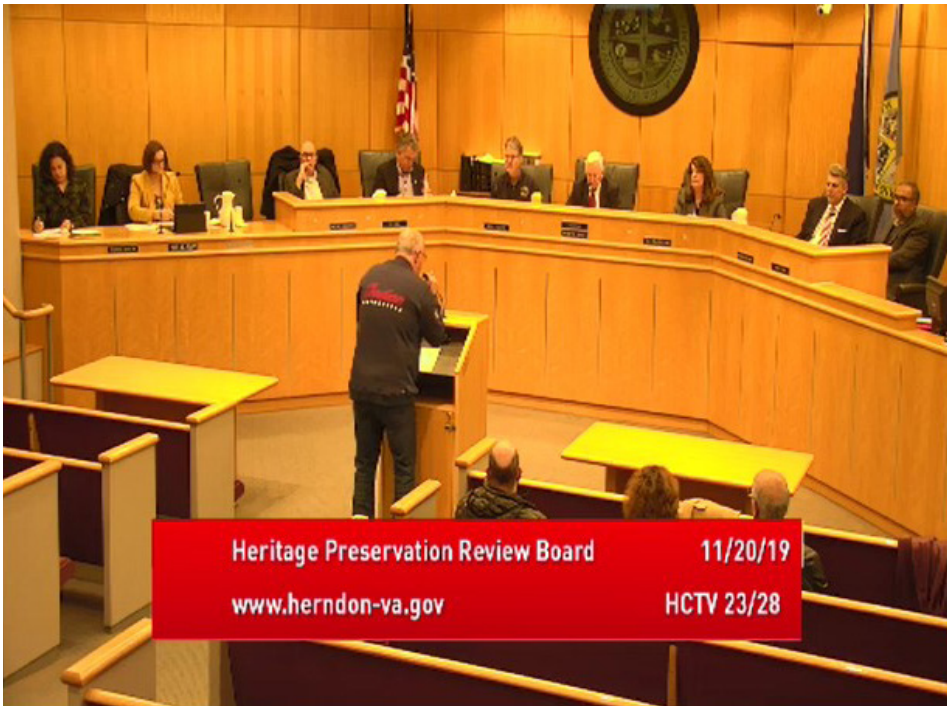
8 Attend the HDRB hearing

Once you have provided all necessary information, Town staff will place your project application on an HDRB meeting agenda. Attend this meeting to answer any questions the HDRB has about your project. Several outcomes are possible at the end of an HDRB hearing:

1. **Approve**: If approved, the applicant will receive a COA. At this point, the HDRB process concludes and the applicant can proceed with the project.
2. **Approve with Modifications:** If approved with modifications, the applicant will receive a COA, which outlines the modifications required by the HDRB for approval. At this point, the HDRB process concludes and then the applicant can proceed with the project.
3. **Defer:** If the HDRB determines they need additional information in order to make a decision, they will defer the decision to a later date to allow the applicant to gather and submit the requested material. At this point, the application is on hold pending review of additional information. The HDRB will issue a decision after the information is received.
4. **Deny:** If denied, the applicant must revise the project to address the concerns of the HDRB. The HDRB will provide their decision in writing, giving the applicant reasons for denial. The applicant has the right to appeal the HDRB decision to Town Council; requests for appeals must be made in writing and submitted to the town's zoning administrator within 14 days of the HDRB finding.



HDRB work session
The public is welcome to attend the work session and listen to the board members discuss applications.



HDRB public hearing
The public is welcome to attend the public hearing and make comments on applications.

The Department of Community Development maintains a Historic District Review Board web page where applicants can find information about upcoming meeting agendas, meeting schedules, and other information pertinent to the HDRB.

To go to the web page, click here.

Two Options For Approval

Administrative Approval Path

1. Maintain
2. Repair
3. Replace In-Kind

-OR-

HDRB Review Path

1. Familiarize Yourself with Process and Guidelines
2. Visit Town Staff
3. Submit Application
4. Provide requested information
5. Review staff memo
6. Attend work session
7. Provide requested information
8. Attend HDRB hearing

General Description of Historic Resources

The following section provides descriptions and illustrations of the common architectural styles, massing profiles, and building types of the HDO's contributing resources.

An important resource to help identify the various exterior components of a contributing building that defines its character is the National Park Service's Preservation Brief No. 17, Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character. This is one of 50 Preservation Briefs provided by NPS; all other Preservation Briefs are linked in the Resource Guide for reference and use by those planning projects in the HDO.

Preservation Brief No. 17 outlines a building assessment process, beginning from a distance to understand its basic visual aspects, then moving closer to evaluate details and materials that contribute to the character-defining features of the building.

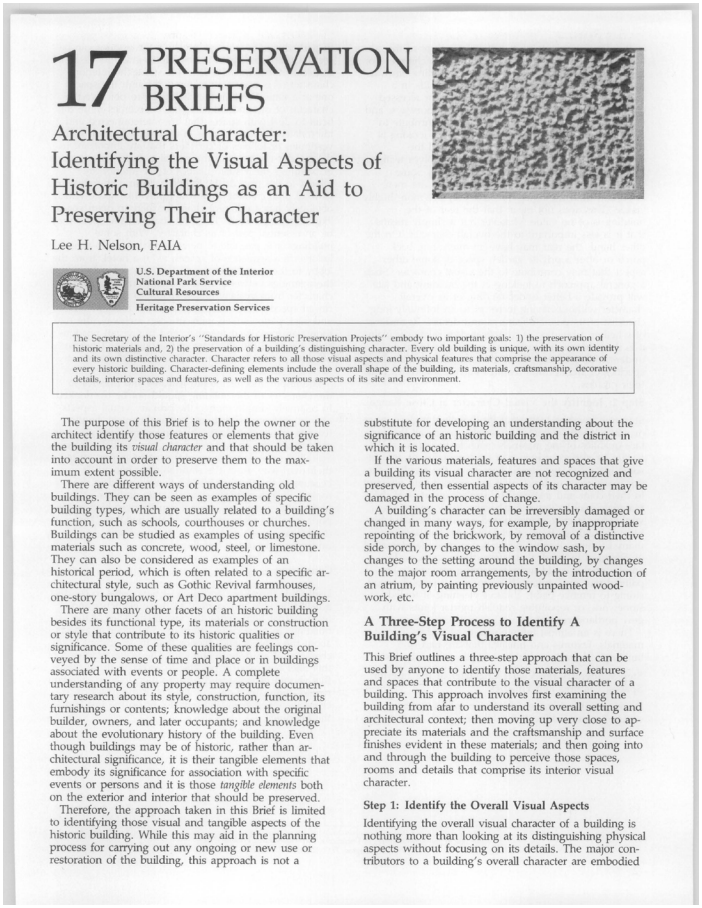
- Identify Overall Visual Aspects
- Visual Character at Close Range

When identifying the overall visual aspects of a building, looking for the following features:

1. **Shape** (Scale and Massing)
2. **Openings** (Voids, Windows, and Doors)
3. **Roof** (and Related Features, such as Dormers and Chimneys)
4. **Projections** (Porches and Balconies)
5. **Trim** and other **Decorative Details**
6. **Setting**

By examining the building from far away, across a street for example, one can gain an understanding of the character of the site and setting, without focusing on the intricate details. From this distance, the overall form of the building becomes clear.

Once the overall visual aspects have been examined and identified, move closer to the building; perhaps to the front sidewalk or yard. When identifying the visual character at close range, take note of the following features:



17 PRESERVATION BRIEFS

Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character

Lee H. Nelson, FAIA

U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

The Secretary of the Interior's "Standards for Historic Preservation Projects" embody two important goals: 1) the preservation of historic materials and, 2) the preservation of a building's distinguishing character. Every old building is unique, with its own identity and its own distinctive character. Character refers to all those visual aspects and physical features that comprise the appearance of every historic building. Character-defining elements include the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment.

The purpose of this Brief is to help the owner or the architect identify those features or elements that give the building its *visual character* and that should be taken into account in order to preserve them to the maximum extent possible.

There are different ways of understanding old buildings. They can be seen as examples of specific building types, which are usually related to a building's function, such as schools, courthouses or churches. Buildings can be studied as examples of using specific materials such as concrete, wood, steel, or limestone. They can also be considered as examples of an historical period, which is often related to a specific architectural style, such as Gothic Revival farmhouses, one-story bungalows, or Art Deco apartment buildings.

There are many other facets of an historic building besides its functional type, its materials or construction or style that contribute to its historic qualities or significance. Some of these qualities are feelings conveyed by the sense of time and place or in buildings associated with events or people. A complete understanding of any property may require documentary research about its style, construction, function, its furnishings or contents; knowledge about the original builder, owners, and later occupants; and knowledge about the evolutionary history of the building. Even though buildings may be of historic, rather than architectural significance, it is their tangible elements that embody its significance for association with specific events or persons and it is those *tangible elements* both on the exterior and interior that should be preserved.

Therefore, the approach taken in this Brief is limited to identifying those visual and tangible aspects of the historic building. While this may aid in the planning process for carrying out any ongoing or new use or restoration of the building, this approach is not a substitute for developing an understanding about the significance of an historic building and the district in which it is located.

If the various materials, features and spaces that give a building its visual character are not recognized and preserved, then essential aspects of its character may be damaged in the process of change.

A building's character can be irreversibly damaged or changed in many ways, for example, by inappropriate repointing of the brickwork, by removal of a distinctive side porch, by changes to the window sash, by changes to the setting around the building, by changes to the major room arrangements, by the introduction of an atrium, by painting previously unpainted woodwork, etc.

A Three-Step Process to Identify A Building's Visual Character

This Brief outlines a three-step approach that can be used by anyone to identify those materials, features and spaces that contribute to the visual character of a building. This approach involves first examining the building from afar to understand its overall setting and architectural context; then moving up very close to appreciate its materials and the craftsmanship and surface finishes evident in these materials; and then going into and through the building to perceive those spaces, rooms and details that comprise its interior visual character.

Step 1: Identify the Overall Visual Aspects

Identifying the overall visual character of a building is nothing more than looking at its distinguishing physical aspects without focusing on its details. The major contributors to a building's overall character are embodied

The National Park Service's Preservation Brief #17, "Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character" - Click the image to download the PDF

1. **Materials** (Color, Shape, Texture, Craftsmanship)
2. **Craft Details** (Implemented Features and Texture)

The details that are noticeable from an arm's length distance are important in establishing the visual character of the building, as the materials dictate the color, texture, and other surface qualities of a building. Changes to these features that alter the original or historic materials and craft details will impact the architectural integrity of the building.

Residential Historic Resources

Residential neighborhoods were developed to the west, south, and northeast of the downtown commercial district. Van Vleck's addition does not directly abut the commercial core, but is located directly to the north and is easily accessible via Park Avenue. The majority of the residential historic resources were constructed between 1890 and 1920, and architectural styles within the district reflect this time period; these include Queen Anne, Folk Victorian, Colonial Revival, and Craftsman examples.

There are a series of historic residential resources which have been converted for commercial use in Herndon. In these cases, residential treatment strategies should be utilized so as to retain their historic residential character rather than using commercial treatment strategies.





Commercial Historic Resources

Historic commercial resources in Herndon are centered around the historic railroad depot. Street patterns in the historic commercial core are irregular; the general boundaries of the commercial core are Elden Street to the south, Center Street to the west and north, and Monroe Street to the east, with the W&OD Trail cutting diagonally through the center of this part of the district. The majority of historic resources in the commercial core were constructed after the fire of 1917; resources range in style from Classical Revival to Victorian to Art Deco.



Institutional Historic Resources

The Town of Herndon has a number of historic resources that do not fit into the Residential or Commercial categories. These include five Gothic Revival churches, the vernacular Herndon Depot, and the Colonial Revival Town Hall. The historic institutional resources generally consist of places of public assembly, and hold a high level of significance within the community.

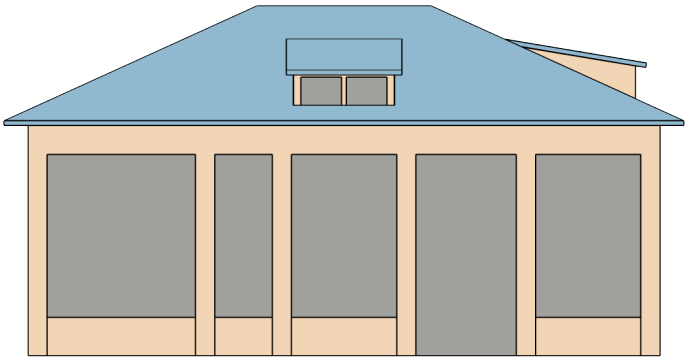


Building Form and Architectural Style

The massing of a building is defined by the combination of its shape, form, and size. How the massing is handled is an integral part in identifying and establishing architectural style.



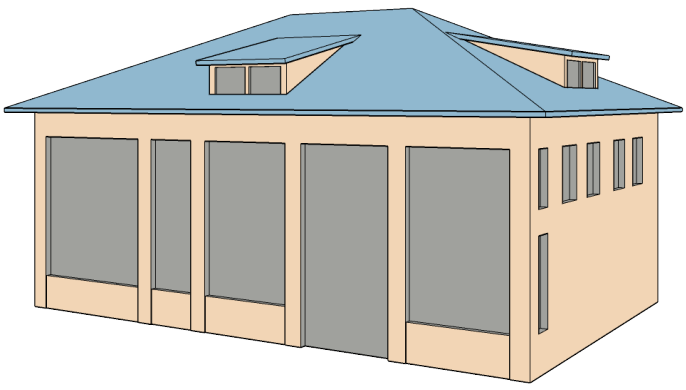
Historic building represented in plan



Historic building form represented in elevation. Building mass is represented in tan, roof elements are in blue, and openings are in gray.



Historic building

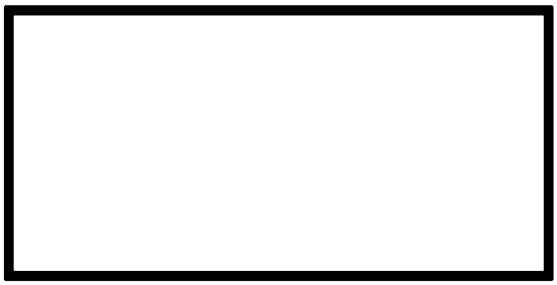


Historic building form represented in a perspective view.

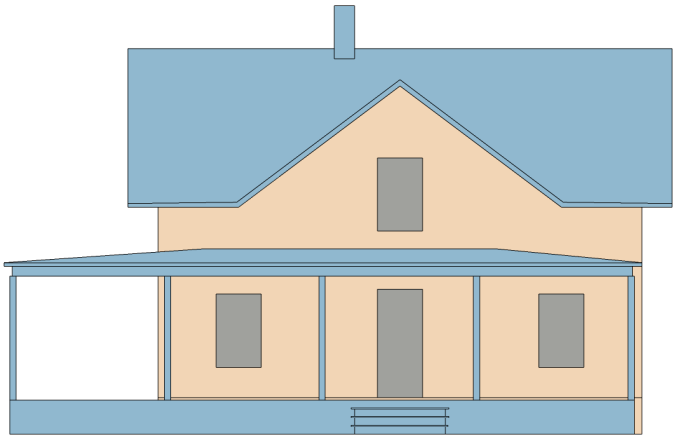
Residential Building Massing

Square or Rectangular

1. Often feature symmetrical facades and simple plans
2. Can have hipped, pyramidal or gable roofs
3. Common to many architectural styles, including Craftsman and Colonial Revival; variation in style comes from architectural detailing and non-structural details that are added to the exterior of the building.



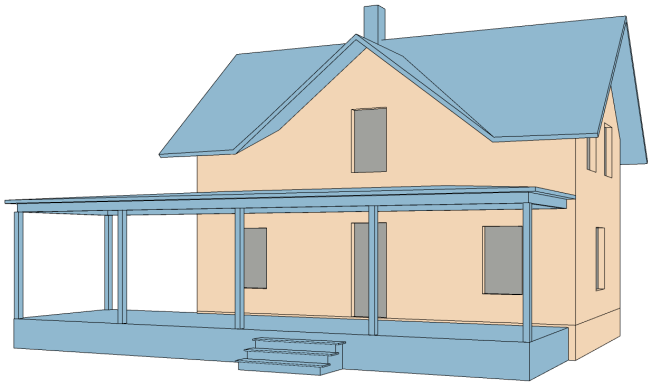
Historic residence represented in plan



Historic building form represented in elevation. Building mass is represented in tan, roof elements are in blue, and openings are in gray.



Historic residence

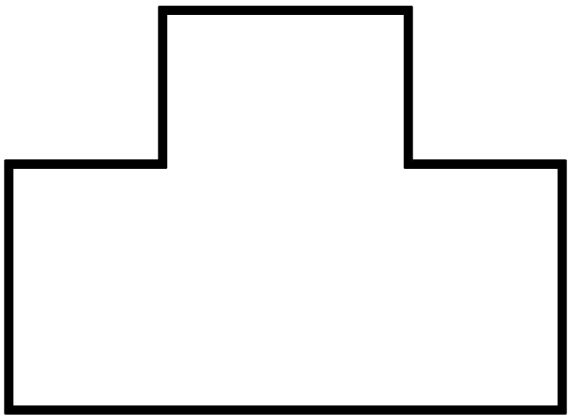


Historic residence form represented in a perspective view.

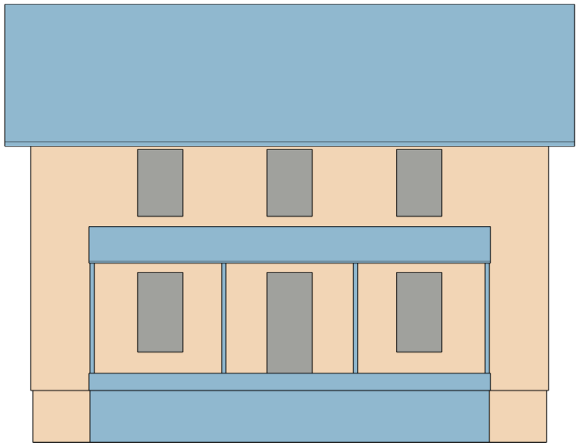
Residential Building Massing

Irregular (including T- and L-Shaped)

1. Common type of compound plan seen in Herndon, which features a cross-gabled roof.
2. The projecting portion that forms the “T” or “L” can be front-, side-, or rear-facing.
3. In Herndon, contributing irregular shaped buildings are primarily Folk Victorian, Vernacular, or Queen Anne.



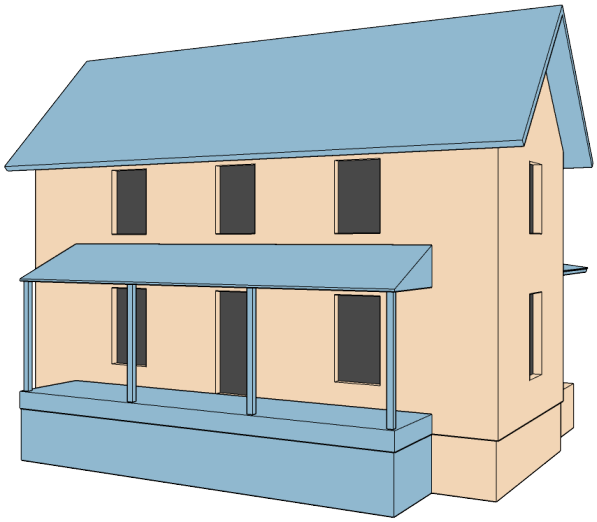
Historic residence represented in plan



Historic building form represented in elevation. Building mass is represented in tan, roof elements are in blue, and openings are in gray.



Historic residence



Historic residence form represented in a perspective view.

Residential Building Massing

Converted Residential

1. Commercial use in converted residential buildings is often two-stories with a square or rectangular plan.
2. Massing is a variety of the types seen in the residential section.
3. Common converted residential commercial buildings are Folk Victorian or Vernacular in style.







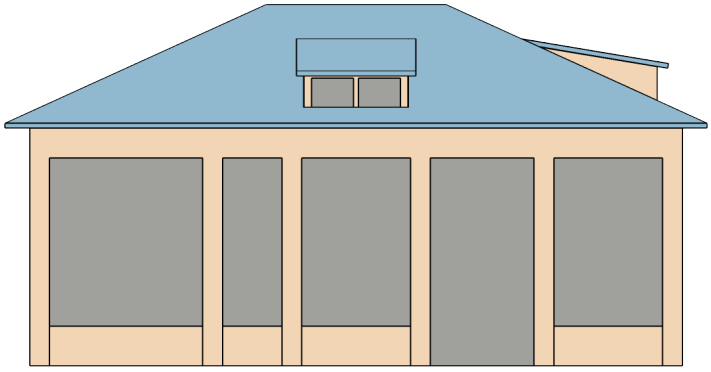
Commercial Building Massing

One-Story

1. Often rectangular in plan.
2. In Herndon, one-story commercial buildings often feature multiple bays.
3. Found outside of the center of downtown, between the core commercial district and residential neighborhoods.
4. Common one-story commercial buildings are Main Street or Art Deco in style; these are typically newer and more simplified commercial examples.



Historic building represented in plan



Historic building form represented in elevation. Building mass is represented in tan, roof elements are in blue, and openings are in gray.



Historic building

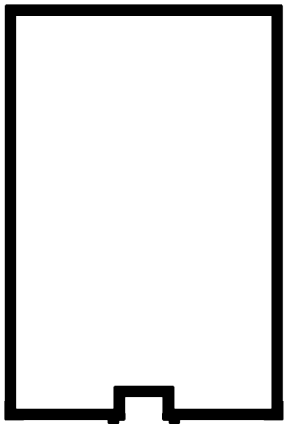


Historic building form represented in a perspective view.

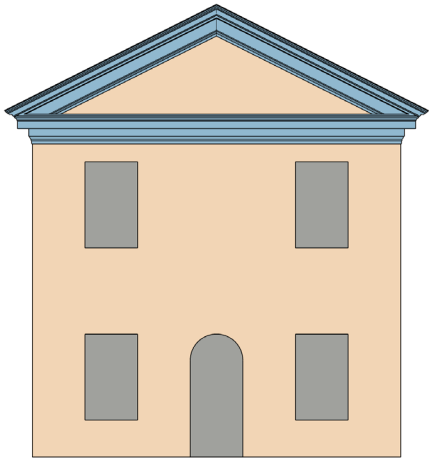
Commercial Building Massing

Two-story

1. Often seen in older commercial buildings.
2. More typical of the central commercial core.
3. Common two-story commercial buildings are Classical Revival, Italianate, or Victorian in style.



Historic building represented in plan



Historic building form represented in elevation. Building mass is represented in tan and architectural elements are in blue.



Historic building



Historic building form represented in a perspective view.

Architectural Styles

The following pages provide annotated examples of the most common contributing architectural styles found in Herndon's Historic District Overlay. These are to be used as a general guide to the character-defining features of each style for the given era, recognizing that each building is unique and some parts may appear differently than illustrated here, or not at all. If you have any questions about what architectural style your building is, consult Town of Herndon Community Development staff for help identifying the style of your building.

MOST COMMON ARCHITECTURAL STYLES FOUND IN HERNDON

Residential Contributing Architectural Styles

1. Folk Victorian
2. Craftsman
3. Gothic Revival
4. Queen Anne Victorian
5. Vernacular
6. Colonial Revival: English

Commercial Contributing Architectural Styles

1. Folk Victorian
2. Art Deco
3. Italianate
4. Classical Revival
5. Vernacular
6. Main Street

Institutional Contributing Architectural Styles

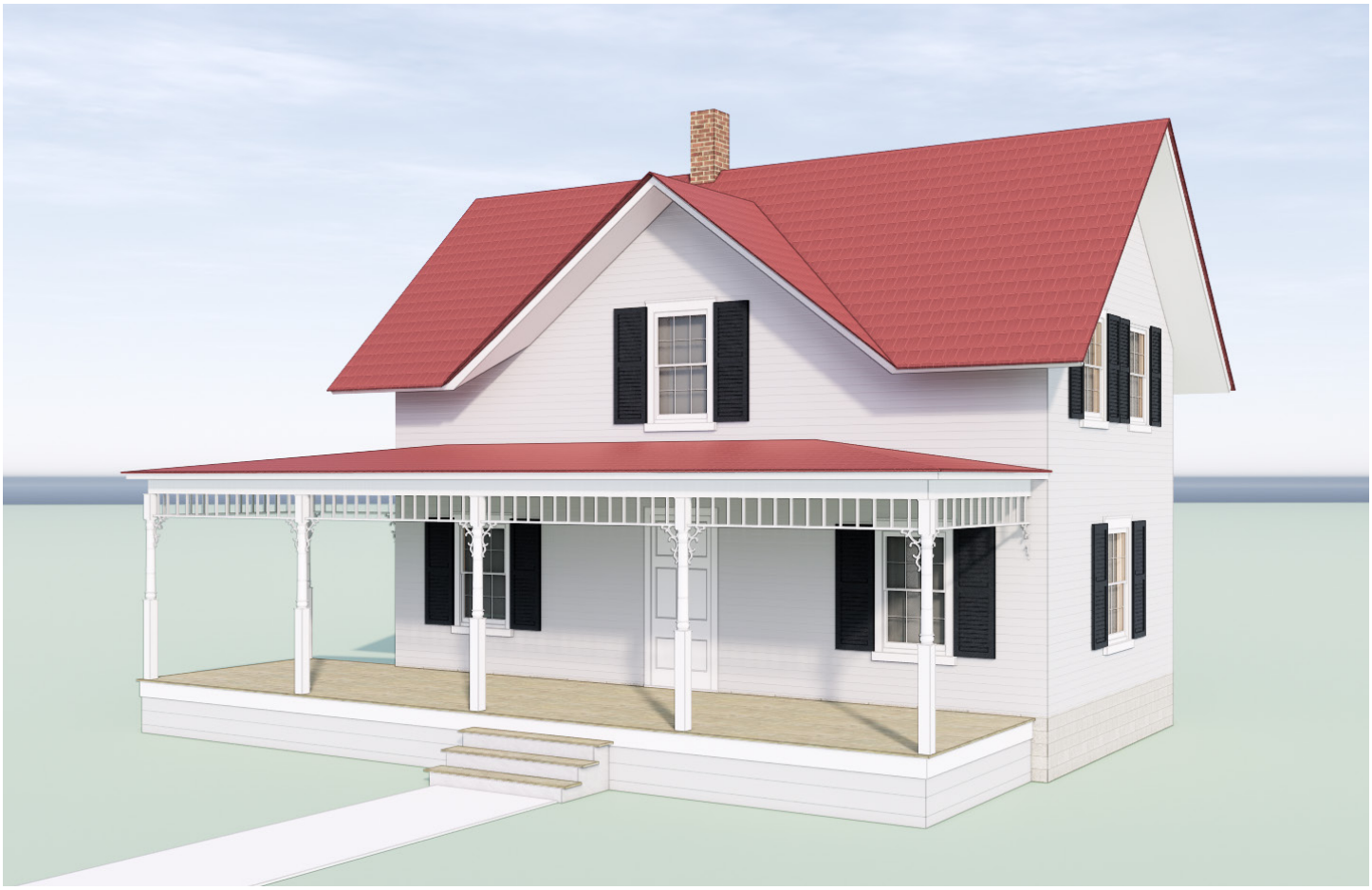
1. Gothic Revival
2. Colonial Revival

Other Styles Found In Herndon

1. Second Empire
2. Colonial Revival: Dutch
3. Classical Revival

Residential Contributing Architectural Styles

FOLK VICTORIAN
1870-1910

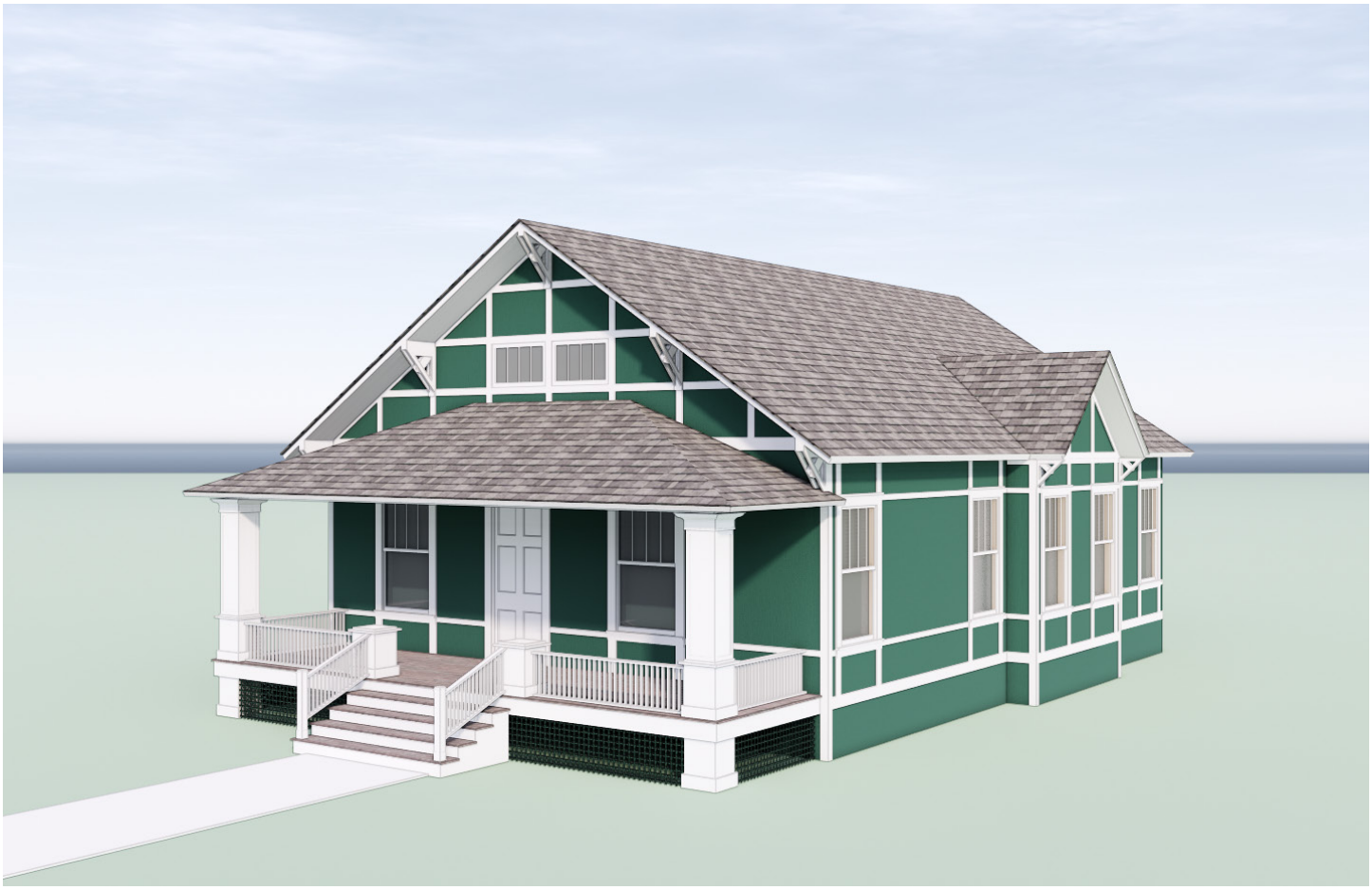


Character-defining features

- Front- or side-gabled roof
- Stamped or standing seam metal roofs are common
- I- or L-shaped building forms
- Full- or partial-width front porch
- Architectural details are usually limited to simplified details on porches



CRAFTSMAN
1910-1930



Character-defining features

- Emphasis on natural materials; most examples in Herndon are wood clad with brick or stone accents
- Full- or partial-width front porches with tapered, square porch supports on brick or stone piers
- Side- or front-gabled roofs on bungalows; hipped or pyramidal roofs on four squares
- Single dormers
- Exposed structural elements: rafter tails, brackets, purlins, ridge beams



GOTHIC REVIVAL
1910-1930



Character-defining features

- Wood frame construction with Gothic elements
- Steep gables
- Weatherboard cladding
- Gingerbread ornament



QUEEN ANNE
1875-1900



Character-defining features

- Generally asymmetrical with irregular plans
- Complex roofs; in Herndon, generally clad in stamped metal shingles or standing seam metal
- Steep roof pitches
- Exterior decorative woodwork; in Herndon, primarily spindlework on porches
- Often front-gabled



VERNACULAR
1850-1920



Character-defining features

- Minimal ornament
- Reflective of local tradition and materials: wood clapboard or board and batten siding, stamped metal shingle roofs
- Simple in form
- Small scale



COLONIAL REVIVAL: ENGLISH
1875-1930



Character-defining features

- Symmetrical facades
- Brick or wood siding
- Entrance porticos with classic detailing, including columns and dentiled or egg-an-dart moldings
- Multi-pane double hung sash windows
- Side-gabled roofs, often with slate shingles



Commercial Contributing Architectural Styles

FOLK VICTORIAN
1890-1900



Character-defining features

- Lace-like corner brackets and jigsaw-cut trim
- Simple in form
- Ornamental detail confined to porch and main cornice
- Simple window surrounds



ART DECO
1930



Character-defining features

- Ornament has incised quality and is usually low in relief
- Ornament is concentrated around doors, windows, string courses, parapets, and roofs
- Typical motifs include parallel lines



ITALIANATE
1900



Character-defining features

- Overhanging cornice with large decorative brackets
- Symmetrical massing
- Low pitched roof



CLASSICAL REVIVAL
1910



Character-defining features

- Facades feature a pedimented portico, usually with Roman Doric columns
- Brick is a common cladding material
- Classical moldings are simple and painted white
- Entablatures are left plain



VERNACULAR
1900-1930



Character-defining features

- Minimal ornament
- Reflective of local tradition and materials: commercial examples are often masonry
- Simple in form
- Small in scale



COMMERCIAL: MAIN STREET
1900-1920



Character-defining features

- One to two stories with a rectangular plan
- Prominent signage
- Generally have flat roofs, often with a parapet
- Located along major pedestrian and auto routes
- Variety of cladding materials
- Usually have large storefront windows
- Often attached to adjacent buildings
- May have awnings



MAIN STREET
1900-1920



Character-defining features

- One to two stories with a rectangular plan
- Prominent signage
- Generally have flat roofs, often with a parapet
- Located along major pedestrian and auto routes
- Variety of cladding materials
- Usually have large storefront windows
- Often attached to adjacent buildings
- May have awnings



5 TREATMENT OF CONTRIBUTING BUILDINGS

The intent of local historic district designation is to manage change within specific areas recognized for their historic significance in the community; in Herndon, this area is outlined by the boundaries of the HDO. Herndon's HDO plays a significant role in establishing the town's image as a separate and distinct community within the region. It is the visual representation of the organic growth that has occurred within the town, and provides a special appeal due to its uniqueness and sense of authenticity. These guidelines are not an attempt to prevent change, but are provided to guide change within the HDO to achieve the community's preservation goals.

The Town of Herndon enjoys recognition from the Virginia Department of Historic Resources (VDHR) and the National Park Service (NPS) for its sound local preservation project, which includes its administration of the local historic district. As such, Herndon was designated a Certified Local Government (CLG) on September 1, 1987. The CLG program is jointly administered by the NPS and State Historic Preservation Offices (SHPOs; in Virginia, this is VDHR), and provides assistance to communities with local preservation efforts.

In order for Herndon to maintain its long-standing CLG designation, along with the Virginia Landmarks Register and National Register of Historic Places listing of the Herndon Historic District, and the benefits that come with these designations, it is imperative that the local district guidelines are designed to protect the significance and integrity of the locally designated district. Through this protection, which includes design review, the historic resources within the district will continue to retain their form, integrity, and materials, particularly those that are deemed to define the historic character of each property. In order to accomplish this goal, the local design guidelines are written in accordance with common practice, utilizing the Secretary of the Interior's Standards for Rehabilitation as a guide. As described in the Appendix, the Secretary of the Interior's Standards for Rehabilitation provide allowances for alterations and additions to accommodate the continued use of a historic building, while sensitively preserving historic features and finishes.

In order to understand the philosophy behind the following chapter, it is important to look at the definition of the word **preservation**: "the act or process of applying measures necessary to sustain the existing *form*, *integrity* and *materials* of an historic property." This section of the guidelines focuses on appropriate building treatments for the contributing, or historic, resources within the HDO.

General Preservation Principles

The following general preservation principles are the basis for the guidelines that are outlined in the following pages. These are adapted from the Secretary of the Interior's Standards for Rehabilitation, which are provided in full in the Appendix.

1 Use

Seek compatible uses to minimize alterations.

2 Character

Respect the historic character of a property; do not implement changes that alter its architectural style and detailing.

3 Time

Do not create a false sense of historical development by adding features from outside of the period of significance.

4 Significance

Honor the developmental history of a property; changes that have occurred over time may become significant and character-defining in their own right.

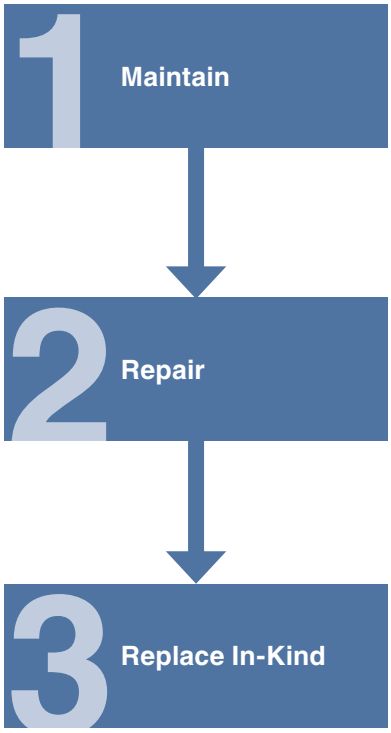
5 Features

Distinctive or character-defining features should be retained.

6 Repair over Replace

Repair deteriorated historic features; only replace historic features when they cannot be repaired.

Administrative Approval Path



Guidelines for Maintenance, Repair and Alterations to Contributing Resources

Within the following sections the icon indicates recommendations provided for the property owner or individual caring for a contributing resource.

Process Note: *Prior to any material repair that may require material replacement, consult town staff to verify that the work does not constitute a change that would require a COA. For more info, refer to the HDO Procedure Guide.*

When the icon appears, it denotes guidelines that are for the property owner, Community Development staff and the HDO to apply during various stages of the COA process. These guidelines will be used by the property owner, builder or architect throughout the design process to ensure that the proposed modifications, alterations or additions conform to best preservation practices and meet these same guidelines which will be used by staff or the HDO when evaluating the project for COA approval. Community Development staff should always be contacted at the earliest stages of any project. The staff can provide guidance regarding interpretation of the guidelines and help the property owner or their design professional develop a design that meets the needs of the property owner while following the guidelines.

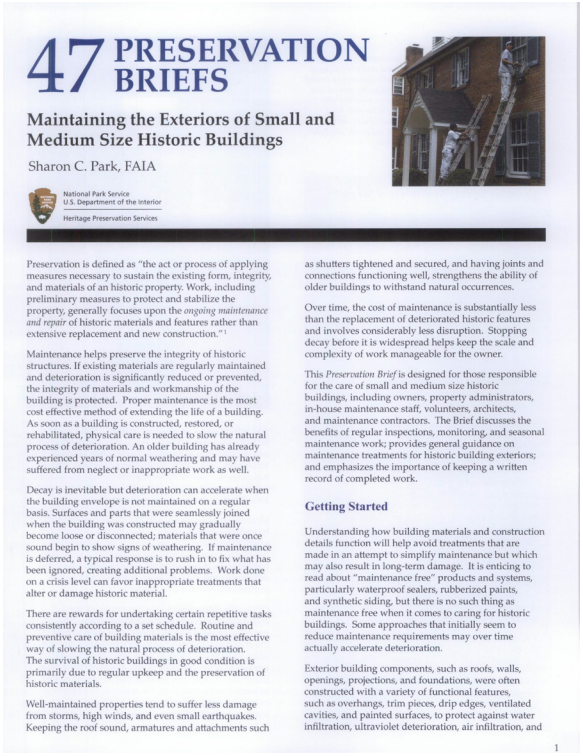
Process Note: *Most material replacements and design alterations require an approved COA. However, there may be exemptions and pre-approved replacements or alterations that can be completed without the need for a COA. For more info, refer to the HDO Procedure Guide and the HDO Pre-approved Changes Guide.*

Process Note: *Depending on the location of a building on a block and its proximity to its neighbors, alterations and additions to the rear elevation of the building, when not visible from the public right-of-way, may not require a COA. This determination will be made by staff during review.*

SOME WORDS ON MAINTENANCE

Maintenance of any building is a constant and on-going process, but for historic buildings, routine maintenance is critical to ensure that the historic fabric and character of a property will be retained and preserved for future generations. Proper maintenance extends the natural life of building materials, and thus reduces financial outlay in the long run. A proper cyclical maintenance plan also helps to identify early signs that a building material is reaching the end of its lifespan, thus enabling the owner to plan for replacement of historic materials and avoiding secondary damage to the building.

Property owners should utilize a maintenance checklist to track materials, features, and conditions, as well as to record any repair or renovation project; a sample checklist has been provided in the Appendix for use by homeowners. The National Park Service's Preservation Brief No. 47, Maintaining the Exterior of Small and Medium Size Historic Buildings notes that most exterior elements of buildings and structures should, at a minimum, be inspected on an annual basis; this Brief is linked here, and is also provided with a full list of all other available Preservation Briefs in the separate Resource Guide.



47 PRESERVATION BRIEFS

Maintaining the Exteriors of Small and Medium Size Historic Buildings

Sharon C. Park, FAIA

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Preservation is defined as "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the *ongoing maintenance and repair* of historic materials and features rather than extensive replacement and new construction."[1]

Maintenance helps preserve the integrity of historic structures. If existing materials are regularly maintained and deterioration is significantly reduced or prevented, the integrity of materials and workmanship of the building is protected. Proper maintenance is the most cost effective method of extending the life of a building. As soon as a building is constructed, restored, or rehabilitated, physical care is needed to slow the natural process of deterioration. An older building has already experienced years of normal weathering and may have suffered from neglect or inappropriate work as well.

Decay is inevitable but deterioration can accelerate when the building envelope is not maintained on a regular basis. Surfaces and parts that were seamlessly joined when the building was constructed may gradually become loose or disconnected; materials that were once sound begin to show signs of weathering. If maintenance is deferred, a typical response is to rush in to fix what has been ignored, creating additional problems. Work done on a crisis level can favor inappropriate treatments that alter or damage historic material.

There are rewards for undertaking certain repetitive tasks consistently according to a set schedule. Routine and preventive care of building materials is the most effective way of slowing the natural process of deterioration. The survival of historic buildings in good condition is primarily due to regular upkeep and the preservation of historic materials.

Well-maintained properties tend to suffer less damage from storms, high winds, and even small earthquakes. Keeping the roof sound, armatures and attachments such as shutters tightened and secured, and having joints and connections functioning well, strengthens the ability of older buildings to withstand natural occurrences.

Over time, the cost of maintenance is substantially less than the replacement of deteriorated historic features and involves considerably less disruption. Stopping decay before it is widespread helps keep the scale and complexity of work manageable for the owner.

This *Preservation Brief* is designed for those responsible for the care of small and medium size historic buildings, including owners, property administrators, in-house maintenance staff, volunteers, architects, and maintenance contractors. The Brief discusses the benefits of regular inspections, monitoring, and seasonal maintenance work; provides general guidance on maintenance treatments for historic building exteriors; and emphasizes the importance of keeping a written record of completed work.

Getting Started

Understanding how building materials and construction details function will help avoid treatments that are made in an attempt to simplify maintenance but which may also result in long-term damage. It is enticing to read about "maintenance free" products and systems, particularly waterproof sealers, rubberized paints, and synthetic siding, but there is no such thing as maintenance free when it comes to caring for historic buildings. Some approaches that initially seem to reduce maintenance requirements may over time actually accelerate deterioration.

Exterior building components, such as roofs, walls, openings, projections, and foundations, were often constructed with a variety of functional features, such as overhangs, trim pieces, drip edges, ventilated cavities, and painted surfaces, to protect against water infiltration, ultraviolet deterioration, air infiltration, and

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The National Park Service's Preservation Brief #47, "Maintaining the Exterior of Small and Medium Size Historic Buildings" — Click the image to download the PDF

SPECIFIC BUILDING ELEMENTS

The following chapter outlines the building elements and materials found on contributing buildings in the HDO, and provides maintenance recommendations and guidelines for appropriate treatment of these features. The recommendations are provided as a resource for property owners or individuals caring for a contributing resource. Property owners are encouraged to proactively maintain their contributing resource and repair as necessary in compliance with these recommendations. The guidelines are provided for town staff or the HDRB to use as the basis for its review of COAs, and represent preservation and rehabilitation best practices. They should also be used by applicants as a guide to help direct the design of proposed alterations to a contributing resource.



From the J. Berkley Green Collection of the Herndon Historical Society

Property Owner Tasks

1 Photograph and Document

↓

2 Letter from an architect or engineer

-OR-

3 Staff or HDRB site visit

Roofs

Roofs are highly visible exterior features and the details of a building's roof are important in imparting character on contributing resources. Rooflines vary and roofs are clad in a variety of materials, each of which have their own visual character. Roof materials range in shape, size, color, profile, pattern, and texture. Although chimneys are important character-defining features for rooflines, guidelines chimneys are covered elsewhere in this chapter.

In the HDO, typical roof shapes include gabled, hipped, and complex. Typical roofing materials included stamped metal shingles, standing seam metal, and modern replacement asphalt shingles.

For more information on appropriate treatment for historic roofs, reference Preservation Brief No. 4, Roofing for Historic Buildings. There are also Preservation Briefs addressing specific materials, such as Wooden Shingle Roofs (#19), Slate Roofs (#29), and Clay Tile Roofs (#30).

Recommendations

MAINTENANCE AND REPAIR

1. Routinely inspect the roof and its features to extend the lifespan of the historic roof. Proper maintenance will forestall the need for full roof replacement.
2. In addition to the primary roofing material, inspections should include gutters, downspouts, and flashing. Ensure these elements are in good condition, properly installed, and uninhibited from performing their function in order to adequately protect the building from moisture infiltration.
3. Repair rather than replace historic roofing materials when possible; historic materials that are in salvageable condition should remain in place.
   a. Limit replacement to damaged areas using patchwork.
   b. Damaged areas should be patched to match the historic in material, size, texture, and other visual qualities.
   c. Integrate patched areas into the existing historic material to minimize the appearance of seams or joints between the historic material and the patched area.
4. Keep the roof and associated features clean of debris, rust, and vegetation using the gentlest means possible. Avoid the use of a power washer unless necessary.
5. Historic gutters and downspouts should be retained and repaired; ensure they are properly maintained. If replacement of these features is required, contact town staff to discuss whether or not replacements meet in-kind standards.
6. Other historic decorative roof details, such as cresting, should be retained and repaired. Contact town staff to discuss whether or not replacements meet in-kind standards.


4 PRESERVATION BRIEFS

Roofing for Historic Buildings

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Cultural Resources
Heritage Preservation Services

The National Park Service's Preservation Brief #4, "Roofing for Historic Buildings" - Click the image to download the PDF

MATERIAL SPECIFIC INFORMATION

Metal (stamped, shingled, and standing seam)

Most metal roofs have a lifespan of 40-75 years, with many lasting 100 years or more if properly maintained; COA applications for full scale replacement roofs prior to the end of their useful life span should be accompanied by a letter from an experienced roofing company with information on why the roof requires replacement. Additional information concerning application requirements can be found in the Procedures Guide.

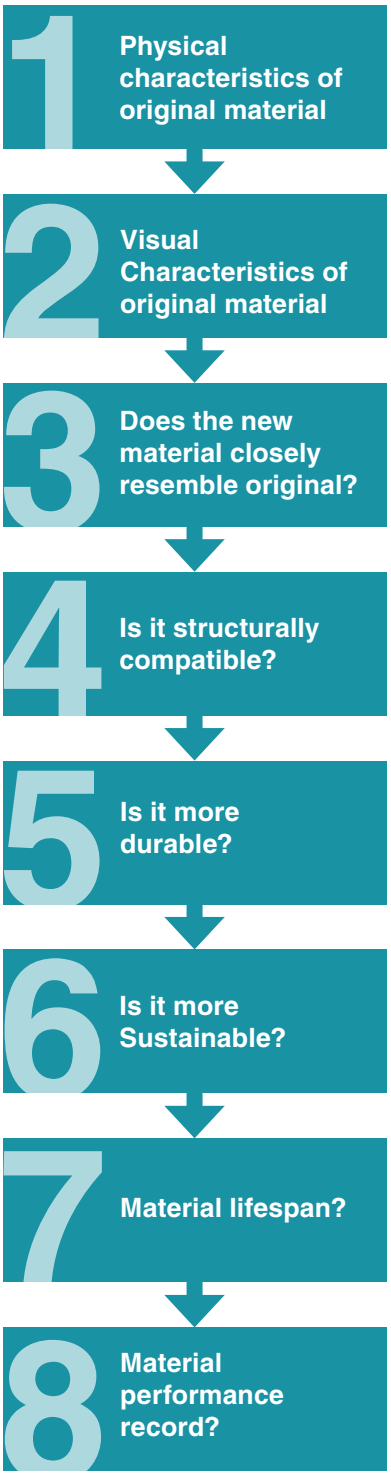
1. Retain and restore historic metal roofs.
   - **a.** Routinely inspect historic metal roofs for signs of damage or deterioration.
2. Existing coatings should be maintained to prolong a roof's lifespan.
   - **a.** Re-paint and re-coat as necessary. Utilize a professional experienced with metal roofs to repaint or recoat the roof if the coating is failing.
   - **b.** Exposed metal should be covered as soon as possible.
   - **c.** Avoid using elastomeric coatings, as these are not reversible.
3. Temporary repairs can be made with clear, silicone-based caulk. Do not use tar-based materials to make repairs, as it is difficult to remove.
   - **a.** Make repairs to areas that are damaged or deteriorated to prevent or stop water infiltration. Limit replacement to damaged areas using patchwork. Match patch materials with historic materials and integrate them into the existing historic material to minimize the appearance of seams or joints between the historic material and the patched area
   - **b.** Utilize a roofer experienced with metal roofs to make repairs; metal patches and repair flashings often require soldering.
4. Prior to replacement, inspect for sources of moisture to ensure deterioration issues are not being caused by worn flashings, leaky gutters, or poor attic ventilation.

Slate

Slate roofs have a lifespan of 60-125 years; proposals for full scale replacement roofs prior to the end of their useful life span should be accompanied by a letter from an experienced roofing company with information on why the roof requires replacement. For more information, reference Preservation Brief No. 29, The Repair, Replacement, and Maintenance of Historic Slate Roofs.

1. Retain and restore historic slate roofs.
   - **a.** Routinely inspect historic slate roofs for signs of damage or deterioration.
2. Repair broken, cracked, or missing slate promptly to prevent water infiltration.
   - **a.** Utilize a roofer experienced with slate for repair work.
   - **b.** Undertake repairs (over replacement) if problems are localized and the roof is not near the end of its useful life. Note: if 20% or more of the slate on an overall roof are damaged or missing, it is generally more cost effective to replace the roof, rather than make repairs.

Considerations for Alternative Materials




Slate roof


Stamped metal roof


Asphalt shingle roof


Standing seam metal roof

c. If the slate has not reached the end of its useful life, but the roof requires replacement for other issues (examples: improper head lap, high percentage of missing or damaged tiles), salvage slates as feasible and reuse.

d. New slate used to make repairs should match the historic in type, color, size, shape, and overall pattern. Provide a photograph illustrating the historic slate and proposed new slate side by side.

e. Prior to replacement, inspect for sources of moisture to ensure deterioration issues are not being caused by worn flashings, leaky gutters, or poor attic ventilation.

3. Ensure associated materials (nails, flashings, etc) have a lifespan comparable to that of the new slate and are compatible for use to avoid galvanic action, which accelerates corrosion. Typically, copper is an appropriate choice, as it is durable and requires little maintenance.

Clay Tile Coping

Clay tile coping is often used along parapet walls, primarily on commercial buildings.

1. Retain and restore historic clay tile coping where it remains in place.

a. Periodically inspect clay tile coping for signs of damage or deterioration.

2. Make repairs to areas that are damaged or deteriorated to prevent or stop water infiltration.

3. If clay tile coping is missing or damaged, it should be replaced in kind.

4. Ensure that new tiles match the existing in size, shape, and glazing.

Guidelines for Replacement and Alterations

MATERIAL CHANGES

1. For all roofs, replacement materials should offer the same general appearance as the existing roof, unless changing to a known original or historic and architecturally appropriate roof material.

2. To achieve replacement-in-kind, the new roof material should match the historic roof material in composition, shape, size, color, profile, pattern, texture, and other visual and material qualities.

a. When historic roofs are replaced, roof accessories such as snow guards, copper flashing, or ridge vents must be retained and reinstalled or similarly replaced to match the existing in type, composition, shape, size, color, profile, location, pattern, texture and other visual qualities to be considered an in-kind replacement.

b. New metal roofs should match historic metal roofs in elements such as pan width, seam height, and crimp pattern for standing seam roofs. New slate roofs should match the color, size, shape, and pattern of the historic slate.

3. When replacement in-kind is not possible, the following roof replacement material criteria applies:
    a. Material that can convey the same visual characteristics (shape, size, color, profile, pattern, texture, finish) as the historic material.
    b. Material which appropriately fits within the architectural context including roof form, roof size, and resource size
    c. Material which will not impact other existing roof components such as eaves, dormers, and chimneys.
    d. If the feature cannot be replicated using traditional materials, refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.
4. Material replacement should not impact the roof design, such as pitch or roof components such as eaves. If changes to the roof design are proposed, the guidelines below for Roof Design Changes apply.
5. For roofs on existing but modern additions, replacement roofing materials should be visually distinct from historic roofing materials and should be appropriate to and compatible with the architecture and forms of the addition.


29 PRESERVATION BRIEFS

The Repair, Replacement, and Maintenance of Historic Slate Roofs

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Introduction

Slate is one of the most aesthetically pleasing and durable of all roofing materials. It is indicative at once of the awesome powers of nature which have formed it and the expertise and skill of the craftsman in hand-shaping and laying it on the roof. Installed properly, slate roofs require relatively little maintenance and will last 60 to 125 years or longer depending on the type of slate employed, roof configuration, and the geographical location of the property. Some slates have been known to last over 200 years. Found on virtually every class of structure, slate roofs are perhaps most often associated with institutional, ecclesiastical, and government buildings, where longevity is an especially important consideration in material choices. In the slate quarrying regions of the country, where supply is abundant, slate was often used on farm and agricultural buildings as well.

Because the pattern, detailing, and craftsmanship of slate roofs are important design elements of historic buildings, they should be repaired rather than replaced whenever possible. The purpose of this Preservation Brief is to assist property owners, architects, preservationists, and building managers in understanding the causes of slate roof failures and undertaking the repair and replacement of slate roofs. Details contributing to the character of historic slate roofs are described and guidance is offered on maintenance and the degree of intervention required at various levels of deterioration.

The relatively large percentage of historic buildings roofed with slate during the late nineteenth and early twentieth centuries means that many slate roofs, and the 60 to 125 year life span of the slates most commonly used, may be nearing the end of their serviceable lives at the end of the twentieth century. Too often, these roofs are being improperly repaired or replaced with alternative roofing materials, to the detriment of the historic integrity and appearance of the structure. Increased knowledge of the characteristics of slate and its detailing and installation on the roof can lead to more sensitive interventions in which original material is preserved and the building's historic character maintained. Every effort should be made to replace deteriorated slate roofs with new slate and to develop an effective maintenance and repair program for slate roofs that can be retained.

History of Slate Use in the United States

Although slate quarrying was not common in the United States until the latter half of the nineteenth century, slate roofing is known to have been used prior to the Revolution. Archeological excavations at Jamestown, Virginia have unearthed roofing slate in strata dating from 1625-1650 and 1640-1670. Slate roofs were introduced in Boston as early as 1654 and Philadelphia in 1699. Seventeenth century building ordinances of New York and Boston recommended the use of slate or tile roofs to ensure fireproof construction.

In the early years of the Colonies, nearly all roofing slate was imported from North Wales. It was not until 1785 that the first commercial slate quarry was opened in the United States, by William Docher in Peach Bottom Township, Pennsylvania. Production was limited to that which could be consumed in local markets until the middle of the nineteenth century. Knowledge of the nation's abundant stone resources was given commercial impetus at this time by several forces, including a rapidly growing population that demanded housing, advances in quarrying technology, and extension of the railroad system to previously inaccessible markets. Two additional factors helped push the slate industry to maturity: the immigration of Welsh slate workers to the United States and the introduction of architectural pattern and style books (Figure 1). Slate production increased dramatically in the years following the Civil War as quarries were opened in Vermont, New York, Virginia, and Lehigh and Northampton Counties, Pennsylvania. By 1876, roofing slate imports had all but dried up and the United States became a net exporter of the commodity.

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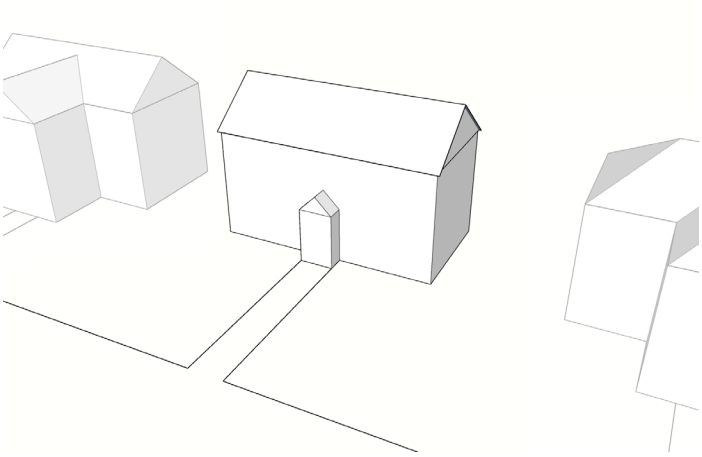
The National Park Service's Preservation Brief #29, "The Repair, Replacement, and Maintenance of Historic Slate Roofs" - Click the image to download the PDF

DESIGN CHANGES

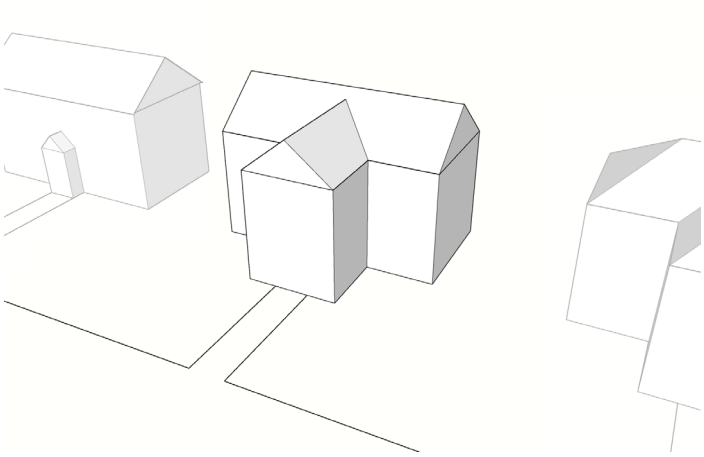
Roof Form Guidelines

1. Changes in design should not alter the original shape, size, and form of a historic roof unless they are not visible from the public right-of-way.
2. New building features that alter the historic shape, size, and form of a historic roof should not be added unless on a portion of the roof that is not visible from an adjacent street.
3. The original pitch of any historic roof should be maintained.
4. Historic roof features such as dormers should not be removed, relocated, or altered. Guidelines for these features are found below.
5. Changes to the shape, size, and form of an existing modern addition should not alter the roof's mass in a manner that increases its visual prominence over the historic portions of the building.
6. Changes to the shape, size, and form of an existing modern addition should retain or enhance the appropriateness and compatibility of the roof in relation to the historic building's architectural style and date of construction, while allowing for a clear visual distinction between the modern addition and the historic portions of the building.

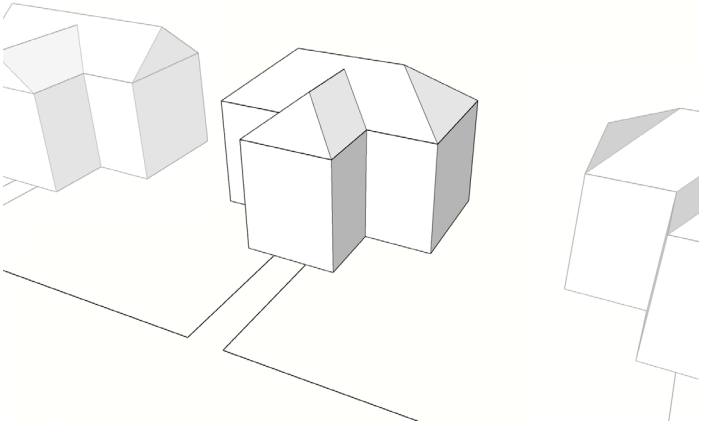
Roof Forms



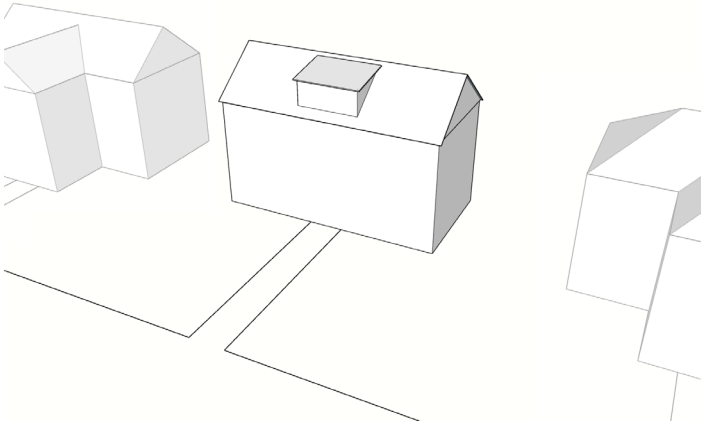
Gable Roof



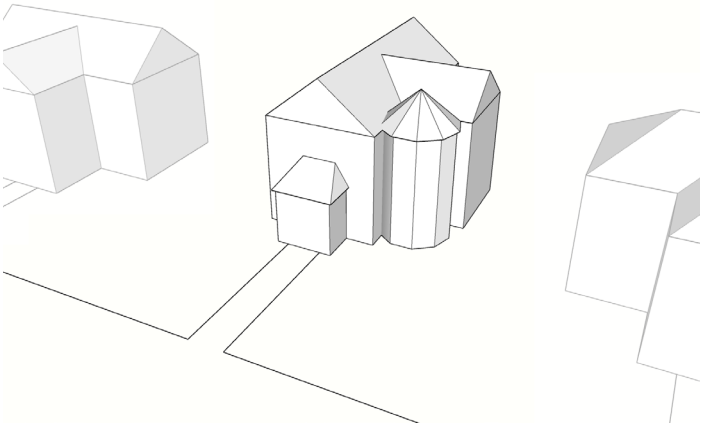
Cross Gable Roof



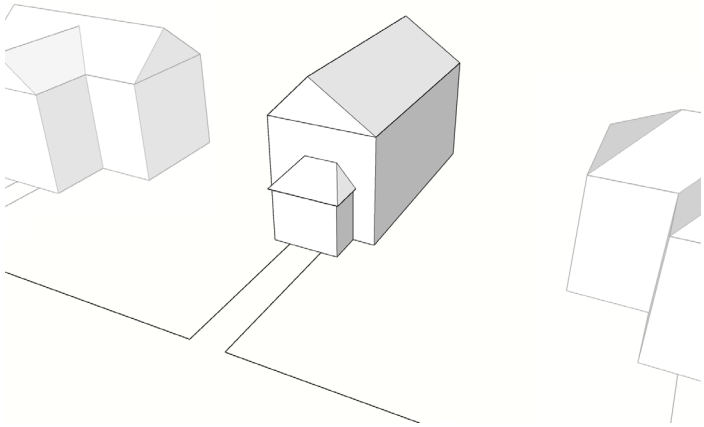
Hipped Roof



Gable Roof with Shed Dormer



Complex Roof



Front Gable Roof

Roof Feature Guidelines


Clay tile coping

ALL FEATURES:

1. Changes in historic roof features, such as removing an eave soffit to expose decorative rafter tails, should only occur when the proposed change returns a roof to its historic appearance. Photographic evidence of the earlier form or existing evidence of the original form should determine the appropriateness of the modification.
2. Character defining roof features such as wide eaves or decorative parapet coping should not be modified in design and composition.
3. On existing modern (post 1940) additions, changes in roof features should be appropriate to and compatible with the architecture and forms of the addition.
4. On existing modern (post 1940) additions, changes in roof features can reflect features on the building's historic roof but should not be a replication of historic features.


Historic gutter and downspouts

GUTTERS AND DOWNSPOUTS:

1. New and replacement gutters should have a design, composition, size, color, and material that is appropriate for the age of the contributing resource and its architectural style.
2. The design, composition, shape, size, location, profile, and other visual qualities of historic gutters and downspouts, whether internal or external, should be retained.
3. New gutters and downspouts should not be placed in highly visible locations, or locations that substantially obstruct character-defining features of the resource and should not be installed in a manner that has substantial impacts to a resource's historic fabric.


Historic dormer

ROOF DORMERS:

1. Historic dormers should not be altered unless doing so would reinstate documented historic conditions.
2. Historic dormers should not be removed. If deemed unsalvageable, dormers should be replaced in-kind or returned to a documented historic design.
    a. Replacement dormers must match the composition, design, style, shape, size, location, fenestration, texture, and finish as the existing or documented historic dormer.
3. New dormers should not be added to historic buildings unless located on the rear elevation or other portion of roofs mostly obstructed from view from the street and only when the dormers are compatible with the style, shape, size, scale, and materials of the historic building.
4. Dormers on modern additions may be added, deleted, or altered when the change appropriately fits within the style and form of addition and within the context as a modern addition to a historic resource.


Ornamental chimney


Utilitarian Chimney


Half height basement foundation


Low foundation

ROOF EAVES:

1. Replacement roof eave materials should closely match the historic eave materials, if known, in overall profile, pattern, size, shape, texture, and other visual qualities.
2. Historic roof eave design should not be modified in overall shape, size, and type. Exposed rafters should remain exposed, and boxed eaves should remain boxed unless there is historic documentation of a different configuration.

ROOF-MOUNTED EQUIPMENT

1. Limit new features, penetrations and surface mounted utilities, such as HVAC units and satellite dishes, on roofs, especially those roofs that retain historic materials. When necessary, place roof-mounted equipment on modern (post 1940) addition roofs and portions of the roofs that have limited to no visibility from an adjacent street.

Foundations and Chimneys

For historic buildings, foundations and chimneys both serve very important utilitarian functions — foundations hold and secure all structural components of a building, and chimneys provide ventilation for historic means of heating and cooking. The functional use of foundations and chimneys, combined with their material, arrangement, texture, and finish, greatly influences building character and appearance.

In the HDO, the design of foundations and chimneys is expressed in different ways. In some cases, they are designed as focal points with strong forms and decorative qualities. In other cases, they embody their strictly utilitarian function and have minimal visual impacts. Foundations range from rubble, less than one foot above the ground, to half-story block walls that usually indicate the existence of a basement. The height of a foundation has a profound impact on the design, form and mass of the entire building. For example, window placement and porch height are both dependent on the exposed height of the foundation.

While the placement and material treatment of chimneys can vary greatly across architectural styles, chimneys are a highly visible feature along the roof line and can serve as an important visual contrast against the material and orientation of wall and roof cladding.

For more information on the appropriate treatment for historic foundations and chimneys, reference Preservation Brief No. 1, Cleaning and Water-Repellent Treatments for Historic Masonry Buildings, No. 2, Repointing Mortar Joints in Historic Masonry Buildings, and No. 6, Dangers of Abrasive Cleaning to Historic Masonry Buildings.

Recommendations

MAINTENANCE AND REPAIR

1. Routinely inspect foundations and chimneys for signs of damage or deterioration.
   a. Cracking, missing mortar, surface spalling, and efflorescence are typical masonry problems that need to be addressed.
   b. Have a professional inspect and clean the interior of the chimney on a regular basis.
2. When necessary, clean exterior wall surfaces using the gentlest means possible; avoid power washing. If required, use a light warm water wash (no more than 300 psi).
3. Ensure water is being adequately shed from the roof and away from the foundation. Use gutters and downspouts to move water away from foundations and slope the ground for outward water flow.
4. Exterior wall surfaces that have already been painted can be repainted after careful planning and surface preparation.
   a. Remove any remaining flaking or peeling paint to a sound substrate and lightly sand, if necessary, to achieve a good paint bond.
   b. Clean the wall surface using the gentlest means possible and allow to dry completely before repainting.
   c. Test the existing wall surface in order to identify an appropriate primer and compatible paint. Repaint with appropriate products and follow the manufacturer's recommendations for the number of applications and temperature parameters to ensure proper adhesion.
   d. Do not apply a waterproofing material to masonry. These coatings trap moisture in the masonry which increases deterioration.
5. Repair and restore rather than replace historic foundations and chimneys when possible.
   a. Hire a qualified mason to undertake any necessary masonry repairs or mortar repointing.
   b. Cracked or spalling masonry should have any loose debris removed and then patched with a matching masonry material using appropriate means of adhesion.
   c. Limit masonry patching to only the areas that are damaged and piece in new material with matching joints and surface treatments to maximize appearance of material continuity.
   d. Re-point mortar joints to match the existing mortar in historic in color, texture, composition, strength, joint profile, and tooling pattern.
   e. If masonry units require replacement, new brick should match the historic in color, texture, size, and composition.


1 PRESERVATION BRIEFS

Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings

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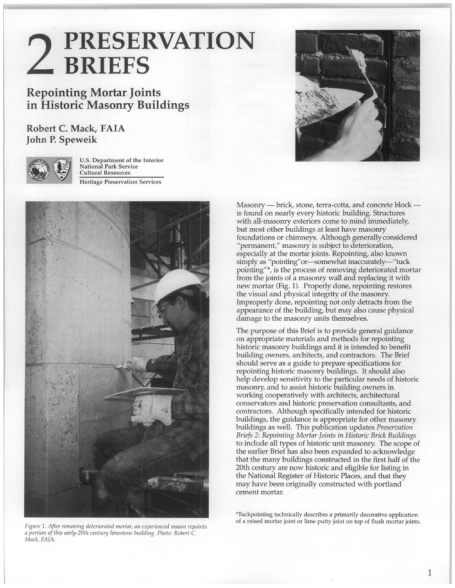
The National Park Service's Preservation Brief #1, "Cleaning and Water-Repellent Treatments for Historic Masonry Buildings" - Click the image to download the PDF


2 PRESERVATION BRIEFS

Repointing Mortar Joints in Historic Masonry Buildings

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John P. Speweik

U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

The National Park Service's Preservation Brief #2, "Repointing Mortar Joints in Historic Masonry Buildings" - Click the image to download the PDF



Historic masonry building in Herndon.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. Foundation and chimney materials should never be completely replaced, unless structural integrity has been compromised. If the foundation or chimney must be replaced for structural reasons, they should be replaced in-kind.
    a. To achieve replacement-in-kind, the new material should match the historic foundation or chimney in material, composition, shape, size, location, pattern, color, texture, finish, and other visual qualities.
2. If replacement in-kind is not possible, the replacement feature should be clad in a material that matches the historic foundation or chimney as closely as possible in material, composition, shape, size, location, pattern, color, texture, finish, and other visual qualities
    a. If the feature cannot be replicated using traditional materials, refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.
3. For modern additions (post 1940), replacement foundations and chimneys should offer the same general appearance as the existing foundations and chimneys, unless changing to a material that more appropriately fits within the context as a modern addition to a historic resource.

DESIGN CHANGES

1. Foundations and chimneys should only be altered, including addition or deletion, based on documented historic conditions.
2. Historically unpainted wall surfaces should remain unpainted.
3. If necessary, install chimney caps and foundation vents that do not change the character of the historic feature.
4. On modern additions (post 1940), foundations and chimneys can be added, deleted, moved, or altered in other ways provided the changes do not detract from the addition's compatibility with the historic building and context as a modern addition to a historic resource.

Exterior Wall Materials and Finishes

The historic wall materials and finishes of a building help to define architectural style and convey the historic period of its construction. The details of the installation of exterior wall materials create surface texture that impart specific characteristics and further reinforces the building's age and style.

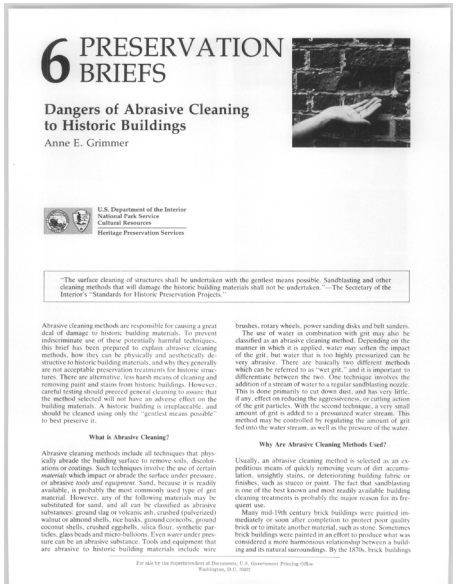
Exterior walls are clad often with a field material, which serves as the primary wall treatment, and accent materials which are secondary to field material. In some cases, there are no accent materials or more than one accent material. The placement and usage of accent materials in relation to field materials can have significant impacts on architectural style and character.

In the HDO, typical historic wall materials include wood clapboard and brick masonry. In limited cases, exterior walls feature an applied finish such as stucco or parge and in other cases, decorative shingles are used as accent cladding. For historic accessory structures, wood board and batten is another common historic material.

For more information on the appropriate treatment for historic exterior wall materials and finishes, reference Preservation Brief No. 1, Cleaning and Water-Repellent Treatments for Historic Masonry Buildings, No. 2, Repointing Mortar Joints in Historic Masonry Buildings, No. 6, Dangers of Abrasive Cleaning to Historic Buildings, No. 10, Exterior Paint Problems on Historic Woodwork, and No. 22, The Preservation and Repair of Historic Stucco.



The National Park Service's Preservation Brief #10, "Exterior Paint Problems on Historic Woodwork" - Click the image to download the PDF



The National Park Service's Preservation Brief #6, "Dangers of Abrasive Cleaning to Historic Buildings" - Click the image to download the PDF

Recommendations:

MAINTENANCE AND REPAIR

1. Routinely inspect the exterior wall materials and finishes for signs of damage or deterioration. On-going maintenance of exterior wall materials and finishes will greatly extend the lifespan of the historic material.
   a. Make note of areas where paint is peeling or mortar is deterioration, as this is often a sign of moisture infiltration.
2. Keep the exterior wall materials clean from debris and dirt buildup.
   a. When necessary, clean exterior wall surfaces using the gentlest means possible; avoid power washing. If required, use a light warm water wash (no more than 300 psi).
3. Preserve historic building materials. Repair historic wall materials rather than replacing them.
   a. Only replace areas of damage or deteriorated historic materials; replacement material should match the historic in material, dimensions, and profile. Do not remove historic materials that are in salvageable condition. Contact town staff to discuss whether or not replacements meet in-kind standards.
   b. New material that matches the historic should be patched or feathered-in so as to retain the remaining historic material.





Peeling paint should be removed, the underlying surface prepared, and new paint applied according to manufacturer's recommendations to protect exterior woodwork from moisture, insects, and solar effects



Historic materials can often be found underneath of modern materials and restored

4. Historically unpainted wall surfaces should remain unpainted. Exterior wall surfaces that have already been painted can be repainted using an appropriate paint product after careful planning and surface preparation. *Contact staff regarding pre-approved colors if you wish to change the paint color.*
   a. Remove any remaining flaking or peeling paint to a sound substrate and lightly sand, if necessary, to achieve a good paint bond.
   b. Clean the wall surface using the gentlest means possible and allow to dry completely before repainting.
   c. Test the existing wall surface in order to identify an appropriate primer and compatible paint. Repaint with appropriate products and follow the manufacturer's recommendations for the number of applications and temperature parameters to ensure proper adhesion.
5. While maintaining and repairing the exterior wall materials of your contributing resource, you may find historic materials underneath modern materials. Any of the following 4 actions would require a COA. Contact staff prior to undertaking to determine the appropriate process.
   a. If historic materials are found underneath modern materials, consider the removal of modern materials in order to re-expose the historic exterior finish.
   b. If the historic material would be damaged by removing modern materials, it may be better to retain the modern finish rather than irreparably damage the underlying historic material.
   c. Do not install modern materials on top of historic materials unless appropriate measures are taken to preserve and protect the underlying historic materials.
   d. Do not remove historic materials to facilitate the installation of modern materials.

MATERIAL SPECIFIC INFORMATION

Masonry (brick, stone, concrete block)

Brick, stone and concrete block are extremely durable materials, but when repairs are necessary using the wrong repair material can damage the masonry. A qualified mason should be employed to undertake any necessary masonry repairs or mortar repointing. For more information, reference Preservation Brief No. 2, Repointing Mortar Joints in Historic Masonry Buildings.

1. Routinely inspect for signs of damage or deterioration. Cracks, loose mortar, surface spalling and pitting, dampness and efflorescence, and ineffective flashing or caulking are typical masonry problems that need to be addressed.

2. If previously painted, masonry can be repainted. Prior to repainting, select an appropriate paint and prime if necessary. Contact staff for pre-approved color selections.
    a. Unpainted masonry should remain unpainted and painting previously unpainted masonry requires a COA. Contact staff for more information.
3. Maintain watertight caulking and secure flashing between joints.
4. Do not apply a waterproofing material to masonry. These coatings trap moisture in the masonry which increases deterioration.
5. When mortar requires repointing, new mortar should match the historic in color, texture, composition, strength, joint profile, and tooling pattern.

Wood Siding

Wood siding is the most common exterior wall surface within the HDO. Siding on older buildings is usually of much higher quality, due to its density, than the majority of the wood materials currently available



Historic wood clapboard building in Herndon.

1. Only replace areas of wood siding that cannot be repaired; match the dimensions and profile of the surrounding wood siding. Check with staff to determine whether the repair is extensive enough to require a COA.
    a. Remove only the portion of siding that is damaged or deteriorated and replace with a matching piece that can be seamlessly installed as a substitute for the removed portion and painted over to hide the joint line between the old and new portions.
    b. Use an epoxy wood filler to repair areas of minor, non-structural damage. For a larger patch use a Dutchman patch. Check the Resource Guide for additional information.
    c. Back-prime new wood before installing to give new wood more longevity and protect against moisture infiltration.
    d. Properly prepare the replacement siding before painting; surface preparation should include scraping any peeling paint and gently cleaning the surface.
2. Prime all exterior wood siding prior to repainting to ensure adequate adhesion. Provide adequate dry time prior to repainting.
    a. Allow paint to dry fully between coats.
    b. Select moisture resistant replacement wood to prevent premature deterioration, such as Accoya, cedar, cypress, or mahogany. Avoid using modern fast growth wood, particularly softwoods, such as pine.



22 PRESERVATION BRIEFS

The Preservation and Repair of Historic Stucco

Anne Grimmer

U.S. Department of the Interior
National Park Service
Preservation Assistance Division

The term "stucco" is used here to describe a type of exterior plaster applied as a two-or-three part coating directly onto masonry, or applied over wood or metal lath to a log or wood frame structure. Stucco is found in many forms on historic structures throughout the United States. It is so common, in fact, that it frequently goes unnoticed, and is often disguised or used to imitate another material. Historic stucco is also sometimes incorrectly viewed as a sacrificial coating, and consequently removed to reveal stone, brick or logs that historically were never intended to be exposed. Age and lack of maintenance hasten the deterioration of many historic stucco buildings. Like most historic building materials, stucco is at the mercy of the elements, and even though it is a protective coating, it is particularly susceptible to water damage.

Stucco is a material of deceptive simplicity: in most cases its repair should not be undertaken by a property owner unfamiliar with the art of plastering. Successful stucco repair requires the skill and experience of a professional plasterer. Therefore, this Brief has been prepared to provide background information on the nature and components of traditional stucco, as well as offer guidance on proper maintenance and repairs. The Brief will outline the requirements for stucco repair, and, when necessary, replacement. Although several stucco mixes representative of different periods are provided here for reference, this Brief does not include specifications for carrying out repair projects. Each project is unique, with its own set of problems that require individual solutions.

Historical Background

Stucco has been used since ancient times. Still widely used throughout the world, it is one of the most common of traditional building materials (Fig. 1). Up until

Fig. 1. These two houses in a residential section of Winchester, Virginia, illustrate the continuing popularity of stucco (a) from this early 19th century, federal style house on the left, (b) to the English Cotswold style cottage that was built across the street in the 1930's. Photos: Anne Grimmer.

The National Park Service's Preservation Brief #22, "The Preservation and Repair of Historic Stucco" - Click the image to download the PDF

Stucco

For more information, reference Preservation Brief No. 22, The Preservation and Repair of Historic Stucco.

1. If stucco repairs are necessary, ensure the stucco mix and applied texture match the historic material.
2. Utilize vapor-permeable products to repair hairline cracks.

Guidelines For Replacement And Alterations

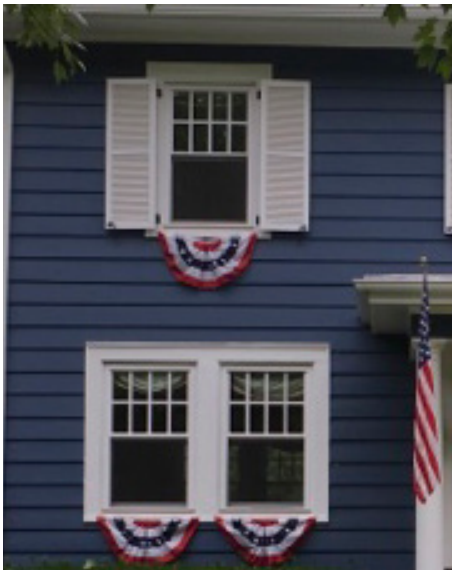
MATERIAL CHANGES

1. If a historic material requires replacement, it should be in kind.
    a. To achieve replacement-in-kind, the new wall material should match the historic wall material in composition, shape, size, color, profile, pattern, texture, and other visual qualities.
2. Material replacement should not impact the materials and design of other building features located or attached to the walls such as the chimneys or windows. Guidelines regarding those type of features are covered on elsewhere in this chapter.
3. Material replacement should not impact the wall design, such as wall plane depth and reveal depth between wall planes. If wall design alterations are proposed, the Guidelines for Exterior Wall Design Changes apply.
4. Material replacement should not change the location and usage of field to accent materials. If alterations to the location and usage of field and accent materials are proposed, the Guidelines for Exterior Wall Design Changes apply.
5. Materials should be replaced-in-kind if the historic material exists. If the exterior wall materials are modern, the material may be replaced with the documented historic exterior wall material or an appropriate modern material.
6. If replacement-in-kind is not possible, the following criteria for historic exterior wall material replacement apply:
    a. Retention of the appearance of the historic material to greatest extent possible using visual characteristics such as scale, unit size, variation in color or texture, pattern, reflectivity and finish.
    b. No impact to other associated components of the resource such as wall plane depth, reveal depth between wall planes, and depth of trim.
    c. If the feature cannot be replicated using traditional materials, refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.
        i. Vinyl should not be considered an appropriate replacement material.
        ii. When replacement of large areas of stucco is necessary, utilize natural stucco products on historic buildings; synthetic stucco products, such as EIFS, are not appropriate for use in conjunction with historic materials.

7. For exterior walls on existing modern additions (post 1940), replacement exterior wall materials should be visually distinct from historic exterior wall materials and should be appropriate to and compatible with the architecture and forms of the addition, as well as the primary contributing (historic) resource.

DESIGN CHANGES

1. Historic wall planes should be maintained.
    a. Wall planes may be altered on existing modern (post 1940) additions in instances where the proposed plan change does not impact the relation of the addition to the historic portions of the building. In these cases, the Guidelines for Additions found on page 73 may apply.
2. Exterior wall solid and void ratios and patterns should be maintained.
    a. If deletion, addition, shape or size alteration of an historic wall opening is proposed, the Guidelines for Windows, Doors, and Associated Features found on page 56 apply.
3. Placement and usage of field and accent historic exterior wall materials should be maintained. If historic exterior wall materials no longer exist and are not known, a new combination of field and accent exterior wall materials may be appropriate under the following criteria:
    a. The placement, usage, and variety of new accent exterior wall materials must appropriately fit within the building type and architectural style of the resource.
    b. New accent exterior wall materials must appropriately fit within the building form and surface on which it would be attached.
    c. New accent exterior wall materials should not create an appearance that does not align with the historic layout and function of the resource. For example, a masonry or stone water table should not be added to a resource without a high foundation.
    d. New accent exterior wall materials should not create an overly decorative appearance or false historic narrative that detracts from the historic character of the resource.



Historic wood windows in Herndon.



Historic steel windows in Herndon.

Windows, Exterior Doors and Associated Features

Exterior doors, particularly primary entries located on the front façade, can be important character defining elements that can help impart the age and style of a building. Front doors are a focal point on the front façade of a building. Door style, shape, size, location, glass usage, and surrounding treatments combine to create an entry that can range from simple and utilitarian to unique and highly decorative.

Windows are major contributors towards the appearance of a building. While window shape, size, locations, glass divisions, and surrounding treatments are crucial design characteristics, the arrangement, breadth of usage, and variety of windows on a building, known as its fenestration, defines character and identities style and age. A building's translucency, solid to void proportions, and visual connections between outdoor and indoor spaces are all dependent on its fenestration.

In the HDO, a variety of historic doors and windows are present. The most common windows found on historic buildings are double hung sash windows in a variety of glass pane configuration. Specialty windows such as dormer windows, composite windows, bay windows, and fixed decorative windows are all used throughout the district. The most common doors found on residential historic buildings are full paneled or partial paneled with glass on the top half. On commercial buildings, historic doors are often full lite with various pane configurations.

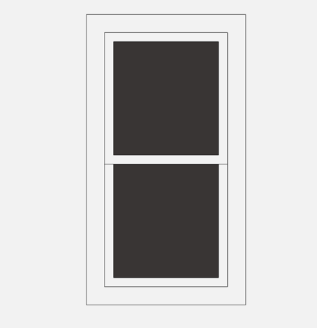
For more information on the appropriate treatment for historic exterior doors and windows, reference Preservation Brief No. 9, The Repair of Historic Windows and Preservation Brief No. 13, The Repair and Thermal Upgrading of Historic Steel Windows.

Recommendations:

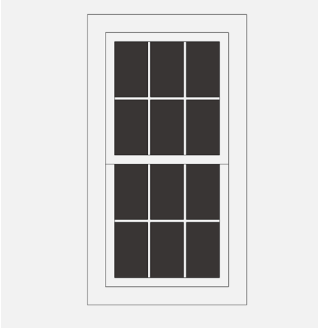
MAINTENANCE AND REPAIR

1. Maintain historic doors and windows or existing appropriate replacement doors and windows.
    a. Routinely inspect for signs of damage or deterioration. Inspections should include checking for loose frames, broken glazing, signs of deterioration, and areas of moisture or air infiltration.
2. Keep doors and windows clean from debris and dirt buildup.
    a. When necessary, clean exterior wall surfaces using the gentlest means possible; avoid power washing. If required, use a light warm water wash (no more than 300 psi).

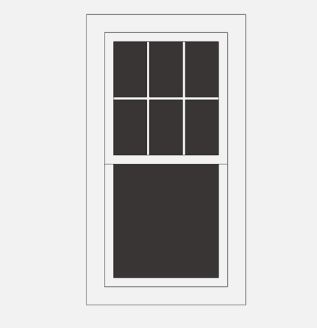
Common window muntin patterns



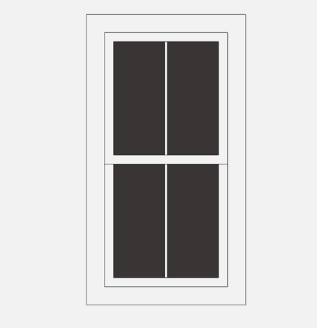
Double-Hung Sash



Six-Over-Six

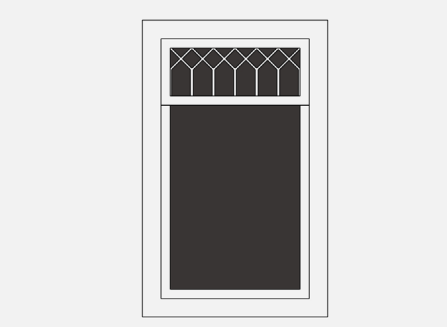


Six-Over-One

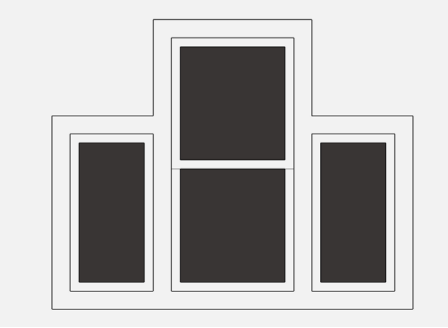


Two-Over-Two

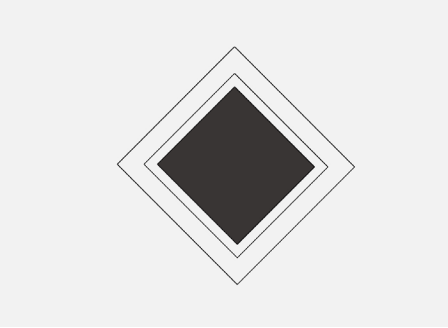
Common ornamental window types



Leaded Glass



Composite

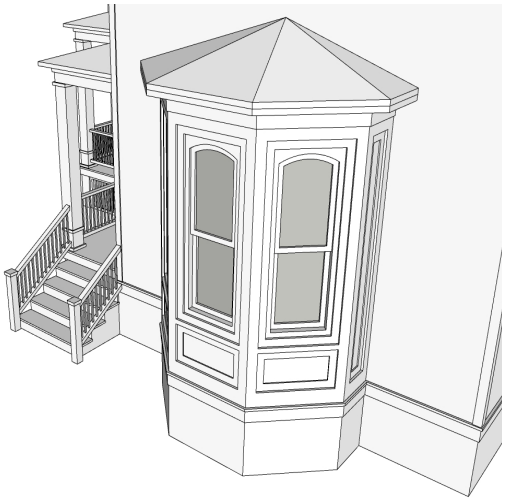


Decorative

Common specialty window types

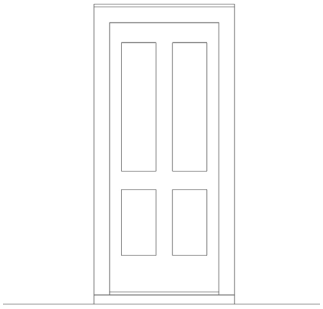


Dormer Window

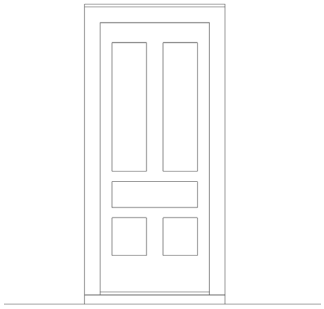


Bay Window

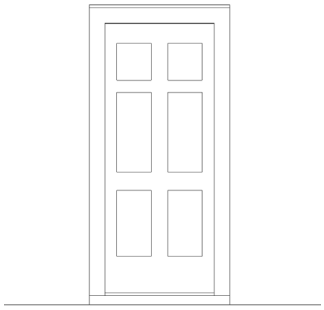
Common solid door panel configurations



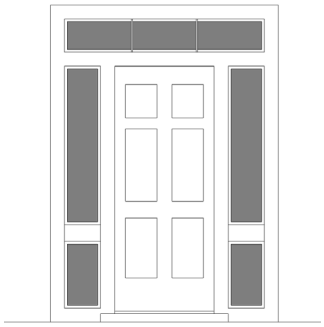
Residential 4-Panel Door



Residential 5-Panel Door

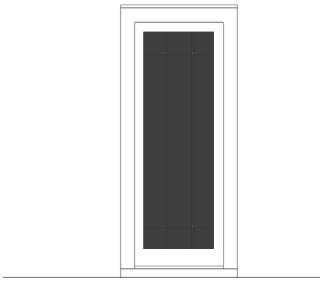


Residential 6-Panel Door

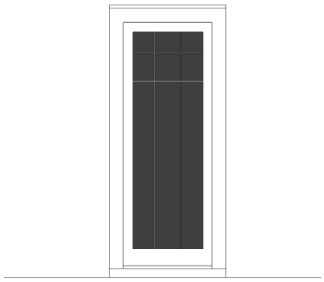


Residential Decorative Door

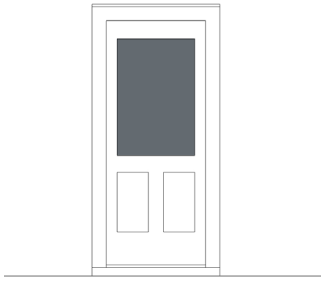
Common glass door types



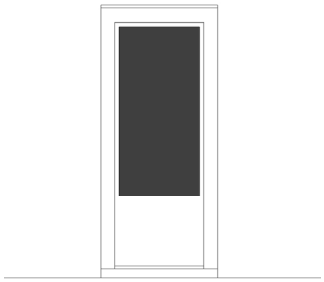
Residential Glass Door



Residential Glass Door

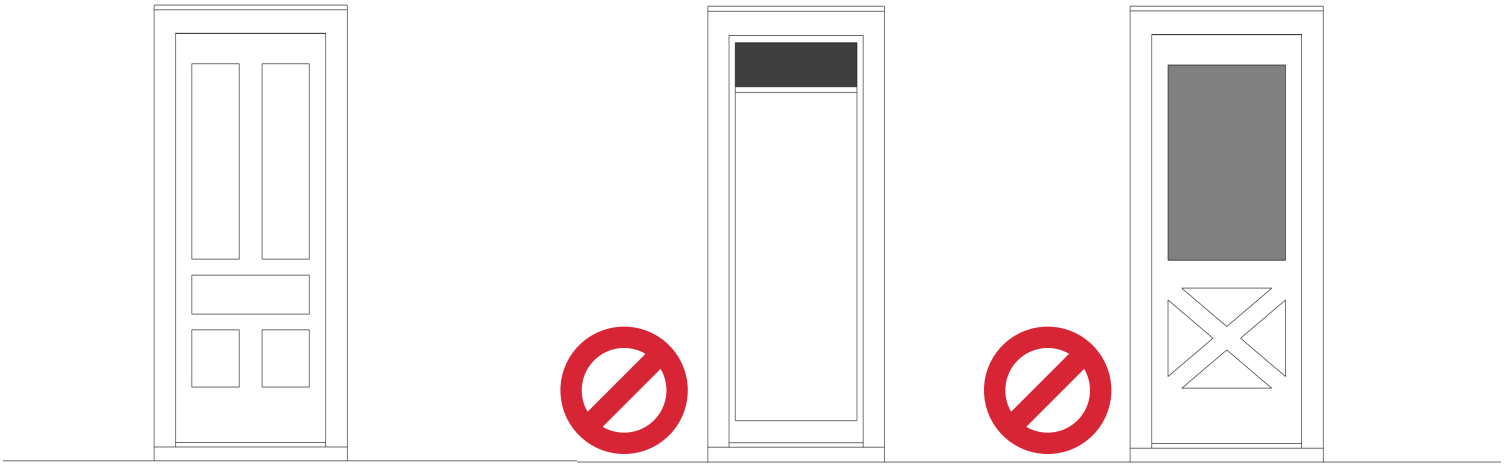


Residential Glass Door



Traditional Commercial Door

New door types



Appropriate
traditional door is compatible
with historic doors

Inappropriate
new doors do not match
patterns of historic doors

b. Keep the hardware in good working order. Hinges, locks, kick plates, mail slots, shutter dogs, are other window and door hardware can be important features for defining the character and appearance of a building and should also be maintained.

c. Replace weather strips as needed. Weather strips are often damaged or deteriorate and should receive added attention to ensure a reduction in air infiltration.

d. Remove old caulk and glazing and re-caulk and re-glaze as necessary to ensure secure and weatherproof windows and doors.

e. Re-paint as necessary. Bare wood should not be exposed and should be covered as soon as possible. Built-up and loose paint should be removed by mechanical means (scraping) and an appropriate primer should be used prior to repainting.

f. Do not paint windows closed. Maintain joints between sashes and jambs to retain window operability.

g. If storm windows are present, adjust as needed to ensure they are working properly. Clean weep holes to avoid trapping moisture on the sill.

3. Repair and restore rather than replace historic doors and windows when possible.

a. If damage is discovered during inspection, broken or missing element should be repaired as soon as possible to avoid further deterioration.

b. Use an epoxy wood filler to repair areas of minor, non-structural damage. Use a Dutchman patch if a larger area of the door or window requires repair.

c. Identify areas of failure and repair or replace only those components.

d. For windows, individual sashes that cannot be salvaged should be replaced apart from the rest of the window.

e. For doors, if individual components such as rails or stiles cannot be salvaged, splice in new pieces that match the existing material.

f. New wood should match the visual characteristics of the of the historic wood.

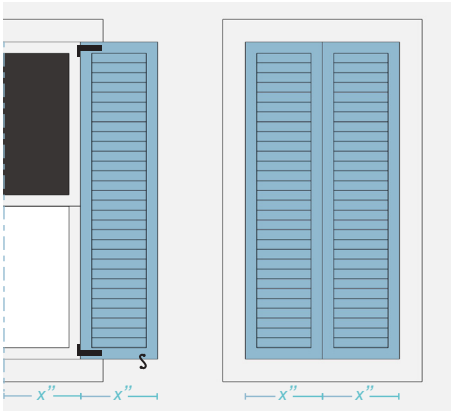
g. If the entire door or window needs repair, remove the door or window and secure the opening while the window or door is being repaired to avoid damage to the opening and adjacent areas of the building envelope.

4. The above guidelines also apply to window features such as shutters and historic screen doors. For guidelines on door and window surrounding trim see the Guidelines for Trim And Decorative Ornament on page 66.

5. Interior storm windows may be installed without a COA.

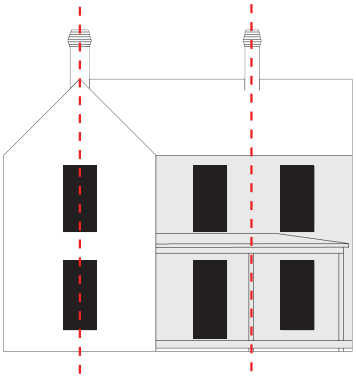
6. When multiple components of historic doors and windows require replacement, contact town staff to discuss whether or not repairs meet in-kind standards.

a. Replacement of an entire historic windows requires a COA.



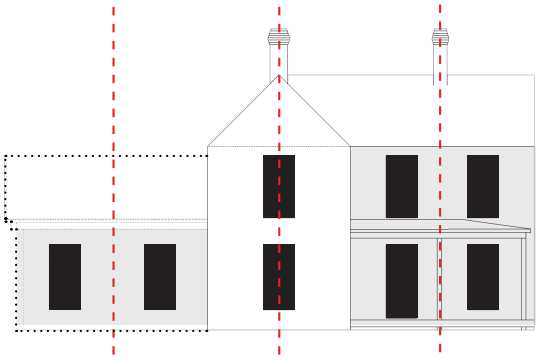
Shutters, fixed or operable, should align with the edge of the window frame, and be sized to cover half of the window opening. Shutter dogs hold shutters open against the wall.

Traditional Residential Openings



Existing openings spaced symmetrically from center of bay

Residential Addition Openings



Openings within addition spaced symmetrically from center, as well



If storm windows must be installed on the exterior, then they should use a frame that is narrower than that of the historic window and be painted to match the existing window frame.

Guidelines For Replacement And Alterations

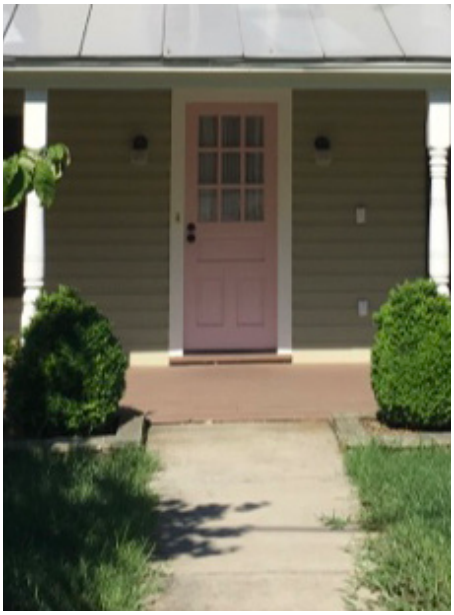
MATERIAL CHANGES

1. For historic doors and windows, when necessary, replacement should be in-kind.
   - **a.** Avoid wholesale replacement of historic windows and doors; these features should be replaced on an as-needed basis.
2. Replacement of historic doors and windows should match the original in size, dimensions, configuration, and materials.
   - **a.** To achieve replacement-in-kind, new doors should match the historic doors in material, composition, style, shape, size, profile, glass usage and glazing, finish, hardware usage and material, and other visual qualities.
   - **b.** To achieve replacement-in-kind, new windows should match historic windows in material, composition, shape, size, profile, glass pane division/configuration, muntin type, pattern, glazing, transparency and other visual qualities.
3. If a historic door or window no longer exists or is damaged beyond repair, the replacement should match the design of remaining historic windows and doors, if available, following replacement in-kind guidance.
4. For historic doors and windows, if replacement-in-kind is not possible, the following criteria for historic door and window replacement applies:
   - **a.** Replacement doors and windows should match the historic doors as closely as possible in general composition, shape, size, profile, glass usage, glass pane division, muntin type, glazing, texture and finish.
   - **b.** Replacement doors and windows should retain historic character-defining features, such as hardware, accessories, and decorative details.
   - **c.** If the feature cannot be replicated using traditional materials, refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.
   - **d.** Replacement should be limited to the door itself or the window sashes to reduce the replacement of historic fabric and impacts to the building envelope.
   - **e.** Avoid the use of insert window replacements, which reduce the size of window openings.
5. If the historic design of a window or door is unknown, an appropriate replacement style should be selected. In this case, the window or door can be replaced with a modern material; refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.
6. On existing modern additions (post 1940), door and window replacements should be clearly differentiated as modern, but remain compatible with the historic building.

7. Historic shutter replacements should match the historic shutters in material, composition, size, shape, style, type, location, placement, and finish. Replacement shutters should be operable; however, if fixed shutters are used, they should be installed on the edge of the jamb with hinges, latches, and shutter dogs to appear as though they are operable.
8. If replacement of a door or window impacts surrounding trim or other features, reference the Guidelines for Door and Window Design Changes below, and the Guidelines for Trim and Ornamentation on page 66.

DESIGN CHANGES

1. Maintain historic wall openings on the front façade and side elevations with visibility from the street. Doors and windows should not be added, deleted, or otherwise altered in these areas.
2. On secondary elevations of historic buildings, doors and windows may be added or deleted. This allowance should occur in limited circumstances on any given building elevation. Existing window openings are preferred locations for new door locations to limit the impact to the building envelope and retain the opening pattern. Where historic openings are blocked, the new wall should have a distinct design and treatment to mark the location of the historic window. On buildings with wood siding, retain the historic window trim and infill the opening with a smooth panel. On buildings with masonry exteriors of any finish, recess the infill at least 1" to mark the opening; masonry infill can be parged for a smooth finish or left exposed.
3. New wall openings for doors on historic buildings should not be designed to alter the presence and function of historic primary entries. Historic entries that serve as architectural focal points must be retained as such. The level of adornment for new doors should not exceed the level of adornment of the historic entries. If the original door and its style is not known, the level of adornment should be appropriate to the style and architectural adornment of the building.
4. Wall openings may be changed on modern additions as long as the overall fenestration and solid to void ratios are not altered to a degree that becomes inappropriate to the addition's compatibility and context with the historic building.
5. New wall openings on historic buildings must reflect and reinforce the architectural style of the building and fit with the established fenestration pattern. New doors and windows must be differentiated from historic doors and windows in configuration, such as a different number or arrangement of panes, but should be comprised of historically appropriate materials that match the material, composition, shape, size, glazing, and other visual qualities of the existing windows on the historic building.
6. Doors and windows installed in new wall openings on historic buildings must be appropriately articulated with a profile that matches the recession and protrusion of the entire door or window with all associated elements in relation to the wall plane to match the existing doors or windows on the historic building.





Historic residential doors in Herndon.

7. Storm door and storm window additions should minimize any obstruction of the door and window design and details. Storm door and storm windows should match the door and windows materials when possible and be compatible with the architectural style of the building.
   a. New screen and storm doors should be wood or prefinished metal, but should not have a metallic finish.
   b. Interior storm windows do not require a COA.

Porches


45 PRESERVATION BRIEFS

Preserving Historic Wood Porches

Aleca Sullivan and John Leeke

National Park Service
U.S. Department of the Interior
Heritage Preservation Services

Few architectural features evoke more romantic notions or do more to define a building's historic character than the American porch. The size, style, detailing, and location of a porch can tell volumes about the age and use of a building. Each component, from handrail or baluster to column or post, enhances the architectural character of the porch. Alter or remove the porch and a historic building or streetscape can lose its visual integrity and historic authenticity (Fig 1).

Functionally, a porch protects an entrance from the weather. Yet open porches are constantly exposed to sun, snow, rain, and foot traffic, and thus subject to deterioration, perhaps more than other parts of a building. Wood porches are particularly vulnerable.

Deferred maintenance and neglect account for the decay and loss of countless numbers of historic porches each year. Deterioration from moisture and resultant wood rot, and damage caused by wood-eating insects are common problems that, when left unaddressed too long, can lead to the loss of significant historic fabric. Inappropriate repairs or insensitive alterations, such as the enclosure of a front porch, can be equally destructive and negatively affect the porch's appearance. All these things can alter a building's historic character. To preserve the character of the porch, as well as the historic building itself, it is essential to plan carefully before undertaking any work on a historic porch.

This Preservation Brief provides guidance for the everyday care of wood porches on older buildings. It focuses primarily on the maintenance and repair of wood porches, but acknowledges other, often challenging, work as well. This publication provides a brief history of the American porch and identifies its basic structural and decorative elements. It outlines how to assess the condition of a wood porch, how much work may be needed, and how to develop a specific scope of work. Detailed guidance on each level of work is provided, beginning with routine maintenance, followed by general repairs for various porch components, and concluding with replacement of parts that are beyond repair. Recommendations are provided for work that may require professional assistance. Although the Brief primarily addresses residential buildings, much of the information can be applied to wood porches on any structure.

Evolution of the Porch

In colonial America, buildings in the northern colonies tended to echo British precedents with small gable-roofed extensions to protect main entrances. Whether open or enclosed, these extensions were called porches (from

Figure 1. Distinctive yet different, these front porches are important features along the street. The skyline would be diminished if the front porch from one of the houses was dramatically altered or removed. Photo: Aleca Sullivan.

1

The National Park Service's Preservation Brief #45, "Preserving Historic Wood Porches" - Click the image to download the PDF

An architectural feature on many buildings within the HDO, especially historic houses, porches offer the strongest conveyance of building era, age, and character. Historically and today, porches serve an important purpose as transitional outdoor covered space, and they often feature decorative details indicative of architectural style. Porches, together with the front entrance, create a principal focal point for historic buildings. Porch location, size, roof form, means of roof support, use and design of balustrades, fascia treatments, skirt treatments, and access stairs are all important design elements that help to define the character of a porch. Due to their highly visible location, it is important that historic porches are retained and preserved.

The preservation of porches is critical to maintaining the integrity of historic buildings and the entire HDO given that over 80% of historic buildings in the district have porches. In the HDO, full and partial width first floor porches are common on front facades and almost always have some level of adornment such as decorative bracing, turned posts, classic columns, and ornamental balustrades. These elements reflect and reinforce the architectural style of the building, display the original craftsmanship and are important factors in the visual appeal of the HDO. Side and rear porches are also typical in the HDO however these porches often have a reduced level of adornment.

For more information on the appropriate treatment for historic porches, reference Preservation Brief No. 45, Preserving Historic Wooden Porches.





Historic residential porches in Herndon.

Recommendations:

MAINTENANCE AND REPAIR

1. Maintain existing porches and all components and materials of the porch.
   - **a.** Routinely inspect for signs of damage or deterioration.
   - **b.** Re-paint as necessary. Bare wood should not be exposed and should be covered as soon as possible. Built-up and loose paint should be removed by mechanical means (scraping) and an appropriate primer should be used prior to repainting.
   - **c.** Refer to the Roofs section on page 42 for roof maintenance recommendations.
   - **d.** Refer to the Foundations and Chimneys section on page 48 for maintenance recommendations for any masonry components of porches including foundations, piers, and pedestals.
2. Repair and restore rather than replace historic porches when possible.
   - **a.** Retain and repair character-defining features of the form of the porch, including the height, width, roof pitch, columns, railings, and other decorative details.
   - **b.** Refer to the Roofs section on page 42 for roof repair recommendations.
   - **c.** Refer to the Foundations and Chimneys section on page 48 for repair recommendations for any masonry components of porches including foundations, piers, and pedestals.
   - **d.** Refer to the Exterior Wood Trim and Decoration section on page 66 for repair recommendations for repair or replacement of wooden porch components.
3. Limit replacement to the individual pieces that cannot be salvaged. A single rotted trim board or bracket does not necessitate the replacement of all trim boards or brackets.
   - **a.** Replacement of large sections of trim or other porch elements, even when meeting in-kind standards, require a COA. When making significant repairs, contact town staff to discuss whether replacements meet in-kind standards.
   - **b.** Select moisture resistant replacement wood to prevent premature deterioration, such as Accoya, cedar, cypress, or mahogany. Avoid using modern fast growth wood, particularly softwoods, such as pine.



Decaying porch trim and deck.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. The replacement of porch components or entire porches should only occur if the areas to be replaced cannot be salvaged; avoid wholesale replacement of historic porches or replacement of an entire porch when only particular components can be replaced instead.
2. If porch components must be replaced, they should be replaced in-kind.
    a. To achieve replacement-in-kind, the new materials should match the historic porch in material, composition, shape, size, location, style, ornament details, and other visual qualities.
3. If replacement-in-kind is not possible, the following criteria for historic porch material replacement applies:
    a. Replacement materials for porch components should match the historic porch materials in composition, shape, size, location, style, finish, and other visual qualities.
    b. If replacement element is made of wood, select a moisture resistant replacement wood, such as Accoya, cedar, cypress, or mahogany, to prevent premature deterioration. Avoid using modern fast growth wood, particularly softwoods such as pine.
    c. If the feature cannot be replicated using traditional materials, refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.
        i. Masonry veneers, composite floorboards, and modern materials that can be painted and share the same dimensions, profiles, means of installation, and finish as wood may be appropriate if the design characteristics and visual qualities match to the historic materials they are replacing.
4. For modern additions (post 1940), replacement porch materials should offer the same general appearance as the existing porch materials.

DESIGN CHANGES

1. Maintain porches as existing.
    a. Historic porches should only be altered, including addition or deletion, based on documented historic conditions.
    b. If structurally unsound and unsalvageable, historic porches should be replaced per the above replacement guidelines and individual character-defining components should be replicated.
2. Generally, porches should not be constructed on buildings that did not historically have a porch in the proposed location.
    a. New porches should not be constructed on front elevations or elevations facing the public right-of-way. Proposed new porches should be located on rear elevations to limit visibility.
    b. When located on side elevations new porches should be scaled to not detract from the contributing building and its features.
    c. New porches should be compatible with the style and form of the existing building but should employ simpler contemporary features to not create a false historical narrative.
    d. The design and construction should avoid impacting historic materials and character-defining features.
3. Unscreened front porches should not be screened unless it is demonstrated that the addition of the screening will not have an adverse impact on the character of the building.
    a. Screens must be set within the interior of the porch and any framing should be aligned behind the porch columns and railing to limit the physical impact to historic porch elements and visual impact of the screening.
4. Porches on secondary elevations of historic buildings may be enclosed in adherence with the following criteria:
    a. The enclosing wall and materials are set back from the structural members of the historic porch to ensure that all porch details remain visible.
    b. The enclosure wall should retain a high degree of transparency to maintain the character of the historic porch.
    c. The materials used should be compatible and consistent with the materials used on the historic building.
5. When reconstructing a missing historic porch, pictorial evidence should be used.
    a. Absent historical photographs, design elements should be employed that are contemporary yet compatible to the historic resource that is served by the porch.
6. On modern additions, porches can be added, deleted, or altered in other ways when the following criteria is applied:
    a. The changes reflect the architectural style and form of the addition.
    b. The changes do not detract from the addition's compatibility with the historic building and context as a modern addition to a historic resource.





Small amounts of trim work and ornament define the character of otherwise simple buildings.

EXTERIOR WOOD TRIM AND DECORATIVE ORNAMENT

Although comprising smaller building elements, trim work and ornamentation play an outsized role in defining building character and reinforcing architectural style. How trim is used, and the dimensions of trim are important design characteristics. A house with no corner boards or wide rake boards conveys a very different appearance than houses with corner boards or narrow rake boards. The level of ornamentation, in combination with the type and placement of ornamentation, not only serves to help identify age and style but these features are also a record of the quality of craftsmanship available at the time these resources were constructed. The preservation of ornamentation such as brackets or spindlework is particularly vital since these types of features are not easily reproduced.

In the HDO, most historic buildings have simple designs and decorative adornment is limited, which increases the architectural importance of the few instances in which ornamentation is employed. Decorative rafter tails, gable spindlework, heavy fascia and rake boards, and decorative cornices are examples of the trim and ornamentation found in the HDO.

For more information on the appropriate treatment for historic trim and decorative ornamentation, reference the applicable sections of the following Preservation Briefs: Preservation Brief No. 9, The Repair of Historic Wooden Windows, Preservation Brief No. 10, Exterior Paint Problems on Historic Woodwork, Preservation Brief No. 11, Rehabilitating Historic Storefronts, and Preservation Brief No. 45, Preserving Historic Wood Porches.

Recommendations:

MAINTENANCE AND REPAIR



Example of Dutchman patch to repair ornamental porch rafter tails. Image from NPS Preservation Brief 45, Preserving Historic Wood Porches.

1. Maintain existing historic trim and ornamentation.
   - **a.** Routinely inspect for signs of damage or deterioration.
   - **b.** When necessary, clean exterior wood trim and decorative ornament using the gentlest means possible; avoid power washing. If required, use a light warm water wash (no more than 300 psi).
   - **c.** Re-paint as necessary. Bare wood should not be exposed and should be covered as soon as possible. Built-up and loose paint should be removed by mechanical means (scraping) and an appropriate primer should be used prior to repainting.
2. Repair rather than replace historic trim and ornamentation when possible.
   - **a.** Use an epoxy wood filler to repair areas of minor, non-structural damage. Use a Dutchman patch if a larger area requires repair.
   - **b.** Remove only the portion of the trim or ornamentation that is damaged or deteriorated and replace with a matching piece that can be seamlessly installed as a substitute for the removed portion and painted over to hide the joint line between the old and new portions.

c. Select moisture resistant replacement wood to prevent premature deterioration, such as Accoya, cedar, cypress, or mahogany. Avoid using modern fast growth wood, particularly softwoods, such as pine.

3. Limit replacement to the individual pieces that cannot be salvaged. A single rotted trim board or bracket does not necessitate the wholesale replacement of all trim boards or brackets.

a. When repairing and restoring trim and ornamentation, contact town staff to discuss whether replacements meet in-kind standards.

b. Replacement of large sections of trim and decoration, even when meeting in-kind standards require a COA.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. For historic buildings, trim and ornamentation should be replaced in-kind if the historic material remains available.

a. To achieve replacement-in-kind, the new material should match the historic trim and ornamentation in material, composition, shape, size, dimension, profile, location, means of installation, finish, and other visual qualities.

b. Select moisture resistant replacement wood to prevent premature deterioration, such as Accoya, cedar, cypress, or mahogany. Avoid using modern fast growth wood, particularly softwoods, such as pine.

2. If replacement-in-kind is not possible, the following criteria for historic trim and ornamentation replacement applies:

a. Replacement material must match the existing or documented historic trim and ornamentation in general composition, shape, size, profile, and finish.

b. Avoid wrapping trim or ornamentation with another material.

c. For modern additions (post 1940), replacement trim and ornamentation should offer the same general appearance as the existing trim and ornamentation.

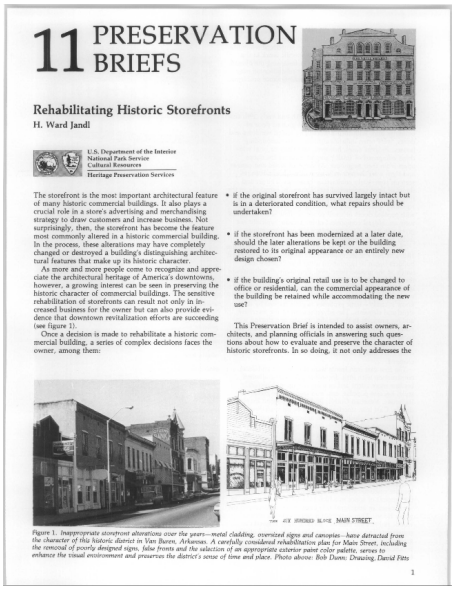
DESIGN CHANGES

1. Maintain historic trim and ornamentation as existing, or alter based on known historic conditions. Trim and ornamentation should not be added or deleted.

2. On modern additions, trim and ornamentation can be added, deleted, or altered in other ways when the following criteria is met:

a. The changes reflect the architectural style and form of the addition.

b. The changes reinforce the addition's compatibility with the historic building and context as a modern addition to a historic resource.


11 PRESERVATION BRIEFS

Rehabilitating Historic Storefronts

H. Ward Jandl

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National Park Service
Cultural Resources
Heritage Preservation Services

The storefront is the most important architectural feature of many historic commercial buildings. It also plays a crucial role in a store's advertising and merchandising strategy to draw customers and increase business. Not surprisingly, then, the storefront has become the feature most commonly altered in a historic commercial building. In the process, these alterations may have completely changed or destroyed a building's distinguishing architectural features that make up its historic character.

As more and more people come to recognize and appreciate the architectural heritage of America's downtowns, however, a growing interest can be seen in preserving the historic character of commercial buildings. The sensitive rehabilitation of storefronts can result not only in increased business for the owner but can also provide evidence that downtown revitalization efforts are succeeding (see figure 1).

Once a decision is made to rehabilitate a historic commercial building, a series of complex decisions faces the owner, among them:

- if the original storefront has survived largely intact but is in a deteriorated condition, what repairs should be undertaken?
- if the storefront has been modernized at a later date, should the later alterations be kept or the building restored to its original appearance or an entirely new design chosen?
- if the building's original retail use is to be changed to office or residential, can the commercial appearance of the building be retained while accommodating the new use?

This Preservation Brief is intended to assist owners, architects, and planning officials in answering such questions about how to evaluate and preserve the character of historic storefronts. In so doing, it not only addresses the

Figure 1. Inappropriate storefront alterations over the years—metal cladding, oversized signs and canopies—have detracted from the character of this historic district in Van Buren, Arkansas. A carefully considered rehabilitation plan for Main Street, including the removal of poorly designed signs, false fronts and the selection of an appropriate exterior paint color palette, serves to enhance the visual environment and preserves the district's sense of time and place. Photo above: Bob Dunn; Drawing: David Fitts

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The National Park Service's Preservation Brief #11, "Rehabilitating Historic Storefronts" - Click the image to download the PDF

Storefronts

For historic commercial buildings, storefronts are often the most character defining feature of the front façade. Historic storefronts feature windows, transoms, entry doors, supporting columns, piers, or pilasters, panels, cornices, and typically various decorative elements. Materials often include wood, masonry, metal, and clear glass, though tile can also be present. With substantial transparency storefronts are visually distinct from the other parts of a building and provide variation in wall planes when recessed doorways and protruding display windows are present. Awnings and canopies are also common features of storefronts as a climate control solution and ways to increase the presence of the storefront. Information on awnings and canopies can be found on page 71. The design and details of a storefront provide important information about the style and era of the building. Historically, storefronts have served an important business utility for the display of goods and services. It is vital to the integrity of the district for historic storefronts be preserved to allow retention of this function even when building uses change.

In the HDO, unfortunately, many of Herndon's original commercial buildings were lost in a downtown fire in 1917. This makes the surviving historic commercial buildings particularly important resources. Given their high visibility, storefronts and associated features such as awnings play an out-sized role in the character of the historic district's commercial buildings. The district contains both traditional commercial storefronts with decorative ornamentation and simplified storefronts, void of decorative details. There are also commercial buildings that were historically residential or industrial; since these resources were not originally intended for commercial use, they may not have storefronts

For more information on the appropriate treatment for historic storefronts, reference Preservation Brief No. 11, Rehabilitating Historic Storefronts.

Recommendations:

MAINTENANCE AND REPAIR

1. Maintain historic storefronts and associated components and materials.
   - **a.** Routinely inspect for signs of damage or deterioration.
   - **b.** When necessary, clean using the gentlest means possible; avoid power washing. If required, use a light warm water wash (no more than 300 psi).
   - **c.** Remove old caulk and re-caulk as necessary to ensure weatherproofing. Keep existing flashing secure and weathertight.
   - **d.** Re-paint or re-stain as necessary. Exposed previously painted surfaces should be covered as soon as possible. Surface preparation is important. Built-up and loose paint should be removed and a primer should always be used.
   - **e.** Refer to the Trim And Decorative Ornament section on page 66 and the Windows And Doors section on page 56 for additional maintenance recommendations.

f. If the storefront includes masonry components, refer to the Foundations And Chimneys section on page 48 for additional maintenance recommendations.

2. Repair and restore historic storefronts and all associated materials and features when possible; avoid wholesale replacement of historic storefront systems.
   - **a.** For wood components, use an epoxy wood filler to repair areas of minor, non-structural damage. Use a Dutchman patch if a larger area requires repair.
   - **b.** Remove only the portion of the storefront that is damaged or deteriorated and replace with a matching piece that can be seamlessly installed as a replica substitute.
   - **c.** For damaged glass, replace only the damaged panes and match the glazing of the remaining panes as closely as possible.
   - **d.** Refer to the Trim And Decorative Ornament section on page 66 and the Windows And Doors section on page 56 for additional maintenance recommendations.
   - **e.** If the storefront includes masonry components, refer to the Foundations And Chimneys section on page 48 for additional maintenance recommendations.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

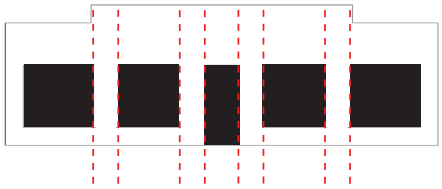
1. For historic buildings, if storefront materials or components must be replaced, they should be replaced in-kind.
   - **a.** To achieve replacement-in-kind, the new materials should match the historic storefront in material, composition, shape, size, profile, location, style and detailing, fenestration, and other visual qualities.
   - **b.** Replacement ornamentation should match the historic ornamentation in material, composition, shape, size, use, placement, finish, as other visual qualities.
2. If in-kind replacement is not possible, the following criteria for historic storefront material replacement applies:
   - **a.** Replacement materials should match the historic materials in composition and arrangement, shape, size, profile, location, style and general detailing, texture, level of transparency, finish, and other visual qualities.
   - **b.** Select moisture resistant replacement wood to prevent premature deterioration, such as Accoya, cedar, cypress, or mahogany. Avoid using modern fast growth wood, particularly softwoods, such as pine.





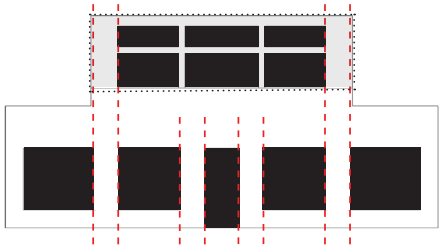
Historic commercial storefronts in Herndon.

Traditional Commercial Openings



Existing openings have various sizes but the spacing between is consistent. Indicating the placement of traditional warehouse columns.

Commercial Addition Openings



Openings in second story addition are spaced within the boundaries of the structure below. The spacing between the additional openings is narrower, as modern materials require less space for support.

c. Modern materials that can be painted and share the same dimensions, profiles, means of installation, and finish as wood may be appropriate if the design characteristics and visual qualities match to the historic materials they are replacing. If an alternative material is proposed refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.

d. New glass must be clear without any reflective qualities that limit visibility into the interior space. Avoid any tinting or glazing meant to reflect light. Awning or canopies can instead be used to manage light into the storefront. See the section on Awnings and Canopies on page 71.

3. The replacement of entire storefronts should only occur if it cannot be salvaged.

a. If the historic storefront is in place but cannot be salvaged it should be replicated.

b. If the historic storefront has been replaced with a modern storefront and requires replacement again, it should be replicated if historic images of the historic storefront are available.

c. If the historic storefront has been replaced with a modern storefront and requires replacement again, it should be designed to be “contemporary compatible” if the historic design is unknown.

d. In some cases, original storefront replacements, or second-generation storefronts, are historically significant in their own right if they were installed during the period of significance and should be retained and restored.

4. For modern additions (post 1940), replacement storefront materials should offer the same general appearance as the existing storefront materials.

STOREFRONT DESIGN CHANGES

1. For historic buildings, maintain storefronts as existing. Historic storefronts should only be altered, including addition or deletion, based upon documented historic conditions. In some cases, a later iteration of a storefront design will have significance in its own right and should be preserved; in the HDO, these examples will be second generation storefront installed after construction, but before 1940 in order to fall within the period of significance of the district.

2. If structurally unsound and unsalvageable, storefronts should be replaced per the above replacement guidelines and individual character-defining components should be replicated on replacement storefronts.

3. Storefronts should not be added to historic buildings that did not historically have storefronts, especially if storefront are incompatible with the historic building type and use, such as residential buildings that have been converted to commercial use.

4. Storefronts should not be altered in a manner that creates a false historic narrative.

5. On modern additions, storefronts may be added, deleted, or altered when the following criteria is applied:
    a. The changes reflect the architectural style and form of the addition.
    b. The changes do not detract from the addition's compatibility with the historic building and context as a modern addition to a historic resource.

Awnings and Canopies

Awnings and canopies were used historically as an element of climate control before modern mechanical methods were available and to reduce glare. Typically seen on commercial buildings, these features are highly visible and were often used in conjunction with signage to differentiate between buildings at the pedestrian level. Awnings have also been used on residential properties, particularly on south facing facades.

For more guidance on awnings and canopies on historic buildings, reference Preservation Brief No. 44, The Use of Awnings on Historic Buildings: Repair, Replacement, and New Design.

Process Note: *Guidelines for awning and canopy signs can be found in the Herndon Downtown Pattern Book. Sign regulations are found in the Herndon Zoning Ordinance.*



The National Park Service's Preservation Brief #44, "The Use of Awnings on Historic Buildings: Repair, Replacement, and New Design" - Click the image to download the PDF

Recommendations:

MAINTENANCE AND REPAIR

1. Routinely inspect historic awnings and canopies for signs of damage or deterioration.
    a. Pay special attention to operable components of awnings or canopies, such as pivot points, gears, and frames.
    b. Regularly clean fabric coverings and operable components to extend their lifespan.
2. Repair any damage or deterioration found on awning or canopy frames and covers as it is discovered to reduce the need for wholesale replacement of these features.
    a. When replacing the fabric, replace in-kind. Contact staff to determine appropriate material replacement for in-kind options.
    b. Visible components and decorative features should match the historic.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. Historic character-defining awnings or canopies should not be removed unless being replaced. Damaged or deteriorated components should be replaced in kind.



Retractable awning over commercial building.



Fixed awning over commercial building entry with exterior lights for illumination.

a. To achieve replacement-in-kind, the new material should match the existing or historic material in size, shape, placement, and material.

b. Awnings and canopies should be of weather resistant fabric or metal. Do not use vinyl or other plastic material.

DESIGN CHANGES

1. Missing historic awnings and canopies can be reinstalled.

a. If available, use historic documentation to determine the design of the historic awning or canopy.

b. If no historic photographs are available for reference, but there is evidence canopies or awning previously existed on a building, the design should be in keeping with the character of the building and the surrounding district.

2. New awnings or canopies may be introduced onto a historic building.

a. The design should be contemporary yet compatible.

b. Care should be taken to ensure the installation of an awning or canopy does not alter the historic character of the building, or damage or obscure historic materials or features.

c. The shape, scale, massing, material, and color of the new awning or canopy should be considered to ensure compatibility with the building and the surrounding district.

d. The placement of the new awning or canopy should align with the size, scale and style of the storefront and associated doorways and fenestration.

3. Modern awnings that do not reflect the style and age of the historic building may be removed.

AWNING AND CANOPY FEATURES

1. Awnings and canopies on an historic building should be not be internally illuminated.

a. Lighting for awnings and canopies should be provided by an exterior light source using appropriate concealment of conduits and other electrical hardware.

b. New contemporary yet compatible lighting can be introduced on the façade of a historic building provided it is installed in a sensitive manner that does not damage historic materials.

c. The light source should be shielded to avoid pinpoint glare.

New Additions

The most important considerations when planning an addition to an historic building are compatibility, differentiation, and reversibility. New additions should be compatible — consistent, harmonious — to the historic building, but should also be differentiated — differences between historic and new should be discernible — so that it is clear they are not original. New additions should also be constructed so that in the future, if they are removed, the form and integrity of the historic building remains; towards this end the addition should be designed to minimize the removal of existing exterior walls and roof.

These guidelines are provided for applicants and design professionals as a guide to help direct the design of their proposed addition to a contributing resource, and town staff and the HDRB to use as the basis for the review of COAs.

Process Note: *When planning a new addition to a contributing building, owners and designers should contact staff during the earliest stages of conceptualization to ensure that the addition reflects the guidelines and meets zoning requirements. The HDO Procedure Guide provides additional information regarding the application process and required materials.*

Guidelines For New Additions

1. Proposed additions that remove more than 49% of the exterior walls and/or roof require new construction and demolition COAs. The Zoning Administrator will determine whether or not new construction and demolition COAs are required.
2. New additions should be designed to preserve significant historic materials, features, and form.
    a. The design of a new addition should minimize the requirement for historic material loss at the connection point to the historic building.
    b. To retain historic exterior materials on the interior of the new addition, new additions should utilize historic openings to access the new addition rather than cutting new openings or construct a small hyphen to connect the historic building to the new addition.
3. New additions should be subordinate to the historic building.
    a. The new addition should be sized as secondary to the primary historic resource.
    b. New additions should not overpower the form or change the scale of the historic building.
    c. The placement, orientation, massing, and scale of the new addition should be designed in such a manner that it does not impact the integrity of the historic building.
    d. New additions should not be visible or should be minimally visible from the public right-of-way.



One case of an appropriate second story residential addition is an addition over top of an existing first story wing.

e. Second story additions on historic buildings are generally not appropriate unless the addition is designed in such a way that it does not impact the massing, scale, and character of the historic building.

4. New additions should be compatible with, but differentiated from, the historic building.

a. The openings of the new addition should mimic the rhythm of the historic building but differentiate them in design and configuration. The arrangement of the proposed windows and doors should reflect that of the existing building.

b. A physical break (if using a hyphen connection) or a small setback between the historic building and the new addition should be provided to create visual distinction between the historic and modern portion of the building.

c. Materials should be compatible, but differentiated from those found on the historic building.

d. Alternative materials can be appropriate for new additions as a means of differentiating the addition from the historic building, Refer to Chapter 6, Use of Alternative Materials, for information on selecting an appropriate alternative material.

5. The style of the proposed windows and doors should be compatible with the contributing building's existing windows and doors, but should not attempt to replicate them.

a. Glass should be clear in all cases other than for decorative accent windows.

b. For windows consisting of multiple panes of glass, simulated divided lites should have dimensional muntins or grills on the exterior of the glass.

6. New chimneys should be clad in masonry.

a. Weatherboard siding is not appropriate for chimneys.

b. Fireplace vents should not be located on front facades

c. Metal flues should only be exposed above the eaves of the roof.

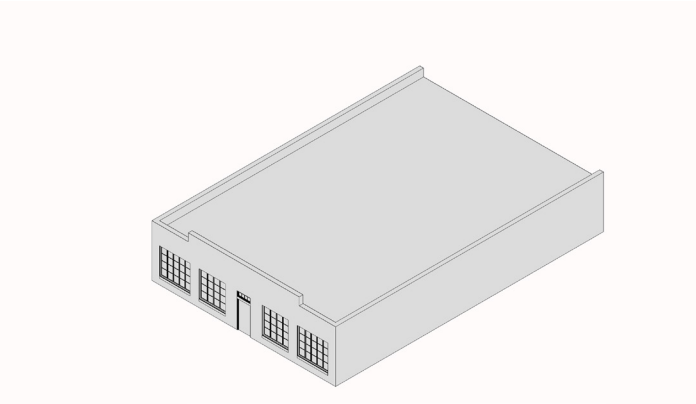
7. New roof connections should be below the peak of the existing roof.

a. Proposed dormers should be sized to reflect the scale and architectural style of the addition and not detract from the contributing building.

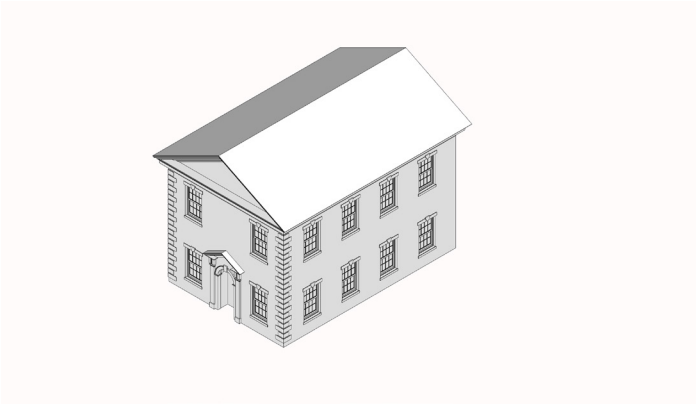
8. Place new additions to avoid damage or elimination of historic site features.

a. If historic site features exist on the property, ensure the placement of new addition does not negatively impact or eliminate these features.

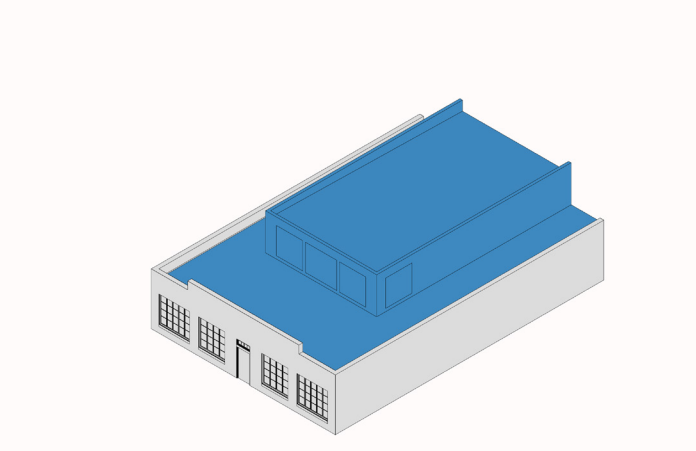
Massing of Additions to Commercial Buildings



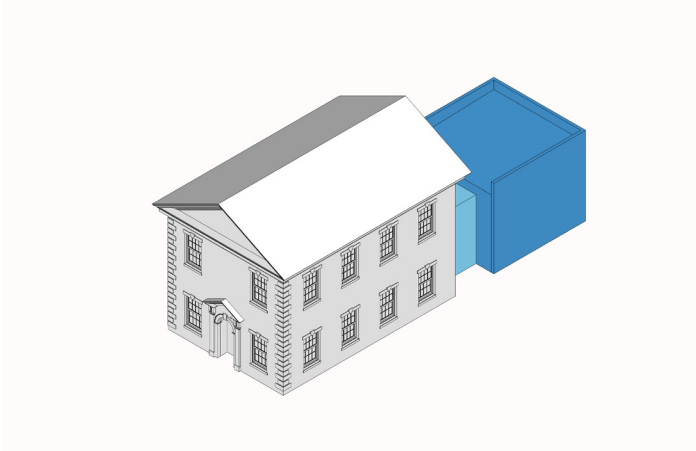
Commercial 1-story flat roof



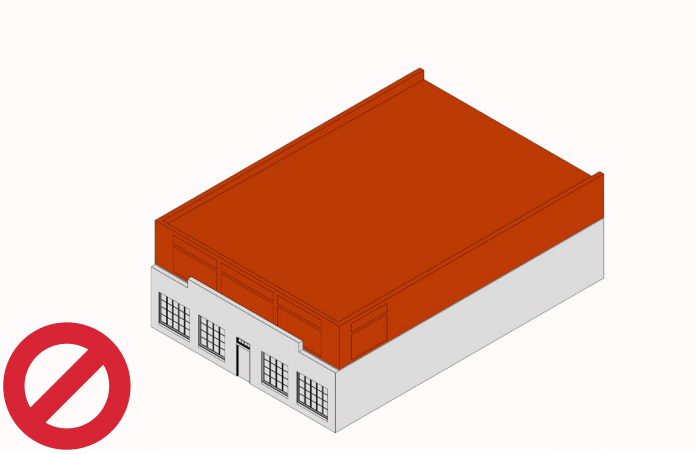
Commercial 2-story



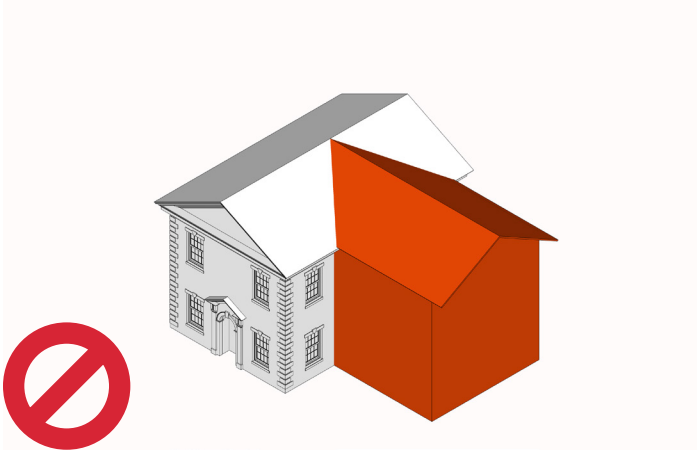
Commercial 1-story flat roof - appropriate addition set back from front facade



Commercial 2-story- appropriate rear addition with hyphen

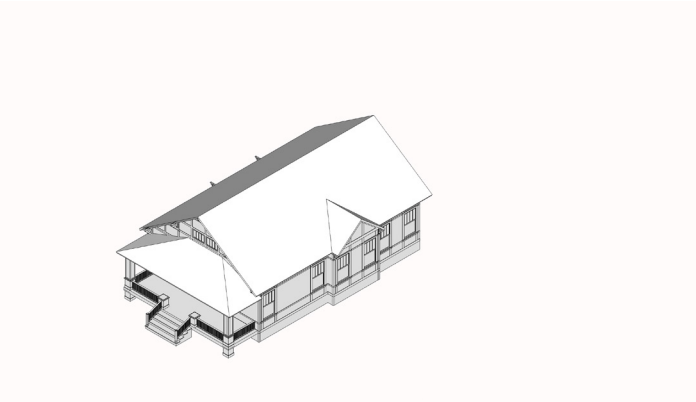


Commercial 1-story flat roof - inappropriate addition flush with front facade

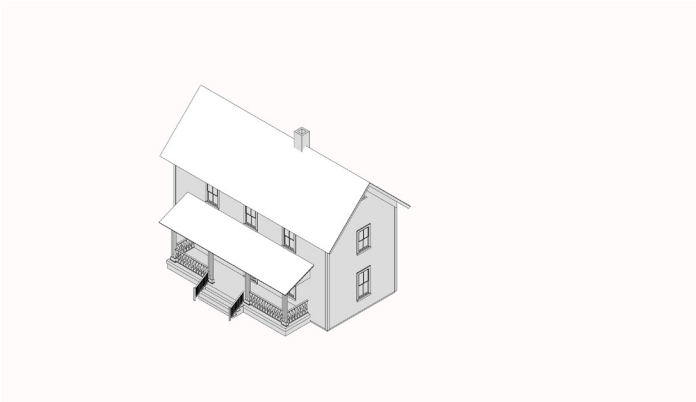


Commercial 2-story- inappropriate rear addition

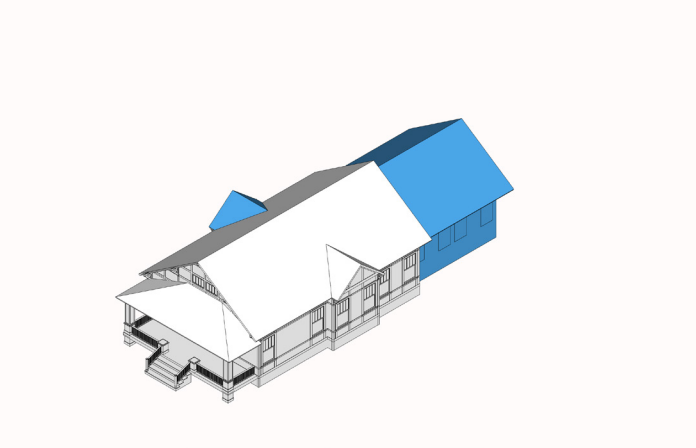
Massing of Additions to Residential Buildings



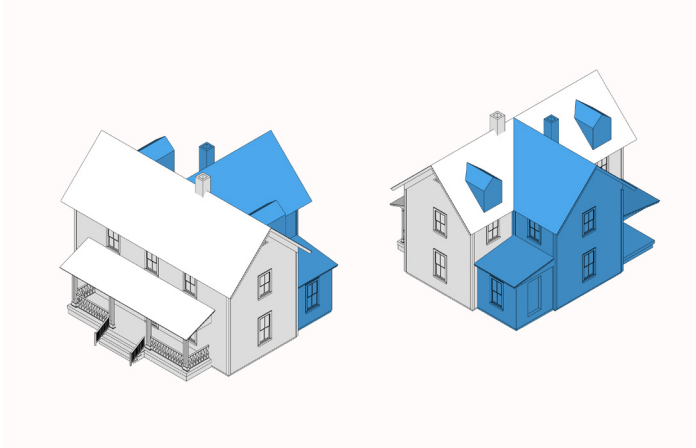
1-story residential



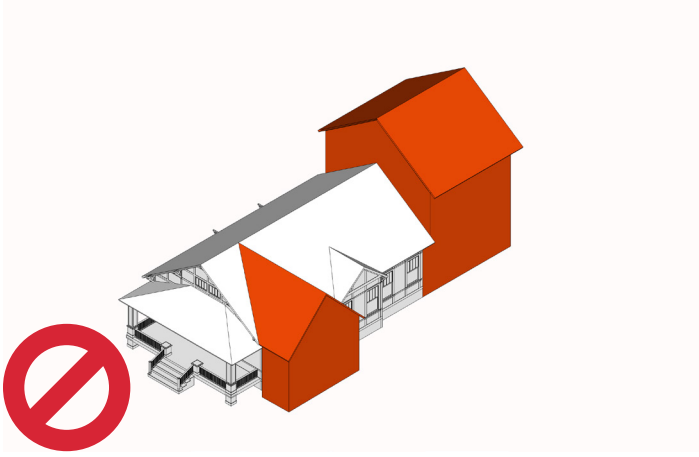
2-story residential



1-story residential - appropriate rear and dormer additions, inset from main structure



2-story residential - appropriate rear and dormer additions



1-story residential - inappropriate rear and dormer additions



2-story residential - inappropriate rear and dormer additions

Accessory Structures

Accessory structures typically found in Herndon include barns, sheds, and detached garages. This section provides guidance for the treatment of accessory structures located on property with a contributing building, including historic accessory structures (those constructed within the period of significance) and modern accessory structures (those constructed outside of the period of significance). In addition, these guidelines and recommendations are for historic accessory structures located on sites that do not have a contributing primary building.

Historic Accessory Structures

Historic accessory structures were constructed within the period of significance; these can be contributing or noncontributing to the district depending on remaining historic integrity, as defined in Chapter 2. These are often associated with a primary historic resource, particularly houses, but some are located on property with a noncontributing primary building.

The preservation of historic accessory structures is important to maintaining the integrity of the HDO as they are the visual vestiges of Herndon's origin as a rural community. The following information and guidelines are for historic accessory structures and for modern accessory structures on parcels with a contributing resource.

New construction of accessory structures, whether associated with a contributing structure or not, can be found in Chapter 8, New Construction.





Historic accessory structures in Herndon

Recommendations:

MAINTENANCE AND REPAIR

1. Historic accessory structures should be retained and preserved.
   - **a.** Retain historic accessory structures in their original locations in order to preserve the historic site.
   - **b.** Maintain the historic features, materials, and configuration of historic accessory structures.
2. Routinely inspect historic accessory structures for damage and deterioration.
   - **a.** Repair or replace damaged historic features and materials in kind.
   - **b.** Replacement of original material should be limited to the individual pieces that cannot be salvaged; wholesale replacement of historic building components should be avoided.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. If replacement of a historic material is necessary, it should be replaced-in-kind.
    a. To achieve replacement-in-kind, the new wall material should match the historic wall material in composition, shape, size, color, profile, pattern, texture, and other visual qualities.
2. If in kind replacement is not possible, the following criteria for material replacement applies:
    a. Replacement materials should match the physical characteristics of the original material in size, composition, and texture, as well as the visual characteristics of color, texture, finish and profile.
    b. Replacement materials should offer the same general appearance as the existing material.
    c. Material replacement should not have any impacts to the materials and design of other building features.
    d. If the feature cannot be replicated using traditional materials, refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.
3. If the material to be replaced is modern, it can be replaced in-kind or changed to a documented historic material.

DESIGN CHANGES

1. Modifications to historic accessory structures must be in keeping with its historic character as well as that of the primary contributing resource on the property if applicable.
    a. The trim and details should retain the appearance, style and materials of the original.
    b. Windows and doors should reflect the style, materials, size and framing of the existing windows and doors.
    c. Decorative details should reflect the design, materials and size and scale of existing details.
    d. The pitch of the roof should be maintained.
    e. Roof materials should match or complement existing roof materials.
    f. If the existing roof materials are of a modern era, earlier roof materials found on the primary building or similar historical accessory structures within the HDO may be appropriate.
2. Ensure alterations to historic accessory structures do not negatively impact the integrity and significance of the accessory structure or the rest of the historic property.
3. For demolition of an historic accessory structure, see Chapter 10, Guidelines for Relocation and Demolition.

Modern Accessory Structures

Modern accessory structures are accessory structures constructed outside of the period of significance. Those addressed in this section are associated with contributing primary buildings.



Modern commercial accessory structure



Modern residential accessory structure

Recommendations:

MAINTENANCE AND REPAIR

These recommendations are provided as a resource for property owners or individuals caring for modern accessory structure located on the same property as a contributing resource.

1. Inspect and maintain modern accessory structures.
   - **a.** Routinely inspect accessory structures for damage and deterioration.
   - **b.** Replace damaged existing features and materials on modern accessory structures in kind.

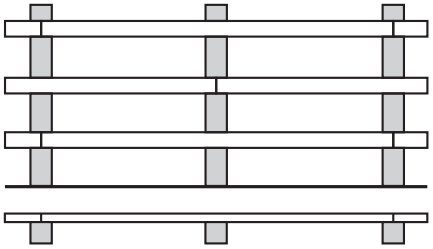
Guidelines For Replacement And Alterations

MATERIAL CHANGES

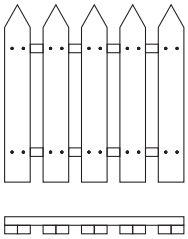
1. Materials on modern accessory structures should be replaced in-kind or changed to a material that is compatible with the structure, as well as the primary resource and the surrounding district.
   - **a.** Material replacement should not have any impacts to the materials and design of other building features.
   - **b.** If the feature cannot be replicated using traditional materials, refer to Chapter 6, Use of Alternative Materials for information on selecting an appropriate alternative material.

DESIGN CHANGES

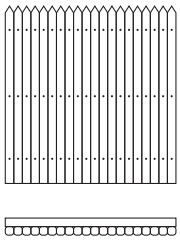
1. Alterations to modern accessory structures should not negatively impact the integrity and significance of the historic property/primary resource.
   - **a.** Forms should remain simple to reflect the purpose of the structure and not detract from the contributing resource.
   - **b.** The size should remain subordinate to the contributing resource.
2. Materials should reflect and complement the existing accessory structure and the historic primary resource.
   - **a.** Alternative materials can be appropriate for use on modern accessory structures as a means of differentiating the addition from the historic building, Refer to Chapter 6, Use of Alternative Materials, for information on selecting an appropriate alternative material.
3. Modifications to modern accessory structures should not create a false historical narrative.



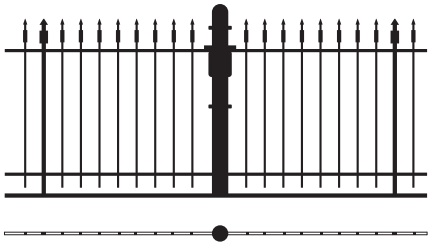
Post and Rail Fence



Picket Fence



Stockade Fence



Wrought Iron Fence

4. A modern accessory structure may be demolished if it is structurally unsound, deteriorated beyond repair, or no longer serving the property.
   a. Replacement of an existing modern accessory structure must follow the guidelines for New Accessory Structures on contributing properties, on page 77.

Site Features

Site refers to the property surrounding the building, including the building itself, landscape (trees, shrubs, lawns and planting beds) and hardscape (walkways and driveways) and secondary structures (arbors, walls, fences, and dumpster enclosures) that lend character to the historic property. Site features can be historic or modern, and, if placed properly, new site features may be appropriate.

In addition to following these guidelines, site features must also meet zoning regulations. Site features that are not visible from the public right-of-way are exempt from COA process and procedures except for dumpster enclosures. Additionally, landscaping changes are exempt from COA requirements, so they have not been addressed.

These recommendations are provided as a resource for property owners or individuals caring for a contributing property and represent preservation and rehabilitation best practices.

Process Note: There are several site features alterations that can be completed without the need for a COA. For more info refer to the HDO Procedure Guide *and the* HDO Pre-approved Changes Guide*.*

Recommendations:
MAINTENANCE AND REPAIR

HARDSCAPING

1. Retain historic paving materials.
2. Replace damaged hardscaping with materials that match the original.

FENCES, WALLS AND HEDGES

1. For fencing, wall, and hedge standards, refer to the Town of Herndon Zoning Ordinance.
2. Retain historic fences, walls, and old-growth privacy hedges.
3. Replace damaged or missing portions of historic fencing in kind, matching the historic material in height and detail.
4. A list of pre-approved fence types (residential only) may be administratively approved. See the HDO Pre-approved Changes Guide.

DECKS, PATIOS, AND OTHER SMALL SITE STRUCTURES

1. Retain historic patios, pergolas, gazebos, pergolas, and other small site structures.
2. Replace damaged or missing portions of these features in kind.
3. Modern decks, patios, and other small site structures may be removed without a COA; contact staff to confirm the structures are not historically significance to the site.

Guidelines For Site Features

HARDSCAPING

Hardscape that is less than a foot tall when measured from original grade is exempt from the COA process, but there are zoning regulations that govern the amount and location of hardscape. For more information regarding these regulations contact staff. The following guidance is to be followed if the hardscape exceeds 12" in height.

1. Do not demolish historic resources or site features to accommodate additional parking.
2. Do not install new parking at the front of an historic building, unless this is reflective of the historic condition; typically, driveways and drive aisles should be situated on one side of a building and provide access to rear parking lots.
3. When installing new hardscaping, the following materials are appropriate: ribbon paving, gravel or pebble, brick, stone pavers, and concrete (preferably scored or exposed aggregate). When installing or altering a driveway or parking area, check with the staff to determine if the Zoning Ordinance permits the proposed paving material.
4. Where parking is located adjacent to sidewalks and streets, provide landscaping as a visual buffer between parking areas and sidewalks to maintain the character of the historic streetscape.

FENCES, HEDGES, AND WALLS

A COA is required for fences, walls, and retaining walls that are over a foot in height when measured from original grade. Pre-approved fencing options are available. Check the Pre-Approved COA List of items and contact staff for administrative approval. The Zoning Ordinance governs the maximum height and location of these features.

1. Fences 12 inches and higher, inclusive of raised grade, should be of wood or wrought iron. Plastic and vinyl fences are not appropriate.
    a. Alternative materials that replicate painted wood or metal may be appropriate. Refer to Chapter 6, Use of Alternative Materials, for information on selecting an appropriate alternative material.



Painted wood picket fence

2. Walls (freestanding and connected to patios and other features) and retaining walls should be constructed of or clad in clay brick or natural stone.
   a. Concrete block is not appropriate.
   b. When railings are required on top of a retaining wall, the railing should be wrought iron or wood.
   c. Alternative materials that replicate brick or natural stone may be appropriate. Refer to Chapter 6, Use of Alternative Materials, for information on selecting an appropriate alternative material.

DECKS, PATIOS, AND OTHER INSTALLED SITE STRUCTURES

1. Decks, patios, and other installed site structures associated with contributing resources should not be visible from the public right-of-way. If visible from the public right-of-way, they should meet the following guidelines.
2. Decks attached to contributing resources should attach to the exterior wall material with the least possible material loss and damage.
   a. Historic exterior materials should not be removed to accommodate the addition of a new deck.
3. Any necessary hardware should be compatible with the exterior material of the contributing resource and not rust or cause other damage.
   a. Any piercing of historic exterior material should be limited and sealed to avoid moisture damage.
4. Wood should be moisture resistant to prevent premature deterioration. Softwoods, unless treated, should be avoided.
5. Alternative materials can be appropriate for new site features. Refer to Chapter 6, Use of Alternative Materials, for information on selecting an appropriate alternative material.
   a. Masonry veneers, composite floorboards, and modern materials that can be painted and share the same dimensions, profiles, means of installation, and finish as wood may be appropriate if the design characteristics and visual qualities match to the historic materials they are replacing.

UTILITY AND MECHANICAL SITE FEATURES

This category includes site features such as fuel tanks, gas and electrical meters, satellite dishes/antennae, exterior mechanical units and associated screening, and dumpster or trash can enclosures. Pre-approved fencing options may be appropriate for screening these features. Check the Pre-Approved COA List of items and contact staff for administrative approval. Dumpster enclosures associated with commercial properties require a site plan revision and are subject to COA process regardless of location.

1. All conduit, piping, cabling, junction boxes, and other appurtenances should be installed in a manner that is not visible from the public right-of-way.



Mechanical unit screened from the public right-of-way

2. Screens for utility and mechanical site features, visible from the public right-of-way, should be made of traditional materials of wood, brick, metal or stone to be compatible with the district.
    a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.
    b. Vinyl, concrete block and split-face block should not be used in the HDO.
3. Dumpster enclosures should be of masonry construction.
    a. Exterior walls should closely match the primary exterior wall finish of the noncontributing building or brick in a complimentary color.
    b. Gates should be of heavy-duty metal.
    c. When possible, gates should not be visible from the public right-of-way.
    d. The walls of the enclosure should include a cap.

6 ALTERNATIVE MATERIALS IN THE HISTORIC DISTRICT OVERLAY

Use of Alternative Materials in the HDO

Alternative materials may be used on structures within the HDO under certain circumstances. Each resource within the HDO is different. Each has its own story, which is built upon its location, materials, age, architectural style and previous alterations. These differences play a role in determining the appropriateness of alternative materials. Evaluations of the use of alternative materials on resources within the HDO will be on a case-by-case basis. The reasons for approval or denial will be based on the individual situation of each application, including, but not limited to, the current condition of the existing material, type of alternative material proposed, and location and visibility of proposed alternative material; therefore, no approval or denial of a specific product sets precedent. Considerations for property owners who are selecting alternative materials for use on their building are provided at the end of this chapter.

Alternative materials proposed for use on contributing resources and historic accessory structures in the district will be evaluated through the following COA procedures for Contributing Resources and Historic Accessory Structures For these structures, what is being removed and replaced is as important as the material being proposed. The first step in the process is to determine if the existing historic material can be repaired or if replacement is necessary. Retaining historic materials is always the best practice, and staff is available to help determine if the historic material is salvageable, if it should be replaced in-kind, or if of the use of an alternative material is appropriate. If the property owner and staff determine that the historic material cannot be retained or replaced in kind, the following guidelines should be utilized to evaluate the specific alternative material being proposed for its replacement. Additional information regarding this step in the process can be found in the Procedures Guide.

In general, alternative materials are appropriate for use on noncontributing resources, but there remain factors that should be considered prior to selecting a material: Is the alternative material as durable as the material being replaced? And will the alternative material alter the appearance of the structure resulting in an impact to the character of the district? While the use of alternative materials on noncontributing resources requires a COA, the focus of the evaluation is on ensuring the use of

the new material does not detract from adjacent contributing resources and the overall district.

Note on Sustainability: While sustainability will not be a factor in decisions by staff and the HDRB, please note that historic buildings are inherently sustainable; their reuse retains the embodied energy in the existing building stock and the materials used in their construction are of higher quality than their modern counterparts. It is important to consider the environmental consequences of replacement materials: not only does the historic material end up in a landfill, thus losing the embodied energy, but many new materials require significant energy and resources to manufacture, transport, and install, and often have a shorter lifespan than their historic counterparts, thus entering into a shorter replacement cycle.

Use of Alternative Materials on Contributing Buildings and Historic Accessory Structures

Process Note: The following factors should be used by property owners, or their representative, as well as staff to determine the most appropriate steps forward when considering replacement of historic material. This decision is the first step in the COA process. A flow chart depicting the steps to take when considering replacement of historic material is available in the HDO Procedure Guide*.*

DETERMINING WHETHER HISTORIC MATERIAL SHOULD BE REPLACED

Is the historic material salvageable?

When historic materials are replaced, the integrity of the property is diminished; over time, if enough historic properties lose their historic materials, the integrity of the overall district is threatened. The HDO Procedure Guide explains what information the staff needs from the applicant to evaluate the materials proposed for replacement. Contact staff with any questions regarding the information in the Procedure Guide.

Guidelines: Determining The Appropriateness Of Alternative Materials For A Contributing Structure And Historic Accessory Structure

Process Note: The following guidelines form the basis for the staff or HDRB's approval of a COA. This decision is the second step in the COA process. Property owners, or their representatives, should employ these guidelines when selecting an alternative material for a COA application. Since new materials come onto the market every day, it is the applicant's responsibility to demonstrate that the new proposed material is appropriate for use on an historic building.

1. Do not replace historic character-defining* materials with alternative materials unless the following circumstances are present:
    - **a.** The historic material is no longer readily available.
    - **b.** Skilled craftsman capable of working with or installing the historic material are no longer available.
    - **c.** The historic material is inherently flawed.
    - **d.** Code-required alterations are required that result in the removal of historic materials.

*Note: Property owners should contact staff to determine if the proposed changes affect any **character-defining** historic features.

2. Utilize the following factors to evaluate alternative materials:
    a. Potential impact on historic integrity: The proposed alternative material should not impact the historic integrity of the resource or the overall district.
    b. Location: Alternative materials should not be discernible from the public right-of-way. The alternative materials on front and visible side elevations should appear the same as the original material.
    c. Appearance: In order to retain the historic appearance of a building, the new material should match the details and craftsmanship, as well as visual and physical qualities of the historic material (color, surface texture, surface reflectivity, finish, size/shape, profile).
    d. Durability and performance: The selected alternative material should be as durable as the historic material being replaced while remaining physically compatible with the remaining adjacent historic materials. The new material should have a demonstrated track record of performance over time to avoid entering a shorter cycle of replacement.

Use of Alternative Materials on Noncontributing Buildings and Non-Historic Accessory Structures

As stated in the introduction to this chapter, in general, alternative materials are appropriate for use on noncontributing resources, but there remain factors that need to be considered, such as durability and appearance. The questions surrounding the durability and appearance of the alternative material as regards impacts on the character of the property as well as the district, still need to be considered. While COA procedures are still followed for noncontributing resources, the focus is on the durability and the appearance of the alternative material.

Guidelines: Determining Whether A Particular Alternative Material Is Appropriate For A Noncontributing Structure And Non-Historic Accessory Structure

Process Note: *The following guidelines form the basis for the staff or HDRB's approval of a COA for alternative or new materials on noncontributing buildings. Property owners, or their representatives, should employ these guidelines when selecting an alternative material for a COA application. Since new materials come onto the market every day, it is the applicant's responsibility to demonstrate that the new proposed material is appropriate for use within the HDO.*

IS THE ALTERNATIVE MATERIAL APPROPRIATE?

The following factors form the basis for the guidelines employed by the staff or HDRB when determining whether and proposed alternative material is appropriate for use in a specific situation. Utilize the following factors to evaluate alternative materials:

a. Appearance: In order to retain the existing appearance of a building, the new material should match the details and craftsmanship, as well as visual and physical qualities of the historic material (color, surface texture, surface reflectivity, finish, size/shape, profile).

b. Durability and performance: The selected alternative material should be as durable as the historic material being replaced while remaining physically compatible with the historic material. The new material should have a demonstrated track record of performance over time to avoid entering a shorter cycle of replacement.

Considerations for Selecting Alternative Materials

The following Considerations for Alternative Materials should be used to evaluate alternative materials for both contributing and noncontributing buildings within the HDO. Since new materials come onto the market every day, it is the applicant's responsibility to demonstrate that the new proposed material is appropriate for use in the proposed application.

1. The new material should closely resemble the original material in key physical and visual characteristics.

- **a.** Establish the key visual and physical characteristics of the original material:
  - **i.** Size and shape
  - **ii.** Profile
  - **iii.** Composition/material
  - **iv.** Color and Finish (including surface reflectivity)
  - **v.** Texture
- **b.** Establish the key visual and physical characteristics of the proposed alternative material:
  - **i.** Size and shape
  - **ii.** Profile
  - **iii.** Composition/material
  - **iv.** Color and Finish (including surface reflectivity)
  - **v.** Texture

2. The new material should be structurally compatible with the remaining material.
    a. What is the chemical composition of the proposed alternative material?
    b. What is the thermal expansion and contraction coefficient of the proposed alternative material?
    c. Can the new material be anchored or installed in such a way that it does not damage the historic material?
    d. Is the new material stronger than the historic material? Will its installation increase the rate of deterioration of the historic material?
    e. Has the new system that incorporates the historic and alternative materials been designed so that material failures will occur within the new material rather than the historic material?
3. The new material should be as durable than the original.
    a. How long is the material estimated to last, assuming properly maintained?
    b. Does the long-term performance of the material match its estimated lifespan?
    c. How does the material perform in different climates?
    d. What other factors may impact the material's performance?

7 UNDERSTANDING HERNDON'S NONCONTRIBUTING RESOURCES

The following section outlines the types and styles of noncontributing resources found in the HPOD. These are a combination of buildings constructed within the period of significance that have lost integrity to the point that they are no longer considered historic and buildings that were constructed outside of the period of significance that are therefore considered modern. Since these buildings are located within the boundaries of the HPOD, they must still undergo design review to ensure any visible exterior changes do not negatively impact the overall character of the HPOD.

Residential Noncontributing Resources

Residential development outside of the period of significance includes primarily infill on empty or subdivided lots. Larger residential developments have also been inserted into vacant or reclaimed land within the district. Some noncontributing residential resources were constructed during the period of significance, but are noncontributing due to the loss of integrity over time.

Commercial Noncontributing Resources

Commercial development within the HPOD outside the period of significance primarily includes infill construction. Mid-century auto-centric strip developments were constructed on the edges of the commercial core just outside of the period of significance. A limited number of noncontributing commercial resources were constructed during the period of significance, but are not contributing to the district due to the loss of integrity over time.

Institutional and Civic Noncontributing Resources

Civic noncontributing resources within the boundaries of the HPOD include Herndon Municipal Center and Herndon Fire Station No. 4.

Architectural Styles

The following pages provide annotated examples of the most common noncontributing architectural styles found in Herndon's Heritage Preservation Overlay District. These are to be used as a general guide to help identify the most common features of each noncontributing style. For more information on these architectural styles, refer to the Virginia Department of Historic Resources' New Dominion Style Guide, which can be accessed on their website.

Common Residential Noncontributing Architectural Styles

1. Ranch
2. Split Foyer
3. Transitional
4. Neo-Eclectic (Victorian)
5. Neo-Eclectic (Colonial)
6. Neo-Eclectic (Craftsman)
7. Colonial Revival
8. Contemporary

Common Commercial And Institutional Noncontributing Architectural Styles

1. Postmodern
2. Commercial Vernacular
3. Colonial Revival

Other Noncontributing Architectural Styles Present

1. Split Level
2. Cape Cod
3. Commercial Contemporary
4. Minimal Traditional

8 TREATMENT OF NONCONTRIBUTING BUILDINGS

NONCONTRIBUTING RESOURCES

A noncontributing resource relates to and is part of the HDO, but does not contribute to the district's historic significance. A noncontributing resource:

- Was not constructed during the period of significance,
- Does not relate to the documented significance of the district,
- No longer retains its historic integrity (as outlined in the qualities listed above), due to significant alterations, additions, or other changes,
- And, does not independently meet the National Register criteria.

Noncontributing Resource Treatments

Noncontributing buildings and structures have relatively more relaxed design guidelines compared to contributing buildings because they were not built during the HDO's period of significance and, therefore, do not contain historic material. It remains important, however, to carefully consider the design of noncontributing resources to ensure that they do not adversely impact the integrity of the district, but rather, compliment the district through compatible design solutions.

Each building, whether contributing or noncontributing, is a product of a particular period of time. Herndon's HDO consists of buildings from the district's period of significance through to today. This continuum of architectural styles provides the HDO with a sense of authenticity and organic growth that is rare in the surrounding communities of Fairfax County and eastern Loudoun County. It plays an important role in establishing Herndon's image as a unique entity within Fairfax County. When making modifications to noncontributing structures care should be taken to not create a false historical narrative. Rather, use design features and enhancements from the architectural period and style of the noncontributing building or update it to a compatible but contemporary appearance.

Guidelines for Maintenance, Repair and Alterations to Noncontributing Resources

When the icon appears, it denotes guidelines that are for the property owner, Community Development staff and the HDO to apply during various stages of the COA process. These guidelines will be used by the property owner, builder or architect throughout the design process to ensure that the proposed modifications, alterations or additions conform to best preservation practices and meet these same guidelines which will be used by staff or the HDO when evaluating the project for COA approval. Community Development staff should always be contacted at the earliest stages of any project. The staff can provide guidance regarding interpretation of the guidelines and help the property owner or their design professional develop a design that meets the needs of the property owner while following the guidelines.

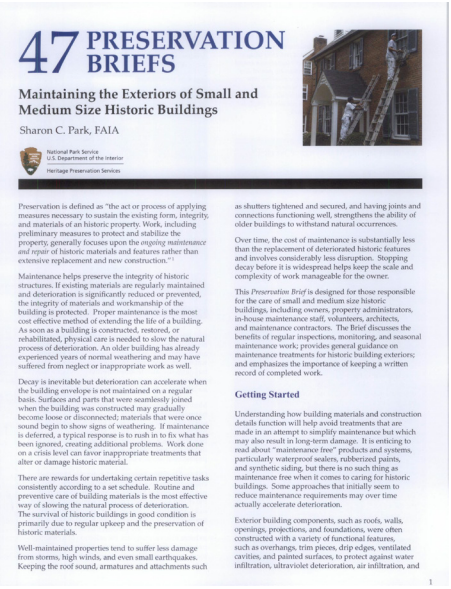
Process Note: *Many material replacements and design alterations require an approved COA. However, there may be exemptions and pre-approved replacements or alterations that can be completed without the need for a COA. For more info, refer to the HDO Procedure Guide and the HDO Pre-approved Changes Guide or contact staff.*

SOME WORDS ON MAINTENANCE

Regardless of the age of a building, maintenance is a constant and on-going process. Proper maintenance extends the natural life of building materials, and thus reduces financial outlay in the long run. A proper cyclical maintenance plan helps identify early signs that a building material is nearing the end of its lifespan, enabling the owner time to plan for replacement of materials and avoiding secondary damage to the building.

