GENERAL SITE CONSTRUCTION NOTES

1. HUSKA CONSULTING, LLC IS NOT RESPONSIBLE FOR CONSTRUCTION SAFETY, ACCIDENTS, OR SUPERVISION; HUSKA CONSULTING, LLC IS NOT RESPONSIBLE FOR ANY CONSTRUCTION DAMAGE OR INJURY TO ANY PERSON, VEHICLE, EQUIPMENT, OR PROPERTY ON OR NEAR THE CONSTRUCTION SITE.
2. HUSKA CONSULTING, LLC IS NOT RESPONSIBLE FOR CONSTRUCTION SITE SECURITY. THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY SITE SECURITY WITH THE OWNER AS REQUIRED AND APPROPRIATE.
3. THE PROJECT PROPERTY SHALL BE VERIFIED BY A LICENSED LAND SURVEYOR PRIOR TO CONSTRUCTION. IF ANY DISCREPANCIES ARE FOUND REGARDING THE PROJECT BOUNDARY NOTIFY HUSKA CONSULTING, LLC.
4. BEFORE COMMENCING CONSTRUCTION, CALL 'MISS UTILITY' TO FIELD MARK UNDERGROUND UTILITIES. FOLLOW MISS UTILITY REQUIREMENTS.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS WHICH ARE NOT PROVIDED WITH THE CONSTRUCTION DOCUMENTS. THIS INCLUDES ANCILLARY DESIGN, PERMIT PROCESSING, INSPECTIONS, AND CLOSEOUTS. ALL PERMITS MUST BE ONSITE, INCLUDING PUBLIC SPACE EXCAVATION, OCCUPANCY, AND TRAFFIC CONTROL PLANS IF/AS REQUIRED.
6. THE EXTENT OF EXISTING STRUCTURES INCLUDING UNDERGROUND FEATURES MAY NOT BE DEPICTED ON THE PLANS.
7. THE CONTRACTOR MUST NOTIFY THE FAIRFAX COUNTY INSPECTOR BEFORE MAKING ANY FIELD ADJUSTMENTS TO ACCOMMODATE EXISTING CONDITIONS.
8. ALL GENERAL NOTES ARE FOR TYPICAL CONSTRUCTION ACTIVITIES; THEY MAY INCLUDE INFORMATION THAT IS NOT APPLICABLE TO THE SCOPE OF THIS PROJECT.
9. THE VARIOUS CODES AND STANDARDS WHICH ARE SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY; THEY DO NOT NECESSARILY REPRESENT THE MOST CURRENT OR COMPLETE STANDARDS REQUIRED FOR THE CONSTRUCTION. THE CONTRACTOR MUST REFER TO THE CORRECT, APPLICABLE CODES AND STANDARDS.
10. ACCESS TO THE PROJECT PROPERTY AND ALL SURROUNDING AREAS MUST BE MAINTAINED FOR ALL EMERGENCY SERVICES, PEDESTRIANS, AND DELIVERIES IF REQUIRED AND AS APPROPRIATE. ACCESS TO FIRE HYDRANTS MUST NOT BE IMPAIRED.
11. THE CONTRACTOR SHALL RESTORE OR REPLACE ANY ITEMS TO REMAIN THAT ARE DAMAGED DURING CONSTRUCTION.
12. THE CONTRACTOR MUST MAINTAIN A SET OF CONSTRUCTION PLANS WHICH HAVE BEEN MARKED UP TO ACCURATELY CONVEY CONSTRUCTION WHICH HAS DEVIATED FROM THE APPROVED CONSTRUCTION PLANS. THESE PLANS MUST BE PROVIDED TO THE CLIENT, THE CLIENT'S REPRESENTATIVE, OR HUSKA CONSULTING, LLC PRIOR TO THE PROJECT CLOSEOUT.

GENERAL PAVEMENT NOTES

1. EXISTING PAVEMENT TO BE REPLACED SHALL AT MINIMUM MATCH THE EXISTING CROSS SECTION.
2. EXISTING CURB AND/OR GUTTER TO BE REPLACED SHALL MATCH EXISTING TYPE, MATERIAL, AND DIMENSIONS.
3. SAWCUT EXISTING ASPHALT PAVEMENT 1' FROM EDGE OF NEW CURB AND/OR GUTER FOR REPLACEMENT.
4. MILL AND OVERLAY EXISTING ASPHALT PAVEMENT 1' FROM EDGE OF NEW PAVEMENT TO PROVIDE SMOOTH TRANSITION.

