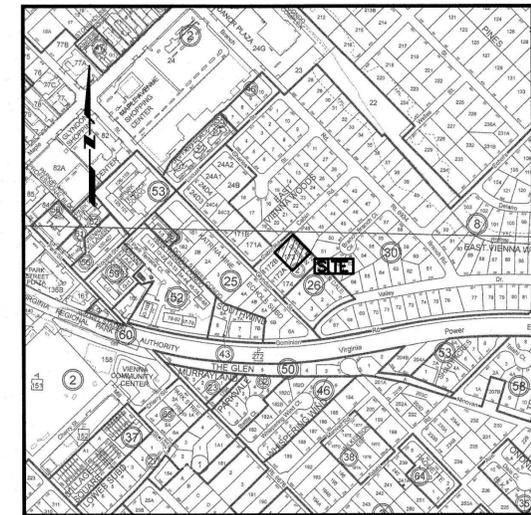


# ADDITION TO THE JENNIE LYNN DIVISION

## TOWN OF VIENNA FAIRFAX COUNTY, VIRGINIA



VICINITY MAP  
SCALE: 1"=500'



**CIVIL  
ENVIRONMENTAL  
LAND PLANNING  
SURVEYING**

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Suite 300  
Herndon, Virginia 20170  
V: (703) 481-5900  
F: (703) 481-5901  
info@tritekinc.com



ADDITION TO THE  
JENNIE LYNN DIVISION

TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA

COVER SHEET

DATE	REVISION
10.04.18	PER TOWN OF VIENNA COMMENTS
10.30.18	PER TOWN OF VIENNA COMMENTS

PM: JDB SCALE: NONE  
PE: JDB DATE: 06.19.18  
CO: MSO SHEET 1 OF 17

### PROJECT TEAM

#### OWNER/APPLICANT

ESTATE OF NORMA  
MARGARET PAYNE  
ATTN. TIMOTHY A. MCBRIDE  
4527 ORR DRIVE  
CHANTILLY, VA. 20151

#### CIVIL ENGINEER

TRI-TEK ENGINEERING, INC.  
ATTN. TED BRITT  
690 CENTER STREET  
SUITE 300  
HERNDON, VA. 20170  
PHONE: (703) 481-5900  
FAX: (703) 481-5901

#### DEVELOPER

SIGNATURE PROPERTIES  
ATTN. MARK BENAS  
5283 CORPORATE DRIVE  
SUITE 300  
FREDERICK, MD. 21703  
PHONE: (240) 405-1328

TOWN OF VIENNA PLAN APPROVAL	
Dept. of Planning and Zoning	_____
	Date _____
Dept. of Public Works	_____
	Date _____

#### SHEET INDEX:

1. COVER SHEET
2. GENERAL NOTES AND DETAILS
3. EXISTING CONDITIONS
4. GRADING PLAN
5. CABIN ROAD, S.E. PLAN & PROFILE
6. STOPPING SIGHT DISTANCE CABIN ROAD, S.E.
7. IMPERVIOUS AREA ANALYSIS & BMP MAP
8. INFILTRATION TRENCH DESIGN
9. OUTFALL ANALYSIS
10. VIRGINIA RUNOFF REDUCTION METHOD
11. VIRGINIA RUNOFF REDUCTION METHOD
12. EROSION & SEDIMENT CONTROL AND DRAINAGE DIVIDES
13. EROSION & SEDIMENT CONTROL NOTES AND DETAILS
14. LANDSCAPE PLAN
15. TREE PRESERVATION PLAN
16. TREE DEVELOPMENT INVENTORY
17. CORRESPONDENCE & GEOTECHNICAL INFORMATION

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**GENERAL NOTES:**

TAX MAP NO.: 38-4-02-0173  
 OWNER: ESTATE OF NORMA MARGARET PAYNE  
 C/O TIMOTHY A. MCBRIDE  
 4527 ORR DRIVE  
 CHANTILLY, VA. 20151  
 WB: 1097, PG: 265  
 DEVELOPER: SIGNATURE PROPERTIES  
 C/O MARK BENAS  
 5283 CORPORATE DRIVE, SUITE 300  
 FREDERICK, MD. 21703

- BOUNDARY AND TOPOGRAPHIC SURVEY PERFORMED BY TRI-TEK ENGINEERING (MARCH 23, 2018).
- NO TITLE REPORT PROVIDED.
- THIS SITE IS SERVED BY PUBLIC WATER AND PUBLIC SANITARY SEWER.
- ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF VIENNA.
- ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWN OF VIENNA AND THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
- THE LAND DISTURBER FOR THE PROJECT SHALL MONITOR COMPLIANCE WITH MINIMUM STANDARDS (MS-19) 4 VA C 50-30-40 TO THE EXTENT THEY APPLY TO THIS PLAN.
- TREES ARE NOT TO BE PLANTED IN SWALES, IN ORDER TO PRESERVE DRAINAGE FLOWPATH.
- GARAGE DIMENSIONS SHALL NOT BE LESS THAN 18' X 18' TO PERMIT TWO VEHICLES TO BE PARKED IN GARAGE.
- CLEARING AND GRADING SHALL BE IN ACCORDANCE WITH THE GRADING AND EROSION CONTROL PLANS AND STANDARDS SET FORTH BY THE PUBLIC FACILITIES MANUAL AND THE VIRGINIA EROSION AND SEDIMENTATION CONTROL HANDBOOK. ALL LAND ON OR OFF-SITE WHICH IS DISTURBED BY THIS DEVELOPMENT AND WHICH IS NOT BUILT UPON OR SURFACED, SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION.
- THE PERMITTEE SHALL PROVIDE ADEQUATE MEANS OF CLEANING TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING THE PRIVATE STREETS AND TOWN RIGHT OF WAY, AND IT IS THE PERMITTEE'S RESPONSIBILITY TO CLEAN STREETS, ALLAY DUST AND TO TAKE WHATEVER MEASURES NECESSARY TO INSURE THAT THE ROAD IS MAINTAINED IN A CLEAN, MUD AND DUST-FREE CONDITION AT ALL TIMES. SEE SILTATION AND EROSION CONTROL PLANS.
- NO AREA SHALL BE LEFT DENuded FOR A PERIOD GREATER THAN 14 DAYS EXCEPT FOR THAT PORTION OF THE SITE IN WHICH WORK WILL BE CONTINUOUS BEYOND 14 DAYS.
- THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE FORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUANCE OF SERVICE.
- ALL UTILITIES AND UTILITY POLES TO BE RELOCATED DUE TO THIS PROJECT SHALL BE DONE AT THE EXPENSE OF THE DEVELOPER.
- ELEVATIONS SHOWN ARE ON STRAIGHT GRADES, THE CONTRACTOR SHALL ROUND ALL VERTICAL BREAKS WITH SMOOTH SPLINE CURVES.
- ALL CONSTRUCTION DUE TO THIS PROJECT IS TO BE DONE IN ACCORDANCE WITH THE STANDARDS SET BY THE STATE OF VIRGINIA, FAIRFAX COUNTY, AND THE TOWN OF VIENNA.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER/SURVEYOR OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM THE TOWN OF VIENNA, OR ANY OTHER AUTHORITY ISSUING PERMITS.
- THE CONTRACTOR SHALL ADJUST MANHOLE TOPS, VALVE BOXES, ETC. TO MEET FINAL PAVEMENT/GROUND GRADE.
- ALL CONSTRUCTION INVOLVING PROBLEM SOIL MUST BE PERFORMED UNDER THE FULL-TIME INSPECTION OF THE GEOTECHNICAL ENGINEER.
- TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE IS NO EVIDENCE OF ANY GRAVE, OBJECT OR STRUCTURE MARKING A PLACE OF BURIAL.
- THE GEOTECHNICAL ENGINEER SHALL FURNISH A WRITTEN OPINION TO THE TOWN AS TO WHETHER OR NOT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS PRIOR TO THE ISSUANCE OF A USE PERMIT.
- THE CONTRACTOR IS REQUIRED TO PERFORM ALL TESTS REQUIRED BY THE TOWN TO SECURE ACCEPTANCE OF ALL UTILITIES.
- A SMOOTH GRADE SHALL BE MAINTAINED FROM CENTERLINE OR ACROSS TRAVELWAY OF PROPOSED ROADS OR PARKING SURFACES TO PROPOSED CURB AND GUTTER TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR PONDING OF WATER ON ANY ROAD OR PARKING AREA.
- ANY UTILITIES TO BE PLACED UNDER EXISTING STREETS SHALL BE JACK AND BORED UNLESS MODIFIED BY PERMIT.
- ANY DAMAGE TO EXISTING STREETS DUE TO THIS DEVELOPMENT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER.
- POSTED SPEED LIMIT ON CABIN ROAD, SE (ROUTE #2524) IS 25 MPH.
- NO RPA ON SITE.

**TEST PIT NOTES:**

PRIOR TO CONSTRUCTION OF UTILITIES, THE CONTRACTOR SHALL DIG TEST PITS AT ALL UTILITY CROSSINGS SHOWN BY THIS PLAN AND/OR SHOWN BY MISS UTILITY MARKINGS IN THE FIELD. IF THE TESTS REVEAL CONFLICTS WITH THE PROPOSED DESIGN, THE CONTRACTOR MUST NOTIFY THE OWNER AND TRI-TEK ENGINEERING IMMEDIATELY. ANY REDESIGN SHALL BE AT THE OWNERS' EXPENSE.

**SITE TABULATION:**

1. ZONE:	RS-10		
2. USE:	SINGLE-FAMILY, DETACHED		
3. LOT AREA:	0.51653 ACRES OR 22,500 SF		
4. BULK REGULATIONS		REQUIRED	PROVIDED
		LOT 1	LOT 2
FRONT YARD:	25'	26.0'	26.0'
SIDE YARD:	12'	12.8'	12.8'
REAR YARD:	35'	72.0'	72.0'
5. LOT COVERAGE:		LOT 1	LOT 2
MAXIMUM (25%):		2,812 SF	2,812 SF
PROPOSED:			
HOUSE:		2,316 SF	2,316 SF
DRIVEWAY:		448 SF	448 SF
TOTAL:		2,764 SF	2,764 SF
6. DECK COVERAGE:		LOT 1	LOT 2
MAXIMUM (5%):		562 SF	562 SF
PROPOSED:		216 SF	216 SF

**INSPECTION:**

- ALL CONSTRUCTION INVOLVING PROBLEM SOILS MUST BE PERFORMED UNDER THE FULL-TIME INSPECTION OF THE GEOTECHNICAL ENGINEER.
- THE GEOTECHNICAL ENGINEER SHALL FURNISH A WRITTEN OPINION TO THE TOWN AS TO WHETHER OR NOT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND HIS/HER RECOMMENDATIONS FOR WORK IN THE VICINITY OF THE UNITS TO BE OCCUPIED PRIOR TO THE ISSUANCE OF RESIDENTIAL OR NON-RESIDENTIAL USE PERMIT.
- FOR TYPE 'B' SOILS:
  - ENGINEERED FILL AND BACKFILL SHALL BE PLACED WITH APPROVED SELECT MATERIALS IN 8-INCH LIFTS. EACH LAYER OF FILL SHALL BE COMPACTED AT OPTIMUM MOISTURE PLUS OR MINUS 2% TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS OBTAINED IN ACCORDANCE WITH AASHTO T-99 OR ASTM D-698.
  - SUITABLE MATERIALS FOR FILL SHALL INCLUDE CLEAN SOIL OR BANKRUN SAND AND GRAVEL ('GW', 'GM' AND 'SM'), 'CL', 'ML', 'GC', AND 'SC' MATERIALS MAY BE USED IF THE LIQUID LIMIT AND PLASTICITY INDEX ARE LESS THAN 40 AND 20, RESPECTIVELY. 'MH' AND 'CH' SOILS SHALL NOT BE USED FOR FILL MATERIALS. THE FILL MATERIALS SHALL ALSO BE FREE FROM ORGANIC, TOPSOIL, AND ROCK FRAGMENTS LARGER THAN 3 INCHES IN DIAMETER.
  - ALL CONSTRUCTION INVOLVING PROBLEM SOILS SHALL BE PERFORMED UNDER THE FULL-TIME INSPECTION OF THE GEOTECHNICAL ENGINEER OF RECORD.

**CONSTRUCTION NOTES:**

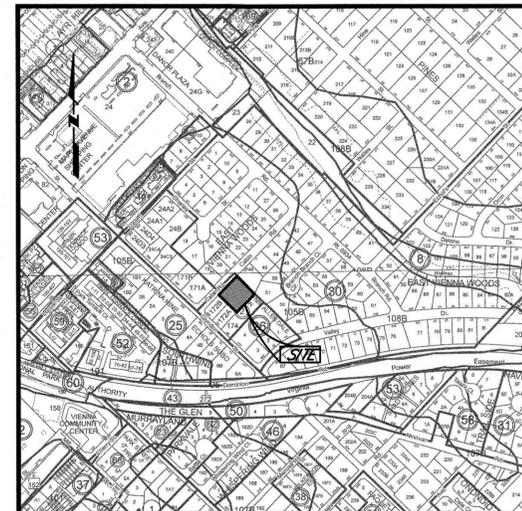
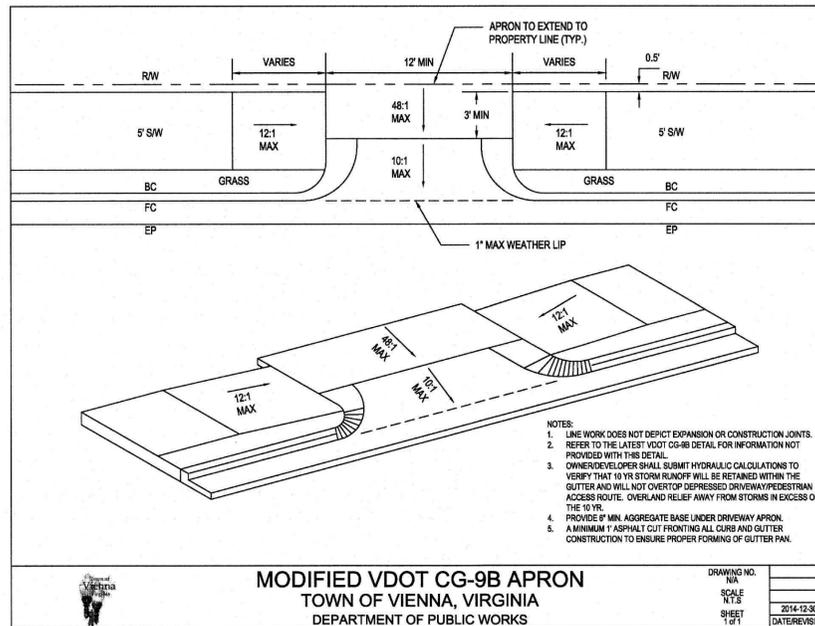
- SHEETING, SHORING AND FILLING
- SHEETING AND SHORING OR OTHER APPROVED METHODS FOR TRENCH BRACING MAY BE REQUIRED WITH THE CONSTRUCTION OF UNDERDRAIN OR UTILITY TRENCHES AND FOUNDATIONS.
  - ENGINEERED FILL AND BACKFILL AROUND STRUCTURES SHALL BE PLACED WITH APPROVED SELECTED MATERIALS AND UNIFORM COMPACTION THROUGHOUT MUST BE PROVIDED IN SIX- TO EIGHT-INCH LAYERS. EACH LAYER OF ENGINEERED FILL SHALL BE COMPACTED AT OPTIMUM MOISTURE, PLUS OR MINUS TWO PERCENT, TO A DENSITY OF NOT LESS THAN 95 PERCENT IN ACCORDANCE WITH A.A.S.H.T.O. T-99 OR A.S.T.M. D-698. "MARINE" CLAYS SHALL NOT BE PERMITTED AS BACKFILL AROUND STRUCTURES OR BEHIND RETAINING WALLS.

**LOT SHAPE FACTOR TABLE**

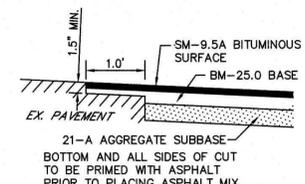
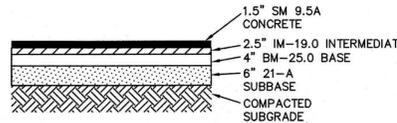
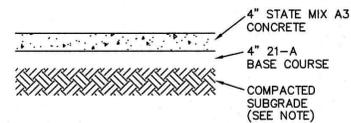
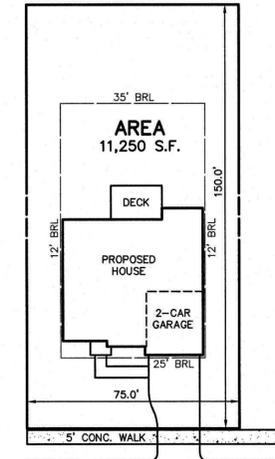
LOT NO.	AREA	PERIMETER	FACTOR	WIDTH
LOT 1	11,250 S.F.	450.00 L.F.	18.00	75.00'
LOT 2	11,250 S.F.	450.00 L.F.	18.00	75.00'

**TOWN OF VIENNA GENERAL NOTES**

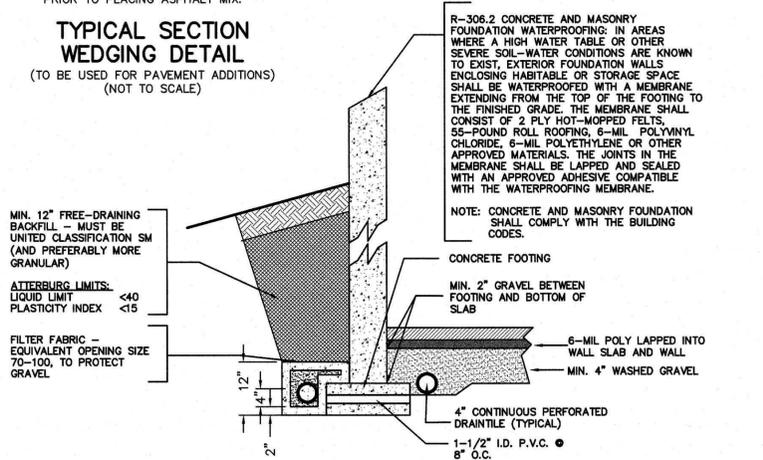
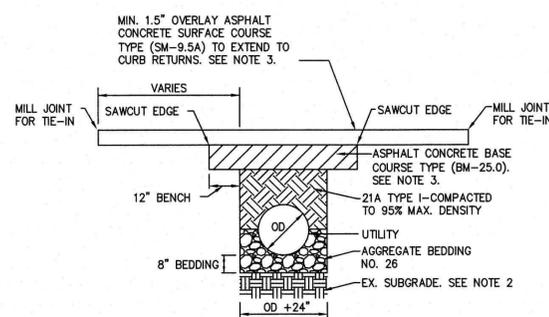
- A PRE-CONSTRUCTION MEETING MUST BE HELD PRIOR TO THE START OF CONSTRUCTION. CALL 703-255-6384 TO SCHEDULE THE PRE-CONSTRUCTION MEETING.
- ALL CONSTRUCTION GENERATED DEBRIS MUST BE HAULED AWAY BY THE CONTRACTOR OR OWNER.
- PRIOR TO THE REMOVAL OF ANY TOWN TREES (TREES WITHIN THE RIGHT OF WAY), THE APPLICANT OR THEIR REPRESENTATIVE SHALL CONTACT THE TOWN OF VIENNA ARBORIST AT 703-255-6360 TO COORDINATE HAVING THE TOWN ARBORIST ON SITE 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.



SOIL NO	SOIL NAME	PROBLEM CLASS	FOUNDATION SUPPORT	EROSION POTENTIAL
105B	WHEATON GLENELG COMPLEX	IVB	GOOD	HIGH



- COMPACTION NOTES:**
- SUBBASE DEPTH BASED ON A CBR OF 6. SOIL TESTS ON SUBGRADE WILL BE PERFORMED FOR ACTUAL DETERMINATION OF REQUIRED THICKNESS PRIOR TO PLACEMENT OF SUBGRADE.
  - SUBBASE TO BE COMPACTED TO 95% MAX. DRY DENSITY, WITHIN 20% OF THE OPTIMUM MOISTURE CONTENT (AASHTO T-99).