Property owners should utilize a maintenance checklist to track materials, features, and conditions, as well as to record any repair or renovation project; a sample checklist has been provided in Appendix 10. While noncontributing buildings are not historic, the National Park Service's Preservation Brief No. 47, Maintaining the Exterior of Small and Medium Size Historic Buildings provides excellent general information helpful to all HDO property owners. Brief No. 47 notes that most exterior elements of buildings and structures should, at a minimum, be inspected on an annual basis. To learn more about maintaining your building, check the maintenance recommendations in Chapter 5 on page 40. While Chapter 5 concerns contributing structures, the general maintenance information will help any owner wishing to maintain their structure in good order and forestall more significant repair costs.

Given the less stringent approached towards the treatment of noncontributing buildings, the guidelines within this Chapter focus on material replacement, design alterations, additions, and accessory structures, and site features to ensure changes to these resources do not negatively impact the historic character of the district.


47 PRESERVATION BRIEFS

Maintaining the Exteriors of Small and Medium Size Historic Buildings

Sharon C. Park, FAIA

National Park Service
U.S. Department of the Interior
Heritage Preservation Services

Preservation is defined as "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the *ongoing maintenance and repair* of historic materials and features rather than extensive replacement and new construction."[1]

Maintenance helps preserve the integrity of historic structures. If existing materials are regularly maintained and deterioration is significantly reduced or prevented, the integrity of materials and workmanship of the building is protected. Proper maintenance is the most cost effective method of extending the life of a building. As soon as a building is constructed, restored, or rehabilitated, physical care is needed to slow the natural process of deterioration. An older building has already experienced years of normal weathering and may have suffered from neglect or inappropriate work as well.

Decay is inevitable but deterioration can accelerate when the building envelope is not maintained on a regular basis. Surfaces and parts that were seamlessly joined when the building was constructed may gradually become loose or disconnected; materials that were once sound begin to show signs of weathering. If maintenance is deferred, a typical response is to rush in to fix what has been ignored, creating additional problems. Work done on a crisis level can favor inappropriate treatments that alter or damage historic material.

There are rewards for undertaking certain repetitive tasks consistently according to a set schedule. Routine and preventive care of building materials is the most effective way of slowing the natural process of deterioration. The survival of historic buildings in good condition is primarily due to regular upkeep and the preservation of historic materials.

Well-maintained properties tend to suffer less damage from storms, high winds, and even small earthquakes. Keeping the roof sound, armatures and attachments such as shutters tightened and secured, and having joints and connections functioning well, strengthens the ability of older buildings to withstand natural occurrences.

Over time, the cost of maintenance is substantially less than the replacement of deteriorated historic features and involves considerably less disruption. Stopping decay before it is widespread helps keep the scale and complexity of work manageable for the owner.

This *Preservation Brief* is designed for those responsible for the care of small and medium size historic buildings, including owners, property administrators, in-house maintenance staff, volunteers, architects, and maintenance contractors. The Brief discusses the benefits of regular inspections, monitoring, and seasonal maintenance work; provides general guidance on maintenance treatments for historic building exteriors; and emphasizes the importance of keeping a written record of completed work.

Getting Started

Understanding how building materials and construction details function will help avoid treatments that are made in an attempt to simplify maintenance but which may also result in long-term damage. It is enticing to read about "maintenance free" products and systems, particularly waterproof sealers, rubberized paints, and synthetic siding, but there is no such thing as maintenance free when it comes to caring for historic buildings. Some approaches that initially seem to reduce maintenance requirements may over time actually accelerate deterioration.

Exterior building components, such as roofs, walls, openings, projections, and foundations, were often constructed with a variety of functional features, such as overhangs, trim pieces, drip edges, ventilated cavities, and painted surfaces, to protect against water infiltration, ultraviolet deterioration, air infiltration, and

1

The National Park Service's Preservation Brief #47, "Maintaining the Exterior of Small and Medium Size Historic Buildings" — Click the image to download the PDF

SPECIFIC BUILDING ELEMENTS

The following chapter outlines the building elements and materials found on noncontributing buildings in the HDO, and provides guidelines for appropriate treatment of these features.

These guidelines are provided for applicants and design professionals to help direct the design of proposed modifications to noncontributing resources, and for town staff and the HDRB to use as the basis for the review of COAs. Always keep in mind that modifications and alternative materials should never be used to create a false historical narrative.

Roofs

Roofs are highly visible exterior features. Roof lines vary and roofs are clad in a variety of materials, each of which has its own visual character; materials range in shape, size, color, profile, pattern, and texture. Roofs on noncontributing resources in the HDO should not distract or detract from the overall character of the district.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. Roofs should be replaced in-kind or with an alternative material that is compatible with the district.
   a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.
   b. Colors should complement the color of the structure and reflect traditional roof colors found in the district for the particular type of material.
2. Replacement roofing materials should not impact the roof design, including elements such as pitch or roof components such as the eaves. If changes to the roof design are proposed, the Guidelines for Roof Design Changes apply.
3. Consideration should be given to existing roof accessories and whether they will be retained, replaced, or removed.

DESIGN CHANGES

Roof Form Guidelines

1. Changes to roof form should be compatible with the existing structure in style, size, scale and massing. Changes to roof form should not detract from the HDO due to excessive size, scale or mass.
2. For changes to the roof form to accommodate a proposed addition, the Guidelines for Additions to Noncontributing Buildings found on page 102 apply.
3. If the modification extends to replacement of more than 49% of the existing roof structure, then guidelines for new construction and demolition may apply.

Roof Features

DORMERS:

1. New or modified dormers should be compatible with the massing, scale, and materials of the structure.
   a. New dormers should not extend above established roof ridges, and should be scaled correctly for the building.
   b. The massing, scale, and materials of new dormers should not detract from the HDO.



Dormers on noncontributing building

c. If an alternative material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.

d. New dormers should reflect the symmetry or asymmetry of the structure.

GUTTERS AND DOWNSPOUTS:

1. Gutters and downspouts should be appropriate to the style of the structure.

2. Gutters and downspouts should be compatible with each other in design, material, composition, size, and color.

3. Vinyl gutters and downspouts should not be located on the façade or any elevation which is visible from the public right-of-way.

ROOF EAVES:

1. Alterations to roof eaves should be avoided, but the addition of eaves to provide some protection from the elements may be appropriate if the alteration reflects the scale and architectural style of the structure.

ROOF-MOUNTED EQUIPMENT:

1. Limit new features, penetrations and surface mounted utilities, such as HVAC units and satellite dishes, on roofs. When necessary, place roof-mounted equipment on portions of the roofs that have limited to no visibility from the public right-of-way.



Gutters and downspouts on noncontributing residence in Herndon

Exterior Walls, Foundations, and Chimneys

Like a roof, the exterior wall materials and finishes are part of the building's skin and protect it from the elements. The wall materials and finishes of a building are also critical to define the building's architectural style and convey the period of construction. The details and finishing of the exterior wall material can create surface texture that reinforces the building's style and impart visual interest. The exterior wall materials and finishes of a noncontributing building should be compatible with the architectural style of the building as well as materials found within the district.

For noncontributing buildings this section also includes guidelines for chimneys and foundations. Chimneys are common features on noncontributing buildings throughout the HDO. The shape of the chimney usually reflects the style of the building. Many noncontributing buildings built during the last decades of the 1900s and up to today have employed zero-clearance fireplaces. Although these manufactured fireplaces do not require a masonry chimney, within the HDO chimneys that are not masonry or clad with masonry are not appropriate. Venting of manufactured fireplaces should be accomplished without the use of a chimney unless the chimney is clad with brick or stone.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. Exterior wall materials should be replaced in-kind or with an alternative material that is compatible with the district. New materials should not detract from the overall appearance of the building or the HDO.
    a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.
2. For wall material changes that may impact windows, doors, chimneys, and other building features, refer to the other appropriate Guidelines within this chapter.
3. If wall material changes may impact more than just the surface material of the existing wall, such as changes in wall plane depth, the Guidelines for Exterior Wall Design Changes on the following page apply.
4. Chimneys and exposed foundations should be constructed of or clad in stone or brick.
    a. Alternative materials replicating stone or brick should be evaluated based upon the guidance for alternative materials found in the noncontributing section of Chapter 6.

DESIGN CHANGES

1. Changes to wall planes should not detract from the overall appearance of the building or the character of the HDO.
    a. Changes to wall planes should be compatible with the existing building in size, scale and mass of the building.
    b. Changes to exterior wall solid-to- void ratios and patterns should reflect the scale, mass, symmetry or asymmetry and architectural style of the building that maintains a cohesive appearance in keeping with the character of the district.
2. If the alteration represents the deletion, addition, or change in shape or size of a window or door, the Guidelines for Windows and Doors found on the next page apply.
3. When the alteration is to expand the footprint of the building or add floor area, the Guidelines for Additions to Noncontributing Resources on page 102 apply.
4. Chimneys should not detract from the overall appearance of the building or the HDO.
    a. The scale, mass and shape of a new chimney should be appropriate to the style of the building.
5. Flues for manufactured fireplaces should not detract from the HDO.
    a. Flues should be screened unless located on a rear elevation not visible from the public right-of-way.
    b. Flues for manufactured fireplaces should not extend up the exterior side of the building unless enclosed within a masonry clad chimney of a mass, scale and style appropriate to the building.
    c. Changes to the wall plane to accommodate the flue should not extend above the 1st story of the building should not be located on front elevations or side elevations facing the public right-of way, and should be clad in material matching the surrounding wall plane.
6. If the modification proposed to the exterior wall extends to replacement of more than 49% of the existing walls of the building, then guidelines for new construction and demolition may apply.

Windows and Doors

The size, type, function, and configuration of windows and doors are important aspects of a building's character. New windows and doors proposed for noncontributing buildings should be in keeping with the architectural style of the building and those in the HDO.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. Windows and doors should be replaced in-kind or with an alternative material that is compatible with the district. New materials should not detract from the overall appearance of the building or the HDO.
    a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.
2. Replacement windows and doors should complement the architectural style of the building.
3. Glass should be clear. Decorative elements or frosting may be employed when consistent with the architectural style of the building.
4. For replacement windows with multiple panes of glass, simulated divided lights with dimensional muntins or grills on the exterior of the glass should be used.

DESIGN CHANGES

1. New or modified windows and doors openings should be compatible with the building's scale, architectural style, façade composition, form, and existing patterns of fenestration.
2. New or modified windows and doors openings should not detract from the overall proportions of the building and should be compatible with the HDO.
3. Existing shutters should be replaced with matching shutters or an alternative shutter design that is appropriate to the architectural style of the building.
    a. In some instances, the removal of shutters may improve the architectural compatibility of the windows.

Porches and Exterior Woodwork

As with contributing buildings, noncontributing building character is often defined by the use and design of features such as porches, decks, and other exterior woodwork. The location, size, materials, and decorative detailing of these building features combine to create the overall appearance of a noncontributing building, and its ability to appropriately fit within the context of the HDO.

Many features included within this category are traditionally comprised of wood. For noncontributing buildings, some of the existing “woodwork” may not actually be made of wood. Other products that may appear on noncontributing buildings may include vinyl, aluminum, or PVC products; these materials may be original to the construction of the building, and should therefore be allowed to be replaced in-kind.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. Porch elements and other woodwork should be replaced in-kind or with an alternative material that is compatible with the district. New materials should not detract from the overall appearance of the building or the HDO.
    a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.
2. Replacement materials should complement the design of the building.

DESIGN CHANGES

1. Porches located on primary elevations should not be enclosed.
2. When screening is appropriate, it should be set within the interior of the porch and any framing should be aligned behind the porch columns and railing to limit the visual impact of the screening.
3. Porches and woodwork can be added or altered in other ways when the following criteria is applied:
    a. The changes reflect the architectural style and period of the building.
    b. The changes are compatible with the building’s scale, shape, forms, façade composition, and materials.
    c. The changes do not create a false historical narrative.

Storefronts, Awnings, and Canopies

Storefronts are often the most character defining feature of a commercial building. The design and details of storefronts and other commercial façade elements are intrinsically important to the business within and to the surrounding business district. Due to the proximity of noncontributing commercial buildings to contributing commercial buildings in the HDO, noncontributing buildings play a significant role in the visual cohesion of the commercial area. When making modifications to noncontributing resources care should be taken to not create a false historical narrative. Rather, use design features and enhancements from the architectural period and style of the noncontributing building, or a later style that is appropriate to the size, scale, and use of the existing building.

Due to the close proximity of pedestrians and vehicles to storefronts in the HDO, the appearance of materials remains important. Materials must be authentic in appearance at a very close range, and provide detail and texture. Durable materials allow the building and the commercial district the ability to retain a well-maintained appearance.

Guidelines For Replacement And Alterations

MATERIAL CHANGES

1. Storefront elements should be replaced in-kind or with an alternative material that is compatible with the district. New materials should not detract from the overall appearance of the building or the HDO.
    a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.
2. Replacement storefront materials, including those associated with awnings and canopies, should offer the same general appearance as the existing storefront materials, or materials that more appropriately reflect the architectural style of the building, provided that the following criteria are met:
    a. Replacement materials should not be used to create a false historical narrative.
    b. Replacement materials should reflect the form and scale of the existing building.
    c. Replacement materials should provide an authentic unit measurement or scale that reflects traditional HDO materials and pedestrian orientation.
    d. New glass should be clear without any reflective qualities that limit visibility into the interior space. Avoid any tinting or glazing meant to reflect light. Awning or canopies can instead be used to manage glare.

e. Awnings and canopies should be of weather resistant fabric or metal. Do not use vinyl or other plastic material.

DESIGN CHANGES

1. Storefronts may be added, deleted, or altered in other ways when the following is met:
   - **a.** The changes are consistent with the architectural style of the building.
   - **b.** The changes do not detract from the HDO.
   - **c.** The changes do not create a false historical narrative.
   - **d.** Enhancements to very utilitarian or plain storefronts should continue to reflect the simplicity of the building's form.
2. Storefront design changes should incorporate locations for signage that reflect the appropriate sign design guidelines and regulations for signs.
3. New or modified window and door openings should be compatible with the building's scale, architectural style, façade composition, form, and existing patterns of fenestration.
4. New or modified window and door openings should not detract from the overall proportions of the building and should be compatible with the HDO.
5. When the alteration expands the footprint of the building or adds floor area, Guidelines for Additions to Noncontributing Resources on page 102 apply as well.
6. If the modification extends to replacement of more than 49% of the existing roof structure, then guidelines for new construction and demolition may apply.
7. Awnings and canopies should align with the size, scale and style of the storefront and associated doorways and fenestration.
8. Lighting for awnings and canopies should be provided by an exterior light source using appropriate concealment of conduits and other electrical hardware. The light source should be shielded to avoid pinpoint glare.

New Additions

When designing additions to noncontributing buildings, ensure that the proposed addition meets all town zoning and engineering requirements. While the addition does not have to adhere to the architectural style of the existing building, new additions to noncontributing buildings should not result in scale, massing, form, or proportions that are incompatible with the existing building or the district.

Guidelines For New Additions

1. Proposed additions that remove more than 49% of the exterior walls and/or roof require a new construction and demolition COA.
2. The proposed addition(s) should not overpower the form or change the scale of the existing building to avoid impacting the character of the HDO.
3. The scale, massing and design of the roof should reflect the scale and style of the addition and should not detract from the existing building.
    a. If the addition and the existing building share a similar roof form, the slope and massing of the addition's roof should reflect the roof slope and massing of the existing building.
    b. The scale, massing, design and materials of the roof should not detract from the original building or the character of the HDO.
    c. If the proposed addition(s) removes, modifies or connects to the roof of the existing building, new roof connections should be below the peak of the existing roof.
    d. The scale of proposed dormers should reflect the scale and massing of the addition and the existing building.
    e. Proposed dormers should be sized and located so that portions of roof visually frame the sides and top of the dormer as well as the base of the dormer unless the dormer breaks the eaves of the building.
    f. Dormers should not detract from the character of the existing building or of the HDO. They should generally reflect the architectural style of the associated building.
4. The exterior wall material and finish of the proposed addition should complement that of the existing building and not detract from the character of the HDO.
    a. Alternative materials should be evaluated based upon the guidelines for noncontributing resources found in Chapter 6.
5. On building elevations visible from the right-of-way, exposed foundations should not exceed 2 feet in height or the height established by the existing building, whichever is less.
    a. The appearance of exposed foundations should match that of the existing building.

6. If an alternative architectural style is employed in the design of the addition, it should complement the noncontributing building in its form and scale.

- **a.** Alternative architectural styles should reflect the architectural style of the original building or later architectural periods and not attempt to create a false historical narrative.

7. The style of the proposed windows and doors, including framing and lite arrangement, should reflect the architectural style and scale of the addition.

- **a.** For windows consisting of multiple panes of glass, simulated divided lites should have dimensional muntins or grills on the exterior of the glass.
- **b.** Glass should be clear unless decorative elements or frosting are employed consistent with the architectural style of the addition.

8. The exterior size, shape, form and materials of new chimneys should reflect the architectural style of the addition.

- **a.** Chimneys should be constructed of or clad in natural stone or brick.
- **b.** The scale, mass and form of a new chimney should be appropriate to the style of the building.
- **c.** Chimneys and flues should not detract from the overall appearance of the building or the HDO.
- **d.** Flues should be screened unless located on a rear elevation not visible from the public right-of-way.
- **e.** Flues for manufactured fireplaces should not extend up the exterior side of the building unless enclosed within a masonry clad chimney of a mass, scale and style appropriate to the building.

9. Second story additions to existing buildings are generally not appropriate unless they can meet the following criteria:

- **a.** The massing, scale, and form of the addition does not visually overwhelm the existing building.
- **b.** The massing, scale, and design of the addition does not negatively impact the character of the HDO.

Modern Accessory Structures Associated with Noncontributing Primary Buildings

Accessory structures in the HDO range from small garden sheds to barns and detached garages. This section provides guidance for the treatment of existing noncontributing and new accessory structures that are or will be associated with noncontributing primary buildings. In Herndon, some accessory structures, dating to the HDO's period of significance, are associated with noncontributing primary buildings. Guidelines related to the treatment of historic accessory structures can be found in Chapter 5 on page 77.

The zoning ordinance regulates where accessory structures are permitted to be located. As with any alternation to the footprint of an existing structure, or addition of a new structure on a property, town staff should be contacted to determine what zoning regulations govern the location of the feature.

Guidelines For Alterations To Modern Accessory Structures

1. If the modification extends to replacement of more than 49% of the original accessory structure, then guidelines for new construction of an accessory structure associate with a noncontributing primary building apply.
2. Modifications or alterations to an existing accessory structure should not detract from the character of the HDO.
3. Modifications to an inappropriate existing accessory structure should make the accessory structure more appropriate for the existing primary building and the HDO.
4. Proposed alternative materials should be evaluated based upon the guidelines found in Chapter 6 for noncontributing resources.

Site Features

Site refers to the property surrounding the building, including the building itself, landscape (trees, shrubs, lawns and planting beds) and hardscape (walkways and driveways) and secondary structures (arbors, walls, fences, and dumpster enclosures).

Site features on properties with noncontributing primary resources are generally appropriate provided that the meet zoning regulations and do not adversely impact the character of the district, but rather complement the district. Site features that are not visible from the public right-of-way are exempt from COA process and procedures except for dumpster enclosures. Landscaping changes are exempt from COA requirements, so they have not been addressed.

Guidelines For Site Features

HARDSCAPING

Hardscape that is less than a foot tall when measured from original grade is exempt from the COA process, but there are zoning regulations that govern the amount and location of hardscape. For more information regarding these regulations contact staff. The following guidance is to be followed if the hardscape exceeds 12” in height.

1. Driveways and drive aisles should be situated on one side of a building and provide access to rear parking lots.
2. When installing new hardscaping, the following materials are appropriate: ribbon paving, gravel or pebble, brick, stone pavers, and concrete. The Zoning Ordinance does not permit gravel or pebble surfaces for parking areas and driveways. Contact staff regarding zoning regulations governing the pavement of parking areas and driveways.
3. Where parking is located adjacent to sidewalks and streets, provide landscaping or other screening as a visual buffer between parking areas and sidewalks to maintain the character of the historic streetscape.

FENCES, HEDGES, AND WALLS

A COA is required for fences, walls, and retaining walls that are over a foot in height when measured from original grade. Pre-approved fencing options are available. Check the Pre-Approved COA List of items and contact staff for administrative approval. The Zoning Ordinance governs the maximum height and location of these features.

1. When visible from the public right-of-way, fencing and the facing of walls and retaining walls should consist of the traditional materials of wood, brick, metal or stone to be compatible with the district.

a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.

b. Vinyl, concrete block, split-face block and split-rail fencing should not be used in the HDO when the site feature is visible from the public right-of-way.

c. Chain-link fences are not permitted by the Zoning Ordinance, although existing chain-link fencing may be repaired and replaced in-kind.

d. Temporary fencing in place for one year or less is exempt from COA requirements.

DECKS, PATIOS AND OTHER INSTALLED SITE STRUCTURES

Decks and patios one foot or less in height from original grade are exempt from the COA process unless they have associated features such as foundations, railings and walls that exceed one foot in height.

1. Decks, patios and other installed site structures (e.g. arbors, pergolas, constructed barbeques and fireplaces) visible from the public right-of-way should be constructed of traditional materials (wood, brick, metal or stone) to be compatible with the district.

a. Site structures, such as decks, that are constructed of wood should be painted or finished with an opaque stain.

b. Vinyl, concrete block, and split-face block should not be used in the HDO when the site feature is visible from the public right-of-way.

UTILITY AND MECHANICAL SITE FEATURES

This category includes site features such as fuel tanks, gas and electrical meters, satellite dishes/antennae, exterior mechanical units and associated screening, and dumpster or trash can enclosures. Pre-approved fencing options may be appropriate for screening these features. Check the Pre-Approved COA List of items and contact staff for administrative approval. Dumpster enclosures associated with commercial properties require a site plan revision and are subject to COA process regardless of location.

1. All conduit, piping, cabling, junction boxes, and other appurtenances should be installed in a manner that is not visible from the public right-of-way.

2. Screens for utility and mechanical site features, visible from the public right-of-way, should be made of traditional materials of wood, brick, metal or stone to be compatible with the district.

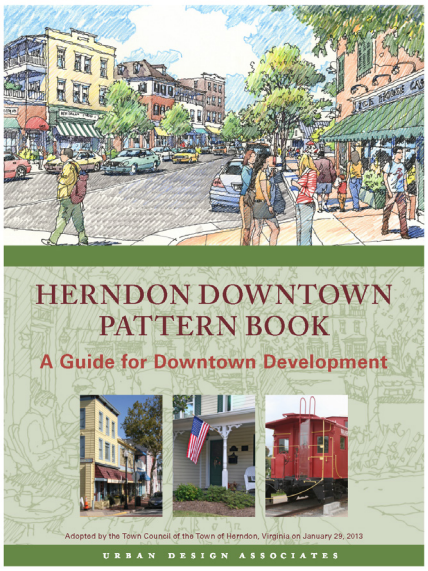
a. If a change of material is proposed, refer to alternative materials for noncontributing buildings, found in Chapter 6.

b. Vinyl, concrete block and split-face block should not be used in the HDO.

3. Dumpster enclosures should be of masonry construction.

- **a.** Exterior walls should closely match the primary exterior wall finish of the noncontributing building or brick in a complimentary color.
- **b.** Gates should be of heavy-duty metal.
- **c.** When possible, gates should not be visible from the public right-of-way.
- **d.** The walls of the enclosure should include a cap.

9 GUIDELINES FOR NEW CONSTRUCTION



The Herndon Downtown Pattern Book: A Guide for Downtown Development. Click the image to download the document.

New Construction Guidelines for Non-Residential Buildings and Single Family Attached Residential

Design guidelines for new construction of commercial, institutional, multi-family, single-family attached houses, and mixed-use buildings are located in the Downtown Herndon Pattern Book, as adopted by the Town Council. The HDRB may also use the Downtown Pattern Book for design guidance when evaluating COAs for new construction of non-residential and single-family attached development in areas within the HDO, but outside the downtown.

NEW CONSTRUCTION GUIDELINES FOR SINGLE-FAMILY DETACHED RESIDENTIAL

The following guidelines are for new single-family detached residential construction in the HDO.

Herndon's historic residential neighborhoods convey a classic small-town neighborhood appearance and unique sense of place. To retain and enhance the appeal of the historic district, new residential buildings must be carefully planned and designed to maintain the historic character of the district and not distract from it. Adherence to the following guidelines is critical to ensure that new construction within the HDO is consistent with the location, setback, scale, massing, height, and form of the HDO's historic (contributing) resources.

When it comes to infill construction, the design guidelines stress that the overall massing, scale, shape, fenestration, orientation, and siting of the building should be compatible with that of other buildings in the streetscape. However, replication of historic detailing is not recommended since the Secretary of the Interior's Standards for Rehabilitation prohibit the creation of a false sense of history. The attributes mentioned below under the categories *Siting a New Building* and *Establishing the Building's General Shape and Size* are important to helping a building fit into the streetscape.

As stated in the Guidelines below, new houses should reflect the size and scale of the contributing resources in the HDO, but with simpler forms. Larger houses should break up the wall planes and forms to better reflect a scale and mass appropriate with the surrounding contributing resources. Forms based upon house styles from other regions, which are not found within the HDO, are not appropriate and should be avoided. For a better understanding of the forms found within the HDO refer to Chapter 4.

These guidelines are provided for applicants and design professionals as a guide to help direct the design of their proposed building, and town staff and the HDRB to use as the basis for the review of COAs.

Process Note: *When planning a new building in the HDO, owners, architects, developers, and designers should contact staff during the earliest stages of conceptualization to ensure that the building reflects the guidelines and meets zoning requirements. The HDO Procedure Guide provides additional information regarding the application process and required materials.*

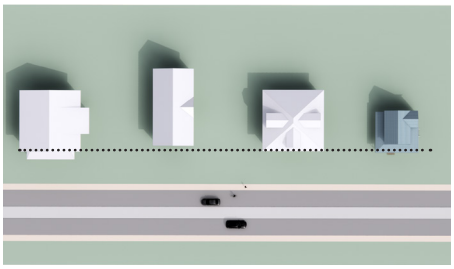
Guidelines For New Construction Of Single-Family Detached Residential

SITING A NEW BUILDING

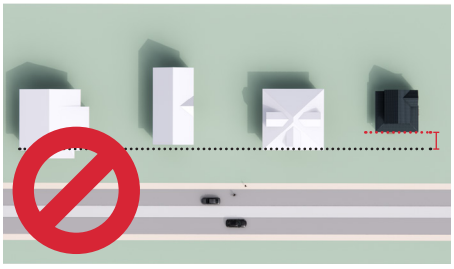
1. New buildings should be positioned in a manner that is consistent with contributing buildings on the same block in order to retain the historic character, pattern, and rhythm of the streetscape.
   - **a.** Match the building orientation and building separation from the street established by the historic buildings on the street.
   - **b.** Maintain the rhythm of buildings along the street by maintaining consistent front, side, and rear yard setbacks established by the historic buildings on the street.
2. Parking should be oriented to the side and rear of the lot. Parking should not be located in the front yard.
3. Impacts to existing traditional streetscape features, including topography, old growth trees, and other significant site features should be avoided.
4. HVAC and other mechanical equipment should be located on the ground and in locations that are not visible from public streets.

ESTABLISHING THE BUILDING'S GENERAL SHAPE AND SIZE

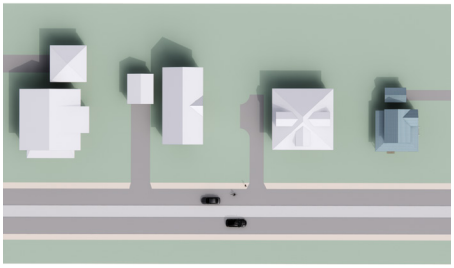
1. New buildings should be designed for consistency with overall massing and scale of historic buildings within the HDO, particularly those on the same block as the new building. Building dimensions and complexity of form help to define the massing and scale of a building:
   - **a. Building Dimensions**
     - **i.** The established building height from finished grade to roof ridge should be no greater than a 10% deviation from the minimum/maximum of the adjacent historic buildings on the block, subject to compliance with the zoning ordinance.
     - **ii.** The distance between the existing grade (pre-development) and the first-floor height of new buildings should be limited to two feet or less on facades visible from the street, unless a high foundation wall is a prevalent feature of historic buildings on the block.
     - **iii.** The width and length of the building should take into consideration the shape of the lot and any consistent historic building shapes and sizes on the block.



A new building, to the right, appropriately aligned with the existing buildings along the block



A new building, to the right, inappropriately set back from the existing buildings along the block



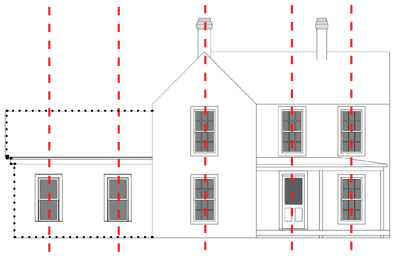
Various appropriate parking locations to the side or rear of the principle building.



No greater than 10% deviation in height from adjacent buildings.







Openings of additions should match the rhythm of the historic building

iv. The new building should be consistent in orientation and proportion with the prevailing historic building dimensions on the block particularly and the HDO generally.

b. Complexity of Form

i. While the overall shape of a roof can be simple or complex, symmetrical or asymmetrical, large roof forms should be visually managed with the use of cross gables, dormer windows, secondary roofs at lower heights, and similar features and techniques as needed in order to complement historic roof forms on the same block, without creating a false sense of history.

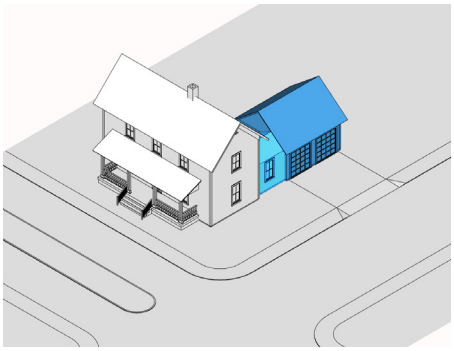
ii. Houses should reflect the size and scale of the contributing resources in the HDO, but with simpler forms. Larger houses should break up the wall planes and forms to better reflect a massing and scale appropriate with adjacent contributing resources.

iii. While the introduction of more complex forms should be used to improve the overall massing and scale of new construction, excessive complexity should be avoided.

INCORPORATING ARCHITECTURAL FEATURES

1. New residential buildings should be compatible in style to the HDO's historic houses, yet differentiated from the historic buildings.
   - **a.** New residential buildings should not seek to mimic historic styles and should be easily identified as modern insertions within the streetscape. Avoid creating a false sense of history by replicating or matching historic styles.
   - **b.** New residential buildings should incorporate modern elements and materials in a manner that is consistent with the surrounding district.
2. Building exteriors should not be based upon interior layouts. Exterior roof forms, window locations and sizes, and other exterior features such as porches should be designed and then the interior space programmed to work with the architecture.
3. The rhythm, pattern, size, and design of window details should reflect traditional units seen in historic buildings within the district.
   - **a.** Simulated divided lite windows are necessary to create the appearance of realistic muntins.
   - **b.** Windows should be aligned horizontally and vertically across the front and side elevations and use consistent window sizes and designs. Within architectural bays windows should be horizontally aligned.
   - **c.** Windows should be recessed on masonry buildings and raised trim should surround windows on frame buildings.
   - **d.** Window materials should reflect the same visual qualities of wood such as size, scale, finish, and profile.

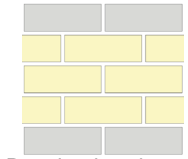
4. Chimneys incorporated into new construction should be designed to appear as full working wood-burning chimneys by cladding the chimney in either brick or stone veneer; do not clad chimneys in siding.
5. Architectural features such as porches, details such as eaves and trim, and wall openings (windows/doors) should be used to define the massing and scale of a building; these features should be simplified versions of those seen within the adjacent streetscape so that new construction within the district is identifiable as a modern insertion.
6. Garages should not be attached to the primary building unless the shape and size of the lot prohibits the use of a detached garage.
    a. If space limitations necessitate the use of an attached garage; it should be placed in the rear yard behind the house and attached with a hyphen or breezeway.
    b. If space constraints do not allow the use of a hyphen or breezeway, the garage should be integrated into the principal house form in a manner that fully hides the garage and does not create any forms or massing that disrupt the appropriate scale of the house.
    c. When integrated into the house, do not use front-loaded garage doors.



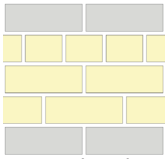
Garage (dark blue) located behind the principle building, connected by an architectural hyphen (light blue)

INCORPORATING EXTERIOR MATERIALS

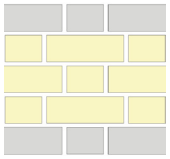
1. Materials used commonly during the HDO period of significance and modern materials designed to accurately mimic those historic materials in texture, profile, reflectivity, and other visual factors should be used on new construction.
2. Modern materials with a plastic appearance or composition, materials that cannot offer a scale, profile, and finish to mimic the appearance of a historic material, and modern materials with poor durability should not be used. For example, vinyl and EIFS are generally not appropriate materials for any exterior component due to quality and durability concerns. Refer to Chapter 6 for information on selecting an appropriate alternative material for use on new construction.
3. Modern materials used in applications that traditionally were wood, should be painted and be cut and installed in a manner similar to wood. These materials should share the same visual characteristics of wood such as size, scale, finish, and profile.
4. Roof cladding should be durable. Primary and secondary roofs may have different cladding materials.
5. The primary cladding materials should be used on all sides of the house.
    a. For houses proposed with horizontal lap siding, use cedar (or similar hardwood) or fiber cement boards. Fiber cement boards should not have a raised woodgrain texture.
    b. For houses with stucco, brick, or other traditional masonry material as the primary cladding material, the pattern, course, and texture should appropriately reflect the traditional application of those materials.



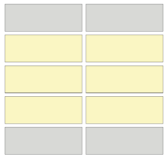
Running bond



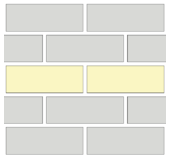
Common bond



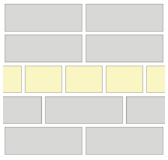
Flemish bond



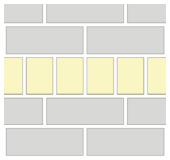
Stacked bond



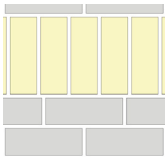
Stretcher course



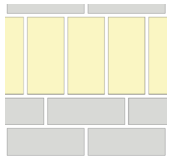
Header course



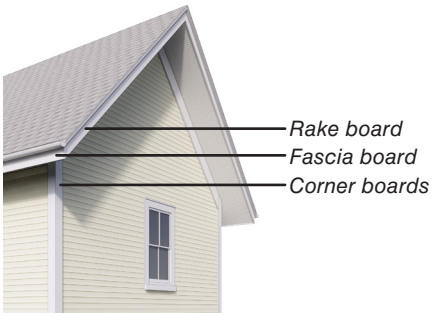
Rowlock course



Soldier course



Sailor course



Trim appropriate for house clad in siding

c. Cladding materials may be mixed with a primary (field) and secondary (accent) material. This approach may be used to add visual interest and ornamentation to the facades and to reinforce the architectural style of the house.

d. Exposed foundations should be clad in stone or brick.

6. Trim should be an appropriate size, profile, and located to reflect the architectural style of the house.

a. Use fascia, rake, and corner boards on houses with siding.

b. Use window trim with sills and headers on house with siding, and sills and lintels on masonry clad houses.

7. Light fixtures, shutters, and other decorative features should be an appropriate size and style to reflect the architectural style of the house.

a. Visible components of a light fixture should be metal and not plastic.

b. Shutters should be installed to appear operable.

i. Shutters should be installed on the window frame rather than the exterior wall.

ii. Even if fixed, shutters should be sized appropriately for the window opening so they would adequately cover and protect the window if they were closed.



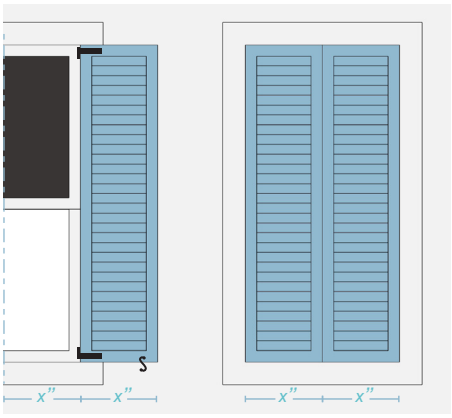
Brick lintel and sill made of stone, cast stone, concrete, or wood. Lintels should extend at least 4" beyond the edge of the masonry opening.



Brick lintels can be as simple as a single soldier course supported by a steel lintel behind. Other appropriate brick lintels include arches and jack arches. Brick sills are typically a single sloped rowlock.



Raised trim should surround windows in walls clad in siding.



Shutters, fixed or operable, should align with the edge of the window frame, and be sized to cover half of the window opening. Shutter dogs hold shutters open against the wall.

iii. Shutters should be painted wood or a durable modern material that replicates wood in that it shares the same visual characteristics of wood such as finish and profile. Plastic should not be used.

iv. Appropriate shutter hardware to include hinges, latches, and shutter dogs should be used.

New Construction of Accessory Structures

Accessory structures typically found in Herndon include barns, sheds, and detached garages. With the exception of a few more highly designed and detailed examples, the majority of accessory structures in the HDO are simple in form and detail, reflecting the utilitarian function of these resources. The remaining historic accessory buildings provide a visual legacy of Herndon's rural past.

New accessory structures should retain the patterns established by the remaining historic accessory structures. While the Town of Herndon Zoning Ordinance regulates the size and location of accessory structures, additional care in sizing and locating accessory structures within the HDO is necessary to ensure that they do not detract from the character of the district. Particular care is necessary when the new accessory structure will be located on a contributing property. Accessory structures that are sited in such a way that they are not visible from the public right-of-way do not require review.

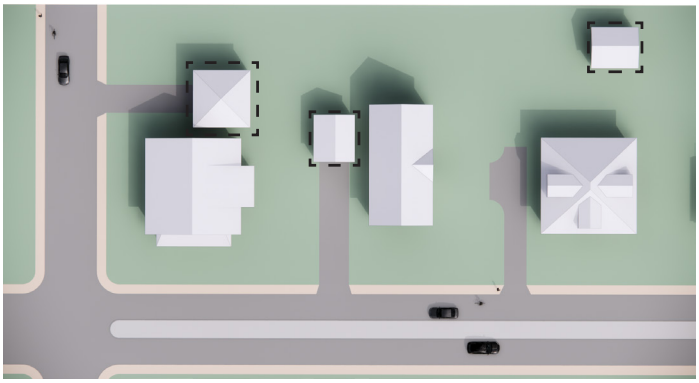
These guidelines are provided for property owners and design professionals as a guide to help direct the design of their proposed accessory structure, and town staff and the HDRB to use as the basis for the review of COAs.

Process Note: *For more info, regarding the application process refer to the HDO Procedure Guide. The Town of Herndon Zoning Ordinance regulates the size and location of accessory structures. Check with Community Development staff for more information.*

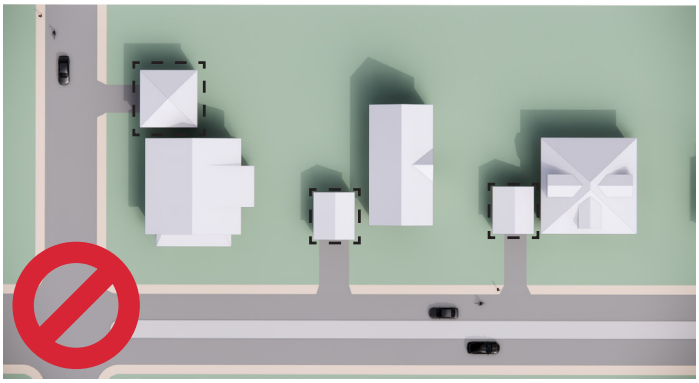
Guidelines For New Construction Of An Accessory Structure On A Contributing Property

1. New accessory structures on contributing properties should be sited so that they do not negatively impact the contributing resource or historic site features.
   - **a.** New accessory structures should be sited in a traditional location for its intended use.
   - **b.** The size and massing of the accessory structure should be clearly ancillary to the contributing resource.
   - **c.** Historic site or landscape features should not be removed to accommodate the construction of the accessory structure.

2. New accessory structures should not attempt to create a false historical narrative.
3. The design of the accessory structure should be compatible with the primary building by using similar roof type (shape and slope), opening patterns, and materials.
    a. Roof slope and form should reflect those of historic accessory structures on the site or that of the contributing resource. Shed roofs on smaller accessory structure may be appropriate.
    b. Windows representing multiple panes should have simulated divided lites to ensure a realistic muntin profile on the exterior of the glass.
    c. Window and door trim should be an appropriate size and profile for the size of the structure and the feature.
    d. Decorative embellishment should be kept to a minimum.
    e. Colors should be compatible with the primary building or standard barn red.
4. Materials should be traditional materials of wood, stone, brick and/or metal, or appropriate modern materials.
    a. The appropriateness of alternative materials should be determined based upon the considerations found in Chapter 6.
    b. Plastic, heavy-duty resin, and vinyl are not appropriate materials for accessory structures on contributing properties.
5. Small prefabricated wood sheds, located where they cannot be seen from the public right-of-way, may be appropriate provided that they do not adversely impact any historic site features.



Appropriate placement of accessory structures and parking behind and to the side of the principle building.



Inappropriate placement of accessory structures and parking closer to the street than the principle building.

Guidelines For New Construction Of An Accessory Structure On A Noncontributing Property

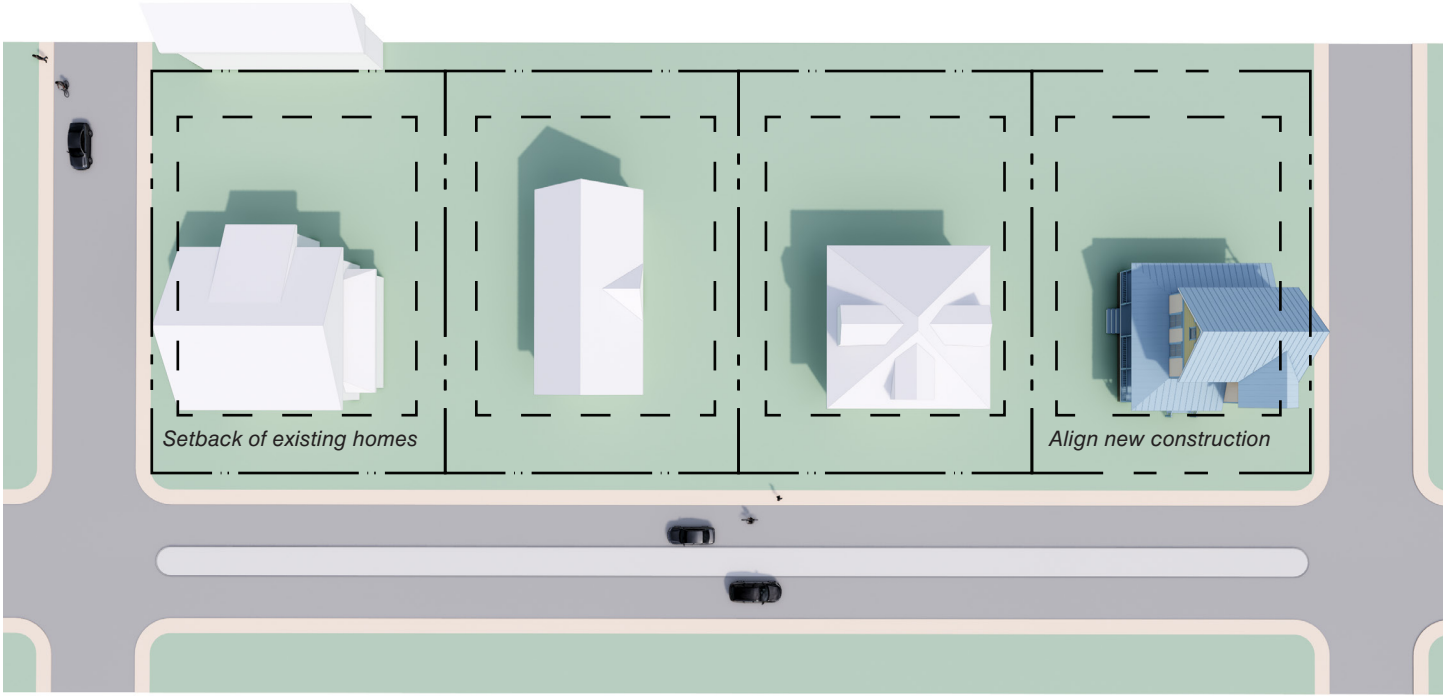
1. New accessory structures on noncontributing properties should be sited in a traditional location for its intended use.
    a. The size and massing of the accessory structure should be clearly ancillary to primary building on the site.
2. The design of the accessory structure should be compatible with the primary building by using similar roof type (shape and slope), opening patterns, and materials.
    a. Roof slope and form should reflect those of the primary building on the site.
    b. The color of the roofing material should complement the roof color of the primary building on the site.
    c. Windows representing multiple panes should have simulated divided lites to ensure a realistic muntin profile on the exterior of the glass.
    d. Window and door trim should be an appropriate size and profile for the size of the structure and the feature.
    e. Decorative embellishment should be kept to a minimum.
    f. Colors should be compatible with the primary building or standard barn red.
3. Materials should be traditional materials of wood, stone, brick and/or metal
    a. The appropriateness of alternative materials should be determined based upon the appropriate considerations found in Chapter 6.

CHAPTER 9
GUIDELINES FOR NEW CONSTRUCTION

New Construction Guidelines for Single Family Detached Residential

The following guidelines are for new house construction in the HPOD. New construction design guidelines for commercial, mixed use, townhouse and multifamily structures are located in the Herndon Downtown Pattern Book. New construction guidelines may apply if more than 50% of an existing structure's exterior is proposed to be altered or demolished. The guidelines in this section apply to principal buildings. For guidelines on accessory buildings, see Chapter 5 for contributing resources and Chapter 6 for noncontributing resources.

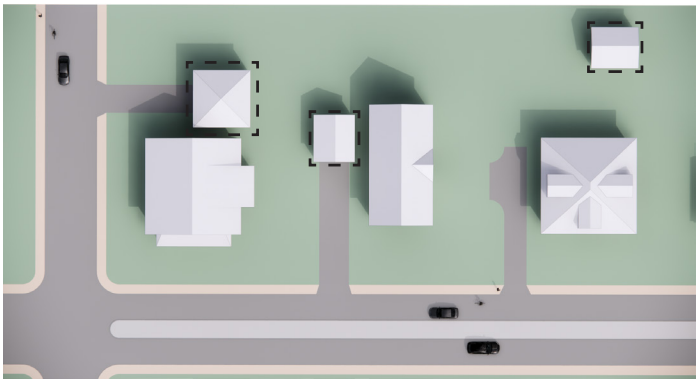
Herndon's historic residential neighborhoods convey a classic small town neighborhood appearance and unique sense of place. To enhance and not detract from the classic appeal of the contributing structures and the surrounding neighborhood, new residential structures must be carefully planned and designed to maintain the historic character of the district. Adherence to the following guidelines is critical to ensure that new construction within the HPOD is consistent with the location, setback, scale, massing, height, and form of the HPOD'S existing historic (contributing) structures.



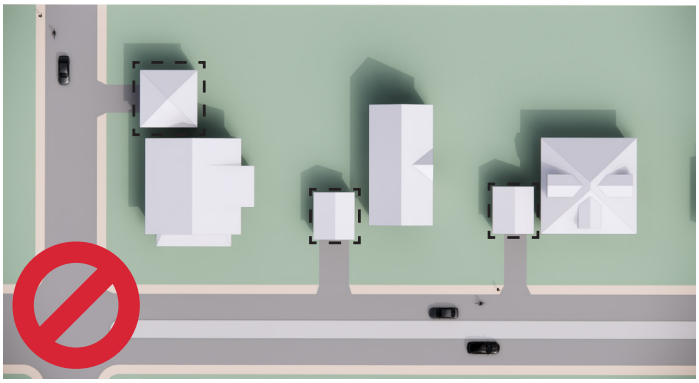
Property Lines

Setbacks

Appropriate setbacks, building orientation, and building scale should match adjacent properties



Appropriate placement of accessory structures and parking behind and to the side of the principle building.



Inappropriate placement of accessory structures and parking closer to the street than the principle building.

CHAPTER 9
GUIDELINES FOR NEW CONSTRUCTION

Siting a New Building:

1. Position new buildings on the lot in a manner that is consistent with contributing structures on the same block in order to retain the historic character and pattern of the neighborhood.
   a. Match the building orientation and building separation from the street established by the historic buildings in the neighborhood.
   b. Maintain the rhythm of buildings along the street staying consistent with the average distances between historic buildings in the neighborhood.
   c. To maintain an appropriate siting, the shape and size of building footprints should correspond to the lot configuration. For example, a building that is wider along its frontage than its sides may not be appropriate on a narrower lot, unless it is much smaller than other houses.
2. Orient parking to the side and rear of the lot. Parking should not be located in the front yard.
3. Avoid impacts to any existing traditional streetscape features including street trees.
4. Locate HVAC and other mechanical equipment on the ground and in locations that are not visible from public streets or susceptible to flooding.

Architectural Style:

1. Design new residential buildings to be compatible in style to the HDO's historic houses. Use the Historic Building Resources in Chapter 4 to verify the architectural styles found in the HDO and the details and elements that define the individual styles.
   a. A new house should specifically reflect one of these architectural styles and that style should be carried through the design of the house from basic form to specific details.
   b. A modern interpretation of a single historic architectural style can be used, however the forms should remain consistent with the historic architectural style chosen.
   c. Mixing of architectural styles or the inclusion of forms and elements that are not consistent with the selected architectural style is inappropriate and should not be done.

Establishing the Building's General Shape and Size:

1. Shape and size building for consistency with overall massing and scale of historic buildings within the HDO, particularly those of the same architectural style as the new structure. Building dimensions and complexity in form help to define the massing and scale of a building.

Building Dimensions

a. Establish a building height from finished grade to roof ridge (measured in feet) within the typical range of heights of historic buildings on the block and immediate surrounding neighborhood.

b. Limit the distance between the existing grade (pre-development) and the first floor height of new buildings to two feet or less on facades visible from the street, unless a high foundation wall is a prevalent feature of historic buildings on the block and within the immediate neighborhood.

c. Overall building height can be managed by minimizing the first floor height and by breaking up large roof forms with architectural features such as dormers.

d. Establish the width and length of the building taking into consideration the shape of the lot, any prevailing historic building shapes and sizes on the block, and architectural style of the building.

e. Establish the proportion of length to width and width to height. These proportions will dictate whether the building has a horizontal or vertical orientation and whether it's mass is most visible from the front or a side elevation. Maintain consistency with any prevailing historic building dimensions present on the block particularly and the HDO generally.

Complexity in Form

a. The overall shape of a roof, its basic form, can be simple or complex, symmetrical or asymmetrical. The overall roof shape should be broken up into smaller forms to help reduce the roof massing and scale. Manage large roof forms with the use of cross gables, dormer windows, secondary roofs at lower heights, and similar features and techniques.

b. Smaller roof forms should not be used indiscriminately if they do not relate to the arrangement of bays and building spaces below the roof.

c. The overall roof shape and design, including slope or pitch, should reflect the typical roof shape and design of the architectural style of the house.

d. Below the roof, building form can be broken up with vertical-oriented features, horizontal–oriented features, or often a combination of both. These features should be used to differentiate wall planes. New houses should reflect the size and scale of the contributing resources in the HDO with simpler forms. Larger houses, will require breaking up the wall planes and forms to better reflect an appropriate scale and mass.

e. While the introduction of more complex forms can improve the overall scale and mass of new construction, excessive complexity is a departure from the historic architectural forms found in the HDO.

f. Architectural features such as porches, details such as eaves and trim, and wall openings (windows/doors) can also help define the mass and scale of a structure.

Incorporating Architectural Features:

1. All facades of a new house should have thoughtfully composed facades that reinforce the architectural style, the appropriate massing and scale, and consistency in how architectural features are incorporated.
2. Avoid designing building exteriors based upon interior layouts. Exterior roof forms, window locations and sizes, and other exterior features such as porches should be designed and then the interior space programmed to work with the architecture.
3. Incorporate open front and/or side porches and porticos. Incorporate the architectural style of the house into all components of the porch design, including but not limited to roof form, column type, balustrade pattern, porch skirt details, and porch decking orientation.
4. Do not attach garages unless the shape and size of the lot prohibits the use of a detached garage. If space limitations necessitate the use of an attached garage; it should be placed in the rear yard behind the house and attached with an architectural hyphen or breezeway. If space constraints do not allow the use of an architectural hyphen or breezeway, integrate attached garages into the principal house form in a manner that fully hides the garage and does not create any forms or massing that disrupt the appropriate scale of the house. When integrated into the house, do not use front-loaded garage doors. Do not use side-loaded garage doors either unless the doors are setback from the front of the house and screened from view from a street.
5. The rhythm, pattern, size, and design specific window details, such as the muntin pattern or jamb profile, should reflect the same characteristics of the architectural style chosen. Simulated true divided windows are necessary to create the appearance of realistic muntins, an important feature of historic windows.
6. Align windows horizontally and vertically across the front and side elevations and use consistent window sizes and designs. Horizontally align windows in architectural bays. Specialty windows, that reflect the historic architectural style, may be used in architecturally appropriate locations such as Palladian windows in gable ends, transom windows and side lights around front doors, and fixed stain glass windows at internal stairwell landings. Recess windows on masonry buildings and use a raised trim surround on frame buildings.
7. Door placement should reinforce the symmetry or asymmetry of the house. A single front door should be prominently placed on the front façade and designed to be consistent with the architectural style of the house. Double doors should not be used. The front door surround is a good place to add details that reinforce the architectural style of the house such as transom windows and side lights or decorative trim and headers. Secondary doors should convey a simpler expression of the front door's design, while keeping with architectural style.

8. Incorporate chimneys into new construction that are designed to appear as full working wood-burning chimneys. If placed outside an exterior wall, clad the chimney in its entirety in either brick or stone veneer. If internal, build a false chimney above the roof that is clad in either brick or stone veneer. Decorative chimney caps should be included and should reflect the architectural style of the house.

Adding the Ornamentation

1. Add exterior details and ornamentation to reinforce the chosen architectural style. Avoid over decoration or any decorative features that are not typical of the historic style the house is meant to reflect.
2. Locate style-specific details on the façade in areas where they would be historically placed. Common locations include immediately below the roof within the gable ends, the eaves, and the cornices, around windows and doors, and on porches and porticos.
3. The size and scale of details such as window trim or rafter tails should reflect the size and scale of the same features found on the historic architectural style the new house reflects. Details that are not sized appropriately or located correct locations will detract from the authenticity of the design.
4. When used appropriately to reinforce the architectural style of the house, shutters should be operable or fully designed, sized, and installed to appear operable with complete shutter hardware and placement at the jamb of the window.
5. Design eaves with some degree of detail such as beadboard soffits, decorative rafter tails, or wide rake boards with possible decorative profiles to reinforce and reflect the architectural style of the house.
6. Light fixtures should reflect the period of the building's architecture and the size of the fixture and its proportions should be scaled appropriately to fit with the scale of the house and its other details and features.
7. The design qualities of any exterior materials, such as siding profile, should reflect the architectural style of the house.

Choosing the Exterior Materials

1. Materials selected should be consistent with the architectural style of the structure.
2. Materials used commonly during the HDO period of significance and modern materials designed to mimic those historic materials and designed to be painted, unless masonry, are appropriate.
3. Do not use modern materials with a plastic appearance or composition, or materials that cannot offer a scale, profile, and finish to mimic the appearance of a historic material. Vinyl is not an appropriate materials for any exterior component.

4. Modern materials that may be used in applications that traditionally were wood, must be painted and designed to hold paint, and be cut and installed in a manner similar to wood. They must also share the same visual characteristics of wood such as size, scale, finish, and profile.
5. Use decorative and durable roof cladding. Primary and secondary roofs may have different cladding materials. The use of metal shingles or metal stand seam panels are encouraged on primary and/or secondary roofs.
6. Use the primary cladding materials on all sides of the house.
7. For houses proposed with horizontal lap siding, use cedar painted (or similar hardwood) or fiber cement boards. Fiber cement boards should not have a raised woodgrain texture.
8. For houses with stucco, brick, or other traditional masonry material as the primary cladding material, the pattern, course, and texture should appropriately reflect the historic application of those materials.
9. Cladding materials may be mixed with a primary (field) and secondary (accent) material. This approach may be used to add visual interest and ornamentation to the facades and to reinforce the architectural style of the house.
10. Exterior materials collectively should present a textured and varied surface reflecting historic examples. Avoid an image of overall flatness with wall plane articulation, material texture, and material profile. Materials that exhibit a degree of depth such as siding with a Dutch lap profile create shadow lines that can help generate the proper articulation of a façade.
11. Use trim in an appropriate size, profile, and location to reflect the architectural style of the house. Use fascia, rake, and corner boards on houses with siding. Use window trim with sills and headers on house with siding and sills and lintels on masonry clad houses.
12. Clad exposed house foundations in stone or brick. Porch foundations should have the same cladding in addition to wood lattice between brick or stone clad piers.
13. Doors should be painted unless made of wood and stained when appropriate to reflect the architectural style of the house. Avoid doors with faux wood grains or faux wood stains.
14. Windows should be painted unless made of wood and stained when appropriate to reflect the architectural style of the house. Avoid window materials that cannot reflect the same visual qualities of wood such as size, scale, finish, and profile.

Articulation of Openings

1. Traditionally designed openings generally are recessed on masonry buildings, but have a raised surround on frame buildings.
2. New construction should follow these methods in Downtown Herndon as opposed to designing openings that are flush with the rest of the wall.



Frame Opening Articulation



Masonry Opening Articulation



Flush Framing- Not Recommended

Guidelines For Relocation And Demolition

Relocation should be a final alternative, reserved only for historic buildings that face eminent threat of demolition. When a contributing building is lost from the district, it impacts the district as a whole and diminishes the integrity of the overall district. Removing a historic building from its original site and setting disconnects the resources from the context in which it was meant to exist; relocating a building from the HDO will remove its contributing status and any available incentives or protections. All other alternative should be explored before a contributing building is relocated.

Relocating a contributing building in the HDO requires a COA. The following factors should be considered and discussed with Herndon's Community Development staff prior to applying for a COA:

1. Site and Setting
    - **a.** What options are there for relocation that provide a similar site and setting?
    - **b.** Will the building or overall HDO's integrity be negatively impacted by relocation of the resource?
    - **c.** Are there appropriate vacant lots with similar setting and context available within the district that can receive the building?
1. Structural Integrity
    - **a.** Will the process of moving the building negatively impact its structural integrity?
    - **b.** Will the building survive the move?
1. Threats to the resource
    - **a.** Is moving the building the only way to save it from demolition?
    - **b.** Will the building be moved within the district or to a location outside of the district?
    - **c.** If the building is to be moved from the district, can restrictions be placed on it to ensure its preservation in its new location?

Guidelines

1. Document the threat.
    a. Demonstrate why the building cannot remain in its historic location.
2. Secure a site that is compatible with the character of the original site.
    a. Considerations should include:
        i. Setback
        ii. Lot size
        iii. Orientation
        iv. Relationship to surrounding resources
3. Protect character-defining features of the building prior to the move.
    a. If feasible, move the building as a single unit, rather than dissecting it, which could result in the loss of historic material.
    b. Carefully plan the move route to take into account trees and other vegetation, power lines, and other obstacles.

Relocation Process

If a COA for relocation is granted, the following steps should be taken to prepare for relocation:

1. Document the building in its historic setting prior to moving it. Documentation should include photographs that fully illustrate the exterior elevations of the building and the surrounding site.
    a. Consider measuring the building if it is possible that substantial repairs will be necessary after the building is moved.
    b. Identify an experienced company to relocate the building. Be sure to check their references.
    c. Explore the potential for archaeological resources on the moved building site and the receiving site; consider hiring a professional archaeologist to examine the sites prior to relocation.

Noncontributing buildings may be proposed for relocation to or within the historic district, provided their new location does not negatively impact adjacent historic buildings or the overall character of the HDO. A COA is required from the HDRB prior to relocating noncontributing buildings to ensure the placement and siting of the building is consistent with the surrounding district.

Demolition

The demolition of historic buildings within the HDO is strongly discouraged, as it results in a permanent loss that diminishes the overall integrity of the district. All alternatives should be exhausted before a building is demolished.

During the COA application process, the building and its integrity should be re-evaluated to determine if it is still considered a contributing resource to the district; it is possible that if the building is being demolished due to neglect it no longer possesses the level of integrity required to be considered a contributing resource. If during this process it is determined that the building is no longer contributing, then the process for a noncontributing building should be followed.

If, however, the building is found to be contributing, the following factors must be considered before demolition can be approved:

1. Condition
    - **a.** Is the building structurally unsound or would it require unreasonable repairs to be deemed salvageable?
2. Impact to historic integrity of the district
    - **a.** Will the removal of the building negatively impact the historic integrity of the district?
    - **b.** How rare is the style or type of resource proposed for demolition?
    - **c.** Is it in a visible or prominent location within the district?

Guidelines

1. Discuss alternatives to demolition with Herndon's Community Development staff and the HDRB.
    a. Redesign the project to eliminate the need for demolition.
    b. Redesign the project to incorporate the building.
    c. Sell the building.
    d. Relocate the building within the HDO.
    e. Relocate the building outside the HDO.
2. Document the condition of the building to justify its removal and identify any existing hazards (structural unsoundness, abatement needs).
    a. Provide reports from professionals discussing their findings; examples include a structural report prepared by an engineer or an abatement report. Any reports should be signed and sealed by the professional who prepared them. Details included in the report should detail the on-site conditions that support the demolition.
    b. Provide a cost analysis of the expense of the rehabilitation versus market value of the property.
3. Identify the impact of the demolition on the subject project and any adjacent or surrounding properties.
    a. Provide a streetscape analysis to illustrate how the removal of the building impacts the street and the surrounding district.

Demolition Process

If a COA for demolition is approved, prior to demolition the following steps are required to be taken at the property owner's expense:

1. For primary historic buildings, document the building and provide the materials to the Town of Herndon in order to record the historic building; documentation should meet Historic American Building Survey (HABS) Level III Documentation, which includes:
    a. A sketch plan
    b. Interior and exterior photographs
    c. And a written history of the property.
2. For historic accessory structures, take representative photographs of the building (interior and exterior) to document the building; a sketch plan and written history is not necessary.
3. Any new construction proposed for the cleared lot shall be in conformance with the New Construction Guidelines outlined in Chapter 7 of this document and shall be approved by HDRB prior to issuance of a demolition permit for the contributing resource.

Noncontributing buildings may be proposed for demolition. A COA is required from the HDRB prior to demolishing noncontributing buildings. The applicant should be prepared to document the condition of the building to justify its removal.

11

APPENDIX

Glossary

Adaptive Use: A use for a structure other than its historic use, normally entailing some modification of the structure.

Bay: The regular spacing of windows and doors.

Brackets: A projecting structural or decorative member supporting or appearing to support extended eaves, cornices, porch roofs, or upper floors. Commonly found on Italianate, and some later Victorian houses.

Bungalow: A general term for a small, one-and-one-half story rectangular house, usually sited perpendicular to the street, typically with some Craftsman detailing and a wide front porch.

Character-Defining Feature: A prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character. Structures, objects, vegetation, spatial relationships, views, furnishings, decorative details, and materials may be such features.

Condition: The physical state of a structure or its components.

Condition Assessment: An evaluation of the physical condition of a structure, distilled by elements and details, with a description of deteriorated areas and the cause for deterioration.

Condition Assessment Report: A formal report which presents the condition assessment data. This report may cover the entire historic structure or a single feature or system.

Contemporary yet compatible: A principle that encourages contemporary designs that are compatible with the scale, massing, form, materials, color, and texture of a historic building in order to differentiate modern elements from historic.

Compatible: (of two things) able to exist or occur together without conflict; in harmony with surroundings.

Context: The setting in which a historic element, site, building, structure, street, or district exists.

Contributing resources: A building, site, structure, or object adding to the historic significance of a property.

Cornice: The exterior trim at the top of a wall where it meets the roof.

Cultural Landscape: A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

Cultural Resource: An aspect of a cultural system that is valued by or significantly representative of a culture or that contains significant information about a culture. A cultural resource may be a tangible entity or a cultural practice. Tangible cultural resources are categorized as districts, sites, buildings, structures, and objects for the National Register of Historic Places and as archaeological resources, cultural landscapes, structures, museum objects, and ethnographic resources for NPS management purposes.

Cultural Resource Management (CRM): The range of activities aimed at understanding, preserving, and providing for the enjoyment of cultural resources. It includes research related to cultural resources, planning for actions affecting them, and stewardship of them in the context of overall park operations. It also includes support for the appreciation and perpetuation of related cultural practices, as appropriate.

Cupola: A small rooftop structure, often decorative but able to provide ventilation and light to the center of the house.

Design Guidelines: Criteria which provide direction to projects regarding design, and help to ensure that rehabilitation projects and new construction respect the character of designated buildings and districts.

Dormer: A small gable or shed projecting from a sloped roof containing a window to bring light and ventilation into an attic or upper floor.

Eaves: The lower edge of a pitched roof that extends past the supporting wall, particularly the underside.

Façade: The main exterior wall of a building, usually at the front or entry wall.

Fanlight (fan): An arched window over the main entrance, often with radial muntins suggesting a fan or sunburst.

Foursquare: A general term for a two-and-one-half story rectangular or square house, with a low-pitched hipped roof, often with a deep entry porch and centered main entrance. The plan often features four roughly square

rooms per floor and usually features elements of the Craftsman style.

Historic American Building Survey (HABS) or Historic American Engineering Record (HAER): Architectural and engineering documentation programs that produce a thorough archival record of buildings, engineering structures, and cultural landscapes significant in American history and the growth and development of the built environment.

Historic Character: The sum of all visual aspects, features, materials, and spaces associated with a property's history.

Historic District: A geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, landscapes, structures, or objects, unified by past events or aesthetically by plan or physical developments. A district may also be composed of individual elements separated geographically but linked by association or history.

Historic Preservation Tax Incentives: A national program created to encourage private sector investment in the rehabilitation and reuse of historic buildings. Also known as Historic Rehabilitation Tax Credits, these are dollar-for-dollar reductions in income tax liability for taxpayers who rehabilitate historic buildings.

Federal Rehabilitation Tax Credits: A 20% income tax credit for the rehabilitation of historic, income-producing buildings that are determined by the Secretary of the Interior, through the National Park Service, to be "certified historic structures." The State Historic Preservation Offices and the National Park Service review the rehabilitation work to ensure that it complies with the Secretary's Standards for Rehabilitation, while the Internal Revenue Service defines qualified rehabilitation expenses on which the credit may be taken.

Virginia State Rehabilitation Tax Credits: A 25% income tax credit for the rehabilitation of historic owner-occupied and income-producing buildings that are determined by the State Historic Preservation Office to be "certified historic structures." The State Historic Preservation Office (and the National Park Service for projects that qualify for both credits) review the rehabilitation work to ensure that it complies with the Secretary's Standards for Rehabilitation, while the Internal Revenue Service defines qualified rehabilitation expenses on which the credit may be taken.

Historic Property: Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Historical Significance: The meaning or value ascribed to a structure, landscape, object, or site based on the National Register criteria for evaluation. It normally stems from a combination of association and integrity.

Infill: New construction in historic districts on vacant lots or to replace existing buildings.

In-Kind: The replacement of historic fabric with new material that marches the historic detail, configuration, appearance and fabric as closely as humanly possible.

Integrity: The authenticity of a property's historic identify, evidenced by the survival of physical characteristics that existing during the property's historic period.

Maintenance: Upkeep of property or equipment either on a regular basis or as a non-recurring event.

Massing: The exterior sculptural composition of the volumes of a building; comprised of shape, form, and size.

National Historic Preservation Act (NHPA): Declares a national policy of historic preservation, including the encouragement of preservation on the state and private levels; authorizes the secretary of the interior to expand and maintain a National Register of Historic Places including properties of state and local as well as national significance; establishes the Advisory Council on Historic Preservation; requires federal agencies to consider the effects of their undertakings on National Register properties and provide the Advisory Council opportunities to comment (§106).

National Park Service (NPS): A bureau of the U.S. Department of the Interior which is responsible for the preservation of natural and cultural resources.

National Register of Historic Places (NRHP): The United States' official list of structures, sites, objects, and districts that embody the historical and cultural foundations of the nation, established in 1966 and managed by the National Park Service.

Non-contributing resources: a building, site, structure, or object that does not add to the historic significance of a property.

Orders: Classical design principles that determine the proportions, size, and shape of columns and entablature.

Greek Orders: (illustrate each)
- Doric
- Ionian
- Corinthian

Roman Orders: (illustrate each)
- Tuscan
- Composite

Pediment: A triangular, gently sloped gable over the entablature on a Classical building. It may be used as a style element, where it is placed over doors and windows, or above porches and pavilions.

Period of significance: The span of time in which a property attained the significance for which it meets the National Register criteria.

Portico: A porch or covered walk consisting of a roof supported by columns.

Preservation: The act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Preservation Maintenance: Action to mitigate wear and deterioration of a historic property without altering its historic character. Action includes protecting its condition, repairing when its condition warrants with the least degree of intervention including limited replacement in-kind, replacing an entire feature in-kind when the level of deterioration or damage or materials precludes repair, and stabilization to protect damaged materials or features from additional damage. For archaeological sites it includes work to moderate, prevent, or arrest erosion.

Purlin: A horizontal beam along the length of a roof, resting on a main rafter and supporting the common rafters or boards.

Rafter tails (rafter ends): A rafter, bracket, or joist which projects beyond the side of a building and supports and overhanging portion of the roof (eave).

Reconstruction: The act or process of depicting, by means of new work, the form, features, and detailing of a non-surviving historic structure or any part thereof, for the purpose of replicating its appearance at a specific time in its historic location.

Rehabilitation: The act or process of making possible an efficient compatible use for a historic structure or landscape through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural and architectural values.

Restoration: The act or process of accurately depicting the form, features, and character of a historic structure as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

Ridge beam (or ridge pole): the longitudinal beam at a roof's ridge that receives the rafters.

Roof types:

Gable roof: a roof of two equal slopes joined to create a gable at each end
- **Cross gabled:** a gable intersecting the main roof at right angles, typically over the front entry.
- **Front gabled:** having the house entry and a gable end facing the street, with eaves on the sides.
- **Side gabled (or end-gabled):** having the house entry and an eave side facing the street, with gables at the ends.
- **Dutch gable:** hybrid of hipped and gable with the gable (wall) at the top and hipped lower down

Half-hipped/clipped gable/jerkinhead: The end of a roof that is hipped [sloped] for only part of its height, leaving a truncated gable.

Hipped: A gabled roof "beveled," or hipped, at both ends so that it slopes toward the peak from all sides.

Pyramidal: A hipped roof of four roughly equal sides meeting at the top in a pyramid.

Complex:

Pent: A secondary, shed-roofed structure added against the main house; a small roof or hood over an entry or window.

Shed: A roof having only one sloping plane and no hips, ridges or valleys.

Scale: The proportion used in determining the relationship of a representation to that which it represents. To draw or reproduce in accordance with a particular proportion or scale.

Secretary of the Interior's Standards for Rehabilitation: The set of standards that are regulatory for historic rehabilitation tax credit projects and are applied to all certified historic structures (interior and exterior) as well as the site and related new construction.

Setting: The physical environment of a historic property; the character of the place in which the property played its historical role.

Shop Drawings: Drawings submitted by the construction contractor or a subcontractor at any tier or required under a construction contract, showing in detail: the proposed fabrication and assembly of structural elements; the installation (i.e., form, fit, and attachment details) of materials or equipment; or both.

Sidelight: A window of set of windows that flank a door.

State Historic Preservation Office (SHPO): State Historic Preservation Officers (SHPOs) administer the national historic preservation program at the state level, review National Register of Historic Places nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review (federal agencies seek the views of the appropriate SHPO when identifying historic properties and assessing effects of an undertaking on historic properties). The governor of their respective state or territory designates SHPOs.

Stewardship: The cultural and natural resource protection ethic of employing the most effective concepts, techniques, equipment, and technology to prevent, avoid, or mitigate impacts that would compromise the integrity of park resources.

Streetscape: The appearance or view of a street.

Sustainability/Sustainable Design Practices: Sustainable Design Practices allow for use and enjoyment by the current generation, while ensuring that future generations will have the same opportunities. Sustainable Design Practices include those choices, decisions, actions and ethics that will best achieve ecological/biological integrity; protect qualities and functions of air, water, soil and other aspects of the natural environment; and preserve human cultures.

Parts of a window: (illustrate main components)

Sash: The frame of a window holding the glass, which may be fixed or movable, swinging (casement) or vertical sliding (single-, double-, or triple-hung).

- **Sash Weights**
- **Sash Cords**
- **Sash Pulleys**

Stile: vertical sash members

Rail (Meeting Rail): horizontal sash members

Divided lites: Division of light by the use of muntin bars.

- **Mullion:** a vertical bar between the panes of glass in a window.
- **Muntin:** a vertical bar between the panes of glass in a window.
- **Authentic or True Divided Lites (ADL or TDL):** Single or insulating glass, individually glazed between the muntin bars.
- **Simulated Divided Lites (SDL):** Muntins permanently adhered to the interior and exterior of the glass.
- **Space Bar:** Tiny aluminum bars inserted between SDL muntins to emulate an ADL/TDL.
- **Grilles Between Glass (GBG):** Aluminum flat or contour bars dividing the glass visually, but not physical

Frame: The framework that surrounds and supports the entire window system, consisting of head, jamb, and sill.

Head: The main horizontal portion at the top of a window frame.

Jamb: The main vertical portion at the sides of a window frame.

Sill: The main horizontal portion at the bottom of a window frame; a ledge forming the bottom part of a window.

Apron: A piece of casing or decorative trim installed against the wall immediately beneath the stool of a window.

Stool: A horizontal trim member that laps the window sill above the apron and extends beyond the interior casing.

Casing: the moldings that go around the window frames.

Drip cap: A piece of molding installed at the top of the window to allow water to run off the casing of the unit.

Pane: a single sheet of glass in a window.

Use: How the structure will be utilized following realization of its ultimate treatment. The function(s) the structure will serve and the activities which will take place within the structure.

Vernacular architecture: The common building style of a period or place based on regional forms and materials.

Virginia Department of Historic Resources (VDHR or DHR): A state agency under the Department of Natural Resources, which acts as the State Historic Preservation office in Virginia.

Virginia Landmarks Register (VLR): Virginia's official list of properties important to state history, established in 1966 and managed by the Department of Historic Resources.

Workmanship: The physical evidence of the crafts of a particular culture or people; the techniques and skills necessary to execute or construct a particular detail or feature.

Secretary of the Interior's Standards for Rehabilitation

The Secretary of the Interior's Standards are common sense principles in non-technical language, and therefore are often used as the basis for local historic district design guidelines. These standards were developed to help protect our nation's irreplaceable cultural resources by promoting consistent preservation practices. As such, they are written to apply to buildings ranging in size from a storage shed to a high-rise office building.

The word "rehabilitation" acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's character. The Standards for **Rehabilitation** are the most flexible of the four sets of Standards for the Treatment of Historic Properties created by the National Park Service. The other three treatment standards are **Restoration**, **Preservation**, and **Reconstruction**; these have not been used to develop this document, but can be found on the National Park Service's website.

SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION

1. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
2. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of its site and environment.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities, and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources may be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Incentive Programs

There are several programs available offering incentives for historic preservation activities. The two most well-known are the Federal and State historic rehabilitation tax credit programs. Historic tax credits are a dollar-for-dollar reduction on income tax liability for taxpayers who rehabilitate historic buildings. For entities that cannot use the credits (such as non-profits or churches), a process of syndication enables them to be transferred to a taxpaying entity in exchange for cash.

Federal

Historic Rehabilitation Tax credits

The Federal Tax Credit Program was established in 1977; to date, rehabilitations have occurred in all fifty states, Puerto Rico, and the Virgin Islands. The Federal Historic Rehabilitation Tax Credit Program offers a **20% income tax credit** for the rehabilitation of historic, **income-producing buildings** that are determined to be "certified historic structures." In order to be eligible, a property must be individually listed in the National Register of Historic Places, contributing to a National Register historic district, or deemed eligible, either individually or as part of a district, for inclusion in the National Register.

The tax credit program is a three-part application process:

- **Part 1 – Evaluation of Significance:** The Part 1 application provides information about the appearance and significance of the project building; this portion of the application is not required for buildings individually listed on the State and National Registers.
- **Part 2 – Description of Rehabilitation:** The Part 2 application describes the current condition of the building and outlines the planned scope of work for the rehabilitation. The proposed work is evaluated by the SHPO and NPS based on the Secretary of the Interior's Standards for Rehabilitation (for the full text of the SOIS for Rehab, see page x).
- **Part 3 – Request for Certification of Completed Work:** The Part 3 application is submitted upon project completion, and documents in photographs that the work was completed as proposed. Approval of this application certifies that the project meets the Standards and is a "certified rehabilitation," allowing the applicant to claim the 20% credit.

In order to adequately review the proposed work, SHPOs/NPS require the following documentation:

- **Photographs:** A comprehensive set of photographs documenting both the exterior and interior of a building prior to the start of work must be included with either the Part 1 or Part 2 application. Photographs should be in color, taken at a high resolution, and printed at least 4" x 6" in size on photographic paper. Photographs should also be numbered, labeled or captioned, and keyed to accurate existing floor plans.

- **Drawings:** Drawings illustrating the proposed work should be included with the Part 2 application. Sufficient detail should be included to show planned alterations or new construction. Typical drawings included with a Part 2 application include floor plans, elevations, and sections. Additional detailed drawings, such as those of existing and proposed new windows in the case of window replacement, may also be required for a successful Part 2 application.
- **Maps and Site Plans:** Maps are helpful to include with the Part 1 application to clearly identify the project building site, particularly if it is within a historic district. If available, historic maps, such as Sanborn Fire Insurance Maps, can also be included to help accurately document changes that were made to a building during or outside of the period of significance.

In order to qualify for the program, projects must be substantial in nature as judged by the Substantial Rehabilitation Test: for the Federal program the requirement is that eligible expenditures must exceed the owner's adjusted basis in the building or $5,000, whichever is greater. The measuring period for the Substantial Rehabilitation Test is 24 months, unless a project is phased, then the measuring period is extended to 60 months. The measuring period must end the same year that the project is completed, but the owner does not have to complete the project within the measuring period. For Federal projects, the adjusted basis is determined at the start of the measuring period. Additionally, if phased, the phasing plan must be in place prior to the start of construction. At the completion of a Federal project, there is a five-year holding period. The credits can be carried forward for twenty years, and back one year.

For additional information, the National Park Service has a guide to the Federal Historic Preservation Tax Program, which can be accessed here. Direct links to more information are also provided in the Resource Guide.

Virginia

State Historic Rehabilitation Tax Credits

The Virginia State Historic Rehabilitation Tax Credit Program was established in 1997. The Virginia program offers a **25% income tax credit** for the rehabilitation of historic, **owner-occupied or income-producing buildings** that are determined to be "certified historic structures"; income-producing projects often qualify for both State and Federal credits. As with the Federal program, in order to be eligible, a property must be individually listed in the National Register of Historic Places, contributing to a National Register historic district, or deemed eligible, either individually or as part of a district, for inclusion in the National Register.

The application process and required documentation is the same for the State and Federal programs.

In order to qualify for the program, projects must be substantial in nature as judged by the Substantial Rehabilitation Test: for the Virginia State program the requirement is dependent on whether the building is an owner-occupied residence or an income-producing property: for owner-occupied residences,

the eligible expenditures must be at least 25% of the local government's assessed value of the building (excluding land) in the year prior to starting work, while for income-producing properties, the eligible expenditures must be at least 50% of the local assessed value. The measuring period for the Substantial Rehabilitation Test is 24 months, unless a project is phased, then the measuring period is extended to 60 months. The measuring period must end the same year that the project is completed, but the owner does not have to complete the project within the measuring period. For Virginia projects, as described above, the assessed value is determined the year prior to starting work. Additionally, if phased, the phasing plan must be submitted with the Part 2 application. At the completion of a Federal project, there is no holding period; once the project is closed out, the applicant can do additional work on the building without reporting it to the Virginia Department of Historic Resources. The credits can be carried forward for ten years; there is no carryback with State credits.

Direct links to more information are also provided in the Resource Guide.

Regulatory Framework

Click here for online access to Virginia State Code Section 15.2-2306

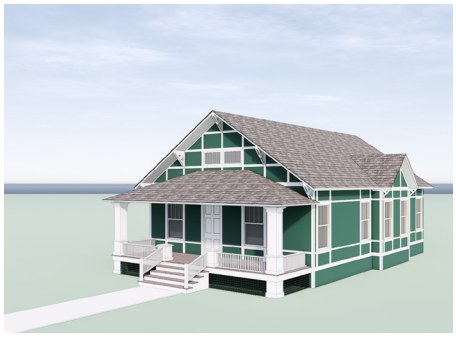
Cyclical Maintenance Checklist

Building name:

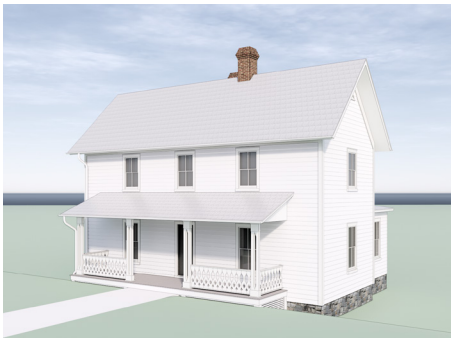
Building address:

Year:

Feature	Inspection Frequency	Date	Notes
Roof	Annually: Spring or Fall		
	Plus every 5 years by roofer		
Chimney(s)	Annually: Fall		
	Plus every 5 years by mason		
Roof Drainage	Bi-annually: Before wet season		
	Bi-annually: After wet season		
Exterior Walls	Annually: Spring		
Porch(es)	Annually: Spring		
Windows	Annually: Spring		
Foundation	Annually: Spring/During wet season		
Building Perimeter	Annually: Winter (after leaves drop)		
Entryways	Annually: Spring		
Doors	Bi-annually: Spring		
	Bi-annually: Fall		
Attic	Quarterly: Winter		
	Quarterly: Spring		
	Quarterly: Summer		
	Quarterly: Fall		
Basement/Crawl Space	Quarterly: Winter		
	Quarterly: Spring		
	Quarterly: Summer		
	Quarterly: Fall		








Historic District Overlay

GUIDELINES

2020

TOWN OF Herndon VIRGINIA

DRAFT | 10.24.2019

HERITAGE PRESERVATION OVERLAY DISTRICT
RESOURCE GUIDE

2019

TOWN OF Herndon VIRGINIA

HERITAGE PRESERVATION OVERLAY DISTRICT
RESOURCE GUIDE
2019

The Herndon Town Council

Mayor Lisa Merkel
Vice Mayor Sheila A. Olem
Councilmember Jennifer K. Baker
Councilmember Cesar del Aguila
Councilmember Pradip Dhakal
Councilmember Signe Friedrichs
Councilmember Bill McKenna

The Herndon Department of Community Development

The Herndon Heritage Preservation Review Board

Chairman Robert B. Walker
Vice Chair Leslie Blaker-Glass
Board Member Eric Boll
Board Member Eric Fielding
Board Member Mike McFarlane
Board Member/Architect Matthew Ossolinski
Board Member/Architect Hiren Shah

Commonwealth Preservation Group

Work Program Architects

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Virginia Department of Historic Resources (DHR)

Certified Local Government
Herndon is a Certified Local Government (CLG), which provides a means for communities to strengthen their local preservation programs by establishing a partnership with the State Historic Preservation Office (SHPO). Benefits include access to grant funding for preservation programs.

Historic Resource Commission – CLG Training Workshops
DHR offers Historic Resource Commission/CLG Training Workshops each year throughout the state. (Note: This link is for the 2019 training sessions.)

Rehabilitation Tax Credits
Find out more about the financial incentives available for historic resources. DHR administers both the state and federal rehabilitation tax credit programs.

Classic Commonwealth: Virginia Architecture from the Colonial Era to 1940
This publication was created to aid in identifying architectural resources in Virginia, providing a brief overview of the historic and architectural development.

New Dominion Virginia, Architectural Style Guide
Created to aid in historic resource surveys and the Virginia Cultural Resources Information System (VCRIS) database, the New Dominion Style Guide provides an updated list of styles that emerged after World War II (1946 to present day). This resource is particularly useful in identifying recent past resources.

A Handbook and Resource Guide for Owners of Virginia's Historic Houses
This resource provides homeowners with best preservation practices when project planning a historic home renovation.

How to Research your Historic Virginia Property
This document outlines the different types of sources available when researching the history of a property, including city directories, deeds, plats,

Older, Smaller, Better: Measuring how the character of buildings and blocks influences urban vitality by the National Trust for Historic Preservation's Preservation Green Lab
This May 2014 report asserts that neighborhoods with smaller, older buildings support more positive economic and social activity than areas featuring larger, newer buildings. The report provides tips for other communities to realize the benefits of their historic resources by implementing recommendations informed by the case studies.

Sustainability:

Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings by Technical Preservation Services, National Park Service
This document offers guidance on how to sensitively make historic buildings more sustainable in a way, while preserving their historic character and meeting The Secretary of the Interior's Standards for Rehabilitation. The guidance also features illustrated examples of both appropriate and inappropriate treatments.

Saving Energy in Historic Buildings: Balancing Efficiency and Value by John H. Cluver and Brad Randall – published in APT Bulletin: Journal of Preservation Technology (41:1, 2010)
This article identifies the benefits of energy modeling and life-cycle costing as a means to increase energy efficiency in historic buildings in an appropriate way.

The Greenest Building: Quantifying the Environmental Value of Building Reuse by the National Trust for Historic Preservation's Preservation Green Lab
This study provides a comprehensive analysis of the potential environmental impact reductions associated with building reuse by utilizing a Life Cycle Analysis (LCA) methodology to compare the environmental impacts of building reuse and renovation versus new construction.

8 Ways to Green Your Historic House by the National Trust for Historic Preservation, Preservation Tips and Tools
A list of eight ways to increase the energy efficiency of your historic home - without replacing the historic windows!

6 Low-Cost, Energy-Saving Tips for Homeowners by the National Trust for Historic Preservation, Preservation Tips and Tools
Tips for saving energy in your historic home by taking advantage of the existing features of historic buildings.

Design References:

A Field Guide to American Houses by Virginia Savage McAlester
A comprehensive guide to domestic American architecture, including illustrations and descriptions of house styles.

Traditional Construction Patterns: Design & Detail Rules of Thumb by Stephen Mouzon
A well-illustrated reference guide to traditional construction details.

Get Your House Right: Architectural Elements to Use & Avoid by Marianne Cusato and Ben Penetreath
A guide to the details of traditional architecture, including aesthetics of form and appropriateness to a neighborhood.

Planning Successful Rehabilitation Projects: Codes and Regulatory Requirements for Rehabilitating Historic Buildings

Planning Successful Rehabilitation Projects: Energy Efficiency, Sustainability, and Green Building Practices in Historic Buildings

Planning Successful Rehabilitation Projects: Evaluating Substitute Materials in Historic Buildings

Interpreting the Standards Bulletin No. 21: Adding New Openings on Secondary Elevations

Interpreting the Standards Bulletin No. 22: Adding New Entrances to Historic Buildings

Interpreting the Standards Bulletin No. 26: Entrance Treatments

Interpreting the Standards Bulletin No. 33: Alterations to Rear Elevations

Interpreting the Standards Bulletin No. 38: Alterations without Historical Basis

Interpreting the Standards Bulletin No. 39: Changes to Historic Site

Interpreting the Standards Bulletin No. 41: Incompatible Alterations to the Setting and Environment of a Historic Property

Interpreting the Standards Bulletin No. 50: Reusing Special Use Structures

Interpreting the Standards Bulletin No 52: Incorporating Solar Panels in a Rehabilitation Project

Interpreting the Standards Bulletin No. 56: Alterations without Historical Basis

Roofs:

Preservation Brief No. 4 – Roofing for Historic Buildings

Preservation Brief No. 19 – The Repair and Replacement of Historic Wooden Shingle Roofs

Preservation Brief No. 29 – The Repair, Replacement, and Maintenance of Historic Slate Roofs

Preservation Brief No. 30 – The Preservation and Repair of Historic Clay Tile Roofs

Exterior Wood:

Preservation Brief No. 8 – Aluminum and Vinyl Siding on Historic Buildings: The Appropriateness of Substitute Materials for Resurfacing Historic Wood Frame Buildings

Preservation Brief No. 10 – Exterior Paint Problems on Historic Woodwork

Preservation Brief No. 45 – Preserving Historic Wood Porches

Interpreting the Standards Bulletin No. 4: Inappropriate Replacement Doors

Interpreting the Standards Bulletin No. 9: Inappropriate Porch Alterations

Preservation Tech Notes: Exterior Woodwork, No. 1 – Proper Painting and Surface Preparation

APT Practice Points 03 – Basics for Wood Inspection: Considerations for Historic Preservation

APT Practice Points 14 – Wood Preservatives and Pressure-treated Wood: Considerations for Historic Preservation Projects

Vinyl is Not Final by Katrina L. Klingman – published in Kansas Preservation newsletter (July-August 2003, Vol. 25, No. 4)

This article addresses potential problems that can be caused by installing replacement siding.

Commercial Building Concerns:

Preservation Brief No. 11 – Rehabilitating Historic Storefronts

Preservation Brief No. 12 – The Preservation of Historic Pigmented Structural Glass (Vitrolite and Carrara Glass)

Preservation Brief No. 25 – The Preservation of Historic Signs

Preservation Brief No. 32 – Making Historic Properties Accessible

Preservation Brief No. 46 – The Preservation and Reuse of Historic Gas Stations

Interpreting the Standards Bulletin No. 2: New Infill for Historic Garage Openings

Interpreting the Standards Bulletin No. 13: Repair/ Replacement of Missing or Altered Storefronts

Interpreting the Standards Bulletin No. 16: New Infill for Historic Loading Door Openings

Interpreting the Standards Bulletin No. 27: Adding Awnings to Historic Storefronts and Entrances

Interpreting the Standards Bulletin No. 29: Adding Vehicular Entrances and Garage Doors to Historic Buildings

Interpreting the Standards Bulletin No. 30: New Entries on Mill Buildings

Interpreting the Standards Bulletin No. 42: Industrial Bridges in Mill Complexes

Interpreting the Standards Bulletin No. 43: Converting Fire Escapes to Balconies in Mill Complexes

Interpreting the Standards Bulletin No. 48: Replacement of Missing or Altered Storefronts

Interpreting the Standards Bulletin No. 49: Designing Compatible Replacement Storefronts

Interpreting the Standards Bulletin No. 55: Retaining Industrial Character in Historic Buildings

New Additions and New Construction:

Preservation Brief No. 14 – New Exterior Additions to Historic Buildings: Preservation Concerns

Planning Successful Rehabilitation Projects: New Additions to Historic Buildings

Planning Successful Rehabilitation Projects: New Construction within the Boundaries of Historic Properties

Interpreting the Standards Bulletin No. 3: New Additions to Mid-Size Historic Buildings

Interpreting the Standards Bulletin No. 10: Exterior Stair/ Elevator Tower Additions

Interpreting the Standards Bulletin No. 18: New Additions to Mid-Size Historic Buildings

Interpreting the Standards Bulletin No. 34: Completing Never-Built Portions of a Historic Building

Interpreting the Standards Bulletin No. 36: Rooftop Additions

Interpreting the Standards Bulletin No 37: Rear Additions to Historic Houses

Interpreting the Standards Bulletin No. 47: Rooftop Additions on Mid-Size Historic Buildings

Interpreting the Standards Bulletin No. 53: Designing New Additions to Provide Accessibility

Preservation Briefs: All

Planning Successful Rehabilitation Projects: All

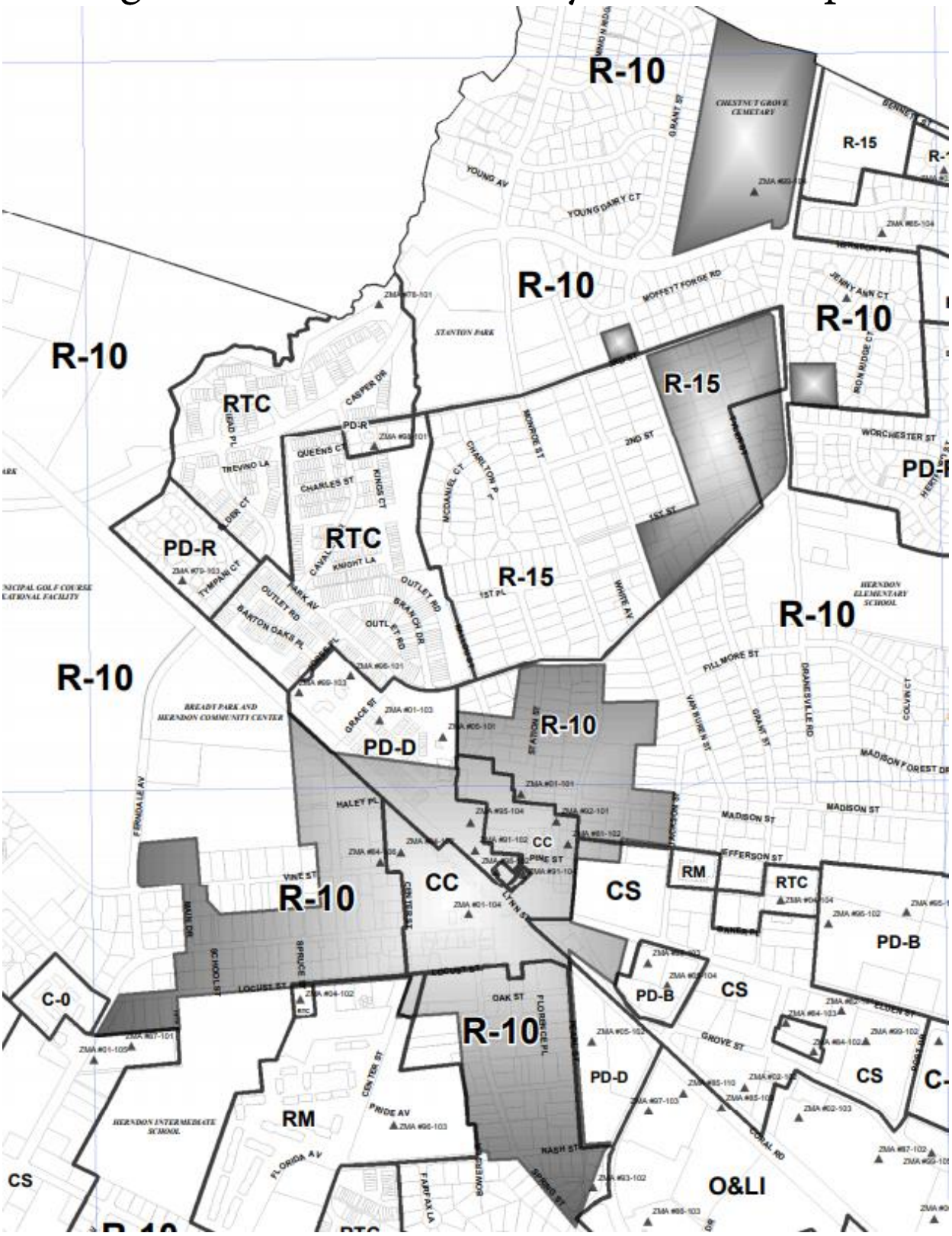
Interpreting the Standards Bulletins: All

Preservation Tech Notes: All

APT Practice Points: All

TOWN OF Herndon

Heritage Preservation Overlay District Map



TOWN OF Herndon VIRGINIA

STAFF REPORT

Town Council
November 10, 2020

Title: Special Exception SE #19-05, Fairbrook Park Development in the Floodplain

Staff Contact: David Stromberg, Zoning Administrator
david.stromberg@herndon-va.gov (703)787-7380

Elizabeth M. Gilleran, AICP, Director of Community Development
lisa.gilleran@herndon-va.gov (703) 787-7380

Summary Information

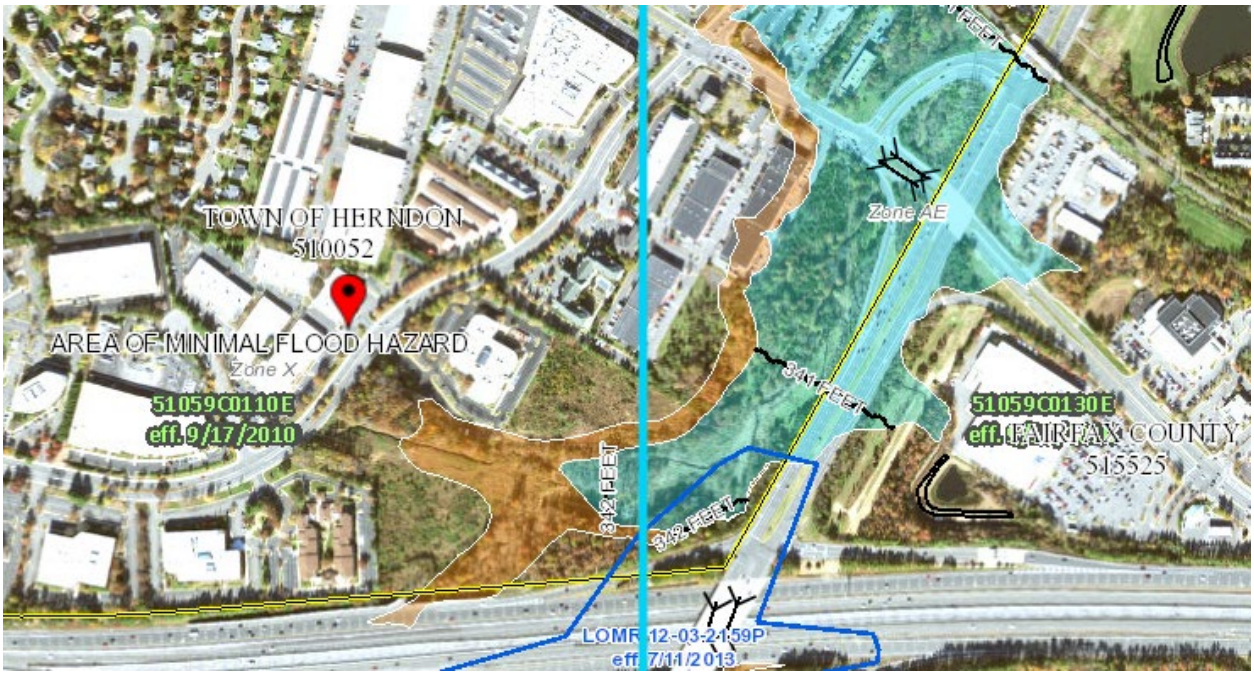
Applicant Request	An application for development within the floodplain to develop a public road and a mixed-use development consisting of four buildings. A portion of a private road crosses Sugarland Run and a portion of Fairbrook Drive is within the floodplain.
Address	100, 150, 200 Fairbrook Drive, Fairbrook Business Park
Owner	Fairbrook Business Park Associates, LP. and Fairbrook Business Park Associates II LP.
Representative	Bob Knopf, Fairbrook Business Park Associates, LP.
Agent	Elizabeth Baker, Walsh, Colucci, Lubeley & Walsh, PC
Existing Zoning	O&LI – Landmark Business Option
Overlay Zoning	CBPAO – Chesapeake Bay Preservation Area Overlay district FPO – Floodplain Overlay district
Flood Map Effective Date	September 17, 2010
Community Flood Number	510052
Flood Map Panels	51059C0110E and 51509C0130E
Total Site Area	27.5 acres
Existing Use	Office/Vacant
Proposed Use	Office, mixed-use, residential
Related Cases	SE #17-03 (Proposed Development) & RPA #17-01 (Resource Protection Area Exception)

Planning Commission Recommendation	APPROVAL, with conditions
Staff Recommendation	APPROVAL, with conditions

Location Map



Site Description



A portion of the property is located within the Special Flood Hazard Area, identified as areas "AE" (and shown in blue) on the Flood Insurance Rate Map (FIRM). Base Flood Elevations (BFE) are provided in AE zones on the FIRM. This area is also known colloquially as the 100-year flood zone where there is a one percent chance of a flood occurring up to the BFE in any given year.

Portions of the site are also located in the X(shaded)/X500 flood zone, identified in brown above. This area is known colloquially as the 500-year flood where there is a 0.2 percent chance of a flood event in any given year.

The existing floodplain within the study area is shown on Sheet 03.01 of the plan.

Background

Additional background information is contained in the staff report for SE #17-03. This section is focused on information pertinent to the Floodplain Overlay district.

Proposed Impact on the Floodplain

Any application for development in the floodplain must be accompanied by a hydrologic and hydraulic analysis that shows the existing conditions and any changes as a result of the proposed development. The calculations from these studies comprise the majority of sheets in the plan.

The applicant is proposing to cross Sugarland Run with a private road that connects Fairbrook Drive with the two office buildings constructed on top of a parking garage. The road will include two, 5.5 foot by 6 foot box culverts to allow the flow of water. The location of the road and box culverts are shown on Sheets 07.01 and 08.04 of the plan.

The extent of the floodplain is located directly east of proposed Fairbrook Drive. Portions of the grading required to construct Fairbrook Drive at the appropriate elevation extend into the floodplain. This is also shown on Sheet 07.01.

The applicant is coordinating final re location of the town's sanitary sewer metering station to ensure there are no negative impacts to the floodplain from the relocation.

The applicant is proposing to further restrict any future impacts to the floodplain by dedicating a restrictive floodplain easement to the town.

Staff Analysis

<u>Zoning Ordinance Compliance</u>

Applications for development within the floodplain are required to submit technical data during the legislative application (special exception) and again at the administrative application (site plan) in order to evaluate the impacts of the overall development and any changes that might occur to the site during final engineering. If a Letter of Map Revision (LOMR) is required the be approved by the Federal Emergency Management Agency (FEMA) then that process will occur concurrently with the site plan.

The floodwater elevation profiles shown on Sheets 08.01 – 08.05 show that the proposed development will not negatively impact the 100-year surface elevations and that there will not be any increase in the extent of the floodplain.

New Flood Maps

FEMA is in the process of issuing new flood insurance rate maps for Herndon, Fairfax County, and the other incorporated localities within Fairfax County. The preliminary maps are available online for public viewing. These maps are expected to be finalized in summer/fall of 2021 and then the town will have six months to officially adopt them. It is expected that the new maps will be in effect at the time of site plan review.

The applicant has included a note on the plan acknowledging the new maps and stating the analysis will be performed again using the new FIRM maps at the time of site plan submission. A condition has been added by staff requiring the new maps to be used.

Analysis of Conditions

Staff is recommending conditions to ensure dedication of the floodplain easement and use of the new FEMA FIRM maps when this development is submitted for administrative site plan review.

Town Council Alternative

The Town Council has the following alternatives available for its decision on SE #19-05:

- Approve SE #19-05 as submitted by the applicant (with no conditions)
- Approve SE #19-05 with conditions in accordance with the draft resolution (Attachment #1)
- Approve SE #19-05 with certain revisions to the draft resolution provided
- Deny SE #19-05

The Town Council may also opt to continue the public hearing to a future Town Council meeting if the Council believes their review requires additional time.

Planning Commission Recommendation and Comments

The Planning Commission recommended approval of SE #19-05 in accordance with the resolution dated October 26, 2020.

Staff Recommendation

Staff recommends approval of SE #19-05 in accordance with the draft resolution dated November 17, 2020 and provided as Attachment #1 to this report.

Attachments

1. Draft Town Council Resolution
2. Approved Planning Commission Resolution – Dated October 26, 2020
3. Recommended Development Conditions - Dated November 17, 2020
4. Fairbrook Business Park Floodplain Study – Sealed October 16, 2020

Elizabeth M. Gilleran, AICP
Director of Community Development

David Stromberg, AICP
Zoning Administrator

TOWN OF HERNDON, VIRGINIA

TOWN COUNCIL

DRAFT RESOLUTION

November 17, 2020

Resolution- to approve with conditions Special Exception SE #19-05 for development in the Floodplain Overlay District to allow a mixed-use development.

WHEREAS, the applicant, Fairbrook Business Parks Associates and LP and Fairbrook Business Parks Associates II, LP, has submitted an associated application, special exception SE #17-03, to permit a mixed-use development consisting of residential, office and retail square footage not to exceed 1,515,000 total square feet or a maximum of 1.25 FAR, with a residential to office percentage not to exceed 60 percent residential at total build out on property located at 100, 150, 200 Fairbrook Drive, Fairbrook Business Park and identified as Fairfax County Tax Map Reference Numbers: 0164-10-0005A, 0164-25-H, 0164-25-O in accordance with the plan dated October 16, 2020; and

WHEREAS, any development within the floodplain requires a special exception to be approved by the town council; and

WHEREAS, the applicant is proposing certain improvements and alterations to the grade within the floodplain; and

WHEREAS, the applicant has demonstrated through hydraulic and hydrologic modeling analysis that the proposed improvements and grade changes will not result in an increase in flood heights or an increase in the extent of the floodplain; and

WHEREAS the applicant will incorporate the most recently issued FEMA flood maps available and rerun the modeling analysis at the time of site plan final engineering; and

WHEREAS the Planning Commission has found that the special exception request, with the conditions dated October 26, 2020 meets the purpose and intent of the Zoning Ordinance, in particular Section 78-155.3 Special exception and Section 78-60.2 Floodplain Overlay district, including the allowances and criteria found therein; and

WHEREAS, the Town Council has reviewed this application and has held a public hearing on November 17, 2020 in accordance with the provisions of §15.2-2204 of the State Code; and

WHEREAS, the Town Council has found that the proposed development, with the conditions dated October 26, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-155.3 Special exception and Section 78-60.2 Floodplain Overlay district, including the allowances and criteria found therein; and

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of the Town of Herndon, Virginia, hereby recommends that the Town Council approved Resource Protection Area Exception RPA #17-01, in accordance with the conditions set forth below to achieve compliance with the standards found in Section 78-155.3 and Section 78-60.4.

[INSERT CONDITIONS]

TOWN OF HERNDON, VIRGINIA

PLANNING COMMISSION

DRAFT RESOLUTION

October 26, 2020

Resolution- to recommend approval with conditions of Special Exception SE #19-05 to the Town Council allowing development in the Floodplain Overlay District to allow a mixed-use development.

WHEREAS, the applicant, Fairbrook Business Parks Associates and LP and Fairbrook Business Parks Associates II, LP, has submitted an associated application, special exception SE #17-03, to permit a mixed-use development consisting of residential, office and retail square footage not to exceed 1,515,000 total square feet or a maximum of 1.25 FAR, with a residential to office percentage not to exceed 60 percent residential at total build out on property located at 100, 150, 200 Fairbrook Drive, Fairbrook Business Park and identified as Fairfax County Tax Map Reference Numbers: 0164-10-0005A, 0164-25-H, 0164-25-O in accordance with the plan dated October 16, 2020; and

WHEREAS, any development within the floodplain requires a special exception to be approved by the town council; and

WHEREAS, the applicant is proposing certain improvements and alterations to the grade within the floodplain; and

WHEREAS, the applicant has demonstrated through hydraulic and hydrologic modeling analysis that the proposed improvements and grade changes will not result in an increase in flood heights or an increase in the extent of the floodplain; and

WHEREAS the applicant will incorporate the most recently issued FEMA flood maps-available and rerun the modeling analysis at the time of site plan final engineering; and

WHEREAS, the Planning Commission has reviewed this application and has held a public hearing on October 26, 2020 in accordance with the provisions of §15.2-2204 of the State Code; and

WHEREAS, the Planning Commission finds that the proposed development, with the conditions dated October 26, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-155.3 Special exception and

Section 78-60.2 Floodplain Overlay district, including the allowances and criteria found therein; and

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of the Town of Herndon, Virginia, hereby recommends that the Town Council approved Special Exception SE #19-05, in accordance with the conditions set forth below to achieve compliance with the standards found in Section 78-155.3 and Section 78-60.4.

Conditions of Approval
Special Exception #19-05, 100, 150, 200 Fairbrook Drive, Fairbrook Business Park

1. Substantial Conformance. The development of the Special Exception use described in Condition 2 below shall be in substantial conformance with Sheets 01.01 through 12.02 of the plan entitled "Fairbrook Business Park Floodplain Study" sealed October 16, 2020 by Kyle M. O'Connor, prepared by VIKA Virginia, LLC (the "**Plan**"), incorporated by reference and the Town of Herndon Zoning Ordinance (the "**Zoning Ordinance**"). Approval of this application for the approximately 4.60-acre parcel identified as Fairfax County Tax Map Reference Number 0164-10-0005A, the 2.52-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-H, and the 20.44-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-O (the "**Property**") shall not relieve the applicant or the owners of the Property their successors or parties developing, establishing or operating the approved Special Exception use (the "**Applican**t") from the obligation to comply with and conform to an Zoning Ordinance, the Town of Herndon Codified Ordinance or regulatory Requirement.

2. Use Permitted. This Special Exception grants approval to permit development within the FPO, Floodplain Overlay district pursuant to Section 78-60.2 of the Zoning Ordinance.

3. Development. Development within the Floodplain on the Property includes constructing a portion of Fairbrook Drive, outdoor recreation facilities, and associated grading within the Floodplain Overlay district.

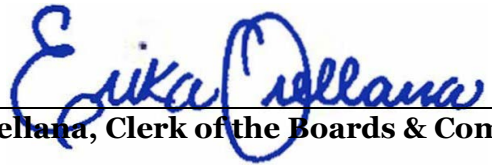
4. Sanitary Sewer Metering Station. The relocation of the town sanitary sewer meter station, and all support appurtenances and access to the meter for maintenance, as determined by the Department of Public Works, shall be incorporated into the modeling calculations and shall not result in an adverse impact to the extent or elevations of the floodplain.

5. Floodplain Easement. The Applicant shall dedicate to the Town from the Property, at no public cost, a restrictive floodplain easement. Said easement shall be submitted to

the Town for review and approval, and the approved easement shall be recorded in the Fairfax County land records prior to the approval of a site plan for the Property.

6. Revised Flood Insurance Rate Maps (FIRMs). The applicant shall perform new hydraulic and hydrodynamic analysis using the most recent flood insurance rate map issued by FEMA. In the event the draft FIRM maps have not yet been finalized by FEMA and adopted by the town, the applicant shall use the draft FIRM maps.

This is certified to be a true and accurate copy of the resolution above, with conditions for SE#19-05 adopted at a legally convened meeting of the Planning Commission of the Town of Herndon on October 26, 2020.



Erika Orellana, Clerk of the Boards & Commissions

Conditions of Approval

Special Exception #19-05, 100, 150, 200 Fairbrook Drive, Fairbrook Business Park

November 17, 2020

1. Substantial Conformance. The development of the Special Exception use described in Condition 2 below shall be in substantial conformance with Sheets 01.01 through 12.02 of the plan entitled "Fairbrook Business Park Floodplain Study" sealed October 16, 2020 by Kyle M. O'Connor, prepared by VIKA Virginia, LLC (the "**Plan**"), incorporated by reference and the Town of Herndon Zoning Ordinance (the "**Zoning Ordinance**"). Approval of this application for the approximately 4.60-acre parcel identified as Fairfax County Tax Map Reference Number 0164-10-0005A, the 2.52-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-H, and the 20.44-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-O (the "**Property**") shall not relieve the applicant or the owners of the Property their successors or parties developing, establishing or operating the approved Special Exception use (the "**Applican**t") from the obligation to comply with and conform to an Zoning Ordinance, the Town of Herndon Codified Ordinance or regulatory Requirement.

2. Use Permitted. This Special Exception grants approval to permit development within the FPO, Floodplain Overlay district pursuant to Section 78-60.2 of the Zoning Ordinance.

3. Development. Development within the Floodplain on the Property includes constructing a portion of Fairbrook Drive, outdoor recreation facilities, and associated grading within the Floodplain Overlay district.

4. Sanitary Sewer Metering Station. The relocation of the town sanitary sewer meter station, and all support appurtenances and access to the meter for maintenance, as determined by the Department of Public Works, shall be incorporated into the modeling calculations and shall not result in an adverse impact to the extent or elevations of the floodplain.

5. Floodplain Easement. The Applicant shall dedicate to the Town from the Property, at no public cost, a restrictive floodplain easement. Said easement shall be submitted to the Town for review and approval, and the approved easement shall be recorded in the Fairfax County land records prior to the approval of a site plan for the Property.

6. Revised Flood Insurance Rate Maps (FIRMs). The applicant shall perform new hydraulic and hydrodynamic analysis using the most recent flood insurance rate map issued by FEMA. In the event the draft FIRM maps have not yet been finalized by FEMA and adopted by the town, the applicant shall use the draft FIRM maps.

PERFORMANCE BOND ESTIMATE

ITEM NO.		ITEM	QUANTITY	UNIT	UNIT PRICE	COST
		CLEARING & GRUBBING		ACRES		
		EXCAVATION		CU. YDS.		
		EMBANKMENT		CU. YDS.		
		OVERLOT GRADING		LOTS		
	DRAINAGE STRUCTURES					
		CONCRETE PIPE		LIN. FT.		
		CONCRETE PIPE		LIN. FT.		
		CONCRETE PIPE		LIN. FT.		
		CONCRETE PIPE		LIN. FT.		
		CONCRETE PIPE		LIN. FT.		
		CONCRETE PIPE		LIN. FT.		
		PAVED DITCH		LIN. FT.		
		RIP RAP		SQ. FT.		
		CONCRETE ENDWALL		EACH		
		CONCRETE ENDWALL		EACH		
		CONCRETE ENDWALL		EACH		
		CONCRETE END SECTION		EACH		
		DRIVEWAY ENTRANCE		EACH		
		SIDEWALK		LIN. FT.		
		HEADER CURB		LIN. FT.		
		CURB & GUTTER		LIN. FT.		
		SURFACE TREATMENT		SQ. YDS.		
		BITUMINOUS CONCRETE SURFACE		SQ. YDS.		
		BASE COURSE		SQ. YDS.		
		SUBBASE MATERIALS		SQ. YDS.		
		STREET SIGNS		EACH		
		STREET LIGHTS		EACH		
		ROADSIDE DELINEATORS		EACH		
		TRAFFIC BARRICADE		EACH		
		PIPES OR MONUMENTS AS SHOWN ON PLAT		EACH		
		WATER LINE		LIN. FT.		
		FIRE HYDRANTS		EACH		
		SANITARY SEWER		LIN. FT.		
		AS-BUILT PLAN		LUMP SUM		
		PLUS 10% ENGINEERING FEE & MISC.				
		TOTAL:				

CASH ESCROW BOND ESTIMATE

ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	COST
1	EROSION/SEDIMENTATION CONTROL (SEE ZONING ORD. FOR APPROPRIATE FEE, MIN. $1000)				
2	TREE REPLACEMENT				
3	ARBORIST FEE				
4	DAMAGE TO EXISTING PUBLIC UTILITIES (TO BE COMPUTED BY THE TOWN OF HERNDON)	_____	L.S.		_____
5	LANDSCAPING	_____	L.S.		_____
				TOTAL:	

APPLICATION FEES

(SEE SECTION 78-201.2 OF THE TOWN CODE FOR FEES)

TYPE OF APPLICATION: FLOODPLAIN STUDY

CALCULATION OF APPLICATION FEE: $1,000

APPLICATION FEE PAID (Official Use Only): DATE: XX/XX/2019 AMOUNT: $1,000

REVIEW AND INSPECTION FEE SCHEDULE

(SEE SECTION 78-201.2 AND SECTION 26-335 OF THE TOWN CODE FOR FEES)

ITEM	QUANTITY	UNIT	FEE PER UNIT FOR SUBDS.	FEE PER UNIT FOR SITE PLANS	FEE
BITUMINOUS SURFACE		SQ. YDS.	.51	.51	
CURB & GUTTER OR HEADER CURB		LIN. FT.	.92	.92	
SIDEWALK		LIN. FT.	1.35	1.35	
SANITARY SEWER		LIN. FT.	2.34	2.34	
T.V. INSPECTION		LIN. FT.	2.32	2.32	
WATERLINE		LIN. FT.	1.75	1.75	
STORM DRAINAGE		LIN. FT.	4.39	4.39	
VSMP STORMWATER MANAGEMENT FEE (See Town Code Section 26-335)		LUMP SUM			
BIORETENTION FACILITIES (RAIN GARDENS)		EACH	250.00	250.00	
STORMWATER DETENTION/BMP MEASURES (other than rain gardens)		EACH	1000.00	1000.00	
OVERLOT GRADING AND SURFACE DRAINAGE PLAN (per division of land or per disturbed acre, whichever is greater)		LOT/ACRE	200.00	200.00	
STREETLIGHTS		PER LIGHT	50.00	50.00	
MISCELLANY		ACRE	675.00(min.)	675.00(min.)	
SCREENING		LIN. FT.	2.34	4.34	
@ LINEAR FEET OF STREET		LIN. FT.	1.20		
ESTIMATED FEE – TOTAL					
INITIAL FEE PAYMENT (50% OF ESTIMATED FEE)	(RECEIPT #		DATE	)	
BALANCE OF FEE (COMPUTED BY TOWN)	(RECEIPT #		DATE	)	

NOTES

1. THE METHODS AND MATERIALS USED IN THE CONSTRUCTION OF THE IMPROVEMENTS HEREIN SHALL CONFORM TO THE CURRENT TOWN OF HERNDON STANDARD SPECIFICATIONS, CURRENT FAIRFAX COUNTY DESIGN AND CONSTRUCTION STANDARDS, AND THE CURRENT VDOT ROAD AND BRIDGE SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN THE STANDARDS AND SPECIFICATIONS, PREVAILING GUIDELINES SHALL BE SELECTED BY THE TOWN OF HERNDON.
2. A PERMIT MUST BE OBTAINED FROM THE TOWN OF HERNDON BEFORE ANY CONSTRUCTION IS STARTED IN CONFORMITY WITH THESE PLANS.
3. A PERMIT MUST BE OBTAINED FROM THE OFFICE OF THE RESIDENT ENGINEER, VDOT, FAIRFAX, VIRGINIA, BEFORE ANY CONSTRUCTION IS STARTED ON ANY EXISTING STATE HIGHWAY.
4. THE DEVELOPER IS REQUIRED TO NOTIFY THE TOWN OF HERNDON, PRIOR TO THE BEGINNING OF CONSTRUCTION. THE DEVELOPER SHALL REQUIRE THAT ALL OF HIS CONTRACTORS SPECIFICALLY REQUEST INSPECTION AT LEAST TWENTY FOUR (24) HOURS BEFORE BEGINNING:
   (A) CLEARING AND GRUBBING
   (B) INSTALLATION OF SILTATION AND EROSION CONTROL MEASURES
   (C) EARTHWORK
   (D) INSTALLATION OF ANY UNDERGROUND UTILITY
   (E) INSTALLATION OF ANY FORMS
   (F) PLACING ANY CONCRETE
   (G) BEFORE PLACING SUBBASE, BASE, OR PAVING SURFACE

   FAILURE TO DO SO FOR ANY REASON SHALL CONSTITUTE REJECTION OF SAID WORK.
5. ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED BY THE DEVELOPER OR HIS ENGINEER PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF THESE UTILITIES.
6. ALL UTILITIES INSTALLED AS A PART OF THIS DEVELOPMENT SHALL BE PLACED UNDERGROUND.
7. ALL UNDERGROUND UTILITIES WITHIN THE STREET RIGHT OF WAY AND ALL SERVICE CONNECTIONS SHALL BE INSTALLED TO THE REQUIRED DISTANCE BEYOND THE RIGHT OF WAY LINE PRIOR TO THE INSTALLATION OF ANY SUBBASE MATERIAL, CURB AND GUTTER, OR SIDEWALK.
8. ALL UTILITIES TO BE TAKEN OVER BY THE TOWN FOR MAINTENANCE PURPOSES, MUST BE INSPECTED, TESTED AND APPROVED BY THE TOWN BEFORE BEING ACCEPTED INTO THE TOWN'S SYSTEM.
9. CUT SHEETS SHALL BE SUBMITTED TO AND APPROVED BY THE TOWN OF HERNDON PRIOR TO THE START OF CONSTRUCTION OF ANY UNDERGROUND UTILITIES, STREETS, OR CURBS AND GUTTERS.
10. SANITARY SEWERS: ALL SANITARY SEWER MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH THE CURRENT TOWN OF HERNDON STANDARDS AND SPECIFICATIONS.
11. STORM SEWERS:
   (A) STORM SEWER AND CULVERT PIPE SHALL BE REINFORCED CONCRETE PIPE TO CONFORM TO THE CURRENT A.A.S.H.T.O. DESIGNATION M 170, UNLESS OTHERWISE DESIGNATED ON THE PLANS. CLASS II PIPE WILL BE PERMITTED BEYOND THE LIMITS OF THE STREET RIGHT OF WAY. CLASS III PIPE WILL BE REQUIRED WITHIN THE LIMITS OF THE RIGHT OF WAY.
   (B) UNDERDRAINS AND/OR CROSSDRAINS SHALL BE INSTALLED BY THE DEVELOPER WHERE DEEMED NECESSARY BY THE TOWN OF HERNDON.
12. STREETS:
   (A) ALL BASE AND SUBBASE MATERIAL SHALL BE COMPACTED TO 95% OF THEORETICAL MAXIMUM DENSITY AS DETERMINED BY A.A.S.H.T.O. T-99 METHOD A, WITHIN PLUS OR MINUS 20% OF OPTIMUM MOISTURE FOR THE FULL WIDTH OF ANY DEDICATED RIGHT OF WAY AND ALL TOWNHOUSE STREETS, COMMERCIAL AND INDUSTRIAL PARKING LOTS, PRIVATE STREETS, PARKING BAYS, CURB AND GUTTER, AND SIDEWALKS ADJACENT TO STREETS AND PARKING LOTS (NOT INTENDED TO INCLUDE LEAD SIDEWALKS).
   (B) SOIL REPORTS AND SUBGRADE SPECIFICATIONS SHALL BE SUBMITTED TO THE TOWN OF HERNDON FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION OF ANY SIDEWALKS, CURB AND GUTTER, STREETS OR PARKING AREAS.
   (C) ROADWAY DESIGN IS BASED ON A CBR OF 10. CBR TESTS OF SUBGRADE SOILS MUST BE CONDUCTED FOR ACTUAL DETERMINATION OF ROADWAY DESIGN. ROADWAY DESIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT VDOT PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS, AND SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND APPROVAL.
   (D) STANDARD STREET NAME SIGNS SHALL BE APPROVED BY FAIRFAX COUNTY SIGN SHOP AND SHALL BE INSTALLED AT EACH INTERSECTION BY THE DEVELOPER, AS WELL AS REQUIRED TRAFFIC CONTROL SIGNS IN THE DEVELOPMENT. SIGN FASTENERS SHALL BE 5/16" #18 STAINLESS STEEL HEX BOLTS AND NUTS USS-NO RIVETS PERMITTED.
   (E) WHERE INSTALLATION OF ROADWAY SIGN IS ANYTHING OTHER THAN IN SOIL AREA, A PVC SLEEVE SHALL BE INSTALLED. SLEEVE SHALL BE MINIMUM 18" DEEP. SIZE OF PVC SLEEVE SHALL BE APPROPRIATE TO SIZE OF POST BEING INSTALLED, AND SHALL ALLOW FOR WEDGING TO STABILIZE SIGN POST.
   (F) WHERE SIGN IS DESIGNED TO BE INSTALLED IN CONCRETE MEDIAN, A 12" X 12" AREA SHALL BE LEFT VOID OF CONCRETE. PVC SLEEVE SHALL BE INSTALLED AS INDICATED ABOVE.
   (G) SIGN MATERIAL SHALL BE MINIMUM HIGH INTENSITY SHEETING, AND NO ENGINEER GRADE MATERIAL SHALL BE ALLOWED.
   (H) A MINIMUM OF ONE DRIVEWAY ENTRANCE SHALL BE PROVIDED PER LOT. DRIVEWAY ENTRANCES_____, SHALL BE INSTALLED IN CONFORMITY WITH THE STANDARDS. PIPESTEM LOT DRIVEWAYS ARE SUBJECT TO APPROVAL BY THE TOWN OF HERNDON.
   (I) SURFACED STREETS SHALL BE MAINTAINED IN A CLEAN CONDITION, MUD AND DUST FREE AT ALL TIMES, AND ADEQUATE MEANS SHALL BE PROVIDED TO CLEAN TRUCKS AND OTHER EQUIPMENT USING THE COMPLETED STREETS.
   (J) PRIOR TO COMMENCING NEW WORK, THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING ADJACENT AREAS. A PRE-CONSTRUCTION SURVEY SHALL OCCUR WITH CONSTRUCTION AND INSPECTION STAFF TO DOCUMENT EXISTING CONDITIONS. IF TOWN'S EXISTING PUBLIC INFRASTRUCTURE IS DAMAGED DURING CONSTRUCTION, THE APPLICANT SHALL REPAIR THE SAME TO THE SATISFACTION OF THE TOWN.
   (K) ALL STREET CUT AND PATCH WORK LOCATED IN PUBLIC RIGHTS OF WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF HERNDON STANDARDS AND SPECIFICATIONS. LIMITS OF ASPHALT OVERLAY TO BE DETERMINED BY TOWN INSPECTOR.
   (L) STREET LIGHTS SHALL BE INSTALLED ACCORDING TO TOWN OF HERNDON STANDARDS.
   (M) ALL WORK IN THE RIGHT-OF-WAY SHALL BE CONDUCTED BETWEEN 9AM AND 3PM, MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS.
   (N) DEVELOPER SHALL COMPLY WITH STREET CUT PERMIT REQUIREMENTS. COPY OF APPROVED STREET CUT PERMIT MUST BE KEPT ON SITE AT ALL TIMES.
   (O) DEVELOPER SHALL COORDINATE ALL TRAFFIC CONTROL ACTIVITIES WITH THE STREET CUT PERMIT INSPECTION SECTION (703-435-6860).
13. WATER DISTRIBUTION:
   (A) ALL WATER MAIN MATERIALS AND CONSTRUCTION SHALL COMPLY WITH THE REGULATIONS OF THE STANDARD SPECIFICATIONS AND PLANS OF THE TOWN OF HERNDON AND THE CURRENT WATERWORKS REGULATIONS OF THE VIRGINIA STATE BOARD OF HEALTH.
   (B) ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF 4.0 FEET. WATER MAINS SHALL BE INSTALLED EIGHT (8) FEET NORTH OR EAST OF THE CENTERLINE OF THE STREET UNLESS OTHERWISE DESIGNATED ON THE PLANS.
   (C) WORKING PRESSURE SHALL BE >20.0 PSI.
14. LAND CONSERVATION NOTES:
   (A) MEASURES TO CONTROL EROSION AND SILTATION SHALL BE PROVIDED PURSUANT TO AND IN COMPLIANCE WITH CURRENT STATE AND LOCAL REGULATIONS. HOWEVER, THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE DEVELOPER OR HIS AGENT OF ANY LEGAL RESPONSIBILITY WHICH MAY BE REQUIRED BY THE CODE OF VIRGINIA OR ANY ORDINANCE ENACTED BY THE TOWN OF HERNDON.
   (B) NO DISTURBED AREA WILL BE DENUDED FOR MORE THAN 14 CALENDAR DAYS.
   (C) ALL EROSION AND SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
   (D) ALL STORM AND SANITARY SEWER TRENCHES NOT IN STREETS ARE TO BE MULCHED AND SEEDED WITHIN 7 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME.
   (E) ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES ARE TO BE COMPACTED, SEEDED AND MULCHED, WITHIN 7 DAYS AFTER BACKFILL.
   (F) ALL TEMPORARY EARTH BERM DIVERSIONS AND SILT DAMS ARE TO BE MULCHED AND SEEDED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES FOR ALL STOCKPILES.
   (G) DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY SILT TRAPS, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
   (H) ALL DISTURBED AREAS NOT PAVED, SODDED, OR BUILT UPON BY NOVEMBER 1, OR DISTURBED AFTER THAT DATE, IS TO BE SEEDED WITHIN 7 DAYS WITH OATS, ABRUZZI RYE, OR EQUIVALENT AND MULCHED WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE.
   (I) PRIOR TO BEGINNING OF ANY WORK ON THIS SITE, THE CONTRACTOR MUST READ AND ADHERE TO THE "VEGETATION PRESERVATION AND PLANTING" GUIDELINES OF FAIRFAX COUNTY PUBLIC FACILITIES MANUAL, AND SECTION 26, ARTICLE II OF THE TOWN CODE.
   (J) PRIOR TO ANY LAND DISTURBANCE OF THE SITE THAT IS GREATER THAN, OR EQUAL TO ONE ACRE , THE CONTRACTOR MUST SUBMIT A CONSTRUCTION GENERAL PERMIT TO THE TOWN OF HERNDON.
   (K) IF REQUIRED BY LAW, THE OWNER/DEVELOPER SHALL PROVIDE STATEMENT CERTIFYING THAT ALL WETLANDS PERMITS WILL BE OBTAINED PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES.
15. THESE PLANS AND SPECIFICATIONS ARE BASED ON THE MINIMUM REQUIREMENTS FOR ___NA___ ZONING. THIS PLAN CONTAINS ___NA___ DWELLING UNITS.
16. ALL ELEVATIONS MUST BE BASED ON THE U.S.G.S. & OR THE N.G.S. MEAN SEA LEVEL DATUM.
17. PRIOR TO ANY APPROVED CLEARING AND GRADING ON A SITE, TREE PROTECTION FENCE SHALL BE ERECTED IN ACCORDANCE WITH FENCE DETAIL ON THE APPROVED LANDSCAPE PLAN, AND BE INSPECTED AND APPROVED BY THE URBAN FORESTER.

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ENVIRONMENTAL SITE ASSESSMENT

NA

WAIVER REQUESTS

(DESIGNATE EACH SECTION OF THE ZONING ORDINANCE, PUBLIC FACILITIES MANUAL OR SUBDIVISION ORDINANCE FROM WHICH A WAIVER IS REQUESTED. PLEASE NOTE THAT A LETTER OF JUSTIFICATION FOR EACH WAIVER MUST ACCOMPANY THE INITIAL PLAN SUBMISSION)

FEE = $200.00 PER REQUEST

WAIVER FROM SECTION: _____ OF _____ = $200.00

WAIVER FROM SECTION: _____ OF _____ = $200.00

NUMBER OF REQUESTS: _____ X $200.00 = _____

DATE FEE COLLECTED (Official Use Only): _____

EXISTING CONDITION SURVEY NOTES

1. HORIZONTAL DATUM VIRGINIA COORDINATE SYSTEM OF 1983 (VCS 83)
   VERTICAL DATUM NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29)
2. UTILITY INFORMATION, AS SHOWN ON THIS PLAN, IS TAKEN FROM THE RECORDS AND/OR FIELD SURVEY COMPLETED BY VIKA VIRGINIA, LLC DATED JULY, 2018; AND CANNOT BE GUARANTEED. FOR EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES, NOTIFY "MISS UTILITY" AT 1-800-552-7001, 72 HOURS BEFORE THE START OF ANY EXCAVATION OR CONSTRUCTION.
3. LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
   CONTRACTOR/ENGINEER SHOULD DIG TEST PITS BY HAND AT ALL UTILITY CROSSINGS TO VERIFY EXACT LOCATION.

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

vv

PROFESSIONAL SEAL AND SIGNATURE

VICINITY MAP

SCALE: 1" = 200'



LOCATION OF BENCHMARKS

TRAV	NORTHING	EASTING	ELEV
905	7032221.2791	11802261.6337	354.57
910	7033369.2464	11802283.0149	357.58

SEE SHEET 03.01 FOR LOCATIONS

APPROVED

FOR SITE CONSTRUCTION UNDER THIS PLAN.
BUILDING PERMITS TO BE ISSUED SEPARATELY.

DATE _____ FAIRFAX COUNTY FIRE MARSHAL

DATE _____ DIRECTOR OF PUBLIC WORKS

DATE _____ DIRECTOR OF COMMUNITY DEVELOPMENT

DATE _____ ZONING ADMINISTRATOR

SECTION 70-203(2)(1): SUBDIVISION APPROVAL VOID IF FINAL SUBDIVISION PLAT IS NOT SUBMITTED WITHIN ONE YEAR OF APPROVAL OF A PRELIMINARY SUBDIVISION PLAN.

SECTION 78-202.6(h): SITE PLAN AND SINGLE LOT DEVELOPMENT PLAN APPROVAL SHALL AUTOMATICALLY EXPIRE AT THE END OF A FIVE-YEAR PERIOD FOLLOWING THE DATE OF ITS APPROVAL BY THE ZONING ADMINISTRATOR FOR ANY PHASE OR PART OF AN APPROVED SITE PLAN FOR WHICH A BUILDING PERMIT HAS NOT BEEN APPROVED.

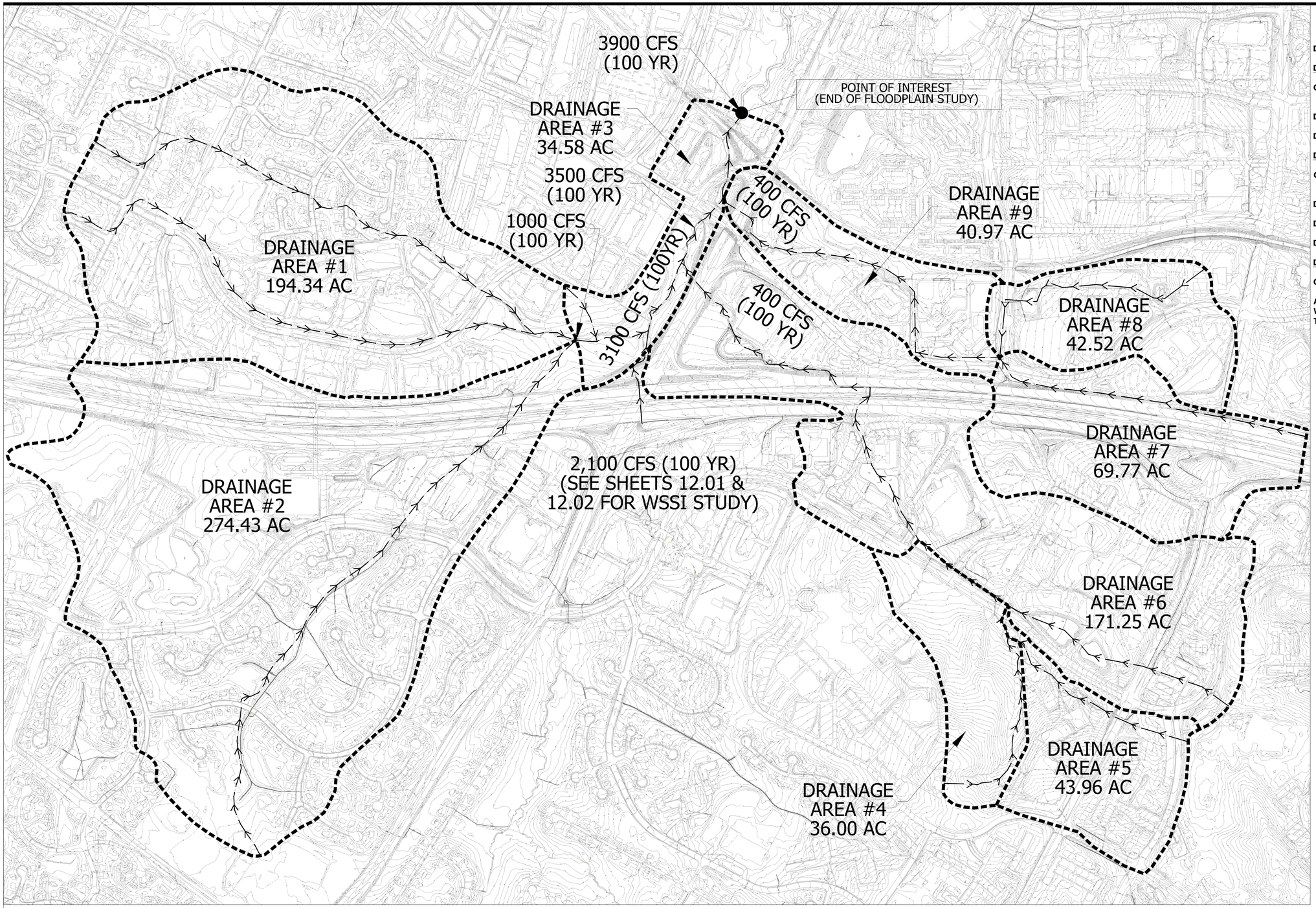
BEFORE YOU DIG
CALL "MISS UTILITY" 811
OR 1-800-552-7001
visit online at va811.com

TOWN PLAN #: SE-1905 FLOODPLAIN STUDY

TOWN OF HERNDON, VIRGINIA
COVER SHEET

SUBDIVISION OR SITE PLAN NAME	FAIRBROOK BUSINESS PARK FLOODPLAIN STUDY
OWNER, ADDRESS, INCLUDE ZIP CODE AND TELEPHONE NUMBER	BOB KNOPF: FAIRBROOK BUSINESS PARK ASSOCIATES, LP AND FAIRBROOK BUSINESS PARK ASSOCIATES II 1001 G STREET NW SUITE 900, WASHINGTON, DC 20001 PHONE: (202) 393-1999
DEVELOPER, ADDRESS, INCLUDE ZIP CODE AND TELEPHONE NUMBER	BOB KNOPF: QUADRANGLE 1001 G STREET NW SUITE 900, WASHINGTON, DC 20001 PHONE: (202) 393-1999
CERTIFIED ENGINEER, ARCHITECT OR SURVEYOR SUBMITTING PLAN, ADDRESS, INCLUDE ZIP CODE AND TELEPHONE NUMBER	KYLE O'CONNOR, P.E.: VIKA VIRGINIA, LLC 8180 GREENSBORO DRIVE SUITE 200 TYSONS, VIRGINIA 22102 PHONE: (703) 442-7800
FAIRFAX COUNTY TAX MAP NUMBER	016-4 ((10)) 5A, 016-4 ((25))-O, 016-4 ((25))-H
TOTAL AREA 27.56 AC	PRESENT ZONING O & LI
REVISED: JULY 2014	PAGE 1 OF 12.02 PAGES

FILE: P:\projects\60455\60455X\CAD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\60455X - 01.01 - COVER.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:36:43 AM LAYOUT: 01.01 COVER



DRAINAGE AREA SUMMARY

DRAINAGE AREA 1: 194.34 ACRES

DRAINAGE AREA 2: 274.43 ACRES

COMBINED FLOW = 1000 CFS (100YR)

DRAINAGE AREA 4: 36.00 ACRES

DRAINAGE AREA 5: 43.96 ACRES

DRAINAGE AREA 6: 171.25 ACRES

COMBINED FLOW = 400 CFS (100YR)

DRAINAGE AREA 3: 34.58 ACRES

DRAINAGE AREA 7: 69.77 ACRES

DRAINAGE AREA 8: 42.52 ACRES

DRAINAGE AREA 9: 40.97 ACRES

COMBINED FLOW = 400 CFS (100YR)

AREA PIPED UNDER TOLL ROAD. SEE WSSI REPORT ON SHEETS 12.01 & 12.02. TOTAL FLOW = 2100 CFS (100YR)

SEE SHEET 02.02 FOR HYDROLOGY NARRATIVES

VIRGINIA
STATE GRID
NORTH (VCS 83)
GRAPHIC SCALE

400 0 200 400 800 1600

(IN FEET)
1 inch = 400 ft.

V 10.01

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

R E V I S I O N S	#	DESCRIPTION	BY	APPROVED

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

VIKA

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
FAX: (703) 761-2787
TYSONS, VA. GERMANTOWN, MD.

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

FAIRBOOK
BUSINESS PARK
FLOOD PLAIN
STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

SUGARLAND
RUN DRAINAGE
AREA MAP &
HYDROLOGY

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	
DWG. SCALE:	1" = 400'
VIKA NO.	
SHEET NO.	02.01

FILE: P:\projects\60455\60455X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\60455X - 02.01 DRAINAGE AREA MAP.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:35:30 AM LAYOUT: 02.01

XREFS: BASE, Hatches, EP, 2020SB

SUGARLAND RUN FLOODPLAIN STUDY NARRATIVE

ONE HYDRAULIC MODEL HAS BEEN DEVELOPED WITH THIS STUDY:

THIS EXISTING CONDITIONS FLOODPLAIN STUDY ESTABLISHED A FLOODPLAIN ELEVATION AND FLOODPLAIN DELINEATION FOR THE FRONTAGE OF THE SITE ALONG SUGARLAND RUN IN HERNDON, VA. THIS SITE IS APPROXIMATELY LOCATED BETWEEN STREAM BASE LINE STATIONS 394+22 AND 399+78 FROM THE USGS FLOOD-PLAIN DELINEATION STUDY FOR THE SUGARLAND RUN BASIN (OPEN-FILE REPORT 78-1028) .

THE WATERSHED OF SUGARLAND RUN IN THE AFOREMENTIONED STUDY IS ONE OF A FULLY DEVELOPED URBAN WATERSHED. THE CHANNEL OF THE PORTION OF SUGARLAND RUN BEING INVESTIGATED IS A NATURAL CHANNEL WITH CULVERT CROSSINGS UNDER ROADS.

HYDROLOGIC ANALYSES

THIS IS A PREVIOUSLY UNMODELED STREAM IN THE LOCATION OF THIS STUDY. A HYDROLOGIC ANALYSIS WAS OBTAINED FROM THE USGS OPEN-FILE REPORT 78-1028 WHICH WAS PERFORMED BY USE OF THE ANDERSON FORMULA Q=230 (K) (R) (A) (T) (PUBLISHED IN 1970 ENTITLED "EFFECTS OF URBAN DEVELOPMENTS ON FLOODS IN NORTHERN VIRGINIA" - ANDERSON, 1970). AND WAS BASED ON ULTIMATE-DEVELOPMENT (ASSUMING 75% IMPERVIOUSNESS) AND RESULTED IN A FLOW OF 3,900 CFS AT THE W&OD TRAIL CROSSING. PER TECHNICAL BULLETIN 16-02 THIS HYDROLOGIC STUDY IS STILL VALID AS IT USED THE ANDERSON METHOD.

DISCHARGE NARRATIVE FROM THE USGS OPEN-FILE REPORT HAS BEEN PROVIDED ON THIS SHEET.

IT SHOULD BE NOTED THAT THE USGS MODEL DID NOT INCLUDE THE QUAD BOX CULVERT UNDER THE FAIRFAX COUNTY PARKWAY AS IT WAS NOT YET CONSTRUCTED AT THE TIME OF THE STUDY. AN UPDATED EXISTING CONDITIONS MODEL SHALL BE PROVIDED WITH THIS STUDY TO ANALYSIS THE IMPACTS OF THIS CULVERT ON THE DUPLICATE EFFECTIVE MODEL.

PER MAP NUMBERS 51059C0110E AND 51059C0110E DATED SEPTEMBER 17, 2010, THE FEDERAL EMERGENCY MANAGEMENT AGENCY CURRENTLY HAS AN EFFECTIVE FLOOD INSURANCE RATE MAP ESTABLISHING A FLOOD HAZARD ZONE 'AE' ADJACENT TO THE SITE. THIS ZONE AE IS BASED ON THE U.S. DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY, OPEN-FILE REPORT 78-1028 FOR HORSEPEN RUN, SUGARLAND RUN, NICHOLS RUN, AND POND BRANCH BASINS. SEE SHEET 8.01 FOR TOPOGRAPHIC MAP FROM THIS STUDY AND WATER SURFACE PROFILE DATA.

HYDRAULIC ANALYSES

1. **REACHES:**
   SUGARLAND RUN MAIN CHANNEL (CENTERLINE STATION 0+00 TO 29+02)
   SUGARLAND RUN REACH 1 (CENTERLINE STATION 30+15 TO 38+21)
   SUGARLAND RUN REACH 2 (CENTERLINE STATION 8+01 TO 13+01)

2. **CROSS SECTIONS:**
   CROSS SECTION INFORMATION WAS COLLECTED THROUGH FIELD SHOT TOPOGRAPHIC INFORMATION. THE STARTING WATER SURFACE ELEVATION WAS BASED ON THE NORMAL DEPTH CALCULATION METHOD IN HEC-RAS.

3. **MANNING'S N VALUES:**
   TO DUPLICATE THE FEMA EFFECTIVE MODEL, A MANNING'S N VALUE OF 0.05 WAS USED IN THE CHANNEL AND A MANNING'S N VALUE OF 0.07 WAS USED FOR THE CHANNEL BANKS THROUGHOUT THE FULL EXTENT OF THE REACH (USGS OPEN-FILE REPORT UTILIZES 'N' VALUES BASED ON SUMMER CONDITIONS).

5. **SLOPE**
   THE SLOPE USED FOR THE NORMAL DEPTH CALCULATION WITHIN HEC-RAS TO DEVELOP THE STARTING WATER SURFACE ELEVATION AT THE FURTHEST DOWNSTREAM CROSS SECTION WAS THE SLOPE THROUGH THE FURTHEST DOWNSTREAM CROSS-SECTION. THIS VALUE WAS 0.80%.

4. **HYDRAULIC MODELS:**
   VIKA USED THE HEC-RAS PROGRAM AS MENTIONED EARLIER TO DEVELOP THE WATER-SURFACE ELEVATIONS FOR THE STUDIED REACH. THE SUBCRITICAL FLOW REGIME WAS USED. THE STARTING WATER SURFACE ELEVATION AT THE FURTHEST DOWNSTREAM CROSS-SECTION (0+00) WAS BASED ON A NORMAL DEPTH CALCULATION PERFORMED BY HEC-RAS BASED ON AN AVERAGE REACH SLOPE. THE CONARCH SPAN UNDER THE W&OD TRAIL, QUAD BOX CULVERT UNDER THE FAIRFAX COUNTY PARKWAY ON RAMP, AND THE QUAD BOX CULVERT UNDER SPRING STREET WERE ALL MODELED USING THE HEC-RAS MODEL. THE HEC-RAS REPORT AND DATA FOR THE CROSS-SECTIONS AND BOX CULVERT HAVE BEEN PROVIDED ON SHEETS 06.01 THROUGH 7.10. THE 100-YEAR FLOODPLAIN BOUNDARIES FOR SCOTT RUN WERE DELINEATED ON SHEETS 4.01 THROUGH 5.05.

PROPOSED WORK NARRATIVE

THE PROPOSED REDEVELOPMENT PROPOSES A MULTI-PHASE OFFICE AND RESIDENTIAL DEVELOPMENT AND EXTENSION OF FAIRBROOK DRIVE TO SPRING STREET. THIS PLAN PROPOSES A ROAD CROSSING OF SUGARLAND RUN REACH 1 AND AN EXTENSION OF FAIRBROOK DRIVE WITHIN THE SUGARLAND FLOODPLAIN. THE PROPOSED CONDITIONS MODEL WILL INCLUDE THE PROPOSED CULVERT CROSSING UNDER THIS ROAD AND THE IMPACTS OF THE GRADING WITH THE ASSOCIATED FAIRBROOK DRIVE EXTENSION.

THE EXISTING CONDITIONS (BASELINE) MODEL INCLUDING THE FAIRFAX COUNTY PARKWAY ON-RAMP CROSSING WILL BE UPDATED WITH THIS PROPOSED INFORMATION AND A COMPLETE ANALYSIS WILL BE PROVIDED TO DETERMINE THE IMPACTS OF THE PROPOSED ROAD IMPROVEMENTS ON THE EXISTING FLOODPLAIN ELEVATIONS. THIS WILL BECOME OUR PROPOSED CONDITIONS FLOODPLAIN MODEL.

PROPOSED MANNING'S N VALUES:
TO MAINTAIN CONSISTENCY BETWEEN MODEL, A MANNING'S N VALUE OF 0.05 WAS USED IN THE CHANNEL AND A MANNING'S N VALUE OF 0.07 WAS USED FOR THE EXISTING CHANNEL BANKS TO REMAIN. PORTIONS OF THE PROPOSED FAIRBROOK DRIVE EXTENSION AND ASSOCIATED FILL SLOPES HAVE BEEN SHOWN IN THE PROPOSED CROSS-SECTIONS. AN N VALUE OF 0.13 WAS USED FOR THE ROAD AND AN N VALUE OF 0.025 WAS USED FOR THE FILL SLOPES.

IT SHOULD BE NOTED THAT A STREAM RESTORATION PLAN SHALL BE PROVIDED AT TIME OF FINAL SITE PLAN TO RE-ALIGN THE STREAM AND PROVIDE IMPROVEMENTS TO THE CHANNEL AND BANKS OF SUGARLAND RUN. POTENTIAL LOCATIONS OF STREAM RESTORATION HAVE BEEN SHOWN ON SHEET 07.01 OF THIS PLAN. ONCE THE STREAM RESTORATION PLAN HAS BEEN FINALIZED, THE PROPOSED HEC-RAS MODEL WILL BE UPDATED TO REFLECT THESE STREAM RESTORATION IMPROVEMENTS AND CENTERLINE ADJUSTMENTS.

IT IS ANTICIPATED THAT THE ASSOCIATED ROADWAY IMPROVEMENTS AND ASSOCIATED REDEVELOPMENT ON THE ADJACENT PROPERTY WILL HAVE LITTLE TO NO IMPACT ON THE EXISTING MINOR FLOODPLAIN ESTABLISHED WITH THIS PLAN.

USGS OPEN-FILE REPORT 78-1028: DESCRIPTION OF DISCHARGE AND MAPPING

DISCHARGE:

THE FLOOD AREAS DELINEATED ARE THOSE PROJECTED FROM ULTIMATE-DEVELOPMENT DISCHARGES. HIGHLY DEVELOPED BASINS DIFFER FROM NATURAL BASINS IN THAT, FOR A GIVEN STORM (1), RUNOFF IS GREATER (2) DISCHARGE TIME IS MUCH SHORTER AND (3) FLOODS OF COMPARABLE MAGNITUDE HAVE A GREATER FREQUENCY OF OCCURRENCE. THESE FACTORS WERE ANALYZED THROUGH A STUDY OF STREAM FLOW AND PRECIPITATION RECORDS, MOST OF WHICH WERE COLLECTED IN THE VICINITY OF WASHINGTON, DC. THE REPORT, "EFFECTS OF URBAN DEVELOPMENT ON FLOODS IN NORTHERN VIRGINIA", (ANDERSON 1970) DESCRIBES THE ANALYSIS USED AND SUMMARIZES THE CONCLUSIONS OF THAT ANALYSIS. THE EFFECT OF IMPERVIOUSNESS WITH RESPECT TO RUNOFF VOLUMES WAS EVALUATED BY COMPARING TYPICAL RUNOFF COEFFICIENTS FOR NATURAL AND HIGHLY DEVELOPED BASINS. REGRESSION ANALYSIS WAS USED; FIRST TO DERIVE THE RELATION OF LAG TIME (THE TIME LAPSE FROM CENTROID OF PRECIPITATION EXCESS TO THE CENTROID OF THE RUNOFF) AS A FUNCTION OF THE LENGTH-SLOPE PARAMETER; AND SECOND, TO DERIVE THE RELATION OF MEAN ANNUAL FLOOD (2.33 YEAR RECURRENCE INTERVAL), ADJUSTED FOR EFFECTS OF IMPERVIOUSNESS, AS A FUNCTION OF DRAINAGE-BASIN AREA AND LAG TIME. AN ANALYSIS OF FLOOD AND RAINFALL FREQUENCIES WAS MADE TO DERIVE THE RATIOS OF 25, 50, AND 100 YEAR FLOODS TO THE MEAN ANNUAL FLOOD FOR ANY PERCENTAGE OF IMPERVIOUSNESS. USING THE AVAILABLE INFORMATION FOR A BASIN IN THE PROJECT AREA, THE MAGNITUDE OF THE 2.33, 25, 50, AND 100 YEAR FLOOD PEAKS CAN BE COMPUTED FROM MEASURABLE BASIN PARAMETERS FOR ANY PERCENTAGE OF IMPERVIOUSNESS IN THE ULTIMATE DEVELOPMENT PLAN.

THE TERM "RECURRENCE INTERVAL", AS USED HERE, IS THE AVERAGE INTERVAL OF TIME WITHIN A GIVEN FLOOD DISCHARGE WILL BE EQUALED OR EXCEEDED ONCE. THE RECURRENCE INTERVAL IS INVERSELY RELATED TO THE CHANCE OF A GIVEN FLOOD BEING EQUALED OR EXCEEDED IN ANY ONE YEAR. THUS, THE 100-YEAR FLOOD HAS A 1 PERCENT CHANCE OF BEING EQUALED OR EXCEEDED IN ANY ONE YEAR. NO PERIODICITY IS IMPLIED.

PROFILE COMPUTATION

HAVING COMPUTED THE 25, 50, AND 100 YEAR FLOODS AT SELECTED POINTS BY THE METHOD SET FORTH BY ANDERSON (1970), THE CORRESPONDING WATER-SURFACE PROFILES WERE COMPUTED WITH THE STANDARD STEP METHOD OF BACKWATER ANALYSIS. THE METHOD IS BASED ON A BALANCE OF ENERGY BETWEEN SUCCESSIVE PAIRS OF STREAM CROSS-SECTIONS. FOR TRANQUIL FLOW, THE COMPUTATIONS START AT THE FARTHEST DOWNSTREAM SECTIONS, OR AT A CONTROL SECTION, AND PROCEED UPSTREAM; BUT FOR SUPERCRITICAL FLOW, THE COMPUTATIONS START AT THE MOST UPSTREAM SECTION, OR CRITICAL SECTION, AND PROCEED DOWNSTREAM UNTIL FLOW AGAIN BECOMES TRANQUIL. PEAK-DISCHARGE MAGNITUDES VARIED WITH SIZE OF DRAINAGE AREA AND WERE CHANGED AT SELECTED POINTS, SUCH AS ABOVE THE CONFLUENCE OF A MAJOR TRIBUTARY. THE WATER-SURFACE PROFILE ELEVATIONS AREA AVAILABLE FOR EACH CROSS-SECTION. THE CROSS-SECTIONS AREA REFERENCED TO AN ARBITRARY BASE LINE, DRAWN TO AN APPROXIMATE CENTROID OF FLOW AND MEASURED IN AN UPSTREAM DIRECTION FROM AN ARBITRARY STARTING POINT. PROFILES WERE COMPUTED IN ACCORDANCE WITH ACCEPTED METHOD OF THE USGS.

FOLLOWING ARE SEVERAL GENERAL ITEMS PERTAINING TO THE PROFILE COMPUTATIONS:

1. DISCHARGE MAGNITUDE GREATER THAN THAT OF THE 100-YEAR FLOOD MAY OCCUR. HOWEVER, THE RATE OF CHANGE OF STAGE PER UNIT DISCHARGE GENERALLY BECOMES COMPARATIVELY LESS AS THE DISCHARGE INCREASES.
2. NO FACTORS OF SAFETY WERE USED IN THE COMPUTATIONS. BRIDGES AND CULVERTS WERE ASSUMED TO BE FREE OF DEBRIS. ROUGHNESS COEFFICIENTS (MANNING'S 'N') WERE SELECTED BASED ON SUMMER VEGETATION.
3. NEW CONSTRUCTION AND CHANNELIZATION WORK MAY MODIFY HYDRAULIC PROPERTIES, THUS CHANGING THE FLOOD PROFILES IN THE FUTURE.

DELINEATION OF FLOOD BOUNDARIES

THE FIRST STEP IN THE DELINEATION OF FLOOD AREAS WAS TO TRANSPOSE THE FLOOD-PROFILE ELEVATION, COMPUTED AT EACH CROSS-SECTION, ONTO THE BASE MAPS ON WHICH CHANNEL CROSS-SECTION HAD INITIALLY BEEN LOCATED. DELINEATION WAS THEN COMPLETED BY INTERPRETING ELEVATION BETWEEN THESE CROSS-SECTIONS AND BETWEEN MAP CONTOURS ON A STRAIGHT LINE BASIS.

THE MAPS SHOW THE 25 AND 100 YEAR FLOOD BOUNDARIES GENERALLY AND INCLUDE THE 50 YEAR FLOOD BOUNDARY IN SOME PLACES. IN STEEP AREAS, THERE WAS INSUFFICIENT SPACE TO SHOW BOTH THE 25 AND 100 YEAR FLOOD BOUNDARIES, AND ONLY THE 100 YEAR FLOOD WAS DELINEATED.

THE DELINEATION REPRESENTS THE AVERAGE WATER-SURFACE ELEVATION. DURING ACTUAL FLOODS, THE WATER-SURFACE MAY NOT BE LEVEL ACROSS THE STREAM.

SPECIAL HYDRAULIC CONDITIONS

SPECIAL HYDRAULIC CONDITIONS WILL BE DISCUSSED IN ORDER, BEGINNING WITH SUGARLAND RUN.

1. SUGARLAND RUN PROFILE COMPUTATIONS WERE BEGUN THREE FOURTHS OF A MILE BELOW FAIRFAX COUNTY BOUNDARY. TO ASSURE CORRECT DETERMINATION OF PROFILE ELEVATIONS AT THE COUNTY BOUNDARY.
2. THE PROFILES FOR 25, 50, AND 100 YEAR PEAK DISCHARGES WERE DETERMINED FOR THE APPROACH TO LEESBURG PIKE PRIOR TO PLACEMENT OF FILL ON UPSTREAM RIGHT BANK.
3. FLOOD PROFILES FOR THE REACH OF SUGARLAND RUN CONTAINING THE MOUTH OF MUDDY BRANCH AND LOWER REACH OF MUDDY RUN WERE COMPUTED USING DESIGN DETAILS FOR PROPOSED ROAD RELOCATION TAKEN FROM PLANS OF VIRGINIA DEPARTMENT OF HIGHWAYS.
4. THE EFFECTS OF STORAGE IN A SMALL PRIVATE LAKE, AND THE AREAS UPSTREAM FROM WASHINGTON AND OLD DOMINION R.R. GRADE AND ABOVE DULLES AIRPORT ACCESS ROAD WERE CONSIDERED NEGLIGIBLE IN RELATION TO THE TOTAL FLOW OF SUGARLAND RUN.

UPDATED FEMA FLOODPLAIN MAPS NOTE:

UPDATED FEMA FLOODPLAIN MAPS ARE FOR THIS AREA IS SCHEDULED TO BE RELEASE LATER THIS YEAR. THE ENGINEER HAS REVIEWED WHAT LIMITED INFORMATION IS AVAILABLE AT THIS TIME FOR THE UPDATED FLOODPLAIN MAPS AND DID NOT FIND ANY AREAS THAT WOULD IMPACT THE LAYOUT AS PROPOSED WITH THIS APPLICATION. THIS FLOODPLAIN ANALYSIS MUST BE UPDATED AT THE TIME OF SITE PLAN TO FULLY INCORPORATE THE REVISED FLOODPLAIN INFORMATION THAT IS MADE AVAILABLE BY FEMA. THIS INCLUDES, BUT IS NOT LIMITED TO THE REVISED VERTICAL DATUM, MAPPED AREAS, AND COMPUTATIONS

V 10.01

REVISIONS	#	DESCRIPTION	BY	APPROVED

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

VIKA
ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

SUGARLAND RUN DRAINAGE AREA MAP & HYDROLOGY

DRAWN BY: KMO
DESIGNED BY: KMO
DATE ISSUED:

DWG. SCALE: NA
VIKA NO.
SHEET NO. 02.02

FILE: P:\projects\60945\60945X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\60945X - 02.01 DRAINAGE AREA MAP.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:35:47 AM LAYOUT: 02.02
LAYOUT: 02.02, Plotted By: oconnor

SOURCE NOTES:

1. THE SUBJECT PROPERTIES SHOWN HEREON ARE IDENTIFIED ON FAIRFAX COUNTY TAX MAP AS #016-4-10-0005A, #016-4-25-H, &# 016-4-25-O AND ARE ZONED O AND LI.
2. BOUNDARY INFORMATION IS BASED ON A FIELD RUN SURVEY BY VIKA, INC. DATED OCTOBER, 2000 AND VERIFIED ON JUNE 16, 2006 AND JANUARY 18, 2008 AND UPDATED BY VIKA VIRGINIA, LLC ON DECEMBER 04, 2015.
3. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD83) AND THE VERTICAL DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29). THE HORIZONTAL AND VERTICAL DATUMS SHOWN HEREON ARE BASED ON A GPS SURVEY PERFORMED BY VIKA VIRGINIA, LLC ON JUNE 14, 2018 USING THE FOLLOWING CORS STATIONS: LOYB LORTON VA 0 0576 (NGS PID DH7960), VAGV GAINESVILLE VA – 0588. AND LOYK ANNAPOLIS JCT MD – 0370 (NGS PID DL3640). THE ELEVATIONS CONVERSION OF THE VERTICAL DATUM FROM THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) TO (NGVD29), USING A DIFFERENCE OF +0.71', WAS CALCULATED USING ARMY CORPS OF ENGINEERS' CORPSCON 6.0.1 CONVERSION TOOL.
4. CONTOUR INTERVAL SHOWN HEREON IS 2'-0".
5. THE PROPERTIES SHOWN HEREON WERE ACQUIRED BY FAIRBROOK BUSINESS PARK ASSOCIATES, L.P. BY DEED RECORDED ON JULY 23, 1984 AND RECORDED IN DEED BOOK 5993 AT PAGE 372 AND FAIRBROOK BUSINESS PARK ASSOCIATES II, LP BY DEED RECORDED IN DEED BOOK 20742 AT PAGE 1375 ALL AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA.
6. THE SUBJECT PROPERTIES LIE IN THE FOLLOWING THREE (3) FLOOD ZONE DESIGNATIONS AS SHOWN ON FLOOD INSURANCE RATE MAP (F.I.R.M.) COMMUNITY PANEL NUMBERS 515525 0110 E AND 515525 0130 E, WITH AN EFFECTIVE DATE SEPTEMBER 17, 2010 FOR FAIRFAX COUNTY, VIRGINIA AND INCORPORATED AREAS: ZONE "AE" (BASE FLOOD ELEVATIONS DETERMINED): ZONE "X-SHADED" (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD AND ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN). ZONE "X-SHADED" AND ZONE "AE" ARE DESIGNATED AS SPECIAL FLOOD AREAS.
7. PORTIONS OF THE SUBJECT PROPERTY DO LIE IN A RESOURCE PROTECTION AREA (RPA) PER THE HERNDON CHESAPEAKE BAY PRESERVATION AREAS MAP DATED MARCH 13, 2008.
8. RPA DELINEATION AND WETLAND INFORMATION FROM REPORT ENTITLED "FAIRBROOK BUSINESS PARK AND OFF-SITE STUDY AREA – WATERS OF THE U.S. (INCLUDING WETLANDS) DELINEATION AND RESOURCE PROTECTION AREA EVALUATION" PREPARED BY WETLANDS STUDIES AND SOLUTIONS INC. DATED MAY 31, 2016. A JURISDICTIONAL DETERMINATION WAS ISSUED BY THE CORPS OF ENGINEERS ON SEPT. 21, 2016 (#NAO-2016-01643).
9. THE 80' BRL SHOWN HEREON WAS TAKEN FROM A PLAN "PARKWAY TRADE CENTER" PREPARED BY RINKER AND ASSOCIATES, DATED 9-28-1983. THE 80' WAS MEASURED FROM THE ORIGINAL RIGHT-OF-WAY OF THE PARKWAY. ADDITIONAL STREET DEDICATION WAS RECORDED IN DEED BOOK 18956 AT PAGE 1230, WHICH WIDENED THE RIGHT-OF-WAY ANOTHER 12'.
10. THERE IS NO OBSERVED EVIDENCE OF CEMETERIES ON THE SUBJECT PROPERTY.
11. THE EXISTING CONDITIONS SURVEY WAS COMPLETED UNDER THE DIRECT RESPONSIBLE CHARGE OF, FRANKLIN E. JENKINS, LS FROM AN ACTUAL GROUND SURVEY MADE UNDER MY SUPERVISION; THAT THE ORIGINAL DATA WAS OBTAINED IN OCTOBER 2000, VERIFIED IN JUNE 2006 AND JANUARY 2008, LAST UPDATED JULY 2018; AND THAT THIS PLAN/PLAT MEETS MINIMUM HORIZONTAL AND VERTICAL ACCURACY STANDARDS UNLESS OTHERWISE NOTED.
12. THE HORIZONTAL AND VERTICAL DATUMS REFERENCED HEREON ARE IN CONFORMANCE WITH FAIRFAX COUNTY REQUIREMENTS 2-0106.1B AND 2-0208.3.

LEGEND:

- EXISTING 100-YEAR FEMA FLOODPLAIN DELINEATION
- EXISTING 100-YEAR 'MINOR FLOODPLAIN' DELINEATION (SEE FLOODPLAIN NOTE BELOW)
- SUBJECT SITE AREA
- INEFFECTIVE FLOW AREA

FLOODPLAIN NOTE:
THE EXISTING FLOODPLAIN DELINEATION SHOWN HEREON INCLUDES BOTH THE EXISTING FEMA FLOODPLAIN AS WELL AS THE EXISTING UPSTREAM 'MINOR FLOODPLAIN' ON SITE. BOTH THE 100-YEAR FEMA AND MINOR FLOODPLAIN ELEVATIONS HAVE BEEN PROVIDED TO SHOW THAT THE IMPROVEMENTS WITH THE PROPOSED REDEVELOPMENT DO NOT NEGATIVELY IMPACT THE 100-YEAR WATER SURFACE ELEVATIONS FOR BOTH THE FEMA FLOODPLAIN AND 'MINOR FLOODPLAIN'. SEE SHEET 07.01 FOR PROPOSED CONDITION FLOODPLAIN DELINEATION. AS SHOWN ON THAT SHEET THERE IS NO INCREASE IN THE LIMITS OF EITHER FLOODPLAIN.