GENERAL UTILITY NOTES

1. THE CONSTRUCTION WORK SHALL BE COMPLETED IN SUCH A WAY AS TO MINIMIZE UTILITY OUTAGES. ALL UTILITY OUTAGES MUST BE COORDINATED WITH THE UTILITY OWNER AND AFFECTED PARTIES.
2. SOME EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS. BEFORE BEGINNING CONSTRUCTION, VERIFY THERE ARE NO CONFLICTS WITH EXISTING UTILITIES. TEST PIT AS REQUIRED TO DETERMINE LOCATIONS AND DEPTHS OF EXISTING UTILITIES WITHIN THE CONSTRUCTION WORK AREA. IF ANY EXISTING UTILITIES ARE FOUND WHICH ARE NOT DEPICTED IN THE EXISTING CONDITIONS PLAN OR CONFLICT WITH THE PROPOSED WORK NOTIFY HUSKA CONSULTING, LLC.
3. NOTIFY HUSKA CONSULTING, LLC IF COVER FOR ANY UTILITY IS REDUCED BELOW THE MINIMUM REQUIRED.
4. THE SITE CIVIL PLAN IS MEANT TO CONVEY 'WET' (SANITARY SEWER, STORM SEWER, AND WATER) UTILITY WORK. ALL 'DRY' (ELECTRIC, NATURAL GAS, TELECOMMUNICATIONS) UTILITY WORK SHOWN IS FOR INFORMATION AND REFERENCE ONLY. REFER TO THE DRY UTILITY AND/OR MEP PLANS FOR DRY UTILITY WORK.
5. REFER TO FAIRFAX WATER STANDARDS FOR ABANDONMENT OF EXISTING WATER LATERALS AND MAINS. NOTE THIS INVOLVES DISCONNECTING ALL LATERALS AT THE MAINS, PLUGGING AND SEALING THE MAINS, AND REMOVING ALL ABANDONED METERS, VALVES, AND APPURTENANCES. COORDINATE WITH THE FAIRFAX WATER INSPECTOR.
6. REFER TO THE FAIRFAX CITY PUBLIC FACILITIES MANUAL FOR ABANDONMENT OF EXISTING SANITARY SEWER MAINS, STORM SEWER MAINS, AND LATERALS. NOTE THIS INVOLVES DISCONNECTING ALL LATERALS AT THE MAINS, PLUGGING AND SEALING THE MAINS, AND REMOVING ALL ABANDONED METERS, VALVES, AND APPURTENANCES. COORDINATE WITH THE FAIRFAX CITY INSPECTOR.
7. ALL WYE CONNECTIONS TO EXISTING SEWER LINES SHALL MATCH THE EXISTING SIZE AND MATERIAL.
8. REMOVE ABANDONED UTILITIES AS REQUIRED.
9. ADJUST EXISTING STRUCTURE TOPS AND MANHOLES TO REMAIN WITHIN THE LIMITS OF DISTURBANCE TO MATCH FINAL GRADE AS REQUIRED. INSTALL ADDITIONAL STEPS WITHIN MANHOLES AS REQUIRED.

GENERAL GRADING NOTES

1. THE SITE MUST BE GRADED AND PAVED SO THAT NO NEW LOW POINTS WITHOUT PROPER DRAINAGE ARE CREATED; NO PONDING SHALL OCCUR ONSITE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE STORMWATER MANAGEMENT PLANS WITHIN BMP FACILITIES OR ON THE SEDIMENT CONTROL PLAN WITHIN SEDIMENT TRAPS OR BASINS.
2. ALL PAVED SURFACES SHALL BE AT A 0.5% MINIMUM SLOPE. ALL GRASSED AND LANDSCAPED AREAS SHALL BE AT A 1% MINIMUM SLOPE. EXCEPTIONS MAY BE MADE ONLY IF APPROVED BY HUSKA CONSULTING, LLC.
3. SPOT ELEVATIONS SHOWN AT TIE-IN POINTS WITH EXISTING SURFACES ARE SHOWN APPROXIMATE, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. PROPOSED ELEVATIONS MAY BE MODIFIED WITH APPROVAL FROM HUSKA CONSULTING, LLC TO MATCH EXISTING GRADE.
4. SITE CONSTRUCTION MUST BE ADA COMPLIANT UNLESS SPECIFICALLY NOTED OTHERWISE. ADA ROUTES MUST HAVE LONGITUDINAL SLOPES LESS THAN 5%, AND CROSS SLOPES LESS THAN 2%. ADA RAMPS MUST HAVE A LONGITUDINAL SLOPE LESS THAN 12 H: 1V AND HAVE A LENGTH NO MORE THAN 30'. PROVIDE ADA HANDRAILS, GUARDRAILS, AND LANDINGS WHERE APPROPRIATE. ADA PARKING SPACES MUST HAVE A SLOPE LESS THAN 2% IN ANY DIRECTION.
5. ANY UNSUITABLE IN SITU SOIL OR MATERIAL MUST BE REMOVED OR REMEDIATED PER DIRECTION FROM THE GEOTECHNICAL ENGINEER.
6. REFER TO THE SITE NOTES AND DETAILS FOR ADDITIONAL INFORMATION.

GENERAL SITE DEMOLITION NOTES

1. REFER TO THE ARCHITECTURAL PLANS FOR SELECTIVE DEMOLITION RELATED TO INTERIOR RENOVATIONS. COORDINATE WITH THE DESIGN TEAM, INCLUDING THE STRUCTURAL ENGINEER, IN REGARDS TO THE STABILITY OF EXISTING STRUCTURES TO REMAIN.
2. THE APPROXIMATE SCALE OF ABANDONMENT AND DEMOLITION OF SITE FEATURES AND UTILITIES ARE DEPICTED BOLD OR HATCHED ON THE DEMOLITION PLAN.
3. DEMOLITION OF SITE FEATURES AND UTILITIES TO REPLACE ITEMS IN KIND ARE NOT NECESSARILY SHOWN BUT ARE WITHIN THE SCOPE OF WORK.
4. SAWCUT EXISTING PAVEMENT TO BE REMOVED WHERE ADJACENT TO EXISTING PAVEMENT TO REMAIN. FOR CONCRETE AND GRANITE, SAWCUT AT THE NEAREST JOINT.
5. ALL DEMOLITION DEBRIS MUST BE DISPOSED PER APPLICABLE LAW; DEMOLITION DEBRIS MAY ONLY BE USED FOR BACKFILL IF EXPRESS KNOWLEDGE AND PERMISSION IS GRANTED FROM THE STRUCTURAL AND GEOTECHNICAL ENGINEERS.
6. REFER TO THE DEMOLITION NOTES AND DETAILS FOR ADDITIONAL INFORMATION.