- BACKFILL NOTE:**  
 FOUNDATION WALL BACKFILL MATERIAL SHALL BE CLEAN SAND OR GRAVEL OR A MIXTURE OF THESE GRANULAR SOILS. THE BACKFILL SHALL BE FREE-DRAINING, GENERALLY FROST FREE, FREE FROM ORGANIC MATTER, CONSTRUCTION DEBRIS, LARGE ROCKS OR OTHER UNSUITABLE MATERIALS. PLACEMENT OF WALL BACKFILL SHALL BE IN APPROVED LAYERS AND COMPACTED IN ACCORDANCE WITH THE BUILDING CODES.
- NOTE:** SPECIFIC INDIVIDUAL DESIGN REQUIRED IN SOIL WITH SEVERE GROUNDWATER CONDITIONS AND CRETACEOUS-AGE DELTAIC SILTS AND CLAYS (MARINE CLAY).
- OBJECTIVE:** TO REDUCE THE RISK OF WET BASEMENTS AND RELIEVE PRESSURE FROM WATER ON THE FOUNDATION.
- METHOD OF DISCHARGE:** DISCHARGE FOR FOUNDATION DRAINS SHALL BE TO DAYLIGHT BY GRAVITY. WHERE THE FOUNDATION DRAIN IS CONNECTED TO A STORM SEWER STRUCTURE, THE HYDRAULIC GRADIENT FOR THE 100-YEAR STORM MUST BE BELOW THE LOWEST FLOOR ELEVATION AT THE POINT OF CONNECTION TO PRECLUDE BASEMENT FLOODING FROM THE STORM SEWER SYSTEM. DISCHARGE BY MECHANICAL MEANS IS ACCEPTABLE ONLY WHEN GRAVITY DISCHARGE IS NOT POSSIBLE.
- HOUSE GRADING PLANS** SHALL SHOW THE LOCATION OF THE FOUNDATION DRAINS AND THE APPROXIMATE LOCATION OF THE FOUNDATION DRAIN DISCHARGE. ROOF DRAINS MUST DISCHARGE BEYOND LIMITS OF EXCAVATION FOR FOUNDATION WALLS.

**TRI-TEK Engineering**

CIVIL ENVIRONMENTAL LAND PLANNING SURVEYING

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COMMONWEALTH OF VIRGINIA  
 THODORE D. BRUY  
 Lic. No. 028805  
 PROFESSIONAL ENGINEER

ADDITION TO THE JENNIE LYNN DIVISION

FAIRFAX COUNTY, VIRGINIA  
 TOWN OF VIENNA

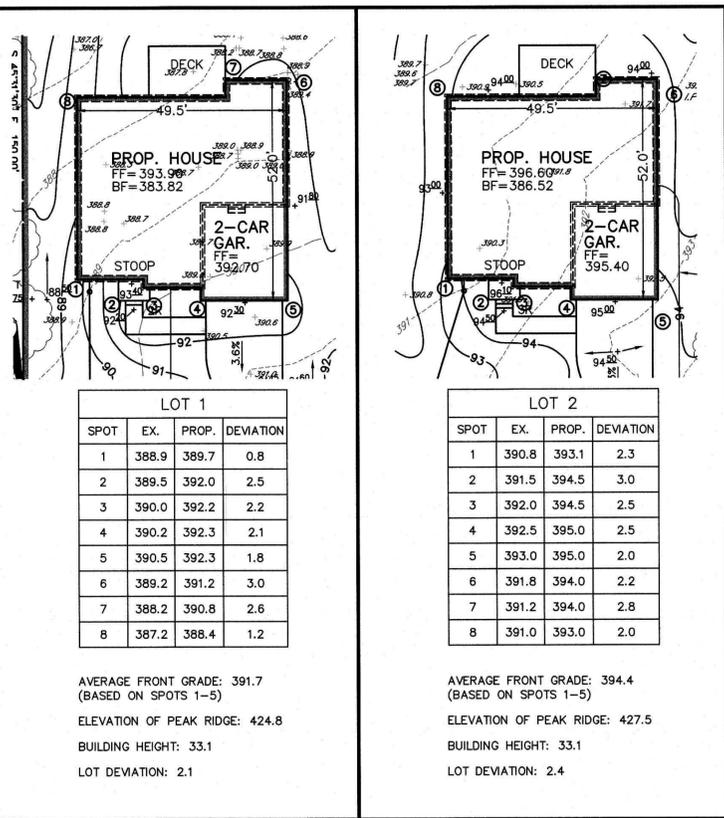
GENERAL NOTES AND DETAILS

DATE	REVISION	PER TOWN OF VIENNA COMMENTS	PER TOWN OF VIENNA COMMENTS
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10.30.18			

PM: TDB SCALE: AS SHOWN  
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 CO: MSO SHEET 2 OF 17



HOUSE HEIGHT CALCULATIONS



SANITARY SEWER NOTES:

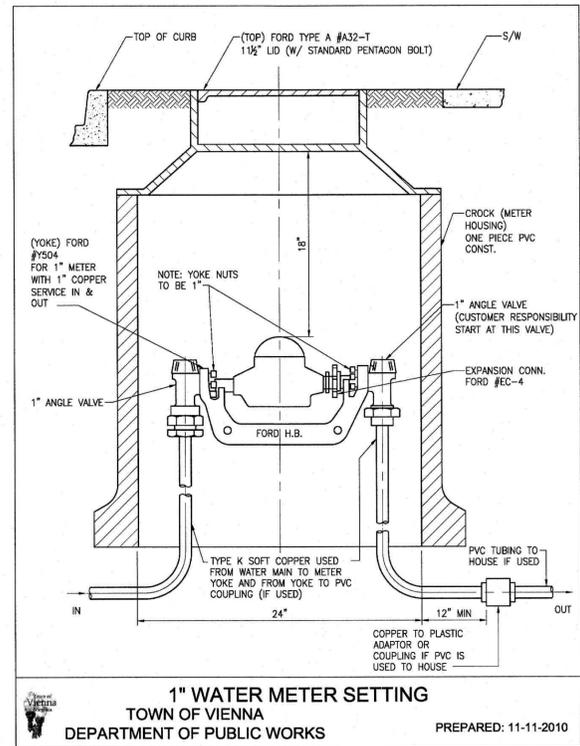
- APPLICANT WILL LINE THE EXISTING SANITARY SEWER LINE IF DEEMED NECESSARY BY TOWN DURING INSPECTION UP TO THE NEXT DOWNSTREAM SANITARY MANHOLE.
- PER SECTION 715.1 SEWAGE BACKFLOW, WHERE PLUMBING FIXTURES ARE INSTALLED ON A FLOOR WITH A FINISHED FLOOR ELEVATION BELOW THE ELEVATION OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER, SUCH FIXTURES SHALL BE PROTECTED BY A BACKWATER VALVE INSTALLED IN THE BUILDING DRAIN, OR HORIZONTAL BRANCH SERVING SUCH FIXTURES. PLUMBING FIXTURES INSTALLED ON A FLOOR WITH A FINISHED FLOOR ELEVATION ABOVE THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER SHALL NOT DISCHARGE THROUGH A BACKWATER VALVE.
- PER SECTION 715.2 MATERIAL, ALL BEARING PARTS OF BACKWATER VALVES SHALL BE OF CORROSION-RESISTANT MATERIAL. BACKWATER VALVES SHALL COMPLY WITH ASME A112.41.1, CSA B181.1 OR CSA B181.2.
- EXISTING SEWER MAIN TO BE LINED BASED ON TOWN INSPECTION.
- PER SECTION 715.3 SEAL, BACKWATER VALVES SHALL BE SO CONSTRUCTED AS TO PROVIDE A MECHANICAL SEAL AGAINST BACKFLOW.
- PER SECTION 715.4 DIAMETER, BACKWATER VALVES, WHEN FULLY OPEN, SHALL HAVE A CAPACITY OF NOT LESS THAN THAT OF THE PIPES IN WHICH THEY ARE INSTALLED.
- PER SECTION 715.5 LOCATION, BACKWATER VALVES SHALL BE INSTALLED SO THAT ACCESS IS PROVIDED TO THE WORKING PARTS FOR SERVICE AND REPAIR.

WATER SERVICE NOTES:

- ALL WATER SERVICE LINES WILL BE 1 INCH.
- NEW WATER METERS WILL BE 1 INCH. SEE DETAIL THIS SHEET.
- EXISTING WATER SERVICE TO BE CUT AND CRIMPED AT THE WATER MAIN. THE EXISTING CORPORATION STOP MUST BE TURNED OFF.

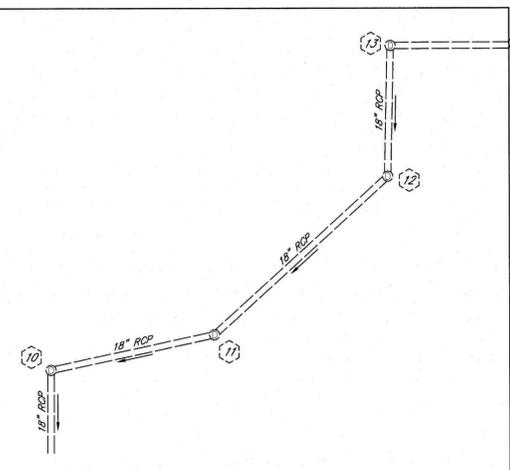
LOT NO.	FROM	TO	STATION	LAT. SIZE (IN.)	MAIN SIZE (IN.)	INV. @ MAIN	LAT. INV. @ MAIN	SLOPE (FT./FT.)	LENGTH MAIN TO C/O (FT.)	INV. @ C/O
1	A	B	2+26	4	8	381.91	382.58	0.0104	53	383.13
2	A	B	2+94	4	8	383.62	384.29	0.0104	55	384.86

NOTE: ABANDON EXISTING LATERAL THAT SERVES EXISTING DWELLING.



1" WATER METER SETTING

TOWN OF VIENNA  
DEPARTMENT OF PUBLIC WORKS  
PREPARED: 11-11-2010



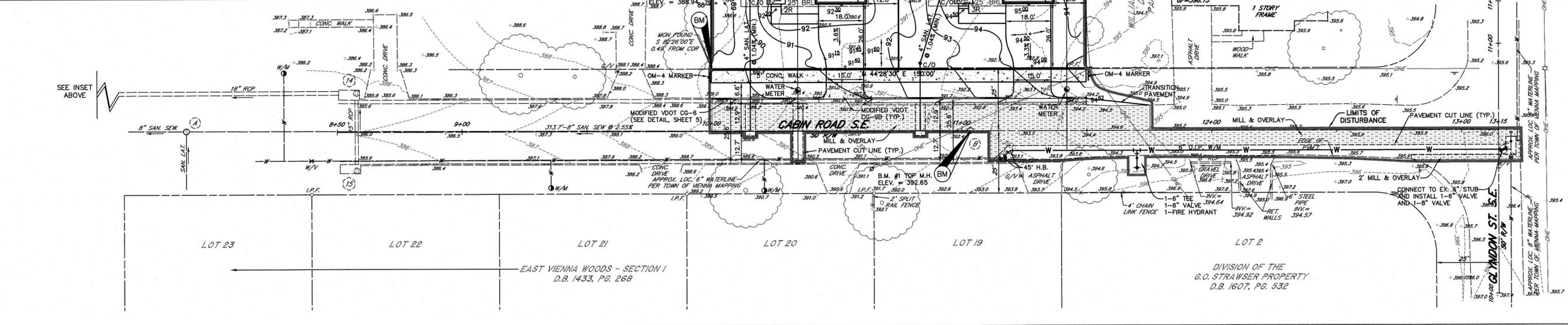
SEE PLAN BELOW

EX. STORM SEWER DATA:

- EX. 10 CURB INLET  
TOP = 382.70  
INV. IN = 375.29  
INV. OUT = 375.20
- EX. 11 CURB INLET  
TOP = 382.83  
INV. IN = 376.23  
INV. OUT = 376.31
- EX. 12 CURB INLET  
TOP = 381.94  
INV. IN = 377.24  
INV. OUT = 377.04
- EX. 13 CURB INLET  
TOP = 381.83  
INV. IN = 378.03  
INV. OUT = 377.83
- EX. 14 CURB INLET  
TOP = 383.81  
INV. IN = 381.71  
INV. OUT = 381.31
- EX. 15 CURB INLET  
TOP = 385.87  
INV. OUT = 381.87

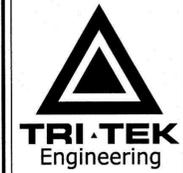
EX. SANITARY SEWER DATA:

- EX. A MANHOLE  
TOP = 385.44  
INV. IN = 376.59 (LATERAL)  
INV. IN = 376.14 (FROM B)  
INV. OUT = 375.86
- EX. B MANHOLE  
TOP = 382.65  
INV. OUT = 384.15

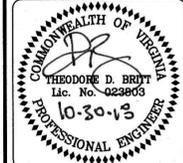


LEGEND

- SIGN
- GUY WIRE
- POWER POLE
- GAS VALVE
- WATER METER
- WATER VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- FENCE
- OVERHEAD ELECTRIC
- WATERLINE
- CURB & GUTTER
- SOIL BORING



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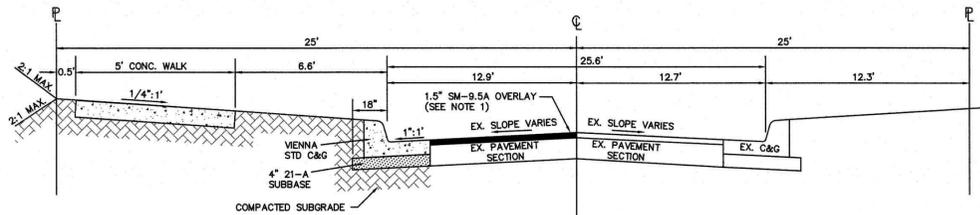
ADDITION TO THE JENNIE LYNN DIVISION  
TOWN OF VIENNA, VIRGINIA  
FAIRFAX COUNTY, VIRGINIA

GRADING PLAN

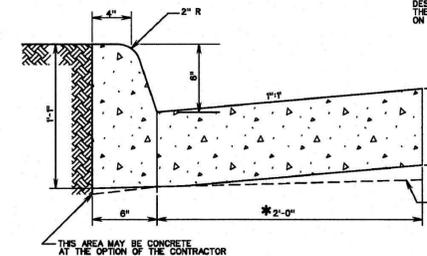
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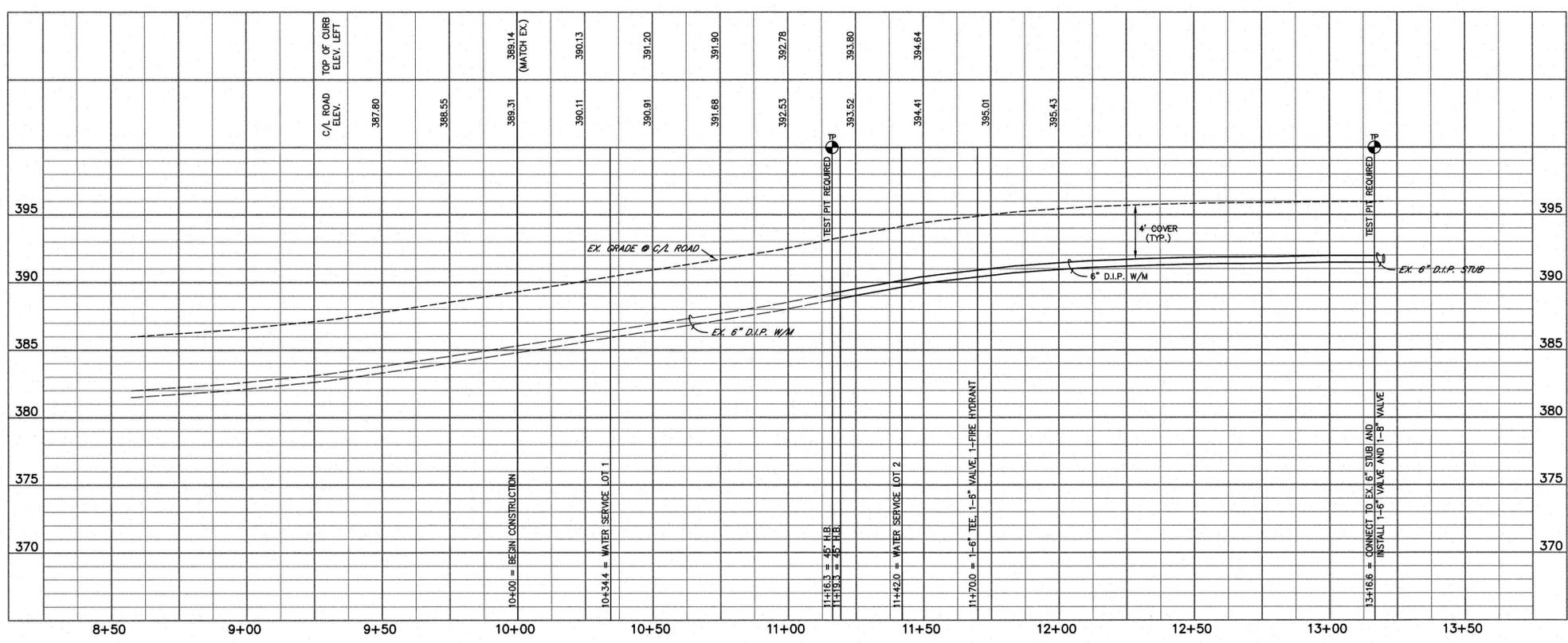
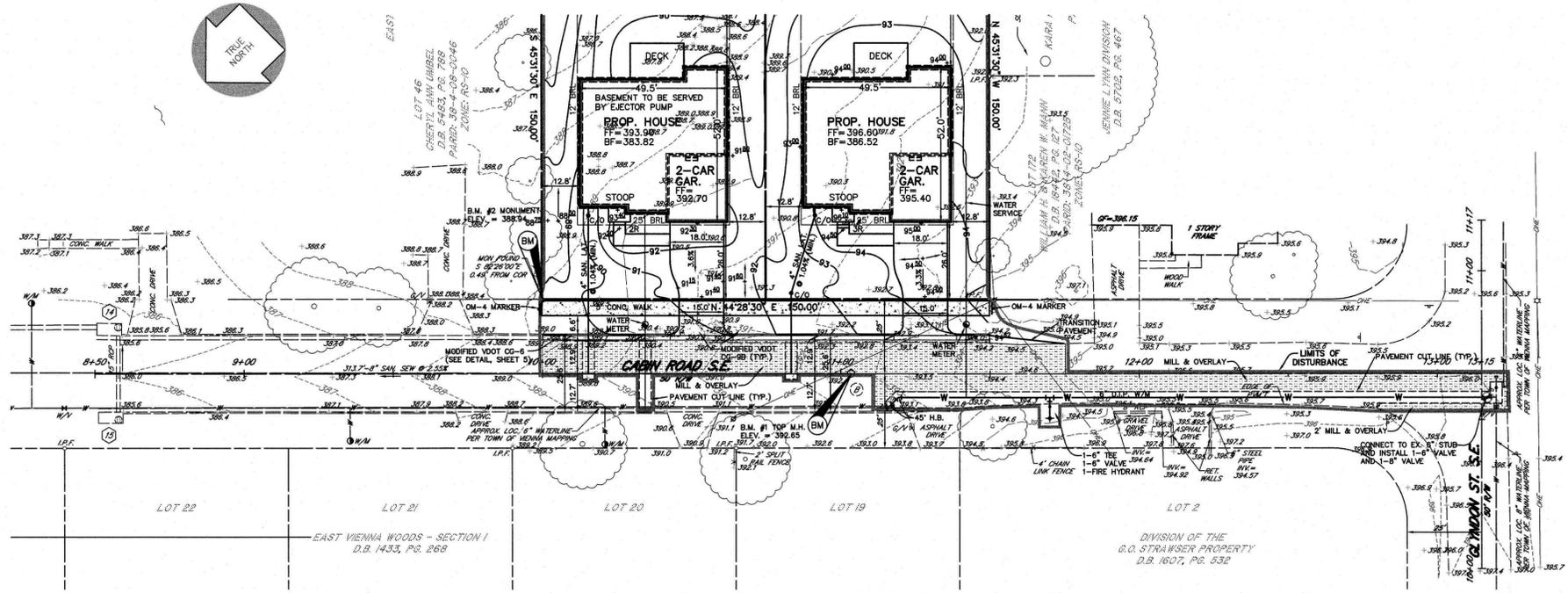
- COMPACTION NOTE:  
SUBGRADE TO BE COMPACTED TO A MINIMUM 95% MAX. DRY DENSITY WITHIN 20% OF THE OPTIMUM MOISTURE CONTENT (AASHTO T-99).
- NOTES:  
1. CONTRACTOR TO MILL MIN. 1.5\"/>



- NOTES:  
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.  
2. CONCRETE TO BE CLASS AS IF CAST IN PLACE, 4000 PSI # 4 PRECAST.  
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 200 FEET OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIUS COMBINATION CURB & GUTTER.  
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB & GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES AND TO THE DEPTH OF THE PAVEMENT.  
5. ALLOWABLE CRITERIA FOR THE USE OF CO-6 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE ROAD DESIGN MANUAL IN THE SECTION ON US URBAN STANDARDS.