NORTH (VCS 83)
GRAPHIC SCALE
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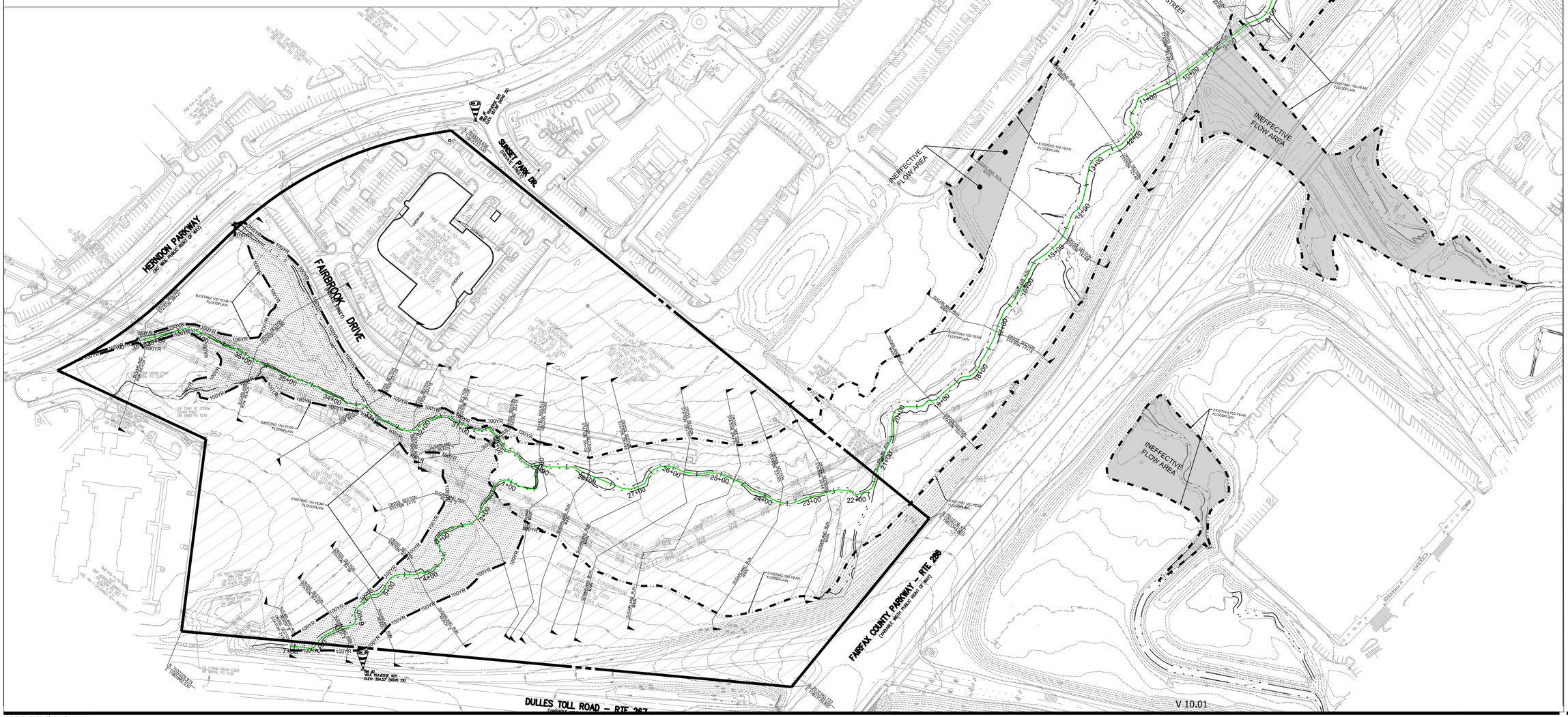
(IN FEET)
1 inch = 100 ft.



V 10.01

VIKA
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REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

vv

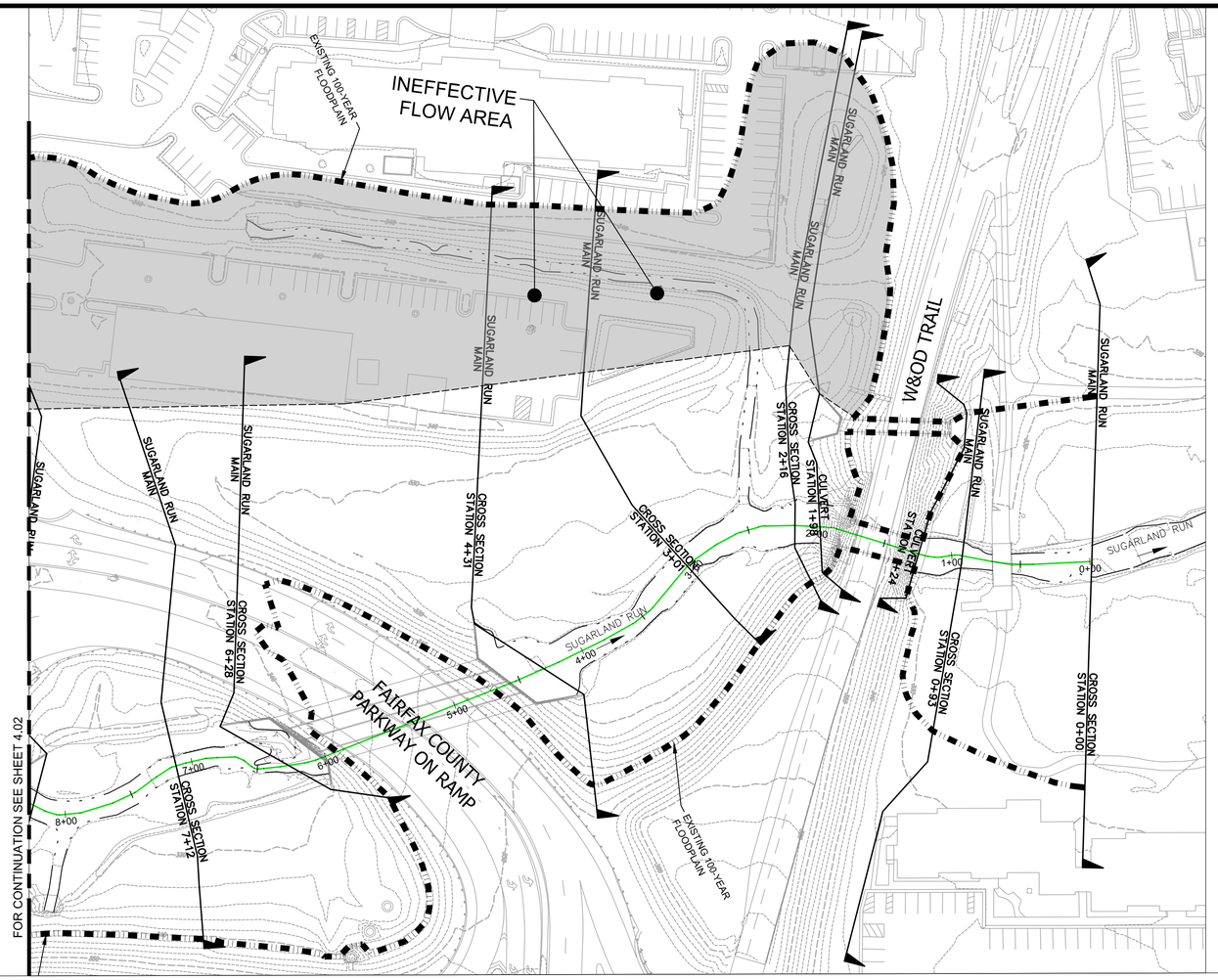
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

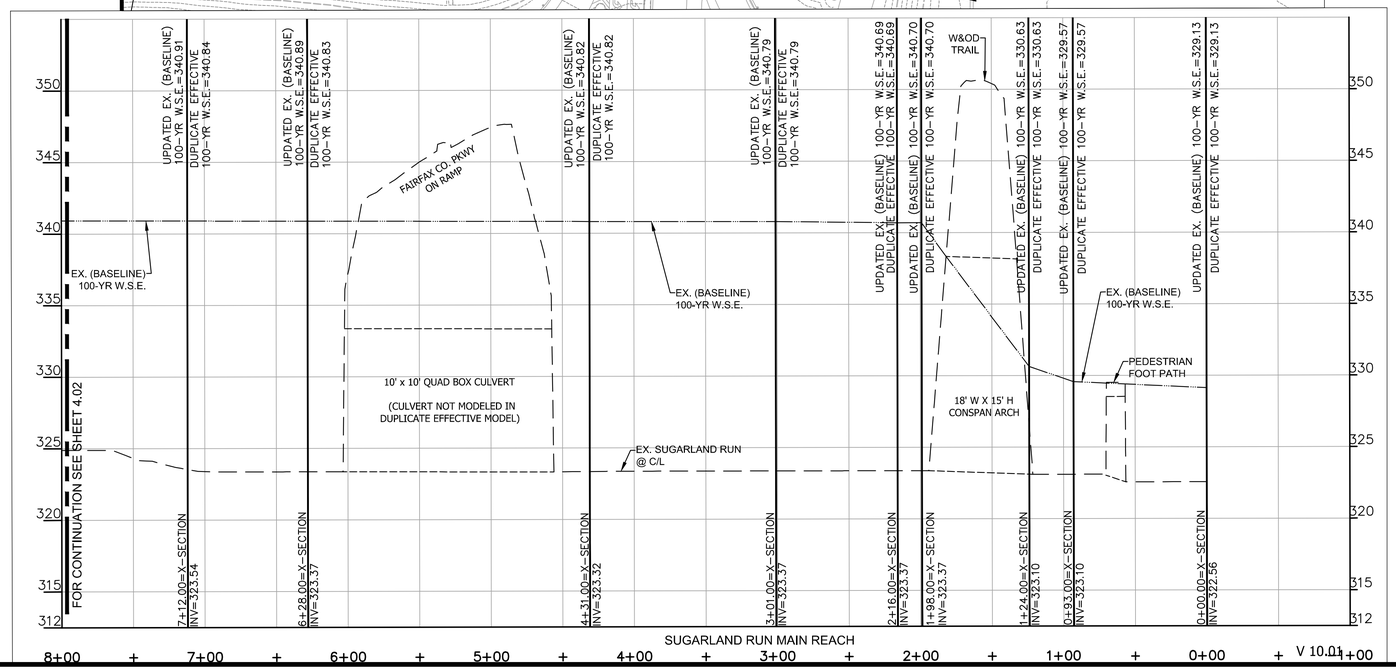
DISTRICT
TOWN OF HERNDON, VIRGINIA

OVERALL STUDY AREA

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 100'
VIKA NO.	6045X
SHEET NO.	03.01

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 03.01 OVERALL EXISTING CONDITIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:37:16 AM LAYOUT: 03.01





NORTH (VCS 83)
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

UPDATED EXISTING (BASELINE) 100-YEAR FLOODPLAIN DELINEATION

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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PROFESSIONAL SEAL

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10/16/2020
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FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

EXISTING CONDITIONS (BASELINE) SUGARLAND RUN PLAN AND PROFILE

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	04.01

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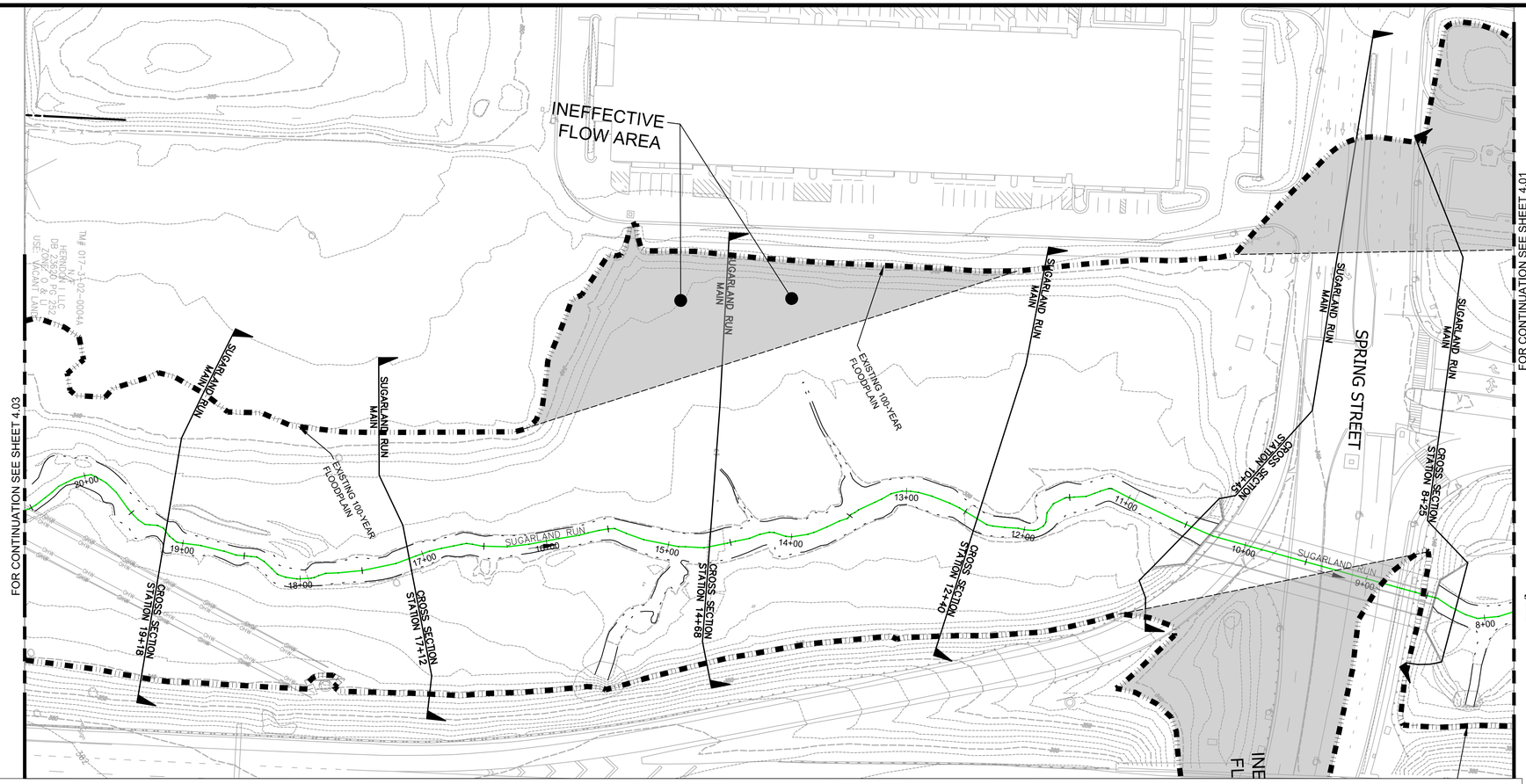
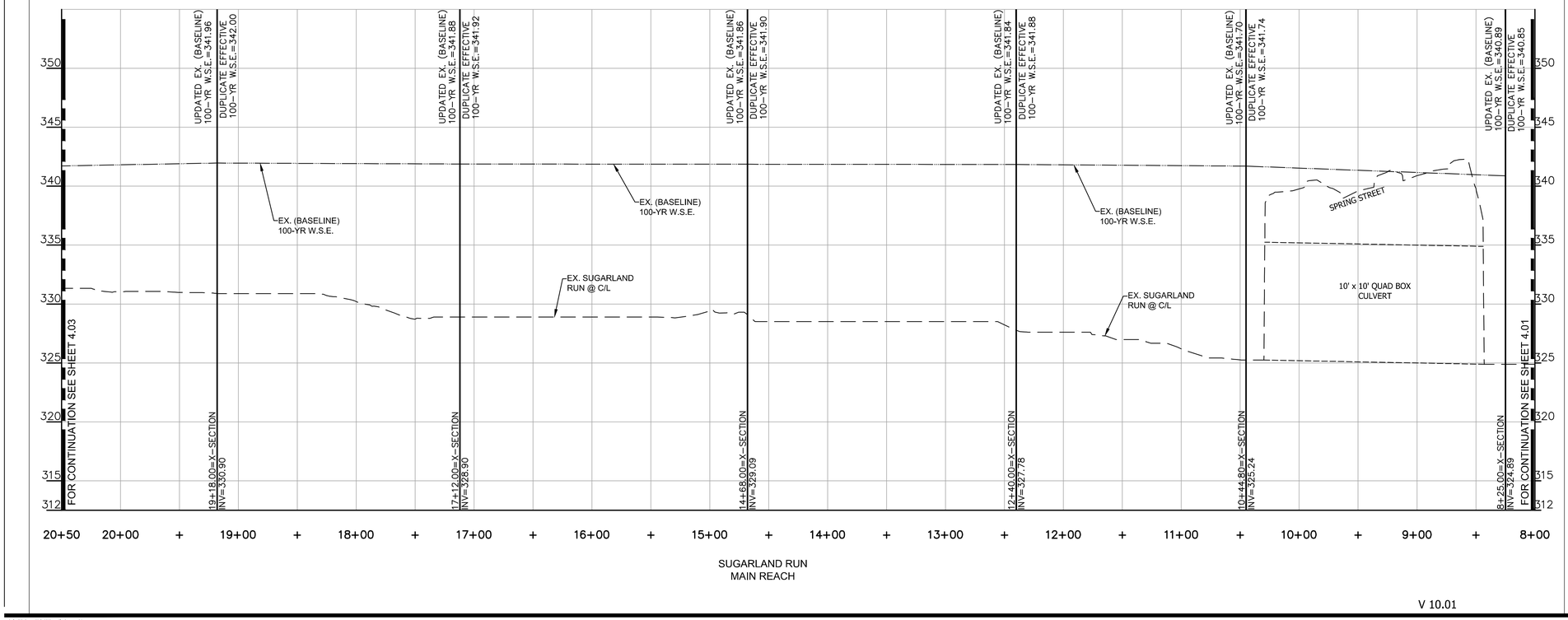
LAYOUT: 04.01, Plotted By: vv





V 10.01

NORTH (VCS 83)
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

UPDATED EXISTING (BASELINE) 100-YEAR FLOODPLAIN DELINEATION

VIKA

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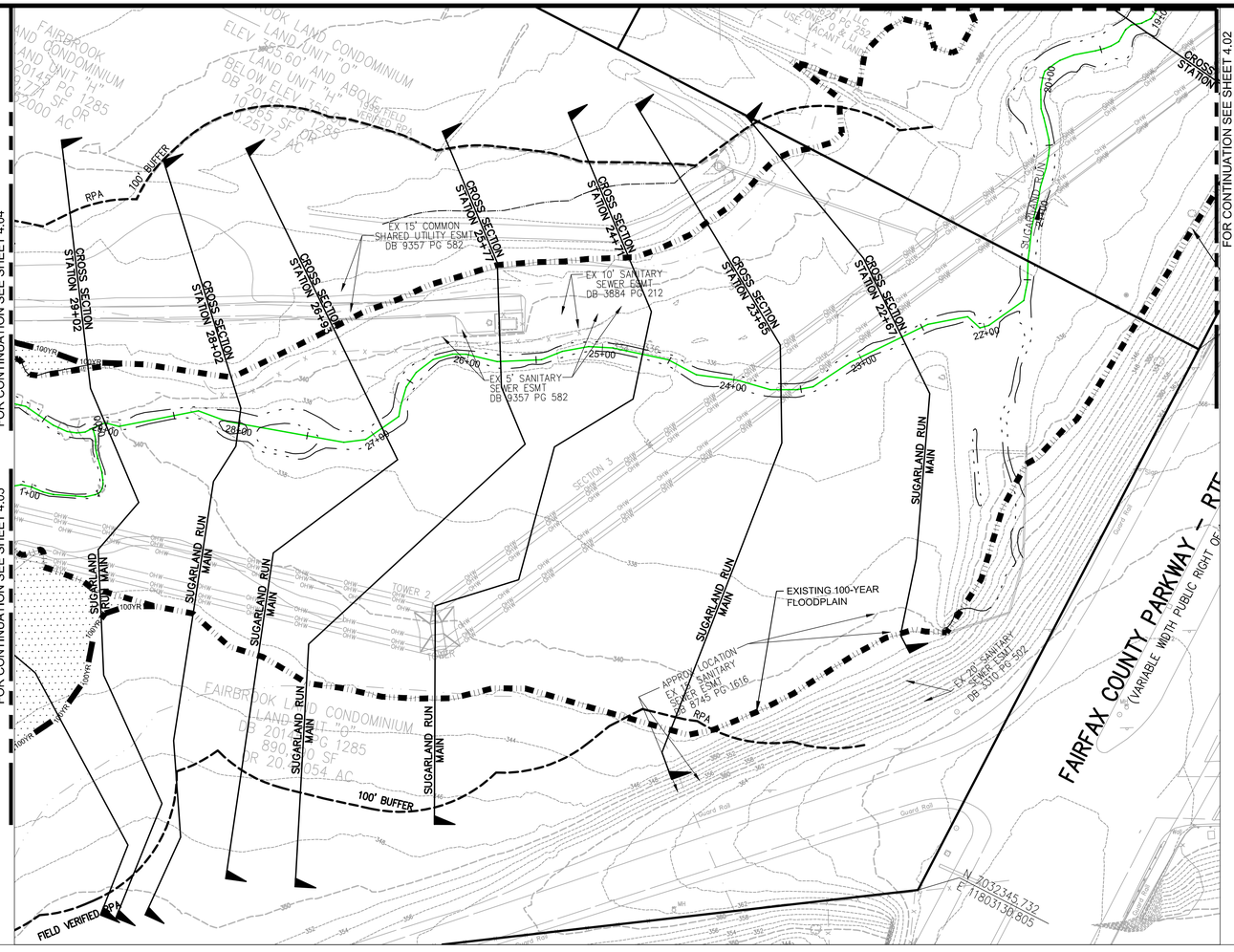
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

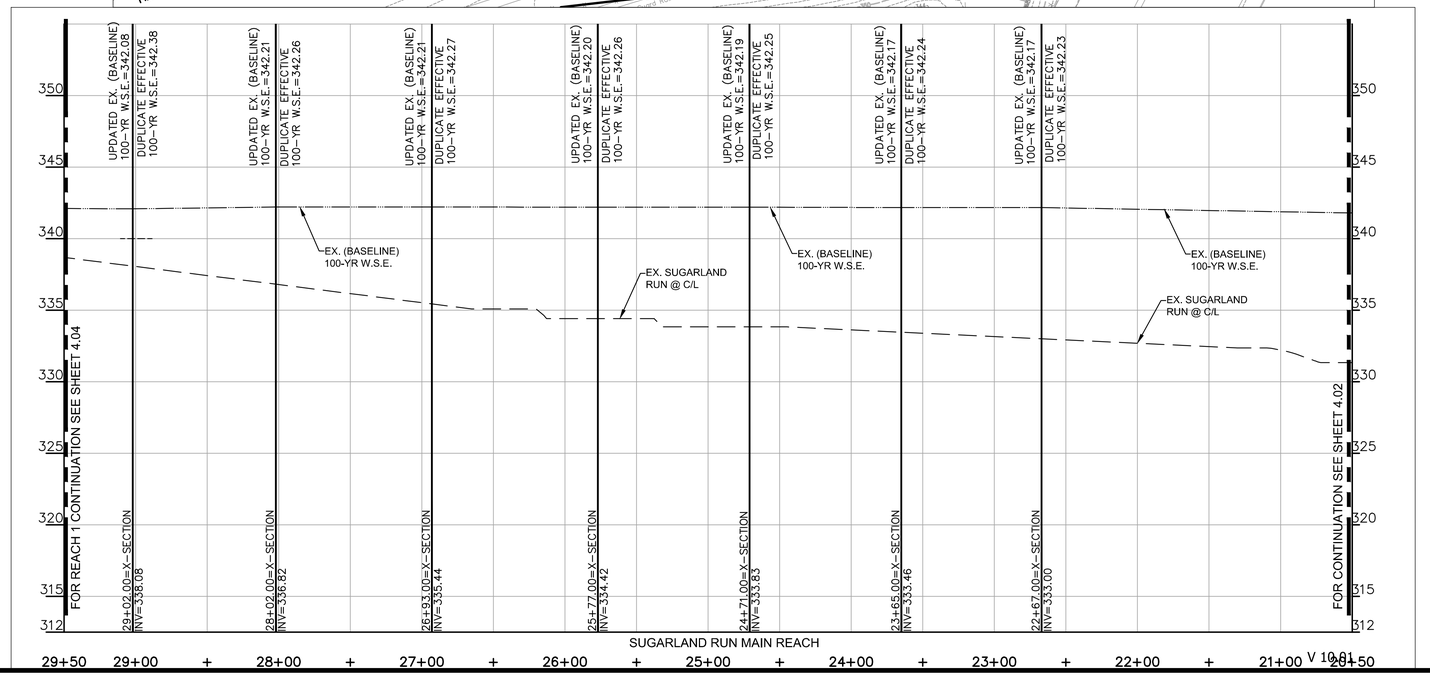
DISTRICT
TOWN OF HERNDON, VIRGINIA

EXISTING CONDITIONS (BASELINE) SUGARLAND RUN PLAN AND PROFILE

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	04.02

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 04.01 EXISTING PLAN & PROF.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:39:19 AM LAYOUT: 04.02





NORTH (VCS 83)
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

UPDATED EXISTING FEMA (BASELINE) 100-YEAR FLOODPLAIN DELINEATION

EXISTING 100-YEAR 'MINOR FLOODPLAIN' DELINEATION

VIKA
ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
FAX: (703) 761-2787
TYSONS, VA. GERMANTOWN, MD.

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

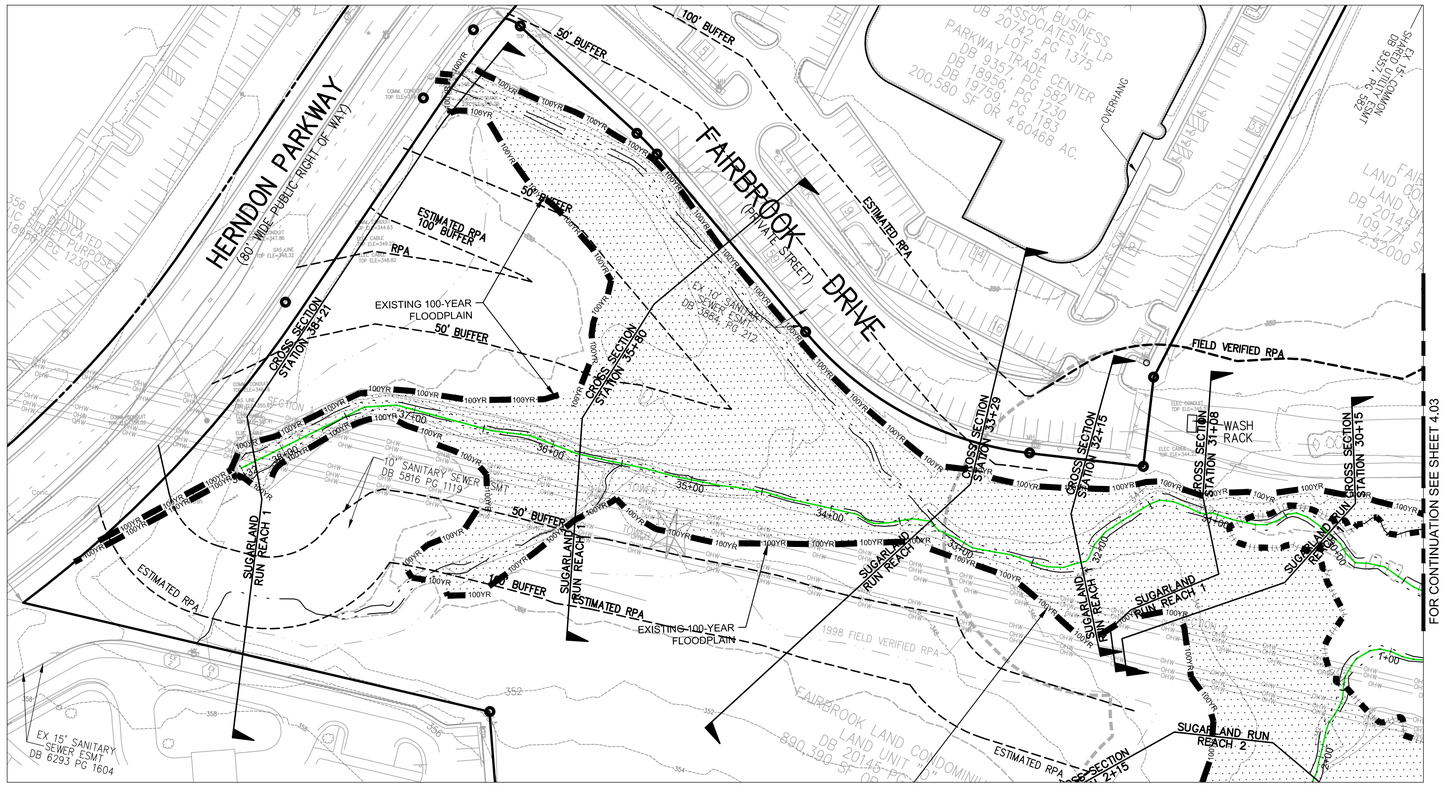
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

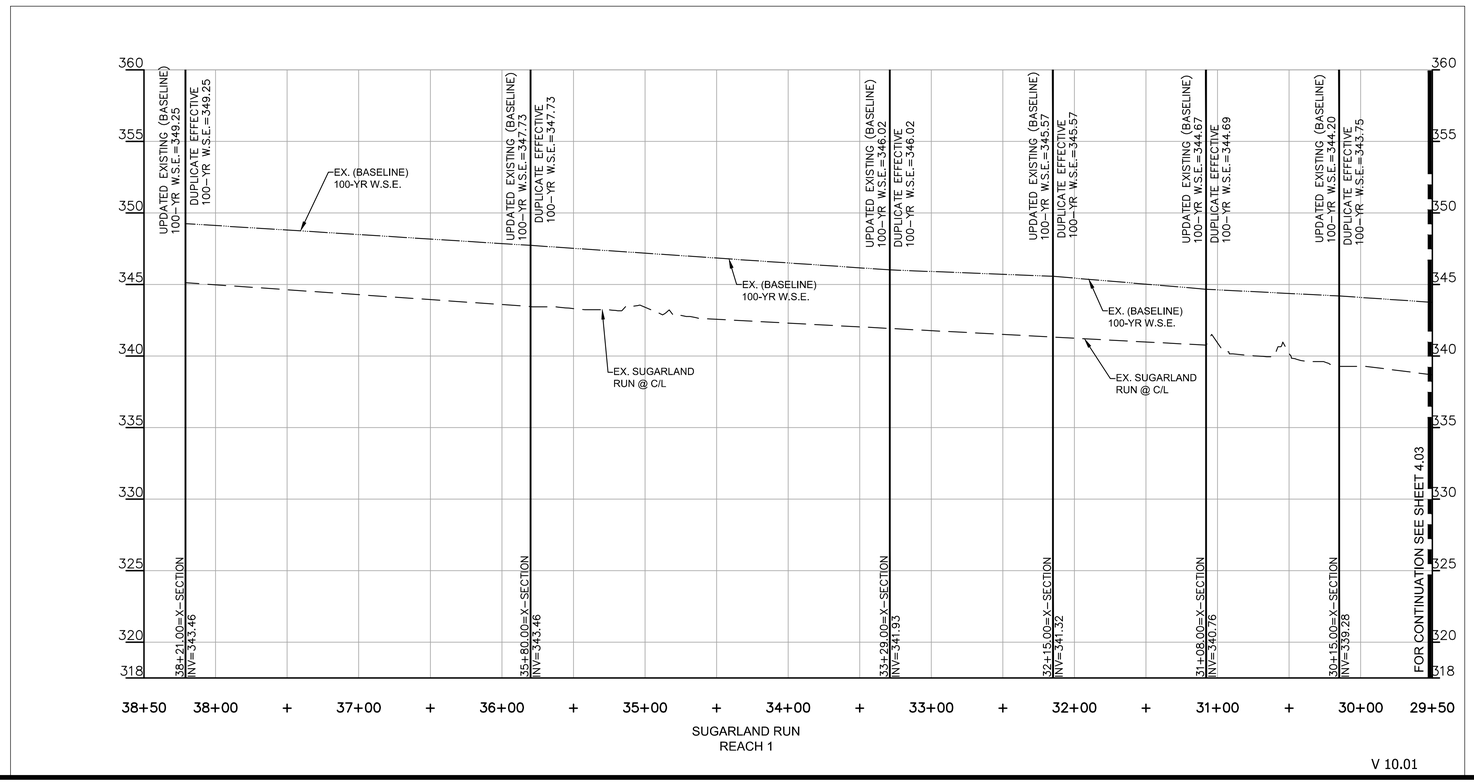
EXISTING CONDITIONS (BASELINE) SUGARLAND RUN PLAN AND PROFILE

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	04.03

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 04.01 EXISTING PLAN & PROF.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:40:03 AM LAYOUT: 04.03



REACH 1 PLAN & PROFILE



NORTH (VCS 83)
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

UPDATED EXISTING FEMA (BASELINE) 100-YEAR FLOODPLAIN DELINEATION

EXISTING 100-YEAR 'MINOR FLOODPLAIN' DELINEATION

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REVISIONS	DATE
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THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

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10/16/2020
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FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

EXISTING CONDITIONS (BASELINE) SUGARLAND RUN PLAN AND PROFILE

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	04.04

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 04.01 EXISTING PLAN & PROF.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:40:34 AM LAYOUT: 04.04



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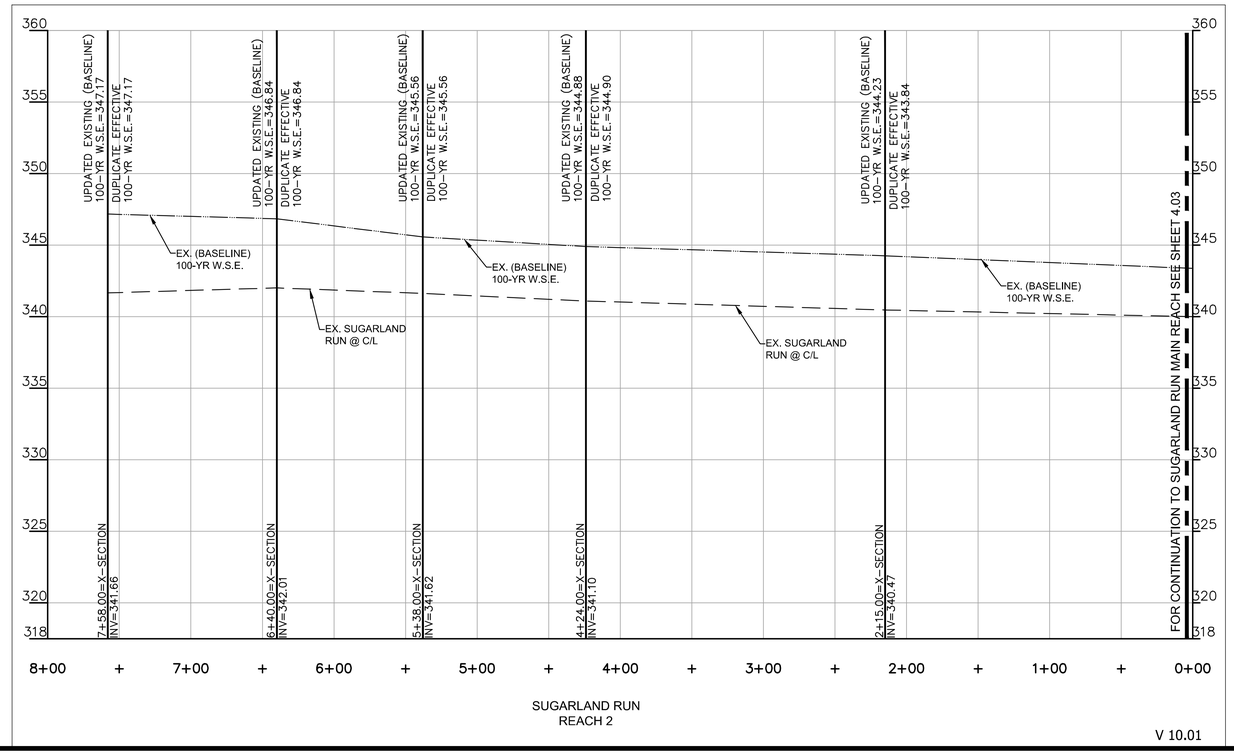

NORTH (VCS 83)

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

UPDATED EXISTING FEMA (BASELINE) 100-YEAR FLOODPLAIN DELINEATION

EXISTING 100-YEAR 'MINOR FLOODPLAIN' DELINEATION

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REVISIONS	DATE
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FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
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10/16/2020
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FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

EXISTING CONDITIONS (BASELINE) SUGARLAND RUN PLAN AND PROFILE

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	04.05

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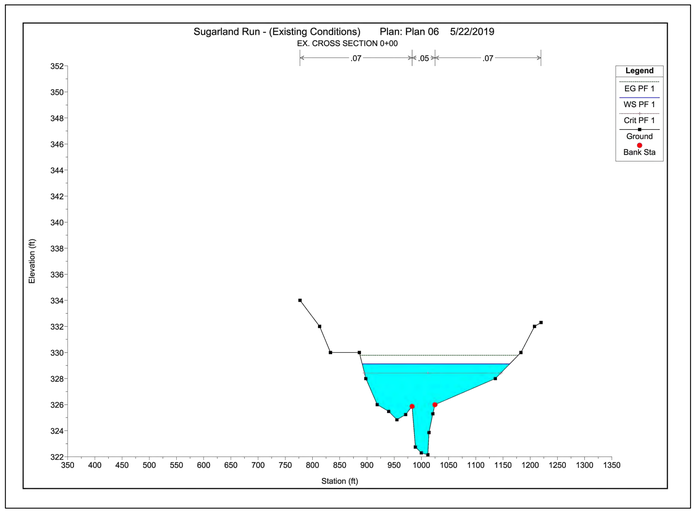

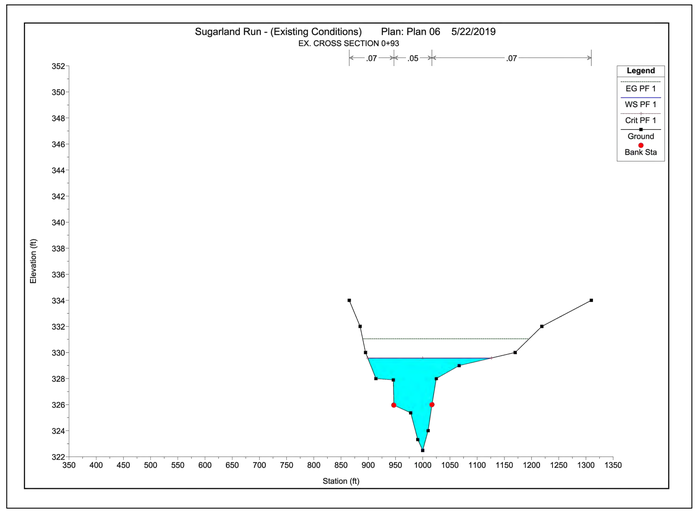

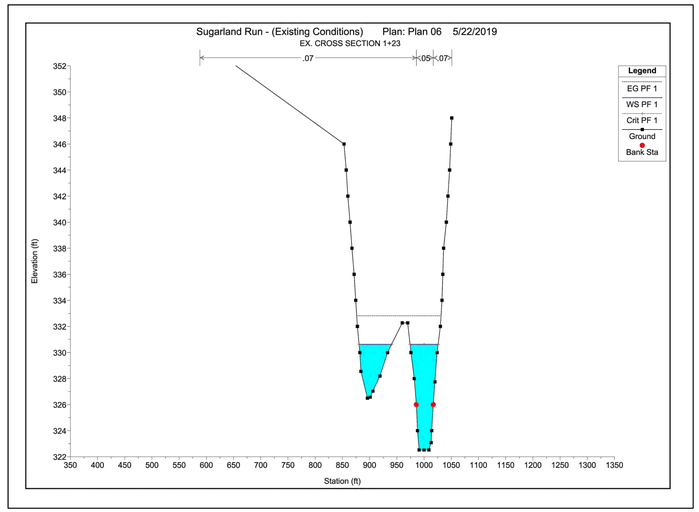

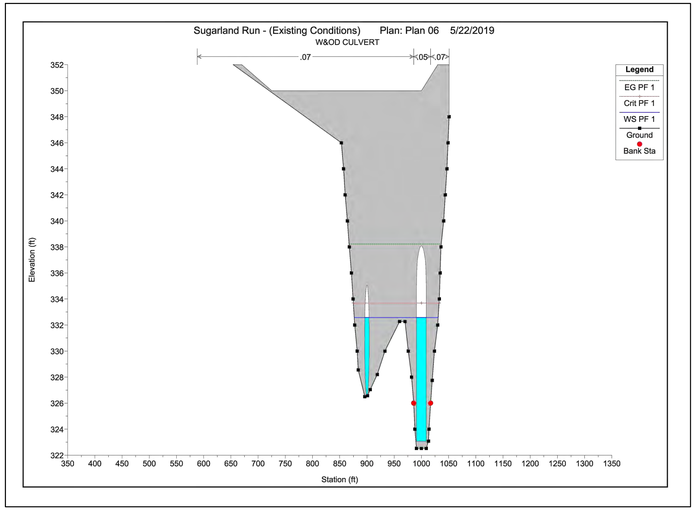

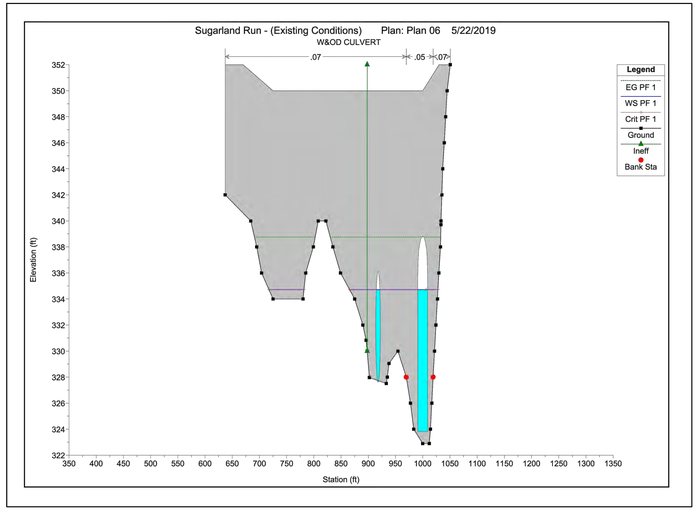

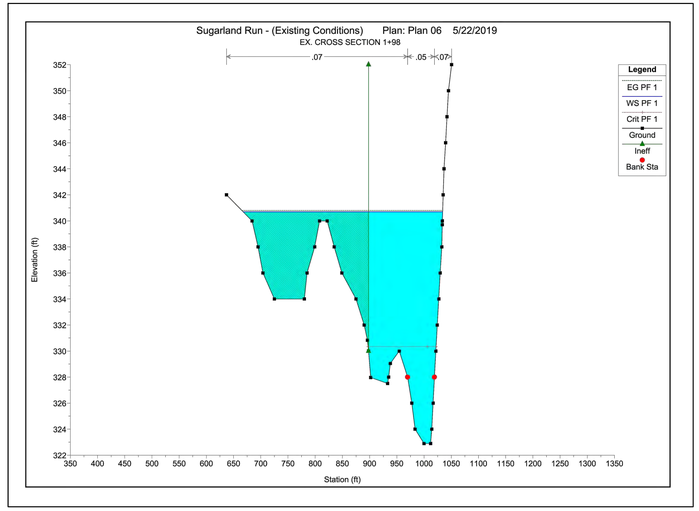

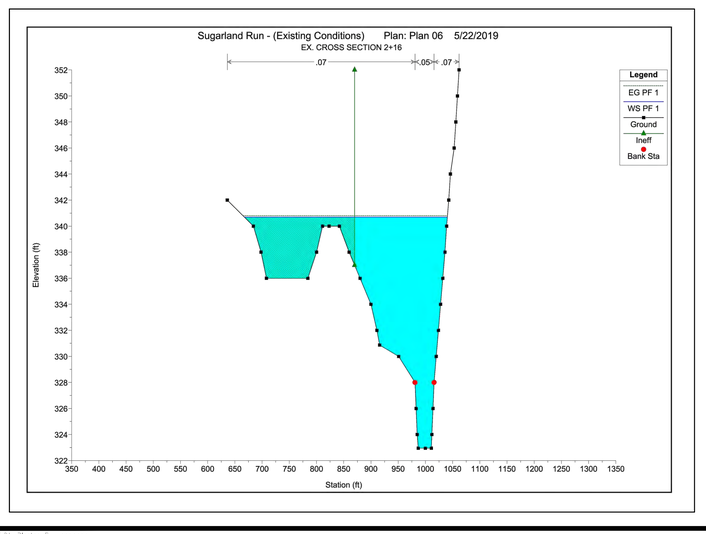

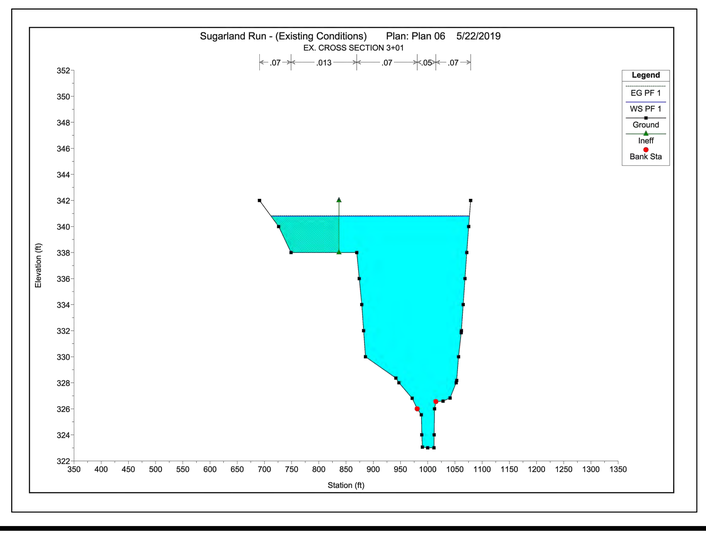

ENGINEERS PLANNERS SURVEYORS
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REVISIONS	DATE
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FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

VV

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

UPDATED EX. CONDITIONS (BASELINE) MODEL CROSS-SECTIONS

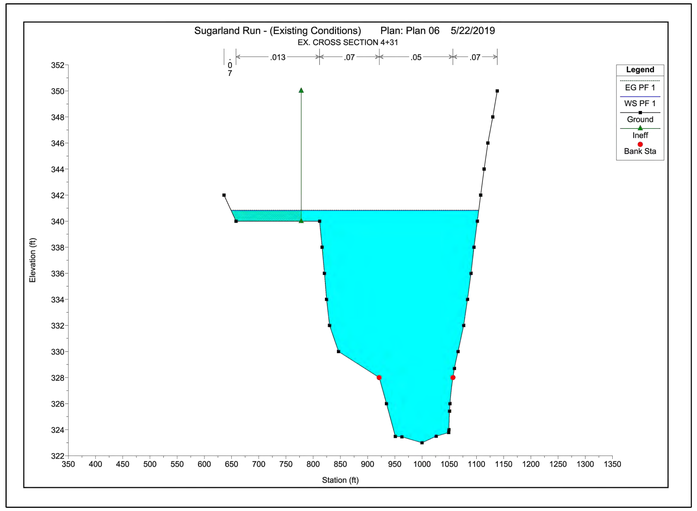
REVISIONS	#	DESCRIPTION	BY	APPROVED

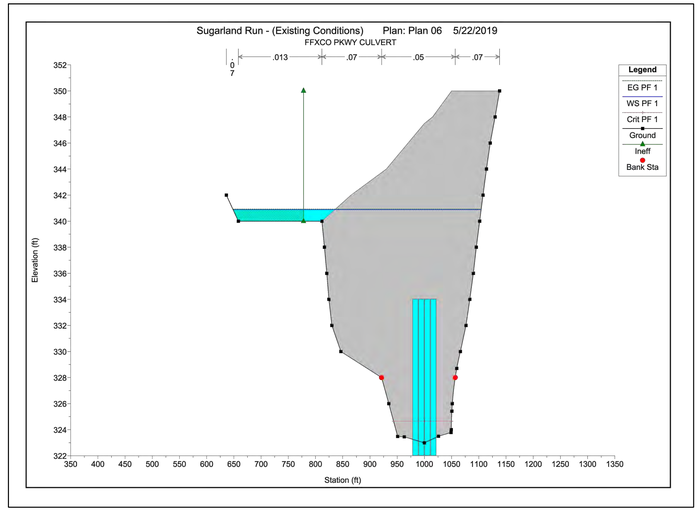
V 10.01

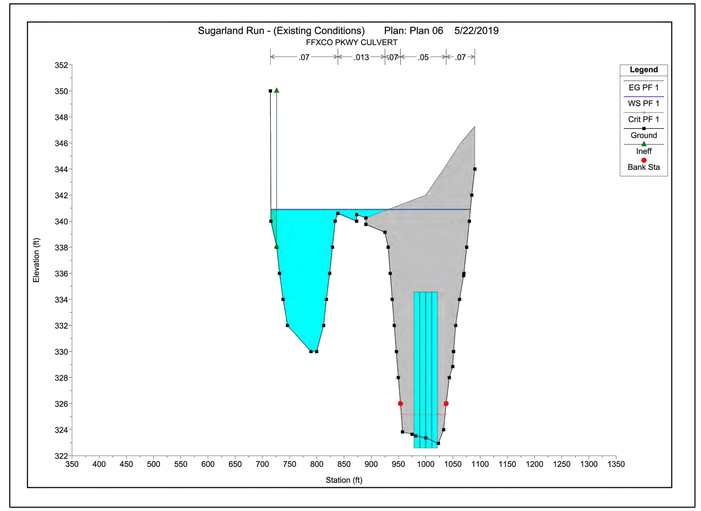
APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

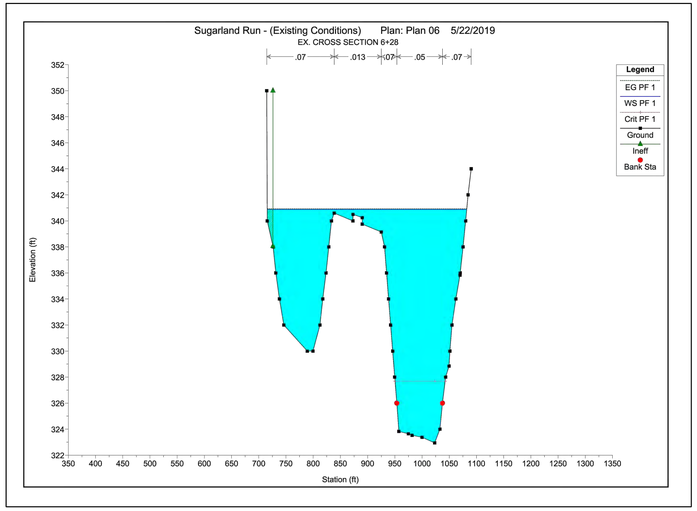
DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	05.01

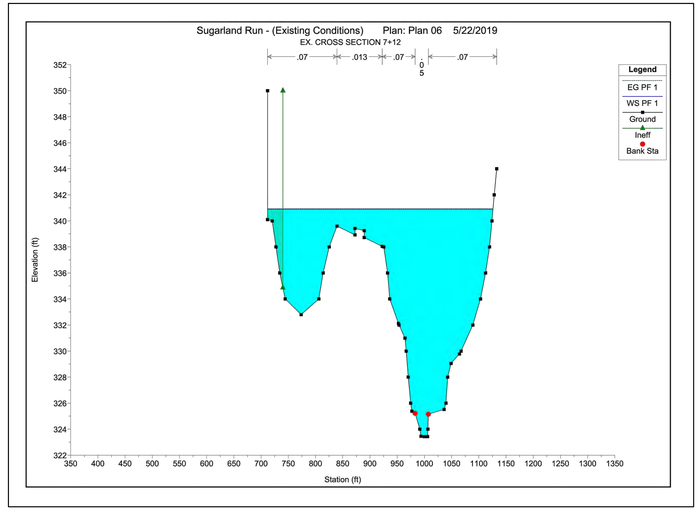
FILE: P:\projects\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 05.01 EXISTING (BASELINE) CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:45:34 AM LAYOUT: 05.01

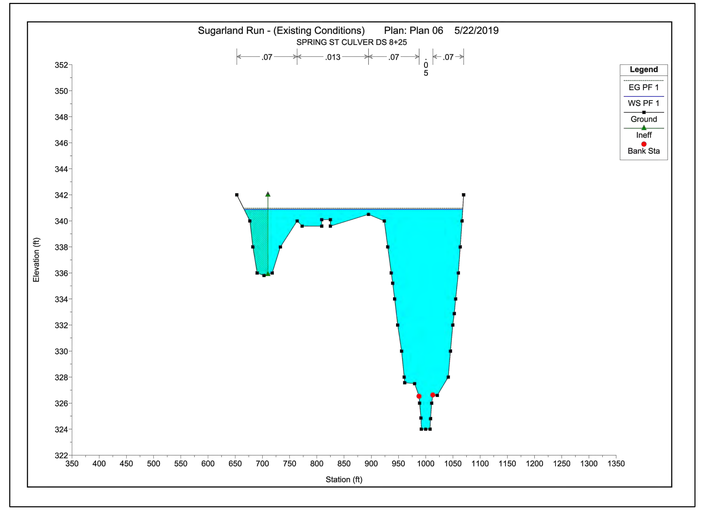


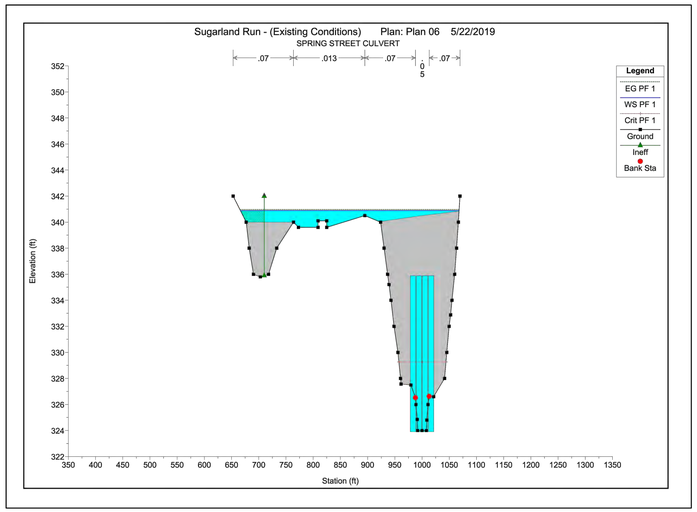


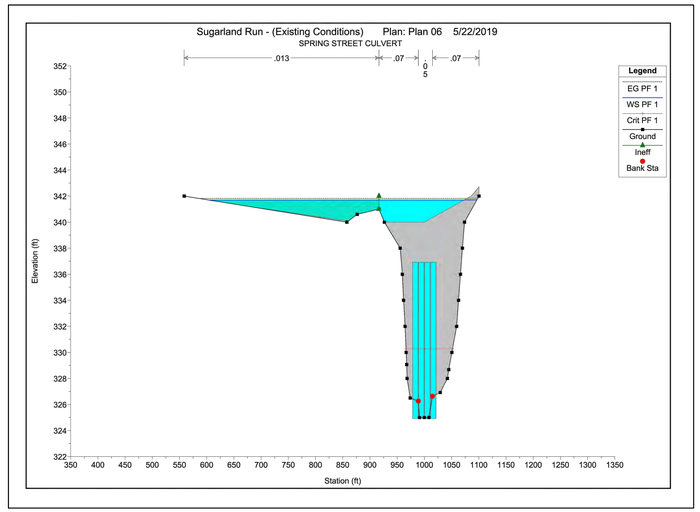












ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
FAX: (703) 761-2787
TYSONS, VA. GERMANTOWN, MD.

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

VV

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

UPDATED EX. CONDITIONS (BASELINE) MODEL CROSS-SECTIONS

REVISIONS	#	DESCRIPTION	BY	APPROVED

V 10.01

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	05.02

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 05.01 EXISTING (BASELINE) CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:45:58 AM LAYOUT: 05.02

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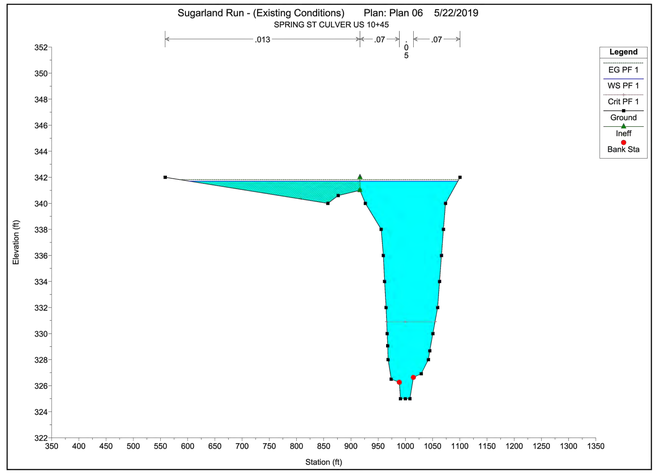

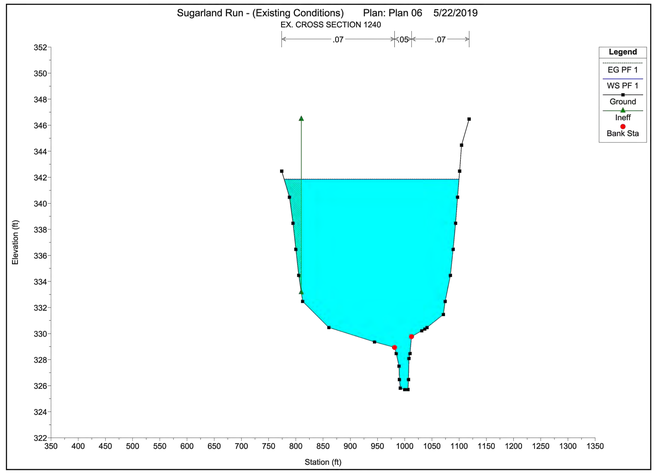

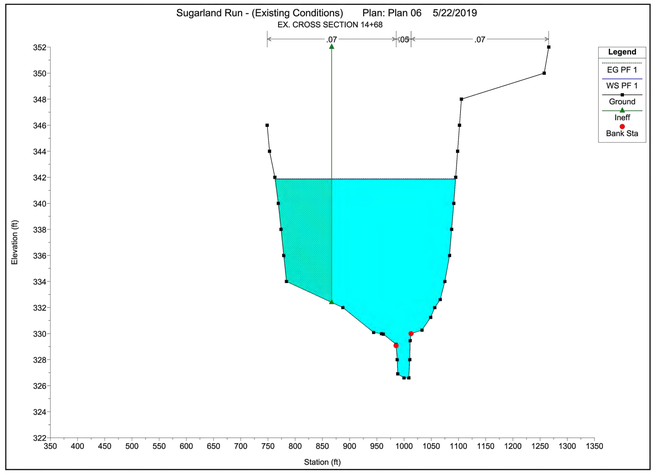

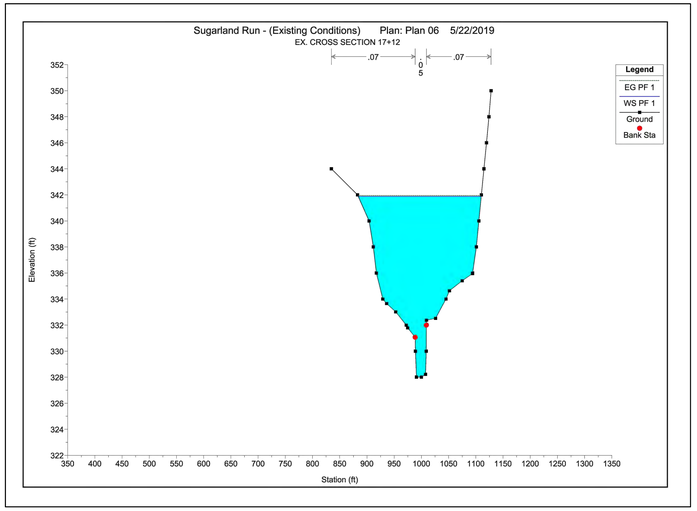

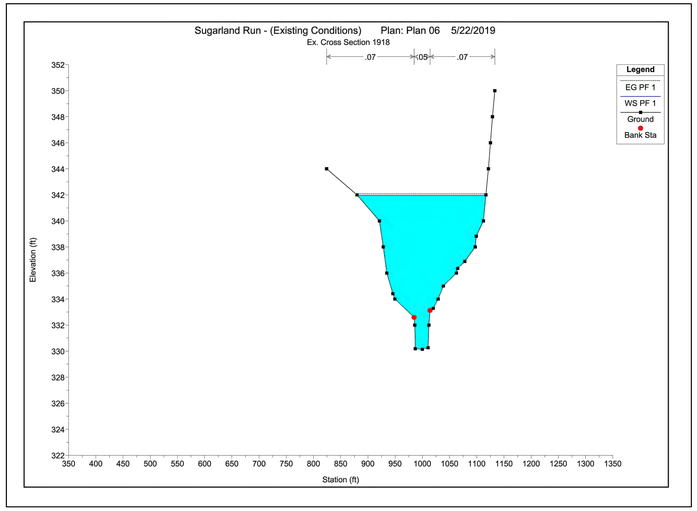

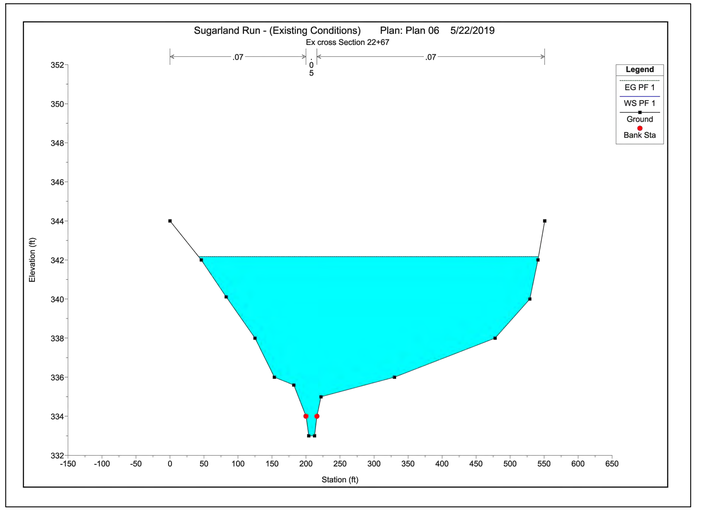

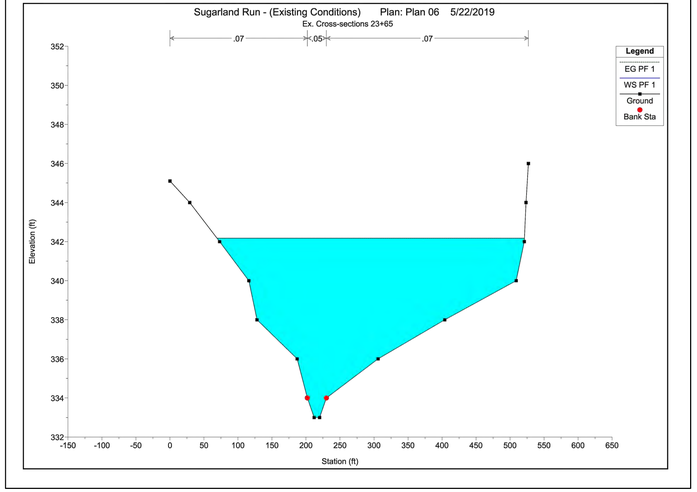

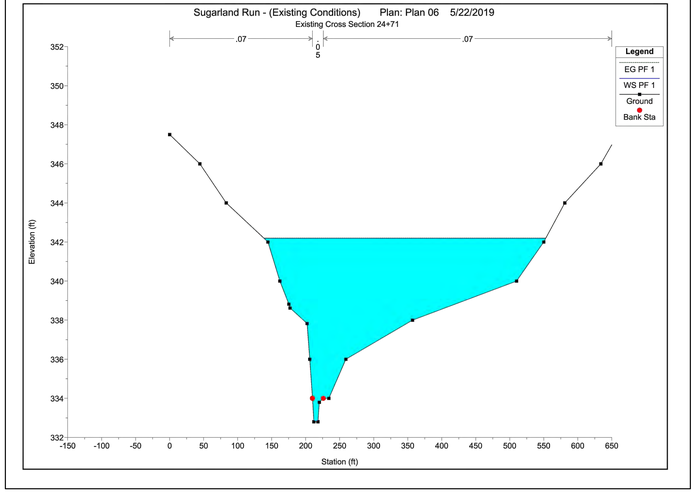

V 10.01

REVISIONS	#	DESCRIPTION	BY	APPROVED

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

ENGINEERS PLANNERS SURVEYORS
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PROFESSIONAL SEAL



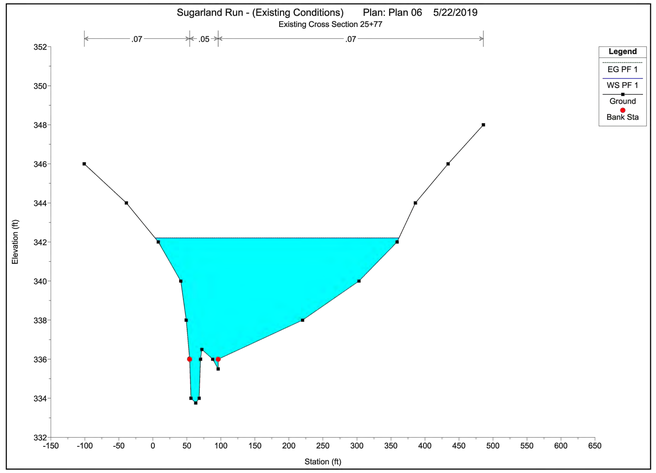
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

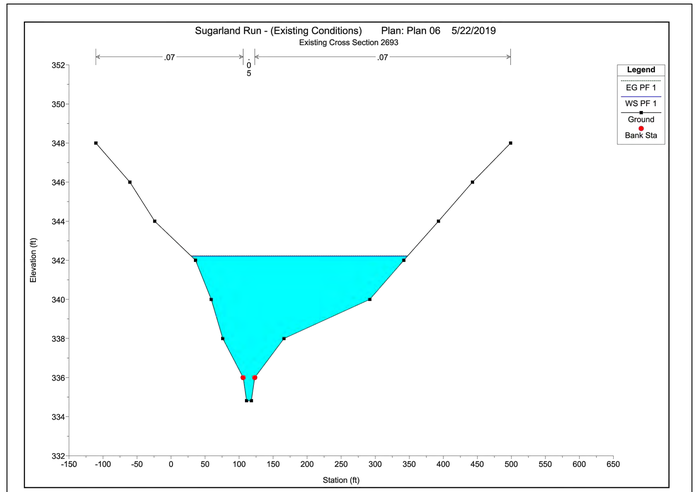
DISTRICT
TOWN OF HERNDON, VIRGINIA

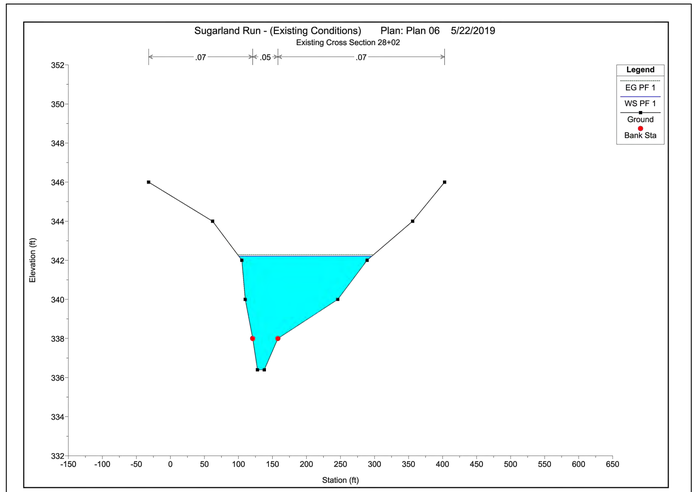
UPDATED EX. CONDITIONS (BASELINE) MODEL CROSS-SECTIONS

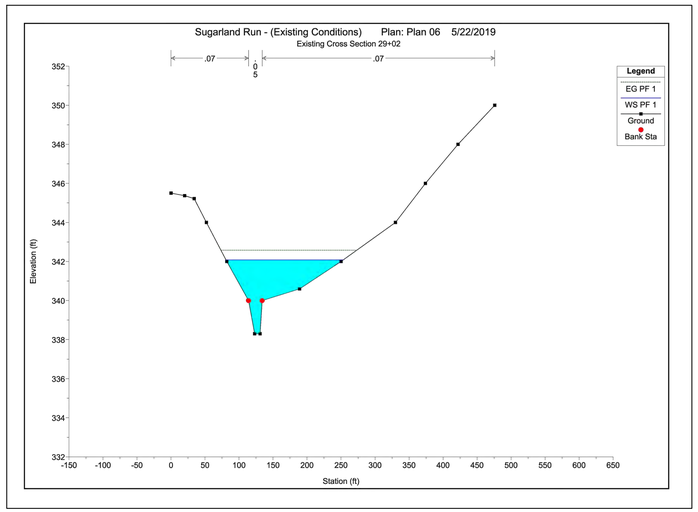
DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	05.03

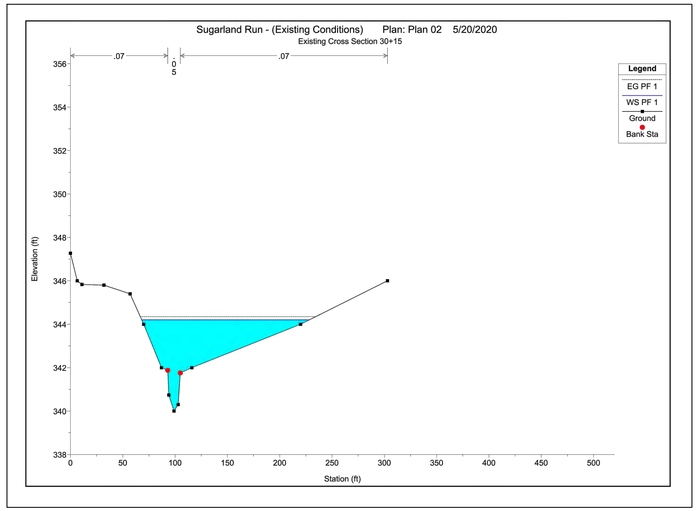
FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 05.01 EXISTING (BASELINE) CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:46:21 AM LAYOUT: 05.03

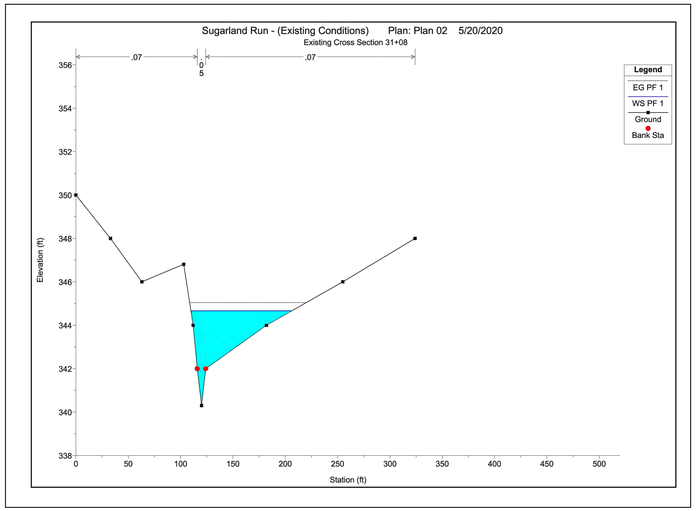


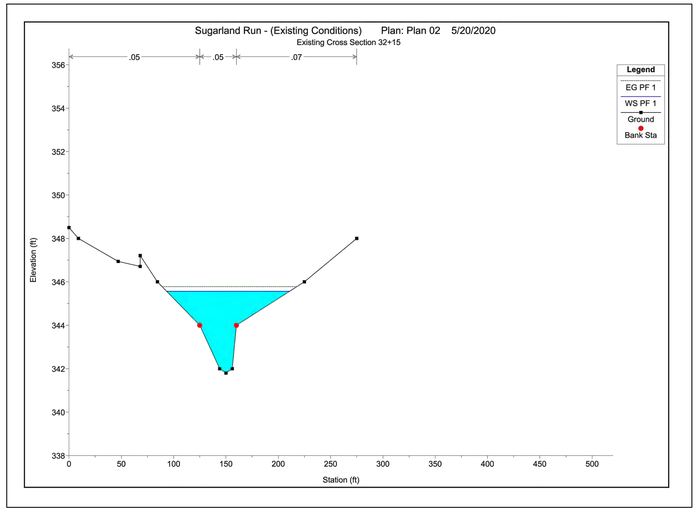


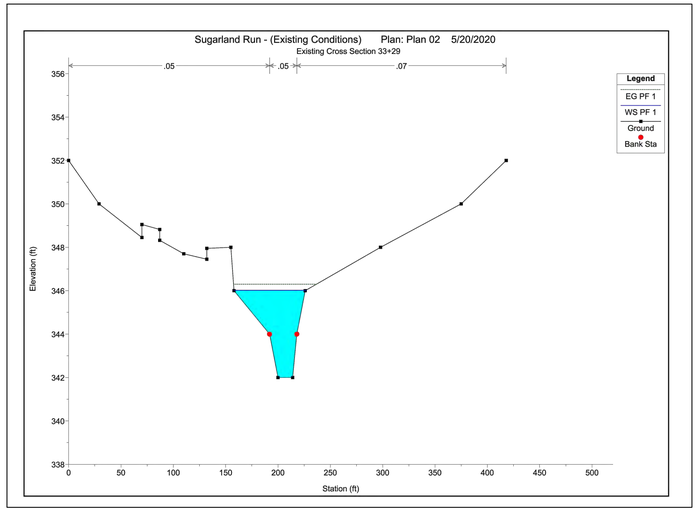












V 10.01

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APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

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FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL



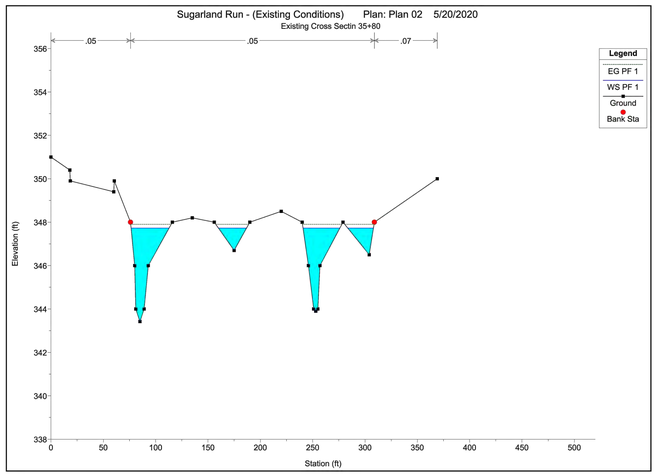
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

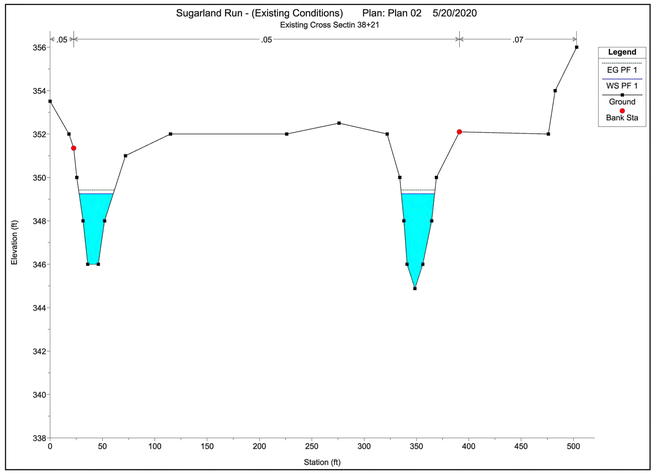
DISTRICT
TOWN OF HERNDON, VIRGINIA

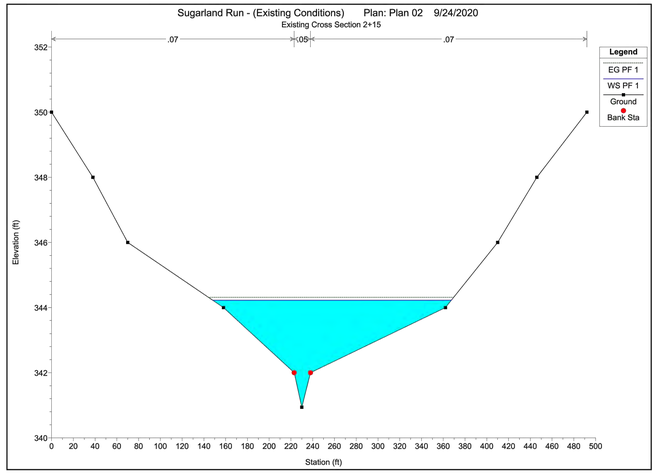
UPDATED EX. CONDITIONS (BASELINE) MODEL CROSS-SECTIONS

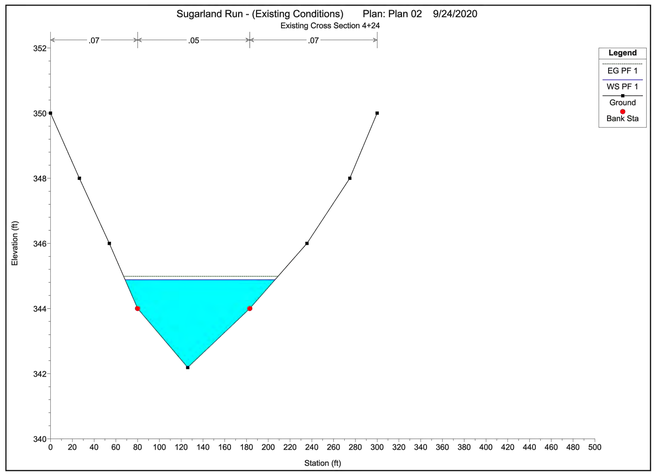
DRAWN BY: KMO
DESIGNED BY: KMO
DATE ISSUED: 04-10-2019
DWG. SCALE: N/A
VIKA NO. 6045X
SHEET NO. 05.04

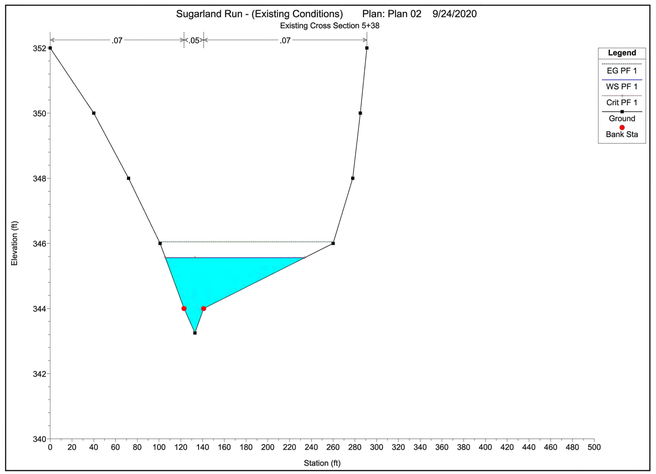
FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 05.01 EXISTING (BASELINE) CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:46:46 AM LAYOUT: 05.04

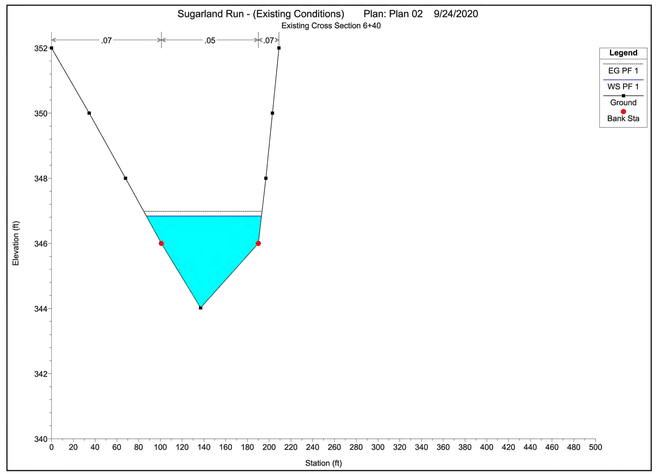


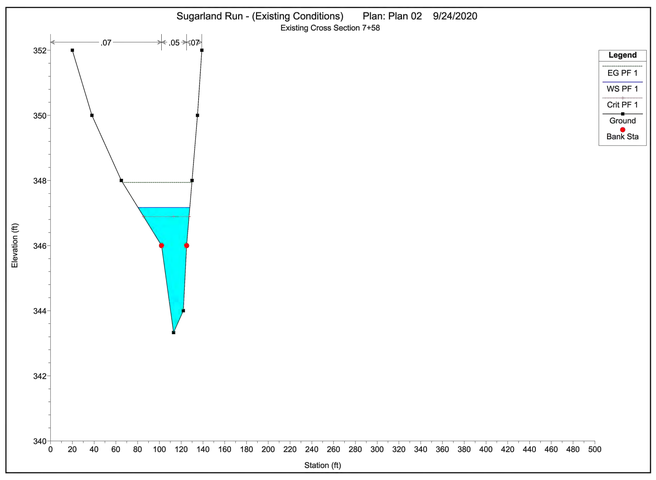












V 10.01

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

R E V I S I O N S	#	DESCRIPTION	BY	APPROVED

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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COMMONWEALTH OF VIRGINIA
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10/16/2020
PROFESSIONAL ENGINEER
vv

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

UPDATED EX. CONDITIONS (BASELINE) MODEL CROSS-SECTIONS

DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	05.05

FILE: P:\projects\6045\6045X\CAD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 05.01 EXISTING (BASELINE) CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:47:07 AM LAYOUT: 05.05

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

X X XXXXXX XXXX XXXX XX XXXX
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X X X X X X X
X X XXXXXX XXXX X X X X XXXXX

PROJECT DATA
Project Title: Sugarland Run - (Existing Conditions)
Project File : SugarlandRun-(E).prj
Run Date and Time: 9/24/2020 3:00:39 PM

Project in English units

Project Description:

PLAN DATA

Plan Title: Plan 02
Plan File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Existing Model 2019.04.08\SugarlandRun-(E).p02

Geometry Title: Sugarland Run - Existing 2019
Geometry File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Existing Model 2019.04.08\SugarlandRun-(E).g02

Flow Title : Sug Run Ex Flow
Flow File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Existing Model 2019.04.08\SugarlandRun-(E).f02

GEOMETRY DATA

Geometry Title: Sugarland Run - Existing 2019
Geometry File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Existing Model 2019.04.08\SugarlandRun-(E).g02

Reach Connection Table

River	Reach	Upstream Boundary	Downstream Boundary
sugarland run	2		1-2
sugarland run	1		1-2
sugarland run	main	1-2	

JUNCTION INFORMATION

Name: 1-2
Description:
Energy computation Method

Length across Junction		Tributary			
River	Reach	River	Reach	Length	Angle
sugarland run	1	to sugarland run	main	200	135
sugarland run	2	to sugarland run	main	200	150

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 758

INPUT
Description: Existing Cross Section 7+58
Station Elevation Data num= 12

Plan Summary Information:
Number of: Cross Sections = 33 Multiple Openings = 0
Culverts = 3 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Sug Run Ex Flow
Flow File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Existing Model 2019.04.08\SugarlandRun-(E).f02

Flow Data (cfs)

River	Reach	RS	PF 1
sugarland run	2	758	500
sugarland run	1	3821	500
sugarland run	1	3580	500
sugarland run	main	2902	1000
sugarland run	main	1918	3100
sugarland run	main	1240	3500
sugarland run	main	1045	3500
sugarland run	main	628	3900
sugarland run	main	216	3900

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
sugarland run	2	PF 1	Normal S = 0.01	
sugarland run	1	PF 1	Normal S = 0.01	
sugarland run	main	PF 1		Normal S = 0.008

Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 355.7 15 354 20 352 38 350 65 348
102 346 113 343.33 122 344 125 346 130 348
135 350 139 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .07 102 .05 125 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
102 125 70 100 110 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	347.94	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.77	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	347.17	Reach Len. (ft)	70.00	100.00	110.00
Crit W.S. (ft)	346.89	Flow Area (sq ft)	12.67	65.61	1.71
E.G. Slope (ft/ft)	0.015394	Area (sq ft)	12.67	65.61	1.71
Q Total (cfs)	500.00	Flow (cfs)	23.31	473.69	3.00
Top Width (ft)	47.57	Top Width (ft)	21.65	23.00	2.93
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)	1.84	7.22	1.75
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	0.59	2.85	0.59
Conv. Total (cfs)	4029.8	Conv. (cfs)	187.9	3817.8	24.2
Length Wtd. (ft)	99.20	Wetted Per. (ft)	21.68	23.95	3.15
Min Ch El (ft)	343.33	Shear (lb/sq ft)	0.56	2.63	0.52
Alpha	1.27	Stream Power (lb/ft s)	1.03	19.01	0.92
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	0.40	1.50	1.16
C & E Loss (ft)	0.19	Cum SA (acres)	0.17	0.66	0.54

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 640

INPUT

Description: Existing Cross Section 6+40
Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 352 34.6 350 68 348 101 346 137 344.02
190 346 197 348 203 350 209 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .07 101 .05 190 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
101 190 95 100 95 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	346.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	346.84	Reach Len. (ft)	95.00	100.00	95.00
Crit W.S. (ft)		Flow Area (sq ft)	5.85	163.07	1.24
E.G. Slope (ft/ft)	0.004646	Area (sq ft)	5.85	163.07	1.24
Q Total (cfs)	500.00	Flow (cfs)	4.75	494.27	0.98
Top Width (ft)	105.84	Top Width (ft)	13.90	89.00	2.95
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)	0.81	3.03	0.79
Max Chl Dpth (ft)	2.82	Hydr. Depth (ft)	0.42	1.83	0.42
Conv. Total (cfs)	7335.5	Conv. (cfs)	69.7	7251.3	14.4
Length Wtd. (ft)	98.74	Wetted Per. (ft)	13.92	89.09	3.07
Min Ch El (ft)	344.02	Shear (lb/sq ft)	0.12	0.53	0.12
Alpha	1.05	Stream Power (lb/ft s)	0.10	1.61	0.09
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	0.38	1.24	1.16
C & E Loss (ft)	0.03	Cum SA (acres)	0.14	0.53	0.53

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 538

INPUT
Description: Existing Cross Section 5+38
Station Elevation Data num= 11

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 424

INPUT
Description: Existing Cross Section 4+24
Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 350 26.5 348 54 346 80 344 126 342.19
183 344 235.5 346 274.9 348 300 350

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .07 80 .05 183 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80 183 80 200 145 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	344.99	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	344.88	Reach Len. (ft)	80.00	200.00	145.00
Crit W.S. (ft)		Flow Area (sq ft)	5.06	184.10	10.22
E.G. Slope (ft/ft)	0.003680	Area (sq ft)	5.06	184.10	10.22
Q Total (cfs)	500.00	Flow (cfs)	3.77	488.61	7.62
Top Width (ft)	137.63	Top Width (ft)	11.47	103.00	23.16
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	0.74	2.65	0.75
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)	0.44	1.79	0.44
Conv. Total (cfs)	8242.2	Conv. (cfs)	62.1	8054.4	125.6
Length Wtd. (ft)	172.57	Wetted Per. (ft)	11.50	103.06	23.18
Min Ch El (ft)	342.19	Shear (lb/sq ft)	0.10	0.41	0.10
Alpha	1.10	Stream Power (lb/ft s)	0.08	1.09	0.08
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	0.34	0.76	0.96
C & E Loss (ft)	0.01	Cum SA (acres)	0.08	0.27	0.25

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 215

INPUT
Description: Existing Cross Section 2+15
Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 350 38 348 70 346 158 344 223 342
230 340.94 238 342 362 344 410 346 446 348
492 350

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .07 223 .05 238 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
223 238 0 0 0 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	344.31	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	344.23	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)	80.76	41.33	152.54
E.G. Slope (ft/ft)	0.004096	Area (sq ft)	80.76	41.33	152.54
Q Total (cfs)	500.00	Flow (cfs)	115.31	153.47	231.22
Top Width (ft)	219.31	Top Width (ft)	74.91	15.00	129.41
Vel Total (ft/s)	1.82	Avg. Vel. (ft/s)	1.43	3.71	1.52
Max Chl Dpth (ft)	3.29	Hydr. Depth (ft)	1.08	2.76	1.18
Conv. Total (cfs)	7812.4	Conv. (cfs)	1801.7	2397.9	3612.7
Length Wtd. (ft)	200.00	Wetted Per. (ft)	74.94	15.15	129.43
Min Ch El (ft)	340.94	Shear (lb/sq ft)	0.28	0.70	0.30
Alpha	1.74	Stream Power (lb/ft s)	0.39	2.59	0.46
Frctn Loss (ft)	1.69	Cum Volume (acre-ft)	0.27	0.25	0.69
C & E Loss (ft)	0.04	Cum SA (acres)			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3821

RIVER: sugarland run
REACH: 1 RS: 3580

INPUT
Description: Existing Cross Sectin 35+80
Station Elevation Data num= 27
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 351 18 350.4 18.5 349.9 60 349.4 60.5 349.9
76 348 80 346 81 344 85 343.42 89 344
93 346 116 348 135 348.2 156 348 175 346.7
190 348 220 348.5 240 348 246 346 251 344
253 343.9 255 344 257 346 279 348 304 346.5
309 348 369 350

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .05 76 .05 309 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
76 309 205 251 240 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	347.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.050		
W.S. Elev (ft)	347.73	Reach Len. (ft)	205.00	251.00	240.00
Crit W.S. (ft)		Flow Area (sq ft)	150.14		
E.G. Slope (ft/ft)	0.010071	Area (sq ft)	150.14		
Q Total (cfs)	500.00	Flow (cfs)	500.00		
Top Width (ft)	123.08	Top Width (ft)	123.08		
Vel Total (ft/s)	3.33	Avg. Vel. (ft/s)	3.33		
Max Chl Dpth (ft)	4.31	Hydr. Depth (ft)	1.22		
Conv. Total (cfs)	4982.5	Conv. (cfs)	4982.5		
Length Wtd. (ft)	247.68	Wetted Per. (ft)	127.23		
Min Ch El (ft)	343.42	Shear (lb/sq ft)	0.74		
Alpha	1.00	Stream Power (lb/ft s)	2.47		
Frctn Loss (ft)	1.59	Cum Volume (acre-ft)	0.40	1.45	1.22
C & E Loss (ft)	0.01	Cum SA (acres)	0.25	0.58	0.49

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3329

INPUT
Description: Existing Cross Section 33+29
Station Elevation Data num= 19
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 352 29 350 70 348.45 70.01 349.05 87 348.82
87.01 348.32 110 347.7 132 347.45 132.01 347.95 155 348
158 346 192 344 200 342 214 342 218 344
226 346 298 348 375 350 418 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .05 192 .05 218 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
192 218 114 114 114 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	346.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.	0.050	0.050	0.070
W.S. Elev (ft)	346.02	Reach Len. (ft)	114.00	114.00	114.00
Crit W.S. (ft)		Flow Area (sq ft)	34.76	92.58	8.19
E.G. Slope (ft/ft)	0.004433	Area (sq ft)	34.76	92.58	8.19
Q Total (cfs)	500.00	Flow (cfs)	69.67	419.50	10.82
Top Width (ft)	68.84	Top Width (ft)	34.03	26.00	8.81
Vel Total (ft/s)	3.69	Avg. Vel. (ft/s)	2.00	4.53	1.32
Max Chl Dpth (ft)	4.02	Hydr. Depth (ft)	1.02	3.56	0.93
Conv. Total (cfs)	7509.4	Conv. (cfs)	1046.4	6300.4	162.6
Length Wtd. (ft)	114.00	Wetted Per. (ft)	34.10	26.72	9.05
Min Ch El (ft)	342.00	Shear (lb/sq ft)	0.28	0.96	0.25
Alpha	1.31	Stream Power (lb/ft s)	0.57	4.35	0.33
Frctn Loss (ft)	0.50	Cum Volume (acre-ft)	0.32	0.75	1.20
C & E Loss (ft)	0.02	Cum SA (acres)	0.17	0.15	0.46

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3108

INPUT
Description: Existing Cross Section 31+08
Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 350 33 348 63 346 103 346.81 112 344
116 342 120 340.3 124 342 182 344 255 346
324 348

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .07 116 .05 124 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
116 124 93 93 93 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	345.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.37	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	344.67	Reach Len. (ft)	93.00	93.00	93.00
Crit W.S. (ft)		Flow Area (sq ft)	7.39	28.15	104.90
E.G. Slope (ft/ft)	0.011750	Area (sq ft)	7.39	28.15	104.90
Q Total (cfs)	500.00	Flow (cfs)	18.12	198.44	283.45
Top Width (ft)	96.53	Top Width (ft)	6.14	8.00	82.39
Vel Total (ft/s)	3.56	Avg. Vel. (ft/s)	2.45	7.05	2.70
Max Chl Dpth (ft)	4.37	Hydr. Depth (ft)	1.20	3.52	1.27
Conv. Total (cfs)	4612.6	Conv. (cfs)	167.1	1830.6	2614.9
Length Wtd. (ft)	93.00	Wetted Per. (ft)	6.71	8.69	82.43
Min Ch El (ft)	340.30	Shear (lb/sq ft)	0.81	2.38	0.93
Alpha	1.90	Stream Power (lb/ft s)	1.98	16.75	2.52
Frctn Loss (ft)	0.62	Cum Volume (acre-ft)	0.20	0.33	0.96
C & E Loss (ft)	0.07	Cum SA (acres)	0.03	0.02	0.22

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3015

INPUT
Description: Existing Cross Section 30+15
Station Elevation Data num= 15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 347.27 6.5 346 11 345.83 32 345.8 57 345.4
70 344 87 342 93 341.88 94 340.74 99 340
103 340.3 105 341.76 116 342 220 344 303 346

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .07 93 .05 105 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
93 105 0 0 0 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	344.35	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.15	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	344.20	Reach Len. (ft)	200.00	200.00	200.00
Crit W.S. (ft)		Flow Area (sq ft)	34.24	44.63	151.64
E.G. Slope (ft/ft)	0.004332	Area (sq ft)	34.24	44.63	151.64
Q Total (cfs)	500.00	Flow (cfs)	58.98	198.06	242.96
Top Width (ft)	160.36	Top Width (ft)	24.89	12.00	123.47
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)	1.72	4.44	1.60
Max Chl Dpth (ft)	4.20	Hydr. Depth (ft)	1.38	3.72	1.23
Conv. Total (cfs)	7596.4	Conv. (cfs)	896.0	3099.1	3691.2
Length Wtd. (ft)	200.00	Wetted Per. (ft)	25.02	13.06	123.49
Min Ch El (ft)	340.00	Shear (lb/sq ft)	0.37	0.92	0.33
Alpha	2.00	Stream Power (lb/ft s)	0.64	4.10	0.53
Frctn Loss (ft)	1.74	Cum Volume (acre-ft)	0.16	0.25	0.68
C & E Loss (ft)	0.04	Cum SA (acres)			

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2802

INPUT
Description: Existing Cross Section 28+02
Station Elevation Data num= 12
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-32 346 62 344 105 342 110 340 121 338
128 336.4 138 336.4 158 338 246 340 289 342
356 344 403 346

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-32 .07 121 .05 158 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
121 158 65 109 47 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	342.21	Reach Len. (ft)	65.00	109.00	47.00
Crit W.S. (ft)		Flow Area (sq ft)	41.84	193.37	335.26
E.G. Slope (ft/ft)	0.001009	Area (sq ft)	41.84	193.37	335.26
Q Total (cfs)	1000.00	Flow (cfs)	44.53	547.23	408.23
Top Width (ft)	195.55	Top Width (ft)	20.52	37.00	138.04
Vel Total (ft/s)	1.75	Avg. Vel. (ft/s)	1.06	2.83	1.22
Max Chl Dpth (ft)	5.81	Hydr. Depth (ft)	2.04	5.23	2.43
Conv. Total (cfs)	31487.2	Conv. (cfs)	1402.2	17230.9	12854.2
Length Wtd. (ft)	73.48	Wetted Per. (ft)	21.09	37.24	138.11
Min Ch El (ft)	336.40	Shear (lb/sq ft)	0.12	0.33	0.15
Alpha	1.64	Stream Power (lb/ft s)	0.13	0.93	0.19
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	50.25	29.31	51.91
C & E Loss (ft)	0.02	Cum SA (acres)	12.16	2.38	9.96

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run

REACH: main RS: 2693

INPUT
Description: Existing Cross Section 2693
Station Elevation Data num= 16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-110.5 348 -60.5 346 -24 344 36 342 59 340
76 338 106 336 111 334.82 118 334.82 123 336
166 338 292 340 342 342 393 344 443 346
499 348

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-110.5 .07 106 .05 123 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
106 123 135 116 42 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.23	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	342.21	Reach Len. (ft)	135.00	116.00	42.00
Crit W.S. (ft)		Flow Area (sq ft)	239.33	119.72	689.45
E.G. Slope (ft/ft)	0.000334	Area (sq ft)	239.33	119.72	689.45
Q Total (cfs)	1000.00	Flow (cfs)	198.49	236.35	565.16
Top Width (ft)	317.63	Top Width (ft)	76.29	17.00	224.34
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)	0.83	1.97	0.82
Max Chl Dpth (ft)	7.39	Hydr. Depth (ft)	3.14	7.04	3.07
Conv. Total (cfs)	54720.9	Conv. (cfs)	10861.3	12933.4	30926.2
Length Wtd. (ft)	75.00	Wetted Per. (ft)	76.56	17.27	224.45
Min Ch El (ft)	334.82	Shear (lb/sq ft)	0.07	0.14	0.06
Alpha	1.58	Stream Power (lb/ft s)	0.05	0.29	0.05
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	50.04	28.91	51.36
C & E Loss (ft)	0.00	Cum SA (acres)	12.09	2.31	9.76

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2577

INPUT
Description: Existing Cross Section 25+77
Station Elevation Data num= 20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-101 346 -39 344 8 342 41 340 49 338
54 336 56 334 63 333.76 68 334 70 336
72 336.5 88 336 96 335.5 96 336 220 338
303 340 359 342 386 344 434 346 486 348

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-101 .07 54 .05 96 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
54 96 85 106 85 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.21	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	342.20	Reach Len. (ft)	85.00	106.00	85.00
Crit W.S. (ft)		Flow Area (sq ft)	91.69	287.36	977.97
E.G. Slope (ft/ft)	0.000148	Area (sq ft)	91.69	287.36	977.97
Q Total (cfs)	1000.00	Flow (cfs)	34.88	362.20	602.92
Top Width (ft)	358.41	Top Width (ft)	50.71	42.00	265.71
Vel Total (ft/s)	0.74	Avg. Vel. (ft/s)	0.38	1.26	0.62
Max Chl Dpth (ft)	8.44	Hydr. Depth (ft)	1.81	6.84	3.68
Conv. Total (cfs)	82064.9	Conv. (cfs)	2862.6	29723.9	49478.5
Length Wtd. (ft)	90.74	Wetted Per. (ft)	51.41	44.25	265.79
Min Ch El (ft)	333.76	Shear (lb/sq ft)	0.02	0.06	0.03
Alpha	1.49	Stream Power (lb/ft s)	0.01	0.08	0.02
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	49.52	28.37	50.56
C & E Loss (ft)	0.00	Cum SA (acres)	11.89	2.23	9.53

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2471

INPUT
Description: Existing Cross Section 24+71

INPUT
Description: Existing Cross Sectin 38+21
Station Elevation Data num= 24
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 353.51 18 352 22.5 351.35 25.5 350 31.5 348
36 346 46 346 52 348 72 351 115 352
226 352 276 352.5 322 352 334 350 338 348
341 346 348.5 344.88 356 346 364.5 348 369 350
391 352.1 476 352 482.5 354 503 356

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .05 22.5 .05 391 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
22.5 391 250 241 230 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	349.42	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.050		
W.S. Elev (ft)	349.25	Reach Len. (ft)	250.00	241.00	230.00
Crit W.S. (ft)		Flow Area (sq ft)	149.82		
E.G. Slope (ft/ft)	0.004309	Area (sq ft)	149.82		
Q Total (cfs)	500.00	Flow (cfs)	500.00		
Top Width (ft)	64.35	Top Width (ft)	64.35		
Vel Total (ft/s)	3.34	Avg. Vel. (ft/s)	3.34		
Max Chl Dpth (ft)	4.37	Hydr. Depth (ft)	2.33		
Conv. Total (cfs)	7616.7	Conv. (cfs)	7616.7		
Length Wtd. (ft)	241.00	Wetted Per. (ft)	66.96		
Min Ch El (ft)	344.88	Shear (lb/sq ft)	0.60		
Alpha	1.00	Stream Power (lb/ft s)	2.01		
Frctn Loss (ft)	1.52	Cum Volume (acre-ft)	0.40	2.28	1.22
C & E Loss (ft)	0.00	Cum SA (acres)	0.25	1.10	0.49

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3215

INPUT
Description: Existing Cross Section 32+15
Station Elevation Data num= 13
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
0 348.5 9 348 47 346.94 68 346.71 68.01 347.21
84.5 346 125 344 144 342 150 341.8 156 342
160 344 225 346 275 348

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
0 .05 125 .05 160 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
125 160 107 107 107 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	345.78	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val

Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	347.5	44.4	346	83.2	344	144.5	342	162	340
175.3	338.82	177	338.62	202	337.83	206	336	210	334
212	332.8	218	332.8	220	333.8	226	334	234	334
259	336	357	338	510	340	550	342	581	344
634	346	667	348	675	350	682	352		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	210	.05	226	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
210 226 135 106 360 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.20	Element	Left OB Channel Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	342.19	Reach Len. (ft)	135.00 106.00 360.00
Crit W.S. (ft)		Flow Area (sq ft)	213.35 141.47 1290.36
E.G. Slope (ft/ft)	0.000110	Area (sq ft)	213.35 141.47 1290.36
Q Total (cfs)	1000.00	Flow (cfs)	97.70 184.37 717.93
Top Width (ft)	414.34	Top Width (ft)	71.37 16.00 326.97
Vel Total (ft/s)	0.61	Avg. Vel. (ft/s)	0.46 1.30 0.56
Max Chl Dpth (ft)	9.39	Hydr. Depth (ft)	2.99 8.84 3.95
Conv. Total (cfs)	95245.5	Conv. (cfs)	9305.6 17560.2 68379.7
Length Wtd. (ft)	277.09	Wetted Per. (ft)	72.44 16.57 327.14
Min Ch El (ft)	332.80	Shear (lb/sq ft)	0.02 0.06 0.03
Alpha	1.50	Stream Power (lb/ft s)	0.01 0.08 0.02
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	49.22 27.85 48.34
C & E Loss (ft)	0.00	Cum SA (acres)	11.77 2.16 8.95

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2365

INPUT

1097.31 338 1099.11 338.82 1112.3 340 1116.88 342 1121.49 344
1125.25 346 1128.93 348 1133.17 350

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
824.11	.07	985.03	.05	1014.11	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
985.03 1014.11 206 206 206 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.08	Element	Left OB Channel Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	341.96	Reach Len. (ft)	206.00 206.00 206.00
Crit W.S. (ft)		Flow Area (sq ft)	503.51 332.66 567.93
E.G. Slope (ft/ft)	0.000719	Area (sq ft)	503.51 332.66 567.93
Q Total (cfs)	3100.00	Flow (cfs)	814.80 1279.34 1005.86
Top Width (ft)	236.02	Top Width (ft)	104.27 29.08 102.68
Vel Total (ft/s)	2.21	Avg. Vel. (ft/s)	1.62 3.85 1.77
Max Chl Dpth (ft)	11.81	Hydr. Depth (ft)	4.83 11.44 5.53
Conv. Total (cfs)	115597.3	Conv. (cfs)	30383.3 47706.0 37508.1
Length Wtd. (ft)	206.00	Wetted Per. (ft)	105.05 31.38 103.49
Min Ch El (ft)	330.15	Shear (lb/sq ft)	0.22 0.48 0.25
Alpha	1.60	Stream Power (lb/ft s)	0.35 1.83 0.44
Frctn Loss (ft)	0.11	Cum Volume (acre-ft)	42.37 24.95 21.28
C & E Loss (ft)	0.02	Cum SA (acres)	10.10 1.87 3.32

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 1712

INPUT
Description: EX. CROSS SECTION 17+12
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
834.7	344	882.7	342	904	340	911.7	338	917.35	336		
929.2	334	936.13	333.66	952.81	333.02	972.21	332	974.9	331.79		
988.7	331.07	989.12	330	990.97	328.01	1000	328.01	1007.7	328.22		
1008.95	330	1009.2	332	1009.45	332.38	1026.08	332.52	1045.2	334		
1051.5	334.64	1074.96	335.41	1093.96	335.96	1094.2	336	1101.13	338		
1105.7	340	1110.36	342	1115.05	344	1119.7	346	1124.2	348		

774 342.47 788.3 340.47 794.7 338.47 800 336.47 805.3 334.47
812.5 332.47 860.6 330.47 944.5 329.36 981.5 328.94 984.5 328.47
989.6 327.5 990.25 326.47 992 325.81 1000 325.7 1006 325.7
1007 326.47 1007.75 328.09 1009.75 328.47 1012.5 329.77 1031.3 330.22
1036.8 330.35 1041 330.47 1071 331.47 1074.3 332.47 1084 334.47
1089 336.47 1093.5 338.47 1097.12 340.47 1101 342.47 1104.5 344.47
1118.4 346.47

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
774	.07	981.5	.05	1012.5	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
981.5 1012.5 195 195 195 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
774	810	F	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	341.86	Element	Left OB Channel Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	341.84	Reach Len. (ft)	195.00 195.00 195.00
Crit W.S. (ft)		Flow Area (sq ft)	1991.39 461.49 836.02
E.G. Slope (ft/ft)	0.000087	Area (sq ft)	2107.90 461.49 836.02
Q Total (cfs)	3500.00	Flow (cfs)	2025.39 737.69 736.92
Top Width (ft)	321.27	Top Width (ft)	203.00 31.00 87.28
Vel Total (ft/s)	1.06	Avg. Vel. (ft/s)	1.02 1.60 0.88
Max Chl Dpth (ft)	16.14	Hydr. Depth (ft)	11.61 14.89 9.58
Conv. Total (cfs)	374365.7	Conv. (cfs)	216638.8 78904.9 78822.1
Length Wtd. (ft)	195.00	Wetted Per. (ft)	171.65 33.44 89.31
Min Ch El (ft)	325.70	Shear (lb/sq ft)	0.06 0.08 0.05
Alpha	1.15	Stream Power (lb/ft s)	0.06 0.12 0.05
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	20.62 19.33 10.05
C & E Loss (ft)	0.01	Cum SA (acres)	7.58 1.46 1.89

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
652.87	342	676.87	340	682.37	338	690.2	336	702.87	335.8
717.87	336	732.87	338	763.87	340	772.87	339.6	808.87	339.6
808.87	340.1	824.87	340.1	824.87	339.6	894.87	340.5	923.87	340
930.27	338	936.69	336	939.38	335.21	942.98	334	948.54	332
955.69	330	960.58	328	961.5	327.57	979.61	327.5	987.9	326.53
988.85	326	991.36	324.86	992	324	1000	324	1008	324
1008.9	324.81	1011	326	1013.12	326.63	1021.24	326.6	1041.5	328
1045.5	330	1049.75	332	1052.5	332.88	1055	334	1060	336
1063.5	338	1066.75	340	1069.7	342				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
652.87	.07	763.87	.013	894.87	.07	987.9	.05	1013.12	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
987.9 1013.12 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
652.87	710	F	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	340.97	Element	Left OB Channel Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.058 0.050 0.070
W.S. Elev (ft)	340.89	Reach Len. (ft)	113.00 113.00 113.00
Crit W.S. (ft)		Flow Area (sq ft)	917.22 411.69 572.40
E.G. Slope (ft/ft)	0.000306	Area (sq ft)	1061.93 411.69 572.40
Q Total (cfs)	3500.00	Flow (cfs)	1199.36 1323.55 977.09
Top Width (ft)	401.85	Top Width (ft)	321.69 25.22 54.94
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)	1.31 3.21 1.71
Max Chl Dpth (ft)	16.89	Hydr. Depth (ft)	3.30 16.32 10.42

E.G. Elev (ft) 340.93 Element Left OB Channel Right OB
Vel Head (ft) 0.03 Wt. n-Val. 0.056 0.050 0.070
W.S. Elev (ft) 340.91 Reach Len. (ft) 84.00 84.00 84.00
Crit W.S. (ft) Flow Area (sq ft) 1331.97 411.47 1251.10
E.G. Slope (ft/ft) 0.000114 Area (sq ft) 1410.81 411.47 1251.10
Q Total (cfs) 3500.00 Flow (cfs) 1314.30 840.49 1345.22
Top Width (ft) 414.32 Top Width (ft) 271.32 24.23 118.77
Vel Total (ft/s) 1.17 Avg. Vel. (ft/s) 0.99 2.04 1.08
Max Chl Dpth (ft) 17.48 Hydr. Depth (ft) 5.48 16.98 10.53
Conv. Total (cfs) 328227.9 Conv. (cfs) 123254.2 78820.2 126153.5
Length Wtd. (ft) 84.00 Wetted Per. (ft) 246.99 25.14 120.84
Min Ch El (ft) 323.43 Shear (lb/sq ft) 0.04 0.12 0.07
Alpha 1.33 Stream Power (lb/ft s) 0.04 0.24 0.08
Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 10.95 13.95 4.25
C & E Loss (ft) 0.00 Cum SA (acres) 3.71 1.14 0.94

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 628

INPUT
Description: EX. CROSS SECTION 6+28
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
714.58	350	714.59	350	715.58	340	726.28	338	731.33	336
737.98	334	746.08	332	789.09	330	799.58	330	812.38	332
817.58	334	823.58	336	828.58	338	833.58	340	838.58	340.6
873.08	340	873.09	340.5	890.08	340.25	890.09	339.75	925.08	339.15
931.18	338	934.86	336	938.53	334	942.18	332	946.18	330
949.68	328	953.68	326	957.5	323.83	975	323.65	981.75	323.53
1000	323.38	1023.25	322.95	1032.9	324	1037.5	326	1043.4	328
1049.7	328.85	1051.2	330	1055.05	332	1062.2	334	1069.7	335.83
1070.2	336	1075.4	338	1080.2	340	1084.7	342	1090.34	344

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
714.58	.07	838.58	.013	925.08	.07	953.68	.05	1037.5	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
953.68 1037.5 197 197 197 .1 .3

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
636.05 .07 658.25 .013 811.71 .07 921.41 .05 1056.8 .07

Bank Sta: Left Right Coeff Contr. Expan.
921.41 1056.8 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
636.05	778	F	

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
Downstream Embankment side slope = 2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span
Culvert #1 Box 12 10
FHWA Chart # 9 - flared wingwalls and Inlet top edge bevel
FHWA Scale # 1 - 45 deg Wingwall flare; inlet top edge bevel=0.043D
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
20 155 .013 .013 0 .5 1

Number of Barrels = 4
Upstream Elevation = 322.58
Centerline Stations

Sta.	Sta.	Sta.	Sta.
983.5	994.5	1005.5	1016.5

Downstream Elevation = 322.09
Centerline Stations

Sta.	Sta.	Sta.	Sta.
983.5	994.5	1005.5	1016.5

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 431

INPUT
Description: EX. CROSS SECTION 4+31

Description: Ex. Cross-sections 23+65
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	345.1	29	344	73	342	116	340	128	338
187	336	202	334	212	333	220	333	230	334
306	336	404	338	509	340	521	342	523.5	344
527	346								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	202	.05	230	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
202 230 75 98 180 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.18	Element	Left OB Channel Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	342.17	Reach Len. (ft)	75.00 98.00 180.00
Crit W.S. (ft)		Flow Area (sq ft)	501.85 246.89 1399.81
E.G. Slope (ft/ft)	0.000000	Area (sq ft)	501.85 246.89 1399.81
Q Total (cfs)	1000.00	Flow (cfs)	182.13 220.62 597.25
Top Width (ft)	452.06	Top Width (ft)	132.84 28.00 291.22
Vel Total (ft/s)	0.47	Avg. Vel. (ft/s)	0.36 0.89 0.43
Max Chl Dpth (ft)	9.17	Hydr. Depth (ft)	3.78 8.82 4.81
Conv. Total (cfs)	141606.6	Conv. (cfs)	25791.0 31240.7 84574.9
Length Wtd. (ft)	145.72	Wetted Per. (ft)	133.22 28.10 291.51
Min Ch El (ft)	333.00	Shear (lb/sq ft)	0.01 0.03 0.01
Alpha	1.43	Stream Power (lb/ft s)	0.00 0.02 0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	48.12 27.38 37.23
C & E Loss (ft)	0.00	Cum SA (acres)	11.45 2.11 6.39

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2267

INPUT
Description: Ex cross Section 22+67
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	344	46	342	82.6	340.11	125	338	153.5	336		

1128.2 350

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
834.7	.07	988.7	.05	1009.2	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
988.7 1009.2 244 244 244 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	341.95	Element	Left OB Channel Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	341.88	Reach Len. (ft)	244.00 244.00 244.00
Crit W.S. (ft)		Flow Area (sq ft)	701.24 278.51 702.78
E.G. Slope (ft/ft)	0.000439	Area (sq ft)	701.24 278.51 702.78
Q Total (cfs)	3100.00	Flow (cfs)	1101.10 869.64 1129.27
Top Width (ft)	226.11	Top Width (ft)	104.73 20.50 100.88
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)	1.57 3.12 1.61
Max Chl Dpth (ft)	13.87	Hydr. Depth (ft)	6.70 13.59 6.97
Conv. Total (cfs)	148004.7	Conv. (cfs)	52570.1 41519.5 53915.1
Length Wtd. (ft)	244.00	Wetted Per. (ft)	105.66 24.79 102.29
Min Ch El (ft)	328.01	Shear (lb/sq ft)	0.18 0.31 0.19
Alpha	1.34	Stream Power (lb/ft s)	0.29 0.96 0.30
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	39.52 23.50 18.27
C & E Loss (ft)	0.01	Cum SA (acres)	9.61 1.75 2.84

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 1468

INPUT
Description: EX. CROSS SECTION 14+68
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
748.5	346	752.83	344	762.65	342	769	340	774	338		
778.9	336	784	334	887.66	332	944.22	330.09	958.5	330		
962	329.96	985.3	329.18	985.5	329.073	987.5	328	988.5	326.91		

RIVER: sugarland run
REACH: main RS: 1045

INPUT
Description: SPRING ST CULVER US 10+45
Station Elevation Data num= 28

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
558.55	342	857.55	340	876.55	340.6	916.55	341	926.55	340		
955.55	338	959.55	336	961.86	334	964.55	332	966.55	330		
967.55	329.07	968.3	328	973.96	326.5	988.92	326.27	990.97	325		
1000	325	1008.3	325	1014.8	326.64	1029.2	326.92	1042.3	328		
1044.8	328.68	1050.55	330	1059.34	332	1062.84	334	1066.32	336		
1069.91	338	1073.81	340	1100.4	342						

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
558.55	.013	916.55	.07	988.92	.05	1014.8	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
988.92 1014.8 220 220 220 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
558.55	916.55	F	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	341.82	Element	Left OB Channel Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	341.70	Reach Len. (ft)	220.00 220.00 220.00
Crit W.S. (ft)	330.91	Flow Area (sq ft)	502.40 425.59 700.38
E.G. Slope (ft/ft)	0.000382	Area (sq ft)	781.36 425.59 700.38
Q Total (cfs)	3500.00	Flow (cfs)	732.11 1575.67 1192.22
Top Width (ft)	493.19	Top Width (ft)	385.68 25.88 81.63
Vel Total (ft/s)	2.15	Avg. Vel. (ft/s)	1.46 3.70 1.70
Max Chl Dpth (ft)	16.70	Hydr. Depth (ft)	6.94 16.44 8.58
Conv. Total (cfs)	179083.0	Conv. (cfs)	37459.6 80621.4 61002.0
Length Wtd. (ft)	220.00	Wetted Per. (ft)	76.32 26.45 84.27
Min Ch El (ft)	325.00	Shear (lb/sq ft)	0.16 0.38 0.20
Alpha	1.65	Stream Power (lb/ft s)	0.23 1.42 0.34
Frctn Loss (ft)		Cum Volume (acre-ft)	14.16 17.34 6.61
C & E Loss (ft)		Cum SA (acres)	6.26 1.34 1.51

CULVERT

Centerline Stations

Sta.	Sta.	Sta.	Sta.
983.5	994.5	1005.5	1016.5

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 825

INPUT
Description: SPRING ST CULVER DS 8+25
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
652.87	342	676.87	340	682.37	338	690.2	336	702.87	335.8		
717.87	336	732.87	338	763.87	340	772.87	339.6	808.87	339.6		
808.87	340.1	824.87	340.1	824.87	339.6	894.87	340.5	923.87	340		
930.27	338	936.69	336	939.38	335.21	942.98	334	948.54	332		
955.69	330	960.58	328	961.5	327.57	979.61	327.5	987.9	326.53		
988.85	326	991.36	324.86	992	324	1000	324	1008	324		
1008.9	324.81	1011	326	1013.12	326.63	1021.24	326.6	1041.5	328		
1045.5	330	1049.75	332	1052.5	332.88	1055	334	1060	336		
1063.5	338	1066.75	340	1069.7	342						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
652.87	.07	763.87	.013	894.87	.07	987.9	.05	1013.12	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
987.9 1013.12 113 113 113 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
652.87	710	F	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	340.97	Element	Left OB Channel Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.058 0.050 0.070
W.S. Elev (ft)	340.89	Reach Len. (ft)	113.00 113.00 113.00
Crit W.S. (ft)		Flow Area (sq ft)	917.22 411.69 572.40
E.G. Slope (ft/ft)	0.000306	Area (sq ft)	1061.93 411.69 572.40
Q Total (cfs)	3500.00	Flow (cfs)	1199.36 1323.55 977.09
Top Width (ft)	401.85	Top Width (ft)	321.69 25.22 54.94
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)	1.31 3.21 1.71
Max Chl Dpth (ft)	16.89	Hydr. Depth (ft)	3.30 16.32 10.42

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
714.58	726	F	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	340.93	Element	Left OB Channel Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.065 0.050 0.070
W.S. Elev (ft)	340.89	Reach Len. (ft)	197.00 197.00 197.00
Crit W.S. (ft)	327.69	Flow Area (sq ft)	1191.92 1448.96 349.44
E.G. Slope (ft/ft)	0.000089	Area (sq ft)	1211.33 1448.96 349.44
Q Total (cfs)	3900.00	Flow (cfs)	940.90 2694.11 265.00
Top Width (ft)	366.70	Top Width (ft)	238.19 83.82 44.69
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)	0.79 1.86 0.76
Max Chl Dpth (ft)	17.94	Hydr. Depth (ft)	5.24 17.29 7.82
Conv. Total (cfs)	413292.0	Conv. (cfs)	99709.2 285500.6 28082.3
Length Wtd. (ft)	197.00	Wetted Per. (ft)	234.41 84.87 47.44
Min Ch El (ft)	322.95	Shear (lb/sq ft)	0.03 0.09 0.04
Alpha	1.52	Stream Power (lb/ft s)	0.02 0.18 0.03
Frctn Loss (ft)		Cum Volume (acre-ft)	8.42 12.16 2.70
C & E Loss (ft)		Cum SA (acres)	3.22 1.04 0.78

CULVERT

RIVER: sugarland run
REACH: main RS: 530

INPUT
Description: FFXCO PKWY CULVERT
Distance from Upstream XS = 51
Deck/Roadway Width = 104
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 22

Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord	Sta Hi Cord	Lo Cord
714.58	350	0 714.59	350	0 715.58	340 0
726.28	338	0 731.33	336	0 737.98	334 0
746.08	332	0 789.09	330	0 799.58	330 0
812.38	332	0 817.58	334	0 823.58	336 0
828.58	338	0 833.58	340	0 838.58	340.6 0
873.08	340	0 873.09	340.5	0 890.08	340.25 0
1000	342	0 1033	344	0 1064	346 0

Sta n Val Sta n Val Sta n Val Sta n Val Sta n Val
636.05 .07 658.25 .013 811.71 .07 921.41 .05 1056.8 .07

Bank Sta: Left Right Coeff Contr. Expan.
921.41 1056.8 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
636.05	778	F	

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	340.84	Element	Left OB Channel Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.069 0.050 0.070
W.S. Elev (ft)	340.82	Reach Len. (ft)	121.00 121.00 121.00
Crit W.S. (ft)		Flow Area (sq ft)	1164.68 2269.71 337.32
E.G. Slope (ft/ft)	0.000045	Area (sq ft)	1266.43 2269.71 337.32
Q Total (cfs)	3900.00	Flow (cfs)	781.15 2945.02 173.83
Top Width (ft)	454.97	Top Width (ft)	272.25 135.39 47.34
Vel Total (ft/s)	1.03	Avg. Vel. (ft/s)	0.67 1.30 0.52
Max Chl Dpth (ft)	17.82	Hydr. Depth (ft)	8.12 16.76 7.13
Conv. Total (cfs)	580371.3	Conv. (cfs)	116244.8 438258.3 25868.3
Length Wtd. (ft)	121.00	Wetted Per. (ft)	145.25 137.05 49.13
Min Ch El (ft)	323.00	Shear (lb/sq ft)	0.02 0.05 0.02
Alpha	1.28	Stream Power (lb/ft s)	0.02 0.06 0.01
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	8.42 6.50 2.70
C & E Loss (ft)	0.00	Cum SA (acres)	2.06 0.54 0.57

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

182 335.6 200 334 204 333 212.5 333 216 334
222 335 330 336 478 338 529 340 541 342
551 344

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	200	.05	216	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
200 216 365 365 365 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.17	Element	Left OB Channel Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	342.17	Reach Len. (ft)	365.00 365.00 365.00
Crit W.S. (ft)		Flow Area (sq ft)	634.67 142.96 1707.12
E.G. Slope (ft/ft)	0.000038	Area (sq ft)	634.67 142.96 1707.12
Q Total (cfs)	1000.00	Flow (cfs)	210.86 112.15 677.00
Top Width (ft)	499.74	Top Width (ft)	157.90 16.00 325.85
Vel Total (ft/s)

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 216

INPUT
Description: EX. CROSS SECTION 2+16
Station Elevation Data num= 36
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
636 342 684 340 698 338 708 336 784 336
800 338 811 340 823 340 842 340 860 338
880 336 900 334 911 332 916 330.87 951 330
981 328 983 326 985 324 987 322.95 1000 322.95
1011 322.95 1012 324 1014 326 1016 328 1020 330
1024 332 1028 334 1032 336 1036 338 1039 340
1043 342 1046 344 1053 346 1056 348 1059 350
1062 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
636 .07 981 .05 1016 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
981 1016 18 18 18 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
636 870 F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	340.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	340.69	Reach Len. (ft)	18.00	18.00	18.00
Crit W.S. (ft)		Flow Area (sq ft)	996.45	595.01	159.40
E.G. Slope (ft/ft)	0.000343	Area (sq ft)	1580.99	595.01	159.40
Q Total (cfs)	3900.00	Flow (cfs)	1685.59	2012.40	202.02
Top Width (ft)	373.00	Top Width (ft)	313.62	35.00	24.38
Vel Total (ft/s)	2.23	Avg. Vel. (ft/s)	1.69	3.38	1.27

Max Chl Dpth (ft)	17.74	Hydr. Depth (ft)	8.98	17.00	6.54
Conv. Total (cfs)	210718.9	Conv. (cfs)	91073.0	108730.9	10915.0
Length Wtd. (ft)	18.00	Wetted Per. (ft)	111.53	39.02	27.51
Min Ch El (ft)	322.95	Shear (lb/sq ft)	0.19	0.33	0.12
Alpha	1.46	Stream Power (lb/ft s)	0.32	1.10	0.16
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	1.18	1.41	0.45
C & E Loss (ft)	0.01	Cum SA (acres)	0.74	0.24	0.34

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 198

INPUT
Description: EX. CROSS SECTION 1+98
Station Elevation Data num= 42
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
637 342 684 340 695 338 704 336 725 334
780 334 785 336 799 338 808 340 822 340
835 338 849 336 875 334 890 332 896 330.83
898 330 902 327.97 933 327.51 935 328 938 329.05
954.5 330 969.8 328 977.5 326 983.5 324 1000 322.9
1012.07 322.9 1014.27 324 1016.75 326 1019.07 328 1021.7 330
1024.2 332 1027.2 334 1029.76 336 1032.66 338 1033.5 339.71
1033.71 340 1035.21 342 1036.71 344 1039.71 346 1042.21 348
1044.96 350 1050.71 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
637 .07 969.8 .05 1019.07 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
969.8 1019.07 100 75 70 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
637 898 T

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	340.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	340.70	Reach Len. (ft)	100.00	75.00	70.00

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
637 .07 969.8 .05 1019.07 .07

Bank Sta: Left Right Coeff Contr. Expan.
969.8 1019.07 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
637 898 T

Downstream Deck/Roadway Coordinates
num= 8
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
588 354 0 636 354 0 670 352 0
725 350 0 900 350 0 1000 350 0
1030 352 0 1066 354 0

Downstream Bridge Cross Section Data
Station Elevation Data num= 39
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
588 354 853 346 857 344 860 342 864 340
867.5 338 871.5 336 874.5 334 877.5 332 882 330
884 328.55 896 326.5 901 326.57 906 327.04 919 328.2
933 330 960 332.27 970 332.27 976 330 982 328
986 326 988 324 991 322.52 1000 322.52 1009 322.52
1013 323.08 1014 324 1017 326 1020 327.75 1024 330
1030 332 1033 334 1034.5 336 1036 338 1041 340
1044 342 1047 344 1049 346 1051 348

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
588 .07 986 .05 1017 .07

Bank Sta: Left Right Coeff Contr. Expan.
986 1017 .1 .3

Upstream Embankment side slope = 3 horiz. to 1.0 vertical
Downstream Embankment side slope = 3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 2

RIVER: sugarland run
REACH: main RS: 93

INPUT
Description: EX. CROSS SECTION 0+93
Station Elevation Data num= 16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
865 334 885 332 895 330 914 328 946 327.9
947 325.96 978 325.37 991 323.32 1000 322.48 1010 324
1017 326 1025 328 1067 329 1170 330 1219 332
1310 334

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
865 .07 947 .05 1017 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
947 1017 91 93 95 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	331.05	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.48	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	329.57	Reach Len. (ft)	91.00	93.00	95.00
Crit W.S. (ft)	329.57	Flow Area (sq ft)	66.33	344.51	82.56
E.G. Slope (ft/ft)	0.014289	Area (sq ft)	66.33	344.51	82.56
Q Total (cfs)	3900.00	Flow (cfs)	205.38	3520.86	173.76
Top Width (ft)	226.96	Top Width (ft)	47.94	70.00	109.02
Vel Total (ft/s)	7.90	Avg. Vel. (ft/s)	3.10	10.22	2.10
Max Chl Dpth (ft)	7.09	Hydr. Depth (ft)	1.38	4.92	0.76
Conv. Total (cfs)	32626.4	Conv. (cfs)	1718.1	29454.6	1453.6
Length Wtd. (ft)	92.88	Wetted Per. (ft)	49.21	70.60	109.28
Min Ch El (ft)	322.48	Shear (lb/sq ft)	1.20	4.35	0.67
Alpha	1.52	Stream Power (lb/ft s)	3.72	44.49	1.42
Frctn Loss (ft)	0.97	Cum Volume (acre-ft)	0.37	0.63	0.36
C & E Loss (ft)	0.24	Cum SA (acres)	0.15	0.12	0.27

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical
depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross
sections.

main	160	Culvert			
main	123		.07	.05	.07
main	93		.07	.05	.07
main	0		.07	.05	.07

SUMMARY OF REACH LENGTHS

River: sugarland run

Reach	River Sta.	Left	Channel	Right
2	758	70	100	110
2	640	95	100	95
2	538	90	100	130
2	424	80	200	145
2	215	0	0	0
1	3821	250	241	230
1	3580	205	251	240
1	3329	114	114	114
1	3215	107	107	107
1	3108	93	93	93
1	3015	0	0	0
main	2902	92	100	20
main	2802	65	109	47
main	2693	135	116	42
main	2577	85	106	85
main	2471	135	106	360
main	2365	75	98	180
main	2267	365	365	365
main	1918	206	206	206
main	1712	244	244	244
main	1468	228	228	228
main	1240	195	195	195
main	1045	220	220	220
main	935	Culvert		
main	825	113	113	113
main	712	84	84	84
main	628	197	197	197
main	530	Culvert		
main	431	121	121	121
main	301	85	85	85
main	216	18	18	18

conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3580 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3215 Profile: PF 1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3108 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3015 Profile: PF 1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: main RS: 2902 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 2802 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 2693 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 2471 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 1712 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

Crit W.S. (ft)	330.34	Flow Area (sq ft)	874.53	807.90	105.37
E.G. Slope (ft/ft)	0.000235	Area (sq ft)	1940.06	807.90	105.37
Q Total (cfs)	3900.00	Flow (cfs)	1493.64	2302.66	103.70
Top Width (ft)	366.72	Top Width (ft)	302.28	49.27	15.17
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)	1.71	2.85	0.98
Max Chl Dpth (ft)	17.80	Hydr. Depth (ft)	12.18	16.40	6.95
Conv. Total (cfs)	254513.7	Conv. (cfs)	97474.7	150271.4	6767.6
Length Wtd. (ft)	75.00	Wetted Per. (ft)	72.68	51.60	20.02
Min Ch El (ft)	322.90	Shear (lb/sq ft)	0.18	0.23	0.08
Alpha	1.25	Stream Power (lb/ft s)	0.30	0.65	0.08
Frctn Loss (ft)		Cum Volume (acre-ft)	0.45	1.12	0.40
C & E Loss (ft)		Cum SA (acres)	0.62	0.22	0.33

CULVERT

RIVER: sugarland run
REACH: main RS: 160

INPUT
Description: W&OD CULVERT
Distance from Upstream XS = 20
Deck/Roadway Width = 30
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 8
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
588 354 0 636 354 0 670 352 0
725 350 0 900 350 0 1000 350 0
1030 352 0 1066 354 0

Upstream Bridge Cross Section Data
Station Elevation Data num= 42
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
637 342 684 340 695 338 704 336 725 334
780 334 785 336 799 338 808 340 822 340
835 338 849 336 875 334 890 332 896 330.83
898 330 902 327.97 933 327.51 935 328 938 329.05
954.5 330 969.8 328 977.5 326 983.5 324 1000 322.9
1012.07 322.9 1014.27 324 1016.75 326 1019.07 328 1021.7 330
1024.2 332 1027.2 334 1029.76 336 1032.66 338 1033.5 339.71
1033.71 340 1035.21 342 1036.71 344 1039.71 346 1042.21 348
1044.96 350 1050.71 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
588 .07 986 .05 1017 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
986 1017 30 30 30 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	332.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.19	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	330.63	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	330.63	Flow Area (sq ft)	167.46	234.52	18.84
E.G. Slope (ft/ft)	0.014442	Area (sq ft)	167.46	234.52	18.84
Q Total (cfs)	3900.00	Flow (cfs)	741.85	3085.02	73.14
Top Width (ft)	111.39	Top Width (ft)	71.51	31.00	8.88
Vel Total (ft/s)	9.27	Avg. Vel. (ft/s)	4.43	13.15	3.88
Max Chl Dpth (ft)	8.11	Hydr. Depth (ft)	2.34	7.57	2.12
Conv. Total (cfs)	32453.0	Conv. (cfs)	6173.1	25671.3	608.6
Length Wtd. (ft)	30.00	Wetted Per. (ft)	73.41	33.18	10.04
Min Ch El (ft)	322.52	Shear (lb/sq ft)	2.06	6.37	1.69
Alpha	1.64	Stream Power (lb/ft s)	9.11	83.84	6.57
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	0.45	0.83	0.40
C & E Loss (ft)	0.21	Cum SA (acres)	0.19	0.15	0.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical
depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross
sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.

CROSS SECTION

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 0

INPUT
Description: EX. CROSS SECTION 0+00
Station Elevation Data num= 20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
777 334 813 332 833 330 886 330 898 328
919 326 940 325.48 955 324.84 971 325.24 983 325.87
989 322.74 1000 322.3 1012 322.15 1014 323.86 1021 325.3
1025 326 1136 328 1183 330 1208 332 1220 332.3

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
777 .07 983 .05 1025 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
983 1025 0 0 0 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	329.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.66	Wt. n-Val.	0.070	0.050	0.070
W.S. Elev (ft)	329.13	Reach Len. (ft)			
Crit W.S. (ft)	328.43	Flow Area (sq ft)	287.39	242.43	251.06
E.G. Slope (ft/ft)	0.008000	Area (sq ft)	287.39	242.43	251.06
Q Total (cfs)	3900.00	Flow (cfs)	1166.07	2021.96	711.97
Top Width (ft)	271.25	Top Width (ft)	91.76	42.00	137.49
Vel Total (ft/s)	4.99	Avg. Vel. (ft/s)	4.06	8.34	2.84
Max Chl Dpth (ft)	6.98	Hydr. Depth (ft)	3.13	5.77	1.83
Conv. Total (cfs)	43603.1	Conv. (cfs)	13037.0	22606.1	7960.0
Length Wtd. (ft)		Wetted Per. (ft)	91.99	43.62	137.53
Min Ch El (ft)	322.15	Shear (lb/sq ft)	1.56	2.78	0.91

Alpha	1.70	Stream Power (lb/ft s)	6.33	23.15	2.59
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

SUMMARY OF MANNING'S N VALUES

River:sugarland run

Reach	River Sta.	n1	n2	n3	n4	n5
2	758	.07	.05	.07		
2	640	.07	.05	.07		
2	538	.07	.05	.07		
2	424	.07	.05	.07		
2	215	.07	.05	.07		
1	3821	.05	.05	.07		
1	3580	.05	.05	.07		
1	3329	.05	.05	.07		
1	3215	.05	.05	.07		
1	3108	.07	.05	.07		
1	3015	.07	.05	.07		
main	2902	.07	.05	.07		
main	2802	.07	.05	.07		
main	2693	.07	.05	.07		
main	2577	.07	.05	.07		
main	2471	.07	.05	.07		
main	2365	.07	.05	.07		
main	2267	.07	.05	.07		
main	1918	.07	.05	.07		
main	1712	.07	.05	.07		
main	1468	.07	.05	.07		
main	1240	.07	.05	.07		
main	1045	.013	.07	.05	.07	
main	935	Culvert				
main	825	.07	.013	.07	.05	.07
main	712	.07	.013	.07	.05	.07
main	628	.07	.013	.07	.05	.07
main	530	Culvert				
main	431	.07	.013	.07	.05	.07
main	301	.07	.013	.07	.05	.07
main	216	.07	.05	.07		
main	198	.07	.05	.07		

main	198		100	75	70
main	160	Culvert			
main	123		30	30	30
main	93		91	93	95
main	0		0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: sugarland run

Reach	River Sta.	Contr.	Expan.
2	758	.1	.3
2	640	.1	.3
2	538	.1	.3
2	424	.1	.3
2	215	.1	.3
1	3821	.1	.3
1	3580	.1	.3
1	3329	.1	.3
1	3215	.1	.3
1	3108	.1	.3
1	3015	.1	.3
main	2902	.1	.3
main	2802	.1	.3
main	2693	.1	.3
main	2577	.1	.3
main	2471	.1	.3
main	2365	.1	.3
main	2267	.1	.3
main	1918	.1	.3
main	1712	.1	.3
main	1468	.1	.3
main	1240	.1	.3
main	1045	.1	.3
main	935	Culvert	
main	825	.1	.3
main	712	.1	.3
main	628	.1	.3
main	530	Culvert	
main	431	.1	.3
main	301	.1	.3

main	216		.1	.3	
main	198		.1	.3	
main	160	Culvert			
main	123		.1	.3	
main	93		.1	.3	
main	0		.1	.3	

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : Plan 02

River: sugarland run Reach: 2 RS: 758 Profile: PF 1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: 2 RS: 640 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: 2 RS: 538 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: sugarland run Reach: 2 RS: 215 Profile: PF 1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3821 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream

River: sugarland run Reach: main RS: 1240 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 935 Profile: PF 1 Culv: Culvert #1
Warning:During the culvert inlet control computations, the program could not balance the culvert/weir flow. The reported
inlet energy grade answer may not be valid.
River: sugarland run Reach: main RS: 825 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 530 Profile: PF 1
Warning:The weir over culvert is submerged.
River: sugarland run Reach: main RS: 530 Profile: PF 1 Culv: Culvert #1
Warning:During the culvert inlet control computations, the program could not balance the culvert/weir flow. The reported
inlet energy grade answer may not be valid.
River: sugarland run Reach: main RS: 431 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 301 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 160 Profile: PF 1 Culv: Culvert #2
Note: The flow in the culvert is entirely supercritical.
River: sugarland run Reach: main RS: 160 Profile: PF 1 Culv: Culvert #1
Warning:Since the culvert has supercritical flow, the program should be run in mixed flow in order to check if the
section downstream of the culvert has supercritical flow.
Note: The flow in the culvert is entirely supercritical.
River: sugarland run Reach: main RS: 123 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
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PHONE: (703) 442-7800
FAX: (703) 761-2787
TYSONS, VA. GERMANTOWN, MD.

REVISIONS

	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

VV

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

UPDATED EX. CONDITIONS (BASELINE) MODEL HEC-RAS OUPUT

DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	06.03

PLOT DATE: October 15, 2020 TIME: 10:51:00 AM LAYOUT: 06.03 USER: Oconnor DATE: October 15, 2020 TIME: 10:51:00 AM LAYOUT: 06.03
FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 06.01 EXISTING (BASELINE) HEC-RAS.dwg

LEGEND:

- 100-YEAR FEMA FLOODPLAIN DELINEATION
- 100-YEAR 'MINOR FLOODPLAIN' DELINEATION (SEE FLOODPLAIN NOTE BELOW)
- SUBJECT SITE AREA
- INEFFECTIVE FLOW AREA
- POTENTIAL STREAM RESTORATION AREA

FLOODPLAIN NOTE:
THE PROPOSED FLOODPLAIN DELINEATION SHOWN HEREON INCLUDES BOTH THE FEMA FLOODPLAIN AS WELL AS THE UPSTREAM 'MINOR FLOODPLAIN' ON SITE. BOTH THE 100-YEAR FEMA AND MINOR FLOODPLAIN ELEVATIONS HAVE BEEN PROVIDED TO SHOW THAT THE IMPROVEMENTS WITH THE PROPOSED REDEVELOPMENT DO NOT NEGATIVELY IMPACT THE 100-YEAR WATER SURFACE ELEVATIONS FOR BOTH THE FEMA FLOODPLAIN AND 'MINOR FLOODPLAIN'. AS SHOWN ON THIS SHEET AS WELL AS SHEETS 8.01 THROUGH 8.05, THERE IS NO INCREASE IN THE LIMITS OF EITHER FLOODPLAIN.

NORTH (VCS 83)
GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

WETLAND IMPACT PERMIT NOTE:
A WETLAND IMPACT PERMIT WILL BE REQUIRED PRIOR TO ANY LAND DISTURBANCE.

OFF-SITE WORK NOTE:
PARCEL 4A-1 IS NOT A PART OF THE APPLICATION PROPERTY AND IS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

PROPOSED CROSSING 5.5'X6' BOX CULVERTS OR APPROVED EQUAL

POTENTIAL STREAM RESTORATION AREAS. SEPARATE PLAN TO BE SUBMITTED BY WSSI.
CROSS-SECTIONS:
23+65
24+74
25+77
26+93

POTENTIAL STREAM RESTORATION AREAS. SEPARATE PLAN TO BE SUBMITTED BY WSSI.
CROSS-SECTIONS:
19+18

POTENTIAL STREAM RESTORATION AREAS. SEPARATE PLAN TO BE SUBMITTED BY WSSI.
CROSS-SECTIONS:
12+40

POTENTIAL STREAM RESTORATION AREAS. SEPARATE PLAN TO BE SUBMITTED BY WSSI.

INEFFECTIVE FLOW AREA

FAIRFAX COUNTY PARKWAY ON RAMP

HERNDON PKWY

FAIRBROOK DR

SPRING STREET

(UNUSABLE WITH PUBLIC RIGHT OF WAY)

V 10.01

VIKA
ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
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REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

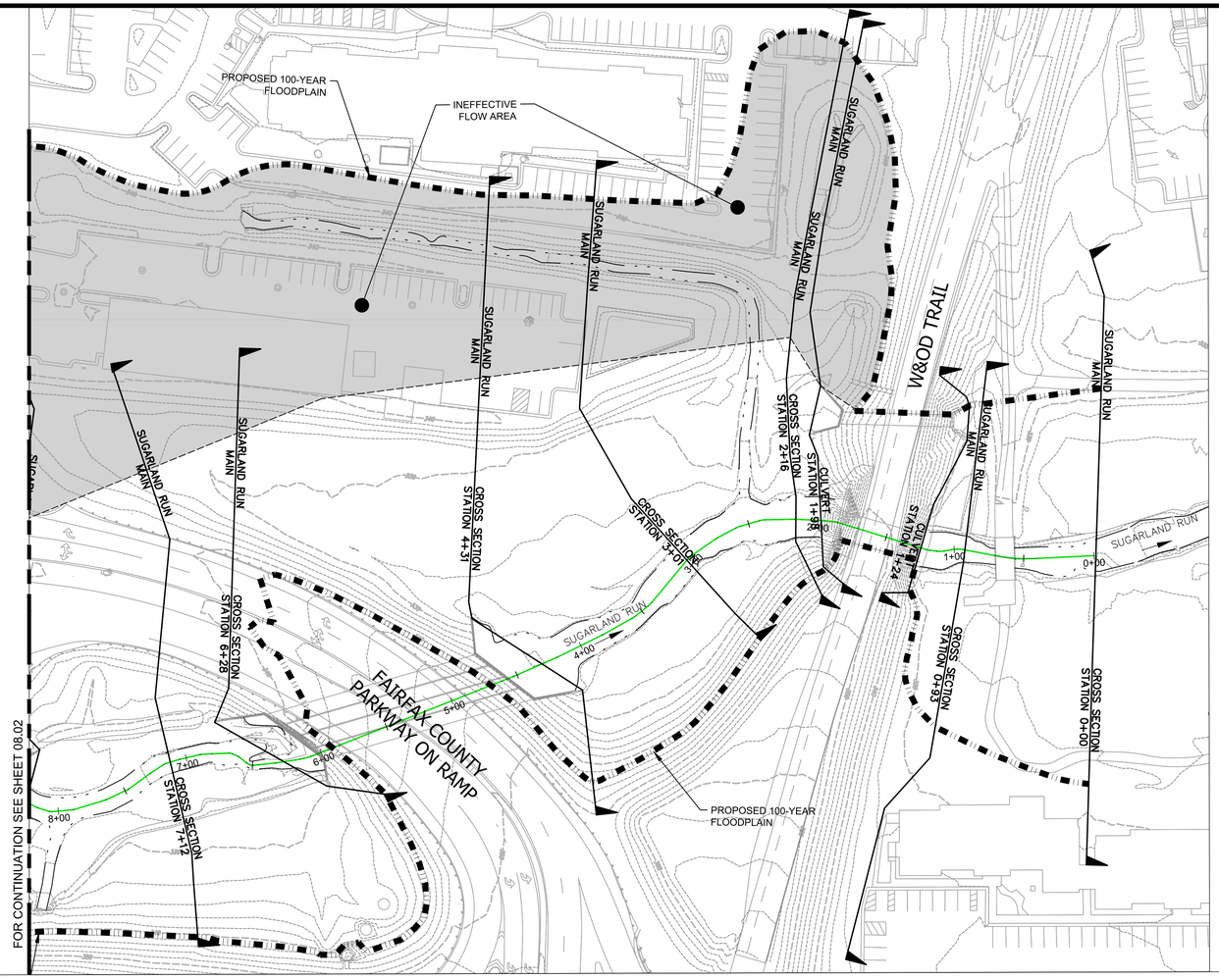
DISTRICT
TOWN OF HERNDON, VIRGINIA

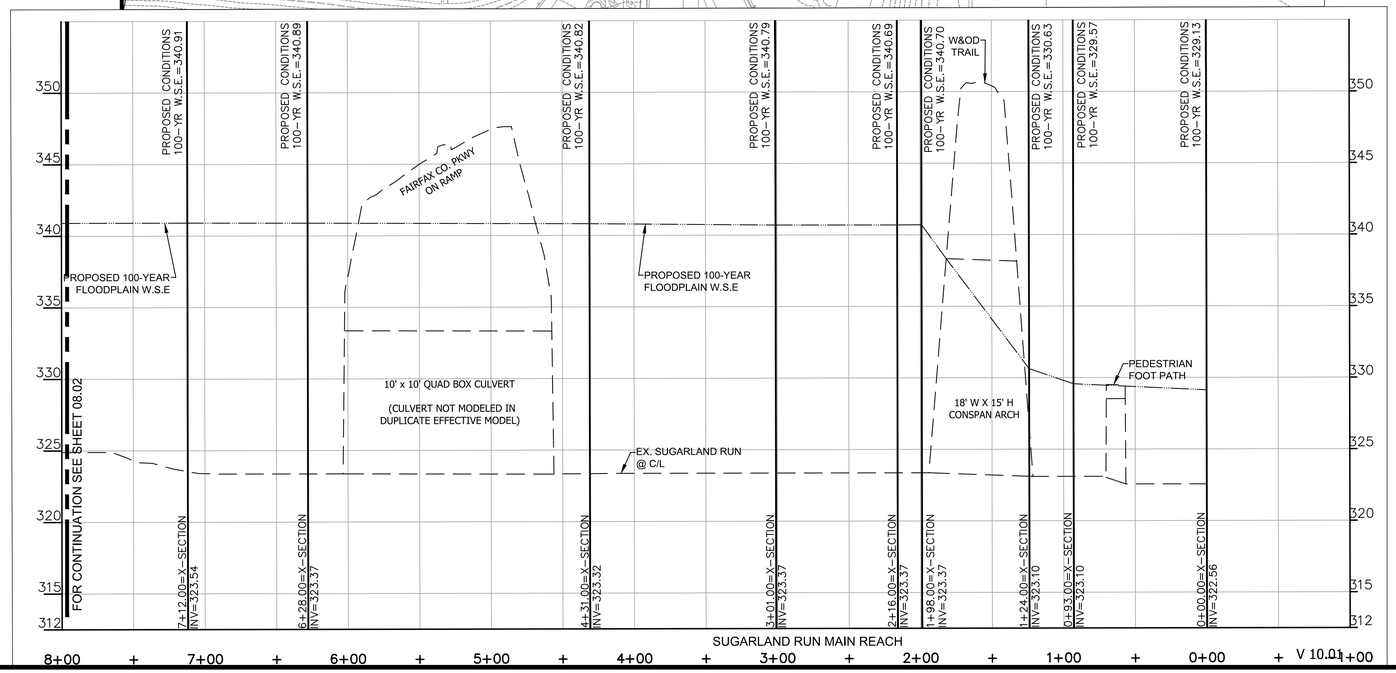
OVERALL PROPOSED STUDY AREA

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 100'
VIKA NO.	6045X
SHEET NO.	07.01

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 07.01 OVERALL PROPOSED CONDITIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:53:47 AM LAYOUT: 07.01

LAYOUT: 07.01 Plotted By: oconnor







GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

PROPOSED 100-YEAR FLOODPLAIN DELINEATION

OFF-SITE WORK NOTE:
PARCEL 4A-1 IS NOT A PART OF THE APPLICATION PROPERTY AND IS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

VIKA
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TYSONS, VA. GERMANTOWN, MD.

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
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10/16/2020
PROFESSIONAL ENGINEER

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

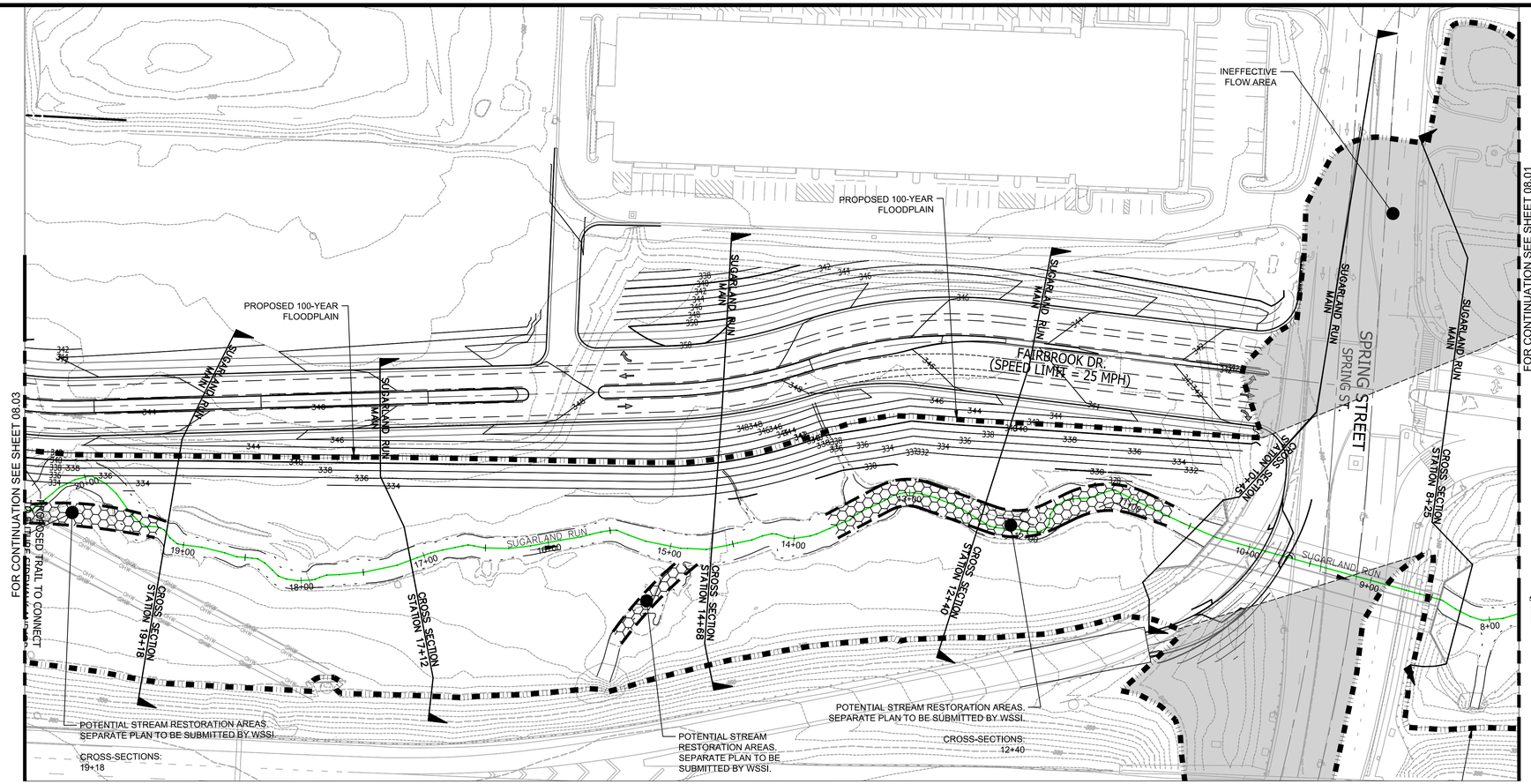
DISTRICT
TOWN OF HERNDON, VIRGINIA

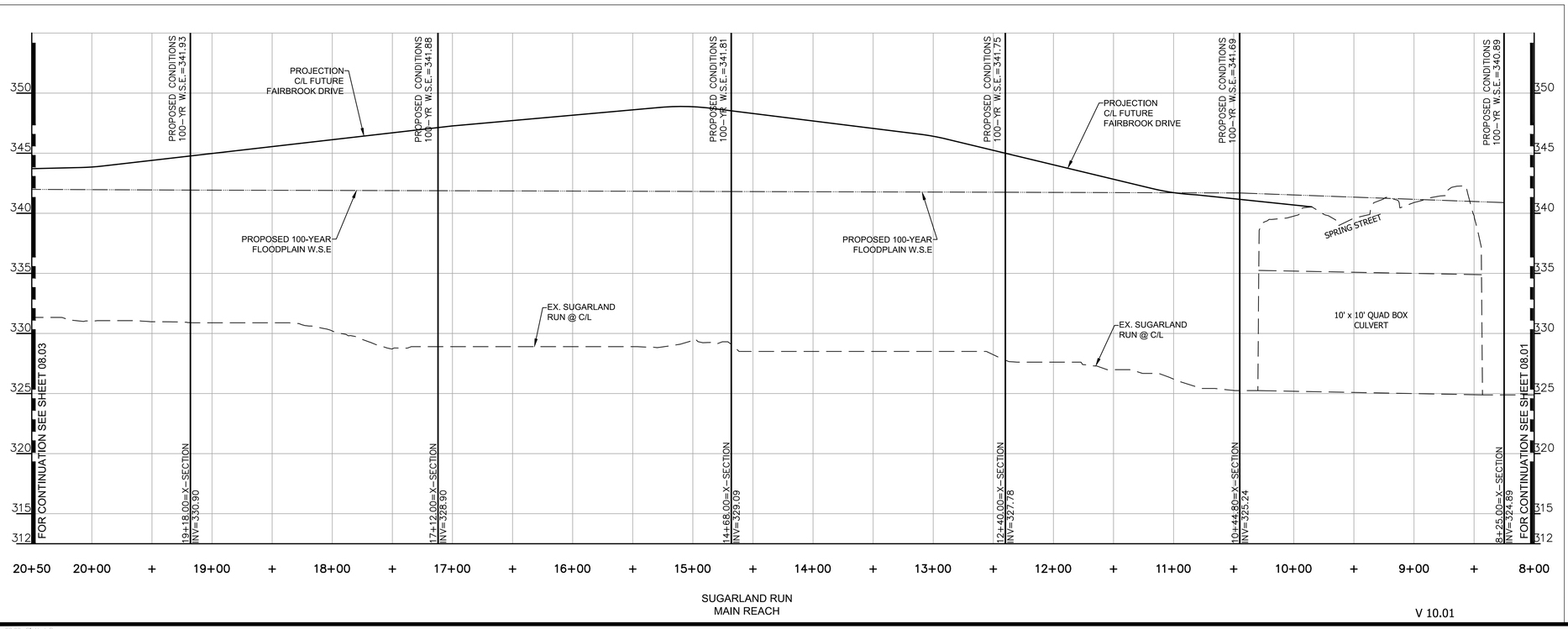
PROPOSED CONDITION SUGARLAND RUN PLAN AND PROFILE

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	08.01

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 08.01-08.05 PROPOSED P & P.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:55:15 AM LAYOUT: 08.01

LAYOUT: 08.01 Plotted By: oconnor







GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

PROPOSED 100-YEAR FLOODPLAIN DELINEATION

OFF-SITE WORK NOTE:
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ENGINEERS PLANNERS SURVEYORS
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REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

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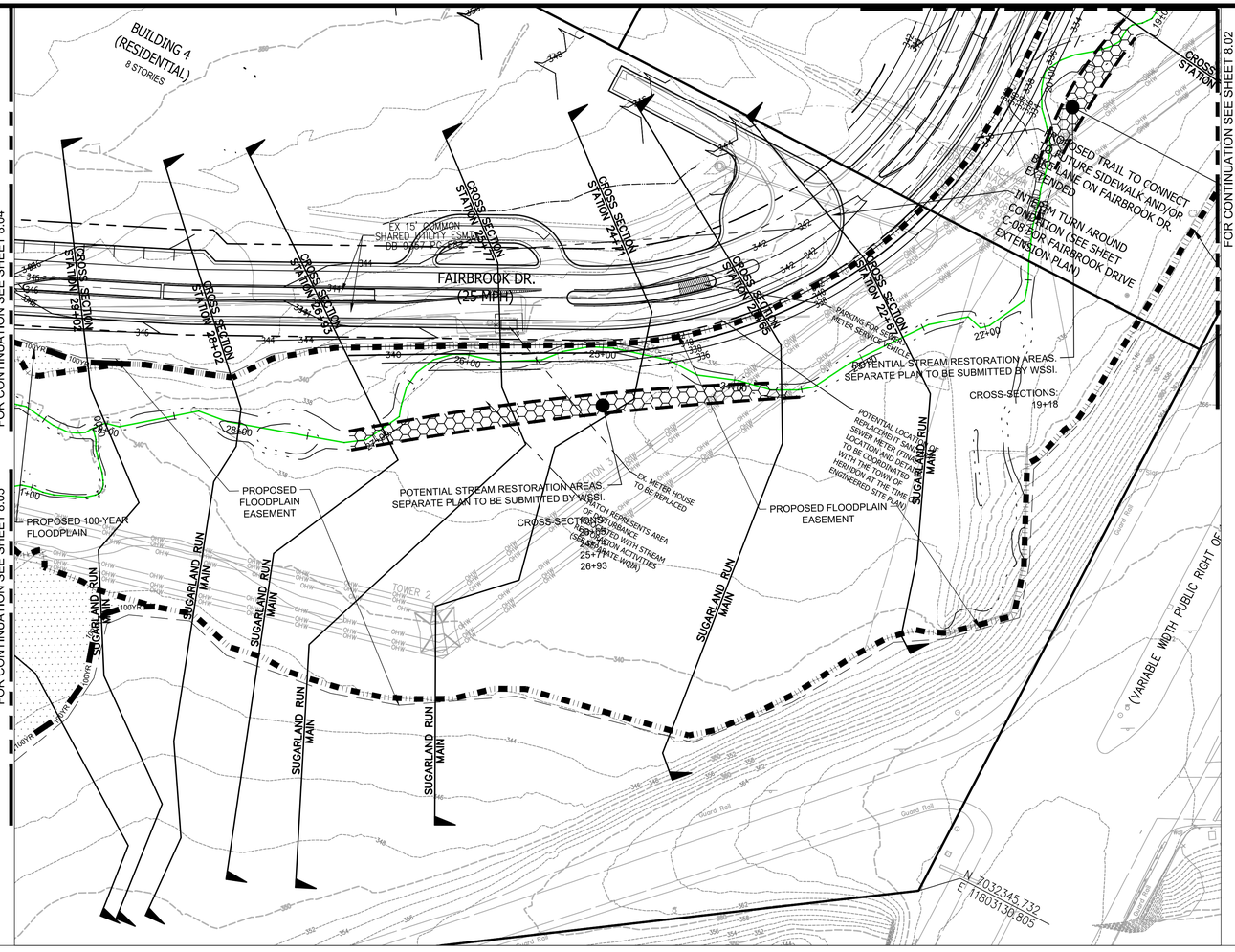
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

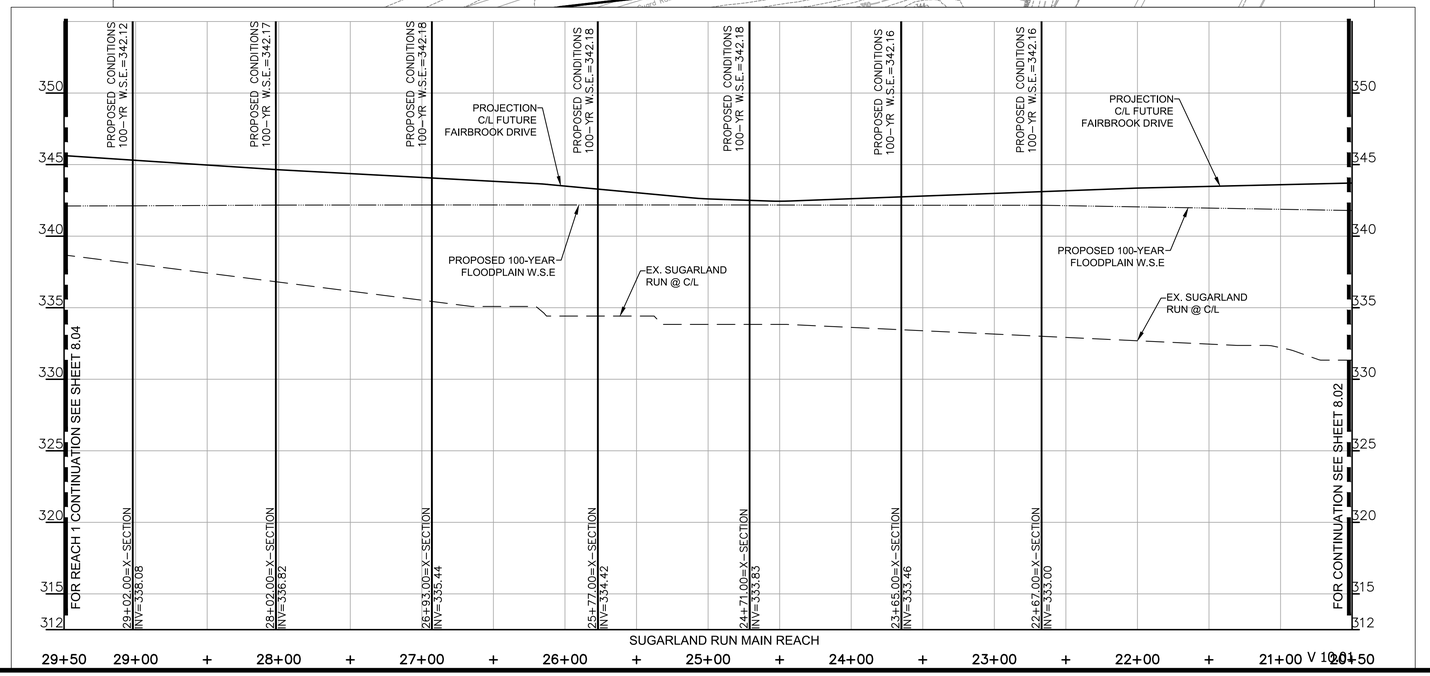
DISTRICT
TOWN OF HERNDON, VIRGINIA

PROPOSED CONDITION SUGARLAND RUN PLAN AND PROFILE

DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	08.02

FILE: P:\projects\6045\6045X\CAD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 08.01.08.05 PROPOSED P & P.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:56:13 AM LAYOUT: 08.02





NORTH (VCS 83)
GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND:

PROPOSED 100-YEAR FLOODPLAIN DELINEATION

PROPOSED 100-YEAR 'MINOR FLOODPLAIN' DELINEATION

FLOODPLAIN & STORM DRAINAGE EASEMENT NOTE:
NO USE SHALL BE MADE OF, NOR SHALL ANY IMPROVEMENTS BE MADE IN, THE FLOODPLAIN EASEMENT WITHOUT SPECIFIC AUTHORIZATION OF THE TOWN OF HERNDON

OFF-SITE WORK NOTE:
PARCEL 4A-1 IS NOT A PART OF THE APPLICATION PROPERTY AND IS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
FAX: (703) 761-2787
TYSONS, VA. GERMANTOWN, MD.

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

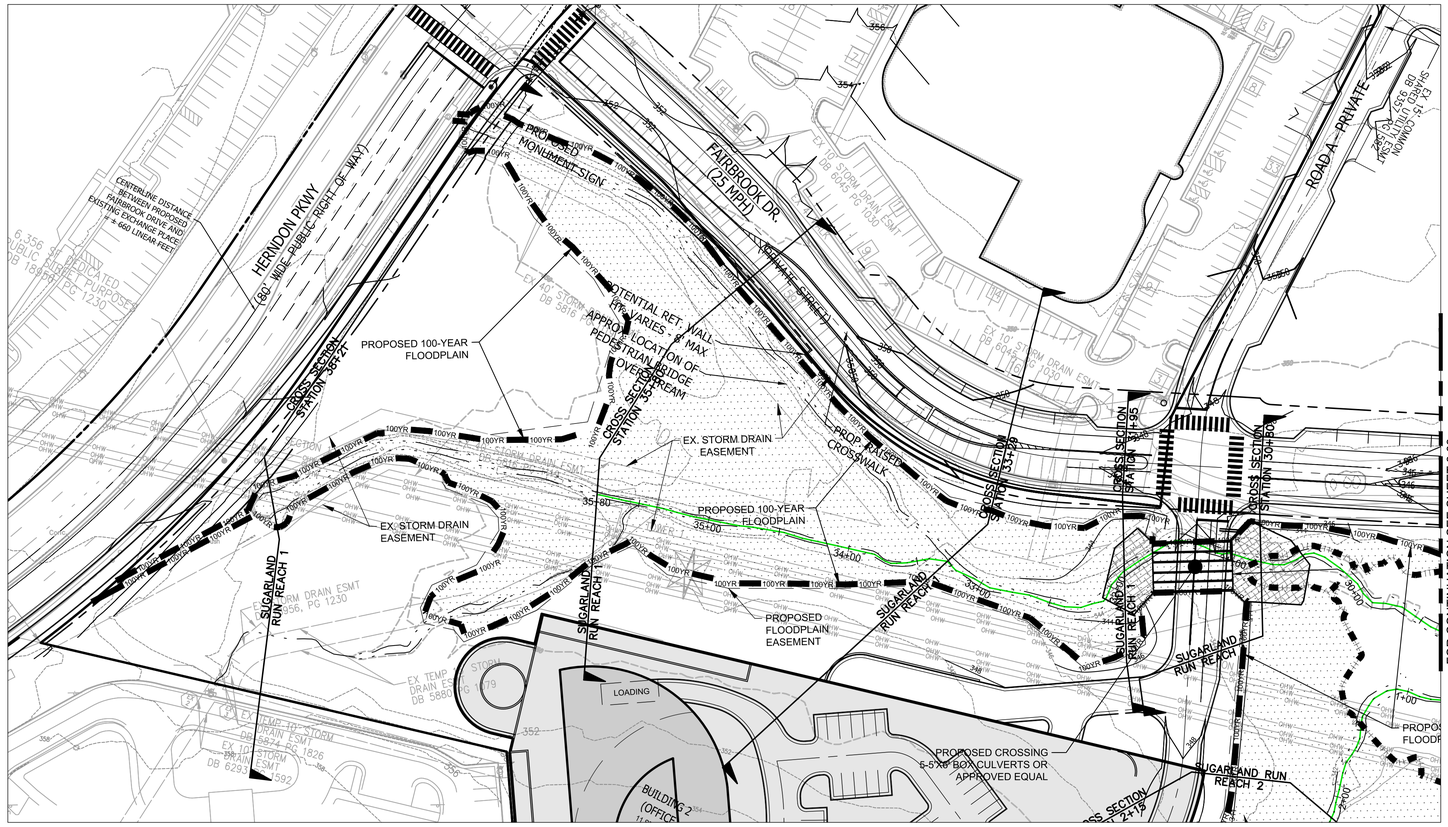
DISTRICT
TOWN OF HERNDON, VIRGINIA

PROPOSED CONDITION SUGARLAND RUN PLAN AND PROFILE

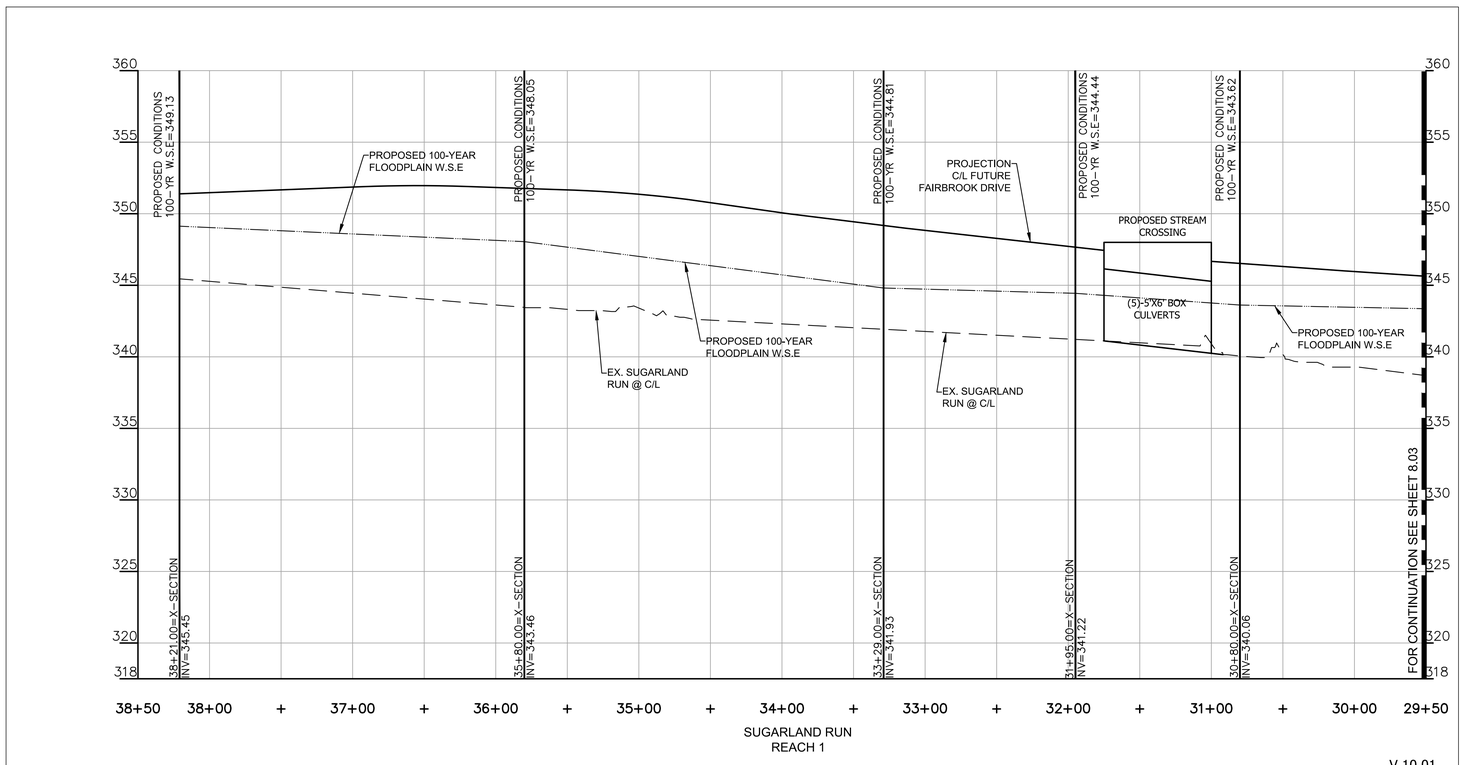
DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	08.03

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 08.01-08.05 PROPOSED P & P.dwg USER: Oconnor DATE: October 15, 2020 TIME: 11:06:55 AM LAYOUT: 08.03

Layout: 08.03, Plotted By: oconnor



REACH 1 PLAN & PROFILE



V 10.01

NORTH (VCS 83)
GRAPHIC SCALE

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(IN FEET)
1 inch = 50 ft.