GENERAL SEDIMENT CONTROL NOTES

1. THE CONTRACTOR MUST NOTIFY THE FAIRFAX COUNTY INSPECTOR BEFORE MAKING ANY ADJUSTMENTS IN REGARDS TO THE LIMITS OF DISTURBANCE AND SEDIMENT CONTROL MEASURES TO PERFORM THE WORK AND ACCOMMODATE FIELD CONDITIONS.
2. WHERE NO STABILIZED CONSTRUCTION IS PROVIDED CONTRACTOR SHALL DESIGNATE VEHICLES THAT SHALL ENTER THE SITE. ALL VEHICLES LEAVING THE SITE MUST HAVE THEIR TIRES/TREADS WASHED PRIOR TO ENTERING ANY PUBLIC STREETS. WASH WATER MUST NOT BE ALLOWED TO LEAVE THE SITE.
3. THE LIMITS OF DISTURBANCE AND SEDIMENT CONTROL MEASURES ARE SHOWN APPROXIMATELY; PRESENTATION ON THE PLANS MAY DEVIATE SLIGHTLY FROM THE ACTUAL DESIGN INTENT FOR GRAPHICAL CLARITY.
4. TEMPORARY SOIL STOCKPILES SHOULD BE PLACED AS NEEDED ON THE SITE IN COORDINATION WITH THE FAIRFAX COUNTY. INSTALL SILT FENCE AROUND THE PERIMETER OF ALL STOCKPILES AND COVER WITH A TARP OR OTHER APPROVED IMPERMEABLE SURFACE PRIOR TO RAIN EVENTS.
5. THE CONTRACTOR SHALL PROVIDE INLET PROTECTION FOR ALL CATCH BASINS, CURB INLETS, DRAINS, AND RISER STRUCTURES ON OR ADJACENT TO THE LIMITS OF DISTURBANCE. ANY SEWER WHICH BECOMES CLOGGED DUE TO CONSTRUCTION MUST BE PROMPTLY CLEANED AND CLEARED.
6. ANY AND ALL SITE STORM RUNOFF FROM DISTURBED AREAS MUST BE FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT PRIOR TO LEAVING THE SITE. SEDIMENT MUST BE PLACED IN AN APPROVED AREA AND STABILIZED. SEDIMENT MUST NOT BE PLACED IN A FLOODPLAIN, WETLAND, WITHIN THE CRITICAL ROOT ZONE OF AN EXISTING TREE TO REMAIN, OR RPA.
7. NO EXISTING TREES ARE TO BE REMOVED AS PART OF THIS PROJECT. EXISTING TREES SHALL BE PROTECTED AS NEEDED AND REQUIRED BY FAIRFAX COUNTY WITH TREE PROTECTION FENCE. SEE FAIRFAX COUNTY PLATE 6-12 ON SHEET CIV-510.
8. MINIMIZE DUST GENERATION DURING CONSTRUCTION.
9. REFER TO THE SEDIMENT CONTROL NOTES AND DETAILS FOR ADDITIONAL INFORMATION.

ABBREVIATIONS

ABND	ABANDONED	MH	MANHOLE
AD	AREA DRAIN	MIN	MINIMUM
ADA	AMERICANS WITH DISABILITIES ACT	MS	MINIMUM STANDARD
		NRCS	NATURAL RESOURCES CONSERVATION SERVICE
APPROX	APPROXIMATE	OC	ON CENTER
BFP	BACKFLOW PREVENTER	PFM	PUBLIC FACILITIES MANUAL
BLDG	BUILDING		
BRL	BUILDING RESTRICTION LINE	PL	PROPERTY LINE
		PROP	PROPOSED
BSMT	BASEMENT	RPA	RESOURCE PROTECTION AREA
BW	BOTTOM OF WALL		
CI	CAST IRON	SAN	SANITARY
CO	CLEANOUT	SCH	SCHEDULE
CS	COMBINED SEWER	STM	STORM
DEQ	VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY	SWR	SEWER
		TC	TOP OF CURB
ELEV	ELEVATION	TW	TOP OF WALL
EX	EXISTING	VB	VERTICAL BEND
FFE	FIRST FLOOR ELEVATION	VCP	VITRIFIED CLAY PIPE
HB	HORIZONTAL BEND	W/	WITH
HSG	HYDROLOGIC SOIL GROUP	W/M	WATERMAIN
MAX	MAXIMUM	WW	WINDOW WELL
MEP	MECHANICAL ELECTRICAL/PLUMBING		

WETLANDS PERMIT CERTIFICATION:

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

SIGNATURE: DocuSigned by: EMRE ZIREKOGLU 1F481DEB2DA2492...