\*NOTE: GUTTER PAN SHALL BE 18\"/>

SPECIFICATION REFERENCE	105 502	COMBINATION 6" CURB AND GUTTER	VDOT ROAD AND BRIDGE STANDARDS REVISION DATE	SHEET 1 OF 1 201.03
-------------------------	------------	--------------------------------	--	------------------------



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ADDITION TO THE  
JENNIE LYNN DIVISION

FAIRFAX COUNTY, VIRGINIA  
TOWN OF VIENNA

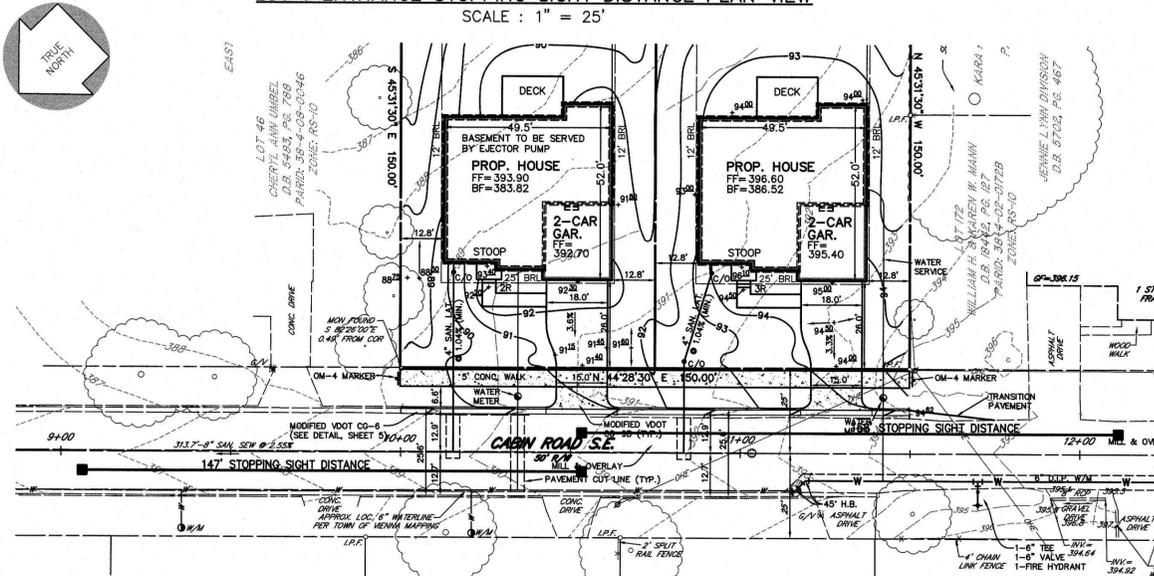
CABIN ROAD, S.E.  
PLAN & PROFILE

DATE	REVISION	PER TOWN OF VIENNA COMMENTS
10.04.18	1	
10.30.18	2	

PM: TDB SCALE: V. 1"=5'  
H. 1"=25'  
PE: TDB DATE: 06.19.18  
CO: MSO SHEET 5 OF 17

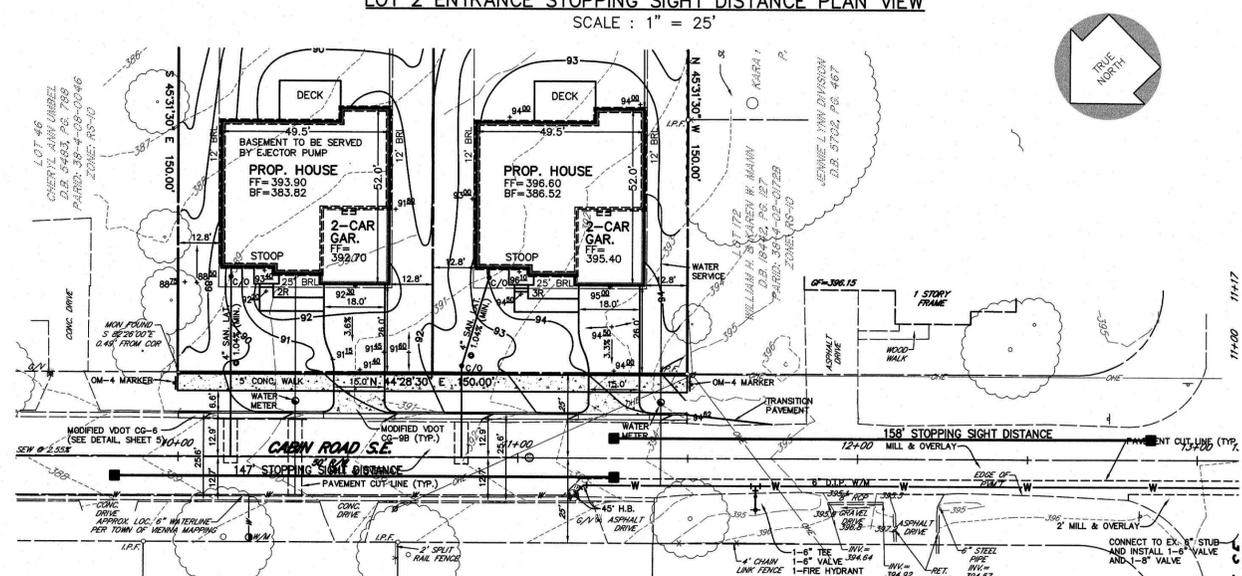
LOT 1 ENTRANCE STOPPING SIGHT DISTANCE PLAN VIEW

SCALE : 1" = 25'



LOT 2 ENTRANCE STOPPING SIGHT DISTANCE PLAN VIEW

SCALE : 1" = 25'

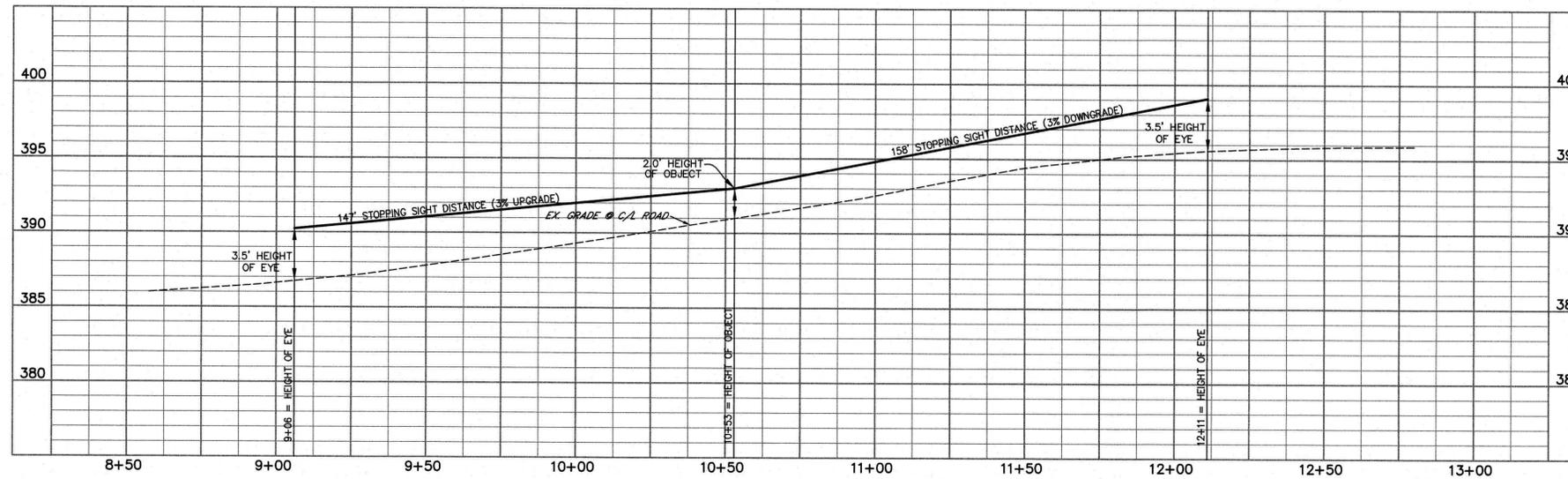


LOT 1 ENTRANCE STOPPING SIGHT DISTANCE PROFILE VIEW

CABIN ROAD, S.E.

POSTED SPEED LIMIT = 25 MPH

SCALE : 1" = 25' (H); 1" = 5' (V)

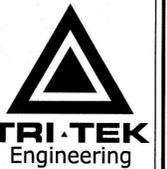
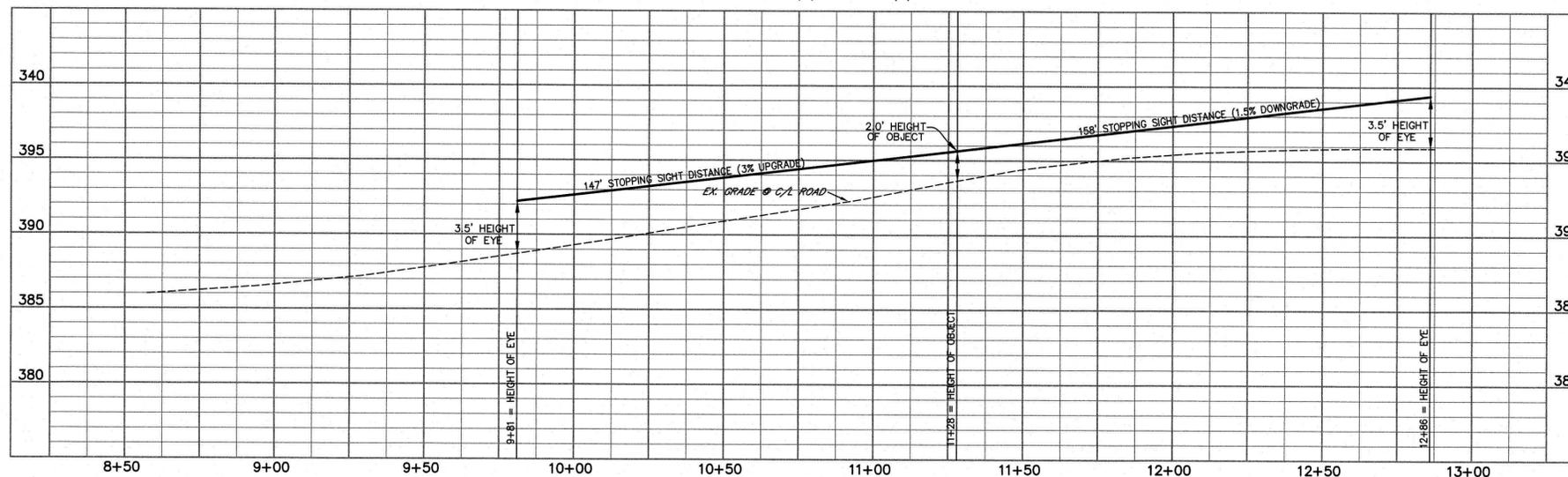


LOT 2 ENTRANCE STOPPING SIGHT DISTANCE PROFILE VIEW

CABIN ROAD, S.E.

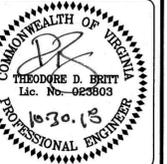
POSTED SPEED LIMIT = 25 MPH

SCALE : 1" = 25' (H); 1" = 5' (V)



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ADDITION TO THE JENNIE LYNN DIVISION ROAD, S.E.

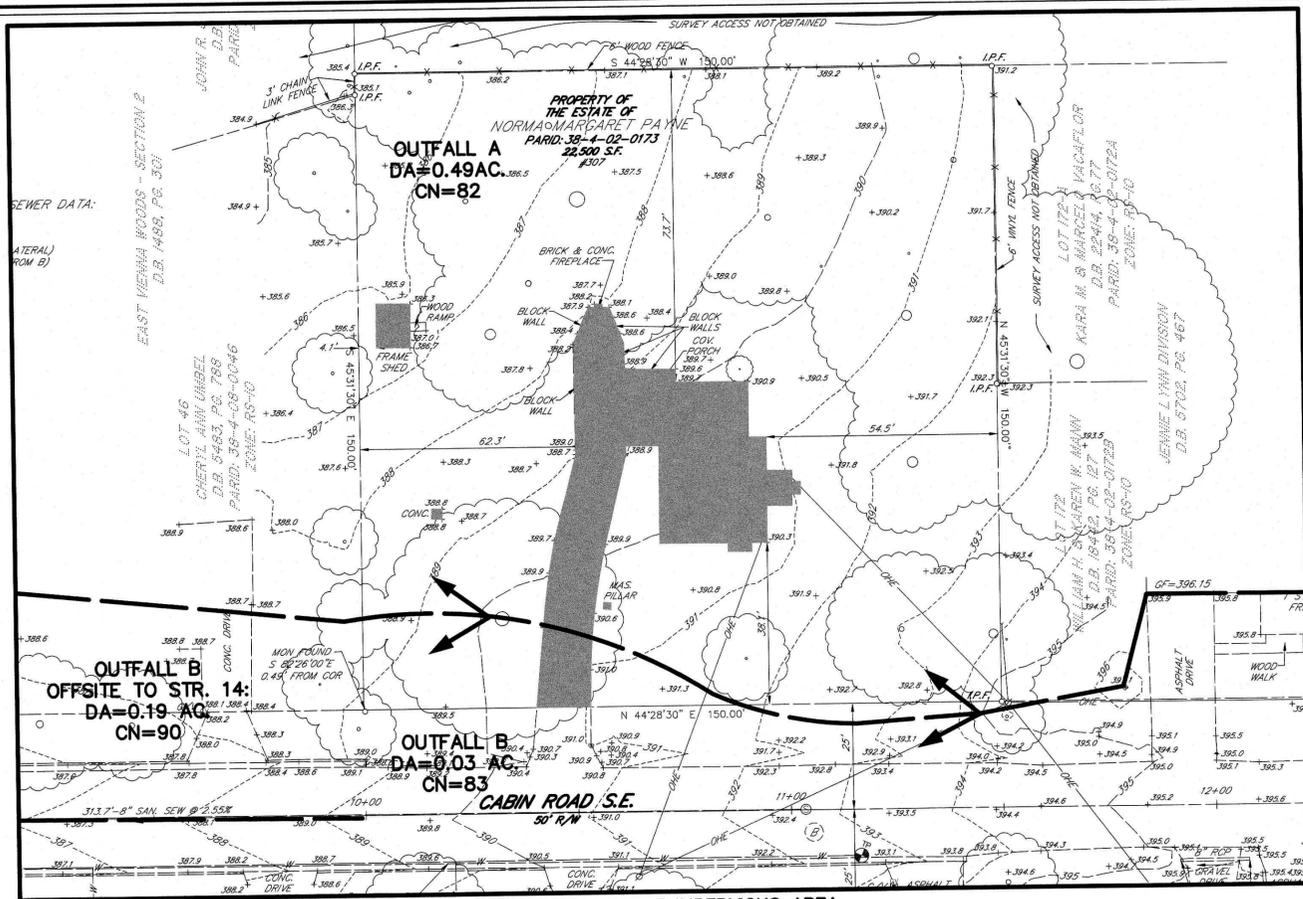
FAIRFAX COUNTY, VIRGINIA

TOWN OF VIENNA

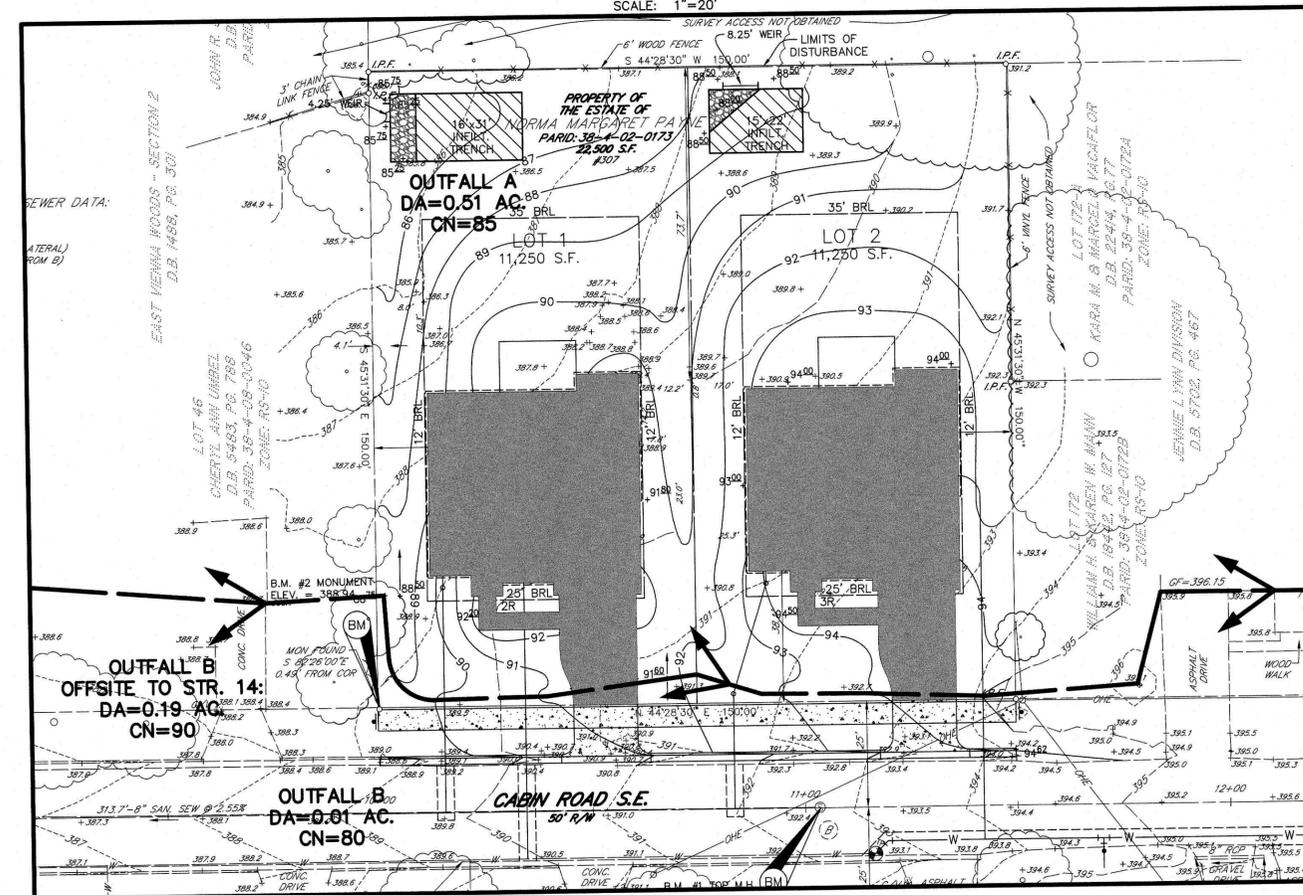
STOPPING SIGHT DISTANCE CABIN ROAD, S.E.