LEGEND:

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FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

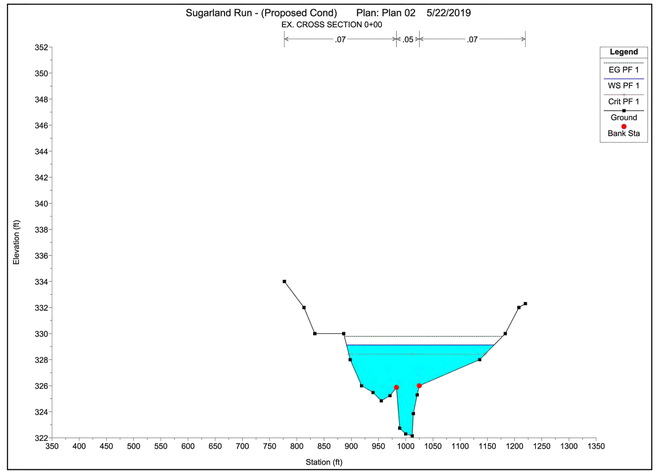
PROPOSED CONDITION SUGARLAND RUN PLAN AND PROFILE

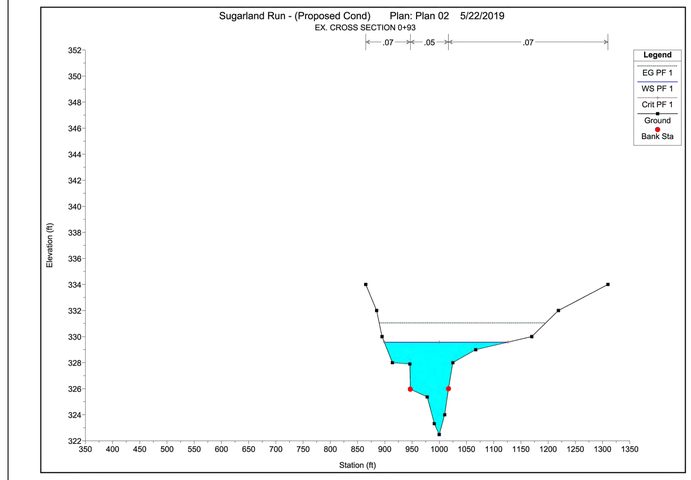
DRAWN BY:	DCZ
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	1" = 50'
VIKA NO.	6045X
SHEET NO.	08.04

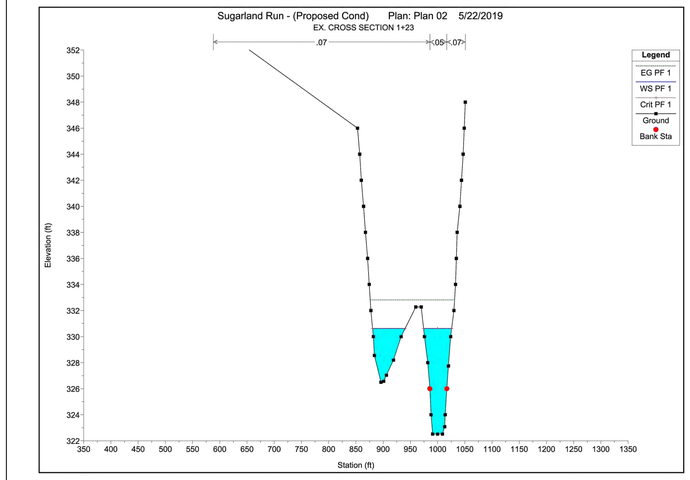
FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 08.01-08.05 PROPOSED P & P.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:58:33 AM LAYOUT: 08.04

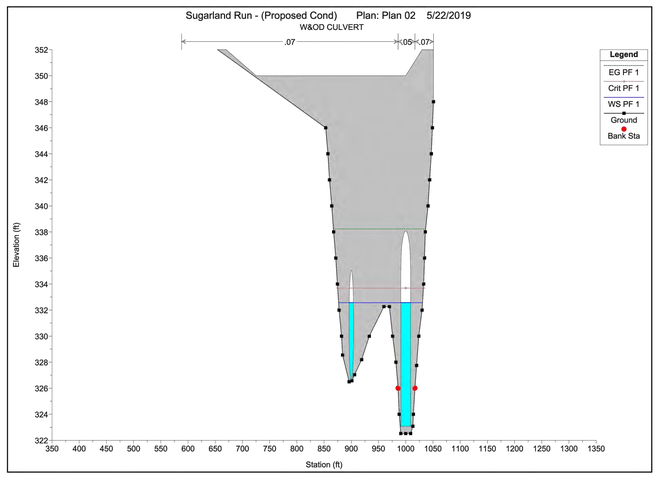
LAYOUT: 08.04, Plotted By: Jocelyn

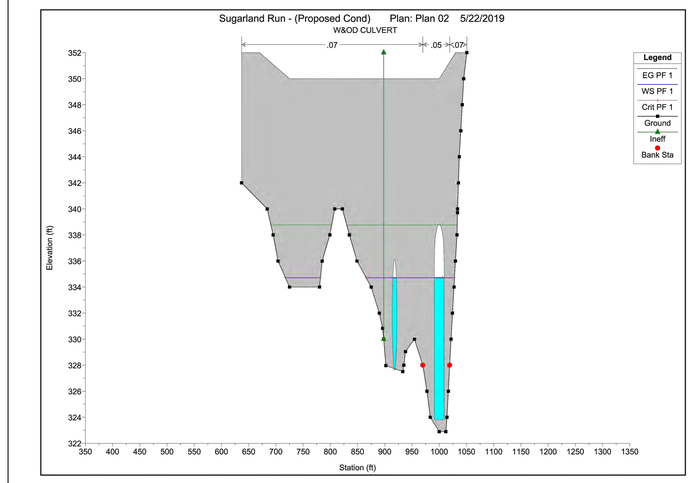

BUILDING 1
(OFFICE)
18 STORIES OF OFFICE
3 STORIES OF GARAGE
PODIUM
360,000 GSF
PROPOSED CROSSING
6'-5"W BOX CULVERTS OR
APPROVED EQUAL
CROSS SECTION
STATION 1+15
CROSS SECTION
STATION 2+38
CROSS SECTION
STATION 3+40
CROSS SECTION
STATION 4+24
CROSS SECTION
STATION 6+40
CROSS SECTION
STATION 7+58
SUGARLAND RUN
REACH 1
SUGARLAND RUN
REACH 2
PROPOSED
FLOODPLAIN
EASEMENT
PROPOSED 100-YEAR
FLOODPLAIN
SUGARLAND RUN
MAIN
100YR
348
350
352
354
356
-5+00
3+00
2+00
4+00
DRAIN EASMT
D.B. 1253
D.B. 10453
D.B. 10453
EX VDOT FEE
SYM. 123
D.B. 10453
PG. 1
EX. 30' WATER
EASEMENT
D.B. 10453
PG. 1
EX. 30' SANITARY
SEWER EASEMENT
D.B. 10453
PG. 1
EX. 30' STORM

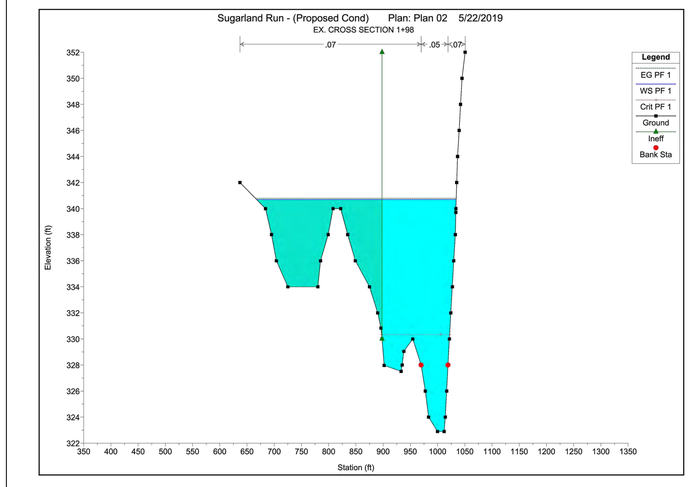


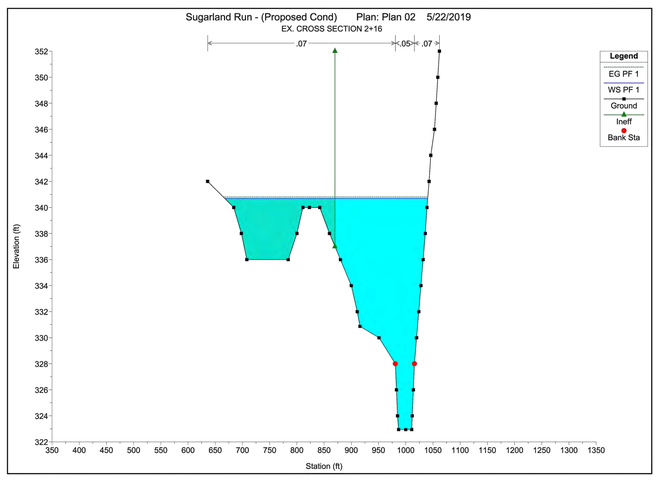


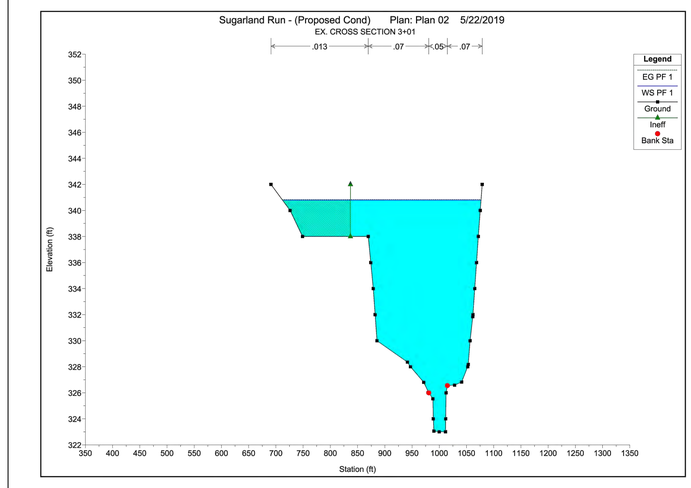


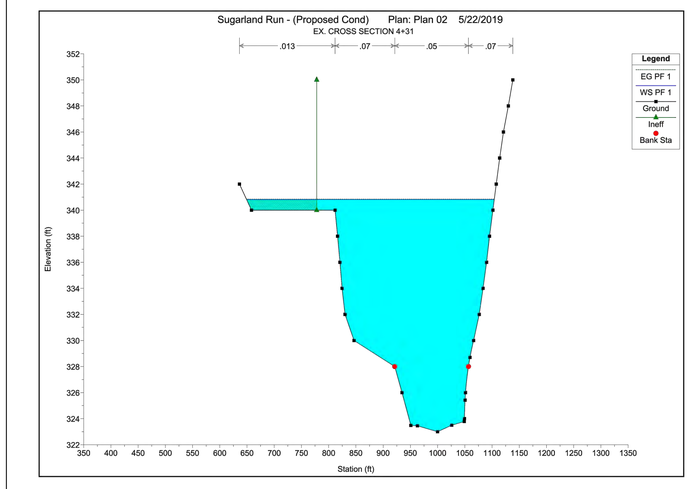












ENGINEERS PLANNERS SURVEYORS
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REVISIONS	DATE
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PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

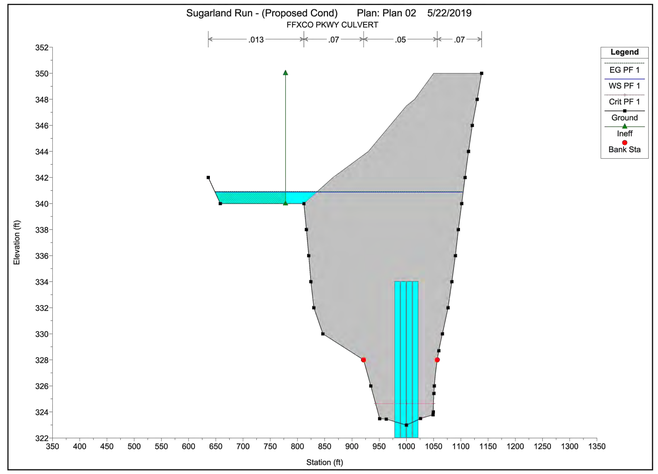
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

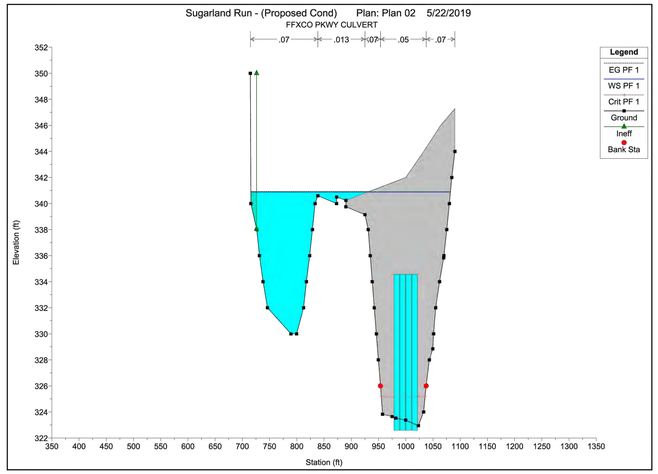
DISTRICT
TOWN OF HERNDON, VIRGINIA

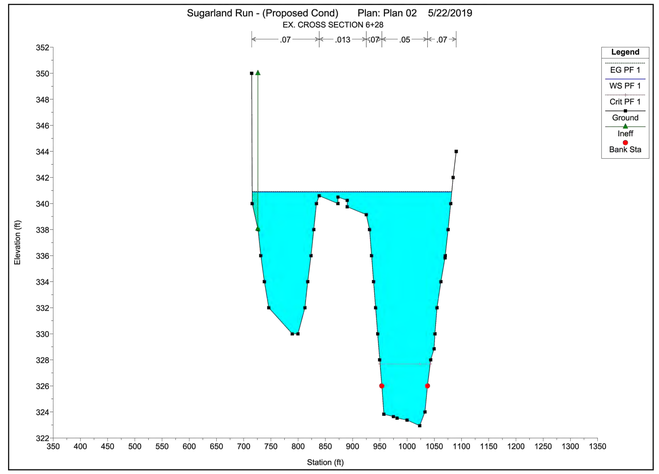
PROPOSED CROSS-SECTIONS

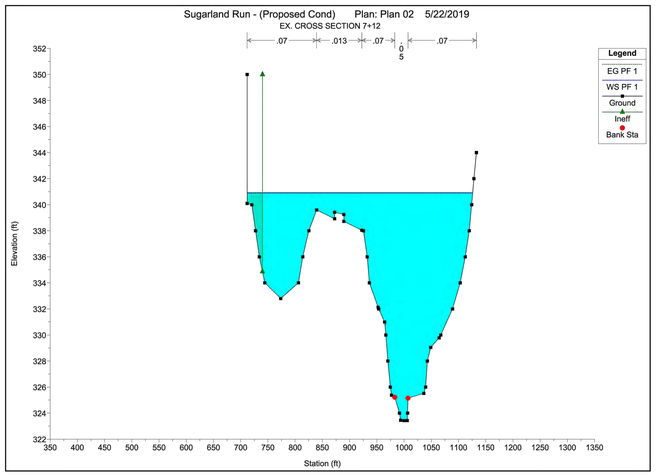
DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	09.01

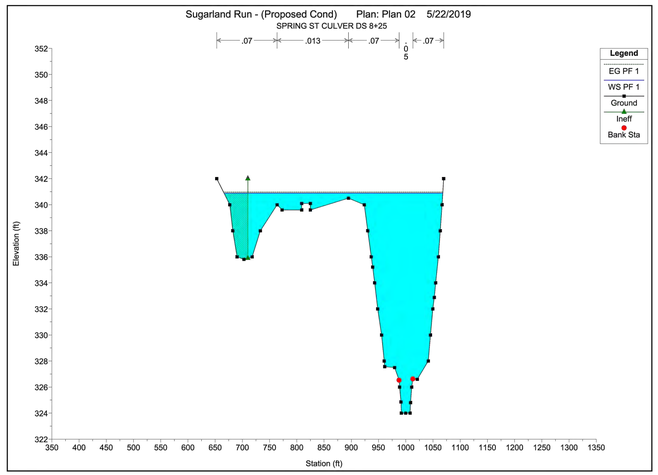
FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 09.01 PROPOSED CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:30:39 AM LAYOUT: 09.01

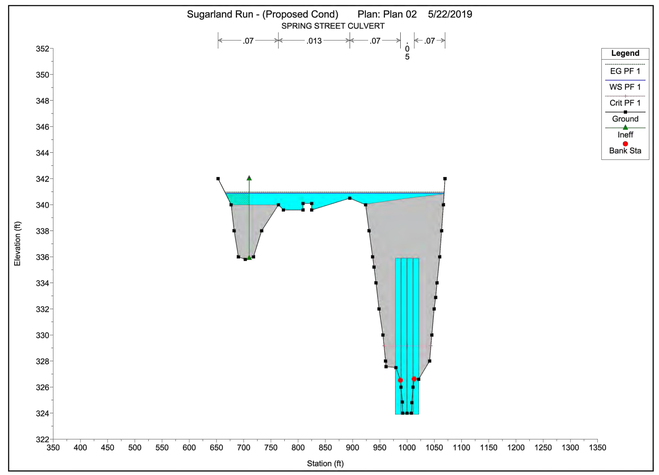


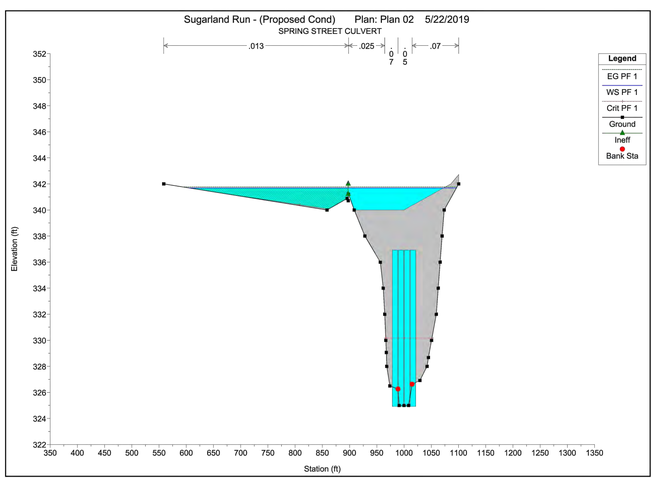


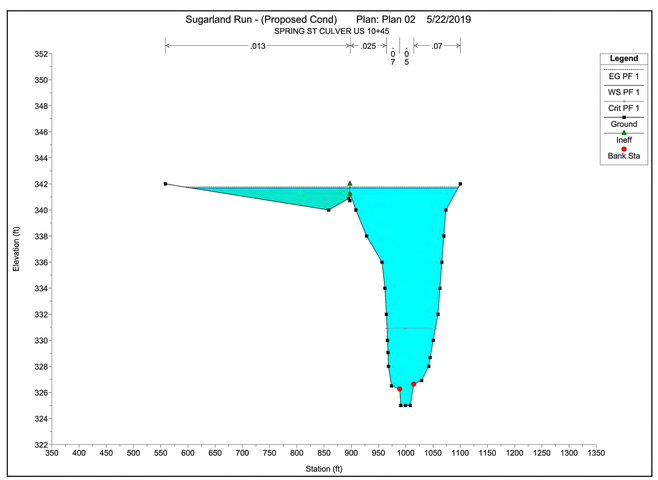


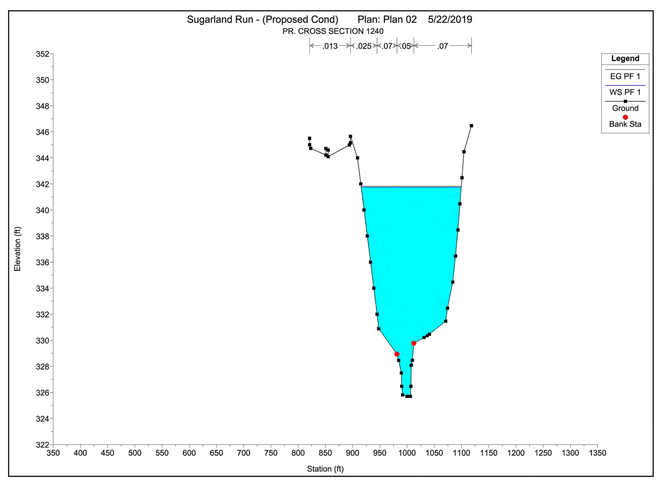












ENGINEERS PLANNERS SURVEYORS
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TYSONS, VA. GERMANTOWN, MD.

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
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PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

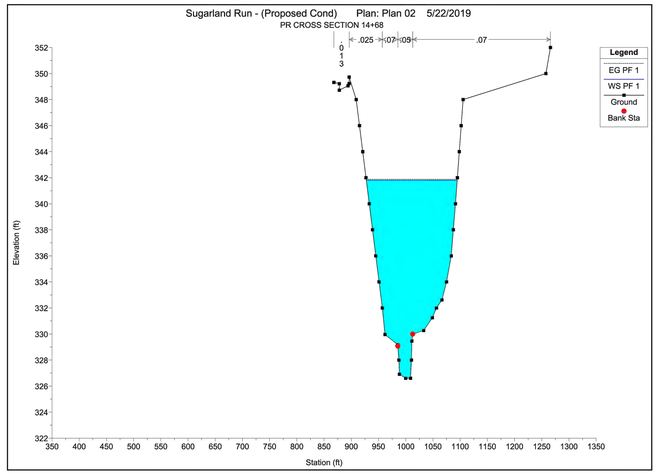
FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

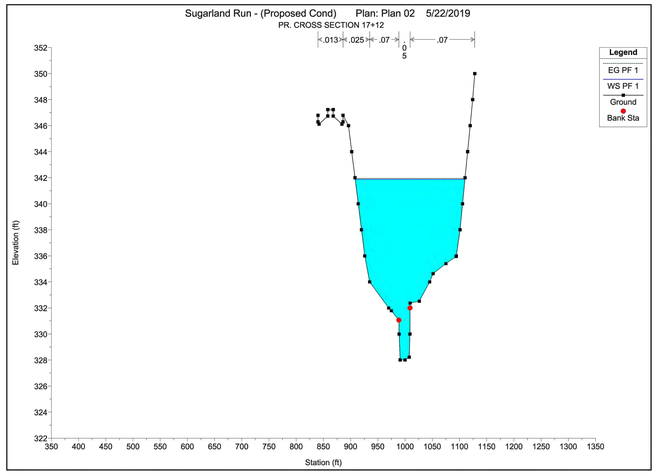
DISTRICT
TOWN OF HERNDON, VIRGINIA

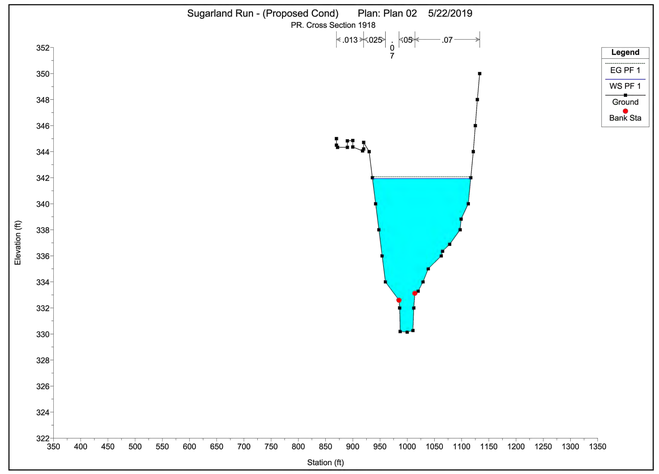
PROPOSED CROSS-SECTIONS

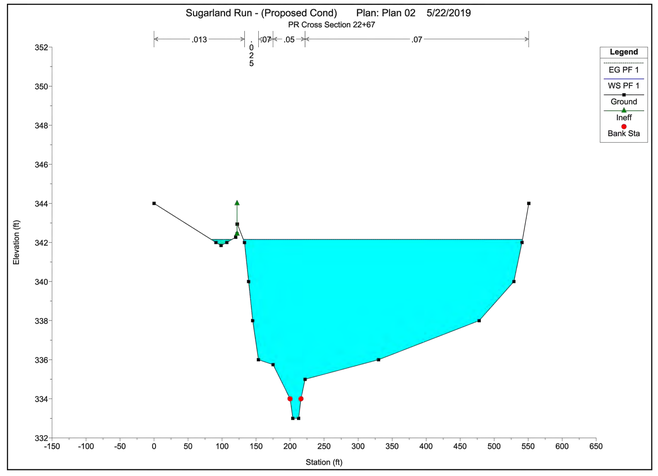
DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	09.02

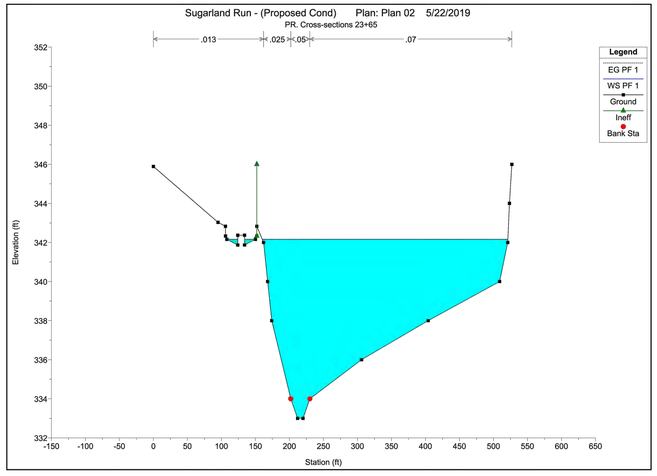
FILE: P:\projects\6045\6045X\CAD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 09.01 PROPOSED CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:31:06 AM LAYOUT: 09.02

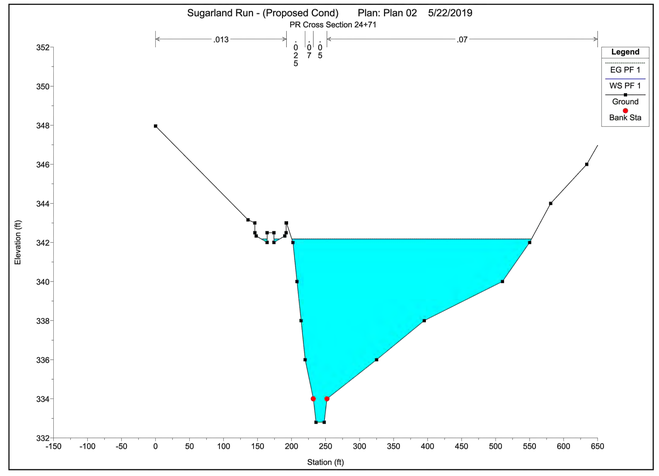


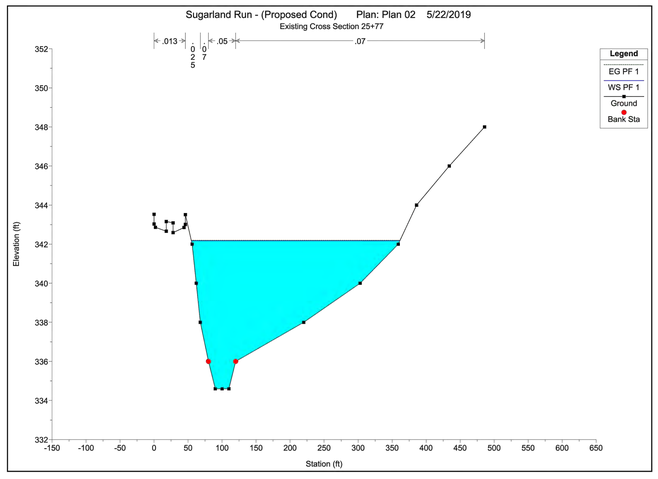


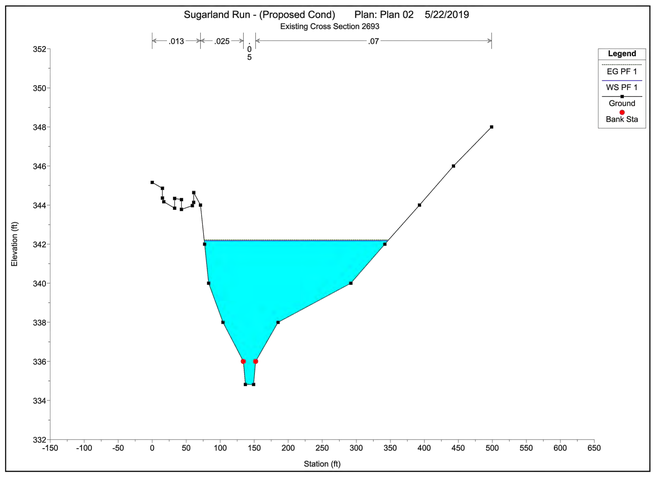


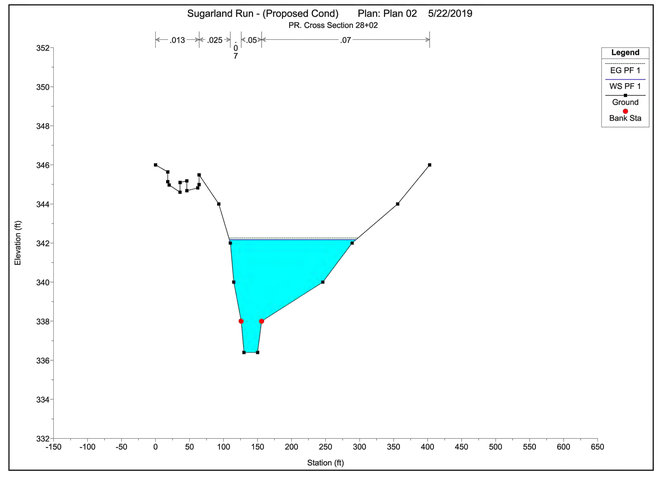












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PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

VV

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

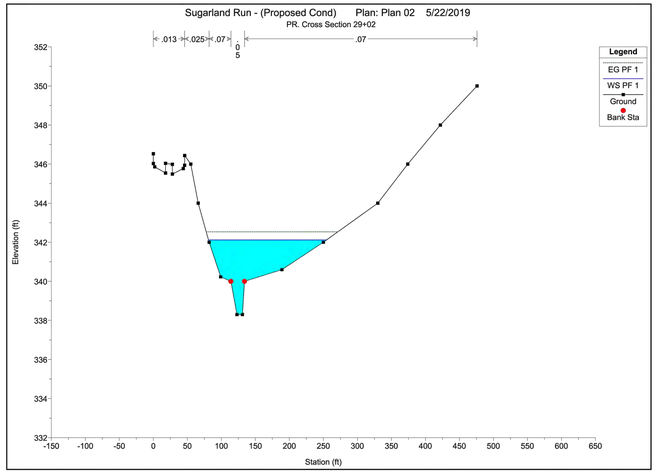
DISTRICT
TOWN OF HERNDON, VIRGINIA

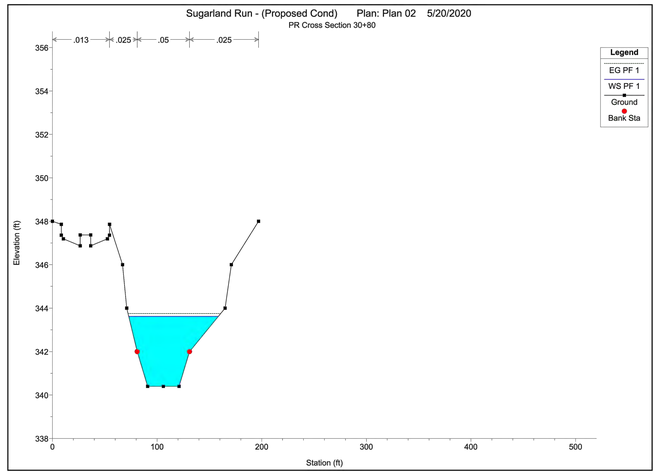
PROPOSED CROSS-SECTIONS

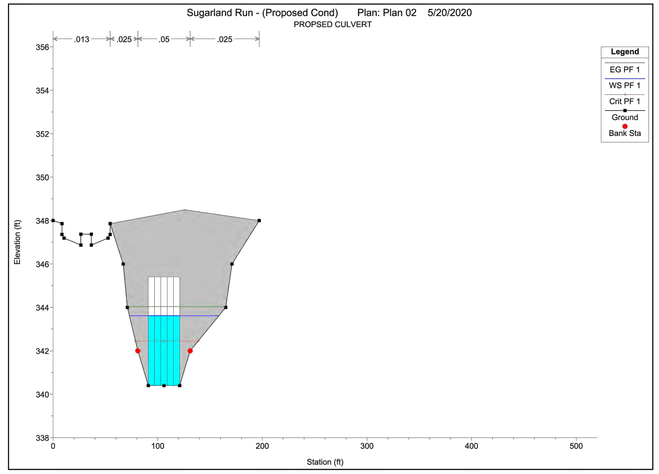
DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	09.03

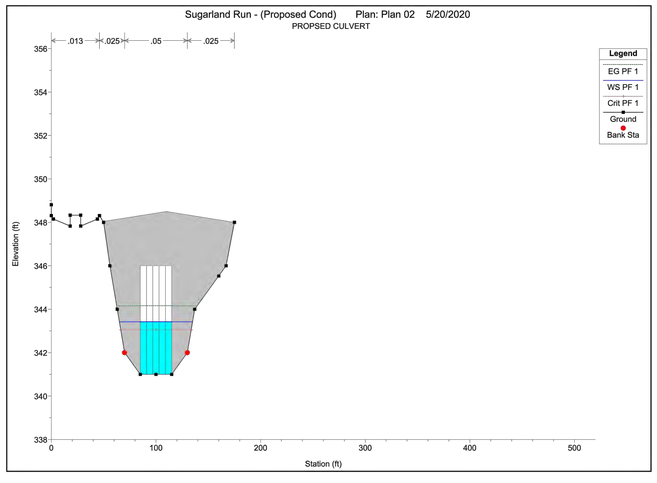
FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 09.01 PROPOSED CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:31:21 AM LAYOUT: 09.03

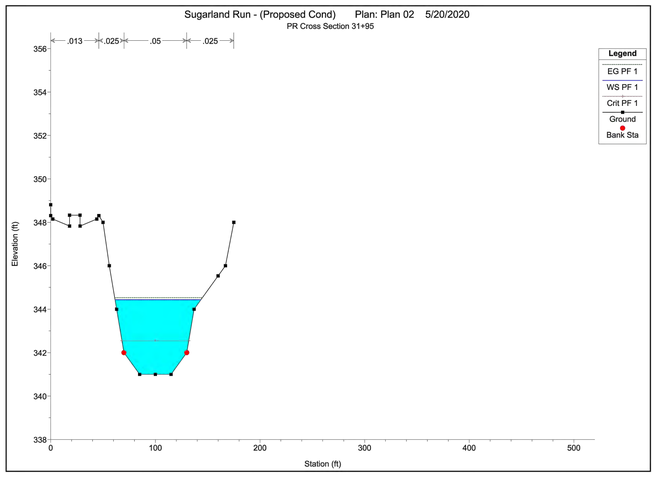
Vika Va, Llc. Plan By: 2020-10

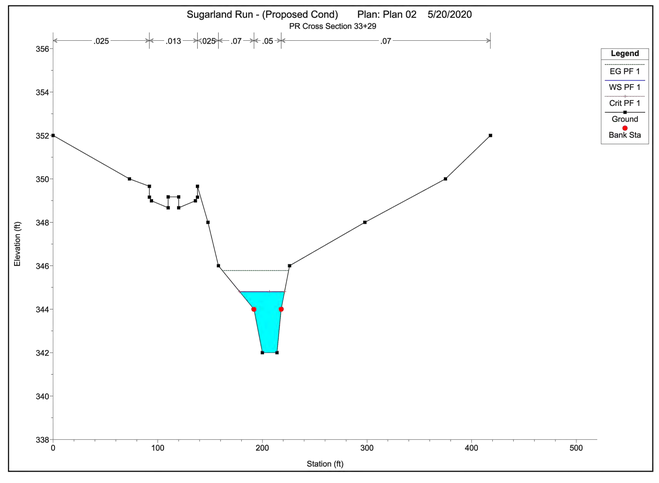


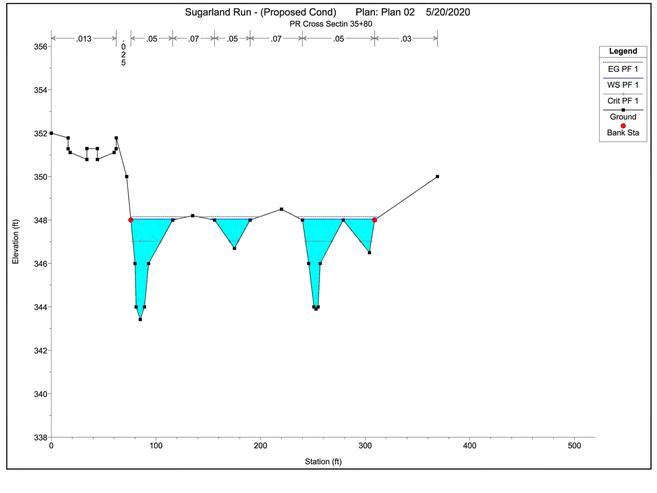


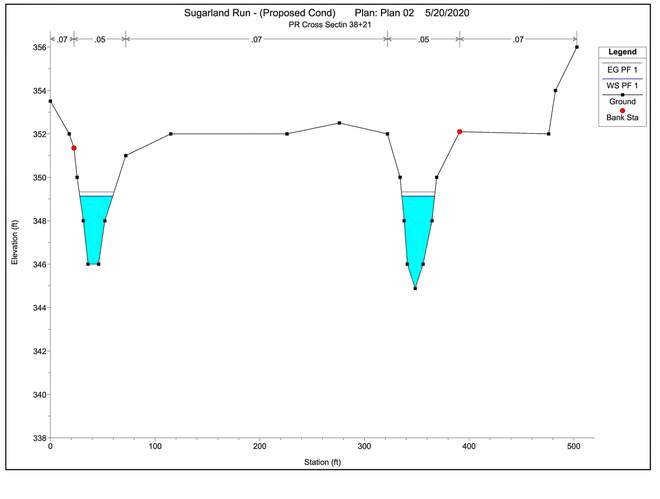












V 10.01

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
FAX: (703) 761-2787
TYSONS, VA. GERMANTOWN, MD.

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

VV

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

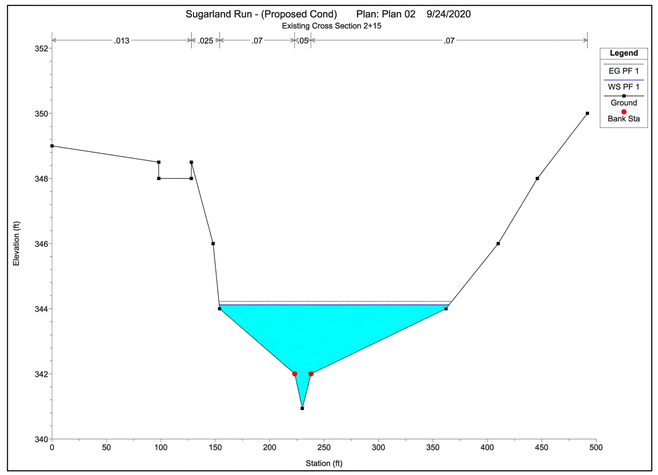
DISTRICT
TOWN OF HERNDON, VIRGINIA

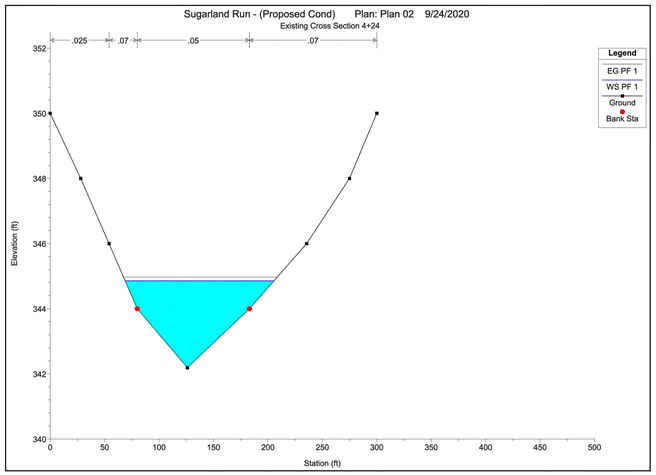
PROPOSED CROSS-SECTIONS

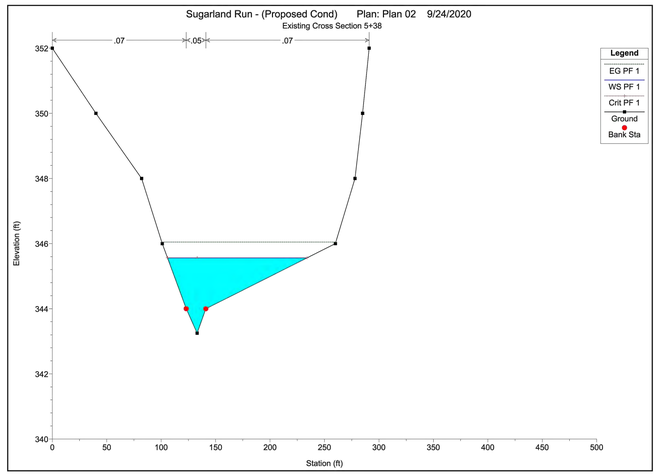
DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	09.04

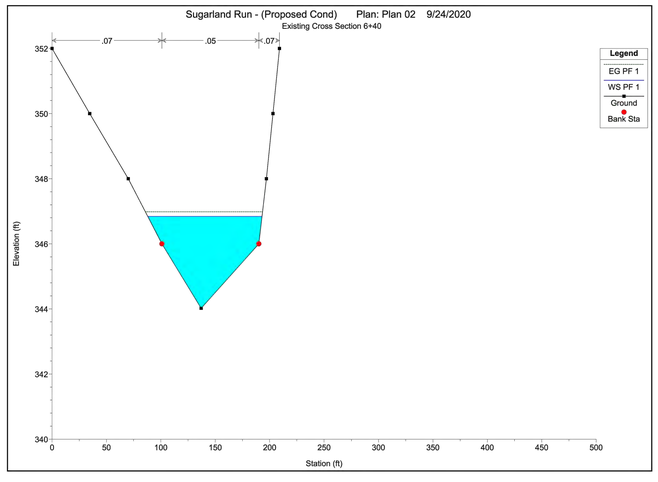
FILE: P:\projects\6045\6045X\CAD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 09.01 PROPOSED CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:32:45 AM LAYOUT: 09.04

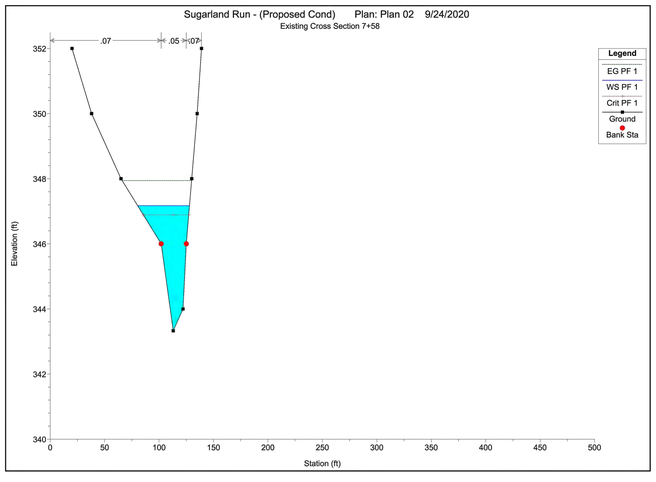
LAST EDIT: KMO PLOT BY: KMO











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PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
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10/16/2020
PROFESSIONAL ENGINEER

VV

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

PROPOSED CROSS-SECTIONS

DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	09.05

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 09.01 PROPOSED CROSS SECTIONS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:34:25 AM LAYOUT: 09.05

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

X X XXXXXX XXXX XXXX XX XXXX
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X X X X X X X
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PROJECT DATA
Project Title: Sugarland Run - (Proposed Cond)
Project File : Sugarland_Run_Proposed.prj
Run Date and Time: 9/24/2020 3:40:47 PM

Project in English units

Project Description:

PLAN DATA

Plan Title: Plan 02
Plan File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Proposed Model 2019.04.23\Sugarland_Run_Proposed.p02

Geometry Title: Sugarland Run - Proposed 2019
Geometry File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Proposed Model 2019.04.23\Sugarland_Run_Proposed.g04

Flow Title : Sug Run Ex Flow
Flow File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Proposed Model 2019.04.23\Sugarland_Run_Proposed.f02

Plan Summary Information:
Number of: Cross Sections = 32 Multiple Openings = 0
Culverts = 4 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Sug Run Ex Flow
Flow File : p:\projects\6045\6045X\DATA\Floodplain Study\HEC-RAS\Proposed Model 2019.04.23\Sugarland_Run_Proposed.f02

Flow Data (cfs)

River	Reach	RS	PF 1
sugarland run	2	758	500
sugarland run	1	3821	500
sugarland run	1	3580	500
sugarland run	main	2902	1000
sugarland run	main	1918	3100
sugarland run	main	1240	3500
sugarland run	main	1045	3500
sugarland run	main	628	3900
sugarland run	main	216	3900

Boundary Conditions

River	Reach	Profile	Upstream	Downstream

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	355.7	15	354	20	352	38	350	65	348
102	346	113	343.33	122	344	125	346	130	348
135	350	139	352						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	102	.05	125	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
102 125 70 100 110 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	347.94	Element	Left OB Channel Right OB
Vel Head (ft)	0.77	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	347.17	Reach Len. (ft)	70.00 100.00 110.00
Crit W.S. (ft)	346.89	Flow Area (sq ft)	12.69 65.64 1.71
E.G. Slope (ft/ft)	0.015375	Area (sq ft)	12.69 65.64 1.71
Q Total (cfs)	500.00	Flow (cfs)	23.35 473.65 3.01
Top Width (ft)	47.59	Top Width (ft)	21.67 23.00 2.93
Vel Total (ft/s)	6.25	Avg. Vel. (ft/s)	1.84 7.22 1.75
Max Chl Dpth (ft)	3.84	Hydr. Depth (ft)	0.59 2.85 0.59
Conv. Total (cfs)	4032.4	Conv. (cfs)	188.3 3819.9 24.2
Length Wtd. (ft)	99.21	Wetted Per. (ft)	21.70 23.95 3.15
Min Ch El (ft)	343.33	Shear (lb/sq ft)	0.56 2.63 0.52
Alpha	1.27	Stream Power (lb/ft s)	1.03 18.98 0.91
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	0.42 1.49 1.12
C & E Loss (ft)	0.19	Cum SA (acres)	0.16 0.66 0.53

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 640

INPUT

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	352	34.6	350	70	348	101	346	137	344.02
190	346	197	348	203	350	209	352		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	101	.05	190	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
101 190 95 100 95 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	346.98	Element	Left OB Channel Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	346.84	Reach Len. (ft)	95.00 100.00 95.00
Crit W.S. (ft)		Flow Area (sq ft)	5.49 163.01 1.24
E.G. Slope (ft/ft)	0.004657	Area (sq ft)	5.49 163.01 1.24
Q Total (cfs)	500.00	Flow (cfs)	4.46 494.56 0.98
Top Width (ft)	104.99	Top Width (ft)	13.05 89.00 2.95
Vel Total (ft/s)	2.95	Avg. Vel. (ft/s)	0.81 3.03 0.79
Max Chl Dpth (ft)	2.82	Hydr. Depth (ft)	0.42 1.83 0.42
Conv. Total (cfs)	7327.1	Conv. (cfs)	65.3 7247.3 14.4
Length Wtd. (ft)	98.75	Wetted Per. (ft)	13.07 89.09 3.06
Min Ch El (ft)	344.02	Shear (lb/sq ft)	0.12 0.53 0.12
Alpha	1.05	Stream Power (lb/ft s)	0.10 1.61 0.09
Frctn Loss (ft)	0.90	Cum Volume (acre-ft)	0.40 1.23 1.12
C & E Loss (ft)	0.03	Cum SA (acres)	0.14 0.53 0.53

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 538

INPUT
Description: Existing Cross Section 5+38
Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	352	40	350	82	348	101	346	123	344
133	343.25	141	344	260	346	278	348	285	350
291	352								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.07	123	.05	141	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
123 141 90 100 130 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	346.05	Element	Left OB Channel Right OB
Vel Head (ft)	0.48	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	345.56	Reach Len. (ft)	90.00 100.00 130.00
Crit W.S. (ft)	345.56	Flow Area (sq ft)	13.42 34.87 72.59
E.G. Slope (ft/ft)	0.025127	Area (sq ft)	13.42 34.87 72.59
Q Total (cfs)	500.00	Flow (cfs)	38.20 254.65 207.15
Top Width (ft)	128.13	Top Width (ft)	17.18 18.00 92.95
Vel Total (ft/s)	4.14	Avg. Vel. (ft/s)	2.85 7.30 2.85
Max Chl Dpth (ft)	2.31	Hydr. Depth (ft)	0.78 1.94 0.78
Conv. Total (cfs)	3154.2	Conv. (cfs)	241.0 1606.5 1306.8
Length Wtd. (ft)	106.01	Wetted Per. (ft)	17.25 18.06 92.96
Min Ch El (ft)	343.25	Shear (lb/sq ft)	1.22 3.03 1.23
Alpha	1.82	Stream Power (lb/ft s)	3.47 22.12 3.50
Frctn Loss (ft)	0.84	Cum Volume (acre-ft)	0.38 1.00 1.04
C & E Loss (ft)	0.11	Cum SA (acres)	0.10 0.41 0.42

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 424

INPUT
Description: Existing Cross Section 4+24
Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	350	28	348	54	346	80	344	126	342.19
183	344	235.5	346	274.9	348	300	350		

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.025	54	.07	80	.05	183	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80 183 80 200 145 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	344.97	Element	Left OB Channel Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	344.86	Reach Len. (ft)	80.00 200.00 145.00
Crit W.S. (ft)		Flow Area (sq ft)	4.80 181.72 9.69
E.G. Slope (ft/ft)	0.003851	Area (sq ft)	4.80 181.72 9.69
Q Total (cfs)	500.00	Flow (cfs)	3.59 489.14 7.27
Top Width (ft)	136.73	Top Width (ft)	11.17 103.00 22.56
Vel Total (ft/s)	2.55	Avg. Vel. (ft/s)	0.75 2.69 0.75
Max Chl Dpth (ft)	2.67	Hydr. Depth (ft)	0.43 1.76 0.43
Conv. Total (cfs)	8057.1	Conv. (cfs)	57.9 7882.1 117.1
Length Wtd. (ft)	172.26	Wetted Per. (ft)	11.20 103.06 22.57
Min Ch El (ft)	342.19	Shear (lb/sq ft)	0.10 0.42 0.10
Alpha	1.09	Stream Power (lb/ft s)	0.08 1.14 0.08
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	0.36 0.75 0.91
C & E Loss (ft)	0.00	Cum SA (acres)	0.07 0.27 0.25

CROSS SECTION

RIVER: sugarland run
REACH: 2 RS: 215

INPUT
Description: Existing Cross Section 2+15
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	349	98	348.5	98.01	348	128	348	128.01	348.5		
148	346	154	344	223	342	230	340.94	238	342		
362	344	410	346	446	348	492	350				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	128.01	.025	154	.07	223	.05	238	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
223 238 0 0 0 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	344.22	Element	Left OB Channel Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	344.12	Reach Len. (ft)	200.00 200.00 200.00
Crit W.S. (ft)		Flow Area (sq ft)	77.41 39.77 139.25
E.G. Slope (ft/ft)	0.004867	Area (sq ft)	77.41 39.77 139.25
Q Total (cfs)	500.00	Flow (cfs)	123.70 156.94 219.36
Top Width (ft)	211.28	Top Width (ft)	69.36 15.00 126.92
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)	1.60 3.95 1.58
Max Chl Dpth (ft)	3.18	Hydr. Depth (ft)	1.12 2.65 1.10
Conv. Total (cfs)	7166.8	Conv. (cfs)	1773.1 2249.5 3144.2
Length Wtd. (ft)	200.00	Wetted Per. (ft)	69.41 15.15 126.94
Min Ch El (ft)	340.94	Shear (lb/sq ft)	0.34 0.80 0.33
Alpha	1.74	Stream Power (lb/ft s)	0.54 3.15 0.53
Frctn Loss (ft)	1.66	Cum Volume (acre-ft)	0.29 0.24 0.67
C & E Loss (ft)	0.03	Cum SA (acres)	

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3821

INPUT
Description: PR Cross Sectin 38+21
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	353.51	18	352	22.5	351.35	25.5	350	31.5	348		
36	346	46	346	52	348	72	351	115	352		
226	352	276	352.5	322	352	334	350	338	348		
341	346	348.5	344.88	356	346	364.5	348	369	350		
391	352.1	476	352	482.5	354	503	356				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.07	22.5	.05	72	.07	322	.05	391	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
22.5 391 250 241 230 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	349.33	Element	Left OB Channel Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.050
W.S. Elev (ft)	349.13	Reach Len. (ft)	250.00 241.00 230.00
Crit W.S. (ft)		Flow Area (sq ft)	142.70
E.G. Slope (ft/ft)	0.004778	Area (sq ft)	142.70
Q Total (cfs)	500.00	Flow (cfs)	500.00
Top Width (ft)	62.79	Top Width (ft)	62.79
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)	3.50
Max Chl Dpth (ft)	4.25	Hydr. Depth (ft)	2.27
Conv. Total (cfs)	7233.5	Conv. (cfs)	7233.5
Length Wtd. (ft)	241.00	Wetted Per. (ft)	65.32
Min Ch El (ft)	344.88	Shear (lb/sq ft)	0.65
Alpha	1.00	Stream Power (lb/ft s)	2.28
Frctn Loss (ft)	1.15	Cum Volume (acre-ft)	0.16 2.75 0.42
C & E Loss (ft)	0.03	Cum SA (acres)	0.08 1.37 0.04

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run

REACH: 1 RS: 3580

INPUT
Description: PR Cross Sectin 35+80
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	352	16	351.78	16.01	351.28	18	351.11	34	350.79
34.01	351.29	44	351.29	44.01	350.79	60	351.11	62	351.28
62.01	351.78	72	350	76	348	80	346	81	344
85	343.42	89	344	93	346	116	348	135	348.2
156	348	175	346.7	190	348	220	348.5	240	348
246	346	251	344	253	343.9	255	344	257	346
279	348	304	346.5	309	348	369	350		

Manning's n Values num= 8

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	62.01	.025	76	.05	116	.07	156	.05
190	.07	240	.05	309	.03				

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
76 309 205 251 240 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	348.15	Element	Left OB Channel Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.000 0.050 0.030
W.S. Elev (ft)	348.05	Reach Len. (ft)	205.00 251.00 240.00
Crit W.S. (ft)	347.02	Flow Area (sq ft)	0.00 193.16 0.03
E.G. Slope (ft/ft)	0.004768	Area (sq ft)	0.00 193.16 0.03
Q Total (cfs)	500.00	Flow (cfs)	0.00 499.99 0.01
Top Width (ft)	158.58	Top Width (ft)	0.09 157.08 1.41
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)	0.31 2.59 0.28
Max Chl Dpth (ft)	4.63	Hydr. Depth (ft)	0.02 1.23 0.02
Conv. Total (cfs)	7241.2	Conv. (cfs)	0.0 7241.0 0.1
Length Wtd. (ft)	250.52	Wetted Per. (ft)	0.10 161.43 1.41
Min Ch El (ft)	343.42	Shear (lb/sq ft)	0.36 0.01
Alpha	1.00	Stream Power (lb/ft s)	0.92 0.00
Frctn Loss (ft)	2.29	Cum Volume (acre-ft)	0.16 1.83 0.42
C & E Loss (ft)	0.09	Cum SA (acres)	0.08 0.76 0.04

Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3329

INPUT
Description: PR Cross Section 33+29
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	352	73	350	92	349.66	92.01	349.16	94	348.99		
110	348.67	110.01	349.17	120	349.17	120.01	348.67	136	348.99		
138	349.16	138.01	349.66	148	348	158	346	192	344		
200	342	214	342	218	344	226	346	298	348		
375	350	418	352								

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.025	92	.013	138.01	.025	158	.07	192	.05		
218	.07										

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
192 218 114 114 114 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	345.78	Element	Left OB Channel Right OB
Vel Head (ft)	0.97	Wt. n-Val.	0.070 0.050 0.070
W.S. Elev (ft)	344.81	Reach Len. (ft)	114.00 114.00 114.00
Crit W.S. (ft)	344.81	Flow Area (sq ft)	5.55 61.00 1.31
E.G. Slope (ft/ft)	0.024072	Area (sq ft)	5.55 61.00 1.31
Q Total (cfs)	500.00	Flow (cfs)	9.97 487.73 2.30
Top Width (ft)	42.97	Top Width (ft)	13.73 26.00 3.23
Vel Total (ft/s)	7.37	Avg. Vel. (ft/s)	1.80 7.99 1.76
Max Chl Dpth (ft)	2.81	Hydr. Depth (ft)	0.40 2.35 0.40
Conv. Total (cfs)	3222.7	Conv. (cfs)	64.3 3143.6 14.8
Length Wtd. (ft)	114.00	Wetted Per. (ft)	13.76 26.72 3.33
Min Ch El (ft)	342.00	Shear (lb/sq ft)	0.61 3.43 0.59

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 344.52 Element Left OB Channel Right OB
Vel Head (ft) 0.09 Wt. n-Val. 0.025 0.050 0.025
W.S. Elev (ft) 344.44 Reach Len. (ft) 75.00 95.00 10.00
Crit W.S. (ft) 342.55 Flow Area (sq ft) 10.41 191.32 11.51
E.G. Slope (ft/ft) 0.001351 Area (sq ft) 10.41 191.32 11.51
Q Total (cfs) 500.00 Flow (cfs) 25.29 452.50 22.22
Top Width (ft) 82.12 Top Width (ft) 8.54 60.00 13.58
Vel Total (ft/s) 2.34 Avg. Vel. (ft/s) 2.43 2.37 1.93
Max Chl Dpth (ft) 3.44 Hydr. Depth (ft) 1.22 3.19 0.85
Conv. Total (cfs) 13600.8 Conv. (cfs) 687.8 12308.6 604.3
Length Wtd. (ft) 95.00 Wetted Per. (ft) 8.88 60.07 13.88
Min Ch El (ft) 341.00 Shear (lb/sq ft) 0.10 0.27 0.07
Alpha 1.01 Stream Power (lb/ft s) 0.24 0.64 0.14
Frctn Loss (ft) Cum Volume (acre-ft) 0.12 0.76 0.40
C & E Loss (ft) Cum SA (acres) 0.01 0.12 0.00

CULVERT

RIVER: sugarland run
REACH: 1 RS: 3175

INPUT
Description: PROPSED CULVERT
Distance from Upstream XS = 32
Deck/Roadway Width = 32
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 3

Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord
44.06 348	110 348.5	175 348

Upstream Bridge Cross Section Data
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	348.81	.01	348.31	2.01	348.15	18.01	347.83	18.02	348.33		
28.02	348.33	28.03	347.83	44.03	348.15	46.03	348.31	46.04	348.31		
50	348	56	346	63	344	70	342	85	341		
100	341	115	341	130	342	137	344	160	345.533		
167	346	175	348								

Alpha	1.15	Stream Power (lb/ft s)	1.09	27.43	1.04
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	0.14	1.09	0.41
C & E Loss (ft)	0.27	Cum SA (acres)	0.04	0.23	0.03

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3195

INPUT
Description: PR Cross Section 31+95
Station Elevation Data num= 22

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	348.81	.01	348.31	2.01	348.15	18.01	347.83	18.02	348.33		
28.02	348.33	28.03	347.83	44.03	348.15	46.03	348.31	46.04	348.31		
50	348	56	346	63	344	70	342	85	341		
100	341	115	341	130	342	137	344	160	345.533		
167	346	175	348								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	46.04	.025	70	.05	130	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
70 130 75 95 10 .1 .3

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	54.54	.025	81	.05	131	.025

Bank Sta: Left Right Coeff Contr. Expan.
81 131 .1 .3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 5

Culvert Name Shape Rise Span
Culvert #1 Box 5 6
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef

20 75 .013 .013 0 .5 1
Upstream Elevation = 341
Centerline Station = 88
Downstream Elevation = 340.4
Centerline Station = 94

Culvert Name Shape Rise Span
Culvert #2 Box 5 6
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
20 75 .013 .013 0 .5 1
Upstream Elevation = 341
Centerline Station = 94
Downstream Elevation = 340.4
Centerline Station = 100

Culvert Name Shape Rise Span
Culvert #3 Box 5 6
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
20 75 .013 .013 0 .5 1
Upstream Elevation = 341
Centerline Station = 100
Downstream Elevation = 340.4
Centerline Station = 106

Culvert Name Shape Rise Span
Culvert #4 Box 5 6
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
20 75 .013 .013 0 .5 1
Upstream Elevation = 341
Centerline Station = 106
Downstream Elevation = 340.4
Centerline Station = 112

Culvert Name Shape Rise Span
Culvert #1 Box 5 6
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef

Culvert Name Shape Rise Span
Culvert #5 Box 5 6
FHWA Chart # 8 - flared wingwalls
FHWA Scale # 1 - Wingwall flared 30 to 75 deg.
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
20 75 .013 .013 0 .5 1
Upstream Elevation = 341
Centerline Station = 112
Downstream Elevation = 340.4
Centerline Station = 118

CROSS SECTION

RIVER: sugarland run
REACH: 1 RS: 3080

INPUT
Description: PR Cross Section 30+80
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	348	8.5	347.86	8.51	347.36	10.51	347.19	26.51	346.87
26.52	347.37	36.52	347.37	36.53	346.87	52.53	347.19	54.53	347.36
54.54	347.86	67	346	71	344	81	342	91	340.4
106	340.4	121	340.4	131	342	165	344	171	346
197	348								

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	54.54	.025	81	.05	131	.025

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
81 131 100 90 20 .1 .3

CROSS SECTION OUTPUT Profile

Q Total (cfs)	1000.00	Flow (cfs)		53.34	511.30	435.36			
Top Width (ft)	186.25	Top Width (ft)		17.47	30.00	138.78			
Vel Total (ft/s)	1.84	Avg. Vel. (ft/s)		1.30	3.10	1.29			
Max Chl Dpth (ft)	5.77	Hydr. Depth (ft)		2.34	5.51	2.42			
Conv. Total (cfs)	29596.5	Conv. (cfs)		1578.6	15132.8	12885.1			
Length Wtd. (ft)	73.50	Wetted Per. (ft)		18.04	30.52	138.86			
Min Ch El (ft)	336.40	Shear (lb/sq ft)		0.16	0.39	0.17			
Alpha	1.68	Stream Power (lb/ft s)		0.21	1.19	0.22			
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)		30.35	29.52	51.51			
C & E Loss (ft)	0.02	Cum SA (acres)		9.50	2.38	9.75			

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2693

INPUT
Description: Existing Cross Section 2693
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	345.16	15	344.86	15.01	344.36	17	344.17	33	343.84
33.01	344.34	43	344.28	43.01	343.78	59	343.97	61	344.14
61.01	344.64	71	344	77	342	83	340	104	338
134	336	137	334.82	149	334.82	152	336	185	338
292	340	342	342	393	344	443	346	499	348

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	71	.025	134	.05	152	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
134 152 135 116 42 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.025	0.050	0.070
W.S. Elev (ft)	342.18	Reach Len. (ft)	135.00	116.00	42.00
Crit W.S. (ft)		Flow Area (sq ft)	229.28	128.93	570.53

Conv. Total (cfs)	110014.4	Conv. (cfs)		13496.3	23453.0	73065.1			
Length Wtd. (ft)	267.10	Wetted Per. (ft)		50.15	20.35	300.84			
Min Ch El (ft)	332.80	Shear (lb/sq ft)		0.01	0.05	0.02			
Alpha	1.46	Stream Power (lb/ft s)		0.01	0.05	0.01			
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		29.43	28.02	48.24			
C & E Loss (ft)	0.00	Cum SA (acres)		9.24	2.17	8.84			

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2365

INPUT
Description: PR. Cross-sections 23+65
Station Elevation Data num= 25

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	345.89	95	343.03	106	342.83	106.01	342.33	108	342.16
124	341.87	124.01	342.37	134	342.37	134.01	341.87	150	342.16
152	342.33	152.01	342.83	162	342	168	340	174	338
202	334	212	333	220	333	230	334	306	336
404	338	509	340	521	342	523.5	344	527	346

Manning's n Values num= 4

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	162	.025	202	.05	230	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
202 230 75 98 180 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	152		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.025	0.050	0.070
W.S. Elev (ft)	342.16	Reach Len. (ft)	75.00	98.00	180.00
Crit W.S. (ft)		Flow Area (sq ft)	198.53	246.46	1395.42
E.G. Slope (ft/ft)	0.000045	Area (sq ft)	203.15	246.46	1395.42
Q Total (cfs)	1000.00	Flow (cfs)	226.56	208.99	564.46
Top Width (ft)	393.06	Top Width (ft)	73.86	28.00	291.20

E.G. Elev (ft)	342.07	Element		Left OB	Channel	Right OB			
Vel Head (ft)	0.14	Wt. n-Val.		0.051	0.050	0.070			
W.S. Elev (ft)	341.93	Reach Len. (ft)		206.00	206.00	206.00			
Crit W.S. (ft)		Flow Area (sq ft)		310.52	331.92	565.33			
E.G. Slope (ft/ft)	0.000695	Area (sq ft)		310.52	331.92	565.33			
Q Total (cfs)	3100.00	Flow (cfs)		866.07	1252.59	981.34			
Top Width (ft)	180.53	Top Width (ft)		48.83	29.08	102.62			
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)		2.79	3.77	1.74			
Max Chl Dpth (ft)	11.78	Hydr. Depth (ft)		6.36	11.41	5.51			
Conv. Total (cfs)	117630.8	Conv. (cfs)		32863.2	47530.0	37237.5			
Length Wtd. (ft)	206.00	Wetted Per. (ft)		50.16	31.38	103.43			
Min Ch El (ft)	330.15	Shear (lb/sq ft)		0.27	0.46	0.24			
Alpha	1.35	Stream Power (lb/ft s)		0.75	1.73	0.41			
Frctn Loss (ft)	0.10	Cum Volume (acre-ft)		25.43	25.07	21.21			
C & E Loss (ft)	0.02	Cum SA (acres)		8.28	1.87	3.32			

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 1712

INPUT
Description: PR. CROSS SECTION 17+12
Station Elevation Data num= 40

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
840	346.79	840.01	346.29	842	346.12	858	346.73	858.01	347.23
868	347.23	868.01	346.73	884	346.12	886	346.29	886.01	346.79
896	346	902	344	908	342	914	340	920	338
926	336	935	334	970	332	974.9	331.79	988.7	331.07
989.12	330	990.97	328.01	1000	328.01	1007.7	328.22	1008.95	330
1009.2	332	1009.45	332.38	1026.08	332.52	1045.2	334	1051.5	334.64
1074.96	335.41	1093.96	335.96	1094.2	336	1101.13	338	1105.7	340
1110.36	342	1115.05	344	1119.7	346	1124.2	348	1128.2	350

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
840	.013	886.01	.025	935	.07	988.7	.05	1009.2	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
988.7 1009.2 244 244 244 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	341.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.055	0.050	0.070
W.S. Elev (ft)	341.75	Reach Len. (ft)	195.00	195.00	195.00
Crit W.S. (ft)		Flow Area (sq ft)	570.17	458.79	828.43
E.G. Slope (ft/ft)	0.000240	Area (sq ft)	570.17	458.79	828.43
Q Total (cfs)	3500.00	Flow (cfs)	1086.02	1210.04	1203.94
Top Width (ft)	183.87	Top Width (ft)	65.76	31.00	87.11
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)	1.90	2.64	1.45
Max Chl Dpth (ft)	16.05	Hydr. Depth (ft)	8.67	14.80	9.51
Conv. Total (cfs)	226009.1	Conv. (cfs)	70128.7	78137.2	77743.1
Length Wtd. (ft)	195.00	Wetted Per. (ft)	67.60	33.44	89.12
Min Ch El (ft)	325.70	Shear (lb/sq ft)	0.13	0.21	0.14
Alpha	1.20	Stream Power (lb/ft s)	0.24	0.54	0.20
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	17.38	19.47	10.03
C & E Loss (ft)	0.00	Cum SA (acres)	7.26	1.46	1.89

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 1045

INPUT
Description: SPRING ST CULVER US 10+45
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
558.55	342	858.5	340	895.5	340.88	897.5	340.71	897.51	341.21
898.01	341.21	908.5	340	928.05	338	956.5	336	961.86	334
964.55	332	966.55	330	967.55	329.07	968.3	328	973.96	326.5
988.92	326.27	990.97	325	1000	325	1008.3	325	1014.8	326.64
1029.2	326.92	1042.3	328	1044.8	328.68	1050.55	330	1059.34	332
1062.84	334	1066.32	336	1069.91	338	1073.81	340	1100.4	342

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
558.55	.013	898.01	.025	964.55	.07	988.92	.05	1014.8	.07

Bank Sta: Left Right Coeff Contr. Expan.
988.92 1014.8 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
558.55	897.51		F

Downstream Deck/Roadway Coordinates
num= 9

Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord	Sta Hi Cord Lo Cord
676.87 340	0 763.87 340	0 772.87 339.6 0
808.87 339.6	0 824.87 339.6	0 915.54 340 0
1000 340.5	0 1100 341	0 1200 342 0

Downstream Embankment side slope = 2 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span
Culvert #1 Box 12 10
FHWA Chart # 9 - flared wingwalls and Inlet top edge bevel
FHWA Scale # 1 - 45 deg Wingwall flare; inlet top edge bevel=0.043D
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
17 186 .013 .013 0 .5 1

Number of Barrels = 4
Upstream Elevation = 324.92
Centerline Stations
Sta. Sta. Sta. Sta.
983.5 994.5 1005.5 1016.5
Downstream Elevation = 323.9
Centerline Stations
Sta. Sta. Sta. Sta.
983.5 994.5 1005.5 1016.5

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 825

INPUT
Description: SPRING ST CULVER DS 8+25
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
652.87	342	676.87	340	682.37	338	690.2	336	702.87	335.8
717.87	336	732.87	338	763.87	340	772.87	339.6	808.87	339.6
808.87	340.1	824.87	340.1	824.87	339.6	894.87	340.5	923.87	340
930.27	338	936.69	336	939.38	335.21	942.98	334	948.54	332
955.69	330	960.58	328	961.5	327.57	979.61	327.5	987.9	326.53
988.85	326	991.36	324.86	992	324	1000	324	1008	324
1008.9	324.81	1011	326	1013.12	326.63	1021.24	326.6	1041.5	328
1045.5	330	1049.75	332	1052.5	332.88	1055	334	1060	336

RIVER: sugarland run
REACH: main RS: 628

INPUT
Description: EX. CROSS SECTION 6+28
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
714.58	350	714.59	350	715.58	340	726.28	338	731.33	336
737.98	334	746.08	332	789.09	330	799.58	330	812.38	332
817.58	334	823.58	336	828.58	338	833.58	340	838.58	340.6
873.08	340	873.09	340.5	890.08	340.25	890.09	339.75	925.08	339.15
931.18	338	934.86	336	938.53	334	942.18	332	946.18	330
949.68	328	953.68	326	957.5	323.83	975	323.65	981.75	323.53
1000	323.38	1023.25	322.95	1032.9	324	1037.5	326	1043.4	328
1049.7	328.85	1051.2	330	1055.05	332	1062.2	334	1069.7	335.83
1070.2	336	1075.4	338	1080.2	340	1084.7	342	1090.34	344

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
714.58	.07	838.58	.013	925.08	.07	953.68	.05	1037.5	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
953.68 1037.5 197 197 197 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
714.58	726		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	340.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.065	0.050	0.070
W.S. Elev (ft)	340.89	Reach Len. (ft)	197.00	197.00	197.00
Crit W.S. (ft)	327.69	Flow Area (sq ft)	1191.92	1448.96	349.44
E.G. Slope (ft/ft)	0.000089	Area (sq ft)	1211.33	1448.96	349.44
Q Total (cfs)	3900.00	Flow (cfs)	940.90	2694.11	265.00
Top Width (ft)	366.70	Top Width (ft)	238.19	83.82	44.69
Vel Total (ft/s)	1.30	Avg. Vel. (ft/s)	0.79	1.86	0.76
Max Chl Dpth (ft)	17.94	Hydr. Depth (ft)	5.24	17.29	7.82
Conv. Total (cfs)	413292.0	Conv. (cfs)	99709.2	285500.6	28082.3
Length Wtd. (ft)	197.00	Wetted Per. (ft)	234.41	84.87	47.44
Min Ch El (ft)	322.95	Shear (lb/sq ft)	0.03	0.09	0.04
Alpha	1.52	Stream Power (lb/ft s)	0.02	0.18	0.03
Frctn Loss (ft)		Cum Volume (acre-ft)	8.42	12.16	2.70
C & E Loss (ft)		Cum SA (acres)	3.22	1.04	0.78

E.G. Slope (ft/ft)	0.000188	Area (sq ft)		229.28	128.93	570.53			
Q Total (cfs)	1000.00	Flow (cfs)		467.36	192.25	340.39			
Top Width (ft)	270.12	Top Width (ft)		57.54	18.00	194.58			
Vel Total (ft/s)	1.08	Avg. Vel. (ft/s)		2.04	1.49	0.60			
Max Chl Dpth (ft)	7.36	Hydr. Depth (ft)		3.98	7.16	2.93			
Conv. Total (cfs)	72856.8	Conv. (cfs)		34050.4	14006.7	24799.7			
Length Wtd. (ft)	89.34	Wetted Per. (ft)		58.05	18.45	194.70			
Min Ch El (ft)	334.82	Shear (lb/sq ft)		0.05	0.08	0.03			
Alpha	2.15	Stream Power (lb/ft s)		0.09	0.12	0.02			
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)		30.15	29.15	51.02			
C & E Loss (ft)	0.01	Cum SA (acres)		9.44	2.32	9.57			

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2577

INPUT
Description: Existing Cross Section 25+77
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	343.53	.01	343.03	2	342.86	18	342.66	18.01	343.16
28	343.09	28.01	342.59	44	342.85	46	343.01	46.01	343.51
56	342	62	340	68	338	80	336	90	334.6
100	334.6	110	334.6	120	336	220	338	303	340
359	342	386	344	434	346	486	348		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	46.01	.025	68	.07	80	.05	120	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
80 120 85 106 85 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.20	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.053	0.050	0.070
W.S. Elev (ft)	342.18	Reach Len. (ft)	85.00	106.00	85.00
Crit W.S. (ft)		Flow Area (sq ft)	88.43	289.21	848.28
E.G. Slope (ft/ft)	0.000156	Area (sq ft)	88.43	289.21	848.28
Q Total (cfs)	1000.00	Flow (cfs)	78.88	400.68	520.44
Top Width (ft)	306.62	Top Width (ft)	25.19	40.00	241.43

Vel Total (ft/s)	0.54	Avg. Vel. (ft/s)		1.14	0.85	0.40			
Max Chl Dpth (ft)	9.16	Hydr. Depth (ft)		4.74	8.80	4.79			
Conv. Total (cfs)	149059.9	Conv. (cfs)		33770.3	31151.7	84137.9			
Length Wtd. (ft)	142.87	Wetted Per. (ft)		42.86	28.10	291.49			
Min Ch El (ft)	333.00	Shear (lb/sq ft)		0.01	0.02	0.01			
Alpha	1.82	Stream Power (lb/ft s)		0.01	0.02	0.01			
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)		28.89	27.50	37.11			
C & E Loss (ft)	0.00	Cum SA (acres)		9.05	2.11	6.39			

Warning: Divided flow computed for this cross-section.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 2267

INPUT
Description: PR Cross Section 22+67
Station Elevation Data num= 23

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	344	91	342	98.5	341.85	107	342	120	342.27
122	342.44	122.01	342.94	122.5	342.94	133	342	139	340
212.5	333	216	334	222	335	330	336	478	338
529	340	541	342	551	344				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.013	133	.025	153.5	.07	175	.05	222	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
200 216 365 365 365 .1 .3

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
0	122		F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	342.16	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.049	0.050	0.069
W.S. Elev (ft)	342.16	Reach Len. (ft)	365.00	365.00	365.00
Crit W.S. (ft)		Flow Area (sq ft)	386.96	142.76	1703.06
E.G. Slope (ft/ft)	0.000036	Area (sq ft)	391.83	142.76	1703.06

E.G. Elev (ft)	341.95	Element		Left OB	Channel	Right OB			
Vel Head (ft)	0.07	Wt. n-Val.		0.058	0.050	0.070			
W.S. Elev (ft)	341.88	Reach Len. (ft)		244.00	244.00	244.00			
Crit W.S. (ft)		Flow Area (sq ft)		617.56	278.46	702.53			
E.G. Slope (ft/ft)	0.000374	Area (sq ft)		617.56	278.46	702.53			
Q Total (cfs)	3100.00	Flow (cfs)		1254.19	803.15	1042.67			
Top Width (ft)	201.71	Top Width (ft)		80.33	20.50	100.88			
Vel Total (ft/s)	1.94	Avg. Vel. (ft/s)		2.03	2.88	1.48			
Max Chl Dpth (ft)	13.87	Hydr. Depth (ft)		7.69	13.58	6.96			
Conv. Total (cfs)	160209.3	Conv. (cfs)		64817.0	41506.9	53885.4			
Length Wtd. (ft)	244.00	Wetted Per. (ft)		81.59	24.79	102.28			
Min Ch El (ft)	328.01	Shear (lb/sq ft)		0.18	0.26	0.16			
Alpha	1.21	Stream Power (lb/ft s)		0.36	0.76	0.24			
Frctn Loss (ft)	0.07	Cum Volume (acre-ft)		23.24	23.63	18.21			
C & E Loss (ft)	0.00	Cum SA (acres)		7.97	1.75	2.84			

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 1468

INPUT
Description: PR CROSS SECTION 14+68
PR. CROSS SECTION 14+68
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
868	349.32	877.99	349.22	878	348.72	894	349.06	895.99	349.23
896	349.73	909	348	915	346	921	344	927	342
933	340	939	338	945	336	951	334	957	332
962	329.96	985.3	329.18	985.5	329.073	987.5	328	988.5	326.91
1000	326.6	1008.75	326.6	1010.5	328	1011.25	329.46	1012.92	330
1033	330.27	1048.89	331.25	1056.5	332	1066.6	332.62	1075	334
1083.67	336	1087.5	338	1091.5	340	1095	342	1098.5	344
1102	346	1105.5	348	1257.73	350	1266	352		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
868	.013	896	.025	957	.07	985.5	.05	1012.92	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
985.5 1012.92 228 228 228 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	341.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.053	0.050	0.070
W.S. Elev (ft)	341.81	Reach Len. (ft)	228.00	228.00	228.00
Crit W.S. (ft)		Flow Area (sq ft)	486.07	402.42	746.22
E.G. Slope (ft/ft)	0.000246	Area (sq ft)	486.07	402.42	746.22
Q Total (cfs)	3100.00	Flow (cfs)	964.53	1067.01	1068.46
Top Width (ft)	167.08	Top Width (ft)	57.92	27.42	81.74
Vel Total (ft/s)	1.90	Avg. Vel. (ft/s)	1.98	2.65	1.43
Max Chl Dpth (ft)	15.21	Hydr. Depth (ft)	8.39	14.68	9.13
Conv. Total (cfs)	197740.6	Conv. (cfs)	61524.8	68061.7	68154.1
Length Wtd. (ft)	228.00	Wetted Per. (ft)	59.95	29.64	83.61
Min Ch El (ft)	326.60	Shear (lb/sq ft)	0.12	0.21	0.14
Alpha	1.21	Stream Power (lb/ft s)	0.25	0.55	0.20
Frctn Loss (ft)	0.06	Cum Volume (acre-ft)	20.15	21.72	14.15
C & E Loss (ft)	0.00	Cum SA (acres)	7.59	1.62	2.33

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 1240

INPUT
Description: PR. CROSS SECTION 1240
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
820.99	345.5	821	345	823	344.73	850.99	344.21	851	344.71
854.99	344.6	855	344.1	894	344.98	895.99	345.15	896	345.65
909	344	915	342	921	340	927	338	933	336
939	334	945	332	948	330.89	981.5	328.94	984.5	328.47
989.6	327.5	990.25	326.47	992	325.81	1000	325.7	1006	325.7
1007	326.47	1007.75	328.09	1009.75	328.47	1012.5	329.77	1031.3	330.22
1036.8	330.35	1041	330.47	1071	331.47	1074.3	332.47	1084	334.47
1089	336.47	1093.5	338.47	1097.12	340.47	1101	342.47	1104.5	344.47
1118.4	346.47								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
820.99	.013	896	.025	945	.07	981.5	.05	1012.5	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
981.5 1012.5 195 195 195 .1 .3

558.55 897.51 F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft)	341.77	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.049	0.050	0.070
W.S. Elev (ft)	341.69	Reach Len. (ft)	220.00	220.00	220.00
Crit W.S. (ft)	330.91	Flow Area (sq ft)	610.67	425.22	699.21
E.G. Slope (ft/ft)	0.000251	Area (sq ft)	871.93	425.22	699.21
Q Total (cfs)	3500.00	Flow (cfs)	1259.60	1275.28	965.12
Top Width (ft)	490.70	Top Width (ft)	383.38	25.88	81.43
Vel Total (ft/s)	2.02	Avg. Vel. (ft/s)	2.06	3.00	1.38
Max Chl Dpth (ft)	16.69	Hydr. Depth (ft)	6.68	16.43	8.59
Conv. Total (cfs)	220942.8	Conv. (cfs)	79514.4	80504.0	60924.4
Length Wtd. (ft)	220.00	Wetted Per. (ft)	94.62	26.45	84.08
Min Ch El (ft)	325.00	Shear (lb/sq ft)	0.10	0.25	0.13
Alpha	1.31	Stream Power (lb/ft s)	0.21	0.76	0.18
Frctn Loss (ft)		Cum Volume (acre-ft)	14.16	17.49	6.61
C & E Loss (ft)		Cum SA (acres)

FHWA Scale # 1 - 45 deg Wingwall flare; inlet top edge bevel=0.043D
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
20 155 .013 .013 0 .5 1
Number of Barrels = 4
Upstream Elevation = 322.58
Centerline Stations
Sta. Sta. Sta. Sta. Sta.
983.5 994.5 1005.5 1016.5
Downstream Elevation = 322.03
Centerline Stations
Sta. Sta. Sta. Sta. Sta.
983.5 994.5 1005.5 1016.5

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 431

INPUT
Description: EX. CROSS SECTION 4+31
Station Elevation Data num= 31
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
636.05 342 658.25 340 811.71 340 816.33 338 820.7 336
824.55 334 830.05 332 846.63 330 921.41 328 934.65 326
951 323.48 963 323.45 1000 323 1026 323.5 1049 323.78
1049.5 324 1050.6 325.42 1051.3 326 1056.8 328 1059.5 328.7
1066.2 330 1076.5 332 1083.5 334 1090 336 1095.5 338
1101.6 340 1107.8 342 1114.13 344 1121 346 1130 348
1138.3 350

Manning's n Values num= 4
Sta n Val Sta n Val Sta n Val Sta n Val
636.05 .013 811.71 .07 921.41 .05 1056.8 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
921.41 1056.8 121 121 121 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
636.05 778 F

CROSS SECTION OUTPUT Profile #PF 1

1043 342 1046 344 1053 346 1056 348 1059 350
1062 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
636 .07 981 .05 1016 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
981 1016 18 18 18 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
636 870 F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 340.80 Element Left OB Channel Right OB
Vel Head (ft) 0.11 Wt. n-Val. 0.070 0.050 0.070
W.S. Elev (ft) 340.69 Reach Len. (ft) 18.00 18.00 18.00
Crit W.S. (ft) Flow Area (sq ft) 996.45 595.01 159.40
E.G. Slope (ft/ft) 0.000343 Area (sq ft) 1580.99 595.01 159.40
Q Total (cfs) 3900.00 Flow (cfs) 1685.59 2012.40 202.02
Top Width (ft) 373.00 Top Width (ft) 313.62 35.00 24.38
Vel Total (ft/s) 2.23 Avg. Vel. (ft/s) 1.69 3.38 1.27
Max Chl Dpth (ft) 17.74 Hydr. Depth (ft) 8.98 17.00 6.54
Conv. Total (cfs) 210718.9 Conv. (cfs) 91073.0 108730.9 10915.0

Length Wtd. (ft) 18.00 Wetted Per. (ft) 111.53 39.02 27.51
Min Ch El (ft) 322.95 Shear (lb/sq ft) 0.19 0.33 0.12
Alpha 1.46 Stream Power (lb/ft s) 0.32 1.10 0.16
Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 1.18 1.41 0.45
C & E Loss (ft) 0.01 Cum SA (acres) 0.74 0.24 0.34

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 198

INPUT
Description: EX. CROSS SECTION 1+98
Station Elevation Data num= 42
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
637 342 684 340 695 338 704 336 725 334
780 334 785 336 799 338 808 340 822 340

884 328.55 896 326.5 901 326.57 906 327.04 919 328.2
933 330 960 332.27 970 332.27 976 330 982 328
986 326 988 324 991 322.52 1000 322.52 1009 322.52
1013 323.08 1014 324 1017 326 1020 327.75 1024 330
1030 332 1033 334 1034.5 336 1036 338 1041 340
1044 342 1047 344 1049 346 1051 348

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
588 .07 986 .05 1017 .07

Bank Sta: Left Right Coeff Contr. Expan.
986 1017 .1 .3

Upstream Embankment side slope = 3 horiz. to 1.0 vertical
Downstream Embankment side slope = 3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 2

Culvert Name Shape Rise Span
Culvert #2 Circular 8.5
FHWA Chart # 1 - Concrete Pipe Culvert
FHWA Scale # 2 - Groove end entrance with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
0 75 .013 .013 0 .5 1
Upstream Elevation = 327.61
Centerline Station = 918
Downstream Elevation = 326.57
Centerline Station = 900

Culvert Name Shape Rise Span
Culvert #1 Conspan Arch 15 18
FHWA Chart # 61- Span/Rise ratio approximate 4:1
FHWA Scale # 1 - 0 degree wing wall angle
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef
Exit Loss Coef
8 60 .013 .013 0 .5 1

E.G. Elev (ft) 331.05 Element Left OB Channel Right OB
Vel Head (ft) 1.48 Wt. n-Val. 0.070 0.050 0.070
W.S. Elev (ft) 329.57 Reach Len. (ft) 91.00 93.00 95.00
Crit W.S. (ft) 329.57 Flow Area (sq ft) 66.33 344.51 82.56
E.G. Slope (ft/ft) 0.014289 Area (sq ft) 66.33 344.51 82.56
Q Total (cfs) 3900.00 Flow (cfs) 205.38 3520.86 173.76
Top Width (ft) 226.96 Top Width (ft) 47.94 70.00 109.02
Vel Total (ft/s) 7.90 Avg. Vel. (ft/s) 3.10 10.22 2.10
Max Chl Dpth (ft) 7.09 Hydr. Depth (ft) 1.38 4.92 0.76
Conv. Total (cfs) 32626.4 Conv. (cfs) 1718.1 29454.6 1453.6
Length Wtd. (ft) 92.88 Wetted Per. (ft) 49.21 70.60 109.28
Min Ch El (ft) 322.48 Shear (lb/sq ft) 1.20 4.35 0.67
Alpha 1.52 Stream Power (lb/ft s) 3.72 44.49 1.42
Frctn Loss (ft) 0.97 Cum Volume (acre-ft) 0.37 0.63 0.36
C & E Loss (ft) 0.24 Cum SA (acres) 0.15 0.12 0.27

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical
depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross
sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 0

INPUT
Description: EX. CROSS SECTION 0+00
Station Elevation Data num= 20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
777 334 813 332 833 330 886 330 898 328
919 326 940 325.48 955 324.84 971 325.24 983 325.87
989 322.74 1000 322.3 1012 322.15 1014 323.86 1021 325.3

main 216 .07 .05 .07

main 198 .07 .05 .07

main 160 Culvert
main 123 .07 .05 .07

main 93 .07 .05 .07
main 0 .07 .05 .07

SUMMARY OF REACH LENGTHS

River: sugarland run

Reach River Sta. Left Channel Right
2 758 70 100 110
2 640 95 100 95
2 538 90 100 130
2 424 80 200 145
2 215 0 0 0
1 3821 250 241 230
1 3580 205 251 240
1 3329 114 114 114
1 3195 75 95 10
1 3175 Culvert
1 3080 100 90 20
main 2902 92 100 20
main 2802 65 109 47
main 2693 135 116 42
main 2577 85 106 85
main 2471 135 106 360
main 2365 75 98 180
main 2267 365 365 365
main 1918 206 206 206
main 1712 244 244 244
main 1468 228 228 228
main 1240 195 195 195
main 1045 220 220 220
main 935 Culvert
main 825 113 113 113

Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3821 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3580 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: 1 RS: 3329 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: sugarland run Reach: 1 RS: 3080 Profile: PF 1
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
River: sugarland run Reach: main RS: 2902 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 2802 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream

E.G. Elev (ft) 340.84 Element Left OB Channel Right OB
Vel Head (ft) 0.02 Wt. n-Val. 0.069 0.050 0.070
W.S. Elev (ft) 340.82 Reach Len. (ft) 121.00 121.00 121.00
Crit W.S. (ft) Flow Area (sq ft) 1164.68 2269.71 337.32
E.G. Slope (ft/ft) 0.000045 Area (sq ft) 1256.43 2269.71 337.32
Q Total (cfs) 3900.00 Flow (cfs) 781.15 2945.02 173.83
Top Width (ft) 454.97 Top Width (ft) 272.25 135.39 47.34
Vel Total (ft/s) 1.03 Avg. Vel. (ft/s) 0.67 1.30 0.52
Max Chl Dpth (ft) 17.82 Hydr. Depth (ft) 8.12 16.76 7.13
Conv. Total (cfs) 580371.3 Conv. (cfs) 116244.8 438258.3 25868.3

Length Wtd. (ft) 121.00 Wetted Per. (ft) 145.25 137.05 49.13
Min Ch El (ft) 323.00 Shear (lb/sq ft) 0.02 0.05 0.02
Alpha 1.28 Stream Power (lb/ft s) 0.02 0.06 0.01
Frctn Loss (ft) 0.01 Cum Volume (acre-ft) 8.42 6.50 2.70
C & E Loss (ft) 0.00 Cum SA (acres) 2.06 0.54 0.57

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 301

INPUT
Description: EX. CROSS SECTION 3+01
Station Elevation Data num= 32
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
690.94 342 726.1 340 748.85 338 869.64 338 874.21 336
878.84 334 882.22 332 885.6 330 941.51 328.36 947.11 328
971.44 326.81 980.84 326 988.34 325.54 989.14 324 990.19 323.06
1000 323.01 1011.48 323.01 1011.88 324 1012.61 326 1014.98 326.56
1028.13 326.59 1041.13 326.83 1052.31 328 1053.3 328.18 1056.74 330
1061.62 331.85 1061.97 332 1065.25 334 1068.49 336 1071.77 338
1075.28 340 1078.94 342

Manning's n Values num= 4
Sta n Val Sta n Val Sta n Val Sta n Val
690.94 .013 869.64 .07 980.84 .05 1014.98 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

835 338 849 336 875 334 890 332 896 330.83
898 330 902 327.97 933 327.51 935 328 938 329.05
954.5 330 969.8 328 977.5 326 983.5 324 1000 322.9
1012.07 322.9 1014.27 324 1016.75 326 1019.07 328 1021.7 330
1024.2 332 1027.2 334 1029.76 336 1032.66 338 1033.5 339.71
1033.71 340 1035.21 342 1036.71 344 1039.71 346 1042.21 348
1044.96 350 1050.71 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
637 .07 969.8 .05 1019.07 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
969.8 1019.07 100 75 70 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
637 898 T

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 340.79 Element Left OB Channel Right OB
Vel Head (ft) 0.09 Wt. n-Val. 0.070 0.050 0.070
W.S. Elev (ft) 340.70 Reach Len. (ft) 100.00 75.00 70.00
Crit W.S. (ft) 330.34 Flow Area (sq ft) 874.53 807.90 105.37
E.G. Slope (ft/ft) 0.000235 Area (sq ft) 1940.06 807.90 105.37
Q Total (cfs) 3900.00 Flow (cfs) 1493.64 2302.66 103.70
Top Width (ft) 366.72 Top Width (ft) 302.28 49.27 15.17
Vel Total (ft/s) 2.18 Avg. Vel. (ft/s) 1.71 2.85 0.98
Max Chl Dpth (ft) 17.80 Hydr. Depth (ft) 12.18 16.40 6.95
Conv. Total (cfs) 254513.7 Conv. (cfs) 97474.7 150271.4 6767.6
Length Wtd. (ft) 75.00 Wetted Per. (ft) 72.68 51.60 20.02
Min Ch El (ft) 322.90 Shear (lb/sq ft) 0.18 0.23 0.08
Alpha 1.25 Stream Power (lb/ft s) 0.30 0.65 0.08
Frctn Loss (ft) Cum Volume (acre-ft) 0.45 1.12 0.40
C & E Loss (ft) Cum SA (acres) 0.62 0.22 0.33

CULVERT

RIVER: sugarland run
REACH: main RS: 160

INPUT
Description: W&OD CULVERT

Upstream Elevation = 323.83
Centerline Station = 1000
Downstream Elevation = 323.08
Centerline Station = 1000

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 123

INPUT
Description: EX. CROSS SECTION 1+23
Station Elevation Data num= 39
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
588 354 853 346 857 344 860 342 864 340
867.5 338 871.5 336 874.5 334 877.5 332 882 330
884 328.55 896 326.5 901 326.57 906 327.04 919 328.2
933 330 960 332.27 970 332.27 976 330 982 328
986 326 988 324 991 322.52 1000 322.52 1009 322.52
1013 323.08 1014 324 1017 326 1020 327.75 1024 330
1030 332 1033 334 1034.5 336 1036 338 1041 340
1044 342 1047 344 1049 346 1051 348

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
588 .07 986 .05 1017 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
986 1017 30 30 30 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 332.82 Element Left OB Channel Right OB
Vel Head (ft) 2.19 Wt. n-Val. 0.070 0.050 0.070
W.S. Elev (ft) 330.63 Reach Len. (ft) 30.00 30.00 30.00
Crit W.S. (ft) 330.63 Flow Area (sq ft) 167.46 234.52 18.84
E.G. Slope (ft/ft) 0.014442 Area (sq ft) 167.46 234.52 18.84
Q Total (cfs) 3900.00 Flow (cfs) 741.85 3085.02 73.14
Top Width (ft) 111.39 Top Width (ft) 71.51 31.00 8.88
Vel Total (ft/s) 9.27 Avg. Vel. (ft/s) 4.43 13.15 3.88
Max Chl Dpth (ft) 8.11 Hydr. Depth (ft) 2.34 7.57 2.12
Conv. Total (cfs) 32453.0 Conv. (cfs) 6173.1 25671.3 608.6
Length Wtd. (ft) 30.00 Wetted Per. (ft) 73.41 33.18 10.04
Min Ch El (ft) 322.52 Shear (lb/sq ft) 2.06 6.37 1.69

1025 326 1136 328 1183 330 1208 332 1220 332.3

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
777 .07 983 .05 1025 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
983 1025 0 0 0 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 329.79 Element Left OB Channel Right OB
Vel Head (ft) 0.66 Wt. n-Val. 0.070 0.050 0.070
W.S. Elev (ft) 329.13 Reach Len. (ft)
Crit W.S. (ft) 328.43 Flow Area (sq ft) 287.39 242.43 251.06
E.G. Slope (ft/ft) 0.008000 Area (sq ft) 287.39 242.43 251.06
Q Total (cfs) 3900.00 Flow (cfs) 1166.07 2021.96 711.97
Top Width (ft) 271.25 Top Width (ft) 91.76 42.00 137.49
Vel Total (ft/s) 4.99 Avg. Vel. (ft/s) 4.06 8.34 2.84
Max Chl Dpth (ft) 6.98 Hydr. Depth (ft) 3.13 5.77 1.83
Conv. Total (cfs) 43603.1 Conv. (cfs) 13037.0 22606.1 7960.0
Length Wtd. (ft) Wetted Per. (ft) 91.99 43.62 137.53
Min Ch El (ft) 322.15 Shear (lb/sq ft) 1.56 2.78 0.91
Alpha 1.70 Stream Power (lb/ft s) 6.33 23.15 2.59
Frctn Loss (ft) Cum Volume (acre-ft)
C & E Loss (ft) Cum SA (acres)

SUMMARY OF MANNING'S N VALUES

River:sugarland run

Reach River Sta. n1 n2 n3 n4 n5 n6 n7
n8
2 758 .07 .05 .07
2 640 .07 .05 .07
2 538 .07 .05 .07
2 424 .025 .07 .05 .07
2 215 .013 .025 .07 .05 .07
1 3821 .07 .05 .07 .05 .07

main 712 84 84 84
main 628 197 197 197
main 530 Culvert
main 431 121 121 121
main 301 85 85 85
main 216 18 18 18
main 198 100 75 70
main 160 Culvert
main 123 30 30 30
main 93 91 93 95
main 0 0 0 0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: sugarland run

Reach River Sta. Contr. Expan.
2 758 .1 .3
2 640 .1 .3
2 538 .1 .3
2 424 .1 .3
2 215 .1 .3
1 3821 .1 .3
1 3580 .1 .3
1 3329 .1 .3
1 3195 .1 .3
1 3175 Culvert
1 3080 .1 .3
main 2902 .1 .3
main 2802 .1 .3
main 2693 .1 .3
main 2577 .1 .3
main 2471 .1 .3
main 2365 .1 .3
main 2267 .1 .3
main 1918 .1 .3
main 1712 .1 .3
main 1468 .1 .3
main 1240 .1 .3
main 1045 .1 .3
main 935 Culvert
main 825 .1 .3

conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 2471 Profile: PF 1
Warning:Divided flow computed for this cross-section.
River: sugarland run Reach: main RS: 2365 Profile: PF 1
Warning:Divided flow computed for this cross-section.
River: sugarland run Reach: main RS: 2267 Profile: PF 1
Warning:Divided flow computed for this cross-section.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 935 Profile: PF 1 Culv: Culvert #1
Warning:During the culvert inlet control computations, the program could not balance the culvert/weir flow. The reported
inlet energy grade answer may not be valid.
River: sugarland run Reach: main RS: 825 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: main RS: 530 Profile: PF 1 Culv: Culvert #1
Warning:During the culvert inlet control computations, the program could not balance the culvert/weir flow. The reported
inlet energy grade answer may not be valid.
River: sugarland run Reach: main RS: 530 Profile: PF 1
Warning:The weir over culvert is submerged.
River: sugarland run Reach: main RS: 530 Profile: PF 1 Culv: Culvert #1
Warning:During the culvert inlet control computations, the program could not balance the culvert/weir flow. The reported
inlet energy grade answer may not be valid.
River: sugarland run Reach: main RS: 160 Profile: PF 1 Culv: Culvert #2
Note: The flow in the culvert is entirely supercritical.
River: sugarland run Reach: main RS: 160 Profile: PF 1 Culv: Culvert #1
Warning:Since the culvert has supercritical flow, the program should be run in mixed flow in order to check if the cross
section downstream of the culvert has supercritical flow.
Note: The flow in the culvert is entirely supercritical.
River: sugarland run Reach: main RS: 123 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:Divided flow computed for this cross-section.

980.84 1014.98 85 85 85 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
690.94 837 F

CROSS SECTION OUTPUT Profile #PF 1

E.G. Elev (ft) 340.83 Element Left OB Channel Right OB
Vel Head (ft) 0.04 Wt. n-Val. 0.063 0.050 0.070
W.S. Elev (ft) 340.79 Reach Len. (ft) 85.00 85.00 85.00
Crit W.S. (ft) Flow Area (sq ft) 1375.05 574.67 687.09
E.G. Slope (ft/ft) 0.000137 Area (sq ft) 1667.05 574.67 687.09
Q Total (cfs) 3900.00 Flow (cfs) 1849.34 1229.99 820.67
Top Width (ft) 364.49 Top Width (ft) 268.61 34.14 61.74
Vel Total (ft/s) 1.48 Avg. Vel. (ft/s) 1.34 2.14 1.19
Max Chl Dpth (ft) 17.78 Hydr. Depth (ft) 9.56 16.83 11.13
Conv. Total (cfs) 333610.1 Conv. (cfs) 158194.3 105214.5 70201.4

Length Wtd. (ft) 85.00 Wetted Per. (ft) 145.87 37.58 65.07
Min Ch El (ft) 323.01 Shear (lb/sq ft) 0.08 0.13 0.09
Alpha 1.19 Stream Power (lb/ft s) 0.11 0.28 0.11
Frctn Loss (ft) 0.02 Cum Volume (acre-ft) 4.35 2.55 1.28
C & E Loss (ft) 0.01 Cum SA (acres) 1.31 0.31 0.42

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 216

INPUT
Description: EX. CROSS SECTION 2+16
Station Elevation Data num= 36
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
636 342 684 340 698 338 708 336 784 336
800 338 811 340 823 340 842 340 860 338
880 336 900 334 911 332 916 330.87 951 330
981 328 983 326 985 324 987 322.95 1000 322.95
1011 322.95 1012 324 1014 326 1016 328 1020 330
1024 332 1028 334 1032 336 1036 338 1039 340

Distance from Upstream XS = 20
Deck/Roadway Width = 30
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 8
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
588 354 0 636 354 0 670 352 0
725 350 0 900 350 0 1000 350 0
1030 352 0 1066 354 0

Upstream Bridge Cross Section Data
Station Elevation Data num= 42
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
637 342 684 340 695 338 704 336 725 334
780 334 785 336 799 338 808 340 822 340
835 338 849 336 875 334 890 332 896 330.83
898 330 902 327.97 933 327.51 935 328 938 329.05
954.5 330 969.8 328 977.5 326 983.5 324 1000 322.9
1012.07 322.9 1014.27 324 1016.75 326 1019.07 328 1021.7 330
1024.2 332 1027.2 334 1029.76 336 1032.66 338 1033.5 339.71
1033.71 340 1035.21 342 1036.71 344 1039.71 346 1042.21 348
1044.96 350 1050.71 352

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
637 .07 969.8 .05 1019.07 .07

Bank Sta: Left Right Coeff Contr. Expan.
969.8 1019.07 .1 .3
Ineffective Flow num= 1
Sta L Sta R Elev Permanent
637 898 T

Downstream Deck/Roadway Coordinates
num= 8
Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
588 354 0 636 354 0 670 352 0
725 350 0 900 350 0 1000 350 0
1030 352 0 1066 354 0

Downstream Bridge Cross Section Data
Station Elevation Data num= 39
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
588 354 853 346 857 344 860 342 864 340
867.5 338 871.5 336 874.5 334 877.5 332 882 330

Alpha 1.64 Stream Power (lb/ft s) 9.11 83.84 6.57
Frctn Loss (ft) 0.43 Cum Volume (acre-ft) 0.45 0.83 0.40
C & E Loss (ft) 0.21 Cum SA (acres) 0.19 0.15 0.31

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical
depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross
sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.

CROSS SECTION

RIVER: sugarland run
REACH: main RS: 93

INPUT
Description: EX. CROSS SECTION 0+93
Station Elevation Data num= 16
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
865 334 885 332 895 330 914 328 946 327.9
947 325.96 978 325.37 991 323.32 1000 322.48 1010 324
1017 326 1025 328 1067 329 1170 330 1219 332
1310 334

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
865 .07 947 .05 1017 .07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
947 1017 91 93 95 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

1 3580 .013 .025 .05 .07 .05 .07 .05
.03
1 3329 .025 .013 .025 .07 .05 .07
1 3195 .013 .025 .05 .025
1 3175 Culvert
1 3080 .013 .025 .05 .025
main 2902 .013 .025 .07 .05 .07
main 2802 .013 .025 .07 .05 .07
main 2693 .013 .025 .05 .07
main 2577 .013 .025 .07 .05 .07
main 2471 .013 .025 .07 .05 .07
main 2365 .013 .025 .05 .07
main 2267 .013 .025 .07 .05 .07
main 1918 .013 .025 .07 .05 .07
main 1712 .013 .025 .07 .05 .07
main 1468 .013 .025 .07 .05 .07
main 1240 .013 .025 .07 .05 .07
main 1045 .013 .025 .07 .05 .07
main 935 Culvert
main 825 .07 .013 .07 .05 .07
main 712 .07 .013 .07 .05 .07
main 628 .07 .013 .07 .05 .07
main 530 Culvert
main 431 .013 .07 .05 .07
main 301 .013 .07 .05 .07

main 825 .1 .3
main 712 .1 .3
main 628 .1 .3
main 530 Culvert
main 431 .1 .3
main 301 .1 .3
main 216 .1 .3
main 198 .1 .3
main 160 Culvert
main 123 .1 .3
main 93 .1 .3
main 0 .1 .3

ERRORS WARNINGS AND NOTES
Errors Warnings and Notes for Plan : Plan 02

River: sugarland run Reach: 2 RS: 758 Profile: PF 1
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: 2 RS: 640 Profile: PF 1
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
River: sugarland run Reach: 2 RS: 538 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: sugarland run Reach: 2 RS: 215 Profile: PF 1

Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.
River: sugarland run Reach: main RS: 93 Profile: PF 1
Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
for the water surface and continued on with the calculations.
Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Warning:During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated
water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The
program defaulted to critical depth.

ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS

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REVISIONS

	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER
vv

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY

DISTRICT
TOWN OF HERNDON, VIRGINIA

PROPSED MODEL HEC-RAS OUPUT

DRAWN BY: KMO
DESIGNED BY: KMO
DATE ISSUED: 04-10-2019

DWG. SCALE: N/A
VIKA NO. 6045X
SHEET NO. 10.03

FILE: P:\projects\6045X\6045XCADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 10.01 PROPOSED HEC-RAS.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:20:37 AM LAYOUT: 10.03

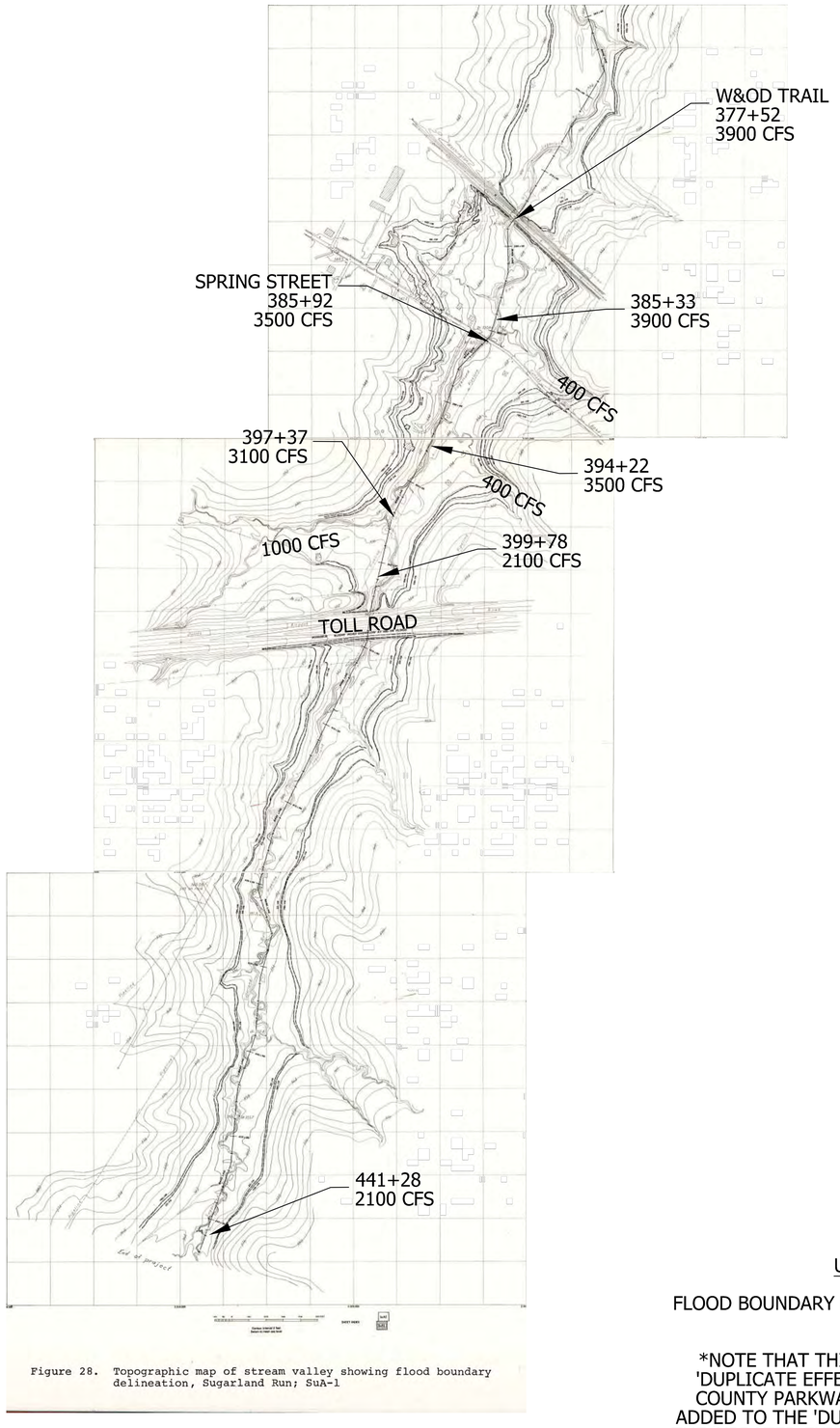

Figure 28. Topographic map of stream valley showing flood boundary delineation, Sugarland Run; SuA-1

SUGARLAND RUN BASIN
Table 5: Water-surface profile data for Sugarland Run - Continued

Section number	Base-line Station (feet)	Impervi-ousness (per cent)	Discharge, in cubic feet per second 25-year[a]	50-year[a]	100-year[a]	Elevation, in feet 25-year[a]	50-year[a]	100-year[a]	Remarks
136	328+58	65	3,300	3,800	4,400	313.8	314.3	314.7	
137	330+92	65	3,300	3,800	4,400	314.7	315.1	315.6	
1137	332+25	65	3,300	3,800	4,400	315.2	315.7	316.2	
138	333+04								Private Dam
1138	333+50	65	3,300	3,800	4,400	316.5	316.6	316.8	
139	336+25	65	3,300	3,800	4,400	316.6	316.8	317.0	
140	339+45	65	3,300	3,800	4,400	317.7	318.1	318.6	
141	343+50	65	3,300	3,800	4,400	318.6	319.0	319.5	
142	346+33	65	3,300	3,800	4,400	319.9	320.3	320.8	
143	348+00	65	3,300	3,800	4,400	320.6	321.0	321.5	
144	348+35								Washington Street (State 606)
145	348+90	65	3,300	3,800	4,400	320.8	321.2	321.6	
146	352+33	70	2,900	3,400	3,900	322.2	322.6	323.0	
147	356+48	70	2,900	3,400	3,900	323.4	323.8	324.3	
148	359+13	70	2,900	3,400	3,900	325.0	325.4	325.8	
149	362+58	70	2,900	3,400	3,900	326.6	327.0	327.4	
150	364+44	70	2,900	3,400	3,900	326.9	327.4	327.8	
151	368+30	70	2,900	3,400	3,900	327.8	328.2	328.6	
152	372+10	70	2,900	3,400	3,900	328.6	329.1	329.5	
153	374+18	70	2,900	3,400	3,900	329.3	329.7	330.1	
154	376+18	70	2,900	3,400	3,900	330.3	330.4	330.8	
155	377+52	70	2,900	3,400	3,900	330.6	331.0	331.4	
156	378+15								Old railroad grade
158	378+92	70	2,900	3,400	3,900	337.3	339.0	340.7	
159	381+50	70	2,900	3,400	3,900	337.3	339.0	340.7	
160	383+60	70	2,900	3,400	3,900	337.3	339.0	340.7	
161	385+33	70	2,900	3,400	3,900	337.4	339.0	340.8	
162	385+63								Spring Street (State 675)

[a] Recurrence interval

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SUGARLAND RUN BASIN
Table 5: Water-surface profile data for Sugarland Run - Continued

Section number	Base-line Station (feet)	Impervi-ousness (per cent)	Discharge, in cubic feet per second 25-year[a]	50-year[a]	100-year[a]	Elevation, in feet 25-year[a]	50-year[a]	100-year[a]	Remarks
163	385+92	75	2,700	3,100	3,500	337.4	339.0	340.8	
164	387+97	75	2,700	3,100	3,500	337.5	339.1	340.8	
165	390+91	75	2,700	3,100	3,500	337.8	339.2	340.8	
166	394+22	75	2,400	2,700	3,100	338.3	339.6	341.0	
167	397+37	75	2,400	2,700	3,100	339.4	340.2	341.4	
	398+00								Herndon-Fairfax County boundary
168	399+78	75	1,600	1,800	2,100	340.3	340.7	341.7	
169	402+28	75	1,600	1,800	2,100	341.1	341.4	342.1	
170	403+70								Dulles Airport access road
172	405+10	75	1,600	1,800	2,100	345.8	347.4	350.1	
173	408+48	75	1,600	1,800	2,100	346.3	347.6	350.1	
174	411+37	75	1,600	1,800	2,100	347.1	348.1	350.3	
175	414+17	75	1,600	1,800	2,100	348.9	349.3	350.7	
176	416+80	75	1,600	1,800	2,100	351.4	351.6	352.1	
177	419+72	75	1,600	1,800	2,100	354.1	354.3	354.5	
178	422+26	75	1,600	1,800	2,100	355.1	355.4	355.6	
179	425+00	75	1,600	1,800	2,100	356.6	356.8	357.1	
180	428+00	75	1,600	1,800	2,100	358.6	358.8	359.0	
181	430+65	75	1,600	1,800	2,100	360.0	360.2	360.4	
182	433+13	75	1,600	1,800	2,100	361.6	361.8	362.0	
183	435+52	75	1,600	1,800	2,100	363.2	363.4	363.6	
184	438+52	65	1,600	1,800	2,100	364.8	365.0	365.3	
185	441+28	75	1,600	1,800	2,100	366.0	366.2	366.4	

[a] Recurrence interval

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USGS OPEN FILE REPORT 78-1028

FLOOD BOUNDARY DELINEATION AND WATER-SURFACE PROFILE DATA FOR SUGARLAND RUN

*NOTE THAT THIS MODEL, WHICH WAS USED TO GENERATE THE 'DUPLICATE EFFECTIVE' MODEL DOES NOT INLCUDE THE FAIRFAX COUNTY PARKWAY ON-RAMP CROSSING. THESE CULVERTS WERE ADDED TO THE 'DUPLICATE EFFECTIVE' MODEL, WHICH THEN BECAME THE 'UPDATED EXISTING CONDITIONS' OR BASELINE EXISTING MODEL.

(SEE SHEET 02.02 FOR HYDROLOGY NARRATIVE)

V 10.01

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

REVISIONS	#	DESCRIPTION	BY	APPROVED

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

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USGS OPEN FILE REPORT 78-1028

DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
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Project Narrative

Sugarland Run at Reston Section 904
Floodplain Analysis and LOMR Request
WSSI #21924.03

Introduction

The Reston Section 904 site is located adjacent to Sugarland Run in the southeast quadrant of the intersection of the Dulles Airport Access Road (Access Road) and the Fairfax County Parkway (Parkway) in Fairfax County, Virginia. Refer to the Vicinity Map provided in TAB 1. The Federal Emergency Management Agency (FEMA) depicts a Zone AE Special Flood Hazard Area (SFHA) adjacent to the site along Sugarland Run on the effective Flood Insurance Rate Map (FIRM), dated September 17, 2010. A copy of the FIRMette is provided in TAB 2. The Zone AE flood limits extend onto the Reston Section 904 site. The upstream limit of the Zone AE extends approximately 1200 feet upstream of the Access Road to a point at which the contributing drainage area is less than 1 square mile (approximately 640 feet downstream of Sunrise Valley Drive).

When Fairfax County Parkway was constructed, Sugarland Run was diverted into a closed storm drain system extending over 2,400 feet from the northeast quadrant of the confluence of the Parkway and Sunrise Valley Drive, travelling beneath the Parkway and outfalling back into the floodplain downstream of the Access Road. The intersection of the Parkway with the Access Road also required entrance and exit ramps between both roadways, resulting in a widening of the Access Road and extension of the culvert system beneath the Access Road further downstream. Although the Parkway is depicted on the effective FIRM, the SFHA floodplain does not reflect the effect of the storm drain system. Therefore, the purpose of this floodplain analysis is to demonstrate the effect of that system beneath the Parkway and the Access Road for the 10-yr, 50-yr, 100-yr and 500-yr flood events and the resulting flooding limits on the subject site.

This floodplain analysis entails modeling the closed storm drain system by performing hydraulic grade line (HGL) calculations utilizing FEMA effective discharges to determine if flow from any of the four (4) flood events analyzed bypasses the system in the form of overland flow. Such overland flow could then be modeled to determine the resulting extent and depth of flooding. However, after calculating the HGL for all four flood events, the results show that the 10-year, 50-year, 100-year and 500-year events are all conveyed entirely by the existing storm drain system. Although these storms submerge the entrance of the system and result in minimal surcharging of some of the connected minor storm drains, the headwater depth and minor storm drain surcharging do not result in overland flow. As a result, a Letter of Map Revision (LOMR) is requested to revise the Zone AE SFHA affecting the Reston Section 904 site. The appropriate MT-2 forms are provided in TAB 3.

Survey Data

Field run survey was performed by Wetland Studies and Solutions, Inc. (WSSI) to obtain detailed information regarding the configuration of the major storm drain system and all hydraulically connected minor storm drain systems up to at least the point in each minor system where surcharge levels from the 100-year event are contained within the system. For the major system, this involved surveying any change in the culvert that would introduce major or minor losses in the system, including manholes, junctions, bends, transitions, changes in pipe sizes, changes in invert slopes and connections with minor drainage systems. For the minor drainage systems, this involved surveying pipe inverts, manhole inverts and rim elevations, junctions, transitions, inlet inverts and connections with the major system. A summary of pertinent survey data describing the profile of the major system is provided in Table 1, included in TAB 4. A list of all the connected minor storm drain components surveyed is provided on sheet 5 of the plan set included in TAB 12. In addition, cross-sections were taken along potential overland flow paths along Parkway in case storm flows were found to bypass the storm drain system and flow overland.

In addition to conducting a field run survey, WSSI obtained certified aerial topography (with a contour interval of 6-inches) for the site and surrounding area.

Existing Conditions

The existing storm drain system begins at its upstream end as four (4) 10-foot wide by 6-foot high reinforced concrete box culverts (RCBCs) at the northeast quadrant of the intersection of the Parkway and Sunrise Valley Drive. Because each of these 4 RCBCs has been analyzed independently, they are referred to as "lines" when discussed independently and as a "system" when referred to collectively. The system extends downstream for a total of nearly 2,400 feet, bending in three locations to remain within the right-of-way of the Parkway and the Access Road. Two of the lines transition from a single RCBC into double 78" circular reinforced concrete pipes (RCPs) and back into an RCBC as those lines run beneath the main travel lanes of the Access Road. So although the system begins and ends as 4 RCBC cells, the system consists of 6 culverts beneath the Access Road (2 RCBCs and 4 RCPs). The combined storm drain system ends as four (4) 10' x 6' RCBCs in the northwest quadrant of the intersection of the Access Road and the Parkway as Sugarland Run outfalls back into an open channel and floodplain. Refer to sheets 3 and 4 of the plan set included in TAB 12 for plan views depicting existing conditions of the vicinity.

The upstream entrance of this system consists of a headwall with beveled top and side walls to each culvert opening. Although the headwall is aligned at a slight 26 degree skew with the road, the inlet pipes are in line with the alignment of Sugarland Run, the inflowing stream. The outfall of this system consists of an endwall connected to a large wingwall along the right bank conforming to the slope of the road embankment. Although some sediment has accumulated at the outfall, the system is not countersunk and the entire cross-sectional area of each culvert is effectively utilized for conveyance.

Upstream of the entrance to these culverts, Sugarland Run is conveyed through an open channel for a length of about 100 feet before its conveyance beneath Sunrise Valley Drive through a set of 4 straight 10' x 6' RCBCs. The upstream limit of this analysis begins at the downstream end of these culverts beneath Sunrise Valley Drive where the contributing drainage area is 0.85 square miles. As the FEMA Zone AE floodplain did not previously extend this far upstream, the upstream end of this analysis, mapping or profile data does not tie back into any FEMA data.

At the downstream end of the system, the revised profiles tie back in to the Effective FEMA profiles at the existing outfall since the revised profiles utilize the effective tailwater elevations. Prior to the construction of the Parkway, the effective study modeled an older system of culverts beneath the Access Road, with cross section AU located at the downstream end of these culverts. Due to an extension of these culverts to allow the construction of an access ramp from the Parkway to the Access Road, the outfall was extended further downstream just past the location of XS AU. Therefore, to tie back into the effective profile at an effective cross-section, the revised profile extends downstream to the next effective cross section, XS AT, located at station 397+38, approximately 230 feet downstream of the existing outfall. The floodplain limits in plan view do not tie out into the FEMA effective flood zones as the Parkway extends several thousand more feet downstream adjacent to Sugarland Run, well beyond the scope of this analysis.

Review of FEMA Effective and Historic Data

The effective Flood Insurance Study (FIS) flood limits and profile data for Sugarland Run originate from a 1971 USGS study. As documented in the Historic FIS for the Town of Herndon, dated February 1979:

> *The hydrologic and hydraulic analyses for this study were prepared by the U.S. Geological Survey for the Federal Insurance Administration, under Inter-Agency Agreement No. IAAA-H-17-75, Project Order No. 14. This work, which was completed in June 1977, covered all significant flooding sources in the Town of Herndon.*
>
> *In 1971, the USGS in cooperation with the County of Fairfax, determined flood profiles and flood boundaries for Fairfax County streams as part of an investigation of the effects of urbanization on flood discharges (Reference 4[1]). Detailed information was developed for the 25-, 50-, and 100-year floods. Also in 1971, the USGS prepared a FIA Type 5 flood plain study for selected streams in Fairfax County (Reference 6[2]). Detailed information was developed for the 10-, 25-, 100-, and 500-year floods.*
>
> *For Sugarland Run through Herndon, profiles for the 10-, 50-, 100-, and 500-year floods were defined in the two studies identified above, however, the 10- and 500-year profiles in the FIA Type 5 study terminated 1,800 feet before reaching the upstream town boundary. A comparison of the results of the present study for Sugarland Run with the results of the Flood Insurance Study for Fairfax County (Reference 4[1]) and the FIA Type 5 study (Reference 6[2]) resulted in profile differences not greater than 0.4 foot. Therefore, the pre-determined flood profiles for all floods for Sugarland Run were adopted for use in this report. However, the 10-, and 500-year elevations for the upstream 1,800 feet (base line station 39,740 to 41,540) were defined by the present study.*

[1] U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Fairfax County, Virginia, Washington, D.C., January 1972.
[2] U.S. Department of Housing and Urban Development, Federal Insurance Administration, Type 5 Flood Plain Study for Selected Streams in Fairfax County, Washington, D.C., October 1971.

The effective FIS dated September 17, 2010 for Fairfax County, Virginia and Incorporated Areas was prepared to include the Town of Herndon. As documented in the effective FIS, effective flood data was based on the same 1977 USGS study utilized for the development of the 1979 Historic FIS for the Town of Herndon. A comparison of the historic 1979 Town of Herndon FIS profile for Sugarland Run (provided in TAB 2) and the effective 2010 Fairfax County FIS profile for Sugarland Run (provided in TAB 2) reveal that the two profiles are identical. This concludes that the effective 2010 FIS utilizes 50- and 100-yr flood data from the 1971 USGS study and 10- and 500-yr flood data from the 1977 USGS study for the area adjacent to Reston Section 904 along Sugarland Run.

A copy of the 1977 USGS Step Backwater Program output and some base map information was available through the FEMA library. A reduced copy of the base map is provided in TAB 5. Although the cross section labels shown on the base map started with the letter B and cross section labels on the historic and effective profiles start with the letter A, it appears the cross section locations and limits of flooding are identical. As such, the baseline from this USGS plan was transposed onto the plan drawings used in this floodplain analysis and used as the baseline.

Effective Discharges

The major storm drain system was analyzed utilizing the discharges published in the effective FIS for Fairfax County, Virginia. From the "Summary of Discharges" table provided in TAB 2, the peak discharges for the 10-year, 50-year, 100-year and 500-year storms are 1,200 cfs, 1,800 cfs, 2,100 cfs, and 2,700 cfs, respectively, at the upstream corporate limits for the Town of Herndon. The upstream corporate limits for the Town of Herndon are located at the downstream side of the Access Road.

Floodplain Analysis and Hydraulic Grade Line Computations

Analysis Overview

The process of analyzing the floodplain begins with performing HGL computations on the existing major storm drain system to determine if a portion of the peak flows from the 100-yr or 500-yr storms bypass the system and, therefore, need to be modeled as overland flow. Although the culverts are hydraulically connected with a 6' wide by 4' high rectangular opening between culverts at station 409+40, each line is significantly different enough to warrant a separate analysis of each line, particularly since two of the 10' x 6' RCBC lines transition to and from 78" RCPs while the other two main lines remain a constant size. The unique configuration of the overall system does not lend itself well to being modeled by HEC-2 or HY-8, thus the

most effective and straightforward way to develop water surface elevations for the overall system is to perform HGL computations by hand for each line and for each storm and project the resulting HGL profiles onto a common baseline to determine a final water surface profile for each storm as the greatest HGL elevations of all the lines. Although the effective USGS Step Backwater computer program output file was obtained for Sugarland Run, it was not utilized in this analysis because the study area is at the upstream end of the effective model and no overland flow was found to exist after performing the HGL computations. This analysis will therefore provide flood information for the 10-, 50-, 100- and 500-year storms that will replace the effective data at the upstream end of the study, extending upstream to station 422+89, and tie into the effective profile at the downstream end, station 397+38, at effective cross-section "AT".

To perform and present the HGL calculations, a spreadsheet was developed based on the Virginia Department of Transportation (VDOT) drainage manual and the Federal Highway Administration (FHWA) Urban Drainage Design Manual, HEC-22. As the results of this analysis shall be utilized to revise not only the 100-yr and 500-yr floodplains depicted on the FEMA FIRM, but also the 10-yr, 50-yr, 100-yr and 500-yr flood profiles depicted on the FEMA FIS profile, the HGL for each of these four flooding events has been determined, each on a separate spreadsheet. Those four spreadsheets are provided in TAB 6.

Tailwater Conditions

Tailwater conditions are checked to determine if the outlet of the system is submerged or free flowing. Flood elevations for each of the analysis storms were obtained from the Effective FIS profiles at the downstream side of the Dulles Airport Access Road, as labeled on the Effective FIS profile. Although the existing outfall at station 399+68 is located further downstream than the centerline of the Access Road as shown on the FIS, Station 403+25, conservative tailwater elevations were taken at the centerline of the Access Road as shown on the FIS profile. Based on the field run survey, the highest outfall elevation of the four cells was found to be 333.17 ft, resulting in a crown elevation of 339.17 feet. A review of the Effective FIS profile results in tailwater elevations for the 10-yr, 50-yr, 100-yr and 500-yr storms of 341.0, 341.5, 342.25 and 344.8, respectively. A comparison of the flood elevations with the crown of the outfall pipes, as summarized in the following table, shows that the outfall for all four storm events is submerged.

TAILWATER CALCULATIONS

	Effective TW Elev* (ft)	Surveyed Crown Elev (ft)	Check for Submergence	TW Depth (ft)	TW Velocity (fps)
10-YEAR	341.00	339.17	YES	6.55	5.49
50-YEAR	341.50	339.17	YES	7.05	5.80
100-YEAR	342.25	339.17	YES	7.80	6.24
500-YEAR	344.80	339.17	YES	10.35	0**

* OBTAINED FROM FEMA EFFECTIVE FIS PROFILES AT DOWNSTREAM END OF DULLES AIRPORT ACCESS ROAD
** FIS PROFILE SHOWS 500-YEAR FLOOD IS BACKWATER AT DOWNSTREAM SIDE OF DULLES AIRPORT ACCESS ROAD

In addition to determining appropriate tailwater elevations, the velocity of the receiving channel is needed to calculate the tailwater velocity head and resulting exit loss at the outfall. Velocities for each flood event in the outfall channel were calculated using FlowMaster to model a representative cross-section using flow depths corresponding to the Effective FIS flood elevations. The resulting tailwater depth and velocities are provided in the table above. FlowMaster summary output files are provided in TAB 7.

Defining the Major Storm Drain System Components for Analysis

Although the four existing culverts start out identical in size, shape and material, there are differences along their longitudinal length that require them to be analyzed independently. Most significantly, the two easternmost culverts each transition from a single 10'x6' RCBC to double 78" round reinforced concrete pipes (RCPs) as they travel beneath the eastbound and westbound lanes of the Access Road. They then transition back to single 10'x6' RCBCs before their outfall downstream of the Access Road. Therefore, in this analysis, each of the 4 culvert lines are analyzed and referred to independently as Line 1, Line 2, Line 3 and Line 4, with Line 1 identified as the westernmost culvert line and Line 4 identified as the easternmost culvert line as depicted on the Existing Conditions drawings, sheets 3 and 4 provided in TAB 12. In each spreadsheet developed for each design storm, the HGL for each culvert line is analyzed separately, with each line separated by a thick black line (rows 11, 22 and 35).

The entire culvert system was built to be hydraulically efficient with smooth transitions and no manholes or junctions. As such, the only minor losses throughout each culvert line, other than entrance and exit losses at the upstream and downstream ends of the system, are due to bends formed in 3 locations. A separate narrative describing the process of calculating minor losses for this system is provided in TAB 9. The major storm drain system, and each line, has therefore been analyzed as 4 pipe segments defined by the 5 points along the system that introduce minor losses. These 5 points are identified as the following:

Point A: the downstream endwall outfall of the system,
Point B: 11.9 degree bend downstream of the eastbound lane of the Access Road,
Point C: 22.7 degree bend upstream of the westbound lane of the Access Road,
Point D: 63.9 degree bend approximately 100 feet from the system entrance, and
Point E: the upstream headwall entrance of the system.

There are several minor storm drain systems that enter the major system, but due to their calculated full flow capacity, they are considered insignificant sources of minor losses, particularly since the time of concentration of these smaller piped systems can reasonably be assumed to be significantly less than the time of concentration for the peak flow of Sugarland Run through the major system. In addition, the FEMA effective discharges for the 10-year, 50-year, 100-year and 500-year storms computed at the downstream end of the system were analyzed throughout the entire system, which would conservatively include the flow from all the minor drainage systems. However, each of these minor systems was surveyed to the extent that they could be analyzed for surcharging effects from the major system. A narrative presenting the evaluation of potential surcharging through the hydraulically connected minor storm drain systems is provided in TAB 10.

General Overview of Hydraulic Grade Line Calculation Worksheet

Calculations of the HGL begin with setting up the HGL worksheet, provided in TAB 6, to identify each pipe line to be analyzed. Each line is then analyzed by identifying sources of major and minor losses and identifying appropriate pipe segments, junctions and features for which those losses are calculated. Friction loss, the major loss in the system, is computed for each pipe segment between junctions or analysis points. Minor losses are then calculated at each junction or analysis point. Minor losses include expansion losses, contraction losses and bend losses. Because this system does not involve any junction boxes or manhole chambers in which expansion or contraction occurs, the only minor losses occur in the form of bend losses at each analysis point and entrance and exit losses at the upstream and downstream end of the system, respectively. A separate narrative describing the process of calculating minor losses for this system is provided in TAB 9.

In this project, as mentioned above, each line is analyzed independently and each line consists of 5 points and 4 culvert segments based on significant changes in the system that introduce losses. Referring to any of the HGL worksheets, the first column identifies the point or culvert segment for which computations are being completed. Points are identified with the line number followed by the point letter. For example, for Line 1, the Structure Numbers for all five analysis points are 1A, 1B, 1C, 1D and 1E. In the spreadsheet, a culvert segment is simply identified by its size and type, but in this report, specific segments may be referred to by its adjoining structure numbers, such as 1A-1B or 1D-1E. In lines 3 and 4, the pipe segment between points B and C transition into two 78" RCPs. Each 78" pipe is analyzed separately with half of the line flow through each pipe.

Tailwater conditions were checked to determine if the outfall of the system was submerged or flowing freely. Downstream tailwater elevations, obtained from the effective FEMA FIS profile, are 241.0 ft, 241.5 ft, 242.25 ft and 244.8 ft for the 10-yr, 50-yr, 100-yr and 500-yr floods. The highest invert of the 4 outfall culvert lines is 333.17, at Line 1, with a corresponding crown of the pipe at 339.17, indicating that the outlet is submerged for all four of the storms analyzed. For a submerged outlet, the tailwater elevation is the starting HGL elevation at a point just downstream of the outfall. That starting HGL elevation is input in the yellow cell in the first row of column #3 for all 4 lines.

The invert elevations for the system are input by starting with the downstream outfall elevation in the first row of column #30. The upstream invert elevation of each point and each line is then input into the yellow cells in successive rows of column #30 to describe the system in the upstream direction. For all box culverts, the culvert width, culvert height and culvert cross-sectional area are input into columns #33, #34 and #35, respectively, in each row containing a culvert segment. For the 78" round culverts, the culvert diameter, constant Pi and culvert cross-sectional area input into columns #33, #34 and #35, respectively. Corresponding rim elevations for each pipe are then automatically calculated based on the culvert height in column #31. Similar to the pipe inverts, the corresponding ground elevations are input into the yellow cells in column #32.

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FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY
DISTRICT
TOWN OF HERNDON, VIRGINIA

SUGARLAND RUN AND RESTON SECTION 904 FLOODPLAIN ANALYSIS - WSSI PROJECT FILE #21924.03

DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	12.01

REVISIONS	#	DESCRIPTION	BY	APPROVED

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

V 10.01

THIS SHEET IS FOR INFORMATION PURPOSES ONLY!!!!

FILE: P:\projects\6045\CAD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 12.01 WSSI REPORT FOR INFO ONLY.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:44:07 AM LAYOUT: 12.01

This system involves three bends, 11.9 degrees, 22.7 degrees and 63.9 degrees at points B, C and D, respectively, for which minor losses are accounted for. In the row of each analysis point, the corresponding bend angle is input into the yellow cell in column #34.

Manning's n-values or roughness coefficients for the culverts are input into the yellow cell for each culvert segment in column #5. Since all pipe segments are concrete, an n-value of 0.013 was utilized for all pipe segments.

The overall system was analyzed utilizing Effective FIS peak discharges at the downstream end of the system for the 10-year, 50-year, 100-year and 500-year flooding events. Assuming equal conveyance through each line, the peak discharge for the analysis of each flooding event is divided by four and input into the most downstream culvert of each line under Q_{design} in column #8. This downstream peak discharge is analyzed through the entire system for a more conservative analysis.

For each culvert segment of each line, the corresponding length of pipe is input into the yellow cell in column #16. The corresponding slope of each pipe segment is calculated in column #7.

Since each line is submerged at the outfall, the HGL analysis begins by checking for pressure flow by calculating losses beginning from the downstream end and progressing upstream. A minor loss occurs at the outfall in the form of an exit loss. Refer to TAB 9 for a separate narrative describing the process of calculating minor losses for this system.

The downstream channel velocity is input into the yellow input cell corresponding to the downstream analysis point (Point A) of each line in column #10. The velocity head, $V_{ch}^2/2g$, for the outfall channel is calculated in the same row in column #14. The exit loss at Point A in each line is calculated in column #19.

Since the outfall is submerged, the velocity in the downstream pipe segment, A-B, is calculated based on full flow velocity conditions using the Continuity Equation as follows:

$Q_{analysis} = V_{full}A_{full}$ or $V_{full} = Q_{analysis} / A_{full}$, where

$Q_{analysis}$ = actual flow analyzed through the culvert (cfs)
V_{full} = full flow velocity (fps)
A_{full} = full cross-sectional area of the pipe segment (sf)

Column #4 displays the full flow cross-sectional area as input in Column #35. The full flow velocity is calculated in column #10 for all pipe segments. The full capacity of the pipe is calculated using Manning's Equation, as follows:

$$Q = (1.486/n)AR^{2/3}S^{1/2}$$

As a convenience, a term called the channel conveyance (K) is calculated in column #6 and is defined as follows:

$$K = (1.486/n)AR^{2/3}$$

Where

n = manning's roughness coefficient for the pipe material (unitless)
A = the full cross-sectional area of the pipe (sf)
R = the full hydraulic radius of the pipe (Area/wetted perimeter)

The capacity of the pipe is then computed in column #9 as:

$$Q_{analysis} = KS^{1/2}$$

When the hydraulic grade line transitions from a pressure flow (submerged) condition to a gravity flow (HGL lower than crown of pipe) condition, the flow can either be sub-critical, in which the normal depth is higher than critical depth, or supercritical, in which the normal depth is less than critical depth. As a more conservative approach in calculating the HGL, when pipe segments are found to transition into gravity flow, the HGL computations shall utilize the greater of either normal depth or critical depth. Normal and critical depth for all pipe segments for each of the four storm events analyzed were computed using FlowMaster and are summarized in Table 2 provided in TAB 8. For all segments of pipes flowing under gravity flow, critical depth is greater than normal depth. Therefore, for those supercritical flow conditions, critical depth was utilized in the HGL computations.

Critical depth, critical flow area and critical velocity of each pipe segment is recorded in columns #11, 12 and 13, respectively. For the 78" round pipes between points B and C in lines, critical flow values are obtained from modeling the pipe segment in FlowMaster using an iterative computational process. For the box culverts, critical depth is calculated using the following formula:

$$d_c = [q^2/g]^{1/3}$$

Where

d_c = critical depth (ft)
q = discharge per ft. of culvert width (cfs)
g = gravitational acceleration, 32.2 ft/s^2

Critical area is computed as the culvert width multiplied by the critical depth. Critical velocity is computed as the analysis discharge divided by the critical area.

Velocity head is calculated for both the full flow velocity and the critical velocity and input into columns #14 and 15, respectively.

The friction slope is recorded in column #17. For pressure flow conditions, the friction slope is computed using Manning's Equation for full flow conditions based on the actual flow through the pipe and the full cross-sectional area and hydraulic radius. For non-pressure flow,

friction losses are calculated based on the actual slope of the pipe segment. Pressure and partial flow conditions are checked at the downstream and upstream ends of each pipe segment and identified in columns #19 through #26 for each line in the spreadsheet associated with a pipe segment. For pipe segments under pressure flow at the downstream end but partial flow at the upstream end, the HGL intersects the crown of the pipe somewhere within that segment and then converts to open channel flow in which the HGL is the greater of normal depth or critical depth within the pipe.

The following form of Manning's Equation is used to calculate the friction slope for pressure flow conditions in the downstream outfall pipe segment:

$$S_f = [(Q\,n) / (1.486AR^{2/3})]^2$$

Or

$$S_f = Q_{analysis} / K$$

The major losses in the system, friction losses, are calculated in column #18 as the product of the friction slope and pipe segment length.

Minor losses may include exit, entrance, transition and bend losses with an increase or decrease factor for surface or shaping practices within manholes and junctions. Minor losses for this system include only an exit loss at the downstream end of the system, an entrance loss at the upstream end of the system, and bend losses at each bend. There are no junctions or manholes where expansion or contraction occur anywhere in the system other than where lines 3 and 4 transition from single box culverts to round culverts and back to box culverts. However, as these transitions are formed as smooth junctions, similar to precast Y- or T-connections, and they include a bend at their junction, only bend losses were calculated to account for minor losses at those transitions, as required for precast Y- or T- connections in the Fairfax County Public Facilities Manual (PFM). Refer to TAB 9 for a separate narrative regarding calculation of minor losses in the system. Minor losses are calculated in columns #19 through #24. A factor of 1.3 may be applied to the total junction loss in column #25 for drop structures in which flow drops into the system from the surface. There are no such junctions in this system. Similarly, a factor of 0.5 may be applied to the total junction loss in column #26 for manholes that have been shaped to minimize flow disturbance. No such manholes are present in this system.

The resulting energy grade line, velocity head and hydraulic grade line elevations at the upstream end of each point or pipe segment are then calculated in columns #27, 28 and 29, respectively. The HGL elevations are highlighted in blue in column #29.

The calculation of the water surface elevation at the upstream end of each line, the headwater elevation, depends on whether the entrance is under inlet or outlet control. When the entrance pipe segment is submerged and under outlet control, the headwater elevation is calculated as an entrance loss added to the energy grade line at the upstream end of the line (and HGL is equal to the EGL minus the velocity head in the pipe). When the entrance pipe is not submerged, the

headwater depth is calculated assuming inlet control using the nomographs from HDS-5[3]. The headwater elevation is the greater of the headwater depth added to the upstream pipe invert or the entrance loss added to the HGL at the upstream end of the line. Headwater depth calculations using HDS-5 nomographs are provided in TAB 7. Headwater depth is input in the worksheet in column #11 in the last row of each pipe line.

Hydraulic Grade Line Computation Results

A plan view of each of the four lines analyzed and the corresponding HGL profiles for the 10-, 50-, 100- and 500-year floods within the study limits are provided on sheets 6-13 of the plan set provided in TAB 12. The baseline and stationing for each line differs from each other due to differences in the overall length of each line. Since the overall goal was to compute the HGL in each line and then project the results onto the overall effective FIS baseline, the stationing for each line is distinguished from the overall FIS baseline stationing by simply starting with station 0+00 at the downstream end of each line. The results of projecting the HGL computed for each line onto an overall system profile along the effective FIS baseline are depicted on the plan and profile sheets for the overall system, provided in TAB 12. The profile view of the overall system depicts the greatest hydraulic grade line elevations of all four lines for each of the storms analyzed.

Based on the survey data of the connecting minor storm drains provided in TAB 4, a comparison of the projected overall HGL of the system for each storm with that of the controlling elevations of each minor system results in some minor pooling in specific areas, but does not result in overland flow. A narrative presenting the evaluation of potential surcharging through the hydraulically connected minor storm drain systems is provided in TAB 10. Areas of shallow flooding from the surcharging of minor storm drain inlets, grates and end sections are depicted on the plan views of the overall system provided on sheets 16 and 17 of TAB 12.

Although this system is not suitable to model in most storm drain analysis programs, a program called Hydraflow Storm Sewers[4] was used to model LINE #1, one of the easier lines to model, for the 100-yr and 500-yr flood events and used as backup computations to help validate the worksheet HGL calculations. The results of the analysis of LINE #1 using the program match the results of the calculations from the worksheet. The summary printouts of these backup computations are provided at the end of TAB 6.

FEMA FIRM and FIS Profile Revisions

Based on the results of the HGL computations and floodplain analysis, the effective FIRM has been annotated to reflect the effects of the existing major storm drain system on the Zone AE SFHA depicted on Sugarland Run within the study limits adjacent to the Reston Section 904 site. In addition, the effective FIS profile has also been annotated to reflect the effects of this analysis. The annotated FIRM and FIS profile are provided in TAB 11.

[3] Hydraulic Design Series Number 5, Federal Highway Administration, Publication No. FHWA-NHI-01-020, September 2001, Revised May 2005
[4] Hydraflow Storm Sewers Extension for AutoCAD Civil 3D, Version 6.066, Autodesk, Inc.,

Summary

The effective FIRM and FIS profile for Sugarland Run depicts flood data based on outdated information. Specifically, the effective flood data reflects topography that pre-dates the development of the Fairfax County Parkway and the major storm drain system that conveys Sugarland Run underneath the Parkway from approximately 100 feet downstream of Sunrise Valley Drive to the downstream side of the Dulles Airport Access Road. This floodplain analysis therefore involves performing hydraulic grade line computations on the major storm drain system to determine its affect on flood flows. As a result, this analysis demonstrates that effective peak flow rates from the 10-, 50-, 100-, and 500-year floods are contained within the storm drain system and do not result in overland flooding, with the exception of minor surcharge pooling for the 500-year flood in some of the hydraulically connected minor storm drain systems.

This LOMR request is based on updated topography and structure data. The appropriate MT-2 forms for this request are provided in TAB 3. The revised FIRM panel and FIS profile are provided in TAB 11. Although the revised flood elevations tie into the effective profiles at the downstream end of the study, the limits of the revised floodplain in plan view do not tie into the effective flood zones at the downstream limit of study. Fairfax County Parkway extends several thousand feet further downstream adjacent to Sugarland Run and such floodplain revisions are well beyond the scope of this project.

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Table 4, "Summary of Discharges"

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
LITTLE HUNTING CREEK TRIBUTARY NO. 1					
At confluence with Little Hunting Creek	1.22	†	†	1,672	†
LONG BRANCH FOURMILE RUN					
At county boundary	1.00	1,220	1,937	2,295	3,600
Approximately 1,000 feet upstream of Fairfax County boundary	0.86	1,116	1,722	2,041	3,210
Approximately 0.49 mile upstream of Fairfax County boundary	0.67	885	1,365	1,618	2,500
Approximately 1,000 feet upstream of State Route 714	0.41	580	922	1,092	1,750
NORTH BRANCH					
At confluence with Little Hunting Creek	4.98	4,039	5,551	6,925	8,700
At State Route 628	2.64	2,539	3,503	4,431	5,520
NORTH FORK DOGUE CREEK					
At confluence with Dogue Creek	4.17	3,176	4,600		
Just upstream of confluence of Tributary 1 to North Fork Dogue Creek	2.12	1,774	2,700	3,129	4,300
Just downstream of Union Farm Road	1.68	1,826	2,580	2,986	2,810
Just downstream of State Route 624	1.08	1,202	1,810	2,208	3,000
Just upstream of State Route 624	0.89	963	1,580	1,904	2,800
Approximately 0.32 mile upstream of State Route 624	0.68	625*	1,024*	1,261*	1,805*
At Woodley Drive	0.46	286	468	618	810
PAUL SPRING BRANCH					
At confluence with North Branch	1.93	2,154	2,960	3,687	4,550
Upstream of Mason Hill Drive	1.27	1,726	2,382	2,948	3,850
Upstream of Paul Spring Road	1.13	1,636	22,668	2,820	3,460
Upstream of University Drive	0.41	894	1,217	1,563	1,950
PIMMIT RUN					
Approximately 500 feet downstream of State Route 694	2.92	2,805	4,455	5,115	7,000
Approximately 600 feet upstream of Dulles Access Road	2.42	1,541	2,447	2,810	3,950
At State Route 7	0.64	1,013	1,609	1,847	2,500
POPES HEAD CREEK	18*	2,400*	4,600*	5,900*	10,000*
SPRING BRANCH					
At confluence with Folly Lick Branch	0.65	570	930	1,140	1,540
At Park Avenue	0.43	380	620	750	1,020
At Willow Street	0.39	340	560	680	930
SUGARLAND RUN					
At confluence with Folly Lick Branch	6.70	3,700	5,500	6,400	8,600
At downstream corporate limit	5.07	3,100	4,800	5,500	7,400
At Spring Street	2.22	2,100	3,100	3,500	4,600
At upstream corporate limits	1.08	1,200	1,800	2,100	2,700

13

VIKA
ENGINEERS PLANNERS SURVEYORS
LANDSCAPE ARCHITECTS GEOMATICS
VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE SUITE 200
TYSONS, VIRGINIA 22102
PHONE: (703) 442-7800
FAX: (703) 761-2787
TYSONS, VA. GERMANTOWN, MD.

REVISIONS	DATE
FIRST SUBMISSION	2019.05.29
SECOND SUBMISSION	2019.05.29
THIRD SUBMISSION	2020.09.28
FOURTH SUBMISSION	2020.10.15

PROFESSIONAL SEAL
COMMONWEALTH OF VIRGINIA
KYLE M. O'CONNOR
Lic. No. 57246
10/16/2020
PROFESSIONAL ENGINEER

FAIRBOOK BUSINESS PARK FLOOD PLAIN STUDY
DISTRICT
TOWN OF HERNDON, VIRGINIA

SUGARLAND RUN AND RESTON SECTION 904 FLOODPLAIN ANALYSIS - WSSI PROJECT FILE #21924.03

DRAWN BY:	KMO
DESIGNED BY:	KMO
DATE ISSUED:	04-10-2019
DWG. SCALE:	N/A
VIKA NO.	6045X
SHEET NO.	12.02

REVISIONS	#	DESCRIPTION	BY	APPROVED

V 10.01

APPROVED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT

THIS SHEET IS FOR INFORMATION PURPOSES ONLY!!!!

FILE: P:\projects\6045\6045X\CADD\ENGINEERING\CONSTRUCTION DRAWINGS\FLOODPLAIN STUDY\6045X - 12.01 WSSI REPORT FOR INFO ONLY.dwg USER: Oconnor DATE: October 15, 2020 TIME: 10:44:39 AM LAYOUT: 12.02

TOWN OF Herndon VIRGINIA

STAFF REPORT

Town Council
November 10, 2020

Title: Resource Protection Area Exception request - RPA #17-01, Fairbrook Park.

Staff Contact: David Stromberg, Zoning Administrator
david.stromberg@herndon-va.gov (703)787-7380

Elizabeth M. Gilleran, AICP, Director of Community Development
lisa.gilleran@herndon-va.gov (703) 787-7380

Summary Information

Applicant Request	An application for an exception to be relieved from the requirements of Sections 78-60.4(j)(2), permitted uses in the Chesapeake Bay Preservation Areas, and Section 78-60.4(m) additional development criteria for Resource Protection Areas.
Address	100, 150, 200 Fairbrook Drive, Fairbrook Business Park
Owner	Fairbrook Business Park Associates, LP., Fairbrook Business Park Associates II LP
Representative	Bob Knopf, Fairbrook Business Park Associates, LP
Agent	Elizabeth Baker, Walsh, Colucci, Lubeley & Walsh, PC
Existing Zoning	O&LI – Landmark Business Option
Overlay Zoning	CBPAO – Chesapeake Bay Preservation Area Overlay district FPO – Floodplain Overlay district
Land Use Designation	Regional Corridor Mixed Use
Adjacent Land Use Designation	North: Regional Corridor Mixed Use South: Regional Corridor Mixed Use East: N/A West: Regional Corridor Mixed Use
Total Site Area	27.5 acres
Existing Use	Office/Vacant
Proposed Use	Office, mixed-use, residential
Related Cases	SE #17-03 (Proposed Development) & SE#19-05 (Floodplain)

Planning Commission Recommendation	APROVAL with conditions
Staff Recommendation	APPROVAL with conditions

Location Map



Site Description

The property lies between the Herndon Parkway to the west and the Fairfax County Parkway and a portion of the Dulles Toll Road to the east. The Sunset Business Park and Hyatt House hotel lie to the north while the site abuts the Herndon Transit Oriented Core to the south.

A significant portion of the property is within the Sugarland Run Stream Valley, which was altered during the construction of the Fairfax County Parkway. The site is impacted by Chesapeake Bay Resource Protection Area (RPA).

RPA is defined as, "*The component of the Chesapeake Bay Preservation Areas CBPA comprised of lands adjacent to water bodies with perennial flow that have an intrinsic water quality value due to the ecological and biological process they perform or are sensitive to impacts which may result in significant degradation to the quality of state waters.*"

Applicants are required to perform a site-specific determination of the RPA boundaries whenever development is proposed in the RPA. The applicant delineated the site in April 2016 and the delineation was confirmed by the U.S. Army Corps of Engineers by issuance of a Jurisdictional Determination issued on September 21, 2016.

Background

Additional background information is contained in the staff report for SE #17-03. This section is focused on information pertinent to the RPA.

On October 9, 2001, the Town Council approved Conditional Use Permit, CU #00-07, to permit construction within the RPA and CU#00-08, to permit construction of three office buildings above the by-right height limit. The term "conditional use permit" was changed to "special exception" during the rewrite of the zoning ordinance in the early 2000s.

CU #00-07 authorized 49,556 square feet (1.14 acres) of encroachment into the RPA. The previously approved encroachment into the RPA is identified on the plan set with orange, triangular hatching. This approval into the RPA remains a valid approval.

Proposed Impact on the Resource Protection Area

Encroachment refers to any proposed activity within the RPA buffer. Not all encroachment is impervious area. Some encroachment areas are used for grading, stormwater management facilities, and revegetation. A breakdown of the approximate acreage of encroachment areas and the proposed impervious areas is shown below.

Encroachment Amounts

	Amount of Encroachment (sheets 4-5)	Amount of Impervious Area (sheets 6-7)
Herndon Parkway Streetscape Improvements (Exempt Activity)	0.49 acres	0.32 acres
Proposed Trail System and Public Sidewalks (Exempt Activity)	1.86 acres	1.01 acres
Stormwater outfalls and stream restoration (Permitted Activity)	0.38 acres	0 acres
Fairbrook Drive on-site (Exempt Activity)	1.96 acres	1.52 acres
(Office) Buildings 1 and 2 Previously Approved by CU #00-07	1.14 acres	1.10 acres
Buildings 1 & 2 (Office on single podium garage)	0.45 acres	0.18 acres
Building 3 (mixed-use along Herndon Parkway)	0.10 acres	0.07 acres
Building 4 (residential)	0.22 acres	0.17 acres
Totals	6.60 acres	4.38 acres

The area highlighted in yellow indicates the encroachment and impervious areas where the zoning ordinance requires that an exception be sought from the town council. All other encroachment amounts are subject to administrative review and evaluation for

compliance with the provisions of Section 78-60.4 (CBPAO) and the Chesapeake Bay Preservation Act.

The Fairbrook Drive extension on the adjacent 5.14 acre parcel currently owned by Herndon I, LLC (Fairfax County Tax Map Number 0173 02 0004A) will result in 2.92 acres of encroachment. Public roads are exempt activities that do not require an exception and the extension is not a part of this exception request. The site has been identified as a potential location for off-site mitigation.

Existing Vegetation Conditions and Proposed Mitigation

The existing vegetation in undeveloped parts of the site primarily consists of forested areas containing medium sized trees, scrub brush, and shrubs. A 100-foot transmission easement area transverses the site and consists mostly of grasses and shrubs.

The applicant is proposing a combination of revegetation plantings and stream restoration in order to improve the overall water quality above the pre-development conditions. The on-site mitigation (shown on Sheets 10-11) includes 0.57 acres of replanting areas in three locations and one area of stream restoration that is approximately 270 linear feet.

The potential off-site mitigation (shown on Sheet 11.A) consists of 1.44 acres of replanting areas in four locations and three areas of stream restoration totaling approximately 480 linear feet on the adjacent parcel identified as Fairfax County Tax Map Number 0173 02 0004A. This parcel is currently owned by Herndon I, LLC and is proffered to be dedicated to the town pursuant to Proffer Condition Amendment PCA #15-101, approved by the Town Council on January 12, 2016, which authorized the construction of a hotel on 232 Sunset Park Drive. If for any reason this site is unable to be utilized for off-site mitigation, the applicant must apply for and receive approval for a new RPA exception request once they exceed the amount of encroachment that can be accommodated on the subject property.

Vegetative replanting is required whenever existing vegetation is removed from the RPA. Each mitigation unit consists of one canopy tree, two understory trees, and three shrubs. When combining the total mitigation on and off site, a minimum of 92 canopy trees, 183 understory trees, and 275 shrubs will be planted within the buffer. All mitigation plantings must be planted in accordance with the Riparian Buffers Modification and Mitigation Guidance Manual, September 2003, as amended.

Staff Analysis

Zoning Ordinance Compliance

Specific uses within the CBPAO are exempt from meeting the development criteria provided they obtain all required state and federal permits and comply with all erosion and sediment control requirements (Section 78-60.4(k)). Passive outdoor recreation areas and public roads (including their appurtenant structures) are designated as exempt. Certain activities, such as clearing for stormwater outfalls, are considered a "permitted" activity in the buffer and must comply with development standards that are reviewed administratively but do not require an exception. Exempt and permitted activities comprise 4.69 acres of the total 6.60 acres of encroachment.

Conditional Use permit CU #00-07 approved the two office buildings and 1.14 acres of encroachment into the buffer. This use permit also has an approved site plan. If desired, the applicant is allowed to begin clearing the buffer to begin construction on the office buildings at any time. The changes to the proposed development in SE #17-03 relate to the buildings north of Fairbrook Drive and are incorporating previous approvals into a new application.

Any proposed encroachment that is not exempt, existing, a water dependent use, or otherwise subject to a development waiver may only be approved through an exception to the general performance criteria of the CBPAO. Exceptions are required to be a public hearing. The area subject to the exception process is 0.77 acres (33,552 square feet). Of that encroachment area, 18,315 square feet will be impervious. The rest will be pervious area. The new impervious area that is subject to the exception is identified on Sheets 4-7 with red hatching. The areas consist of a portion of the private drive that connects Fairbrook Drive to the office buildings (buildings 1 and 2), the private frontage of the mixed-use building (building 3), and the private frontage and turn-around/drop-off area for the residential building (building 4).

In the Town of Herndon, all areas outside of the Resource Protection Area and Intensely Developed Area are designated as Resource Management Areas (RMA). This includes areas on this site that are outside of the RPA. All development within RMAs must comply with state stormwater management requirements and are encouraged to meet these requirements with Low Impact Design (LID) solutions such as rainwater harvesting, green roofs, and other bioretention facilities. The concept plan for the stormwater solutions are shown on Sheet 13. Full stormwater engineering will occur at during review of the administrative site plan.

RPA Impact

The applicant is proposing multiple stream restoration improvements to Sugarland Run. Sections of the existing stream channel are highly eroded which means that water flows

more quickly through the channel and fewer pollutants are removed from the channel. The applicant is proposing to restore the stream channel in four locations as identified on Sheets 10-11 and 11.A. The restoration will include re-sizing the cross channel, installing in-stream structures to provide grade control, installing ponding areas for the creation of new wetlands, and installing native, woody vegetation along the banks to increase soil stabilization.

The applicant's mitigation plan for stream restoration and revegetating the 100-foot RPA buffer should result in pollutant removal from the immediate Sugarland Run stream area that is an improvement compared to existing conditions.

Analysis of Conditions

Staff is recommending conditions to ensure that the proposed mitigation plan is followed and establishes a cohesive ecosystem when final engineering is completed at every phase of the development.

The applicant will be installing the mitigation in phases as each site plan for each building and associated improvements are approved. The applicant has enough room to mitigate on-site for buildings 1 and 2 or for buildings 3 and 4. The only way to accommodate the mitigation for encroachment of all four buildings is with the off-site mitigation. The conditions ensure the location and amount of off-site mitigation on the adjacent parcel that will be dedicated to the town. If the applicant is unable to install mitigation on the adjacent parcel for any reason, they are required to seek another RPA exception prior to any site plan approvals for the final two buildings.

Town Council Alternatives

The Town Council has the following alternatives available for its decision on this case:

- Approve RPA #17-01 as submitted by the applicant (with no conditions)
- Approve RPA #17-01 with conditions in accordance with the draft resolution (Attachment #1)
- Approve RPA #17-01 with certain revisions to the draft resolution provided
- Deny RPA #17-01

The Town Council may also opt to continue the public hearing to a future Town Council meeting if the Council believes their review requires additional time.

Planning Commission Recommendation and Comments

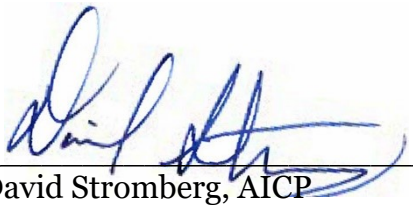
The Planning Commission recommended approval of RPA #17-01 in accordance with the resolution dated October 26, 2020.

Staff Recommendation

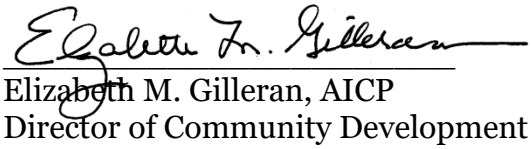
Staff is recommending approval of RPA #17-01 in accordance with the draft resolution dated November 17, 2020 and provided as Attachment #1 to this report.

Attachments

1. Draft Town Council Resolution
2. Approved Planning Commission Resolution – Dated October 26, 2020
3. Recommended Development Conditions – Dated November 17, 2020
4. Water Quality Impact Assessment and RPA Exception Request submitted by Wetland Studies and Solutions Inc. and sealed November 2, 2020.
5. Army Corps of Engineers Jurisdictional Determination



David Stromberg, AICP
Zoning Administrator



Elizabeth M. Gilleran, AICP
Director of Community Development

TOWN OF HERNDON, VIRGINIA

TOWN COUNCIL

DRAFT RESOLUTION

November 17, 2020

Resolution- to approve with conditions Resource Protection Area Exception request RPA #17-01, allowing an exception to the requirements of the Chesapeake Bay Preservation Overlay district to allow a mixed-use development.

WHEREAS, the applicant, Fairbrook Business Parks Associates and LP and Fairbrook Business Parks Associates II, LP, has submitted an associated application, special exception SE #17-03, to permit a mixed-use development consisting of residential, office and retail square footage not to exceed 1,515,000 total square feet or a maximum of 1.25 FAR, with a residential to office percentage not to exceed 60 percent residential at total build out on property located at 100, 150, 200 Fairbrook Drive, Fairbrook Business Park and identified as Fairfax County Tax Map Reference Numbers: 0164-10-0005A, 0164-25-H, 0164-25-O in accordance with the plan dated October 16, 2020; and

WHEREAS, the development at full build-out would result in 6.60 acres of total encroachment into the RPA; of which, 4.31 acres are exempted activity, 0.38 acres are permitted activity, 1.14 acres are previously approved, and 0.77 acres are subject to an exception; and

WHEREAS, the applicant has proposed a mitigation plan consisting of stream restoration and vegetative plantings that will ultimately improve the health of the buffer and quality of the water beyond pre-development conditions; and

WHEREAS a portion of the required mitigation is shown on the adjacent parcel identified as 0173-02-0004A1 and the applicant shall be required to seek a new RPA exception should they be unable to install the mitigation on adjacent parcel 0173-02-0004A1; and

WHEREAS, the Planning Commission has found that the exception request, with the conditions dated October 26, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-60.4 (Chesapeake Bay Preservation Area Overlay) including the allowances and criteria found therein; and

WHEREAS, the Town Council has reviewed this application and has held a public hearing on November 17, 2020 in accordance with the provisions of §15.2-2204 of the State Code; and

WHEREAS, the Town council has found that the proposed development, with the conditions dated November 10, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-60.4 (Chesapeake Bay Preservation Area Overlay) including the allowances and criteria found therein; and

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Herndon, Virginia, hereby approves Resource Protection Area Exception RPA #17-01, in accordance with the conditions set forth below to achieve compliance with the standards found in Section 78-60.4.

[INSERT CONDITIONS]

TOWN OF HERNDON, VIRGINIA

PLANNING COMMISSION

DRAFT RESOLUTION

October 26, 2020

Resolution- to recommend approval with conditions of Resource Protection Area Exception request RPA #17-01, to the Town Council allowing an exception to the requirements of the Chesapeake Bay Preservation Overlay district to allow a mixed-use development.

WHEREAS, the applicant, Fairbrook Business Parks Associates and LP and Fairbrook Business Parks Associates II, LP, has submitted an associated application, special exception SE #17-03, to permit a mixed-use development consisting of residential, office and retail square footage not to exceed 1,515,000 total square feet or a maximum of 1.25 FAR, with a residential to office percentage not to exceed 60 percent residential at total build out on property located at 100, 150, 200 Fairbrook Drive, Fairbrook Business Park and identified as Fairfax County Tax Map Reference Numbers: 0164-10-0005A, 0164-25-H, 0164-25-O in accordance with the plan dated October 16, 2020; and

WHEREAS, the development at full build-out would result in 6.60 acres of total encroachment into the RPA; of which, 4.31 acres are exempted activity, 0.38 acres are permitted activity, 1.14 acres are previously approved, and 0.77 acres are subject to an exception; and

WHEREAS, the applicant has proposed a mitigation plan consisting of stream restoration and vegetative plantings that will ultimately improve the health of the buffer and quality of the water beyond pre-development conditions; and

WHEREAS a portion of the required mitigation is shown on the adjacent parcel identified as 0173-02-0004A1 and the applicant shall be required to seek a new RPA exception should they be unable to install the mitigation on adjacent parcel 0173-02-0004A1; and

WHEREAS, the Planning Commission has reviewed this application and has held a public hearing on October 26, 2020 in accordance with the provisions of §15.2-2204 of the State Code; and

WHEREAS, the Planning Commission finds that the proposed development, with the conditions dated October 26, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-60.4 Chesapeake Bay Preservation Overlay district, including the allowances and criteria found therein; and

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of the Town of Herndon, Virginia, hereby recommends that the Town Council approved Resource Protection Area Exception RPA #17-01, in accordance with the conditions set forth below to achieve compliance with the standards found in Section 78-155.3 and Section 78-60.4.