OWNER/DEVELOPER: EMRE ZIREKOGLU (NAME) Manager (TITLE)

RESPONSIBLE LAND DISTURBER:

NAME: _____

CERT. NO.: _____

PHONE NO.: _____

ADDRESS: _____

ZONING INFORMATION	
LOT AREA	1.16 AC (50,778 SF)
EXISTING ZONING:	CR
PROPOSED ZONING	RT
PROPOSED USE	TOWNHOUSES
WATERSHED:	ACCOTINK CREEK
DISTURBANCE:	1.20 ACRES
SEWER:	PUBLIC
WATER:	PUBLIC
MAXIMUM DENSITY (RT)	12 UNITS/ACRE
PROPOSED TOWNHOME UNITS	13
PROPOSED DENSITY	11.21 UNITS/ACRE
OFF-STREET PARKING REQ. (RT)	2 SPACES/UNIT
TOTAL SPACES REQ. (RT)	26 SPACES
PROPOSED SPACES	26 SPACES
LAND USE ACTIONS/GRANTED	
ZONING INTERPRETATION - TOWNHOMES TO FRONT PRIVATE STREET	PENDING APPROVAL
SPECIAL EXCEPTION - NO 10-FT LANDSCAPE STRIP ALONG PRIVATE STREET	PENDING APPROVAL
PFM WAIVER - 24' PRIVATE STREET WIDTH	PENDING APPROVAL
OPEN SPACE REQ.	NONE
OPEN SPACE PROVIDED	NONE
TYPE OF CONSTRUCTION	PENDING

PARK RD TOWNHOUSE REZONING PLANS

FOR

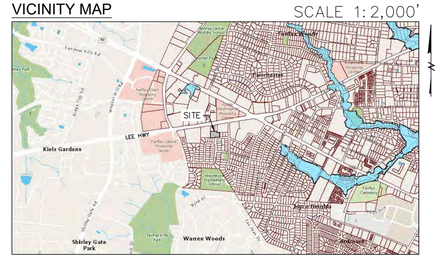
PROJECT

LOCATION OF SITE
11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
D.B. 27365, P.G. 1623
SQUARE 02 LOT 002

SITE CIVIL ENGINEERING SHEET INDEX	
SHEET TITLE	SHEET #
COVER SHEET	000
EXISTING CONDITIONS	001
SITE PLAN	002
GRADING PLAN	003
FIRE PLAN	004
SITE DETAILS	005
FAIRFAX CITY DPW DETAILS	006
UTILITY PLAN	007
SANITARY SEWER CAPACITY ANALYSIS	008
FAIRFAX WATER DETAILS	009
UTILITY DETAILS	010
STORM MAIN CROSS SECTIONS	011
STORMWATER MANAGEMENT PLAN	012
STORMWATER MANAGEMENT CALCULATIONS	013
BAYFILTER DETAILS	014
DRAINAGE PLAN	015
DRAINAGE PLAN CALCULATIONS	016
TREE SURVEY	017
LANDSCAPE PLAN	018
LANDSCAPE DETAILS	019

VICINITY MAP

SCALE 1:2,000'



USDA-NRCS SOIL MAP

SCALE 1:100'

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
52B	Hattontown-Haymarket complex, 2 to 7 percent slopes	0.4	6.2%
95	Urban land	3.0	42.7%
105B	Wheaton - Glenelg complex, 2 to 7 percent slopes	1.3	18.3%
105C	Wheaton - Glenelg complex, 7 to 15 percent slopes	1.5	21.8%
107B	Wheaton - Meadowville complex, 2 to 7 percent slopes	0.8	11.0%
Totals for Area of Interest		**7.0**	**100.0%**

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION

REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
CAGLAYAN INVESTMENT GROUP
32713 LATROBE ST
CHANTILLY, VA 20152
571.594.6363

CONTRACTOR
TBD

CIVIL ENGINEER
PATRICK HORGAN
HUSKA CONSULTING, LLC
1050 30TH STREET, NW
WASHINGTON, DC 20007
703.425.3862

LAND SURVEYOR
DOMINION SURVEYS, INC.
8808-H PEAR TREE VILLAGE COURT
ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

COVER SHEET

DRAWING TITLE

000

DRAWING NO.

EXISTING CONDITIONS PLAN LEGEND

- PROPERTY LINE
- BUILDING FACE
- DOOR
- WALL
- WOOD FENCE
- IRON FENCE
- HANDRAIL
- CURB AND GUTTER
- BOLLARD
- ASPHALT PAVEMENT
- BRICK PAVEMENT
- CONCRETE PAVEMENT
- WOOD/LUMBER DECK
- SPOT ELEVATION
- CONTOUR
- TREE W/ CRZ & SRZ
- TRAFFIC SIGN
- ELECTRIC LINE
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC VAULT
- GAS LINE
- GAS METER
- GAS VALVE
- OVERHEAD UTILITY
- 12" CS — COMBINED SEWER
- 12" SAN — SANITARY SEWER
- 12" STM — STORM SEWER
- COMBINED/SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM DRAIN
- CLEANOUT
- DOWNSPOUT
- TELECOMMUNICATIONS
- TELECOMMUNICATIONS MANHOLE
- LIGHT POLE/STREET LIGHT
- UTILITY POLE
- GUY WIRE
- 8" DIP — WATER LINE
- FIRE HYDRANT
- FIRE DEPT. CONN.
- WATER METER
- WATER VALVE

EASEMENT INFORMATION TABLE

EASEMENT #	TYPE	WIDTH (FT)	METES & BOUNDS OF CENTERLINE	DB & PG. #
1	STORM SEWER	10	N 89°30'46" W ~ 125.38'	DB 6827, PG 1808
2	SANITARY SEWER & WATER LINE	15	N 89°30'46" W ~ 125.38'	DB 1192, PG 94
3	SANITARY SEWER	10	N 01°00'00" W ~ 203.62'	DB 2765, PG1623
4	SANITARY SEWER	15	S 81°03'02" W ~ 18.93' N 06°40'40" W ~ 3.37'	DB 2765, PG1623
5	SANITARY SEWER	20	S 81°03'02" W ~ 18.93'	DB 3808, PG 269
6	SIDEWALK	6.5		DB 6550, PG 1184
7	STORM SEWER	10	S 88°47'52"E	DB 6550, PG 1190

