

PROJECT DESCRIPTION

THE SITE IS IDENTIFIED AS PART OF LOT 2 OF PCL A PT BLK 22 WINDOVER HEIGHTS AT 348 WINDOVER AVE NW, VIENNA VA 22180. THE SITE CONTAINS 16,000 SF (0.367 AC) OF LAND AREA AND IS ZONED RS-16. THIS PLAN INVOLVES DEMOLITION OF THE EXISTING 2-STORY DWELLING, DRIVEWAY, WALKWAY, PATIO AND A CONSTRUCTION OF A NEW 2-STORY SINGLE FAMILY DWELLING, DRIVEWAY WITH ASSOCIATED UTILITIES CONNECTION. THE EXISTING DRIVEWAY ENTRANCE WILL BE USED AS A CONSTRUCTION ENTRANCE FOR DEMOLITION PURPOSES AND THE EXISTING DRIVEWAY APRON WILL BE REMOVED. THE SITE DOES NOT FALL WITHIN TOWN MAPPED RESOURCES MANAGEMENT AREA (RMA) AND THE LOT DOES NOT FALLS WITHIN TOWN MAPPED RPA.

EXISTING UTILITY NOTE

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND AND OVERHEAD UTILITIES. IF, DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR ENCOUNTERS UTILITIES OTHER THAN THOSE INDICATED BY MISS UTILITIES AND MEMBER UTILITY COMPANIES, HE (SHE) SHALL IMMEDIATELY NOTIFY THE OWNER AND TAKE NECESSARY AND APPROPRIATE STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUANCE OF SERVICE. THE CONTRACTOR IS REQUIRED BY LAW TO NOTIFY MISS UTILITY @ 1-800-552-7001 AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK ON THIS PROJECT.
- THE SITE CONTRACTOR /DEVELOPER MUST VERIFY THE LOCATIONS AND ELEVATIONS OF ALL PUBLIC AND PRIVATE UTILITIES AND STRUCTURES AFFECTING THE SITE PRIOR TO THE START OF THE CONSTRUCTIONS. ANY CONFLICT WITH THE PLAN MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY FOR RESOLUTION. FAILURE TO VERIFY EXISTING UTILITIES MAY RESULT IN COSTLY DELAYS IN REMEDIAL MEASURES.

TOWN OF VIENNA GENERAL NOTES:

- A PRE-CONSTRUCTION MEETING MUST BE HELD PRIOR TO THE START OF CONSTRUCTION. CALL 703-255-6384 TO SCHEDULE THE PRE-CONSTRUCTION MEETING.
- ALL CONSTRUCTION GENERATED DEBRIS MUST BE HAULED AWAY BY THE CONTRACTOR OR OWNER.
- PRIOR TO THE REMOVAL OF ANY TOWN TREES (TREES WITHIN THE RIGHT OF WAY), THE APPLICANT OR THEIR REPRESENTATIVE SHALL CONTACT THE TOWN OF VIENNA ARBORIST AT 703-255-6360 TO COORDINATE HAVING THE TOWN ARBORIST ONSITE DURING ALL TOWN TREE REMOVAL.
- TREE PROTECTION FOR ANY TOWN TREE, AS SHOWN ON PLAN, MUST BE INSTALLED PRIOR TO ANY SITE WORK.
- IT IS UNLAWFUL TO PERFORM ANY CONSTRUCTION ABOVE FOUNDATION CORNERS PRIOR TO APPROVAL OF SETBACKS. WORK COMPLETED IN VIOLATION OF THIS REQUIREMENT IS SUBJECT TO DEMOLITION.
- ALL DUMPSTERS/PODS ARE TO BE PLACED ON PRIVATE PROPERTY. FRONT ELEVATION CHECKS ARE REQUIRED.
- WALL CHECK SURVEYS ARE REQUIRED AND MUST BE SUBMITTED PRIOR TO CONSTRUCTION ABOVE FOUNDATION CORNERS.
- A CERTIFICATE OF OCCUPANCY IS REQUIRED PRIOR TO OCCUPANCY. ALL REQUIRED DOCUMENTATION AND INSPECTIONS MUST BE SUBMITTED/COMPLETED BEFORE THE TOWN OF VIENNA WILL ISSUE A CERTIFICATE OF OCCUPANCY.
- EXISTING SANITARY SEWER LATERALS ARE TYPICALLY CAPPED AT OR NEAR THE PROPERTY LINE. THE REUSE OF THE PORTION OF THE EXISTING SANITARY SEWER LATERAL BETWEEN THE TOWN OWNED SEWER MAIN AND THE CAPPED END MAY BE ALLOWED PROVIDING THAT A LICENSED PLUMBER CERTIFIES THAT THE EXISTING PIECE OF PIPE IS GRADED PROPERLY AND IN LIKE NEW CONDITION. THE REUSE OF A PORTION OF THE EXISTING LATERAL DOES NOT IMPLY THAT THE TOWN IS WARRANTING THE CONDITION IN ANY WAY.

CONSTRUCTION ENTRANCE NOTE:

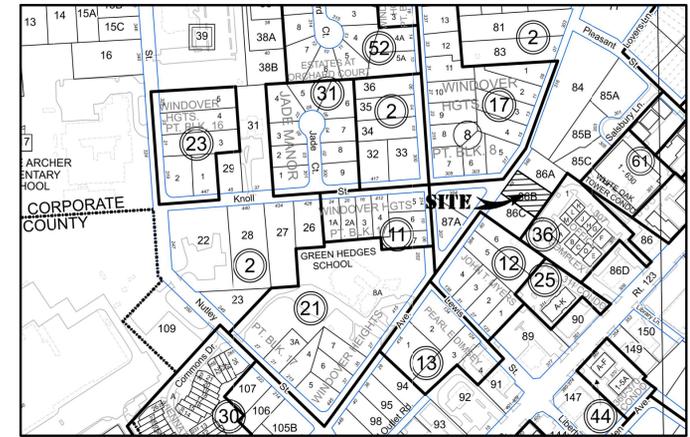
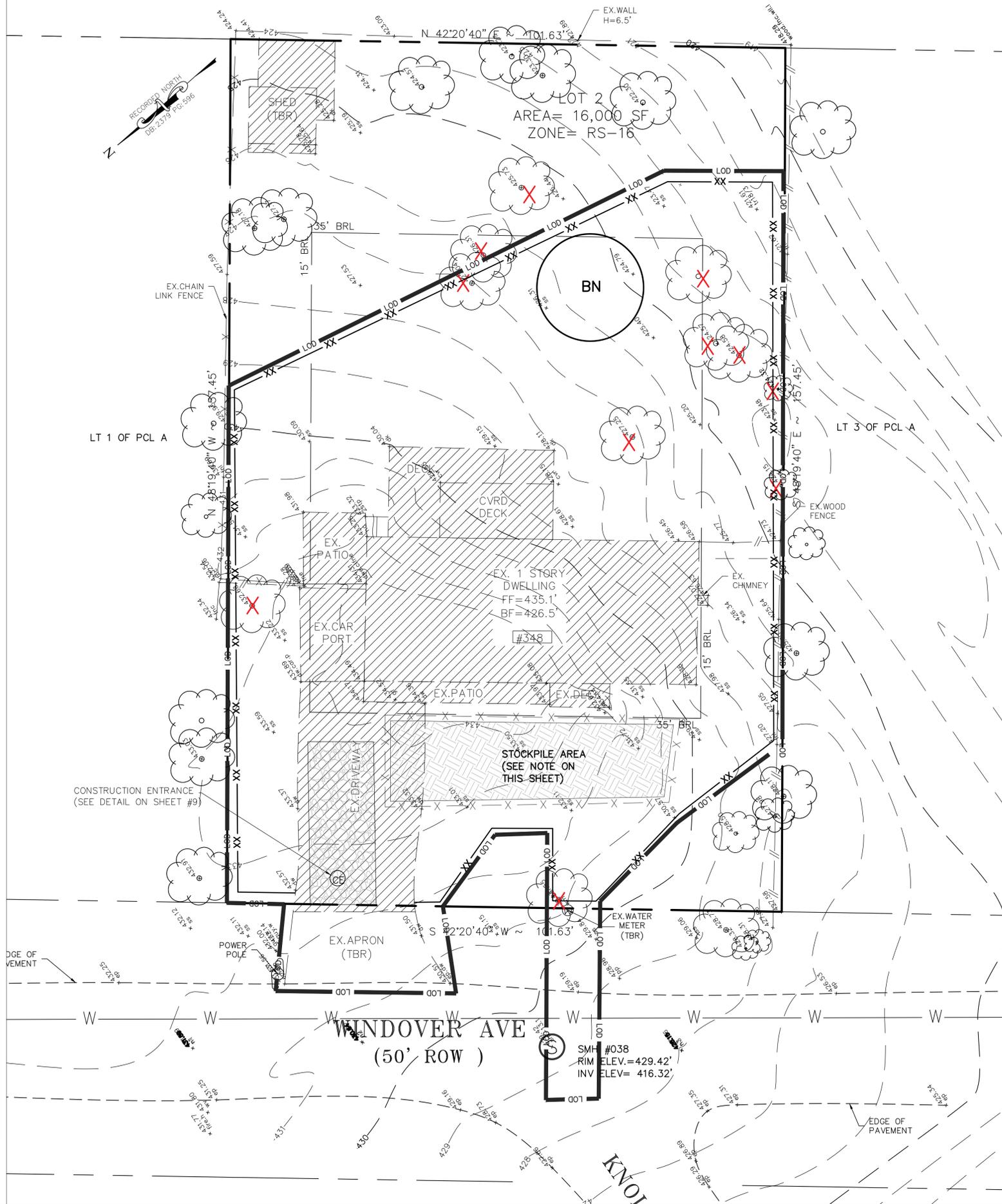
- DEPENDING ON ACTUAL SITE CONDITIONS AND LIMITATIONS, IN THE FIELD THE SITE INSPECTOR MAY ALLOW AN EXISTING DRIVEWAY TO BE USED AS A CONSTRUCTION ENTRANCE, OR THE LENGTH OF THE STANDARD CONSTRUCTION ENTRANCE TO BE MODIFIED. IF THE CONSTRUCTION ENTRANCE LENGTH IS TO BE INSTALLED AND IS LESS THAN 70 FEET (MINIMUM REQUIRED), A WASH RACK MAY BE REQUIRED TO WASH VEHICLE WHEELS BEFORE ENTERING THE STREET.
- INSTALL GRAVEL CONSTRUCTION ENTRANCE AS DEEMED NECESSARY PER INSTRUCTION OF SITE INSPECTOR.
- THE CONTRACTOR/OWNER SHALL PROVIDE SEPARATE WATER TANK/WATER HOSE TO WASH THE VEHICLE WHEELS. STREET SWEEPING IS REQUIRED EVERYTIME THE SEDIMENT IS TRANSPORTED TO THE PUBLIC STREET, AND THE PUBLIC STREET SHALL REMAIN SEDIMENT FREE AT ALL THE TIME OF THE CONSTRUCTION PERIOD.

PHASE I EROSION AND SEDIMENT CONTROL PROGRAM:

- DEPENDING ON ACTUAL SITE CONDITIONS AND LIMITATIONS, IN THE FIELD THE SITE INSPECTOR MAY ALLOW AN EXISTING DRIVEWAY TO BE USED AS A CONSTRUCTION ENTRANCE, OR THE LENGTH OF THE STANDARD CONSTRUCTION ENTRANCE TO BE MODIFIED.
- INSTALL SILT FENCE AND ROOT PRUNING TRENCH AS SHOWN ON THIS PLANS.
- CONTACT THE TOWN INSPECTOR FOR APPROVAL OF THE INSTALLED PERIMETER CONTROL MEASURES PRIOR TO FURTHER LAND-DISTURBING ACTIVITIES.
- ROUGH GRADE THE REMAINDER OF THE SITE WITHIN THE LIMIT OF DISTURBANCE.
- PERFORM STABILIZATION SUCH AS TEMPORARY SEEDING AND MULCHING FOR ALL AFFECTED AREAS.

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SHEET 2	SITE GRADING PLAN, E&S CONTROL PLAN PHASE II
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SHEET 3	BUILDING HEIGHT COMPUTATIONS, LOT DEVIATION TABLE
SHEET 4	PRE AND POST DEVELOPMENT MAPS AND COMPUTATIONS
SHEET 5	HYDROGRAPHS
SHEET 6	STORMWATER COMPUTATIONS AND GENERAL NOTES
SHEET 7	RUNOFF REDUCTION SPREADSHEET
SHEET 8	BMP DESIGN AND SUB-DRAINAGE AREAS
SHEET 9	BMP NOTES AND DETAILS
SHEET 10	INFILTRATION SOIL REPORT
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SHEET 12	EX. TREE INVENTORY AND TREE CONSERVATION PLAN
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VICINITY MAP
SCALE: 1"=300'

STOCKPILE NARRATIVE:

THE SOIL FROM EXCAVATING FOUNDATION WILL BE STOCKPILED IN THE AREA AS SHOWN ON THIS SITE PLAN. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. ALL SOIL STOCKPILES, IF ANY, SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS AFTER GRADING. THE HEIGHT OF THE STOCKPILES MATERIAL SHALL NOT EXCEED 4 FT. THE MAXIMUM SLOPE OF THE STOCKPILE MATERIAL SHALL NOT BE MORE THAN 3:1. THE STOCKPILE MATERIAL SHALL BE PROTECTED FROM DRAINING INTO ADJOINING NON DISTURBED AREA BY SUPER SILT FENCE OR ANY OTHER SEDIMENT CONTROL DEVICES. THE STOCKPILE MATERIAL SHALL BE HAULED AWAY FROM THE SITE DAY TO DAY AS FAR AS POSSIBLE. THE EXCESS OR UNUSED STOCKPILE MATERIALS SHALL BE REMOVED FROM THE SITE AND WILL BE DUMPED AT APPROVED DUMPING SITE. THE GRADING/ EXCAVATION CONTRACTOR FOR THE SUBJECT SITE IS REQUIRED TO NOTIFY, IN WRITING, THE ASSIGNED SITE INSPECTOR REGARDING ANY EXCESS MATERIAL PROPOSED TO BE HAULED OFFSITE PRIOR TO HAULING. THE NOTIFICATION MUST INDICATE THE QUANTITY OF MATERIAL TO BE MOVED OFFSITE, IDENTIFICATION OF THE RECEIVING SITE WHERE THE EXCESS WILL BE TAKEN. ALL INFORMATION NECESSARY TO SHOW THAT SUCH RECEIVING SITE HAS BEEN PROPERLY PERMITTED AND HAS E&S CONTROLS INSTALLED. (VA E&S SEDIMENT CONTROL HANDBOOK, PAGE VI-13 MINIMUM STANDARDS, OFFSITE AREAS AND TABLE 6-1, PG VI 15, E-5).

WETLANDS CERTIFICATE

I HEREBY CERTIFY THAT ALL WETLANDS PERMITS REQUIRED BY LAW WILL BE OBTAINED PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITIES.

348 WINDOVER LLC

OWNER NAME: _____ for _____ SIGNATURE: _____ DATE: **12/31/2024**

LEGALITY OF LOT CERTIFICATION

I HEREBY CERTIFY THAT ALL APPROPRIATE COUNTY APPROVALS WERE OBTAINED IN ACCORDANCE WITH THE PROCESS REQUIRED BY THE SUBDIVISION ORDINANCE IN EFFECT AT THE TIME OF THE CREATION. THE LOT WAS CREATED AS PART OF LOT 2 OF PCL A PT BLK 22 WINDOVER HEIGHTS, AS APPROVED BY FAIRFAX COUNTY AND RECORDED IN DEED BOOK 2379 PAGE 596 AMONG THE LAND RECORDS OF FAIRFAX COUNTY.

DAVIS CHAU, PE

ENGINEER'S NAME: _____ SIGNATURE: _____ DATE: **12/31/2024**

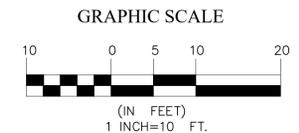
PHASE I LEGEND

- EXISTING 2' CONTOUR LINE
- EXISTING SPOT ELEVATION
- EASEMENT
- SANITARY MAIN
- WATER LINE MAIN
- GAS LINE MAIN
- EDGE OF PAVEMENT
- EXISTING FENCE
- EXISTING STRUCTURES TO BE REMOVED
- EXISTING STRUCTURES TO BE REMAIN
- TEMPORARY CONSTRUCTION ENTRANCE 3.02
- STOCKPILE AREA
- LIMITS OF CLEARING
- SILT FENCE 3.05
- SUPER SILT FENCE
- TREE PROTECTION FENCE 3.38
- ROOT PRUNING TRENCH
- TRENCHLESS SUPER SILT FENCE
- CRITICAL ROOT ZONE
- EX. TREE TO BE PRESERVED
- EX. TREE TO BE REMOVED
- STREET SIGN

NOTE:
THIS IS A STANDARD LEGEND DRAWING. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS DRAWING AND MAY NOT BE USED IN THIS PROJECT.

WATERSHED AND DISTURBED AREA NOTE

WATERSHED: DIFFICULT RUIN
DISTURBED AREA= 12,773 SF
(0.293 AC)



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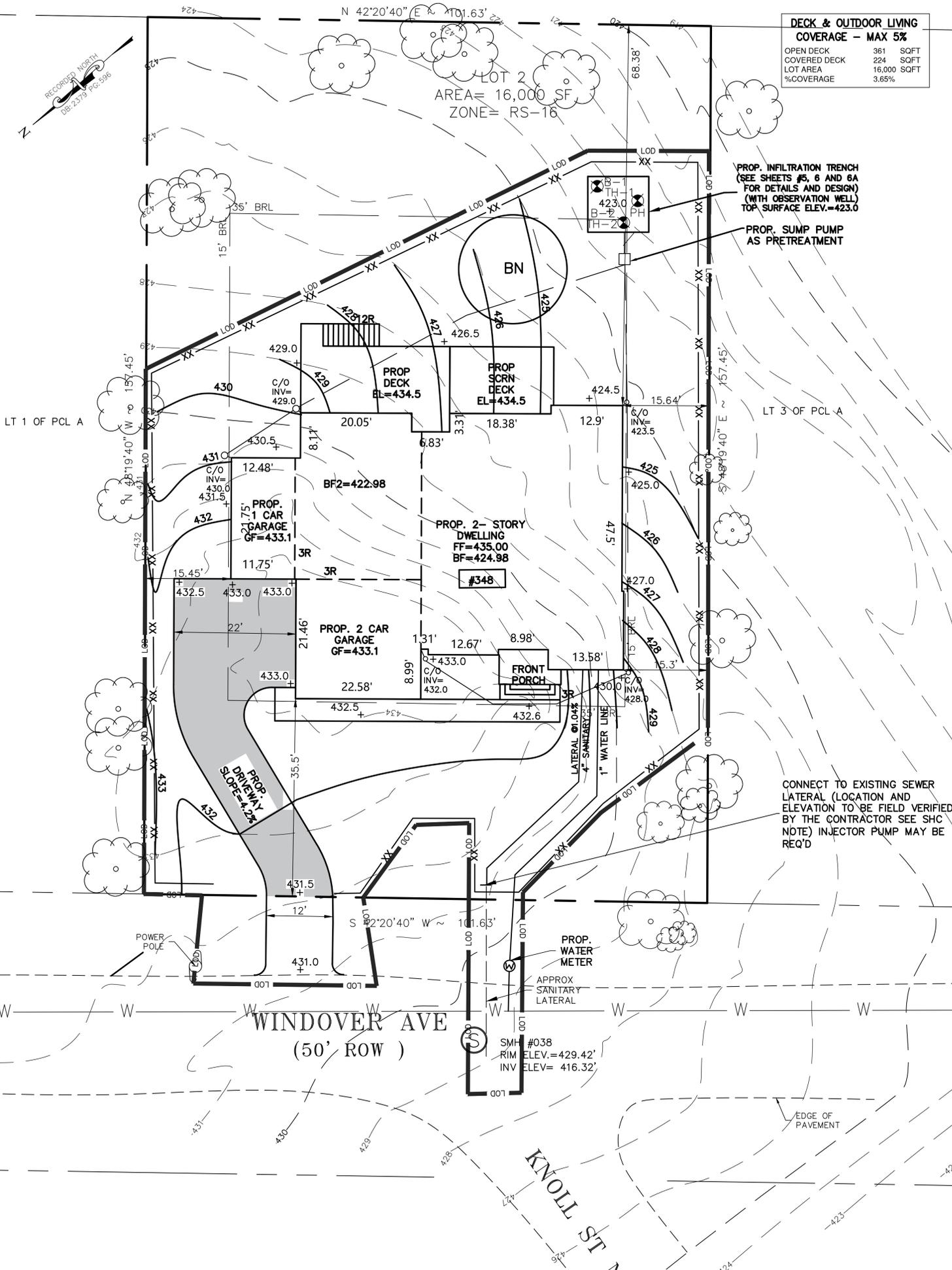
NO.	REVISION	DESCRIPTION	REV. BY	DATE

EXISTING CONDITION PLAN/DEMOLITION PLAN,
EROSION AND SEDIMENT CONTROL PLAN PHASE I

IT 2
WINDOVER HEIGHTS
348 WINDOVER AVE NW
HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

DATE:	AUGUST 2024
PREP. BY:	A.V
REV. BY:	D.C
PROJECT #	
SCALE:	1"=10'
SHEET:	1
TOTAL SHEETS:	13



EROSION AND SEDIMENT CONTROL NARRATIVES :