DRAFT Conditions of Approval
Resource Protection Area Exception RPA #17-01, 100, 150, 200 Fairbrook Drive, Fairbrook Business Park

1. Substantial Conformance. The development of the Chesapeake Bay Resource Protection Area ("**RPA**")described in Condition 2 and 3 below shall be in substantial conformance with Sheets 1-18 of the plan entitled "Fairbrook Water Quality Impact Assessment & Resource Protection Area Exception Request" sealed on November 2, 2020, prepared by Wetland Studies and Solutions, Inc. (the "**Plan**"), incorporated by reference and the Town of Herndon Zoning Ordinance (the "**Zoning Ordinance**"). Approval of this application for the approximately 4.60-acre parcel identified as Fairfax County Tax Map Reference Number 0164-10-0005A, the 2.52-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-H, and the 20.44-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-O. (the "**Property**") shall not relieve the applicant or the owners of the Property their successors or parties developing, establishing or operating the approved Special Exception use (the "**Applican**t") from the obligation to comply with and conform to an Zoning Ordinance, the Town of Herndon Codified Ordinance or regulatory Requirement.

2. Use Permitted. This RPA Exception grants approval to permit development within the CBPAO, Chesapeake Bay Preservation Area Overlay district pursuant to Section 78-60.4 of the Zoning Ordinance.

3. Development. Development within the Resource Protection Area on the Property includes constructing a portion of Fairbrook Drive, outdoor recreation facilities, private streets and drive aisles, installing infrastructure, and associated grading within the RPA.

4. RPA Enhancement and Revegetation. Prior to the approval of any site plan for development on the Property that encroaches into the RPA, the applicant shall

incorporate mitigation associated with the encroachment for each phase of development as shown on Sheets 4-5 of the Plan. If the amount of encroachment not otherwise exempt, permitted, or previously authorized, as shown on Sheet 5 of the plan, exceeds the amount of stream restoration and planting mitigation that can be accommodated on site, as shown on Sheet 10-11 of the plan, then no other site plans for new development shall be approved unless one of the following conditions (a or b) occurs:

a. The area on the property currently identified as Fairfax County Tax Map Reference Number 0173-02-0004A1 has been dedicated to the Town of Herndon pursuant to Proffer Condition Amendment PCA #15-101 and Ordinance 16-O-01, duly adopted by the Town Council of the Town of Herndon on January 12, 2016; and,
    i. The three areas of stream restoration are installed as shown on Sheet 11.A of the plan submission sealed on October 19, 2020; and,
    ii. A minimum of 30 mitigation units are installed in areas identified as Planting Area 4, 5, 6, and 7, as shown on Sheet 11.A of the plan submission sealed on October 19, 2020.

b. A revised exception for encroachment into the RPA proposing alternate mitigation is submitted to the town.

This is certified to be a true and accurate copy of the resolution above, with conditions for RPA#17-01 adopted at a legally convened meeting of the Planning Commission of the Town of Herndon on October 26, 2020.

Erika Orellana

Erika Orellana, Clerk of the Boards & Commissions

Draft Conditions

Resource Protection Area Exception RPA #17-01, 100, 150, 200 Fairbrook Drive, Fairbrook Business Park

Town Council Public Hearing

November 17, 2020

1. Substantial Conformance. The development of the Chesapeake Bay Resource Protection Area ("**RPA**")described in Condition 2 and 3 below shall be in substantial conformance with Sheets 1-18 of the plan entitled "Fairbrook Water Quality Impact Assessment & Resource Protection Area Exception Request" sealed on November 2, 2020, prepared by Wetland Studies and Solutions, Inc. (the "**Plan**"), incorporated by reference and the Town of Herndon Zoning Ordinance (the "**Zoning Ordinance**"). Approval of this application for the approximately 4.60-acre parcel identified as Fairfax County Tax Map Reference Number 0164-10-0005A, the 2.52-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-H, and the 20.44-acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-O. (the "**Property**") shall not relieve the applicant or the owners of the Property their successors or parties developing, establishing or operating the approved Special Exception use (the "**Applican**t") from the obligation to comply with and conform to an Zoning Ordinance, the Town of Herndon Codified Ordinance or regulatory Requirement.

2. Use Permitted. This RPA Exception grants approval to permit development within the CBPAO, Chesapeake Bay Preservation Area Overlay district pursuant to Section 78-60.4 of the Zoning Ordinance.

3. Development. Development within the Resource Protection Area on the Property includes constructing a portion of Fairbrook Drive, outdoor recreation facilities, private streets and drive aisles, installing infrastructure, and associated grading within the RPA.

4. RPA Enhancement and Revegetation. Prior to the approval of any site plan for development on the Property that encroaches into the RPA, the applicant shall incorporate mitigation associated with the encroachment for each phase of development as shown on Sheets 4-5 of the Plan. If the amount of encroachment not otherwise exempt, permitted, or previously authorized, as shown on Sheet 5 of the plan, exceeds the amount of stream restoration and planting mitigation that can be accommodated on site, as shown on Sheet 10-11 of the plan, then no other site plans for new development shall be approved unless one of the following conditions (a or b) occurs:
   a. The area on the property currently identified as Fairfax County Tax Map Reference Number 0173-02-0004A1 has been dedicated to the Town of Herndon pursuant to

Proffer Condition Amendment PCA #15-101 and Ordinance 16-O-01, duly adopted by the Town Council of the Town of Herndon on January 12, 2016; and,

i. The three areas of stream restoration are installed as shown on Sheet 11.A of the plan submission sealed on October 19, 2020; and,
ii. A minimum of 30 mitigation units are installed in areas identified as Planting Area 4, 5, 6, and 7, as shown on Sheet 11.A of the plan submission sealed on October 19, 2020.

b. A revised exception for encroachment into the RPA proposing alternate mitigation is submitted to the town.

FAIRBROOK
WATER QUALITY IMPACT ASSESSMENT & RESOURCE PROTECTION AREA EXCEPTION REQUEST

TOWN OF HERNDON, VIRGINIA

APPLICANT:
FAIRBROOK BUSINESS PARK ASSOCIATES, LP
FAIRBROOK BUSINESS PARK ASSOCIATES II, LP
1001 G STREET NW, SUITE 900
WASHINGTON, DC 20001
BOB KNOPF
(202) 393-1999

LAND USE ATTORNEY:
WALSH, COLUCCI, LUBELEY, & WALSH, P.C.
2200 CLARENDON BLVD, SUITE 1300
ARLINGTON, VIRGINIA 22201
ELIZABETH D. BAKER
(703) 528-4700

ARCHITECT:
DCS DESIGN - DAVIS, CARTER, SCOTT LTD
8614 WESTWOOD CENTER DRIVE, SUITE 800
TYSONS, VIRGINIA 22182
DOUG CARTER, AIA
JASNA BEJELIC, LEED AP BC+C
(703) 556-9275

ENGINEER:
VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE, SUITE 200
TYSONS, VIRGINIA 22102
ROBERT COCHRAN L.S.
(703) 442-7800

LANDSCAPE ARCHITECT:
VIKA VIRGINIA, LLC
8180 GREENSBORO DRIVE, SUITE 200
TYSONS, VIRGINIA 22102
JEFF KREPS, PLA/ASLA
(703) 442-7800

TRANSPORTATION:
WELLS + ASSOCIATES, INC.
1420 SPRING HILL ROAD, SUITE 610
TYSONS, VIRGINIA 22102
MICHAEL J. WORKOSKY, PTP, TOPS, TSOS
(703) 917-6620

Vicinity Map
SCALE: 1" = 2,000'



Copyright ADC The Map People
Permitted Use Number 20711184

Vicinity Map
Fairbrook Business Park and Offsite Study Area
WSSI #4674.06
Original Scale: 1" = 2000'



0 2,000 Feet

Wetland Studies and Solutions, Inc.
a DAVEY company

SHEET INDEX

1	COVER SHEET
2-3	EXISTING CONDITIONS PLAN
4-5	PROPOSED RPA ENCROACHMENT PLAN
6-7	PROPOSED IMPERVIOUS CONDITIONS PLAN
8-9	VEGETATION ASSESSMENT
10-11	RPA ENHANCEMENT PLAN
11.A	POTENTIAL OFF-SITE MITIGATION LOCATIONS
12	PROPOSED REVEGETATION PLANTING SCHEDULE
13-16	STORMWATER MANAGEMENT INFORMATION
17	WATER QUALITY IMPACT ASSESSMENT NARRATIVE
18	RESOURCE PROTECTION AREA EXCEPTION REQUEST

Resource Protection Area (RPA) Map
SCALE: 1" = 500'

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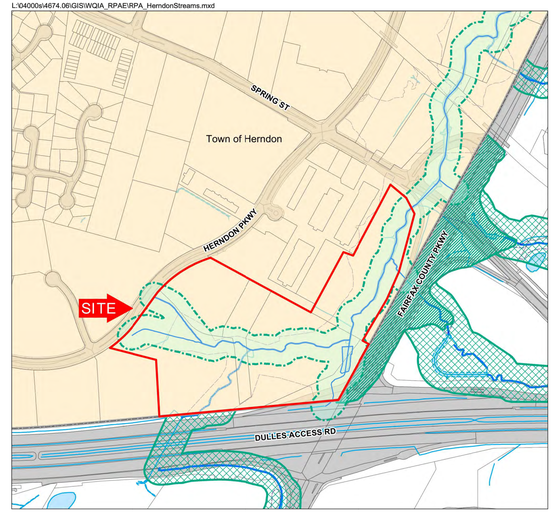

Fairfax County
- RPA 1993
- RPA 2003
- RPA 2005
- Pipes
- Perennial Stream
- Non-perennial Streams
- Ditch
- Waterbody
- Fairfax County Parcels
- Fairfax County Floodplains

Resource Protection Area (RPA) Map
Fairfax County and
Town of Herndon Digital Data
Fairbrook Business Park and Offsite Study Area
WSSI #4674.06
Original Scale: 1" = 500'

Town of Herndon
- RPA
- Perennial Streams
- Non-perennial Streams
- Town of Herndon

0 500 Feet

Wetland Studies and Solutions, Inc.
a DAVEY company

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5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlandstudies.com

Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Cover Sheet

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COMMONWEALTH OF VIRGINIA
JOHN T. KELLEY, JR
Lic. No. 035786
11/2/2020
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: JUNE 2020
SCALE: N/A

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 1929
Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	RPC	JTK

Sheet #
1 of 18

Computer File Name:
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LEGEND

- SITE BOUNDARY
- PERENNIAL STREAM (R3) (PER WSSI'S OBSERVATIONS)
- INTERMITTENT STREAM (R4) (PER WSSI'S OBSERVATIONS)
- JURISDICTIONAL WETLANDS (PER WSSI'S OBSERVATIONS)
- FIELD VERIFIED RESOURCE PROTECTION AREA
- RPA — TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA
- EXISTING ONSITE IMPERVIOUS AREA WITHIN RPA
- FEMA-2010 — EFFECTIVE 100-YEAR FEMA FLOODPLAIN
- RPA CUTOFF
- LIMITS OF DISTURBANCE

50 25 0 50 100 150
SCALE: 1"=50'

SCALE: 1"=50'

N/F
FP VAN BUREN, LLC
(DB 18059 PG 225)
TM# 016-4 ((10)) 001B
ZONE : O & LI
USE: LOW RISE OFFICE

N/F
HERNDON SUITES, LLC
(DB 9021 PG 1525)
TM# 016-4 ((02)) 0015
ZONE: O & LI
USE: HOTEL
WITHOUT RESTAURANT
& OTHER COMM

SUNSET PARK DR.

SUNSET BUSINESS PARK II
ZONE: PD-b
USE: WHOLESALE, WAREHOUSING
AND STORAGE

N/F
PROPERTY OF
FAIRBROOK BUSINESS
PARK ASSOCIATES II, LP
(DB 20742, PG 1375)
LOT 5A
PARKWAY TRADE CENTER
(DB 9357, PG 582)
(DB 18956, PG 1230)
(DB 19759, PG 1183)
(200,580 SQ. FT. OR 4.60468 AC.)

FAIRBROOK LAND
CONDOMINIUM
LAND UNIT "O"
ELEV 355.60' & ABOVE
LAND UNIT "H"
BELOW ELEV 355.60'
DB 20145 PG 1285
(10,965 SQ. FT. OR
.25172 ACRES)

LIMITS OF
DISTURBANCE

FAIRBROOK
LAND CONDOMINIUM
LAND UNIT "H"
DB 20145 PG 1285
(109,771 SQ. FT. OR
2.52000 ACRES)

N/F
HERNDON 1, LLC
(DB 23620 PG 252)
TM# 017-3 ((02)) 0004A
ZONE: O & LI
USE: VACANT LAND

HERNDON PARKWAY
(80' WIDE PUBLIC RIGHT OF WAY)

FAIRBROOK DRIVE

FIELD-VERIFIED RPA

TOWN OF HERNDON RPA (2004)

100'

R3

PFO

PEM

PSS

RPA

FEMA - 2010

MATCHLINE SEE SHEET 3

N/F
CMP I HERNDON OWNER, LLC
(DB 23826 PG 522)
TM# 016-4 ((10)) 0004
ZONE: O & LI
USE: PD-T (PLANNED DEV-TRANSIT)

EXISTING STREAM WAS IDENTIFIED AS PERENNIAL THROUGH FIELD INVESTIGATION BUT NOT INCLUDED AS AN RPA COMPONENT IN THE 2014 HERNDON RPA MAP.

FAIRBROOK LAND CONDOMINIUM
LAND UNIT "O"
(DB 20145 PG 1285)
(890,390 SQ. FT.
OR 20.44054 ACRES)

DULLES TOLL ROAD — RTE 267

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Gainesville, Virginia 20155
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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Existing Conditions Plan

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10/19/2020
PROFESSIONAL ENGINEER

REVISIONS				
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SCALE: 1" = 50'
DATE: JUNE 2020

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 1929
Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	APE	JTK

Sheet # 2 of 18

Computer File Name:
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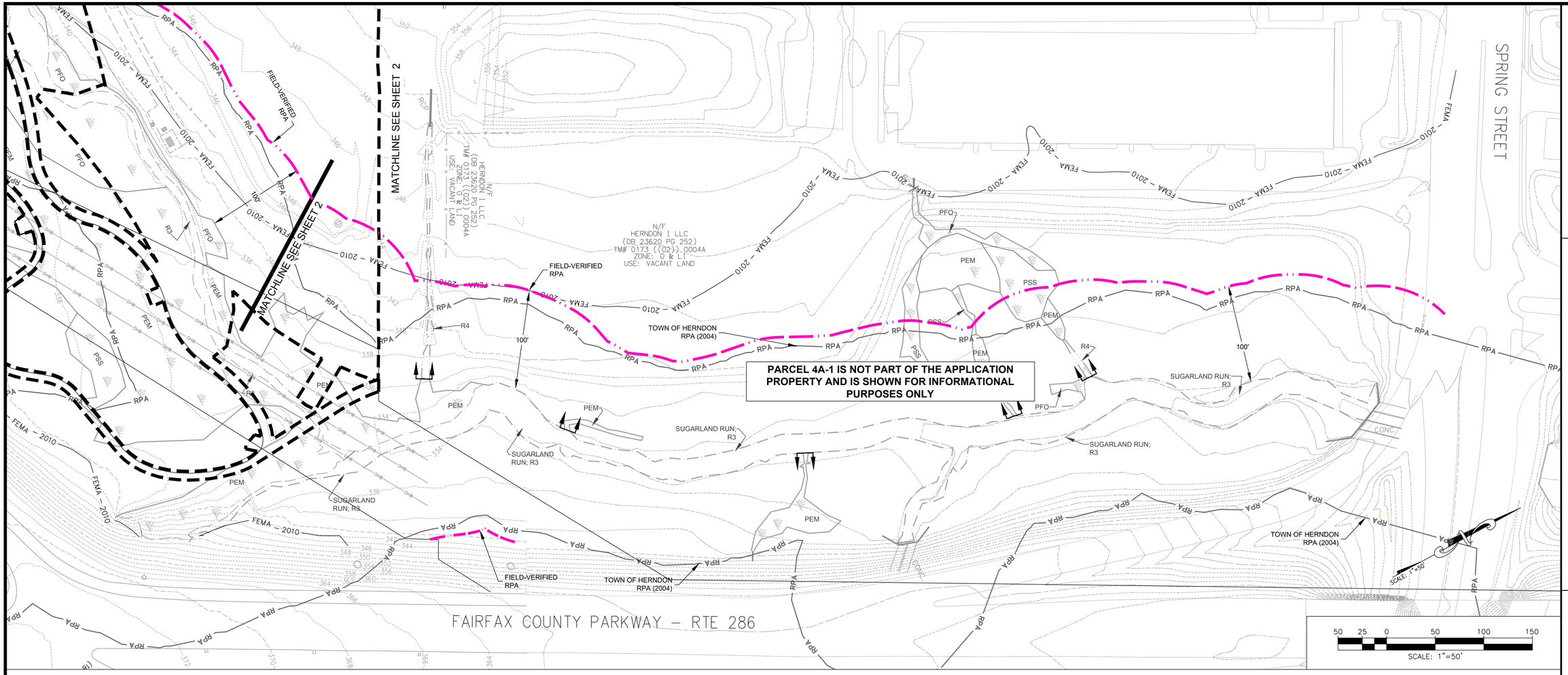

LEGEND

- SITE BOUNDARY
- PERENNIAL STREAM (R3) (PER WSSI'S OBSERVATIONS)
- INTERMITTENT STREAM (R4) (PER WSSI'S OBSERVATIONS)
- JURISDICTIONAL WETLANDS (PER WSSI'S OBSERVATIONS)
- RPA CUTOFF
- FIELD VERIFIED RESOURCE PROTECTION AREA
- TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA
- EXISTING ONSITE IMPERVIOUS AREA WITHIN RPA
- EFFECTIVE 100-YEAR FEMA FLOODPLAIN
- LIMITS OF DISTURBANCE

EXISTING SITE CONDITIONS:

TOTAL RESOURCE PROTECTION AREA WITHIN PARCEL AREA:
716,771 SF (±16.45 ACRES)

TOTAL RESOURCE PROTECTION AREA WITHIN LIMITS OF DISTURBANCE:
287,505 SF (±6.60 ACRES)

TOTAL EX. IMPERVIOUS AREA WITHIN LIMITS OF DISTURBANCE:
38,812 SF (±0.89 ACRES)

GENERAL NOTES

1. The subject property area is 1,200,742 square feet (27.57 acres).

2. Boundary information and topography (2-foot contour intervals) obtained from VIKA Virginia, LLC was used as a base for this attachment. This information is based in the NAD 83 horizontal coordinate system and referenced to the NGVD 29 vertical datum.

3. A waters of the U.S. (including wetlands) delineation was conducted within the study area by Wetland Studies and Solutions, Inc. (WSSI), as described in the May 31, 2016 report entitled, "Waters of the U.S. (Including Wetlands) Delineation and Resource Protection Area Evaluation, Fairbrook Business Park and Off-site Study Area". The U.S. Army Corps of Engineers (COE) issued a jurisdictional determination (JD) verifying the delineated boundaries of these waters of the U.S on September 21, 2016 (NAO-2016-01643).

4. The Town of Herndon Mapped RPA was based on data from the perennial stream mapping project conducted by the Fairfax County DPWES (section 78-304.4(d)(4)) and was digitized by WSSI from the February 10, 2004 Town of Herndon RPA map.

5. RPAs are defined in section 78-304.4(d)(1) of the Town of Herndon Ordinance:

(1) The RPA shall consist of:
(a) Nontidal wetlands connected by surface flow and contiguous to water bodies with perennial flow; and
(b) A buffer area not less than 100 feet in width that is (a) along each side of any water body with perennial flow and (b) located adjacent to and landward of nontidal wetlands as described in a. above;
(c) The full buffer area shall be designated as the landward component of the RPA notwithstanding the presence of permitted uses, encroachments, and permitted vegetation clearing in compliance with sections 78-304.4(g), 78-304.4(i) and 78-304.4(j); and
(d) The buffer is to be measured from the top of bank or ordinary high water mark landward 100 feet.

6. A water body with perennial flow is defined in section 78-701 of the Town of Herndon Ordinance:

"Water body with perennial flow" means a body of water flowing in a natural or man-made channel year-round, except during periods of drought. The term 'water body with perennial flow' includes perennial streams, estuaries, and tidal embayments. A perennial stream means any stream that is both perennial and so depicted on the map of Chesapeake Bay Preservation Areas adopted by the Town Council. Lakes and ponds that form the source of a perennial stream, or through which the perennial stream flows, are a part of the perennial stream. The width of the perennial stream may be measured from either (i) top-of-bank to top-of-bank on the opposite side of the stream or (ii) from the Ordinary High Water Mark (OHWM) to the OHWM on the opposite side of the stream, as defined by 33 CFR Part 328.3(e), as determined by the zoning administrator. Ponds or lakes are to be measured from the limits of the normal water level. Generally, the water table is located above the streambed for most of the year and the groundwater is the primary source for stream flow.

7. A 100-foot buffer, landward of RPA core components, governs the location of the RPA. Six (6) perennial streams (Sugarland Run and five (5) unnamed tributaries to Sugarland Run) and four (4) intermittent streams are present within the study area. Additionally, non-tidal wetlands connected by surface flow and contiguous to the perennial streams are present on the study area. Therefore, the limits of the RPA on this study area are governed by the 100-foot buffer extending landward from the OHWM of the perennial stream and any wetlands contiguous and connected by surface flow to these streams.

8. The flow regime of the streams within the study area (Sugarland Run and unnamed tributaries to Sugarland Run) were determined based on the 2004 Town of Herndon RPA map, 2003 Fairfax County RPA map, and by field investigation. Stream evaluation methods developed by the North Carolina Division of Water Quality (NCDWQ) and the Fairfax County Department of Public Works and Environmental Services (DPWES) were used in the field to distinguish between ephemeral and intermittent streams (based on the NCDWQ method) and between intermittent and perennial streams (based on both methods). These methods were used to characterize representative reaches of the streams on the study area. Based on field observations, six (6) perennial streams and four (4) intermittent streams are present within the study area.

Stream assessment field work was performed on April 25 and 26, 2016 by Jennifer D. Feese, PWS, PWD, CT, Lauren Shaffer, PWD, WPIT, CT and Neil Gutherman. These results are described in WSSI's May 2016 wetland delineation report.

9. Six (6) RPA cutoffs were identified in the field; four (4) at the point where intermittent streams flow into perennial streams and two (2) at narrow vegetated swales (non-perennial conveyances). Narrow linear wetlands contiguous and connected by surface flow to a perennial waterbody are not generally considered a component of the RPA pursuant to the Chesapeake Bay Local Assistance Department June 18, 2007 (revised December 10, 2007) "Resource Protection Areas: Non-tidal Wetlands, Guidance on the Chesapeake Bay Preservation Area Designation and Management Regulations."

10. The remainder of this subject property is designated as a Resource Management Area (RMA), as are all areas of the Town not included as an RPA.

Wetland Studies and Solutions, Inc.
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Gainesville, Virginia 20155
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www.wetlandstudies.com

Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Existing Conditions Plan (cont'd)

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JOHN T. KELLEY, JR.
Lic. No. 035786
10/19/2020
CONSULTING PROFESSIONAL

REVISIONS				
No.	Date	Description	Rev. By	App. By

SCALE: 1" = 50'
DATE: JUNE 2020

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 1929
Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	APE	JTK

Sheet #
3 of 18

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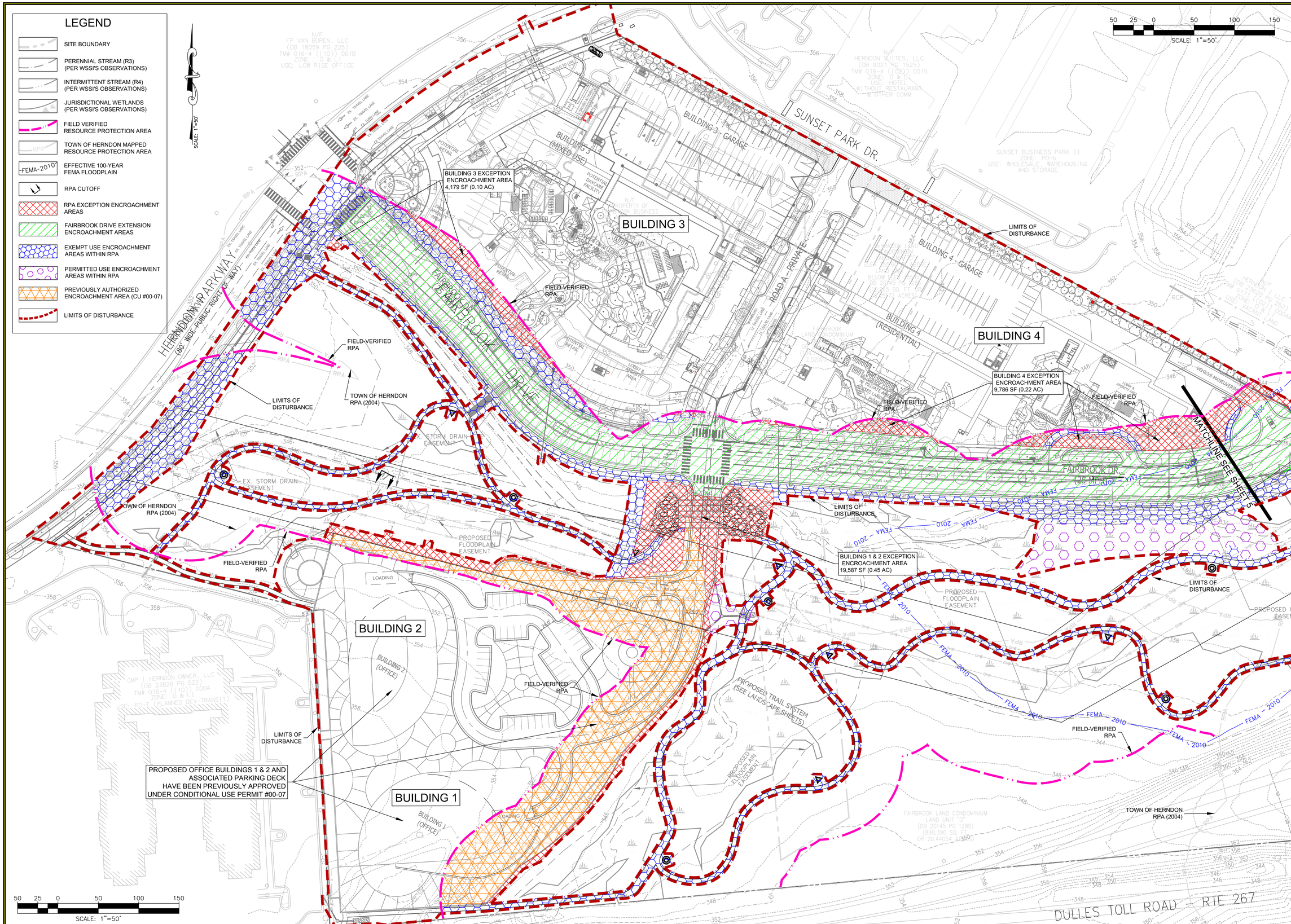

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Proposed RPA Encroachment Plan

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JOHN T. KELLEY, JR
Lic. No. 035786
10/19/2020
PROFESSIONAL ENGINEER

REVISIONS

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DATE: JUNE 2020
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Horizontal Datum: VCS NAD 83
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Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	RPC	JTK

Sheet #
4 of 18

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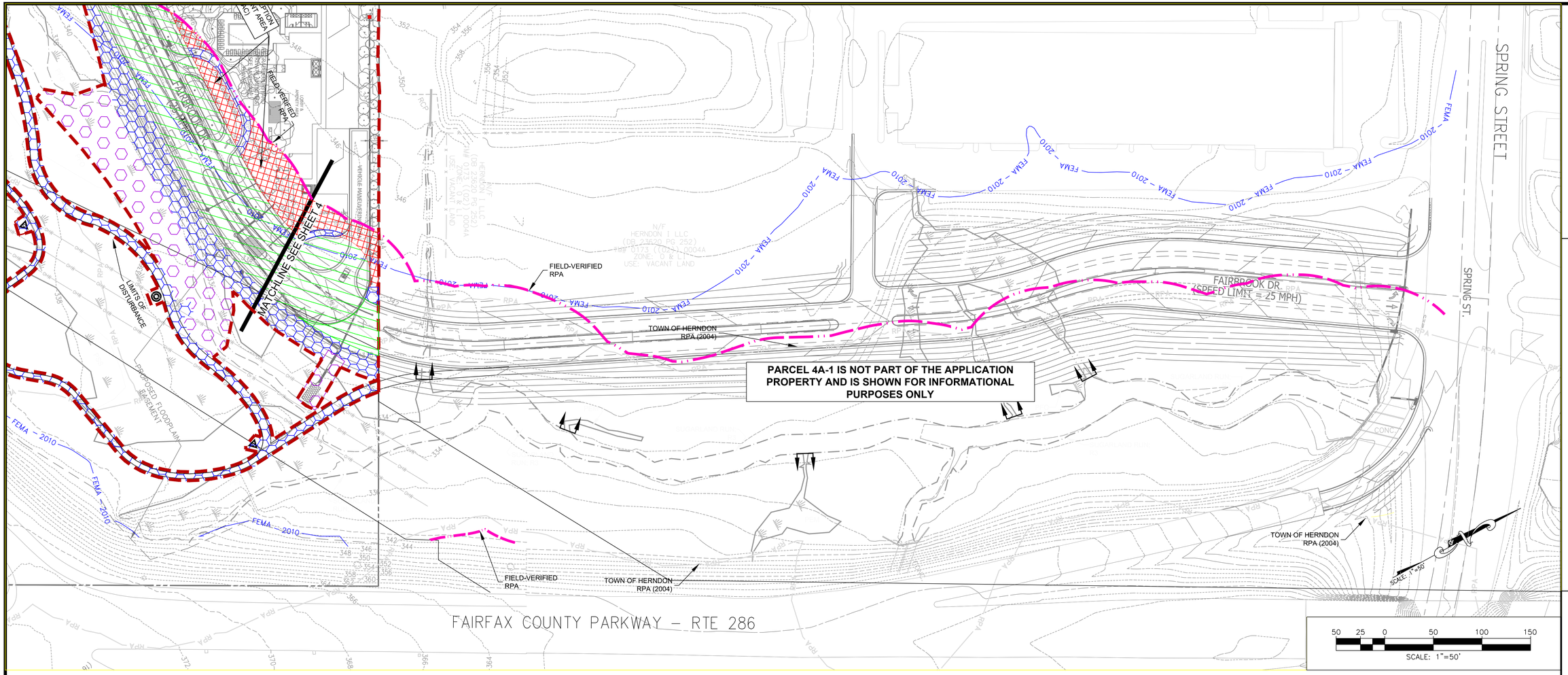

LEGEND

- SITE BOUNDARY
- PERENNIAL STREAM (R3) (PER WSSI'S OBSERVATIONS)
- INTERMITTENT STREAM (R4) (PER WSSI'S OBSERVATIONS)
- JURISDICTIONAL WETLANDS (PER WSSI'S OBSERVATIONS)
- EFFECTIVE 100-YEAR FEMA FLOODPLAIN
- FIELD VERIFIED RESOURCE PROTECTION AREA
- RPA CUTOFF
- TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA
- RPA EXCEPTION ENCROACHMENT AREAS
- FAIRBROOK DRIVE EXTENSION ENCROACHMENT AREAS
- EXEMPT USE ENCROACHMENT AREAS WITHIN RPA
- PERMITTED USE ENCROACHMENT AREAS WITHIN RPA
- PREVIOUSLY AUTHORIZED ENCROACHMENT AREA (CU #00-07)
- LIMITS OF DISTURBANCE

PROPOSED SITE NOTES:

1. Existing survey and proposed grading, utilities, and building plan were provided by VIKA Virginia, LLC in AutoCAD format and used as a base for this exhibit.
2. Presented on this sheet is the proposed impact of the development known as "Fairbrook Business Park" within the Resource Protection Area as established by Wetland Studies and Solutions, Inc.

PROPOSED SITE CONDITIONS:

TOTAL RESOURCE PROTECTION AREA (RPA) IN PARCEL AREA:
716,771 SF (±16.45 ACRES)

EXEMPT ENCROACHMENT AREA WITHIN THE RPA (HERNDON PARKWAY):
21,451 SF (±0.49 ACRES)

EXEMPT ENCROACHMENT AREA WITHIN THE RPA (SIDEWALKS/TRAILS/UTILITY CROSSINGS):
81,022 SF (±1.86 ACRES)

PERMITTED ENCROACHMENT AREA WITHIN THE RPA (STREAM RESTORATION):
13,666 SF (±0.31 ACRES)

PERMITTED ENCROACHMENT AREA WITHIN THE RPA (STORM WATER OUTFALLS):
2,996 SF (±0.07 ACRES)

EXEMPT ENCROACHMENT AREA WITHIN THE RPA (FAIRBROOK DRIVE):
85,262 SF (±1.96 ACRES)

PREVIOUSLY AUTHORIZED ENCROACHMENT AREA WITHIN THE RPA (CU #00-07; SOUTH OF FAIRBROOK DRIVE):
49,556 SF (±1.14 ACRES)

EXCEPTION ENCROACHMENT AREA WITHIN THE RPA (BUILDING 1 & 2):
19,587 SF (±0.45 ACRES)

EXCEPTION ENCROACHMENT AREA WITHIN THE RPA (BUILDING 3):
4,179 SF (±0.10 ACRES)

EXCEPTION ENCROACHMENT AREA WITHIN THE RPA (BUILDING 4):
9,786 SF (±0.22 ACRES)

Total Exception Encroachment Area Being Requested:
33,552 SF (±0.77 Acres)

TOTAL RPA ENCROACHMENT
287,585 SF (±6.60 ACRES)

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Proposed RPA Encroachment Plan

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JOHN T. KELLEY, JR.
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10/19/2020
PROFESSIONAL ENGINEER

REVISIONS

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SCALE: 1" = 50'
DATE: JUNE 2020

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Design	Draft	Approved
RPC	RPC	JTK

Sheet # 5 of 18

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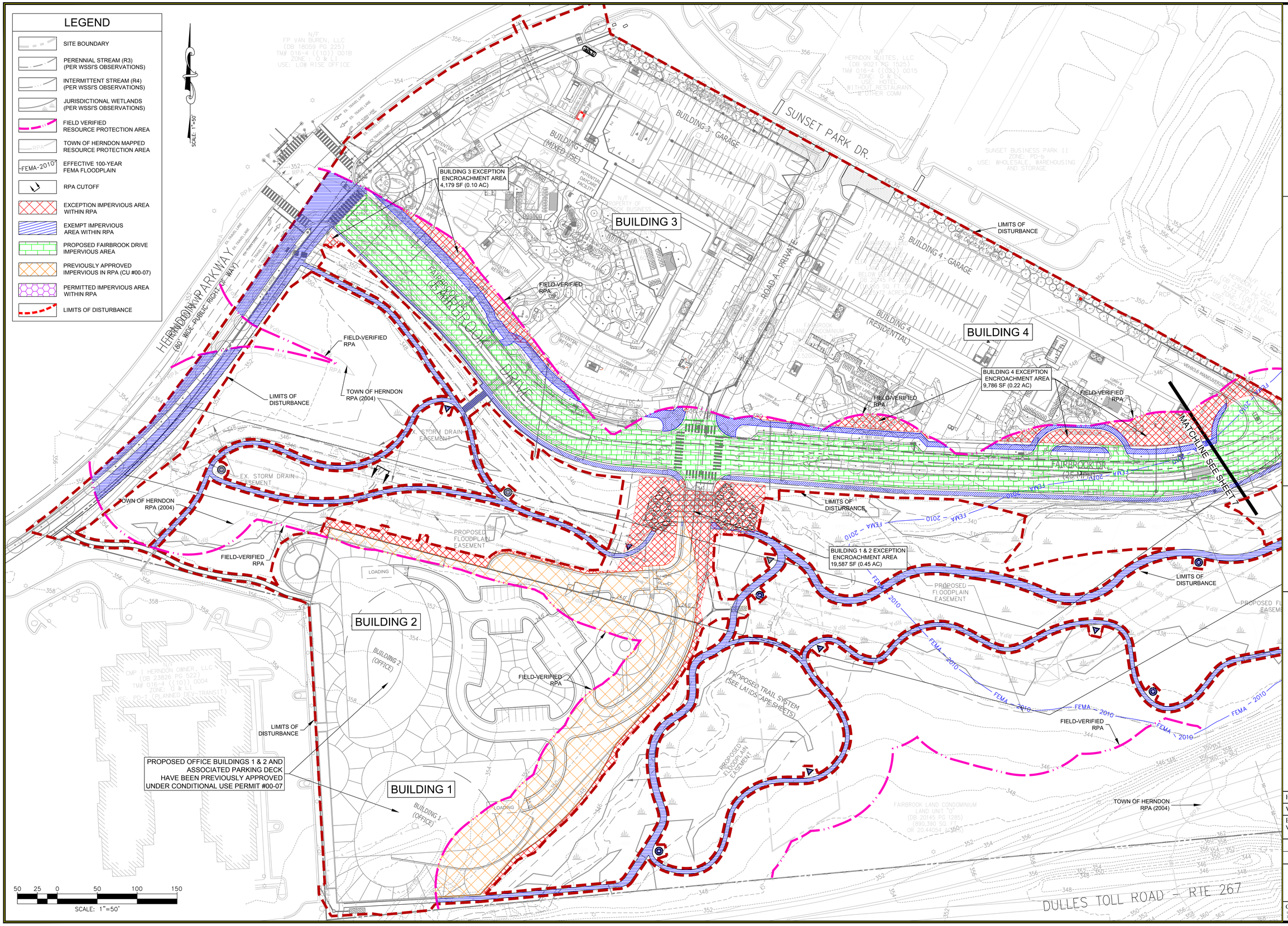

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Proposed Impervious Surfaces Plan

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10/19/2020
PROFESSIONAL ENGINEER

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Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	RPC	JTK

Sheet #
6 of 18

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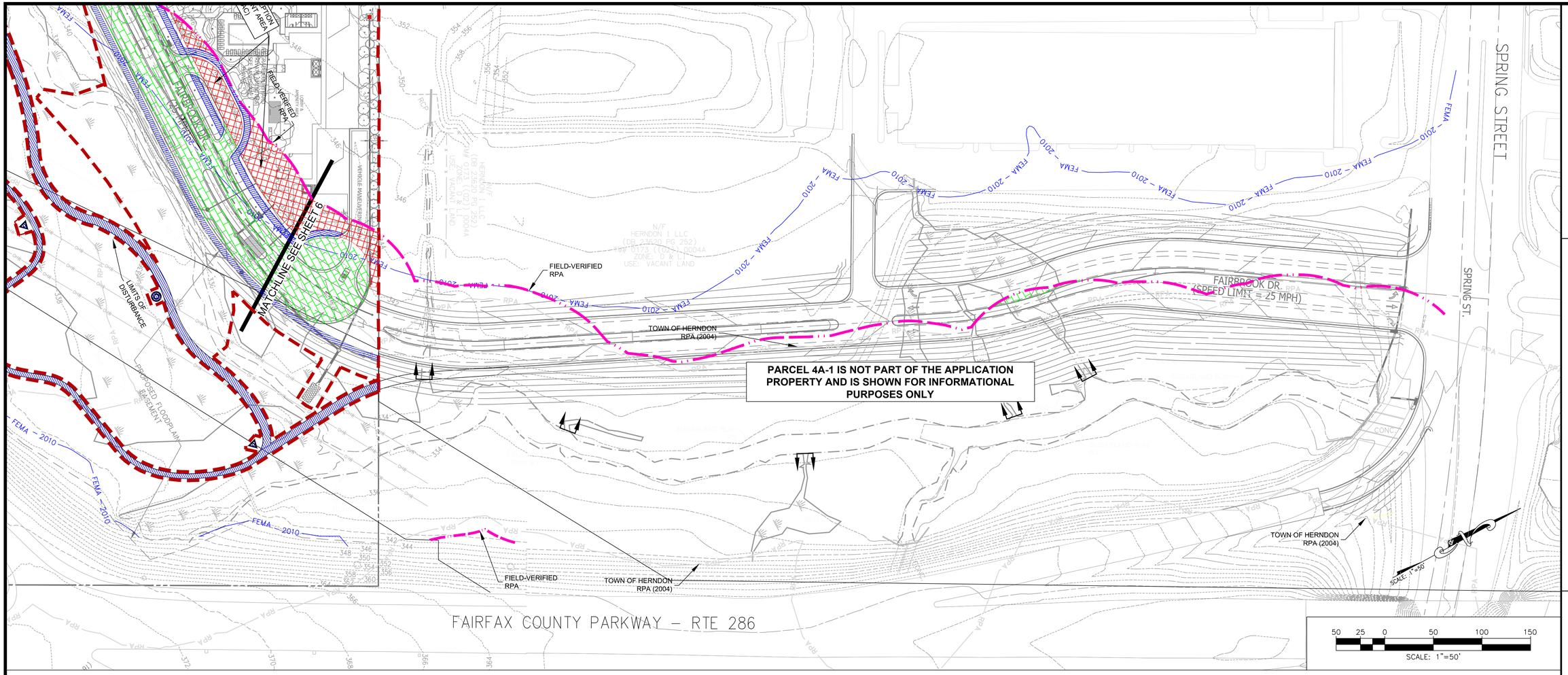

LEGEND

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- PERENNIAL STREAM (R3) (PER WSSI'S OBSERVATIONS)
- INTERMITTENT STREAM (R4) (PER WSSI'S OBSERVATIONS)
- JURISDICTIONAL WETLANDS (PER WSSI'S OBSERVATIONS)
- FEMA-2010 — EFFECTIVE 100-YEAR FEMA FLOODPLAIN
- FIELD VERIFIED RESOURCE PROTECTION AREA
- RPA — TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA
- RPA CUTOFF
- EXCEPTION IMPERVIOUS AREA WITHIN RPA
- EXEMPT IMPERVIOUS AREA WITHIN RPA
- PROPOSED FAIRBROOK DRIVE IMPERVIOUS AREA
- PREVIOUSLY APPROVED IMPERVIOUS IN RPA (CU #00-07)
- PERMITTED IMPERVIOUS AREA WITHIN RPA
- LIMITS OF DISTURBANCE

PROPOSED SITE NOTES:

1. Existing survey and proposed grading, utilities, and building plan were provided by VIKA Virginia, LLC in AutoCAD format and used as a base for this exhibit.
2. Presented on this sheet is the proposed impact of the development known as "Fairbrook Business Park" within the Resource Protection Area as established by Wetland Studies and Solutions, Inc.

PROPOSED SITE CONDITIONS:

TOTAL RESOURCE PROTECTION AREA (RPA) IN PARCEL AREA:
716,771 SF (±16.45 ACRES)

EXEMPT IMPERVIOUS AREA WITHIN THE RPA (HERNDON PARKWAY):
13,901 SF (±0.32 ACRES)

EXEMPT IMPERVIOUS AREA WITHIN THE RPA (SIDEWALKS/TRAILS):
43,959 SF (±1.01 ACRES)

EXEMPT IMPERVIOUS AREA WITHIN THE RPA (FAIRBROOK DRIVE):
66,427 SF (±1.52 ACRES)

PERMITTED IMPERVIOUS AREA WITHIN THE RPA (STORMWATER OUTFALLS):
310 SF (±0.01 ACRES)

APPROVED IMPERVIOUS AREA WITHIN THE RPA (CU #00-07; SOUTH OF FAIRBROOK DRIVE):
48,012 SF (±1.10 ACRES)

EXCEPTION IMPERVIOUS AREA WITHIN THE RPA (BUILDING 1 & 2):
7,776 SF (±0.18 ACRES)

EXCEPTION IMPERVIOUS AREA WITHIN THE RPA (BUILDING 3):
3,149 SF (±0.07 ACRES)

EXCEPTION IMPERVIOUS AREA WITHIN THE RPA (BUILDING 4):
7,390 SF (±0.17 ACRES)

TOTAL PROPOSED IMPERVIOUS AREA WITHIN THE RPA:
199,924 SF (±4.38 ACRES)

NET INCREASE OF IMPERVIOUS AREA OVER EXISTING CONDITIONS WITHIN THE RPA:
152,112 SF (±3.49 ACRES)

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Proposed Impervious Surfaces Plan

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JOHN T. KELLEY, JR.
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10/19/2020
PROFESSIONAL ENGINEER

REVISIONS				
No.	Date	Description	Rev. By	App. By

SCALE: 1"=50'
DATE: JUNE 2020

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 1929
Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	APE	JTK

Sheet # 7 of 18

Computer File Name:
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LEGEND

- SITE BOUNDARY
- PERENNIAL STREAM (R3) (PER WSSI'S OBSERVATIONS)
- INTERMITTENT STREAM (R4) (PER WSSI'S OBSERVATIONS)
- JURISDICTIONAL WETLANDS (PER WSSI'S OBSERVATIONS)
- FIELD VERIFIED RESOURCE PROTECTION AREA
- TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA
- EFFECTIVE 100-YEAR FEMA FLOODPLAIN
- RPA CUTOFF
- NO EXISTING VEGETATION TO REMOVE
- PROPOSED SCRUB SHRUB WITHIN RPA TO BE CLEARED
- EXISTING MAINTAINED EASEMENT AREA
- PROPOSED FORESTED AREA WITHIN RPA TO BE CLEARED
- LIMITS OF DISTURBANCE

SCALE: 1" = 50'

50 25 0 50 100 150

SCALE: 1" = 50'

FIELD-VERIFIED RPA

LIMITS OF DISTURBANCE

FIELD-VERIFIED RPA

FIELD-VERIFIED RPA

LIMITS OF DISTURBANCE

FIELD-VERIFIED RPA

MATCHLINE SEE SHEET 9

LIMITS OF DISTURBANCE

FIELD-VERIFIED RPA

FIELD-VERIFIED RPA

LIMITS OF DISTURBANCE

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Fairbrook

Water Quality Impact Assessment

Town of Herndon, Virginia

Vegetation Assessment

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REVISIONS

No.	Date	Description	Rev. By	App. By
1.	10/2020	Revision to remove offset area.	RPC	JTK

DATE: JUNE 2020

SCALE: 1" = 50'

Horizontal Datum: VCS NAD 83

Vertical Datum: NGVD 1929

Boundary and Topo Source: VIKA

Design	Draft	Approved
APE	RPC	JTK

Sheet #

8 of 18

Computer File Name:

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LEGEND

- SITE BOUNDARY
- PERENNIAL STREAM (R3) (PER WSSI'S OBSERVATIONS)
- INTERMITTENT STREAM (R4) (PER WSSI'S OBSERVATIONS)
- JURISDICTIONAL WETLANDS (PER WSSI'S OBSERVATIONS)
- FEMA-2010 EFFECTIVE 100-YEAR FEMA FLOODPLAIN
- FIELD VERIFIED RESOURCE PROTECTION AREA
- RPA TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA
- RPA CUTOFF
- NO EXISTING VEGETATION TO REMOVE
- PROPOSED SCRUB SHRUB WITHIN RPA TO BE CLEARED
- EXISTING MAINTAINED EASEMENT AREA
- PROPOSED FORESTED AREA WITHIN RPA TO BE CLEARED
- LIMITS OF DISTURBANCE

PROPOSED SITE NOTES:

1. Existing survey and proposed grading, utilities, and building plan were provided by VIKA Virginia, LLC in AutoCAD format and used as a base for this exhibit.

1

PROPOSED SITE CLEARING:

TOTAL FORESTED AREA PROPOSED TO BE CLEARED WITHIN THE RPA:
98,723 SF (±2.27 ACRES)

TOTAL SCRUB/SHRUB AREA PROPOSED TO BE CLEARED WITHIN THE RPA:
85,115 SF (±1.95 ACRES)

TOTAL AREA CLEARED AND MAINTAINED IN EXISTING EASEMENT WITHIN THE RPA:
59,545 SF (±1.37 ACRES)

TOTAL AREA CURRENTLY DEVELOPED WITHIN THE RPA (NO VEGETATIVE CLEARING):
44,691 SF (±1.03 ACRES)

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Town of Herndon, Virginia

Vegetation Assessment (cont'd)

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Sheet #
9 of 18

Computer File Name:
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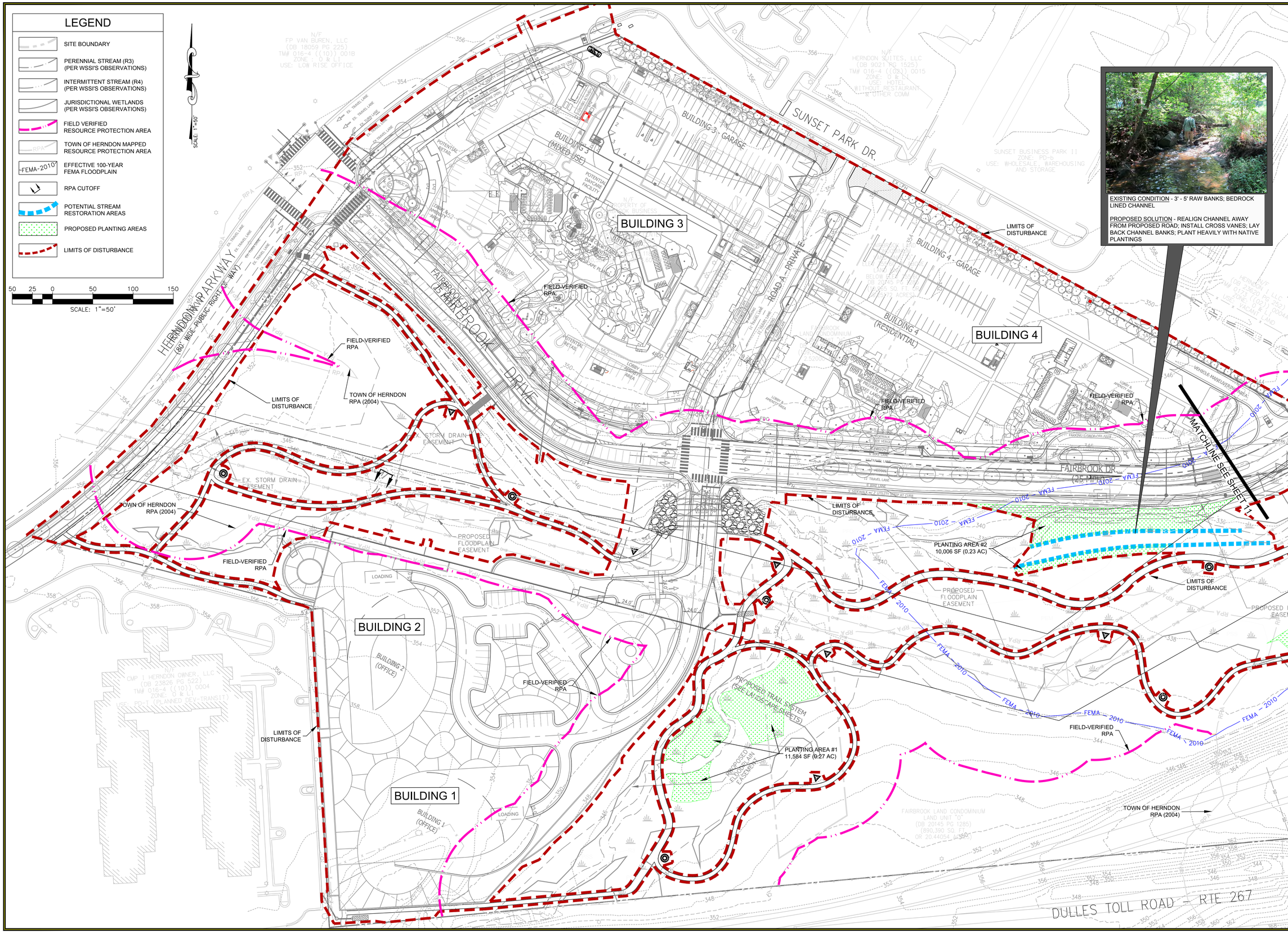

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Town of Herndon, Virginia

RPA Enhancement Plan

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Design	Draft	Approved
RPC	RPC	JTK

Sheet #
10 of 18

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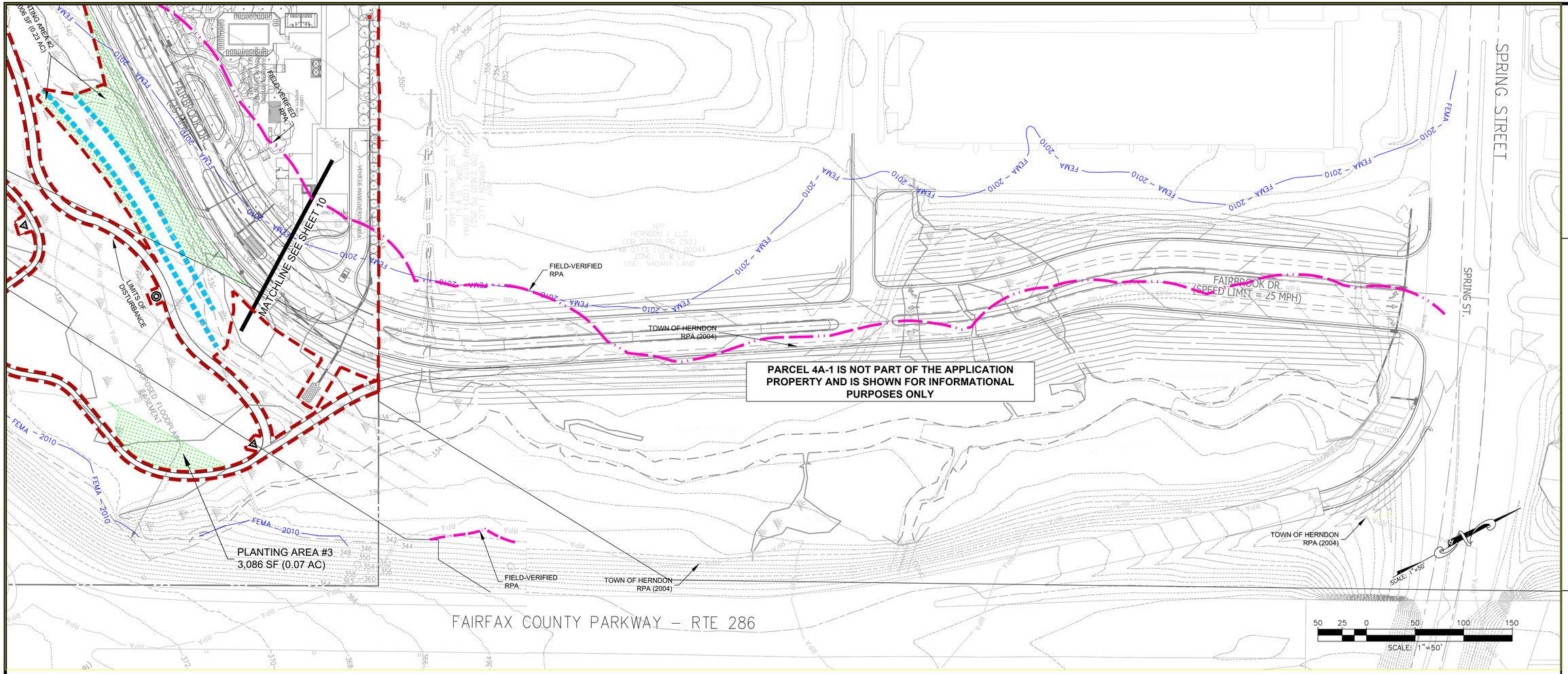

LEGEND

- SITE BOUNDARY
- PERENNIAL STREAM (R3) (PER WSSI'S OBSERVATIONS)
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- TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA
- RPA CUTOFF
- POTENTIAL STREAM RESTORATION AREAS
- PROPOSED PLANTING AREAS
- LIMITS OF DISTURBANCE

PROPOSED SITE NOTES:

1. Existing survey and proposed grading, utilities, and building plan were provided by VIKA Virginia, LLC in AutoCAD format and used as a base for this exhibit.

RPA ENHANCEMENT NARRATIVE:

The existing RPA components within the Fairbrook parcel consist of Sugarland Run (a perennial stream), several additional perennial and intermittent tributaries to Sugarland Run, and adjacent wetlands throughout both parcels. Vegetation throughout the stream corridor and within the RPA is a combination of scrub/shrub, forested, and a maintained easement. Sections of the Sugarland Run channel and its associated tributaries are currently incised and actively eroding, creating a stream system that is disconnected from its floodplain and contributing sediment and pollutants to the downstream receiving waters.

As part of the development of the Fairbrook parcel and the extension of Fairbrook Drive to Spring Street, stream restoration and riparian plantings are proposed not only to mitigate the impacts to the RPA, but also to improve the stream corridor and promote a healthier, more effective RPA. The planned stream restoration design which will be developed along with the future site plan will utilize Natural Channel Design (NCD) techniques. As the name implies, the goal of NCD is to restore a degraded stream by mimicking, as much as possible, the characteristics of a stable, "natural" system. Through the use of fluvial geomorphic principles, NCD seeks to achieve long-term stability given current as well as future flow rates.

The stream restoration design will include re-sizing the channel cross section to the bankfull flow rate (~1 to 1.5 year storm event), raising the stream bed as much as possible, laying back the stream banks and grading bankfull benches to provide floodplain access during storm events, installing in-stream structures to provide grade control and maintain a stable channel pattern, installing woody habitat features, and planting the riparian corridor with a native plant mix. The results of this stream restoration will provide a more stable plan and profile within the stream corridor, encourage more overbank access to the existing floodplain, and likely generate additional wetlands within the overbank areas of the restored stream sections. Restoration will also reduce the amount of sediment entering the stream channel which contributes to downstream pollutant loads in the receiving waters.

In addition to the stream restoration, depression areas are planned to be graded along the restored stream segments to encourage the formation of new wetlands adjacent to the stream. These new wetland areas will include woody features as well as wetland plantings to provide additional habitat through the stream corridor. Following restoration, the Sugarland Run stream and the adjacent wetland areas will be greatly improved over the existing conditions thus resulting an environmentally sound, aesthetically pleasing, and structurally stable stream corridor.

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Town of Herndon, Virginia

RPA Enhancement Plan (cont'd)

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Horizontal Datum: VCS NAD 83
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Design	Draft	Approved
APE	RPC	JTK

Sheet # 11 of 18

Computer File Name:
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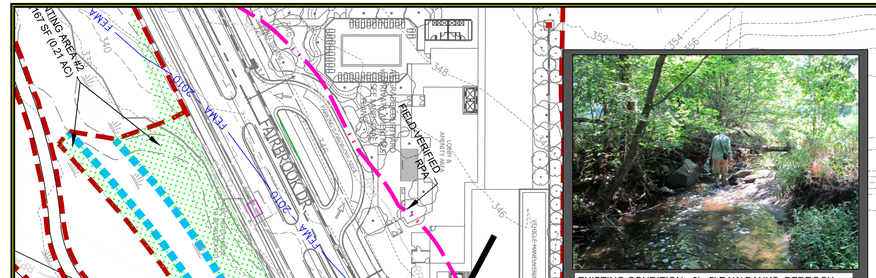

EXISTING CONDITION - 3' - 5' RAW BANKS; BEDROCK LINED CHANNEL

PROPOSED SOLUTION - REALIGN CHANNEL AWAY FROM PROPOSED ROAD; INSTALL CROSS VANES; LAY BACK CHANNEL BANKS; PLANT HEAVILY WITH NATIVE PLANTINGS



EXISTING CONDITION - HEADCUT FROM STORMWATER OUTFALL

PROPOSED SOLUTION - INSTALL 4 TO 5 STEP POOLS DOWNSTREAM OF EXISTING RIPRAP TO DISSIPATE ENERGY AND STABILIZE STREAM



EXISTING CONDITION - EXISTING BEAVER DAM BACKS WATER UPSTREAM 500 FEET; ERODED BANKS DOWNSTREAM

PROPOSED SOLUTION - REMOVE DAM; INSTALL 3 CROSS VANES; LAY BACK CHANNEL BANKS; PLANT HEAVILY WITH NATIVE PLANTINGS

NOTE - BEAVERS WILL LIKELY RETURN; BUT THIS STABILIZES BANKS FOR PERIODS WHEN THEY ABANDON DAMS.

LEGEND

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PROPOSED SITE NOTES:

1. Existing survey and proposed grading, utilities, and building plan were provided by VIKA Virginia, LLC in AutoCAD format and used as a base for this exhibit.

RPA ENHANCEMENT NARRATIVE:

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The stream restoration design will include re-sizing the channel cross section to the bankfull flow rate (~1 to 1.5 year storm event), raising the stream bed as much as possible, laying back the stream banks and grading bankfull benches to provide floodplain access during storm events, installing in-stream structures to provide grade control and maintain a stable channel pattern, installing woody habitat features, and planting the riparian corridor with a native plant mix. The results of this stream restoration will provide a more stable plan and profile within the stream corridor, encourage more overbank access to the existing floodplain, and likely generate additional wetlands within the overbank areas of the restored stream sections. Restoration will also reduce the amount of sediment entering the stream channel which contributes to downstream pollutant loads in the receiving waters.

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Potential Off-Site Mitigation Locations

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REVISIONS				
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SCALE: 1" = 50'
DATE: JUNE 2020

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 1929
Boundary and Topo Source: VIKA

Design	Draft	Approved
APE	RPC	JTK

Sheet # 11.A of 18

Computer File Name:
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RIPARIAN BUFFER VEGETATION SCHEDULE

CONTAINER PLANTING ZONE		SPECIES GROUP[1,2]	SPECIES[2]	INDICATOR STATUS	WILDLIFE VALUE: FUNCTIONS	WILDLIFE VALUE: PRIMARY SPECIES	WILDLIFE VALUE: PLANT PART	WILDLIFE VALUE: SEASON	PLANT SPACING[3]	CONTAINER SIZE, RATE, AND QUANTITY[4] PLANTS PER ACRE	REQUIRED PLANTING QUANTITIES: PLANTING AREA	1	2	3
											AREA (SF):	11,584	10,006	3,086
											AREA (AC):	0.27	0.23	0.07
RIPARIAN FOREST	OVERSTORY TREE LAYER	1	QUERCUS BICOLOR (SWAMP WHITE OAK)	FACW	Food	Woodpeckers, turkey, deer, squirrels, raccoons, other small mammals	Nuts	Fall, Winter	SEE NOTE #3	72 ONE GAL -- or -- 144 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)		19 ONE GAL -- or -- 38 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	17 ONE GAL -- or -- 33 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	5 ONE GAL -- or -- 10 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)
			QUERCUS ALBA (WHITE OAK)	FACW	Food	Woodpeckers, turkey, deer, squirrels, raccoons, other small mammals	Nuts	Fall, Winter						
			QUERCUS PALUSTRIS (PIN OAK)	FACW	Food	Woodpeckers, turkey, deer, squirrels, raccoons, other small mammals	Nuts	Fall, Winter						
			QUERCUS PHELLOS (WILLOW OAK)	FAC	Food	Woodpeckers, turkey, deer, squirrels, raccoons, other small mammals	Nuts	Fall, Winter						
			QUERCUS RUBRA (NORTHERN RED OAK)	FACU	Food	Woodpeckers, turkey, deer, squirrels, raccoons, other small mammals	Nuts	Fall, Winter						
		2	ACER NEGUNDO (BOX ELDER)	FAC	Food	Finches, chickadees, squirrels, robins, goldfinches, other birds	Seeds, buds, flowers, plant	Spring, summer	SEE NOTE #3	37 ONE-GALLON -- or -- 74 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)		10 ONE GAL -- or -- 20 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	8 ONE GAL -- or -- 17 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	3 ONE GAL -- or -- 6 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)
			ACER RUBRUM (RED MAPLE)	FAC	Food	Finches, chickadees, squirrels, robins, goldfinches, other birds	Seeds, buds, flowers, plant	Spring, summer						
			BETULA NIGRA (RIVER BIRCH)	FACW	Food, cover	Song birds	Seeds, plant	All						
			LIQUIDAMBAR STYRACIFULA (SWEET GUM)	FAC	Food	Finches, cardinals, chickadees, sparrows, squirrels	Seed	Summer, fall, winter						
			PLATANUS OCCIDENTALIS (AMERICAN SYCAMORE)	FACW	Food	Raccoons, opossum, wood duck, pileated and other woodpeckers	Hollow trunks	All						
	OVERSTORY TREE SUBTOTAL (BASED ON ONE GALLON)											29	25	8
	UNDERSTORY TREE LAYER	3	ILEX OPACA (AMERICAN HOLLY)	FACU	Food, cover, reproductive areas	Robins, bluebirds, mockingbirds, hermit thrush	Fruit, plant	All	SEE NOTE #3	109 ONE-GALLON --or-- 218 TUBELINGS --or-- MIX AT 1:2 RATIO (SEE NOTE #4)		29 ONE-GALLON --or-- 58 TUBELINGS --or-- MIX AT 1:2 RATIO (SEE NOTE #4)	25 ONE-GALLON --or-- 50 TUBELINGS --or-- MIX AT 1:2 RATIO (SEE NOTE #4)	8 ONE-GALLON --or-- 16 TUBELINGS --or-- MIX AT 1:2 RATIO (SEE NOTE #4)
		4	AMELANCHIER CANADENSIS (CANADIAN SERVICEBERRY	FAC	Food, cover	Song birds, small mammals	Fruit, plant	All	SEE NOTE #3	109 ONE-GALLON -- or -- 218 TUBELINGS -- or -- MIX AT 1:2 RATIO		29 ONE-GALLON -- or -- 58 TUBELINGS -- or -- MIX AT 1:2 RATIO	25 ONE-GALLON -- or -- 50 TUBELINGS -- or -- MIX AT 1:2 RATIO	8 ONE-GALLON -- or -- 16 TUBELINGS -- or -- MIX AT 1:2 RATIO
			CERCIS CANADENSIS (EASTERN REDBUD)	FACU	Food	Honeybees, butterfly caterpillars	Flowers, leaves	Spring, summer						
			CORNUS FLORIDA (FLOWERING DOGWOOD)	FACU	Food	Wild turkey, cardinal, cedar waxwing, robin, brown thrasher, wood thrush, rabbits	Flower, fruit	Spring, fall						
			CORYLUS AMERICANA (AMERICAN HAZELNUT)	FACU	Food, cover	Songbirds, small mammals	Fruit	Summer, fall						
			LINDERA BENZOIN (NORTHERN SPICEBUSH)	FAC	Food	Thrushes vireos, catbird, bluebird, butterfly caterpillars	Fruit, leaves	Spring, summer, fall						
			SALIX NIGRA (BLACK WILLOW)	OBL	Food, cover	Beaver, porcupine, deer, muskrat, ducks, fish	Seeds, plant, leaves	Spring, summer, fall						
	UNDERSTORY TREE SUBTOTAL (BASED ON ONE-GALLON)											58	50	16
	SHRUB LAYER	5	CORNUS AMOMUM (SILKY DOGWOOD)	FACW	Food	Catbird, thrasher, thrushes, woodpeckers	Fruit	Summer, fall	SEE NOTE #3	327 ONE-GALLON -- or -- 654 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)		88 ONE-GALLON -- or -- 177 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	75 ONE-GALLON -- or -- 150 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)	23 ONE-GALLON -- or -- 46 TUBELINGS -- or -- MIX AT 1:2 RATIO (SEE NOTE #4)
			ILEX VERTICILLATA (COMMON WINTERBERRY)	FACW	Food, cover, reproductive areas	Bluebird, catbird, brown thrasher, robin, yellow bellied sapsucker, mockingbird	Flower, seed, leaves	All						
			VIBURNUM DENTATUM (SOUTHERN ARROWWOOD)	FAC	Food, cover, reproductive areas	Purple finch, goldfinch, robin, junco, bluebird, hermit thrush	Flower, fruit	Spring, summer, fall						
			ROSA PALUSTRIS (SWAMP ROSE)	OBL	Food, cover, reproductive areas	Brown thrasher, catbird, thrushers, pollinators	Flowers, seeds, and foliage	Spring, fall, winter						
			VIBURNUM PRUNIFOLIUM (BLACK-HAW)	FACU	Food, cover	Catbirds, thrashers, thrushes, cover and next sites for songbirds	Fruit, plant	Spring, fall						
SHRUB LAYER SUBTOTAL (BASED ON ONE-GALLON)												88	75	23

PLANTING AND SEEDING NOTES:

1. It is expected and preferred that all species in each of the Species Groups are planted. The tolerances listed in this note are intended to incorporate flexibility according to species availability. At a minimum, Contractor to provide at least:
   a) 4 of the 5 species in Group 1,
   b) 4 of the 5 species in Group 2,
   c) all of Group 3,
   d) 5 of the 6 species in Group 4,
   e) 4 of the 5 species in Group 5,
2. Substitutions for selected species based upon availability shall be requested in writing to engineer, documenting the lack of availability, If the flexibility inherent in the above schedule is still not sufficient, Engineer is under no obligation to approve substitutions.
3. The planted trees and shrubs shall be randomly spaced and species mixed throughout the planting areas.
4. Container rates and quantities shown for one gallon size. For purposes of substitution, two tubelings are the equivalent of one 1-gallon container plant in this schedule. Contractor may provide a mix of container and tubeling sizes for each species requirement, provided the ratio of tubelings to containers is not less than 2:1.

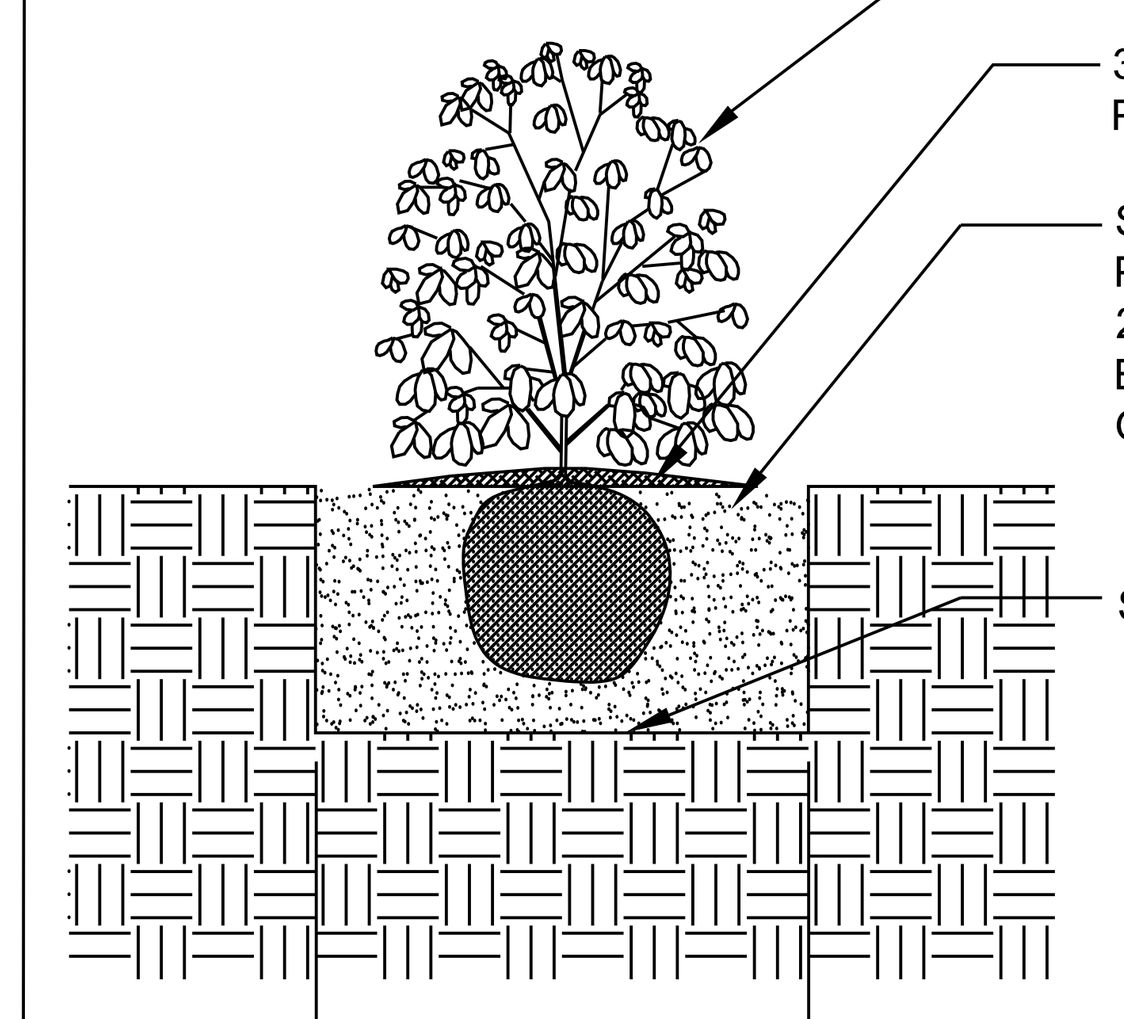
NOTE: SEE SHEETS 10 & 11 FOR PLANTING AREAS

NOTE: PERMANENT SEED MIX PER APPROVED SITE PLAN

Tree Density Requirements (per Virginia Riparian Buffers Modification and Mitigation Guidance Manual)

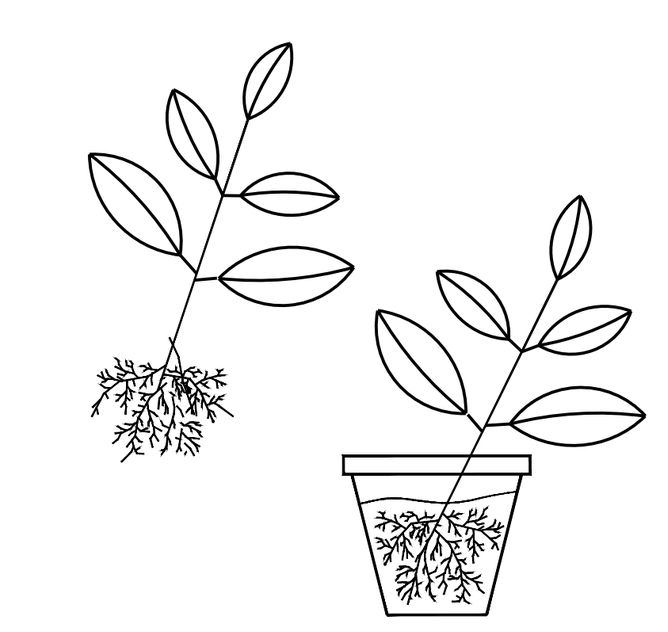
	Ratio/400 s.f.	Ratio/ac.	Area (ac.)	Required	Provided
Overstory Tree Total	1	109	0.84	92	62
Understory Tree Total	2	218	0.84	183	124
Shrub Total	3	327	0.84	275	186

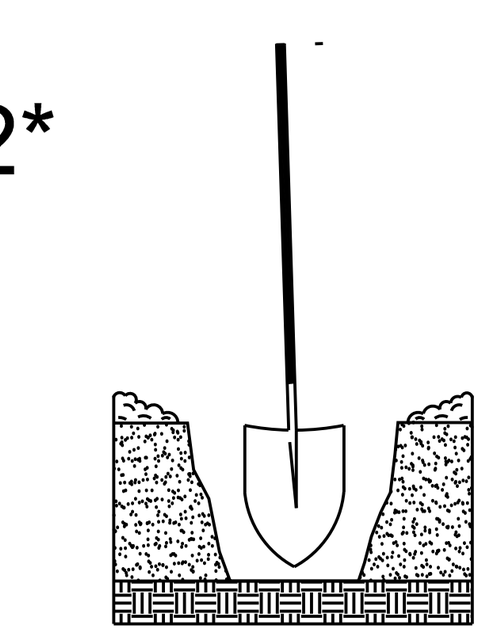
Planting areas shown represent the maximum available planting areas on the non-forested areas of the parcel based on existing conditions.

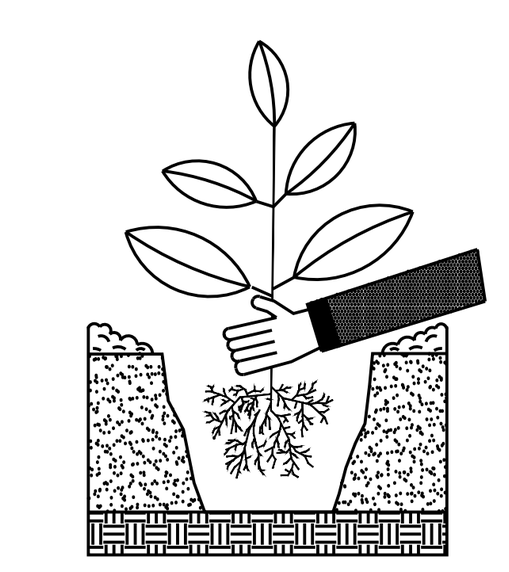


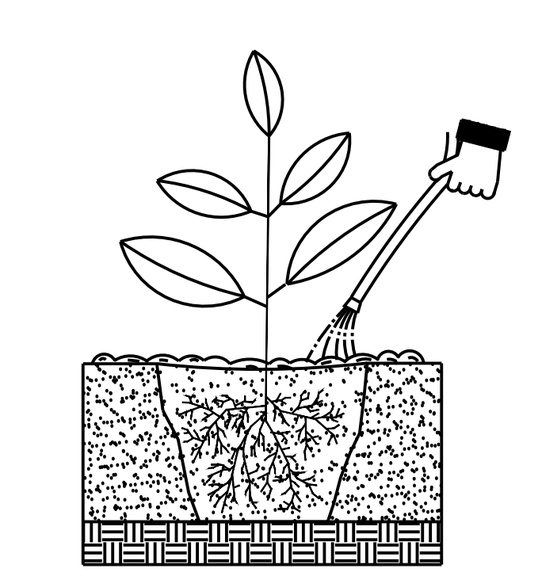
NOTE:
A CONTAINER SHRUB SHALL BE IN THAT CONTAINER SUFFICIENT TIME THAT FIBROUS ROOTS ARE FORMED SO THAT THE SHAPE WILL REMAIN AND THE MEDIUM WILL HOLD TOGETHER WHEN REMOVED FROM THE CONTAINER.

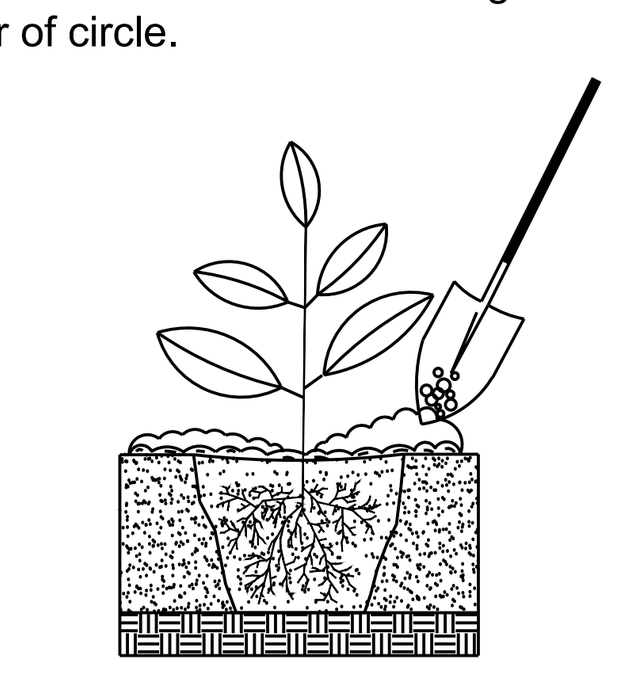
CONTAINER SHRUB PLANTING DETAIL
NOT TO SCALE

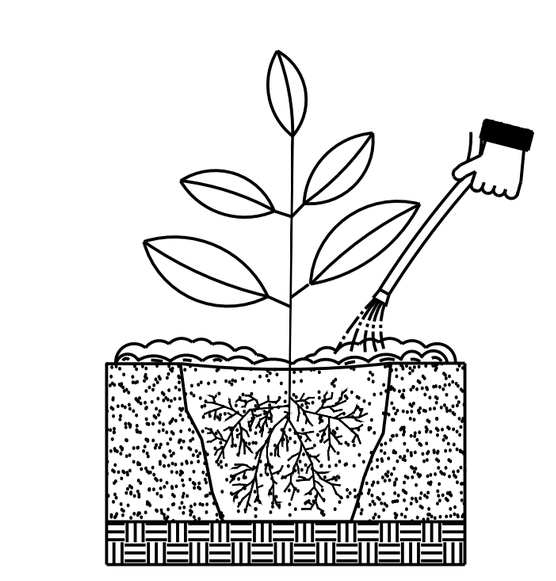
1

Soak roots in water 3 to 6 hours prior to planting. Do not allow roots to dry out before planting.

2*

Remove grass from a 3 foot circle and turn up soil. Dig a planting hole 8 inches wider than the diameter of the seedling roots in center of circle.

3*

Position seedling at original nursery depth. Do not bend roots on sides or bottom of planting hole. Gently backfill excavated soil around roots.

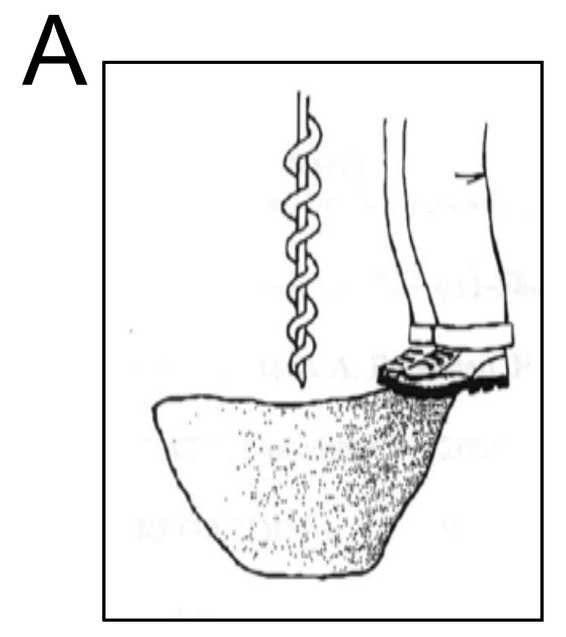
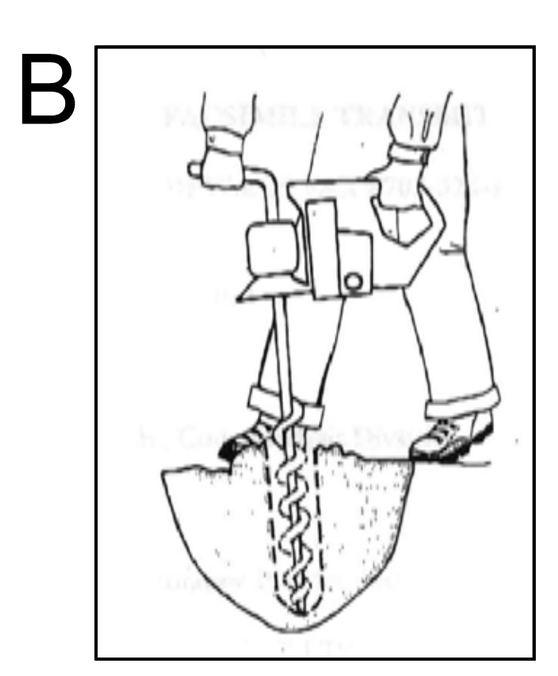
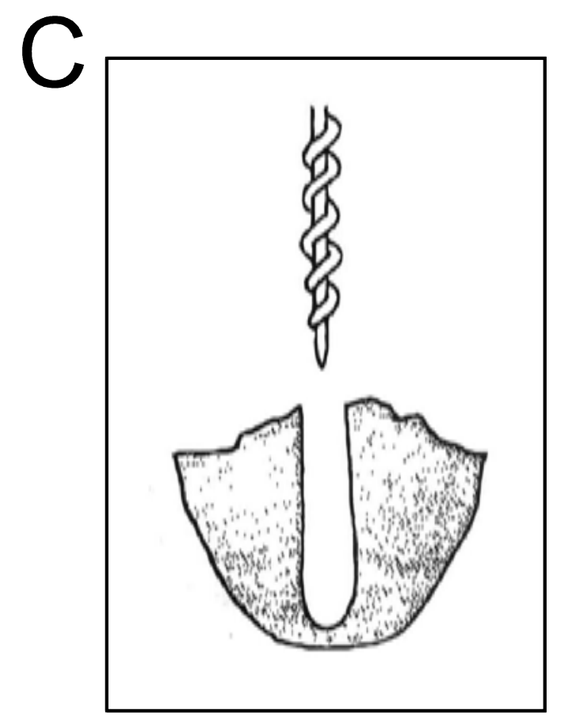
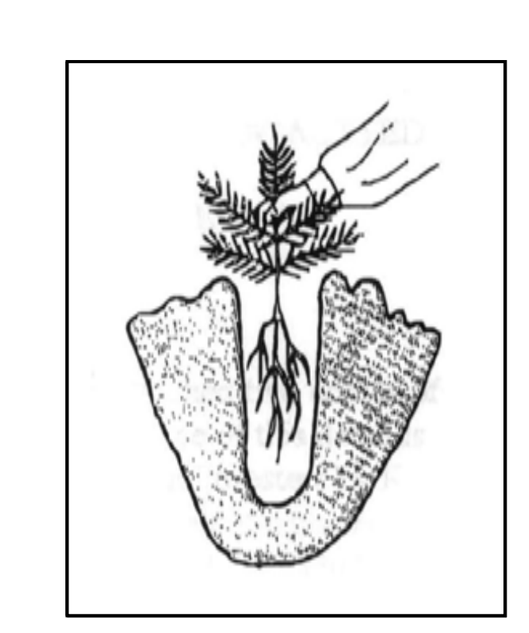
4


5

Place a 2 inch deep layer of mulch in a 3 foot diameter circle around trees. Mulch should not touch the tree trunk.

6

During dry weather, water generously once every 7 to 10 days during the first year.

PLANTING TREE SEEDLINGS AND SAPLINGS

*Steps #2 and #3 of the Planting Tree Seedlings detail may be substituded with the following steps using a 4-inch or greater diameter auger.

A

B

C

D


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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Proposed Revegetation Planting Schedule

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COMMONWEALTH OF VIRGINIA
JOHN T. KELLEY, JR
Lic. No. 035786
10/19/2020
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

SCALE: NTS
DATE: JUNE 2020

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 1929
Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	RPC	JTK

Sheet #
12 of 18

Computer File Name:
L:\04000s\4674.06\CADD\07-REGS\WQIA\May 2020 WQIA Revision 2020-10-14_Fairbrook WQIA.dwg



STORMWATER MANAGEMENT NARRATIVE

STORMWATER MANAGEMENT QUANTITY AND QUALITY CONTROLS WILL BE PROVIDED IN ACCORDANCE WITH THE VIRGINIA STATE DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) RUNOFF REDUCTION STANDARDS AND SPECIFICATIONS. THE NORTHERN PORTION OF THE SITE; THE RESIDENTIAL BUILDINGS ON THE NORTHERN PORTION OF THE SITE WILL BE CONSIDERED AS REDEVELOPMENT AND THE OFFICE BUILDINGS ON THE SOUTHERN PORTION OF THE SITE WILL BE CONSIDERED AS NEW DEVELOPMENT. STORMWATER TREATMENT AND CONTROL WILL BE ACCOMPLISHED THROUGH THE DESIGN AND USE OF A COMBINATION OF LOW IMPACT DEVELOPMENT FACILITIES AND MANUFACTURED TREAMENT DEVICES INCLUDING BUT NOT LIMITED TO GREEN ROOFS, BIORETENTION PRACTICES, AND PERMEABLE PAVEMENT SYSTEMS, FILTERS AND HYDRODYNAMIC SEPARATORS. THESE FACILITIES WILL PROVIDE PHOSPHOROUS REDUCTIONS REQUIRED BY THE VIRGINIA RUNOFF REDUCTION METHOD. SEE SHEETS C-12 & C-13 FOR COMPUTATIONS. REDUCTIONS IN RUNOFF TO PREDEVELOPMENT CONDITIONS WILL BE SIGNIFICANTLY REDUCED BY THE AFOREMENTIONED FACILITIES. ADDITIONAL DETENTION OF POST DEVELOPMENT RUNOFF FOR THE 2 YEAR AND 10 YEAR STORM EVENTS, IF REQUIRED, WILL BE ACCOMMODATED THROUGH VAULTS PROVIDING STORAGE AND CONTROLLED RELEASE TO MEET THE OVERALL DETENTION REQUIREMENTS. SEE SHEET C-14 FOR COMPUTATIONS. FINAL SIZE, LOCATION AND TYPE OF FACILITIES MAY BE REVISED AT THE TIME OF FINAL ENGINEERING.

ADEQUATE OUTFALL NARRATIVE

STORM SEWER DISCHARGE POINTS A AND B AND C DISCHARGE INTO A MAPPED FLOODPLAIN BED AND BANKS CONDITION. THE ADEQUACY OF THESE OUTFALLS WILL BE EVALUATED IN ACCORDANCE WITH VIRGINIA STATE CODE 9VAC25-870-66. THE EVALUATION OF THE "NATURAL STORMWATER CONVEYANCE SYSTEM" FOR CHANNEL PROTECTION AND FLOOD PROTECTION WILL BE PERFORMED ACCORDING TO VIRGINIA STATE CODE 9VAC25-870-66-B.4 AND 9VAC25-870-66-C.3 WHICH IS TO SHOW COMPLIANCE WITH THE ENERGY BALANCE EQUATION FOR THE 1 YEAR 24 HOUR STORM AND SHOW THAT THE 10 YEAR 24 STORM IS CONFINED WITHIN THE CONVEYANCE SYSTEM. THE EXTENT OF THE EVALUATION FOR CHANNEL PROTECTION IS THE POINT OF DISCHARGE AND FOR FLOOD PROTECTION IS WHEN THE CONVEYANCE SYSTEM ENTERS A MAPPED FLOODPLAIN OR FLOOD PRONE AREA. FOR FULL OUTFALL NARRATIVE AND COMPUTATIONS SEE SHEET C-14.

GENERAL SWM NOTES

1. THE SITE IS DESIGNED TO MEET ALL STATE AND LOCAL REQUIREMENTS FOR WATER QUALITY, CHANNEL PROTECTION, AND FLOOD PROTECTION, AND THE PROPOSED FACILITIES SHOWN ON THE SITE ARE ADEQUATE IN NUMBER, PERFORMANCE AND SIZE SO THAT NO ALTERATIONS WILL NEED TO BE MADE TO THE SITE DURING PHASED SITE PLAN SUBMITTALS WHICH RESULT IN INCREASED ENCROACHMENT INTO THE RPA. ANY FURTHER ENCROACHMENT INTO THE RPA WOULD REQUIRE A REVISED OR NEW ENCROACHMENT PLAN. WHILE ALL FACILITIES ARE ADEQUATE IN NUMBER, PERFORMANCE AND SIZE, THE APPLICANT RESERVES THE RIGHT TO MODIFY THE NUMBER, SIZE AND TYPE OF FACILITY AT THE TIME OF FINAL ENGINEERING AS LONG AS STATE AND LOCAL REQUIRMENETS FOR WATER QUALITY, CHANNEL PROTECTION AND FLOOD PROTECTION CONTINUE TO BE MET.
2. THIS PLAN IS A CONCEPTUAL PLAN AND AS SUCH THE FINAL DESIGN OF UTILITIES, STORMWATER (SWM) FACILITIES, AND SITE FEATURES MAY BE SUBJECT TO MINOR MODIFICATIONS WITH THE FINAL CONSTRUCTION DOCUMENTS. AS SUCH, THE APPLICANT RESERVES THE RIGHT TO MODIFY THE TYPE, NUMBER, SHAPE, LOCATION, SIZE AND ALL OTHER CHARACTERISTICS OF THE SWM FACILITIES SHOWN HEREON, SO LONG AS THE ULTIMATE REQUIREMENTS FOR PHOSPHOROUS LOAD REDUCTION AND POST DEVELOPMENT PEAK RELEASE RATES ARE MET. IT SHALL ALSO BE UNDERSTOOD THAT THE APPLICANT RESERVES THE RIGHT TO USE ANY SWM CONTROL FACILITY ALLOWED IN THE PFM AT THE TIME OF FINAL CONSTRUCTION DOCUMENTS, EVEN IF IT IS NOT DEPICTED IN THIS PLAN, SO LONG AS ALL DESIGN CRITERIA FOR SUCH FACILITY IS MET. DETENTION VAULTS AND FILTERING FACILITIES MAY BE RELOCATED THROUGHOUT THE SITE WITH FINAL CONSTRUCTION PLANS TO MORE EFFICIENTLY OR EFFECTIVELY PROVIDE THE REQUIRED QUALITY/QUANTITY TREATMENT WITH FINAL CONSTRUCTION DOCUMENTS. IN ADDITION, SUCH FACILITIES MAY BE ELIMINATED (OR ADDITIONAL FACILITIES ADD) WITH FINAL CONSTRUCTION DOCUMENTS.
3. COMPUTATIONS HEREON ARE BASED ON APPROXIMATIONS OF PROPOSED PERVIOUS/IMPERVIOUS AREA. AT THE TIME OF FINAL CONSTRUCTION PLANS, BASED ON THE FINAL PERVIOUS/IMPERVIOUS AREAS, THE FINAL SWM VOLUME REQUIREMENTS WILL BE DETERMINED. THE METHODOLOGY USED SHALL BE CONSISTENT WITH THAT SHOWN HEREON.
4. ALL GRADING IS CONCEPTUAL AND SUBJECT TO CHANGE WITH THE FINAL SITE PLAN
5. ALL STORMWATER FACILITIES MUST BE PRIVATELY MAINTAINED AND A PRIVATE MAINTENANCE AGREEMENT WILL BE REQUIRED BEFORE THE CONSTRUCTION PLAN IS APPROVED.
6. ALL SWM/BMP FACILITIES SHOWN ON THIS APPLICATION ARE PRELIMINARY. THESE FACILITIES SHALL BE PROPOSED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS IN PLACE AT THE TIME OF SITE PLAN. ALL STORMWATER QUALITY AND QUANTITY REQUIREMENTS FOR THE PROJECT (INCLUDING REQUIREMENTS GENERATED BY OFFSITE DISTURBED AREAS AND FRONTAGE IMPROVEMENTS) SHALL BE PROVIDED ON-SITE AND SHALL BE PRIVATELY MAINTAINED. ALL STORMWATER QUANTITY AND QUALITY REQUIREMENTS SHALL BE MET FOR EACH PHASE OF THE PROJECT INDEPENDENTLY.
7. BIORETENTION TREE PITS/CURB EXTENTION IN ROW SHALL ONLY TREAT ROW AND FUTURE ROW AREAS
8. AT THE TIME OF SITE PLAN, AREAS THAT CAN BE COUNTED AS "FOREST/OPEN SPACE" (I.E. BIORETENTION FOOTPRINT AREA) WILL BE COUNTED AS SUCH.

LAYOUT: C-11 SWM MAP, Plotted By: mekonnen

VIKA VIRGINIA, LLC
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Tysons, VA 22102
703.442.7800 | vika.com

Our Site Set on the Future.

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA 10/16/20 ROBERT R. COCHRAN Lic. No. 2012 LAND SURVEYOR

FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON, VIRGINIA

STORMWATER MANAGEMENT MAP

DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-11

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-11 SWM MAP- NARRATIVE.dwg USER: Mekonnen DATE: October 16, 2020 TIME: 10:18:18 AM LAYOUT: C-11 SWM MAP

NOT TO SCALE

GENERAL NOTES

1. The above stormwater management plan was prepared by VIKA Virginia, LLC.
2. The plan includes a combination of BMP's including green roofs, planter boxes, cisterns, stormfilters, bioretention street trees, and a hydrodynamic separator to treat the stormwater from the proposed development.
3. Stormwater computations are provided on Sheet 13-16 to show compliance with the Virginia's stormwater requirements.

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www.wetlandstudies.com

Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Preliminary Stormwater Management Plan

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COMMONWEALTH OF VIRGINIA JOHN T. KELLEY, JR Lic. No. 035786 10/19/2020 PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

SCALE: N/A
DATE: JUNE 2020

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD 1929
Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	RPC	JTK

Computer File Name:
L:\04000s\4674.06\CADD\07-REGS\WQIA\May 2020 WQIA Revision 2020-10-14_Fairbrook WQIA.dwg

SWM QUALITY REQUIREMENTS (SEE SHEET C-13 FOR VRRM FOR OFFICE BUILDING)

RESIDENTIAL AREA

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ⊙ 2013 Draft BMP Standards and Specifications

Project Name: Fairbrook Residential
Date: 9/24/2020
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+R)

data input cells / constant values / calculation cells / final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 10.83

Maximum reduction required:	20%
The site's net increase in impervious cover (acres) is:	5.76
Post-Development TP Load Reduction for Site (lb/yr):	11.66

Check:	
BMP Design Specifications List:	2013 Draft Stds & Specs
Linear project?	No
Land cover areas entered correctly?	✓
Total disturbed area entered?	✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				7.82	7.82
Impervious Cover (acres)				3.01	3.01
					10.83

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				2.06	2.06
Impervious Cover (acres)				8.77	8.77
Area Check	OK.	OK.	OK.	OK.	10.83

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	7.82	2.06
Weighted Rv(turf)	0.25	0.25
% Managed Turf	72%	41%
Impervious Cover (acres)	3.01	3.01
Rv(impervious)	0.95	0.95
% Impervious	28%	59%
Total Site Area (acres)	**10.83**	**5.07**
Site Rv	**0.44**	**0.67**

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	2.06
Weighted Rv (turf)	0.25
% Managed Turf	19%
Impervious Cover (acres)	8.77
Rv(impervious)	0.95
% Impervious	81%
Final Site Area (acres)	**10.83**
Final Post Dev Site Rv	**0.82**

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	2.06
Weighted Rv (turf)	0.25
% Managed Turf	41%
ReDev. Impervious Cover (acres)	3.01
Rv(impervious)	0.95
% Impervious	59%
Total ReDev. Site Area (acres)	**5.07**
ReDev Site Rv	**0.67**

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	5.76
Rv(impervious)	0.95

Treatment Volume and Nutrient Load (Pre-ReDevelopment)

Pre-ReDevelopment Treatment Volume (acre-ft)	0.4012	0.2812
Pre-ReDevelopment Treatment Volume (cubic feet)	17,477	12,249
Pre-ReDevelopment TP Load (lb/yr)	**10.98**	**7.70**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.01	1.52
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*2.08*

Treatment Volume and Nutrient Load (Post Development)

Final Post-Development Treatment Volume (acre-ft)	0.7372
Final Post-Development Treatment Volume (cubic feet)	32,113
Final Post-Development TP Load (lb/yr)	**20.18**
Final Post-Development TP Load per acre (lb/acre/yr)	1.86

Post-ReDevelopment Treatment Volume (acre-ft)	0.2812
Post-ReDevelopment Treatment Volume (cubic feet)	12,249
Post-ReDevelopment Load (TP) (lb/yr)*	7.70
Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.52
Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	**1.54**

Post-Development Treatment Volume (acre-ft)	0.4560
Post-Development Treatment Volume (cubic feet)	19,863
Post-Development TP Load (lb/yr)	12.48
TP Load Reduction Required for New Impervious Area (lb/yr)	**10.12**

[1] Adjusted Land Cover Summary:
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	11.66

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	78.55	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	144.34

TRAIL AREA

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ⊙ 2013 Draft BMP Standards and Specifications

Project Name: Fairbrook Trail
Date: 9/24/2020
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+R)

data input cells / constant values / calculation cells / final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.14

Maximum reduction required:	20%
The site's net increase in impervious cover (acres) is:	0.7
Post-Development TP Load Reduction for Site (lb/yr):	1.28

Check:	
BMP Design Specifications List:	2013 Draft Stds & Specs
Linear project?	No
Land cover areas entered correctly?	✓
Total disturbed area entered?	✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				1.14	1.14
Impervious Cover (acres)				0.00	0.00
					1.14

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.44	0.44
Impervious Cover (acres)				0.70	0.70
Area Check	OK.	OK.	OK.	OK.	1.14

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	1.14	0.44
Weighted Rv(turf)	0.25	0.25
% Managed Turf	100%	100%
Impervious Cover (acres)	0.00	0.00
Rv(impervious)	0.95	0.95
% Impervious	0%	0%
Total Site Area (acres)	**1.14**	**0.44**
Site Rv	**0.25**	**0.25**

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.44
Weighted Rv (turf)	0.25
% Managed Turf	39%
Impervious Cover (acres)	0.70
Rv(impervious)	0.95
% Impervious	61%
Final Site Area (acres)	**1.14**
Final Post Dev Site Rv	**0.68**

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.44
Weighted Rv (turf)	0.25
% Managed Turf	100%
ReDev. Impervious Cover (acres)	0.00
Rv(impervious)	0.95
% Impervious	0%
Total ReDev. Site Area (acres)	**0.44**
ReDev Site Rv	**0.25**

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	0.70
Rv(impervious)	0.95

Treatment Volume and Nutrient Load (Pre-ReDevelopment)

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0238	0.0092
Pre-ReDevelopment Treatment Volume (cubic feet)	1,035	399
Pre-ReDevelopment TP Load (lb/yr)	**0.65**	**0.25**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	0.57	0.57
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		*0.18*

Treatment Volume and Nutrient Load (Post Development)

Final Post-Development Treatment Volume (acre-ft)	0.0646
Final Post-Development Treatment Volume (cubic feet)	2,813
Final Post-Development TP Load (lb/yr)	**1.77**
Final Post-Development TP Load per acre (lb/acre/yr)	1.55

Post-ReDevelopment Treatment Volume (acre-ft)	0.0092
Post-ReDevelopment Treatment Volume (cubic feet)	399
Post-ReDevelopment Load (TP) (lb/yr)*	0.25
Post-ReDevelopment TP Load per acre (lb/acre/yr)	0.57
Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	**0.05**

Post-Development Treatment Volume (acre-ft)	0.0554
Post-Development Treatment Volume (cubic feet)	2,414
Post-Development TP Load (lb/yr)	1.52
TP Load Reduction Required for New Impervious Area (lb/yr)	**1.23**

[1] Adjusted Land Cover Summary:
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	1.28

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	4.65	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	12.64

SWM QUALITY NARRATIVE

SEE SHEET C-12 FOR PRELIMINARY STORMWATER MANAGEMENT PLAN AND SWM/BMP FACILTIES. COMPLIANCE WITH ALL APPLICABLE REGULATIONS WILL BE SHOWN WITH FINAL SITE PLAN, INCLUDING BUT NOT LIMITED TO SIZING COMPUTATIONS FOR INDIVIDUAL SWM/BMP FACILITIES.

PHASING NARRATIVE

THE SUBJECT SITE IS DESIGNED SUCH THAT DEVELOPMENT MAY OCCUR IN PHASES. FOR THE PURPOSES OF THIS NARRATIVE THE PHASE WILL BE CONSIDERED THE RESIDENTIAL PHASE AND THE OFFICE PHASE. ADDITIONALLY, THE CONSTRUCTION OF THE TRAIL SYSTEM SHALL BE CONSIDERED AS A SEPARATE STORMWATER AREA, BUT NOT A SEPARATE PHASE. THE OVERALL WATER QUANTITY AND QUALITY CONTROLS FOR THE PROJECT WILL MEET THE NECESSARY STANDARDS / REQUIREMENTS FOR THE ENTIRE DEVELOPMENT. EACH PHASE ABOVE WILL BE DESIGNED TO CONTROL STORMWATER RUNOFF TO A LEVEL THAT AT A MINIMUM IS SUFFICIENT TO MEET THE STANDARDS / REQUIREMENTS FOR THE WORK PROPOSED WITHIN THAT PHASE. ADDITIONAL CONTROLS ABOVE THOSE NEEDED FOR THE WORK IN THE PHASE WILL BE PROVIDED WITHIN EACH PHASE SUCH THAT THE WATER QUALITY AND WATER QUANTITY GOALS FOR THE OVERALL DEVELOPMENT WILL BE MET AT BUILDOUT. MORE SIMPLY, THE RESIDENTIAL PHASE AND OFFICE PHASE WILL PROVIDE CONTROLS TO ACCOUNT FOR THE WORK WITHIN THE TRAIL SYSTEM - THERE WILL BE NO CONTROLS PROPOSED WITHIN THE TRAIL SYSTEM AREA. THE LEVEL OF CONTROL TO ACCOUNT FOR THE TRAIL SYSTEM WORK WILL BE ALLOCATED BETWEEN THE TWO PHASES AT THE TIME OF FUTURE SITE PLAN PREPARATION. A RUNNING TABULATION WILL BE KEPT ENSURING OVERALL COMPLIANCE AT BUILDOUT. EACH PHASE WILL PROVIDE A MINIMUM CONTROL LEVEL TO "STAND ALONE" WITH ADDITIONAL LEVELS OF CONTROL DOCUMENTED AND TABULATED TO CREDIT TOWARD THE TRAIL SYSTEM, KEEPING A RUNNING TABULATION AS FUTURE PHASES OF DEVELOPMENT OCCUR.

LAYOUT: C-12 SWM COMPUTATIONS QUALITY, Plotted By: mekonnen

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3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
10/16/20
ROBERT R. COCHRAN
Lic. No. 2012
LAND SURVEYOR

FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON, VIRGINIA

STORMWATER MANAGEMENT COMPUTATIONS

DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-12

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-11 SWM MAP- NARRATIVE.dwg USER: Mekonnen DATE: October 16, 2020 TIME: 10:18:47 AM LAYOUT: C-12 SWM COMPUTATIONS QUALITY

GENERAL NOTES

1. The above stormwater management computations were prepared by VIKA Virginia, LLC.

2. Shown on this sheet are the stormwater computations for the Fairbrook site (excluding the off-site extension of Fairbrook Drive). Proposed stormwater controls have only been specified on site at this time. Excluding the offsite road extension, the specified controls will slightly exceed the requirements of the state's water quality standards. With the offsite road extension, additional controls (such as bioretention tree pits) will be required to meet the state stormwater requirements and will be developed along with the final site design as the project progresses.

3. In addition to the state stormwater requirements for nutrient removal, further pollutant removal will be achieved through the proposed stream restoration outlined on Sheets 10-11. This stream restoration and associated additional pollutant removal benefit will improve the existing RPA condition on site following construction.

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Water Quality Computations

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COMMONWEALTH OF VIRGINIA
JOHN T. KELLEY, JR
Lic. No. 035786
9/28/2020
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

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Design	Draft	Approved
RPC	RPC	JTK

Sheet #
14 of 18

Computer File Name:
L:\04000s\4674.06\CADD\07-REGS\WQIA\May 2020 WQIA Revision 2020-10-14_Fairbrook WQIA.dwg

SWM QUALITY REQUIREMENTS

OFFICE AREA

DEQ Virginia Runoff Reduction Method New Development Compliance Spreadsheet - Version 3.0

☐ 2011 BMP Standards and Specifications ☒ 2013 Draft BMP Standards and Specifications

Project Name: Fairbrook Office Bldgs
Date: 9/24/2020
BMP Design Specifications List: 2013 Draft Stds & Specs

CLEAR ALL (Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.07	0.07
Impervious Cover (acres)				3.91	3.91
					3.98

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	6.88

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary

Forest/Open Space Cover (acres)	0.00
Weighted Rv (forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.07
Weighted Rv (turf)	0.25
% Managed Turf	2%
Impervious Cover (acres)	3.91
Rv (impervious)	0.95
% Impervious	98%
Site Area (acres)	3.98
Site Rv	0.94

Treatment Volume and Nutrient Loads

Treatment Volume (acre-ft)	0.3110
Treatment Volume (cubic feet)	13,547
TP Load (lb/yr)	8.51
TN Load (lb/yr) (Informational Purposes Only)	60.89

LAYOUT: C-13 SWM COMPUTATIONS QUALITY, Plotted By: mekonnen

GENERAL NOTES

1. The above stormwater management computations were prepared by VIKA Virginia, LLC.
2. Shown on this sheet are the stormwater computations for the Fairbrook site (excluding the off-site extension of Fairbrook Drive). Proposed stormwater controls have only been specified on site at this time. Excluding the offsite road extension, the specified controls will slightly exceed the requirements of the state's water quality standards. With the offsite road extension, additional controls (such as bioretention tree pits) will be required to meet the state stormwater requirements and will be developed along with the final site design as the project progresses.
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COMMONWEALTH OF VIRGINIA ROBERT P. CHAMAN Lic. No. 012 PROFESSIONAL ENGINEER

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

STORMWATER MANAGEMENT COMPUTATIONS

DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-13

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Water Quality Impact Assessment
Town of Herndon, Virginia

Water Quality Computations

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No.	Date	Description	Rev. By	App. By	DATE: JUNE 2020

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Design	Draft	Approved
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Sheet # 15 of 18

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SWM QUANTITY REQUIREMENTS

RESIDENTIAL AREA

THE RESIDENTIAL AREA COMPRISES FOUR (4) SUB DRAINAGE AREAS: HERNDON PARKWAY, RESIDENTIAL BUILDING 1, RESIDENTIAL BUILDING 2, AND FAIRBROOK DRIVE & PRIVATE ROAD A.

IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS FOR SWM QUANTITY, THE PEAK FLOW RATE FOR THE PROPOSED DEVELOPMENT SHALL NOT EXCEED THE EXISTING PEAK DEVELOPMENT.

AT THE TIME OF SITE PLAN, THE EXISTING CN WILL BE CALCULATED BASED ON THE FINAL PROPOSED LIMITS OF DISTURBANCE AND THE POST REDEVELOPED CN WILL BE CALCULATED USING THE RUNOFF REDUCTION METHOD (OR OTHER APPROVED METHOD).

DETENTION VAULTS WILL BE PROPOSED (WITH POTENTIAL LOCATIONS SHOWN ON SHEET C-11) TO DETAIN THE STORMWATER AS NEEDED TO MEET THE REQUIREMENTS. DETENTION VAULT SIZING AND ROUTINGS WILL BE SHOWN WITH FINAL ENGINEERING TO SHOW COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS.

OFFICE AREA

THE OFFICE AREA COMPRISES TWO (2) SUB DRAINAGE AREAS: THE OFFICE BUIDLING & GARAGE DECK AND THE ENTRY ROAD TO THE GARAGE.

IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS FOR SWM QUANTITY, THE PEAK FLOW RATE FOR THE PROPOSED DEVELOPMENT SHALL NOT EXCEED THE EXISTING PEAK DEVELOPMENT.

AT THE TIME OF SITE PLAN, THE EXISTING CN WILL BE CALCULATED BASED ON THE FINAL PROPOSED LIMITS OF DISTURBANCE AND THE POST REDEVELOPED CN WILL BE CALCULATED USING THE RUNOFF REDUCTION METHOD (OR OTHER APPROVED METHOD) AT THE TIME OF SITE PLAN.

DETENTION VAULTS WILL BE PROPOSED (WITH POTENTIAL LOCATIONS SHOWN ON SHEET C-11) TO DETAIN THE STORMWATER AS NEEDED TO MEET THE REQUIREMENTS. DETENTION VAULT SIZING AND ROUTINGS WILL BE SHOWN WITH FINAL ENGINEERING TO SHOW COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS.

ADEQUATE OUTFALL NARRATIVE

THE SUBJECT DEVELOPMENT HAS THREE (3) MAIN OUTFALLS. ALL THREE (3) OUTFALLS DISCHARGE DIRECTLY INTO A NATURAL STORMWATER CONVEYANCE CHANNEL THROUGH EXISTING OR PROPOSED PIPES TO AN OUTFALL STRUCTURE.

CHANNEL PROTECTION
PER 9VAC25-870-66-B.3 WHEN DISCHARGING TO NATURAL STORMWATER CONVEYANCE SYSTEMS, THE MAXIMUM PEAK FLOW RATE FROM THE 1 YR 24 HR STORM POST DEVELOPMENT MUST BE IN ACCORDANCE WITH THE ENERGY BALANCE EQUATION: Q DEVELOPED <= I.F.*(Q PRE DEVELOPED* RV PRE DEVELOPED)/RV DEVELOPED. THIS WILL BE ACHIEVED THROUGH THE USE OF LID TECHNIQUES AND STORMWATER DETENTION VAULTS. COMPLIANCE WILL BE SHOWN AT THE TIME OF FINAL SI TE PLAN. PER 9VAC25-870-66-B-4 THE LIMITS OF ANALYSIS SHALL TERMINATE AT THE POINT OF DISCHARGE. THEREFORE NO FURTHER ANALYSIS FOR CHANNEL PROTECTION WIL BE REQUIRED.

FLOOD PROTECTION
PER 9VAC25-870-66-C, THE POST DEVELOPMENT 10 YEAR 24 HOUR STORM EVENT MUST BE LESS THAN THE PREDVELOPMENT PEAK FLOW RATE FROM THE 10-YEAR 24 HOUR STORM EVENT. THE 10-YEAR FLOW IS CONFINED WITHIN THE PROPOSED PIPES TO THE DISCHARGE LOCATION INTO THE NATURAL STORMWATER CONVEYANCE SYSTEM. COMPLIANCE WILL BE SHOWN AT THE TIME OF FINAL SITE PLAN. PER 9VAC25-870-66-C.3.C, THE LIMIT OF ANALYSIS IS TO A POINT WHERE THE STORMWATER CONVEYANCE SYSTEM ENTERS A MAPPED FLOODPLIAN OR OTHER FLOO-PRONE AREA. EACH POINT OF DISCHARGE IS LOCATED WITHIN AN EXISTING MAPPED FLOOPLAIN. THEREFORE NO FURTHER ANALYSIS WILL BE REQUIRED.

BASED ON THE ABOVE AND CORRESPONDING COMPUTATIONS, IT IS THE OPINION OF VIKA VA, LLC THAT THIS PROJECT WILL HAVE NO ADVERSE AFFECTS NOR CAUSE FLOODING OF ANY DOWNSTREAM PROPERTY OR STRUCTURE AND THAT THE OUTFALL IS ADEQUATE.

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FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON,
VIRGINIA

STORMWATER MANAGEMENT COMPUTATIONS

DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-14

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LAYOUT: C--14 SWM COMPUTATIONS QUANTITY, Plotted By: mekonnen

GENERAL NOTES

1. The above stormwater management computations were prepared by VIKA Virginia, LLC.
2. Shown on this sheet are the stormwater computations for the Fairbrook site (excluding the off-site extension of Fairbrook Drive). Proposed stormwater controls have only been specified on site at this time. Excluding the offsite road extension, the specified controls will slightly exceed the requirements of the state's water quality standards. With the offsite road extension, additional controls (such as bioretention tree pits) will be required to meet the state stormwater requirements and will be developed along with the final site design as the project progresses.
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9/28/2020
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No.	Date	Description	Rev. By	App. By

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RPC	RPC	JTK

Sheet # 16 of 18

Computer File Name:
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Water Quality Impact Assessment Narrative

The Fairbrook project is located within the existing Fairbrook Business Park at the intersection of Fairbrook Drive and Herndon Parkway in the Town of Herndon, Virginia. The proposed development will consist of the extension of Fairbrook Drive along Sugarland Run, the demolition of an existing office building, construction of a mixed-use development (containing office, residential, and retail space), as well as the associated private roads and parking. Currently, the existing site is composed of a single office building between Fairbrook Drive and Sunset Park Drive and unmanaged landscape including forested conditions, stream corridor, and an existing 100 foot transmission easement. In addition, the proposed extension of Fairbrook Drive will continue off site onto the adjoining parcel (Herndon I LLC) located adjacent to the Fairfax County Parkway. Approximately 716,771 SF (16.45 ac) of the Fairbrook property is located within the Resource Protection Area (RPA) for Sugarland Run and its associated wetlands and tributaries. The proposed construction will result in a total of 287,505 SF (6.60 ac) of RPA encroachment of which there is 190,924 SF (4.38 ac) of impervious area. A discussion and breakdown of the proposed impervious areas is included within Section II RPA Encroachments below.

This Water Quality Impact Assessment (WQIA) was prepared as required by Section 78-60.4 of the Town of Herndon Code, *Chesapeake Bay Preservation Area Overlay District (CBPAOD)*. The following narrative addresses each element of consideration for evaluating a WQIA.

I. RPA Components & Boundary

Two RPA boundaries, the “Field Verified RPA” and “2004 Town of Herndon Mapped RPA”, are depicted on the Existing and Proposed Conditions Maps, provided as Sheets 2-7.

The “Field Verified RPA” is governed by a 100-ft buffer extending landward from the RPA core components as defined in §78-304.4(d)(1) of the Town of Herndon Code. The RPA core components existing on site include six (6) perennial streams (Sugarland Run and five (5) unnamed tributaries to Sugarland Run) within the study area. Additionally, non-tidal wetlands connected by surface flow and contiguous to the perennial streams are present on the study area. Therefore, the limits of the RPA on this study area are governed by the 100-foot buffer extending landward from the OHWM of the perennial stream and any wetlands contiguous and connected by surface flow to these streams. The jurisdictional limits (OHWM) of these streams have been delineated and survey located by WSSI as described in the May 31, 2016 report entitled, "Waters of the U.S. (Including Wetlands) Delineation and Resource Protection Area Evaluation, Fairbrook Business Park and Off-site Study Area". The U.S. Army Corps of Engineers (COE) issued a jurisdictional determination (JD) verifying the delineated boundaries of these waters of the U.S on September 21, 2016 (NAO-2016-01643).

The Town of Herndon Mapped RPA was based on data from the perennial stream mapping project conducted by the Fairfax County DPWES and was digitized by WSSI from the February 10, 2004 Town of Herndon RPA map.

II. RPA Encroachments and Impervious Area

The existing conditions within the RPA consist of a combination of existing parking and office building for the Fairbrook Business Park, Fairbrook Drive, unmanaged landscape, a maintained transmission easement, scrub-shrub, and forested conditions. The existing building, parking, and roadway areas are located on the northwestern side of the parcel and comprise approximately 3.4% of the total RPA area onsite. The remaining RPA area within the Fairbrook parcel consists of pervious conditions comprised of the unmanaged landscape, a maintained transmission easement, scrub-shrub, and forested conditions. Within this area are Sugarland Run and its associated wetlands and tributaries. The existing impervious area within the RPA and within the proposed limits of disturbance is 38,812 SF (0.89 ac). Refer to Sheet 2-3 for more detail on the existing conditions.

The proposed development consists of the extension of Fairbrook Drive, improvements along Herndon Parkway, the construction of a mixed-use development (office, residential, and retail) with associated infrastructure, sidewalks/hardscape pathways along Herndon Parkway, Fairbrook Drive, and throughout the RPA, necessary utility installations, and stream restoration activities. The proposed encroachments into the RPA associated with this development include clearing of vegetation within the limits of disturbance, grading and earthwork, and construction of infrastructure. The extension of Fairbrook Drive lies almost completely within the RPA on the Fairbrook parcel. The road extension is proposed to be built at a higher grade than the existing grade and will be graded out adjacent to Sugarland Run in some areas and retaining walls will be utilized in others. The extension of Fairbrook Drive will become a new public road in the Town of Herndon and thus the encroachment associated with the road is permitted under Section 78-60.4(j)(2). It should be noted that the Fairbrook Drive extension is listed as a comprehensive road in the Herndon Comprehensive Plan. In addition, a private access road is proposed across the tributary to Sugarland Run connecting proposed Buildings 1 and 2 with Fairbrook Drive. This proposed development will result in a total of 287,505 SF (6.60 ac) of RPA encroachment of which there is 190,924 SF (4.38 ac) of impervious area. Refer to Sheet 4-7 for more detail on the proposed impervious conditions.

Of the 287,505 SF (6.60 ac) of RPA encroachment:

- 21,451 SF (0.49 ac) is exempt under Section 78-40.4(k)(2) associated with the improvements along Herndon Parkway.
- 81,022 SF (1.86 ac) is exempt under Section 78-40.4(k)(1) & (2) associated with proposed utility crossings, trail network, and public sidewalks along Fairbrook Drive.
- 13,666 SF (0.31 ac) is permitted under Section 78-40.4(j)(2) associated with the stream restoration activity.
- 2,996 SF (0.07 ac) is permitted under Section 78-40.4(j)(2) associated with stormwater outfalls.
- 85,262 SF (1.96 ac) is exempt under Section 78-40.4(k)(2) associated with the extension of Fairbrook Drive.
- 49,556 SF (1.14 ac) has been previously approved under Conditional Use #00-07 associated with proposed Buildings 1 and 2 south of Fairbrook Drive.
- 19,587 SF (0.45 ac) will require an exception under Section 78-40.4(o) associated with Buildings 1 & 2.
- 4,179 SF (0.10 ac) will require an exception under Section 78-40.4(o) associated with Building 3.
- 9,786 SF (0.22 ac) will require an exception under Section 78-40.4(o) associated with Building 4.

Of the 190,924 SF (4.38 ac) of proposed impervious area within the RPA:

- 13,901 SF (0.32 ac) is exempt under Section 78-40.4(k)(2) associated with the improvements along Herndon Parkway.
- 43,959 SF (1.01 ac) is exempt under Section 78-40.4(k)(1) & (2) associated with the proposed trail system and associated public sidewalks.
- 66,427 SF (1.52 ac) is exempt under Section 78-40.4(k)(2) associated with the extension of Fairbrook Drive.
- 310 SF (0.01 ac) is permitted under Section 78-40.4(j)(2) associated with the proposed stormwater outfalls.
- 48,012 SF (1.10 ac) has been previously approved under Conditional Use #00-07 associated with proposed Buildings 1 and 2 south of Fairbrook Drive.
- 7,776 SF (0.18 ac) will require an exception under Section 78-40.4(o) associated with Buildings 1 & 2.
- 3,149 SF (0.07 ac) will require an exception under Section 78-40.4(o) associated with Building 3.
- 7,390 SF (0.17 ac) will require an exception under Section 78-40.4(o) associated with Building 4.

It should be noted that following the construction of the proposed extension to Fairbrook Drive, the remaining RPA to the north side of the road will no longer be connected or acting as a buffer for Sugarland Run. Being that these fringe areas will no longer be acting as a buffer following the construction of the road, as shown on the Proposed Conditions Plan (Sheets 4-7).

III. Proposed Best Management Practices

To offset the proposed increase in impervious area within the limits of disturbance, a combination of low impact development practices, including but not limited to green roofs, bioretention facilities, and permeable pavement systems - as well as possible underground detention vaults (detention and/or filtering) are proposed. These facilities will provide phosphorus reductions required by the Virginia Stormwater Management Program (VSMP). Significant reductions from the post-developed runoff volumes are anticipated from the use of such practices, which will serve to benefit not only water quality control but also water quantity control.

Additional detention of post development runoff for the 2-year and 10-year storm events, if required for adequacy of outfall and/or peak shaving, will be accommodated through vaults providing storage and controlled release to meet the overall detention/outfall adequacy requirements. The proposed roadway extension will also require stormwater quality and quantity controls. Such improvements will be subjected to stormwater controls more in keeping with a linear project. Such controls may include, but are not limited to, localized urban bioretention (possibly in tree pits), filter cartridges within manholes or drop inlets, purchase of nutrient credits, and/or piping the runoff to the on-site control facilities. Stormwater BMP locations and water quality calculations have been developed and are provided on Sheets 13-16.

IV. Existing Vegetation

The existing pervious area on both the Fairbrook parcels consists of a mixture of forested conditions, a 100 foot transmission easement, and unmanaged landscape. A mixture of small to medium sized trees and shrubs are located within the forested areas and predominately grasses and shrubs are located within the easement and other unmanaged areas of the RPA. The proposed development will result in the removal of multiple trees and shrubs within the limits of disturbance to accommodate the proposed Fairbrook Drive extension, multiple buildings, and associated infrastructure. A vegetation assessment is included on Sheets 8-9.

V. Re-vegetation and RPA Enhancements

The newly graded area within the RPA outside of the building footprint will be re-planted in accordance with the Virginia Department of Conservation and Recreation's *Riparian Buffers Modification & Mitigation Guidance Manual* as required by the Town of Herndon Code. The building footprints will also provide an assortment of street trees that will assist in providing additional water quality improvements for the site. Additionally, non-forested areas within the floodplain will be planted in order to meet the appropriate planting requirements as shown on the RPA Enhancement Plan (Sheets 10-11). As the required amount of re-planting is greater than what can be planted onsite, offsite areas identified by the Town of Herndon can be used to make up the delta if required. Additionally, stream restoration is proposed along areas of Sugarland Run, of which the temporary disturbance adjacent to the stream channel will be seeded and planted with a native plant selection to stabilize the stream bed and banks. For reference:

- Buildings 1 & 2 will require 0.45 acre of re-planting.
- Building 3 will require 0.10 acre of re-planting.
- Building 4 will require 0.22 acre of re-planting.

VI. Existing Conditions

The existing topography within the Fairbrook parcel consists of relatively low slopes throughout much of the RPA as well as within the proposed limits of disturbance shown on Sheets 2-3. The existing site drains to Sugarland Run (a perennial stream) and flows northeast off the Fairbrook parcel and onto the Herndon I LLC parcel until entering into four concrete box culverts beneath Spring Street/Sunset Hills Road. The existing soils within the RPA consist of a combination of Elbert silt loam, 0 to 2 percent slopes (35A); Jackland and Haymarket soils, 7 to 15 percent slopes, 2 to 7 percent slopes (very stony), and 7 to 15 percent slopes (very stony) (63B, 64B, and 64C respectively); as well as urban land (95) associated with the existing development of Fairbrook business park. Being that much of the land has been developed, much of the soils on site have been disturbed previously and thus soil properties may vary significantly in areas with previous cut and fill. Refer to Sheets 2-3 for further details on existing site conditions.

VII. Proposed Impacts

The development of the Fairbrook site will result in both excavation and fill throughout the limits of disturbance in order to allow for the construction of the proposed buildings, extension of Fairbrook Drive, improvements to Herndon Parkway, a trail/sidewalk system, and necessary utility installations. Sections of Fairbrook Drive will be elevated slightly above the existing stream valley and will require retaining walls at two locations, specifically between Herndon Parkway and the connector road to Buildings 1 and 2, as shown on the Proposed Conditions Plan (Sheets 4-7). The limits of disturbance (LOD) and grading is shown on the Proposed RPA Encroachment and Impervious Conditions plans. Disturbance to the topography, soils, and hydrology within the RPA is limited to the area within the LOD. The hydrology on site will be modified by updating and expanding the existing stormwater network but the site will continue to drain to Sugarland Run. Refer to Sheets 4-7 for further details on proposed site conditions including proposed topography and stormwater network.

VIII. Disturbance to Wetlands

The boundaries of jurisdictional wetlands and other waters of the U.S. were delineated by Wetland Studies and Solutions, Inc., as described in the May 31, 2016 report entitled, "Waters of the U.S. (Including Wetlands) Delineation and Resource Protection Area Evaluation, Fairbrook Business Park and Off-site Study Area". The U.S. Army Corps of Engineers (COE) issued a jurisdictional determination (JD) verifying the delineated boundaries of these waters of the U.S on September 21, 2016 (NAO-2016-01643). The limits of the Waters of the U.S. were survey located by Wetland Studies and Solutions, Inc. There is a current authorization from both the COE and DEQ to disturb wetlands associated with the Fairbook site. This permit will be modified to include the proposed impacts from Fairbook Drive.

IX. Changes in Hydrology

Much of the existing site is pervious and excess runoff in these areas currently drains to Sugarland Run by means of surface flow, shallow concentrated flow, and channel flow. On the Fairbrook parcel, the existing office building, associated parking, and Fairbrook Drive drain by means of an existing underground stormwater network to an unnamed perennial tributary to Sugarland Run. Being that proposed construction will result in an increase of impervious area throughout the site and therefore an increase in flow rate from the site, stormwater detention is required. To offset the proposed increase in impervious area within the limits of disturbance, a combination of low impact development practices including but not limited to green roofs, bioretention facilities, and permeable pavement systems - as well as possible underground detention vaults (detention and/or filtering) are proposed. Significant reductions from the post-developed runoff volumes is anticipated from the use of such practices, which will serve to benefit not only water quality control but also water quantity control.

Preliminary stormwater BMP locations and water quality calculations have been developed and are provided on Sheets 13-16. The stormwater management plan and computations will be updated as needed along with the full site design as the project progresses.

X. Proposed Fill Material

Earthwork volumes have not been determined at this time. Cut/Fill volumes and proposed fill material (if necessary) will be determined as the project progresses.

XI. Pre- and Post-Development Pollutant Load

The proposed development will result in a net increase in impervious area onsite as well as within the RPA. To offset the proposed increase in impervious area within the limits of disturbance, a combination of low impact development facilities, including but not limited to green roofs, bioretention practices, and permeable pavement systems - as well as possible underground detention vaults (detention and/or filtering). These facilities will provide phosphorus reductions required by the VSMP. Significant reductions from the post-developed runoff volumes are also anticipated from the use of such practices, which will serve to benefit not only water quality control but also water quantity control. Preliminary stormwater computations have been developed to demonstrate pollutant load reductions for the project site and are shown on Sheets 13-16.

In addition to the required pollutant load reductions associated with the increase in impervious areas on the site, the proposed encroachments into the RPA will ultimately reduce the buffer area. To account for this loss of buffer area and its associated filtering capacity, several sections of stream restoration are shown in the RPA Enhancement Plan (Sheets 10-11) which will result in a reduced pollutant loading to Sugarland Run. Badly eroding stream channels contribute tremendous amounts of sediment and attached nutrients to downstream receiving waters. DEQ recognizes this and therefore allows a credit of 0.068 lbs. TP per linear foot for stream restoration projects. This credit can be used by localities and entities that have been designated as “MS4’s” (those that operate Municipal Separate Storm Sewer Systems) to meet their regulatory requirements. Details of this process can be found in the DEQ document Chesapeake Bay TMDL Action Plan Guidance, Guidance Memo No. 15-2005 (Guidance Document) dated May 18, 2015.

XII. Increases in Impervious Surfaces

The proposed development on the Fairbrook will result in a net increase in impervious area onsite as well as within the RPA. This new impervious area results from the construction of the mixed-use development, the extension of Fairbrook Drive, and all required infrastructure associated with the buildings and roadways. The proposed development will result in a net increase of approximately 152,112 SF (3.49 ac) of impervious area within the RPA. Of the proposed impervious area, a large portion is associated with the construction of Fairbrook Drive, improvements to Herndon Parkway, and construction of sidewalks along Herndon Parkway and Fairbrook Drive, a trail network, and are exempt under the Town of Herndon Chesapeake Bay Preservation Area overlay district as detailed in Section II.

XIII. Site Clearing

The proposed Fairbrook development has a total disturbed area of approximately 721,111 SF (16.55 ac) with a total of 287,505 SF (6.60 ac) within the RPA. The total area of the Fairbrook parcel is 1,200,741 SF (27.57 ac). Thus, approximately 40% of the limits of disturbance area is located within the RPA and approximately 60% of the parcels will be cleared. All required erosion and sediment controls will be installed to minimize impacts offsite.

XIV. Anticipated Duration and Phasing Schedule

A Special Exception Plan was submitted to the Town of Herndon ahead of final site plan. The anticipated duration and phasing of construction has not been determined at this time.

A specific schedule will be developed in conjunction with the full site design as the project progresses.

XV. Requisite Permits for Project

The following permits required for construction along with the issuing agency are listed below:

- Land Disturbance Permit - **Town of Herndon**
- Demolition/Grading Permit - **Town of Herndon**
- Right-of-Way Permit - **Town of Herndon**
- Building Permit (Footing to Grade) - **Town of Herndon**
- Building Permit (Above Grade) - **Town of Herndon**
- VSMP and VWP Permits - **Virginia Dept. Environmental Quality**
- Section 404 Permit - **U.S. Army Corps of Engineers**
- VMRC Authorization (for impacts with D.A. > 5 sq. mi.) **- Virginia Marine Resources Commission**

XVI. Proposed Mitigation Measures for Hydrogeological Impacts

While the proposed development will result in the net increase of impervious area onsite and within the RPA, proposed stormwater management quantity and quality controls will be provided in accordance with the VSMP. Stormwater treatment and control will be accomplished through the design and use of a combination of low impact development practices including but not limited to green roofs, bioretention facilities, and permeable pavement systems - as well as possible underground detention vaults (detention and/or filtering) are proposed. These facilities will provide phosphorus reductions required by the Virginia state stormwater regulations. Significant reductions from the post-developed runoff volumes is anticipated from the use of such practices, which will serve to benefit not only water quality control but also water quantity control.

Storm sewer for the proposed development discharges into a floodplain bed and banks condition. The adequacy of these outfalls will be evaluated in accordance with Herndon Town Code Chapter 26, Section 329. The evaluation of the “natural stormwater conveyance system” for channel protection and flood protection will be performed to evaluate the natural conveyance system to point at least 150 feet downstream of a point where the drainage area is 360 acres or greater. The extent of the evaluation will be onsite as the drainage area of the floodplain discharge point at the eastern boundary is greater than 482 acres. Taking the runoff reduction methodologies to be employed into account, the Site Engineer anticipates that an adequate outfall exists onsite without impact to downstream properties.

In order to mitigate for the proposed impacts to the the stream channels and wetlands onsite, stream restoration is proposed along the highly eroded sections of Sugarland Run and its tributaries. The proposed restoration will provide a much more stable planform geometry and significantly reduce the amount of erosion to the bed and banks. Along with stream improvements, a variety of pollinator plants are specified to be planted in areas outside of the existing wetlands and within the transmission easement. For all work associated with the stream and wetlands onsite, a permit will be acquired from COE and DEQ to disturb these areas. Refer to the RPA Enhancement Plan on Sheets 10-11 for locations of plantings and stream improvements.

XVII. Identification of Characteristics and Conditions of Sensitive Lands

The boundaries of jurisdictional wetlands and other waters of the U.S. were delineated by Wetland Studies and Solutions, Inc. and serve as components to the field verified RPA plotted on Sheets 2-3. The RPA core components existing on site include six (6) perennial streams (Sugarland Run and five (5) unnamed tributaries to Sugarland Run). Additionally, non-tidal wetlands connected by surface flow and contiguous to the perennial streams are present in the study area. Much of the stream valley is newly forested with small to medium sized trees and shrubs. A significant portion of the stream valley is located within an existing 100' transmission easement running from Herndon Parkway, along the existing Fairbrook Drive, and paralleling the Fairfax County Parkway to its intersection with Sunset Hills Road.

Several sections of the stream channel, including multiple outfalls into Sugarland Run, are actively eroding. Stream restoration is proposed for these sections in order to stabilize the channel and reconnect the stream to its floodplain. In addition, in areas outside of the existing wetlands and within the transmission easement, a variety of pollinator plants are specified to be planted.

XVIII. Identification of and Impact on the Natural Processes and Ecological Relationships

The existing stream valley and associated wetlands provide a wide variety of both ecological and environmental benefits. The presence of water in the stream and adjacent wetlands encourages significant growth of vegetation and simultaneously provides habitat for many different species. The wetlands and vegetation also assist in filtering water and removing nutrients and other pollutants from surface runoff. In addition, the wetlands and floodplain provide storage for excess runoff during storm events as well as adding overbank roughness and reducing velocities. The stream valley also provides aesthetic value to the community and potential opportunities for recreational use.

The proposed encroachments into the RPA will reduce the buffer area around the existing streams and wetlands associated with Sugarland Run. In addition, a small portion of the existing stream and wetlands will be directly impacted by the extension of Fairbrook Drive. Although these impacts will occur on the northern and western side of the stream, the majority of the wetlands associated with Sugarland Run are located between the existing stream channel and the Dulles Toll Road to the south. This area will remain undisturbed and will continue to provide ecological and environmental benefits for the community.

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Water Quality Impact Assessment Narrative

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COMMONWEALTH OF VIRGINIA
JOHN T. KELLEY, JR
Lic. No. 035786
10/19/2020
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

SCALE: N/A

DATE: JUNE 2020

Horizontal Datum: VCS NAD 83

Vertical Datum: NGVD 1929

Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	APE	JTK

Sheet #
17 of 18

Computer File Name:
L:\04000s\4674.06\CADD\07-REGS\WQIA\May 2020 WQIA Revision 2020-10-14_Fairbrook WQIA.dwg

June 17, 2020
Revised October 19, 2020

Town Council
Herndon Municipal Center
777 Lynn Street
Herndon, Virginia 20170

Re: Water Quality Impact Assessment & RPA Exception Request
Fairbrook
Map #: 0164-10-0005A; 0164-25-O; 0164-25-H; 0173-02-0004A
Town of Herndon, Virginia
WSSI #4674.06

To the Town Council:

Wetland Studies and Solutions, Inc. (WSSI), on behalf of Fairbrook Business Park Associates, LP and Fairbrook Business Park Associates II, LP, (hereafter referred to as the "Applicant"), is requesting an authorization of resource protection area (RPA) encroachments under §78-60.4(j), §78-60.4(k), and §78-60.4(o) per the Town of Herndon Chesapeake Bay Preservation Area Overlay District ("Ordinance") for encroachments into the Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) in Town of Herndon, Virginia.

Project Description

The Fairbrook project is a development project located within the existing Fairbrook Business Park at the intersection of Fairbrook Drive and Herndon Parkway in the Town of Herndon, Virginia. The proposed development will consist of the extension of Fairbrook Drive along Sugarland Run to tie into Spring Street, road improvements along Herndon Parkway, a trail system, stream restoration, the demolition of an existing office building, construction of a mixed-use development (containing office, residential, and retail space), as well as the associated private roads and parking. Currently, the existing site is composed of a single office building between Fairbrook Drive and Sunset Park Drive and unmanaged landscape including forested conditions, stream corridor, and an existing 100-foot transmission easement. In addition, the proposed extension of Fairbrook Drive will continue off site onto the adjoining parcel (Herndon I LLC) located adjacent to the Fairfax County Parkway and connect to Spring Street. Approximately 716,771 square feet (16.45 acres) of the Fairbrook property is located within the Resource Protection Area (RPA) for Sugarland Run and its associated wetlands and tributaries. The proposed construction of the Fairbrook development will result in the total of 287,505 square feet (6.60 acres) of RPA encroachment consisting of 190,924 square feet (4.38 acres) of impervious area within the RPA.

Of the 287,505 SF (6.60 ac) of RPA encroachment:

- 21,451 SF (0.49 ac) is exempt under Section 78-40.4(k)(2) associated with the improvements along Herndon Parkway.
- 81,022 SF (1.86 ac) is exempt under Section 78-40.4(k)(1) & (2) associated with proposed utility crossings, trail network, and public sidewalks along Fairbrook Drive.

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contactus@wetlands.com • www.wetlands.com

- 13,666 SF (0.31 ac) is permitted under Section 78-40.4(j)(2) associated with the stream restoration activity.
- 2,996 SF (0.07 ac) is permitted under Section 78-40.4(j)(2) associated with stormwater outfalls.
- 85,262 SF (1.96 ac) is exempt under Section 78-40.4(k)(2) associated with the extension of Fairbrook Drive.
- 49,556 SF (1.14 ac) has been previously approved under Conditional Use #00-07 associated with proposed Buildings 1 and 2 south of Fairbrook Drive.
- 19,587 SF (0.45 ac) will require an exception under Section 78-40.4(o) associated with Buildings 1 & 2.
- 4,179 SF (0.10 ac) will require an exception under Section 78-40.4(o) associated with Building 3.
- 9,786 SF (0.22 ac) will require an exception under Section 78-40.4(o) associated with Building 4.

Of the 190,924 SF (4.38 ac) of proposed impervious area within the RPA:

- 13,901 SF (0.32 ac) is exempt under Section 78-40.4(k)(2) associated with the improvements along Herndon Parkway.
- 43,959 SF (1.01 ac) is exempt under Section 78-40.4(k)(1) & (2) associated with the proposed trail system and associated public sidewalks.
- 66,427 SF (1.52 ac) is exempt under Section 78-40.4(k)(2) associated with the extension of Fairbrook Drive.
- 310 SF (0.01 ac) is permitted under Section 78-40.4(j)(2) associated with the proposed stormwater outfalls.
- 48,012 SF (1.10 ac) has been previously approved under Conditional Use #00-07 associated with proposed Buildings 1 and 2 south of Fairbrook Drive.
- 7,776 SF (0.18 ac) will require an exception under Section 78-40.4(o) associated with Buildings 1 & 2.
- 3,149 SF (0.07 ac) will require an exception under Section 78-40.4(o) associated with Building 3.
- 7,390 SF (0.17 ac) will require an exception under Section 78-40.4(o) associated with Building 4.

RPA Exception Request

In order to demonstrate compliance with the intent and purpose of the Ordinance, WSSI has evaluated the requirements for an exception request under Section 78-40.4(o) of the Ordinance. In accordance with §78-40.4(o)(3), WSSI evaluated the following findings when developing the above mentioned WQIA:

I. *The requested CBPA exception is the minimum necessary to afford relief;*

The proposed impact within the RPA is the minimum necessary to allow for the extension of Fairbrook Drive. The proposed road has been aligned such that the impacts to the RPA has been minimized to the extent practicable given the site constraints (including the

location of the tie-in points to existing roads). Additionally, the location of this road is outlined in the 2030 Town of Herndon Comprehensive Plan. As demonstrated in the WQIA, the proposed site condition will incorporate stream restoration practices and planting pursuant to the Virginia Department of Conservation and Recreation's *Riparian Buffers Modification & Mitigation Guidance Manual* to mitigate for these impacts and will result in an improved RPA condition and reduced pollutant loading to Sugarland Run.

II. *Granting the CBPA exception does not confer upon the applicant any special privileges that are denied by sections 78-60.4, 78-60.4(l), and 78-60.4(m) to other property owners who are similarly situated;*

The proposed Fairbrook project has been developed to accommodate the extension of Fairbrook Drive which will ultimately serve as a new public road for the Town of Herndon. The proposed road has been aligned in order to minimize the impact to the RPA. Additionally, the location of this road is outlined in the 2030 Town of Herndon Comprehensive Plan. The construction of the seven buildings will supplement the new public road and provide an improved mixed-use community for the Town of Herndon. The RPA impacts associated with the construction of Buildings 3-7 are located in areas that will no longer be acting as a buffer following the construction of the exempt road (i.e. will be isolated from Sugarland Run by the road).

III. *The request is in harmony with the purpose and intent of sections 78-60.4(j), 78-60.4(l), and 78-60.4(m) and is not of substantial detriment to water quality;*

The proposed development will not only reduce stormwater flows to Sugarland Run and its associated tributaries but will provide outfall protection for stormwater discharges from the site. The reduction of stormwater flow rates and the proposed outlet protection will reduce the likelihood of streambank erosion and provide a more stable stream channel. In addition, the proposed BMP's will reduce the phosphorus loading in the stormwater runoff thus improving the quality of water entering the stream. In order to mitigate for the proposed impacts, stream restoration is also proposed for several sections of Sugarland Run and will greatly reduce the sediment supply and pollutant load to the downstream receiving waters. Following construction, the total pollutant load will be less than the current land use and therefore will not be of substantial detriment to the receiving water quality.

IV. *The request is not based upon conditions or circumstances that are self-created or self-imposed;*

The most significant encroachments for the development of the Fairbrook parcel are related to the extension of the Fairbrook Drive and the construction of Buildings 1 and 2 south of Fairbrook Drive. The encroachments associated with the extension of Fairbrook Drive are necessary in order to extend the new public road to Spring Street. While in the interim, Fairbrook Drive will only service the Fairbrook development project, the road will be maintained by VDOT and will ultimately connect to Spring Street and serve as a thoroughfare for the County. Thus, this public road extension should be considered exempt

under Section 78-60.4(j)(2) of the Ordinance. In addition, the proposed construction of Buildings 1 and 2 located on the south side of the Fairbrook parcel has been previously approved by the Town under conditional use (CU) #00-07. The RPA impacts associated with the construction of Buildings 3-7 south of Fairbrook Drive are located in areas that will no longer be acting as a buffer following the construction of the exempt road (i.e. will be isolated from Sugarland Run by the road). Much of this area is located on the north side of the proposed Fairbrook Drive extension and will therefore no longer be acting as a buffer zone for Sugarland Run.

V. *Reasonable and appropriate conditions are imposed, as warranted, that will prevent the allowed activity from causing a degradation of water quality; and*

In addition to the reducing stormwater flowrates as well as phosphorus loading, the proposed development will employ various erosion and sediment control features to minimize site runoff from impacting water quality during construction.

VI. *Other findings, as appropriate and required by the Town are met.*

The existing stream channel and wetlands will be improved through stream restoration measures. These improvements will increase the effectiveness of the RPA and its associated components. In addition, the proposed mitigation measures detailed in the WQIA will greatly reduce pollutant loading to Sugarland Run and offsite receiving waters.

Conclusion

In conclusion, the Applicant is requesting an authorization under §78-60.4(j), §78-60.4(k), and §78-60.4(o) based on the WQIA which outlines the proposed changes to the RPA associated with the Fairbrook development. Thank you for your consideration and please feel free to contact me at (703) 679-5632 or by email at rclark@wetlands.com or John T. Kelley at (703) 679-5652 or by email at jkelley@wetlands.com.

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.

Robert Clark, PWS
Senior Regulatory Specialist

John T. Kelley, PE, CFM, LEED®AP
Manager - Engineering

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Fairbrook
Water Quality Impact Assessment
Town of Herndon, Virginia

Resource Protection Area Exception Request

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JOHN T. KELLEY, JR
Lic. No. 035786
10/19/2020
PROFESSIONAL ENGINEER

No.	Date	Description	Rev. By	App. By

REVISIONS

SCALE: N/A

DATE: JUNE 2020

Horizontal Datum: VCS NAD 83

Vertical Datum: NGVD 1929

Boundary and Topo Source: VIKA

Design	Draft	Approved
RPC	APE	JTK

Sheet #
18 of 18

Computer File Name:
L:\04000s\4674.06\CADD\07-REGS\WQIA\May 2020 WQIA Revision 2020-10-14_Fairbrook WQIA.dwg

September 22, 2016

Via Email: bknopf@quad1.com

Mr. Bob J. Knopf, III
Fairfax Business Park Associates, LP
1001 G Street, NW, Suite 700 W
Washington, DC 20001

Re: Jurisdictional Determination (#NAO-2016-01643)
Fairbrook Business Park and Off-site Study Area (± 37 acres)
Town of Herndon, Virginia
WSSI #4674.06

Dear Mr. Knofp:

Enclosed is a copy of the U.S. Army Corps of Engineers' (COE) Jurisdictional Determination (JD) (#NAO-2016-01643) confirming the wetland delineation submitted by Wetland Studies and Solutions, Inc. (WSSI) for the Fairbrook Business Park and Off-site Study Area site. This JD is valid for a period of five years from the date of issuance (September 21, 2016).

In addition, please note that the COE has indicated that the federally-threatened northern long-eared bat (*Myotis septentrionalis*) and the state-threatened wood turtle (*Glyptemys insculpta*) may occur within the vicinity of the site.

Please note that this JD is only the COE's verification of the wetland delineation and does not constitute authorization to impact any waters of the U.S. on the site. If you have any questions, or would like to request proposals for additional services, please do not hesitate to contact me via email at jfeese@wetlandstudies.com or directly by telephone at (703) 679-5637.

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.

Jennifer D. Feese, PWS, PWD, CT
Senior Associate Environmental Scientist

Enclosure

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DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

SEPTEMBER 21, 2016

APPROVED JURISDICTIONAL DETERMINATION

Northern Virginia Regulatory Section
NAO-2016-01643 (Fairbrook Business Park and OSA)

Mr. Bob J. Knopf, III
Fairbrook Business Park Associates, LP
1001 G Street NW, Suite 700 W
Washington, DC 2001

Dear Mr. Knopf:

This letter is in regard to your request for a verification of an approved jurisdictional determination for waters of the U.S. (including wetlands) on property known as Fairbrook Business Park and Off-site Study Area, located on an approximately 37.0 acre parcel bordered to the east by the Fairfax County Parkway (Route 286) and to the south by the Washington Dulles Toll Road (Route 267) at the intersection of Herndon Parkway and Fairbrook Drive in the Town of Herndon, Virginia in Fairfax County.

A jurisdictional determination has found waters and/or wetlands regulated under Section 10 of the Rivers and Harbors Act (33 U.S.C. 403) and/or Section 404 of the Clean Water Act (33 U.S.C. 1344) on property listed above. Nontidal wetlands and/or waters have been identified on the site. This letter shall serve to confirm the wetlands delineation by Wetland Studies and Solutions, Inc., as surveyed and shown on the map titled, “Fairbrook Business Park and Off-site Study Area” dated May 31, 2016 (copy enclosed).

Our basis for this determination is the application of the Corps’ 1987 Wetland Delineation Manual and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region,* and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation. The wetland is a water of the United States and is part of a tributary system to interstate waters (33 CFR 328.3(a)). These waters meet the Corps' definition of waters of the United States, are part of a tributary system to interstate waters (33 CFR 328.3 (a)) and have an ordinary high water mark.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into jurisdictional waters and/or wetlands on this site will require a Department of the Army permit and may require authorization by state and

local authorities, including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC) and/or a permit from your local wetlands board. This letter is a confirmation of the Corps jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these jurisdictional areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the North Atlantic Division Office at the following address:

ATTN: Mr. James W. Haggerty, Regulatory Program Manager
United States Army Corps of Engineers
CENAD-PD-OR
Fort Hamilton Military Community
301 General Lee Avenue
Brooklyn, NY 11252-6700

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by ****November 21, 2016.**** It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

This jurisdictional determination is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date. If you have any questions, please contact Ms. Theresita Crockett-Augustine in the Northern Virginia Field Office at 18139 Triangle Plaza, Suite 213, Dumfries, Virginia 22026, (703) 221-9736 or **theresita.m.crockett-augustine@usace.army.mil**.

Sincerely,

Theresita Crockett-Augustine
Environmental Scientist
Northern Virginia Regulatory Section

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Fairbrook Business Park Associates, LP	File Number: NAO-2016-01643	Date: 9/21/2016
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/appeals.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact: Mr. James W. Haggerty Regulatory Program Manager (CENAD-PD-OR) U.S. Army Corps of Engineers Fort Hamilton Military Community 301 General Lee Avenue Brooklyn, New York 11252-6700 Telephone number: 347-370-4650

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

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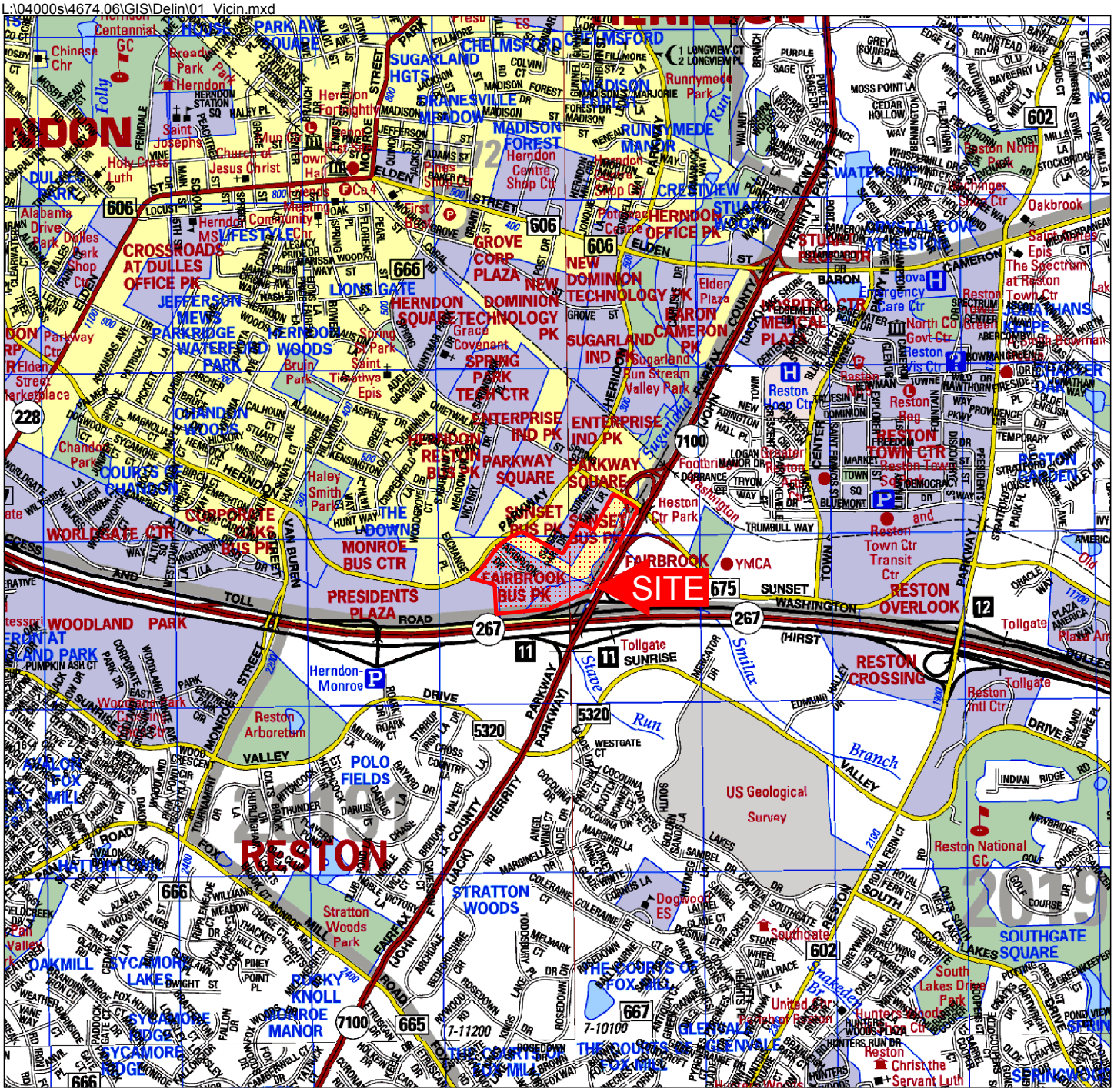

SITE
RESTON
FAIRBROOK BUS PK
SUNSET BUS PK
PARKWAY SQUARE
ENTERPRISE IND PK
HERNDON CORP CTR
GROVE CORP PLAZA
NEW DOMINION TECHNOLOGY PK
SUGARLAND IND PK
HERNDON OFFICE PK
CROSSROADS AT DULLES OFFICE PK
JEFFERSON MEWS
LONGGATE
HERNDON SQUARE
CHANDON WOODS
COURTS OF CHANDON
CORPORATE OAKS
WORLDGATE CTR
MONROE BUS CTR
PRESIDENTS PLAZA
WOODLAND PARK
RESTON ARBORETUM
POLO FIELDS
STRATTON WOODS
OAKMILL
SYCAMORE LAKES
SYCAMORE RIDGE
MONROE MANOR
RESTON CROSSING
RESTON OVERLOOK
RESTON TOWN CTR
RESTON GARDEN
SOUTHGATE SQUARE
US Geological Survey
Reston National GC
Reston Town Ctr Transit Ctr
Herndon-Monroe
Tollgate SUNRISE
Tollgate
Reston Intl Ctr
Reston Ctr Park
Runnymede Park
Sugarland Run Stream Valley Park
Stratton Woods Park
Haley Smith Park
Spring Park
Bruin Park
Dogwood ES
Reston Hospital Ctr
Reston Emergency Care Ctr
Reston North Govt Ctr
Reston Police Dis Ctr
Reston Fire & Rescue
Reston Regional Library
Reston Bowman
Reston Museum
Reston Pool
Reston Community Ctr
Reston Town Ctr
Reston Golf Course
Reston Parkway Ctr
Reston Ctr
Reston Ctr Transit Ctr
Reston Ctr Park
Reston Ctr Pk
Reston Ctr Pk
Reston Ctr Pk

LEGEND

- STUDY AREA BOUNDARY
- PERENNIAL STREAM (PER WSSI'S OBSERVATIONS)
- PREVIOUSLY DELINEATED PERENNIAL STREAM (PER WSSI'S OBSERVATIONS)
- PREVIOUSLY DELINEATED APPROXIMATE LIMITS OF PERENNIAL STREAM (PER WSSI OBSERVATIONS - NOT SURVEYED) NOTE # 16
- INTERMITTENT STREAM (PER WSSI'S OBSERVATIONS)
- JURISDICTIONAL WETLAND AREAS
- PREVIOUSLY DELINEATED JURISDICTIONAL WETLAND AREAS
- TOWN OF HERNDON MAPPED RESOURCE PROTECTION AREA BOUNDARY
- FEMA100 YEAR FLOODPLAIN
- FIELD-VERIFIED RESOURCE PROTECTION AREA BOUNDARY
- RPA CUTOFF
- D6 + WETLAND FLAGGING POINT/NUMBER (pink-glo)
- DP2 ⊞ DATA POINT LOCATION/NUMBER (orange and pink-glo) (SURVEYED)
- RCP REINFORCED CONCRETE PIPE
- △ TRAVERSE STATION FOUND
- FLY POINT (WSSI)
- APPROXIMATE CONCRETE CULVERT (NOT SURVEYED)

SUMMARY OF JURISDICTIONAL AREAS WITHIN THE FAIRBROOK BUSINESS PARK AND OFF-SITE STUDY AREA*

COWARDIN CLASSIFICATION	AREA (SQUARE FEET)	AREA (ACRE)	LINEAR FEET OF STREAMBED
R3	55,723	1.28	4,294
R4	1,729	0.04	464
PFO	32,623	0.75	N/A
PSS	32,019	0.74	N/A
PEM	127,992	2.94	N/A
TOTAL	250,086	5.75	4,758

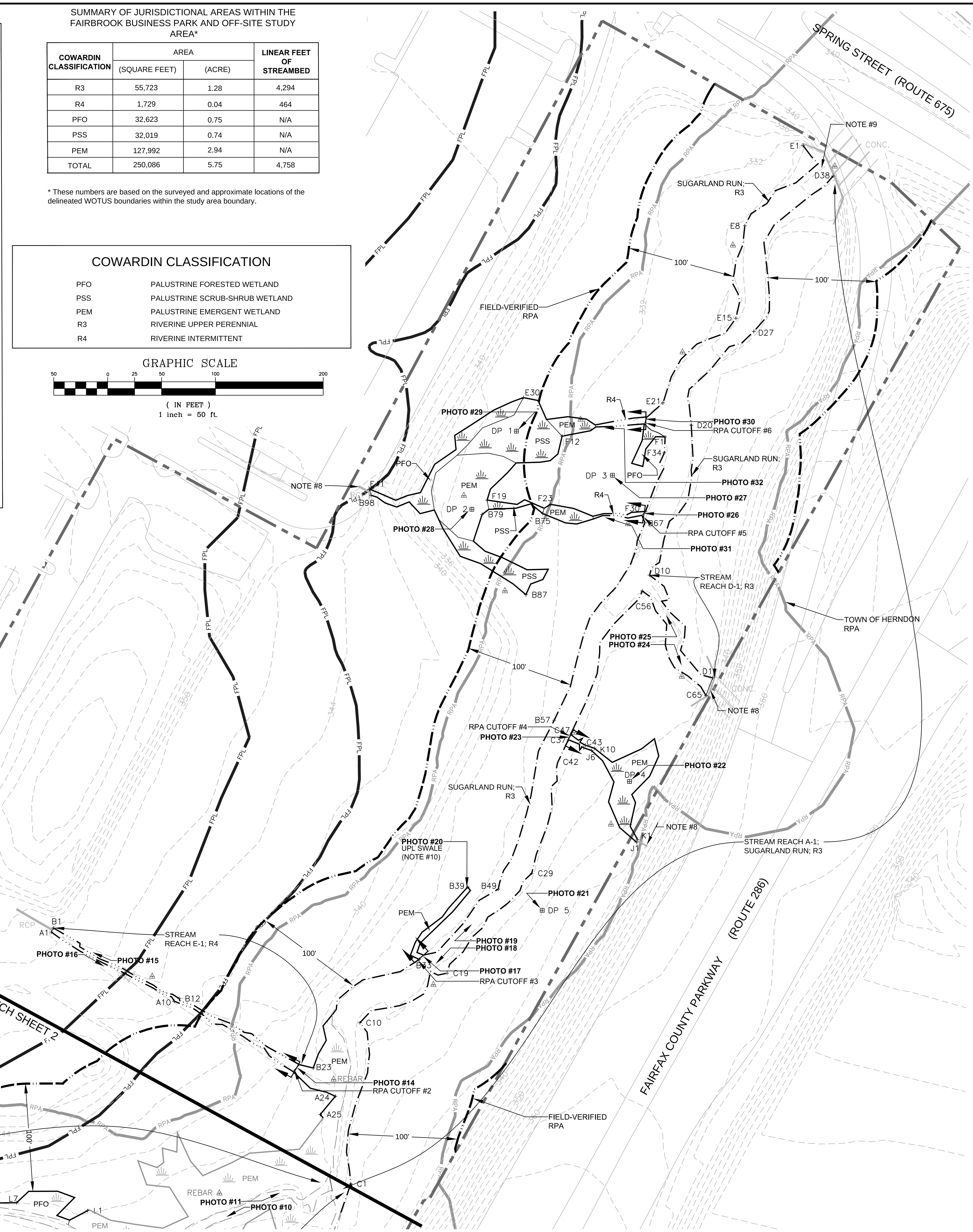
* These numbers are based on the surveyed and approximate locations of the delineated WOTUS boundaries within the study area boundary.

COWARDIN CLASSIFICATION

PFO	PALUSTRINE FORESTED WETLAND
PSS	PALUSTRINE SCRUB-SHRUB WETLAND
PEM	PALUSTRINE EMERGENT WETLAND
R3	RIVERINE UPPER PERENNIAL
R4	RIVERINE INTERMITTENT

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.



WATERS OF THE U.S. DELINEATION, RPA EVALUATION AND SURVEY NOTES:

1. This map has been oriented to The Virginia Coordinate System of 1983, North Zone, using real time DGPS. Wetlands and other Waters of the U.S. (i.e. streams) flags, data points, and the monumentation shown were located in the field using real time DGPS and conventional survey methods. Accuracy of field locations of wetlands meets or exceeds the standards set by the U. S. Army Corps of Engineers Memo CENAO-CO-R, dated September 30, 1998. Field locations were completed on May 5, 2016.

2. The boundary line information shown hereon is for information purposes only and does not constitute a boundary survey by Wetland Studies and Solutions, Inc. (WSSI). Monumentation, including traverse stations and fly points, shown on this drawing should be used to orient wetland locations to any future boundary, topographic, or location survey.

3. Periodic flag numbers are shown depicting the survey-located boundary of wetlands and other waters of the U.S. (i.e., streams, ponds, etc.). Waters of the U.S. flags are pink-glo in color. Data points are flagged with orange-glo and pink-glo flagging tied together.

4. Topo/boundary information obtained in digital format from Fairfax County digital data was used as a base for this Attachment.

5. This delineation was performed pursuant to the "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 (1987 Manual) and subsequent guidance and modification by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual:Eastern Mountains and Piedmont Region (Version 2.0),* dated April 2012.

6. The current study area was previously delineated by WSSI. A portion of the delineation is still valid under a U.S. Army Corps of Engineers (COE) Individual Permit (#02-V1846) that covers a portion of the study area. Transects were not used and all areas not currently covered under the permit were systematically searched for wetlands and redelineated. Minor changes were made to the delineation covered by the existing permit to better reflect current conditions.

The Fairbrook Business Park and Off-site Study Area was previously delineated by WSSI. Waters of the U.S. (WOTUS) delineations performed for these projects were reviewed prior to conducting the Fairbrook Business Park and Off-site Study Area delineation and information regarding the findings of these projects is listed below.

- The boundaries of jurisdictional wetlands and other WOTUS within the central and western portions of the Fairbrook Business Park and Off-site Study Area were delineated and survey-located by WSSI, and are described in a report entitled "Wetlands Investigation and Chesapeake Bay Ordinance Impact Analysis, Parkway Trade Center" dated May 16, 1997. The U.S. Army Corps of Engineers (COE) issued a Jurisdictional Determination (JD) verifying the delineated boundaries of these waters of the U.S. (JD#97-B601) on August 7, 1997. Although the JD's expiration date was August 7, 2002, the issuance of an Individual Permit from the COE (#02-V1846; valid until November 14, 2017) extends confirmation of WSSI's wetland delineation for the life of the permit. Since the original delineation in 1997, the U.S. Army Corps of Engineers (COE) has issued a regional supplement to the Wetland Delineation Manual for the Eastern Mountains and Piedmont Region, dated April 2012.
- Please note that WSSI staff completed a WOTUS reconnaissance on December 3, 2015 to determine if any areas within the study area may have changed from those described in WSSI's original 1997 delineation. Based on our field investigations, it was determined that some wetland areas had changed - these areas have been redelineated and surveyed and are depicted on this exhibit.
- The boundaries of jurisdictional wetlands and other WOTUS within the northeastern portion of the Fairbrook Business Park and Off-site Study Area were delineated by WSSI and survey-located by Rinker-Detwiler and Associates, and are described in a report entitled "Wetlands and Preliminary Resource Protection Area (RPA) Delineation Sunset Business Park" dated June 4, 1998. The U.S. Army Corps of Engineers (COE) issued a Jurisdictional Determination (JD) verifying the delineated boundaries of these waters of the U.S. (JD#98-B112) on June 11, 1998. The JD expired on June 11, 2003.

7. Field work was performed on April 25 and 26, 2016 by Jennifer D. Feese, P.W.S., P.W.D, CT., Lauren L. Shaffer, P.W.D., W.P.I.T., C.T., and Neil Gutherman, W.P.I.T.

8. This water of the U. S. (i.e., stream or wetland) originates outside of the study area, upslope.

9. This water of the U.S. (i.e., stream or wetland) continues outside of the study area, downslope.

10. While swales labeled "UPL SWALE (NOTE #10)" possess short segments of defined channel with evidence of flow (i.e., drift lines of debris), they lack hydric soils and continuous ordinary high water marks and terminate in uplands, thereby lacking a jurisdictional connection with waters of the U.S. Therefore, in WSSI's opinion, these swales are not jurisdictional waters of the U.S. (subject to COE concurrence).

11. Stream evaluation methods developed by the North Carolina Division of Water Quality (NCDWQ) and the Fairfax County Department of Public Works and Environmental Services (DPWES) were used in the field to distinguish between ephemeral and intermittent streams (based on the NCDWQ method) and between intermittent and perennial streams (based on both methods). These methods were used to characterize representative reaches of the streams on-site and within 100 feet of the site.

12. The terms "Intermittent" and "Perennial" used on this Attachment classify and describe the flow regime character of streams, are based on WSSI's field observations, and are only provided for state and local regulatory purposes. The flow regimes of streams are not verified by the COE; however, the geographic limits of these streams are all subject to COE jurisdiction, and the COE's approval of this delineation represents only the approval of the geographic limits of waters of the U.S.