SANITARY SEWER STRUCTURES

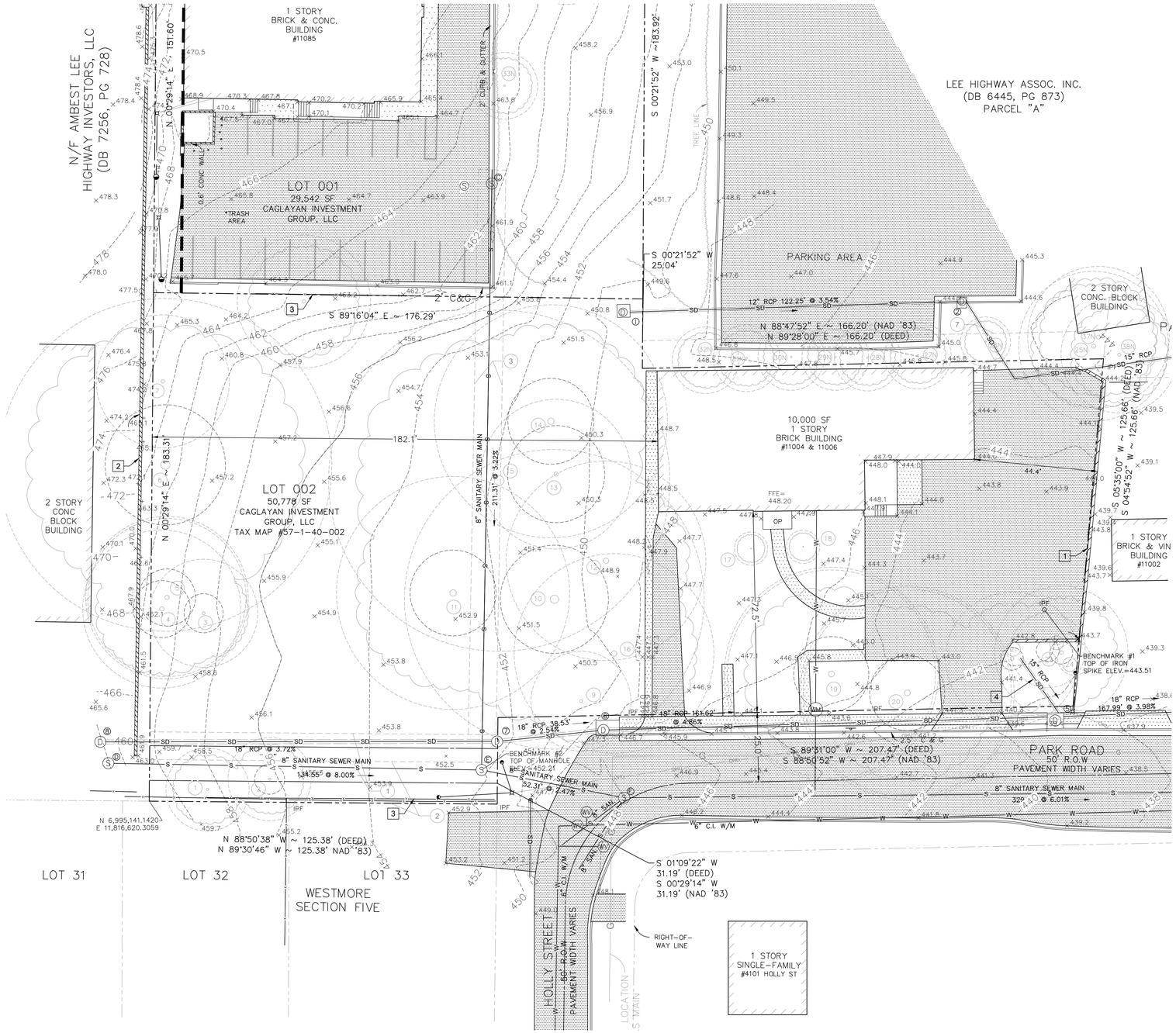
- (A) TOP= 451.18 INV.OUT= 438.64 TO SOUTH INV.IN= 439.48 FROM B
- (B) TOP=464.66 INV.OUT= 445.41 TO A INV.IN= 445.76 FROM NORTH
- (C) TOP=462.95 INV.OUT=450.36 TO E
- (D) TOP=466.32 INV.OUT=454.67 TO E INV.IN=454.91 FROM NORTH
- (E) TOP=452.21 INV.OUT=443.51 TO F INV.IN=443.56 FROM C INV.IN.=443.90 FROM D
- (F) TOP=448.02 INV.OUT=441.67 TO G INV.IN= 441.82 FROM SOUTHEAST INV.IN= 442.37 FROM SOUTHEAST INV.IN= 442.22 FROM E
- (G) TOP=433.14 INV.OUT= 421.70 TO EAST INV.IN= 421.75 FROM SOUTH INV.IN= 421.85 FROM WEST INV.IN= 421.77 FROM NORTH

STORM SEWER STRUCTURES

- (I) TOP=448.82 INV. OUT=443.14 TO 2
- (2) TOP=444.81 INV. OUT=438.81 TO 3 INV. IN=438.81 FROM 1
- (3) TOP=436.45 INV. OUT=433.04 TO SOUTH INV. IN=433.14 FROM 2 INV. IN=433.15 FROM NORTH
- (3A) INV. OUT=431.54 TO SOUTH INV. IN=432.18 FROM WEST INV. IN=431.65 FROM NORTH
- (4) TOP=433.36 INV.OUT=428.62 TO EAST INV.IN=428.73 FROM 5 INV.IN=429.05 FROM NORTH
- (5) TOP=439.44 INV.OUT=435.42 INV.IN=435.23 FROM 6 INV.IN=435.16 FROM NORTHWEST
- (6) TOP=447.61 INV.OUT=443.08 TO 5 INV.IN=443.42 FROM 7
- (7) TOP=452.59 INV.OUT=444.40 TO 6 INV.IN=445.40 FROM WEST
- (8) TOP=466.61 INV.OUT=450.72 TO 7