- PROJECT DESCRIPTION**
THE SITE IS IDENTIFIED AS LT 2 OF PCL A PT BLK 22, WINDOVER HEIGHTS AND IS LOCATED AT 348 WINDOVER AVE NW, VIENNA, 22180. THE SITE CONTAINS 16,000 SF (0.367 AC) OF LAND AREA AND ZONED RS-16. THE DISTURBED AREA DUE TO THE REDEVELOPMENT OF THE LOT WILL BE 0.293 ACRES. THE PROJECT INVOLVES DEMOLITION OF THE EXISTING 2-STORY DWELLING, DRIVEWAY, WALKWAY, AND CONSTRUCTION OF A NEW 2-STORY SINGLE FAMILY DWELLING. THE EXISTING DRIVEWAY ENTRANCE WILL BE USED AS A CONSTRUCTION ENTRANCE AND REMOVED AFTERWARDS. A NEW DRIVEWAY AND APRON IS PROPOSED FOR THIS NEW DWELLING. THE SITE IS CURRENTLY SERVED BY THE PUBLIC SEWER AND PUBLIC WATER SYSTEM.
THE SITE WILL HAVE TOTAL IMPERVIOUS AREA OF 4,458 SQ FT AS COMPARED TO THE PREDEVELOPMENT IMPERVIOUS AREA OF 3,606 SQ FT. THE NET INCREASE OF IMPERVIOUS AREA IS 852 SQ FT. THE TOTAL IMPERVIOUS AREA IS 27.9%. PLEASE REFER TO THE COMPUTATIONS ON SHEET #6. INFILTRATION TRENCH WILL BE PROVIDED FOR WATER QUANTITY AND WATER QUALITY PURPOSES. THIS FACILITY HAS BEEN DESIGNED TO ACCOMMODATE THE 1" RUNOFF TO MITIGATE THE INCREASED RUNOFF FROM PART OF THE ROOF DOWNSPOUTS. REFER SHEET #8 FOR DETAILS AND DESIGN OF THE INFILTRATION TRENCH. BY PROVIDING THIS FACILITY, THERE WILL BE A REMOVAL OF PHOSPHOROUS BY 0.07 LB/ YEAR FOR WATER QUALITY PURPOSES AND THERE WILL BE A NET REDUCTION OF 89 CF OF RUNOFF.
- EXISTING SITE CONDITIONS**
THE SITE IS AN INTERIOR LOT AND IS DEVELOPED WITH A SINGLE-FAMILY DWELLING. THE LOT WITHIN THE ROW, ONLY THE TREES IMPACTED BY THE CONSTRUCTION WILL BE REMOVED AS SHOWN ON THE PLANS. THE EXISTING VEGETATION SHALL BE PRESERVED TO THE MAXIMUM EXTENT POSSIBLE.
THE STUDY LOT FALLS WITHIN ACCOTINK CREEK WATERSHED. THE ON-SITE DRAINAGE AREA CONSISTS OF 0.367 ACRES OF TOTAL ON-SITE DRAINAGE AREA AND CONTRIBUTES ABOUT 1.07 CFS OF RUNOFF FROM THE 10-YEAR STORM EVENTS. THE LOT PRESENT TWO DRAINAGE AREAS WITH TWO OUTFALL LOCATIONS. RUNOFF FROM THE STUDY LOT FLOW TO THE NORTH-WEST DIRECTION INTO THE WINDOVER AVE, THEN THE RUNOFF WILL CONTINUE INTO THE CURB INLET LOCATED ALONG WINDOVER AVE, THEN ALONG THE CLOSED SYSTEM UNTIL OUTFALLS ACCOTINK CREEK WATERSHED. THE OTHER PART OF THE LOT FLOW TO THE SOUTH-EAST DIRECTION ENTER INTO THE CURB AND GUTTER OF MAPLE AVE, THEN ALONG THE CURB TO THE EAST DIRECTION AND THEN ALONG THE CLOSED SYSTEM UNTIL OUTFALLS INTO DIFFICULT RUN ACCOTINK CREEK.
- ADJACENT AREA**
THE LOT IS SURROUNDED BY SINGLE FAMILY LOT 86A FROM THE NORTH DIRECTION, LOT 86C FROM THE WEST-SOUTH AND LOT 2560 AND FRONTAGE TO WINDOVER AVE.
- OFFSITE AREAS**
OFFSITE AREAS WILL NOT BE DISTURBED DURING CONSTRUCTION ACTIVITIES EXCEPT DURING THE INSTALLATION OF THE NEW 1" WATER LINE, WATER METER AND DRIVEWAY APRON. THE DEBRIS RESULTING FROM THE DEMOLITION ACTIVITIES WILL BE HAULED AWAY TO AN APPROVED DUMPING SITE AS FREQUENTLY AS REQUIRED.
- SOILS**
THE SOIL OF THE SUBJECT LOT COMPRISES OF ONE SOIL CLASS TYPE 105B (WHEATON-GLENELG COMPLEX). SILT FENCE WILL BE INSTALLED ALONG THE LOWER LIMIT OF DISTURBANCE TO CONTROL SEDIMENT TRANSPORT.
- CRITICAL AREAS**
THE SITE DOES NOT APPEAR TO HAVE SERIOUS EROSION PROBLEM. SILT FENCE WILL BE INSTALLED ALONG THE LIMIT OF CLEARING AND GRADING. CRITICAL SLOPE IS NOT PROPOSED ON THE SITE. THE SITE DOES NOT APPEAR TO HAVE SERIOUS EROSION PROBLEM.
- EROSION AND SEDIMENT CONTROL MEASURES**
ALL SILTATION CONTROL MEASURES WILL BE INSTALLED ALONG LOW LAND OF DISTURBED AREA AS SHOWN ON THE GRADING PLAN IN PHASE I STAGE OF THE PROJECT. OWNER WILL CALL THE TOWN INSPECTOR 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION TO SCHEDULE AN INSPECTION. REFER TO SHEET 5 FOR EROSION AND SEDIMENT CONTROL SEQUENCES, PHASE I AND II. THE SPECIFICATION OF THE SUPER SILT FENCE AND SILT FENCE SHALL BE AS STATED ON SHEET #11. STREET SWEEPING WILL BE DONE TO REMOVE ALL THE SEDIMENTS TRANSPORTED BY THE CONSTRUCTION VEHICLES TO THE PUBLIC STREET AS FREQUENTLY AS REQUIRED. ALL THE EROSION AND SEDIMENT CONTROL MEASURES WILL BE MAINTAINED AND KEPT FUNCTIONAL AS DESCRIBED UNDER MAINTENANCE PROGRAM.
- PERMANENT STABILIZATION**
PERMANENT OR TEMPORARY SOIL STABILIZATION WILL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SEEDING AND MULCHING ARE TO BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL NOT BE WORKED OUT FOR SEVEN OR MORE CALENDAR DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
- STORMWATER RUNOFF CONSIDERATION**
THIS PROJECT WILL RESULT IN A INCREASE IN SURFACE RUNOFF AS A RESULT OF THE INCREASED IMPERVIOUS AREA (852 SF). THE POST-DEVELOPMENT RUNOFF WILL INCREASE TO 1.07 CFS AND 0.83 CFS FROM THE 10-YEAR AND 2-YEAR STORM EVENTS AS COMPARED TO THE PRE-DEVELOPMENT RUNOFF RATE OF 0.59 CFS AND 0.77 CFS RESPECTIVELY. PLEASE REFER TO THE COMPUTATIONS ON SHEET #6. THE OVERALL RUNOFF WILL INCREASE 0.07 CFS AND 0.06 CFS FROM THE 10-YEAR AND 2-YEAR STORMS. THE OUTFALL ANALYSIS HAS BEEN PERFORMED IN ITS EXISTING AND PROPOSED CONDITIONS AND IT SHOWS THAT AN ADEQUATE OUTFALL EXISTS FOR THE SITE. NO ADVERSE IMPACTS WILL BE ANTICIPATED WITH THE IMPLEMENTATION OF THE BMP FACILITY. THE TOTAL IMPERVIOUS AREA OF THE SITE IS 27.9%.
- CALCULATIONS**
THE PRE- AND POST- DEVELOPMENT RUNOFF FOR 2-YR AND 10-YR STORMS, IMPERVIOUS AREA ACREAGE CALCULATIONS, "C" FACTOR CALCULATIONS ARE PROVIDED ON SHEET #6. THE RATIONAL METHOD HAS BEEN USED TO ESTIMATE THE PEAK RUNOFF.

SEWER HOUSE CONNECTION NOTE:

THE NEW DWELLING IS PROPOSED TO BE CONNECTED TO THE EXISTING SEWER LATERAL. THE LOCATION OF THE EXISTING SANITARY SEWER LATERAL SHOWN ON THE PLAN IS APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM THE EXACT LOCATION AND INVERT ELEVATION OF THE LATERAL. IF THE EXISTING LATERAL IS DEEMED UNACCEPTABLE, THEN A NEW SEWER HOUSE LATERAL IS PROPOSED WITH CLEAN-OUTS AT 50 FEET INTERVALS. GRAVITY FLOW IS DESIRABLE TO THE MAXIMUM EXTENT POSSIBLE. IF GRAVITY FLOW IS NOT POSSIBLE, THEN AN EJECTOR PUMP SHALL BE PROVIDED FOR THE BASEMENT PLUMBING.

WATER HOUSE CONNECTION NOTE:

THE NEW DWELLING WILL BE CONNECTED BY 1" WATER LINE FROM THE PROPOSED 1" WATER METER AS SHOWN ON THE PLANS THE LOCATION OF THE EXISTING WATER MAIN SHOWN ON THE PLANS IS APPROXIMATE ONLY BUT WILL BE REMOVED. REFER SHEET #3 FOR THE DETAIL OF 1" WATER METER.

WATERSHED AND DISTURBED AREA NOTE

WATERSHED: ACCOTINK CREEK
DISTURBED AREA = 12,773 SF (0.293 AC)
TOTAL IMPERVIOUS AREA = 4,458 SF

TREE PLANTING NOTE:

TREES TO BE PLANTED OUTSIDE THE LIMIT OF DISTURBANCE WILL BE MANUALLY PLANTED WITH MINIMUM LAND DISTURBANCE AS NECESSARY. REFER SHEET 8 FOR PROPOSED TREE PLANTING SCHEDULES.

NOTE:

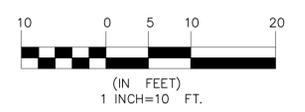
SEEDING ON THE LOT AREA IS PERMANENT ONLY. NO TEMPORARY SEEDING IS PROPOSED FOR THE SITE WITHIN THE DISTURBED AREA.

SITE ANALYSIS

DESCRIPTION	REQUIRED	PROVIDED
LOT AREA	16,000 SQFT	16,000 SQFT
LOT COVERAGE	25% MAX	24.83% (MAX ALLOWABLE BY TOWN CODE IS 25%)
SETBACKS: FRONT	35 FT FROM PL (FROM DEED)	35.5 FT
SIDE	15 FT FROM PL	15.3 FT 15.45 FT
REAR	35 FT	68.38 FT
LOT WIDTH ST/BLD/MID	50/65/90 (FT)	101.63/101.65/101.75 (FT)
BUILDING HT	35 FT	34.66 FT (MAX ALLOWABLE BY TOWN CODE IS 35 FT HEIGHT)
TREE COVER	20%	23.2%

DESCRIPTIONS	AREA
DWELLING	3,004
DRIVEWAY	906
FRONT PORCH	62
TOTAL AREA	3,972
LOT COVERAGE	24.83%

GRAPHIC SCALE



NOTE:

ALL EXISTING STRUCTURES TO BE REMOVED NOT SHOWN ON THIS PLAN FOR CLARITY PURPOSES. REFER SHEET #1 FOR ALL EXISTING STRUCTURES THAT WILL BE REMOVED.

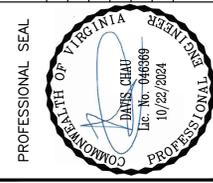
PHASE II LEGEND

- EXISTING 2' CONTOUR LINE
- PROPOSED 2' CONTOUR LINE
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EASEMENT
- SANITARY MAIN
- WATER LINE MAIN
- GAS LINE MAIN
- EDGE OF PAVEMENT
- EXISTING FENCE
- PROPOSED FENCE
- PROPOSED STRUCTURES
- EXISTING STRUCTURES REMAIN
- BRL
- LIMITS OF CLEARING
- SILT FENCE 3:05
- SUPER SILT FENCE
- ROOT PRUNING TRENCH
- TREE PROTECTION FENCE 3:38
- TRENCHLESS SUPER SILT FENCE
- FLOW DIRECTION
- SOIL BORING LOCATION
- EXISTING TREE TO BE PRESERVED
- 4' UNDERGROUND PIPE TO BMP 0.5% MIN

NOTE:
THIS IS A STANDARD LEGEND DRAWING. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS DRAWING AND MAY NOT BE USED IN THIS PROJECT.

GeoEnv Engineers
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Tel. 703.591.7170

NO.	DESCRIPTION	REV. BY	DATE



SITE GRADING PLAN, EROSION AND SEDIMENT PLAN PHASE II
LT 2
WINDOVER HEIGHTS
348 WINDOVER AVE NW
HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

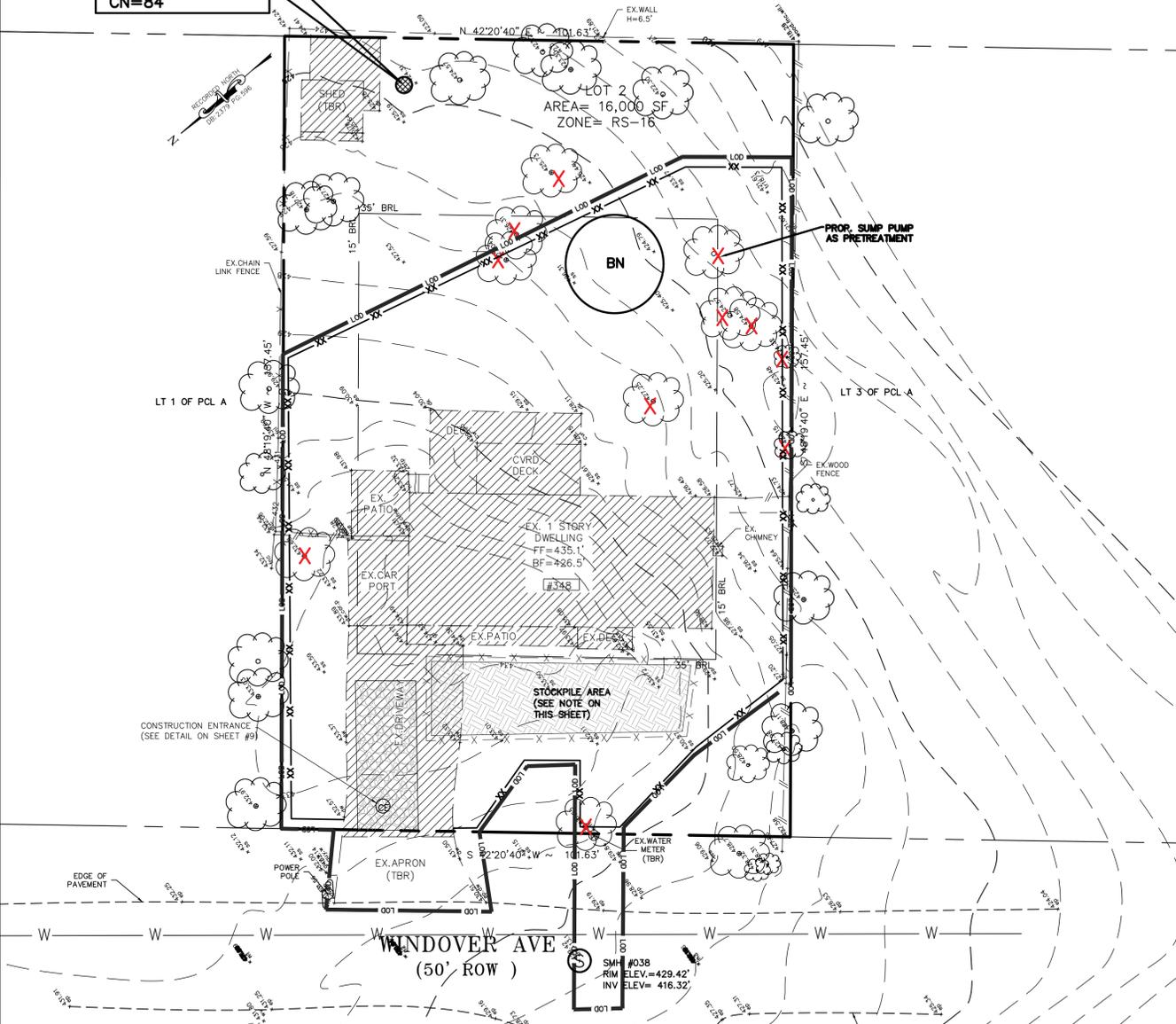
TAX MAP #: 038-3-02-0086B

DATE:	AUGUST 2024
PREP. BY:	A.V
REV. BY:	D.C
PROJECT #	

SCALE: 1" = 10'

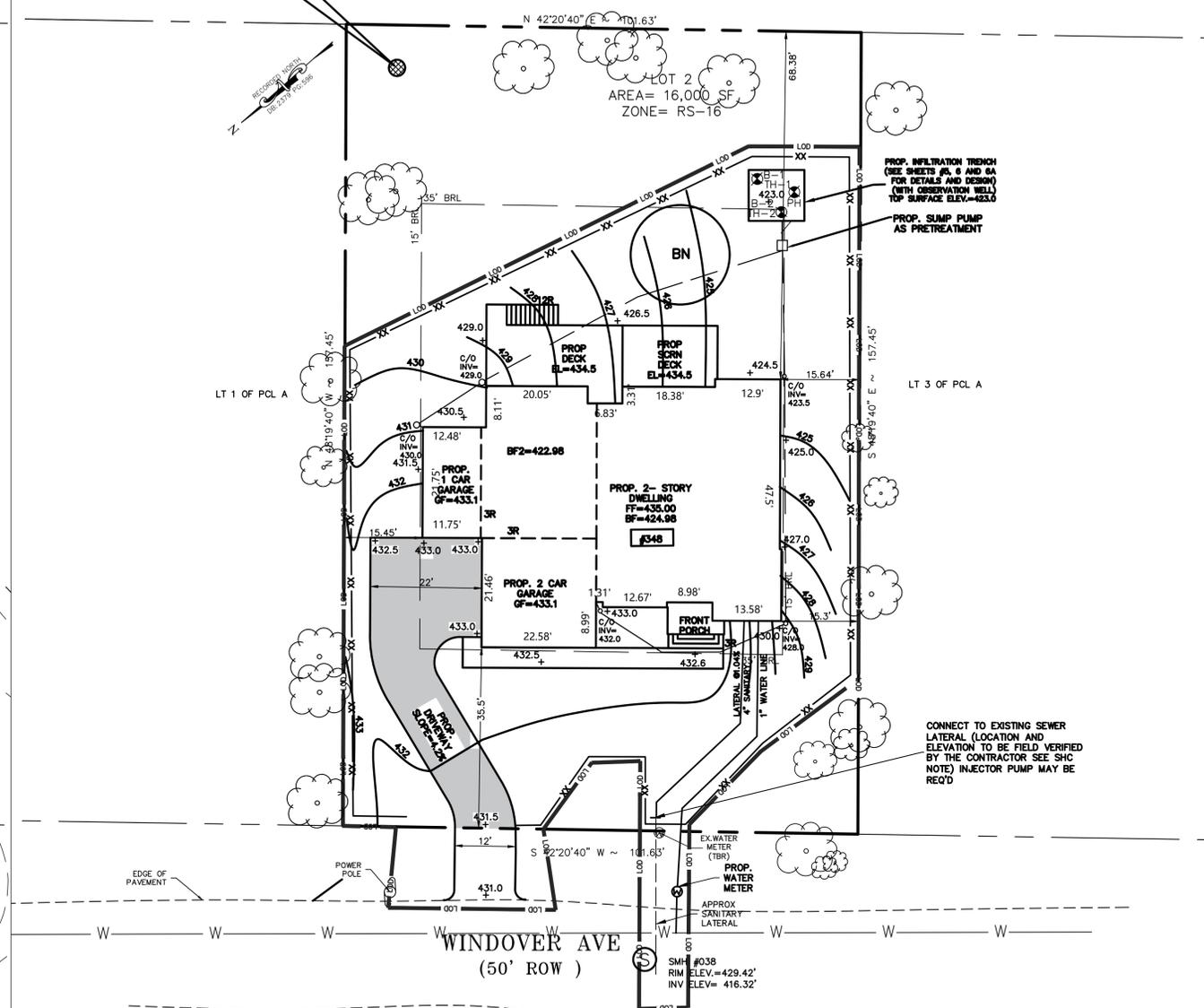
SHEET: **2**
TOTAL SHEETS: 13

PRE DEVELOPMENT
DRAINAGE AREA
DA=16,000 SF
CN=84



PRE-DEVELOPMENT PLAN
(SCALE: 1"=15')

PRE DEVELOPMENT
DRAINAGE AREA
DA=16,000 SF
CN=84



POST-DEVELOPMENT PLAN
(SCALE: 1"=15')

Drainage Area Curve Numbers and Runoff Depths*
Curve numbers (CN, CNadj) and runoff depths (RV_{developed}) are computed with and without reduction practices.