DATE	REVISION	PER TOWN OF VIENNA COMMENTS:
10-30-18		
10-30-18		

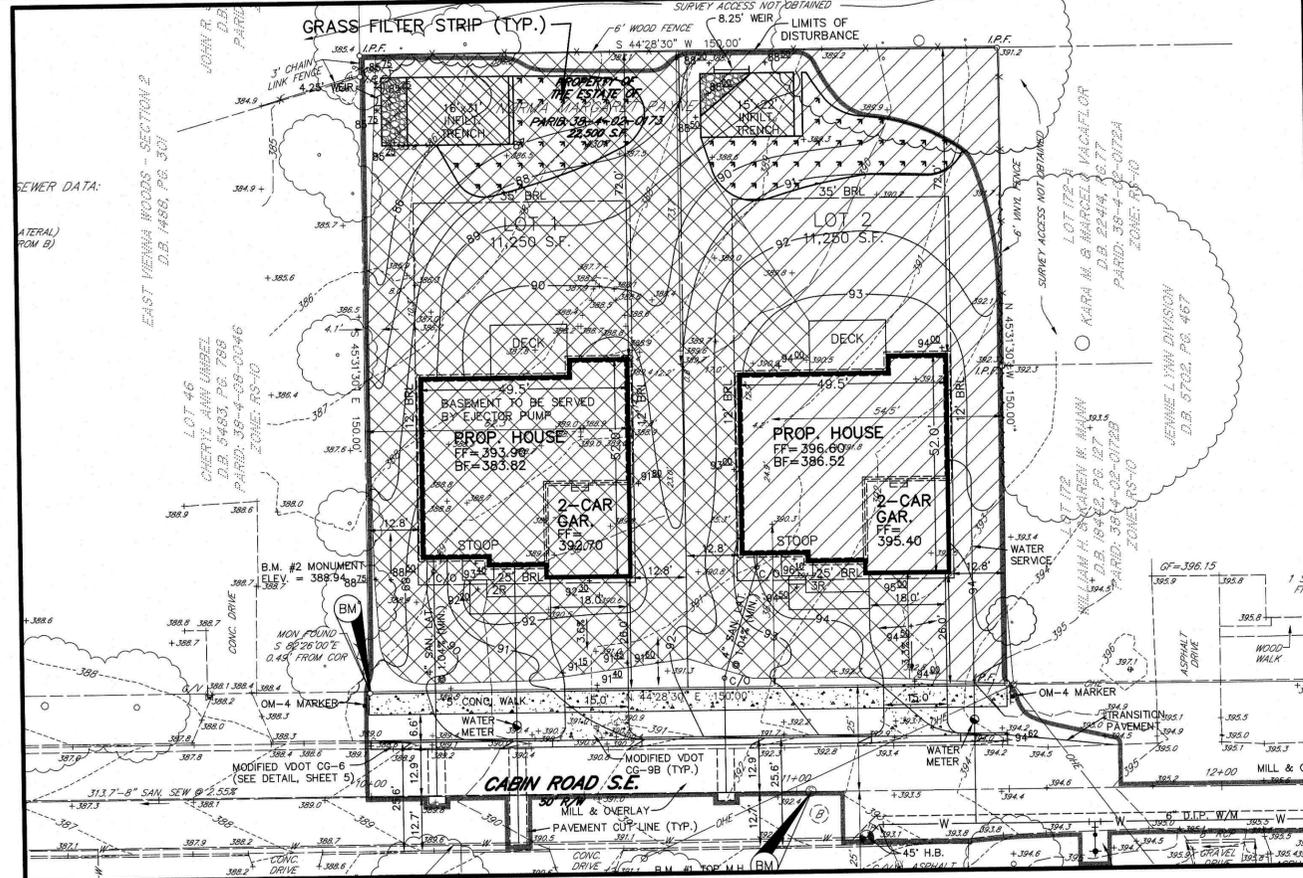
PM: IDB SCALE: 1/4" = 1'-0" PE: IDB DATE: 06.19.18 CO: MSO SHEET 8 OF 17



**PRE-DEVELOPMENT IMPERVIOUS AREA & OUTFALL DIVIDES**  
2,317 S.F.  
SCALE: 1"=20'



**POST DEVELOPMENT IMPERVIOUS AREA & OUTFALL DIVIDES**  
5,780 S.F.  
SCALE: 1"=20'



**SWM BMP MAP**  
1"=20'

ONSITE IMPERVIOUS AREA TABULATION		
	EXISTING	PROPOSED
BUILDINGS & OVERHANGS	1,113 SF	4,632 SF
ASPHALT PAVEMENT/DRIVEWAYS	713 SF	897 SF
CONC./PATIOS/CARPORT	454 SF	251 SF
RETAINING WALLS/MISC.	37 SF	0 SF
<b>TOTAL</b>	<b>2,317 SF</b>	<b>5,780 SF</b>
	0.05 AC.	0.13 AC.

DA.A TO IT1 = 0.32 AC.  
DA.B TO IT2 = 0.19 AC.

SEE SHEETS 10 & 11 FOR VRRM CALCULATIONS.

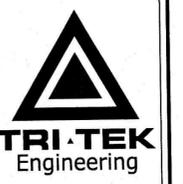
NOTE: ROOF DRAINS WILL BE PROVIDED WITH THE FINAL LOT GRADING PLANS TO DIVERT ROOF DRAINAGE TO THE TRENCHES AS NECESSARY.

**BMP NARRATIVE:**

THE PROPOSED DEVELOPMENT WILL RESULT IN AN INCREASE IN THE IMPERVIOUS AREAS ON THE SITE AND IS CONSIDERED A REDEVELOPMENT PER THE STATE STORMWATER ORDINANCE. THE RUNOFF REDUCTION METHODOLOGY (VRRM) HAS BEEN USED TO CONFIRM THE PROPOSED ONSITE BMP FACILITIES ADEQUATELY MEET THE PHOSPHORUS REMOVAL REQUIREMENTS.

THE VRRM COMPUTATIONS PROVIDED ON SHEETS 10 & 11 OF THIS PLAN VERIFY COMPLIANCE WITH TOWN OF VIENNA STANDARDS, AS EFFECTIVE ON JULY 1, 2014. FOR A SITE AREA OF 0.52 ACRES, 0.17 LBS/YEAR OF PHOSPHORUS LOAD REDUCTION IS REQUIRED AND THE PROPOSED BMP FACILITIES (INFILTRATION TRENCHES) EXCEED THE REQUIRED 0.17 LBS/YEAR REDUCTION.

AS SUCH, IT IS OUR OPINION THAT BMP REQUIREMENTS PER THE RUNOFF REDUCTION METHOD HAVE BEEN MET.



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**ADDITION TO THE JENNIE LYNN DIVISION**  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA

**IMPERVIOUS AREA ANALYSIS & BMP MAP**

DATE	REVISION	PER TOWN OF VIENNA COMMENTS:
10.04.18		
10.30.18		

PM: TDB SCALE: AS SHOWN  
PE: TDB DATE: 06.19.18  
CO: MSO SHEET 7 OF 17

**SECTION 8: CONSTRUCTION**

**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 SUPER 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 WITH THE SIDES OF INFILTRATION TRENCHES TO PREVENT PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. WHEN LAYING OUT 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.

**SECTION 9: MAINTENANCE**

**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 VSPM AUTHORITY AND SETS FORTH INSPECTION REQUIREMENTS, COMPLIANCE PROCEDURES IF MAINTENANCE IS NEGLECTED, NOTIFICATION OF THE LOCAL PROGRAM UPON TRANSFER OF OWNERSHIP, AND HIGH-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 VSPM 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 DRAINAGE 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 AND 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.

BASED ON INSPECTION RESULTS, SPECIFIC MAINTENANCE TASKS WILL BE TRIGGERED. EXAMPLE MAINTENANCE INSPECTION CHECKLISTS FOR INFILTRATION PRACTICES CAN BE ACCESSSED IN APPENDIX C OF CHAPTER 9 OF THE "VIRGINIA STORMWATER MANAGEMENT HANDBOOK (2010)"

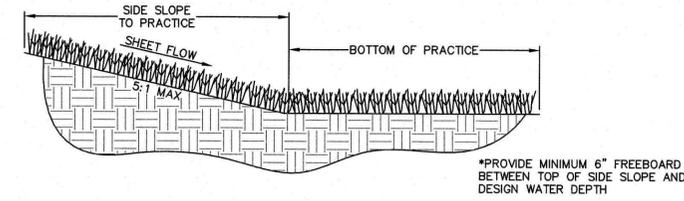
**9.3. ONGOING MAINTENANCE**

EFFECTIVE LONG-TERM OPERATION OF INFILTRATION PRACTICES REQUIRED A DEDICATED AND ROUTINE MAINTENANCE INSPECTION SCHEDULE WITH CLEAR GUIDELINES AND SCHEDULES, AS SHOWN IN TABLE 8.9 BELOW. WHERE POSSIBLE, FACILITY MAINTENANCE SHOULD BE INTEGRATED INTO ROUTINE LANDSCAPING MAINTENANCE TASKS.

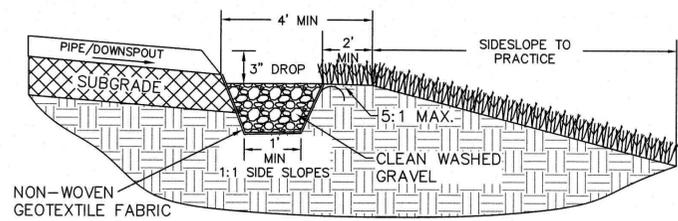
Table 8.9. Typical Maintenance Activities for Infiltration Practices

Maintenance Activity	Schedule
• Replace pea gravel/topsoil and top surface filter fabric (when clogged).	As needed
• Mow vegetated filter strips as necessary and remove the clippings.	As needed
• Ensure that the contributing drainage area, inlets, and facility surface are clear of debris.	Quarterly
• Ensure that the contributing drainage area is stabilized.	Quarterly
• Remove sediment and oil/grease from pre-treatment devices, as well as from overflow structures.	Quarterly
• Repair undercut and eroded areas at inflow and outflow structures.	Quarterly
• 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.	Semi-annual inspection
• Inspect pre-treatment devices and diversion structures for sediment buildup and structural damage.	Semi-annual inspection
• Remove trees that start to grow in the vicinity of the infiltration facility.	Annually
• Clean out accumulated sediments from the pre-treatment cell.	Annually

DRAINAGE AREA (Infiltration Trench)		IT1	IT2
<b>Time Of Concentration</b>			
Used	(min.)	5	5
Travel Time (Tt)	(hr)	0.10	0.10
Impervious	(ac.)	0.07	0.06
Lawn - D Soils	(ac.)	0.25	0.13
<b>Total Area</b>	<b>(ac.)</b>	<b>0.32</b>	<b>0.19</b>
<b>Runoff Curve Number</b>			
Impervious		98	98
Lawn - D Soils		80	80
<b>Weighted Runoff Curve Number</b>		<b>84</b>	<b>86</b>
Area	(ac.)	0.32	0.19
S	(in.)	1.90	1.63
Initial Abstraction (Ia)	(in.)	0.381	0.326
<b>SWM Storm Peak Flow</b>			
SWM Precipitation (P)	(in.)	1.65	1.65
Ia/P		0.23	0.20
Runoff (Q)	(in.)	0.51	0.59
Unit Peak Discharge (qu)	(cfs/in/ac)	1.33	1.33
Pond/Swamp Percentage	%	0.00	0.00
Pond/Swamp Flow Adjustment		1.00	1.00
SWM Flow	(cfs)	0.22	0.15
<b>TOTAL SWM Flow</b>	<b>(cfs)</b>	<b>0.37</b>	

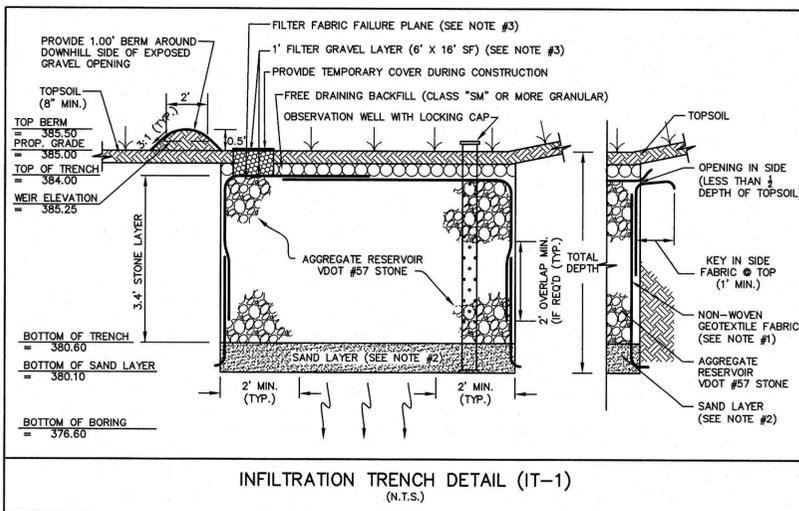


GRASS FILTER FOR SHEET FLOW (N.T.S.)

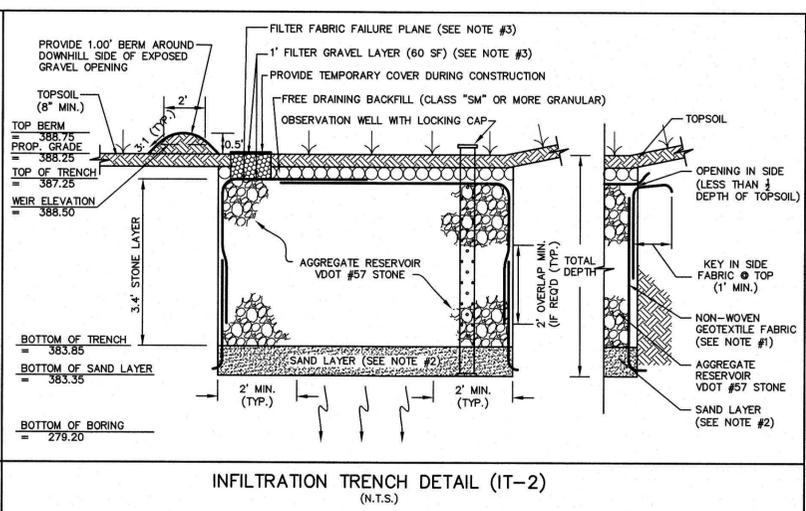


GRAVEL DIAPHRAGM (N.T.S.)

INFILTRATION TRENCH LOCATION TABLE		
FACILITY	LATITUDE	LONGITUDE
IT1	38.902554 N	77.256328 W
IT2	38.902409 N	77.256487 W



INFILTRATION TRENCH DETAIL (IT-1) (N.T.S.)



INFILTRATION TRENCH DETAIL (IT-2) (N.T.S.)

- INFILTRATION TRENCH NOTES:**
1. USE NON-WOVEN GEOTEXTILE FABRIC WITH AOS OF 70-100 US SIEVE OR 0.2mm - 0.15mm AS DETERMINED BY ASTM D4751 AND A TRAPEZOIDAL TEAR STRENGTH OF 45 LBS OR 0.2 KN AS DETERMINED BY ASTM D4533.
  2. AN 8-IN. DEEP BOTTOM SAND LAYER (VDOT FINE AGGREGATE, GRADING A OR B) IS REQUIRED.
  3. FOR AN AGGREGATE SURFACE TRENCH, FILTER FABRIC SHALL SURROUND ALL OF THE AGGREGATE FILL MATERIAL EXCEPT THE TOP ONE FOOT. A SEPARATE PIECE OF FABRIC SHALL BE USED FOR THE TOP LAYER TO ACT AS A FAILURE PLANE. THIS TOP PIECE CAN THEN BE REMOVED AND REPLACED UPON CLOGGING.
  4. GEOTEXTILE FABRIC SHALL NOT BE EXPOSED TO DIRECT SUNLIGHT FOR MORE THAN 24 HOURS PRIOR TO INSTALLATION.
  5. OBSERVATION WELLS SHALL BE INSTALLED IN ACCORDANCE WITH BMP CLEARINGHOUSE FIGURE 8.3. OBSERVATION WELL SHALL HAVE SCREW OR FLANGE TYPE CAP AND BE ANCHORED TO A FOOTPLATE AT BOTTOM OF TRENCH.
  6. NO GROUNDWATER OR ROCK WAS ENCOUNTERED IN THE TEST BORINGS.

- PRETREATMENT TECHNIQUES**
- THE FOLLOWING PRETREATMENT TECHNIQUES ARE UTILIZED ON EACH INFILTRATION TRENCH:
1. GRASS FILTER STRIP
  2. GUTTER LEAF SCREENS
  3. GRAVEL DIAPHRAGM AT DOWNSPOUT DISCHARGE POINTS

- INFILTRATION TRENCH MAINTENANCE NOTES:**
1. THE PROPOSED INFILTRATION TRENCH SHALL BE PRIVATELY MAINTAINED.
  2. A STORMWATER MANAGEMENT/BMP FACILITY MAINTENANCE AGREEMENT WILL BE COMPLETED AND RECORDED IN FAIRFAX COUNTY LAND RECORDS PRIOR TO PLAN APPROVAL.

**INFILTRATION TRENCH DESIGN (IT-1):**  
(PER VA DCR STORMWATER DESIGN SPECIFICATION NO. 8)

**MAXIMUM DEPTH OF FACILITY (UNDERGROUND RESERVOIR):**  
 $Q_{MAX} = [(0.5 \cdot f) \cdot A] / n$   
 $Q_{MAX} = [(0.5 \cdot 5.4 \text{ FT}/\text{DAY}) \cdot 2 \text{ DAYS}] / 0.40$   
 $Q_{MAX} = 13.5 \text{ FT}$

FOR SMALL SCALE INFILTRATION d LIMITED TO 3.4 FT.

**SURFACE AREA (BMP):**  
 $TV_{BMP} = (1.1) \cdot (R_v) \cdot (A) / 12$   
 $TV_{BMP} = (1.1) \cdot (0.40) \cdot (0.32 \text{ AC} \cdot 43,560 \text{ SF}) / 12$   
 $TV_{BMP} = 511 \text{ CF}$

$SA = TV_{BMP} / (n \cdot d + 0.5 \cdot f \cdot t_d)$   
 $SA = 511 \text{ CF} / (0.40 \cdot 3.4 \text{ FT} + 0.5 \cdot 5.4 \text{ FT}/\text{DAY} \cdot 0.083 \text{ DAY})$   
 $SA = 323 \text{ SF}$

**WATER QUANTITY DETENTION:**  
 $TV_{SWM} = (1.65) \cdot (R_v) \cdot (A) / 12$   
 $TV_{SWM} = (1.65) \cdot (0.40) \cdot (0.32 \text{ AC} \cdot 43,560 \text{ SF}) / 12$   
 $TV_{SWM} = 767 \text{ CF}$

$SA = TV_{SWM} / (n \cdot d + 0.5 \cdot f \cdot t_d)$   
 $SA = 767 \text{ CF} / (0.40 \cdot 3.4 \text{ FT} + 0.5 \cdot 5.4 \text{ FT}/\text{DAY} \cdot 0.083 \text{ DAY})$   
 $SA = 484 \text{ SF}$

SA PROVIDED: 496 SF

**FACILITY DRAIN TIME (PEM 6-1303.5D):**  
 $t_d = V_s / [(K_s \cdot A_s) / 12 + 3,600 \cdot Q_u]$   
 $t_d = 675 / [(2.7 \text{ IN}/\text{HR}) / 2 \cdot (496 \text{ SF}) / 12 + 0]$   
 $t_d = 12.1 \text{ HRS}$

$V_s = SA \cdot d \cdot n$   
 $V_s = (496 \text{ SF}) \cdot (3.4 \text{ FT}) \cdot (0.40)$   
 $V_s = 675 \text{ CF}$

**WEIR CALCULATION**

$Q_{100 \text{ YR } 24 \text{ HR}} = 0.43 \text{ X } 9.10 \text{ IN}/\text{HR} \text{ X } 0.32 \text{ AC} \text{ X } 1.25 = 1.57 \text{ CFS}$   
 $Q_{MAX} = (3 \cdot L) \cdot H^{3/2}$   
 $H = 0.25 \text{ FT}$   
 $L = 4.25 \text{ FT}$

**INFILTRATION TRENCH DESIGN (IT-2):**  
(PER VA DCR STORMWATER DESIGN SPECIFICATION NO. 8)

**MAXIMUM DEPTH OF FACILITY (UNDERGROUND RESERVOIR):**  
 $Q_{MAX} = [(0.5 \cdot f) \cdot A] / n$   
 $Q_{MAX} = [(0.5 \cdot 6.4 \text{ FT}/\text{DAY}) \cdot 2 \text{ DAYS}] / 0.40$   
 $Q_{MAX} = 16.0 \text{ FT}$

FOR SMALL SCALE INFILTRATION d LIMITED TO 3.4 FT.