EXISTING CONDITIONS PLAN KEYNOTES

1. EXISTING 1-FT WIDE CONCRETE WALL MAXIMUM HEIGHT: 4'=0"
2. EXISTING 1-FT WIDE CONCRETE WALL MAXIMUM HEIGHT: 10'=0"
3. WOOD FENCE HEIGHT: 6'-0"
4. UPSTREAM CONNECTION UNKNOWN. 15" RCP STORM MAIN IS ASSUMED TO COLLECT RUNOFF FROM THE EXISTING BUILDING ON LOT 002 AND THE ADJACENT PARKING LOT. CONTRACTOR TO FIELD VERIFY PRIOR TO DEMOLITION.



SURVEYOR'S NOTES:

1. THE PROPERTIES DELINEATED HERON IS SHOWN ON TAX MAP 57-1-02-135, 57-1-02-135, 57-1-02-136, 57-1-02-137A &57-1-02-138B AND ARE ZONED C-2 COMMERCIAL.
2. OWNER: CAGLAYAN INVESTMENT GROUP, LLC 42713 LATROBE ST, CHANTILLY VIRGINIA 20152 DB. 25288, PG 1940, DB. 25288, PG. 1942 AND DB. 26229, PG. 2180
3. NO TITLE REPORT FURNISHED.
4. THESE PROPERTIES ARE SUBJECT TO RESTRICTIONS OF RECORD.
5. HORIZONTAL DATUM IS REFERENCED TO NAD '83. VERTICAL DATUM IS REFERENCED TO NGVD '29.
6. THESE PROPERTIES ARE NOT LOCATED WITHIN A RESOURCE PROTECTION AREA.
7. FENCES ARE CHAIN LINK UNLESS NOTED.
8. TOTAL AREA= 81,154 SQUARE FEET.

FLOODPLAIN CERTIFICATE

I HEREBY CERTIFY THAT THE PROPERTY IS NOT WITHIN 500 FEET OF A DELINEATED OR KNOWN FLOODPLAIN PER THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD MAP #51059C0040E.

PATRICK HORGAN, P.E. LICNESE NO. 061930 — DATE

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

EXISTING CONDITIONS PLAN NOTES

1. THIS EXISTING CONDITIONS PLAN IS BASED ON A SURVEY AND AUTOCAD FILES PERFORMED AND PROVIDED BY DOMINION ENGINEERS, INC..
2. THE EXISTING CONDITIONS LEGEND IS APPLICABLE TO THIS SHEET ONLY. THE EXISTING CONDITIONS MAY BE DEPICTED DIFFERENTLY (GRAY SCALED) OR NOT FULLY DEPICTED ON OTHER SHEETS.
3. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE AND BASED ON AVAILABLE RECORDS AND, WHERE INFORMATION IS NOT AVAILABLE, ASSUMPTIONS. CONTRACTOR SHALL LOCATE AND CONFIRM ALL UTILITIES WITHIN THE BOUNDS OF CONSTRUCTION PRIOR TO UNDERTAKING ANY DEMOLITION OR EXCAVATION.

BAR SCALE
20 16 12 8 4 0 10 20 30
1" = 20'

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
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COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER
SEAL