Drainage Area A		A Soils	B Soils	C Soils	D Soils	Total Area (acres):
Forest/Open Space - undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	0.37
	CN	30	55	70	77	
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.26	Runoff Reduction Volume (ft ³): 89
	CN	39	61	74	80	
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.10	CN _(D.A.) 85
	CN	99	99	99	99	

RV _{developed} (watershed-inch) with no Runoff Reduction*	1-year storm		
	1-year	2-year	10-year
RV _{developed} (watershed-inch) with Runoff Reduction*	1.22	1.66	3.19
Adjusted CN*	84	84	84

SWM Water Quantity Energy Balance Worksheet

SITE AREA (acre)	1-year		10-year	
	PRE	POST (adjusted)	PRE	POST (adjusted)
P	2.63	2.63	4.88	4.88
CN	84	84	84	84
S=1000/CN-10	1.90	1.92	1.90	1.90
0.2S	0.38	0.38	0.38	0.38
RV=(P-0.2S)/(P-0.2S)+S	1.22	1.21	3.16	3.16

CHANNEL PROTECTION

Q _{pre-development}	0.421
Q _{post-development}	0.455
RV _{post-development} (with runoff reduction)	1.22
Q _{allowable}	0.379
Q _{allowable} /Q _{post-development}	0.83
V _s /V _r	0.18
V _s	0.22
Storage required (cf)	292
Storage Provided (cf)	308

FLOOD CONTROL

Volume pre-development	2,438
Volume Post Development	2,544
Volume required	106
Storage Provided (cf)	308

DRAINAGE AREA A

DRAINAGE AREA	DESCRIPTION	AREA (SQFT)	CN	COMPOSITE (3x4)
(1)	(2)	(3)	(4)	(5)
DA1	Turf Area	12,394	80	991,520
Pre Development	Impervious Area	3,606	98	353,388
Average CN				84
DRAINAGE AREA	DESCRIPTION	AREA (SQFT)	CN	COMPOSITE (3x4)
(1)	(2)	(3)	(4)	(5)
DA2	Turf Area	11,542	80	923,360
Post Development w/o BMP	Impervious Area	4,458	98	436,884
Average CN				85
DA3B1yr	BMP - VRRM - 1 yr	0.37	84	
DA3B10yr	BMP - VRRM - 10yr	0.37	84	

ROUTING NARRATIVE
THE HYDROLOGY ANALYSIS OF THE SITE HAS BEEN DIVIDED INTO THE FOLLOWING DRAINAGE AREAS.

- DA1 - THIS IS THE PRE-DEVELOPMENT CONDITION OF THE WHOLE SITE.
- DA2 - THIS IS THE POST-DEVELOPMENT CONDITION OF THE WHOLE SITE WITHOUT ANY BENEFIT OF BMP DETENTION.
- DA3 - THIS IS THE POST-DEVELOPMENT CONDITION OF THE WHOLE SITE WITH THE BENEFIT OF BMP DETENTION.

Q SUMMARY DRAINAGE AREA

	1 YR(CFS)	10 YR(CFS)
DA1 - PRE-DEVELOPMENT	0.421	1.200
DA2 - POST-DEVELOPMENT NO BMP	0.455	1.247
DA3 - POST-DEVELOPMENT WITH BMP	0.421	1.200

OUTFALL NARRATIVE :

THE SITE CONSISTS OF 0.367 ACRES OF TOTAL LAND AREA, OUT OF WHICH 0.293 ACRES WILL BE DISTURBED DUE TO THE PROPOSED REDEVELOPMENT ON THE SUBJECT PROPERTY. THE EXISTING SITE HAS AN IMPERVIOUS AREA OF 3,606 SF, COMPARED TO THE PROPOSED SITE THAT WILL HAVE AN IMPERVIOUS AREA EQUAL TO 4,458 SF. THERE WILL BE AN INCREASE IN IMPERVIOUS AREA OF 852 SF. THE PLAN PROPOSES INFILTRATION TRENCH LEVEL 1 FOR WATER QUALITY AND QUANTITY.

1. WATER QUALITY

DEQ VRRM SPREADSHEET WAS UTILIZED TO CALCULATE THE REQUIRED WATER QUALITY REQUIREMENTS. SEE SHEET #5 FOR THE VRRM SPREADSHEET. THE TOTAL REMOVAL REQUIREMENT FOR THIS PROJECT IS 0.07 LB/YR OF PHOSPHORUS, THE INFILTRATION TRENCH WILL PROVIDE 0.07 LB/YR, THEREFORE THE WATER QUALITY REQUIREMENT FOR THE SITE IS ACHIEVED.

2. WATER QUANTITY

THIS PROJECT WILL RESULT AN INCREASE IN SURFACE RUNOFF AS A RESULT OF THE INCREASED IMPERVIOUS AREA (852 SF). THE POST-DEVELOPMENT RUNOFF WILL BE 1.247 CFS AND 0.455 CFS FROM THE 10-YEAR AND 1-YEAR STORM EVENTS AS COMPARED TO THE PRE-DEVELOPMENT RUNOFF RATE OF 0.421 CFS AND 1.200 CFS RESPECTIVELY. PLEASE REFER TO THE COMPUTATIONS ON THIS SHEET. THE INCREASE IN RUNOFF WILL BE CONTAIN VIA INFILTRATION TRENCH FOR THE 10-YEAR AND 1-YEAR STORMS. ONSITE DETENTION OF FLOW WILL BE INSTALLED TO MEET BOTH CHANNEL AND FLOOD PROTECTION REQUIREMENTS. THE PRE AND POST COMPUTATIONS WILL BE COMPARED AT A COMMON OUTFALL POINT AS SHOWN ON THIS SHEET.

CHANNEL PROTECTION

THE SITE UTILIZES THE RUNOFF REDUCTION FROM THE PROPOSED ONSITE BMP(S) AND ASSOCIATED DETENTION VOLUME TO PROVIDE ADEQUATE CHANNEL PROTECTION. THE ENERGY BALANCE EQUATION WAS UTILIZED TO DETERMINE CHANNEL PROTECTION REQUIREMENTS. THE PREDEVELOPMENT CN VALUE WAS DETERMINED FOR THE SITE AS A WHOLE AND THE POST DEVELOPMENT CN VALUE USED THE ADJUSTED CN VALUE FOR THE WHOLE SITE AREA. UTILIZING THESE CN VALUES, A PRE AND POST SITE FLOWS WERE DEVELOPED FOR THE 1 YEAR STORM EVENT. THE Q ALLOWABLE FOR THE 1 YEAR STORM WAS CALCULATED TO BE 0.379 CFS USING AN IMPROVEMENT FACTOR OF 0.9 FOR DISTURBANCE AREA UNDER 1 ACRE. SINCE THE Q ALLOWABLE WAS LESS THAN THE Q 1YEAR IN POST DEVELOPMENT CONDITIONS, DETENTION IS REQUIRED. DEQ STORMWATER MANAGEMENT HANDBOOK, 2013 - FIGURE 11.7, ENERGY BALANCE WAS USED TO CALCULATE A STORAGE REQUIREMENT OF 292 SQFT. THE SITE PROVIDES 308 SQFT OF DETENTION, THEREFORE CHANNEL PROTECTION REQUIREMENT IS MET.

ADDITIONALLY, IT WAS CALCULATED THAT ENOUGH FLOW WAS DIRECTED TO THE BMP(S) TO MEET THE STORAGE REQUIREMENT FOR THE 1 YEAR EVENT. THE TOTAL DRAINAGE AREA OF 2,239 SQFT TIMES THE 1 YEAR STORM OF 2.63 INCHES PROVIDES A TOTAL VOLUME OF 490 CUFT, WHICH IS GREATER THAN 308 CUFT.

FLOOD CONTROL

THE SITE UTILIZED THE NRCS (10-YR STORM EVENT) FROM THE PRE AND POST DEVELOPMENT CONDITIONS TO CALCULATE THE INCREASE IN RUNOFF VOLUME. THE CALCULATED INCREASE IN POST DEVELOPMENT CONDITIONS IS 106 CUFT. THE SITE PROVIDES 308 CUFT OF DETENTION, THEREFORE FLOOD CONTROL REQUIREMENT IS MET.

NO.	DESCRIPTION	REV. BY	DATE



PRE AND POST DEVELOPMENT
MAPS AND COMPUTATIONS

LT 2
WINDOVER HEIGHTS
348 WINDOVER AVE NW
HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

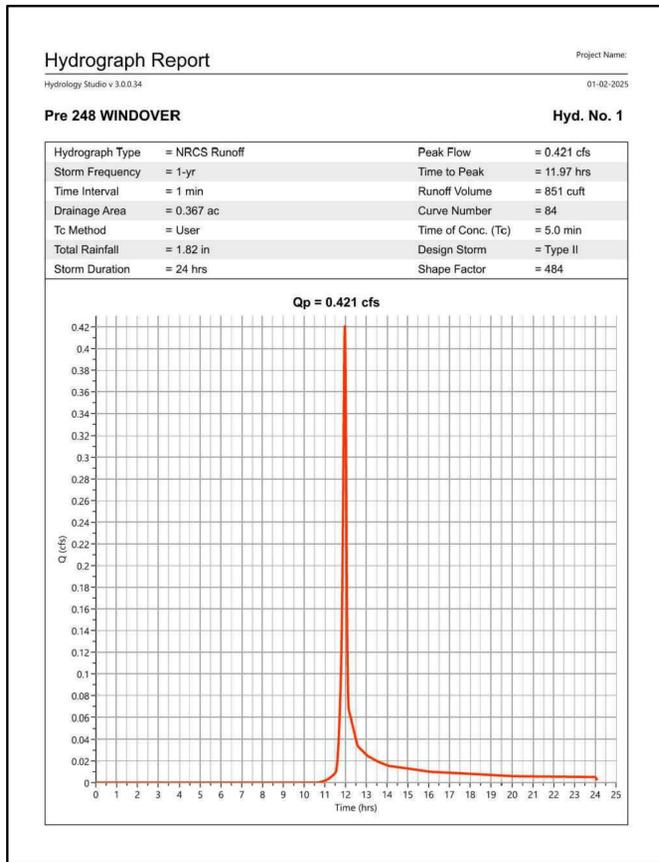
DATE: AUGUST 2024
PREP. BY: A.V
REV. BY: D.C
PROJECT #

SCALE: 1"=20'

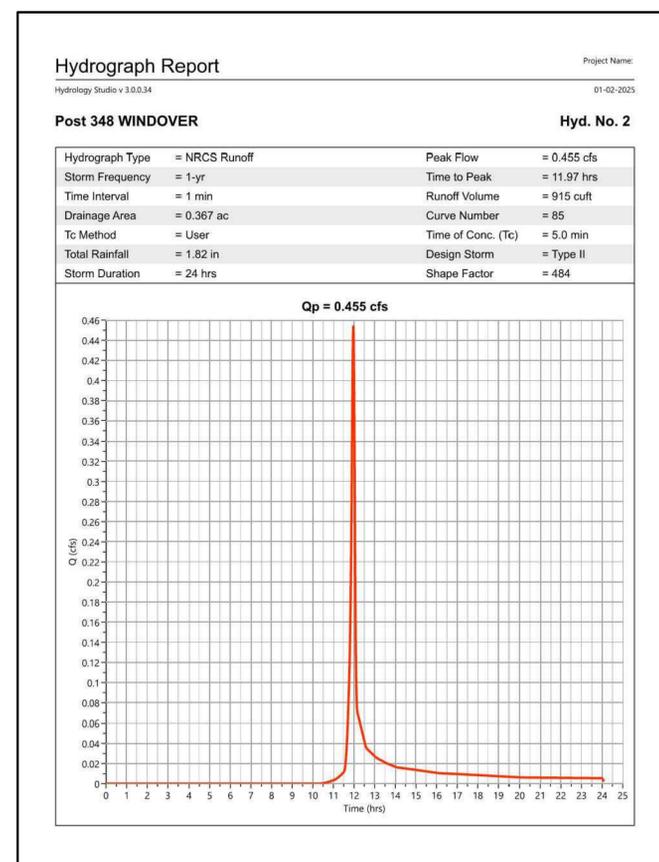
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TOTAL SHEETS: 13

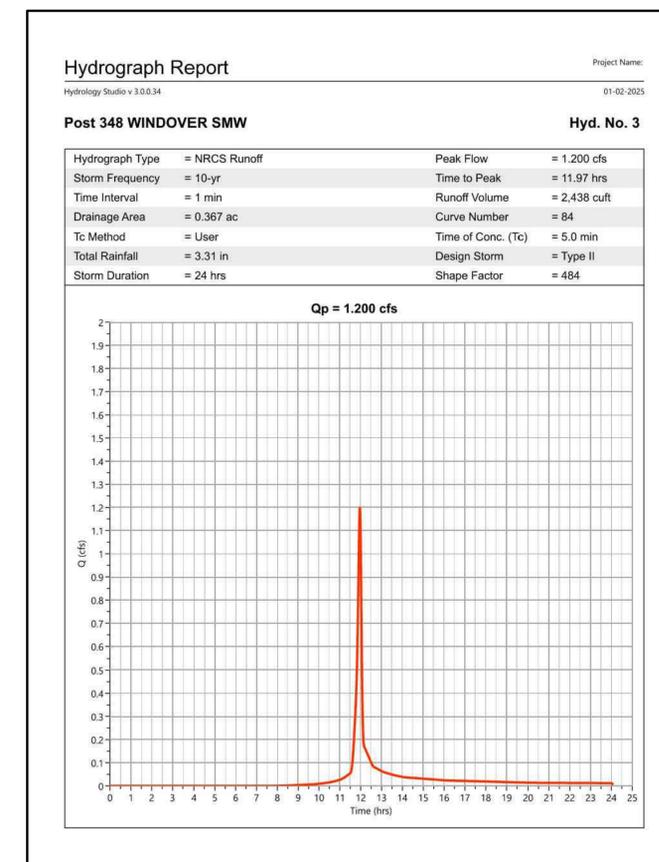
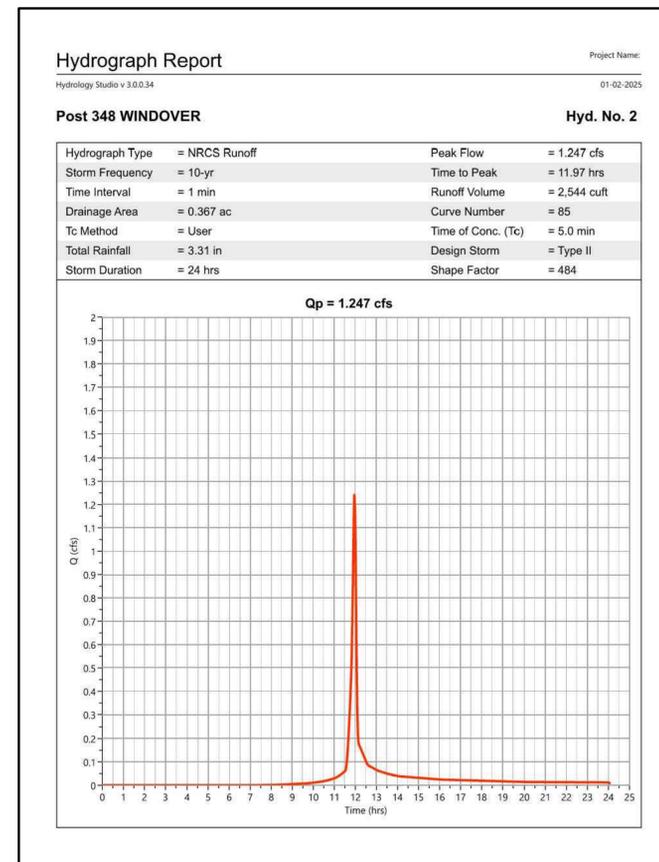
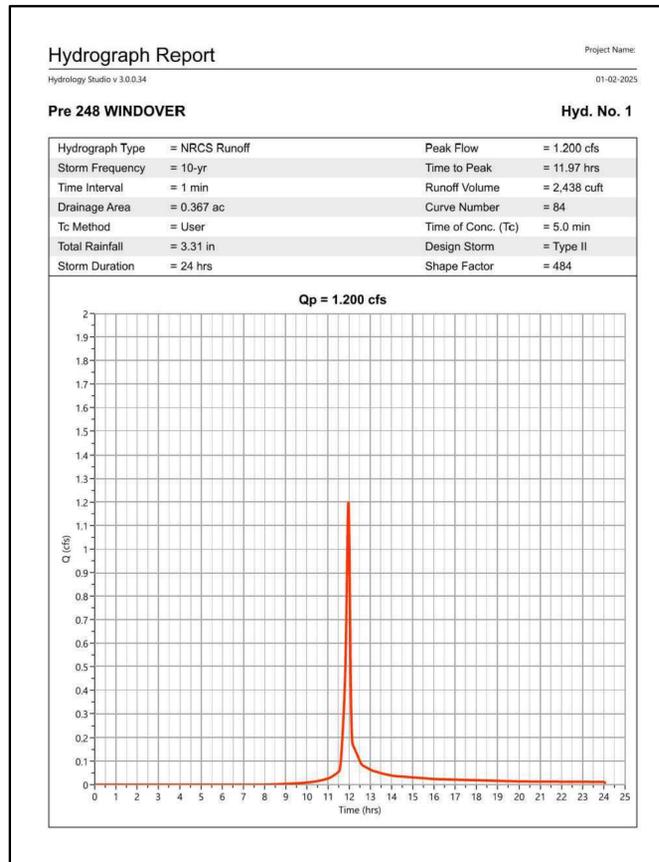
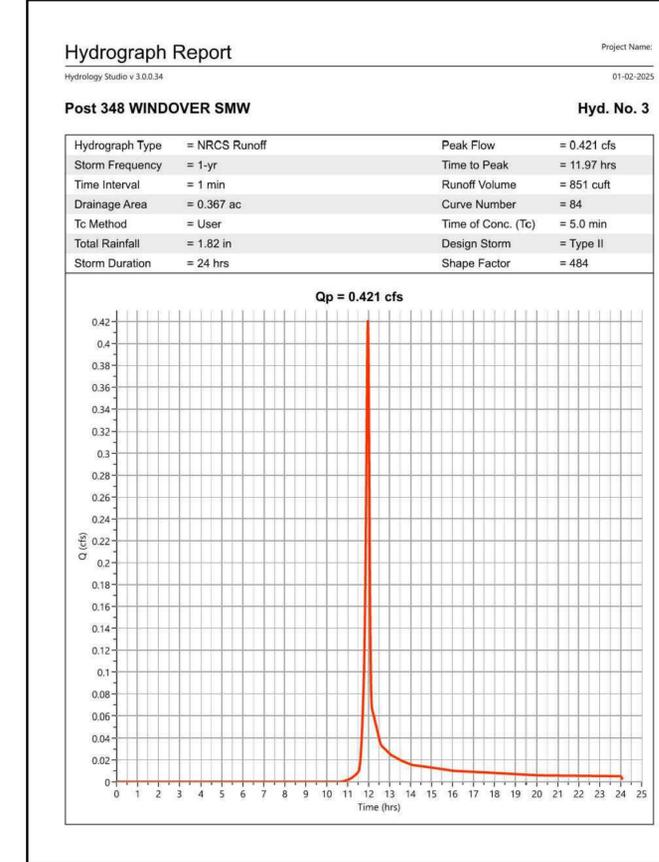
PRE DEVELOPMENT:



POST DEVELOPMENT:



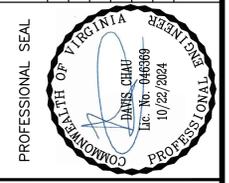
POST DEVELOPMENT W/BMP:



GeoEnv Engineers
GeoEnv Engineers & Consultants, LLC
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel. 703.591.7170

NO.	DESCRIPTION	REV. BY	DATE

REVISION BLOCK



HYDROGRAPHS

LT 2
WINDOVER HEIGHTS
348 WINDOVER AVE NW
HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #:	038-3-02-0086B
DATE:	AUGUST 2024
PREP. BY:	A.V
REV. BY:	D.C
PROJECT #	
SCALE:	N/A
SHEET:	5
TOTAL SHEETS:	13

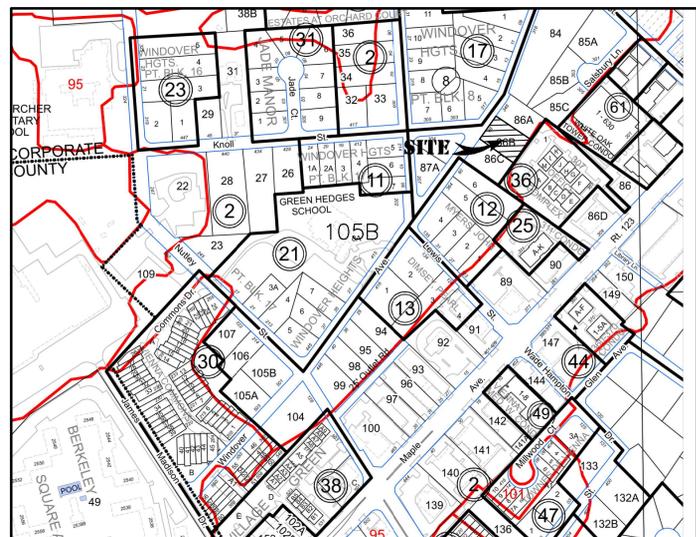
IMPERVIOUS AREA COMPUTATION (SQ FT)

DESCRIPTION	TOTAL IMP. AREA	
	PRE-DEV	POST-DEV
DWELLING	1,594	3,004
DRIVEWAY	903	906
FRONT PORCH WITH STEPS	-	62
WALKWAY	130	242
SHED	288	-
PATIO/COVERED DECK	691	224
AW/WW	-	20
TOTAL IMPERVIOUS AREA (SQ FT)	3,606	4,458
TURF AREA (SQ FT)	12,394	11,542
TOTAL SITE AREA (SQ FT)	16,000	16,000
INCREASE IN IMPERVIOUSNESS = 852 SQ FT OR 27.9% OF THE EXISTING IMP. AREA		
TOTAL % OF IMPERVIU AREA= $\frac{(4458 \times 100\%)}{16000}$ = 27.9% THE BMP IS REQUIRED.		