**SURFACE AREA (BMP):**  
 $TV_{BMP} = (1.1) \cdot (R_v) \cdot (A) / 12$   
 $TV_{BMP} = (1.1) \cdot (0.47) \cdot (0.19 \text{ AC} \cdot 43,560 \text{ SF}) / 12$   
 $TV_{BMP} = 357 \text{ CF}$

$SA = TV_{BMP} / (n \cdot d + 0.5 \cdot f \cdot t_d)$   
 $SA = 357 \text{ CF} / (0.40 \cdot 3.4 \text{ FT} + 0.5 \cdot 6.4 \text{ FT}/\text{DAY} \cdot 0.083 \text{ DAY})$   
 $SA = 220 \text{ SF}$

**WATER QUANTITY DETENTION:**  
 $TV_{SWM} = (1.65) \cdot (R_v) \cdot (A) / 12$   
 $TV_{SWM} = (1.65) \cdot (0.47) \cdot (0.19 \text{ AC} \cdot 43,560 \text{ SF}) / 12$   
 $TV_{SWM} = 535 \text{ CF}$

$SA = TV_{SWM} / (n \cdot d + 0.5 \cdot f \cdot t_d)$   
 $SA = 535 \text{ CF} / (0.40 \cdot 3.4 \text{ FT} + 0.5 \cdot 6.4 \text{ FT}/\text{DAY} \cdot 0.083 \text{ DAY})$   
 $SA = 329 \text{ SF}$

SA PROVIDED: 330 SF

**FACILITY DRAIN TIME (PEM 6-1303.5D):**  
 $t_d = V_s / [(K_s \cdot A_s) / 12 + 3,600 \cdot Q_u]$   
 $t_d = 449 / [(3.2 \text{ IN}/\text{HR}) / 2 \cdot (330 \text{ SF}) / 12 + 0]$   
 $t_d = 10.2 \text{ HRS}$

$V_s = SA \cdot d \cdot n$   
 $V_s = (330 \text{ SF}) \cdot (3.4 \text{ FT}) \cdot (0.40)$   
 $V_s = 449 \text{ CF}$

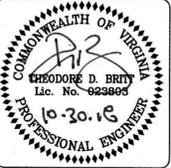
**WEIR CALCULATION**

$Q_{100 \text{ YR } 24 \text{ HR}} = 0.45 \text{ X } 9.10 \text{ IN}/\text{HR} \text{ X } 0.59 \text{ AC} \text{ X } 1.25 = 3.02 \text{ CFS}$   
 $Q_{MAX} = (3 \cdot L) \cdot H^{3/2}$   
 $H = 0.25 \text{ FT}$   
 $L = 8.25 \text{ FT}$



**CIVIL ENVIRONMENTAL LAND PLANNING SURVEYING**

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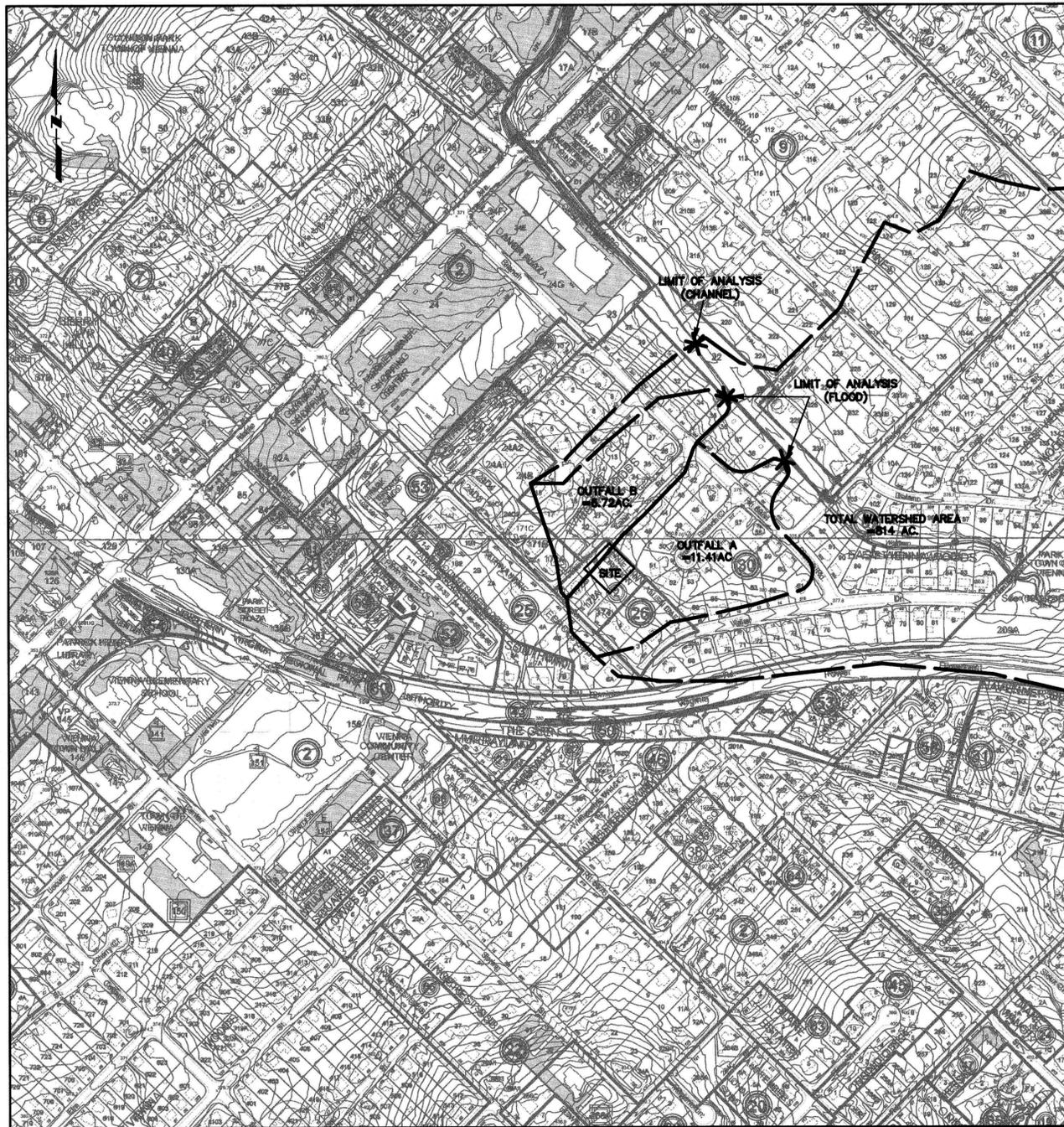
FAIRFAX COUNTY, VIRGINIA

TOWN OF VIENNA

INFILTRATION TRENCH DESIGN

REVISION	DATE	PER TOWN OF VIENNA COMMENTS:	COMMENTS:
	10.04.18		
	10.30.18		

PM: IDB SCALE: AS SHOWN  
PE: IDB DATE: 06.19.18  
CO: MSQ SHEET: 8 OF 17



OVERALL DRAINAGE MAP  
SCALE: 1" = 400'

**STORM SEWER DESIGN COMPUTATIONS**

FROM POINT	TO POINT	DRAIN AREA ACRES	RUNOFF COEFF. C	CA		INLET TIME MIN.	RAINFALL INTENSITY IN./HR.	RUNOFF Q C.F.S.	INVERT ELEVATIONS		LENGTH FT.	SLOPE FT./FT.	DIA. IN.	n	CAPACITY C.F.S.	VELOCITY F.P.S.	FLOW TIME SEC.	REMARKS
				INCREM.	ACCUM.				UPPER	LOWER								
EX 15	EX 14	1.95	0.45	0.88	0.88	10.0	5.45	4.8	381.87	381.71	31	0.0051	15	0.013	4.6	3.9	8.0	CURB INLET - RCP
EX 14	EX 13	0.64	0.45	0.29	1.17	5.0	6.77	7.9	381.31	378.03	337	0.0097	18	0.013	10.4	6.6	51.4	CURB INLET - RCP
EX 13	EX 12	0.33	0.45	0.15	1.31	5.0	6.77	8.9	377.83	377.24	31	0.0191	18	0.013	14.5	8.8	3.5	CURB INLET - RCP
EX 12	EX 11	1.91	0.45	0.86	2.17	10.0	5.45	11.8	377.04	376.23	55	0.0148	18	0.013	12.7	8.3	6.7	CURB INLET - RCP
EX 11	EX 10	0.84	0.45	0.38	2.55	10.0	5.45	13.9	376.31	375.22	39	0.0277	18	0.013	17.5	11.2	3.5	CURB INLET - RCP

**STORMWATER DRAINAGE/OUTFALL NARRATIVE:**

STORMWATER RUNOFF DRAINS FROM THE SITE DISTURBANCE TO TWO OUTFALL POINTS, OUTFALL A AT THE EAST CORNER OF THE PROPERTY AND OUTFALL B AT THE NORTH CORNER OF THE PROPERTY. BOTH OUTFALLS ULTIMATELY DISCHARGE INTO THE BED AND BANKS OF WOLFTRAP CREEK. SEE THIS SHEET AND SHEET 7 FOR OUTFALL MAPS.

**OUTFALL A:**

RUNOFF TO OUTFALL A TRAVELS NORTHEAST ACROSS THE SITE TO THE PROPOSED INFILTRATION FACILITIES. RUNOFF NOT COLLECTED BY THE INFILTRATION FACILITIES CONTINUES TO SHEET FLOW NORTHEAST FOR APPROXIMATELY 500 FEET AND THEN THROUGH THE EXISTING STORM SEWER SYSTEM FOR APPROXIMATELY 308 FEET UNTIL DISCHARGING DIRECTLY INTO THE FLOODPLAIN OF WOLFTRAP CREEK IN THE DIFFICULT RUN WATERSHED. THE TOTAL DRAINAGE AREA TO OUTFALL A IS 11.41 AC WITH A SITE CONTRIBUTING AREA OF 0.41 AC.

**CHANNEL PROTECTION:**

RUNOFF FROM THIS DEVELOPMENT DISCHARGES DIRECTLY INTO WOLFTRAP CREEK. AS SUCH, THE MAXIMUM 1-YEAR, 24-HOUR STORM RELEASE WAS ANALYZED AGAINST THE PREDEVELOPMENT CONDITION PER 9VAC25-870-66.B.3.a. SEE CALCULATIONS BELOW (TC = 5 MIN):

$$Q_{MAX DEV} \leq I.F. (Q_{PRE} * RV_{PRE}) / RV_{DEV}$$

$$= 0.9 (AREA \leq 1.0 AC)$$

$$Q_{PRE} = Q_u A C F_p \quad Q_u = 1.33 \text{ CFS/AC/IN, } A = 0.49 \text{ AC, } Q = 1.09 \text{ IN, } F_p = 1.0$$

$$= 0.71 \text{ CFS}$$

$$RV_{PRE} = (0.49 \text{ AC})(43,560 \text{ SF})(1.09 \text{ IN})(1 \text{ FT}/12 \text{ IN})$$

$$= 1,939 \text{ CF}$$

$$RV_{DEV} = (0.51 \text{ AC})(43,560 \text{ SF})(1.27 \text{ IN})(1 \text{ FT}/12 \text{ IN})$$

$$= 2,351 \text{ CF}$$

$$Q_{MAX DEV} \leq 0.9 [(0.71 \text{ CFS} * 1,939 \text{ CF}) / 2,351 \text{ CF}]$$

$$\leq 0.52 \text{ CFS,}$$

$$Q_{DEV} = Q_1 - Q_{INFILTRATION TRENCHES (SEE SHEET 8)}$$

$$= 0.86 \text{ CFS} - 0.37 \text{ CFS}$$

$$= 0.49 \text{ CFS}$$

AS  $Q_{DEV} (0.49 \text{ CFS}) \leq Q_{MAX DEV} (0.52 \text{ CFS})$ , CHANNEL PROTECTION CRITERIA HAVE BEEN MET.

THE LIMITS OF ANALYSIS FOR CHANNEL PROTECTION REVIEW IS TO A POINT WHERE BASED ON LAND AREA, THE SITES CONTRIBUTING DRAINAGE AREA (0.51 AC) IS LESS THAN OR EQUAL TO 1.0% OF THE TOTAL WATERSHED AREA (814 AC), PER 9VAC25-870-66.B.4. AS SUCH, THIS OUTFALL IS DEEMED ADEQUATE AS PER 9VAC25-870-66.B.

**FLOOD PROTECTION:**

THERE IS NO INCREASE IN RUNOFF FROM THE SITE IN THE 10-YEAR STORM EVENT. THE 10-YEAR STORM EVENT WAS ANALYZED AND FOUND TO BE CONTAINED WITHIN THE EXISTING STORMWATER CONVEYANCE SYSTEM (FLOODPLAIN) PURSUANT TO 9VAC25-870-66.C.1.

THE LIMITS OF ANALYSIS FOR FLOOD PROTECTION IS THE POINT WHERE THE STORMWATER CONVEYANCE SYSTEM ENTERS A MAPPED FLOODPLAIN OR OTHER FLOOD-PRONE AREA, ADOPTED BY ORDINANCE, OF ANY LOCALITY, PER 9VAC25-870-66.C.3.c. PER FAIRFAX COUNTY FEMA MAPPING, SFHA ZONE AE. AS SUCH, THIS OUTFALL IS DEEMED ADEQUATE AS PER 9VAC25-870-66.C.

**OUTFALL B:**

RUNOFF TO OUTFALL B TRAVELS NORTHWEST ACROSS THE SITE VIA SHEET FLOW INTO THE RIGHT-OF-WAY OF CABIN ROAD SE WHERE IT IS COLLECTED BY THE EXISTING STORM SEWER SYSTEM. RUNOFF CONTINUES TO FLOW NORTHEAST THROUGH THE STORM SEWER SYSTEM FOR APPROXIMATELY 667 FEET UNTIL DISCHARGING DIRECTLY INTO THE FLOODPLAIN OF WOLFTRAP CREEK IN THE DIFFICULT RUN WATERSHED. THE TOTAL DRAINAGE AREA TO OUTFALL B IS 6.72 AC WITH A SITE CONTRIBUTING AREA OF 0.01 AC.

**CHANNEL PROTECTION:**

RUNOFF FROM THIS DEVELOPMENT DISCHARGES DIRECTLY INTO WOLFTRAP CREEK. AS SUCH, THE MAXIMUM 1-YEAR, 24-HOUR STORM RELEASE WAS ANALYZED AGAINST THE PREDEVELOPMENT CONDITION PER 9VAC25-870-66.B.3.a. SEE CALCULATIONS BELOW (TC = 5 MIN):

$$Q_{MAX DEV} \leq I.F. (Q_{PRE} * RV_{PRE}) / RV_{DEV}$$

$$= 0.9 (AREA \leq 1.0 AC)$$

$$Q_{PRE} = Q_u A C F_p \quad Q_u = 1.33 \text{ CFS/AC/IN, } A = 0.03 \text{ AC, } Q = 1.15 \text{ IN, } F_p = 1.0$$

$$= 0.05 \text{ CFS}$$

$$RV_{PRE} = (0.03 \text{ AC})(43,560 \text{ SF})(1.15 \text{ IN})(1 \text{ FT}/12 \text{ IN})$$

$$= 125 \text{ CF}$$

$$RV_{DEV} = (0.01 \text{ AC})(43,560 \text{ SF})(0.97 \text{ IN})(1 \text{ FT}/12 \text{ IN})$$

$$= 35 \text{ CF}$$

$$Q_{MAX DEV} \leq 0.9 [(0.05 \text{ CFS} * 125 \text{ CF}) / 35 \text{ CF}]$$

$$< 0.16 \text{ CFS,}$$

$$Q_{DEV} = 0.01 \text{ CFS}$$

AS  $Q_{DEV} (0.01 \text{ CFS}) \leq Q_{MAX DEV} (0.05 \text{ CFS})$ , CHANNEL PROTECTION CRITERIA HAVE BEEN MET.

THE LIMITS OF ANALYSIS FOR CHANNEL PROTECTION REVIEW IS TO A POINT WHERE BASED ON LAND AREA, THE SITES CONTRIBUTING DRAINAGE AREA (0.01 AC) IS LESS THAN OR EQUAL TO 1.0% OF THE TOTAL WATERSHED AREA (814 AC), PER 9VAC25-870-66.B.4. AS SUCH, THIS OUTFALL IS DEEMED ADEQUATE AS PER 9VAC25-870-66.B.

RUNOFF TO OUTFALL B LEAVES THE SITE AS SHEETFLOW INTO THE CABIN ROAD SE RIGHT-OF-WAY AT LEVELS BELOW PREDEVELOPMENT. SEE CALCULATIONS THIS SHEET. AS SUCH, NO ADVERSE IMPACTS TO DOWNSTREAM PROPERTIES ARE ANTICIPATED. THIS OUTFALL IS DEEMED ADEQUATE PER 9VAC25-870-66.D.

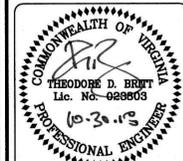
DRAINAGE AREA (onsite)	OUTFALL A		OUTFALL B	
	Existing	Proposed	Existing	Proposed
Time of Concentration				
Used (min.)	5	5	5	5
Travel Time (Tt) (hr)	0.10	0.10	0.10	0.10
Hydrologic Soils Group Subareas				
Impervious (ac.)	0.05	0.13	0.01	0.00
Lawn - D Soils (ac.)	0.44	0.38	0.03	0.01
Total Area (ac.)	0.49	0.51	0.03	0.01
Runoff Curve Number				
Impervious	98	98	98	98
Lawn - D Soils	80	80	80	80
Weighted Runoff Curve Number	82	85	83	80
Area (ac.)	0.49	0.51	0.03	0.01
S (in.)	2.20	1.76	2.05	2.50
Initial Abstraction (a) (in.)	0.439	0.353	0.410	0.500
1 Year SCS Peak				
1 Year/24 Hour Precipitation (P) (in.)	2.62	2.62	2.62	2.62
Ia/P	0.17	0.13	0.16	0.19
Runoff (Q) (in.)	1.09	1.27	1.15	0.97
Unit Peak Discharge (qu) (cfs/in/ac)	1.33	1.33	1.33	1.33
Pond/Swamp Percentage	0.00	0.00	0.00	0.00
Pond/Swamp Flow Adjustment	1.00	1.00	1.00	1.00
1 Year Flow (cfs)	0.71	0.86	0.05	0.01
1 YR Flow with Infiltration (cfs)		0.49		
2 Year SCS Peak				
2 Year/24 Hour Precipitation (P) (in.)	3.17	3.17	3.17	3.17
Ia/P	0.14	0.11	0.13	0.16
Runoff (Q) (in.)	1.51	1.73	1.58	1.38
Unit Peak Discharge (qu) (cfs/in/ac)	1.35	1.35	1.35	1.35
2 Year Flow (cfs)	1.00	1.19	0.06	0.02
2 YR Flow with Infiltration (cfs)		0.82		
10 Year SCS Peak				
10 Year/24 Hour Precipitation (P) (in.)	4.87	4.87	4.87	4.87
Ia/P	0.09	0.07	0.08	0.10
Runoff (Q) (in.)	2.96	3.25	3.06	2.78
Unit Peak Discharge (qu) (cfs/in/ac)	1.35	1.35	1.35	1.35
10 Year Flow (cfs)	1.96	2.24	0.12	0.04
10 YR Flow with Infiltration (cfs)		1.87		

SEE SHEET 8 FOR MORE INFORMATION.



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ADDITION TO THE  
JENNIE LYNN DIVISION

FAIRFAX COUNTY, VIRGINIA  
TOWN OF VIENNA

OUTFALL ANALYSIS

DATE	REVISION	PER TOWN OF VIENNA COMMENTS
10.04.18		
10.30.18		

PM: JDB SCALE: 1"=300'  
PE: JDB DATE: 06.19.18  
CO: MSO SHEET 9 OF 17

2011 BMP Standards and Specifications 2013 Draft BMP Standards and Specifications

Project Name: **NORMA MARGARET PAYNE PROPERTY**  
 Date: **6/12/2018**  
 Linear Development Project? **No**

**CLEAR ALL**  
 (Ctrl+Shift+R)  
 data input cells  
 constant values  
 calculation cells  
 final results

**Site Information**

**Post-Development Project (Treatment Volume and Loads)**

Enter Total Disturbed Area (acres) → **0.52**

Maximum reduction required: **10%**  
 The site's net increase in impervious cover (acres) is: **0.08**  
 Post-Development TP Load Reduction for Site (lb/yr): **0.17**

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				0.47	0.47
Impervious Cover (acres)				0.05	0.05
					0.52

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				0.39	0.39
Impervious Cover (acres)				0.13	0.13
Area Check	OK.	OK.	OK.	OK.	0.52

**Constants**

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

**Runoff Coefficients (Rv)**

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

**LAND COVER SUMMARY -- PRE-REDEVELOPMENT**

Land Cover Summary-Pre	Listed	Adjusted <sup>1</sup>
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.47	0.39
Weighted Rv(turf)	0.25	0.25
% Managed Turf	90%	89%
Impervious Cover (acres)	0.05	0.05
Rv(impervious)	0.95	0.95
% Impervious	10%	11%
Total Site Area (acres)	0.52	0.44
Site Rv	0.32	0.33

**LAND COVER SUMMARY -- POST DEVELOPMENT**

Land Cover Summary-Post (Final)	Post-ReDevelopment	Post-Development New Impervious
Forest/Open Space Cover (acres)	0.00	
Weighted Rv(forest)	0.00	
% Forest	0%	
Managed Turf Cover (acres)	0.39	
Weighted Rv (turf)	0.25	
% Managed Turf	89%	
ReDev. Impervious Cover (acres)	0.05	0.08
Rv(impervious)	0.95	0.95
% Impervious	11%	
Total ReDev. Site Area (acres)	0.44	
ReDev Site Rv	0.33	
Final Post Dev Site Rv	0.43	

**Treatment Volume and Nutrient Load**

	Pre-Development	Post-Development
Pre-Development Treatment Volume (acre-ft)	0.0138	0.0121
Pre-Development Treatment Volume (cubic feet)	599	526
Pre-Development TP Load (lb/yr)	0.38	0.33
Pre-Development TP Load per acre (lb/acre/yr)	0.72	0.75
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		0.18

**Treatment Volume and Nutrient Load**

	Post-ReDevelopment	Post-Development New Impervious
Final Post-Development Treatment Volume (acre-ft)	0.0184	0.0063
Final Post-Development Treatment Volume (cubic feet)	802	276
Final Post-Development TP Load (lb/yr)	0.50	0.17
Final Post-Development TP Load per acre (lb/acre/yr)	0.97	0.75
Max. Reduction Required (Below Pre-Development Load)	10%	
TP Load Reduction Required for Redeveloped Area (lb/yr)	0.03	
TP Load Reduction Required for New Impervious Area (lb/yr)		0.14

<sup>1</sup> Adjusted Land Cover Summary:  
 Pre-Development land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

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

Column 1 shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/yr).