EXISTING CONDITIONS
DRAWING TITLE

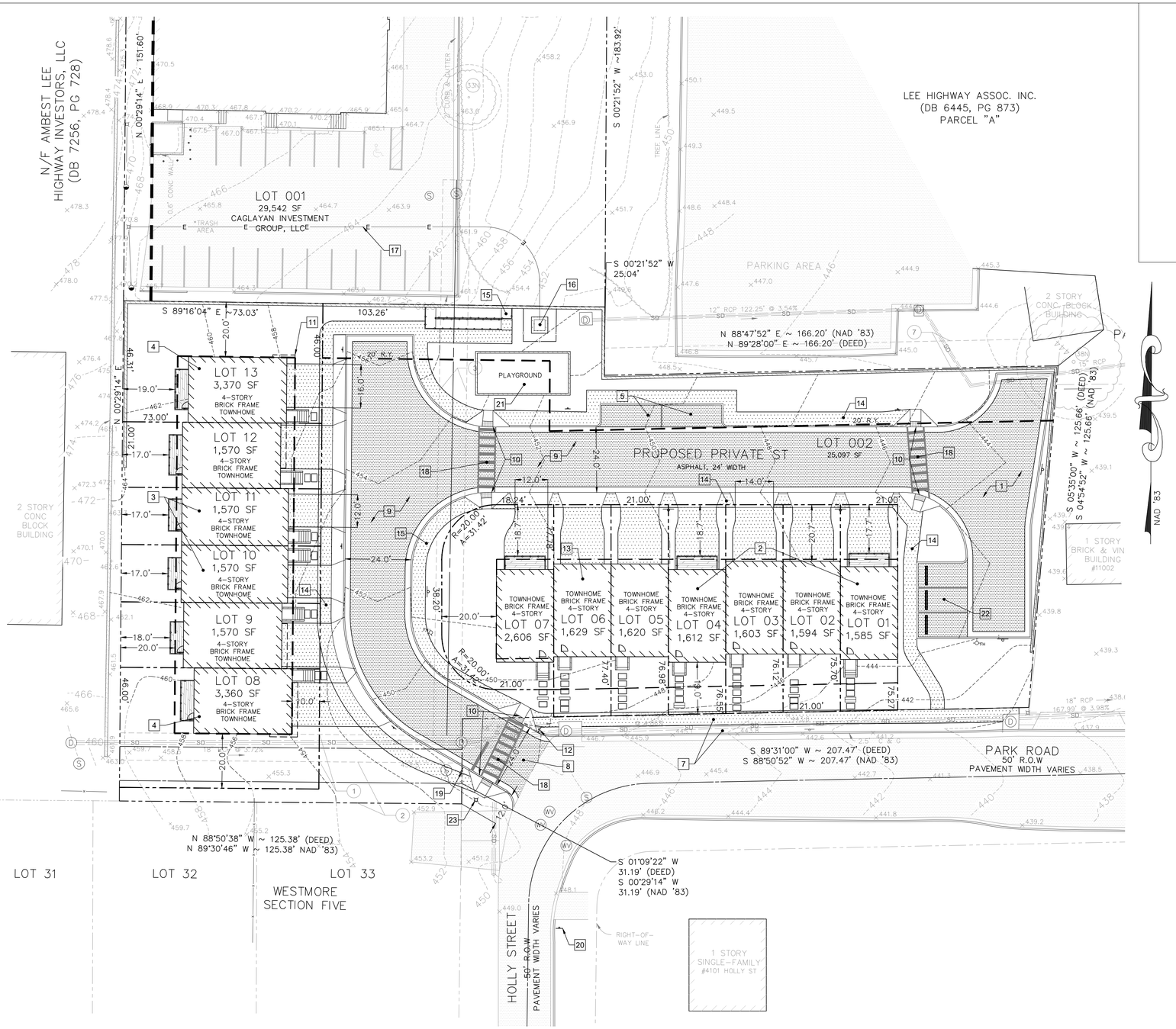
001
DRAWING NO.

SITE PLAN LEGEND

- BUILDING FACE
- EXTERIOR DOOR
- RETAINING WALL
- GUARD RAIL
- WOOD FENCE
- STAIRS
- CONCRETE WHEEL STOP
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PAVEMENT MARKING
- WOOD DECK
- UTILITY POLE
- LIGHT POST
- TRAFFIC SIGN
- UTILITY EASEMENT
- PROPOSED CONTOUR

SITE PLAN KEYNOTES

1. TURN–AROUND AREA FOR EMERGENCY VEHICLES
2. LOTS 01–07 TO HAVE 21'X34' TOWNHOMES WITH TWO CAR GARAGE
3. LOTS 10 & 11 TO HAVE 21'X39' TOWNHOMES WITH ONE CAR GARAGE
4. LOTS 08–09 & 12–13 TO HAVE 24'X36' TOWNHOMES WITH TWO CAR GARAGE
5. TWO 8'X22' PARALLEL PARKING SPACES RESERVED FOR LOTS 10–11
6. PRIVATE ROADS, SIDEWALKS, PLAYGROUND, PARKING AREA, STORM UTILITIES, AND STORMWATER MANAGEMENT FACILITIES TO BE OWNED AND MAINTAINED BY FUTURE HOMEOWNERS ASSOCIATION.
7. 5–FT CONCRETE SIDEWALK TO BE PROVIDED ADJACENT TO PARK RD ALONG PROPERTY FRONTAGE SETBACK 3–FT FROM CURB (DWP STD. 404.01). PROVIDE 3–FT WIDE GRASS STRIP BETWEEN SIDEWALK AND CURB
8. 24–FT WIDE COMMERICAL ENTRANCE LOCATED IN HOLLY ST AND PARK RD INTERSECTION (DWP STD. 404.06)
9. 24–FT WIDE PRIVATE ASPHALT ROAD (DWP STD. 401.01) REQUIRES VARIANCE TO MINIMUM WIDTH. 2–FT WIDE CONCRETE CURB AND GUTTER (VDOT STD. 201.03)
10. ADA COMPLIANT CONCRETE CURB RAMP (DWP STD. 404.04), TYPICAL FLARE SLOPE: 1:10 MAX (H:V)
11. OVERHEAD BAY WINDOW PROJECTION NOT TO EXCEED 3–FT, TYPICAL
12. NEW STREET SIGN DENOTING PRIVATE STREET, NAME PENDING
13. TRASH AND RECYCLING CONTAINERS TO BE STORED IN GARAGES, TYPICAL FOR ALL LOTS
14. ADA COMPLIANT 5–FT CONCRETE SIDEWALK BUILT AGAINST BACK OF CURB (DWP STD. 404.01) TO BE PROVIDED ON BOTH SIDES OF PROPOSED PRIVATE STREET CROSS SLOPE NOT TO EXCEED 2.0%
15. ADA COMPLIANT CONCRETE RAMP TO PROVIDE ACCESS TO LOT 01 AND FUTURE ACCESS TO LEE HIGHWAY.
    42" ACCESSIBLE WIDTH
    MAX. LONGITUDINAL SLOPE: 1:12 (H:V)
    CROSS SLOPE: 0.0%
    GUARDRAIL/HANDRAIL TO BE PROVIDED ON BOTH SIDES
16. PROPOSED LOCATION OF NEW DOMINION TRANSFORMER 6'X6' CONCRETE PAD WITH SURROUNDING WOOD FENCE AND DENSE HEDGE. WOOD FENCE AND HEDGE HEIGHT TO BE TALL ENOUGH TO SCREEN THE EQUIPMENT FROM PARK RD AND ADJACENT LOT 01
17. PROPOSED NEW POWER FED TO SITE FROM EXISTING UTILITY POLE ON ADJACENT LOT 001 (SAME OWNER AS LOT 002)
    EXACT ALIGNMENT AND DESIGN TO BE COMPLETED DURING SITE PLAN REVIEW
18. 6' WIDE ADA COMPLIANT CROSS WALK WITH MARKINGS
19. MUTCD STOP SIGN (RT–1 30"X30") FOR SOUTHBOUND TRAFFIC ON PRIVATE ROAD AT PARK RD AND HOLLY ST INTERSECTION.
    SET BACK MINIMUM 4' FROM PROPOSED CROSSWALK, FINAL PLACEMENT AND DESIGN TO BE PROVIDED DURING SITE PLAN REVIEW.
20. NEW REFLECTIVE ROAD SIGN FOR NORTHBOUND TRAFFIC ON HOLLY ST: "WARNING PARK RD THRU TRAFFIC DOES NOT STOP"
    FINAL PLACEMENT AND DESIGN TO BE PROVIDED DURING SITE PLAN REVIEW.
21. AREA RESERVED FOR NEW PLAYGROUND/TOT LOT, FINAL DESIGN TO BE DETERMINED DURING SITE PLAN REVIEW.
22. THREE 9'X18' STANDARD PARKING SPACES FOR USE BY GUEST
23. EXISTING DOMINION UTILITY POLE TO BE RELOCATED TO ALLOW FOR NEW COMMERCIAL ENTRANCE, CONCRETE SIDEWALK, AND ADA CONCRETE RAMP. UTILITY POLE SHALL BE RELOCATED PER CURRENT DOMINION POWER STANDARDS AND SPECIFICATIONS. FINAL DESIGN AND LOCATION TO BE DETERMINED DURING SITE PLAN REVIEW.