"C" FACTORS CALCULATION

A. PRE-DEVELOPMENT
 $= (x \ 0.9 + 16000 \times 0.25) = 0.4$
 16000
 $Q2 = (0.4 \times 5.23 \times 0.367) = 0.77 \text{ CFS}$
 $Q10 = (0.4 \times 6.77 \times 0.367) = 0.99 \text{ CFS}$

B. POST-DEVELOPMENT
 $(5 \text{ MIN } T_c) \ Q2 = (0.43 \times 5.23 \times 0.367) = 0.83 \text{ CFS}$
 $= (4458 \times 0.9 + 11542 \times 0.25) = 0.43$
 16000
 $Q10 = 1.07 - 0.99 = 0.07 \text{ CFS}$
 $Q2 = 0.83 - 0.77 = 0.06 \text{ CFS}$



SOIL MAP
(SCALE: 1":300')

SOIL DATA (RATINGS OF NRCS MAPPED SOIL IN FAIRFAX COUNTY)

SOIL ID NUMBERS	SERIES NAME	PERCENTAGE OF SITE	FOUNDATION SUPPORT	SOIL DRAINAGE	SUITABILITY FOR SEPTIC DRAINFIELDS	SUITABILITY FOR INFILTRATION TRENCHES	EROSION POTENTIAL	SOIL HYDROLOGIC GROUP	SOIL PROBLEM CLASS
105B	WHEATON-GLENELG COMPLEX	100%	GOOD	GOOD	GOOD	GOOD	HIGH	D	IVB

SOIL DESCRIPTION:

(105) WHEATON - GLENELG COMPLEX

THIS COMPLEX IS A MIXTURE OF THE DEVELOPMENT DISTURBED WHEATON SOIL AND THE NATURAL GLENELG SOIL. THE COMPLEX OCCURS IN UPLAND AREAS OF THE PIEDMONT WITH MICACEOUS SCHIST AND PHYLLITE BEDROCK THAT HAVE BEEN DEVELOPED BUT RETAIN A GOOD PORTION OF UNDISTURBED SOIL. WHEATON SOIL WILL BE CLUSTERED AROUND FOUNDATIONS, STREETS, SIDEWALKS, PLAYING FIELDS AND OTHER GRADED AREAS. GLENELG SOIL WILL BE FOUND UNDER OLDER VEGETATION IN UNGRADED BACK AND FRONT YARDS AND COMMON AREAS. FOR A DESCRIPTION OF THE TWO SOILS THAT MAKE UP THIS MAP UNIT, PLEASE SEE (102) WHEATON AND (39) GLENELG.

GeoEnv Engineers & Consultants, LLC
 Professional Civil, Geotechnical, Environmental Engineers & Construction Managers

SOIL PROFILE & WATER TABLE DETERMINATION REPORT
 DATE: December 27, 2024
 PROJECT: SOIL PROFILE AND WATER TABLE DETERMINATION
 LOCATION: LOT 2, WINDOVER HEIGHTS, 348 WINDOVER AVE NW, VIENNA, VA 22180
 TAX MAP No.: 038-3-02-0086B
 DISTRICT NAME: HUNTER MILL

HOLE NO.	SOIL HORIZON	DEPTH (FT)	SOIL DESCRIPTION (USDA CLASSIFICATION & MUNSELL CHART)	TEXTURE GROUP	USCS SYMBOL
B-1	A	0 - 0.4	Dark Brown, Moist, Organic Topsoil with Roots.	II	OL
	B ₁	0.4 - 1.7	Yellowish Brown (HUE 10YR, 5/6) Silty Clay Loam with Mica and Trace of Black Concretion, Trace of Roots, Moist, Medium Heavy, Slightly Plastic.	II/III	CL/ML
BC	1.7-2.3	Yellow (HUE 10YR, 7/8) Silty Loam with Mic, Moist, Medium Heavy, Friable, Slightly Plastic.	II	ML	
C1	2.3-4.9	Brown (HUE 10YR, 5/3) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Friable, Slightly Plastic.	II	ML	
C2	4.9-7.6	Brownish Yellow (HUE 10YR, 5/6) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Friable, Slightly Plastic.	II	ML	
C3	7.6-10.0	Light Brown (HUE 7.5YR, 6/4) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Friable, Slightly Plastic. Boring B-1 Terminated at 10.0 feet BGS. No Water Table at Termination Depth.	II	ML	

BORING LOG NOTES:
DEPTH TO WATER TABLE: Not encountered within the termination depth at the time of field investigations - (More than 10.0 feet below existing ground surface(BGS)).
DEPTH TO HARD ROCK: Not encountered within the termination depth (more than 10 feet BGS).

SOIL BORINGS:
 Based on completed investigations, water table is not present within the upper 10.0 feet BGS at the site. Per town requirements that minimum separation or 2.5 feet BGS shall be present between the water table and the new basement slab.

We appreciate this opportunity to be of service to you. Should you have any questions, please contact the undersigned below at (703) 591-7170.

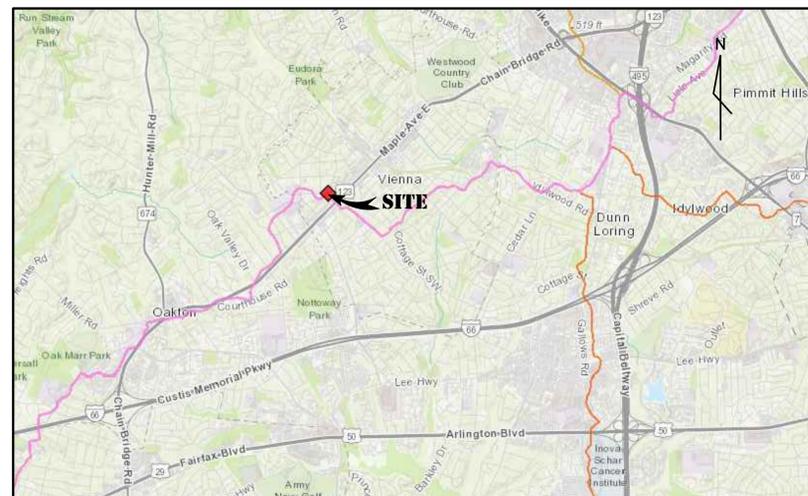
Sincerely,

 Ibrahim (Abe) Chehab, P.E.
 Principal Engineer

10875 Main Street, Suite 213 • Fairfax • Virginia • 22030 • Tel (703) 591-7170 • Fax (703) 591-7074

SEASONAL HIGH WATER TABLE NARRATIVE

A 10.0' DEEP BORING WAS CONDUCTED FOR THIS PROJECT TO A BOTTOM ELEVATION OF 338.0'. WATER WAS NOT ENCOUNTERED AT THAT DEPTH AND AFTER A 24-HR PERIOD, THE BASEMENT ELEVATION IS SET AT 342.56', WHICH IS GREATER THAN 2.5' FROM THE ELEVATION OF NO WATER.



WATERSHED MAP
(SCALE: 1":300')

ACCOTINK CREEK

RESPONSIBLE LAND DISTURBER CERTIFICATION
 Effective July 1, 2001.

Amendments to the Virginia Erosion Sediment Control Law, 10.1-563 and 10.1-566 of the code of Virginia

OWNER/DEVELOPER/ INFORMATION
 PROJECT NAME: 348 WINDOVER AVE NW PROJECT # 2024-8180
 DISTRICT: WINDOVER HEIGHTS TAX MAP AND PARCEL #: 38-3-02-0086B

OWNER/DEVELOPER/ PERMITTEE: 348 WINDOVER LLC PHONE :
 ADDRESS: 348 WINDOVER AVE SW, VIENNA, VA 22180

RESPONSIBLE LAND DISTURBER INFORMATION
 CERTIFICATE / LICENSE HOLDER NAME: _____ PHONE :
 ADDRESS: _____
 TYPE OF CERTIFICATE: _____ CERTIFICATE/ LICENSE :
 APPLICANT / AGENT SIGNATURE _____ DATE _____

GeoEnv Engineers
 GeoEnv Engineers & Consultants, LLC
 10875 Main Street, Suite 213
 Fairfax, VA 22030
 Tel. 703.591.7170

NO.	REVISION BLOCK	DESCRIPTION	REV. BY	DATE

PROFESSIONAL SEAL

IMPERVIOUS AREA COMPUTATION, HIGH WATER TABLE AND MAPS

LT 2
 WINDOVER HEIGHTS
 348 WINDOVER AVE NW
 HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

DATE: AUGUST 2024
 PREP. BY: A.V
 REV. BY: D.C
 PROJECT #

SCALE(S) INDICATED

SHEET: 6

TOTAL SHEETS: 13

Project Name: 348 Windover Ave
 Date: 12/31/2024
 Linear Development Project? No

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area (acres) → 0.29

Maximum reduction required: 10%
 The site's net increase in impervious cover (acres) is: 0.019559229
 Post-Development TP Load Reduction for Site (lb/yr): 0.07

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, protected forest/open space or reforested					0.00
Managed Turf (acres) – disturbed, graded for yards or other turf to be				0.28	0.28
Impervious Cover (acres)				0.08	0.08
Totals					0.37

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				0.26	0.26
Impervious Cover (acres)				0.10	0.10
Totals					0.37

Area Check
 OK. OK. OK. OK. OK.

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
P (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.03	0.04	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	Listed	Adjusted ¹
Forest/Open Space (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf (acres)	0.28	0.26
Weighted Rv(turf)	0.25	0.25
% Managed Turf	77%	76%
Impervious Cover (acres)	0.08	0.08
Rv(impervious)	0.95	0.95
% Impervious	23%	24%
Total Site Area (acres)	0.37	0.35
Site Rv	0.41	0.42

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)	Post-Development	Post-Development New Impervious
Forest/Open Space (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf (acres)	0.26	0.26
Weighted Rv(turf)	0.25	0.25
% Managed Turf	72%	76%
Impervious Cover (acres)	0.10	0.08
Rv(impervious)	0.95	0.95
% Impervious	28%	24%
Final Site Area (acres)	0.37	0.35
Final Post Dev Site Rv	0.45	0.42

Treatment Volume and Nutrient Load

Pre-ReDevelopment	Final Post-Development	Post-Development New Impervious
Final Post-Development Treatment Volume (acre-ft)	0.0125	0.0121
Final Post-Development Treatment Volume (cubic feet)	544	526
Final Post-Development TP Load (lb/yr)	0.34	0.33
Final Post-Development TP Load per acre (lb/acre/yr)	0.93	0.95
Baseline TP Load (lb/yr)		0.14
TP Load Reduction Required for Redeveloped Area (lb/yr)	0.03	
TP Load Reduction Required for New Impervious Area (lb/yr)		0.03

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr) 0.07

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	2.44	Final Post-Development TN Load (Post-Development & New Impervious) (lb/yr)	2.67
-----------------------------------	------	--	------

Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft ³)	Runoff Reduction (ft ³)	Remaining Runoff Volume (ft ³)	Total BMP Treatment Volume (ft ³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
7. Infiltration (RR)													
7.a. Infiltration #1 (Spec #8)	50	0.00	0.05	0	89	89	177	25	0.00	0.11	0.07	0.04	
7.b. Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.05 **AREA CHECK: OK.**
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 **AREA CHECK: OK.**
TOTAL RUNOFF REDUCTION IN D.A. A (ft³) 89

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr) 0.37
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.07
TOTAL PHOSPHORUS REMAINING AFTER APPLYING RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.30

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
7. Infiltration (RR)				
15	0.00	0.80	0.46	0.34
15	0.00	0.00	0.00	0.00

TOTAL RUNOFF REDUCTION IN D.A. A (ft³) 89
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.46

SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)

Site Results (Water Quality Compliance)

Area Checks

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	0.10	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.05	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.26	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft³) 593

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft ³)	89	0	0	0	0	89
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	0.37	0.00	0.00	0.00	0.00	0.37
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.07	0.00	0.00	0.00	0.00	0.07
TP LOAD REMAINING (lb/yr)	0.30	0.00	0.00	0.00	0.00	0.30
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.46	0.00	0.00	0.00	0.00	0.46

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	0.37
TP LOAD REDUCTION REQUIRED (lb/yr)	0.07
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.07
TP LOAD REMAINING (lb/yr):	0.30
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00 **
**No further TP load reduction required	

Total Nitrogen (For Informational Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	2.67
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.46
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	2.21

Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)				0.26	0.26	0.25
Impervious Cover (acres)				0.10	0.10	0.95
Total					0.37	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr) 0.37
Post Development Treatment Volume in D.A. A (ft³) 593

Geoenv Engineers
 GeoEnv Engineers & Consultants, LLC
 10875 Main Street, Suite 213
 Fairfax, VA 22030
 Tel. 703.591.7170

NO.	DESCRIPTION	REV. BY	DATE

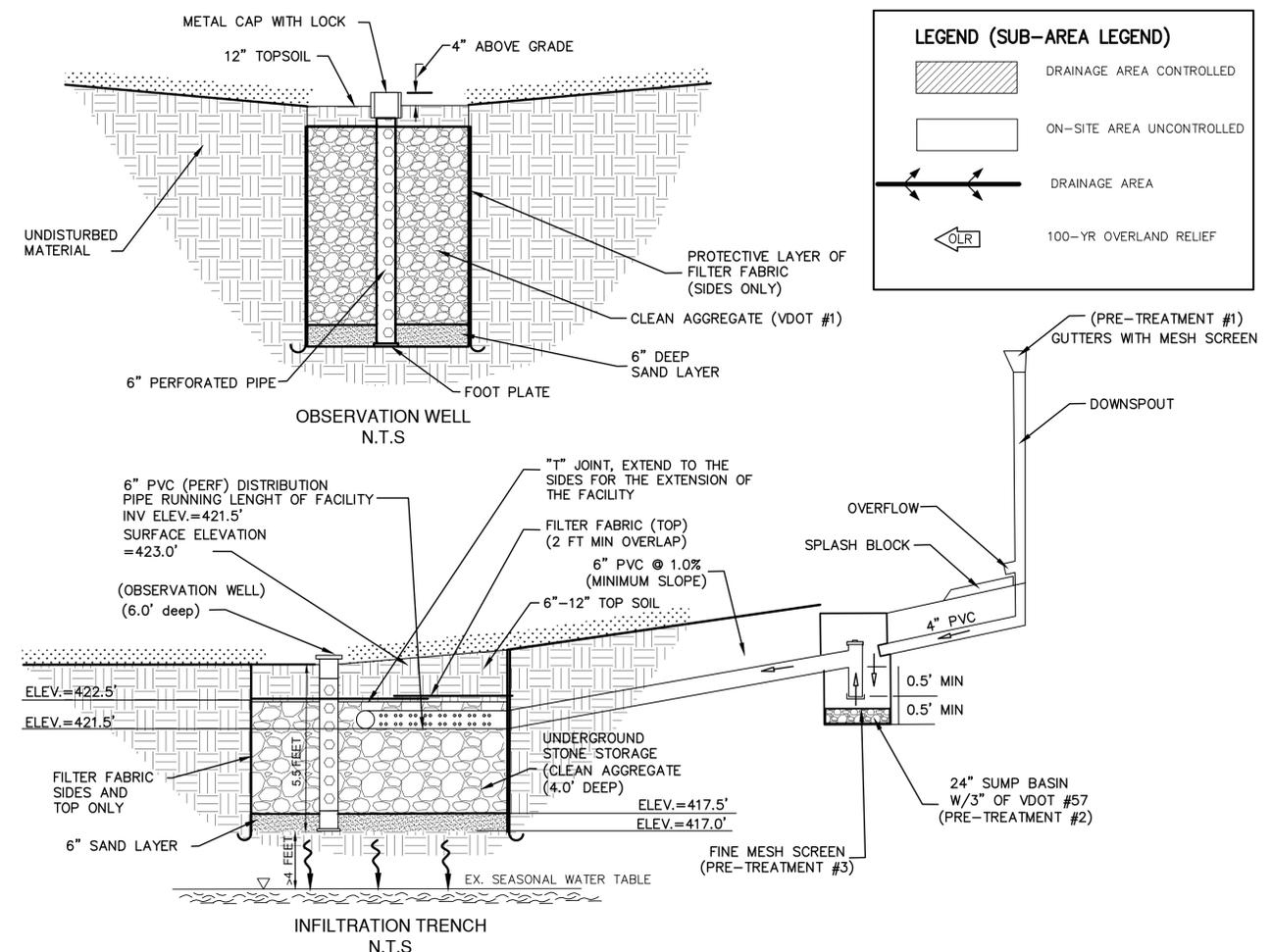
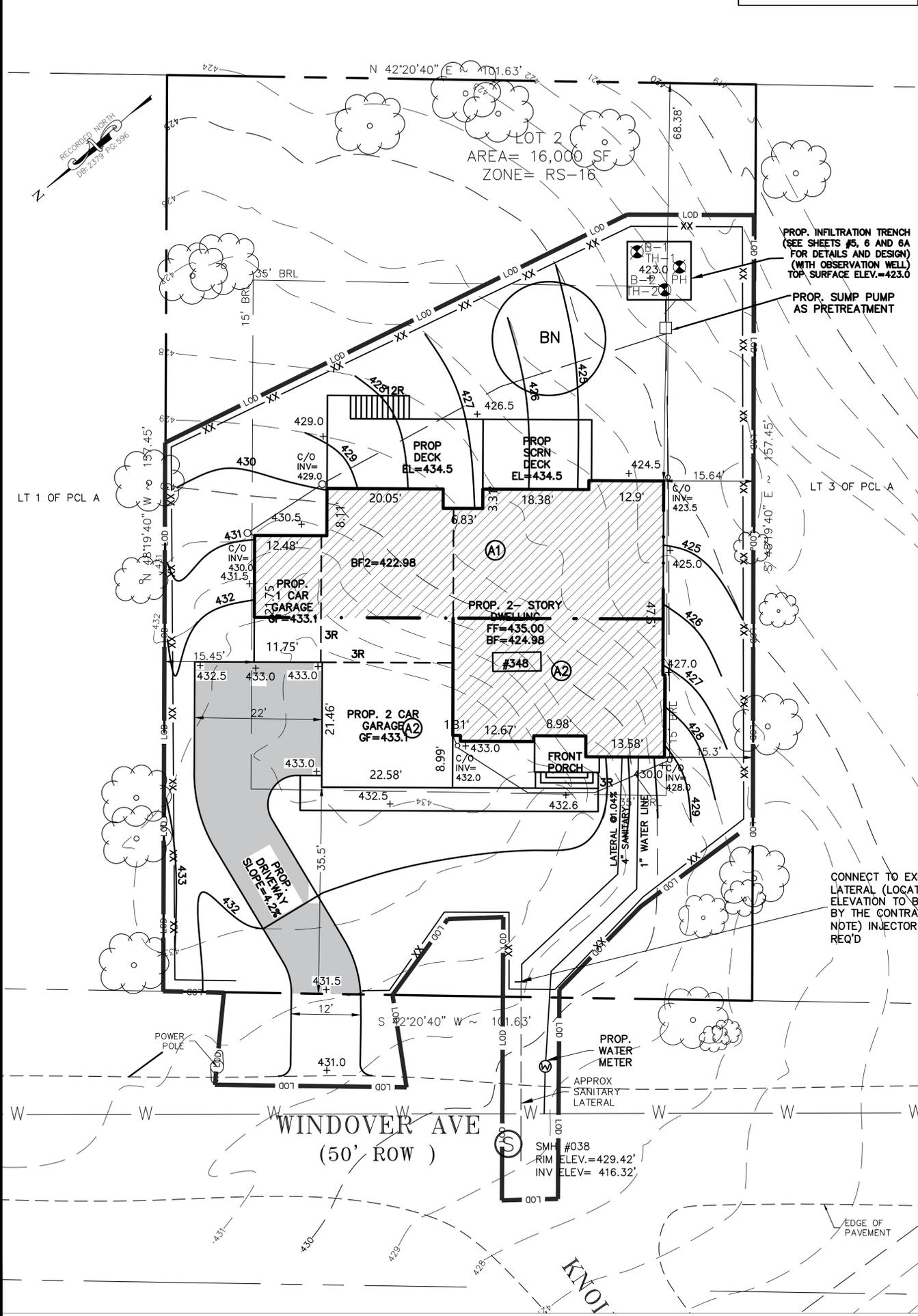
PROFESSIONAL SEAL
 COMMONWEALTH OF VIRGINIA
 JAMES CHAU
 Lic. No. 046869
 10/22/2024
 PROFESSIONAL ENGINEER

RUNOFF REDUCTION METHOD
 LT 2
 WINDOVER HEIGHTS
 348 WINDOVER AVE NW
 HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

DATE:	AUGUST 2024
PREP. BY:	A.V
REV. BY:	D.C
PROJECT #	
SCALE:	N/A
SHEET:	7
TOTAL SHEETS:	13

BMP DRAINAGE MAP
SCALE: 1"=10'



LEGEND (SUB-AREA LEGEND)

- DRAINAGE AREA CONTROLLED
- ON-SITE AREA UNCONTROLLED
- DRAINAGE AREA
- 100-YR OVERLAND RELIEF

VA DEQ STORMWATER DESIGN SPEC NO. 8 (TABLE 8.2) LEVEL 1 DESIGN

INFILTRATION TRENCH SMALL-SCALE (IMPERVIOUS AREA 2,500 TO 20,000 SQ FT)

IMPERVIOUS AREA:	2239 SQ FT
TURF AREA:	0 SQ FT
CONTRIBUTING DRAINAGE AREA (A):	2239 SQ FT OR 0.05 ACRES
IS DRAINAGE AREA < OR = 20,000 SQ FT? :	YES, DESIGN OK
INFILTRATION RATE:	1.2 INCH/HR OR 2.4 FT/DAY

TREATMENT VOLUME COMPUTATIONS

TREATMENT VOLUME, T_v	$(R_v)(A)(12)$	R_v : COMPOSITE RUNOFF COEFFICIENT
	$(0.95)(2239)(12)$	
	$= 2563$	
	$= 177.3$ CU FT	

MAXIMUM DEPTH ALLOWED

INFILTRATION DEPTH, d_{max}	$(1/2)(t_d)/V_r$
	$(1/2)(1.5)/0.4$
	$= 0.94$
	$= 0.95$

SURFACE AREA COMPUTATION

SURFACE BASIN DEPTH, D_s	0.0 FT (MAXIMUM ALLOWED 1.5, TABLE 8.5)
WATER HOLDING CAPACITY, V_s	$D_s \times \text{LENGTH} \times \text{WIDTH}$
	$0.0 \times 10 \times 10$
	$= 0.0$ CU FT
UNDERGROUND RESERVOIR STORAGE REQ'D, T_{und}	$T_v - V_s$ or $177.3 - 0 = 177.3$ CU FT
ENERGY BALANCE STORE REQ'D, FLOOD CONTROL REQ'D	292.0 CU FT (FROM HYDROGRAPH)

STORAGE DESIGN

STORAGE DESIGN (GRATER OF UNDERGROUND, ENERGY BALANCE AND FLOOD CONTROL)	292.0 CU FT
INFILTRATION TRENCH DESIGN DEPTH, D	4.0 FT LESS THAN MAX. DEPTH, OK
MINIMUM SURFACE AREA REQUIRED, S_A	$292 / (0.4 \times 1 + 1/2 \times 2.4 \times 2) = 104.3$ SQ FT (MINIMUM SURFACE AREA REQ'D)

DESIGN INFILTRATION TRENCH

LENGTH, L	11.0 FT
WIDTH, W	10.0 FT
DEPTH, D	4.0 FT
DESIGN SURFACE AREA, S_A	110.0 FT WHICH IS MORE THAN MIN. REQUIRED, DESIGN OK
STORAGE PROVIDED:	308.00

RUNOFF PRE-TREATMENT

INFLOW:	SHEET FLOW OR ROOF LEADER
PRE-TREATMENT:	LEAF FILTER, SUMP BASIN

MINIMUM SETBACK REQUIRED

FROM BUILDING (DEQ SPECS 8, TABLE 8.3)	10 FT DOWN-GRADE; 50 FT UP-GRADE
FROM PROPERTY LINE (PFM 6-1307.2F)	2 FT FROM THE PROPERTY LINES

NOTE:

- THE DOWNSPOUTS AS SHOWN ON THE PLANS TO BE DIRECTED TO THE ON-SITE INFILTRATION TRENCH THROUGH 4" PVC SCH.40.
- THE INFILTRATION TRENCH WILL BE CONSTRUCTED AFTER ALL THE SITE WORK HAS BEEN COMPLETED AND FINAL STABILIZATION MEASURES HAVE BEEN IMPLEMENTED.