**Post-Development Requirement for Site Area**

TP Load Reduction Required (lb/yr)	<b>0.17</b>
------------------------------------	-------------

**Nitrogen Loads (Informational Purposes Only)**

Pre-Development TN Load (lb/yr)	2.69	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	3.61
---------------------------------	------	--	------

**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)	0.07	0.06	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.07	0.06	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.25	0.13	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.25	0.13	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft<sup>3</sup>) **802**

**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 <sup>3</sup> )	421	292	0	0	0	714
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	0.29	0.20	0.00	0.00	0.00	0.50
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.27	0.19	0.00	0.00	0.00	0.46
TP LOAD REMAINING (lb/yr)	0.02	0.02	0.00	0.00	0.00	0.04

NITROGEN LOAD REDUCTION ACHIEVED (lb/yr) **1.92**

**Total Phosphorus**  
 FINAL POST-DEVELOPMENT TP LOAD (lb/yr) **0.50**  
 TP LOAD REDUCTION REQUIRED (lb/yr) **0.17**  
 TP LOAD REDUCTION ACHIEVED (lb/yr) **0.46**  
 TP LOAD REMAINING (lb/yr): **0.04**  
 REMAINING TP LOAD REDUCTION REQUIRED (lb/yr): **0.00** \*\*  
 \*\* TARGET TP REDUCTION EXCEEDED BY 0.29 LB/YEAR \*\*

**Total Nitrogen (For Informational Purposes)**  
 POST-DEVELOPMENT LOAD (lb/yr) **3.61**  
 NITROGEN LOAD REDUCTION ACHIEVED (lb/yr) **3.26**  
 REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr) **0.35**

**Runoff Volume and Curve Number Calculations**

Enter design storm rainfall depths (in):

1-year storm	2-year storm	10-year storm
2.62	3.17	4.87

Use NOAA Atlas 14 (<http://hdsc.nws.noaa.gov/hdsc/pfds/>)

**\*Notes (see below):**

- The curve numbers and runoff volumes computed in this spreadsheet for each drainage area are limited in their applicability for determining and demonstrating compliance with water quantity requirements. See VRRM User's Guide and Documentation for additional information.
- Runoff Volume (RV) for pre- and post-development drainage areas must be in volumetric units (e.g., acre-feet or cubic feet) when using the Energy Balance Equation. Runoff measured in watershed-inches and shown in the spreadsheet as RV(watershed-inch) can only be used in the Energy Balance Equation when the pre- and post-development drainage areas are equal. Otherwise RV(watershed-inch) must be multiplied by the drainage area.
- Adjusted CNs are based on runoff reduction volumes as calculated in D.A. tabs. An alternative CN adjustment calculation for Vegetated Roofs is included in BMP specification No. 5.

**Drainage Area Curve Numbers and Runoff Depths\***

Curve numbers (CN, CNadj) and runoff depths (RV<sub>Developed</sub>) 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	0.00	0.00	0.00	0.00	0.32
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	0.25	
Impervious Cover	0.00	0.00	0.00	0.07	
	98	98	98	98	
	CN(D.A. A)				
	84				
	1-year storm	2-year storm	10-year storm		
RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*	1.21	1.66	3.15		
RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*	0.85	1.29	2.79		
Adjusted CN*	78	79	80		

\*See Notes above

Drainage Area B	A Soils	B Soils	C Soils	D Soils	Total Area (acres):
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.19
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	0.13	
Impervious Cover	0.00	0.00	0.00	0.06	
	98	98	98	98	
	CN(D.A. B)				
	86				
	1-year storm	2-year storm	10-year storm		
RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*	1.34	1.81	3.35		
RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*	0.92	1.39	2.92		
Adjusted CN*	79	80	81		

\*See Notes above



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ADDITION TO THE VIRGINIA RUNOFF REDUCTION METHOD  
 JENNIE LYNN DIVISION  
 FAIRFAX COUNTY, VIRGINIA  
 TOWN OF VIENNA

VIRGINIA RUNOFF REDUCTION METHOD

DATE	REVISION	PER TOWN OF VIENNA COMMENTS
10/04/18		
10/30/18		

PM: TDB SCALE: NONE  
 PE: TDB DATE: 06.19.18  
 CO: MSO SHEET 10 OF 17

**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)				0.25	0.25	0.25
Impervious Cover (acres)				0.07	0.07	0.95
<b>Total</b>				<b>0.32</b>		

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr)	0.29
Post Development Treatment Volume in D.A. A (ft <sup>3</sup> )	468

**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 <sup>3</sup> )	Runoff Reduction (ft <sup>3</sup> )	Remaining Runoff Volume (ft <sup>3</sup> )	Total BMP Treatment Volume (ft <sup>3</sup> )	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
<b>7. Infiltration (RR)</b>													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90	0.25	0.07	0	421	47	468	25	0.00	0.29	0.27	0.02	

--Select from dropdown lists--

**Drainage Area B**

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)				0.13	0.13	0.25
Impervious Cover (acres)				0.06	0.06	0.95
<b>Total</b>				<b>0.19</b>		

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. B (lb/yr)	0.20
Post Development Treatment Volume in D.A. B (ft <sup>3</sup> )	325

**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 <sup>3</sup> )	Runoff Reduction (ft <sup>3</sup> )	Remaining Runoff Volume (ft <sup>3</sup> )	Total BMP Treatment Volume (ft <sup>3</sup> )	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
<b>7. Infiltration (RR)</b>													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90	0.13	0.06	0	292	32	325	25	0.00	0.20	0.19	0.02	

--Select from dropdown lists--

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

BMP Design Specifications List: 2013 Draft Stds & Specs

**Site Summary**

Total Rainfall (in):	43
Total Disturbed Acreage:	0.52

Update Summary Sheet

Print Preview Print

**Site Land Cover Summary**

Pre-ReDevelopment Land Cover (acres)						
	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.47	0.47	90
Impervious Cover (acres)	0.00	0.00	0.00	0.05	0.05	10
					0.52	100

Post-ReDevelopment Land Cover (acres)						
	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.39	0.39	75
Impervious Cover (acres)	0.00	0.00	0.00	0.13	0.13	25
					0.52	100

**Site Compliance Summary**

Maximum % Reduction Required Below Pre-ReDevelopment Load	10%
---	-----

Total Runoff Volume Reduction (ft <sup>3</sup> )	714
Total TP Load Reduction Achieved (lb/yr)	0.46
Total TN Load Reduction Achieved (lb/yr)	3.26
Remaining Post Development TP Load (lb/yr)	0.04
Remaining TP Load Reduction (lb/yr) Required	0.00

\*\* TARGET TP REDUCTION EXCEEDED BY 0.29 LB/YEAR \*\*

**Site Tv and Land Cover Nutrient Loads**

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post-ReDevelopment	Post-Development (New Impervious)	Adjusted Pre-ReDevelopment
Site Rv	0.43	0.33	0.95	0.33
Treatment Volume (ft <sup>3</sup> )	802	526	276	526
TP Load (lb/yr)	0.50	0.33	0.17	0.33

Total TP Load Reduction Required (lb/yr)	0.17	0.03	0.14
--	------	------	------

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre-ReDevelopment
TN Load (lb/yr)	3.61	2.69

Pre-ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
0.75	0.97	0.75

**Drainage Area Summary**

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.25	0.13	0.00	0.00	0.00	0.38
Impervious Cover (acres)	0.07	0.06	0.00	0.00	0.00	0.13
<b>Total Area (acres)</b>	<b>0.32</b>	<b>0.19</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.51</b>

**Drainage Area Compliance Summary**

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	0.27	0.19	0.00	0.00	0.00	0.46
TN Load Reduced (lb/yr)	1.92	1.33	0.00	0.00	0.00	3.26

**Drainage Area A Summary**

**Land Cover Summary**

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.25	0.25	78
Impervious Cover (acres)	0.00	0.00	0.00	0.07	0.07	22
					0.32	

**BMP Selections**

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft <sup>3</sup> )	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
7.b. Infiltration #2 (Spec #8)	0.25	0.07	468.27	0.00	0.29	0.27	0.02	

Total Impervious Cover Treated (acres)	0.07
Total Turf Area Treated (acres)	0.25
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.27
Total TN Load Reduction Achieved in D.A. (lb/yr)	1.92

**Drainage Area B Summary**

**Land Cover Summary**

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.13	0.13	68
Impervious Cover (acres)	0.00	0.00	0.00	0.06	0.06	32
					0.19	

**BMP Selections**

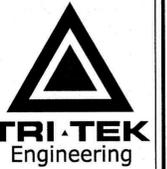
Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft <sup>3</sup> )	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
7.b. Infiltration #2 (Spec #8)	0.13	0.06	324.89	0.00	0.20	0.19	0.02	

Total Impervious Cover Treated (acres)	0.06
Total Turf Area Treated (acres)	0.13
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.19
Total TN Load Reduction Achieved in D.A. (lb/yr)	1.33

**Runoff Volume and CN Calculations**

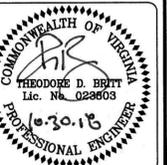
	1-year storm	2-year storm	10-year storm
Target Rainfall Event (in)	2.62	3.17	4.87

Drainage Areas	RV & CN	Drainage Area A	Drainage Area B	Drainage Area C	Drainage Area D	Drainage Area E
<b>CN</b>		84	86	0	0	0
<b>RR (ft<sup>3</sup>)</b>		421	292	0	0	0
<b>1-year return period</b>	RV w/ RR (ws-in)	1.21	1.34	0.00	0.00	0.00
	RV w/ RR (ws-in)	0.85	0.92	0.00	0.00	0.00
	CN adjusted	78	79	0	0	0
<b>2-year return period</b>	RV w/ RR (ws-in)	1.66	1.81	0.00	0.00	0.00
	RV w/ RR (ws-in)	1.29	1.39	0.00	0.00	0.00
	CN adjusted	79	80	0	0	0
<b>10-year return period</b>	RV w/ RR (ws-in)	3.15	3.35	0.00	0.00	0.00
	RV w/ RR (ws-in)	2.79	2.92	0.00	0.00	0.00
	CN adjusted	80	81	0	0	0



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ADDITION TO THE JENNIE LYNN DIVISION

FAIRFAX COUNTY, VIRGINIA TOWN OF VIENNA

VIRGINIA RUNOFF REDUCTION METHOD

DATE	REVISION
10.04.18	PER TOWN OF VIENNA COMMENTS.
10.30.18	PER TOWN OF VIENNA COMMENTS.

PM: JDB SCALE: NONE  
PE: JDB DATE: 06.19.18  
CO: MSO SHEET 11 OF 17

- LEGEND**
- SIGN
  - GUY WIRE
  - POWER POLE
  - GAS VALVE
  - WATER METER
  - WATERVALVE
  - SANITARY MANHOLE
  - STORM MANHOLE
  - FENCE
  - ONE OVERHEAD ELECTRIC
  - WATERLINE
  - CURB & GUTTER
  - SOIL BORING

- LEGEND**
- SPEC. 3.02 (CE) CONST. ENTR. & WASH RACK
  - SPEC. 3.05 (SF) SILT FENCE
  - SPEC. 3.05 (SSF) SUPER SILT FENCE
  - SPEC. 3.38 (TP) TREE PROTECTION
  - SPEC. 3.20 (CD) ROCK CHECK DAMS

**TRI-TEK Engineering**

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COMMONWEALTH OF VIRGINIA

CHORODORE D. BRITT  
Lic. No. 028803

10-30-18

PROFESSIONAL ENGINEER

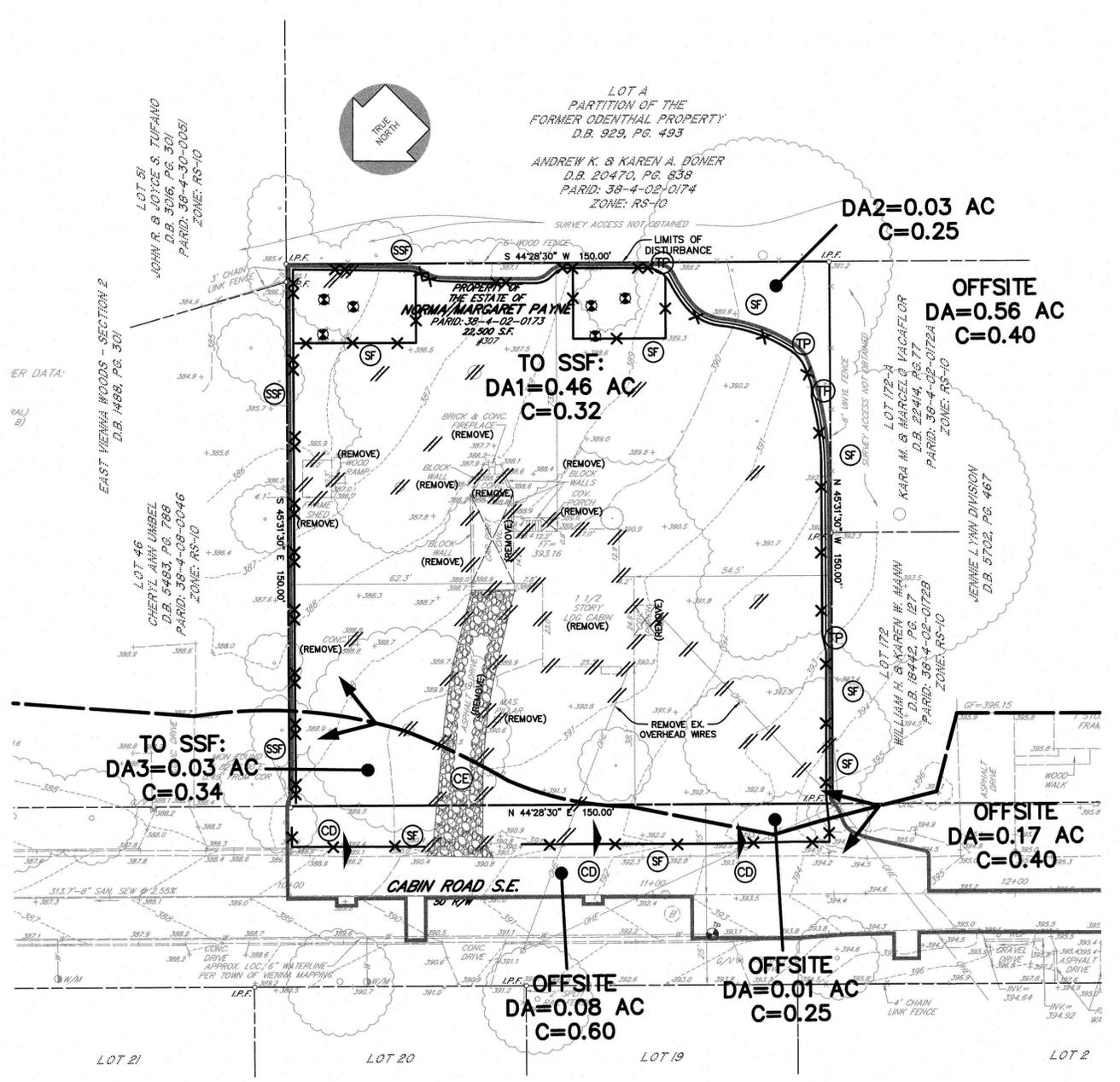
ADDITION TO THE  
JENNIE LYNN DIVISION

FAIRFAX COUNTY, VIRGINIA  
TOWN OF VIENNA

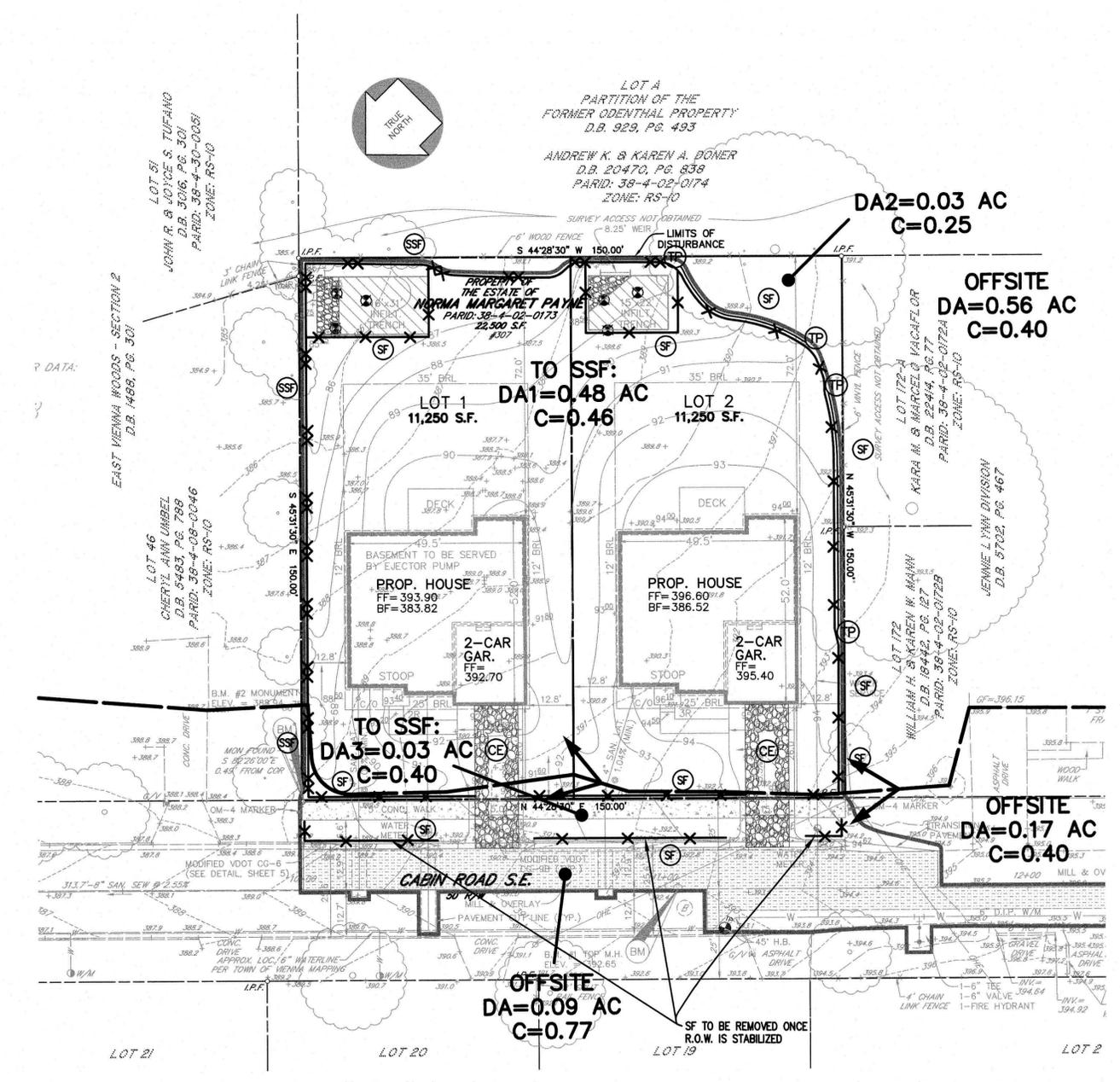
EROSION & SEDIMENT CONTROL AND DRAINAGE DIVIDES