13. The field-verified limits of the Resource Protection Area (RPA) depicted on this Attachment are based on the surveyed location of the perennial water bodies and jurisdictional wetlands that are RPA core components. The RPA extends 100 feet landward of the RPA core components. An exact RPA delineation can be completed after a Resource Protection Area Plan has been prepared. The RPA delineation will be confirmed upon approval of the Resource Protection Area Plan by the Town of Herndon.

14. The remainder of this study area is designated as a Resource Management Area (RMA), as are all areas of the County not included as an RPA.

15. All wetlands and non-perennial (i.e., intermittent and ephemeral) streams leading into perennial streams were examined in the field to determine the RPA cutoff, the point at which these features are no longer contiguous and connected by surface flow to the perennial water body. As depicted on this Attachment, six RPA cutoffs were identified, along intermittent streams at the point where the intermittent stream flows into wetlands that are contiguous and connected by surface flow to a perennial water body, or where they flow into a perennial water body. RPA cutoffs were marked with blue and pink flagging tied together.

16. WSSI has delineated and surveyed the outer limits of jurisdictional areas within the project site. Many of the jurisdictional areas on the site are composed of systems containing different wetland (i.e., PFO, PSS, and PEM) and stream (i.e., R3 and R4) types. The approximate limits of the different wetland and stream types within the surveyed jurisdictional areas are depicted as a thin gray line of the associated line type.

Wetland Studies and Solutions, Inc.® a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlandstudies.com

Attachment I:
WATERS OF THE U.S. (INCLUDING WETLANDS) DELINEATION AND RPA EVALUATION MAP

Prepared For: Fairbrook Business Park Associates, LP

Fairbrook Business Park and Off-site Study Area

Fairfax County, Virginia

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REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: May 31, 2016 SCALE: 1" = 50' C.I.: 2'

Horizontal Datum: VCS NAD 83

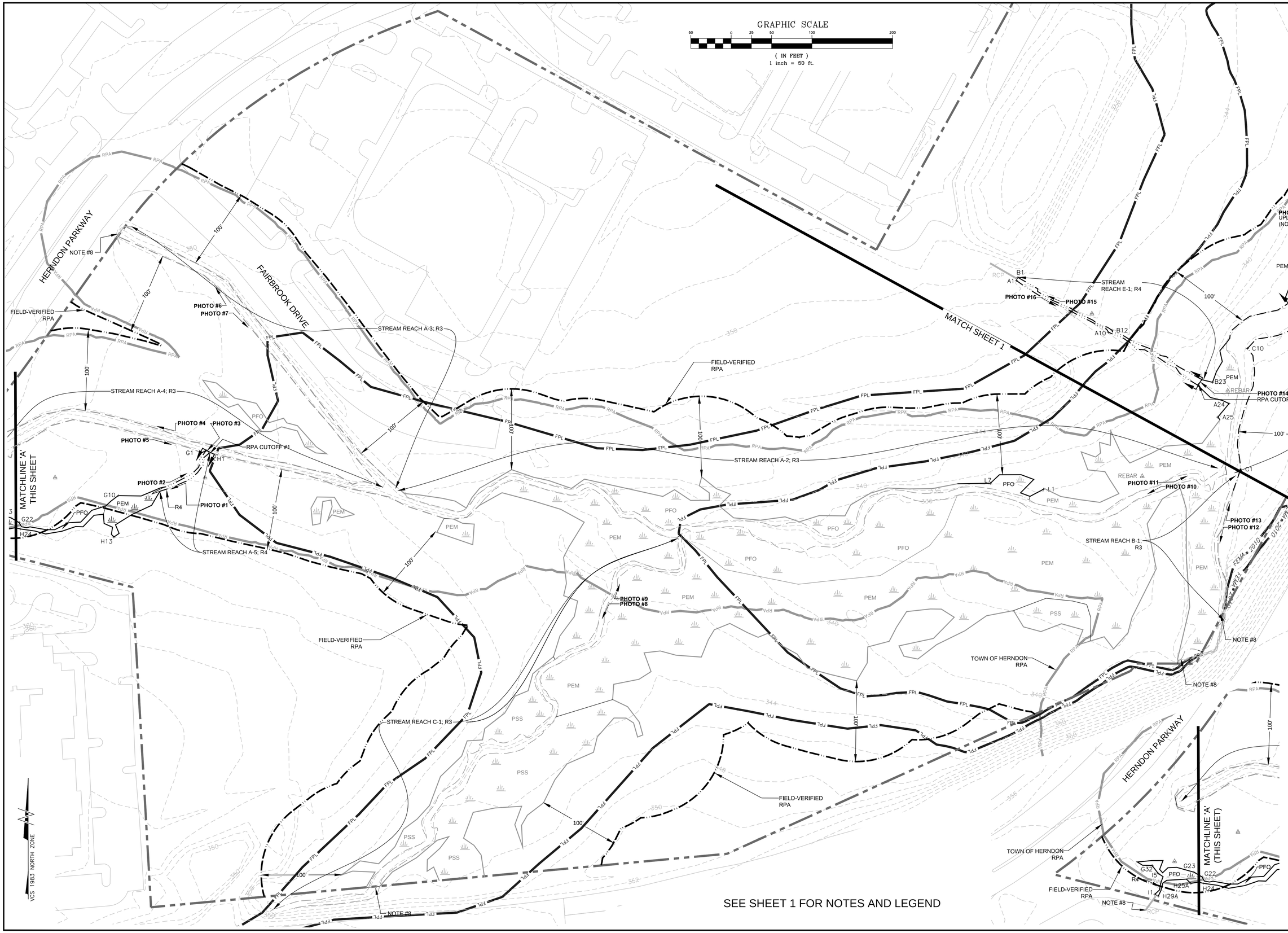
Vertical Datum: NGVD 1929

Boundary and Topo Source: Fairfax County Digital Data

Design	Draft	Approved
LLS	HRC	BNR

Sheet # 1 of 2

Computer File Name: L:\04000s\4674.06\CADD\05-ENVR 2016-05-19_Delineation Map.dwg



Wetland Studies and Solutions, Inc.
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Fairbrook Business Park and Off-site Study Area
Fairfax County, Virginia

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Vertical Datum: NGVD 1929
Boundary and Topo Source: Fairfax County Digital Data

Design	Draft	Approved
LLS	HRC	BNR

Sheet #
2 of 2

Computer File Name:

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

September 21, 2016

Supplemental Preapplication Information

Project Number: NAO-2016-01643 (Fairbrook Business Park)
Applicant: Fairbrook Business Park Associates, LP
Project Location: Town of Herndon, Fairfax County, Virginia

1. A search of the Virginia Department of Historic Resources data revealed the following:

   ☒ No known historic properties are located on the property.

   ☐ The following known architectural resources are located on the property:

   ☐ The following known archaeological resources are located on the property:

   ☐ The following known historic resources are located in the vicinity of the property (potential for effects to these resources from future development):

NOTE:

1) The information above is for planning purposes only. In most cases, the property has not been surveyed for historic resources. Undiscovered historic resources may be located on the subject property or adjacent properties and this supplemental information is not intended to satisfy the Corps' requirements under Section 106 of the National Historic Preservation Act (NHPA).

2) Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.

2. A search of the data supplied by the U.S. Fish & Wildlife Service, the Virginia Department of Conservation and Recreation and the Virginia Department of Game and Inland Fisheries revealed the following:

   ☐ No known populations of threatened or endangered species are located on or within the vicinity of the subject property.

   ☒ The following federally-listed species may occur within the vicinity of the subject property: See attached.

   ☒ The following state-listed (or other) species may occur within the vicinity of the subject property:

VDGIF TE Waters

Genus	Species	Subspecies	Common Name	Federal Status	State Status
Glyptemys	insculpta		Turtle, wood		State Threatened

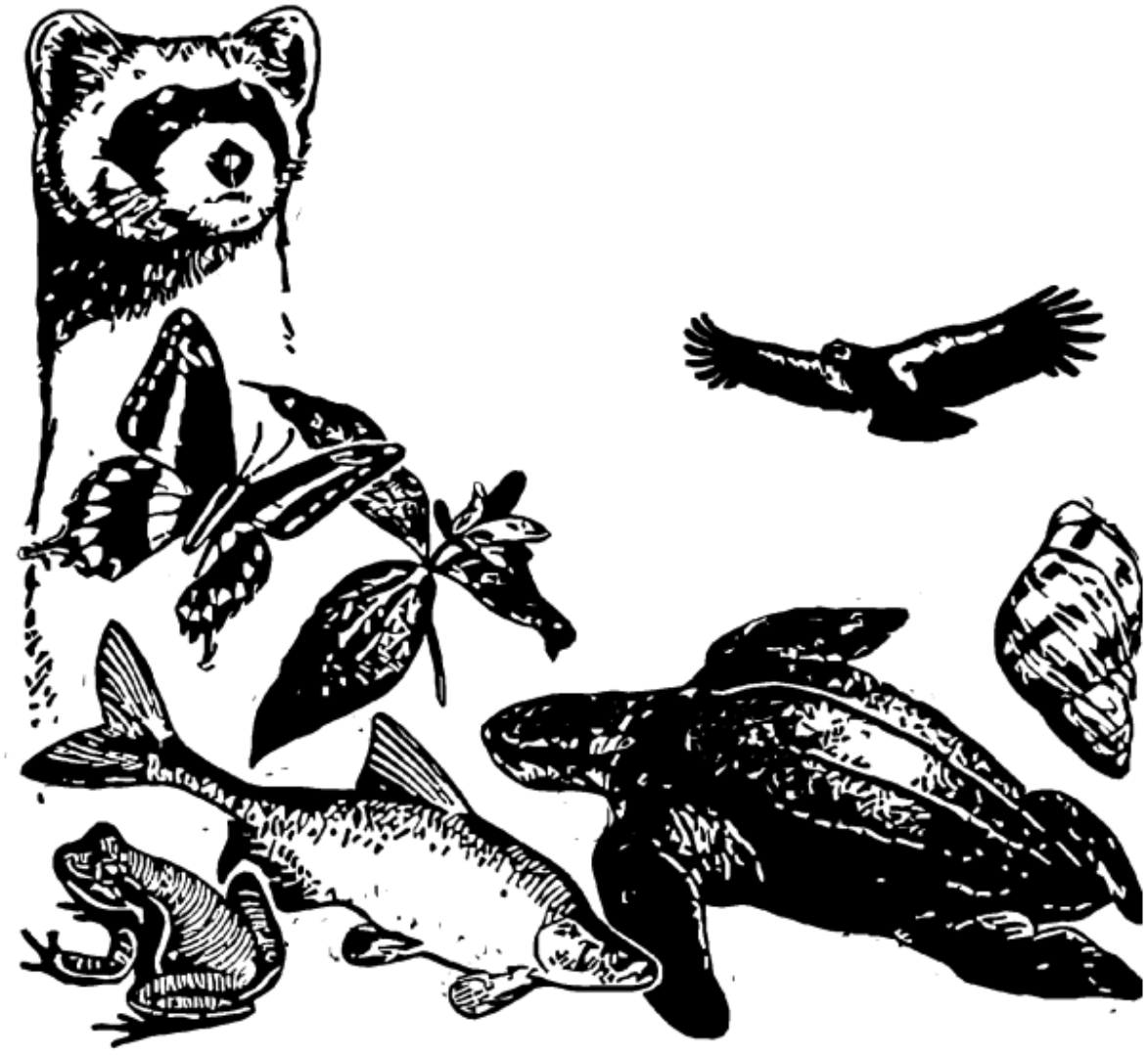
Please note this information is being provided to you based on the preliminary data you submitted to the Corps relative to project boundaries and project plans. Consequently, these findings and recommendations are subject to change if the project scope changes or new information becomes available and the accuracy of the data.

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

Generated September 21, 2016 07:56 AM MDT, IPaC v3.0.9

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

Table of Contents

IPaC Trust Resources Report 1
Project Description 1
Endangered Species 2
Migratory Birds 3
Refuges & Hatcheries 5
Wetlands 6

U.S. Fish & Wildlife Service

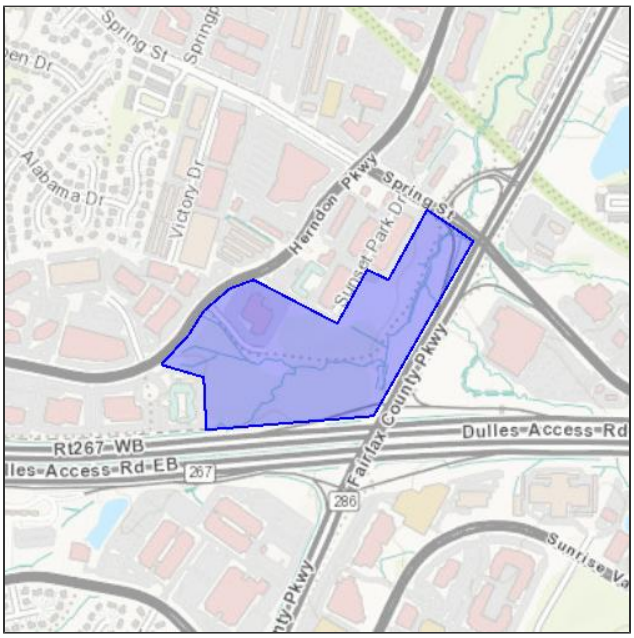
IPaC Trust Resources Report

LOCATION

Fairfax County, Virginia

IPAC LINK

https://ecos.fws.gov/ipac/project/I5C7P-XAB5F-HZZLZ-CU7OO-NHZ7LE



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
(804) 693-6694

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Mammals

Northern Long-eared Bat Myotis septentrionalis — Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A0JE

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

---

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black-billed Cuckoo Coccyzus erythropthalmus — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI

Blue-winged Warbler Vermivora pinus — Bird of conservation concern
Season: Breeding

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Golden-winged Warbler Vermivora chrysoptera — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4

Kentucky Warbler Oporornis formosus — Bird of conservation concern
Season: Breeding

Least Bittern Ixobrychus exilis
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B092

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Pied-billed Grebe Podilymbus podiceps — Bird of conservation concern
Season: Breeding

Prairie Warbler Dendroica discolor — Bird of conservation concern
Season: Breeding

Prothonotary Warbler Protonotaria citrea — Bird of conservation concern
Season: Breeding

Red-headed Woodpecker Melanerpes erythrocephalus — Bird of conservation concern
Season: Year-round

Rusty Blackbird Euphagus carolinus — Bird of conservation concern
Season: Wintering

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Willow Flycatcher Empidonax traillii — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6

Wood Thrush Hylocichla mustelina — Bird of conservation concern
Season: Breeding

Worm Eating Warbler Helmitheros vermivorum — Bird of conservation concern
Season: Breeding

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

There are no wetlands in this location

TOWN OF Herndon VIRGINIA

STAFF REPORT

Town Council
November 10, 2020

Title: Special Exception - SE #17-03, Fairbrook

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Summary Information

Applicant Request	An application to entitle a redevelopment of the subject parcels with one residential building, two office building, and one mixed residential and retail building as proposed.
Address	100, 150, 200 Fairbrook Drive
Owners	Fairbrook Business Parks Associates, LP. Fairbrook Business Parks Associates II, LP.
Representative	Bob Knopf, Quadrangle Development Corp.
Agent	Elizabeth Baker, Walsh, Colucci, Lubeley & Walsh, P.C.
Existing Zoning	O&LI – Landmark Business Option
Adjacent Zoning	North: O&LI/PD-B South: PD-TOC West: O&LI East: Fairfax County Parkway/Dulles Toll Road
Land Use Designation	Regional Corridor Mixed Use
Adjacent Land Use Designation	North: Regional Corridor Mixed Use South: Regional Corridor Mixed Use East: N/A West: Regional Corridor Mixed Use
Total Site Area	27.5 acres
Existing Use	Office/Vacant
Related Cases	SE#19-05 (Floodplain) and RPA#17-01

Planning Commission Recommendation	Recommendation for approval in accordance with Resolution (Attachment #2)

Staff Recommendation	Recommendation for approval in accordance with draft Resolution (Attachment #1)

Location Map



Site Description

The property lies between the Herndon Parkway to the northwest, the Fairfax County Parkway to the east and the Dulles Toll Road to the south. The Sunset Business Park and Hyatt House hotel lie to the north while the site abuts the Herndon Transit Oriented Core to the south and west.

The property is currently divided into three parcels. One has an existing 81,000 square foot office building and the others are vacant. Existing and improved Fairbrook Drive extends 550 feet east off its intersection with the Herndon Parkway, at which point it transitions to a gravel road providing access to the town's sewer metering station and related communication system.

A significant portion of the property is within the Sugarland Run Stream Valley, which was altered during the construction of the Fairfax County Parkway. The site is impacted by Chesapeake Bay Resource Protection Area (RPA). The RPA and impacts upon it are discussed within the staff report for RPA#17-01, which is scheduled concurrent with this application. In addition, the site contains floodplain. Due to the presence of floodplain a separate special exception is required, SE#19-05, which is also being processed concurrent with this application. A Dominion Energy high voltage power line and associated easement bisects the site.

Background

Fairbrook Business Park has been the subject of several land use applications. The existing office building was built in 1985. Originally zoned Industrial Park (IP), the site was rezoned to Office & Light Industrial (O&LI) as an outcome of the rewrite of the town's zoning ordinance in the early 2000s.

On April 26, 2001, the Board of Zoning Appeals granted three variances for the properties involved. The variances provided relief from some of the buffering and setback requirements.

On October 9, 2001, the Town Council approved Conditional Use Permit, CU #00-07, to permit construction within the RPA and CU#00-08, to permit construction above the by-right height limit. Conditional Use Permit #00-08 permitted three office buildings to exceed the maximum building height of 60 feet. The allowed increase in height was to minimize impacts within the RPA while preserving the, at that time, by-right 0.5 floor area ratio (FAR). Both conditional use permits were approved with conditions. The term "conditional use permit" was changed to "special exception" during the rewrite of the zoning ordinance in the early 2000s.

On October 23, 2007, special exception SE #07-03 was approved by the town council to permit the construction of a hotel in lieu of a previously approved office building. The hotel was approved with conditions and was the subject of an approved site plan but the project did not come to fruition due to the economic downturn.

Following approval of the Herndon Metro Station Area Plan on February 28, 2012, the town council passed a motion to study the benefits and disadvantages of incorporating the Fairbrook property into the Herndon Transit-Oriented Core (HTOC). This process was carried out with the emphasis on finding a solution for traffic constraints at nearby intersections beyond improvements planned during the Herndon Metro Station Area Plan study. The result of the subsequent Fairbrook study indicated that an extension of Fairbrook Drive to Spring Street, with modification of the Spring Street / Fairfax County Parkway interchange, would improve future conditions at the constrained intersections.

Rather than extend the HTOC to include the Fairbrook parcel, the town expanded the language of the O&LI's Landmark Option, found within the zoning ordinance, to permit higher density, higher building heights, and mixed-uses within the O&LI by special exception provided specific criteria are met. This option was adopted since the previous special exception for Fairbrook was approved under the provisions for offices found in the original O&LI Landmark Option. Furthermore, due to the level of study that is specific to and incorporated into the adopted HTOC plan, and the separate process that preceded the allowance for the higher density and the mixed-use option for Fairbrook, a separate process was pursued.

While SE #17- 03 was originally submitted in June of 2017 several issues regarding the RPA, floodplain, construction of extended Fairbrook Drive and the general layout of the site resulted in prolonged but inconclusive discussions as well as extended applicant responses. In 2020, the applicant redesigned the proposal and the town's transportation consulting engineer provided insight which helped to resolve some of the outstanding issues.

Review Process

Following staff review of this case, the Architectural Review Board (ARB) informally reviewed the building and landscape architecture at its August 5, 2020 work session. Unlike other land use entitlement processes, informal review by the ARB is not required of special exception applications prior to Planning Commission, but the applicant chose to submit to the ARB. The ARB chair provided a memo to the Planning Commission chair reporting on the outcome of that review, which was largely positive. The Planning Commission reviewed SE #17-03 at its October 5, 2020 work session and its October 26, 2020 public hearing. The Planning Commission recommended approval of the case in accordance with the resolution provided as Attachment #2.

This case, SE#17-03 is being reviewed concurrently with two other necessary cases associated with the proposed Fairbrook redevelopment, SE#19-05, the special exception for encroachment into a Floodplain and RPA#17-01, for development within a Chesapeake Bay Resource Protection. For the proposed development to gain all necessary legislative entitlements, all three cases would need to be approved. Following approval of these three cases, the project would then require by-right site plan review for each phase of development, followed by ARB review and approval, and then lastly building permits before construction could commence.

Proposal

This special exception, if approved, would entitle the property with conditions under the zoning designation Business Option to O&LI Landmark Business Alternate Option. The property is currently able to be developed under the zoning designation of O&LI Landmark based upon previous special exceptions. The Landmark Business Alternate Option permits an increase in FAR from 1.0 to 1.25, the inclusion of mixed-use development, and an increase in building height from a maximum of 100 feet in the O&LI Landmark Business Option to 160 feet, with the ability to increase up to a maximum of 275 feet dependent upon the location of the building. As described above, the allowances found in the Landmark Business Alternate Option are reflective of development permitted under the Planned Development – Transit-Oriented Core (PD-TOC) zoning district, although maximum FAR is limited to 1.25 in the Landmark Business Alternate Option versus 4.3 within the PD-TOC.

Program

Proposed FAR	Maximum 1.25
Total Square Feet	1,515,000 sq. ft. at maximum buildout
Use Mix	40% office/non-residential 60% residential at maximum buildout
Residential	880,000 sq. ft. (approx. 900 units) maximum
Office	600,000 sq. ft. maximum
Retail/Daycare	20,000 sq. ft. maximum
Parking	3,500 spaces (maximum)
Building Heights	275' (office maximum), 105' (residential/retail maximum)

The applicant is requesting approval of a plan to permit construction of four buildings and proposes the removal of the existing office building. The proposal consists of two office buildings (buildings 1 and 2), similar to what is currently permitted under previous special exceptions, and two residential multifamily buildings (3 and 4) one of which incorporates up to 10,000 square feet of childcare and 10,000 square feet of retail.

The applicant is proposing a range of density and building heights to provide future flexibility, but the overall development at build out will not exceed a 1.25 FAR. The table below indicates the potential minimums, maximums and the square footage and heights that have been depicted on the plans. It should be noted that buildings 1 and 2 are the office buildings, and buildings 3 and 4 are the residential buildings.

BUILDING TABULATIONS

BUILDING	BUILDING HEIGHT (FEET)			NUMBER OF FLOORS	USE	GFA (SQUARE FEET)			DWELLING UNITS		
	MIN.	MAX.	SHOWN	SHOWN		MIN.	MAX.	SHOWN	MIN.	MAX.	SHOWN
1	160	275	275	19	OFFICE	200,000	400,000	360,000			
2	160	275	180	11	OFFICE	200,000	400,000	240,000			
3	65	105	85	8	RESIDENTIAL DAY CARE RETAIL	360,000 0 5,000	535,000 10,000 10,000	470,000 10,000 10,000	360	540	470
4	65	105	85	8	RESIDENTIAL	360,000	540,000	410,000	360	540	410

Architecture, Urban & Open Space Design

The building design across the development is contemporary in style and form with flat roofs broken up by variation along the building parapets and penthouses. The residential and mixed-use buildings rely on dynamic interplays of masonry paneling, windows and inset patios with varying wall planes and variation in cladding material, color, and texture. The office buildings rely more on glass curtain walls with larger, more dramatic modern forms and scale.

Above ground structured parking plays an important role towards the development's overall design. The garages of the residential and mixed-use buildings are highly visible from the north but are treated on their facades with details, materials, and forms meant to reflect the façade of the parts of the buildings with active floor uses. The garage for the office buildings serves as a platform rising above the tree line of the stream valley park. It is shown as partially enclosed.

Thoughtful urban design and landscape architecture have been employed throughout the open spaces. Streetscape with wide sidewalks and street trees are used throughout, in addition to plazas and pocket parks designed and located to serve as focal points and gathering spaces for both the public in some cases, and for private use by residents and office occupants in other cases. The most prominent component of the proposed open space is the Sugarland Run valley park that would be enhanced with walking trails, exercise stations, art installations, and improved natural landscape conditions. This park would be accessible to the public.

Transportation

The applicant's traffic consultant completed a Traffic Impact Analysis (TIA) that was reviewed by the Town's traffic consultant. The TIA found that the new development will increase traffic and add stress to the existing nearby intersections however with specific mitigation measures, the levels of service (LOS) for nearby intersections with this development would be consistent with the LOS without this development. It should also be noted that the TIA concludes that several of the nearby intersections are modeled to develop unacceptable LOS based on the background development already in the pipeline. For more information, the TIA Executive Summary and Conclusions are included as Attachment #3. The full TIA will be available at the Town Council work session and can be provided to Council members upon request.

The proposed development prior to full build-out would utilize the existing Herndon Parkway/Fairbrook Drive intersection, however a traffic signal with accessible pedestrian signalization and crosswalks would be necessary to handle the increased traffic. Sheet C-07 of the SE Plan shows a conceptual design of those intersection improvements. At full

build-out, increased traffic would also necessitate the extension of Fairbrook Drive to Spring Street and modification to the intersection of Spring Street and the Fairfax County Parkway ramps. A conceptual design of the road extension and intersection modifications are shown on Sheet C-08 of the SE Plan.

The applicant has provided a Transportation Demand Management (TDM) plan that lays out the strategy for reduced single occupancy vehicle trips to and from the site. TDM plans are prudent and effective ways to help reduce the traffic that will be generated from the development and thus help reduce the stress levels of the nearby roadways. The proposed TDM plan is described within the proposed conditions.

The intersection of Fairbrook Drive and the Herndon Parkway is located approximately ½ mile from the Metrorail station via the Herndon Parkway. For the pedestrian, until such time as future trail connections are constructed, access to the Metrorail station would be by the Herndon Parkway sidewalk. The application maintains a strong emphasis on multi-modal accommodations. The following table provides a list of the proposed multi-modal improvements.

Herndon Parkway	Bus stop with shelter
	Town adopted pedestrian streetscape
	Two-way cycle-track
Fairbrook Drive	Landscaped pedestrian streetscape
	Bike lanes
Private Streets	Landscaped pedestrian streetscape
Trails	Southern stream valley trail providing future connection to the Metrorail Station

Staff Analysis

Zoning Ordinance Compliance

1. This application as proposed complies with the applicable provisions and requirements of the Zoning Ordinance. This includes compliance **Section 78-40.6 – Additional Development Provisions and Development Options for Specified Business Districts**. This section has specific allowances and standards for the *Landmark Business Alternative Option* under which this special exception is permitted and required to meet. The proposal meets all 13 standards, but standard "j"

will necessitate that later phases of the proposed development be delayed until the town or other entity completes the Fairbrook extension.

Comprehensive Plan Adherence

2. The proposal meets the language of the 2030 Comprehensive Plan. The Comprehensive Plan designates the site as Regional Corridor Mixed-Use. The Comprehensive Plan describes the Regional Corridor Mixed-use designation as the most intense land use category within the town, providing for major mixed-use development along the Dulles Toll Road corridor. This category includes relatively dense residential and commercial land use ranging from hotels to office buildings. The Plan's established land use polices for Regional Corridor Mixed-Use are as follows:

   - Provide for a regional scale mixed-use development environment.
   - Create an attractive environment that encourages companies and businesses to locate and remain within the town limits.
   - Generate positive economic benefits for the town in terms of employment, retail sales and tax revenues.
   - Provide appropriate site design and excellent pedestrian facilities to support mobility among the mix of uses within the Regional Corridor Mixed-Use and connectivity to other areas of the town.

Land Use

3. Town staff is supportive of the increased density to 1.25 and the mix of uses with residential not to exceed 60% of the total allowable gross floor area as permitted under the Landmark Business Alternative Option, as proposed, given the project's compliance with the applicable dimensional, site planning, design standards, land use, environmental, and transportation standards specified for the Landmark Business Alternative Option.

Transportation

4. The construction of Fairbrook Drive up the Spring Street is a major component of this project. Fairbrook Drive however also serves a community need by relieving traffic generated elsewhere and by future development within the TRG.

   The southern half of Fairbrook Drive would be constructed by the applicant in accordance with public road standards and will be dedicated to the Town free of charge. The applicant would also contribute up to $6,300,000 for the construction of the northern half of Fairbrook Drive. The current estimate for the construction of the northern half is $8,266,134. While the northern half otherwise referred to as the

"Fairbrook Drive extension" is necessary to mitigate the increased traffic from this development at full build out, only approximately 37% of peak hour traffic on the extension would be associated with the Fairbrook development, while the remaining traffic would be background traffic generated from sources elsewhere in town and nearby expected growth.

The recommended development conditions provide more detail on how and when the northern half of the road will be built, which will be determined when vehicle trips associated with the development exceed what the current transportation network can accommodate as determined by traffic impact analysis' conducted during site plan review. Note that any phase of development that trigger the need for the road will not be approved until the road is constructed.

5. The applicant has committed to a multi-modal approach for this development. In addition to the major transportation infrastructure improvements including Fairbrook Drive and the Fairbrook Drive and Herndon Parkway intersection, this project also includes:

   a. For transit users: a bus stop with shelter
   b. For cyclists: almost 1000 linear feet of two-way cycle track along Herndon Parkway and on-street bicycle lanes for the length of Fairbrook Drive
   c. For pedestrians: urban streetscapes with sidewalks along all streets (public and private) and several ADA compliant paths within the stream valley park including one that provides a future connection at the southern end of the site for the Sugarland Run Regional Trail.

Building & Site Design

6. The Architectural Review Board (ARB) reviewed this development's design at its work session on August 5, 2020. In that review, the ARB expressed general support for the conceptual architecture provided and was mostly agreeable to the design narrative presented. The Board informed the applicant of the additional information that will be needed for the formal ARB review and discussed possible ways to refine the design including appropriate façade treatments for the garages leading up to that later review. Sheets

7. The development as proposed has been successful in conserving large swaths of natural areas and utilizing those natural areas as amenities for the development and the Town. The landscape architecture works well to focus the design on the pedestrian environment and the private amenity spaces. The residential buildings have been designed around open landscaped courtyards that face the stream valley located opposite of Fairbrook Drive. The courtyards provide both public and private

amenities adding interest for the pedestrian, and creating an inviting progression of public, semi-public, and private space. By breaking the streetwall to provide visual and active access to the courtyards, these apartment buildings provide the inhabitants a greater sense of connection with the surrounding environment.

Conditions

Recommended development conditions have been provided. Reference to these conditions is incorporated into the resolution and the conditions will be attached to the resolution as part of the approval. The applicant would then be required to meet these conditions perpetually. Staff has coordinated with the applicant on the development of these conditions and the applicant has agreed to the particular contributions that are recommended. These conditions, as recommended, were specifically crafted for this case and the unique circumstances and issues associated with this case. If approved, staff believes the impacts of the redevelopment would be appropriately mitigated and managed.

Fiscal Impact

This development would add significant tax revenue with up to five times the office GFA compared to the existing office building to be demolished, approximately 900 new residential units, and up to 20,000SF of retail and daycare space. BPOL and meals tax revenue is also possible with increased space for office and retail and the allowance of restaurants.

The project would build a relatively long stretch of the Herndon Parkway streetscape and dedicate the land area for right-of-way, as required. This however removes the financial burden from the town for those improvements in the future. The applicant would also partially build and dedicate the Fairbrook Drive and contribute towards the expansion of this road to Spring Street. The extension of Fairbrook Drive not only allows for the Fairbrook development to occur as proposed, but also provides some mitigation for traffic generated by background growth. Like the streetscape, partial construction of the Fairbrook Drive, right-of-way dedication, and contributions for the future extension provides relief towards the town's financial burden for traffic mitigation related capital improvements.

This development will have direct fiscal impacts on local services, facilities, and infrastructure. The applicant suggested special exception development conditions that would assists to offset some of those impacts. Town staff believes these contributions are adequate in most cases however some further attention may be necessary as expressed in the recommended conditions. See Attachment #3. The conditions include contributions for recreation based on a per residential unit count, contributions for transportation

improvements based on residential and office square footage, contributions for public facilities for each building, and a contribution to Fairfax County Schools.

Town Council Alternatives

The Town Council has the following alternatives available for its decision on this case:

- Approval of SE#17-03 as submitted without the recommended conditions.
- Approval of SE#17-03 in accordance with the draft resolution provided (Attachment #1) to include the recommended conditions.
- Approval of SE#17-03 in accordance with the draft resolution provided (Attachment #1) with changes to the recommended conditions.
- Denial of SE#17-03.

The Town Council may also opt to continue the public hearing to a future Town Council meeting if the Council believes their review requires additional time.

Planning Commission Recommendation and Comments

The Planning Commission recommended approval of SE#17-03 in accordance with the resolution dated October 26, 2020 and provided as Attachment #2 to this report.

The following modifications were made to the application as the Planning Commission reviewed the case and staff completed its review. All of these items were included in the final submission recommended for approval by Planning Commission:

a. An exhibit was included in the SE Plan that shows the pick-up/drop-off details for the daycare center in Building #3.
b. The garage façade design was more clearly presented and articulated in the conditions to ensure compatibility with the building architecture and natural setting.
c. A condition was added addressing future consideration of post-covid design challenges.
d. A condition was added contributing 2,000 square feet of indoor ground-floor space to be made available to the Town of Herndon on lease for a recreational use including but limited to an interim nature center.
e. A condition was added to ensure the developer maintenance in perpetuity of the stormwater management bio-retention facilities within any future public right-of-ways.
f. A condition was added to ensure the continued operation and replacement of an existing Town of Herndon sanitary sewer meter station.
g. Conditions regarding dry utilities within Fairbrook Drive was revised to ensure that private easements are not in conflict with the future public righ-of-way.

h. A condition was revised to provide language designed manage egress traffic out of the Building 3 garage at the northern entrance along Herndon Parkway.
i. The SE Plan was revised to address sight distance and median design issues to comply with design standards.

There were two additional items raised by a commissioner; one was whether the applicant considered providing housing for those with disabilities and the other was whether the provision of space for a large civic or institutional facility was considered. The commissioner cited the need for dedicated housing for the disabled population and the desire for Herndon to have a museum, cultural center, or educational center near the Metro station as a way to help make the Herndon Metro stop unique and a destination for the Town. While staff generally supports both of those ideas for future development in the Transit-Related Growth Area and HTOC, additional study would be required to determine what enabling legislation exists or would be required and options available for the Town to inincentivize specialized housing and cultural or institutional development.

Staff Recommendation

Staff is recommending approval of SE#17-03 in accordance with the draft resolution dated November 17, 2020 and provided as Attachment #1 to this report.

Attachments

1. Draft Town Council Resolution
2. Planning Commission Resolution – Dated October 26, 2020
3. Recommended Development Conditions – Dated November 10, 2020
4. Traffic Impact Analysis Executive Summary & Conclusions
5. Special Exception Plan – Dated November 3, 2020

Bryce A. Perry
Deputy Director of Community Development

Elizabeth M. Gilleran, AICP
Director of Community Development

TOWN OF HERNDON, VIRGINIA

TOWN COUNCIL

DRAFT RESOLUTION

November 17, 2020

Resolution- to approve with conditions Special Exception SE #17-03, allowing development under the Landmark Business Alternative Option on property zoned Office and Light Industrial (O&LI) district.

WHEREAS, the applicant, Fairbrook Business Parks Associates and LP and Fairbrook Business Parks Associates II, LP, has submitted a special exception to permit a mixed-use development consisting of residential, office and retail square footage not to exceed 1,515,000 total square feet or a maximum of 1.25 FAR, with a residential to office percentage not to exceed 60 percent residential at total build out on property located at 100, 150, 200 Fairbrook Drive, Fairbrook Business Park and identified as Fairfax County Tax Map Reference Numbers: 0164-10-0005A, 0164-25-H, 0164-25-O in accordance with the plan dated October 16, 2020; and

WHEREAS, mixed-use development with an FAR not to exceed 1.25, with a residential to office square footage ratio not to exceed 60 percent residential is permitted in this zoning district under the provisions of the Landmark Business Alternative Option subject to the approval of a special exception; and

WHEREAS, the Planning Commission has reviewed this application and has held a public hearing on October 26, 2020 in accordance with the provisions of §15.2-2204 of the State Code; and

WHEREAS, the Planning Commission found that the proposed development, with the conditions dated October 26, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-155.3 Special exception and Section 78-40.6(c) Landmark Business Alternative Option (O&LI only) including the allowances and criteria found therein; and

WHEREAS, the Town Council has reviewed this application and has held a public hearing on November 17, 2020 in accordance with the provisions of §15.2-2204 of the State Code; and

WHEREAS, the Town Council has found that the proposed development, with the conditions dated November 17, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-155.3 Special exception and

Section 78-40.6(c) Landmark Business Alternative Option (O&LI only) including the allowances and criteria found therein; and

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Herndon, Virginia, hereby approves Special Exception SE #17-03, in accordance with the conditions set forth below to achieve compliance with the standards found in Section 78-155.3 and Section 78-40.6(c);

[INSERT CONDITIONS]

TOWN OF HERNDON, VIRGINIA

PLANNING COMMISSION

DRAFT RESOLUTION

October 26, 2020

Resolution- to recommend approval with conditions of Special Exception SE #17-03, to the Town Council allowing development under the Landmark Business Alternative Option on property zoned Office and Light Industrial (O&LI) district.

WHEREAS, the applicant, Fairbrook Business Parks Associates and LP and Fairbrook Business Parks Associates II, LP, has submitted for a special exception to permit a mixed-use development consisting of residential, office and retail square footage not to exceed 1,515,000 total square feet or a maximum of 1.25 FAR, with a residential to office percentage not to exceed 60 percent residential at total build out on property located at 100, 150, 200 Fairbrook Drive, Fairbrook Business Park and identified as Fairfax County Tax Map Reference Numbers: 0164-10-0005A, 0164-25-H, 0164-25-O in accordance with the plan dated October 16, 2020; and

WHEREAS, mixed-use development with an FAR not to exceed 1.25, with a residential to office square footage ratio not to exceed 60 percent residential is permitted in this zoning district under the provisions of the Landmark Business Alternative Option subject to the approval of a special exception; and

WHEREAS, the Planning Commission has reviewed this application and has held a public hearing on October 26, 2020 in accordance with the provisions of §15.2-2204 of the State Code; and

WHEREAS, the Planning Commission finds that the proposed development, with the conditions dated October 26, 2020, meets the purpose and intent of the Zoning Ordinance, in particular Section 78-155.3 Special exception and Section 78-40.6(c) Landmark Business Alternative Option (O&LI only) including the allowances and criteria found therein; and

NOW, THEREFORE, BE IT RESOLVED by the Planning Commission of the Town of Herndon, Virginia, hereby recommends that the Town Council approved Special Exception Application SE #17-03, in accordance with the conditions set forth below to achieve compliance with the standards found in Section 78-155.3 and Section 78-40.6(c);

DRAFT Conditions of Approval Special

Exception #17-03, Fairbrook

1. Substantial Conformance. The development of the Special Exception use described in Condition b below shall be in substantial conformance with the plan entitled "Fairbrook Special Exception Plan # 17-13" dated June 19, 2017, and revised through October 16, 2020, prepared by VIKA Virginia, LLC (the "SE Plan"), incorporated by reference and the Town of Herndon Zoning Ordinance (the "Zoning Ordinance"). Approval of this application for the approximately 4.60-acre parcel identified as Fairfax County Tax Map Reference Number 0164-10-0005A, the 2.52- acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-H, and the 20.44-acre parcel identified as Fairfax County Tax Map Reference Number 0164- 25-O, (the "Property") shall not relieve the applicant or the owners of the Property their successors or parties developing, establishing or operating the approved Special Exception use (the "Applicant") from the obligation to comply with and conform to an Zoning Ordinance, the Town of Herndon Codified Ordinance or regulatory requirement.

2. Uses Permitted. This Special Exception grants approval to permit a mixed use development under the Landmark Business Alternative Option pursuant to Section 78-40.6(c) of the Zoning Ordinance to allow for the redevelopment of the Property with two office buildings, a residential building, and a mixed use building.

    a. Retail uses on the Property may include eating establishments, which will meet the requirements of Section 78-71.6 (d) of the Zoning Ordinance. Outdoor eating areas are permitted as an accessory use to the eating establishments and will be delineated at the time of final site plan approval. The Applicant will work with Town staff during the site plan review to establish accommodations for designated parking, curbside pickup and delivery services including but not limited to storage and deployment of drone/robots and driverless vehicles.

    b. Daycare Center use on the Property will meet the requirements of Section 78-71.2 (d) (2) of the Zoning Ordinance. The designated parking and child drop-off and pickup areas are shown in concept on Sheet C-07 of the SE plan, and will be further detailed at the time of final site plan approval. The Applicant will work with Town staff during the site plan review to establish any further accommodations necessary to ensure the applicable Zoning Ordinance standards are met.

    c. The Applicant will work with Town staff during site plan review and Architectural Review Board review to ensure that trends in modern ways of living and doing business are identified and incorporated to an extent that is reflective of other development along the Metrorail Silver Line in the Herndon/Reston market, and where such advances, such as the inclusion of adequate spacing, storage and deployment areas for drone/robots and driverless vehicles, may impact public rights-of-way and pedestrian accessibility.

3. Development. Development on the Property will consist of four buildings, identified as Buildings 1 -4 and referred to as the "New Buildings" on the Plan and the total development will not exceed 1,515,000 square feet of gross floor area. The maximum square footage of residential uses will be 895,000 square feet of gross floor area (up to 900 multi-family dwelling units). A maximum of 600,000 square feet of gross floor area of office use will be constructed. Notwithstanding what is shown on the SE Plan, the specific location of retail and child care uses within Building 3 is flexible to respond to specific retail tenant needs. Retail use on the Property will not be less than 5,000 square feet of gross floor area.

4. Fairbrook Drive.

    a. The Applicant will construct Fairbrook Drive from its current terminus to the Property's northern boundary in phases as shown on the SE Plan. The Applicant will dedicate right-of-way to the Town for Fairbrook Drive as shown on the SE Plan.

    b. Prior to the issuance of first permanent certificate of occupancy for each building, the Applicant will provide to the Town $1.50 per residential square foot and $8.25 per office square foot towards the eventual construction of an extension of Fairbrook Drive from the Property's northern boundary to Spring Street to mitigate the impacts of site generated trips, and/or other off-site capacity improvements necessitated by the proposed development. In addition, the Applicant will provide to the Town copies of all design work and technical information regarding the extension of Fairbrook Drive, including any correspondence or other material received or sent to the Virginia Department of Transportation (VDOT) or Department of Environmental Quality related to the extension, to include but not limited to the Sugarland Run stream valley pre- and post-condition and interchange modifications.

    c. The Applicant will provide right-of-way and all necessary temporary and permanent easements, as determined by the Town, to enable the Town to connect the future Fairbrook Drive extension to the terminus of Fairbrook Drive on the Applicant's Property shown on the SE Plan upon request by the Town.

    d. Prior to site plan approval, the Applicant will verify in a manner approved by the Town of Herndon Department of Public Works and Town Attorney that any dry utility easements provided in the future Fairbrook Drive right-of-way will automatically terminate and utilities removed when the right-of-way is dedicated or be replaced by a Town of Herndon instrument of approval that would otherwise permit the utilities to remain.

    e. To achieve compliance with Sec. 78-40.6 (c)(1) j., which states: One hundred percent of the net increase in vehicle trips to be generated by the use for which the special exception was granted over the number of vehicle trips associated with

the maximum density permitted in the underlying zoning district shall be accommodated through the provision of street capacity additional to improvements shown in the Herndon Metro Station Area Plan adopted February 28, 2012, a trip generation analysis will be submitted at site plan stage shall indicate whether or not the vehicle trip generation associated with the square footage proposed by that site plan, in conjunction with previously approved site plans meets or exceeds the number of vehicle trips associated with the maximum density permitted in the underlying zoning district, as shown on the Fairbrook Business Park Traffic Impact Statement by Wells & Associates, revised through June 4, 2020. Site plans that would result in a vehicle trip generation meeting or exceeding the number of vehicle trips associated with the maximum density permitted in the underlying zoning district shall not be approved until the necessary improvements are in place or fully funded.

5. Bus Stop. If requested by the Town at the time of site plan review for any New Building, the Applicant will provide a bus stop and bus shelter along Herndon Parkway, north of Fairbrook Drive. The bus stop and shelter will be installed prior to the issuance of a permanent certificate of occupancy for the applicable New Building. If installation of the bus shelter occurs in advance of the construction of Building 3, the bus stop and shelter will be installed in an interim location and will be relocated or replaced by a bus stop and bus shelter in its permanent location with the construction of Building 3. The area of the bus stop and shelter will be dedicated to the Town. The bus shelter will be the standard Town of Herndon bus shelter or a shelter of a different design acceptable to both the Town and the Applicant, along with trash/recycling receptacles and bicycle racks. The Applicant will work with the Town to develop a safe and effective design for the boarding and discharging of passengers in relation to the operability of the adjacent cycle track.

6. Transportation Demand Management. The Applicant will submit a Transportation Demand Management Plan (TDM Plan) for review and approval prior to site plan approval for each building. The Applicant will implement a TDM Plan upon the issuance of a permanent certificate of occupancy for a total of 200,000 square feet of new development on the Property. The purpose of the TDM Plan is to reduce the number of a.m. and p.m. peak hour vehicles generated by New Buildings. The goal will be to reduce a.m. and p.m. peak hour vehicles by ten percent prior to rail transit service availability at the Herndon - Monroe Transit Station, fifteen percent from the opening of the Herndon-Monroe rail station and twenty-five percent following the fourth anniversary of the introduction of rail availability at the Herndon - Monroe Transit Station. The reduction will be measured on the baseline trip generation calculations using ITE Trip Generation Manual, 10th Edition and without further adjustments as outlined in the Fairbrook Business Park Traffic Impact Statement, dated June 5, 2017, as prepared by Wells & Associates, amended June 4, 2020, and incorporated by reference. A TDM Work Plan designed to meet the trip reduction goals will be developed by the Applicant with input and approval by the Town of Herndon Department of Community Development. The TDM Work Plan will be adapted over time to respond to the changing transportation related circumstances of the Property, the surrounding community and the region, as well as to technological and other improvements. At the on-set, the TDM Work Plan for the

Property will incorporate of the following elements:

a. Designating a TDM Coordinator to manage the TDM program for the New Buildings.

b. Encouraging progressive employee policies such alternative work schedules, including staggered work hours, variable work hours, flex-time, compressed work weeks, telecommuting, and other programs to spread peak period travel.

c. Maintaining a database in order to facilitate matching employees/residents with car/van pool options.

d. Participating in a guaranteed ride home program.

e. Providing convenient carpool and van pool parking spaces in each garage.

f. Displaying and distributing to individual tenants and residents information regarding available public transportation facilities and services, including Metrobus, Fairfax Connector, Metrorail, and other transit options in the Town and on the Dulles Toll Road Corridor.

g. Providing bike racks for employees/residents and visitors within the proposed parking garages.

h. Providing one-time contributions to partially subsidize Metro fare cards for new residents and new tenants.

7. Transportation.

a. The Applicant will extend the existing left turning lane on southbound Herndon Parkway into the Property to a stacking length of 225 feet prior to the issuance of a permanent certificate of occupancy for the first New Building to be constructed.

b. The Applicant will construct a right turn lane on northbound Herndon Parkway at Fairbrook Drive. The need for the right turn lane will be assessed with each site plan and will be installed prior to the issuance of a permanent certificate of occupancy of the New Building which generates the need for the turn lane.

c. The Applicant will install a traffic signal for the full signalization of the Fairbrook Drive Herndon Parkway intersection. The traffic signal will include accessible pedestrian signals. The need for the traffic signal will be assessed with each site plan and will be installed prior to the issuance of a permanent certificate of occupancy for the New Building which generates the need for the signal.

d. At the time of site plan approval for Buildings 3 or 4, whichever occurs first, the Applicant will record an inter-parcel access easement from the terminus of the

Private Road A to the northern property line, to permit a future connection to serve adjacent property identified as Tax Map 16-4 ((2)) 15. The Applicant will provide at no cost, the requisite temporary construction easements to permit construction of the street extension by others.

e. The Applicant will provide streetscape improvements along Herndon Parkway, Fairbrook Drive and Private Road A, as well as bicycle facilities along Herndon Parkway and Fairbrook Drive, in keeping with the sections shown on Sheet C-09 of the SE Plan and the Herndon Streetscape Manual.

f. Prior to site plan approval for Building 3, the Applicant will request a design waiver from the Department of Public for the northern entrance along Herndon Parkway into the Building 3 garage. If required as part of the approval of the design waiver, the Applicant will submit a traffic management plan for the Building 3 garage, to include bollards, wayfinding, and/or other devices that will limit the amount of traffic that can exit the Building 3 garage onto Herndon Parkway.

8. Architecture.

a. The architectural treatment of all New Buildings within the proposed development will create a sense of identity and place, and will create human scale through the use of unifying elements such as materials, textures, color, window treatments, decorative details, lighting, and landscaping. Buildings will be designed with high quality architecture and building materials that, at the time a building plan is approved, are typically used on the exterior of Class A office buildings and residential buildings of a similar quality.

b. The architecture and materials will be subject to approval by the Architectural Review Board and will be in general conformance with the character and quality provided in the Fairbrook Park - Architectural Review Board Materials for Preliminary Discussion dated August 5, 2020.

c. In general, the office building materials will consist of a curved curtain wall window system with precast panels with a smooth limestone look. Additional or substitute architectural features will be permitted with approval by the Architectural Review Board.

d. The parking structures for Buildings 1 and 2 will be concrete with landscape planters on the top deck, and a mix of stone, or faux stone, and precast panels to reduce the mass of the garage wall and complement the adjacent natural areas.

e. The parking structures for Buildings 3 and 4 will be architecturally treated to harmonize with the architectural design of the residential buildings as conceptually shown on Sheet A-06 of the SE Plan.

f. All loading, service, and trash areas will be screened with bay doors that remain closed unless in use and designed to complement the architecture of the buildings.

9. Design Guidelines. While the Property is not located within the Herndon Transit Oriented Corridor (HTOC), the Applicant will endeavor to meet the spirit of the HTOC Urban Design and Architectural Guidelines in its architectural and streetscape designs.

10. Green Building Practices. The Applicant will include green building practices as follows:

    a. Residential Buildings. The Applicant will design and construct each residential building to meet the standards of either LEED v4 New Construction or Multifamily Midrise from U.S. Green Building Council, Multifamily Building from Nation Green Building Standard (NGBS), EarthCraft Multifamily, or an equivalent green building program as determined by the Applicant and the Town.

    b. Office Buildings. The Applicant will design and construct the office base building to meet the standards of either LEED v4 Core and Shell Development or New Construction Silver from U.S. Green Building Council, or an equivalent green building program as determined by the Applicant and the Town.

    c. The Applicant will include, at the time of application for a building permit for each building, a list of specific credits or design elements incorporated into the building using the then current documentation of the selected green building program for each multifamily building and the office building.

    d. The Applicant will meet with the Town following application for each site plan to coordinate green building strategies and priority credits, such priorities will include evaluating green infrastructure for stormwater management and potential bird-friendly design features, and the installation of at least two (2) electric vehicle charging stations per garage.

11. Publically Accessible Parks.

    a. The Applicant will construct and maintain publicly accessible park spaces within the Property, identified as Gateway Plaza, The Meander/Central Park, Park A - Sugarland Bridge Park, Park B – Sugarland Meadow Park, and Park C - Sugarland Connector Park, as shown on the SE Plan. Gateway Plaza, to be located at the corner of Herndon Parkway and Fairbrook Drive, will feature special accenting pavement, a focal element, and seating. The Meander/Central Park will include an open green space, seating and interactive elements. Parks A, B and C will include an interconnected multi-use trail, a variety of multi-generational exercise stations and art installations, and will be designed to complement the natural setting. The parks will be constructed in phases as shown on Sheets L-13 through L-15 of the SE Plan. The Applicant will retain the area(s) in fee simple and record public access easement(s) ensuring that the park spaces are open to the public for periods of time consistent with traditional public parks. The public easement(s) will be

recorded prior to final approval of each site plan for the New Building(s) which requires the park phase as shown on Sheets L-13 through L-15 of the SE Plan.

b. Trails. As a part of the trail system in Parks A, B, and C, the Applicant will build an eight (8) foot wide pervious paved trail along the western property line of the Property, connecting Buildings 1 and 2 to the Herndon Parkway sidewalk, and an eight (8) foot wide pervious paved trail from the southwest corner of the parking garage to the adjacent property line. The trails will be completed prior to the issuance of a permanent certificate of occupancy for Buildings 1 or 2, whichever occurs first.

12. Nature Center/Public Space.

a. In addition to the publically accessible recreational areas on the Property to be provided in accordance with Condition 13(b), the Applicant will provide to the Town of Herndon (the "Town") an option to lease (with an initial term of 10 years) 2,000 square feet of ground floor space in either Building 3 or Building 4 for a nature center, or other similar public/community use (the "Lease"). This 2,000 square feet of space will be leased to the Town rent free. Following conclusion of the initial 10 year lease, the Applicant will offer the Town two-5 year lease renewal options at fifty percent (50%) of the then prevailing market rate. The form of the Lease will be reviewed by the Town Attorney and will include commercially reasonable terms with the Town responsible for utilities, char and janitorial services, and a pro-rata share of the common area management.

b. The specific use of the space will be agreed upon mutually by the Town and the Applicant. The space may be considered part of the Retail uses set forth in the development tabulations on Sheet C-06 of the SE Plan, or may be in addition to such uses, provided that the overall development does not exceed 1,515,000 square feet of gross floor area.

c. The Applicant will notify the Town in writing within 60 days of final site plan approval for the Building 3 or 4, whichever occurs first, and request confirmation of the Town's intent to lease and occupy the space. The Town will respond to the Applicant in writing within 60 days confirming its intent to lease and occupy the space or not to lease the space. In the event that the Town decides not to lease or occupy the space in the first building offered, the Applicant will notify the Town in writing within 60 days of final site plan approval for the second of Building 3 or 4, and request confirmation of the Town's intent to lease and occupy the space. The Town will respond to the Applicant in writing within 60 days confirming its intent to lease and occupy the space or not to lease the space. In the event that the Town decides not to lease or occupy the space, then this development condition automatically will expire.

d. The Applicant will construct the space as a cold dark shell and the Town will have the responsibility for completing its own betterments and improvements within

the shell. The shell will be completed and made available to the Town prior to the issuance of the first permanent occupancy permit for the building in which the public facility is located or as otherwise agreed to as part of the Lease.

e. In the event, the Town fails to continuously operate the intended use for a period of three () consecutive months following initial occupancy, the space will revert to the Applicant, and the development condition automatically will expire.

13. Recreational Contributions.

a. The Applicant will provide on-site recreational facilities for the future residents of the Property within the residential buildings, such as: private and public exterior recreational areas/courtyards with seating areas, walking paths, specialty landscaping, lawn areas, hardscape areas, and swimming pools; media entertainment areas; clubrooms; and fitness/exercise centers. The specific facilities and amenities to be provided for each individual residential building will be determined at the time of site plan approval for each residential building. Prior to the issuance for a permanent certificate of occupancy for each residential phase, the Applicant will demonstrate that the value of the residential recreational facilities/amenities are equivalent to a minimum of $1900 per residential unit.

b. Applicant will provide a $900 contribution per residential unit for off-site recreational facilities to offset the capacity impacts to current Town of Herndon recreational facilities. Applicant expenditures toward the proposed publicly accessible recreational areas on the Property will be credited against this contribution, excepting the area set aside for the nature center/public space as provided for by Condition 12. Prior to first permanent occupancy permit for each building, the Applicant will provide evidence of expenditures made for publicly accessible recreational facilities on the Property. In the event that the expenditures are less than $900 per residential unit, the balance of the expected contribution for the applicable building will be contributed to the Town of Herndon

14. Public Safety Contribution. The Applicant will make a contribution to the Town of Herndon for public safety equipment and facilities needs in the amount of $25,000 for each of Buildings 3 and 4. The contribution will be made on a building-by-building basis prior to the issuance of the first permanent certificate of occupancy for each of the two buildings.

15. Public Schools Contribution. The Applicant will contribute $12,262 per expected student (based on a ratio of 0.112 students per residential unit) to the Fairfax County Board of Supervisors for transfer to the Fairfax County School Board to be utilized for capital improvements to schools that serve the Town of Herndon. Such contribution will be made prior to the issuance of a building permit for each residential building and will be based on the actual number of dwelling units identified on the approved building plans for each building. Should prior to the Applicant's payment of this contribution, Fairfax County modifies the expected ratio of students per subject multi- family unit or the amount of the

contribution per student, the amount of the contribution will be modified to reflect the then current ratio and/or contribution. The Applicant will notify the Fairfax County Public Schools whenever a site plan for new residential uses is filed for the Property.

16. Town Sanitary Metering Station. It is anticipated that the proposed development will require relocation of the Town of Herndon sanitary sewer metering station currently located on the Property. At the time of site plan review, the Applicant will coordinate with the Public Works Department on the relocation including the timing, location, size, security, maintenance access, and other related improvements. The Applicant will also take all necessary measures to maintain continuous operation of the meter vault during construction activity. If the relocation requires improvements that change environmental impact limits or building layouts, a revised Special Exception may be necessary as determined by the Zoning Administrator.

17. Trash and Recycling Service. The Property will utilize private trash and recycling services.

18. Invasive Species Mitigation Plan. Concurrent with each site plan submission, the Applicant will submit, and subsequently implement, an Invasive Species Mitigation Plan.

19. Resource Protection Area Enhancement and Revegetation. The Applicant will provide stream restoration or revegetation mitigation on a building per building basis as provided for in Resource Protection Area Exception (RPA) #17-01.

    a. Prior to the approval of any site plan for development on the Property that encroaches into the Chesapeake Bay Resource Protection Area, the Applicant shall provide proof that all stream restoration or mitigation measures are being implemented pursuant to RPA #17-01. If stream restoration or mitigation measures cannot be accommodated on the Property, the Applicant must show that the area on the adjacent property currently identified as Fairfax County Tax Map Reference Number 0173-02-0004A1 has been dedicated to the Town of Herndon pursuant to Proffer Condition Amendment PCA #15-101 and Ordinance 16-O-01, duly adopted by the Town Council of the Town of Herndon on January 12, 2016; and,

        i. Any required mitigation measures are located among the three areas of stream restoration are installed as shown on Sheet 11b of the plan submission sealed on October XX, 2020; and,
        ii. Any required plantings are installed and located in the areas identified as Planting Area 4, 5, 6, and 7, consisting of 62,756 square feet, as shown on Sheet 11b of the plan submission sealed on October XX, 2020.

    b. If Applicant is unable to meet the requirements in 3.a) for off-site stream restoration or mitigation, no further development on the Property that encroaches into the Chesapeake Bay Resource Protection Area can occur until a revised exception for encroachment into the RPA proposing alternate mitigation is

submitted to the town and approved.

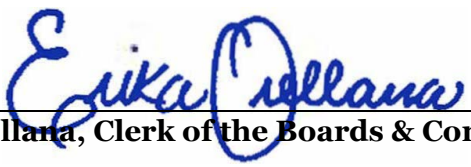
20. Bio-retention Tree Pits. The Applicant will perpetually maintain the bio-retention tree pits located within the public right-of-way along the Property's Herndon Parkway and Fairbrook Drive frontages. The Applicant will enter into the appropriate agreement, in a form approved by the Town Attorney, to permit the Applicant to perform such maintenance prior to dedication of the right-of-way.

21. Density Credit. Advanced density credit is reserved for all dedications as described in the Special Exception plan dated October 16, 2020.

22. Transferability. This special exception runs with the land identified as Fairfax County Tax Map 16-4-0010-5A 16-4-0025-H and 16-4-0025-O, and is not transferable to other properties.

23. Unified Commercial Subdivision. The development may be re-subdivided as a Unified Commercial Subdivision with specific provisions for shared operations dealing with items such as maintenance and parking and the timing and extent of site improvements and with the establishment of a property owners association.

This is certified to be a true and accurate copy of the resolution above, with conditions for SE#17-03 adopted at a legally convened meeting of the Planning Commission of the Town of Herndon on October 26, 2020.



Erika Orellana, Clerk of the Boards & Commissions

Draft Conditions
SE #17-03
Town Council Public Hearing
November 17, 2020

1. Substantial Conformance. The development of the Special Exception use described in Condition b below shall be in substantial conformance with the plan entitled "Fairbrook Special Exception Plan # 17-13" dated June 19, 2017, and revised through October 16, 2020, prepared by VIKA Virginia, LLC (the "SE Plan"), incorporated by reference and the Town of Herndon Zoning Ordinance (the "Zoning Ordinance"). Approval of this application for the approximately 4.60-acre parcel identified as Fairfax County Tax Map Reference Number 0164-10-0005A, the 2.52- acre parcel identified as Fairfax County Tax Map Reference Number 0164-25-H, and the 20.44-acre parcel identified as Fairfax County Tax Map Reference Number 0164- 25-O, (the "Property") shall not relieve the applicant or the owners of the Property their successors or parties developing, establishing or operating the approved Special Exception use (the "Applicant") from the obligation to comply with and conform to an Zoning Ordinance, the Town of Herndon Codified Ordinance or regulatory requirement.

2. Uses Permitted. This Special Exception grants approval to permit a mixed use development under the Landmark Business Alternative Option pursuant to Section 78-40.6(c) of the Zoning Ordinance to allow for the redevelopment of the Property with two office buildings, a residential building, and a mixed use building.

    a. Retail uses on the Property may include eating establishments, which will meet the requirements of Section 78-71.6 (d) of the Zoning Ordinance. Outdoor eating areas are permitted as an accessory use to the eating establishments and will be delineated at the time of final site plan approval. The Applicant will work with Town staff during the site plan review to establish accommodations for designated parking, curbside pickup and delivery services including but not limited to storage and deployment of drone/robots and driverless vehicles.

    b. Daycare Center use on the Property will meet the requirements of Section 78-71.2 (d) (2) of the Zoning Ordinance. The designated parking and child drop-off and pickup areas are shown in concept on Sheet C-07 of the SE plan, and will be further detailed at the time of final site plan approval. The Applicant will work with Town staff during the site plan review to establish any further accommodations necessary to ensure the applicable Zoning Ordinance standards are met.

    c. The Applicant will work with Town staff during site plan review and Architectural Review Board review to ensure that trends in modern ways of living and doing business are identified and incorporated to an extent that is reflective of other development along the Metrorail Silver Line in the Herndon/Reston market, and where such advances, such as the inclusion of adequate spacing, storage and deployment areas for drone/robots and driverless vehicles, may impact public rights-of-way and pedestrian accessibility.

3. Development. Development on the Property will consist of four buildings, identified as Buildings 1 -4 and referred to as the "New Buildings" on the Plan and the total development will not exceed 1,515,000 square feet of gross floor area. The maximum square footage of residential uses will be 895,000 square feet of gross floor area (up to 900 multi-family dwelling units). A maximum of 600,000 square feet of gross floor area of office use will be constructed. Notwithstanding what is shown on the SE Plan, the specific location of retail

and child care uses within Building 3 is flexible to respond to specific retail tenant needs. Retail use on the Property will not be less than 5,000 square feet of gross floor area.

4. Fairbrook Drive.

   a. The Applicant will construct Fairbrook Drive from its current terminus to the Property's northern boundary in phases as shown on the SE Plan. The Applicant will dedicate right-of-way to the Town for Fairbrook Drive as shown on the SE Plan.

   b. Prior to the issuance of first permanent certificate of occupancy for each building, the Applicant will provide to the Town $1.50 per residential square foot and $8.25 per office square foot towards the eventual construction of an extension of Fairbrook Drive from the Property's northern boundary to Spring Street to mitigate the impacts of site generated trips, and/or other off-site capacity improvements necessitated by the proposed development. In addition, the Applicant will provide to the Town copies of all design work and technical information regarding the extension of Fairbrook Drive, including any correspondence or other material received or sent to the Virginia Department of Transportation (VDOT) or Department of Environmental Quality related to the extension, to include but not limited to the Sugarland Run stream valley pre- and post-condition and interchange modifications.

   c. The Applicant will provide right-of-way and all necessary temporary and permanent easements, as determined by the Town, to enable the Town to connect the future Fairbrook Drive extension to the terminus of Fairbrook Drive on the Applicant's Property shown on the SE Plan upon request by the Town.

   d. Prior to site plan approval, the Applicant will verify in a manner approved by the Town of Herndon Department of Public Works and Town Attorney that any dry utility easements provided in the future Fairbrook Drive right-of-way will automatically terminate and utilities removed when the right-of-way is dedicated or be replaced by a Town of Herndon instrument of approval that would otherwise permit the utilities to remain.

   e. To achieve compliance with Sec. 78-40.6 (c)(1) j., which states: One hundred percent of the net increase in vehicle trips to be generated by the use for which the special exception was granted over the number of vehicle trips associated with the maximum density permitted in the underlying zoning district shall be accommodated through the provision of street capacity additional to improvements shown in the Herndon Metro Station Area Plan adopted February 28, 2012, a trip generation analysis will be submitted at site plan stage shall indicate whether or not the vehicle trip generation associated with the square footage proposed by that site plan, in conjunction with previously approved site plans meets or exceeds the number of vehicle trips associated with the maximum density permitted in the underlying zoning district, as shown on the Fairbrook Business Park Traffic Impact Statement by Wells & Associates, revised through June 4, 2020. Site plans that would result in a vehicle trip generation meeting or exceeding the number of vehicle trips associated with the maximum density permitted in the underlying zoning district shall not be approved until the necessary improvements are in place or fully funded.

5. Bus Stop. If requested by the Town at the time of site plan review for any New Building, the Applicant will provide a bus stop and bus shelter along Herndon Parkway, north of Fairbrook Drive. The bus stop and shelter will be installed prior to the issuance of a

permanent certificate of occupancy for the applicable New Building. If installation of the bus shelter occurs in advance of the construction of Building 3, the bus stop and shelter will be installed in an interim location and will be relocated or replaced by a bus stop and bus shelter in its permanent location with the construction of Building 3. The area of the bus stop and shelter will be dedicated to the Town. The bus shelter will be the standard Town of Herndon bus shelter or a shelter of a different design acceptable to both the Town and the Applicant, along with trash/recycling receptacles and bicycle racks. The Applicant will work with the Town to develop a safe and effective design for the boarding and discharging of passengers in relation to the operability of the adjacent cycle track.

6. Transportation Demand Management. The Applicant will submit a Transportation Demand Management Plan (TDM Plan) for review and approval prior to site plan approval for each building. The Applicant will implement a TDM Plan upon the issuance of a permanent certificate of occupancy for a total of 200,000 square feet of new development on the Property. The purpose of the TDM Plan is to reduce the number of a.m. and p.m. peak hour vehicles generated by New Buildings. The goal will be to reduce a.m. and p.m. peak hour vehicles by ten percent prior to rail transit service availability at the Herndon - Monroe Transit Station, fifteen percent from the opening of the Herndon-Monroe rail station and twenty-five percent following the fourth anniversary of the introduction of rail availability at the Herndon - Monroe Transit Station. The reduction will be measured on the baseline trip generation calculations using ITE Trip Generation Manual, 10th Edition and without further adjustments as outlined in the Fairbrook Business Park Traffic Impact Statement, dated June 5, 2017, as prepared by Wells & Associates, amended June 4, 2020, and incorporated by reference. A TDM Work Plan designed to meet the trip reduction goals will be developed by the Applicant with input and approval by the Town of Herndon Department of Community Development. The TDM Work Plan will be adapted over time to respond to the changing transportation related circumstances of the Property, the surrounding community and the region, as well as to technological and other improvements. At the on-set, the TDM Work Plan for the Property will incorporate of the following elements:

    a. Designating a TDM Coordinator to manage the TDM program for the New Buildings.

    b. Encouraging progressive employee policies such alternative work schedules, including staggered work hours, variable work hours, flex-time, compressed work weeks, telecommuting, and other programs to spread peak period travel.

    c. Maintaining a database in order to facilitate matching employees/residents with car/van pool options.

    d. Participating in a guaranteed ride home program.

    e. Providing convenient carpool and van pool parking spaces in each garage.

    f. Displaying and distributing to individual tenants and residents information regarding available public transportation facilities and services, including Metrobus, Fairfax Connector, Metrorail, and other transit options in the Town and on the Dulles Toll Road Corridor.

    g. Providing bike racks for employees/residents and visitors within the proposed parking garages.

    h. Providing one-time contributions to partially subsidize Metro fare cards for new

residents and new tenants.

7. Transportation.

   a. The Applicant will extend the existing left turning lane on southbound Herndon Parkway into the Property to a stacking length of 225 feet prior to the issuance of a permanent certificate of occupancy for the first New Building to be constructed.

   b. The Applicant will construct a right turn lane on northbound Herndon Parkway at Fairbrook Drive. The need for the right turn lane will be assessed with each site plan and will be installed prior to the issuance of a permanent certificate of occupancy of the New Building which generates the need for the turn lane.

   c. The Applicant will install a traffic signal for the full signalization of the Fairbrook Drive Herndon Parkway intersection. The traffic signal will include accessible pedestrian signals. The need for the traffic signal will be assessed with each site plan and will be installed prior to the issuance of a permanent certificate of occupancy for the New Building which generates the need for the signal.

   d. At the time of site plan approval for Buildings 3 or 4, whichever occurs first, the Applicant will record an inter-parcel access easement from the terminus of the Private Road A to the northern property line, to permit a future connection to serve adjacent property identified as Tax Map 16-4 ((2)) 15. The Applicant will provide at no cost, the requisite temporary construction easements to permit construction of the street extension by others.

   e. The Applicant will provide streetscape improvements along Herndon Parkway, Fairbrook Drive and Private Road A, as well as bicycle facilities along Herndon Parkway and Fairbrook Drive, in keeping with the sections shown on Sheet C-09 of the SE Plan and the Herndon Streetscape Manual.

   f. Prior to site plan approval for Building 3, the Applicant will request a design waiver from the Department of Public for the northern entrance along Herndon Parkway into the Building 3 garage. If required as part of the approval of the design waiver, the Applicant will submit a traffic management plan for the Building 3 garage, to include bollards, wayfinding, and/or other devices that will limit the amount of traffic that can exit the Building 3 garage onto Herndon Parkway.

8. Architecture.

   a. The architectural treatment of all New Buildings within the proposed development will create a sense of identity and place, and will create human scale through the use of unifying elements such as materials, textures, color, window treatments, decorative details, lighting, and landscaping. Buildings will be designed with high quality architecture and building materials that, at the time a building plan is approved, are typically used on the exterior of Class A office buildings and residential buildings of a similar quality.

   b. The architecture and materials will be subject to approval by the Architectural Review Board and will be in general conformance with the character and quality provided in the Fairbrook Park - Architectural Review Board Materials for Preliminary Discussion dated August 5, 2020.

   c. In general, the office building materials will consist of a curved curtain wall window

system with precast panels with a smooth limestone look. Additional or substitute architectural features will be permitted with approval by the Architectural Review Board.

d. The parking structures for Buildings 1 and 2 will be concrete with landscape planters on the top deck, and a mix of stone, or faux stone, and precast panels to reduce the mass of the garage wall and complement the adjacent natural areas.

e. The parking structures for Buildings 3 and 4 will be architecturally treated to harmonize with the architectural design of the residential buildings as conceptually shown on Sheet A-06 of the SE Plan.

f. All loading, service, and trash areas will be screened with bay doors that remain closed unless in use and designed to complement the architecture of the buildings.

9. Design Guidelines. While the Property is not located within the Herndon Transit Oriented Corridor (HTOC), the Applicant will endeavor to meet the spirit of the HTOC Urban Design and Architectural Guidelines in its architectural and streetscape designs.

10. Green Building Practices. The Applicant will include green building practices as follows:

a. Residential Buildings. The Applicant will design and construct each residential building to meet the standards of either LEED v4 New Construction or Multifamily Midrise from U.S. Green Building Council, Multifamily Building from Nation Green Building Standard (NGBS), EarthCraft Multifamily, or an equivalent green building program as determined by the Applicant and the Town.

b. Office Buildings. The Applicant will design and construct the office base building to meet the standards of either LEED v4 Core and Shell Development or New Construction Silver from U.S. Green Building Council, or an equivalent green building program as determined by the Applicant and the Town.

c. The Applicant will include, at the time of application for a building permit for each building, a list of specific credits or design elements incorporated into the building using the then current documentation of the selected green building program for each multifamily building and the office building.

d. The Applicant will meet with the Town following application for each site plan to coordinate green building strategies and priority credits, such priorities will include evaluating green infrastructure for stormwater management and potential bird-friendly design features, and the installation of at least two (2) electric vehicle charging stations per garage.

11. Publically Accessible Parks.

a. The Applicant will construct and maintain publicly accessible park spaces within the Property, identified as Gateway Plaza, The Meander/Central Park, Park A - Sugarland Bridge Park, Park B – Sugarland Meadow Park, and Park C - Sugarland Connector Park, as shown on the SE Plan. Gateway Plaza, to be located at the corner of Herndon Parkway and Fairbrook Drive, will feature special accenting pavement, a focal element, and seating. The Meander/Central Park will include an open green space, seating and interactive elements. Parks A, B and C will include an interconnected multi-use trail, a variety of multi-generational exercise stations and art installations, and will be designed to complement the natural setting. The parks

will be constructed in phases as shown on Sheets L-13 through L-15 of the SE Plan. The Applicant will retain the area(s) in fee simple and record public access easement(s) ensuring that the park spaces are open to the public for periods of time consistent with traditional public parks. The public easement(s) will be recorded prior to final approval of each site plan for the New Building(s) which requires the park phase as shown on Sheets L-13 through L-15 of the SE Plan.

b. Trails. As a part of the trail system in Parks A, B, and C, the Applicant will build an eight (8) foot wide pervious paved trail along the western property line of the Property, connecting Buildings 1 and 2 to the Herndon Parkway sidewalk, and an eight (8) foot wide pervious paved trail from the southwest corner of the parking garage to the adjacent property line. The trails will be completed prior to the issuance of a permanent certificate of occupancy for Buildings 1 or 2, whichever occurs first.

12. Nature Center/Public Space.

a. In addition to the publically accessible recreational areas on the Property to be provided in accordance with Condition 13(b), the Applicant will provide to the Town of Herndon (the "Town") an option to lease (with an initial term of 10 years) 2,000 square feet of ground floor space in either Building 3 or Building 4 for a nature center, or other similar public/community use (the "Lease"). This 2,000 square feet of space will be leased to the Town rent free. Following conclusion of the initial 10 year lease, the Applicant will offer the Town two-5 year lease renewal options at fifty percent (50%) of the then prevailing market rate. The form of the Lease will be reviewed by the Town Attorney and will include commercially reasonable terms with the Town responsible for utilities, char and janitorial services, and a pro-rata share of the common area management.

b. The specific use of the space will be agreed upon mutually by the Town and the Applicant. The space may be considered part of the Retail uses set forth in the development tabulations on Sheet C-06 of the SE Plan, or may be in addition to such uses, provided that the overall development does not exceed 1,515,000 square feet of gross floor area.

c. The Applicant will notify the Town in writing within 60 days of final site plan approval for the Building 3 or 4, whichever occurs first, and request confirmation of the Town's intent to lease and occupy the space. The Town will respond to the Applicant in writing within 60 days confirming its intent to lease and occupy the space or not to lease the space. In the event that the Town decides not to lease or occupy the space in the first building offered, the Applicant will notify the Town in writing within 60 days of final site plan approval for the second of Building 3 or 4, and request confirmation of the Town's intent to lease and occupy the space. The Town will respond to the Applicant in writing within 60 days confirming its intent to lease and occupy the space or not to lease the space. In the event that the Town decides not to lease or occupy the space, then this development condition automatically will expire.

d. The Applicant will construct the space as a cold dark shell and the Town will have the responsibility for completing its own betterments and improvements within the shell. The shell will be completed and made available to the Town prior to the issuance of the first permanent occupancy permit for the building in which the public facility is located or as otherwise agreed to as part of the Lease.

e. In the event, the Town fails to continuously operate the intended use for a period of three () consecutive months following initial occupancy, the space will revert to the Applicant, and the development condition automatically will expire.

13. Recreational Contributions.

a. The Applicant will provide on-site recreational facilities for the future residents of the Property within the residential buildings, such as: private and public exterior recreational areas/courtyards with seating areas, walking paths, specialty landscaping, lawn areas, hardscape areas, and swimming pools; media entertainment areas; clubrooms; and fitness/exercise centers. The specific facilities and amenities to be provided for each individual residential building will be determined at the time of site plan approval for each residential building. Prior to the issuance for a permanent certificate of occupancy for each residential phase, the Applicant will demonstrate that the value of the residential recreational facilities/amenities are equivalent to a minimum of $1900 per residential unit.

b. Applicant will provide a $900 contribution per residential unit for off-site recreational facilities to offset the capacity impacts to current Town of Herndon recreational facilities. Applicant expenditures toward the proposed publicly accessible recreational areas on the Property will be credited against this contribution, excepting the area set aside for the nature center/public space as provided for by Condition 12. Prior to first permanent occupancy permit for each building, the Applicant will provide evidence of expenditures made for publicly accessible recreational facilities on the Property. In the event that the expenditures are less than $900 per residential unit, the balance of the expected contribution for the applicable building will be contributed to the Town of Herndon

14. Public Safety Contribution. The Applicant will make a contribution to the Town of Herndon for public safety equipment and facilities needs in the amount of $25,000 for each of Buildings 3 and 4. The contribution will be made on a building-by-building basis prior to the issuance of the first permanent certificate of occupancy for each of the two buildings.

15. Public Schools Contribution. The Applicant will contribute $12,262 per expected student (based on a ratio of 0.112 students per residential unit) to the Fairfax County Board of Supervisors for transfer to the Fairfax County School Board to be utilized for capital improvements to schools that serve the Town of Herndon. Such contribution will be made prior to the issuance of a building permit for each residential building and will be based on the actual number of dwelling units identified on the approved building plans for each building. Should prior to the Applicant's payment of this contribution, Fairfax County modifies the expected ratio of students per subject multi- family unit or the amount of the contribution per student, the amount of the contribution will be modified to reflect the then current ratio and/or contribution. The Applicant will notify the Fairfax County Public Schools whenever a site plan for new residential uses is filed for the Property.

16. Town Sanitary Metering Station. It is anticipated that the proposed development will require relocation of the Town of Herndon sanitary sewer metering station currently located on the Property. At the time of site plan review, the Applicant will coordinate with the Public Works Department on the relocation including the timing, location, size, security, maintenance access, and other related improvements. The Applicant will also take all necessary measures to maintain continuous operation of the meter vault during construction activity. If the relocation requires improvements that change environmental impact limits or building layouts, a revised Special Exception may be necessary as determined by the Zoning Administrator.

17. Trash and Recycling Service. The Property will utilize private trash and recycling services.

18. Invasive Species Mitigation Plan. Concurrent with each site plan submission, the Applicant will submit, and subsequently implement, an Invasive Species Mitigation Plan.

19. Resource Protection Area Enhancement and Revegetation. The Applicant will provide stream restoration or revegetation mitigation on a building per building basis as provided for in Resource Protection Area Exception (RPA) #17-01.

    a. Prior to the approval of any site plan for development on the Property that encroaches into the Chesapeake Bay Resource Protection Area, the Applicant shall provide proof that all stream restoration or mitigation measures are being implemented pursuant to RPA #17-01. If stream restoration or mitigation measures cannot be accommodated on the Property, the Applicant must show that the area on the adjacent property currently identified as Fairfax County Tax Map Reference Number 0173-02-0004A1 has been dedicated to the Town of Herndon pursuant to Proffer Condition Amendment PCA #15-101 and Ordinance 16-O-01, duly adopted by the Town Council of the Town of Herndon on January 12, 2016; and,

        i. Any required mitigation measures are located among the three areas of stream restoration are installed as shown on Sheet 11b of the plan submission sealed on October XX, 2020; and,
        ii. Any required plantings are installed and located in the areas identified as Planting Area 4, 5, 6, and 7, consisting of 62,756 square feet, as shown on Sheet 11b of the plan submission sealed on October XX, 2020.

    b. If Applicant is unable to meet the requirements in 3.a) for off-site stream restoration or mitigation, no further development on the Property that encroaches into the Chesapeake Bay Resource Protection Area can occur until a revised exception for encroachment into the RPA proposing alternate mitigation is submitted to the town and approved.

20. Bio-retention Tree Pits. The Applicant will perpetually maintain the bio-retention tree pits located within the public right-of-way along the Property's Herndon Parkway and Fairbrook Drive frontages. The Applicant will enter into the appropriate agreement, in a form approved by the Town Attorney, to permit the Applicant to perform such maintenance prior to dedication of the right-of-way.

21. Density Credit. Advanced density credit is reserved for all dedications as described in the Special Exception plan dated October 16, 2020.

22. Transferability. This special exception runs with the land identified as Fairfax County Tax Map 16-4-0010-5A 16-4-0025-H and 16-4-0025-O, and is not transferable to other properties.

23. Unified Commercial Subdivision. The development may be re-subdivided as a Unified Commercial Subdivision with specific provisions for shared operations dealing with items such as maintenance and parking and the timing and extent of site improvements and with the establishment of a property owners association.

Attachment #4

WELLS + ASSOCIATES

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Suite 610
Tysons, Virginia 22102
703–917–6620
703–917–0739 FAX

www.mjwells.com

FAIRBROOK BUSINESS PARK
TRAFFIC IMPACT STATEMENT
TOWN OF HERNDON, VIRGINIA

Prepared for:
Fairbrook Business Park Associates II LP C/O Quadrangle Development

Prepared by:
Wells + Associates, Inc.

Michael J. Workosky, PTP, TOPS, TSOS
John F. Cavan, P.E., PTOE

Revised through June 4, 2020

Section 1
INTRODUCTION

PURPOSE

This report presents an updated traffic impact statement (TIS) prepared in conjunction with a proposed Special Exception Amendment Application for the Fairbrook Business Park. The site is located on the north side of the Dulles Toll Road, south of Spring Street, and east of Herndon Parkway as shown on Figure 1-1. The traffic study has been revised based on comments received from the Virginia Department of Transportation (VDOT) dated July 24, 2019 and the Town of Herndon dated July 24, 2019. A copy of the comment response document is included in Appendix A. All of the responses have been incorporated into this updated report.

This updated report includes traffic counts collected in 2020 (prior to the COVID-19 pandemic), updated traffic analyses for 2030 (site buildout without and with Fairbrook Drive Extended) and 2035 conditions (with buildout of the HTOC), and maintains the trip threshold for the site based on the underlying zoning density without the extension of Fairbrook Drive.

The property is currently occupied by an office building of 80,088 S.F. that includes a 9,111 S.F. day care facility. Based on Special Exception approvals, the site is approved for a total of 515,688 S.F. of office space and a 162-room hotel (total of 601,250 GSF). The underlying zoning permits up to 848,592 GSF of office uses. The Applicant (Fairbrook Business Park Associates II LP) proposes a Special Exception Amendment utilizing the Landmark Business – Alternate Regulations to develop the site with a combination of residential and office uses that total approximately 1.50 MSF, split into approximately 900 residential units , 600,000 S.F. of general office space, and a 10,000 S.F. day care facility. In addition, the residential and office space includes a minor amount (approximately 10,000 S.F.) of retail/amenity space.

Specifically, this transportation impact study identifies the impacts of the proposed new uses on the surrounding roadway network and is based on the Town of Herndon Traffic Impact Study parameters outlined in section 78-501.2 of the Zoning Ordinance. Representatives of the development team met with the Town of Herndon and the Virginia Department of Transportation (VDOT) to identify the study scope and agree on specific study parameters. A copy of the scoping agreement is included in Appendix A.

Senate Bill 699, Chapter 527 of the 2006 Acts of Assembly was passed by the Virginia legislature in 2006 to enhance the coordination of land use and transportation planning in the Commonwealth. All development proposals which meet certain specific trip generation thresholds are subject to the regulations as outlined in VDOT's *Updated Traffic Impact Analysis Regulations Administrative Guidelines* dated November 2014 (the "Administrative Guidelines"). An amendment to the legislation took effect in January 2012. Based on the legislative updates (now referred to as Chapter 870), a development proposal is generally considered to substantially impact the transportation network if it generates 5,000 or more daily vehicle trips. Based on a review of the Applicant's proposed development plan, a Chapter 870 compliant traffic impact study was required (see Appendix A).

STUDY OBJECTIVES

The objectives of this study were to: (1) analyze existing 2020 traffic conditions in the study area, (2) establish a trip cap for phase 1 conditions (without Fairbrook Drive Extended), (3) analyze future 2030 (buildout) traffic conditions without and/or with the proposed new uses, (4) analyze 2035 (buildout of the Herndon Metro Station Plan) with the proposed uses, and (5) recommend any roadway improvements and/or transportation enhancements necessary to mitigate any traffic impacts associated with the new uses. Utilizing a four-step process consisting of trip generation, trip distribution, a determination of mode split, and traffic assignment, future conditions were forecasted, and intersections were evaluated in terms of levels of service and queuing. Appropriate mitigation measures were then identified and evaluated to remediate impacted levels of service.

Tasks undertaken in this study included the following:

1. Reviewed the Applicant's proposed plans and other background data.

2. Conducted a field reconnaissance of existing roadway and intersection geometries, traffic controls, and speed limits.

3. Attended meetings and corresponded with the Town of Herndon and the Virginia Department of Transportation (VDOT) staff and the project team to establish the general study scope and specific analysis parameters.

4. Conducted updated year 2020 counts of existing traffic at nine (9) key intersections during the weekday AM and PM peak hours (prior to the COVID-19 pandemic).

5. Analyzed existing 2020 levels of service at each of the key study intersections.

6. Forecasted future traffic volumes without the development based on existing traffic counts, regional traffic growth, traffic associated with other area developments, and the underlying approved zoning density for 2030, and with the buildout of the Herndon Metro Station Plan in 2035.

7. Calculated future weekday levels of service without the development at each of the key study intersections for 2030 and 2035 based on background traffic forecasts and existing and/or improved traffic controls and intersection geometries.

8. Estimated the number of weekday peak hour trips that would be generated by the buildout of the proposed new uses based on standard Institute of Transportation Engineers (ITE) 10th edition, Trip Generation rates and/or equations.

9. Prepared weekday AM and PM peak hour total future traffic forecasts with the proposed development based on background traffic forecasts plus site traffic assignments for 2030 (buildout) and 2035 conditions.

10. Calculated weekday total future levels of service for each of the key study intersections based on projected total future traffic forecasts, existing/future traffic controls and intersection geometries for 2030 and 2035.

11. Identified network improvements/enhancements required to accommodate future traffic volumes with the proposed new uses.

12. Establish a trip cap to determine the timing of the Fairbrook Drive Extension.

13. Conducted queuing analyses for years 2030 and 2035 conditions with the proposed uses.

This study was conducted in accordance with section 78-502.2 of Town of Herndon Zoning Ordinance and the 24 VAC 30-155-60 regulations. Sources of data for this analysis included traffic counts conducted by Wells + Associates, the Town of Herndon, the Virginia Department of Transportation (VDOT), the Institute of Transportation Engineers (ITE), Fairfax County, VHB, WCL&W, PC, VIKA Engineers, the Highway Capacity Manual 2000, Synchro version 10.2, and the files of Wells + Associates.

STUDY AREA

This study was conducted in accordance with the parameters set forth in the executed scoping document included in Appendix A and agreed to by the Town of Herndon, VDOT, and the Applicant (and its representatives). The study area (see Figure 1-2) was selected based on those intersections potentially affected by the proposed new uses.

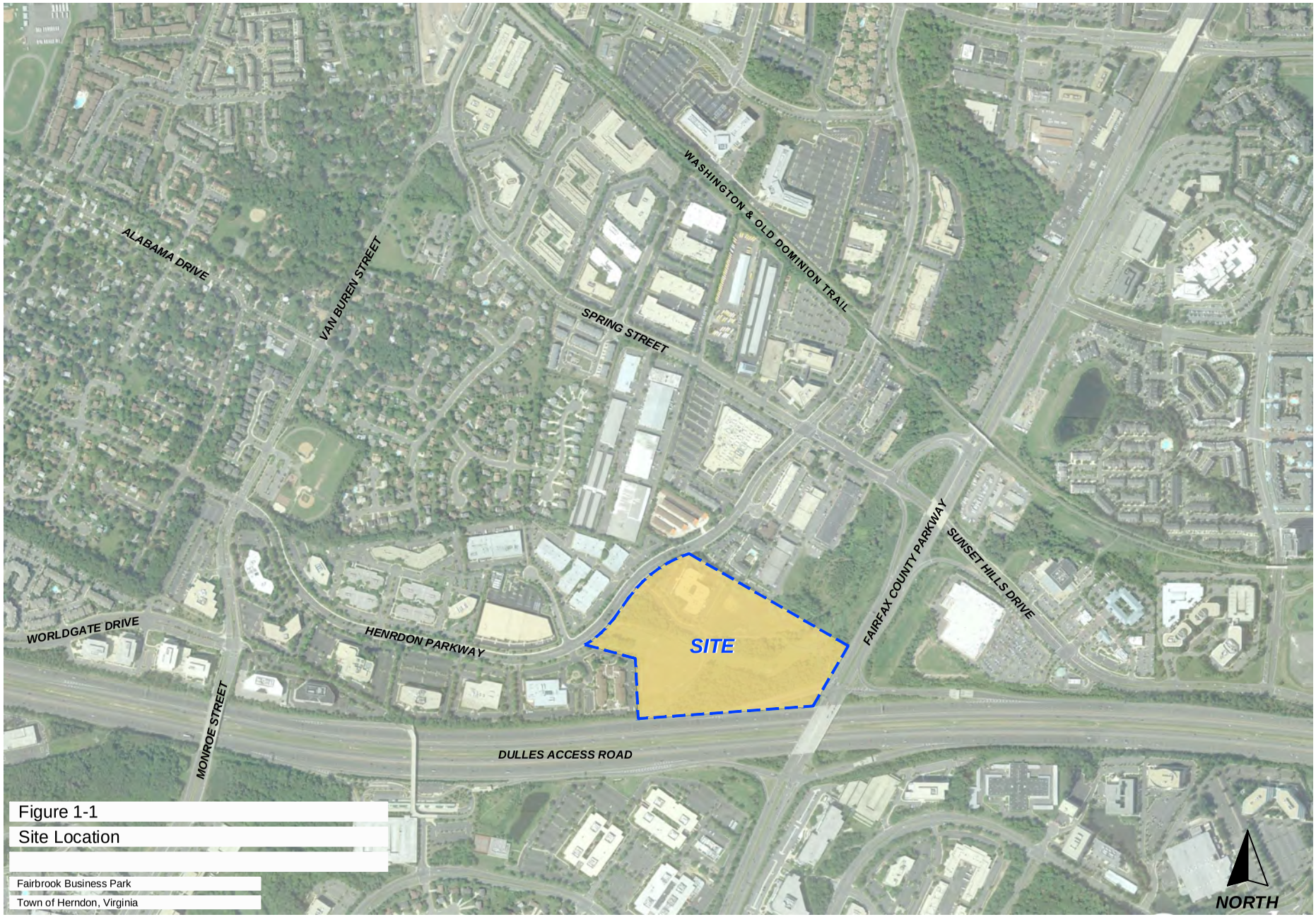
For purposes of this analysis, the following intersections/locations are included in the study area:

1. Van Buren Street/Monroe Street/Worldgate Drive
2. Van Buren Street/Herndon Parkway
3. Herndon Parkway/Fairbrook Drive
4. Herndon Parkway/Site Driveway
5. Herndon Parkway/Spring Street
6. Fairfax County Parkway Ramps/Spring Street
7. Fairfax County Parkway/Spring Street
8. Fairfax County Parkway/Dulles Toll Road WB Ramps
9. Fairfax County Parkway/Dulles Toll Road EB Ramps

STUDY METHODOLOGY

Synchro software (version 10.2) was used to evaluate levels of service at the study intersections during the weekday AM and PM peak hours. Synchro is a macroscopic model used for optimizing traffic signal timing and performing capacity analyses. The software can model existing traffic signal timings or optimize splits, offsets, and cycle lengths for individual intersections, an arterial, or a complete network. Synchro allows the user to evaluate the effects of changing intersection geometrics, traffic demands, traffic control, and/or traffic signal settings as well as optimize traffic signal timings.

The levels of service reported for the signalized and unsignalized intersections analyzed herein were taken from the Highway Capacity Manual 2000 (HCM) reports generated by Synchro version 10. Level of service descriptions are included in Appendix B.


O:\PROJECTS\5001-5500\5383 QUADRANGLE-HERNDON MASTER PLAN\GRAPHICS\5383 - RPT GRAPHICS (5.22.2020).DWG
JCP
ALABAMA DRIVE
VAN BUREN STREET
WASHINGTON & OLD DOMINION TRAIL
SPRING STREET
WORLDGATE DRIVE
HENRDON PARKWAY
MONROE STREET
DULLES ACCESS ROAD
FAIRFAX COUNTY PARKWAY
SUNSET HILLS DRIVE
SITE
NORTH
Figure 1-1
Site Location
Fairbrook Business Park
Town of Herndon, Virginia

O:\PROJECTS\5001-5500\5383 QUADRANGLE-HERNDON MASTER PLAN\GRAPHICS\5383 - RPT GRAPHICS (5.22.2020).DWG

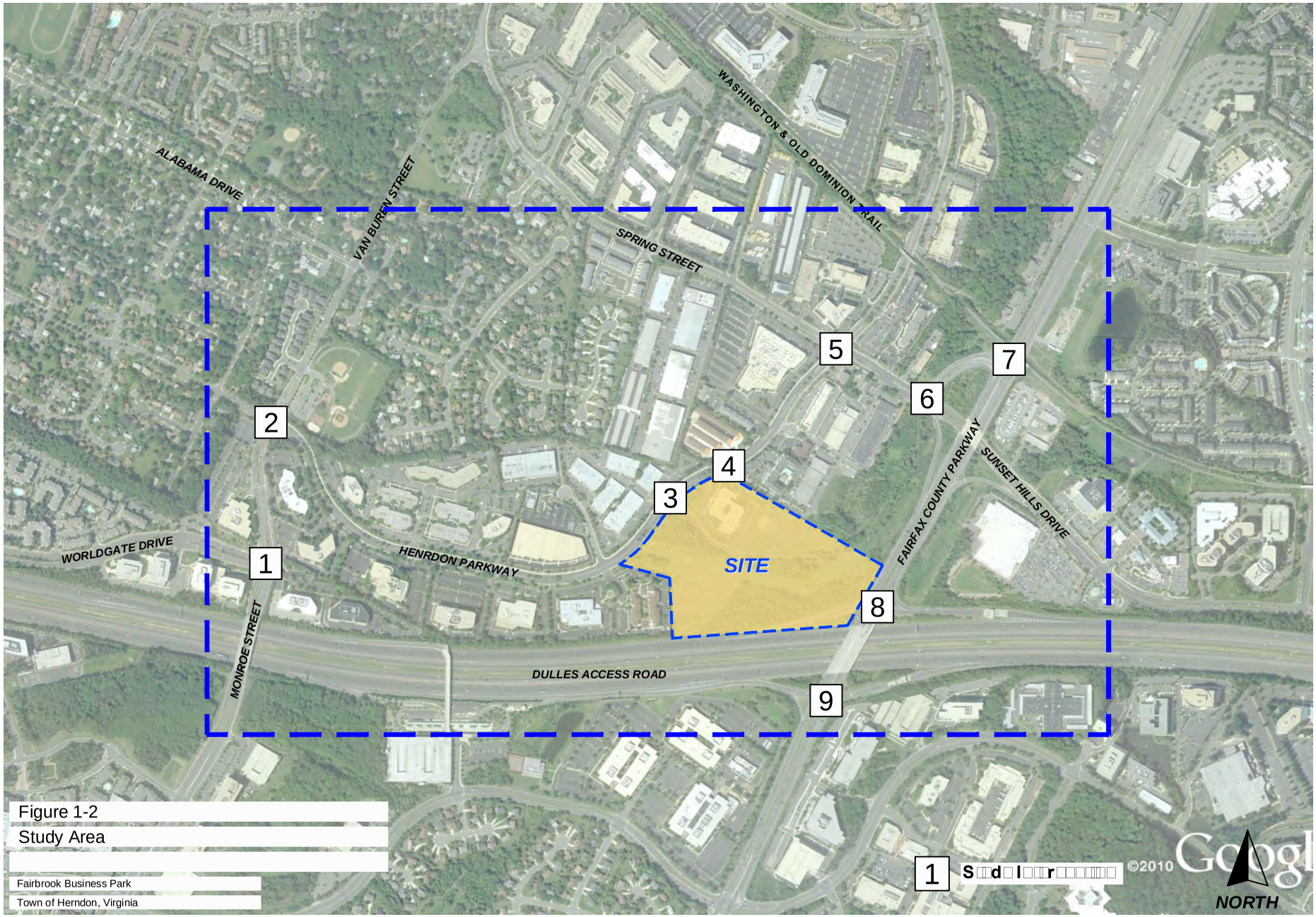


Figure 1-2

Study Area

Fairbrook Business Park

Town of Herndon, Virginia

JCP

Section 9
CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Based on this assessment, the following can be concluded:

1. The proposed Fairbrook Business Park development is envisioned as a transit-related mixed-use community consistent with the recommendations of the Comprehensive Plan that will create an attractive living and working environment and take full advantage of future transit service.

2. The currently approved underlying zoning would permit 848,592 GSF of office space to be constructed on-site, with turn lane and traffic signal improvements required at the Herndon Parkway/Fairbrook Drive intersection. The future extension of Fairbrook Drive is not required. Based on the underlying zoning the site would generate 618 weekday AM peak hour, 651 weekday PM peak hour trips, reflecting the trip threshold for the property. Thus, once the calculated peak hour trip generation of the proposed development exceeds this threshold, the Fairbrook Drive Extension would be required.

3. Under existing conditions, all of the study intersections with the exception of Herndon Parkway/Van Buren Street and the Spring Street/Herndon Parkway intersections operate at acceptable overall levels of service (LOS "D" or better) during weekday peak hours. Several side street movements at the Fairbrook Drive/Herndon Parkway intersection operate beyond capacity during peak hours due to mainline traffic volumes.

4. As a result of background regional growth, pipeline development related trips and trips associated with the approved uses, overall levels of service and vehicle delays would worsen at several key study intersections. Additional network improvements/ enhancements would be necessary beyond those already committed by others to accommodate the pipeline vehicle trips and regional traffic growth.

5. The full buildout of the proposed development (900 residential units/600,000 S.F. of office/10,000 S.F daycare) would generate 688 external weekday AM peak hour, 800 external weekday PM peak hour, and 8,178 external weekday daily trips over the existing uses. When compared to the approved uses, the proposed site would generate 126 more AM peak hour, 190 more PM peak hour, and 2,254 more daily trips.

6. The development of Fairbrook Business Park would result in intersection levels of service generally consistent with those forecasted under background future conditions (without development of the site as proposed) under 2030 conditions. However, locations operating at or beyond capacity would experience increased delays over background conditions without further improvements.

7. The future conditions analysis indicates that the extension of Fairbrook Drive would be required to be constructed as part of the site development to improve overall traffic operations along Herndon Parkway and effectively mitigate site generated traffic beyond the established trip threshold based on the approved underlying zoning. It would relieve travel demands at the critical Herndon Parkway/Spring Street intersection, improve access to the site and adjacent properties along Herndon Parkway, and reduce critical queues at

the Spring Street/Herndon Parkway and Spring Street/Fairfax County Ramps intersections. The extension of Fairbrook Drive would be required once the calculated peak hour trip generation of the proposed development exceeds the threshold of 618 AM peak hour and 651 PM peak hour trips generated by the uses permitted by the underlying zoning.

RECOMMENDATIONS

The following transportation improvements and enhancements were identified to mitigate the impacts of the proposed development:

1. Fairbrook Drive Extended
    a. Extend Fairbrook Drive from Herndon Parkway to Spring Street (by Applicant once the trip generation exceeds underlying zoning)

2. Herndon Parkway/Fairbrook Drive
    a. Install a traffic signal, if deemed warranted by VDOT and the Town of Herndon (by previous committed to by Applicant as part of 2007 Special Exception)
    b. Construct a northbound right turn lane on Herndon Parkway (by previous committed to by Applicant as part of 2007 Special Exception)
    c. Construct an additional westbound left turn lane on Fairbrook Drive (by Applicant)

3. Spring Street/Fairfax County Parkway Ramps
    a. Extend Fairbrook Drive from Herndon Parkway to Spring Street (by Applicant once the trip generation exceeds underlying zoning)
    b. Reconstruct the intersection to accommodate fourth leg (by Applicant once the trip generation exceeds underlying zoning)

4. Transportation Demand Management
    a. Implement a transportation demand management (TDM) program to reduce the number of trips generated by residents and workers (by Applicant)

CIVIL

C-01	COVER SHEET
C-02	OVERALL EXISTING CONDITIONS PLAN
C-03	OVERALL EXISTING CONDITIONS PLAN
C-04	EXISTING VEGETATION MAP
C-05	EXISTING VEGETATION NOTES AND NARRATIVES
C-06	DEVELOPMENT NOTES AND TABULATIONS
C-07	GENERAL DEVELOPMENT PLAN
C-08	GENERAL DEVELOPMENT PLAN - FAIRBROOK DRIVE EXTENSION
C-08A	FAIRBROOK DRIVE EXTENSTION - AUTOTURN EXHIBIT
C-09	STREETSCAPE SECTIONS
C-09A	SITE SECTION
C-10	CONCEPTUAL GRADING AND UTILITY PLAN
C-11	STORMWATER MANAGEMENT MAP
C-12	STORMWATER MANAGEMENT COMPUTATIONS
C-13	STORMWATER MANAGEMENT COMPUTATIONS
C-14	STORMWATER MANAGEMENT COMPUTATIONS

ARCHITECTURAL

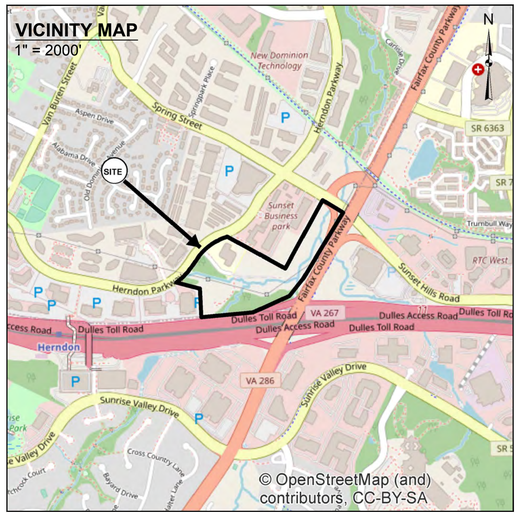
A-01	MASSING DIAGRAMS
A-02	CONCEPTUAL MASSING
A-03	AERIAL VIEWS
A-04	ARCHITECTURAL RENDERINGS
A-05	ARCHITECTURAL RENDERINGS
A-06	ARCHITECTURAL RENDERINGS

LANDSCAPE

L-01	OVERALL ILLUSTRATIVE
L-02	OVERALL LANDSCAPE & PARK PLAN
L-03	ILLUSTRATIVE OVERALL PLAN
L-04	ILLUSTRATIVE LANDSCAPE PLAN - ENLARGEMENT
L-05	LANDSCAPE PLAN - ENLARGEMENT
L-06	PUBLIC SPACE PLAN - ENLARGEMENT
L-07	LANDSCAPE PERSPECTIVES
L-08	LANDSCAPE PERSPECTIVES
L-09	LANDSCAPE PERSPECTIVES
L-10	LANDSCAPE PERSPECTIVES
L-11	STREAM VALLEY PARK PLAN
L-12	STREAM VALLEY PARK CONCEPT IMAGES
L-13	BUILDINGS 1/2 PHASE
L-14	BUILDINGS 3 PHASE
L-15	BUILDINGS 4 PHASE

SUPPLEMENTAL

S-01	FIRE ACCESS EXHIBIT
S-02	FIRE ACCESS EXHIBIT
S-03	TREE INVENTORY MAP
S-04	TREE INVENTORY MAP
S-05	TREE INVENTORY SCHEDULE
S-06	TREE INVENTORY SCHEDULE
S-07	SIMPLIFIED FOREST STAND DELINEATION PLAN
S-08	MODIFIED FOREST DELINEATION NOTES AND NARRATIVES
S-09	PROPOSED PUBLIC EASEMENT EXHIBIT



FAIRBROOK

SPECIAL EXCEPTION PLAN # 17-13

TOWN OF HERNDON
VIRGINIA

JUNE 19, 2017
JUNE 07, 2019
JUNE 04, 2020
SEPTEMBER 28, 2020
OCTOBER 16, 2020
NOVEMBER 3, 2020



APPLICANT:
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FAIRBROOK BUSINESS PARK ASSOCIATES II, LP
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BOB KNOPF
202-393-1999

LAND USE ATTORNEY:
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ELIZABETH D. BAKER
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JASNA BIJELIC, LEED AP BC+C
703-556-9275

ENGINEER:
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ROBERT COCHRAN, L.S.
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ALEXANDRIA, VIRGINIA 22314
STEPHANIE PANKIEWICZ, ASLA, PLA
703-549-7784

TRANSPORTATION:
WELLS + ASSOCIATES, INC.
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TYSONS, VIRGINIA 22102
MICHAEL J. WORKOSKY, PTP, TOPS, TSOS
703-917-6620

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

TOWN PLAN #: _____

TOWN OF HERNDON, VIRGINIA
COVER SHEET

SUBDIVISION OR SITE PLAN NAME	FAIRBROOK: SPECIAL EXCEPTION
OWNER, ADDRESS, INCLUDE ZIP CODE AND TELEPHONE NUMBER	FAIRBROOK BUSINESS PARK ASSOCIATES, LP AND FAIRBROOK BUSINESS PARK ASSOCIATES II: 1001 G STREET NW, SUITE 900 WASHINGTON D.C., 20001 - BOB KNOPF (202)-393-1999
DEVELOPER, ADDRESS, INCLUDE ZIP CODE AND TELEPHONE NUMBER	QUADRANGLE: 1001 G STREET NW, SUITE 900 WASHINGTON D.C., 20001 - BOB KNOPF (202)-393-1999
CERTIFIED ENGINEER, ARCHITECT OR SURVEYOR SUBMITTING PLAN, ADDRESS, INCLUDE ZIP CODE AND TELEPHONE NUMBER	VIKA VIRGINIA, LLC; 8180 GREENSBORO DRIVE SUITE 200, TYSONS, VA 22102 - ROBERT COCHRAN, LS (703)-442-7800
FAIRFAX COUNTY TAX MAP NUMBER	016-4 ((10)) 5A; 016-4 ((25))-O; 016-4 ((25))-H
TOTAL AREA 27.56 AC	PRESENT ZONING O & LI
REVISED: JUNE 13, 2017	C-01

NOTES:

1. THE SUBJECT PROPERTIES SHOWN HEREON ARE IDENTIFIED ON FAIRFAX COUNTY TAX MAP AS #016-4-10-0005A, #016-4-25-H, & #016-4-25-O AND ARE ZONED O AND LI.
2. BOUNDARY INFORMATION IS BASED ON A FIELD RUN SURVEY BY VIKA, INC. DATED OCTOBER, 2000 AND VERIFIED ON JUNE 16, 2006 AND JANUARY 18, 2008 AND UPDATED BY VIKA VIRGINIA, LLC ON DECEMBER 04, 2015.
3. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD83) AND THE VERTICAL DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29). THE HORIZONTAL AND VERTICAL DATUMS SHOWN HEREON ARE BASED ON A GPS SURVEY PERFORMED BY VIKA VIRGINIA, LLC ON JUNE 14, 2018 USING THE FOLLOWING CORS STATIONS: LOYB LORTON VA 0 0576 (NGS PID DH7960), VAGV GAINESVILLE VA – 0588. AND LOYK ANNAPOLIS JCT MD – 0370 (NGS PID DL3640). THE ELEVATIONS CONVERSION OF THE VERTICAL DATUM FROM THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) TO (NGVD29), USING A DIFFERENCE OF +0.71', WAS CALCULATED USING ARMY CORPS OF ENGINEERS' CORPSCON 6.0.1 CONVERSION TOOL.
4. CONTOUR INTERVAL SHOWN HEREON IS 2'-0".
5. THE PROPERTIES SHOWN HEREON WERE ACQUIRED BY FAIRBROOK BUSINESS PARK ASSOCIATES, L.P. BY DEED RECORDED ON JULY 23, 1984 AND RECORDED IN DEED BOOK 5993 AT PAGE 372 AND FAIRBROOK BUSINESS PARK ASSOCIATES II, LP BY DEED RECORDED IN DEED BOOK 20742 AT PAGE 1375 ALL AMONG THE LAND RECORDS OF FAIRFAX COUNTY, VIRGINIA.
6. THE SUBJECT PROPERTIES LIE IN THE FOLLOWING THREE (3) FLOOD ZONE DESIGNATIONS AS SHOWN ON FLOOD INSURANCE RATE MAP (F.I.R.M.) COMMUNITY PANEL NUMBERS 515525 0110 E AND 515525 0130 E, WITH AN EFFECTIVE DATE SEPTEMBER 17, 2010 FOR FAIRFAX COUNTY, VIRGINIA AND INCORPORATED AREAS: ZONE "AE" (BASE FLOOD ELEVATIONS DETERMINED): ZONE "X-SHADED" (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD AND ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN). ZONE "X-SHADED" AND ZONE "AE" ARE DESIGNATED AS SPECIAL FLOOD AREAS.
7. PORTIONS OF THE SUBJECT PROPERTY DO LIE IN A RESOURCE PROTECTION AREA (RPA) PER THE HERNDON CHESAPEAKE BAY PRESERVATION AREAS MAP DATED MARCH 13, 2008.
8. RPA DELINEATION AND WETLAND INFORMATION FROM REPORT ENTITLED "FAIRBROOK BUSINESS PARK AND OFF-SITE STUDY AREA – WATERS OF THE U.S. (INCLUDING WETLANDS) DELINEATION AND RESOURCE PROTECTION AREA EVALUATION" PREPARED BY WETLANDS STUDIES AND SOLUTIONS INC. DATED MAY 31, 2016. A JURISDICTIONAL DETERMINATION WAS ISSUED BY THE CORPS OF ENGINEERS ON SEPT. 21, 2016 (#NAO-2016-01643).
9. THE 80' BRL SHOWN HEREON WAS TAKEN FROM A PLAN "PARKWAY TRADE CENTER" PREPARED BY RINKER AND ASSOCIATES, DATED 9-28-1983. THE 80' WAS MEASURED FROM THE ORIGINAL RIGHT-OF-WAY OF THE PARKWAY. ADDITIONAL STREET DEDICATION WAS RECORDED IN DEED BOOK 18956 AT PAGE 1230, WHICH WIDENED THE RIGHT-OF-WAY ANOTHER 12'.
10. THERE IS NO OBSERVED EVIDENCE OF CEMETERIES ON THE SUBJECT PROPERTY.
11. THE EXISTING CONDITIONS SURVEY WAS COMPLETED UNDER THE DIRECT RESPONSIBLE CHARGE OF, FRANKLIN E. JENKINS, LS FROM AN ACTUAL GROUND SURVEY MADE UNDER MY SUPERVISION; THAT THE ORIGINAL DATA WAS OBTAINED IN OCTOBER 2000, VERIFIED IN JUNE 2006 AND JANUARY 2008, LAST UPDATED JULY 2018; AND THAT THIS PLAN/PLAT MEETS MINIMUM HORIZONTAL AND VERTICAL ACCURACY STANDARDS UNLESS OTHERWISE NOTED.
12. THE HORIZONTAL AND VERTICAL DATUMS REFERENCED HEREON ARE IN CONFORMANCE WITH FAIRFAX COUNTY REQUIREMENTS 2-0106.1B AND 2-0208.3.

AREA TABLE:

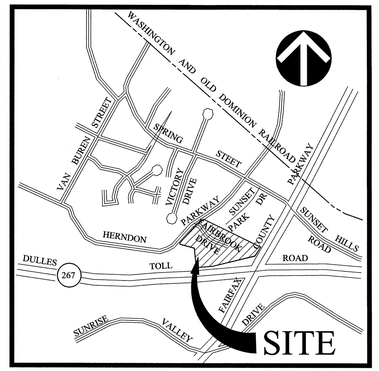
LOT 5A, PARKWAY TRADE CENTER	200,580 SQ. FT. OR 4.60468 ACRES
LAND UNIT "H", FAIRBROOK LAND CONDO	109,771 SQ. FT. OR 2.52000 ACRES **
LAND UNIT "O", FAIRBROOK LAND CONDO	890,390 SQ. FT. OR 20.44054 ACRES
TOTAL LAND AREA	1,200,741 SQ. FT. OR 27.56522 ACRES
AREA OF DENSITY CREDIT (DB 18956 PG 1230)	5,200 SQ. FT. OR 0.11938 ACRES
AREA OF DENSITY CREDIT (DB 18956 PG 1230)	6,356 SQ. FT. OR 0.14591 ACRES
TOTAL AREA INCLUDING DENSITY CREDITS	1,212,297 SQ. FT. OR 27.83051 ACRES

** AREA INCLUDES THE VERTICAL COMPONENT OF LAND UNIT "O", FAIRBROOK LAND CONDO (ABOVE 367.00 FT.) (10,965 SQ. FT. OR 0.25172 ACRES)

PARKING TABULATION

STRIPED PARKING SPACES	293
HANDICAP STRIPED PARKING SPACES	9
TOTAL STRIPED PARKING SPACES	302

* PARKING SPACES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND VISUAL INSPECTION. VIKA VIRGINIA, LLC DOES NOT CERTIFY THAT SPACES ARE STRIPED IN ACCORDANCE WITH REQUIRED JURISDICTIONAL STANDARDS.



VICINITY MAP SCALE 1" = 500'

CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	DELTA	CHD BRG	CHORD
C1	281.60'	852.00'	142.10'	18°56'14"	N44°45'40"E	280.32'
C2	79.28'	759.12'	39.68'	5°59'01"	N38°17'04"E	79.24'
C3	12.19'	22.50'	6.25'	31°02'30"	S61°45'31"E	12.04'
C4	393.26'	759.12'	201.15'	29°40'55"	N56°07'02"E	388.88'
C5	36.40'	852.00'	18.20'	02°26'53"	N69°44'06"E	36.40'
C6	49.62'	17,388.73'	24.81'	0°09'49"	S84°46'56"W	49.62'
C7	182.25'	240.05'	95.77'	43°30'00"	N60°21'51"W	177.90'
C8	20.07'	150.50'	10.05'	7°38'22"	N42°26'02"W	20.05'

UTILITY NOTE:

THE UNDERGROUND UTILITY LOCATIONS SPECIFICALLY NOTED IN THE TABLE BELOW AND GRAPHICALLY SHOWN HEREON HAVE BEEN LOCATED FROM A COMBINATION OF FIELD SURVEY INFORMATION, AERIAL SURVEY LOCATIONS, AND/OR EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE INDICATED FROM THE INFORMATION NOTED IN THE TABLE BELOW WHICH COMPRISES THE RECORD INFORMATION OBTAINED BY THE SURVEYOR. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES, UNLESS SPECIFICALLY NOTED ON THE DRAWING.
THE FOLLOWING UTILITY COMPANIES HAVE BEEN SOLICITED FOR THEIR PLANS AND RECORD UTILITY DRAWINGS, LISTED BELOW ARE SPECIFIC PLAN/SHEET NUMBERS OF DRAWINGS PROVIDED BY THE UTILITY COMPANY OR LACK OF RESPONSE IS NOTED.

UTILTY COMPANY		PLAN # / SHEET #
TELEPHONE.....	MCI COMMUNICATIONS	SKETCHES RECEIVED 2015-12-22
	VERIZON COMMUNICATIONS	NO RESPONSE AT THIS TIME
	LEVEL 3 COMMUNICATIONS	NO RESPONSE AT THIS TIME
	AT&T	NO RESPONSE AT THIS TIME
	ZAYO	NO RESPONSE AT THIS TIME
	LEVEL 3	NO RESPONSE AT THIS TIME
GAS.....	WASHINGTON GAS	SKETCH RECEIVED 2015-12-22
	COLUMBIA GAS	NO RESPONSE AT THIS TIME
ELECTRIC.....	DOMINION VIRGINIA POWER	SKETCH RECEIVED 2015-12-17
	NOVEC	NO RESPONSE AT THIS TIME
CABLE TV.....	COMCAST	NO RESPONSE AT THIS TIME
	COX COMMUNICATIONS	NO RESPONSE AT THIS TIME
STORM AND SANITARY...		FAIRFAX COUNTY STORM AND SANITARY MAP #016-4 & 017-3 TOWN OF HERNDON SANITARY SEWER SYSTEM PLAN (MARCH 1989)
WATER.....		TOWN OF HERNDON WATER SYSTEM PLAN (AUGUST 1974)
MISS UTILITY		TICKET #

THE OWNER/DEVELOPER OF THE SUBJECT PROPERTY IS RESPONSIBLE FOR OBTAINING INFORMATION AND COORDINATING WITH ALL OTHER UTILITIES NOT LISTED IN THE TABLE ABOVE. THE OWNER/DEVELOPER IS ALSO RESPONSIBLE FOR CONTACTING "MISS UTILITY" 48 HOURS PRIOR TO CONSTRUCTION.

SURVEYOR'S CERTIFICATE:

THIS BOUNDARY AND TOPOGRAPHIC SURVEY WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF FRANKLIN E. JENKINS FROM ACTUAL GROUND SURVEY MADE UNDER MY SUPERVISION; THAT THE ORIGINAL DATA WAS OBTAINED ON 12-04-2015 AND THAT THIS PLAT AND DATA INCLUDING METADATA MEETS MINIMUM STANDARDS UNLESS OTHERWISE NOTED.

COMMONWEALTH OF VIRGINIA
FRANKLIN E. JENKINS
Lic No. 2061
11/03/2020
LAND SURVEYOR

FRANKLIN E. JENKINS
LICENSED LAND SURVEYOR
VA#2061
EMAIL ADDRESS: JENKINS@VIKA.COM

11/03/2020
DATE OF PLAT OR MAP

VIKA VIRGINIA, LLC
8180 Greensboro Dr., Suite 200
Tysons, VA 22102
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V 11.00

PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
FRANKLIN E. JENKINS
Lic No. 2061
11/03/2020
LAND SURVEYOR

FAIRBROOK

SPECIAL EXCEPTION PLAN

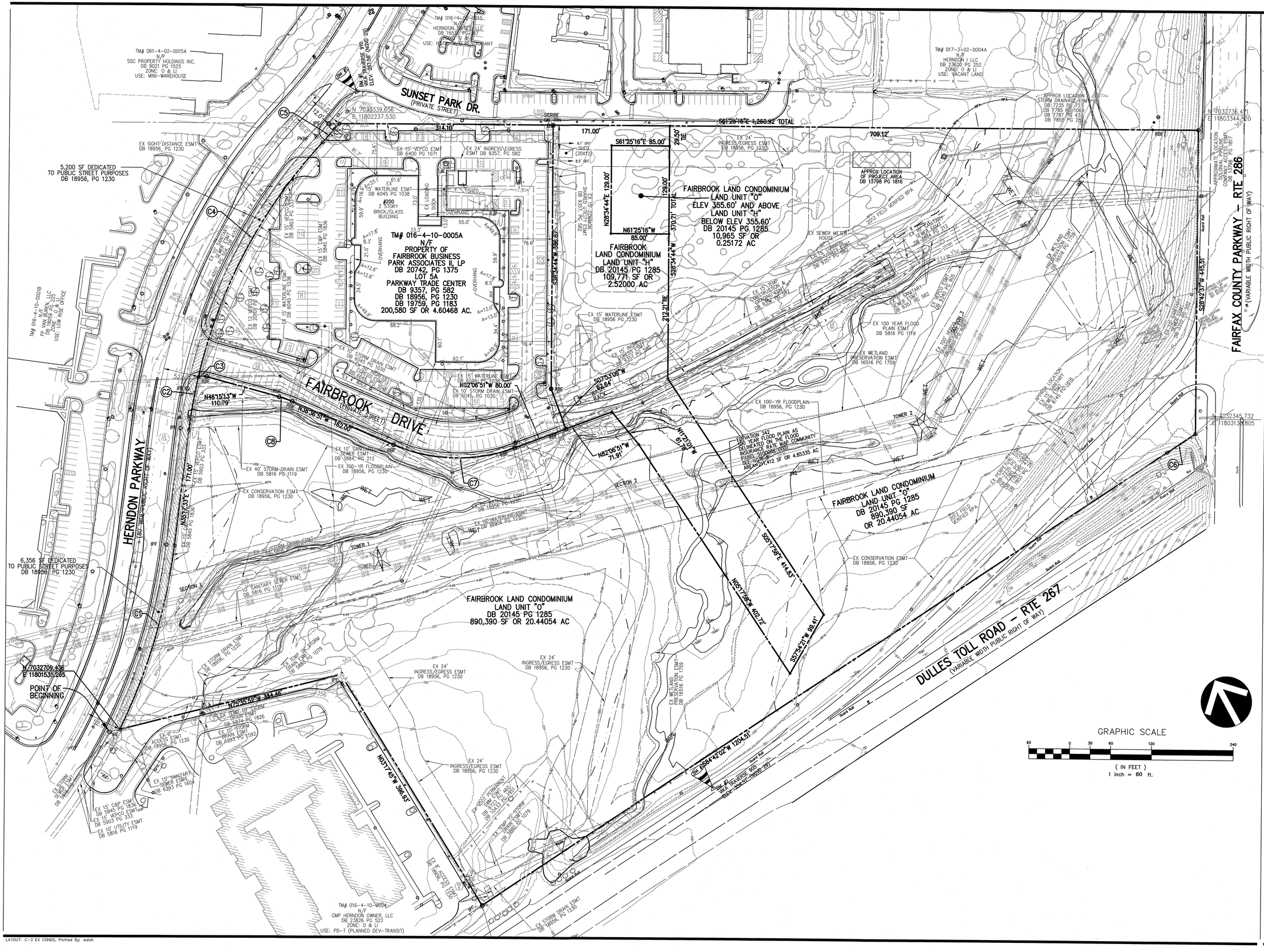
TOWN OF HERNDON,
VIRGINIA

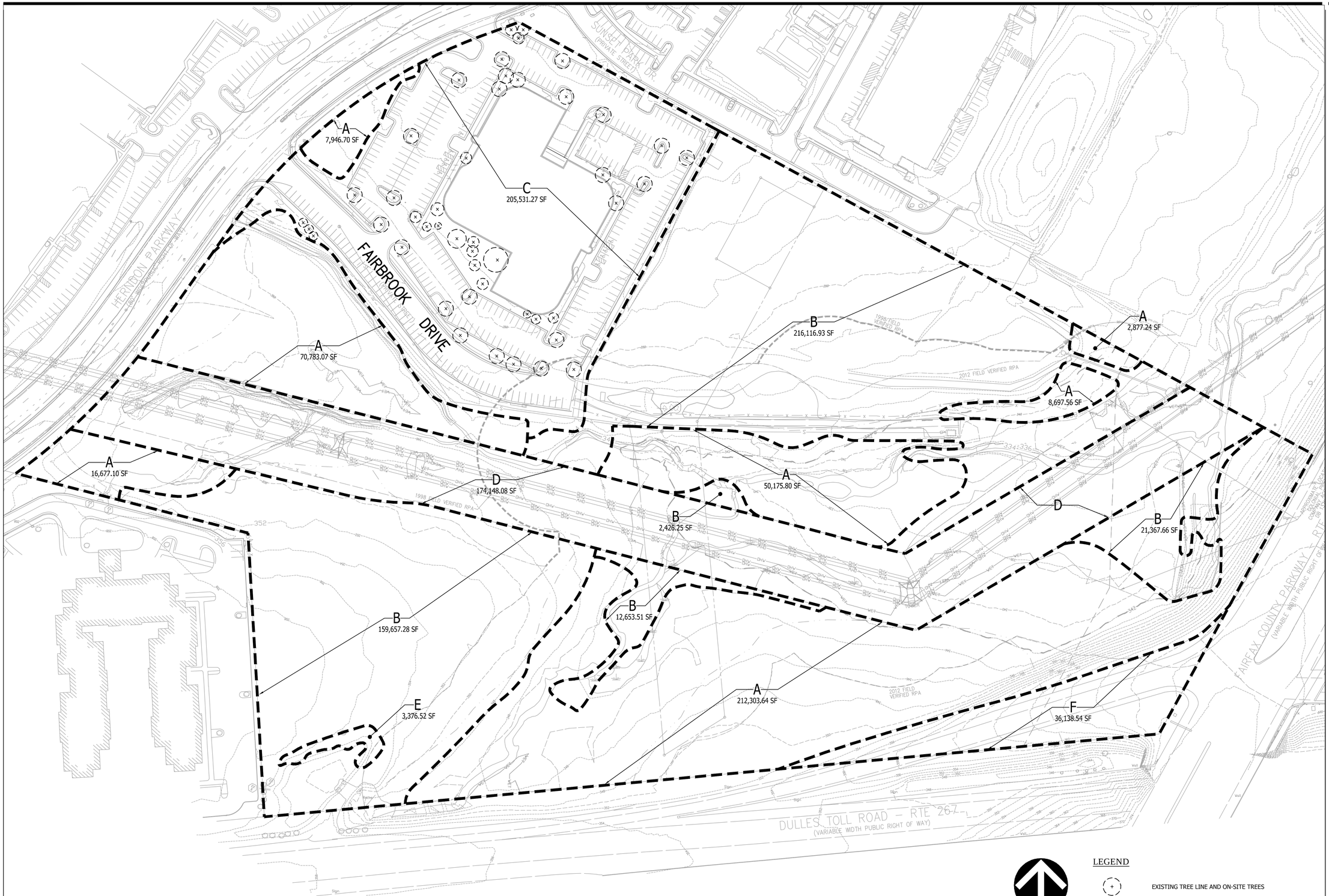
OVERALL EXISTING CONDITIONS PLAN

DRAWN BY:	LMG
DESIGNED BY:	FEJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-02

FILE: P:\projects\60451\60453X\CADD\SURVEY\BASE DRAWINGS\60453X-SV.dwg USER: Walsh DATE: November 3, 2020 TIME: 2:50:29 PM LAYOUT: C-2 EX CONDS

LAYOUT: C-2 EX CONDS, Plotted By: walsh


SUNSET PARK DR.
(PRIVATE STREET)
FAIRBROOK DRIVE
(PRIVATE STREET)
HERNDON PARKWAY
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)
FAIRFAX COUNTY PARKWAY – RTE 286
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)
DULLES TOLL ROAD – RTE 267
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)
TM# 016-4-10-0005A
N/F
PROPERTY OF
FAIRBROOK BUSINESS
PARK ASSOCIATES II, LP
DB 20742, PG 1375
LOT 5A
PARKWAY TRADE CENTER
DB 9357, PG 582
DB 18956, PG 1230
DB 19759, PG 1183
200,580 SF OR 4.60468 AC.
#200
5 STORY
BRICK/GLASS
BUILDING
FAIRBROOK LAND CONDOMINIUM
LAND UNIT "O"
ELEV 355.60' AND ABOVE
LAND UNIT "H"
BELOW ELEV 355.60'
DB 20145 PG 1285
10,965 SF OR
0.25172 AC
FAIRBROOK
LAND CONDOMINIUM
LAND UNIT "H"
DB 20145/PG 1285
109,771 SF OR
2.52000 AC
FAIRBROOK LAND CONDOMINIUM
LAND UNIT "O"
DB 20145 PG 1285
890,390 SF
OR 20.44054 AC
FAIRBROOK LAND CONDOMINIUM
LAND UNIT "O"
DB 20145 PG 1285
890,390 SF
OR 20.44054 AC
5,200 SF DEDICATED
TO PUBLIC STREET PURPOSES
DB 18956, PG 1230
6,356 SF DEDICATED
TO PUBLIC STREET PURPOSES
DB 18956, PG 1230
POINT OF
BEGINNING
N 7032709.436
E 11801535.285
N 7033339.656
E 11802237.530
N 7032736.471
E 11803344.520
N 7032345.732
E 11803134.805
TM# 061-4-02-0015A
N/F
SSC PROPERTY HOLDINGS INC.
DB 9021 PG 1525
ZONE: O & LI
USE: MINI-WAREHOUSE
TM# 016-4-02-0015
N/F
HERNDON 910, LLC
DB 15552 PG 2361
ZONE: O & LI
USE: VACANT LAND
TM# 017-3-02-0004A
N/F
HERNDON I LLC
DB 23620 PG 252
ZONE: O & LI
USE: VACANT LAND
TM# 016-4-10-0001B
N/F
FP VAN METER, LLC
DB 18956, PG 1230
ZONE: O & LI
USE: LOW RISE OFFICE
TM# 016-4-10-0004
N/F
CMP HERNDON OWNER, LLC
DB 23826 PG 522
ZONE: O & LI
USE: PD-T (PLANNED DEV-TRANSIT)
APPROX LOCATION
STORM DRAINAGE ESMT
DB 17235 PG 723
DB 17785 PG 1069
DB 17787 PG 433
DB 17855 PG 281
APPROX LOCATION
ACCESS ESMT
DB 17855 PG 281
APPROX LOCATION
STORM DRAINAGE ESMT
DB 17855 PG 281
APPROX LOCATION
OF PROJECT AREA
DB 15798 PG 1816
APPROX LOCATION
EX SEWER ESMT
DB 9357 PG 582
APPROX LOCATION
EX WETLAND
PRESERVATION ESMT
DB 16516 PG 1759
APPROX LOCATION
EX UNITY
SEWER ESMT
DB 6140 PG 1816
APPROX LOCATION
EX 100 YEAR FLOOD
PLAIN ESMT
DB 5816 PG 1119
EX 24'
INGRESS/EGRESS ESMT
DB 18956, PG 1230
EX 24' INGRESS\EGRESS ESMT
DB 9357, PG 582
EX 15' VERIZO ESMT
DB 6400 PG 1071
EX 15' WATERLINE ESMT
DB 6045 PG 1038
EX 15' C&P ESMT
DB 5845 PG 1836
EX 12' VERIZO ESMT
DB 20170 PG 1
EX 15' VERIZO ESMT
DB 5903 PG 333
EX 10' UTILITY ESMT
DB 5816 PG 1119
EX 10' STORM DRAIN ESMT
DB 6045 PG 1038
EX 10' SANITARY SEWER ESMT
DB 6293 PG 1604
EX 10' SANITARY SEWER ESMT
DB 3884 PG 212
EX 40' STORM DRAIN ESMT
DB 5816 PG 1119
EX 15' WATERLINE ESMT
DB 18956, PG 1230
EX 10' STORM DRAIN ESMT
DB 6045, PG 1030
EX 15' WATERLINE ESMT
DB 9357, PG 582
EX 15' WATERLINE ESMT
DB 6045 PG 1038
EX 15' C&P ESMT
DB 5845 PG 1836



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

LEGEND

EXISTING TREE LINE AND ON-SITE TREES

EXISTING VEGETATION COVER TYPE COMMUNITY

TOTAL SITE / APPLICATION AREA: 1,200,741 SF

TOTAL EXISTING TREE CANOPY: 382,937 SF

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V 11.00

PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

EXISTING VEGETATION MAP

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-04

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-04 C-05 EVM.dwg USER: Kreps DATE: November 3, 2020 TIME: 12:56:25 PM LAYOUT: C-04 EVM

LAYOUT: C-04 EVM, Plotted By: Kreps

VEGETATION COVER TYPES

AREA-A
UPLAND FOREST
Acer rubrum - Red Maple
Carya tomentosa - Mockernut Hickory
Diospyos virginiana - Common Persimmon
Ilex opaca - Americam Holly
Juniperus virginiana - Eastern Red Cedar
Morus alba - White Mulberry
Pyrus communis - Common Pear
Pinus strobus - Eastern White Pine
Pinus virginiana - Virginia Pine
Plantanus occidentalis - American Sycamore
Quercus alba - White Oak
Quercus rubra - Northern Red Oak
Robinia pseudoacacia - Black Locust
Ulmus americana - American Elm
AREA-B
OPEN OLD FIELD FORB & SHRUBS WITH PINE SEEDLINGS
Pinus strobus - Eastern White Pine
Plantanus occidentalis - American Sycamore
Pinus virginiana - Virginia Pine
Pyrus communis - Common Pear
Robinia pseudoacacia - Black Locust
AREA-C
DEVELOPED AREA LANDSCAPED VEGETATION
Acer rubrum - Red Maple
Cornus florida - Flowering Dogwood
Juniperus virginiana - Eastern Red Cedar
Lilex crenata - Japanese Holl
Lagerstroemia indica - Crape Myrtle
Magnolia grandiflora - Southern Magnolia
Quercus alba - White Oak
Prunus serrulata - Kwanzan Cherry
AREA-E
SEMI-DEVELOPED CLF FENCED AREA DECDUOUS/EVERGREEN SEEDLINGS
Carya tomentosa - Mockernut Hickory
Juniperus virginiana - Eastern Red Cedar
Pyrus communis - Common Pear
Quercus alba - White Oak

P:\projects\6045\6045X\DATA\Landscape & Trees\[Ex Vegetation Cover Types (2016.01.22).xlsx]Sheet1

EXISTING VEGETATION COVER TYPE SUMMERY TABLE

January 22, 2016

EX VEG INDEX	COVER TYPE	SUCCESSIONAL STAGE	AREA (SF)	COVER CONDITION	PRIMARY SPECIES	COMMENTS
A	UPLAND FOREST	SUB-CLIMAX	369,393	GENERALLY GOOD	SEE PLAN VEGETATION COVER TYPE	PRESERVED / REMNANT WOODED AREA FROM WHEN THE SUBJECT APPLICATION AREA WAS DEVELOPED
B	OPEN OLD FIELD WITH FORBS & VOLUNTEER SEEDLINGS	PIONEER SUCCESSION	412,154	GENERALLY GOOD	SEE PLAN VEGETATION COVER TYPE	OPEN FIELD WITH FORBE GRASSES AND SHRUBS. SOME VOLUNTEER SEEDLINGS.
C	DEVELOPED AREA	DEVELOPED LANDSCAPE	174,148	GENERALLY GOOD	SEE PLAN VEGETATION COVER TYPE	DEVELOPED AS A OFFICE BUSINESS PARK. THIS INCLUDES OFFICE BUILDING, PARKING COMPOUND & SITE LANDSCAPING.
D	OPEN FIELD FORBS & SHRUB	PIONEER SUCCESSION	205,531	GENERALLY GOOD	SEE PLAN VEGETATION COVER TYPE	DEVELOPED AND MAINTAINED AS A 100-FT DOMINION POWER UTILITY CORRIDOR
E	SEMI-DEVELOPED AREA	PIONEER SUCCESSION	3,377	GENERALLY GOOD	SEE PLAN VEGETATION COVER TYPE	SEMI-DEVELOPED AREA. SECURE AREA WITH 6-FT HT FENCE ENCLOSURE. OPEN FORBE GRASSES / SHRUBS & VOLUNTEER DECIDUOUS SEEDLINGS.
F	DEVELOPED AREA	N/A	36,138	GENERALLY GOOD	DEVELOPED ROAD WITH PERIMETER TURF GRASS	VEHICLE TRAVEL LANE RAMP FROM THE FAIRFAX COUNTY PARKWAY TO DULLES TOLL ROAD.
		TOTAL AREA	**1,200,741**			

P:\projects\6045\6045X\DATA\Landscape & Trees\[EVM COV TYP TBL (2016.01.22).xlsx]Sheet1

EXITSING VEGETATION NARRATIVE

AREA· A
AREA-A IS THIRTY-ONE (31) PERCENT OF THE APPLICATION AREA. THIS AREA IS UNDISTURBED UPLAND FOREST. PORTIONS OF THIS WOODED AREA ARE WITHIN THE 100 YEAR FLOOD PLAIN AND / OR VERIFIED OR ESTIMATED RPA. GENERALLY, THESE WOODED AREAS ARE FREE OF INVASIVE PLANT MATERIALS. THIS VEGETATION SHOWS GOOD VIGOR, VITALITY AND STRUCTURE.

AREA-B:
AREA-B IS THIRTY FOUR (34) PERCENT OF THE APPLICATION AREA. THIS AREA IS PRIMARLY OPEN FIELD AND FREE OF NOTABLE TREES. HOWEVER, THERE ARE VOLUNTEER PINE SEEDLINGS WITHIN AREA-B THAT HAVE BECOME ESTABLISHED WITHIN THIS FORB/SHRUB AREA.

AREA-C
AREA-C IS FIFTEEN (15) PERCENT OF THE APPLICATION AREA AND HAS BEEN DEVELOPED WITH AN OFFICE BUILDING, LANDSCAPED VEHICLE PARKING COMPOUND AND REMNANT PERIMETER TREE VEGETATION. THE PARKING COMPOUND LANDSCAPING IS PRIMARILY DECIDUIOUS TREES THROUGHOUT THE COMPOUND. THIS EXISTING VEGETATION HAD BEEN INSTALLED WHEN THE SITE WAS DEVELOPED. EXISTING DECIDUIOUS AND EVERGEREEN REMNANT VEGETATION IS LOCATED AT THE NORTHERN, WESTERN AND SOUTHERN SITE BOUNDARIES. BOTH THE LANDSCAPED AND REMNANT VEGETATION SHOW GOOD VIGOR, VITALITY AND STRUCTURE.

AREA·D
AREA-D IS SEVENTEEN (17) PERCENT OF THE APPLICATION AREA. AREA-D HAS BEEN SEMI· DEVELOPED AS AN ELECTRIC POWER TRANSMISSIOM CORRIDOR. TRANSMISSION TOWERS WITH OVERHEAD POWER LINES ARE LOCATED WITHIN THIS CORRIDOR. AREA-D IS FREE OF ANY SAPLING-POLE, YOUNG OR MATURE TREES. THIS AREA IS PRIMARLY FORBS, GRASSES AND SHRUBS AND VOLUNTEER PIONEER SEEDLINGS. SEEDLINGS WOULD BE REMOVED WITH THE PERIODIC MAINTENANCE.

AREA-E
AREA-E IS LESS (1) ONE PERCENT OF THE APPLICATION AREA. AREA-E IS POPULATED WITH SEEDLING CALLARY PEAR, WHITE OAK, VIRGINIA PINE AND HICKORY. THIS AREA HAS BEEN SEMI-DEVELOPED IN-THAT THERE IS AN AREA WHICH HAS BEEN FENCED-OFF WITH CHAIN LINK FENCING. THE VEGETATION SHOWS GOOD VIGOR, VITALITY AND STRUCTURE.

AREA-F
AREA-F IS THREE (3) PERCENT OF THE APPLICATION AREA. THIS AREA IS DEVELOPED AS THE VEHICLE OFF-RAMP FROM THE FAIRFAX COUNTY PARKWAY ON TO THE DULLES TOLL ROAD. THERE ARE NO EXISTING TREES WITHIN TH IS AREA.

p:\projects\6045\6045x\data\landscape & trees\ex veg narr (2017.06.12).docx

VIKA VIRGINIA, LLC
8180 Greensboro Dr., Suite 200
Tysons, VA 22102
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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

EXISTING VEGETATION NOTES AND NARRATIVES

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	NTS
VIKA NO.	VV6045X
SHEET NO.	C-05

FILE: P:\projects\6045\6045X\CADD\PLANNING DRAWINGS\6045X_C-04 C-05 EVM.dwg USER: Kreps DATE: November 3, 2020 TIME: 12:57:02 PM LAYOUT: C-05 EVM

BUILDING TABULATIONS

BUILDING	BUILDING HEIGHT (FEET)			NUMBER OF FLOORS	USE	GFA (SQUARE FEET)			DWELLING UNITS	
	MIN.	MAX.	SHOWN	SHOWN		MIN.	MAX.	SHOWN	MIN.	MAX.
1	160	275	275	19	OFFICE	200,000	400,000	360,000		
2	160	275	180	11	OFFICE	200,000	400,000	240,000		
3	65	105	85	8	RESIDENTIAL DAY CARE RETAIL	360,000 0 5,000	535,000 10,000 10,000	470,000 10,000 10,000	360	540
4	65	105	85	8	RESIDENTIAL	360,000	540,000	410,000	360	540

TABULATIONS NOTES:

[1] MAXIMUM BUILDING HEIGHTS DO NOT INCLUDE PENTHOUSES OR ARCHITECTRURAL EMBELLISHMENTS.

[2] THE BUILDING HEIGHTS AND GFA "SHOWN" INDICATE WHAT IS REPRESENTED IN THE PERSPECTIVES AND GRAPHICS IN THIS PLAN SET. THE APPLICANT RESERVES THE RIGHT TO PROVIDE BUILDING HEIGHTS AND GFA AS PERMITTED UNDER THE MINIMUM AND MAXIMUM COLUMNS PROVIDED THE TOTAL GFA DOES NOT EXCEED THAT PROVIDED IN THE OVERALL TABULATION. THE NUMBER OF FLOORS "SHOWN" IS CONCEPTUAL BASED ON THE BUILDING HEIGHT "SHOWN"AND MAY BE ADJUSTED PROVIDED THE MINIMUM AND MAXIMUM BUILDING HEIGHTS ARE MAINTAINED.

[3] RETAIL USE AS INDICATED IN THIS TABULATION MAY INCLUDE A VARIETY OF OTHER COMMERCIAL USES SUCH AS, BUT NOT LIMITED TO, EATING ESTABLISHMENTS AND FAST FOOD RESTAURANTS. OFFICE USE AS INDICATED IN THIS TABULATION MAY INCLUDE OTHER ACCESSORY USES. COMMUNITY FACILITIES, TO INCLUDE A TOWN OF HERNDON RECREATION FACILITY PER CONDITION 12, ARE PERMITTED.

[4] FOR THE PURPOSES OF THIS TABULATION, "PARKING PROVIDED" IS BASED ON THE MINIMUM PARKING REQUIRED IN THE ZONING ORDINANCE. RESIDENTIAL PARKING WAS CALCULATED BY ASSUMING AN AVERAGE MIX OF 10% STUDIO UNITS AT A RATE OF 1 SPACE PER UNIT, 60% 1 BEDROOM UNITS AT A RATE OF 1.5 SPACES PER UNIT, AND 30% 2 BEDROOM UNITS AT A RATE OF 2 SPACES PER UNIT. DAYCARE PARKING WAS CALCULATED ASSUMING 100 CHILDREN AND 20 EMPLOYEES. AT THE TIME OF FINAL ENGINEERED SITE PLAN, THE MIX OF USES, NUMBER OF DWELLING UNITS, MIX OF BEDROOM TYPES, AND SPECIFIC PARKING PROVIDED WILL BE DETERMINED. THE APPLICANT ALSO RESERVES THE RIGHT TO PROVIDE MORE THAN THE MINIMUM PARKING FOR EACH BUILDING PROVIDED IT DOES NOT RESULT IN AN INCREASE IN THE HEIGHT OR MASS OF THE ABOVE-GRADE PARKING STRUCTURES OVER WHAT IS SHOWN ON THE DEVELOPMENT PLAN. SHARED PRIVATE PARKING MAY BE PROVIDED AS PERMITTED IN ARTICLE 10 OF THE ZONING ORDINANCE. THE APPLICANT RESERVES THE RIGHT TO REQUEST A PARKING REDUCTION AS MAY BE APPLICABLE AT A FUTURE DATE.

[5] LOADING SPACES WILL BE PROVIDED IN ACCORDANCE WITH 78-500.4. APPLICANT RESERVES THE RIGHT TO REQUEST WAIVERS/MODIFICATIONS OF LOADING SPACE REQUIREMENTS.

OVERALL AREA TABULATIONS

PARCEL AREA

PARCEL		AREA SF	OR	AREA ACRES
5A	=	200,580 SF	OR	4.60468 ACRES
H	=	109,771 SF	OR	2.52000 ACRES
O	=	890,390 SF	OR	20.44054 ACRES
SITE AREA	=	**1,200,741 SF**	**OR**	**27.56522 ACRES**
AREA OF DENSITY CREDITS	=	11,556 SF	OR	0.26529 ACRES
TOTAL AREA FOR FAR CALCULATON		**1,212,297 SF**	**OR**	**27.83051 ACRES**

OVERALL TABULATION

USE	MAXIMUM GFA	FAR
OFFICE	up to 600,000	
RESIDENTIAL	up to 895,000	
DAY CARE	up to 10,000	
RETAIL	up to 10,000	
MAXIMUM TOTAL	**1,515,000**	**1.25**

PRIMARY USE	REQUIRED PARKING	Maximum Development		Development "Shown"	
	MINIMUM RATE	GFA/Units	Parking Provided	GFA/Units	Parking Provided
OFFICE	3.3 spaces per 1000 SF OF GFA	600,000 SF	1,980	600,000 SF	1,980
RESIDENTIAL	1 space/unit for studios 1.5 spaces/unit for 1 bedroom units 2.0 spaces/unit for 2+ bedroom units	895,000 SF 900 Units	1,440	880,000 SF 880 Units	1,408
DAY CARE	1 space per employee and 1 space/5 children,	10,000 SF	40	10,000 SF	40
RETAIL	4 spaces per 1000 SF of GFA	10,000 SF	40	10,000 SF	40
	TOTAL		3,500 [4]		3,468 [4]

PROPOSED DEVELOPMENT SUMMARY

A.) SITE AREA:
- 1,200,741 GROSS LAND AREA 0R 27.56522 ACRES

B.) EXISTING GROSS SQUARE FOOTAGE:
- 80,088 OFFICE

C.) PROPOSED MAXIMUM GROSS SQUARE FOOTAGE:
- 1,500,000 GSF

D.) REQUIRED USE MIX LANDMARK BUSINESS ALTERNATE OPTION:
- GROSS FLOOR AREA OF MULTI-FAMILY USES SHALL COMPRISE NO MORE THAN 60 PERCENT OF THE GROSS FLOOR AREA OF THE LARGER MIXED USE PROJECT OVERALL (EXCLUDING PARKING STRUCTURES).

E.) PROPOSED USE MIX:
- 60% RESIDENTIAL / DAYCARE / RETAIL
- 40% OFFICE

F.) REQUIRED YARDS LANDMARK BUSINESS ALTERNATE OPTION:
- **HERNDON PARKWAY:**
  PER URBAN DESIGN AND ARCHITECTURAL GUIDELINES FOR THE HERNDON TRANSIT-ORIENTED CORE.
- **OTHER STREETS:**
  PER HERNDON GUIDELINES FOR THE PLANNING AND DESIGN OF TOWN STREETSCAPES.

G.) PROPOSED YARDS:

FRONT: STREETSCAPE PER URBAN DESIGN AND ARCHITECTURAL GUIDELINES. BUILDINGS SHALL NOT BE LOCATED FURTHER THAN 15 FEET FROM THE ADJACENT EDGE OF THE PUBLIC STREETSCAPE.

SIDE: STREETSCAPE PER HERNDON GUIDELINES. BUILDINGS SHALL NOT BE LOCATED FURTHER THAN 15 FEET FROM THE ADJACENT EDGE OF THE PUBLIC STREETSCAPE.

REAR: STREETSCAPE PER HERNDON GUIDELINES. BUILDINGS SHALL NOT BE LOCATED FURTHER THAN 15 FEET FROM THE ADJACENT EDGE OF THE PUBLIC STREETSCAPE.

H.) SETBACK OR YARD ABUTTING THE DULLES TOLL ROAD:
- FOR LAND ABUTTING THE FUTURE LOCATION OF THE SUGARLAND RUN TRAIL, NO STRUCTURE SHALL BE WITHIN 40 FEET OF THE DULLES TOLL ROAD RIGHT-OF-WAY. PROPERTIES ABUTTING THE DULLES TOLL ROAD RIGHT-OF-WAY AND THE FUTURE SUGARLAND RUN TRAIL SHALL INCORPORATE PROVISIONS FOUND IN THE TOWN COMPREHENSIVE PLAN AND THE URBAN DESIGN AND ARCHITECTURAL GUIDELINES FOR THE HERNDON TRANSIT-ORIENTED CORE FOR THE SUGARLAND RUN TRAIL. WHERE THE SUGARLAND RUN TRAIL DOES NOT ABUT THE DULLES TOLL ROAD RIGHT-OF-WAY, NO STRUCTURE SHALL BE WITHIN 20 FEET OF THE DULLES TOLL ROAD RIGHT-OF-WAY.

PROPOSED SETBACK:
- CLOSEST STRUCTURE LOCATED 13 FEET TO 20 +/- FEET FROM DULLES TOLL ROAD (VARIANCE PREVIOUSLY APPROVED - SEE BZA#01-05)

I.) MAXIMUM HEIGHT LANDMARK BUSINESS ALTERNATE OPTION:
- UP TO 160 FEET OR
- UP TO 275 FEET IF WITHIN 500' OF THE DULLES TOLL ROAD

PROPOSED MAXIMUM HEIGHT
- 105 FEET OR
- 275 FEET IF WITHIN 500' OF THE DULLES TOLL ROAD

J.) MAXIMUM FAR /LANDMARK BUSINESS ALTERNATE OPTION:
- 1.25 FAR

PROPOSED MAXIMUM FAR
- 1.24 FAR

K.) MINIMUM OPEN SPACE LANDMARK BUSINESS ALTERNATE OPTION:
- 50%

PROPOSED OPEN SPACE
- 50%

L.) BUILDING TOWER SEPARATION LANDMARK BUSINESS ALTERNATE OVERLAY ZONE:
- A MINIMUM HORIZONTAL SEPARATION OF 65 FEET BETWEEN RESIDENTIAL BUILDING TOWERS ABOVE 80 FEET.
- A MINIMUM HORIZONTAL SEPARATION OF 50 FEET BETWEEN NONRESIDENTIAL BUILDING TOWERS ABOVE 80 FEET.

PROPOSED BUILDING TOWER SEPARATION:
- FINAL BUILDING PLACEMENT AND RELATIONSHIPS SHALL BE DETERMINED AT FINAL SITE PLAN AND SHALL BE IN CONFORMANCE WITH THE LANDMARK BUSINESS, ALTERNATE GUIDELINES AS PRESCRIBED PER SECTION 78-40.6 (C) OR AS DETERMINED BY INTERPRETATION AND/OR WAIVERS AS MAY BE GRANTED BY THE ZONING ADMINISTRATOR.

M.) PARKING SPACE LOCATION LANDMARK BUSINESS ALTERNATE OVERLAY ZONE:
- AT LEAST 50 PERCENT OF THE PARKING SPACES FOR THE STRUCTURE OR BUILDING ARE LOCATED INSIDE A STRUCTURE OR BUILDING.

PARKING SPACE LOCATION:
- 90% OF PARKING SPACES ARE LOCATED IN STRUCTURES.

NOTES

1. THE PROPERTY THAT IS THE SUBJECT OF THIS SPECIAL EXCEPTION CONSISTS OF THE PARCELS IDENTIFIED ON THE FAIRFAX COUNTY TAX ASSESSMENT MAP AS 16-4-((10)) PARCEL 5A, 16-4-((25)) PARCEL H AND 16-4-((25)) PARCEL O. THE PROPERTY IS CURRENTLY ZONED O&LI AND IS OWNED BY (FAIRBROOK BUSINESS PARK ASSOCIATES, L.P. AND FAIRBROOK BUSINESS PARK ASSOCIATES II, L.P.). THE PURPOSE OF THIS SPECIAL EXCEPTION IS TO PERMIT A MIXED USE DEVELOPMENT UNDER THE LANDMARK BUSINESS ALTERNATIVE OPTION PURSUANT TO SECTION 78-40.6(C) OF THE ZONING ORDINANCE, AND TO PERMIT A DAYCARE CENTER PURSUANT TO SECTION 78-71.2(d)(2), AND ALSO TO PERMIT AN EATING ESTABLISHMENT PURSUANT TO SECTION 78-71.6(d).
2. THE HORIZONTAL DATUM IS VIRGINIA STATE GRID NORTH. (SEE NOT 2 ON SHEET C-03).
3. TOPOGRAPHIC INFORMATION TAKEN FROM FIELD SURVEY, PREPARED BY VIKA VIRGINIA, LLC.
4. PUBLIC WATER AND SANITARY SEWER ARE AVAILABLE AND WILL BE EXTENDED TO SERVE THE DEVELOPMENT.
5. BOUNDARY IS PER FIELD SURVEY SURVEY PREPARED BY VIKA VIRGINIA, LLC. DATED DEC. 4, 2015.
6. ALL SWM/BMP FACILITIES SHOWN ON THIS APPLICATION ARE PRELIMINARY. THESE FACILITIES SHALL BE PROPOSED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS IN PLACE AT THE TIME OF SITE PLAN. ALL STORMWATER QUALITY AND QUANTITY REQUIREMENTS FOR THIS PROJECT (INCLUDING REQUIREMENTS GENERATED BY OFFSITE DISTURBED AREAS AND FRONTAGE IMPROVEMENT AREAS) SHALL BE PROVIDED ON-SITE AND SHALL BE PRIVATELY MAINTAINED. ALL STORMWATER QUANTITY AND QUALITY REQUIREMENTS SHALL BE MET FOR EACH PHASE OF THE PROJECT INDEPENDENTLY.
7. TO THE BEST OF OUR KNOWLEDGE, NO GRAVE SITES OR STRUCTURES MARKING A BURIAL SITE ARE PRESENT ON THE SUBJECT PROPERTY.
8. TO THE BEST OF OUR KNOWLEDGE, NO HAZARDOUS OR TOXIC SUBSTANCES ARE KNOWN TO EXIST ON THE SUBJECT PROPERTY.
9. LIMITS OF CLEARING AND GRADING SHOWN ON THE SPECIAL EXCEPTION PLAN ARE SUBJECT TO MODIFICATION WITH FINAL ENGINEERING. THE DEVELOPMENT OF THE SITE WILL BE IN SUBSTANTIAL CONFORMANCE WITH THESE LIMITS. FINAL LIMITS OF CLEARING AND GRADING WILL TAKE INTO CONSIDERATION FINAL SITE ENGINEERING AND SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE TOWN FORESTER AT TIME OF FINAL SITE REVIEW.
10. THE MAXIMUM HEIGHT OF THE BUILDINGS ARE TO THE ROOF NOT INCLUDING 20' PENTHOUSE OR SCREEN WALL.
11. DEVELOPMENT WILL COMMENCE UPON COMPLETION OF REQUIRED TOWN OF HERNDON PLAN PROCESSING AND APPROVALS.
12. THE DEVELOPMENT CONFORMS TO THE PROVISIONS OF ALL APPLICABLE TOWN STANDARDS, EXCEPT AS NOTED HEREON.
13. LANDSCAPED OPEN SPACE AREAS SHOWN HEREON MAY BE MODIFIED AT THE TIME OF FINAL ENGINEERING AND ARCHITECTURE, AS LONG AS THE AMOUNT OF LANDSCAPED OPEN SPACE AND THE NUMBER OF PLANTS DOES NOT DIMINISH.
14. BUILDING FOOTPRINTS MAY BE INCREASED OR DECREASED AND THE NUMBER OF PARKING SPACES MAY BE MODIFIED, PROVIDED THE MINIMUM OPEN SPACE AND MINIMUM DIMENSIONS TO THE PERIPHERAL LOT LINES ARE MAINTAINED, AND THE DESIGN IS IN SUBSTANTIAL CONFORMANCE WITH THAT SHOWN HEREON.
15. ADDITIONAL SITE FEATURES SUCH AS PLAZA DEVELOPMENT, GAZEBOS, CORNICES, TRELLISES, ENTRANCE SIGNS, LIGHTS AND/OR WALLS NOT REPRESENTED HEREON MAY BE PROVIDED.
16. IMPROVEMENTS TO THE PUBLIC RIGHT(S) OF WAY ON OR THROUGH ADJACENT PROPERTIES ARE SUBJECT TO CONDITIONS, DEVELOPMENT CONDITIONS AND AGREEMENTS/PERMITS AS MAY BE REQUIRED IN CONJUNCTION WITH SEPARATE PUBLIC IMPROVEMENT PLANS FOR THE FAIRBROOK DRIVE EXTENSION TO SPRING STREET.
17. THE PROPOSED DEVELOPMENT ON THE SUBJECT PROPERTY WILL NOT POSE ANY ADVERSE EFFECT ON ADJACENT OR NEIGHBORING PROPERTIES.
18. PARKING WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE X, SECTION 78-100 OF THE ZONING ORDINANCE FOR THE TOWN OF HERNDON. THE NUMBER OF PARKING SPACES PROVIDED MAY BE ADJUSTED BASED ON THE ACTUAL AMOUNT OF GFA CONSTRUCTED. APPLICANT RESERVES THE RIGHT TO SUBMIT A REQUEST FOR A PARKING REDUCTION AT THE TIME OF SITE PLAN SUBMISSION.
19. THE APPLICANT RESERVES THE RIGHT TO PROVIDE MORE THAN THE MINIMUM REQUIRED PARKING AS SPECIFIED BY THE ZONING ORDINANCE. ON SITE PARKING MAY BE LOCATED IN AN ABOVE GRADE PARKING STRUCTURE, AS SURFACE PARKING OR WITHIN A BELOW GROUND PARKING GARAGE, SO LONG AS THE DESIGN AND LOCATION IS IN SUBSTANTIAL CONFORMANCE WITH SUCH PARKING FACILITIES AS SHOWN ON THIS PLAN.
20. RPA DELINEATION AND WETLAND INFORMATION FROM REPORT ENTITLED "FAIRBROOK BUSINESS PARK AND OFF-SITE STUDY AREA - WATERS OF THE U.S. (INCLUDING WETLANDS) DELINEATION AND RESOURCE PROTECTION AREA EVALUATION" PREPARED BY WETLANDS STUDIES AND SOLUTIONS INC. DATED MAY 31, 2016. A JURISDICTIONAL DETERMINATION WAS ISSUED BY THE CORPS OF ENGINEERS ON SEPT. 21, 2016 (#NAO-2016-01643). THIS PLAN DEPICTS RPA IMPACTS; RPA EXCEPTION WITH SUPPORTING WQIA WILL BE SUBMITTED BY SEPARATELY.
21. THE DEVELOPER HEREBY DECLARES DEVELOPMENT OF THIS SITE AS A UNIFIED COMMERCIAL SUBDIVISION PER ARTICLE IV-SECTION 78-40.5(D).
22. THE PROPERTIES SHOWN HEREON ARE CURRENTLY IN THE NAME OF FAIRBROOK BUSINESS PARK ASSOCIATES, LP AND FAIRBROOK BUSINESS PARK ASSOCIATES II , LP AS RECORDED IN THE LAND RECORDS OF FAIRFAX COUNTY IN DEED BOOK 5993 AT PAGE 372 AND IN DEED BOOK 20742, PAGE 1375. (SEE NOTE #5 ON SHEET C-02).
23. ALL STREET TREES SHALL BE LIMBED UP TO AVOID SIGHT DISTANCE CONFLICTS.

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POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

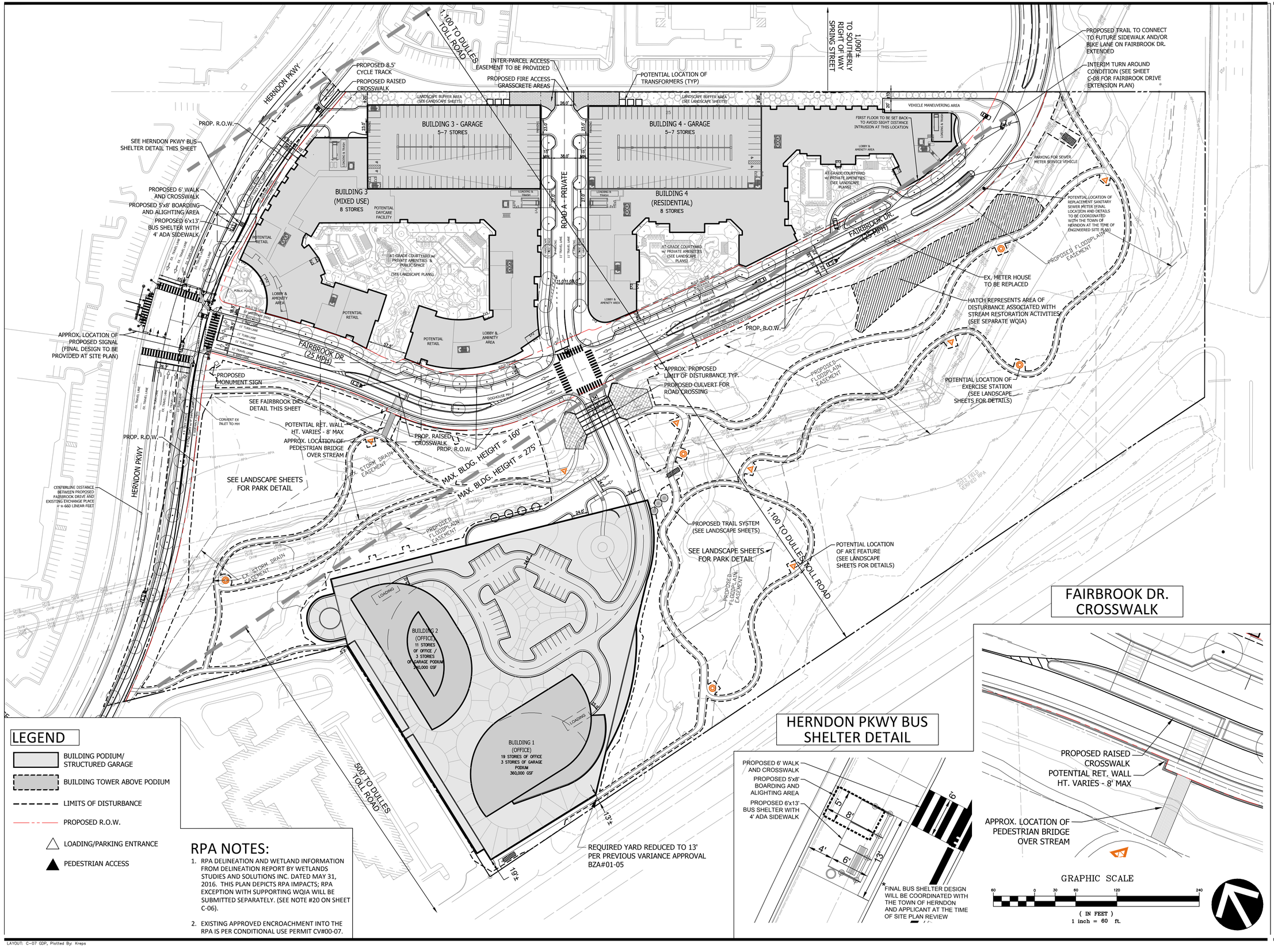
SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

DEVELOPMENT NOTES AND TABULATIONS

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	NTS
VIKA NO.	VV6045X
SHEET NO.	C-06

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-06 NOTES.dwg USER: Kreps DATE: November 3, 2020 TIME: 12:05:09 PM LAYOUT: C-06 NOTES



LEGEND

- BUILDING PODIUM/ STRUCTURED GARAGE
- BUILDING TOWER ABOVE PODIUM
- LIMITS OF DISTURBANCE
- PROPOSED R.O.W.
- LOADING/PARKING ENTRANCE
- PEDESTRIAN ACCESS

RPA NOTES:

1. RPA DELINEATION AND WETLAND INFORMATION FROM DELINEATION REPORT BY WETLANDS STUDIES AND SOLUTIONS INC. DATED MAY 31, 2016. THIS PLAN DEPICTS RPA IMPACTS; RPA EXCEPTION WITH SUPPORTING WQIA WILL BE SUBMITTED SEPARATELY. (SEE NOTE #20 ON SHEET C-06).
2. EXISTING APPROVED ENCROACHMENT INTO THE RPA IS PER CONDITIONAL USE PERMIT CV#00-07.