PRETREATMENTS:

TWO TYPES OF PRE-TREATMENT WILL BE PROVIDED:

- ROOF GUTTER SCREEN
- SUMP BASIN

SUB-DRAINAGE AREA LEGENDS:

DESCRIPTION	SYMBOL	AREA
BUILDING AREA (CONTROLLED)	A1	1,461 SF
BUILDING AREA (CONTROLLED)	A2	778 SF

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NO.	DESCRIPTION	REV. BY	DATE

PROFESSIONAL SEAL

COMMONWEALTH OF VIRGINIA
JANIS CHAY
Lic. No. 046869
10/22/2024
PROFESSIONAL ENGINEER

BMP COMPUTATIONS

LT 2
WINDOVER HEIGHTS
348 WINDOVER AVE NW
HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

DATE:	AUGUST 2024
PREP. BY:	A.V
REV. BY:	D.C
PROJECT #	
SCALE:	N/A
SHEET:	8
TOTAL SHEETS:	13

SECTION 8: CONSTRUCTION

SECTION 9: MAINTENANCE

Table 8.8. Infiltration Material Specifications

Material	Specification	Notes
Stone	Clean, aggregate with a maximum diameter of 3.5 inches and a minimum diameter of 1.5 inches (VDOT No. 1 Open-Graded Coarse Aggregate) or the equivalent.	
Observation Well	Install a vertical 6-inch Schedule 40 PVC perforated pipe, with a lockable screw cap and anchor plate.	Install one per 50 feet of length of infiltration practice.
Trench Bottom	Install a 6 to 8 inch sand layer (VDOT	Fine Aggregate, Grade A or B)
Trench Surface Cover	Install a 3-inch layer of river stone or pea gravel. Turf is acceptable when there is subsurface inflow (e.g., a roof leader).	This provides an attractive surface cover that can suppress weed growth.
Buffer Vegetation	Keep adjacent vegetation from forming an overhead canopy above infiltration practices, in order to keep leaf litter, fruits and other vegetative material from clogging the stone.	
Filter Fabric (sides only)	Use non-woven polypropylene geotextile with a flow rate of > 110 gallons/min./sq. ft. (e.g., Geotex 351 or equivalent).	
Choking Layer	Install a 2- to 4-inch layer of choker stone (typically #8 or # 89 washed gravel) over the underdrain stone.	
Overflow Collection Pipe (where needed)	Use 6-inch rigid schedule 40 PVC pipe, with 3/8" perforations at 6 inches on center, with each perforated underdrain, installed at a slope of 1% for the length of the infiltration practice.	Install non-perforated pipe with one or more caps, as needed.

6-1303.9 CONSTRUCTION SPECIFICATIONS.

6-1303.9A THE OWNER SHALL PROVIDE FOR INSPECTION DURING CONSTRUCTION OF THE FACILITY BY A LICENSED DESIGN PROFESSIONAL (IN ACCORDANCE WITH STANDARD PRACTICE, THE ACTUAL INSPECTIONS MAY BE PERFORMED BY AN INDIVIDUAL UNDER RESPONSIBLE CHARGE OF THE LICENSED PROFESSIONAL). THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE FACILITY WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE FACILITY WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE FACILITY WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE FACILITY WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS. THE LICENSED PROFESSIONAL SHALL CERTIFY THAT THE FACILITY WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS.

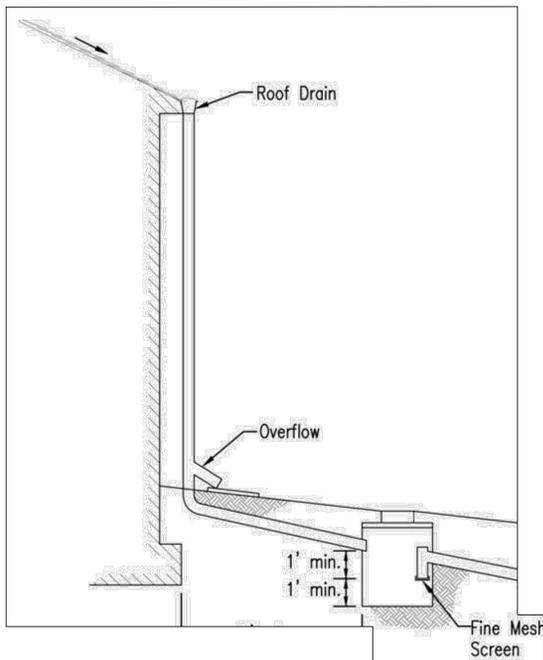
6-1303.9B INFILTRATION FACILITIES SHALL BE CONSTRUCTED AFTER THE DRAINAGE AREA TO THE FACILITY IS COMPLETELY STABILIZED. EROSION AND SEDIMENT CONTROLS FOR CONSTRUCTION OF THE FACILITY SHALL BE INSTALLED AS SPECIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN.

6-1303.9C THE FLOOR OF THE FACILITY SHALL BE SCARIFIED OR TILLED TO REDUCE SOIL COMPACTION AND RAKED TO LEVEL IT BEFORE THE FILTER FABRIC, STONE, AND SOIL MEDIA ARE PLACED.

6-1303.9D FILL FOR THE BERM AND OVERFLOW WEIR SHALL CONSIST OF CLEAN MATERIAL FREE OF ORGANIC MATTER, RUBBISH, FROZEN SOIL, SNOW, ICE, PARTICLES WITH SIZES LARGER THAN 3 INCHES, OR OTHER DELETERIOUS MATERIAL. FILL SHALL BE PLACED IN 6" TO 12" LIFTS AND COMPACTED TO AT LEAST 95 PERCENT OF STANDARD PROCTOR MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-698, AASHTO T-99, OR VDOT SPECIFICATIONS. COMPACTION EQUIPMENT SHALL NOT BE ALLOWED WITHIN THE FACILITY ON THE SOIL BED, THE TOP OF THE BERM AND THE INVERT OF THE OVERFLOW WEIR SHALL BE CONSTRUCTED LEVEL AT THE DESIGN ELEVATION.

6-1303.9E THE FACILITY SHALL BE INSPECTED AT 12-24 AND 36-48 HOURS AFTER A SIGNIFICANT RAINFALL (0.5-1.0 INCHES) OR ARTIFICIAL FLOODING TO DETERMINE THAT THE FACILITY IS DRAINING PROPERLY. RESULTS OF THE INSPECTION SHALL BE PROVIDED TO DPWES PRIOR TO BOND RELEASE.

6-1303.9F ADDITIONAL GUIDELINES FOR CONSTRUCTION ARE PROVIDED IN VIRGINIA STORMWATER DESIGN SPECIFICATION NO. 8 INFILTRATION PRACTICES (LATEST VERSION REFERENCED IN THE VSMP REGULATIONS).



ROOF DOWNSPOUTS SYSTEM WITH A PRETREATMENT SUMP BASIN

8.1. Construction Sequence

The following is a typical construction sequence to properly install infiltration practices. The sequence may need to be modified to reflect the scale of infiltration, site conditions, and whether or not an underdrain needs to be installed.

Infiltration practices are particularly vulnerable to failure during the construction phase for two reasons. First, if the construction sequence is not followed correctly, construction sediment can clog the practice. In addition, heavy construction can result in compaction of the soil, which can then reduce the soil's infiltration rate. For this reason, a careful construction sequence needs to be followed. Ideally, the infiltration practice should be outside the limits of disturbance.

During site construction, the following steps are absolutely critical:

- Avoid excessive compaction by delineating the area of the proposed practice and preventing construction equipment and vehicles from traveling over the proposed location.
- Keep the infiltration practice "off-line" until construction is complete. Prevent sediment from entering the infiltration site by using silt fence, diversion berms or other means. In the erosion and sediment (E&S) control plan, indicate the earliest time at which stormwater runoff may be directed to a conventional infiltration basin. The E&S control plan must also indicate the specific methods to be used to temporarily keep runoff from the infiltration site.
- Infiltration practice sites should never serve as the sites for temporary sediment control devices (e.g., sediment traps, etc.) during construction.
- Upland drainage areas need to be completely stabilized with a thick layer of vegetation prior to commencing excavation for an infiltration practice, as verified by the local erosion and sediment control inspector/program.

8.2. Installation

The actual installation of an infiltration practice is done using the following steps:

1. Excavate the infiltration practice to the design dimensions from the side, using a backhoe or excavator. The floor of the pit should be completely level, but equipment should be kept off the floor area to prevent soil compaction.
2. Correctly install filter fabric on the trench sides. Large tree roots should be trimmed flush with the sides of infiltration trenches to prevent puncturing or tearing of the filter fabric during subsequent installation procedures. When laying out the geotextile, the width should include sufficient material to compensate for perimeter irregularities in the trench and for a 6-inch minimum overlap at the top of the trench. The filter fabric itself should be tucked under the sand layer on the bottom of the infiltration trench. Stones or other anchoring objects should be placed on the fabric at the trench sides, to keep the trench open during windy periods. Voids may occur between the fabric and the excavated sides of a trench. Natural soils should be placed in all voids, to ensure the fabric conforms smoothly to the sides of excavation.
3. Scarify the bottom of the infiltration practice, and spread 6 inches of sand on the bottom as a filter layer.
4. Anchor the observation well(s), and add stone to the practice in 1-foot lifts.
5. Use sod to establish a dense turf cover for at least 10 feet on each side of the infiltration practice to reduce erosion and sloughing. If the vegetation is seeded instead, use native grasses primarily due to their adaptability to local climates and soil conditions.

8.3. Construction Inspection

Inspections are needed during and immediately after construction to ensure that the infiltration practice is built in accordance with the approved design and this specification. Qualified individuals should use detailed inspection checklists to include sign-offs at critical stages of construction, to ensure that the contractor's interpretation of the plan is consistent with the designer's intentions. An example construction phase inspection checklist for Infiltration practices is provided at the end of this specification. Inspection during the following key points during construction will help insure successful performance:

- Check elevations of the excavation invert. Ensure that the soil at the bottom of the infiltration facility has not been smeared by the excavation equipment. The bottom soil should be scarified with the teeth of the backhoe bucket.
- Installation of the bottom 6-inch sand filter layer and the initial layer of stone prior to placement of any storage components.
- Top cover of pea gravel or turf as required on plans.
- Stabilization of adjacent pre-treatment filter strips and the contributing drainage area prior to bringing infiltration area into service.

Upon final inspection and acceptance, the GPS coordinates should be logged for all infiltration practices and submitted for entry into the local BMP maintenance tracking database.

6-1303.8B FILTER FABRIC SPECIFICATION
 FILTER FABRIC SHALL BE A NEEDLED, NON-WOVEN, POLYPROPYLENE GEOTEXTILE MEETING THE REQUIREMENTS LISTED IN VIRGINIA STORMWATER DESIGN SPECIFICATION NO. 8 INFILTRATION (LATEST VERSION REFERENCED IN THE VSMP REGULATIONS). HEAT-SET OR HEAT-CALENDARED FABRICS ARE NOT PERMITTED.

9.1. Maintenance Agreements

The Virginia Stormwater Management regulations specify the circumstances under which a maintenance agreement must be executed between the owner and the VSMP Authority and sets forth inspection requirements, compliance procedures if maintenance is neglected, notification of the local program upon transfer of ownership, and right-of-entry for local program personnel.

- When micro-scale or small-scale infiltration practices are installed on private residential lots, homeowners will need to (1) be educated about their routine maintenance needs, (2) understand the long-term maintenance plan, and (3) be subject to a deed restriction, drainage easement or other mechanism enforceable by the VSMP Authority to ensure that infiltrating areas are not converted or disturbed.
- The mechanism should, if possible, grant authority for local agencies to access the property for inspection or corrective action.

9.2. Maintenance Inspections

Annual site inspections are critical to the performance and longevity of infiltration practices, particularly for small-scale and conventional infiltration practices. Maintenance of infiltration practices is driven by annual inspections that evaluate the condition and performance of the practices, including the following:

- The drawdown rate should be measured at the observation well for three days following a storm event in excess of 1/2 inch in depth. If standing water is still observed in the well after three days, this is a clear sign that clogging is a problem.
- Check inlets, pre-treatment cells, and any flow diversion structures for sediment buildup and structural damage. Note if any sediment needs to be removed.
- Inspect the condition of the observation well and make sure it is still capped.
- Check that no vegetation forms an overhead canopy that may drop leaf litter, fruits and other vegetative materials that could clog the infiltration device.
- Evaluate the vegetative quality of the adjacent grass buffer and perform spot-reseeding if the cover density is less than 90%.
- Generally inspect the upland contributing drainage area for any controllable sources of sediment or erosion.
- Look for weedy growth on the stone surface that might indicate sediment deposition or clogging.
- Inspect maintenance access to ensure it is free of woody vegetation, and check to see whether valves, manholes and/or locks can be opened and operated.
- Inspect internal and external infiltration side slopes for evidence of sparse vegetative cover, erosion or slumping, and make necessary repairs immediately.

Table 8.9. Typical Maintenance Activities for Infiltration Practices

Maintenance Activity	Schedule
<ul style="list-style-type: none"> • Replace pea gravel/topsoil and top surface filter fabric (when clogged). • Mow vegetated filter strips as necessary and remove the clippings. 	As needed
<ul style="list-style-type: none"> • Ensure that the contributing drainage area, inlets, and facility surface are clear of debris. • Ensure that the contributing drainage area is stabilized. • Remove sediment and oil/grease from pre-treatment devices, as well as from overflow structures. • Repair undercut and eroded areas at inflow and outflow structures. 	Quarterly
<ul style="list-style-type: none"> • Check observation wells 3 days after a storm event in excess of 1/2 inch in depth. Standing water observed in the well after three days is a clear indication of clogging. • Inspect pre-treatment devices and diversion structures for sediment build-up and structural damage. • Remove trees that start to grow in the vicinity of the infiltration facility. 	Semi-annual inspection
<ul style="list-style-type: none"> • Clean out accumulated sediments from the pre-treatment cell. 	Annually

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NO.	DESCRIPTION	REV. BY	DATE



BMP NOTES AND DETAILS
 LT 2
 WINDOVER HEIGHTS
 348 WINDOVER AVE NW
 HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

DATE: AUGUST 2024

PREP. BY: A.V

REV. BY: D.C

PROJECT #

SCALE: N/A

SHEET:

9

TOTAL SHEETS: 13

GeoEnv Engineers & Consultants, LLC
Professional Civil, Geotechnical, Environmental Engineers & Construction Managers

SOIL BORING PROFILE & EVALUATION REPORT
DATE: December 27, 2024
PROJECT: SOIL PROFILE AND INFILTRATION STUDY
LOCATION: LOT 2, WINDOVER HEIGHTS
348 WINDOVER AVE NW
VIENNA, VA 22180
TAX MAP NO.: 038-3-(02)-0086B
DISTRICT NAME: HUNTERMILL

HOLE NO.	SOIL HORIZON	DEPTH (FT)	SOIL DESCRIPTION (USDA CLASSIFICATION & MUNSELL CHART)	TEXTURE GROUP	USCS SYMBOL
Profile hole (PH) EL-423.0 R MSL	A	0 - 0.4	Dark Brown, Moist, Organic Topsoil with Roots	II	OL
	B ₁	0.4 - 2.3	Red (HUE 2.5YR, 4/6) Silty Clay Loam with Mica and Trace of Black Concretion, Trace of Roots, Moist, Medium Heavy, Slightly Plastic.	II/III	CL/ML
	BC	2.3-3.2	Reddish Brown (HUE 5YR, 5/4) Silty Loam with Mica, Moist, Medium Heavy, Slightly Plastic.	II	ML
	C1	3.2-5.8	Brown (HUE 7.5YR, 5/4) Silty Loam with Mica and Decomposed Schist Rock Fragments*, Moist, Medium Heavy, Slightly Friable, Slightly Plastic, DCP* Reading @ 6.0 feet BGS=12 blow/ft USDA Composition: Sand=20.2%, Silt=66.2%, Clay=13.6%.	II	ML
	C2	5.8-8.3	Yellowish Brown (HUE 10YR, 5/8) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Friable, Slightly Plastic.	II	ML
	C3	8.9-10.0	Dark Yellowish Brown (HUE 10YR, 4/6) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Friable, Slightly Plastic. Boring PH Terminated at 10.0 feet BGS to perform the Infiltration Test. No Water Table encountered at Termination Depth.	II	ML
B-1 TH-1 EL-423.0 R MSL	A	0 - 0.4	Dark Brown, Moist, Organic Topsoil with Roots	II	OL
	B ₁	0.4-2.7	Red (HUE 2.5YR, 4/6) Silty Clay Loam with Mica and Trace of Black Concretion, Trace of Roots, Moist, Medium Heavy, Slightly Plastic.	II/III	CL/ML
	C1	2.7-4.4	Brown (HUE 7.5YR, 4/4) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Slightly Friable, Slightly Plastic.	II	ML
	C2	4.4-6.0	Yellowish Brown (HUE 10YR, 4/4) Silty Loam with Mica and Trace of Decomposed Schist Rock Fragments, Moist, Medium Heavy, Slightly Friable, Slightly Plastic. Boring B-1 Terminated at 6.0 feet BGS to perform the Infiltration Test. No Water Table encountered at Termination Depth.	II	ML

* Decomposed Schist Rock Fragments - Severely-weathered into silt loam with mica schist fragments (not hard rock).
* DCP - Dynamic Cone Penetrometers - consist of a 15 lb. steel ring weight falling 20 inches on an E-rod slide drive or tipped with a 45-degree cone point having a projected area of approximately 1.8 inches.

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PROFILE AND INFILTRATION STUDY
LOT 2 WINDOVER HEIGHTS
348 WINDOVER AVE NW
VIENNA, VA 22180
TAX MAP NO.: 038-3-(02)-0086B
DISTRICT NAME: HUNTERMILL

SOIL HORIZON	DEPTH (FT)	SOIL DESCRIPTION (USDA CLASSIFICATION & MUNSELL CHART)	TEXTURE GROUP	USCS SYMBOL	
B-2 TH-2	0 - 0.4	Dark Brown, Moist, Organic Topsoil with Roots.	II	OL	
EL-423.0 R MSL	B ₁	0.4-1.9	Brown (HUE 7.5YR, 5/4) Silty Loam with Mica, Moist, Medium Heavy, Moderately Friable, Slightly Plastic.	II/III	CL/ML
	C1	1.9-2.6	Reddish Brown (HUE 5YR, 5/4) Silty Loam with Mica and Moist, Medium Heavy, Slightly Friable, Slightly Plastic.	II	ML
	C2	2.6-4.9	Strong Brown (HUE 10YR, 4/6) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Moderately Friable, Slightly Plastic.	II	ML
	C3	4.9-6.0	Yellowish Brown (HUE 10YR, 5/8) Silty Loam with Mica and Trace of Decomposed Schist Rock Fragments, Moist, Medium Heavy, Slightly Friable, Slightly Plastic. Boring B-2 Terminated at 6.0 feet BGS to perform the Infiltration Test. No Water Table encountered at Termination Depth.	II	ML

BORING LOG NOTES:
DEPTH TO WATER TABLE: Not encountered within the termination depth at time of field investigations - More than 10.0 feet below existing ground surface.
DEPTH TO HARD ROCK: Not encountered within the termination depth (more than 10 feet BGS).

SOIL BORINGS REMARKS:
The soil profile borings were performed to map the subsurface soils within the limits of the proposed BMP facility at the referenced property. The soil test borings were advanced to a maximum depth of 10.0 feet BGS within the center of the proposed infiltration facility. The subsurface soils were classified in accordance with USDA System (Triangular Chart) and the United States Soil Classification System (USCS). Associated Soil Horizon, Color, Chromo, DCP Readings, USDA Texture Group, and USCS classification are shown on the Boring Logs.

RECOMMENDATIONS:
Based on the USDA Classification and the Munsell Soil Color Chart, the onsite soils are classified as Silty Loam and are considered generally suitable for the installation of an onsite BMP facility, subject to the field infiltration tests results and the onsite inspections by the third-party Geotechnical Engineer. The BMP facility shall be designed in accordance with the latest Fairfax County Public Facility Manual and the Northern Virginia Stormwater Management requirements. No perched water table, visible mottles, or other signs of water table indicators were noted within the investigated depth. In accordance with the USDA Texture Group, the insitu soils at the proposed BMP bottom are Brown (HUE 7.5YR, 5/4) Silty Loam with Mica and Decomposed Schist Rock Fragments, Moist, Medium Heavy, Slightly Friable, Slightly Plastic, DCP Reading @ 6.0 feet BGS=12 blow/ft USDA Composition: Sand=20.2%, Silt=66.2%, Clay=13.6%, Texture Group II. In accordance with the Munsell Soil Color Chart, the soil Color Value is 3 to 6, and the Chroma Value is 3 to 6. It should be noted that for the encountered parent materials (HUE 10R), the soil value ranges from 0 (absolute black) to 10 (absolute white), and the Chroma number range from 0 (neutral grays) and increases at equal interval 0.8. Based on the USDA classification and Munsell Chart Value and Chroma, the encountered materials are considered marginally suitable for an onsite BMP facility (i.e. infiltration trench or rain garden facility).