DATE	REVISION	PER TOWN OF VIENNA COMMENTS	PER TOWN OF VIENNA COMMENTS
10.04.18			
10.30.18			

PM: IDB SCALE: 1"=20'  
PE: IDB DATE: 06.19.18  
CO: MSO SHEET 12 OF 17

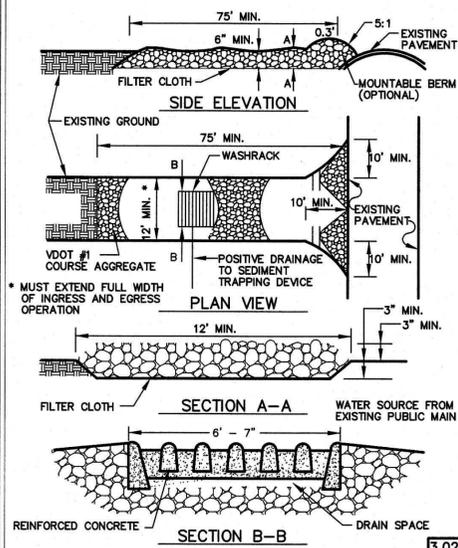


**EROSION & SEDIMENT CONTROL PHASE I**



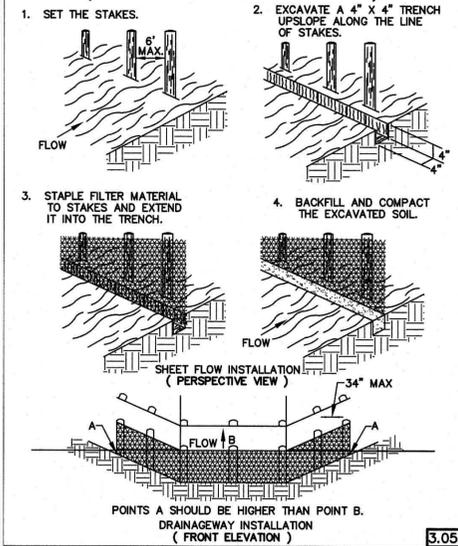
**EROSION & SEDIMENT CONTROL PHASE II**

**STONE CONSTRUCTION ENTRANCE**



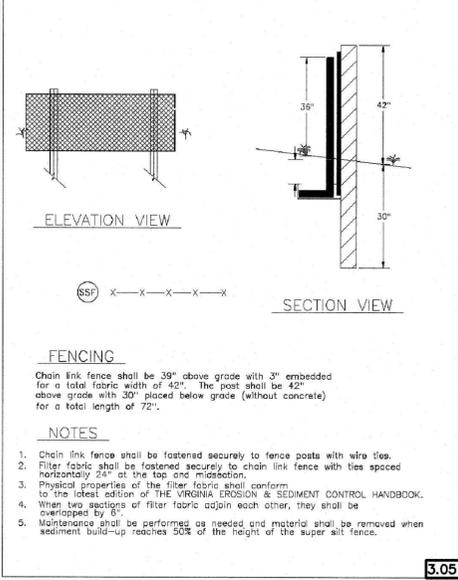
3.02

**CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)**



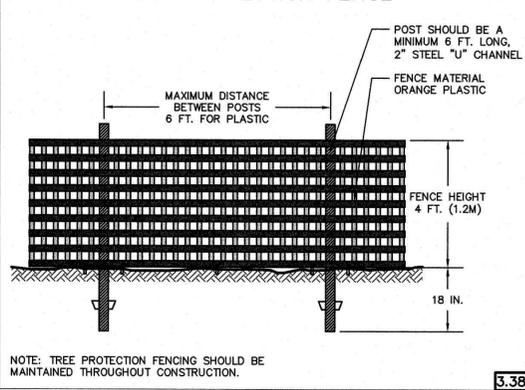
3.05

**SUPER SILT FENCE**



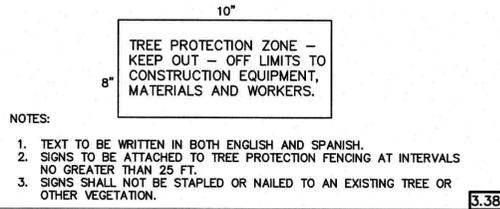
3.05

**TREE PROTECTION FENCE**



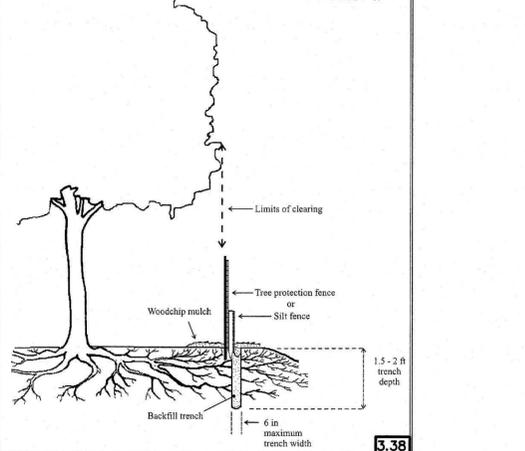
3.38

**TREE PROTECTION AREA SIGNAGE**



3.38

**ROOT PRUNING**



3.38

**EROSION AND SEDIMENT CONTROL NARRATIVE**

**PROJECT DESCRIPTION**

THIS PLAN PROPOSES TO REMOVE AN EXISTING DWELLING AND DEVELOP TWO LOTS FOR SINGLE FAMILY HOMES. AN INCREASE TO SITE IMPERVIOUSNESS IS PROPOSED. IN ALL, 0.63 ACRES WILL BE DISTURBED BY THIS DEVELOPMENT.

**EXISTING SITE CONDITIONS**

THE EXISTING 0.52 ACRE SITE IS CURRENTLY IMPROVED WITH ONE SINGLE FAMILY HOME.

**ADJACENT PROPERTY**

THE PROPERTIES ADJACENT TO THE SITE ARE ALL SINGLE FAMILY DWELLINGS AND ZONED RS-10.

**OFFSITE AREAS**

AT THE TIME OF THIS PLAN SUBMISSION, THERE ARE NO APPROVED OFFSITE BORROW PITS, WASTE OR SURPLUS AREAS AND NONE OF THESE AREAS SHOULD BE REQUIRED DUE TO THE PROPOSED IMPROVEMENTS.

**CRITICAL EROSION AREAS**

NO CRITICAL EROSION AREAS HAVE BEEN IDENTIFIED WITHIN THE PROJECT BOUNDARIES. THERE IS NO RPA ON THE SITE AND EXISTING/PROPOSED SLOPES ONSITE ARE MINIMAL.

**EROSION AND SEDIMENT CONTROL MEASURES**

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS PRESENTED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

**STRUCTURAL PRACTICES**

1. TEMPORARY CONSTRUCTION ENTRANCE - 3.02  
 THE TEMPORARY CONSTRUCTION ENTRANCE, WITH WASH RACK, SHALL BE PLACED AT THE LOCATIONS SHOWN ON THE E&S PLAN. DURING MUDDY CONDITIONS, DRIVERS OF CONSTRUCTION VEHICLES SHALL BE REQUIRED TO WASH THEIR WHEELS BEFORE LEAVING THE SITE. WATER FOR WASHING TIRES IS TO BE PROVIDED VIA WATER TRUCK (ASSUMING HYDRANT ACCESS IS LIMITED).
2. SILT FENCE/SUPER SILT FENCE SEDIMENT BARRIERS - 3.05  
 SILT FENCE/SUPER SILT FENCE SEDIMENT BARRIERS WILL BE PLACED ALONG THE PERIMETER OF THE CONSTRUCTION SITE AT THOSE LOCATIONS SHOWN ON THE E&S PLAN. SEE "MAINTENANCE" SECTION OF THIS NARRATIVE FOR ADDITIONAL INFORMATION.
3. TREE PROTECTION FENCING - 3.38  
 TREE PROTECTION FENCING SHALL BE INSTALLED WHERE SHOWN ON THE E&S PLAN TO PROTECT EXISTING TREES AND VEGETATION FROM CONSTRUCTION ACTIVITIES.
4. DUST CONTROL - 3.39  
 A WATER TRUCK WILL PERIODICALLY SPRINKLE THE SITE WITH WATER TO PREVENT UNNECESSARY DUST MOVEMENT. ALTERNATE METHODS OF DUST CONTROL CAN BE USED AT THE DISCRETION OF THE SITE INSPECTOR.

**VEGETATIVE PRACTICES**

1. MULCHING - 3.35  
 STRAW MULCH WILL BE PLACED OVER NEWLY SEEDED AREAS FOLLOWING FINAL GRADING TO PREVENT EROSION OF BOTH SOILS AND SEED.
2. TEMPORARY SEEDING - 3.31  
 ALL DENUDED AREAS THAT WILL BE LEFT DORMANT FOR EXTENDED PERIODS OF TIME SHALL BE SEEDED WITH FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING. SELECTION OF THE SEED MIXTURE WILL DEPEND ON THE TIME OF THE YEAR IT IS APPLIED.
3. PERMANENT SEEDING - 3.32  
 PERMANENT SEEDING WILL BE APPLIED TO ALL DISTURBED AREAS AT THE COMPLETION OF FINAL GRADING. RESEEDING OF AREAS WHERE THE PREVIOUS SEED DID NOT GERMINATE SHALL BE PERFORMED TO INSURE AN EVEN GRASS COVER IS PROVIDED ON THE SITE.

**MANAGEMENT STRATEGIES**

1. CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE (SEE SEQUENCE OF CONSTRUCTION NARRATIVE).
2. AREAS THAT ARE NOT TO BE DISTURBED DURING CONSTRUCTION WILL BE CLEARLY MARKED WITH FLAGS OR OTHER APPROPRIATE SIGNAGE.
3. THE JOB SUPERINTENDENT WILL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES CALLED FOR IN THE EROSION AND SEDIMENT CONTROL PLANS AND DETAILS.
4. AFTER ADEQUATE SITE STABILIZATION HAS BEEN ACCOMPLISHED, THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WILL BE CLEANED UP AND REMOVED.
5. NO EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED WITHOUT THE APPROVAL OF THE TOWN OF VIENNA SITE INSPECTOR.

**PERMANENT STABILIZATION**

ALL AREAS DISTURBED DURING CONSTRUCTION WILL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISHED GRADING. THE SEEDING SHALL BE COMPLETED IN ACCORDANCE WITH STD. & SPEC. 3.32, PERMANENT SEEDING OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. STRAW MULCH WILL BE EMPLOYED TO PROTECT THE SITE FROM EROSION WHILE THE SEED GERMINATES. IN ALL SEEDING OPERATIONS, SEED, FERTILIZER AND LIME WILL BE APPLIED PRIOR TO MULCHING.

**MAINTENANCE**

IN GENERAL, ALL EROSION AND SEDIMENT CONTROL STRUCTURES AND MEASURES SHALL BE PERIODICALLY CHECKED AND IMMEDIATELY FOLLOWING ANY STORMS. THE SITE SUPERINTENDENT SHALL HAVE REPAIRS MADE TO ANY CONTROL THAT IS FOUND IN DISREPAIR WITHIN 24 HOURS OF THE SUPERINTENDENT'S INSPECTION OF THAT CONTROL. THE FOLLOWING ITEMS REQUIRE SPECIAL ATTENTION:  
 1. ALL SILT FENCE/SUPER SILT FENCE BARRIERS SHALL BE INSPECTED FOR DETERIORATION OF THE FILTER FABRIC OR EXCESS SEDIMENT BUILDUP. DETERIORATED SECTIONS OF THE SILT FENCE SHALL BE REPLACED AND SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT LEVEL HAS REACHED HALFWAY TO THE TOP OF THE SILT FENCE.  
 2. ALL AREAS SEEDED SHALL BE INSPECTED TO INSURE PROPER GERMINATION OF THE SEED. RESEEDING AND FERTILIZING SHALL BE ACCOMPLISHED IN THOSE AREAS WHERE THE INITIAL SEEDING HAS FAILED TO TAKE HOLD.

**SPECIFICATION FOR SEEDING**

**PERMANENT SEED:** (TO BE APPLIED WITHIN 7 DAYS OF FINAL GRADING)

SEED MIXTURE - 90% TALL FESCUE (KY-31) AND 10% KENTUCKY BLUEGRASS AT SEEDING RATE OF 250 LB/ACRE OR 6 LB/1000 SF  
 LIME (IF NECESSARY) - 90 LB/1000 SF OF PULVERIZED AGRICULTURAL DOLOMITE FERTILIZER (IF NECESSARY) - 25 LB/1000 SF OF 5-20-10 AND 7 LB/1000 SF OF 38-8-0 (IN SPRING) OR 25 LB/1000 SF OF 10-20-10 AND 7 LB/1000 SF OF 38-0-0 (IN FALL)  
 MULCH - APPLY AT RATE OF 79-90 LB/1000 SF

**TEMPORARY SEED:** (TO BE APPLIED WITHIN 7 DAYS OF ROUGH GRADING WHERE DENUDED AREAS WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS)

SPRING PLANTING (FEBRUARY 16 TO APRIL 30) - ANNUAL RYE GRASS SEED (LOLIUM MULTI-FLOSUM) AT SEEDING RATE OF 60-100 LB/ACRE  
 SUMMER PLANTING (MAY 1 TO AUGUST 30) - GERMAN MILLET SEED AT SEEDING RATE OF 50 LB/ACRE  
 FALL PLANTING (SEPTEMBER 1 TO FEBRUARY 15) - 50/50 MIX OF ANNUAL RYE GRASS (LOLIUM MULTI-FLOSUM) AND WINTER RYE (SECALE CEREALE) AT SEEDING RATE OF 50-100 LB/ACRE  
 MULCH - APPLY STRAW AT A RATE OF 70-90 LB/1000 SF (MUST BE ANCHORED)

**SEQUENCE OF CONSTRUCTION**

IN GENERAL, CONSTRUCTION PRACTICES WILL TAKE PLACE TO MINIMIZE THE EROSION POTENTIAL ON THE SITE. EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED AND MAINTAINED TO PROTECT DOWNSTREAM PROPERTIES FROM EXCESS SEDIMENTATION RESULTING FROM THE PROPOSED DEVELOPMENT.

THE SEQUENCE OF CONSTRUCTION SHALL BE AS FOLLOWS:

1. INSTALL SITE CONSTRUCTION ENTRANCE W/WASH RACK. CLEARING AND GRADING ACTIVITIES AT THIS TIME ARE TO BE LIMITED TO THOSE THAT ARE REQUIRED FOR CONSTRUCTION ENTRANCE INSTALLATION.
2. CLEAR AND GRADE AS NECESSARY TO INSTALL THE SITE SILT FENCING/SUPER SILT FENCING WHERE SHOWN ON THE PLAN.
3. INSTALL TREE PROTECTION AS SHOWN ON THE PLAN.
4. CLEAR THE REMAINDER OF THE SITE.
5. DEMOLISH EXISTING HOME AND HARDSCAPE.
6. CONSTRUCT HOMES, DRIVEWAYS AND UTILITIES.
7. FOLLOWING APPROVAL FROM THE TOWN OF VIENNA SITE INSPECTOR, REMOVE ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND CHECK PERMANENT STABILIZATION MEASURES. RE-SEED WHERE NECESSARY.

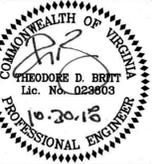
**GENERAL LAND CONSERVATION NOTES**

1. NO DISTURBED AREA WHICH IS NOT ACTIVELY BEING WORKED SHALL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR.
2. ALL E&S CONTROL MEASURES APPROVED WITH THE PHASE I E&S CONTROL PLAN SHALL BE PLACED AS THE FIRST STEP IN GRADING.
3. ALL STORM AND SANITARY SEWER LINES NOT IN STREETS SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS OF BACKFILL. NO MORE THAN 500' (150M) SHALL BE OPEN AT ANY TIME. ELECTRIC POLE, TELEPHONE AND GAS SUPPLY TRENCHES SHALL BE COMPACTED, SEEDED AND MULCHED WITHIN 7 DAYS AFTER GRADING.
4. ALL TEMPORARY EARTH BERMS, DIVERSIONS AND SEDIMENT CONTROL DAMS SHALL BE SEEDED AND MULCHED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY (AS SOON AS POSSIBLE, BUT NO LATER THAN 48 HOURS) AFTER COMPLETION OF GRADING. STRAW OR HAY MULCH IS REQUIRED. ALL SOIL STOCKPILES SHALL BE SEEDED AND MULCHED WITHIN 7 DAYS AFTER GRADING.
5. ANY DISTURBED AREA NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED AT THE RATE OF 2 TONS/ACRE (4483KG/HA) AND OVERSEEDED BY APRIL 15.
6. AT THE COMPLETION OF ANY PROJECT CONSTRUCTION AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND DENUDED AREAS SHALL BE STABILIZED.



CIVIL ENVIRONMENTAL LAND PLANNING SURVEYING

690 Center Street Suite 300 Herndon, Virginia 20170 V: (703) 481-5900 F: (703) 481-5901 info@tritekinc.com



ADDITION TO THE JENNIE LYNN DIVISION

EROSION & SEDIMENT CONTROL NOTES AND DETAILS

DATE	REVISION	PER TOWN OF VIENNA COMMENTS
10.04.18		
10.30.18		

PM: IDB SCALE: AS SHOWN PE: IDB DATE: 06.19.18 CO: MSO SHEET 13 OF 17

LANDSCAPE SCHEDULE

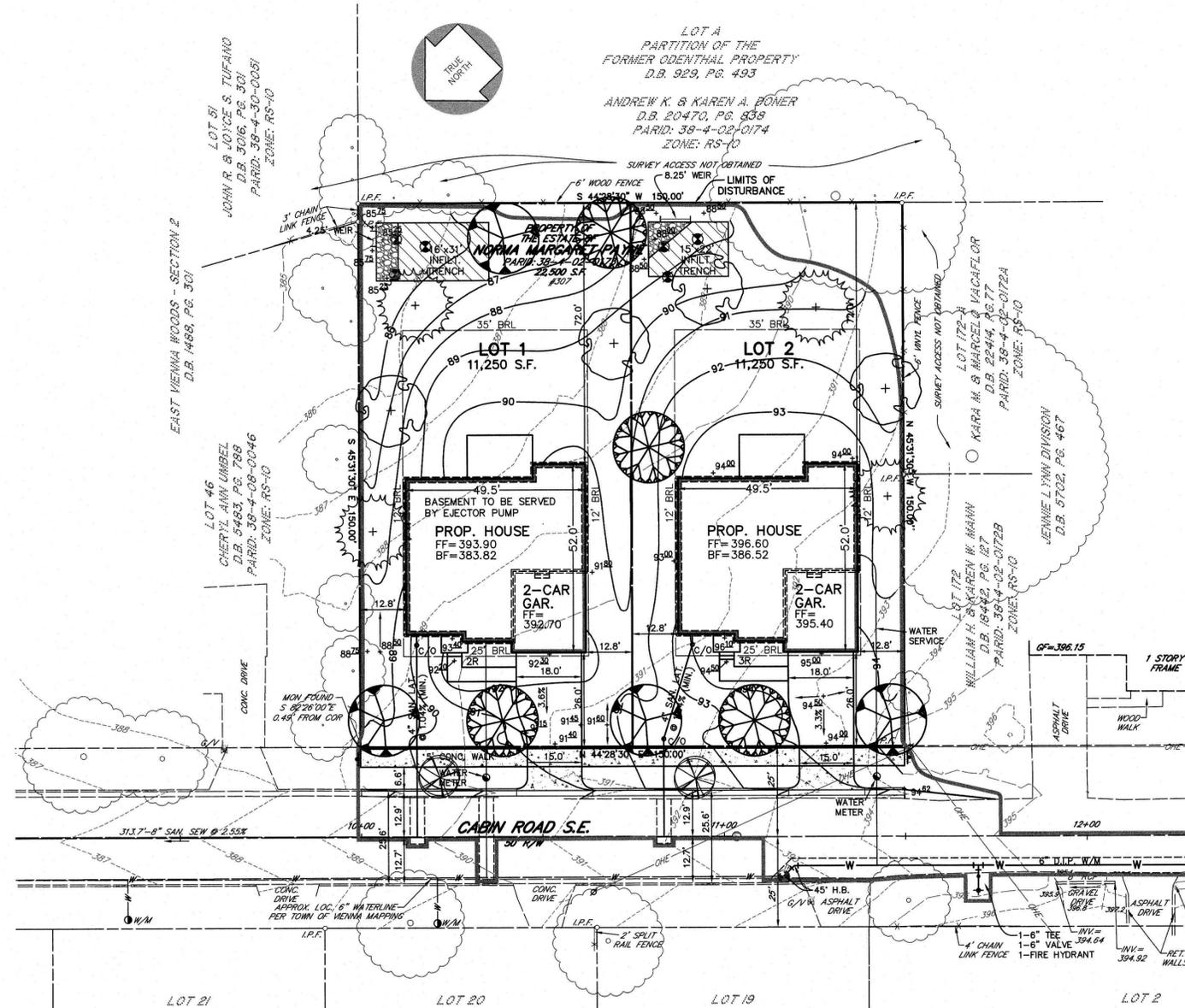
SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	30-YEAR CANOPY	TOTAL CANOPY
	4	ACER RUBRUM	RED MAPLE	2"-2.5" CAL.	B & B	300 S.F.	1,200 S.F.
	4	QUERCUS PHELLOS	WILLOW OAK	2"-2.5" CAL.	B & B	300 S.F.	1,200 S.F.
	4	ULMUS AMERICANA	AMERICAN ELM	2"-2.5" CAL.	B & B	300 S.F.	1,200 S.F.
	4	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2"-2.5" CAL.	B & B	300 S.F.	1,200 S.F.
	2	CERCIS CANADENSIS	EASTERN REDBUD	2"-2.5" CAL.	B & B	100 S.F.	200 S.F.
						<b>TOTAL CANOPY</b>	<b>5,000 S.F.</b>

TREE COVER REQUIREMENTS:

LOT 1  
 LOT AREA: 11,250 S.F.  
 TREE COVER REQUIRED: 20% OR 2,250 S.F.  
 TREE COVER PROVIDED: 2,400 S.F.

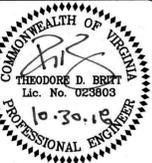
LOT 2  
 LOT AREA: 11,250 S.F.  
 TREE COVER REQUIRED: 20% OR 2,250 S.F.  
 TREE COVER PROVIDED: 2,400 S.F.