HERNDON PKWY BUS SHELTER DETAIL

FAIRBROOK DR. CROSSWALK

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

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6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

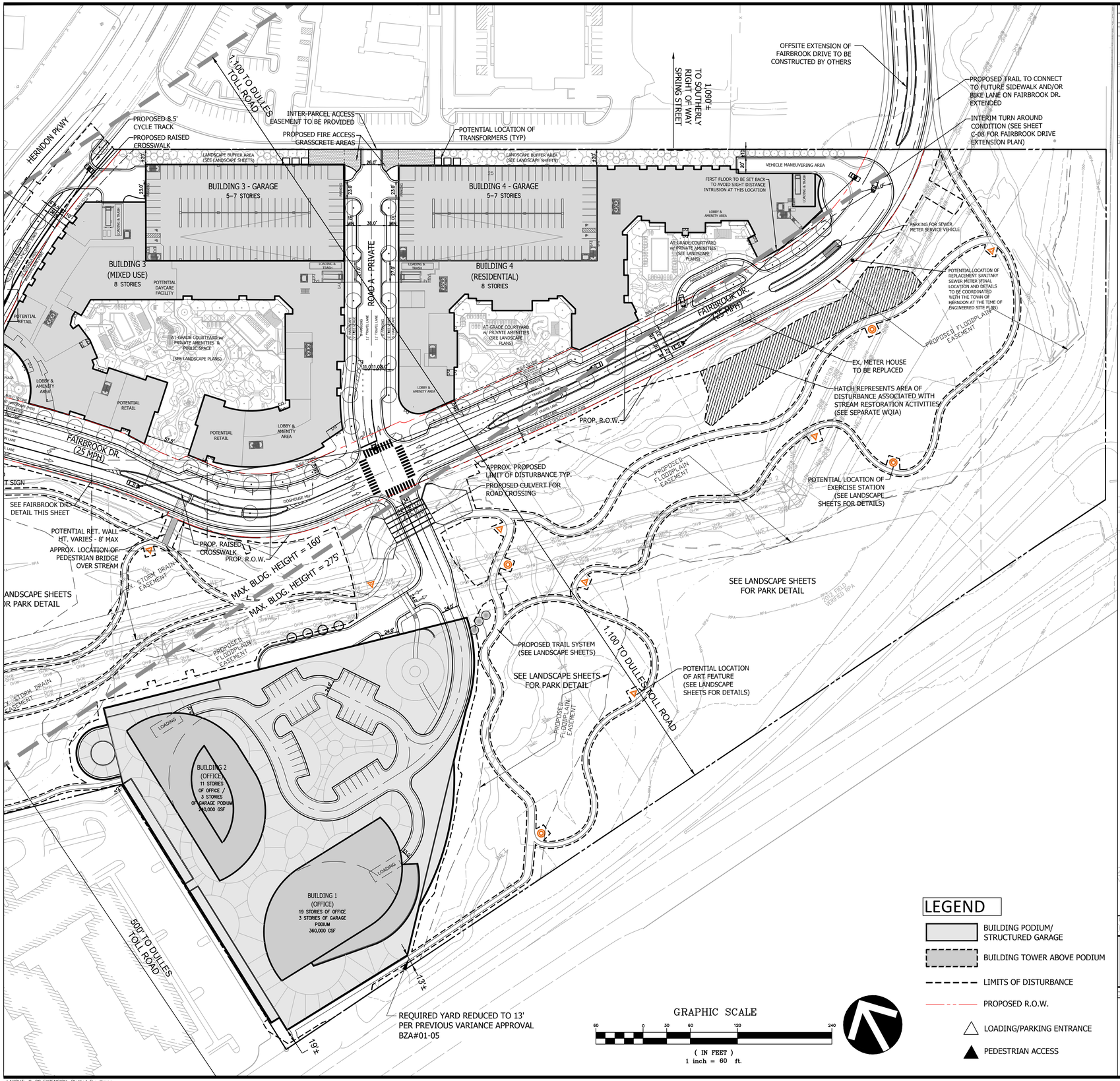
TOWN OF HERNDON, VIRGINIA

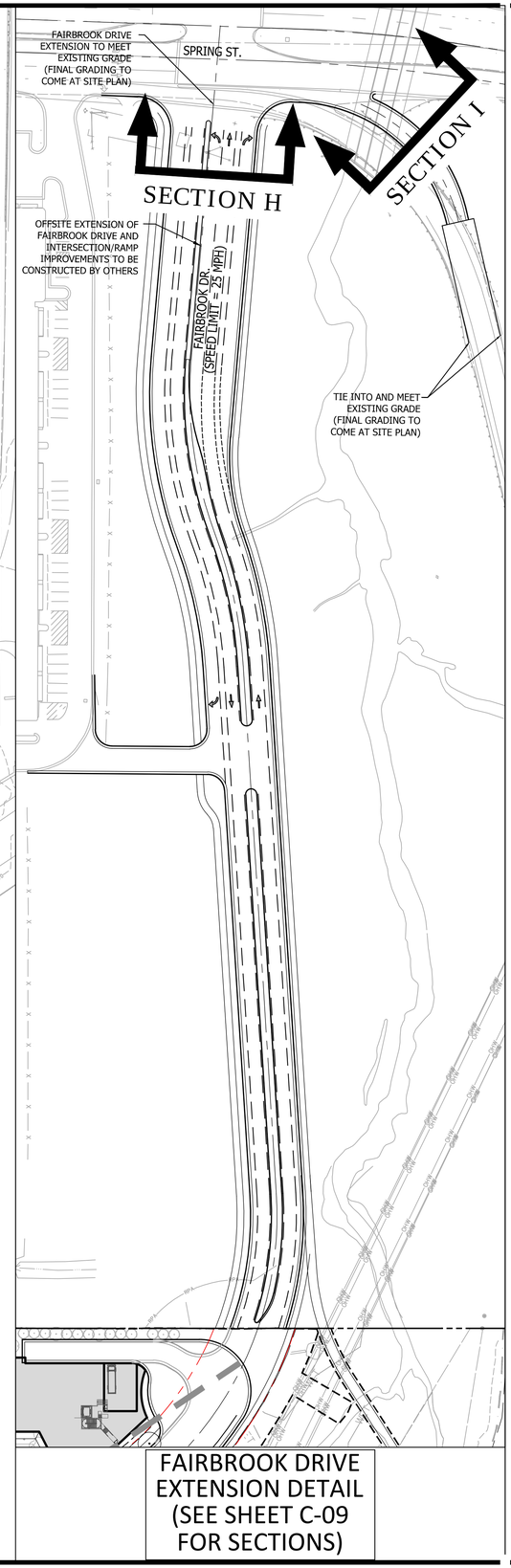
GENERAL DEVELOPMENT PLAN

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-07

FILE: P:\projects\6045\6045X\CADD\PLANNING DRAWINGS\6045X_C-07 C-08 OVERALL GDP.dwg USER: Kreps DATE: November 3, 2020 TIME: 1:00:38 PM LAYOUT: C-07 GDP

LAYOUT: C–07 GDP, Plotted By: Kreps





FAIRBROOK DRIVE EXTENSION DETAIL (SEE SHEET C-09 FOR SECTIONS)

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POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

GENERAL DEVELOPMENT PLAN - FAIRBROOK DRIVE EXTENSION

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-08

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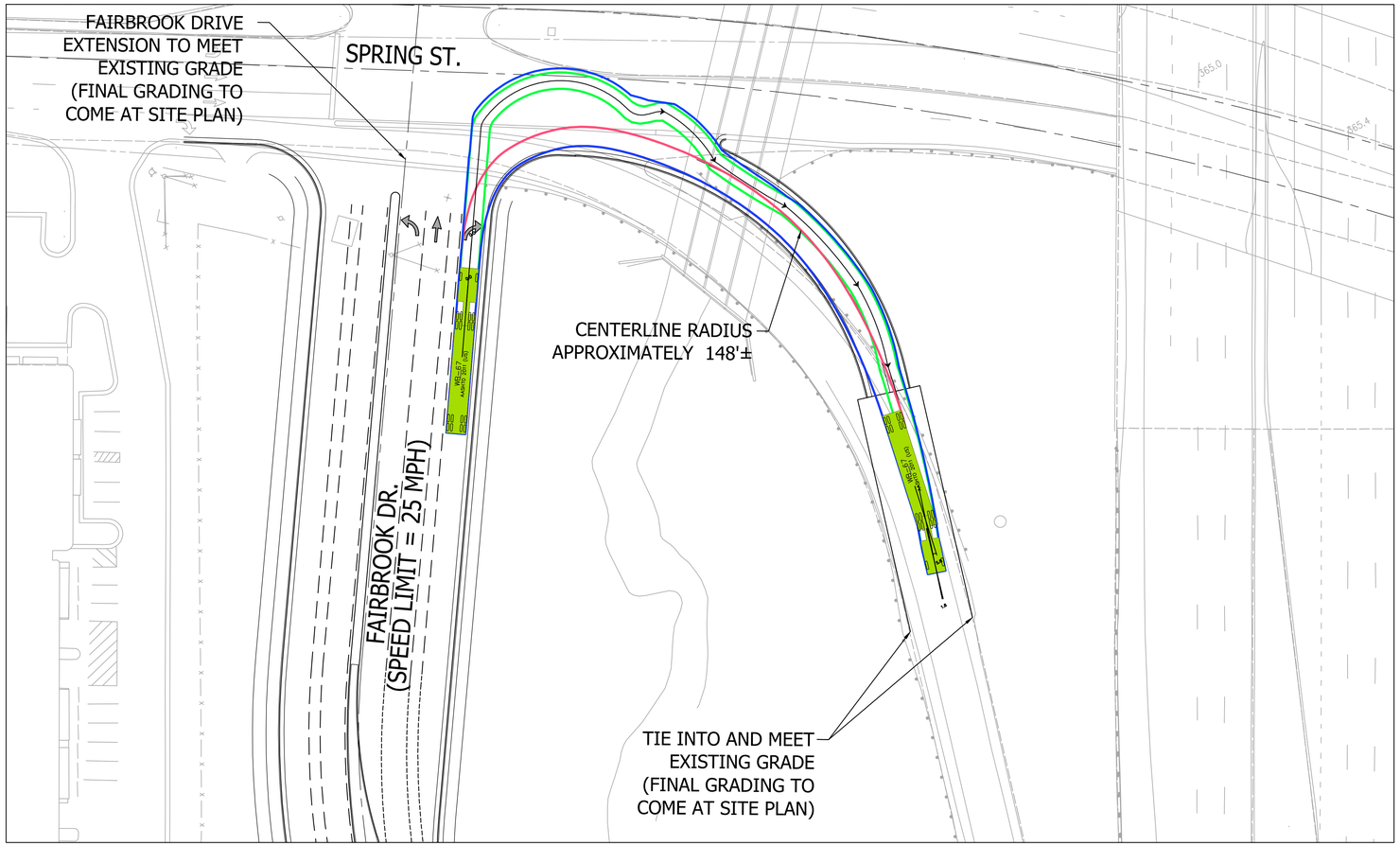
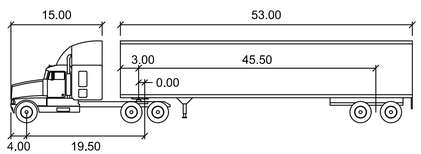


WB-67 AUTOTURN
SCALE: 1" =30'



WB-67

	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

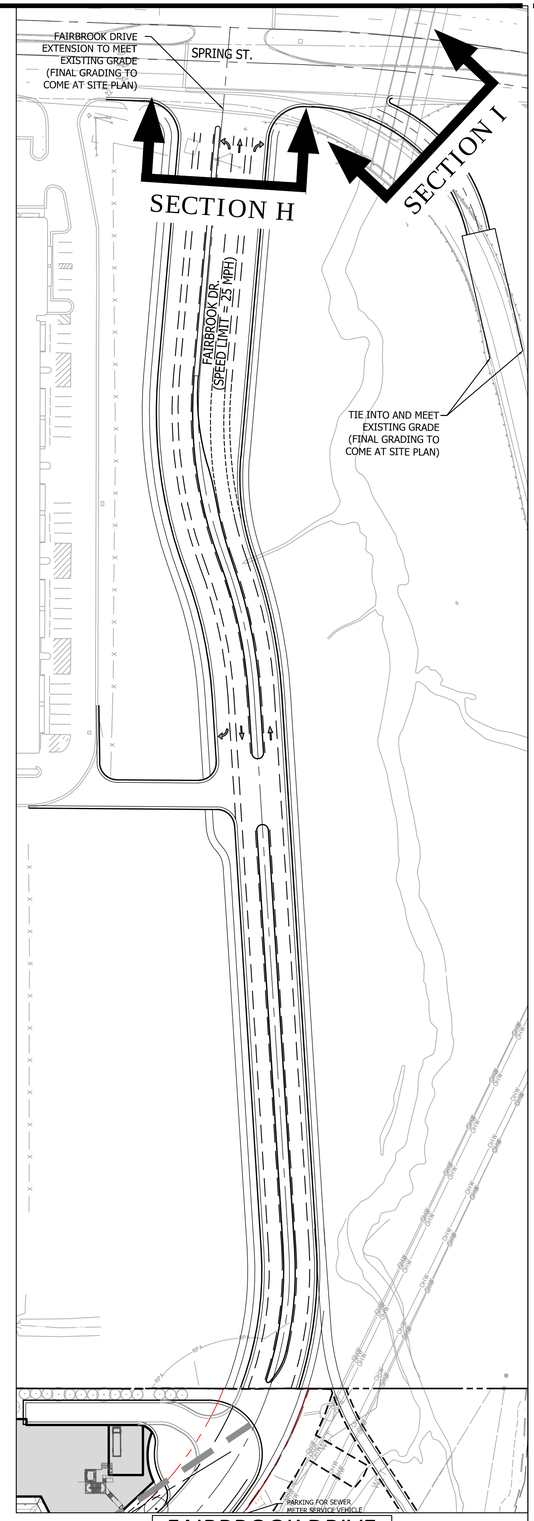
LEGEND

- FRONT TIRES
- REAR TIRES
- VEHICLE BODY

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.



FAIRBROOK DRIVE EXTENSTION DETAIL (SEE SHEET C-09 FOR SECTIONS)

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
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6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

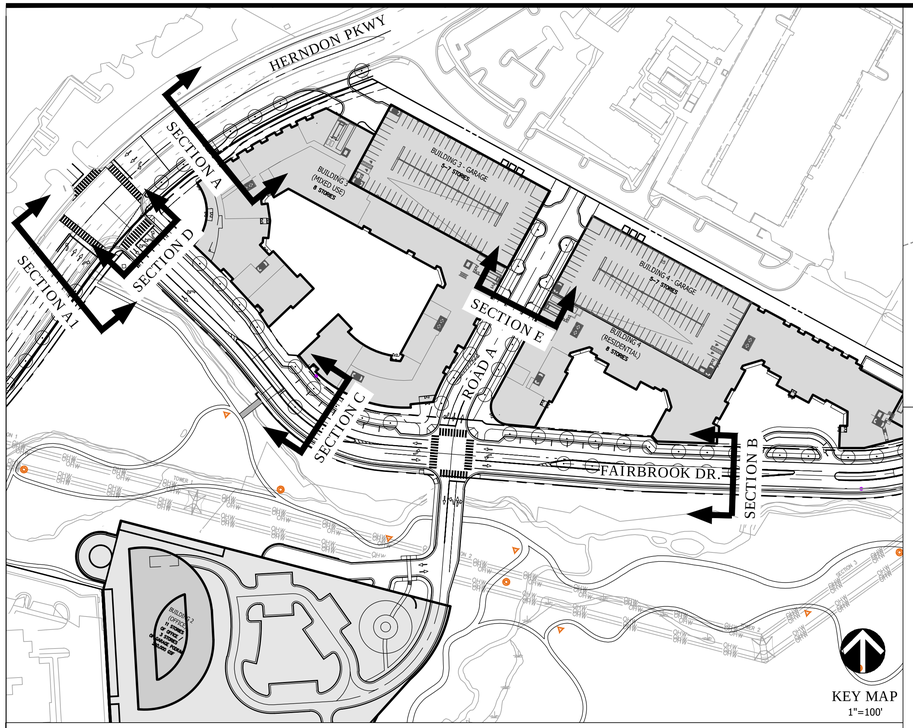
FAIRBROOK

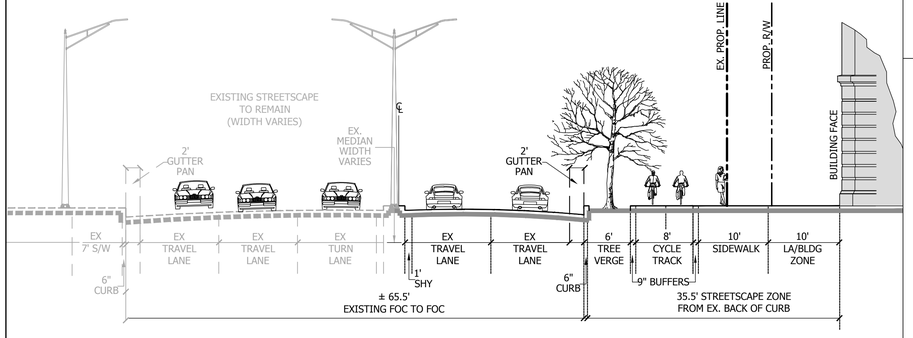
SPECIAL EXCEPTION PLAN
TOWN OF HERNDON,
VIRGINIA

FAIRBROOK DRIVE EXTENSTION - AUTOTURN EXHIBIT

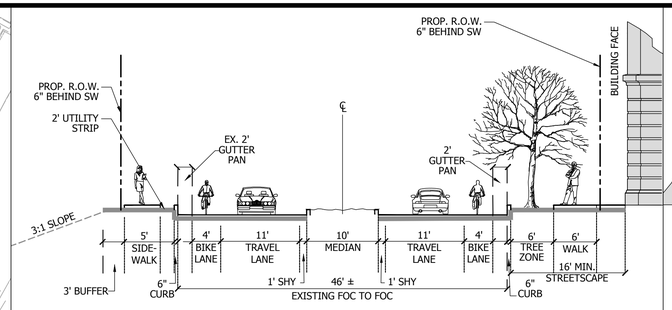
DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	AS NOTED
VIKA NO.	VV6045X
SHEET NO.	C-08A

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-07 C-08 OVERALL GDP.dwg USER: Kreps DATE: November 3, 2020 TIME: 1:02:54 PM LAYOUT: C-08A EXTENSION

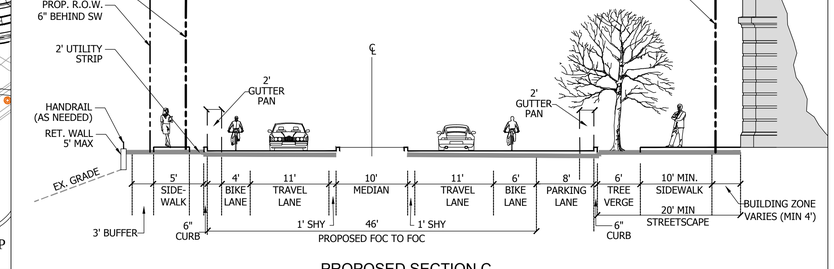




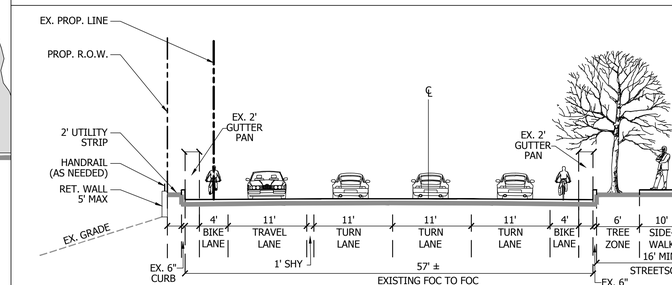
PROPOSED SECTION A
PS-2 HERNDON PARKWAY(NORTH OF FAIRBROOK)
FACING NORTHEAST
PUBLIC COLLECTOR STREET
1" = 10'



PROPOSED SECTION B
FAIRBROOK DRIVE
FACING WEST
PUBLIC LOCAL STREET
1" = 10'



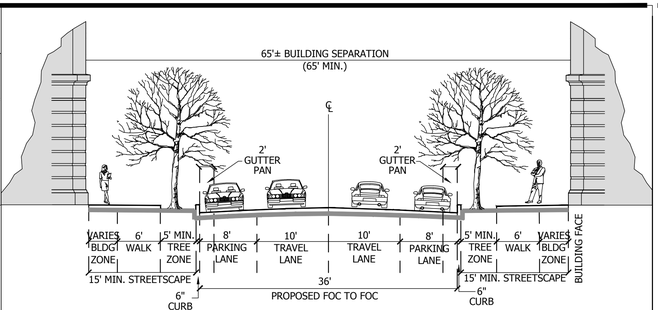
PROPOSED SECTION C
FAIRBROOK DRIVE
FACING WEST
PUBLIC LOCAL STREET
1" = 10'



PROPOSED SECTION D
FAIRBROOK DRIVE
FACING WEST
PUBLIC LOCAL STREET
1" = 10'

PROPOSED SECTION A-1
PS-2 HERNDON PARKWAY(SOUTH OF FAIRBROOK)
FACING NORTHEAST
PUBLIC COLLECTOR STREET
1" = 10'

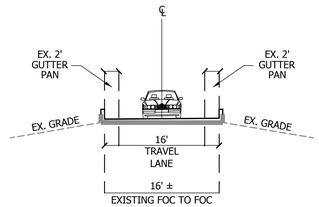
PROPOSED SECTION D
FAIRBROOK DRIVE
FACING WEST
PUBLIC LOCAL STREET
1" = 10'



PROPOSED SECTION E
PRIVATE ROAD A
FACING NORTH
PRIVATE STREET
1" = 10'

NOTES:

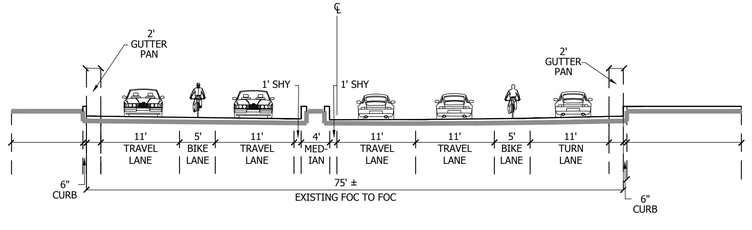
1. TIE CURBS TO EXISTING RAMP CURBS IN-LINE AND ON-GRADE.
2. WIDTH OF PROPOSED ASPHALT TO MATCH EXISTING.



PROPOSED SECTION I
RAMP TO FAIRFAX
COUNTY PARKWAY
1" = 10'

NOTES:

1. SEE FAIRBROOK DRIVE EXTENSION DETAIL ON SHEET C-08.
2. ROADWAY SECTION SHOWN IS PRELIMINARY - FINAL DESIGN IS SUBJECT TO TOWN OF HERNDON AND VDOT APPROVAL.



PROPOSED SECTION H
FAIRBROOK DRIVE EXTENSION
(ON TOWN / COUNTY - OWNED LAND)
PUBLIC LOCAL STREET
1" = 10'

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6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

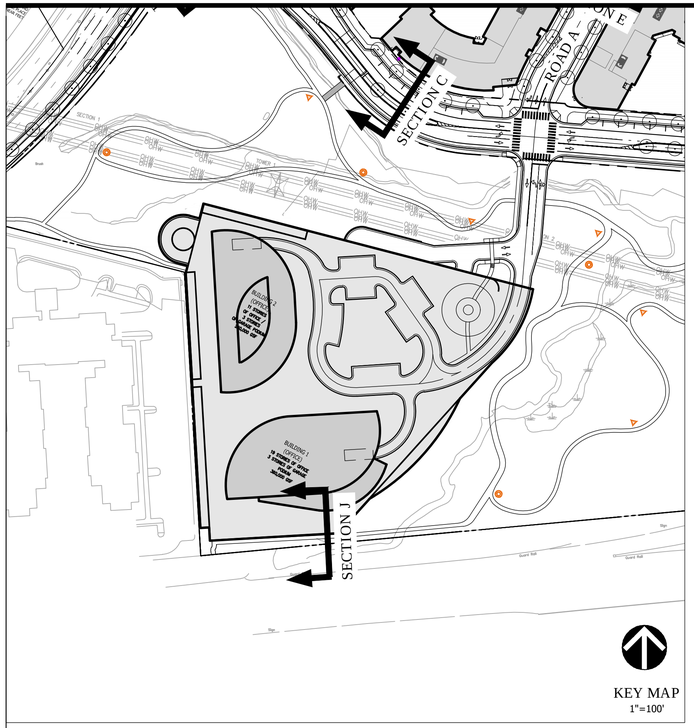
SPECIAL EXCEPTION PLAN

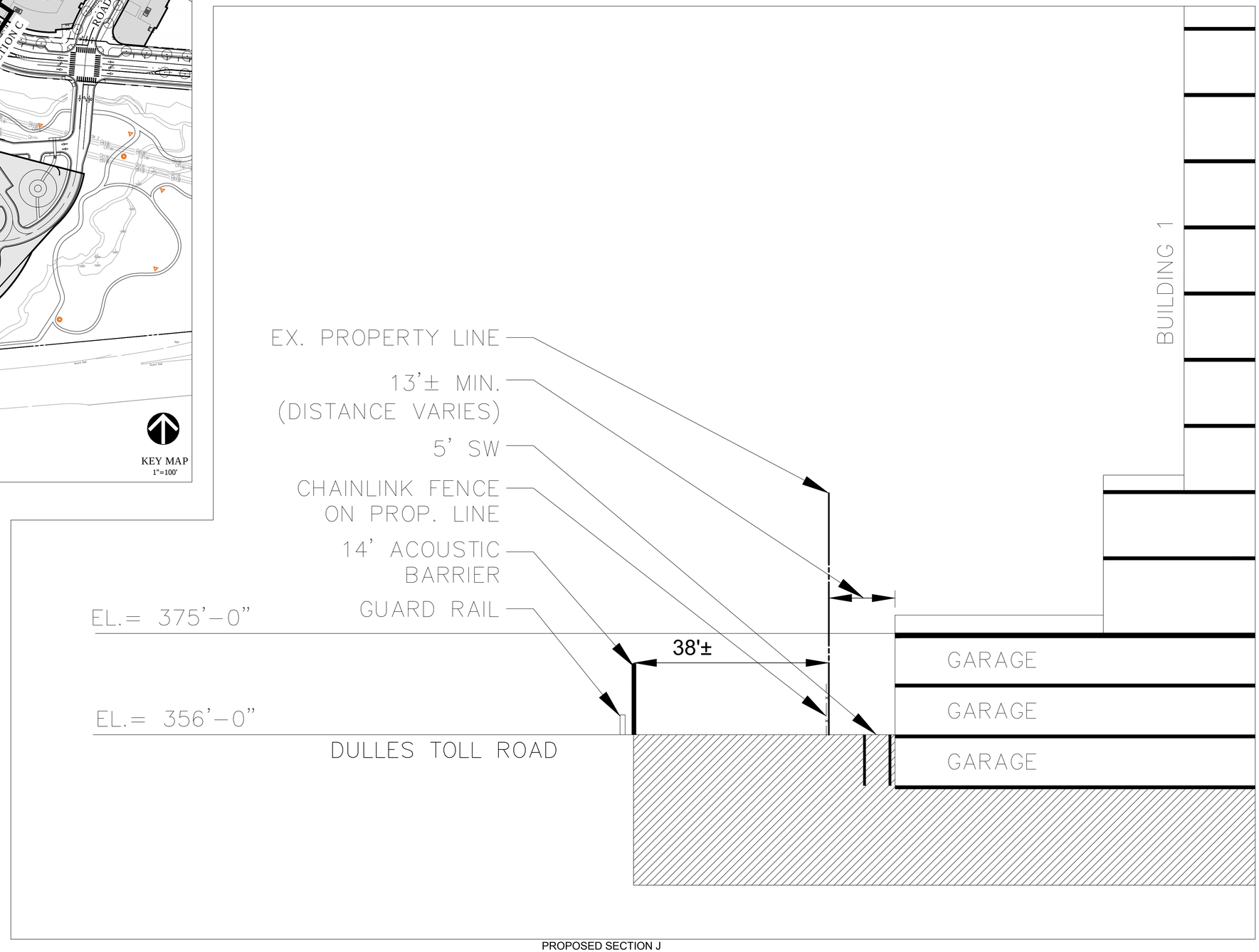
TOWN OF HERNDON,
VIRGINIA

STREETSCAPE SECTIONS

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	AS SHOWN
VIKA NO.	VV6045X
SHEET NO.	C-09

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-09 STREETSCAPE SECTIONS.dwg USER: Kreps DATE: November 3, 2020 TIME: 1:06:15 PM LAYOUT: C-09 SECTIONS





PROPOSED SECTION J
GARAGE/TRAIL
1" = 10'

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6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

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COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

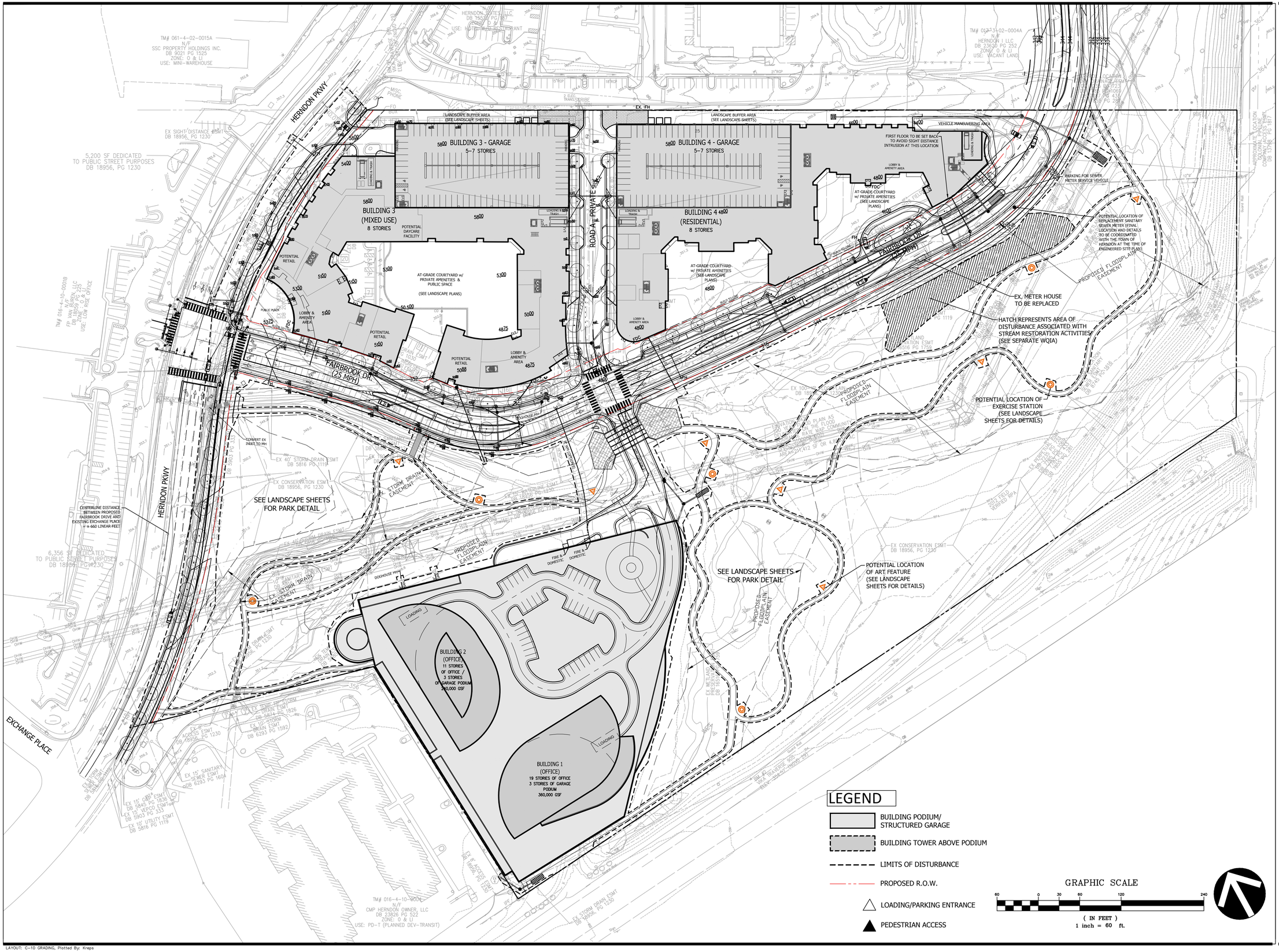
TOWN OF HERNDON,
VIRGINIA

SITE SECTION

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	AS SHOWN
VIKA NO.	VV6045X
SHEET NO.	C-09A

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-09 STREETSCAPE SECTIONS.dwg USER: Kreps DATE: November 3, 2020 TIME: 1:07:43 PM LAYOUT: C-09A BUILDING SECT

LAYOUT: C-09A BUILDING SECT, Plotted By: Kreps



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POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

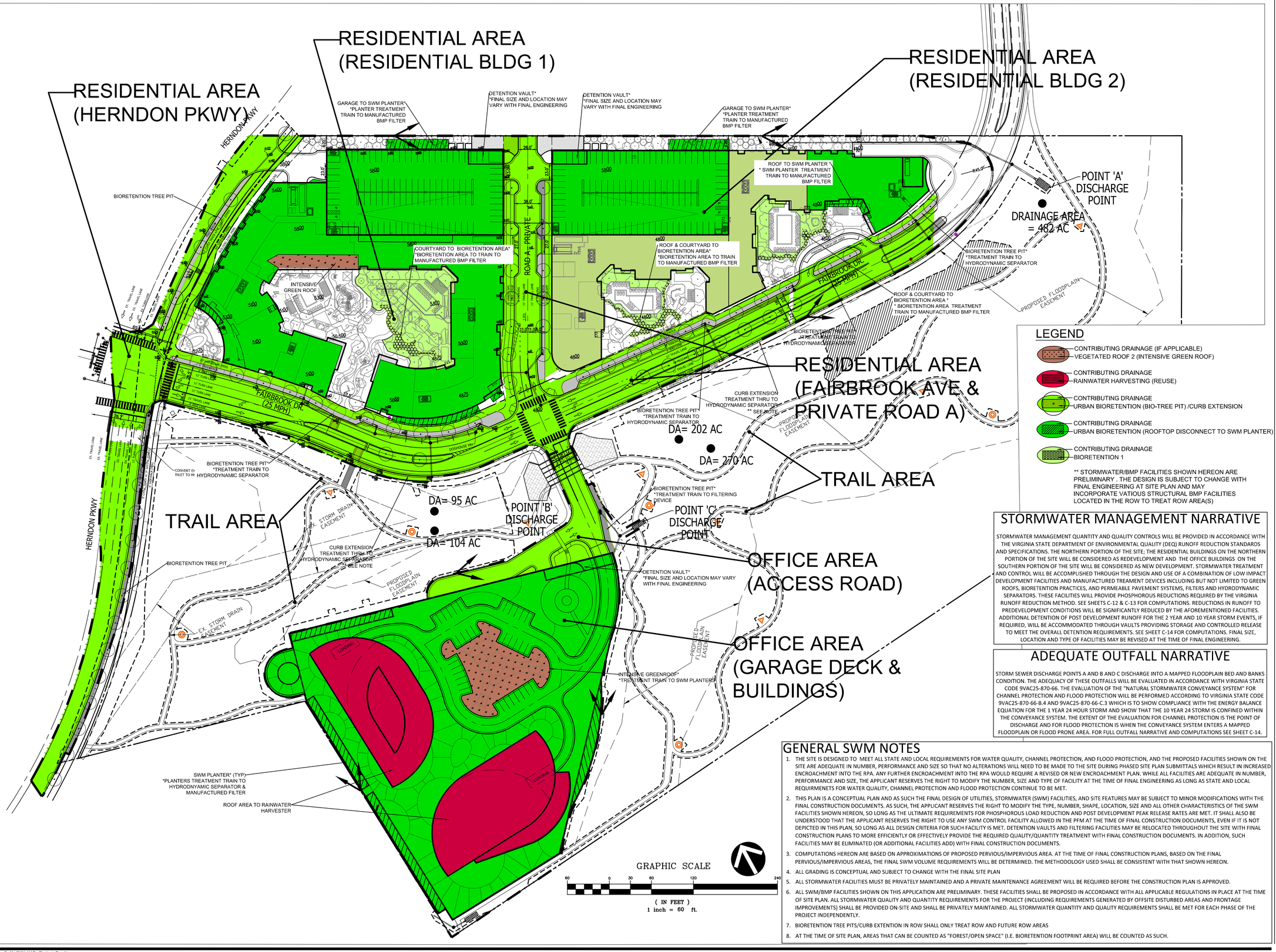
TOWN OF HERNDON, VIRGINIA

CONCEPTUAL GRADING AND UTILITY PLAN

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-10

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-10 GRADING AND UTIL.dwg USER: Kreps DATE: November 3, 2020 TIME: 1:09:21 PM LAYOUT: C-10 GRADING

LAYOUT: C-10 GRADING, Plotted By: Kreps



LEGEND

- CONTRIBUTING DRAINAGE (IF APPLICABLE) VEGETATED ROOF 2 (INTENSIVE GREEN ROOF)
- CONTRIBUTING DRAINAGE RAINWATER HARVESTING (REUSE)
- CONTRIBUTING DRAINAGE URBAN BIORETENTION (BIO-TREE PIT) /CURB EXTENSION
- CONTRIBUTING DRAINAGE URBAN BIORETENTION (ROOFTOP DISCONNECT TO SWM PLANTER)
- CONTRIBUTING DRAINAGE BIORETENTION 1

** STORMWATER/BMP FACILITIES SHOWN HEREON ARE PRELIMINARY . THE DESIGN IS SUBJECT TO CHANGE WITH FINAL ENGINEERING AT SITE PLAN AND MAY INCORPORATE VATIOUS STRUCTURAL BMP FACILITIES LOCATED IN THE ROW TO TREAT ROW AREA(S)

STORMWATER MANAGEMENT NARRATIVE

STORMWATER MANAGEMENT QUANTITY AND QUALITY CONTROLS WILL BE PROVIDED IN ACCORDANCE WITH THE VIRGINIA STATE DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) RUNOFF REDUCTION STANDARDS AND SPECIFICATIONS. THE NORTHERN PORTION OF THE SITE; THE RESIDENTIAL BUILDINGS ON THE NORTHERN PORTION OF THE SITE WILL BE CONSIDERED AS REDEVELOPMENT AND THE OFFICE BUILDINGS ON THE SOUTHERN PORTION OF THE SITE WILL BE CONSIDERED AS NEW DEVELOPMENT. STORMWATER TREATMENT AND CONTROL WILL BE ACCOMPLISHED THROUGH THE DESIGN AND USE OF A COMBINATION OF LOW IMPACT DEVELOPMENT FACILITIES AND MANUFACTURED TREAMENT DEVICES INCLUDING BUT NOT LIMITED TO GREEN ROOFS, BIORETENTION PRACTICES, AND PERMEABLE PAVEMENT SYSTEMS, FILTERS AND HYDRODYNAMIC SEPARATORS. THESE FACILITIES WILL PROVIDE PHOSPHOROUS REDUCTIONS REQUIRED BY THE VIRGINIA RUNOFF REDUCTION METHOD. SEE SHEETS C-12 & C-13 FOR COMPUTATIONS. REDUCTIONS IN RUNOFF TO PREDEVELOPMENT CONDITIONS WILL BE SIGNIFICANTLY REDUCED BY THE AFOREMENTIONED FACILITIES. ADDITIONAL DETENTION OF POST DEVELOPMENT RUNOFF FOR THE 2 YEAR AND 10 YEAR STORM EVENTS, IF REQUIRED, WILL BE ACCOMMODATED THROUGH VAULTS PROVIDING STORAGE AND CONTROLLED RELEASE TO MEET THE OVERALL DETENTION REQUIREMENTS. SEE SHEET C-14 FOR COMPUTATIONS. FINAL SIZE, LOCATION AND TYPE OF FACILITIES MAY BE REVISED AT THE TIME OF FINAL ENGINEERING.

ADEQUATE OUTFALL NARRATIVE

STORM SEWER DISCHARGE POINTS A AND B AND C DISCHARGE INTO A MAPPED FLOODPLAIN BED AND BANKS CONDITION. THE ADEQUACY OF THESE OUTFALLS WILL BE EVALUATED IN ACCORDANCE WITH VIRGINIA STATE CODE 9VAC25-870-66. THE EVALUATION OF THE "NATURAL STORMWATER CONVEYANCE SYSTEM" FOR CHANNEL PROTECTION AND FLOOD PROTECTION WILL BE PERFORMED ACCORDING TO VIRGINIA STATE CODE 9VAC25-870-66-B.4 AND 9VAC25-870-66-C.3 WHICH IS TO SHOW COMPLIANCE WITH THE ENERGY BALANCE EQUATION FOR THE 1 YEAR 24 HOUR STORM AND SHOW THAT THE 10 YEAR 24 STORM IS CONFINED WITHIN THE CONVEYANCE SYSTEM. THE EXTENT OF THE EVALUATION FOR CHANNEL PROTECTION IS THE POINT OF DISCHARGE AND FOR FLOOD PROTECTION IS WHEN THE CONVEYANCE SYSTEM ENTERS A MAPPED FLOODPLAIN OR FLOOD PRONE AREA. FOR FULL OUTFALL NARRATIVE AND COMPUTATIONS SEE SHEET C-14.

GENERAL SWM NOTES

1. THE SITE IS DESIGNED TO MEET ALL STATE AND LOCAL REQUIREMENTS FOR WATER QUALITY, CHANNEL PROTECTION, AND FLOOD PROTECTION, AND THE PROPOSED FACILITIES SHOWN ON THE SITE ARE ADEQUATE IN NUMBER, PERFORMANCE AND SIZE SO THAT NO ALTERATIONS WILL NEED TO BE MADE TO THE SITE DURING PHASED SITE PLAN SUBMITTALS WHICH RESULT IN INCREASED ENCROACHMENT INTO THE RPA. ANY FURTHER ENCROACHMENT INTO THE RPA WOULD REQUIRE A REVISED OR NEW ENCROACHMENT PLAN. WHILE ALL FACILITIES ARE ADEQUATE IN NUMBER, PERFORMANCE AND SIZE, THE APPLICANT RESERVES THE RIGHT TO MODIFY THE NUMBER, SIZE AND TYPE OF FACILITY AT THE TIME OF FINAL ENGINEERING AS LONG AS STATE AND LOCAL REQUIRMENETS FOR WATER QUALITY, CHANNEL PROTECTION AND FLOOD PROTECTION CONTINUE TO BE MET.
2. THIS PLAN IS A CONCEPTUAL PLAN AND AS SUCH THE FINAL DESIGN OF UTILITIES, STORMWATER (SWM) FACILITIES, AND SITE FEATURES MAY BE SUBJECT TO MINOR MODIFICATIONS WITH THE FINAL CONSTRUCTION DOCUMENTS. AS SUCH, THE APPLICANT RESERVES THE RIGHT TO MODIFY THE TYPE, NUMBER, SHAPE, LOCATION, SIZE AND ALL OTHER CHARACTERISTICS OF THE SWM FACILITIES SHOWN HEREON, SO LONG AS THE ULTIMATE REQUIREMENTS FOR PHOSPHOROUS LOAD REDUCTION AND POST DEVELOPMENT PEAK RELEASE RATES ARE MET. IT SHALL ALSO BE UNDERSTOOD THAT THE APPLICANT RESERVES THE RIGHT TO USE ANY SWM CONTROL FACILITY ALLOWED IN THE PFM AT THE TIME OF FINAL CONSTRUCTION DOCUMENTS, EVEN IF IT IS NOT DEPICTED IN THIS PLAN, SO LONG AS ALL DESIGN CRITERIA FOR SUCH FACILITY IS MET. DETENTION VAULTS AND FILTERING FACILITIES MAY BE RELOCATED THROUGHOUT THE SITE WITH FINAL CONSTRUCTION PLANS TO MORE EFFICIENTLY OR EFFECTIVELY PROVIDE THE REQUIRED QUALITY/QUANTITY TREATMENT WITH FINAL CONSTRUCTION DOCUMENTS. IN ADDITION, SUCH FACILITIES MAY BE ELIMINATED (OR ADDITIONAL FACILITIES ADD) WITH FINAL CONSTRUCTION DOCUMENTS.
3. COMPUTATIONS HEREON ARE BASED ON APPROXIMATIONS OF PROPOSED PERVIOUS/IMPERVIOUS AREA. AT THE TIME OF FINAL CONSTRUCTION PLANS, BASED ON THE FINAL PERVIOUS/IMPERVIOUS AREAS, THE FINAL SWM VOLUME REQUIREMENTS WILL BE DETERMINED. THE METHODOLOGY USED SHALL BE CONSISTENT WITH THAT SHOWN HEREON.
4. ALL GRADING IS CONCEPTUAL AND SUBJECT TO CHANGE WITH THE FINAL SITE PLAN
5. ALL STORMWATER FACILITIES MUST BE PRIVATELY MAINTAINED AND A PRIVATE MAINTENANCE AGREEMENT WILL BE REQUIRED BEFORE THE CONSTRUCTION PLAN IS APPROVED.
6. ALL SWM/BMP FACILITIES SHOWN ON THIS APPLICATION ARE PRELIMINARY. THESE FACILITIES SHALL BE PROPOSED IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS IN PLACE AT THE TIME OF SITE PLAN. ALL STORMWATER QUALITY AND QUANTITY REQUIREMENTS FOR THE PROJECT (INCLUDING REQUIREMENTS GENERATED BY OFFSITE DISTURBED AREAS AND FRONTAGE IMPROVEMENTS) SHALL BE PROVIDED ON-SITE AND SHALL BE PRIVATELY MAINTAINED. ALL STORMWATER QUANTITY AND QUALITY REQUIREMENTS SHALL BE MET FOR EACH PHASE OF THE PROJECT INDEPENDENTLY.
7. BIORETENTION TREE PITS/CURB EXTENTION IN ROW SHALL ONLY TREAT ROW AND FUTURE ROW AREAS
8. AT THE TIME OF SITE PLAN, AREAS THAT CAN BE COUNTED AS "FOREST/OPEN SPACE" (I.E. BIORETENTION FOOTPRINT AREA) WILL BE COUNTED AS SUCH.

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5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
Lic. No. 033579
PROFESSIONAL ENGINEER

VV

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

STORMWATER MANAGEMENT MAP

DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-11

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-11 SWM MAP NARRATIVE.dwg USER: Nguyen DATE: November 3, 2020 TIME: 1:55:48 PM LAYOUT: C-11 SWM MAP

LAYOUT: C-11 SWM MAP, Plotted By: Nguyen

SWM QUALITY REQUIREMENTS (SEE SHEET C-13 FOR VRRM FOR OFFICE BUILDING)

RESIDENTIAL AREA

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

☐ 2011 BMP Standards and Specifications ☒ 2013 Draft BMP Standards and Specifications

CLEAR ALL (Ctrl+Shift+R)

data input cells | constant values | calculation cells | final results

Project Name: Fairbrook Residential
Date: 9/24/2020
Linear Development Project? No

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 10.83

Maximum reduction required: 20%
The site's net increase in impervious cover (acres) is: 5.76
Post-Development TP Load Reduction for Site (lb/yr): 11.66

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✔
Total disturbed area entered? ✔

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				7.82	7.82
Impervious Cover (acres)				3.01	3.01
					10.83

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				2.06	2.06
Impervious Cover (acres)				8.77	8.77
Area Check	OK.	OK.	OK.	OK.	10.83

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	**Listed**	**Adjusted[1]**
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	7.82	2.06
Weighted Rv(turf)	0.25	0.25
% Managed Turf	72%	41%
Impervious Cover (acres)	3.01	3.01
Rv(impervious)	0.95	0.95
% Impervious	28%	59%
Total Site Area (acres)	**10.83**	**5.07**
Site Rv	**0.44**	**0.67**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.4012	0.2812
Pre-ReDevelopment Treatment Volume (cubic feet)	17,477	12,249
Pre-ReDevelopment TP Load (lb/yr)	**10.98**	**7.70**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.01	1.52
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		2.08

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)	
Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	2.06
Weighted Rv (turf)	0.25
% Managed Turf	19%
Impervious Cover (acres)	8.77
Rv(impervious)	0.95
% Impervious	81%
Final Site Area (acres)	**10.83**
Final Post Dev Site Rv	**0.82**

Land Cover Summary-Post	
Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	2.06
Weighted Rv (turf)	0.25
% Managed Turf	41%
ReDev. Impervious Cover (acres)	3.01
Rv(impervious)	0.95
% Impervious	59%
Total ReDev. Site Area (acres)	**5.07**
ReDev Site Rv	**0.67**

Land Cover Summary-Post	
Post-Development New Impervious	
New Impervious Cover (acres)	5.76
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.7372		**Post-ReDevelopment Treatment Volume (acre-ft)**	0.2812	**Post-Development Treatment Volume (acre-ft)**	0.4560
Final Post-Development Treatment Volume (cubic feet)	32,113		**Post-ReDevelopment Treatment Volume (cubic feet)**	12,249	**Post-Development Treatment Volume (cubic feet)**	19,863
Final Post-Development TP Load (lb/yr)	**20.18**		**Post-ReDevelopment TP Load (TP) (lb/yr)***	**7.70**	**Post-Development TP Load (lb/yr)**	**12.48**
Final Post-Development TP Load per acre (lb/acre/yr)	1.86		Post-ReDevelopment TP load per acre (lb/acre/yr)	1.52		
			Max. Reduction Required (Below Pre-ReDevelopment Load)	20%		
			TP Load Reduction Required for Redeveloped Area (lb/yr)	**1.54**	**TP Load Reduction Required for New Impervious Area (lb/yr)**	**10.12**

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	**11.66**

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	78.55	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	144.34

TRAIL AREA

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

☐ 2011 BMP Standards and Specifications ☒ 2013 Draft BMP Standards and Specifications

CLEAR ALL (Ctrl+Shift+R)

data input cells | constant values | calculation cells | final results

Project Name: Fairbrook Trail
Date: 9/24/2020
Linear Development Project? No

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.14

Maximum reduction required: 20%
The site's net increase in impervious cover (acres) is: 0.7
Post-Development TP Load Reduction for Site (lb/yr): 1.28

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✔
Total disturbed area entered? ✔

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				1.14	1.14
Impervious Cover (acres)				0.00	0.00
					1.14

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.44	0.44
Impervious Cover (acres)				0.70	0.70
Area Check	OK.	OK.	OK.	OK.	1.14

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre		
Pre-ReDevelopment	**Listed**	**Adjusted[1]**
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	1.14	0.44
Weighted Rv(turf)	0.25	0.25
% Managed Turf	100%	100%
Impervious Cover (acres)	0.00	0.00
Rv(impervious)	0.95	0.95
% Impervious	0%	0%
Total ReDev. Site Area (acres)	**1.14**	**0.44**
Site Rv	**0.25**	**0.25**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0238	0.0092
Pre-ReDevelopment Treatment Volume (cubic feet)	1,035	399
Pre-ReDevelopment TP Load (lb/yr)	**0.65**	**0.25**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	0.57	0.57
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		0.18

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)	
Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.44
Weighted Rv (turf)	0.25
% Managed Turf	39%
Impervious Cover (acres)	0.70
Rv(impervious)	0.95
% Impervious	61%
Final Site Area (acres)	**1.14**
Final Post Dev Site Rv	**0.68**

Land Cover Summary-Post	
Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.44
Weighted Rv (turf)	0.25
% Managed Turf	100%
ReDev. Impervious Cover (acres)	0.00
Rv(impervious)	0.95
% Impervious	0%
Total ReDev. Site Area (acres)	**0.44**
ReDev Site Rv	**0.25**

Land Cover Summary-Post	
Post-Development New Impervious	
New Impervious Cover (acres)	0.70
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.0646		**Post-ReDevelopment Treatment Volume (acre-ft)**	0.0092	**Post-Development Treatment Volume (acre-ft)**	0.0554
Final Post-Development Treatment Volume (cubic feet)	2,813		**Post-ReDevelopment Treatment Volume (cubic feet)**	399	**Post-Development Treatment Volume (cubic feet)**	2,414
Final Post-Development TP Load (lb/yr)	**1.77**		**Post-ReDevelopment TP Load (TP) (lb/yr)***	**0.25**	**Post-Development TP Load (lb/yr)**	**1.52**
Final Post-Development TP Load per acre (lb/acre/yr)	1.55		Post-ReDevelopment TP load per acre (lb/acre/yr)	0.57		
			Max. Reduction Required (Below Pre-ReDevelopment Load)	20%		
			TP Load Reduction Required for Redeveloped Area (lb/yr)	**0.05**	**TP Load Reduction Required for New Impervious Area (lb/yr)**	**1.23**

[1] *Adjusted Land Cover Summary:*
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	**1.28**

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	4.65	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	12.64

SWM QUALITY NARRATIVE

SEE SHEET C-12 FOR PRELIMINARY STORMWATER MANAGEMENT PLAN AND SWM/BMP FACILTIES. COMPLIANCE WITH ALL APPLICABLE REGULATIONS WILL BE SHOWN WITH FINAL SITE PLAN, INCLUDING BUT NOT LIMITED TO SIZING COMPUTATIONS FOR INDIVIDUAL SWM/BMP FACILITIES.

PHASING NARRATIVE

THE SUBJECT SITE IS DESIGNED SUCH THAT DEVELOPMENT MAY OCCUR IN PHASES. FOR THE PURPOSES OF THIS NARRATIVE THE PHASE WILL BE CONSIDERED THE RESIDENTIAL PHASE AND THE OFFICE PHASE. ADDITIONALLY, THE CONSTRUCTION OF THE TRAIL SYSTEM SHALL BE CONSIDERED AS A SEPARATE STORMWATER AREA, BUT NOT A SEPARATE PHASE. THE OVERALL WATER QUANTITY AND QUALITY CONTROLS FOR THE PROJECT WILL MEET THE NECESSARY STANDARDS / REQUIREMENTS FOR THE ENTIRE DEVELOPMENT. EACH PHASE ABOVE WILL BE DESIGNED TO CONTROL STORMWATER RUNOFF TO A LEVEL THAT AT A MINIMUM IS SUFFICIENT TO MEET THE STANDARDS / REQUIREMENTS FOR THE WORK PROPOSED WITHIN THAT PHASE. ADDITIONAL CONTROLS ABOVE THOSE NEEDED FOR THE WORK IN THE PHASE WILL BE PROVIDED WITHIN EACH PHASE SUCH THAT THE WATER QUALITY AND WATER QUANTITY GOALS FOR THE OVERALL DEVELOPMENT WILL BE MET AT BUILDOUT. MORE SIMPLY, THE RESIDENTIAL PHASE AND OFFICE PHASE WILL PROVIDE CONTROLS TO ACCOUNT FOR THE WORK WITHIN THE TRAIL SYSTEM - THERE WILL BE NO CONTROLS PROPOSED WITHIN THE TRAIL SYSTEM AREA. THE LEVEL OF CONTROL TO ACCOUNT FOR THE TRAIL SYSTEM WORK WILL BE ALLOCATED BETWEEN THE TWO PHASES AT THE TIME OF FUTURE SITE PLAN PREPARATION. A RUNNING TABULATION WILL BE KEPT ENSURING OVERALL COMPLIANCE AT BUILDOUT. EACH PHASE WILL PROVIDE A MINIMUM CONTROL LEVEL TO "STAND ALONE" WITH ADDITIONAL LEVELS OF CONTROL DOCUMENTED AND TABULATED TO CREDIT TOWARD THE TRAIL SYSTEM, KEEPING A RUNNING TABULATION AS FUTURE PHASES OF DEVELOPMENT OCCUR.

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
Lic. No. 033579
PROFESSIONAL ENGINEER

VV

FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON, VIRGINIA

STORMWATER MANAGEMENT COMPUTATIONS

DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-12

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-11 SWM MAP- NARRATIVE.dwg USER: Nguyen DATE: November 3, 2020 TIME: 1:57:50 PM LAYOUT: C-12 SWM COMPUTATIONS QUALITY

SWM QUALITY REQUIREMENTS

OFFICE AREA

DEQ Virginia Runoff Reduction Method New Development Compliance Spreadsheet - Version 3.0

○ 2011 BMP Standards and Specifications ◉ 2013 Draft BMP Standards and Specifications

Project Name: Fairbrook Office Bldgs
Date: 9/24/2020

CLEAR ALL (Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Information

Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.07	0.07
Impervious Cover (acres)				3.91	3.91
					3.98

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	6.88

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary	
Forest/Open Space Cover (acres)	0.00
Weighted Rv (forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.07
Weighted Rv (turf)	0.25
% Managed Turf	2%
Impervious Cover (acres)	3.91
Rv (impervious)	0.95
% Impervious	98%
Site Area (acres)	**3.98**
Site Rv	**0.94**

Treatment Volume and Nutrient Loads	
Treatment Volume (acre-ft)	0.3110
Treatment Volume (cubic feet)	13,547
TP Load (lb/yr)	8.51
TN Load (lb/yr) (Informational Purposes Only)	60.89

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
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3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
EDMUND J. IGNACIO
Lic. No. 033579
PROFESSIONAL ENGINEER

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FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON,
VIRGINIA

STORMWATER MANAGEMENT COMPUTATIONS

DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-13

FILE: P:\projects\6045\6045X\CADD\PLANNING DRAWINGS\6045X_C-11 SWM MAP- NARRATIVE.dwg USER: Nguyen DATE: November 3, 2020 TIME: 1:58:43 PM LAYOUT: C-13 SWM COMPUTATIONS QUALITY

SWM QUANTITY REQUIREMENTS

RESIDENTIAL AREA

THE RESIDENTIAL AREA COMPRISES FOUR (4) SUB DRAINAGE AREAS: HERNDON PARKWAY, RESIDENTIAL BUILDING 1, RESIDENTIAL BUILDING 2, AND FAIRBROOK DRIVE & PRIVATE ROAD A.

IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS FOR SWM QUANTITY, THE PEAK FLOW RATE FOR THE PROPOSED DEVELOPMENT SHALL NOT EXCEED THE EXISTING PEAK DEVELOPMENT.

AT THE TIME OF SITE PLAN, THE EXISTING CN WILL BE CALCULATED BASED ON THE FINAL PROPOSED LIMITS OF DISTURBANCE AND THE POST REDEVELOPED CN WILL BE CALCULATED USING THE RUNOFF REDUCTION METHOD (OR OTHER APPROVED METHOD).

DETENTION VAULTS WILL BE PROPOSED (WITH POTENTIAL LOCATIONS SHOWN ON SHEET C-11) TO DETAIN THE STORMWATER AS NEEDED TO MEET THE REQUIREMENTS. DETENTION VAULT SIZING AND ROUTINGS WILL BE SHOWN WITH FINAL ENGINEERING TO SHOW COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS.

OFFICE AREA

THE OFFICE AREA COMPRISES TWO (2) SUB DRAINAGE AREAS: THE OFFICE BUIDLING & GARAGE DECK AND THE ENTRY ROAD TO THE GARAGE.

IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS FOR SWM QUANTITY, THE PEAK FLOW RATE FOR THE PROPOSED DEVELOPMENT SHALL NOT EXCEED THE EXISTING PEAK DEVELOPMENT.

AT THE TIME OF SITE PLAN, THE EXISTING CN WILL BE CALCULATED BASED ON THE FINAL PROPOSED LIMITS OF DISTURBANCE AND THE POST REDEVELOPED CN WILL BE CALCULATED USING THE RUNOFF REDUCTION METHOD (OR OTHER APPROVED METHOD) AT THE TIME OF SITE PLAN.

DETENTION VAULTS WILL BE PROPOSED (WITH POTENTIAL LOCATIONS SHOWN ON SHEET C-11) TO DETAIN THE STORMWATER AS NEEDED TO MEET THE REQUIREMENTS. DETENTION VAULT SIZING AND ROUTINGS WILL BE SHOWN WITH FINAL ENGINEERING TO SHOW COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS.

ADEQUATE OUTFALL NARRATIVE

THE SUBJECT DEVELOPMENT HAS THREE (3) MAIN OUTFALLS. ALL THREE (3) OUTFALLS DISCHARGE DIRECTLY INTO A NATURAL STORMWATER CONVEYANCE CHANNEL THROUGH EXISTING OR PROPOSED PIPES TO AN OUTFALL STRUCTURE.

CHANNEL PROTECTION
PER 9VAC25-870-66-B.3 WHEN DISCHARGING TO NATURAL STORMWATER CONVEYANCE SYSTEMS, THE MAXIMUM PEAK FLOW RATE FROM THE 1 YR 24 HR STORM POST DEVELOPMENT MUST BE IN ACCORDANCE WITH THE ENERGY BALANCE EQUATION: Q DEVELOPED <= I.F.*(Q PRE DEVELOPED* RV PRE DEVELOPED)/RV DEVELOPED. THIS WILL BE ACHIEVED THROUGH THE USE OF LID TECHNIQUES AND STORMWATER DETENTION VAULTS. COMPLIANCE WILL BE SHOWN AT THE TIME OF FINAL SI TE PLAN. PER 9VAC25-870-66-B-4 THE LIMITS OF ANALYSIS SHALL TERMINATE AT THE POINT OF DISCHARGE. THEREFORE NO FURTHER ANALYSIS FOR CHANNEL PROTECTION WIL BE REQUIRED.

FLOOD PROTECTION
PER 9VAC25-870-66-C, THE POST DEVELOPMENT 10 YEAR 24 HOUR STORM EVENT MUST BE LESS THAN THE PREDVELOPMENT PEAK FLOW RATE FROM THE 10-YEAR 24 HOUR STORM EVENT. THE 10-YEAR FLOW IS CONFINED WITHIN THE PROPOSED PIPES TO THE DISCHARGE LOCATION INTO THE NATURAL STORMWATER CONVEYANCE SYSTEM. COMPLIANCE WILL BE SHOWN AT THE TIME OF FINAL SITE PLAN. PER 9VAC25-870-66-C.3.C, THE LIMIT OF ANALYSIS IS TO A POINT WHERE THE STORMWATER CONVEYANCE SYSTEM ENTERS A MAPPED FLOODPLIAN OR OTHER FLOO-PRONE AREA. EACH POINT OF DISCHARGE IS LOCATED WITHIN AN EXISTING MAPPED FLOOPLAIN. THEREFORE NO FURTHER ANALYSIS WILL BE REQUIRED.

BASED ON THE ABOVE AND CORRESPONDING COMPUTATIONS, IT IS THE OPINION OF VIKA VA, LLC THAT THIS PROJECT WILL HAVE NO ADVERSE AFFECTS NOR CAUSE FLOODING OF ANY DOWNSTREAM PROPERTY OR STRUCTURE AND THAT THE OUTFALL IS ADEQUATE.

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
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4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

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EDMUND J. IGNACIO
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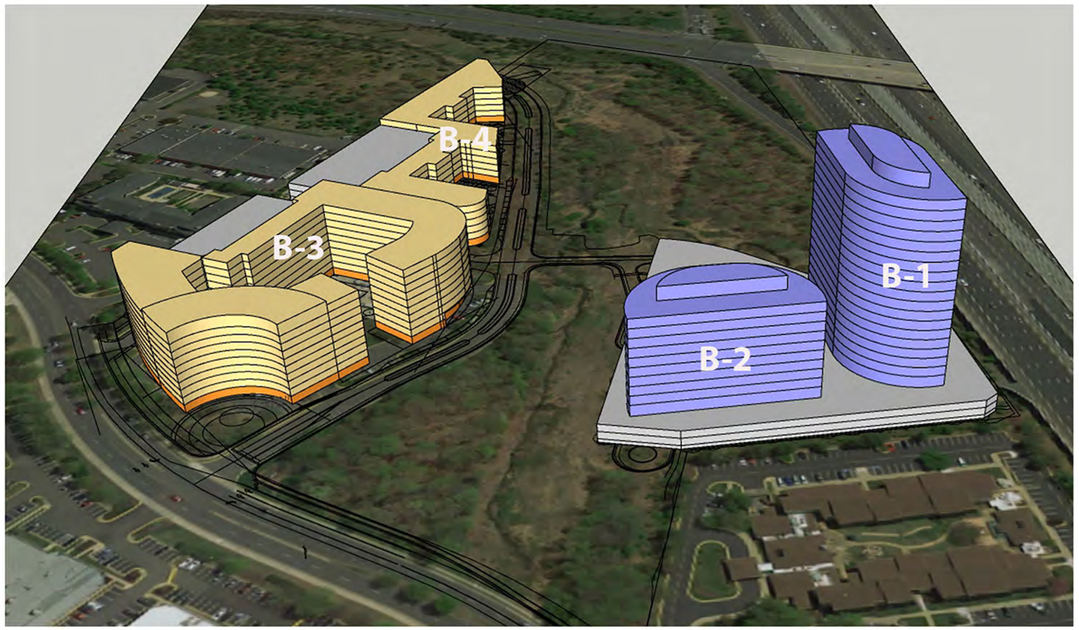
FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON,
VIRGINIA

STORMWATER MANAGEMENT COMPUTATIONS

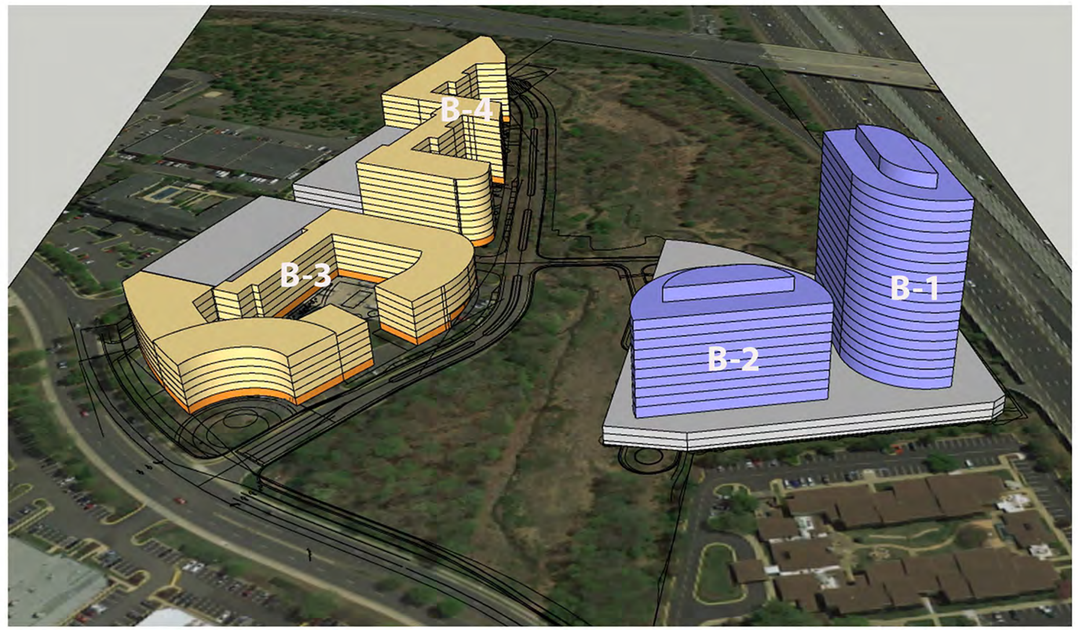
DRAWN BY:	NDR
DESIGNED BY:	GJ
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	C-14

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_C-11 SWM MAP- NARRATIVE.dwg USER: Ignacio DATE: November 3, 2020 TIME: 2:16:04 PM LAYOUT: C-14 SWM COMPUTATIONS QUANTITY



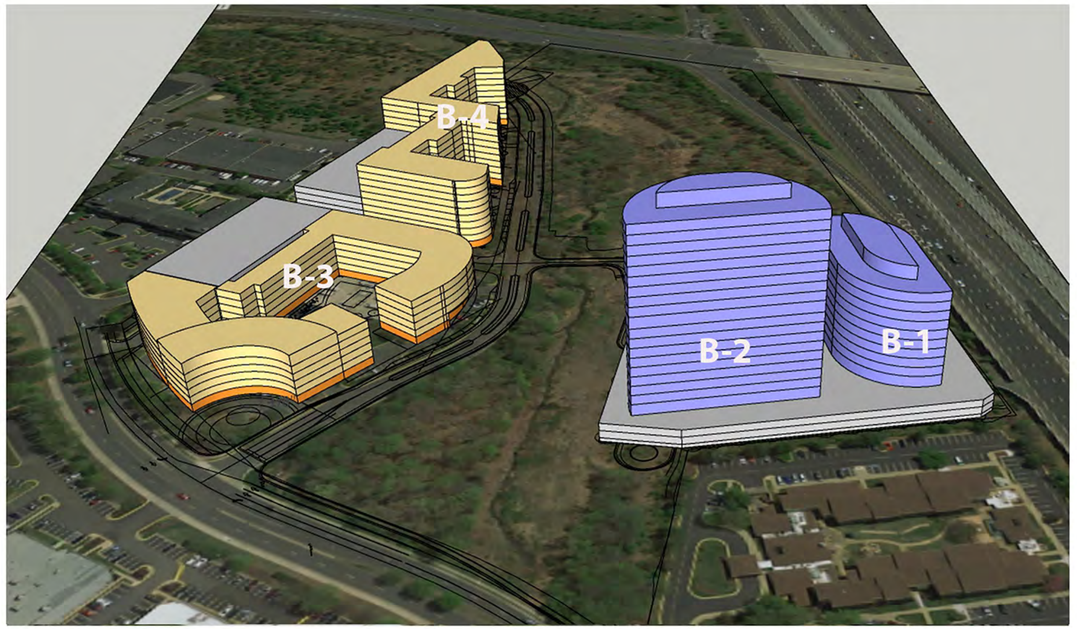
OPTION 1

BUILDING 1	400,000 GFA	275′
BUILDING 2	200,000 GFA	160′
BUILDING 3	540,000 GFA	105′
BUILDING 4	360,000 GFA	65′



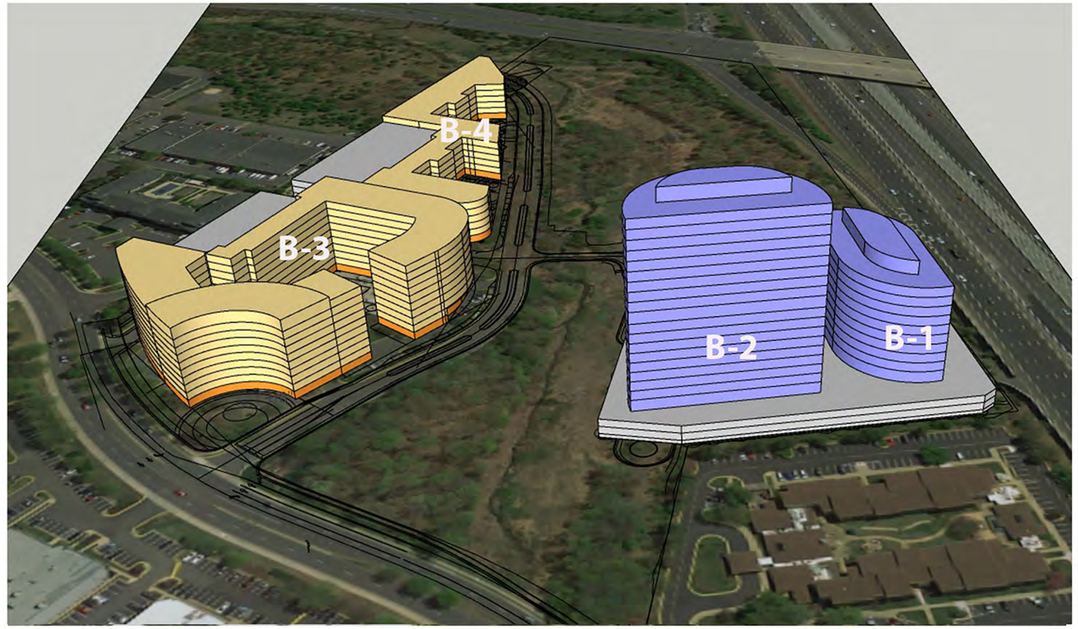
OPTION 2

BUILDING 1	400,000 GFA	275′
BUILDING 2	200,000 GFA	160′
BUILDING 3	360,000 GFA	65′
BUILDING 4	540,000 GFA	105′



OPTION 3

BUILDING 1	200,000 GFA	160′
BUILDING 2	400,000 GFA	275′
BUILDING 3	360,000 GFA	65′
BUILDING 4	540,000 GFA	105′



OPTION 4

BUILDING 1	200,000 GFA	160′
BUILDING 2	400,000 GFA	275′
BUILDING 3	540,000 GFA	105′
BUILDING 4	360,000 GFA	65′

dcs DAVIS CARTER SCOTT DESIGN

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PREPARED FOR:
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1001 G STREET NW, SUITE 900
WASHINGTON, DC 20001
BOB KNOPF
(202) 393-1999

ARCHITECT:
DCS DESIGN - DAVIS, CARTER, SCOTT LTD
8614 WESTWOOD CENTER DRIVE, SUITE 800
TYSONS, VIRGINIA 22182
DOUG CATER, AIA
(703) 556-9275

LANDSCAPE ARCHITECT:
LANDDESIGN, INC.
200 SOUTH PEYTON STREET
ALEXANDRIA, VIRGINIA 22314
STEPHANIE PANKIEWICZ, ASLA, PLA
703-549-7784

TRANSPORTATION ENGINEER:
WELLS & ASSOCIATES
1420 SPRING HILL ROAD, SUITE 610
TYSONS, VIRGINIA 22102
MICHAEL J. WORKOSKY
(703) 917-6620

COMMONWEALTH OF VIRGINIA
DOUGLAS N. CARTER
Lic. No. 3435
ARCHITECT

REVISIONS	DATE
2ND SUBMISSION	06/07/2019
3RD SUBMISSION	06/04/2020
4TH SUBMISSION	09/28/2020
5TH SUBMISSION	10/22/2020
6TH SUBMISSION	11/03/2020

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

MASSING DIAGRAMS

DRAWN BY: J.B.
DESIGNED BY: J.B.
DATE ISSUED: 06/19/2017
DWG. SCALE
JOB NO. VV6045X
SHEET NO. A-01

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1 VIEW FROM WEST



2 VIEW FROM EAST



3 VIEW FROM SOUTH



4 VIEW FROM NORTH

DAVIS CARTER SCOTT
DESIGN

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REVISIONS	DATE
2ND SUBMISSION	06/07/2019
3RD SUBMISSION	**06/04/2020**
4TH SUBMISSION	09/28/2020
5TH SUBMISSION	10/22/2020
6TH SUBMISSION	11/03/2020

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

CONCEPTUAL MASSING

DRAWN BY:	J.B.
DESIGNED BY:	J.B.
DATE ISSUED:	06/19/2017
DWG.	
SCALE	
JOB NO.	VV6045X
SHEET NO.	**A-02**

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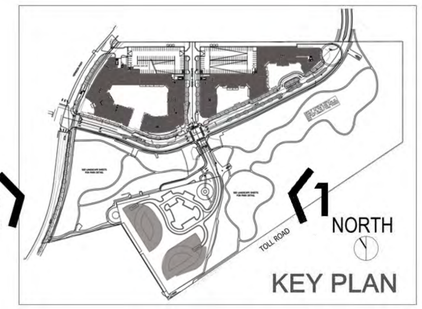
1 VIEW FROM TOLL ROAD



2 VIEW FROM HERNDON PARKWAY



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COMMONWEALTH OF VIRGINIA
DOUGLAS N. CARTER
Lic. No. 3435
ARCHITECT

REVISIONS	DATE
2ND SUBMISSION	06/07/2019
3RD SUBMISSION	06/04/2020
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5TH SUBMISSION	10/22/2020
6TH SUBMISSION	11/03/2020

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

AERIAL VIEWS

DRAWN BY: J.B.
DESIGNED BY: J.B.
DATE ISSUED: 06/19/2017
DWG. SCALE
JOB NO. W6045X
SHEET NO. **A - 03**

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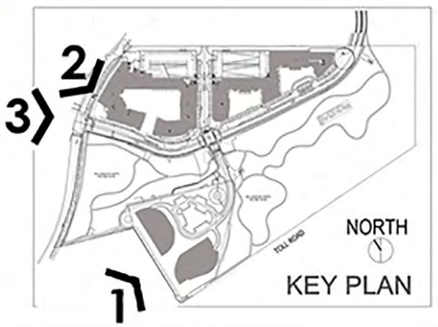
1 OFFICE TOWERS



2 GATEWAY PLAZA



3 VIEW FROM HERNDON PARKWAY



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COMMONWEALTH OF VIRGINIA
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FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

ARCHITECTURAL RENDERINGS

DRAWN BY:	J.B.
DESIGNED BY:	J.B.
DATE ISSUED:	06/19/2017
DWG. SCALE	
JOB NO.	VV604SX
SHEET NO.	A-04

FILE: C:\Users\jbyler\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\DHE4SFUZ\604SX_COVA_TITLE.dwg USER: jbyler DATE: June 5, 2019 TIME: 2:41:18 PM LAYOUT: Model



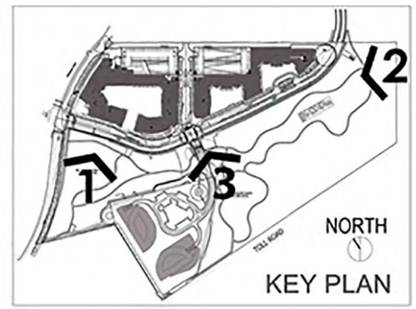
1 VIEW FROM THE PARK



2 VIEW FROM FAIRFAX PARKWAY



3 VIEW FROM FAIRBROOK DRIVE



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COMMONWEALTH OF VIRGINIA
DOUGLAS N. CARTER
Lic. No. 3435
ARCHITECT

REVISIONS	DATE
2ND SUBMISSION	06/07/2019
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6TH SUBMISSION	11/03/2020

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

ARCHITECTURAL RENDERINGS

DRAWN BY: J.B.
DESIGNED BY: J.B.
DATE ISSUED: 06/19/2017
DWG. SCALE
JOB NO. VV604SX
SHEET NO. A-05

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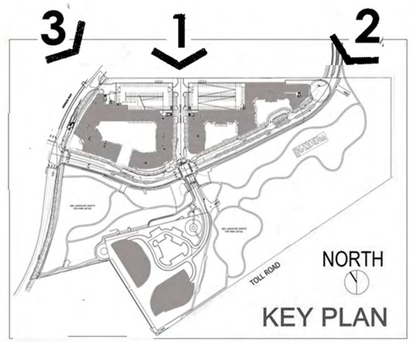
1 VIEW THROUGH PRIVATE ROAD A



2 VIEW FROM NORTH EAST CORNER



3 VIEW FROM NORTH WEST CORNER



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COMMONWEALTH OF VIRGINIA
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REVISIONS	DATE
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3RD SUBMISSION	06/04/2020
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6TH SUBMISSION	11/03/2020

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON, VIRGINIA

ARCHITECTURAL RENDERINGS

DRAWN BY: J.B.
DESIGNED BY: J.B.
DATE ISSUED: 06/19/2017
DWG. SCALE
JOB NO. VV6045X
SHEET NO. A-06

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NOTES

1. LANDSCAPE PLAN IS ILLUSTRATIVE AND PROVIDED TO CONVEY INTENT AND OVERALL QUALITY OF THE PROPOSED FEATURES; FINAL FEATURE AND AMENITY MIX IS SUBJECT TO CHANGE AT TIME OF FINAL CONSTRUCTION DOCUMENTS AND UNLESS WAIVED, SHALL MEET ALL REQUIREMENTS OF SECTION 78-110.3 (SITE LANDSCAPING).
2. PER SECTION 78-40.6(c) (1)(f), A MINIMUM OF 50% OF THE SITE SHALL BE OPEN SPACE. PER SECTION 78-113.2 (OPEN SPACE), DESIGNATED OPEN SPACE AREAS MAY INCLUDE:
   - PRESERVED WETLANDS AREAS
   - AT-GRADE LANDSCAPE AREAS
   - ACTIVE AND PASSIVE ROOF TOP AMENITY AREAS
   - HARDSCAPED COURTYARD AREAS
   - STREETSCAPE ELEMENTS MEETING TOWN OF HERNDON REQUIREMENTS
3. PARKS AREAS WILL BE CONSTRUCTED IN PHASES:
   - PARK A:
     DELIVERED WITH BUILDING 3.
     TO INCLUDE RECREATION OPPORTUNITIES- HIKING TRAILS, EDUCATION STATIONS, SCULPTURES, DOG PARK, AND/OR EXERCISE STATIONS.
   - PARK B:
     DELIVERED WITH BUILDINGS 4.
     TO INCLUDE RECREATION OPPORTUNITIES - HIKING TRAILS, EDUCATION STATIONS, SCULPTURES, DOG PARK, AND/OR EXERCISE STATIONS.
     ALSO INCLUDES STREAM RELOCATION AND RESTORATION.
   - PARK C:
     DELIVERED WITH FINAL BUILDING CONSTRUCTION PHASE OF BUILDINGS 1 AND 2, WHICHEVER OCCURS LAST.
     TO INCLUDE RECREATION OPPORTUNITIES - HIKING TRAILS, EDUCATION STATIONS, SCULPTURES, DOG PARK AND/OR EXERCISE STATIONS.
4. PARK AREAS WILL BE SUPPLEMENTED WITH PLANTINGS TO ENHANCE AND AND RESTORE NATURAL ECOSYSTEMS.
5. INVASIVE SPECIES SHALL BE REMOVED W/ EACH PHASE OF CONSTRUCTION.

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

VIKA VIRGINIA, LLC
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Tysons, VA 22102
703.442.7800 | vika.com

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V 11.00

PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

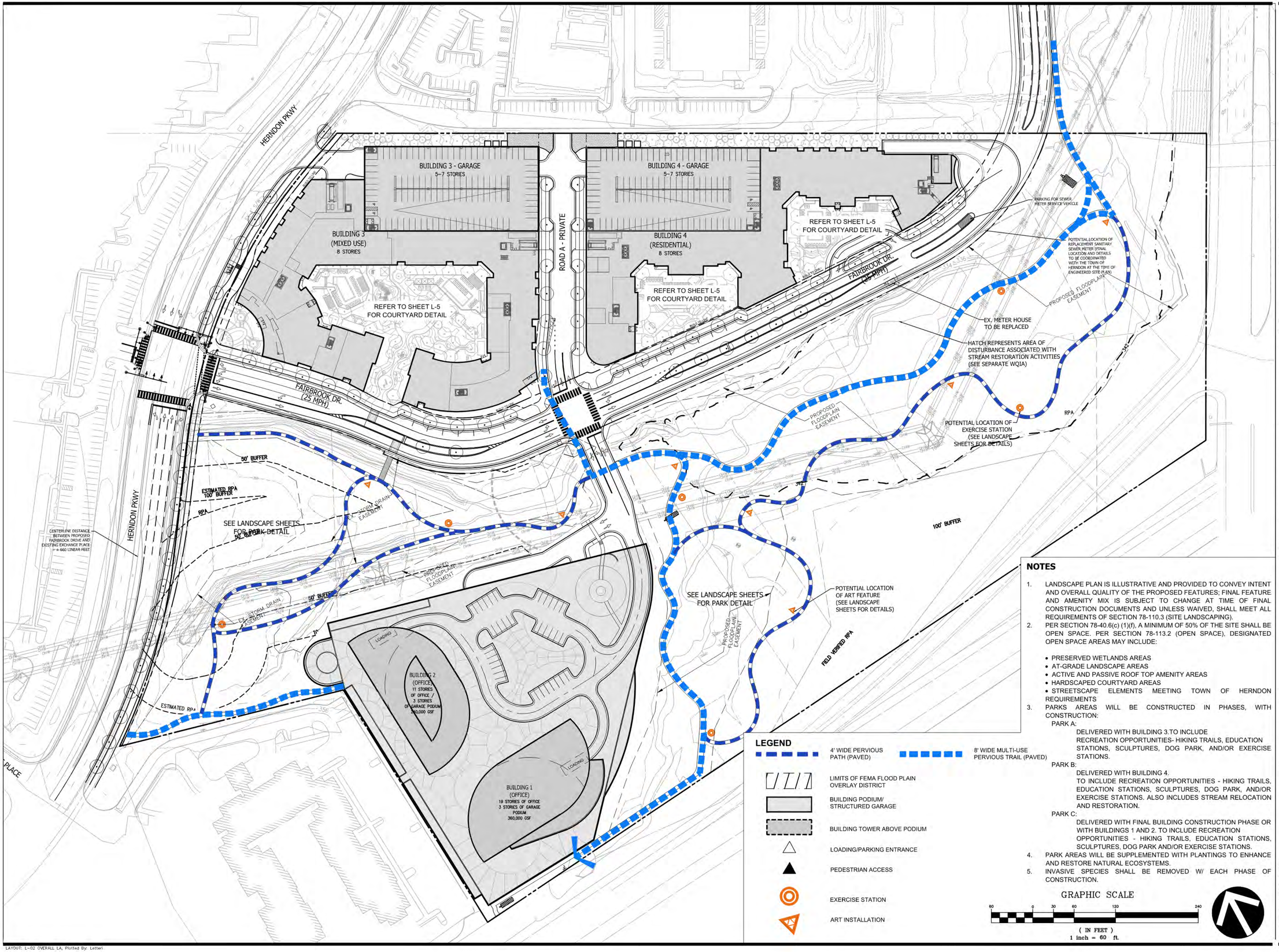
TOWN OF HERNDON,
VIRGINIA

OVERALL ILLUSTRATIVE

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1" = 60'
VIKA NO.	VV6045X
SHEET NO.	L-01

FILE: P:\projects\6045\6045X\CAD\VP_PLANNING\VP_PLANNING DRAWINGS\6045X_L-01 ILLUSTRATIVE.dwg DSER: Letteri DATE: November 3, 2020 TIME: 12:35:55 PM LAYOUT: L-01 ILLUSTRATIVE

LAYOUT: L-01 ILLUSTRATIVE, Plotted By: Letteri



LEGEND

- 4' WIDE PERVIOUS PATH (PAVED)
- 8' WIDE MULTI-USE PERVIOUS TRAIL (PAVED)
- LIMITS OF FEMA FLOOD PLAIN OVERLAY DISTRICT
- BUILDING PODIUM/ STRUCTURED GARAGE
- BUILDING TOWER ABOVE PODIUM
- LOADING/PARKING ENTRANCE
- PEDESTRIAN ACCESS
- EXERCISE STATION
- ART INSTALLATION

NOTES

1. LANDSCAPE PLAN IS ILLUSTRATIVE AND PROVIDED TO CONVEY INTENT AND OVERALL QUALITY OF THE PROPOSED FEATURES; FINAL FEATURE AND AMENITY MIX IS SUBJECT TO CHANGE AT TIME OF FINAL CONSTRUCTION DOCUMENTS AND UNLESS WAIVED, SHALL MEET ALL REQUIREMENTS OF SECTION 78-110.3 (SITE LANDSCAPING).
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   - HARDSCAPED COURTYARD AREAS
   - STREETSCAPE ELEMENTS MEETING TOWN OF HERNDON REQUIREMENTS
3. PARKS AREAS WILL BE CONSTRUCTED IN PHASES, WITH CONSTRUCTION:
   - PARK A: DELIVERED WITH BUILDING 3.TO INCLUDE RECREATION OPPORTUNITIES- HIKING TRAILS, EDUCATION STATIONS, SCULPTURES, DOG PARK, AND/OR EXERCISE STATIONS.
   - PARK B: DELIVERED WITH BUILDING 4. TO INCLUDE RECREATION OPPORTUNITIES - HIKING TRAILS, EDUCATION STATIONS, SCULPTURES, DOG PARK, AND/OR EXERCISE STATIONS. ALSO INCLUDES STREAM RELOCATION AND RESTORATION.
   - PARK C: DELIVERED WITH FINAL BUILDING CONSTRUCTION PHASE OR WITH BUILDINGS 1 AND 2. TO INCLUDE RECREATION OPPORTUNITIES - HIKING TRAILS, EDUCATION STATIONS, SCULPTURES, DOG PARK AND/OR EXERCISE STATIONS.
4. PARK AREAS WILL BE SUPPLEMENTED WITH PLANTINGS TO ENHANCE AND RESTORE NATURAL ECOSYSTEMS.
5. INVASIVE SPECIES SHALL BE REMOVED W/ EACH PHASE OF CONSTRUCTION.

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
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4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

OVERALL LANDSCAPE & PARK PLAN

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1" = 60'
VIKA NO.	VV6045X
SHEET NO.	L-02

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_L-02 OVERALL LANDSCAPE.dwg USER: Letteri DATE: November 3, 2020 TIME: 12:39:06 PM LAYOUT: L-02 OVERALL LA



VISION STATEMENT:

SITUATED BETWEEN THE HERNDON TRANSIT ORIENTED CORE AND SIGNIFICANT OPEN SPACE, FAIRBROOK MIXED-USE DEVELOPMENT IS INSPIRED BY BOTH URBAN AND NATURAL ELEMENTS TO CREATE ONE COHESIVE LANDSCAPE FOR AN IDEAL RESIDENTIAL LOCATION. A WATER STORY THEME INSPIRED BY THE SUGARLAND RUN STREAM VALLEY PARK WILL BE WOVEN INTO THE BUILT ENVIRONMENT TO CRAFT THE FRAMEWORK FOR ACTIVITIES, GREEN INFRASTRUCTURE, AND OVERALL CHARACTER.

THE PROJECT IS UNIQUELY POSITIONED TO BECOME THE GATEWAY TO HERNDON FOR COMMUTERS, VISITORS AND RESIDENTS. CENTRALLY LOCATED WITHIN 1/2 MILE BETWEEN THE W&OD TRAIL TO THE EAST AND THE HERNDON METRO STATION TO THE WEST, FAIRBROOK IS WELL CONNECTED TO MULTIPLE MODES OF TRANSPORTATION AS WELL AS OUTDOOR AMENITIES AND ACTIVE RECREATION THAT WILL SUPPORT WALKABILITY AND PEDESTRIAN CONNECTIVITY THROUGHOUT THE SITE. PUBLICLY ACCESSIBLE PLAZAS, MULTIPLE TYPES OF STREETSCAPE, EXPERIENTIAL CORRIDORS AND TRAILS WILL BE BALANCED WITH PRIVATE AMENITIES AND TERRACES DESIGNED FOR A COMPETITIVE OFFICE, RESIDENTIAL AND RETAIL MARKET DEMAND. THE ACCESS TO SUGARLAND RUN STREAM VALLEY PARK TRAILS AND OPEN SPACE WILL PROMOTE HEALTHY AND ACTIVE LIFESTYLES, AND THE WELL-DEFINED ENTRY POINTS WILL ENCOURAGE USE BY ALL RESIDENTS AND EMPLOYEES.

THE LANDSCAPE AND HARDSCAPE MATERIALS TO BE USED WILL BE OF HIGH QUALITY AND DESIGN TO REFLECT THE SPIRIT OF THE HTOC GUIDELINES AND CREATE A UNIQUE OFFERING FOR THE TOWN.

LandDesign.
200 S. PEYTON STREET
ALEXANDRIA, VA 22314
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KEY MAP

COMMONWEALTH OF VIRGINIA
STEPHANIE PANKIEWICZ
Lic. No. 1825
11-03-2020
LANDSCAPE ARCHITECT

SEAL

PROJECT

FAIRBROOK SPECIAL EXCEPTION

QUADRANGLE

FAIRBROOK DRIVE

TOWN OF HERNDON

LANDDESIGN PROJ.#
2020048

REVISION / ISSUANCE

NO.	DESCRIPTION	DATE
1	SPECIAL EXCEPTION - 3RD SUBMISSION	06/04/2020
2	SPECIAL EXCEPTION - 4TH SUBMISSION	09/29/2020
3	SPECIAL EXCEPTION - 5TH SUBMISSION	11/03/2020

DESIGNED BY: JB
DRAWN BY: JB
CHECKED BY: JB/SP

SCALE

VERT: N/A
HORZ: 1"=60'

0 30' 60' 120'

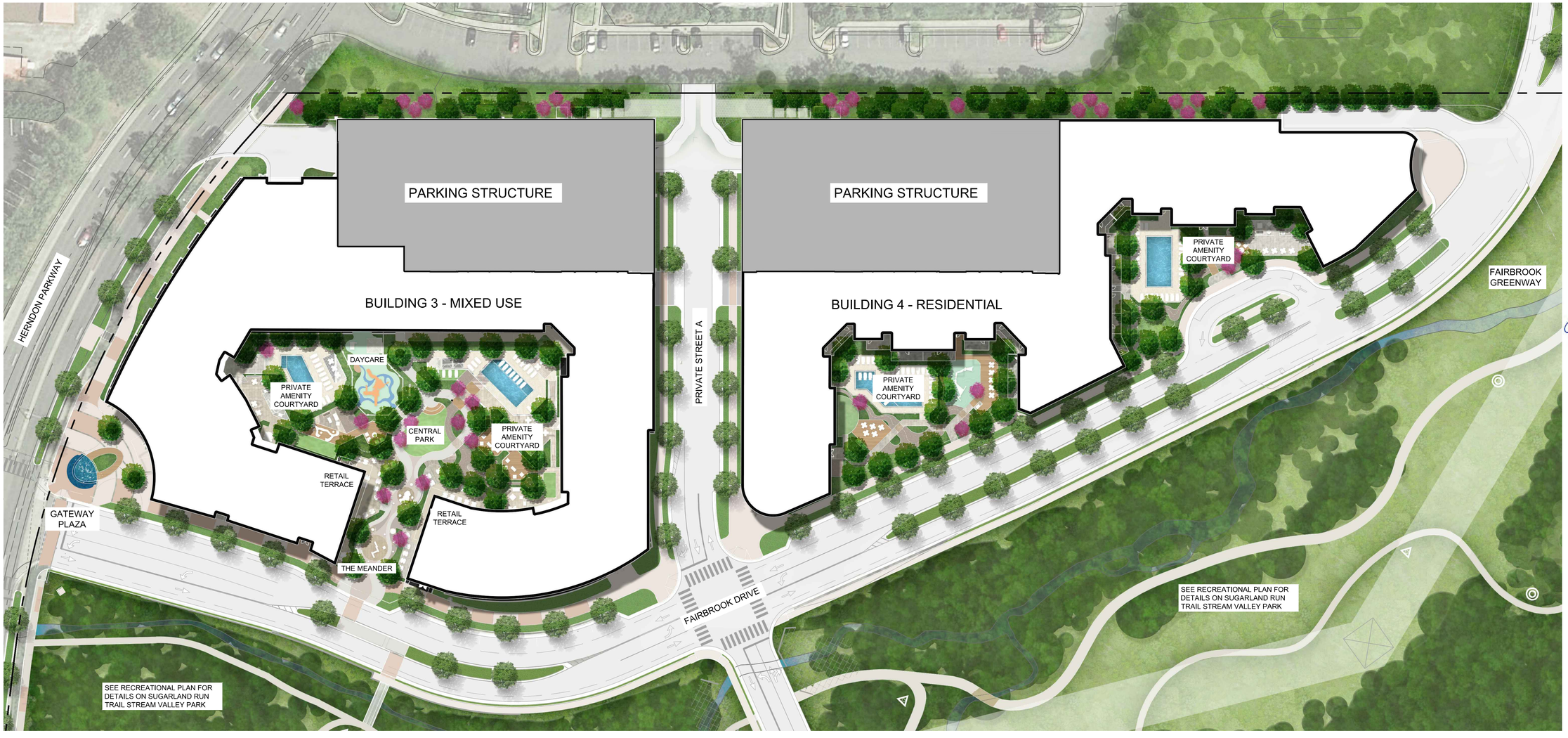
NORTH

SHEET TITLE

ILLUSTRATIVE OVERALL PLAN

SHEET NUMBER

L-03





GATEWAY PLAZA

NARRATIVE: THE PLAZA ON THE CORNER OF HERNDON PARKWAY AND FAIRBROOK DRIVE WILL BE AN AMENIZTED URBAN SPACE THAT WILL FEATURE HARDSCAPE ACCENTING THE SPECIAL PAVING OF THE STREETSCAPE AND FEATURE A FOCAL ART / WATER FEATURE IN THE CENTER. THE FOCAL FEATURE WILL BE EXPLORED IN FUTURE ENTITLEMENT SUBMISSIONS.



THE MEANDER AND CENTRAL PARK PUBLIC SPACE

NARRATIVE: BUILDING 3 HAS AN OPENING TO THE SOUTH ALONG FAIRBROOK DRIVE. THIS ARCHITECTURAL DECISION PROVIDES AN AMENITIZED CORRIDOR FROM THE PARKING GARAGE TO THE NORTH MOVING SOUTH TOWARDS THE RETAIL AND SUGARLAND RUN TRAIL OPEN SPACE. THIS AREA WILL BE AMENITIZED WITH OPEN GREEN SPACE, SEATING, INTERACTIVE ELEMENTS, AND LANDSCAPING TO PROVIDE AN EXPERIENCE MOVING THROUGH THE SPACE.



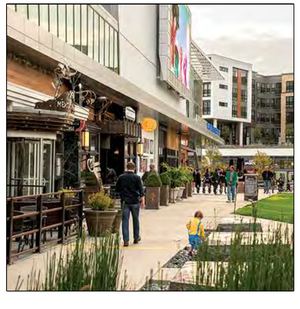
STREETSCAPE - RETAIL / FAIRBROOK DRIVE WEST

NARRATIVE: THE PORTION OF FAIRBROOK DRIVE LINED WITH RETAIL WILL FOLLOW THE SPIRIT OF THE HTOC GUIDELINES TO INTRODUCE SPECIAL PAVING WITHIN THE SIDEWALK AREA. THESE SIDEWALKS WILL BE AMENITIZED WITH HTOC GUIDELINE SPECIFIED FURNISHINGS AS WELL AS OTHER FURNISHINGS SUCH AS PLANTER POTS TO ACTIVATE THESE ZONES. THE PLANTING VERGE WILL BE FOCUSED ON LUSH AND NATIVE PLANTINGS. THESE FURNISHINGS AND HARDSCAPE SELECTIONS WILL BE EXPLORED IN FUTURE ENTITLEMENT SUBMISSIONS.



STREETSCAPE - RESIDENTIAL / FAIRBROOK DRIVE EAST/ PRIVATE DRIVE

NARRATIVE: THE PORTION OF FAIRBROOK DRIVE TO THE EAST AND THE PRIVATE DRIVE BETWEEN BUILDING 3 AND 4 SHALL CONFORM TO THE STANDARD STREETSCAPE GUIDELINES OF THE TOWN OF HERNDON. SITE FURNISHINGS SHALL MATCH SELECTIONS USED ELSEWHERE ON SITE AS WELL AS PLANTINGS SHALL BE LUSH AND NATIVE TO CREATE A MORE COHESIVE PALETTE AND DESIGN.



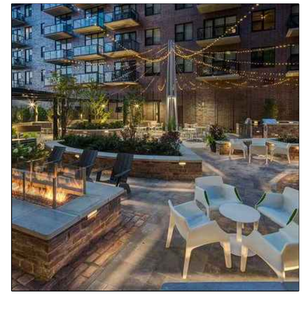
RETAIL - DINING TERRACE

NARRATIVE: RETAIL TENANTS ADJACENT TO THE EXPERIENTIAL CORRIDOR SHALL, IF DETERMINED TO BE FOOD/BEVERAGE ORIENTED, HAVE PRIVATE TERRACES FRONTING THE EXPERIENTIAL CORRIDOR. THESE TERRACES SHALL BE AMENITIZED TO BE EXPERIENCED AS DINING IN THE PARK SPACE, AND FACILITATE ACTIVATING THE PUBLIC REALM. RETAIL USES ARE SUSCEPTIBLE TO FUTURE CHANGES AND TERRACE SIZES MAY CHANGE IN RELATIONSHIP TO USE.



DAYCARE - OUTDOOR PLAY AREA

NARRATIVE: THE OUTDOOR PLAY AREA SHALL BE THEMED TO BE COMPLIMENTARY TO THE NATURAL AND ARCHITECTURAL ELEMENTS USED, THE PRIVATE USE AND PLAY EQUIPMENT SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY - AND SHALL BE DETERMINED BY DAYCARE FACILITY / OPERATOR.



RESIDENTIAL - PRIVATE AMENITY SPACES

NARRATIVE: THE PRIVATE SPACES WITHIN THE COURTYARDS OF BUILDING 3 AND 4 SHALL BE DESIGNED TO INCLUDE A VARIETY OF AMENITIES FOR THE RESIDENTS, INCLUDING BUT NOT LIMITED TO: POOLS, OUTDOOR LOUNGES, DINING SPACES, SOCIAL NODES, AND ACTIVE LAWN PANELS. THE DESIGN PROVIDE IS FOR ILLUSTRATIVE PURPOSES ONLY AND WILL BE FINALIZED IN FUTURE ENTITLEMENT SUBMISSIONS.

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KEY MAP

COMMONWEALTH OF VIRGINIA
STEPHANIE PANKIEWICZ
Lic. No. 1825
11-03-2020
LANDSCAPE ARCHITECT

SEAL

PROJECT

FAIRBROOK SPECIAL EXCEPTION

QUADRANGLE

FAIRBROOK DRIVE

TOWN OF HERNDON

LANDDESIGN PROJ.#

2020048

REVISION / ISSUANCE

NO.	DESCRIPTION	DATE
1	SPECIAL EXCEPTION - 3RD SUBMISSION	06/04/2020
2	SPECIAL EXCEPTION - 4TH SUBMISSION	09/29/2020
3	SPECIAL EXCEPTION - 5TH SUBMISSION	11/03/2020

DESIGNED BY: JB
DRAWN BY: JB
CHECKED BY: JB/SP

SCALE

NORTH

VERT: N/A
HORZ: 1"=40'

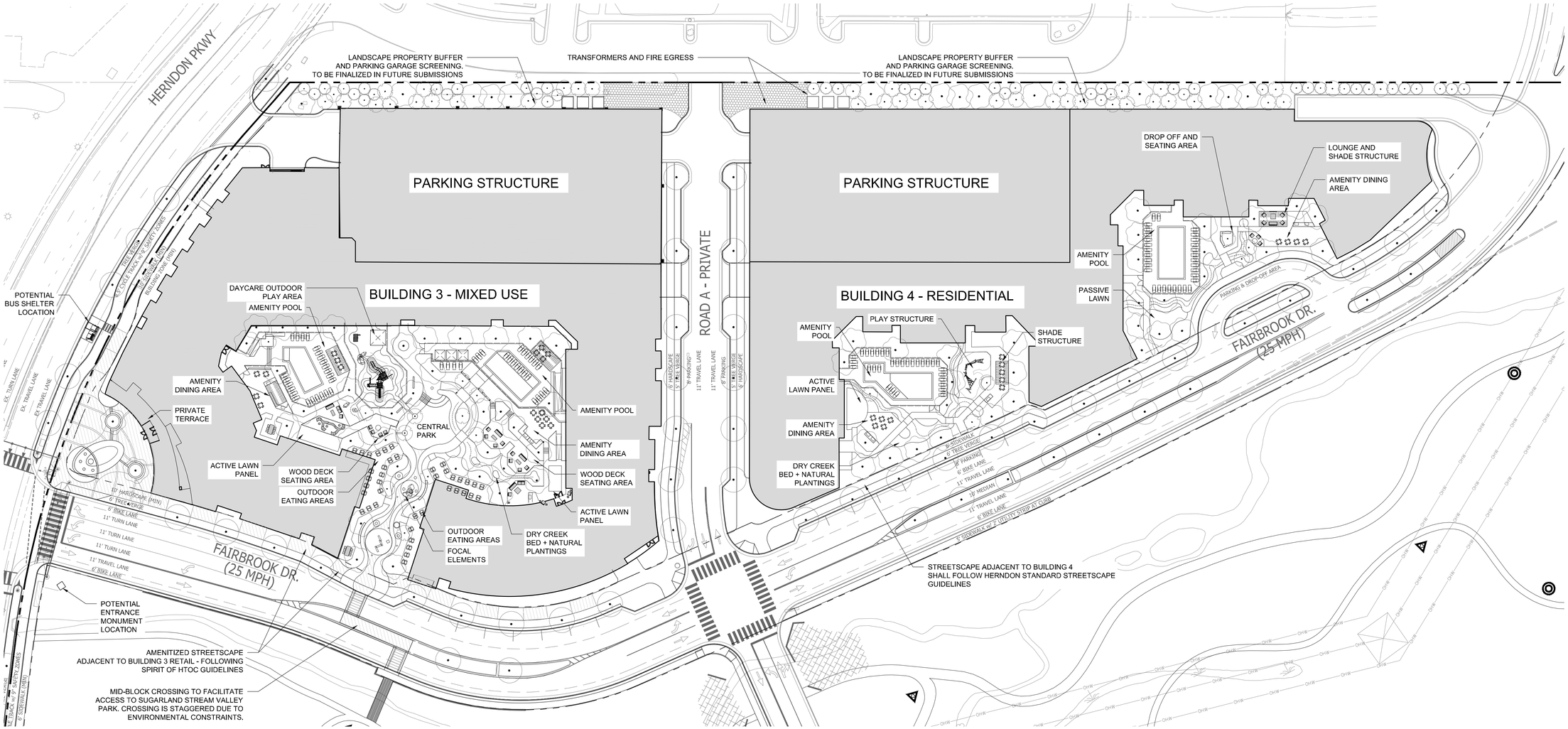
0 20' 40' 80'

SHEET TITLE

ILLUSTRATIVE LANDSCAPE PLAN - ENLARGEMENT

SHEET NUMBER

L-04



LANDSCAPE NARRATIVE:

THE DESIGN OF THE PUBLIC AND PRIVATE SPACES SHOWN ARE TO PROVIDE INTENT OF SPACE DESIGN ONLY. THESE AREAS ARE SUBJECT TO CHANGES OF FINAL DESIGN IN THE FUTURE. AMENITIES AND USES WITHIN THE PRIVATE AREAS MAY VARY.

PLANTING LEGEND

- PROPOSED - STREET TREE - 40' O.C. TYPICAL
- PROPOSED - CANOPY TREE
- PROPOSED - SPECIMEN TREE

HATCH LEGEND

- SPECIAL PAVING - TO MATCH DESIGN INTENT OF HTOC DESIGN GUIDELINES. FINAL LOCATIONS AND QUANTITIES TO BE FINALIZED IN FUTURE SUBMISSIONS.

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KEY MAP

SEAL

COMMONWEALTH OF VIRGINIA
STEPHANIE PANKIEWICZ
Lic. No. 1825
11-03-2020
LANDSCAPE ARCHITECT

PROJECT

FAIRBROOK SPECIAL EXCEPTION

QUADRANGLE

FAIRBROOK DRIVE

TOWN OF HERNDON

LANDDESIGN PROJ.#

2020048

REVISION / ISSUANCE

NO.	DESCRIPTION	DATE
1	SPECIAL EXCEPTION - 3RD SUBMISSION	06/04/2020
2	SPECIAL EXCEPTION - 4TH SUBMISSION	09/29/2020
3	SPECIAL EXCEPTION - 5TH SUBMISSION	11/03/2020

DESIGNED BY: JB
DRAWN BY: JB
CHECKED BY: JB/SP

SCALE

VERT: N/A
HORZ: 1"=40'

0 20' 40' 80'

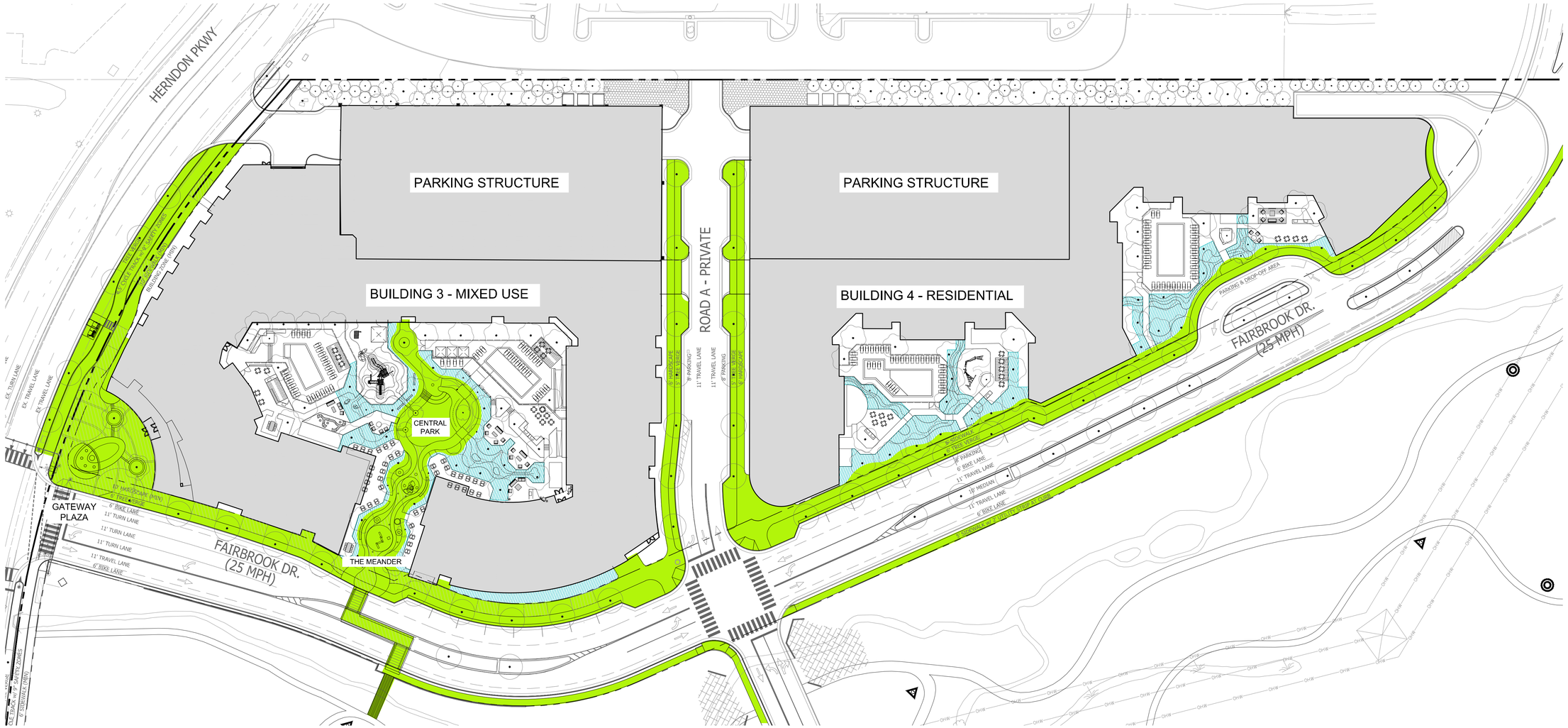
NORTH

SHEET TITLE

LANDSCAPE PLAN - ENLARGEMENT

SHEET NUMBER

L-05


HERNDON PKWY
PARKING STRUCTURE
PARKING STRUCTURE
BUILDING 3 - MIXED USE
BUILDING 4 - RESIDENTIAL
ROAD A - PRIVATE
CENTRAL PARK
THE MEANDER
GATEWAY PLAZA
FAIRBROOK DR. (25 MPH)
FAIRBROOK DR. (25 MPH)
PARKING & DROP-OFF AREA
EX. TURN LANE
EX. TRAVEL LANE
EX. TRAVEL LANE
11' TURN LANE
11' TURN LANE
11' TRAVEL LANE
6' BIKE LANE
6' BIKE LANE
11' TRAVEL LANE
11' TRAVEL LANE
7' PARKING
6' BIKE LANE
11' TRAVEL LANE
18' MEDIAN
11' TRAVEL LANE
6' BIKE LANE
8' PARKING
6' BIKE LANE
11' TRAVEL LANE
6' LANDSCAPE
6' SIDEWALK
6' LANDSCAPE
6' SIDEWALK
6' LANDSCAPE
6' SIDEWALK

KEY MAP



NOTES:
1. ALL DRAWINGS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO CHANGE PER FINAL ARCHITECTURE, CIVIL, AND SITE DESIGN.
2. DRAWINGS ARE NOT FOR CONSTRUCTION.



1 PEDESTRIAN EXPERIENCE - GATEWAY PLAZA



2 PEDESTRIAN EXPERIENCE - GATEWAY PLAZA

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PROJECT

FAIRBROOK SPECIAL EXCEPTION

QUADRANGLE

FAIRBROOK DRIVE

TOWN OF HERNDON

LANDDESIGN PROJ.#
2020048

REVISION / ISSUANCE

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3	SPECIAL EXCEPTION - 5TH SUBMISSION	11/03/2020

DESIGNED BY: JB
DRAWN BY: JB
CHECKED BY: JB/SP

SCALE
VERT: N/A
HORZ: NTS
(NOT TO SCALE)

NORTH

SHEET TITLE

LANDSCAPE PERSPECTIVES

SHEET NUMBER

L-07

KEY MAP



NOTES:
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3 PEDESTRIAN EXPERIENCE - THE MEANDER



4 PEDESTRIAN EXPERIENCE - CENTRAL PARK

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KEY MAP

COMMONWEALTH OF VIRGINIA
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11-03-2020
LANDSCAPE ARCHITECT

SEAL

PROJECT

FAIRBROOK SPECIAL EXCEPTION

QUADRANGLE

FAIRBROOK DRIVE

TOWN OF HERNDON

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2020048

REVISION / ISSUANCE

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3	SPECIAL EXCEPTION - 5TH SUBMISSION	11/03/2020

DESIGNED BY: JB
DRAWN BY: JB
CHECKED BY: JB/SP

SCALE

VERT: N/A
HORZ: NTS
(NOT TO SCALE)

NORTH

SHEET TITLE

LANDSCAPE PERSPECTIVES

SHEET NUMBER

L-08

KEY MAP



NOTES:
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5 PEDESTRIAN EXPERIENCE - RESIDENTIAL STREETSCAPE



6 PEDESTRIAN EXPERIENCE - RESIDENTIAL PRIVATE AMENITY

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11-03-2020
LANDSCAPE ARCHITECT

PROJECT

FAIRBROOK SPECIAL EXCEPTION

QUADRANGLE

FAIRBROOK DRIVE

TOWN OF HERNDON

LANDDESIGN PROJ.#
2020048

REVISION / ISSUANCE

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2	SPECIAL EXCEPTION - 4TH SUBMISSION	09/29/2020
3	SPECIAL EXCEPTION - 5TH SUBMISSION	11/03/2020

DESIGNED BY: JB
DRAWN BY: JB
CHECKED BY: JB/SP

SCALE
VERT: N/A
HORZ: NTS
(NOT TO SCALE)

NORTH

SHEET TITLE

LANDSCAPE PERSPECTIVES

SHEET NUMBER

L-09

KEY MAP



NOTES:
1. ALL DRAWINGS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO CHANGE PER FINAL ARCHITECTURE, CIVIL, AND SITE DESIGN.
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7 PEDESTRIAN EXPERIENCE - TRAIL BRIDGE CONNECTION



8 PEDESTRIAN EXPERIENCE - TRAIL AND OFFICE CONNECTIONS

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KEY MAP

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11-03-2020
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PROJECT

FAIRBROOK SPECIAL EXCEPTION

QUADRANGLE

FAIRBROOK DRIVE

TOWN OF HERNDON

LANDDESIGN PROJ.#
2020048

REVISION / ISSUANCE

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3	SPECIAL EXCEPTION - 5TH SUBMISSION	11/03/2020

DESIGNED BY: JB
DRAWN BY: JB
CHECKED BY: JB/SP

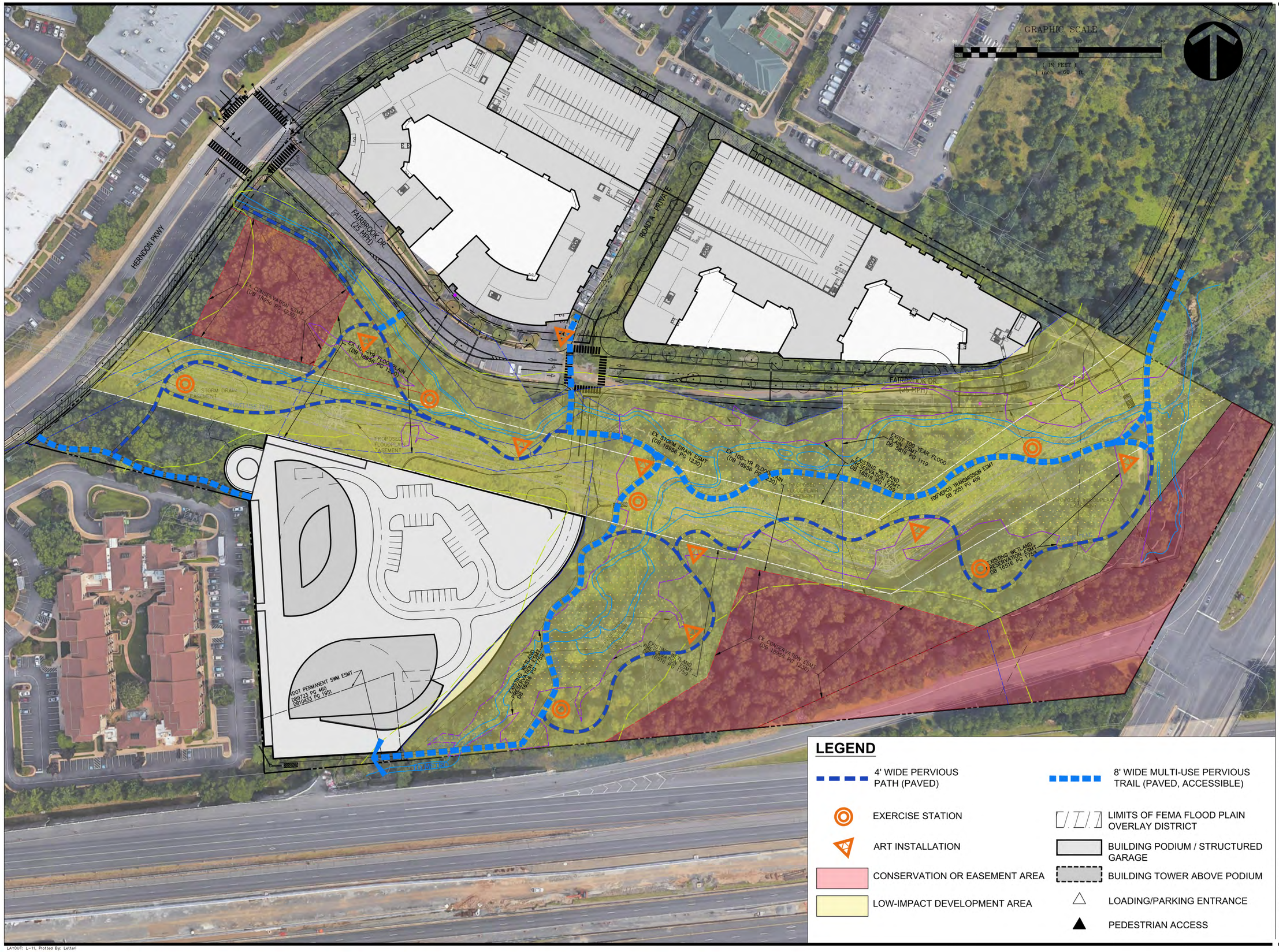
SCALE
NORTH
VERT: N/A
HORZ: NTS
(NOT TO SCALE)

SHEET TITLE

LANDSCAPE PERSPECTIVES

SHEET NUMBER

L-10



LEGEND

- 4' WIDE PERVIOUS PATH (PAVED)
- 8' WIDE MULTI-USE PERVIOUS TRAIL (PAVED, ACCESSIBLE)
- EXERCISE STATION
- ART INSTALLATION
- CONSERVATION OR EASEMENT AREA
- LOW-IMPACT DEVELOPMENT AREA
- LIMITS OF FEMA FLOOD PLAIN OVERLAY DISTRICT
- BUILDING PODIUM / STRUCTURED GARAGE
- BUILDING TOWER ABOVE PODIUM
- LOADING/PARKING ENTRANCE
- PEDESTRIAN ACCESS

LAYOUT: L-11, Plotted By: Letteri

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON, VIRGINIA

STREAM VALLEY PARK PLAN

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1" = 60'
VIKA NO.	VV6045X
SHEET NO.	L-11

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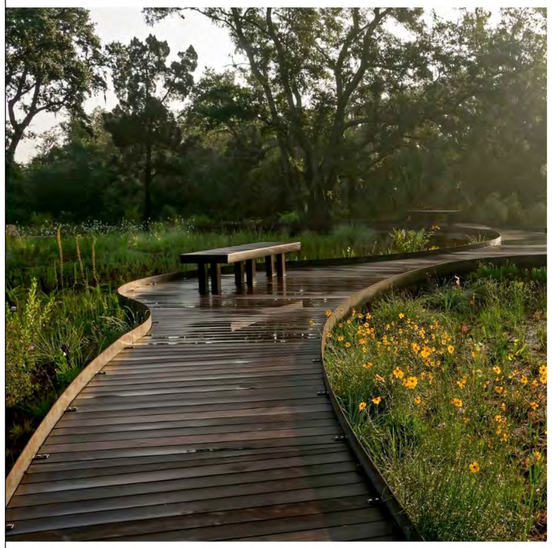
TRAIL SYSTEM













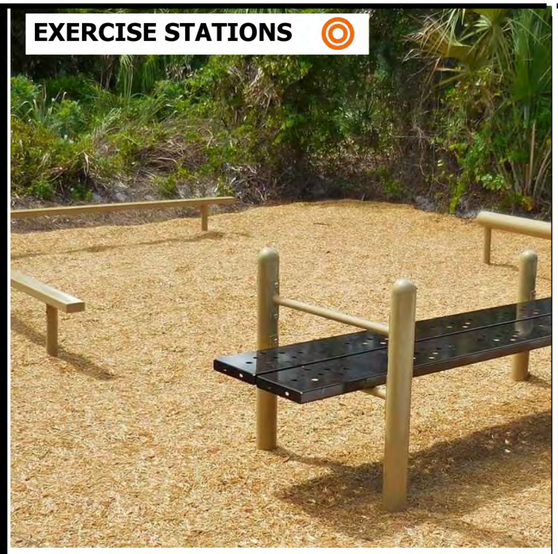
ARTS WALK







EXERCISE STATIONS







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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

STREAM VALLEY PARK CONCEPT IMAGES

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1" = 60'
VIKA NO.	VV6045X
SHEET NO.	L-12

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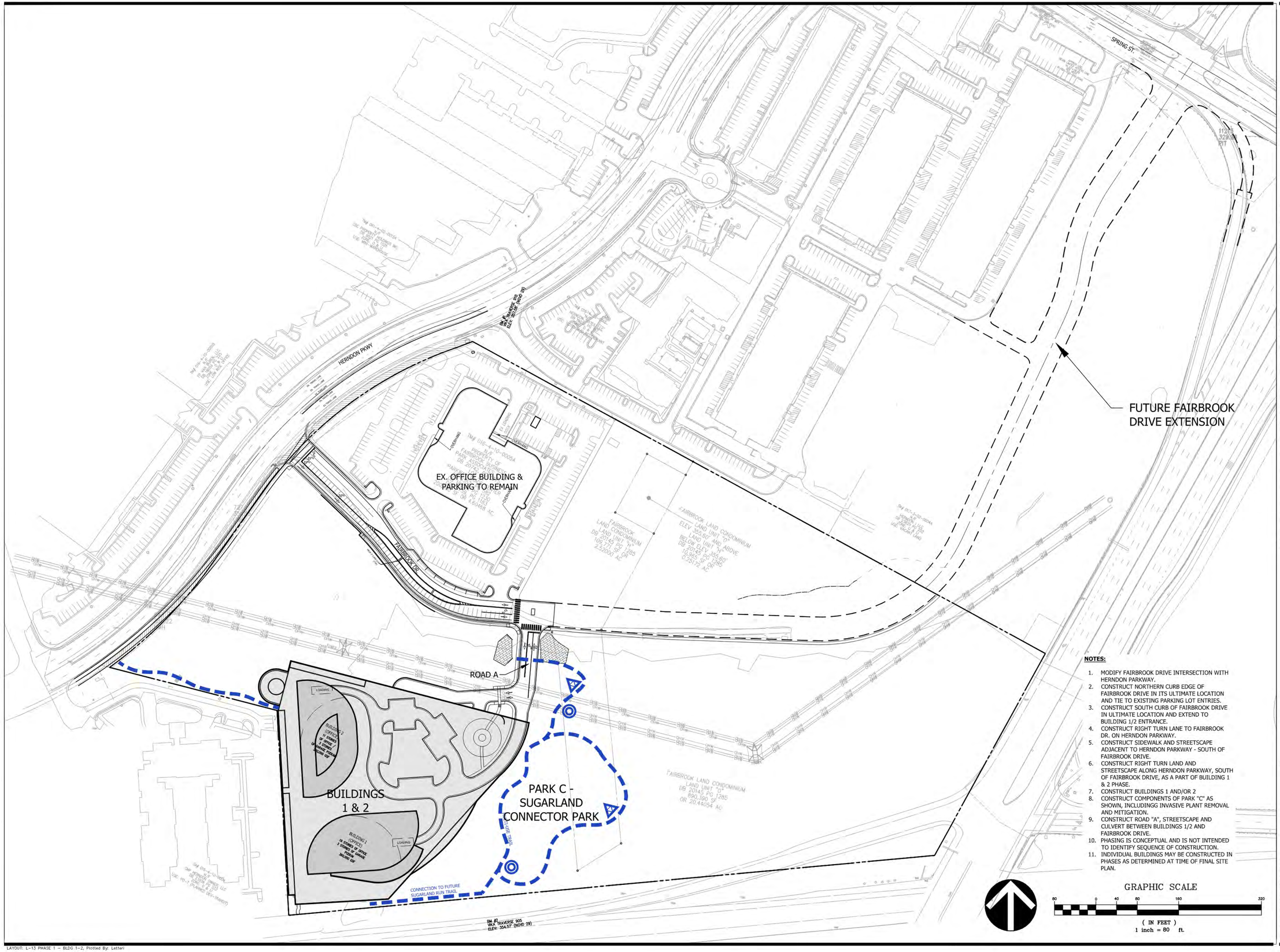
LAYOUT: L-12 IMAGES, Plotted By: Letteri



NOTES:

1. MODIFY FAIRBROOK DRIVE INTERSECTION WITH HERNDON PARKWAY.
2. CONSTRUCT NORTHERN CURB EDGE OF FAIRBROOK DRIVE IN ITS ULTIMATE LOCATION AND TIE TO EXISTING PARKING LOT ENTRIES.
3. CONSTRUCT SOUTH CURB OF FAIRBROOK DRIVE IN ULTIMATE LOCATION AND EXTEND TO BUILDING 1/2 ENTRANCE.
4. CONSTRUCT RIGHT TURN LANE TO FAIRBROOK DR. ON HERNDON PARKWAY.
5. CONSTRUCT SIDEWALK AND STREETSCAPE ADJACENT TO HERNDON PARKWAY - SOUTH OF FAIRBROOK DRIVE.
6. CONSTRUCT RIGHT TURN LAND AND STREETSCAPE ALONG HERNDON PARKWAY, SOUTH OF FAIRBROOK DRIVE, AS A PART OF BUILDING 1 & 2 PHASE.
7. CONSTRUCT BUILDINGS 1 AND/OR 2
8. CONSTRUCT COMPONENTS OF PARK "C" AS SHOWN, INCLUDINGG INVASIVE PLANT REMOVAL AND MITIGATION.
9. CONSTRUCT ROAD "A", STREETSCAPE AND CULVERT BETWEEN BUILDINGS 1/2 AND FAIRBROOK DRIVE.
10. PHASING IS CONCEPTUAL AND IS NOT INTENDED TO IDENTIFY SEQUENCE OF CONSTRUCTION.
11. INDIVIDUAL BUILDINGS MAY BE CONSTRUCTED IN PHASES AS DETERMINED AT TIME OF FINAL SITE PLAN.

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
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POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

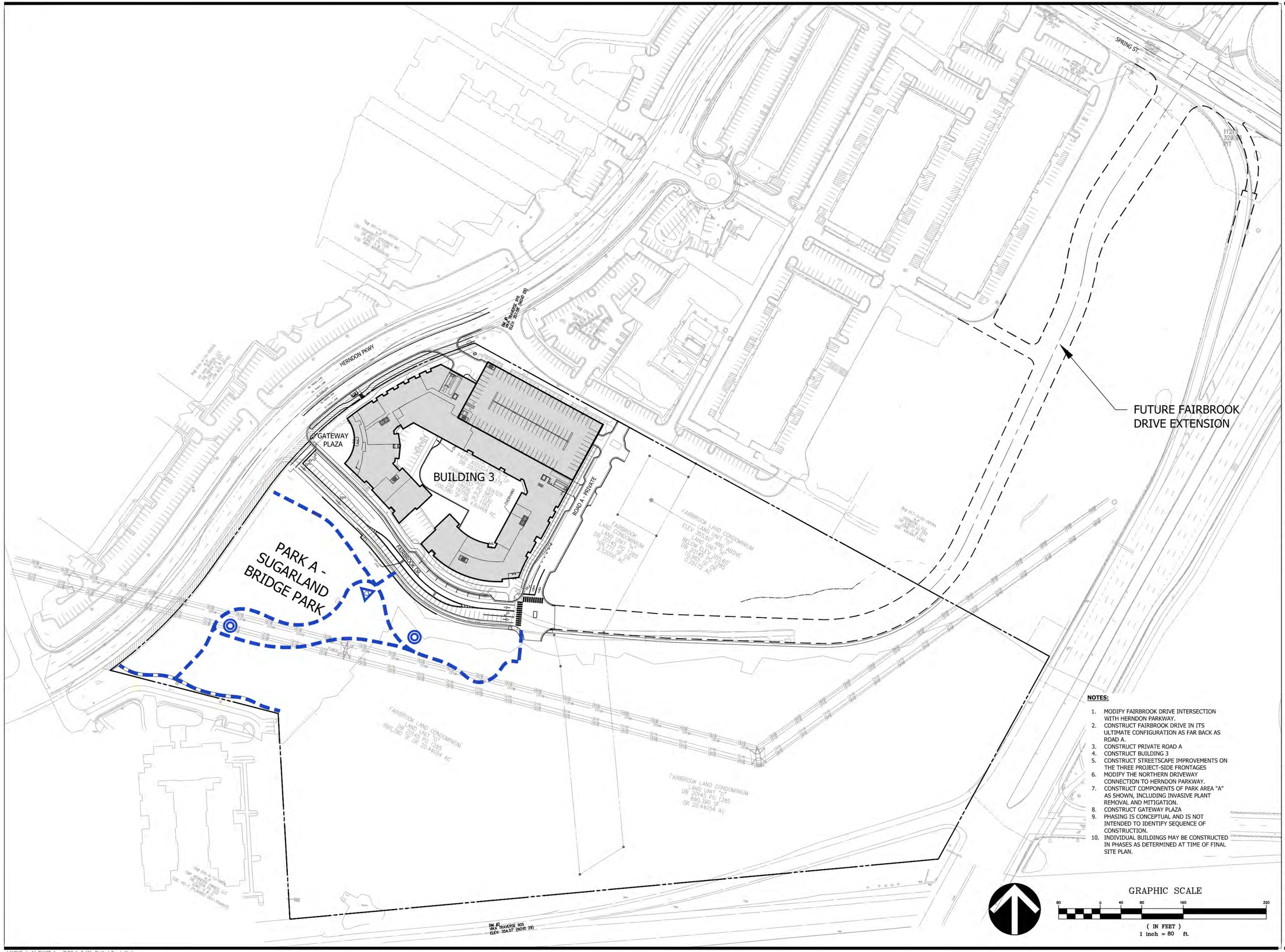
TOWN OF HERNDON, VIRGINIA

BUILDINGS 1/2 PHASE

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1" = 80'
VIKA NO.	VV6045X
SHEET NO.	L-13

FILE: P:\projects\VV6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_L-13 PHASING.dwg USER: Letteri DATE: November 3, 2020 TIME: 1:03:23 PM LAYOUT: L-13 PHASE 1 - BLDG 1-2

LAYOUT: L-13 PHASE 1 - BLDG 1-2, Plotted By: Letteri



NOTES:

1. MODIFY FAIRBROOK DRIVE INTERSECTION WITH HERNDON PARKWAY.
2. CONSTRUCT FAIRBROOK DRIVE IN ITS ULTIMATE CONFIGURATION AS FAR BACK AS ROAD A.
3. CONSTRUCT PRIVATE ROAD A
4. CONSTRUCT BUILDING 3
5. CONSTRUCT STREETSCAPE IMPROVEMENTS ON THE THREE PROJECT-SIDE FRONTAGES
6. MODIFY THE NORTHERN DRIVEWAY CONNECTION TO HERNDON PARKWAY.
7. CONSTRUCT COMPONENTS OF PARK AREA "A" AS SHOWN, INCLUDING INVASIVE PLANT REMOVAL AND MITIGATION.
8. CONSTRUCT GATEWAY PLAZA
9. PHASING IS CONCEPTUAL AND IS NOT INTENDED TO IDENTIFY SEQUENCE OF CONSTRUCTION.
10. INDIVIDUAL BUILDINGS MAY BE CONSTRUCTED IN PHASES AS DETERMINED AT TIME OF FINAL SITE PLAN.

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

LAYOUT: L-14 PHASE 1 - BLDG 1-2 (2), Plotted By: Letteri

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

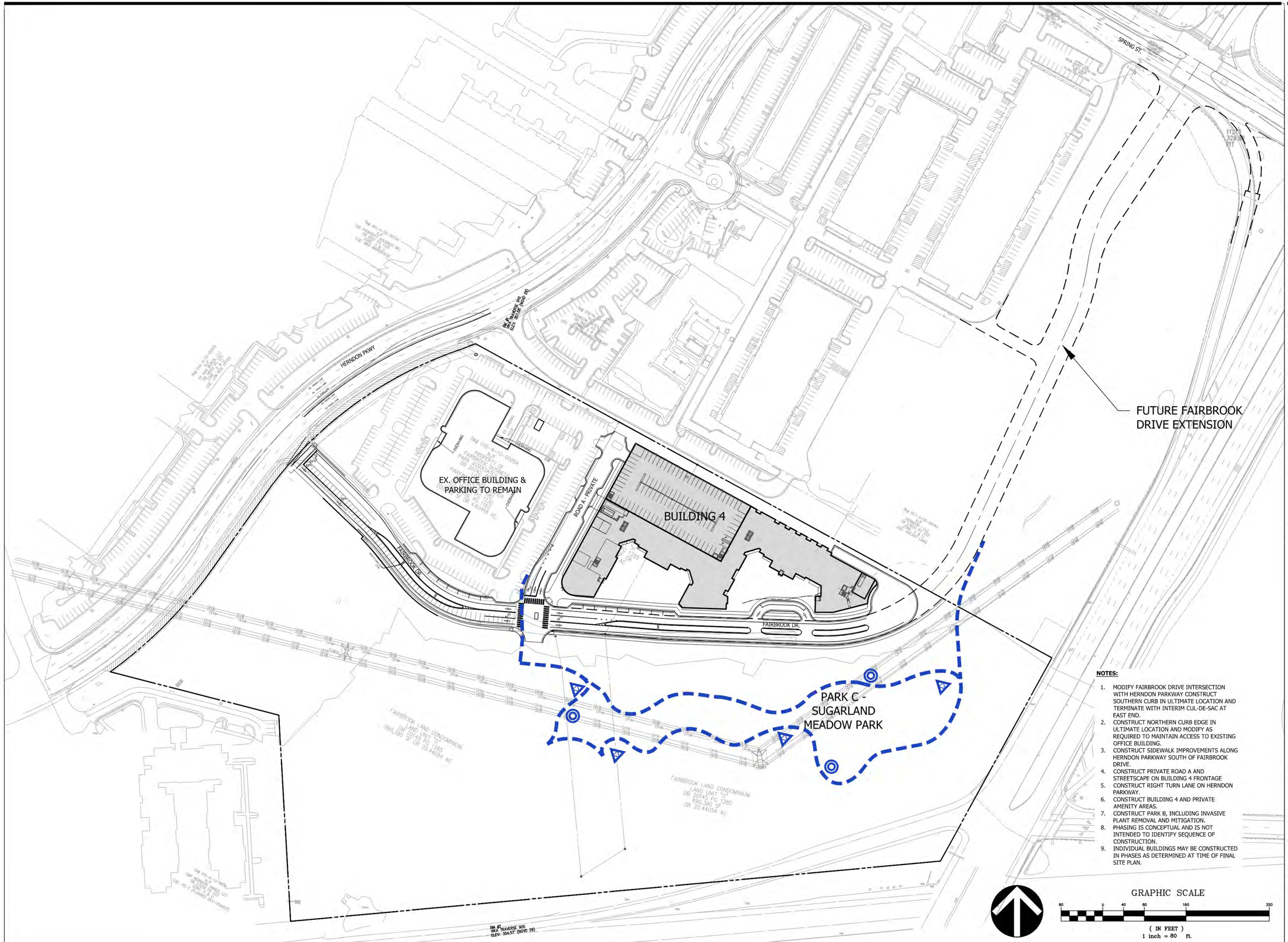
SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

BUILDING 3 PHASE

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1" = 80'
VIKA NO.	VV6045X
SHEET NO.	L-14

FILE: P:\projects\6045\6045X\CAD\PLANNING\PLANNING DRAWINGS\6045X_L-13-15 PHASING.dwg USER: Letteri DATE: November 3, 2020 TIME: 1:04:00 PM LAYOUT: L-14 PHASE 1 - BLDG 1-2 (2)



NOTES:

1. MODIFY FAIRBROOK DRIVE INTERSECTION WITH HERNDON PARKWAY CONSTRUCT SOUTHERN CURB IN ULTIMATE LOCATION AND TERMINATE WITH INTERIM CUL-DE-SAC AT EAST END.
2. CONSTRUCT NORTHERN CURB EDGE IN ULTIMATE LOCATION AND MODIFY AS REQUIRED TO MAINTAIN ACCESS TO EXISTING OFFICE BUILDING.
3. CONSTRUCT SIDEWALK IMPROVEMENTS ALONG HERNDON PARKWAY SOUTH OF FAIRBROOK DRIVE.
4. CONSTRUCT PRIVATE ROAD A AND STREETSCAPE ON BUILDING 4 FRONTAGE
5. CONSTRUCT RIGHT TURN LANE ON HERNDON PARKWAY.
6. CONSTRUCT BUILDING 4 AND PRIVATE AMENITY AREAS.
7. CONSTRUCT PARK B, INCLUDING INVASIVE PLANT REMOVAL AND MITIGATION.
8. PHASING IS CONCEPTUAL AND IS NOT INTENDED TO IDENTIFY SEQUENCE OF CONSTRUCTION.
9. INDIVIDUAL BUILDINGS MAY BE CONSTRUCTED IN PHASES AS DETERMINED AT TIME OF FINAL SITE PLAN.

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

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PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

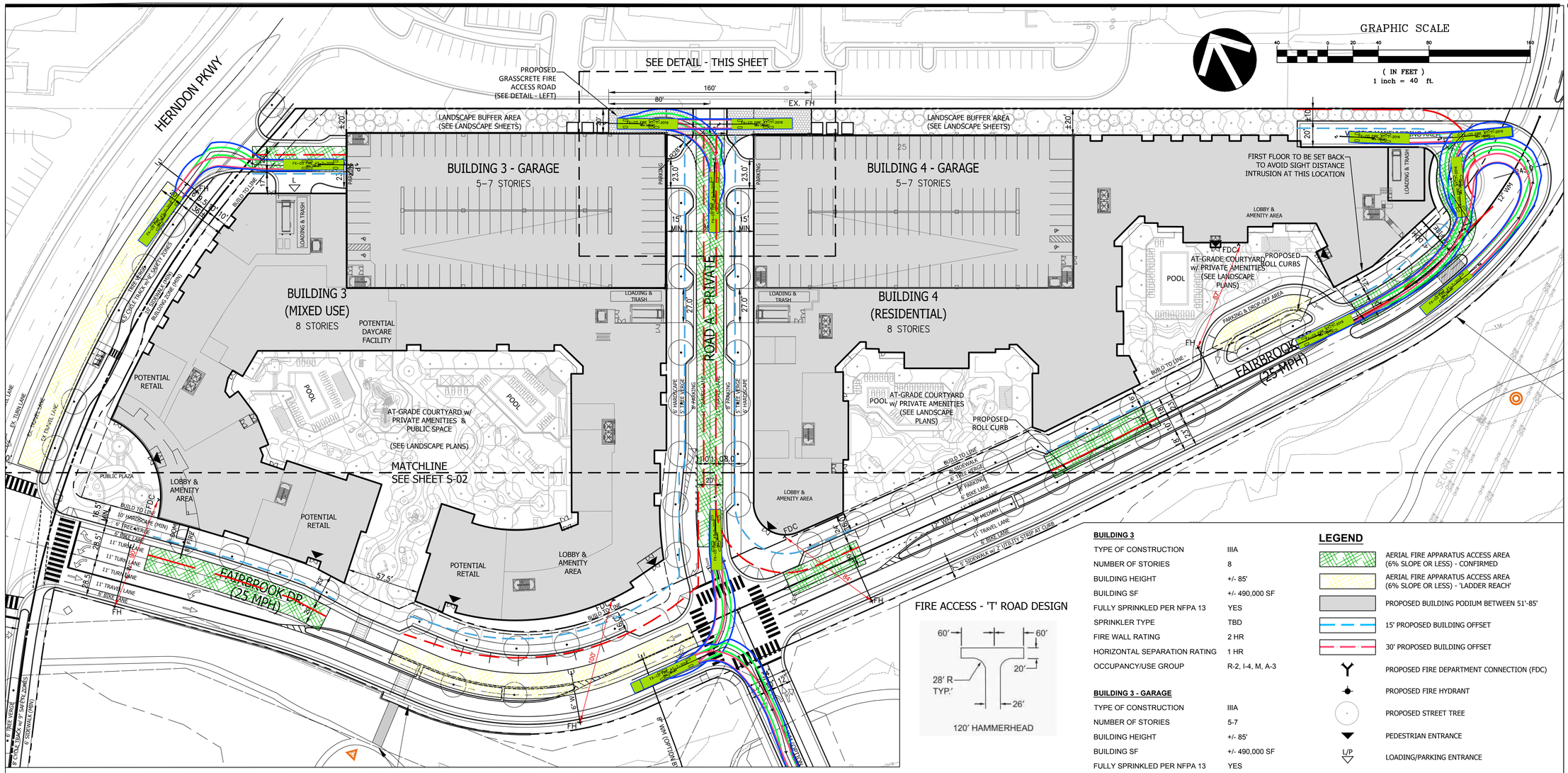
SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

BUILDING 4 PHASE

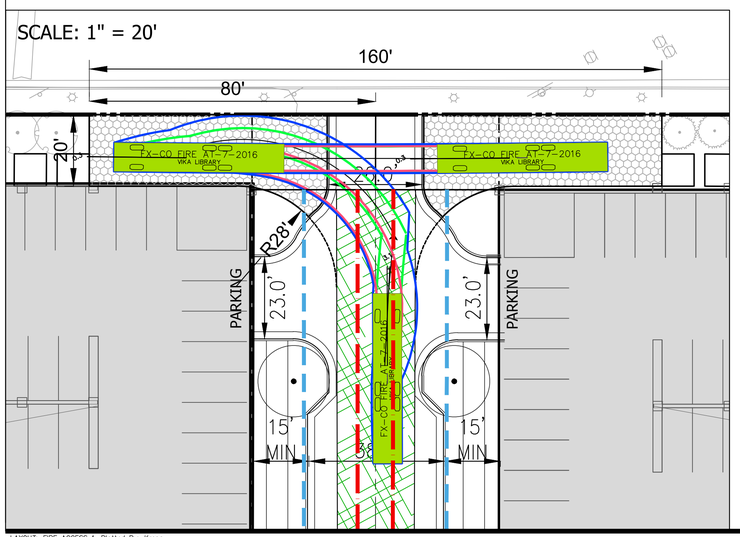
DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1" = 80'
VIKA NO.	VV6045X
SHEET NO.	L-15

FILE: P:\projects\6045\6045X\CAD\VP PLANNING\VP PLANNING DRAWINGS\6045X_L-13-15 PHASING.dwg USER: Letteri DATE: November 3, 2020 TIME: 1:05:15 PM LAYOUT: L-15 PHASE 1 - BLDG 1-2 (3)



FIRE ACCESS - 'T' ROAD DESIGN

120' HAMMERHEAD



BUILDING DATA:

1) ALL ROADS PROPOSED BY THE PROJECT, AS WELL AS ADJOINING ROADS; THE CLASSIFICATIONS OF THE ROADS (I.E. ARTERIAL, COLLECTOR, ETC.) SHOULD BE NOTED. (PROVIDED)

2) LOCATION AND DIMENSIONS OF ALL FIRE ACCESS LANES AND TURNAROUNDS; VEHICLE ACCESS TO THE REAR OF BUILDINGS, INCLUDING INTERIOR COURTYARDS FOR STICK-BUILT DONUT-SHAPED BUILDINGS, NEEDS TO BE SHOWN. (PROVIDED)

3) ARROW DIAGRAMS INDICATING WHERE EMERGENCY VEHICLES CAN ACCESS BUILDINGS. (PROVIDED)

4) DIMENSIONS OF THE DISTANCE BETWEEN THE PORTIONS OF THE ROADWAY THAT ARE ACCESSIBLE TO FIRE TRUCKS AND THE FACADES OF THE BUILDINGS. THE TARGET DISTANCE IS BETWEEN 15 AND 30 FEET SEPARATION. (PROVIDED)

5) IMPROVEMENTS PLANNED FOR THE AREA BETWEEN THE PORTIONS OF THE ROADWAY THAT ARE ACCESSIBLE TO FIRE TRUCKS AND THE FACADES OF THE BUILDINGS, INCLUDING PARKING LANES, GARAGE PODIUMS, LANDSCAPED AREAS, STEEP SLOPES, SIDEWALKS, PLAZAS, YARDS, OUTDOOR SEATING AREAS, STEPS, PLANTERS, SCULPTURES, ETC. (PROVIDED)

6) CLEAR IDENTIFICATION OF BUILDING FOOTPRINTS, CANTILEVERED EXTENSIONS, PENTHOUSES, BALCONIES, PATIOS, ETC. (PROVIDED)

7) HEIGHTS OF THE PROPOSED BUILDINGS; FOR BUILDINGS WITH MULTIPLE HEIGHTS DUE TO STEP BACKS, THE HEIGHT AND NUMBER OF STORIES OF EACH BUILDING SEGMENT SHOULD BE CLEARLY NOTED. (PROVIDED)

8) LOCATION OF OVERHEAD UTILITY LINES. -UTILITIES SHALL BE UNDERGROUNDED UPON COMPLETION OF EACH PHASE/BLOCK. (PROVIDED)

9) IDENTIFICATION OF CONSTRUCTION TYPE FOR EACH BUILDING; FOR MULTIPLE BUILDINGS LOCATED ON A SINGLE GARAGE PODIUM, THE CONSTRUCTION TYPE FOR EACH BUILDING MUST BE IDENTIFIED - THE GARAGE PODIUM CAN BE IDENTIFIED AS A BLOCK, WITH EACH BUILDING IDENTIFIED SEPARATELY. EACH PORTION OF STRUCTURE WITH A DIFFERENT CONSTRUCTION TYPE IS CONSIDERED A SEPARATE BUILDING. STRUCTURES THAT ARE SEPARATED BY A FIRE WALL ARE ALSO CONSIDERED SEPARATE BUILDINGS. (PROVIDED)

10) TYPE OF BUILDING SKIN MATERIAL (COMBUSTIBLE/NON-COMBUSTIBLE), TYPE OF SPRINKLERS (TYPE 13; IF 13R PLEASE EXPLAIN), AND ROOF TYPE (CLASS A PREFERRED). (TO BE PROVIDED AT SITE PLAN)

11) LOCATION OF PROPOSED BUILDING ENTRANCES, BOTH PEDESTRIAN AND VEHICULAR; ACCESS DOORS AND ELEVATORS, INCLUDING MEDEVAC ELEVATORS, SHOULD BE SHOWN ON THE FDP. ALSO, ANY INTERIOR ROUTES AVAILABLE FOR EMERGENCY VEHICLE USE, SUCH AS SUITABLY SIZED DRIVEWAYS THROUGH PARKING GARAGES AND COURTYARDS, SHOULD BE DELINEATED. (PROVIDED)

12) LOADING AREAS AND WHETHER THEY ARE ACCESSIBLE TO EMERGENCY VEHICLES. (PROVIDED)

13) ACCESS TO ACTIVE COURTYARDS (ESPECIALLY WITH POOLS, TENNIS COURTS, ETC.) NEEDS TO BE SHOWN - HOW WILL THE MEDICAL STAFF GET THERE, WITH THEIR EQUIPMENT, QUICKLY? (PROVIDED)

BUILDING 3	
TYPE OF CONSTRUCTION	IIIA
NUMBER OF STORIES	8
BUILDING HEIGHT	+/- 85'
BUILDING SF	+/- 490,000 SF
FULLY SPRINKLED PER NFPA 13	YES
SPRINKLER TYPE	TBD
FIRE WALL RATING	2 HR
HORIZONTAL SEPARATION RATING	1 HR
OCCUPANCY/USE GROUP	R-2, I-4, M, A-3

BUILDING 3 - GARAGE	
TYPE OF CONSTRUCTION	IIIA
NUMBER OF STORIES	5-7
BUILDING HEIGHT	+/- 85'
BUILDING SF	+/- 490,000 SF
FULLY SPRINKLED PER NFPA 13	YES
SPRINKLER TYPE	TBD
FIRE WALL RATING	2 HR
HORIZONTAL SEPARATION RATING	1 HR
OCCUPANCY/USE GROUP	S-2 - OPEN

BUILDING 4	
TYPE OF CONSTRUCTION	IIIA
NUMBER OF STORIES	8
BUILDING HEIGHT	+/- 85'
BUILDING SF	+/- 490,000 SF
FULLY SPRINKLED PER NFPA 13	YES
SPRINKLER TYPE	TBD
FIRE WALL RATING	2 HR
HORIZONTAL SEPARATION RATING	1 HR
OCCUPANCY/USE GROUP	R-2, A-3

BUILDING 4 - GARAGE	
TYPE OF CONSTRUCTION	IIIA
NUMBER OF STORIES	8
BUILDING HEIGHT	+/- 85'
BUILDING SF	+/- 410,000 SF
FULLY SPRINKLED PER NFPA 13	YES
SPRINKLER TYPE	TBD
FIRE WALL RATING	2 HR
HORIZONTAL SEPARATION RATING	1 HR
OCCUPANCY/USE GROUP	S-2 - OPEN

LEGEND

- AERIAL FIRE APPARATUS ACCESS AREA (6% SLOPE OR LESS) - CONFIRMED
- AERIAL FIRE APPARATUS ACCESS AREA (6% SLOPE OR LESS) - 'LADDER REACH'
- PROPOSED BUILDING PODIUM BETWEEN 51'-85'
- 15' PROPOSED BUILDING OFFSET
- 30' PROPOSED BUILDING OFFSET
- PROPOSED FIRE DEPARTMENT CONNECTION (FDC)
- PROPOSED FIRE HYDRANT
- PROPOSED STREET TREE
- PEDESTRIAN ENTRANCE
- L/P LOADING/PARKING ENTRANCE
- PROPOSED WATER LINE

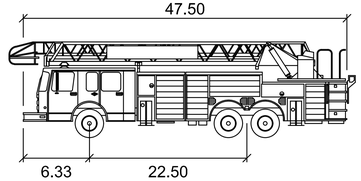
LEGEND

- FRONT TIRES
- REAR TIRES
- VEHICLE BODY

COVERAGE CALCULATION:

BUILDING 3: 37.7%

BUILDING 4: 42.8%



FX-CO FIRE AT-7-2016

	feet
Width	: 8.00
Track	: 6.91
Lock to Lock Time	: 3.0
Steering Angle	: 45.0

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COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

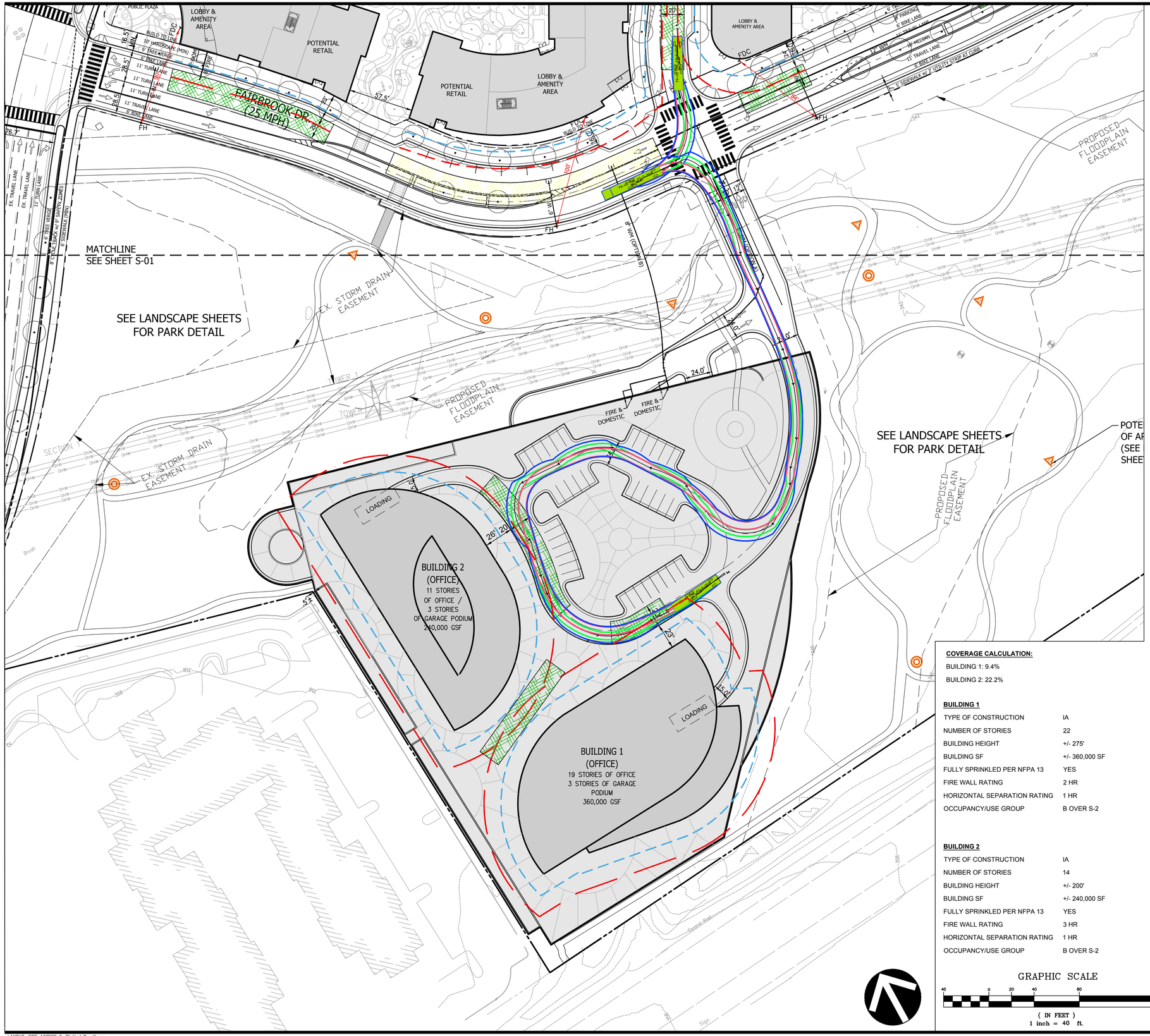
TOWN OF HERNDON, VIRGINIA

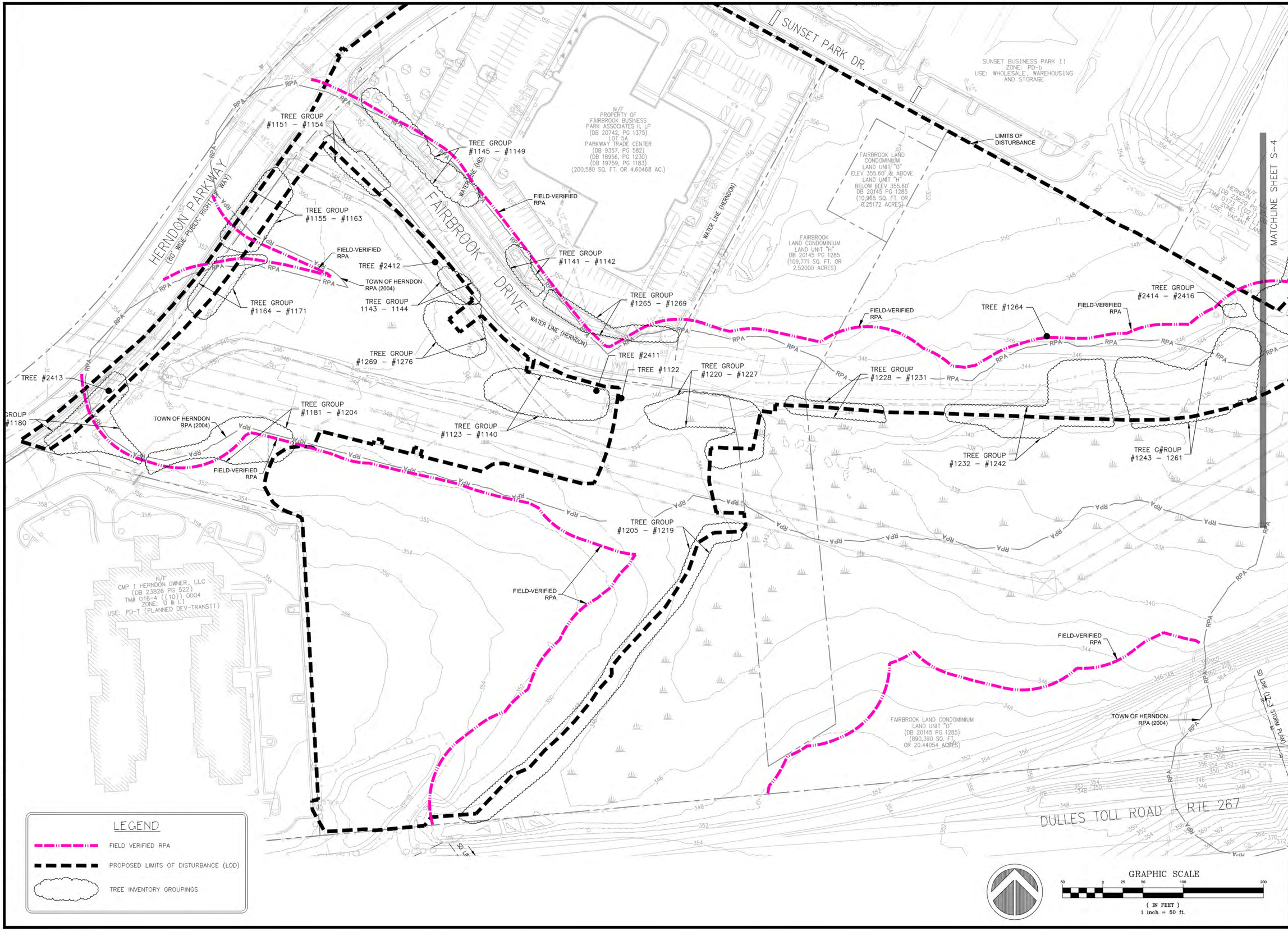
FIRE ACCESS EXHIBIT

DRAWN BY:	ARC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=40'
VIKA NO.	VV6045X
SHEET NO.	S-01

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_S-01 S-02 FIRE ACCESS PLAN.dwg USER: kreps DATE: November 3, 2020 TIME: 1:13:14 PM LAYOUT: FIRE ACCESS 1

LAYOUT: FIRE ACCESS 1, Plotted By: Kreps


LOBBY & AMENITY AREA
POTENTIAL RETAIL
POTENTIAL RETAIL
LOBBY & AMENITY AREA
LOBBY & AMENITY AREA
PUBLIC PLAZA
FAIRBROOK DR (25 MPH)
BUILD TO LINE
10' HARDSCAPE (MIN)
6' TREE WELLS
6' BIKE LANE
11' TURN LANE
11' TURN LANE
11' TURN LANE
11' TRAVEL LANE
6' BIKE LANE
8' SIDEWALK (MIN)
6' PARKING
6' BIKE LANE
11' TRAVEL LANE
18' MEDIAN
11' TRAVEL LANE
6' BIKE LANE
5' SIDEWALK W/ 2' UTILITY STRIP AT CURB
EX. TRAVEL LANE
EX. TRAVEL LANE
11' TURN LANE
6' TREE STRIPS
6' CMU BLANK W/ 4" MAPEX ZONES
8' SIDEWALK (MIN)
MATCHLINE
SEE SHEET S-01
SEE LANDSCAPE SHEETS FOR PARK DETAIL
EX. STORM DRAIN EASEMENT
PROPOSED FLOODPLAIN EASEMENT
TOWER 1
TOWER 2
SECTION 1
SECTION 2
EX. STORM DRAIN EASEMENT
PROPOSED FLOODPLAIN EASEMENT
8" WM (OPTION B)
8" WM (OPTION B)
FIRE & DOMESTIC
FIRE & DOMESTIC
LOADING
BUILDING 2
(OFFICE)
11 STORIES
OF OFFICE /
3 STORIES
OF GARAGE PODIUM
240,000 GSF
LOADING
BUILDING 1
(OFFICE)
19 STORIES OF OFFICE
3 STORIES OF GARAGE
PODIUM
360,000 GSF
SEE LANDSCAPE SHEETS FOR PARK DETAIL
PROPOSED FLOODPLAIN EASEMENT
POTE
OF AR
(SEE
SHEE
FDC
FH
FH
FH



LEGEND

- FIELD VERIFIED RPA
- PROPOSED LIMITS OF DISTURBANCE (LOD)
- TREE INVENTORY GROUPINGS

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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Phone: 703-679-5600 • Fax: 703-679-5601
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TREE INVENTORY MAP

FAIRBROOK BUSINESS PARK
TOWN OF HERNDON, VA

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INTERNATIONAL SOCIETY OF ARBORICULTURE
CARY HULSE
ISA# PD-1080A
CERTIFIED ARBORIST

REVISIONS

No.	Date	Description	Rev. By	App. By
2	9/28/20	2ND SUBMISSION		
3	10/16/20	3RD SUBMISSION		
4	11/03/20	4TH SUBMISSION		

DATE: JUNE 4, 2020
SCALE:1" = 50' C.I.:2'

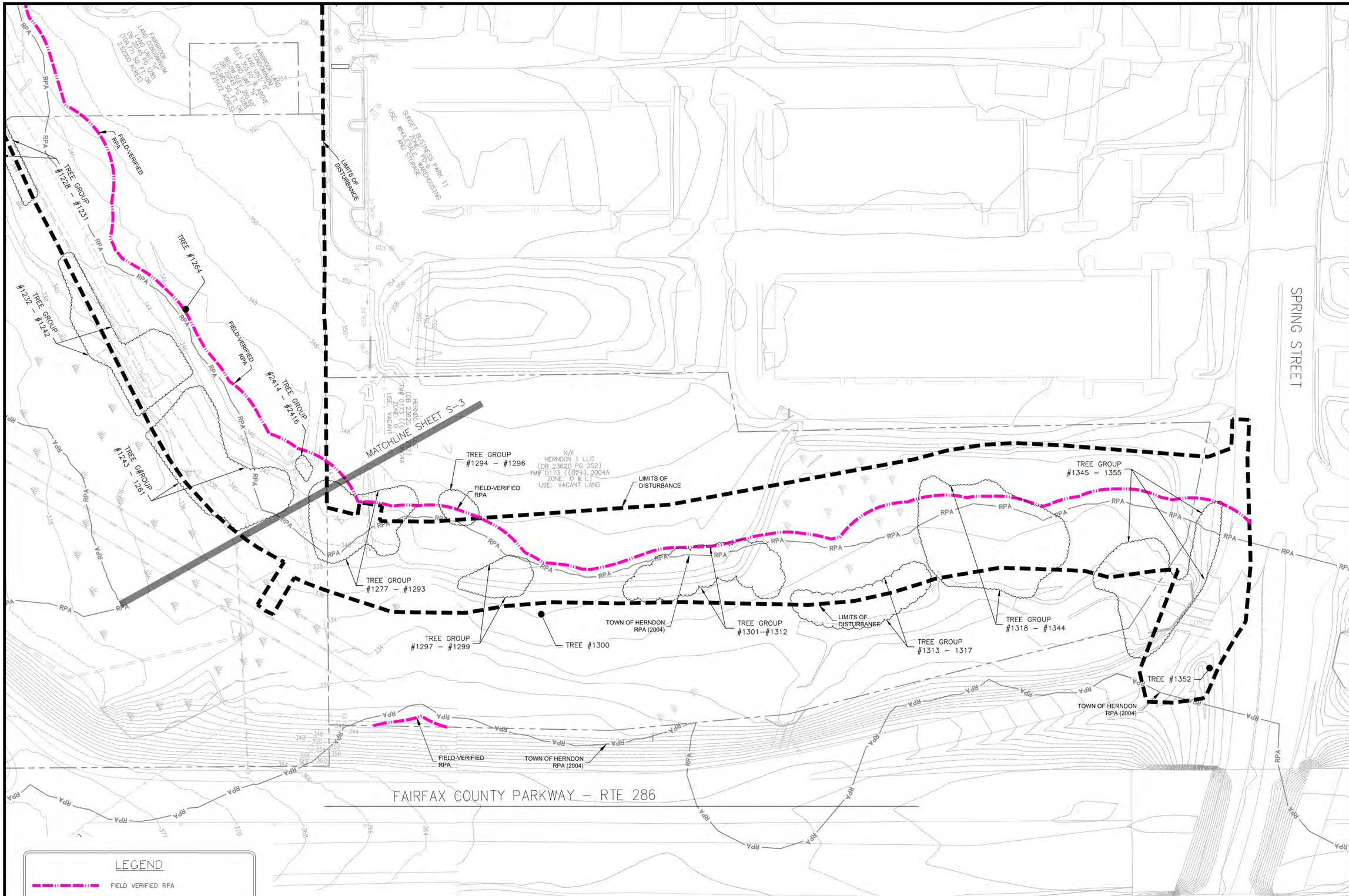
Horizontal Datum: VCS NAD 83
Vertical Datum: NAVD 88
Boundary and Topo Source: VIKA

Design	Draft	Approved
CH	CH	----

Sheet #
S-3

WSSI Project Number:
4674.06

L:\04000s\4674.06\CADD\05-ENVR\TREES\4764.06_FAIRBROOK_TREES_2020.06.02.dwg S-3 Plotted By: Hulse, Cary, 6/2/2020 12:55 PM



LEGEND

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- PROPOSED LIMITS OF DISTURBANCE (LOD)
- TREE INVENTORY GROUPINGS

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

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5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
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TREE INVENTORY MAP

FAIRBROOK BUSINESS PARK

TOWN OF HERNDON, VA

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CARY HULSE
ISA# PD-1080A
CERTIFIED ARBORIST

REVISIONS

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3	10/16/20	3RD SUBMISSION		
4	11/03/20	4TH SUBMISSION		

DATE: JUNE 4, 2020

SCALE: 1" = 50' C1.:2'

Horizontal Datum: VCS NAD 83

Vertical Datum: NAVD 88

Boundary and Topo Source: VIKA

Design	Draft	Approved
CH	CH	----

Sheet #
S-4

WSSI Project Number:
4674.06

L:\04000s\4674.06\CADD\05-ENVR\TREES\4764.06_FAIRBROOK_TREES_2020.06.02.dwg S-4 Plotted By: Hulse, Cary, 6/2/2020 12:55 PM