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PROFILE AND INFILTRATION STUDY
LOT 2 WINDOVER HEIGHTS
348 WINDOVER AVE NW
VIENNA, VA 22180
TAX MAP NO.: 038-3-(02)-0086B
DISTRICT NAME: HUNTERMILL

Based on the investigated depth, the bottom of the proposed BMP facility shall be set no deeper than at 6.0 feet below the existing surface grades in order to maintain the required 4 foot separation to the bottom of the investigated depth. If changes to the installation depth are required, then GEE shall be contacted for additional field investigations and recommendations, accordingly. Typically, a BMP facility may not be placed in fill materials or on a slope steeper than 15%.

CONSTRUCTION PHASE NOTES:
The proposed BMP facility shall be constructed by a qualified contractor and be under the direct supervision of the Geotechnical Engineer of Record (GER), who shall provide a certificate of completion to Fairfax County. If the BMP facility is constructed under the supervision of someone other than the GER, then the inspecting engineer should be hired directly by the owner and not by the installation contractor. At the completion of the BMP installation, the inspecting engineer must provide a final inspection statement confirming that the BMP facility has been constructed in accordance with the approved design and accepted practices. Any noted change in the field conditions stated above or deviation from the design plans and specifications shall be noted on the final inspection report. The GER must be given an opportunity to review the design in order to insure compliance with the above recommendations. The GER will not be responsible for the performance of the BMP facility, if it is not constructed under his direction.

INFILTRATION TEST REPORT
DATE OF PRE-SOAK: DECEMBER 26, 2024
DATE OF INFILTRATION TEST: DECEMBER 27, 2024
TEST HOLE DIAMETER: 3 INCHES
TEST DURATION: 4 HOURS
TEST DEPTH: 6.0 FEET BGS
WEATHER: CLEAR; 70'S DEG F

INFILTRATION TEST: TH-1

READING TIME	ELAPSED TIME (HR)	INFILTRATION RATE (INCH/HR)	COMMENT
9:30 PM	0	---	
10:30 AM	1.0	2.2	
11:30 AM	2.0	1.8	
12:30 PM	3.0	1.5	
1:30 PM	4.0	1.4	Last 1-HR reading = 1.4 inch/hr
AVERAGE FOR 4 HOURS (INCH/HR)		1.72	Test performed after a 24-hr pre-soak period

INFILTRATION TEST: TH-2

READING TIME	ELAPSED TIME (HR)	INFILTRATION RATE (INCH/HR)	COMMENT
9:33 AM	0	---	
10:33 AM	1.0	2.4	
11:33 AM	2.0	2.0	
12:33 PM	3.0	1.7	
1:33 PM	4.0	1.6	Last 1-HR reading = 1.6 inch/hr
AVERAGE FOR 4 HOURS (INCH/HR)		1.9	Test performed after a 24-hr pre-soak period

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INVESTIGATIONS & INFILTRATION TESTS PROCEDURES:
The infiltration tests were performed within the area proposed for the onsite BMP/SWM facility, as shown on the plan. The infiltration rates were determined via on-site tests conducted within 24 inches of the proposed facility invert. If changes to the BMP facility depth or location are proposed at a later date, then GEE shall be contacted to assess impacts.

The testing involved drilling a hand auger test boring within the center of the proposed BMP facility (infiltration Trench) in order to investigate the suitability of the onsite soils and determine depth to the high water table indicator, if any. In addition, a hand auger infiltration test borings performed on each side of the initial test boring, each was completed at an offset of approximately 5 feet, and to a depth of within 24 inches of the proposed invert of the BMP facility using a 3-in diameter auger bucket. Loose materials, where encountered, were removed from the test borings prior to snugly installing a solid casing 3-inch in diameter to the bottom of the boring. Any smeared soil surfaces and loose material were removed from the casing, and a 2-inch layer of fine gravel were placed at the bottom of the boring to prevent scouring and sedimentation.

PRE-SOAKING:
During the first day of testings, the standpipe was filled with water to a height of 24 inches above the bottom of the casing, and the test hole was pre-soaked for 24 hours prior to performing the actual infiltration tests.

INFILTRATION TESTING PROCEDURE:
After 24-hours of pre-soak, the standpipe was refilled to a height of 24 inches above the bottom of the casing, and the drop of in the water level was measured and record in inches after one (1) hour. This procedure was repeated three (3) more times for a total of four (4) hours of testings. The standpipe was refilled to a height of 24 inches after each one-hour of drop and drop in the water level after each one hour was measured. A total of four (4) observations were made and recorded on the infiltration test report provided below. As shown on the Table, both the average infiltration rate and the last one (1) hour reading were recorded.

INFILTRATION RATE DETERMINATION:
The infiltration rate of each infiltration test boring is calculated as the average of the change in water level readings in inches per hour for the four hours tests. Also, the last reading was also recorded, and the most representative of the subsurface soil conditions has been determined by the soil scientist. It should be noted that the soils encountered at this site are consistent with the soil mapping and our experience with similar subsurface formation. No inconsistencies were noted at this site. However, in order to be conservative, the lowest obtained rate is utilized as the field infiltration for each of the BMP facility.

INFILTRATION TESTS RESULTS, RECOMMENDATIONS AND REMARKS:
As noted on the Infiltration Test reports (above), the infiltration tests for TH-1 and TH-2 revealed average readings of 1.72 inch/hr for Test Hole TH-1 and 1.9 inch/hr for Test Hole TH-2. These rates are considered consistent with the type of subsurface soils encountered, USCS Classifications and the USDA Texture Groups. The last 1-hour test reading for TH-1 is recorded at 1.4 in/hr and that for TH-2 is recorded at 1.6 inch/hr. Since the encountered materials are classified as fine-grained soils and based on Technical Bulletin 21-07, date 4/13/21, a maximum value of 1 inch/hr shall be used in the design. This value is then divided by 2, and therefore a design value of 0.5 inch/hr shall be utilized to design the proposed infiltration facility. Based on the investigated depth, the invert of the proposed BMP/SWM facility shall be installed no deeper than 6.0 feet below the existing surface grades.

10875 Main Street, Suite 213 • Fairfax • Virginia • 22030 • Tel: (703) 591-7170 • Fax: (703) 591-7074

PROFILE AND INFILTRATION STUDY
LOT 2 WINDOVER HEIGHTS
348 WINDOVER AVE NW
VIENNA, VA 22180
TAX MAP NO.: 038-3-(02)-0086B
DISTRICT NAME: HUNTERMILL

at the proposed location in order to provide the required four (4) feet of separation from the investigation depth. The final invert of the proposed facility must be within 24 inches of the depth at which the infiltration tests were conducted. Future change to the design affecting the location or depth of the proposed infiltration facility, (if any) may necessitate additional testing.

Based on our preliminary field review, it is our professional opinion that adequate outfall is present for the proposed BMP facility, and no negative impact is anticipated on adjacent properties. However, GEE shall be given the opportunity to review the site plans, including the outfall analysis performed by the site engineer, and provide opinion regarding the adequacy of the design, adequacy of adequate outfall, and that no erosive conditions would result from the proposed BMP facility at the referenced infill lot.

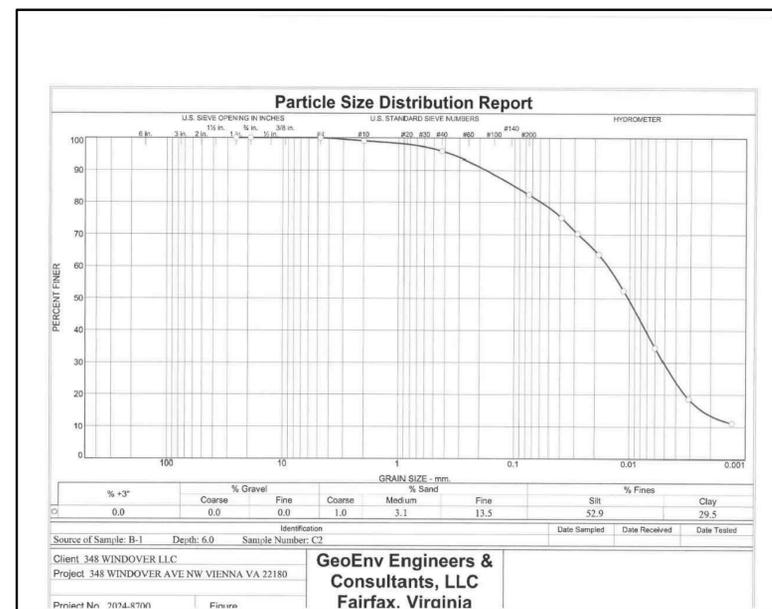
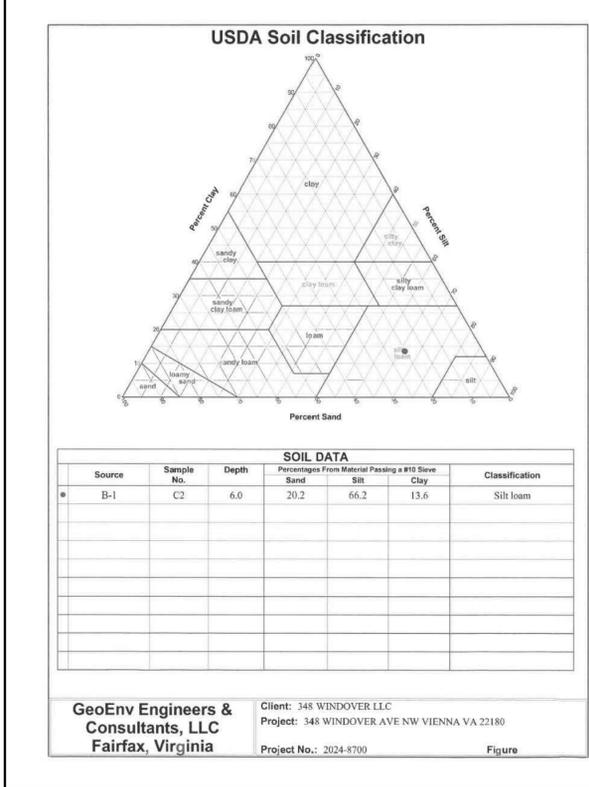
We appreciate this opportunity to be of service to you. Should you have any questions, please contact the undersigned below at (703) 591-7170.

Sincerely,

Ibrahim (Abe) Chehab, P.E.
Principal Engineer



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PHASE I EROSION AND SEDIMENT CONTROL PROGRAM

- USE EXISTING DRIVEWAY ENTRANCE FOR DEMOLITION OF THE EXISTING HOUSE AND FOR CONSTRUCTION PURPOSES AS WELL. THE EXISTING DRIVEWAY ENTRANCE WILL BE REMOVED. A NEW DRIVEWAY ENTRANCE WILL BE INSTALLED AS SHOWN ON THE PLANS.
- INSTALL SILT FENCE AND ROOT PRUNING TRENCH ALONG THE LIMIT OF DISTURBANCE AS SHOWN ON THE SITE PLAN.
- DEMOLISH, CLEAR AND ROUGH GRADE THE REMAINDER OF THE SITE.
- PERFORM STABILIZATION SUCH AS TEMPORARY SEEDING AND MULCHING FOR ALL AFFECTED AREAS.

PHASE II EROSION AND SEDIMENT CONTROL PROGRAM

NOTE: THE FOLLOWING ITEMS ARE PART OF THE PHASE I & II EROSION AND SEDIMENT CONTROL PROGRAM, BUT ARE NOT TO BE CONSTRUED AS BEING SEQUENTIAL IN NATURE BUT ONLY A LISTING OF ITEMS TO BE PROVIDED.

- STABILIZE THOSE AREAS THAT WILL BE DENUDED FOR MORE THAN 7 CALENDAR DAYS, EMPLOYING APPROPRIATE VEGETATIVE MEASURES, IN ACCORDANCE WITH THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK, CURRENT EDITION.
- UPON COMPLETION OF CONSTRUCTION OPERATIONS AND AFTER ALL DISTURBED AREAS HAVE BEEN ADEQUATELY STABILIZED, THE REMAINING MECHANICAL SEDIMENT CONTROLS (DIVERSION DIKES, SEDIMENT TRAPS, SILT FENCES, ETC.) WILL BE REMOVED AND THE AREAS OCCUPIED THEREBY WILL BE PERMANENTLY STABILIZED WITH VEGETATION. REMOVAL OF CONTROLS MUST BE APPROVED BY THE TOWN INSPECTOR.

GENERAL LAND CONSERVATION NOTES

- NO DISTURBED AREA, WHICH IS NOT ACTIVELY BEING WORKED, SHALL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR.
- ALL E&S CONTROL MEASURES APPROVED WITH THE PHASE I E&S CONTROL PLAN SHALL BE PLACED AS THE FIRST STEP IN GRADING.
- ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES SHALL BE COMPACTED, SEEDED AND MULCHED WITHIN 7 DAYS AFTER BACKFILL.
- ALL SOIL STOCKPILES, IF ANY, SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS AFTER GRADING.
- DURING CONSTRUCTION, ALL STORM SEWER INLETS SHALL BE PROTECTED BY SEDIMENT TRAPS, MAINTAINED AND MODIFIED DURING CONSTRUCTION PROGRESS AS REQUIRED.
- ANY DISTURBED AREA NOT COVERED BY PFM ARTICLE 11-0406.1 AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1, OR DISTURBED AFTER THE DATE, SHALL BE MULCHED IMMEDIATELY WITH HAY OR STRAW MULCH AT THE RATE OF 2 TONS/ACRE (4,483 KG/HA) AND OVER-SEED BY APRIL 15.
- AT THE COMPLETION OF ANY PROJECT CONSTRUCTION AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED.

STANDARD SPECIFICATIONS FOR DUST CONTROL

- THE CONTRACTOR SHALL CONDUCT OPERATIONS AND MAINTAIN THE PROJECT SITE AS TO MINIMIZE THE CREATION AND DISPERSION OF DUST. DUST CONTROL SHALL BE USED THROUGHOUT THE WORK AT THE SITE.
- THE CONTRACTOR MUST PROVIDE CLEAN WATER, FREE FROM SALT, OIL AND OTHER DELETERIOUS MATERIAL TO BE USED FOR ON-SITE DUST CONTROL.
- THE CONTRACTOR SHALL SUPPLY WATER SPRAYING EQUIPMENT CAPABLE OF ACCESSING ALL WORK AREAS.
- THE CONTRACTOR SHALL IMPLEMENT STRICT DUST CONTROL MEASURES DURING ACTIVE CONSTRUCTION PERIODS ON-SITE. THESE CONTROL MEASURES WILL GENERALLY CONSIST OF WATER APPLICATIONS THAT SHALL BE APPLIED A MINIMUM OF ONCE PER DAY DURING DRY WEATHER OR MORE OFTEN AS REQUIRED TO PREVENT DUST EMISSIONS.
- FOR WATER APPLICATION TO UNDISTURBED SOIL SURFACES, THE CONTRACTOR SHALL:
 - APPLY WATER WITH EQUIPMENT CONSISTING OF TANK, SPRAY BAR, PUMP WITH DISCHARGE PRESSURE GAUGE.
 - ARRANGE SPRAY BAR HEIGHT, NOZZLE SPACING AND SPRAY PATTERN TO PROVIDE COMPLETE COVERAGE OF GROUND WITH WATER.
 - DISPERSE WATER THROUGH NOZZLES ON SPRAY BAR AT 20 PSI (137.8 K Pa) MINIMUM. KEEP AREAS DAMP WITHOUT CREATING NUISANCE CONDITIONS SUCH AS PONDING.
- FOR WATER APPLICATION TO SOIL SURFACES DURING DEMOLITION AND/OR EXCAVATION, THE CONTRACTOR SHALL:
 - APPLY WATER WITH EQUIPMENT CONSISTING OF A TANK, PUMP WITH DISCHARGE GAUGE, HOSES AND MIST NOZZLES.
 - LOCATE TANK AND SPRAYING EQUIPMENT SO THAT THE ENTIRE EXCAVATION AREA CAN BE MISTED WITHOUT INTERFERING WITH DEMOLITION AND/OR EXCAVATION EQUIPMENT OR OPERATIONS. KEEP AREAS DAMP WITHOUT CREATING NUISANCE CONDITIONS SUCH AS PONDING.
 - APPLY WATER SPRAY IN A MANNER TO PREVENT MOVEMENT OF SPRAY BEYOND THE SITE BOUNDARIES.

SODDING (WHERE DESIGNATED ON THE PLANS OR AT THE OPTION OF DEVELOPER)

SODDING SHALL BE PERFORMED IN ACCORDANCE WITH VESCH SPECIFICATION 3.33.

- PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHALL BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.
- SOIL TESTS SHOULD BE MADE TO DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER. SOIL TEST MAY BE CONDUCTED BY THE STATE LABORATORY AT VPI & SU OR A REPUTABLE COMMERCIAL LABORATORY. INFORMATION ON STATE SOIL TESTS IS AVAILABLE FROM TOWN OR TOWN AGRICULTURE EXTENSION AGENTS.
- PRIOR TO LAYING SOD, THE SOIL SURFACE SHALL BE CLEAR OF TRASH, DEBRIS, LARGE ROOTS, BRANCHES, STONES, AND CLODS IN EXCESS OF 1" IN LENGTH OR DIAMETER. SOD SHALL NOT BE APPLIED TO GRAVEL OR OTHER NON-SOIL SURFACES.
- ANY IRREGULARITIES IN THE SOIL SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE FILLED OR LEVELED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- AREA TO BE TOP SOILED AND TOPSOIL USED SHALL FULFILL THE REQUIREMENTS OF TOP SOILING, VESCH SPEC. 3.30. NO SOD SHALL BE SPREAD ON SOIL THAT HAS BEEN TREATED WITH SOIL STERILANTS OR ANY OTHER TOXIC HERBICIDES UNTIL ENOUGH TIME HAS ELAPSED TO PERMIT DISSIPATION OF TOXIC MATERIALS.
- SOD SHALL NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER AND SHOULD BE INSTALLED WITHIN 36 HOURS AFTER DELIVERY.
- SOD SHOULD NOT BE LAID ON FROZEN SOIL SURFACES AND SHALL BE INSTALLED PER PLATE 3.33-1 OF VESCH.
- QUALITY OF SOD SHALL BE STATE CERTIFIED TO ENSURE GENETIC PURITY AND HIGH QUALITY.

PERMANENT SEEDING

PERMANENT SEEDING SHALL BE PERFORMED IN ACCORDANCE WITH VESCH SPECIFICATION 3.32.

- PERMANENT VEGETATION COVER MUST MEET THE REQUIREMENTS OF MINIMUM STANDARDS #3 (MS-3).
- PLANT SELECTION SHALL BE BASED UPON TABLES 3.32 A&B DEPENDING ON CLIMATE, TOPOGRAPHY, SOILS, AND SITE CONDITIONS.
- THE PLANTING SOIL MUST HAVE ENOUGH FINE GRAINED SOIL, SUFFICIENT PORE SPACE, SUFFICIENT DEPTH AND BE FREE FROM TOXIC OR EXCESSIVE QUANTITIES OF ROOTS AND SHALL BE APPLIED IN ACCORDANCE WITH VESCH STD 3.30.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

- ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR-625-02-00 EROSION AND SEDIMENT CONTROL AND TOWN REGULATIONS.
- ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
- ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP OF CLEARING.
- ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN THOSE INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE OWNER SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY TOWN OF VIENNA.
- ES-6: THE OWNER IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY TOWN OF VIENNA.
- ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ES-8: IF REQUIRED, DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP REQUIRED TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
- ES-10: PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS.
- ES-11: DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES.
- ES-12: A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED.
- ES-13: CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. ADDITIONAL SLOPE STABILIZATION MEASURES SHOULD BE PROVIDED TO PREVENT EXCESSIVE EROSION ON SLOPES.
- ES-14: CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
- ES-15: ADEQUATE DRAINAGE PROTECTION SHALL BE MADE WHENEVER WATER SEEPS FROM A SLOPE FACE.
- ES-16: ALL STORM SEWER INLETS (IF ANY) THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED.
- ES-17: ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS TO WORKING WITHIN OR CROSSING A WATERCOURSE SHALL BE MET.
- ES-18: ALL UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH VESCH CHAPTER 8, PAGE 22.
 - NO MORE THAN 500 FEET OF TRENCH MAY BE OPEN AT ONE TIME.
 - EXCAVATED MATERIAL SHALL BE PLACED ON THE UP HILL SIDE OF TRENCHES.
 - EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
 - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
 - RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
 - APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
- ES-19: PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE AREA, WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PUBLIC OR PAVED ROADS.
- ES-20: ALL TEMPORARY EROSION/SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION WITH THE PERMISSION OF THE TOWN INSPECTOR.