NOTE: THE TWO EASTERN REDBUD TREES ARE PLANTED WITHIN THE RIGHT-OF-WAY AND DO NOT COUNT TOWARDS THE TREE COVER REQUIREMENTS.



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ADDITION TO THE  
 JENNIE LYNN DIVISION

LANDSCAPE PLAN

DATE	REVISION	PER TOWN OF VIENNA COMMENTS
10.04.18		
10.30.18		

PM: IDB SCALE: 1"=20'  
 PE: IDB DATE: 06.19.18  
 CO: MSO SHEET 14 OF 17

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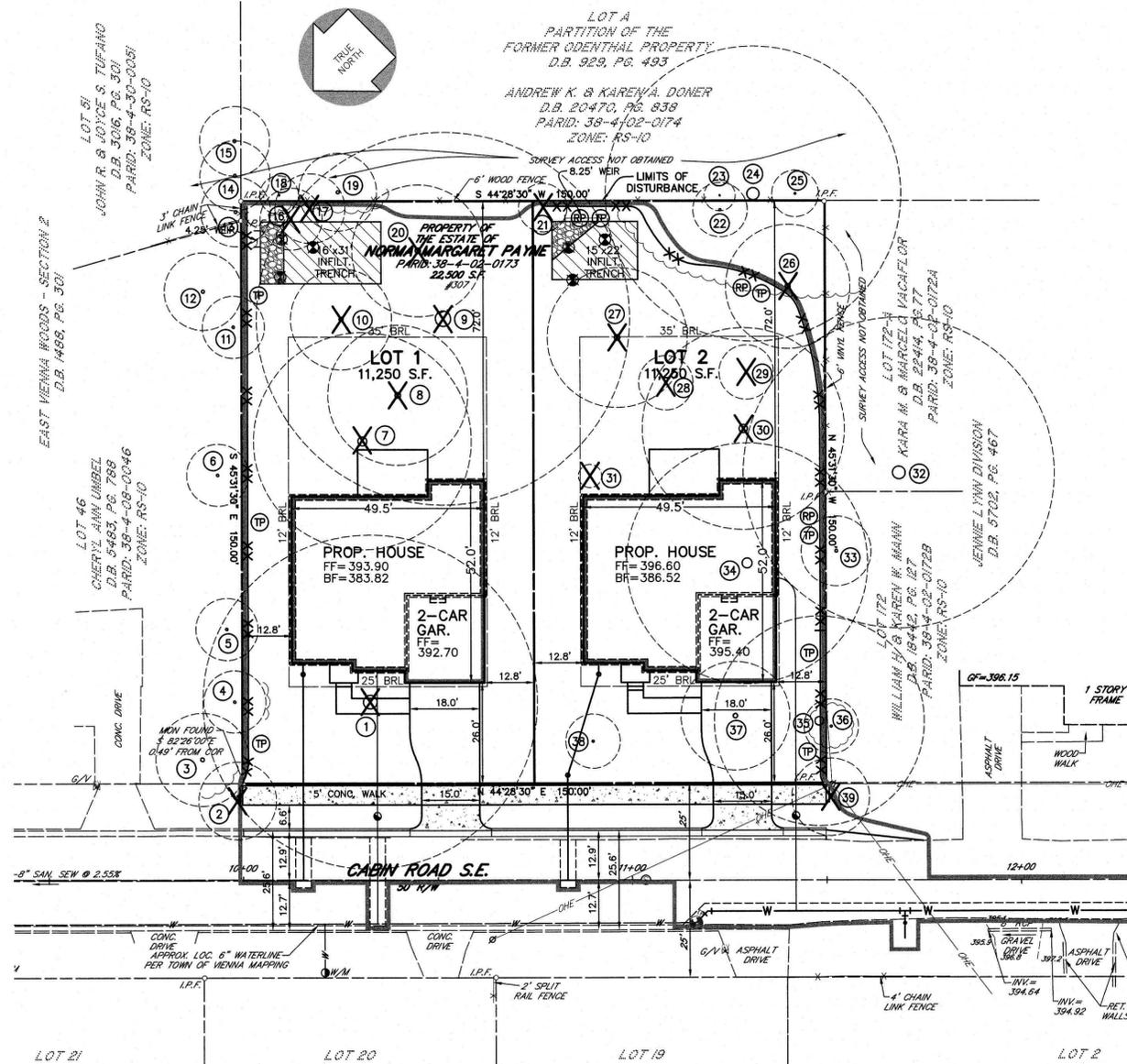
DATE	REVISION	PER TOWN OF VIENNA COMMENTS	PER TOWN OF VIENNA COMMENTS
10.04.18			
10.30.18			

**Tree Preservation Activities**

1. A pre-construction meeting shall be held on-site to explain protection measures to operators, construction supervisors, or contractor's representatives with the Town Arborist or their representative.
2. Contractor on the site shall stake clearing limits in order to facilitate location for trenching and fencing installation for tree protection.
3. No clearing or grading shall begin in areas where tree preservation measures have not been completed.
4. The sequence of tree preservation measures, if required, shall be as follows:
  - a. Root pruning trenching;
  - b. Tree protection fencing;
  - c. Tree pruning and chemical treatment;
  - d. Aeration systems installed;
5. The preceding measures shall be directed in the field by the construction supervisor.
6. Tree protection fencing shall be maintained by the contractor for the duration of construction. No alteration shall occur without prior approval by a town representative.
7. Access to fenced preservation areas by construction equipment and materials will not be allowed. Only limited access, if necessary, shall be permitted with the prior approval of the town inspector.
8. All designated aeration zones shall be protected with temporary fencing until final grading.
9. Removal of trees, shrubs, or undergrowth from protected areas shall be performed only when necessary and with hand tools only.
10. Attachment of any construction signs, fencing, etc. to any tree to be saved is strictly prohibited.
11. Upon construction completion, all temporary barriers, fencing, debris, etc. shall be removed from the site by the contractor.
12. All required protective fencing shall be installed along the clearing disturbance limits of the site.
13. Protective fencing shall be installed along the edge of all critical root zones of saved and impacted trees within the disturbed areas.

**LEGEND**

- (34) TREE INVENTORY CODE
- X TREE TO BE REMOVED
- CRITICAL ROOT ZONE
- ⊗ ROOT PRUNING TRENCH AND TREE PRESERVATION FENCE
- ⊕ TREE PRESERVATION FENCE



**TREE REMOVAL NOTE:**  
REMOVAL OF OFFSITE AND/OR JOINTLY OWNED TREES SHALL NOT OCCUR UNLESS WRITTEN PERMISSION FOR THEIR REMOVAL HAS BEEN GRANTED BY THE ADJACENT PROPERTY OWNER. A LETTER OF PERMISSION SHALL BE ACQUIRED PRIOR TO THE PRE-CONSTRUCTION MEETING.



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ADDITION TO THE JENNIE LYNN DIVISION DEVELOPMENT TREE INVENTORY

FAIRFAX COUNTY, VIRGINIA TOWN OF VIENNA

Table with columns for DATE, REVISION, PER TOWN OF VIENNA, COMMENTS.

PM: IDB SCALE: NONE PE: IDB DATE: 06.19.18 CO: MSO SHEET 16 OF 17

Appendix Development Tree Inventory 307 Cabin Road SE Vienna, Virginia June 1, 2018 Prepared by Edward P. Mihous TreesPlease® ASCA RCA #350 ISA #MA-0004A MD TE #458

Table with columns: Tree #, Name, Size, Condition, Comment, Recommendation. Rows 1-23.

Table with columns: Tree #, Name, Size, Condition, Comment, Recommendation. Rows 24-39.

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June 18, 2018

Mark Bernas  
The Wormald Companies  
5283 Corporate Drive, #300  
Frederick, MD 21703



TERRA ENGINEERING SERVICES, PLC

Timothy V. Farabaugh, P.E.  
Certified Water Table Delineator (expires June 2019)



Re: NORMA PAYNE PROPERTY - 309 Cabin Road - Town of Vienna  
In-situ and Material Testing for SWM Infiltration  
TERRA Project No. 18-2910-G

Dear Mark:

Pursuant to your request, TERRA Engineering Services, PLC (TERRA) has completed the geotechnical services at the above referenced property. These services included a subsurface exploration and material testing to determine the physical properties and characteristics of natural soil deposits for the infiltration of two storm water trenches in the back yard areas (attached Figure 1). The work has been performed by a Virginia Licensed Professional Engineer experienced in geotechnical engineering and soil evaluation.

**Subsurface Exploration**

Three soil borings were performed near each of the proposed SWM trenches as shown on the site plan provided to us. IT-1A and IT-2A were continuously sampled approximately four feet below bottom of proposed trench to determine the suitability of the site for infiltration and ensure separation from bedrock and seasonal high groundwater. The other borings were planned for infiltration tests and advanced within 2 feet of the invert (bottom) of the trench.

TERRA located the borings using a standard measurement of taping from existing visible site features. Ground surface elevations were estimated using the topographic contour lines shown on the site grading plans. The estimated ground surface elevations may be considered accurate within approximately 1 or 2 feet, and are generally adequate for these recommendations.

The test boring was performed using a hand-operated AMS soil sampler equipped with 5-foot extension rods. The borings were advanced to specific depths at each location or refusal (whichever comes first). The soil samples recovered were visually classified in the field on the basis of texture and plasticity in accordance with ASTM Standard D2488, *Description and Identification of Soils - Visual-Manual Method* and the Unified Soil Classification System (USCS).

Detailed observations were recorded at each boring including soil type and description, estimated depth and thickness of each substrate, groundwater levels, and depth of termination or refusal. Additional observations included depth to bedrock (if encountered) and evidence of color mottling (gray typically indicates seasonal saturation). Soil samples were collected from the bottom of the test hole for field and material classification testing.

**Subsurface Observations**

The underlying natural soils were identified as silty SAND (SM) and sandy SILT (ML) through a termination depth of 9 feet. Hard rock was not encountered, but the relative density of the natural subsols gradually increased with depth.

Groundwater seepage was not encountered at any of the test borings during the subsurface exploration or prior to backfilling. Visible signs of grey mottles (redox features) typically indicative of seasonal high groundwater levels were not observed through the depths explored. The natural moisture of the material encountered at each test boring was generally moist with little change with increasing depth. Higher groundwater levels typically occur in late winter and early spring. Variations in groundwater levels can occur as a result of changes in precipitation, evaporation, surface water runoff, or other factors not immediately apparent at the time of this exploration.

**Material Classification Test Results**

Material classification test results indicate that soil samples selected generally classify as fine sandy SILT (ML) according to the Unified Soil Classification System (USCS). Grain size distribution tests performed on the soil samples collected from the bottom of the infiltration test holes generally indicate the sand fraction to be fine and medium grain size particles. Fine particles passing the U.S. No. 200 sieve were found to be more than 50% and display non-plastic to low plasticity characteristics. These soils are generally characterized as *sandy loam* according to the USDA Soil Texture Classification.

**Field Infiltration Tests**

After removing loose material from the borings, a solid PVC stand pipe was installed in each bore hole, filled with two feet of water and allowed to pre-soak until the next day. After pre-soaking, the standpipe is refilled with clean water to a depth of 2 feet and the water level drop is recorded hourly (inches/hour) during a 4 hour period. The infiltration rate is defined as the rate (inches per hour) that water passes through the soil profile during saturated conditions.

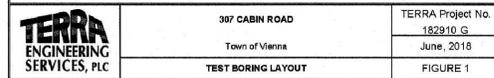
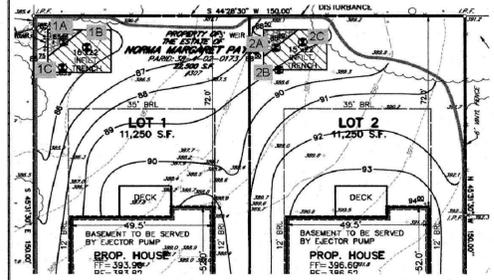
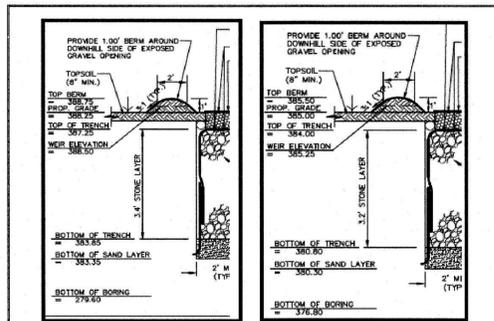
Tri-Tek Engineering indicated the invert of the infiltration areas will be approximately 5 feet below existing grade. The following table summarizes the hourly water readings and average infiltration rates recorded on April 10, 2018.

IT #	IT ELEV (ft)	Depth (ft)	Water Drop after Hour 1 (in)	Water Drop after Hour 2 (in)	Water Drop after Hour 3 (in)	Water Drop after Hour 4 (in)	Ave Water Drop (in/hr)	Remarks
IT1A	386	9.0	2.6	2.2	2.4	2.0	2.3	
IT1B	386	5.2	3.1	3.7	3.0	2.6	3.1	average of 1B & 1C - 2.7
IT1C	386	5.5	3.1	3.7	3.0	2.6	3.1	
IT2A	389	9.2	2.7	2.9	2.5	2.8		
IT2B	389	4.8	3.1	2.7	2.9	2.5	2.8	
IT2C	389	5.2	3.6	4.2	3.5	3.1	3.6	average of 2B & 2C - 3.2

\*\* boring to determine 4 foot separation from bedrock and groundwater for infiltration suitability

An average infiltration rate of 2.7 and 3.2 inches/hour was recorded at the two infiltration areas. A field infiltration rate between 0.52 and 8.0 inches per hour is considered acceptable for infiltration purposes. The design rate should be one half of the average rate determined in the field.

Boring location stakes have been left in the field for inspection by the Environmental and Site Review Division. Boring locations must correspond with the proposed location of the infiltration facility. Design changes may necessitate additional testing. The Engineer shall carefully review the final depth and location of all infiltration trenches to ensure that the infiltration system has been designed in accordance with the standards set forth in the Virginia SWM Handbook (3.10), Northern Virginia BMP Handbook.



**TEST BORING LOG**

PROJECT		NORMA PAYNE PROPERTY		DEPTH TO: (feet)		TEST BORING ID: IT-1A	
LOCATION	309 Cabin Road - Town of Vienna	Time	Water	Cave-in	Time	Water	Cave-in
CLIENT	The Wormald Companies	During	dry	n/a	During	dry	n/a
TERRA Job No.	18-2910-G	at Comp	dry	n/a	at Comp	dry	n/a
EQUIP USED	AMS HS augers 4" diameter	24 hrs.	dry	n/a	24 hrs.	dry	n/a
OPERATOR	TERRA	LOGGED BY	TVF	DATE	06-18-18	DATE	06-18-18
ELEVATION (feet)	DEPTH (feet)	MATERIAL DESCRIPTION		Sample Depth (ft)	DCP CPR (°)	Est SPT N-value	REMARKS
386.0	1.5	brown fine SILT (ML) with gravel; dense; moist					
383.0	3.0	brown silty fine SAND (SM) medium dense, moist					
380.0	6.0	Terminated at 6.0 feet					

**TEST BORING LOG**

PROJECT		NORMA PAYNE PROPERTY		DEPTH TO: (feet)		TEST BORING ID: IT-1B	
LOCATION	309 Cabin Road - Town of Vienna	Time	Water	Cave-in	Time	Water	Cave-in
CLIENT	The Wormald Companies	During	dry	n/a	During	dry	n/a
TERRA Job No.	18-2910-G	at Comp	dry	n/a	at Comp	dry	n/a
EQUIP USED	AMS HS augers 4" diameter	24 hrs.	dry	n/a	24 hrs.	dry	n/a
OPERATOR	TERRA	LOGGED BY	TVF	DATE	06-18-18	DATE	06-18-18
ELEVATION (feet)	DEPTH (feet)	MATERIAL DESCRIPTION		Sample Depth (ft)	DCP CPR (°)	Est SPT N-value	REMARKS
386.0	1.5	brown sandy SILT (ML) with quartz gravel					
383.0	3.0	brown fine silty SAND (SM); medium dense; moist; micaceous					
380.0	6.0	Terminated at 5.2 feet					

**TEST BORING LOG**

PROJECT		NORMA PAYNE PROPERTY		DEPTH TO: (feet)		TEST BORING ID: IT-1C	
LOCATION	309 Cabin Road - Town of Vienna	Time	Water	Cave-in	Time	Water	Cave-in
CLIENT	The Wormald Companies	During	dry	n/a	During	dry	n/a
TERRA Job No.	18-2910-G	at Comp	dry	n/a	at Comp	dry	n/a
EQUIP USED	AMS HS augers 4" diameter	24 hrs.	dry	n/a	24 hrs.	dry	n/a
OPERATOR	TERRA	LOGGED BY	TVF	DATE	06-18-18	DATE	06-18-18
ELEVATION (feet)	DEPTH (feet)	MATERIAL DESCRIPTION		Sample Depth (ft)	DCP CPR (°)	Est SPT N-value	REMARKS
386.0	1.5	brown sandy SILT (ML) with gravel; slightly moist					
383.0	3.0	brown silty SAND (SM); medium dense; slightly moist					
380.0	6.0	Terminated at 5.5 feet					

**TEST BORING LOG**

PROJECT		NORMA PAYNE PROPERTY		DEPTH TO: (feet)		TEST BORING ID: IT-2A	
LOCATION	309 Cabin Road - Town of Vienna	Time	Water	Cave-in	Time	Water	Cave-in
CLIENT	The Wormald Companies	During	dry	n/a	During	dry	n/a
TERRA Job No.	18-2910-G	at Comp	dry	n/a	at Comp	dry	n/a
EQUIP USED	AMS HS augers 4" diameter	24 hrs.	dry	n/a	24 hrs.	dry	n/a
OPERATOR	TERRA	LOGGED BY	TVF	DATE	06-18-18	DATE	06-18-18
ELEVATION (feet)	DEPTH (feet)	MATERIAL DESCRIPTION		Sample Depth (ft)	DCP CPR (°)	Est SPT N-value	REMARKS
389.0	2.0	brown fine SILT (ML) with gravel; dense; moist					
386.0	4.0	brown silty fine SAND (SM) medium dense, moist					
381.0	10.0	Terminated at 10.0 feet					

**TEST BORING LOG**

PROJECT		NORMA PAYNE PROPERTY		DEPTH TO: (feet)		TEST BORING ID: IT-2B	
LOCATION	309 Cabin Road - Town of Vienna	Time	Water	Cave-in	Time	Water	Cave-in
CLIENT	The Wormald Companies	During	dry	n/a	During	dry	n/a
TERRA Job No.	18-2910-G	at Comp	dry	n/a	at Comp	dry	n/a
EQUIP USED	AMS HS augers 4" diameter	24 hrs.	dry	n/a	24 hrs.	dry	n/a
OPERATOR	TERRA	LOGGED BY	TVF	DATE	06-18-18	DATE	06-18-18
ELEVATION (feet)	DEPTH (feet)	MATERIAL DESCRIPTION		Sample Depth (ft)	DCP CPR (°)	Est SPT N-value	REMARKS
389.0	1.5	brown sandy SILT (ML) with quartz gravel					
386.0	3.0	brown fine silty SAND (SM); medium dense; moist; micaceous					
383.0	6.0	Terminated at 4.8 feet					

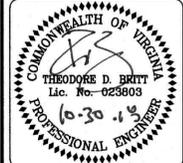
**TEST BORING LOG**

PROJECT		NORMA PAYNE PROPERTY		DEPTH TO: (feet)		TEST BORING ID: IT-2C	
LOCATION	309 Cabin Road - Town of Vienna	Time	Water	Cave-in	Time	Water	Cave-in
CLIENT	The Wormald Companies	During	dry	n/a	During	dry	n/a
TERRA Job No.	18-2910-G	at Comp	dry	n/a	at Comp	dry	n/a
EQUIP USED	AMS HS augers 4" diameter	24 hrs.	dry	n/a	24 hrs.	dry	n/a
OPERATOR	TERRA	LOGGED BY	TVF	DATE	06-18-18	DATE	06-18-18
ELEVATION (feet)	DEPTH (feet)	MATERIAL DESCRIPTION		Sample Depth (ft)	DCP CPR (°)	Est SPT N-value	REMARKS
389.0	1.5	brown sandy SILT (ML) with quartz gravel					
386.0	3.0	brown fine silty SAND (SM); medium dense; moist; micaceous					
383.0	6.0	Terminated at 5.2 feet					



CIVIL ENVIRONMENTAL LAND PLANNING SURVEYING

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ADDITION TO THE JENNIE LYNN DIVISION

CORRESPONDENCE & GEOTECHNICAL INFORMATION

REVISION	DATE	PER TOWN OF VIENNA COMMENTS
10.04.18		
10.30.18		

PM: TDB SCALE: NONE  
PE: TDB DATE: 06.19.18  
CO: MSO SHEET 17 OF 17