Date: MAY 2020

Tree Inventory

Project: FAIRBROOK

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree	Stems	SRZ Structural Critical Root Zone (radius) in Feet	CRZ Critical Root Zone Radius in Ft (1.5 ft radius/in DBH)	Additional Notes	Condition Notes
1122	24	oak, northern red	Quercus rubra	45%	Fair	NO	1	11	36		One Sided, Suppressed, Mechanical Damage, Large DW (3"+), Small DW (1-2"), Branch Decay, Overhead Utilities
1123	9	hickory, mockernut	Carya tomentosa	50%	Fair	NO	1	4	14		Excessive Lean, Vines
1124	20	oak, northern red	Quercus rubra	50%	Fair	NO	1	9	30		Excessive Lean, Vines
1125	9	hickory, pignut	Carya glabra	65%	Good	NO	1	4	14		Suppressed, Overhead Utilities
1126	11	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	1	5	17		
1127	11	blackgum	Nyssa sylvatica	60%	Fair	NO	1	5	17		One Sided, Vines
1128	12	oak, white	Quercus alba	65%	Good	NO	1	5	18		One Sided
1129	25	oak, white	Quercus alba	70%	Good	NO	1	11	38		One Sided
1130	18	oak, northern red	Quercus rubra	60%	Fair	NO	1	8	27		One Sided, Suppressed, Large DW (3"+), Small DW (1-2")
1131	14	pine, shortleaf	Pinus echinata	60%	Fair	NO	1	6	21		Large DW (3"+), Small DW (1-2"), Vines
1132	9	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	1	4	14		
1133	9	oak, pin	Quercus palustris	65%	Good	NO	1	4	14		One Sided, Small DW (1-2"), Vines
1134	17	oak, pin	Quercus palustris	65%	Good	NO	1	8	26		One Sided, Suppressed, Large DW (3"+), Small DW (1-2"), Vines, Stream Erosion
1135	17	oak, northern red	Quercus rubra	65%	Good	NO	1	8	26		One Sided, Suppressed, Large DW (3"+), Small DW (1-2"), Vines
1136	14,7,6	mulberry, white	Morus alba	50%	Fair	NO	3	8	25		One Sided, Suppressed, Small DW (1-2"), Vines
1137	26	maple, red	Acer rubrum	65%	Good	NO	1	12	39		One Sided, Small DW (1-2")
1138	19	maple, red	Acer rubrum	65%	Good	NO	1	9	29		One Sided, Small DW (1-2")
1139	17	maple, red	Acer rubrum	60%	Fair	NO	1	8	26		One Sided, Co-Dominant Stems, Small DW (1-2"), Vines
1140	9	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	1	4	14		
1141	9	maple, Freeman	Acer x freemanii	60%	Fair	NO	1	4	14		
1142	10	maple, Freeman	Acer x freemanii	60%	Fair	NO	1	5	15		
1143	16	elm, slippery	Ulmus rubra	60%	Fair	NO	1	7	24		One Sided, Small DW (1-2")
1144	17	elm, slippery	Ulmus rubra	65%	Good	NO	1	8	26		One Sided, Small DW (1-2")
1145	11	maple, Freeman	Acer x freemanii	60%	Fair	NO	1	5	17		Buried Root Collar, Root Damage/Decay, Trunk Decay, Mechanical Damage
1146	12	maple, Freeman	Acer x freemanii	60%	Fair	NO	1	5	18	3" girdling root.	Buried Root Collar, Girdling Roots, Root Damage/Decay, Trunk Decay, Co-Dominant Stems, Mechanical Damage
1147	12	maple, Freeman	Acer x freemanii	60%	Fair	NO	1	5	18	3" girdling root.	Buried Root Collar, Girdling Roots, Root Damage/Decay, Trunk Decay, Co-Dominant Stems, Mechanical Damage
1148	25	oak, willow	Quercus phellos	65%	Good	NO	1	11	38		Large DW (3"+), Small DW (1-2")
1149	12	oak, white	Quercus alba	60%	Fair	NO	1	5	18		Small DW (1-2")
1150	11,6	cherry, Japanese flowering	Prunus serrulata	50%	Fair	NO	2	6	19		One Sided, Suppressed, Basal Decay, Trunk Decay, Low Vigor, Branch Decay
1151	12	cherry, Japanese flowering	Prunus serrulata	55%	Fair	NO	1	5	18		One Sided, Suppressed
1152	11	pine, Austrian	Pinus nigra	50%	Fair	NO	1	5	17	3" girdling root.	One Sided, Girdling Roots, Small DW (1-2"), Low Vigor
1153	8	pine, Austrian	Pinus nigra	35%	Poor	NO	1	4	12	3" girdling root.	One Sided, Buried Root Collar, Mechanical Damage, Small DW (1-2"), Low Vigor, Branch Decay
1154	8	pine, Austrian	Pinus nigra	35%	Poor	NO	1	4	12		One Sided, Buried Root Collar, Basal Decay, Trunk Decay, Mechanical Damage, Small DW (1-2"), Low Vigor, Branch Decay
1155	10	oak, white	Quercus alba	55%	Fair	NO	1	5	15		Suppressed, Trunk Decay, Broken Limbs, Branch Decay
1156	13	oak, white	Quercus alba	60%	Fair	NO	1	6	20		One Sided, Suppressed
1157	14,12,11	oak, white	Quercus alba	60%	Fair	NO	3	10	32		One Sided, Suppressed, Co-Dominant Stems
1158	9	oak, white	Quercus alba	60%	Fair	NO	1	4	14		One Sided, Suppressed
1159	12,13	oak, white	Quercus alba	60%	Fair	NO	2	8	27		Suppressed, Co-Dominant Stems, Small DW (1-2"), Broken Limbs
1160	10,9,11	oak, white	Quercus alba	5%	Dead	YES	3	8	26		
1161	9	oak, white	Quercus alba	55%	Fair	NO	1	4	14		Small DW (1-2"), Branch Decay
1162	17	oak, northern red	Quercus rubra	65%	Good	NO	1	8	26		One Sided, Large DW (3"+), Small DW (1-2")
1163	12	oak, white	Quercus alba	60%	Fair	NO	1	5	18		One Sided, Suppressed, Large DW (3"+), Small DW (1-2")
1164	24	oak, white	Quercus alba	60%	Fair	NO	1	11	36		One Sided, Suppressed, Co-Dominant Stems, Large DW (3"+), Small DW (1-2")
1165	11,12	oak, white	Quercus alba	55%	Fair	NO	2	7	24	11" is in decline	One Sided, Suppressed, Co-Dominant Stems, Large DW (3"+), Small DW (1-2")
1166	9	hickory, mockernut	Carya tomentosa	65%	Good	NO	1	4	14		One Sided, Suppressed, Co-Dominant Stems
1167	17	elm, slippery	Ulmus rubra	40%	Poor	NO	1	8	26	50% dead	One Sided, Trunk Decay, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Low Vigor, Serious Decline, Broken Limbs, Branch Decay, Insect/Disease Problem
1168	11	oak, white	Quercus alba	60%	Fair	NO	1	5	17	1" girdling root.	One Sided, Suppressed, Girdling Roots, Small DW (1-2")
1169	18	pine, shortleaf	Pinus echinata	60%	Fair	NO	1	8	27		One Sided, Small DW (1-2")
1170	12	oak, pin	Quercus palustris	55%	Fair	NO	1	5	18		One Sided, Suppressed, Small DW (1-2")
1171	12	oak, pin	Quercus palustris	55%	Fair	NO	1	5	18		One Sided, Suppressed, Trunk Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2"), Stressed, Serious Decline, Branch Decay, Vines, Overhead Utilities
1172	11	oak, pin	Quercus palustris	55%	Fair	NO	1	5	17		One Sided, Suppressed, Small DW (1-2"), Vines
1173	8,4	oak, pin	Quercus palustris	55%	Fair	NO	2	4	13		One Sided, Suppressed, Co-Dominant Stems, Small DW (1-2"), Vines
1174	8	pear, Callery	Pyrus calleryana	50%	Fair	NO	1	4	12		Small DW (1-2"), Vines
1175	13	elm, slippery	Ulmus rubra	65%	Good	NO	1	6	20	2" girdling root.	One Sided, Suppressed, Girdling Roots, Small DW (1-2"), Vines
1176	15,11	ZZ Unknown dead tree	ZZ Unknown dead tree	5%	Dead	YES	2	8	28		
1177	9	elm, slippery	Ulmus rubra	55%	Fair	NO	1	4	14		Suppressed, Small DW (1-2")
1178	11	blackgum	Nyssa sylvatica	60%	Fair	NO	1	5	17	1" girdling root.	One Sided, Suppressed, Girdling Roots, Small DW (1-2")
1179	14,12	elm, slippery	Ulmus rubra	60%	Fair	NO	2	8	28	1",2" girdling root.	Girdling Roots, Large DW (3"+), Small DW (1-2")
1180	13	elm, slippery	Ulmus rubra	60%	Fair	NO	1	6	20	1",2" girdling root.	One Sided, Suppressed, Girdling Roots, Small DW (1-2")
1181	8	maple, red	Acer rubrum	60%	Fair	NO	1	4	12		Co-Dominant Stems, Small DW (1-2")
1182	16	elm, slippery	Ulmus rubra	60%	Fair	NO	1	7	24	2" girdling root.	One Sided, Suppressed, Girdling Roots, Small DW (1-2")
1183	17	oak, swamp white	Quercus bicolor	60%	Fair	NO	1	8	26	2" girdling root.	One Sided, Suppressed, Girdling Roots, Small DW (1-2")
1184	9	maple, red	Acer rubrum	65%	Good	NO	1	4	14		One Sided, Suppressed
1185	8	maple, red	Acer rubrum	60%	Fair	NO	1	4	12		One Sided, Suppressed, Small DW (1-2")
1186	9	willow, black	Salix nigra	50%	Fair	NO	1	4	14	Root plate heave	One Sided, Excessive Lean
1187	19	ZZ Unknown dead tree	ZZ Unknown dead tree	5%	Dead	YES	1	9	29		
1188	27	elm, slippery	Ulmus rubra	75%	Good	NO	1	12	41	2" girdling root.	Girdling Roots, Vines
1189	13	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	1	6	20		
1190	9	elm, slippery	Ulmus rubra	65%	Good	NO	1	4	14		One Sided, Suppressed, Broken Limbs
1191	12	oak, pin	Quercus palustris	55%	Fair	NO	1	5	18		One Sided, Suppressed, Large DW (3"+), Small DW (1-2"), Broken Limbs
1192	21	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	1	9	32		
1193	11	elm, slippery	Ulmus rubra	45%	Fair	NO	1	5	17		One Sided, Suppressed, Large DW (3"+), Small DW (1-2"), Broken Limbs
1194	9	hickory, mockernut	Carya tomentosa	50%	Fair	NO	1	4	14		Suppressed, Mechanical Damage, Broken Limbs, Overhead Utilities
1195	11	elm, slippery	Ulmus rubra	5%	Dead	YES	1	5	17		
1196	19	oak, white	Quercus alba	60%	Fair	NO	1	9	29		Suppressed, Mechanical Damage, Large DW (3"+), Small DW (1-2"), Overhead Utilities
1197	12	oak, pin	Quercus palustris	60%	Fair	NO	1	5	18		One Sided, Suppressed, Mechanical Damage, Small DW (1-2"), Broken Limbs, Overhead Utilities
1198	21	oak, swamp chestnut	Quercus michauxii	65%	Good	NO	1	9	32		Mechanical Damage, Large DW (3"+), Small DW (1-2"), Broken Limbs, Overhead Utilities
1199	11	elm, slippery	Ulmus rubra	40%	Poor	NO	1	5	17		One Sided, Suppressed, Low Vigor, Stressed
1200	12	oak, pin	Quercus palustris	5%	Dead	YES	1	5	18		
1201	17	oak, swamp chestnut	Quercus michauxii	60%	Fair	NO	1	8	26		Mechanical Damage, Large DW (3"+), Small DW (1-2"), Broken Limbs, Branch Decay
1202	9,7	oak, white	Quercus alba	65%	Good	NO	2	5	17		One Sided, Suppressed
1203	15	blackgum	Nyssa sylvatica	65%	Good	NO	1	7	23		Mechanical Damage, Overhead Utilities
1204	10	hickory, mockernut	Carya tomentosa	65%	Good	NO	1	5	15		Mechanical Damage, Overhead Utilities
1205	10	hickory, mockernut	Carya tomentosa	65%	Good	NO	1	5	15		Suppressed, Small DW (1-2")
1206	12	oak, white	Quercus alba	65%	Good	NO	1	5	18		
1207	17	oak, white	Quercus alba	65%	Good	NO	1	8	26	1" girdling root.	Girdling Roots, Co-Dominant Stems
1208	11	oak, northern red	Quercus rubra	65%	Good	NO	1	5	17		Excessive Lean
1209	13	hickory, mockernut	Carya tomentosa	50%	Fair	NO	1	6	20		Basal Decay, Trunk Decay, Mechanical Damage, Large DW (3"+), Broken Limbs
1210	11	oak, white	Quercus alba	60%	Fair	NO	1	5	17		Small DW (1-2")
1211	12	oak, northern red	Quercus rubra	40%	Poor	NO	1	5	18		Basal Decay, Trunk Decay, Branch Decay
1212	16,10	oak, northern red	Quercus rubra	60%	Fair	NO	2	8	28		Co-Dominant Stems, Small DW (1-2"), Insect/Disease Problem

Date: MAY 2020

Tree Inventory

Project: FAIRBROOK

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree	Stems	SRZ Structural Critical Root Zone (radius) in Feet	CRZ Critical Root Zone Radius in Ft (1.5 ft radius/in DBH)	Additional Notes	Condition Notes
1213	12,8	oak, white	Quercus alba	50%	Fair	NO	2	6	22		Trunk Decay, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Branch Decay
1214	14	oak, northern red	Quercus rubra	60%	Fair	NO	1	6	21		Large DW (3"+), Small DW (1-2"), Branch Decay
1215	13	oak, white	Quercus alba	70%	Good	NO	1	6	20		Co-Dominant Stems
1216	13	oak, white	Quercus alba	70%	Good	NO	1	6	20		
1217	9	hickory, mockernut	Carya tomentosa	65%	Good	NO	1	4	14		Co-Dominant Stems
1218	18,14	oak, white	Quercus alba	55%	Fair	NO	2	10	34		One Sided, Suppressed, Co-Dominant Stems, Mechanical Damage, Low Vigor, Overhead Utilities
1219	13	oak, white	Quercus alba	55%	Fair	NO	1	6	20		Suppressed, Co-Dominant Stems, Mechanical Damage, Small DW (1-2"), Low Vigor, Branch Decay, Overhead Utilities
1220	9	oak, white	Quercus alba	55%	Fair	NO	1	4	14		Suppressed, Co-Dominant Stems, Mechanical Damage, Small DW (1-2"), Low Vigor, Branch Decay, Overhead Utilities
1221	14	maple, red	Acer rubrum	55%	Fair	NO	1	6	21		Co-Dominant Stems, Mechanical Damage, Overhead Utilities
1222	16	maple, red	Acer rubrum	55%	Fair	NO	1	7	24		Mechanical Damage, Small DW (1-2"), Vines, Overhead Utilities
1223	10	sycamore, American	Platanus occidentalis	65%	Good	NO	1	5	15		One Sided, Small DW (1-2"), Vines, Stream Erosion
1224	11	willow, black	Salix nigra	60%	Fair	NO	1	5	17		One Sided, Suppressed, Small DW (1-2"), Vines
1225	12	oak, pin	Quercus palustris	65%	Good	NO	1	5	18		One Sided, Suppressed, Small DW (1-2"), Vines
1226	9	maple, red	Acer rubrum	65%	Good	NO	1	4	14		One Sided, Suppressed, Small DW (1-2"), Vines
1227	9,4	maple, red	Acer rubrum	65%	Good	NO	2	4	15		One Sided, Suppressed, Co-Dominant Stems, Small DW (1-2"), Vines
1228	8	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	1	4	12		
1229	8,8	sycamore, American	Platanus occidentalis	60%	Fair	NO	2	5	17		One Sided, Root Damage/Decay
1230	11	oak, willow	Quercus phellos	65%	Good	NO	1	5	17		One Sided
1231	8	elm, slippery	Ulmus rubra	65%	Good	NO	1	4	12		One Sided
1232	8	locust, black	Robinia pseudoacacia	65%	Good	NO	1	4	12		One Sided
1233	9	oak, white	Quercus alba	50%	Fair	NO	1	4	14		Trunk Decay, Broken Limbs
1234	16	oak, white	Quercus alba	75%	Good	NO	1	7	24		Large DW (3"+), Small DW (1-2")
1235	15	oak, white	Quercus alba	60%	Fair	NO	1	7	23		Suppressed, Excessive Lean, Large DW (3"+), Small DW (1-2")
1236	13	sycamore, American	Platanus occidentalis	60%	Fair	NO	1	6	20		Suppressed, Excessive Lean, Large DW (3"+), Small DW (1-2")
1237	14	sycamore, American	Platanus occidentalis	60%	Fair	NO	1	6	21		Suppressed, Excessive Lean, Large DW (3"+), Small DW (1-2"), Stream Erosion
1238	9	oak, southern red	Quercus falcata	60%	Fair	NO	1	4	14		Suppressed, Small DW (1-2")
1239	10	sycamore, American	Platanus occidentalis	50%	Fair	NO	1	5	15		Suppressed, Large DW (3"+), Small DW (1-2"), Stream Erosion
1240	11,10,9	maple, red	Acer rubrum	70%	Good	NO	3	8	26		Suppressed, Co-Dominant Stems, Small DW (1-2"), Stream Erosion
1241	10	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	1	5	15		
1242	9,10	oak, white	Quercus alba	50%	Fair	NO	2	6	20		Suppressed, Basal Decay, Trunk Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2"), Broken Limbs, Branch Decay
1243	9	pine, shortleaf	Pinus echinata	50%	Fair	NO	1	4	14	Tag #40. #703-331-3731	Basal Decay, Trunk Decay, Mechanical Damage, Small DW (1-2"), Low Vigor, Stressed
1244	16	oak, white	Quercus alba	65%	Good	NO	1	7	24		Suppressed, Large DW (3"+), Small DW (1-2")
1245	8	hickory, mockernut	Carya tomentosa	70%	Good	NO	1	4	12		One Sided, Suppressed, Small DW (1-2")
1246	9	hickory, mockernut	Carya tomentosa	70%	Good	NO	1	4	14		One Sided, Suppressed, Compacted Soils, Small DW (1-2")
1247	13	sycamore, American	Platanus occidentalis	55%	Fair	NO	1	6	20		One Sided, Suppressed, Compacted Soils, Large DW (3"+), Small DW (1-2"), Branch Decay, Stream Erosion
1248	9	sycamore, American	Platanus occidentalis	5%	Dead	YES	1	4	14		
1249	8	sycamore, American	Platanus occidentalis	45%	Fair	NO	1	4	12		Compacted Soils, Basal Decay, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Stream Erosion
1250	8	maple, red	Acer rubrum	60%	Fair	NO	1	4	12		Compacted Soils, Co-Dominant Stems, Small DW (1-2")
1251	12	sycamore, American	Platanus occidentalis	65%	Good	NO	1	5	18		Compacted Soils, Small DW (1-2")
1252	9	hickory, mockernut	Carya tomentosa	65%	Good	NO	1	4	14		Compacted Soils, Root Damage/Decay, Co-Dominant Stems, Small DW (1-2")
1253	14	sycamore, American	Platanus occidentalis	65%	Good	NO	1	6	21		Compacted Soils, Root Damage/Decay, Small DW (1-2"), Broken Limbs, Branch Decay, Vines, Stream Erosion
1254	15	sycamore, American	Platanus occidentalis	50%	Fair	NO	1	7	23		Compacted Soils, Root Damage/Decay, Mechanical Damage, Small DW (1-2"), Broken Limbs, Branch Decay, Vines, Overhead Utilities
1255	8	hickory, pignut	Carya glabra	60%	Fair	NO	1	4	12		Compacted Soils, Root Damage/Decay, Small DW (1-2")
1256	19	oak, white	Quercus alba	75%	Good	NO	1	9	29		Compacted Soils, Root Damage/Decay, Small DW (1-2")
1257	18	oak, northern red	Quercus rubra	60%	Fair	NO	1	8	27		Compacted Soils, Root Damage/Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2"), Overhead Utilities
1258	9	hickory, bitternut	Carya cordiformis	45%	Fair	NO	1	4	14		Suppressed, Compacted Soils, Root Damage/Decay, Mechanical Damage, Overhead Utilities
1259	10	oak, white	Quercus alba	65%	Good	NO	1	5	15		Suppressed, Compacted Soils, Root Damage/Decay
1260	11	oak, southern red	Quercus falcata	50%	Fair	NO	1	5	17		Suppressed, Compacted Soils, Root Damage/Decay, Trunk Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2"), Overhead Utilities
1261	13	oak, white	Quercus alba	55%	Fair	NO	1	6	20		Suppressed, Compacted Soils, Root Damage/Decay, Trunk Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2"), Overhead Utilities
1262	13	ash, spp.	Fraxinus spp.	5%	Dead	YES	1	6	20		
1263	9	oak, white	Quercus alba	70%	Good	NO	1	4	14		Root Damage/Decay, Small DW (1-2")
1264	8	sycamore, American	Platanus occidentalis	70%	Good	NO	1	4	12		Small DW (1-2")
1265	12	maple, Freeman	Acer x freemanii	55%	Fair	NO	1	5	18		Compacted Soils, Root Damage/Decay, Mechanical Damage, Small DW (1-2")
1266	11	maple, Freeman	Acer x freemanii	45%	Fair	NO	1	5	17		Compacted Soils, Root Damage/Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2")
1267	14	maple, Freeman	Acer x freemanii	45%	Fair	NO	1	6	21		Compacted Soils, Root Damage/Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2")
1268	14	maple, Freeman	Acer x freemanii	55%	Fair	NO	1	6	21		Compacted Soils, Root Damage/Decay, Trunk Decay, Mechanical Damage, Large DW (3"+), Small DW (1-2")
1269	9,8,6	ash, green	Fraxinus pennsylvanica	5%	Dead	YES	3	6	20		
1270	8,4	maple, red	Acer rubrum	65%	Good	NO	2	4	13		One Sided, Co-Dominant Stems, Small DW (1-2"), Stream Erosion
1271	9,6,3	mulberry, white	Morus alba	50%	Fair	NO	3	5	17		One Sided, Suppressed, Trunk Decay, Co-Dominant Stems, Small DW (1-2"), Branch Decay, Stream Erosion
1272	26	oak, white	Quercus alba	80%	Good	NO	1	12	39		Small DW (1-2")
1273	15	linden, American	Tilia americana	65%	Good	NO	1	7	23		One Sided, Suppressed, Large DW (3"+), Small DW (1-2")
1274	15	oak, white	Quercus alba	70%	Good	NO	1	7	23		Large DW (3"+), Small DW (1-2")
1275	17,18	oak, white	Quercus alba	40%	Poor	NO	2	11	37	18" severe dieback, Both declining	Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Low Vigor, Stressed, Serious Decline, Branch Decay
1276	9	hickory, mockernut	Carya tomentosa	75%	Good	NO	1	4	14		One Sided, Small DW (1-2")
1277	18	oak, northern red	Quercus rubra	5%	Dead	YES	1	8	27	Herndon Tag #26	
1278	9	oak, white	Quercus alba	60%	Fair	NO	1	4	14		Large DW (3"+), Small DW (1-2"), Broken Limbs
1279	32,14	oak, white	Quercus alba	5%	Dead	YES	2	16	52	Herndon Tag #25	
1280	15	oak, white	Quercus alba	70%	Good	NO	1	7	23		One Sided, Mechanical Damage, Small DW (1-2")
1281	15,14	oak, white	Quercus alba	70%	Good	NO	2	9	31		One Sided, Co-Dominant Stems, Small DW (1-2")
1282	9,13	oak, white	Quercus alba	60%	Fair	NO	2	7	24		Co-Dominant Stems, Large DW (3"+), Small DW (1-2")
1283	11	oak, white	Quercus alba	65%	Good	NO	1	5	17		One Sided, Small DW (1-2")
1284	9,9	hickory, pignut	Carya glabra	70%	Good	NO	2	6	19		Co-Dominant Stems, Small DW (1-2")
1285	8	oak, willow	Quercus phellos	70%	Good	NO	1	4	12		One Sided, Suppressed
1286	22	oak, white	Quercus alba	70%	Good	NO	1	10	33		One Sided, Suppressed, Large DW (3"+), Small DW (1-2")
1287	17	oak, white	Quercus alba	70%	Good	NO	1	8	26		One Sided, Suppressed, Small DW (1-2")
1288	14	hickory, pignut	Carya glabra	75%	Good	NO	1	6	21		One Sided, Suppressed
1289	26	oak, white	Quercus alba	70%	Good	NO	1	12	39		Co-Dominant Stems
1290	16	oak, white	Quercus alba	5%	Dead	YES	1	7	24		
1291	13	oak, white	Quercus alba	60%	Fair	NO	1	6	20		One Sided, Large DW (3"+), Small DW (1-2")
1292	22	oak, northern red	Quercus rubra	70%	Good	NO	1	10	33		
1293	10	oak, white	Quercus alba	70%	Good	NO	1	5	15		One Sided
1294	8	baldcypress, common	Taxodium distichum	50%	Fair	NO	1	4	12		One Sided, Small DW (1-2")
1295	10,8	oak, sawtooth	Quercus acutissima	65%	Good	NO	2	6	19		Co-Dominant Stems, Small DW (1-2"), Vines
1296	8,6	oak, sawtooth	Quercus acutissima	65%	Good	NO	2	5	15		One Sided, Co-Dominant Stems, Small DW (1-2"), Vines
1297	8	locust, black	Robinia pseudoacacia	50%	Fair	NO	1	4	12	Beaver damage	One Sided, Mechanical Damage, Small DW (1-2")

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TREE INVENTORY SCHEDULE

FAIRBROOK BUSINESS PARK
TOWN OF HERNDON, VA

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INTERNATIONAL SOCIETY OF ARBORICULTURE — CARY HULTE — ISA# PD-1080A — CERTIFIED ARBORIST

REVISIONS

No.	Date	Description	Rev. By	App. By
2	9/28/20	2ND SUBMISSION		
3	10/16/20	3RD SUBMISSION		
4	11/03/20	4TH SUBMISSION		

DATE: JUNE 4, 2020

SCALE:AS NOTED

Horizontal Datum: VCS NAD 83
Vertical Datum: NAVD 88
Boundary and Topo Source: VIKA

Design	Draft	Approved
CH	CH	----

Sheet #
S-5

WSSI Project Number:
4674.06

Date: MAY 2020

Tree Inventory

Project: FAIRBROOK

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree	Stems	SRZ (Structural Critical Root Zone (radius) in Feet)	CRZ (Critical Root Zone Radius in Ft (1.5 ft radius [DBH]))	Additional Notes	Condition Notes
1298	8	redcedar, eastern	Juniperus virginiana	70%	Good	NO	1	4	12		Large DW (3"+), Vines
1299	9	redcedar, eastern	Juniperus virginiana	70%	Good	NO	1	4	14		Vines
1300	11	baldcypress, common	Taxodium distichum	70%	Good	NO	1	5	17		Small DW (1-2")
1301	8	redcedar, eastern	Juniperus virginiana	70%	Good	NO	1	4	12		Small DW (1-2")
1302	10	oak, southern red	Quercus falcata	70%	Good	NO	1	5	15		Large DW (3"+), Small DW (1-2")
1303	9	oak, sawtooth	Quercus acutissima	70%	Good	NO	1	4	14		Small DW (1-2")
1304	10	oak, sawtooth	Quercus acutissima	70%	Good	NO	1	5	15		One Sided, Small DW (1-2")
1305	9	oak, sawtooth	Quercus acutissima	70%	Good	NO	1	4	14		Small DW (1-2")
1306	10	oak, sawtooth	Quercus acutissima	70%	Good	NO	1	5	15		Small DW (1-2")
1307	8,7	pear, Callery	Pyrus calleryana	65%	Good	NO	2	5	16		One Sided, Co-Dominant Stems, Small DW (1-2"), Vines
1308	8	oak, sawtooth	Quercus acutissima	65%	Good	NO	1	4	12		Small DW (1-2")
1309	9	oak, sawtooth	Quercus acutissima	65%	Good	NO	1	4	14		Small DW (1-2")
1310	8,9	oak, sawtooth,	Quercus acutissima	70%	Good	NO	2	5	18		Small DW (1-2")
1311	13	sycamore, American	Platanus occidentalis	65%	Good	NO	1	6	20		Small DW (1-2"), Vines
1312	9	baldcypress, common	Taxodium distichum	70%	Good	NO	1	4	14		Small DW (1-2"), Vines
1313	13	baldcypress, common	Taxodium distichum	70%	Good	NO	1	6	20		Small DW (1-2"), Vines
1314	11	baldcypress, common	Taxodium distichum	70%	Good	NO	1	5	17		Small DW (1-2"), Vines
1315	8,7	baldcypress, common	Taxodium distichum	70%	Good	NO	2	5	16		Co-Dominant Stems, Small DW (1-2"), Vines
1316	11	sycamore, American	Platanus occidentalis	70%	Good	NO	1	5	17		Small DW (1-2"), Vines
1317	8,7	willow, black	Salix nigra	55%	Fair	NO	2	5	16		Large DW (3"+), Small DW (1-2"), Vines
1318	11	baldcypress, common	Taxodium distichum	70%	Good	NO	1	5	17		Small DW (1-2")
1319	13	baldcypress, common	Taxodium distichum	70%	Good	NO	1	6	20		Small DW (1-2"), Vines
1320	13	baldcypress, common	Taxodium distichum	70%	Good	NO	1	6	20		Small DW (1-2"), Vines
1321	10	sycamore, American	Platanus occidentalis	70%	Good	NO	1	5	15		Small DW (1-2")
1322	10	baldcypress, common	Taxodium distichum	70%	Good	NO	1	5	15		Small DW (1-2")
1323	8,5	baldcypress, common	Taxodium distichum	70%	Good	NO	2	4	14		Co-Dominant Stems, Small DW (1-2")
1324	12	baldcypress, common	Taxodium distichum	70%	Good	NO	1	5	18		Small DW (1-2")
1325	8	oak, water	Quercus nigra	70%	Good	NO	1	4	12		Small DW (1-2")
1326	12	pine, loblolly	Pinus taeda	55%	Fair	NO	1	5	18	Beaver damage	Mechanical Damage, Large DW (3"+), Small DW (1-2")
1327	8	baldcypress, common	Taxodium distichum	70%	Good	NO	1	4	12		Small DW (1-2")
1328	9	baldcypress, common	Taxodium distichum	70%	Good	NO	1	4	14	Beaver damage	Small DW (1-2")
1329	8	baldcypress, common	Taxodium distichum	70%	Good	NO	1	4	12		Small DW (1-2")
1330	9	baldcypress, common	Taxodium distichum	70%	Good	NO	1	4	14		Small DW (1-2")
1331	12	baldcypress, common	Taxodium distichum	70%	Good	NO	1	5	18		Small DW (1-2")
1332	11	pine, loblolly	Pinus taeda	50%	Fair	NO	1	5	17	Beaver damage	Mechanical Damage, Small DW (1-2")
1333	8,8	birch, river	Betula nigra	70%	Good	NO	2	5	17		One Sided, Small DW (1-2")
1334	8	sycamore, American	Platanus occidentalis	65%	Good	NO	1	4	12		One Sided, Small DW (1-2")
1335	8,8,6,4	birch, river	Betula nigra	70%	Good	NO	4	6	20		One Sided, Small DW (1-2")
1336	11,9,8,4,4	birch, river	Betula nigra	70%	Good	NO	5	8	26		Small DW (1-2"), Vines
1337	9	baldcypress, common	Taxodium distichum	70%	Good	NO	1	4	14		One Sided, Small DW (1-2")
1338	9	pine, loblolly	Pinus taeda	45%	Fair	NO	1	4	14	Beaver damage	One Sided, Mechanical Damage, Small DW (1-2")
1339	12	pine, loblolly	Pinus taeda	5%	Dead	YES	1	5	18	Beaver damage	
1340	13	baldcypress, common	Taxodium distichum	70%	Good	NO	1	6	20		Co-Dominant Stems, Small DW (1-2")
1341	17	baldcypress, common	Taxodium distichum	70%	Good	NO	1	8	26		Small DW (1-2")
1342	8	baldcypress, common	Taxodium distichum	70%	Good	NO	1	4	12		One Sided, Small DW (1-2"), Vines
1343	10	sycamore, American	Platanus occidentalis	70%	Good	NO	1	5	15		Small DW (1-2"), Vines
1344	18	sycamore, American	Platanus occidentalis	70%	Good	NO	1	8	27		Small DW (1-2"), Vines
1345	11	sycamore, American	Platanus occidentalis	70%	Good	NO	1	5	17		Small DW (1-2"), Vines
1346	9	elm, slippery	Ulmus rubra	70%	Good	NO	1	4	14		Small DW (1-2"), Vines
1347	10	sycamore, American	Platanus occidentalis	70%	Good	NO	1	5	15		Small DW (1-2")
1348	12,9	sycamore, American	Platanus occidentalis	70%	Good	NO	2	7	23		Co-Dominant Stems, Small DW (1-2"), Vines
1349	10	pear, common	Pyrus communis	30%	Poor	NO	1	5	15		Mechanical Damage, Small DW (1-2")
1350	11	elm, slippery	Ulmus rubra	70%	Good	NO	1	5	17		One Sided
1351	9	pear, common	Pyrus communis	5%	Dead	YES	1	4	14		
1352	8	boxelder	Acer negundo	60%	Fair	NO	1	4	12		
1353	10	pear, Callery	Pyrus calleryana	55%	Fair	NO	1	5	15		
1354	9	willow, black	Salix nigra	50%	Fair	NO	1	4	14		Small DW (1-2")
1355	8	pear, Callery	Pyrus calleryana	40%	Poor	NO	1	4	12		Trunk Decay, Small DW (1-2")
2411	7,8	hickory, pignut	Carya glabra	65%	Good	NO	2	5	16		Suppressed, Co-Dominant Stems
2412	8	maple, red	Acer rubrum	50%	Fair	NO	1	4	12		Suppressed, Small DW (1-2"), Stream Erosion
2413	8	pear, Callery	Pyrus calleryana	50%	Fair	NO	1	4	12		Suppressed, Small DW (1-2")
2414	10,12	oak, white	Quercus alba	50%	Fair	NO	2	7	23	Herndon Tag #23	One Sided, Root Damage/Decay, Basal Decay, Trunk Decay, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Stressed, Branch Decay
2415	13	oak, white	Quercus alba	45%	Fair	NO	1	6	20	Herndon Tag #24	One Sided, Root Damage/Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Stressed, Branch Decay
2416	14	oak, white	Quercus alba	65%	Good	NO	1	8	21		One Sided, Small DW (1-2")

TREE INVENTORY NOTES:

1. TREE INVENTORY FIELDWORK PERFORMED BY DAVID MEANS, ISA CERTIFIED ARBORIST IL-0110A, OF WETLAND STUDIES AND SOLUTIONS, INC. (WSSI) BETWEEN MAY 18 AND MAY 27, 2020.
2. TREE LOCATIONS ARE BASED ON VISUAL FIELD ESTIMATIONS ONLY, AND ARE APPROXIMATE. OWNER AND CONTRACT ARBORIST SHALL VERIFY ALL TREE LOCATIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND/OR TREATMENT OR REMOVAL.
3. THE INSPECTION OF THESE TREES CONSISTED SOLELY OF A VISUAL INSPECTION FROM THE GROUND. WHILE MORE THOROUGH TECHNIQUES ARE AVAILABLE FOR INSPECTION AND EVALUATION, THEY WERE NEITHER REQUESTED NOR CONSIDERED NECESSARY OR APPROPRIATE AT THIS TIME.

Wetland Studies and Solutions, Inc. — a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

TREE INVENTORY SCHEDULE

FAIRBROOK BUSINESS PARK
TOWN OF HERNDON, VA

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NORTHEAST CHAPTER SOCIETY OF ARBORICULTURE
CARY HULSE
ISA# PD-1080A
CERTIFIED ARBORIST

REVISIONS

No.	Date	Description	Rev. By	App. By
2	9/28/20	2ND SUBMISSION		
3	10/16/20	3RD SUBMISSION		
4	11/03/20	4TH SUBMISSION		

DATE: JUNE 4, 2020

SCALE:AS NOTEDC1.:2'

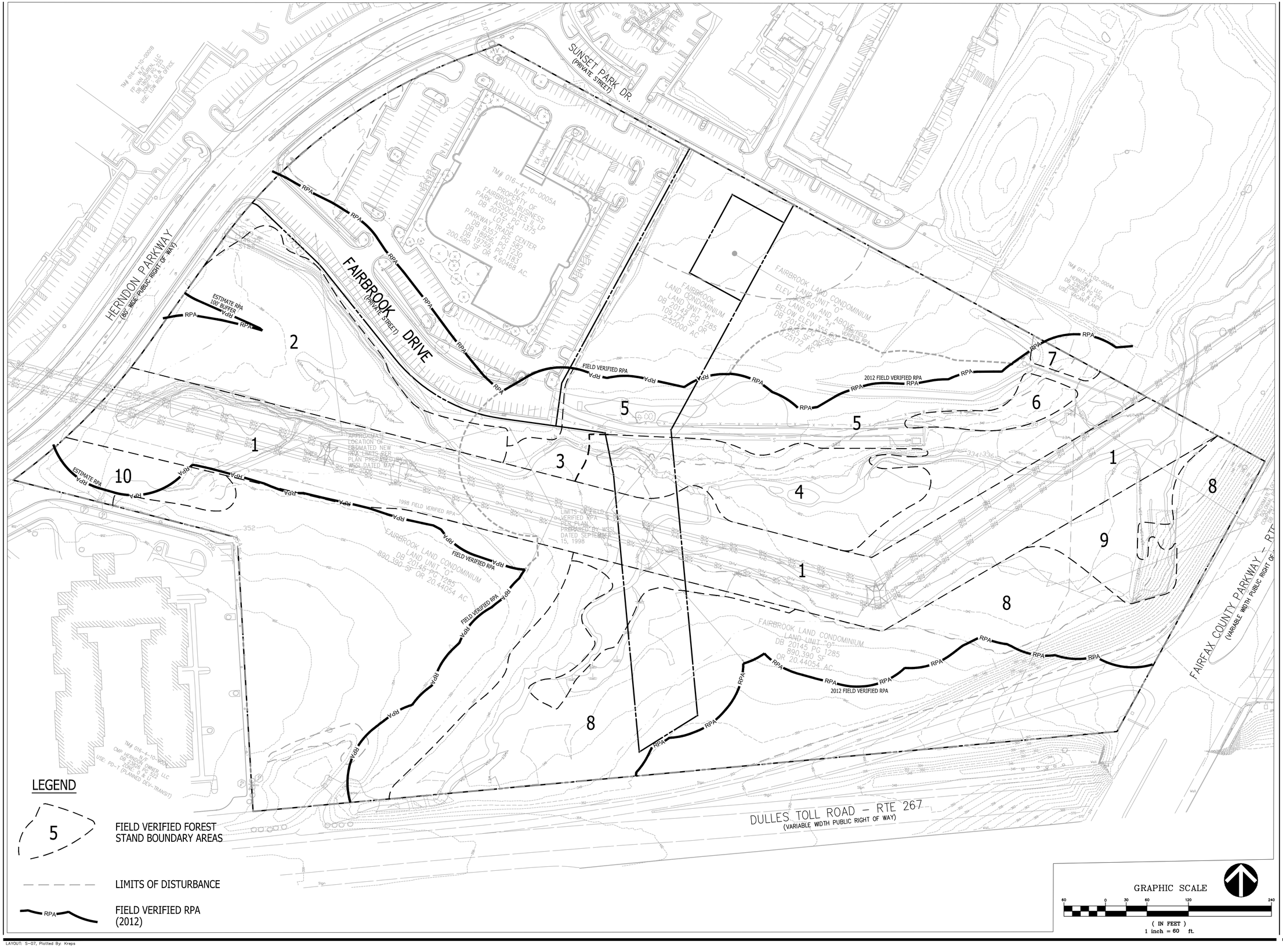
Horizontal Datum: VCS NAD 83
Vertical Datum: NAVD 88
Boundary and Topo Source: VIKA

Design	Draft	Approved
CH	CH	----

Sheet #
S-6

WSSI Project Number:
4674.06

L:\04000s\4674.06\CADD\05-ENVIRTREES\4764.06_FAIRBROOK_TREES_2020.06.02.dwg S-6 Plotted By: Hulse, Cary 6/2/2020 12:55 PM



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V 11.00

PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
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3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

SIMPLIFIED FOREST STAND DELINEATION PLAN

DRAWN BY:	PN
DESIGNED BY:	NPK
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	S-07

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_S-10-S-11 MODOFIED FOREST STAND DELINEATION PLAN.dwg USER: kreps DATE: November 3, 2020 TIME: 11:6:50 PM LAYOUT: S-07

LAYOUT: S-07, Plotted By: Kreps

SIMPLIFIED FOREST STAND ANALYSIS NARRATIVE

THIS NARRATIVE PRESENTS A SIMPLIFIED FOREST STAND DELINEATION FOR THOSE AREAS AT THE FAIRBROOK SITE THAT ARE WITHIN THE FIELD-VERIFIED RESOURCE PROTECTION AREA (RPA). SHEET S-07 DEPICTS THE EXTENT OF EACH VEGETATION AREA AS CHARACTERIZED IN THIS NARRATIVE.
THE EXISTING AREA WITHIN THE RPA SITE IS UNDEVELOPED. HOWEVER, THERE IS A PRIMARY ELECTRIC POWER CORRIDOR WHICH SEGMENTS THE COVER TYPES OF THE RESOURCE PROTECTION AREA (RPA). THE GENERAL COVER TYPES VARY FROM OPEN MEADOW TO UPLAND HARDWOOD FOREST, TO BOTTOMLAND UN-MAINTAINED GRASSLAND AND TO AN UNIMPROVED ROAD (GRAVEL) PROVIDING VEHICLE MAINTENANCE ACCESS TO THE TRANSMISSION CORRIDOR.
THE SUCCESSIONAL STAGE COMPOSITION OF THE SUBJECT AREAS INVENTORIED VARIES FROM GRASS, FORBS AND SHRUBS (TRANSMISSION CORRIDOR), TO PIONEER SUCCESSION, TO EARLY SUCCESSIONAL WOODLAND, TO A SUB-CLIMAX FOREST. OVERALL, AND IN GENERAL, THE INVENTORIED AREAS REVEAL WOODLANDS AND MEADOWS WITH VEGETATION, AND HABITAT OF GOOD HEALTH, VIGOR AND VITALITY.

OVERALL AREA(S) DESCRIPTION

AREA-1
THE PRIMARY USE OF THIS AREA IS AS A HIGH-TENSION POWER TRANSMISSION CORRIDOR. THERE ARE NO CANOPY TREES IN THIS AREA. THOSE EXISTING TREES AT THE PERIMETER OF THE TRANSMISSION CORRIDOR REVEAL THAT THE EDGE CANOPY TREES ARE ROUTINELY "UTILITY PRUNED" TO MAINTAIN ALL BRANCHING WELL OFFSET FROM THE OVERHEAD WIRES AND TRANSMISSION TOWERS.

AREA-2
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-2 ARE AS FOLLOWS:
- Cercis candensis - EASTERN REDBUD
- Morus alba - WHITE MULBERRY
- Quercus rubra - NORTHERN RED OAK
- Quercus alba - WHITE OAK
- Quercus palustris - PIN OAK
- Acer rubrum - RED MAPLE
- Cornus florida - FLOWERING DOGWOOD
- Juniperus virginiana - REDCEDAR

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-2 SUCH AS:
- Vitis spp -WILD GRAPE
- Cleastrus orbiclatus - ORIENTAL BITTERSWEET
- Lonicera japonica - JAPANESE HONEYSUCKLE

THE INTERNAL WOODED AREA OF AREA-2 WAS FOUND TO BE PREDOMINANTLY CLEAR OF INVASIVE VEGETATION.

AREA-3
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-3 ARE AS FOLLOWS:
- Pyrus calleryana - Callery Pear
- Acer rubrum - red Maple
- Quercus rubra - Red Oak
- Salis nigra - Black Willow

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-3 SUCH AS:
- Vitis spp -WILD GRAPE

AREA-4
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-4 ARE AS FOLLOWS:
- Acer rubrum - RED MAPLE
- Quercus rubra - RED OAK
- Quercus phellos - WILLOW OAK
- Ulmus rubra - SLIPPERY ELM
- Platanus occidentalis - AMERICAN SYCAMORE
- Paulownia tomentosa - ROYAL PAULOWNIA
- Pinus virginiana - VIRGINIA PINE
- Prunus serotina - Black Cherry

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-4 SUCH AS:
- Vitis spp -WILD GRAPE
- Microstegium vimineum - JAPANESE STILTGRASS
- Elaeagnus umbellata - AUTUMN OLIVE
- Celastrus orbiculatus - ORIENTAL BITTERSWEET

AREA-5
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-5 ARE AS FOLLOWS:
- Quercus phellos - WILLOW OAK
- Juniperus virginiana - REDCEDAR
- Ulmus rubra - SLIPPERY ELM
- Carya glabra - PIGNUT HICKORY
- Cercis candensis - EASTERN REDBUD
- Paulownia tomentosa - ROYAL PAULOWNIA
- Pyrus calleryana - Callery Pear

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-5 SUCH AS:
- Rosa multiflora - MULTIFLORA ROSE

AREA-6
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-6 ARE AS FOLLOWS:
- Platanus occidentalis - AMERICAN SYCAMORE
- Ulmus rubra - SLIPPERY ELM
- Pyrus calleryana - CALLERY PEAR
- Juniperus virginiana - REDCEDAR
- Robinia pseudoacacia - BLACK LOCUST
- Carya glabra - PIGNUT HICKORY
- Taxodium distichum - BALDCYPRESS

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-6 SUCH AS:
- Elaeagnus umbellata - AUTUMN OLIVE

AREA-7
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-7 ARE AS FOLLOWS:
- Quercus acutissima - SAWTOOTH OAK
- Diospyros virginiana - COMMOM PERSIMMON
- Pyrus calleryana - CALLERY PEAR

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-7 SUCH AS:
- Rosa multiflora - MULTIFLORA ROSE

AREA-8
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-8 ARE AS FOLLOWS:
- Robinia pseudoacacia - BLACK LOCUST
- Ulmus rubra - SLIPPERY ELM
- Pinus virginiana - VIRGINIA PINE

AREA-9
THE PREDOMINANT SPECIES IDENTIFIED IN AREA-9 ARE AS FOLLOWS:
- OPEN, TALL UN-MAINTAINED GRASS

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-9 SUCH AS:
- Elaeagnus umbellata - AUTUMN OLIVE

AREA-10
THE PREDOMINANT TREE SPECIES IDENTIFIED IN AREA-10 ARE AS FOLLOWS:
- Acer rubrum - RED MAPLE
- Ulmus rubra - SLIPPERY ELM
- Quercus rubra - RED OAK
- Pinus virginiana - VIRGINIA PINE
- Carya glabra - PIGNUT HICKORY
- Platanus occidentalis - AMERICAN SYCAMORE
- Quercus alba - WHITE OAK
- Cercis canadensis - EASTERN REDBUD
- Ilex opaca - AMERICAN HOLLY

AREAS OF INVASIVE VEGETATION WERE OBSERVED AT THE PERIMETER OF AREA-10 SUCH AS:
- Vitis spp -WILD GRAPE
- Celastrus orbiculatus - ORIENTAL BITTERSWEET
- Toxicodendron radicans - POISON IVY

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INVASIVE PLANT SPECIES REMOVAL

ALL EXISTING INVASIVE SPECIES WILL BE REMOVED FROM WITHIN THE LIMIT OF DISTURBANCE FOR A PARTICULAR PHASE PRIOR TO ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY FOR THE ASSOCIATED PHASE OF DEVELOPMENT. FURTHER, INVASIVE PLANT REMOVAL / MITIGATION SHALL OCCUR ONLY ON THE APPLICANT'S PROPERTY, AND SHALL NOT INCLUDE ANY OF THE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF FAIRBROOK DRIVE, EXTENDED, NORTH TO SPRING STREET.

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POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN
TOWN OF HERNDON,
VIRGINIA

MODIFIED FOREST DELINEATION NOTES AND NARRATIVES

DRAWN BY:	PN
DESIGNED BY:	NPK
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	NA
VIKA NO.	VV6045X
SHEET NO.	S-08

FILE: P:\projects\6045\6045X\CADD\PLANNING\PLANNING DRAWINGS\6045X_S-10-S-11 MODIFIED FOREST STAND DELINEATION PLAN.dwg USER: Kreps DATE: November 3, 2020 TIME: 1:16:04 PM LAYOUT: S-08

TM# 016-4-02-0015
N/F
HERNDON SUITES, LLC
DB 15522 PG 187
ZONE: O & LI
USE: HOTEL W/O RESTAURANT

TM# 017-3-02-0004A
N/F
HERNDON I LLC
DB 23620 PG 252
ZONE: O & LI
USE: VACANT LAND

TM# 061-4-02-0015A
N/F
SSC PROPERTY HOLDINGS INC.
DB 9021 PG 1525
ZONE: O & LI
USE: MINI-WAREHOUSE

TM# 016-4-10-0001B
N/F
FP VAN BUREN, LLC
DB 18608 PG 125
ZONE: O & LI
USE: LOW RISE OFFICE

N 7033339.656
E 11802237.530

SCRIBE ON TRN

S61°25'16"E 1,260.92 TOTAL

N 7032736.471
E 11803344.820

S28°42'37"W 445.51'

N 7032345.732
E 11803130.805

N 7032709.436
E 11801535.265

N 7032229.974
E 11801882.030

N75°35'52"W 334.46'

N01°17'45"W 396.93'

S84°42'02"W 1204.51'

HERNDON PARKWAY
(80' WIDE PUBLIC RIGHT OF WAY)

N35°17'33"E 171.00'

DULLES TOLL ROAD – RTE 267
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)

FAIRBROOK DRIVE

ROAD "A"
(PRIVATE STREET)

FAIRBROOK LAND CONDOMINIUM
LAND UNIT "O"
ELEV 355.60' AND ABOVE
LAND UNIT "H"
BELOW ELEV 355.60'
DB 20145 PG 1285
10,965 SF OR
0.25172 AC

FAIRBROOK
LAND CONDOMINIUM
LAND UNIT "H"
DB 20145 PG 1285
109,771 SF OR
2.52000 AC

FAIRBROOK LAND CONDOMINIUM
LAND UNIT "O"
DB 20145 PG 1285
890,390 SF
OR 20.44054 AC

TM# 016-4-10-0005A
LOT 5A
PARKWAY TRADE CENTER
DB 9357, PG 582
DB 18956, PG 1230
DB 19759, PG 1183
200,580 SF OR 4.60468 AC.

TM# 016-4-10-0004
N/F
CMP HERNDON OWNER, LLC
DB 23826 PG 522
ZONE: O & LI
USE: PD-T (PLANNED DEV-TRANSIT)

PROPOSED PUBLIC ACCESS EASEMENT AND EMERGENCY VEHICLE EASEMENT

PROPOSED PUBLIC ACCESS EASEMENT

PROPOSED PUBLIC ACCESS EASEMENT AND EMERGENCY VEHICLE EASEMENT

PROPOSED PUBLIC ACCESS EASEMENT

PROPOSED PUBLIC ACCESS EASEMENT

PROPOSED PUBLIC ACCESS EASEMENT

PROPOSED PUBLIC ACCESS EASEMENT

PROPOSED PUBLIC ACCESS EASEMENT

FUTURE DEDICATION FOR PUBLIC STREET PURPOSES
PROPOSED INTERIM PUBLIC ACCESS EASEMENT AREA

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	TANGENT	CHORD BRG	CHORD
C10	281.60'	852.00'	018°56'14"	142.10'	N44°45'40"E	280.32'
C11	79.28'	759.12'	005°59'01"	39.68'	N38°17'04"E	79.24'
C12	393.27'	759.12'	029°40'57"	201.15'	N56°07'03"E	388.88'
C13	36.40'	852.00'	002°26'51"	18.20'	N69°44'05"E	36.39'

1. THE SUBJECT PROPERTIES SHOWN HEREON ARE IDENTIFIED ON FAIRFAX COUNTY TAX MAP AS #016-4-10-0005A, #016-4-25-H, & #016-4-25-O AND ARE ZONED O AND LI.
2. BOUNDARY INFORMATION IS BASED ON A FIELD RUN SURVEY BY VIKA, INC. DATED OCTOBER, 2000 AND VERIFIED ON JUNE 16, 2006 AND JANUARY 18, 2008 AND UPDATED BY VIKA VIRGINIA, LLC ON DECEMBER 04, 2015.
3. THE HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983 (NADB3) AND THE VERTICAL DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29). THE HORIZONTAL AND VERTICAL DATUMS SHOWN HEREON ARE BASED ON A GPS SURVEY PERFORMED BY VIKA VIRGINIA, LLC ON JUNE 14, 2018 USING THE FOLLOWING CORS STATIONS: LOYB LORTON VA 0 0576 (NGS PID DH7960), VAGV GAINESVILLE VA – 0588. AND LOYK ANNAPOLIS JCT MD – 0370 (NGS PID DL3640). THE ELEVATIONS CONVERSION OF THE VERTICAL DATUM FROM THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) TO (NGVD29), USING A DIFFERENCE OF +0.71', WAS CALCULATED USING ARMY CORPS OF ENGINEERS' CORPSCON 6.0.1 CONVERSION TOOL.
4. AREA OF FAIRBROOK DRIVE DEDICATION TO BE COVERED BY AN INTERIM PUBLIC ACCESS EASEMENT.

NORTH (VCS 83)

GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

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PLAN STATUS	DATE
1ST SUBMISSION	06/19/17
2ND SUBMISSION	06/07/19
3RD SUBMISSION	06/04/20
4TH SUBMISSION	09/28/20
5TH SUBMISSION	10/16/20
6TH SUBMISSION	11/03/20

POST-APPROVAL SHEET STATUS	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JEFFREY A. KREPS
Lic. No. 1259
11/3/2020
LANDSCAPE ARCHITECT

FAIRBROOK

SPECIAL EXCEPTION PLAN

TOWN OF HERNDON,
VIRGINIA

PROPOSED PUBLIC EASEMENT EXHIBIT

DRAWN BY:	RMC
DESIGNED BY:	ARC
DATE ISSUED:	JUNE 19, 2017
DWG. SCALE:	1"=60'
VIKA NO.	VV6045X
SHEET NO.	S-09

FILE: P:\projects\6045\6045X\CADD\SURVEYS\BASE DRAWINGS\6045X - EASEMENT EXHIBIT.dwg USER: Kreps DATE: November 3, 2020 TIME: 1:18:27 PM LAYOUT: ESMT XBIT

LAYOUT: ESMT XBIT | Plotted By: Kreps

TOWN OF Herndon
OFFICE OF THE TOWN ATTORNEY

STAFF REPORT

Town Council
November 10, 2020

Title:

Resolution, to consider an amendment to the Comprehensive Agreement dated November 1, 2017 between the Town of Herndon and Comstock Herndon Venture, LC, to establish the closing date and closing conditions for both parties, establish commencement of construction and outside satisfaction dates, and provide licenses for the operation of public facilities in the interim.

Staff Contact:

William H. Ashton II, Town Manager
(703) 787-7368
bill.ashton@herndon-va.gov

Lesa J. Yeatts, Town Attorney
(703) 787-7370
lesa.yeatts@herndon-va.gov

Description:

In 2016 the Town issued an RFP for award of a comprehensive agreement pursuant to the Virginia public private partnership act for the redevelopment of approximately 4. 675 acres of Town owned land in downtown for a mixed-use town center project, Arts Center and associated parking. Two responses were received and Comstock Herndon Venture, LC was selected by the Town Council following extensive public input. The parties proceeded to negotiate the terms of a Comprehensive Agreement pursuant to the provisions of the Public Private partnership and on October 27, 2017, the Town Council approved a resolution authorizing a proposed Comprehensive Agreement between the Town of Herndon and Comstock Herndon Venture, LC, defining responsibilities of both parties for the redevelopment of the property.

As a result of the action taken on October 27, 2017 a Comprehensive Agreement between Comstock Herndon Venture, LC and the Town of Herndon was signed by both parties on November 1, 2017. Thereafter the parties proceeded to pursue the requirements of the agreement:

- May 2018 - Initial Site Plan Submittal
- June 2018 - HPRB Hearing/COAs Approved
- July 2018 - Citizen Appeals filed (7/2/18)
- Oct 2018 - GC Preconstruction Pricing Budget
- April 2019 - Final Site Plan Approval

- May 2019 - HPRB Hearing/COAs Approved Unanimously
- May 2019 - Permit/Bid Drawings Complete
- Aug 2019 - Final Competitive Bids Received
- August-December 2019 review of bids and value engineering exercise
- January 2020 review options for preserving critical elements of design

Recent delays in construction of this project are related to significant problems created by conditions in the Metropolitan DC construction market. Between 2016, when the project was bid, and March 2020, a significant rise in labor and material costs in the region occurred. These increases were directly related to a construction boom that occurred in the region leading up to the pandemic. Increased construction activity in Loudoun, Fairfax, Arlington, Alexandria, and Washington, DC forced labor and material costs higher for the region.

Covid-19 did not help the situation. Unlike in other regions, increases in unemployment in Metropolitan DC focused mainly on the hospitality sector and provided little to relief in construction labor costs. Covid-19 also played a significant role in substantial increases in material costs as production facilities reduced output or shutdown as a result of governmental Covid-19 workforce restrictions causing supply to constrict at the same time demand held steady.

In the interest of the continued forward movement of the project the Town and Comstock now desire to amend the Comprehensive Agreement in order to better address the changes in the market, unforeseen effects of Covid-19 and to provide both parties maximum advantage. The amendment:

- Permits the closing on the conveyance of the Property prior to satisfaction of conditions precedent thereto set forth in the Comprehensive Agreement.
- Establishes the closing date on the property at December 15, 2020.
- Permits the satisfaction of those certain conditions precedent subsequent to the conveyance,
- Requires appropriation prior to closing.
- Adjusts the outside satisfaction date by which Comstock must have the project under construction to December 31, 2021.
- Extends certain rights of Comstock to pause the commencement of construction due to market conditions and other matters, including delays caused by the Covid-19 pandemic.
- Increases the Parent guarantee by an additional 5 million to 10 million to cover the Arts Center and the Parking.
- Provides for licenses to the Town to allow the continued use of the property owned by Comstock for Arts Space and Public shared parking.

Fiscal Impact:

In addition to the $10 million in real estate that will be transferred to Comstock Herndon, LC for construction of the downtown redevelopment, the town will need to appropriate $3.6 million to meet its obligations under the Comprehensive Agreement. For this consideration the town will realize public amenities to include structured public parking, an Arts Center shell, and programmable, walkable plazas that will include public art. The breakdown of this appropriation that is required to implement this resolution is:

Cash		**$2,250,000**
Allowances		**$1,350,000**
Environmental Remediation	$500,000	
Transitional Downtown Parking	$500,000	
Transitional Arts Space Relocation	$250,000	
Box Culvert Repair	$100,000	
Total Appropriation		**$3,600,000**

This is the same appropriation level that was originally envisioned in the Comprehensive Agreement signed by the town in 2017. Additionally, this amendment provides Comstock Herndon, LC with the following economic development incentives that are consistent with the town's Arts District ordinance:

Fee	**Total**	**50% Reduction**
Water Availability	$1,900,000	$950,000
Sewer Availability	$2,600,000	$1,300,000
Building Permit	$200,000	$100,000
Total Fee Reduction		**$2,350,000**

All together the financial investment plus development incentives for the project are approximately $16 million and the town anticipates the value of its capital return on the project to be over $16.6 million.

Investment		**Return**	
Land	$10,000,000	Public Parking	$9,537,000
Cash	$3,600,000	Arts Center Shell	$2,250,000
Fee Reduction	$2,350,000	Public Improvements	$3,500,000
		Temp Parking, Arts Center, Environmental	$1,350,000
Total	**$15,950,000**		**$16,637,000**

The Art District ordinance also allows for the town to refund an incremental portion of property taxes of a redevelopment zoned PD-TD when 15% of the ground floor is used for an arts purpose each year for up to ten years. Once the project has been completed, Comstock may choose to apply for this refund. The value of this refund is estimated to be $1.9 million over 10 years. Staff further estimates that the tax revenues produced on this site, to include real estate taxes outside of this incentive, meals tax, and business, professional and occupational licensing, will be $1,165,000 over the same period.

As a reminder, the town currently makes no tax revenue on this site and will continue to make no tax revenue on this site as long as the town owns the property.

Staff Recommendation:

That the Mayor and Town Council approve the Resolution as proposed.

Attachments:

- Resolution
- Comprehensive Agreement Amendment

Prepared and Approved by:



William H. Ashton II, Town Manager



Lesa J. Yeatts, Town Attorney

AMENDMENT TO COMPREHENSIVE AGREEMENT

THIS AMENDMENT TO COMPREHENSIVE AGREEMENT (this "**Amendment**") is entered into as of _____, 2020 ("**Effective Date**"), by and between **THE TOWN OF HERNDON, VIRGINIA** ("**Herndon**" or the "**Town**"), and **COMSTOCK HERNDON VENTURE, LC**, a Virginia limited liability company ("**Comstock**").

RECITALS:

R-1. Herndon and Comstock are parties to that certain Comprehensive Agreement dated November 1, 2017 (as amended, the "**Comprehensive Agreement**"), pursuant to which the Town and Comstock agreed to enter into a public-private partnership for the conveyance to Comstock of certain land in historic downtown Herndon, Virginia identified in the Comprehensive Agreement and consolidated as Parcel 20G pursuant to that certain Deed of Boundary Line Adjustment and Consolidation dated December 27, 2018 and recorded in the land records of Fairfax County, Virginia as Instrument No. _____ (the "**Property**"), and Comstock's subsequent redevelopment thereof as the Herndon Downtown Redevelopment project (the "**Project**").

R-2. The parties desire herein to modify and amend the Comprehensive Agreement in order to, among other things, (i) permit the closing on the conveyance of the Property prior to satisfaction of conditions precedent thereto set forth in the Comprehensive Agreement, (ii) permit the satisfaction of those certain conditions precedent subsequent to the conveyance, and (iii) extend certain rights of Comstock to pause the commencement of construction due to market conditions and other matters, including delays caused by the Covid-19 pandemic.

AGREEMENT:

In consideration of the mutual promises, conditions and covenants set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Herndon and Comstock agree as follows.

1. Incorporation of Recitals; Defined Terms. The foregoing recitals are hereby incorporated into this Amendment by reference. Capitalized terms not otherwise defined herein shall have the meanings ascribed thereto in the Comprehensive Agreement.

2. Project Overview. The Project Overview set forth in Article I of the Comprehensive Agreement is modified as follows: (i) the residential units in each Building are modified so that Building A shall contain approximately 94 residential units, Building B shall contain approximately 120 residential units and Building C shall contain approximately 59 residential units, (ii) the arts center shall contain approximately 16,265 square feet, (iii) the structured parking garage shall contain approximately 726 parking spaces (allocated as follows: approximately 402 for the residential units, approximately 53 for the Arts Center parking, approximately 53 for retail parking and at least 220 for public parking) and (iv) the detailed

specifications and plans for the Project will be agreed upon by Comstock and Herndon after conveyance of the Property to Comstock in accordance with this Amendment.

3. Definitions. The following definitions contained in Section 2.2 of the Comprehensive Agreement shall be modified as follows:

A. The definition of "**Arts Center**" shall be modified to reflect that (i) it shall contain approximately 16,265 square feet of cold, dark shell space with no mezzanine space, (ii) the conceptual design set forth at Exhibit B-1 to the Comprehensive Agreement is deleted and replaced with the design attached to this Amendment at **Exhibit A**, and (iii) the minimum design criteria for the Arts Center set forth at Exhibit B-5 to the Comprehensive Agreement is hereby updated and substituted with the criteria attached to this Amendment at **Exhibit E.**

B. The definition of the "**Preliminary Project Plan**" shall be modified to reflect that: (i) Exhibit B-1 to the Comprehensive Agreement is deleted and replaced by **Exhibit A** attached to this Amendment; (ii) Exhibit B-2 to the Comprehensive Agreement is deleted and replaced by **Exhibit B** attached to this Amendment; (iii) Exhibit B-3 to the Comprehensive Agreement is deleted and replaced by **Exhibit C** attached to this Amendment; (iv) Exhibit B-4 to the Comprehensive Agreement is deleted and replaced by **Exhibit D** attached to this Amendment; and (v) Exhibit B-5 to the Comprehensive Agreement is deleted and replaced by **Exhibit E** attached to this Amendment.

C. The definition of "**Public Parking Spaces**" is hereby amended to reflect that there will be at least 220 parking spaces in the Parking Garage.

4. Closing; Conditions Precedent to Closing. The parties shall close on the conveyance of the Property to Comstock prior to the satisfaction (or waiver) of the Conditions to Closing set forth in Section 3.4 of the Comprehensive Agreement. Accordingly, the parties shall close on the conveyance of the Property to Comstock as follows:

A. Closing shall occur on or before December 15, 2020, or such other date mutually agreed to by the parties ("**2020 Closing Date**").

B. Notwithstanding anything to the contrary set forth in Section 3.4(1) of the Comprehensive Agreement, Comstock's obligation to acquire the Property on the 2020 Closing Date shall be subject to the satisfaction or waiver (in Comstock's sole discretion) solely of the following conditions ("**Comstock's 2020 Closing Conditions**"):

(i) In accordance with Ordinance 20-0-60, upon application by Comstock, Herndon shall approve a rebate of real estate taxes from the Town of Herndon for a period commencing upon Comstock's

acquisition of the Property and ending upon the date that is ten (10) years from the Commencement of Construction (as defined herein). Herndon and Comstock shall jointly work in good faith to secure from Fairfax County, Virginia an abatement of real estate taxes or an equivalent economic incentive (reasonably acceptable to Comstock) for the benefit of Comstock for a period commencing upon Comstock's acquisition of the Property and ending upon the date that is ten (10) years from the Commencement of Construction (as defined herein).

(ii) In accordance with Ordinance 20-0-60, upon application by Comstock, Herndon shall approve a waiver of fifty percent (50%) of the (x) water availability fees, (y) sewer availability fees, and (z) building permit fees. In addition, Herndon shall reduce the parking requirements for multifamily residential units to no less than 1.25 spaces per dwelling unit and defer proffer fees for recreation on the Property and Project for ten (10) years from the Commencement of Construction.

(iii) Herndon shall have provided its Proprietary Approval to the preliminary form of the Tri-Party Agreement attached to this Amendment at **Exhibit G** (through a resolution of the Town Council or other form required by the Town); provided, however, that (i) Herndon acknowledges and agrees that Comstock has not yet selected a Lender to finance the construction of the Project and that upon such selection, Comstock's Lender may require changes to the Tri-Party Agreement attached hereto at **Exhibit G**, and (ii) that Herndon shall use good faith, reasonable efforts to negotiate and agree on such changes and modifications to the Tri-Party Agreement required by Comstock's Lender in order to permit Comstock to reasonably finance the construction of the Project.

(iv) There shall be no mechanic's liens, or other liens or judgments encumbering the Property or threatened to be recorded against the Property.

(v) There shall exist no moratorium or other action or directive by any governmental authority that would prohibit Comstock from developing the Property in accordance with the Preliminary Project Plans (as modified by this Amendment).

(vi) All of Herndon's representations and warranties set forth in Section 11.1 shall be true and correct in all material respects or Herndon has notified Comstock of any changes in such representations and warranties and Comstock has accepted such.

(vii) Title to the Property shall be in the condition required by Section 3.3 without further encumbrances not approved by Comstock, and the Title Company shall have irrevocably committed to issue an owner's policy and lender's policy, as applicable, insuring Comstock's title in and to the Property in a commercially reasonable form.

(viii) Herndon shall have duly appropriated all funds necessary to pay the amounts required by Article 6, including reasonable and appropriate contingencies for Excess Transitional Parking Costs, Environmental Remediation and Culvert Repairs and Maintenance, as further set forth in Article 15, and all such funds shall be held by Herndon in a secure manner, available for disbursement in accordance with this Agreement.

(ix) Herndon shall have duly appropriated and paid all funds required to be paid to Comstock, if any, in accordance with Sections 3.3(3), 4.9 and 4.12, together with all other amounts then due to Comstock by Herndon under this Agreement.

C. Notwithstanding anything to the contrary set forth in Section 3.4(2) of the Comprehensive Agreement, Herndon's obligation to convey the Property to Comstock on the 2020 Closing Date shall be subject to the satisfaction or waiver (in Herndon's sole discretion) of the following conditions ("**Herndon's 2020 Closing Conditions**"):

(i) All of Comstock's representations and warranties set forth in Article 12 of the Comprehensive Agreement shall be true and correct in all material respects or Comstock has notified Herndon of any changes in such representations and warranties and Herndon has accepted such.

(ii) Herndon shall have obtained all necessary internal approvals and Proprietary Approvals (through a resolution of the Town Council or other form required by the Town) to the preliminary form of the Tri-Party Agreement attached to this Amendment at **Exhibit G** and to the form of Parking License attached to this Amendment at Exhibit B-1. Herndon acknowledges and agrees that Comstock has not yet selected a Lender to finance the construction of the Project and that upon such selection, Comstock's Lender may require changes to the Tri-Party Agreement attached hereto at **Exhibit G**. Herndon agrees to use good faith, reasonable efforts to negotiate and agree on such changes and modifications to the Tri-Party Agreement required by Comstock's Lender in order to permit Comstock to reasonably finance the construction of the Project.

(iii) Herndon shall have obtained all necessary internal approvals and Proprietary Approvals (through a resolution of the Town Council or other form required by the Town) to the form of license attached to this Amendment as **Exhibit C-1** (the "**Arts Space License**"). The Arts Space License shall allow Herndon and its assigns to utilize the existing arts space structure and appurtenant improvements currently located on the Property for no license fee and at no cost to Comstock from the date of Closing until such date that Comstock requires the Property for the Commencement of Construction of the Project. Comstock shall provide Herndon such notice with regard to the Commencement of Construction of the Project and the subsequent termination of the Arts Space License and cessation of the use of the Property in accordance with the notice requirements in the Arts Space License.

(iv) Comstock shall have determined and provided to Herndon a good faith estimate for the anticipated Excess Culvert Costs, anticipated Excess Relocation Costs, and anticipated Excess Transitional Parking Costs in accordance with Sections 4.1(6) and 4.12, and the parties shall have agreed upon the Excess Culvert Costs Cap set forth in Section 6.5.

D. Solely for purposes of tax reporting forms to be delivered at Closing (and for no other purpose under the Comprehensive Agreement), the allocated value of the Property is deemed to be $10,062,000.

5. Conditions Subsequent; Outside Satisfaction Date. Notwithstanding anything to the contrary contained in the Comprehensive Agreement, Comstock shall have until December 31, 2021 (as it may be extended, "**Outside Satisfaction Date**") to satisfy the following conditions subsequent to Closing ("**Conditions Subsequent**");

A. Fairfax County, Virginia has irrevocably provided, in commercially reasonable form, an abatement of real estate taxes or an equivalent economic incentive (reasonably acceptable to Comstock) for the benefit of Comstock for a period commencing upon Comstock's acquisition of the Property and ending upon the date that is ten (10) years from the Commencement of Construction.

B. Comstock and Herndon shall have agreed upon the Final Project Plans, Construction Drawings and Site Plan in accordance with Article 4 of the Comprehensive Agreement, and shall have agreed upon the substantially final form of the Condominium Documents in accordance with Section 8.2 of the Comprehensive Agreement.

C. Herndon shall have provided its Proprietary Approval of Comstock's proposed Mortgagee in accordance with Section 14.1(1) of the Comprehensive

Agreement, and Comstock, Herndon and the Approved Mortgagee shall have agreed on the final form of the Tri-Party Agreement in accordance with Section 14.1(2) of the Comprehensive Agreement.

D. Comstock shall have received all final and non-appealable Governmental Approvals for the Project, subject only to conditions approved by Comstock and posting the required bonds and escrow and paying all fees.

E. Comstock and Comstock's Approved Mortgagee shall be ready to close on all financing required by Comstock for the construction and Substantial Completion of the Project, and all Loan Documents (including without limitation the Tri-Party Agreement) shall be finalized and ready to be executed by all parties thereto, including Herndon.

F. All Offsite Easements shall have been obtained in the form required by Comstock. All Off-Site Easements requiring recordation shall have been recorded or shall be fully and duly executed, notarized and delivered to the Comstock's Title Company for recordation.

G. No lawsuit, appeal or other action shall have been filed by any party, directly or indirectly, involving the Property or the development of the Property in accordance with this Agreement, including any such lawsuit, appeal or other action regarding the environmental condition of the Property or for the purpose of challenging, contesting or seeking to prohibit, restrain, enjoin or delay any change in zoning or restrictive covenants required to permit development of the Project in accordance with the Final Project Plans.

H. There shall exist no moratorium or other action or directive by any governmental authority which would prohibit Comstock from developing the Property in accordance with the Final Project Plans.

I. Title Company shall have irrevocably committed to issue a lender's policy to Comstock's Lender insuring Lender's lien on the Property in the form required by Comstock's Lender, and including the Right of Reentry.

J. The General Contractor shall have been selected by Comstock and approved by Herndon, and the Construction Contract shall be in the form required by the Comprehensive Agreement and ready to sign or have been signed.

K. Comstock and Herndon have agreed on the final Arts Center Temporary Relocation Plan, and subject to the relocation of the Existing Arts Center after the Outside Satisfaction Date in accordance with the Arts Center Temporary Relocation Plan and Section 5.4 of the Comprehensive Agreement, Herndon shall have caused all tenants and other occupants of the Existing Improvements to have vacated the Property and removed all personal property therefrom. If any personal property remains in the Existing Improvements as of the deadline

for relocation set forth in the final Arts Center Temporary Relocation Plan, then such personal property shall be deemed abandoned and Comstock shall have the right to remove, dispose, store, sell or otherwise handle such abandoned personal property as Comstock deems appropriate in its sole discretion at Comstock's sole cost and expense, without any liability to Comstock whatsoever.

L. Comstock and Herndon shall have agreed upon a final form of the Transitional Parking Plan and Herndon shall have provided its Proprietary Approval thereof.

M. Herndon shall have provided its Proprietary Approval to the final form of Tri-Party Agreement required by the Approved Mortgagee, and Herndon, Comstock and the Approved Mortgagee shall be ready and willing to sign the Tri-Party Agreement at closing on the construction financing for the Project.

N. Comstock shall have provided to Herndon the Parent Guaranty attached to this Amendment at **Exhibit F** and required pursuant to Section 18.2 of the Comprehensive Agreement.

O. Comstock shall have obtained from the General Contractor and provided to Herndon the Bonds required in accordance with the provisions of Article 18 of the Comprehensive Agreement.

6. Commencement of Construction. For purposes of the Comprehensive Agreement, as modified by this Amendment, the term "**Commencement of Construction**" shall be the date that is the earlier of (i) the date that all Conditions Subsequent have been satisfied or waived by Comstock and/or Herndon, as applicable (provided that only the party benefitting from the Condition Subsequent shall have the right to waive such condition), and Comstock closes on its financing for the construction of the Project, or (ii) the date that actual hard construction activities for the Project commence at the Property (other than the demolition of the Existing Improvements, the Arts Center relocation, and the Environmental Remediation). Notwithstanding the foregoing, Comstock shall cause the Commencement of Construction to occur no later than the Outside Satisfaction Date.

7. Extension of Outside Satisfaction Date; Market Pause. Notwithstanding anything to the contrary contained in the Comprehensive Agreement or this Amendment, Comstock shall have the right at any time prior to December 31, 2021, by delivery of written notice to Herndon, to delay the Outside Satisfaction Date for up to twenty-four months if Comstock deems such delay is necessary due (i) to adverse changes in the multifamily or retail market in Herndon, Virginia which continue to affect the feasibility of the Project, (ii) Herndon's failure to satisfy any Conditions Subsequent applicable to Herndon, including (without limitation) failure to appropriate, or loss of appropriation, of any funds required to be paid by Herndon after Closing pursuant to the Comprehensive Agreement or this Amendment, (iii) the failure to secure, or loss of previously secured, tax abatements and/or rebates (or other economic incentive) in accordance with Sections 4B(i) and 5A above, (iv) Comstock's inability to obtain commercially reasonable financing (in Comstock's reasonable discretion) for the construction of the Project, (v) the inability

of either Comstock, Herndon or Comstock's Lender to agree on a final form of the Tri-Party Agreement, or (vi) the inability of Comstock to obtain any necessary Governmental Approval for the Project. Upon the extension of the Outside Satisfaction Date, Comstock will prepare an updated Project Schedule to reflect the extension of the Commencement of Construction and other applicable Project dates, such Project Schedule to be approved by Herndon , which approval shall not be unreasonably withheld, conditioned or delayed and shall be deemed granted if Herndon fails to respond to any request for approval within ten (10) business days of receipt of written request from Comstock. Notwithstanding the foregoing, in no event shall Herndon's approval rights of the updated Project Schedule pursuant to the foregoing sentence be used to circumvent Comstock's right under this Amendment to extend the Outside Satisfaction Date or Commencement of Construction.

8. Failure of Conditions Subsequent; Post-Closing Unwind. Notwithstanding anything to the contrary contained in this Agreement, if Comstock determines, after good-faith, reasonable efforts, that (i) any of the Conditions Subsequent cannot be satisfied by the Outside Satisfaction Date, or (ii) adverse changes in the multifamily or retail market in Herndon, Virginia make the Project materially unfeasible, or (iii) Herndon fails to secure, or loses any previously secured, tax abatements or rebates (or equivalent economic incentives) required pursuant to accordance with Sections 4B(i) and 5A above, or (iv) any unforeseen regulatory and/or governmental requirements outside its control, including rules, regulations, requirements or actions from any federal or state government or regulatory agency or legislative body, make construction of the Project materially unfeasible or impossible, or (v) Comstock remains unable to obtain commercially reasonable financing (in Comstock's sole discretion) for the construction of the Project, or (vi) the occurrence of any Unwind Event in accordance with Section 7.1 of the Comprehensive Agreement, then Comstock, if and only if the Property is free and clear of any monetary encumbrance, may elect to not proceed with the Commencement of Construction by delivering written notice thereof to Herndon on or before the Outside Satisfaction Date ("**Notice Not To Proceed**"). If Comstock exercises its rights hereunder and duly delivers a Notice Not To Proceed, Comstock will have no further obligation to proceed to Commencement of Construction or perform any further obligations under the Comprehensive Agreement without being in default thereof, but Herndon shall have the Right of Reentry set forth in Deed of Conveyance to Comstock identified at Exhibit C to the Comprehensive Agreement, and the Parking License and Arts Space License shall remain in place until either (x) the Project is constructed or (y) Comstock conveys the Property to Herndon or its designee or (z) the Comprehensive Agreement (as amended hereby) expires. If Comstock exercises its rights hereunder and duly delivers a Notice Not To Proceed, at the request of Herndon, Comstock shall transfer and assign to any new developer selected by Herndon, the Property (free and clear of any monetary encumbrance unless the lender is funding construction by the new developer) and all of Comstock's right, title and interest in and to the Construction Drawings and all other plans and specifications (including the Final Project Plans), all Approvals and other building permits, bonds in favor of Comstock, sewer permits and tap fees, utility deposits and all other contracts, agreements, permits and authorizations related to the development of the Project and construction of the Work which are transferrable or assignable and are not proprietary ("**Transferrable Plans**"), subject to (i) such conveyance occurring upon such schedule and pursuant to such terms as are commercially reasonable, and (ii) the payment by Herndon or such subsequent developer of all of Comstock's actual, third-party costs and expenses incurred in the creation and transfer of such Transferrable Plans. The foregoing transfer of the

Property and the Transferrable Plans shall be deemed an approved Transfer in accordance with Section 13.4 of the Comprehensive Agreement, and shall be performed at the sole cost and expense of such subsequent developer. For purposes of this paragraph, the Comprehensive Agreement, as amended hereby, shall be deemed to expire and of no further force and effect on the date of the Notice Not to Proceed.

9. Project Plans. Comstock and Herndon hereby approve the updated Preliminary Project Plans for the Project attached to this Amendment, which shall consist of updated versions of: (i) the conceptual design for the Arts Center and Public Parking Spaces attached hereto as **Exhibit A**, which eliminates the mezzanine and reduces the area of the Arts Center to approximately 16,265 sf with a minimum floor to floor height of twenty (20) feet; (ii) the updated Preliminary Transitional Parking Plan, attached hereto as **Exhibit B**, which includes the Parking License permitting Herndon to use the Property as transitional public parking until Commencement of Construction in accordance with Section 10, (iii) the updated Arts Center Temporary Relocation Plan attached hereto as **Exhibit C**, which provides for the relocation of the Arts Center within six (6) months after notice to Herndon; (iv) an updated Project Schedule attached hereto as **Exhibit D**, which includes a deferment for the commencement of construction of the common area fountain until one (1) year after the Project is open to the public and operating (i.e., issuance of a Non-RUP for the parking garage and a RUP for the first residential building), and provides for the updated anticipated Commencement of Construction; and (v) the updated minimum design criteria for the Arts Walk, Parking Garage, and Arts Center attached hereto as **Exhibit E**, which includes a requirement that the Project satisfy LEED Silver standards in effect as of November 2017 (and not the year of Closing or Commencement of Construction). All provisions of the Comprehensive Agreement relating to the pre-Closing coordination and approval of Final Project Plans, Construction Drawings, Site Plans, construction costs, Project Schedule and similar construction-related provisions shall hereafter be modified to occur during the period after Closing and prior to Commencement of Construction.

10. Transitional Parking; Public Parking Easement; Parking License. The Property shall be conveyed to Comstock prior to completion of all conditions necessary for the Commencement of Construction of the Project, including the Conditions Subsequent set forth above, and that accordingly the Property will remain available for transitional public parking until construction of the Project is ready to commence. The Transitional Parking Plan attached as Exhibit B-2 to the Comprehensive Agreement is deleted and replaced by **Exhibit B** attached hereto and shall include a license to Herndon to utilize the existing parking lot located on the Property at no license fee and no cost to Comstock from the date of Closing until such date that Comstock requires the Property for the Commencement of Construction of the Project (the "**Parking License**"). The form of Parking License is attached to this Amendment as **Exhibit B-1**. Comstock shall provide Herndon such notice with regard to the Commencement of Construction of the Project and the subsequent termination of the Parking License and cessation of the use of the Property for public parking in accordance with the updated Transitional Parking Plan attached at **Exhibit B** in accordance with the notice requirements in the Parking License.

11. Guaranty of Comstock Parent. The Parent Guaranty attached at Exhibit J to the Comprehensive Agreement is deleted and replaced by **Exhibit F** attached to this Amendment.

12. Notice. The addresses for notice in Section 21.7 of the Comprehensive Agreement are hereby amended in that (i) the address for all notices to Comstock shall be 1900 Reston Metro Plaza, Tenth Floor – ***Reston Station***, Reston, VA 20190, and (ii) the addressee for the copy to Comstock shall be Lindsay Anderson, email: landerson@comstockcompanies.com and the addressee for the copy to Reed Smith shall be Grayson P. Hanes, Esq., email: ghanes@reedsmith.com.

13. Miscellaneous. All of the provisions of the Comprehensive Agreement as amended hereby shall remain in full force and effect. In the event of any conflict or inconsistency between the provisions of the Comprehensive Agreement and the provisions of this Amendment, the provisions of this Amendment shall control. The parties contemplate that they may be executing counterparts of this Amendment transmitted by electronic mail in PDF format. A signature transmitted by electronic mail in PDF format shall bind the party so signing with the same effect as though the signature were an original ink signature.

14. Exhibits. The following exhibits are attached to this Amendment and incorporated herein:

Exhibit A – Arts Center and Parking Spaces Conceptual Design
Exhibit B – Preliminary Transitional Parking Plan
Exhibit B-1 – Parking License
Exhibit C – Arts Center Temporary Relocation Plan
Exhibit C-1 – Arts Space License
Exhibit D – Project Schedule
Exhibit E – Minimum Design Criteria
Exhibit F – Parent Guaranty
Exhibit G – Tri-Party Agreement

IN WITNESS WHEREOF, the parties have executed this Amendment as of the date first set forth above.

[Signatures on following pages]

HERNDON:

TOWN OF HERNDON, VIRGINIA
In its proprietary capacity only and not in its governmental capacity

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

Form Approved: _____
Town Attorney

COMSTOCK:

COMSTOCK HERNDON VENTURE, LC
a Virginia limited liability company

By: Comstock Management Services, LC,
its Manager

By: _____
Christopher Clemente, Manager

EXHIBIT A

UPDATED ARTS CENTER AND PARKING SPACES CONCEPTUAL DESIGN

EXHIBIT B

UPDATED PRELIMINARY TRANSITIONAL PARKING PLAN

(updated 11/3/20)

Comstock and Herndon shall approve a Transitional Parking Plan to satisfy parking obligations under the Public Shared Parking program during construction of the Project which meets the following requirements:

- 162 public shared parking spaces.
- Spaces shall be accessible 24-hours a day.
- Spaces may be located on the Property or offsite.
- Offsite parking spaces located within the areas identified on Schedule 1 attached hereto are approved; other areas are subject to Herndon's approval in its reasonable discretion.
- No charge to public parking patrons.
- Clear signage identifying location of the parking.
- On-site parking after closing and until construction in accordance with Parking License Agreement attached hereto at **Exhibit B-1**.
-

The approved Transitional Parking Plan shall be the most cost-effective means of satisfying the foregoing requirements, considering all anticipated costs to implement the plan – including without limitation costs incurred due to any extension to the Project Schedule resulting from delivering some or all parking spaces onsite, regardless of which party pays such costs. Any extension to the Project Schedule shall be confirmed at the time of approval of the Transitional Parking Plan.
The Transitional Parking Plan shall include the number and location of all spaces (including handicap spaces) from time to time during construction, parking stall dimensions and travel lane widths, and the location of parking signage.

Transitional Parking Allowance

The following amounts shall be included for purposes of making the calculations regarding the Transitional Parking Allowance and Excess Transitional Parking Costs under Section 6.6 of the Comprehensive Agreement:

- Costs to design and construct (or upgrade) and permit any surface parking spaces, travelways, sidewalks, etc., whether onsite or offsite.
- Costs to lease or license any offsite parking spaces.
- Costs to operate and maintain the public parking spaces, whether onsite or offsite (i.e., repairs, restriping, landscaping, snow removal, lighting, insurance, etc.).
- Costs of signage.
- Increased costs of construction caused by operation of parking spaces onsite during construction (whether surface parking or within the Parking Garage), including without limitation additional general conditions and administrative costs of the general contractor

due to sequencing of work and extended Project Schedule resulting from delivering some or all parking spaces onsite, costs of temporary pedestrian and vehicular access, and overhead protection.

- Other direct costs actually and reasonably incurred in executing the Transitional Parking Plan.

Comstock overhead and general and administrative expenses and costs of capital and financing are specifically excluded from amounts payable under the Transitional Parking Allowance, but shall be includable together with the above-listed costs and other anticipated Project Costs for purposes of determining the cost-effectiveness of a proposed Transitional Parking Plan under Section 4.1(6).

EXHIBIT B-1

PARKING LICENSE

PARKING LICENSE AGREEMENT

THIS PARKING LICENSE ("License") is entered into as of _____, 20____ [*insert the date of Closing under the Comprehensive Agreement*] ("Effective Date"), by and between **COMSTOCK HERNDON VENTURE, LC**, a Virginia limited liability company ("Comstock"); and the **TOWN OF HERNDON, VIRGINIA**, a Virginia municipal corporation ("Herndon").

RECITALS:

A. Comstock and Herndon are parties to that certain Comprehensive Agreement dated November 1, 2017 (as amended, the "Comprehensive Agreement"), pursuant to which Herndon and Comstock agreed to enter into a public-private partnership for the conveyance to Comstock of certain land in historic downtown Herndon, Virginia identified in the Comprehensive Agreement and consolidated as Parcel 20G pursuant to that certain Deed of Boundary Line Adjustment and Consolidation dated December 27, 2018 and recorded in the land records of Fairfax County, Virginia as Instrument No. _____ ("Property"), and Comstock's subsequent redevelopment thereof as the Herndon Downtown Redevelopment project ("Project").

B. The Property currently contains a surface parking area containing approximately ____ parking spaces as shown on Exhibit A hereto ("Parking Area"), which has been used by Herndon to provide parking to vendors, tenants, owners and guests of Historic Downtown Herndon under Herndon's *[public shared parking program - list name of program*] ("Parking Program").

C. Herndon conveyed the Property to Comstock on the Effective Date.

D. Notwithstanding the closing on Comstock's acquisition of the Property, Comstock remains in the planning stage of the Project and accordingly wishes to grant Herndon an exclusive license to use the Parking Area to implement Herndon's Parking Program until such time as construction of the Project commences, and Herndon desires to license the Parking Area from Comstock during such period on the terms and conditions set forth herein.

AGREEMENT:

NOW, THEREFORE, the parties hereto, in consideration of the Comprehensive Agreement and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound, hereby covenant and agree as follows.

1. INCORPORATION OF RECITALS. The Recitals are incorporated by this reference.

2. LICENSE; USE. Comstock hereby grants to Herndon a license to use the Parking Area for transitional public parking under the Parking Program and for other general public parking needs ("Permitted Use"). The Permitted Use shall be limited to the lawful parking of motor vehicles, and any other lawful public purpose, including without limitation storage of snow and temporary uses during an emergency. Herndon shall have the right to develop reasonable rules and regulations to govern the parking of vehicles in the Parking Area in compliance with this License, including the right to tow any vehicles in violation of such rules and regulations at the vehicle owner's cost, and the enforcement of all such rules and regulations shall be Herndon's sole responsibility. The parties hereby acknowledge and agree that the Parking Area currently includes 162 striped parking spaces and that Herndon shall have the exclusive right to use all of such spaces for its Parking Program. At no time during the Term of this License shall Comstock reduce, restrict or block any portion of the Parking Area, including (without limitation) any of the striped parking spaces. Herndon shall have the right to re-stripe parking spaces in the Parking Area in its sole discretion. The license of the Parking Area hereunder shall be without license fee; provided, however, that Herndon agrees to pay to Comstock, within thirty days after written invoice, a sum equal to any town taxes, fees, assessments, or other costs incurred by Comstock due to Herndon's use of the Parking Area pursuant to this License.

3. LICENSE "AS IS." The Parking Area is hereby licensed to Herndon in AS IS, WHERE IS condition, without representation or warranty of any kind whatsoever, including expressly but without limitation any representation or warranty of fitness for any particular purpose. Comstock shall have no obligation to perform any improvements, alterations, maintenance or repair of the Parking Area for Herndon's use hereunder.

4. LICENSE TERM. The term of this License ("Term") shall commence on the Effective Date and shall terminate upon the earlier of (i) thirty days after Comstock notifies Herndon that Comstock requires the Parking Area for the Commencement of Construction (as defined in the Comprehensive Agreement) of the Project, (ii) the reconveyance of the Property back to Herndon pursuant to the Right of Reentry (as defined in the Comprehensive Agreement), or (iii) the termination or expiration of the Comprehensive Agreement.

5. MAINTENANCE. Herndon shall maintain the Parking Area at Herndon's sole cost and expense (including all snow and ice removal) and Comstock shall have no obligation whatsoever to repair, restore, maintain, monitor, re-stripe, plow or secure the Parking Area. Herndon shall be responsible for any damage to the Parking Area or Property (or the improvements thereon) caused by Herndon's use and access thereof, except for normal wear and tear and casualty. Solely for purposes of this Section 5, Herndon's obligations to maintain, including plowing for snow and ice, shall include Vine Street.

6. SOLE RISK. The use of the Parking Area is at Herndon's and its permittees' sole risk. Comstock shall not be responsible or liable to Herndon, or to those claiming by, through or under Herndon, for any loss or damage which may be occasioned by Herndon's or its permittees' use or occupancy of the Parking Area or the condition of the Parking Area. Herndon will look only to Herndon's insurance coverage (regardless whether Herndon maintains any such coverage) in the event of any such claim. Herndon is solely responsible for providing such insurance as may be required to protect Herndon, its employees and permittees against any injury, loss, or damage

to persons or property occurring in the Parking Areas and such insurance shall name Comstock as an additional insured.

7. INSURANCE; WAIVER OF SUBROGATION

(a) Insurance. Each party, at its sole cost and expense, for the entire Term, shall obtain and keep in effect commercially reasonable amounts of insurance against claims for personal injury and property damage, umbrella liability insurance coverage and, to the extent required by law, worker's compensation or similar insurance in form and amounts required by law. Herndon's policies of insurance shall name Comstock as an additional insured and be primary and non-contributory.

(b) Waiver of Subrogation. Each party waives claims arising in any manner in its favor and against the other party for loss or damage to the injured party's property to the extent such loss or damage is covered by: (i) the injured party's property damage insurance; or (ii) the insurance the injured party is required to carry pursuant to this License, whichever is greater. The waiver also applies to each party's directors, officers, employees, managers, shareholders, trustees, subcontractors, and agents. This waiver shall be in effect regardless of cause or origin, including without limitation negligence of the other party hereto, its directors, officers, employees, managers, shareholders, and agents. Each party shall use good faith efforts to obtain from its insurers such waivers of subrogation.

8. HOLD HARMLESS. Each party shall hold the other harmless to the extent permitted by applicable law for any claim, cause of action or judgment growing out of either party's acts or omissions under this License and arising from the use of the Parking Area.

9. DEFAULT. If either party fails to perform any obligation required hereunder, and fails to cure such default within thirty days after delivery of written notice thereof from the other party, then the other party shall have the right, at its sole discretion, to (i) terminate this License, (ii) obtain reimbursement from the other party for all costs and damages incurred due to such default, including legal fees and costs; and (iii) pursue all other rights and remedies available at law and/or in equity it may have against the defaulting party for the default.

10. NOTICE. All notices, demands, consents, approvals and other communications (each, a "Notice") which are required or desired to be given by either party to the other under this License shall be in writing and shall be (a) hand delivered, (b) sent by U.S. registered or certified mail, postage prepaid, return receipt requested, (c) sent by reputable and nationally recognized overnight courier service, or (d) transmitted by electronic mail with confirmation of receipt. Notices shall be effective when delivered, if delivered by hand, upon deposit with the courier if by overnight courier, three days after sending if by U.S. mail, or at the time of transmittal if sent by electronic mail so long as a hardcopy is concurrently transmitted by another means permitted hereunder. Rejection or other refusal by the addressee to accept a Notice or the inability to deliver the Notice because of a changed address of which no Notice was given shall be deemed to be receipt of the Notice sent. Any party may, upon prior notice to the others, specify a different address for the giving of notice. Notice addresses for the parties are as follows:

Comstock: Comstock Herndon Venture, LC
1900 Reston Metro Plaza
Tenth Floor, ***Reston Station***
Reston, VA 20190
Attn: Christopher Clemente
Email: cclemente@comstockcompanies.com

With a copy to: Comstock Partners
1900 Reston Metro Plaza
Tenth Floor, ***Reston Station***
Reston, Virginia 20190
Attn: _____
Email: _____

Herndon: The Town of Herndon, Virginia
777 Lynn Street
Herndon, Virginia 20170
Attention: Town Manager
Email: town.manager@herndon-va.gov

With a copy to: 777 Lynn Street
Herndon, Virginia 20170
Attention: Town Attorney
Email: lesa.yeatts@herndon-va.gov

Notice may be given by counsel for the parties, and such Notice shall be deemed given by Comstock or Herndon, as the case may be, for all purposes under this License.

11. MISCELLANEOUS. The conditions contained in this License are binding on, and may be legally enforced by, the parties hereto and their successors and assigns. The captions and headings are for convenience of reference only. This License contains the final and entire agreement of the parties with respect to the subject matter hereof and neither Comstock, Herndon nor their agents shall be bound by any terms, conditions, statements, warranties or representations, oral or written, not contained in this License. Any provision of this License may be modified, waived or discharged only in writing signed by both parties. Wherever the context so requires, the singular number shall include the plural and the plural the singular, and the use of any gender shall include the other gender. This License shall be construed in accordance with the laws of the Commonwealth of Virginia. Time is of the essence of all dates and time periods under this License. If either party is required to enforce its rights under this License, the prevailing party shall be entitled to recover from the non-prevailing party all costs and expenses incurred by the prevailing party for court costs and reasonable attorneys' fees.

12. WAIVER. No failure by a party to insist upon the strict performance of any term of this License or to exercise any right or remedy consequent upon a breach thereof, shall constitute a waiver of any such breach or of any such term. No waiver of any breach shall affect or alter this License and this License shall continue in full force and effect.

13. PARTIAL INVALIDITY. If any provision of this License or the application thereof to any person or circumstances shall to any extent be invalid or unenforceable, the remainder of this License, or the application of such provision to persons or circumstances other than those as to which it is invalid or unenforceable, shall not be affected thereby, and each provision of this License shall be valid and enforced to the fullest extent permitted by law.

14. WAIVER OF JURY. Each party hereby waives all right to trial by jury in any claim, action, proceeding or counterclaim by either party with respect to this License.

15. COUNTERPARTS. This License may be executed in any number of counterparts, each of which shall be deemed an original, and all of which, taken together, shall be deemed to be a single instrument.

IN WITNESS WHEREOF, Comstock and Herndon have caused this License to be executed and delivered under seal as their act and deed, intending to be legally bound by its terms and provisions.

COMSTOCK: **COMSTOCK HERNDON VENTURE, LC**
a Virginia limited liability company

By: Comstock Management Services, LC,
its Manager

By:_____
Christopher Clemente, Manager

HERNDON: **TOWN OF HERNDON, VIRGINIA**
In its proprietary capacity only and not in its governmental capacity

By:_____
Name: _____
Title:_____

By:_____
Name: _____
Title:_____

Form Approved: _____
Town Attorney

Exhibit A
PARKING AREA

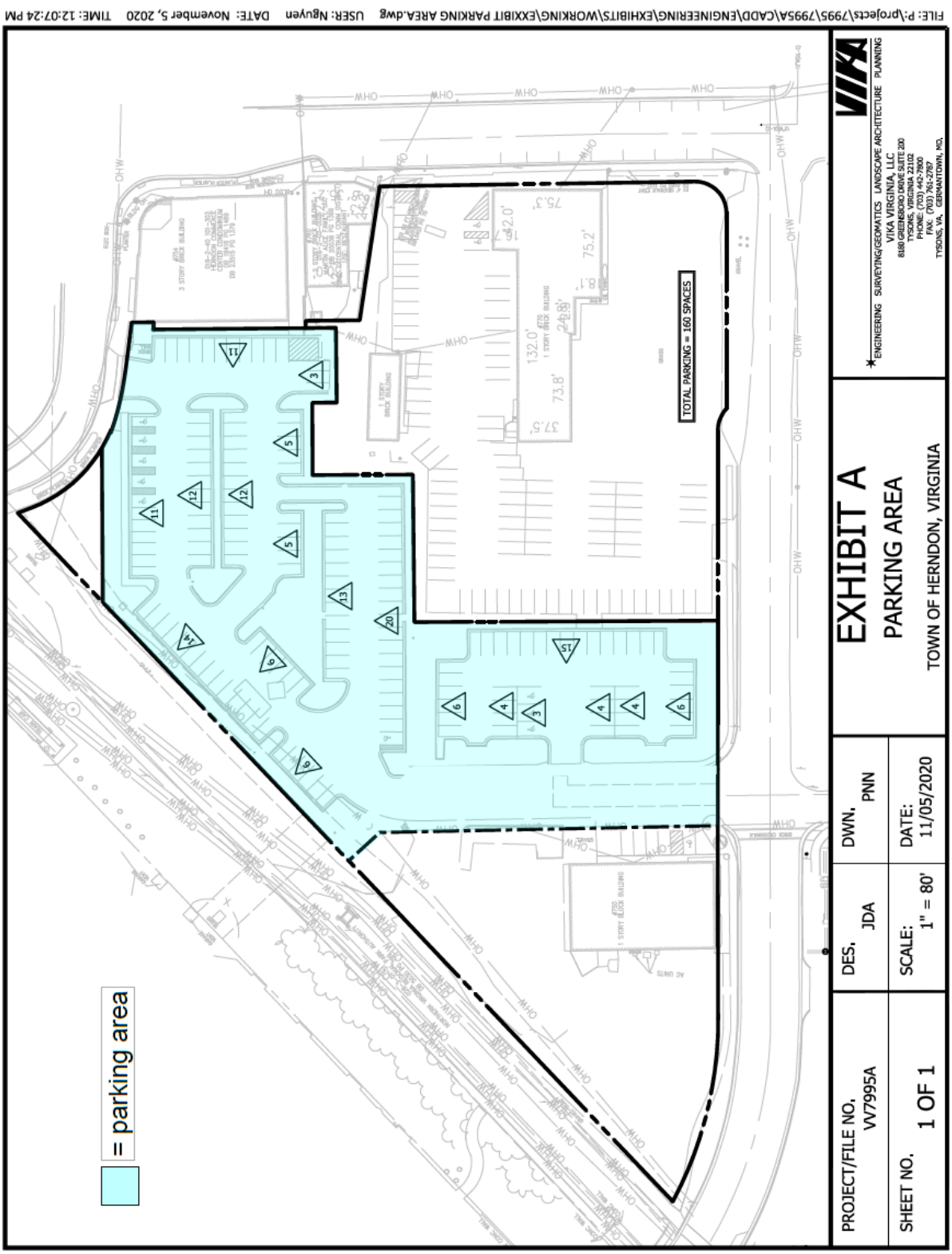


EXHIBIT C

UPDATED ARTS CENTER TEMPORARY RELOCATION PLAN

(updated 11/3/20)

The Existing Arts Center, located at 750 Center Street, shall be temporarily relocated in accordance with Section 5.4 of the Comprehensive Agreement and the below plan. The Existing Arts Center shall remain as located after closing and until construction in accordance with Arts Space License Agreement attached hereto at **Exhibit C-1.**

Site Approval

Comstock shall meet with the Herndon decision maker and a representative of Arts Herndon to confirm temporary space needs, anticipated to be ±3,500 sf., to satisfy Herndon's program requirements. Herndon shall determine program requirements in its reasonable discretion.

Comstock shall survey the Herndon market for space to accommodate these needs, including contacting property owners and potentially issuing an RFP.

Comstock shall present sites that substantially meet the program requirements to Herndon and Arts Center Herndon representatives for approval. Whether a site substantially meets space needs shall be determined by Herndon in its reasonable discretion.

Letter of Intent/Lease Negotiations

Comstock shall facilitate negotiation of a Letter of Intent and lease to secure the temporary space. Arts Herndon (or another designee of Herndon) will be the tenant under the lease.

The lease shall provide for a term (and extension options or termination rights, as applicable) sufficient to allow for Substantial Completion of the Project and completion of the Arts Center Buildout. Budget and terms of the lease shall be determined by Herndon in its reasonable discretion. Comstock shall provide Herndon and Arts Hendon with periodic schedule updates so as to allow planning for lease terminations and extensions.

Project Coordination

Comstock shall provide project coordination and management services, including regular correspondence and meetings with Herndon and Arts Herndon representatives through the process of design, permitting, bidding, construction of tenant improvements and issuance of certificates of occupancy necessary to make the leased premises ready for Arts Herndon.

Tenant Improvements

Tenant improvements will include interior design, mechanical, electric and plumbing systems, and finishes substantially consistent with the existing location at 750 Center Street in the reasonable judgment of Herndon.

Delivery of Premises & Relocation

Comstock shall provide notice to Herndon and Arts Herndon 30 days prior to completion of the tenant improvements.

Relocation of existing operations and vacating of the 750 Center Street facility will occur promptly following issuance of the certificate of occupancy for the leased premises.

Schedule

Comstock and Herndon shall take all actions reasonably necessary under this Exhibit B-3 so as to facilitate the relocation of the Existing Arts Center to its temporary location in accordance with the Project Schedule.

Relocation Allowance

The following amounts are reasonable and directly related to the temporary relocation of the Existing Arts Center, and will be included for purposes of making the calculations regarding the Relocation Allowance and Excess Relocation Costs under Section 6.4 of the Comprehensive Agreement:

- Third party costs related to site acquisition, including broker fees and other costs approved in writing by Herndon.
- Costs and expenses paid to third parties for the design and construction of tenant improvements within the leased premises reasonably consistent with the existing location at 750 Center Street.
- Costs paid to third parties for relocation of the existing Arts Herndon operations into the leased premises and, following completion, from the leased premises into the new Arts Center.
- Base rent and common area maintenance charges under the lease during construction of the Project; provided, however, that additional amounts (e.g., due to tenant default, as penalties, for additional services, in connection with casualty or condemnation or for extensions) are the separate obligation of the tenant under the lease, and are excluded.
- Other direct costs actually and reasonably incurred in executing the Arts Center Temporary Relocation Plan, approved in writing by Herndon.
-

Comstock overhead and general and administrative expenses are specifically excluded from amounts payable under the Relocation Allowance.

EXHIBIT C-1

ARTS SPACE LICENSE

ARTS SPACE LICENSE AGREEMENT

THIS LICENSE ("License") is entered into as of _____, 20____ [*insert the date of Closing under the Comprehensive Agreement*] ("Effective Date"), by and between **COMSTOCK HERNDON VENTURE, LC**, a Virginia limited liability company ("Comstock"); and the **TOWN OF HERNDON, VIRGINIA**, a Virginia municipal corporation ("Herndon").

RECITALS:

E. Comstock and Herndon are parties to that certain Comprehensive Agreement dated November 1, 2017 (as amended, the "Comprehensive Agreement"), pursuant to which Herndon and Comstock agreed to enter into a public-private partnership for the conveyance to Comstock of certain land in historic downtown Herndon, Virginia identified in the Comprehensive Agreement and consolidated as Parcel 20G pursuant to that certain Deed of Boundary Line Adjustment and Consolidation dated December 27, 2018 and recorded in the land records of Fairfax County, Virginia as Instrument No. _____ ("Property"), and Comstock's subsequent redevelopment thereof as the Herndon Downtown Redevelopment project ("Project").

F. The Property currently contains a certain building containing approximately ____ square feet and appurtenant parking, driveways and other improvements as shown on Exhibit A hereto ("Arts Space"), which has been used by tenants of Herndon to provide space for artistic endeavors in Historic Downtown Herndon.

G. Herndon conveyed the Property to Comstock on the Effective Date.

H. Notwithstanding the closing on Comstock's acquisition of the Property, Comstock remains in the planning stage of the Project and accordingly wishes to grant Herndon an exclusive license to use the Arts Space to continue the existing and similar uses until such time as construction of the Project commences, and Herndon desires to license the Arts Space from Comstock during such period on the terms and conditions set forth herein.

AGREEMENT:

NOW, THEREFORE, the parties hereto, in consideration of the Comprehensive Agreement and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and intending to be legally bound, hereby covenant and agree as follows.

1. INCORPORATION OF RECITALS. The Recitals are incorporated by this reference.

2. LICENSE; USE. Comstock hereby grants to Herndon a license to use the Arts Space for use by tenants of Herndon as art studios, performance areas and artist spaces and other

uses appurtenant thereto, and for governmental and public uses approved or sponsored by Herndon (including, for example and without limitation, neighborhood or committee meetings and events) ("Permitted Use"), and not for any other use or any use not permitted by applicable zoning regulations. Herndon shall have the right to develop reasonable rules and regulations to govern the Permitted Uses in the Arts Space in compliance with this License, and the enforcement of all such rules and regulations shall be Herndon's sole responsibility. The license of the Arts Space shall be without license fee; provided, however, that Herndon shall pay, within thirty days after written invoice, a sum equal to any town taxes, fees, assessments, or other costs incurred by Comstock due to Herndon's use of the Arts Space pursuant to this License.

3. LICENSE "AS IS." The Arts Space is hereby licensed to Herndon in AS IS, WHERE IS condition, without representation or warranty of any kind whatsoever, including expressly but without limitation any representation or warranty of fitness for any particular purpose. Comstock shall have no obligation to perform any improvements, alterations, maintenance or repair of the Arts Space for Herndon's use hereunder.

4. LICENSE TERM. The term of this License ("Term") shall commence on the Effective Date and shall terminate upon the earlier of (i) thirty days after Comstock notifies Herndon that Comstock requires the Arts Space for the Commencement of Construction (as defined in the Comprehensive Agreement) of the Project, (ii) the reconveyance of the Property back to Herndon pursuant to the Right of Reentry (as defined in the Comprehensive Agreement), or (iii) the termination or expiration of the Comprehensive Agreement.

5. MAINTENANCE. Herndon shall maintain the Arts Space at Herndon's sole cost and expense (including maintenance and plowing for snow and ice of any sidewalks, drive aisles and parking areas) and Comstock shall have no obligation whatsoever to repair, restore, maintain, monitor or secure the Arts Space. Herndon shall be responsible for any damage to the Arts Space or Property (or the improvements thereon) caused by Herndon's use and access thereof, except for normal wear and tear. Solely for purposes of this Section 5, Herndon's obligations to maintain, including plowing for snow and ice, shall include Vine Street.

6. SOLE RISK. The use of the Arts Space is at Herndon's and its tenants' and permittees' sole risk. Comstock shall not be responsible or liable to Herndon, Herndon's tenants, or to those claiming by, through or under Herndon, for any loss or damage which may be occasioned by Herndon's or its tenants' or permittees' use or occupancy of the Arts Space or the condition of the Arts Space. Herndon will look only to Herndon's insurance coverage (regardless whether Herndon maintains any such coverage) in the event of any such claim. Herndon is solely responsible for providing such insurance as may be required to protect Herndon, its tenants, employees and permittees against any injury, loss, or damage to persons or property occurring in the Arts Space and such insurance shall name Comstock as an additional insured.

7. INSURANCE; WAIVER OF SUBROGATION

(a) Insurance. Each party, at its sole cost and expense, for the entire Term, shall obtain and keep in effect commercially reasonable amounts of insurance against claims for personal injury and property damage, umbrella liability insurance coverage and, to the extent required by law, worker's compensation or similar insurance in form and amounts required by law. Herndon's

policies of insurance shall name Comstock as an additional insured and be primary and non-contributory.

(b) Waiver of Subrogation. Each party waives claims arising in any manner in its favor and against the other party for loss or damage to such party's property to the extent such loss or damage is covered by: (i) the injured party's property damage insurance; or (ii) the insurance the injured party is required to carry pursuant to this License, whichever is greater. The waiver also applies to each party's directors, officers, employees, managers, shareholders, tenants, trustees, subcontractors, and agents. This waiver shall be in effect regardless of cause or origin, including without limitation negligence of the other party hereto, its directors, officers, employees, managers, shareholders, and agents. Each party shall use good faith efforts to obtain from its insurers such waivers of subrogation.

8. HOLD HARMLESS. Each party shall hold the other harmless to the extent permitted by applicable law for any claim, cause of action or judgment growing out of either party's acts or omissions under this License and arising from the use of the Arts Space.

9. DEFAULT. If either party fails to perform any obligation required hereunder, and fails to cure such default within thirty days after delivery of written notice thereof from the other party, then the injured party shall have the right, at its sole discretion, to (i) terminate this License, (ii) obtain reimbursement from the other party for all costs and damages incurred due to such default, including legal fees and costs; and (iii) pursue all other rights and remedies available at law and/or in equity it may have against the injured party for the default.

10. NOTICE. All notices, demands, consents, approvals and other communications (each, a "Notice") which are required or desired to be given by either party to the other under this License shall be in writing and shall be (a) hand delivered, (b) sent by U.S. registered or certified mail, postage prepaid, return receipt requested, (c) sent by reputable and nationally recognized overnight courier service, or (d) transmitted by electronic mail with confirmation of receipt. Notices shall be effective when delivered, if delivered by hand, upon deposit with the courier if by overnight courier, three days after sending if by U.S. mail, or at the time of transmittal if sent by electronic mail so long as a hardcopy is concurrently transmitted by another means permitted hereunder. Rejection or other refusal by the addressee to accept a Notice or the inability to deliver the Notice because of a changed address of which no Notice was given shall be deemed to be receipt of the Notice sent. Any party may, upon prior notice to the others, specify a different address for the giving of notice. Notice addresses for the parties are as follows:

Comstock: Comstock Herndon Venture, LC
1900 Reston Metro Plaza
Tenth Floor, ***Reston Station***
Reston, VA 20190
Attn: Christopher Clemente
Email: cclemente@comstockcompanies.com

With a copy to: Comstock Partners
1900 Reston Metro Plaza

Tenth Floor, ***Reston Station***
Reston, VA 20190
Attn: _____
Email: _____

Herndon: The Town of Herndon, Virginia
777 Lynn Street
Herndon, Virginia 20170
Attention: Town Manager
Email: town.manager@herndon-va.gov

With a copy to: 777 Lynn Street
Herndon, Virginia 20170
Attention: Town Attorney
Email: lesa.yeatts@herndon-va.gov

Notice may be given by counsel for the parties, and such Notice shall be deemed given by Comstock or Herndon, as the case may be, for all purposes under this License.

11. MISCELLANEOUS. The conditions contained in this License are binding on, and may be legally enforced by, the parties hereto and their successors and assigns. The captions and headings are for convenience of reference only. This License contains the final and entire agreement of the parties with respect to the subject matter hereof and neither Comstock, Herndon nor their agents shall be bound by any terms, conditions, statements, warranties or representations, oral or written, not contained in this License. Any provision of this License may be modified, waived or discharged only in writing signed by both parties. Wherever the context so requires, the singular number shall include the plural and the plural the singular, and the use of any gender shall include the other gender. This License shall be construed in accordance with the laws of the Commonwealth of Virginia. Time is of the essence of all dates and time periods under this License. If either party is required to enforce its rights under this License, the prevailing party shall be entitled to recover from the non-prevailing party all costs and expenses incurred by the prevailing party for court costs and reasonable attorneys' fees.

12. WAIVER. No failure by a party to insist upon the strict performance of any term of this License or to exercise any right or remedy consequent upon a breach thereof, shall constitute a waiver of any such breach or of any such term. No waiver of any breach shall affect or alter this License and this License shall continue in full force and effect.

13. PARTIAL INVALIDITY. If any provision of this License or the application thereof to any person or circumstances shall to any extent be invalid or unenforceable, the remainder of this License, or the application of such provision to persons or circumstances other than those as to which it is invalid or unenforceable, shall not be affected thereby, and each provision of this License shall be valid and enforced to the fullest extent permitted by law.

14. WAIVER OF JURY. Each party hereby waives all right to trial by jury in any claim, action, proceeding or counterclaim by either party with respect to this License.

15. COUNTERPARTS. This License may be executed in any number of counterparts, each of which shall be deemed an original, and all of which, taken together, shall be deemed to be a single instrument.

IN WITNESS WHEREOF, Comstock and Herndon have caused this License to be executed and delivered under seal as their act and deed, intending to be legally bound by its terms and provisions.

COMSTOCK: **COMSTOCK HERNDON VENTURE, LC**
a Virginia limited liability company

By: Comstock Management Services, LC,
its Manager

By:_____
Christopher Clemente, Manager

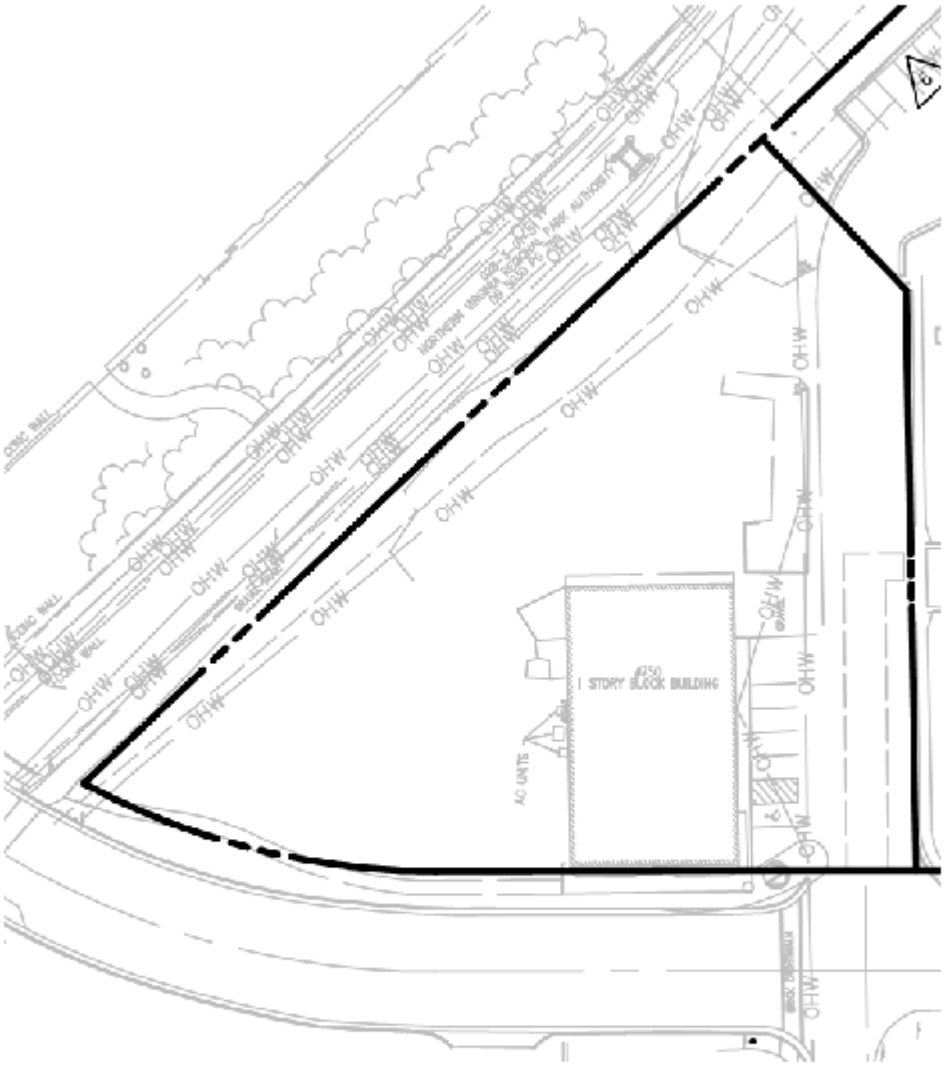
HERNDON: **TOWN OF HERNDON, VIRGINIA**
In its proprietary capacity only and not in its governmental capacity

By:_____
Name: _____
Title:_____

By:_____
Name: _____
Title:_____

Form Approved: _____
Town Attorney

Exhibit A
ARTS SPACE



ARTS SPACE

TOWN OF HERNDON, VIRGINIA

EXHIBIT D

UPDATED PROJECT SCHEDULE

EXHIBIT E

UPDATED MINIMUM DESIGN CRITERIA

Design Criteria for Herndon Components

The Project, including Herndon Components, shall be designed and constructed in compliance with the Codes and Standards, including applicable proffers.

The Project shall be designed and constructed to achieve LEED Silver certification or equivalent based on USGBC design standards required as of November 1, 2017. Design and construction of the Arts Center interior (whether self-performed by Herndon or by Comstock on Herndon's behalf in accordance with Section 4.12) must be undertaken in a manner consistent with this requirement.

The following are the minimum specifications and design criteria for certain Herndon Components.

ARTS CENTER COLD DARK SHELL

The following comprise the cold dark shell condition of the Arts Center to be delivered by Comstock in accordance with the Agreement. All additional build out work within the Arts Center is to be performed by Herndon's selected general contractor pursuant to a separate agreement or, if applicable, by Comstock pursuant to an Arts Center Buildout Amendment in accordance with Section 4.12.

A. Structure

1. Frame: Poured in place concrete

2. Exterior Walls: Exterior walls shall be of non-combustible material and of finish consistent with the exterior of the Project and as designed by Comstock.

3. Partitions Separating Arts Center from Other Retail and Residential Lobby: The partitions shall be constructed of commercial gauge steel studs sized and spaced by engineer of design. The walls will be insulated, extend from the floor to the underside of the deck above with appropriate sealant applied to both sides top and bottom. Internal partitions, separating Arts Center uses, will be provided by Herndon in accordance with Section 4.12 of the Agreement.

4. Floors: Floor shall be a finished 4″ concrete slab with mild steel reinforcement. Floors are designed in accordance with applicable building codes.

5. Storefront: Comstock to provide aluminum thermally broken storefront with 1″ ESM insulated glazing. Glass tint shall be determined during design. The exterior

storefront shall be consistent with or complimentary to the remainder of the structure's ground floor façade, as determined during design.

6. Roof: If applicable, the roof shall be a modified bituminous membrane system or as determined during design, compliant with manufacturer's specifications and current applicable codes. A twenty-year, no dollar limit, labor and materials warranty, including insulation and accessories, will be provided.

7. Mezzanine: None.

8. Design of floor, ceiling and wall components (to be delivered by Comstock as part of the cold dark shell) shall be coordinated with design of the Arts Center interior so that the cold dark shell components accommodate future installation (in accordance with Section 4.12) of soundproofing and noise control systems (e.g., sound absorption, vibration isolation, etc.) necessary to meet the noise criteria ratings established by the parties, whose mutual intent is to have a fully functioning arts/theatre space without operating restrictions and without noise impact on adjacent residential and retail space users.

B. Utilities

1. Electric:

   a. Herndon's electrical work commences at designated electrical disconnect and meter connection point in designated electrical switchgear room provided by Comstock and consists of all work (conduit, wire, gear, transformers, meter can and all other related items) necessary to distribute electrical power to and throughout the Arts Center. Herndon shall arrange with Virginia Dominion Power for installation of meter. Temporary or permanent power will not be available in the space until this occurs.

   b. Service Description: 277/480 volts/3 phase and neutral.

   c. Service Size and Capacity: Comstock will provide electric service as supported by a load letter, not to exceed 1000 Amps (for the Arts Unit) total connected load at the electrical vault. Any additional service capacity required shall be installed at Herndon's expense.

2. Telecommunication, Data and Video: Comstock shall provide 2 - 4″ empty conduits with pull string from the telecommunications provider minimum point of entry (MPOE) to the closest demising wall. Herndon will install internal distribution, equipment, outlets/ports, and wiring/conductors from the MPOE to the Arts Center and within the Arts Center at Herndon's sole expense.

3. Cold Domestic Water and Sanitary Waste/Vent Service: Comstock will provide an appropriately-sized, capped, valved domestic cold water line within a demising wall. Domestic water metering will be installed by Herndon's contractor at

Herndon's expense. Waste lines will be available through knockout sleeves in floor slab in certain fixed locations. Cleanouts and heat trace to be installed as per local codes at Herndon's expense. Vent lines will be available for Herndon's contractor to tap at Herndon's sole cost.

4. Kitchen Exhaust Riser: None.

5. Gas: None

6. Toilet Exhaust Duct: Comstock will review Herndon's plans for the Arts Center interior buildout, and will provide accommodations for a toilet exhaust duct system. All connection work and ductwork will be at Herndon's sole cost.

7. Accommodations shall be made to permit any necessary vents to be routed through the roof and screened from view.

C. Fire Protection

Comstock will provide and install a fire sprinkler grid distribution system including backflow prevention, if required, inside a designated sprinkler room at Comstock's cost. This initial sprinkler grid distribution system will meet life safety code for assembly space and contain sufficient capacity for further Herndon alterations and additions for ordinary hazard occupancy. All alterations required to meet Herndon's specific design will be made by Herndon's contractor at Herndon's expense. Once occupancy of the Project has been attained, Herndon and Herndon's contractor will, upon prior coordination with property manager, be required to re-energize and re-fill the fire protection system within the Arts Center on a daily basis until completion of Herndon's fire protection alterations and occupancy.

D. Fire Alarm/Life Safety System

The Project plans will describe in detail the base fire alarm/life safety system which Comstock will install in the Arts Center to meet code for assembly space. Provisions will be made in this system for reasonable additions/modifications; however, should Herndon's requirement cause Comstock to upgrade the base system, those modifications will be at Herndon's expense. Work to tie in fire alarm to Comstock's base building system will be completed by Comstock's contractor at Herndon's sole cost.

PARKING GARAGE DESIGN CRITERIA

The following comprise the design criteria for the Parking Garage, including the Public Parking Spaces:

A. Site

1. Travel Lanes: Site travel lanes shall be a minimum of 11 feet wide per lane. Travel lane pavement sections shall consist of concrete pavement (minimum 3500 psi).

2. Utility Requirements:

   a. The site shall be constructed and graded in a manner to drain surface water away from the Parking Garage.

   b. Entryways to the Parking Garage shall have sufficient drainage and provide overland relief to eliminate the potential for flooding.

3. Electrical: The Parking Garage shall have adequate electrical service consistent with its intended use. Electrical room(s) shall be provided.

4. Communication/Telephone: Voice and data service shall be provided to the Parking Garage to accommodate parking controls for the residential components and security controls for all parking.

5. Signage and Way-Finding: Sufficient signage and other way-finding measures shall be provided throughout the project to ensure the public can easily find their way into and out of the Parking Garage.

6. Lighting: Sufficient vandal resistant high efficiency LED or equivalent site lighting shall be provided throughout the project to ensure the public can easily find their way into and out of the Parking Garage.

B. Parking Garage Design

1. Structural: The Parking Garage will be designed and constructed to achieve a 60-year useful life. It will be constructed as a Double-T precast concrete structure. Epoxy coated rebar will be incorporated into the design as needed to meet the life expectancy.

2. Parking Requirements: The Parking Garage shall have a minimum vehicle parking count of 280 cars (comprising 220 Public Parking Spaces and 60 spaces for the Arts Center) plus such additional number of spaces necessary to provide code compliant parking for the private uses in the project consistent with the Agreement.

3. Functional System: The Parking Garage functional system shall be a single thread parking ramp system with two-way traffic flow.

4. Parking Geometrics:

    a. 90-degree parking.

    b. Parking stall dimensions shall be = 8′-6″ x 18′-0″ (unencumbered by building elements). Structural elements must not impose on parking stall dimensions.

5. Floor to Floor clearance: Minimum 10′-6″ floor-to-floor for typical tiers.

6. Ramp Slope: Maximum slope for parking ramp: 6.00%

7. Room Design

    a. Equipment/Janitor's Room(s) (parking and security equipment): ±100 s.f.

        1. Walls: CMU with drywall finish, painted

        2. Floor: Resilient Tile

        3. Ceiling: Acoustic ceiling panels or drywall

    b. Telecommunications Room(s): ±100 s.f.

        1. Walls: CMU with drywall finish, painted

        2. Floor: Resilient Tile

        3. Ceiling: Acoustic ceiling panels or drywall

    c. Sprinkler Room (sized to accommodate fire protection system)

        1. Walls: CMU

8. Surface Finishes: The Parking Garage shall have walls and ceiling of exposed (precast) concrete.

9. Physical Security: The Parking Garage shall be sufficiently separated from the remaining private development so as not to allow passage between public and private uses.

10. Pavement Marking: Pavement marking in parking garage shall be as follows:

    a. Line Striping: Thermoplastic

    b. Crosswalks/traffic arrows: Thermoplastic

    c. All pavement markings shall be compatible with deck sealants and traffic toppings installed in the Parking Garage, as applicable.

    d. All pavement marking materials shall have a slip-resistant finish. Use of foundry grade sand is permissible to achieve a non-slip finish.

11. Access and Revenue Controls: Nested (restricted access) parking may be provided for residential and other uses within the Project, as applicable. The Parking Garage

shall be designed to allow for installation (at delivery or in the future) of access control and revenue collection systems.

C. Mechanical

1. Non-Open Parking Levels: Parking levels not classified as "open", if any, shall be provided with a variable volume ventilation system and a carbon monoxide detection system meeting code requirements. Supply air shall be introduced as necessary to maintain required fresh air levels. Exhaust air shall be discharged at locations as necessary to maintain required fresh air levels. Circulating Fans shall be provided for all areas as necessary to maintain required fresh air levels.

2. Heating, Ventilating and Air Conditioning Systems: As required, heating, ventilating and air conditioning systems shall be provided for the electrical, janitor and sprinkler rooms to keep the temperature within the operating range of electronic equipment used for power and control of lighting and emergency lighting equipment. The HVAC system shall have provisions for fire dampers to meet applicable codes, thermostats for automatic operation and be designed for the loads encountered by the equipment to be installed.

3. Electrical:

   a. Electrical Service: Electrical service, adequate to meet the Parking Garage requirements, shall be connected to an appropriate electric power company source by an underground service entrance.

   b. Lighting System Design: A lighting system shall be provided to promote pedestrian and vehicle safety and security utilizing vandal-resistant high efficiency LED (or equivalent) light fixtures.

4. Illumination Levels: Minimum initial illumination levels (foot candles) at the floor level shall be as follows:

   a. Entrance/Exit: 25 fc

   b. Aisles: 10 fc

   c. Stalls: 5 fc

   d. Stairways: 10 fc

   e. Lobbying/landing areas out of stairs and elevators: 10 fc

5. Plumbing:

   a. Hose Bibs: Hose bibs shall be provided at convenient locations on each level of the garage.

b. Stairwell Drains: Drains shall be provided at the bottom of stairwells. They shall either be located outside of the main pedestrian traffic area or be fitted with covers that do not pose a tripping hazard.

D. Security and Surveillance –

1. Objectives: The design objectives will include the following:

a. Control access between Public Garage and non-public areas within the project.

c. Enhance safety and security of residents, Arts Center patrons, visitors and other users of the Parking Garage. This shall include, as applicable, passive and active security features, such as stairwells with clear-glazed curtain walls, glass-enclosed elevators and no hidden corners.

d. Secure high-value and sensitive assets stored within the Parking Garage.

e. Detect and deter unauthorized access into the Parking Garage and to high-value and/ or sensitive assets.

f. Enable both proactive and reactive (forensic) monitoring and assessment of events using a combination of integrated sensors and surveillance cameras.

g. Minimize operator effort needed to monitor and control the Parking Garage.

h. Meet or exceed all applicable regulatory requirements governing life-safety and security systems as applicable to the Parking Garage.

2. Functional Requirements: The functional requirements for the physical security systems are derived from the Parking Garage design objectives:

a. Deter, detect and delay unauthorized entry into non-public areas of the project at perimeter doors (including access from the Parking Garage), while allowing easy access to public areas and the Public Parking Spaces via designated entryways, as applicable.

b. Electronically control, monitor and record access between public and non-public areas of the project.

c. Electronically control, monitor and record access between designated areas of the Parking Garage as appropriate.

d. Electronically control, monitor and record access to high-value and/or sensitive areas and assets within the Parking Garage such as network closets, electrical rooms and office areas, as appropriate.

3. Camera Surveillance System (CSS): Camera surveillance systems will be designed to operate over an IP network for improved system expandability, reliability, and ease of integration. Digital video recorders shall be located in the Security

equipment room (which may be integrated within any equipment room serving the non-public portions of the project) where images shall be recorded and archived for a minimum of 30 days. Access to these recorders shall be provided via an Ethernet connection to the Internet, with sufficient bandwidth to allow remote monitoring of the cameras. The CSS may include a combination of fixed and pan-tilt-zoom (PTZ) units to monitor access to the Parking Garage and sensitive areas within. All video images will be recorded in digital format. The specific design criteria shall include:

a. PTZ and Megapixel cameras shall utilize automated call to doors and gates within the camera's field of view whenever an alarm event occurs.

b. Fixed cameras at the entry gates and garage locations. Cameras at the entry gates shall be capable of viewing license plates from either side of the gate, regardless of direction of travel.

c. Create a virtual perimeter using well-placed cameras equipped with video analytics.

d. Develop criteria for camera coverage throughout the Parking Garage, including stairways and ramps.

e. Cameras shall be equipped with vandal resistant, environmental housings rated for the conditions which exist at the Parking Garage.

f. Camera coverage at electrical and other maintenance areas, and areas where money is stored and handled, if applicable.

ARTS WALK DESIGN CRITERIA

Features to be provided in the Arts Walk are subject to Herndon's Proprietary Approval in accordance with the Agreement. Herndon shall engage members of the arts community to participate in the process of timely providing Proprietary Approval.

Features to be provided in the Arts Walk include the following:

1. The Arts Walk loop, around Block C and connecting plaza areas (by Comstock), will include art exhibits and historic references.
2. Hardscaping will include specialty brick pavers to highlight the walking loop. "Art" pieces – images, words, or sayings – will be incorporated into the paving patterns.
3. References to history of Town of Herndon and the site (vertical or as flatwork) will be incorporated (design-to budget of $45,000).
4. Two permanent public art sculptures (not to exceed $75,000 and $50,000, installed).

5. Water fountain (design-to budget of $333,000).
6. An outdoor art exhibit space for temporary installations.
7. Special overhead and/or in ground vandal resistant high efficiency LED or equivalent lighting.
8. Site fixtures will include benches, bike racks, trash receptacles, etc.
9. Landscape design and all plant materials.

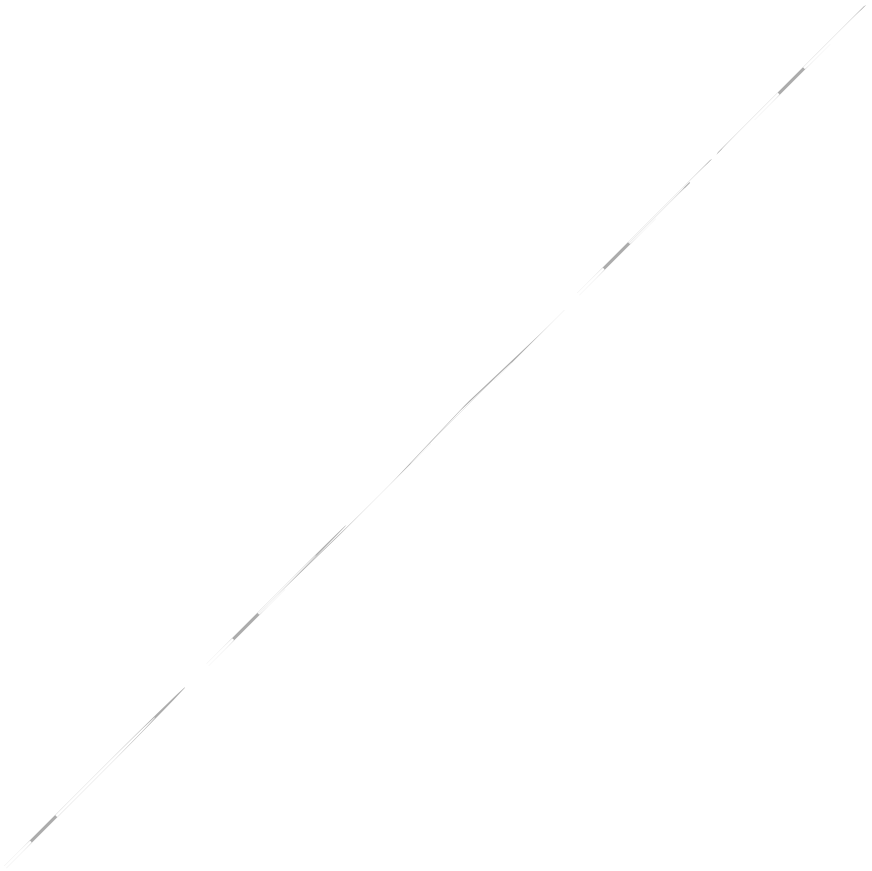


EXHIBIT F

Updated Form of Comstock Parent Guaranty

COMPLETION GUARANTY

THIS COMPLETION GUARANTY ("Guaranty") is made and entered into as of the ____ day of _____, 20__, by **COMSTOCK PARTNERS, LC**, a Virginia limited liability company ("Guarantor"), in favor of **THE TOWN OF HERNDON, VIRGINIA** ("Herndon").

R E C I T A L S

R-1. Herndon and Comstock Herndon Venture, LC, a Virginia limited liability company ("Comstock") entered into that certain Comprehensive Agreement dated November 1, 2017 for the Herndon Downtown Redevelopment Project (as amended, the "Comprehensive Agreement").

R-2. Among other things, the Comprehensive Agreement provides for the conveyance to Comstock of certain property owned by Herndon in the Town of Herndon, Virginia, in exchange for the development thereon by Comstock of a multi-level retail and residential complex with an arts center to be owned and operated by Herndon, the design and construction of a parking garage, the establishment of a condominium regime upon the project , and conveyance by Comstock to Herndon of a completed arts center condominium unit and parking spaces condominium unit in the parking garage (as further defined in the Comprehensive Agreement, the "Herndon Components").

R-3. In accordance with the Comprehensive Agreement, Guarantor is obligated to execute and deliver this Guaranty in favor of Herndon upon Commencement of Construction.

R-4. This Guaranty is a material inducement for Herndon to enter into the Comprehensive Agreement and to convey the Property to Comstock in accordance therewith.

R-5. Guarantor will receive direct and indirect tangible and intangible benefits from the conveyance of the Property to Comstock.

AGREEMENTS

NOW, THEREFORE, intending to be legally bound, Guarantor, in consideration of the matters described in the foregoing Recitals, which Recitals are incorporated herein and made a part hereof, and for other good and valuable consideration the receipt and sufficiency of which are acknowledged, Guarantor hereby covenants and agrees for the benefit of Herndon as follows:

1. Unless otherwise defined herein, capitalized terms used in this Guaranty shall have the same meaning as defined in the Comprehensive Agreement. "Guaranteed Obligations" means the obligations, covenants, representations, warranties and agreements of Comstock contained in the Comprehensive Agreement to design, construct and convey to Herndon the Herndon Components.

2. Guarantor hereby absolutely guarantees to Herndon the Guaranteed Obligations.

3. If, for any reason, Comstock shall fail to fully and faithfully pay, perform, or observe any of the Guaranteed Obligations as and when such payment, performance or obligation is due, then, in any such event Guarantor shall promptly pay, perform or discharge such Guaranteed Obligation, or cause such Guaranteed Obligation to be paid, performed or discharged.

4. Guarantor does hereby (a) waive notice of acceptance of this Guaranty by Herndon and any and all notices and demands of every kind which may be required to be given by any statute, rule

or law, (b) waive any and all rights Guarantor may have under any anti-deficiency statute or other similar protections, and (c) waive presentment for payment, demand for payment, notice of nonpayment or dishonor, protest and notice of protest, diligence in collection and any and all formalities which otherwise might be legally required to charge Guarantor with liability.

5. Guarantor's liability as guarantor shall not be impaired or affected by any amendments to the Comprehensive Agreement which may be made from time to time, with or without the knowledge or consent of Guarantor.

6. The liability of Guarantor and the rights of Herndon under this Guaranty will not be impaired or affected in any manner by, and Guarantor hereby consents in advance to and waives any requirement of notice for, any (1) release (including adjudication or discharge in bankruptcy) or settlement with Comstock; (2) delay in enforcement of this Guaranty; or (3) delay, omission, waiver, or forbearance in exercising any right or power with respect to this Guaranty.

7. This is an absolute, present and continuing guaranty of performance and completion of the Guaranteed Obligations and not of collection.

8. The parties hereto intend and believe that each provision in this Guaranty comports with all applicable local, state and federal laws and judicial decisions. However, if any provision or provisions, or if any portion of any provision or provisions, in this Guaranty is found by a court of law to be in violation of any applicable local, state or federal ordinance, statute, law, administrative or judicial decision, or public policy, and if such court should declare such portion, provision or provisions of this Guaranty to be illegal, invalid, unlawful, void or unenforceable as written, then it is the intent of all parties hereto that such portion, provision or provisions shall be given force to the fullest possible extent that they are legal, valid and enforceable, that the remainder of this Guaranty shall be construed as if such illegal, invalid, unlawful, void or unenforceable portion, provision or provisions were not contained therein, and that the rights, obligations and interest of Herndon under the remainder of this Guaranty shall continue in full force and effect.

9. **WITH RESPECT TO ANY SUIT, ACTION OR PROCEEDING RELATING TO THIS GUARANTY (EACH, A "PROCEEDING"), HERNDON AND GUARANTOR IRREVOCABLY (A) SUBMITS TO THE EXCLUSIVE JURISDICTION OF THE CIRCUIT COURT OF FAIRFAX COUNTY, VIRGINIA, AND THE U.S. DISTRICT COURT FOR THE EASTERN DISTRICT OF VIRGINIA, IF JURISDICTION IS AVAILABLE IN THAT COURT; AND (B) WAIVES ANY OBJECTION WHICH IT MAY HAVE AT ANY TIME TO THE LAYING OF VENUE OF ANY PROCEEDING BROUGHT IN ANY SUCH COURT, WAIVES ANY CLAIM THAT ANY PROCEEDING HAS BEEN BROUGHT IN AN INCONVENIENT FORUM AND FURTHER WAIVES THE RIGHT TO OBJECT, WITH RESPECT TO SUCH PROCEEDING, THAT SUCH COURT DOES NOT HAVE JURISDICTION OVER SUCH PARTY.**

10. **GUARANTOR AND HERNDON (BY ACCEPTANCE HEREOF) HEREBY WAIVE, TO THE FULLEST EXTENT PERMITTED UNDER APPLICABLE LAW, ANY RIGHT TO A TRIAL BY JURY IN ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS GUARANTY OR TO ENFORCE OR DEFEND ANY RIGHT UNDER THIS GUARANTY OR RELATING THERETO AND AGREE THAT ANY SUCH ACTION OR PROCEEDING SHALL BE TRIED BEFORE A COURT AND NOT BEFORE A JURY.**

11. Any and all notices, requests, approvals, consents and other communications required or otherwise contemplated to be made under this Guaranty shall be in writing and shall be provided by one or more of the following means and shall be deemed to have been duly given (a) if delivered personally, when received, (b) if transmitted by electronic mail, on the day of transmission, provided a copy is also sent pursuant to subparagraph (c) or (c) if by national courier service, on the next business day following the date of deposit with such courier service, or such earlier delivery date as may be confirmed in writing to the sender by such recipient. All such notices, requests, approvals, consents and other communications shall be addressed as follows:

Guarantor:	Comstock Partners 1900 Reston Metro Plaza Tenth Floor, ***Reston Station*** Reston, VA 20190 Attention: Christopher Clemente Email: cclemente@comstockpartnerslc.com
with copies to:	Comstock Partners 1900 Reston Metro Plaza Tenth Floor, ***Reston Station*** Reston, VA 20190 Attention: General Counsel Email: landerson@comstockpartnerslc.com
and:	Odin, Feldman & Pittleman, PC 1775 Wiehle Avenue, Suite 400 Reston, Virginia 20190 Attn: Ellen Farrell Sharpe, Esq. Email: ellen.sharpe@ofplaw.com
To Herndon:	777 Lynn Street Herndon, Virginia 20170 Attention: Town Manager Email: town.manager@herndon-va.gov
with copies to:	777 Lynn Street Herndon, Virginia 20170 Attention: Town Attorney Email: lesa.yeatts@herndon-va.gov
and:	Reed Smith, LLP 7900 Tysons One Place, Suite 500 McLean, Virginia 22102-5979 Attention: Grayson P. Hanes, Esquire Email: ghanes@reedsmith.com

By giving to the other parties at least 15 days written notice thereof, the parties hereto and their respective successors and assigns shall have the right from time to time and at any time during the term of this Guaranty to change their respective addresses.

12. This Guaranty shall be binding upon the successors and assigns of Guarantor.

13. This Guaranty shall be construed and interpreted in accordance with and shall be governed by, the laws of the Commonwealth of Virginia without regard to principles of conflicts of laws, except to the extent preempted by United States federal law.

14. The terms of this Guaranty may be waived, modified or amended only by an instrument in writing duly executed by Guarantor and Herndon.

15. Time is of the essence hereof with respect to Guarantor's performance hereunder.

16. Notwithstanding anything to the contrary contained in this Guaranty, Guarantor's obligations hereunder are limited as follows: (a) for claims made hereunder before the earlier of (x) the Arts Unit Closing, or (y) satisfaction of Comstock's obligations under Section 5.8(2) and Article 8 of the Comprehensive Agreement (the "Guaranty Reduction Event"), Ten Million and No/100 Dollars ($10,000,000.00) in the aggregate, and (b) for claims made hereunder after the occurrence of the Guaranty Reduction Event, and during the period of two years thereafter, One Million and No/100 Dollars ($1,000,000.00) in the aggregate. Thereafter, no subsequent claims may be made,

17. Herndon agrees that none of the Guarantor's members, in their capacity as members of Guarantor (nor any of their managers, partners, officers or employees), shall have any liability (contractually or otherwise) in respect of the liabilities and obligations arising under this Guaranty.

18. This Guaranty shall automatically terminate and be null and void after satisfaction by Comstock of all Guaranteed Obligations or its excuse from satisfaction of all such Guaranteed Obligations under the terms of the Comprehensive Agreement.

IN WITNESS WHEREOF, Guarantor has executed this Guaranty as of the date appearing on the first page of this Guaranty.

GUARANTOR:

COMSTOCK PARTNERS, LC,
a Virginia limited liability company

By:_____(SEAL)
Christopher Clemente, Manager

EXHIBIT G

TRI-PARTY AGREEMENT

SUBJECT TO COMMENTS FROM LENDER

TRI-PARTY AGREEMENT

THIS TRI-PARTY AGREEMENT (this "Agreement") is made as of this ___ day of _____, 20___ by and among **COMSTOCK HERNDON VENTURE, LC**, a Virginia limited liability company ("**Comstock**" or "**Borrower**"); **THE TOWN OF HERNDON, VIRGINIA** ("**Herndon**" or the "**Town**"); _____, a _____ (the "**Lender**"); and _____ and _____, either of whom may act, as Trustees for the benefit of Lender, (the "**Trustees**").

RECITALS:

A. Herndon is the fee simple owner of certain real property situate in the Town of Herndon, Fairfax County, Virginia, known as Parcel 20G, with tax map number 016-2-02-0020H ("Parcel 20G"), by virtue of deeds recorded in Deed Book 25625, at Page 161, Deed Book 25452, at Page 994, Deed Book 24304, at Page 762, Deed Book 14183, at Page 81, Deed Book 14066, at Page 1460, Deed Book 9489, at Page 1508, and Deed Book 6326, at Page 643, all among the land records of Fairfax County, Virginia ("Land Records") which parcel is also known by the addresses 750 Center Street, 726 Center Street, 724 Center Street, 731 Station Street, 782 Elden Street and 770 Elden Street (collectively, the "Property"), all as further described on Exhibit A attached hereto and incorporated by this reference.

B. Herndon and Comstock are parties to a certain Comprehensive Agreement dated November 1, 2017 (as amended, the "**Comprehensive Agreement**"), which provides for the conveyance of the Property by Herndon to Comstock in exchange for the design, development and construction upon the Property by Comstock of a retail and residential complex anchored by an arts center and including a multi-level structured parking garage ("**Project**").

C. The Comprehensive Agreement includes certain covenants and obligations that run with the land and bind the Property after Closing, including Comstock's obligations to (1) construct and develop the Project, (2) create a condominium on the Project and (3) convey the Arts Unit and Parking Unit (as defined in the Comprehensive Agreement) to Herndon free of the lien of the Deed of Trust (as defined in Recital E) and the right of Herndon to require specific performance of the Comprehensive Agreement.

D. Comstock previously acquired the Property under the Comprehensive Agreement and in conjunction therewith recorded (i) that certain Special Warranty Deed conveying the Property from Herndon to Comstock and recorded in the Land Records as Instrument No. _____, whereby Herndon shall have the right to require the reconveyance of the Property from Comstock back to Herndon in the event of certain unwind rights and/or uncured

defaults under the Comprehensive Agreement ("**Right of Re-entry**"); and (ii) a memorandum of the Comprehensive Agreement recorded in the Land Records as Instrument No. _____, whereby the Property is encumbered by the obligation to construct the Project ("**Memorandum**").

E. Lender is making loans and other credit accommodations to and for the account of Comstock ("**Loan**") to acquire and construct the Project, which are evidenced by (among other documents) that certain [Loan Agreement] dated [_____] ("**Loan Agreement**") and that certain [Promissory Note] dated as of the same date as the Loan Agreement in the original principal amount of [_____and no/100 Dollars ($_____) ("**Note**"). The Loan is secured by, among other things that certain [Deed of Trust] dated as of the same date as the Loan Agreement ("**Deed of Trust**"), which Deed of Trust has been or may be recorded against the Property and shall be a first priority lien against the Property and certain other collateral as described in the Loan Agreement and the Deed of Trust (the Property and such other collateral being collectively called the "**Collateral**"). The Loan Agreement, the Note, the Deed of Trust and all other documents now or hereafter evidencing or securing the Loan (including without limitation all of the documents listed on **Exhibit B** to this Agreement) are hereinafter collectively referred to as the "**Loan Documents.**"

F. This Agreement sets forth how the Comprehensive Agreement and Right of Re-entry are to be implemented together with the rights of Lender under the Deed of Trust and Loan Documents.

AGREEMENT:

NOW, THEREFORE, in consideration of the premises and of other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do hereby covenant and agree as follows:

1. RECITALS; DEFINED TERMS. The statements set forth in the Recitals section of this Agreement are incorporated herein and made a part hereof. All terms used but not defined herein shall have the meanings ascribed thereto in the Comprehensive Agreement.

2. PLEDGE OF COMPREHENSIVE AGREEMENT. Comstock does hereby pledge, sell, assign, transfer and set over to Lender and grant to Lender a security interest in favor of Lender in all of the Comstock's right, title and interest in and to the Comprehensive Agreement which shall only be exercised in the event of a material and uncured default under the Loan. Comstock shall be entitled to perform under the Comprehensive Agreement, and receive all benefits therefrom, unless and until there is a default by Comstock under the Loan which is not cured within any applicable notice and cure period set forth in the Loan Documents.

3. HERNDON'S CONSENT TO LOAN AND DEED OF TRUST. Herndon hereby consents to the execution and delivery by Comstock to the Lender of the Loan Documents and to the consummation of the transactions contemplated by the Loan Documents. In accordance with Section 14.1(1) of the Comprehensive Agreement, Herndon's approval provided herein shall be deemed the grant by Herndon of its Proprietary Approval to the Loan, the Loan Documents, and the recordation of the Deed of Trust, and Lender shall be deemed an "Approved Mortgagee".

4. RIGHTS OF PARTIES; INSURANCE PROCEEDS.

(a) Except as expressly set forth to the contrary herein, the Property shall at all times until the Loan is indefeasibly paid in full, be subject to the Loan and the lien of the Deed of Trust. As among the Loan Documents, the Comprehensive Agreement and this Agreement, this Agreement shall control.

(b) Lender shall have the right to participate in the adjustment of any proceeds of insurance or condemnation payable as the result of any casualty to or condemnation of the Property or any portion thereof, and to participate in activities relating to restoration or reconstruction of the Project until the Loan shall be paid in full and all of the Loan Documents placed of record shall be satisfied or discharged. Lender shall have the right to receive, administer and apply all such proceeds as set forth in the Loan Documents. Herndon hereby assigns and releases to the Lender, until the Loan shall be paid in full, all of its right, title and interest in, or claim to, (i) all proceeds of all policies of insurance covering the Property or Project, and (ii) all awards or other compensation payable as the result of a taking or threatened taking of all or any part of the Property or Project, which sums may be applied in the discretion of Lender as set forth in the Loan Documents. Notwithstanding the foregoing, until the Substantial Completion of the Project in accordance with the Comprehensive Agreement, and provided that there is no default beyond any applicable notice and cure period under the Loan, any and all such proceeds shall be applied to the restoration or reconstruction of the Project unless Herndon agrees that restoration or reconstruction is not feasible. [*additional provisions on payment of insurance proceeds acceptable to Lender and Herndon during default under the Loan consistent with Section 5(a)]*

5. RIGHTS IN EVENT OF DEFAULT BY COMSTOCK.

(a) Herndon Right to Cure. Notwithstanding anything to the contrary contained herein, in the event of default by Comstock under Loan, the parties agree as follows:

(i) Prior to exercising its remedies under the Loan Documents, Lender shall provide Herndon, for a period of no less than thirty (30) days from the date of such default beyond notice and cure period, the rights set forth in Section 10.4(1)(a) of the Comprehensive Agreement to cure any such default by Comstock under the Loan Documents;

(ii) Notwithstanding any foreclosure or transfer in lieu thereof of the Property or the Project, Herndon shall at all times be afforded the rights under this Agreement to parking at the Project, including during the construction and development thereof, via the Transitional Parking Plan (and any parking license entered into pursuant thereto);

(iii) Lender shall continue funding Comstock's construction loan for the Project after default thereunder by Comstock so long as (i) Comstock's default has not remained uncured after any applicable notice and cure period, (ii) Lender has commenced disbursement of construction funds under the Loan, (iii) either Herndon has cured Comstock's default or the Project has been conveyed to a substitute developer acceptable to Herndon and Lender who has cured Comstock's default, and the following *[additional*

mortgagee protective provisions as may be reasonably required by Lender not inconsistent with the terms of this Agreement].

(b) Limited Assumption.

(i) If the Property is acquired through foreclosure sale or deed in lieu thereof Lender or an affiliate, such party shall not be required to assume the terms and provisions of the Comprehensive Agreement so long as the Lender or its affiliate does not undertake or continue the construction or completion of the Project beyond the extent necessary to conserve or protect the improvements or construction already made. However, if the Lender or its affiliate, having acquired the Property, thereafter undertakes or continues the construction or completion of the Project beyond the extent necessary to conserve or protect the Project or construction already made, then the Lender or its affiliate shall expressly assume all of the covenants, agreements and obligations under the Comprehensive Agreement by a written instrument to be filed promptly and recorded among the Land Records, in which event the time limits set forth in the Project Schedule (as defined in the Comprehensive Agreement) shall be extended for such reasonable period of time as may then be necessary to complete development and construction of the Project. The Lender or its affiliate shall have no liability for any obligations under the Comprehensive Agreement arising after the date that Lender or its affiliate transfers title to the Property to an unrelated third party.

(ii) If the party acquiring title to the Property through foreclosure sale or deed in lieu thereof is an entity other than an Lender or its affiliate, or if, after acquiring title to the Property but not having undertaken completion of the Project, Lender or its affiliate thereafter transfers the Property, the ultimate purchaser, transferee or assignee shall expressly assume all of the covenants, agreements and obligations under the Comprehensive Agreement by a written instrument to be filed promptly and recorded among the Land Records, in which event the time limits set forth in the Project Schedule shall be extended for such reasonable period of time as may then be necessary to complete development and construction of the Project.

(c) Subsequent Financing. After the Substantial Completion of the Project, Comstock may elect to refinance, from time to time, all or portions the Project without any requirement to obtain the Proprietary Approval of Herndon. Notwithstanding the foregoing, all debt secured by a lien on the Condominium common elements and Herndon Components shall be released at the time of the Arts Center Closing. Herndon will reasonably cooperate with Comstock with respect to such refinance(s) including by delivering any reasonable certification or estoppel requested by any Lender.

6. ADDITIONAL RIGHTS OF LENDER. Lender may, at any time until the Loan is paid in full, do any or all of the following without notice to, or the consent of, Herndon and without affecting the obligations of Herndon as provided in this Agreement:

(a) Amend, renew or waive the terms of the Loan Documents, or any part thereof, or any other note, instrument or agreement relating to the Loan, including by increasing the principal of the Loan;

(b) Grant any extension or indulgence with respect to the payment or performance of the Loan;

(c) Enter into any agreement of forbearance with respect to the Loan or any part thereof;

(d) Release, surrender, exchange or compromise any security held or Collateral for the Loan or any part thereof or for any obligations thereunder;

(e) Release any person or entity who or which is a guarantor or surety of all or any part of the Loan or amend any guaranty agreement delivered by any such person or entity;

(f) Release, surrender, exchange or compromise any security held for the obligations of any such guarantor or surety;

(g) Retain or obtain a lien on any additional property or accept additional guaranties or collateral to further secure payment of all or any portion of the Loan;

(h) Take such other actions as it shall deem necessary or desirable in its sole discretion, to protect the liens and security interests created by the Loan Documents or its interest in the Property or in the Loan, including, without limitation, the making of additional advances expressly secured by the Loan Documents.

7. LIMITATION ON RIGHTS OF HERNDON. Without obtaining the prior written consent of Lender, which consent may be withheld by Lender in its sole and absolute discretion, and subject to the provisions of Section 5 above, until all sums outstanding under the Loan shall be paid in full, Herndon shall not:

(a) Institute any legal proceedings of any kind whatsoever against Comstock's interest in the Property, Comstock, or against the Collateral, arising in any manner out of the Comprehensive Agreement, including, without limitation, exercise of the Right of Re-entry; provided that the foregoing shall not preclude Herndon from (i) pursuing an action for specific performance as permitted by the Comprehensive Agreement in the event of a default by Comstock thereunder, and (ii) pursuing any claims Herndon may have against Comstock Parent under the Parent Guaranty;

(b) Answer, object to or file any responsive pleading to any action of mortgage foreclosure or other remedial action instituted by Lender under the Loan Documents, nor take any action to stay or otherwise delay or hinder such action by Lender;

(c) Exercise any right to require any assets to be marshalled or to require that Lender proceed against any Collateral securing, or party liable for, all or any part of Loan prior to any other Collateral or party;

(d) Challenge in any manner, whether by legal proceedings or otherwise, the priority of the lien of the Deed of Trust or the validity of any of the Loan Documents;

(e) Modify, amend, or terminate the Comprehensive Agreement, or waive any material terms therein; and

(f) Transfer the Project to an unrelated party.

8. NO SUBROGATION. Herndon shall not acquire, by subrogation, contract or otherwise, any lien, right or interest in the Property (excluding real estate tax liens that may be imposed by Herndon using its Governmental Authority) which is or maybe prior in right to the Deed of Trust or the other Loan Documents.

9. ADDITIONAL COVENANTS. Subject to Section 5 above, Herndon hereby further covenants with and warrants to Lender as follows:

(a) Any contract of sale of the Property, or any portion thereof, which is executed by Comstock and approved by Lender shall be deemed to have been approved by Herndon to the extent required by and for all purposes under the Comprehensive Agreement; provided, however, that any such transfer shall be subject to the terms of the Comprehensive Agreement; and

(b) Upon any distribution of assets of Comstock in the event of (i) any insolvency or bankruptcy case or proceeding, or any receivership, liquidation, reorganization or other similar case or proceeding in connection therewith, relative to Comstock or to its creditors, as such, or to its assets, or (ii) any liquidation, dissolution or other winding up of Comstock, whether voluntary or involuntary and whether or not involving insolvency or bankruptcy, or (iii) any assignment for the benefit of creditors or any marshalling of assets and liabilities of Comstock (any of the matters and events described in the foregoing clauses (i), (ii) and (iii) being herein referred to as a "**Bankruptcy Proceeding**"), then, and in any such event, Lender shall be entitled to receive indefeasible payment in full of all amounts due or to become due (whether or not an event of default has occurred under the terms of the Loan Documents or whether or not the Loan has been declared due and payable prior to the date on which it would otherwise have become due and payable) on or in respect of any and all indebtedness under the Loan before Herndon is entitled to receive any payment on account of or pursue and other damages or sums under the Comprehensive Agreement, and, to that end, Lender shall be entitled to receive, for application to the payment of the Loan, any payment or distribution of any kind or character, whether in cash, property or securities, which may be payable or deliverable in respect of the obligations owed by Comstock in any such case, proceeding, dissolution, liquidation or other winding up or Bankruptcy Proceeding.

10. TERMINATION. Upon the earlier of (i) termination of the Comprehensive Agreement upon Close-Out of the Project, Final Completion, and the subsequent transfer of the Arts Unit and Parking Unit (as such terms are set forth in Section 10.1 of the Comprehensive Agreement), or (ii) full repayment and satisfaction of the Loan and release of the Deed of Trust, this Agreement shall be deemed automatically terminated and expired and of no further force and effect without further writing required, except solely with regard to those terms and provisions of the Comprehensive Agreement which may survive the termination thereof.

11. NOTICES FROM LENDER. So long as this Agreement shall remain in effect, Lender shall furnish to Herndon a copy of all notices of default or non-compliance given to Comstock under the Loan Documents. Such notice shall be provided simultaneously with the giving of any such notice to Comstock and permit Herndon (in Herndon's sole discretion) to cure such default or non-compliance of Comstock within the same cure periods, if any, given to Comstock under the Loan Documents.

12. DEFAULTS UNDER THE COMPREHENSIVE AGREEMENT; LENDER RIGHT TO CURE. Herndon shall deliver to Lender prompt written notice of the occurrence of any event of default under the terms of the Comprehensive Agreement or Right of Re-entry. Whenever Herndon shall deliver any notice or demand to Comstock with respect to any breach or default by Comstock in its obligations or covenants under the Comprehensive Agreement, Herndon shall at the same time forward a copy of such notice or demand to Lender pursuant to this Agreement. Lender shall have the same period after receipt of notice (as provided to Comstock in Section 10.2 of the Comprehensive Agreement) to remedy or cause to be remedied any default by Comstock under the Comprehensive Agreement, plus an additional twenty business days to remedy or cause to be remedied any monetary default and an additional sixty days to remedy or cause to be remedied any non-monetary default. If Lender has timely commenced to cure and thereafter commences foreclosure proceedings under the Loan Documents, then Lender shall have such additional time beyond the additional cure period provided herein as is reasonably necessary to complete its foreclosure proceedings not to exceed one hundred twenty days. Herndon shall accept such performance by or at the instigation of Lender as if the same had been done by Comstock, and hereby authorizes Lender to take any such action at Lender's option, and hereby authorizes entry upon the Property by Lender for such purpose.

13. MISCELLANEOUS PROVISIONS.

(a) This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the Commonwealth of Virginia.

(b) All notices given pursuant to this Agreement shall be in writing and shall be either (i) hand-delivered, (ii) sent by express delivery, such as Federal Express or similar service, or (iii) served by certified or registered mail, return receipt requested. Service of any such notice or demand so made shall be deemed effective on the date of receipt pursuant to clause (i) and upon deposit with the delivery service or United States Mail if sent pursuant to clauses (ii) or (iii). Rejection or other refusal to accept or inability to deliver because of changed address of which no notice has been given shall constitute receipt of the notice, demand or request sent. Notices to be served hereunder shall be addressed to each party at its address set forth below or at such other place as such party or its successor or assign may from time to time designate in writing:

If to Herndon:

To the address set forth for Herndon in the Comprehensive Agreement.

If to Comstock:

To the address set forth for Herndon in the Comprehensive Agreement.

If to Lender:

_____
_____
_____
Attn: _____

With a copy to:

_____
_____
_____
Attn: _____

If to Trustees:

_____
_____
_____
Attn: _____

_____
_____
_____
Attn: _____

(c) In the event that anyone or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement, and this Agreement shall be construed as if such invalid, illegal or unenforceable provisions were not contained herein.

(d) This Agreement shall be binding on the parties hereto and on their respective successors and assigns.

(e) This Agreement may be signed in counterparts with the same effect as if all signatories had executed the same instrument.

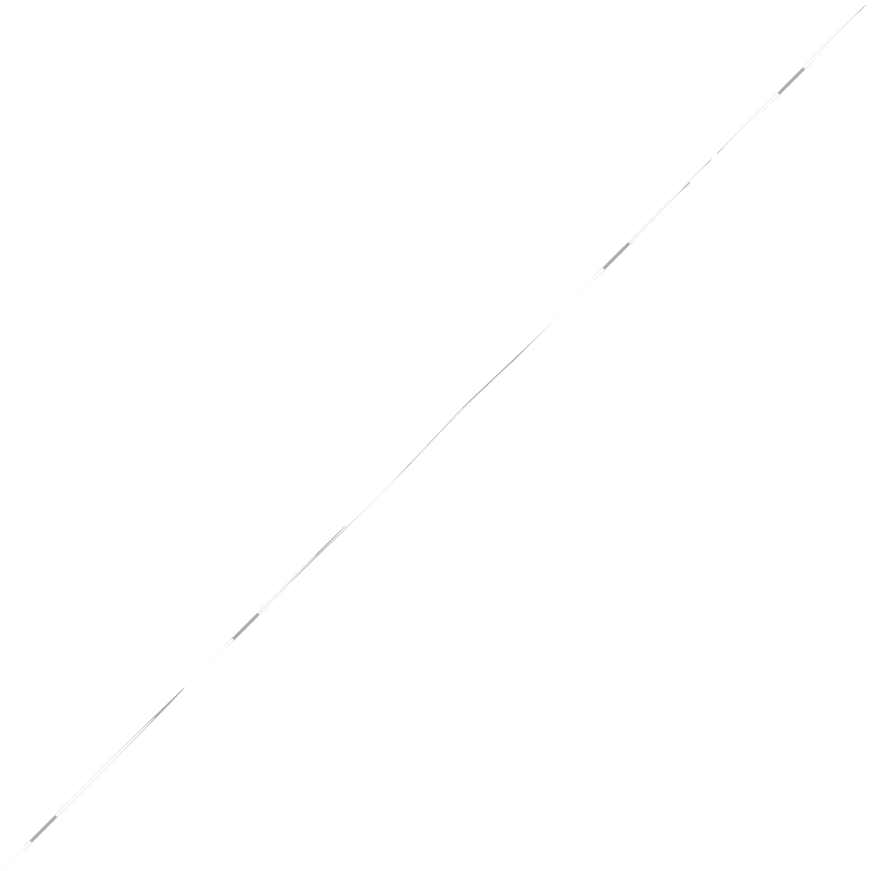
(f) This Agreement represents the complete agreement between the Lender, Comstock and Herndon with respect to the matters contained herein, and no prior understanding or agreement between those parties, whether written or oral, shall be of any effect unless specifically incorporated herein. In the event of a conflict between this Agreement, and the Loan Documents and/or Comprehensive Agreement or Right of Re-entry, this Agreement shall control.

(g) This Agreement shall not be modified or amended, except by a written instrument executed by the parties hereto.

(h) Section headings have been inserted for convenience only and are not to be utilized in interpreting this Agreement.

IN WITNESS WHEREOF, the parties, each intending to be legally bound hereby, have hereunto placed their respective hands and seals as of the day and year first above written.

[Signatures on following pages]



COMSTOCK:

COMSTOCK HERNDON VENTURE, LC
a Virginia limited liability company

By: Comstock Management Services, LC, its Manager

By:_____
Christopher Clemente, Manager

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public, in and for the state and county aforesaid, do hereby certify that Christopher Clemente, as Manager of Comstock Management Services, LC, the Manager of **COMSTOCK HERNDON VENTURE, LC,** whose name is signed to the foregoing instrument, appeared before me and personally acknowledged the same in my jurisdiction on behalf of **COMSTOCK HERNDON VENTURE, LC**.

GIVEN under my hand and seal on _____, 20__.

_____
Notary Public

My commission expires: _____
Notary Registration No.:_____

HERNDON:

TOWN OF HERNDON, VIRGINIA

By: _____
Lisa Merkel, Mayor

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public, in and for the state and county aforesaid, do hereby certify that_____, as _____ for **TOWN OF HERNDON, VIRGINIA,** whose name is signed to the foregoing instrument, appeared before me and personally acknowledged the same in my jurisdiction on behalf of the Town.

GIVEN under my hand and seal on _____, 20__.

_____
Notary Public

My commission expires: _____
Notary Registration No.:_____

APPROVED AS TO FORM:

_____
Lesa J. Yeatts, Town Attorney
Town of Herndon, Virginia

LENDER:

_____
a _____

By:_____
Name: _____
Title: _____

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public, in and for the state and county aforesaid, do hereby certify that _____, as _____ of _____, whose name is signed to the foregoing instrument, appeared before me and personally acknowledged the same in my jurisdiction on behalf of the bank.

GIVEN under my hand and seal on _____, 20__.

_____
Notary Public

My commission expires: _____
Notary Registration No.:_____

TRUSTEES:

_____

_____, Trustee

_____

_____, Trustee

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public, in and for the state and county aforesaid, do hereby certify that _____, Trustee**,** whose name is signed to the foregoing instrument, appeared before me and personally acknowledged the same in my jurisdiction.

GIVEN under my hand and seal on _____, 20__.

_____
Notary Public

My commission expires: _____
Notary Registration No.:_____

COMMONWEALTH OF VIRGINIA
COUNTY OF _____, to-wit:

I, the undersigned Notary Public, in and for the state and county aforesaid, do hereby certify that _____, Trustee**,** whose name is signed to the foregoing instrument, appeared before me and personally acknowledged the same in my jurisdiction.

GIVEN under my hand and seal on _____, 20__.

_____
Notary Public

My commission expires: _____
Notary Registration No.:_____

TOWN OF HERNDON, VIRGINIA

RESOLUTION

NOVEMBER 17, 2020

Resolution- **to consider an amendment to the Comprehensive Agreement dated November 1, 2017 between the Town of Herndon and Comstock Herndon Venture, LC, to establish the closing date and closing conditions for both parties, establish commencement of construction and outside satisfaction dates, and provide licenses for the operation of public facilities in the interim.**

WHEREAS, the Town of Herndon ("Town") currently owns certain land in historic downtown Herndon, Virginia, consisting of approximately 4.675 acres of land (the"Land"); and

WHEREAS, in 2016 the Town issued an RFP for award of a comprehensive agreement pursuant to the Virginia public private partnership act for the redevelopment of approximately 4. 675 acres of Town owned land in downtown for a mixed-use town center project, Arts Center and associated parking; and

WHEREAS, on October 27, 2017, the Town Council approved a resolution authorizing a proposed Comprehensive Agreement between the Town of Herndon and Comstock Herndon Venture, LC, defining responsibilities of both parties for the redevelopment of the property; and

WHEREAS, a Comprehensive Agreement between Comstock Herndon Venture, LC and the Town of Herndon was signed by both parties on November 1, 2017; and

WHEREAS, recent delays in construction of this project are related to significant problems created by conditions in the Metropolitan DC construction market; and

WHEREAS, additionally the Covid-19 pandemic has played a significant role in substantial increases in material costs and workforce restrictions causing supply to constrict at the same time demand held steady; and

WHEREAS, in the interest of the continued forward movement of the project the Town and Comstock now desire to amend the Comprehensive Agreement in order to better address the changes in the market, unforeseen effects of Covid-19 and to provide both parties maximum advantage; and

NOW, THEREFORE, BE IT RESOLVED that the Town Council of the Town of Herndon Virginia, hereby:

1. ratifies and reaffirms its determinations and the actions reflected in

the above recitals;

2. authorizes the Mayor to sign on behalf of the Town the Comprehensive Agreement Amendment with Comstock Herndon Venture, LC, substantially in the form and with the material terms of that considered by the Town Council on November 17, 2020;

3. authorizes the Mayor to agree to changes to the Comprehensive Agreement Amendment, including the Exhibits thereto, that do not change the Town's financial obligations or materially change the terms, provided that the Town Attorney concurs with such changes;

4. authorizes the Mayor to sign instruments approved the Town Attorney necessary to effect the closing anticipated by the Comprehensive Agreement and this Amendment.