MINIMUM STANDARD CHECKLIST

YES NO N/A

- | | | | | |
|-------------------------------------|-------------------------------------|--------------------------|-------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-1 | HAVE TEMPORARY AND PERMANENT STABILIZATION BEEN ADDRESSED IN THE NARRATIVE? ARE PRACTICES SHOWN ON THE PLAN? SEED SPECIFICATIONS? YES/NO MULCHING? YES/NO GRAVEL? YES/NO |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-2 | HAS STABILIZATION OR SOIL STOCKPILES BEEN ADDRESSED IN THE NARRATIVE? ARE SEDIMENT TRAPPING MEASURES PROVIDED? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-3 | MAINTENANCE OF PERMANENT STABILIZATION BEEN ADDRESSED? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-4 | ARE SEDIMENT TRAPPING FACILITIES TO BE CONSTRUCTED AS A FIRST STEP IN LDA? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-5 | HAS STABILIZATION OF EARTHEN STRUCTURES BEEN ADDRESSED? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-6 | ARE SEDIMENT BASINS REQUIRED WHERE NEEDED? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-7 | HAS STABILIZATION OF CUT AND FILL SLOPES BEEN ADEQUATELY ADDRESSED? (i.e. A SURFACE ROUGHENING, OUTLET PROTECTION) |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-8 | ARE PAVED FLUMES, CHANNELS, OR SLOPE DRAINS REQUIRED WHERE NECESSARY? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-10 | IS ADEQUATE INLET PROTECTION REQUIRED ON ALL OPERATIONAL STORM SEWER INLETS? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-11 | ARE CHANNEL LINING AND/OR OUTLET PROTECTION REQUIRED ON STORMWATER CONVEYANCE CHANNELS? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-12 | ARE IN-STREAM CONSTRUCTION MEASURES REQUIRED SO THAT CHANNEL DAMAGE IS MINIMIZED? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-13 | ARE TEMPORARY STREAM CROSSINGS OF NON-ERODIBLE MATERIAL REQUIRED WHERE APPLICABLE? (NOTE: THIS REGULATION REQUIRES THAT ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES BE FOLLOWED.) |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | MS-15 | HAS RESTABILIZATION OF AREAS SUBJECT TO IN-STREAM CONSTRUCTION BEEN ADEQUATELY ADDRESSED? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-16 | IS STABILIZATION OF UTILITY TRENCHES ADDRESSED? |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-17 | IS THE TRANSPORT OF SOIL AND MUD ONTO PUBLIC ROADWAYS PROPERLY CONTROLLED? (I.E. CONSTRUCTION ENTRANCES, WASH RACKS, DAILY CLEANING OF ROADWAYS, TRANSPORT OF SEDIMENT TO A TRAPPING FACILITY) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-18 | HAS THE REMOVAL OF TEMPORARY PRACTICES BEEN ADDRESSED? HAS MAINTENANCE OF PRACTICES BEEN ADDRESSED? (I.E. REPAIR OF STRUCTURES AND REMOVAL OF ACCUMULATED SEDIMENT) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MS-19 | ARE PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT ADEQUATELY PROTECTED FROM EROSION AND SEDIMENT DEPOSITION DUE TO INCREASES IN PEAK STORMWATER RUNOFF? |

GEOTECHNICAL NOTES / REQUIREMENTS

- THE EARTHWORK CLEARING SHALL EXTEND A MINIMUM OF 10 FEET BEYOND THE BUILDING AND PAVEMENT LIMITS, AFTER STRIPPING TO THE DESIRED GRADE, PRIOR TO FILL PLACEMENT. THE STRIPPED SURFACE SHALL OBSERVED AND EVALUATED BY A GEOTECHNICAL ENGINEER. ANY SOFT OR UNSUITABLE MATERIALS ENCOUNTERED DURING THIS EVALUATION SHALL BE PLACED WITH AN APPROVED BACKFILL COMPACTED TO THE FOLLOWING CRITERIA. MH OR CH) SOILS IF ENCOUNTERED SHALL UNDERCUT TO A MINIMUM DEPTH OF 2 FEET BELOW THE SUBGRADE ELEVATION IN FLOOR SLAB AND PAVEMENT AREAS. GRADES RESTORED IN ACCORDANCE WITH THE CRITERIA OUTLINED IN THIS REPORT.
- THE PREPARATION OF FILL SUBGRADES, AS WELL AS PROPOSED BUILDING OR ROADWAY SUBGRADES SHALL BE OBSERVED ON A FULL-TIME BASIS BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER OF RECORD TO ENSURE THAT ALL UNSUITABLE MATERIALS HAVE BEEN REMOVED AND THE SUBGRADE IS SUITABLE FOR SUPPORT OF THE PROPOSED CONSTRUCTION AND/ OR FILL PLACEMENT.
- FILL MATERIALS SHALL CONSIST OF AN APPROVED MATERIAL, FREE OF ORGANIC MATTER AND DEBRIS, ROCKS GREATER THAN 4-INCHES, AND SHALL HAVE LIQUID AND PLASTICITY INDEX LESS THAN 40 AND 15 RESPECTIVELY. UNACCEPTABLE FILL MATERIALS INCLUDE TOPSOIL, ORGANIC MATERIALS (OH, OI) AND HIGH PLASTICITY SILT AND CLAYS (CH, MH). FILL MATERIALS SHALL BE PLACED IN LIFTS NOT EXCEEDING 8-INCHES IN LOOSE THICKNESS AND MOISTURE CONDITIONED TO WITHIN ± 2% OF OPTIMUM MOISTURE CONTENT. THE FILL SOILS SHALL BE COMPACTED MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY OBTAINED IN ACCORDANCE WITH ASTM SPECIFICATION D-798, STANDARD PROCTOR METHOD. THE UPPER ONE FOOT OF SOILS SUPPORTING SLABS-ON-GRADE, PAVEMENTS AND SIDEWALKS SHALL BE OBSERVED ON THE FULL TIME BASIS BY GEOTECHNICAL ENGINEER OR HIS AUTHORIZED REPRESENTATIVE TO DETERMINE THAT MINIMUM COMPACTION REQUIREMENTS ARE BEING MET.
- THE PROPOSED HOUSE SHALL BE SUPPORTED ON A SYSTEM OF SHALLOW FOUNDATIONS CONSISTING OF SPREAD AND/OR CONTINUOUS FOOTINGS, SUPPORTED ON ENGINEERED FILL CONSTRUCTED OVER SUITABLE FIRM NATURAL OR ON SUITABLE FIRM NATURAL SOILS. FOOTINGS SHALL BE PLACED MINIMUM DEPTH 2.5 FEET BELOW THE FINISH GRADES TO PROVIDE ADEQUATE FROST COVER PROTECTION. IF HIGH PLASTICITY SOILS (MH OR CH) ARE ENCOUNTERED IN THE FOUNDATION AREAS, THE FOOTING SHALL BE LOWERED TO A MINIMUM DEPTH OF 4 FEET BELOW THE EXTERIOR GRADES, OR TO THE THICKNESS OF THE CH OR MH LAYER, WHICHEVER IS LESS. PRIOR TO THE PLACEMENT OF THE CONCRETE THE BEARING PRESSURE OF SOILS SHALL BE VERIFIED BY A GEOTECHNICAL ENGINEER, PROVIDED THAT THESE REQUIREMENTS ARE FOLLOWED. THE FOOTINGS CAN BE DESIGNED FOR A MAXIMUM NET ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF. FOOTINGS SHALL NOT BE PLACED ON OR OVER THE FILL OR/SOFT/ LOOSE SOILS.
- ALL EXCAVATIONS MUST BE IN ACCORDANCE WITH OSHA AND VOSHA SAFETY REGULATIONS. ALL CONSTRUCTION SHALL BE PERFORMED UNDER THE FULL-TIME OBSERVATION OF THE GEOTECHNICAL ENGINEER OR RECORDS.
- THE GEOTECHNICAL ENGINEER SHALL FURNISH A WRITTEN OPINION TO THE TOWN AS WHETHER OR NOT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS PRIOR TO THE ISSUANCE OF RESIDENTIAL USE PERMIT.

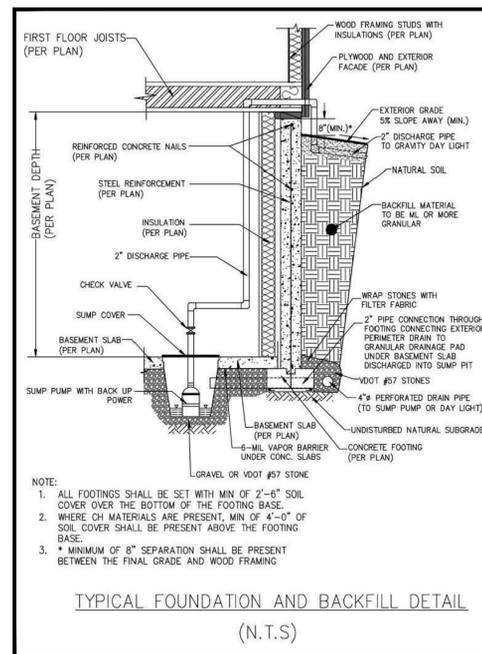
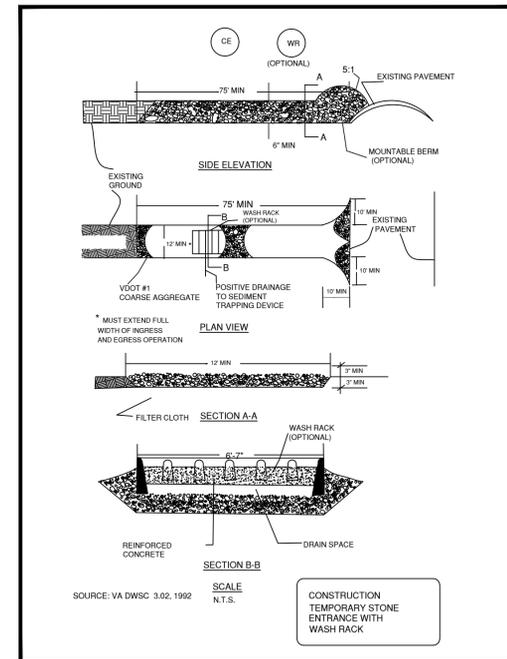
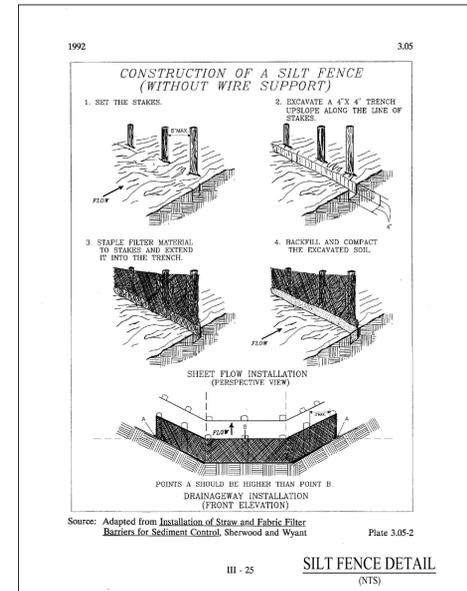
SILT FENCE

- SILT FENCE SHALL COMPLY WITH VESCH CHAPTER 3 PAGES 21-22. SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER, OR ETHYLENE YARN AND SHALL BE CERTIFIED BY MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS NOTED IN TABLE 3.05-B OF THE VESCH.
- SYNTHETIC FILTER FABRIC SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF SIX MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES FAHRENHEIT TO 120 DEGREES FAHRENHEIT.
- IF WOODEN STAKES ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A DIAMETER OF 2" WHEN OAK IS USED AND 4" WHEN PINE IS USED. WOODEN STAKES MUST HAVE A MINIMUM LENGTH OF 5'.
- IF STEEL POSTS (STANDARD "U" AND "T" SECTION) ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT AND SHALL HAVE A MINIMUM LENGTH OF 5'.
- WIRE FENCE REINFORCEMENT FOR SILT FENCE USING STANDARD STRENGTH FILTER CLOTH SHALL BE A MINIMUM OF 14 GAUGE AND SHALL HAVE A MAXIMUM MESH SPACING OF 6".
- THE HEIGHT OF A SILT FENCE SHALL BE A MINIMUM OF 16" ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34" ABOVE GROUND ELEVATION.

NOTE: SILT FENCE SHOULD BE USED FOR DRAINAGE AREAS THAT ARE NO LARGER THAN 0.25 ACRES PER 100' OF SILT FENCE LENGTH. THE MAXIMUM SLOPE LENGTH BEHIND THE BARRIER IS 100'. THE MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1. SILT FENCE IS BEST USED WHEN THE SLOPE ABOVE THE FENCE, EITHER CUT OR FILL, IS NOT STEEPER THAN 3:1.

MAINTENANCE PROGRAM

- ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED DAILY AND AFTER EACH SIGNIFICANT RAINFALL BY THE SITE SUPERINTENDENT FOR STRUCTURAL DAMAGE, EROSION, OR ANY OTHER UNDESIRABLE CONDITIONS. ANY DAMAGED STRUCTURES ARE TO BE REPAIRED IMMEDIATELY (PRIOR TO THE END OF THE WORKING DAY) INCLUDING RESEEDING AND MULCHING OR RESODDING IF NECESSARY.
- TEMPORARILY AND PERMANENTLY SEEDED AREAS DAMAGED BY RAINFALL ARE TO BE RESEDED AND MULCHED WITHIN TWO (2) DAYS AND WHENEVER GROUND COVER HAS NOT BEEN ADEQUATELY ESTABLISHED TO PREVENT EROSION.
- ADDITIONAL SLOPE STABILIZATION MEASURES MUST BE PROVIDED FOR SLOPES WHICH ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE (1) YEAR UNTIL THE PROBLEM IS CORRECTED.
- SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN THE DEPTH IS EQUAL TO ONE-HALF (1/2) THE HEIGHT OF THE FENCE. SILT FENCES AND SUPER SILT FENCES WILL BE CHECKED REGULARLY AND DAMAGED FENCES WILL BE REPAIRED OR REPLACED IMMEDIATELY.
- THE MATERIAL REMOVED FROM THE EROSION AND SEDIMENT CONTROL STRUCTURES MAY BE DISPOSED OF BY SPREADING THE MATERIAL ON-SITE OR BY HAULING IT AWAY, IF NOT SUITABLE FOR PLACEMENT AS TOPSOIL.
- NO AREA SHALL BE LEFT DENUDED FOR A PERIOD LONGER THAN SEVEN (7) DAYS EXCEPT FOR THAT PORTION OF THE SITE IN WHICH WORK WILL BE CONTINUOUS BEYOND SEVEN (7) DAYS. IN THE EVENT SUCH MAXIMUM PERIOD IS EXCEEDED AND ANY SUCH AREAS REMAIN EXPOSED WITHOUT COVER, THE WILL (IN THE EVENT THE DEVELOPER OR BUILDER DOES NOT) INSTALL THE NECESSARY TEMPORARY OR PERMANENT VEGETATIVE STABILIZATION MEASURES TO ACHIEVE ADEQUATE EROSION AND SEDIMENT CONTROL.
- NO SEDIMENT CONTROL STRUCTURES SHALL BE REMOVED WITHOUT APPROVAL OF THE TOWN OF VIENNA SITE INSPECTOR



GeoEnv Engineers
GeoEnv Engineers & Consultants, LLC
10875 Main Street, Suite 213
Fairfax, VA 22030
Tel. 703.591.7170

NO.	REV. BY	DATE	DESCRIPTION

PROFESSIONAL SEAL

DENNIS CHAN
Lic. No. 0466869
10/22/2024

PROFESSIONAL SEAL

COMMISSION OF THE STATE OF VIRGINIA

PROFESSIONAL ENGINEER

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

LT 2

WINDOVER HEIGHTS

348 WINDOVER AVE NW

FUNYER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

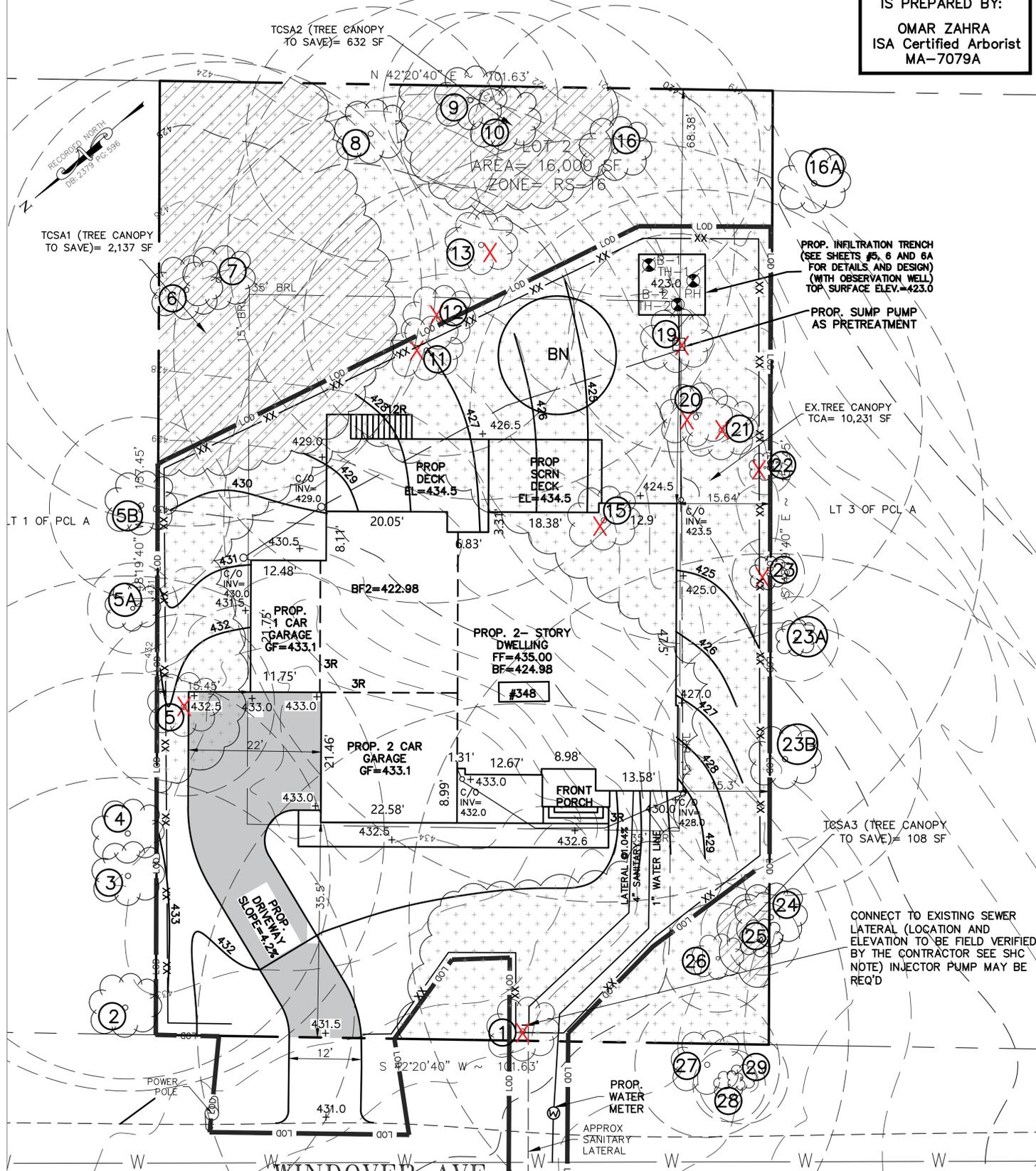
DATE:	AUGUST 2024
PREP. BY:	A.V
REV. BY:	D.C
PROJECT #	
SCALE:	N/A
SHEET:	11
TOTAL SHEETS:	13

THE TREE INVENTORY IS PREPARED BY:

OMAR ZAHRA
ISA Certified Arborist
MA-7079A

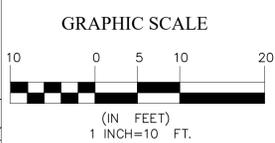
EXISTING TREE INVENTORY

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Condition Rating %	Condition Rating	20 Year life Expectancy	CRZ Critical Zone (Radius in Feet)	Recommended Preservation Measures			Remarks	
							Root Prune	Tree Protection Fence	Shared / Offsite		
1	36	Black Cherry	60	Poor		54	X			Remove, Does not survive construction	
2	19	Japanese Snowball	70	Fair		38		X	X	Offsite	Off-site tree, provide tree protection measure - Multi-Stem Tree
3	17	Lawson's Cypress	70	Fair		34		X	X	Offsite	Off-site tree, provide tree protection measure - Multi-Stem Tree
4	21	Lawson's Cypress	70	Fair		42		X	X	Offsite	Off-site tree, provide tree protection measure - Multi-Stem Tree
5	10	Common Pear	70	Fair		15	X				Remove, Does not survive construction
5A	5	Lawson's Cypress	80	Good		7.5		X	X		Off-site tree, provide tree protection measure
5B	10	Japanese Snowball	70	Fair		15		X	X		Off-site tree, provide tree protection measure
6	26	Common Sassafras	60	Poor		39					Poor Condition- No Credit Taken
7	24	Black Tupelo	70	Fair	More Than 20	36			X		Save, Provide Tree protection measure
8	14	Common Sassafras	60	Poor		21					Poor Condition- No Credit Taken
9	7	Mulberry	60	Poor		14					Poor Condition- No Credit Taken- Multi-Stem Tree
10	12	Eastern Red Cedar	70	Fair	More Than 20	18			X		Save, Provide Tree protection measure
11	28	Dead Tree	0	Poor		42	X				Remove, Does not survive construction
12	15	Black Cherry	65	Fair		22.5	X				Remove, Does not survive construction
13	28	Willow Oak	70	Fair		42	X				Remove, Does not survive construction
15	42	Black Cherry	65	Fair		63	X				Remove, Does not survive construction
16	16	Eastern Red Cedar	50	Poor		24					Poor Condition- No Credit Taken
16A	7	Eastern Redbud	65	Fair		14		X	X	Offsite	Off-site tree, provide tree protection measure - Multi-Stem Tree
19	12	American Holly	65	Fair		18	X				Remove, Does not survive construction
20	25	Black Locust	55	Poor		37.5	X				Remove, Does not survive construction
21	20	Dead Tree	0	Poor		30	X				Remove, Does not survive construction
22	3	Mulberry	60	Poor		4.5	X				Remove, Does not survive construction
23	4	Rose of Sharon	65	Fair		6	X				Remove, Does not survive construction
23A	4	Chainside Privet	75	Fair		8		X	X		Off-site tree, provide tree protection measure - Multi-Stem Tree
23B	11	Black Pear	70	Fair		22		X	X		Off-site tree, provide tree protection measure - Multi-Stem Tree
24	40	Black Locust	60	Poor		60	X	X			Off-site tree, provide tree protection measure
25	4	Locust	70	Fair	More Than 20	6			X		Save, Provide Tree protection measure
26	6	Mulberry	60	Poor		9			X		Poor Condition- No Credit Taken
27	8	Catalpa	70	Fair		12			X	Offsite	Off-site tree, provide tree protection measure
28	4	Catalpa	60	Poor		6			X	Offsite	Off-site tree, provide tree protection measure
29	5	Locust	60	Poor		7.5			X	Offsite	Off-site tree, provide tree protection measure



CONDITION SCALE	
POOR CONDITION	≤ 60
FAIR CONDITION	60 - 79
GOOD CONDITION	80 - 100

OFFSITE TREES HAVE NOT BEEN TAGGED

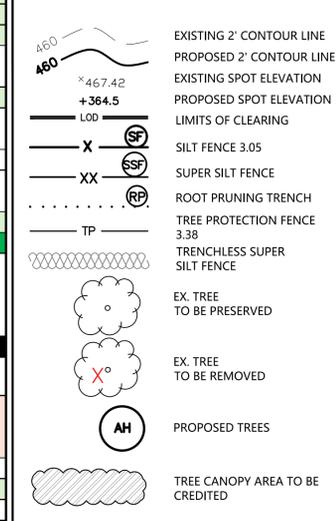


Canopy Coverage Analysis

Instructions: Cells shaded green are for user inputs. For issues contact TOV Urban Forester.

Row	Description	Value
A1	Project Address and/or Munis #: 348 Windover Ave NW	
A2	Gross site area sq. ft.	16,000
A3	Pre-development canopy coverage sq. ft.	10,231
A4	Percentage of gross site area covered by existing tree canopy (A2/A1)	63.9%
A5	Zone	RS-16
A6	Percentage of 20-year Tree Canopy required for site (see zoning chart)	25%
A7	Minimum 20-year Tree Canopy required for site sq. ft. (A1xA5)	4,000
A8	Tree Preservation Target (minimum tree canopy area required via tree preservation) sq. ft. (A3xA6)	2,558
A9	Tree canopy that will be provided through tree preservation sq. ft.	2,877
A10	Has the Tree Preservation Target minimum been met? (A8> or =A7)	Yes
A11	If No, then submit a request to deviate from the Tree Preservation Target. Including a site-specific explanation of why the Tree Preservation Target cannot be met. Provide sheet number where deviation request is located.	Narrative
B1	Canopy from retained trees that qualify for credit sq. ft. (A8)	2,877
B2	Multipliers - if the tree qualifies, may use both tree preservation multipliers. Canopy credits will only be given to trees with trunks that are fully located on the development site.	
B3	Tree Preservation multiplier 1.25 (B1x0.25)	719
B4	Forest Communities multiplier 1.5 (B1x0.5) (see 17-1003(d))	0
B5	Total preserved canopy including multipliers sq. ft. (B1+B2+B3)	3,596
C1	Canopy area that must be met with tree planting (A6-B4)	404
C2	Tree Canopy area to be met through tree planting with multipliers (See Sheet Planting Plan: N1)	450
D1	Total canopy area provided through tree preservation sq. ft. (B4)	3,596
D2	Total canopy area provided through tree planting sq. ft. (C2)	450
D3	Total 20 year canopy coverage provided (D1+D2)	4,046
D4	Total minimum 20 year canopy coverage required (A6)	4,000
D5	Are canopy coverage requirements met?	Yes
D6	If No, then submit a request to contribute to the Tree Fund to cover the unmet portion of the required minimum tree canopy coverage.	Narrative

TCP LEGEND



NOTE: THIS IS A STANDARD LEGEND DRAWING. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS DRAWING AND MAY NOT BE USED IN THIS PROJECT.

Project Address and/or Munis #:	See town approved tree list for CCA and Multipliers	Total Units= 1	Instructions: Delete values from multiplier credit cells that tree does not qualify for	Total CCA= 450											
348 Windover Ave NW															
Scientific Name	Common Name	Variety/Cultivar	Notation on Plan	Notes	Caliper or Height	BB or Container	Quantity (Units)	Base 20 Year CCA	Air Quality (1.5)	Water Quality (1.25)	Native Tree (Local Ecotype)(1.5)	Wildlife Benefit (1.5)	Improved Cultivars and Varieties (1.25)	CCAs per tree after Multiplier(s)	Total CCA for all units
Template Row	Template Row	Template Row	(eg. "TR")	Do not use or modify this row.	2" or 6"	BB or C	0	0	0	0	0	0	0	0	0
Betula Nigra (BN)	River Birch	N/A	BN	N/A	2"	BB	1	300				150		450	450

- NOTES
- THE USE OF HEAVY EQUIPMENT IS STRICTLY PROHIBITED WITHIN TREE PRESERVATION AREAS, INCLUDING FOR THE PURPOSE OF REMOVING UNWANTED TREES, STRUCTURES, PADS, GRADING, SODDING, ETC. ANY STRUCTURE WITHIN THE TREE PRESERVATION AREA SHALL BE REMOVED BY HAND.
 - ALL AREAS DELINEATED AS TREE PRESERVATION AREAS SHALL BE LEFT IN THEIR ORIGINAL CONDITION THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. FAILURE TO DO SO WILL RESULT IN DENIAL OF THE OCCUPANCY PERMIT AND REMEDIATION OF THE TREE PRESERVATION AREA WILL BE REQUIRED. REMEDIATION MUST BE DONE AT THE DIRECTION OF A CERTIFIED ARBORIST AND A WRITTEN REPORT COMPLETED BY A CERTIFIED ARBORIST SHALL BE SUBMITTED AND APPROVED BY VIENNA'S URBAN ARBORIST PRIOR TO ANY REMEDIATION ACTIVITIES.
 - AREAS DESIGNATED AS TREE PRESERVATION OR TREE SAVE AREA SHALL BE LEFT IN THE SAME CONDITION AS IT WAS PRE-CONSTRUCTION. IF A CHANGE TO THIS AREA IS TO BE MADE, APPROVAL FROM THE TOV URBAN ARBORIST IS REQUIRED. APPROVAL IS NOT REQUIRED IF MULCH IS INSTALLED TO THE TREE SAVE AREAS.
 - ANY PROPOSED GRADE CHANGES WITHIN THE TREE SAVE AREA(S) SHALL BE REVIEWED WITH THE TOV URBAN ARBORIST DURING THE PRE- CONSTRUCTION MEETING.
 - TOWN OF VIENNA URBAN ARBORIST SHALL BE CONTACTED AT THE TIME OF PLANTING OF TREES LISTED ON THE PLAN (i.e. TREES TO BE INSTALLED AS PART OF THE CANOPY COVERAGE CREDIT)

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NO.	DESCRIPTION	REV. BY	DATE

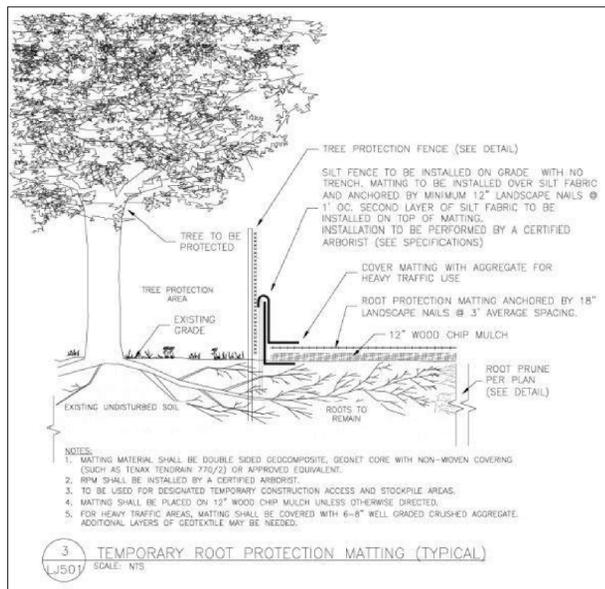


EXISTING TREE INVENTORY AND TREE CONSERVATION PLAN
LT 2
WINDOVER HEIGHTS
348 WINDOVER AVE NW
HUNTER MILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B
DATE: AUGUST 2024
PREP. BY: A.V
REV. BY: D.C
PROJECT #
SCALE: 1" = 15'
SHEET: 12
TOTAL SHEETS: 13

V. Tree Protection Standards and Specifications

- Before any grading, demolition, installation of tree preservation measures, or other disturbance, including tree removal, a preconstruction meeting shall be held with the Town of Vienna Urban Forester. The applicant shall stake clearing limits onsite to facilitate a location for trenching and fencing installation for tree protection.
- Tree protection measures shall be installed as shown on the approved plan before any site work including demolition, grading, and tree removal. No changes shall be made to the approved tree preservation plan unless approved by the Town of Vienna Urban Forester.
- When applicable, trenchless silt fence shall be used for erosion and sediment control to better protect and preserve trees that may be impacted by construction activities.
- Root Pruning Requirements: Unless otherwise instructed by the Town of Vienna Urban Forester, root pruning shall be performed when limits of disturbance fall within the critical root zone of trees to be retained. The root pruning trench shall be excavated to a minimum depth of twelve (12) inches at the locations shown on the approved site plan. A vertical trenching machine, vibratory plow, or supersonic air tool are all acceptable tools for root pruning. All roots greater than one (1) inch in diameter, on the side of the trench closest to the tree trunk shall be cut or cleanly severed with hand pruners, loppers, handsaw, or other appropriate tool that can cleanly sever the root.
- Removal of trees, per the approved plan, inside a tree preservation area shall be performed, by hand, without ground disturbance, or disturbance to nearby preserved trees. Trees in these areas shall be cut flush to the ground, without stump grinding unless approved by the Town of Vienna Urban Forester.
- Do not remove trees from other properties, co-owned trees or Town rights-of-way without written permission of the owners. Written permission should be obtained and submitted with project documentation.
- Any pruning or removal of Town-owned trees during the construction process shall be pre-approved by the Town of Vienna Urban Forester.
- Tree protection fencing shall be maintained by the contractor throughout construction.
- Tree protection areas shall be kept free from soil, vehicles, equipment, and the storage of construction materials. This period extends through the entirety of the project
- The use of heavy equipment is strictly prohibited within tree preservation areas, for the removal of unwanted trees, structures, pads, grading, sodding, etc.
- All tree pruning shall be done following current American National Standards Institute (ANSI) A300 pruning standards. Pruning to remove more than 10% of the total foliage, for trees being preserved for canopy coverage credit, shall be communicated and approved by the Town of Vienna Urban Forester before the pruning.
- Tree protection areas shall have non-native invasive vines removed or severed and treated (under Virginia's pesticide application laws) to prevent their regrowth, as deemed necessary by the Vienna Urban Forester. The goal is to ensure the survival of the trees being used for tree canopy coverage requirement.
- Removal of any tree preservation measure shall be approved by the Town of Vienna Urban Forester in writing prior to removal of any tree preservation measures.
- If a violation of the approved tree preservation plan occurs, including encroachment or evidence of encroachment into a tree preservation area, the applicant shall be required to submit a mitigation plan to the Town of Vienna Urban Forester. This plan shall list remedial measures and the time within which such measures shall be completed by the applicant to ensure the continued preservation of the existing trees. This may include an assessment and report by a qualified arborist.



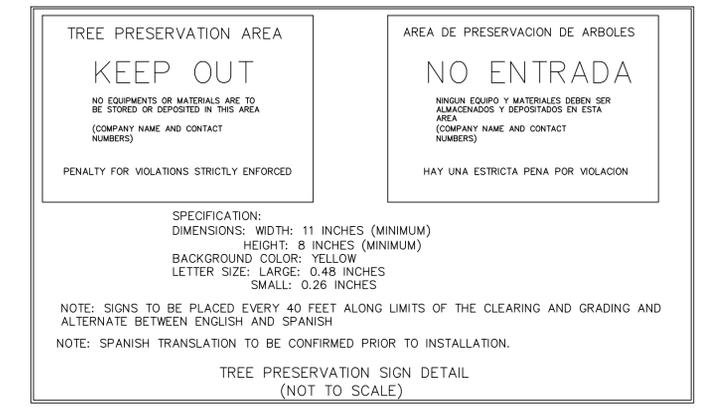
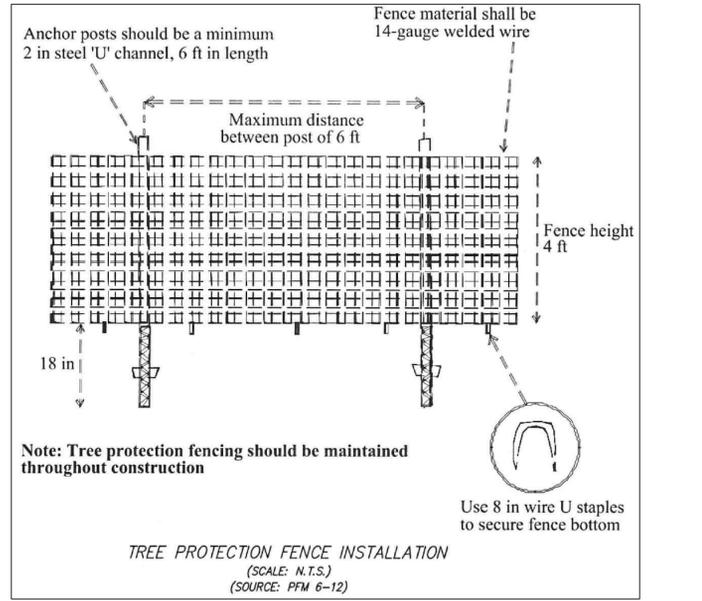
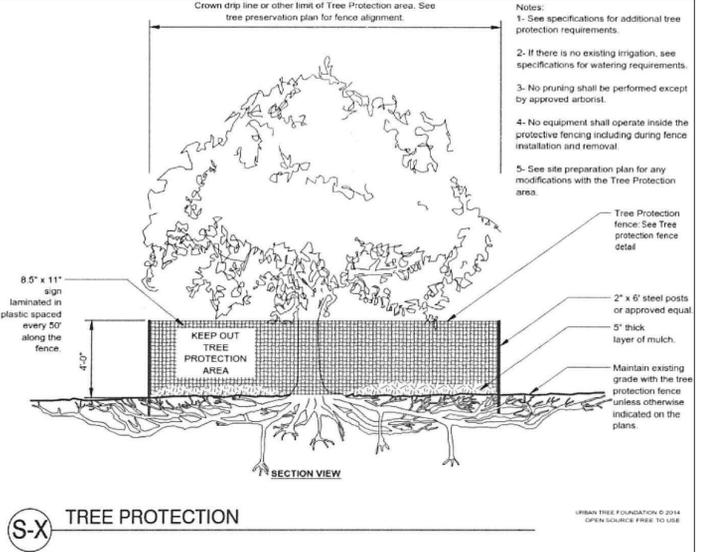
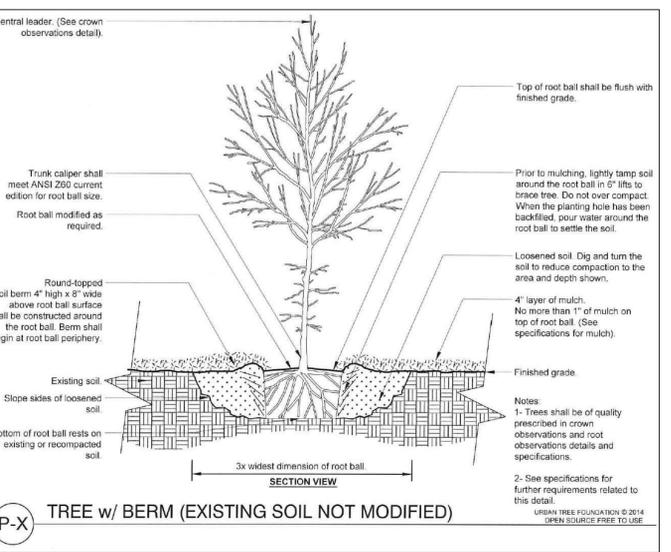
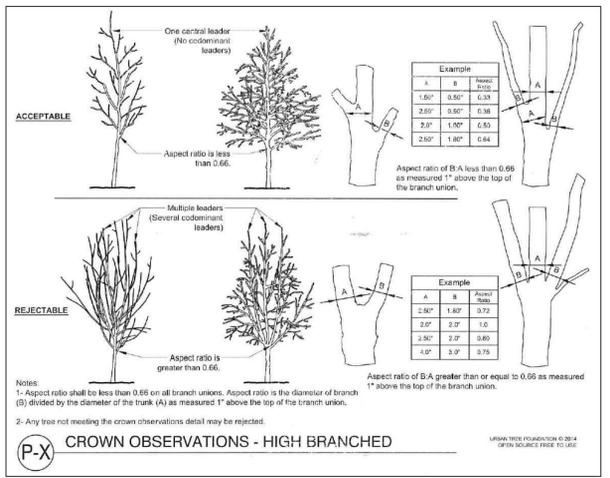
VI. Plant Installation Specifications

- Plants shall be furnished and installed as indicated on the landscape plan.
- New plants shall be healthy and vigorous, typical of the species and variety, and meet the most recent **ANSI Z60.1 Standards** published by the American Horticulture Industry Association d/b/a AmericanHort
- New trees shall be a minimum of two inches (2") caliper for deciduous trees and six feet (6') in height for evergreens.
 - Permission for smaller caliper (< 2") trees may be permitted with prior approval by the Town of Vienna Urban Forester.
 - Tree caliper is measured at 6 inches above ground as specified in ANSI Z60.1.
- All trees planted in the Town's right-of-way shall be balled and burlapped, two (2) inches in caliper or greater, single-stemmed, and have good form for the species. Species and variety selection shall be approved by the Town of Vienna Urban Forester or Town of Vienna Arborist.
- Tree installation shall comply with the latest version of ANSI A300 Part 6 Tree Planting Best Management Practices and the [Virginia Cooperative Extension Tree and Shrub Planting Guidelines Publication 430-295](#).
- The Town of Vienna Urban Forester shall inspect and approve all plants required on the approved site plan before installation. Additionally, the installation location and the climactic conditions shall be evaluated and approved before installation.
- All plants shall have their container removed before planting and for balled and burlapped trees, a minimum of the top half of the wire basket and burlap cut away and removed from the planting hole. All twine, rope, trunk protection, tags, ribbon, etc., shall be removed from the trees and planting holes.
- Trees shall be planted at the height of the surrounding grade with root flares visible.
- All trees planted shall receive a 3-inch-thick layer of shredded hardwood mulch, in a 6-foot ring surrounding the tree (3-foot radius from tree center), with a 6-inch gap from the trunk.
- Staking of trees shall be required if deemed appropriate by the Town of Vienna Urban Forester. When required, staking will be installed to meet ANSI A300 standards.
- A minimum of **TWO** different tree species is preferred when planting 3-5 new trees on site. A minimum of **THREE** different tree species is preferred for 6-9 new trees installed on site. A minimum of **FOUR** different tree species is preferred for 10+ new tree plantings.
- Trees shall be allowed to grow to their 20-year canopy credit without significant overlap with another tree, whether newly planted or existing. The 20-year tree canopy cover area value will be used for drawing trees to scale on the landscape plan and to determine minimum spacing. It is the responsibility of the developer to ensure that contractors and installers understand the necessary spacing requirements for trees at the time of installation.
- Plants shall be installed when weather and soil conditions are conducive to planting. Generally, plants shall not be installed when soil is frozen, or saturated with water or during times of summer drought. The following planting seasons are desirable for plants to acclimate to their new home. Contact the [Vienna Urban Forester](#) to plant outside of the following planting seasons.
 - Spring Planting Season:** March 1 – June 15
 - Fall Planting Season:** September 15 – December 31

Any tree planted outside of acceptable conditions and the planting seasons without the Vienna Urban Forester's approval may be rejected.
- A **planting season waiver** shall be issued for projects when construction is complete but the environmental conditions or planting seasons do not align with the above listed planting requirements. The waiver is applied with a conditional occupancy permit inspection approval.
 - Prior to a planting season waiver being granted, the applicant shall post a bond (cash or surety) that covers any tree plantings required for canopy coverage on the site.
 - The bond amount per tree is set at the Unit Price Schedule⁴ used by Fairfax County for 2" caliper deciduous and/or 8' evergreen trees.
 - The bond amount for tree removals reflects the most current town-negotiated contract prices.
 - The necessary trees to meet the canopy coverage requirements, as presented in the approved site plan must be planted during the next available planting season.

VII. Deviations From Approved Site Plans

- All project plans should be faithfully followed through to the completion of the project, however in some instances, conditions change which require a deviation from the approved plan. These can include but are not limited:
 - Availability of nursery stock to meet planting specifications.
 - Construction errors that irreparably damage trees meant to be preserved.
 - Environmental factors that kill or necessitate the removal of trees such as extreme weather, pests, and diseases.
- In some cases, deviations are sought to change the species composition and location of proposed trees due to client input.
- At the discretion of the Urban Forester minor deviations such as the location of trees and species substitution of trees with the same CCA may be approved in writing without the need for the re-submission of project plans, however, if the changes are significant and alter the canopy coverage calculations then the project plan will need to be re-submitted for review.
- The Town of Vienna Urban Forester must be contacted with any proposed deviations for review.
- Deviations that involve retaining trees that were planned to be removed after any construction/land disturbance activity has commenced will at minimum require re-evaluation by a certified arborist to assess the health of the tree(s) and the result of the project plan after having met with the Urban Forester on site to discuss the proposed changes. At the discretion of the Urban Forester, additional analysis may be required.



NO.	DESCRIPTION	REV. BY	DATE



TREE PRESERVATION NOTES AND DETAILS

LT 2
WINDOVER HEIGHTS
348 WINDOVER AVE NW
HUNTER HILL DISTRICT, TOWN OF VIENNA, VA 22180

TAX MAP #: 038-3-02-0086B

DATE:	AUGUST 2024
PREP. BY:	A.V
REV. BY:	D.C
PROJECT #	
SCALE:	N/A
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TOTAL SHEETS:	13