ZONING REQUIREMENTS: RESIDENTIAL TOWNHOUSE (RT)		
ZONING STANDARD	ALLOWED	PROPOSED
MINIMUM LOT SIZE	1,500 SF	1,585 SF
SITE AREA (ACRE)	0.4 ACRE OR 17,424 SF	1.16 ACRE OR 50,778 SF
MAXIMUM LOT COVERAGE	80%	74.70 %
MAXIMUM BUILDING COVERAGE	60%	53.41%
MAXIMUM BUILDING HEIGHT		
ADJACENT TO RESIDENTIAL USE	35-FT/3-STORY	N/A
ADJACENT TO COMMERCIAL USE	45-FT/4-STORY	45-FT/4-STORY
SETBACKS		
FRONT:	10 FEET	10 FEET (MIN.)
SIDE:	20 FEET TO STREET 0 FEET INTERIOR	20 FEET 0 FEET
REAR:	20 FEET	20 FEET (MIN.)
DENSITY	12 UNIT/ACRE	11.20 UNIT/ACRE
MINIMUM LOT WIDTH	18 FEET	21.50 FEET (MIN.)

OFF–STREET PARKING CALCULATIONS

USE:	RESIDENTIAL, TOWNHOUSES
OFF–STREET PARKING REQUIRED:	2.0/UNIT
PROPOSED UNITS:	13
TOTAL OFF–STREET SPACES REQUIRED:	26
TOTAL OFF–STREET SPACES PROVIDED:	26*

*16–FT WIDE DRIVEWAYS CONNECT TO A 2–CAR GARAGE, 12–FT WIDE DRIVEWAYS CONNECT TO A 1–CAR GARAGE

REFUSE DISPOSAL NOTE

REFUSE AND RECYCLING SHALL BE STORED ON EACH INDIVIDUAL LOT AND COLLECTED WEEKLY BY PRIVATE REFUSE DISPOSAL COMPANY.

SITE PLAN NOTES

1. ALL EXISTING FEATURES ARE NOT NECESSARILY SHOWN ON THIS PLAN. SEE EXISTING CONDITIONS PLAN.
2. THIS PLAN IS TO DEPICT WORK ON PRIVATE PROPERTY ONLY. NO WORK IS PROPOSED IN PUBLIC SPACE.
3. SPOT SHOTS ARE SHOWN PURPOSEFULLY OFFSET 0.5' FROM THE SPOT DESCRIBED FOR VISUAL CLARITY. MOREOVER, SPOTS ARE ROUNDED TO THE NEAREST 5 HUNDREDTHS.
4. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL INFORMATION.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

BAR SCALE
20 16 12 8 4 0 10 20 30
1" = 20'

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
CAGLAYAN INVESTMENT GROUP
32713 LATROBE ST
CHANTILLY, VA 20152
571.594.6363

CONTRACTOR
TBD

CIVIL ENGINEER
PATRICK HORGAN
HUSKA CONSULTING, LLC
1050 30TH STREET, NW
WASHINGTON, DC 20007
703.425.3862

LAND SURVEYOR
DOMINION SURVEYS, INC.
8808-H PEAR TREE VILLAGE COURT
ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Joseph HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER
SEAL

SITE PLAN
DRAWING TITLE

002
DRAWING NO.

SITE DISTANCE LEGEND

- SIGHT DISTANCE/TRAVEL PATH
- EYE — EYE OF VEHICLE ENTERING INTERSECTION
- OBJ. — OBJECT ALONG PATH OF TRAVEL

INTERSECTION SIGHT DISTANCE

The following table shows intersection sight distance requirements for various speeds along major roads: *

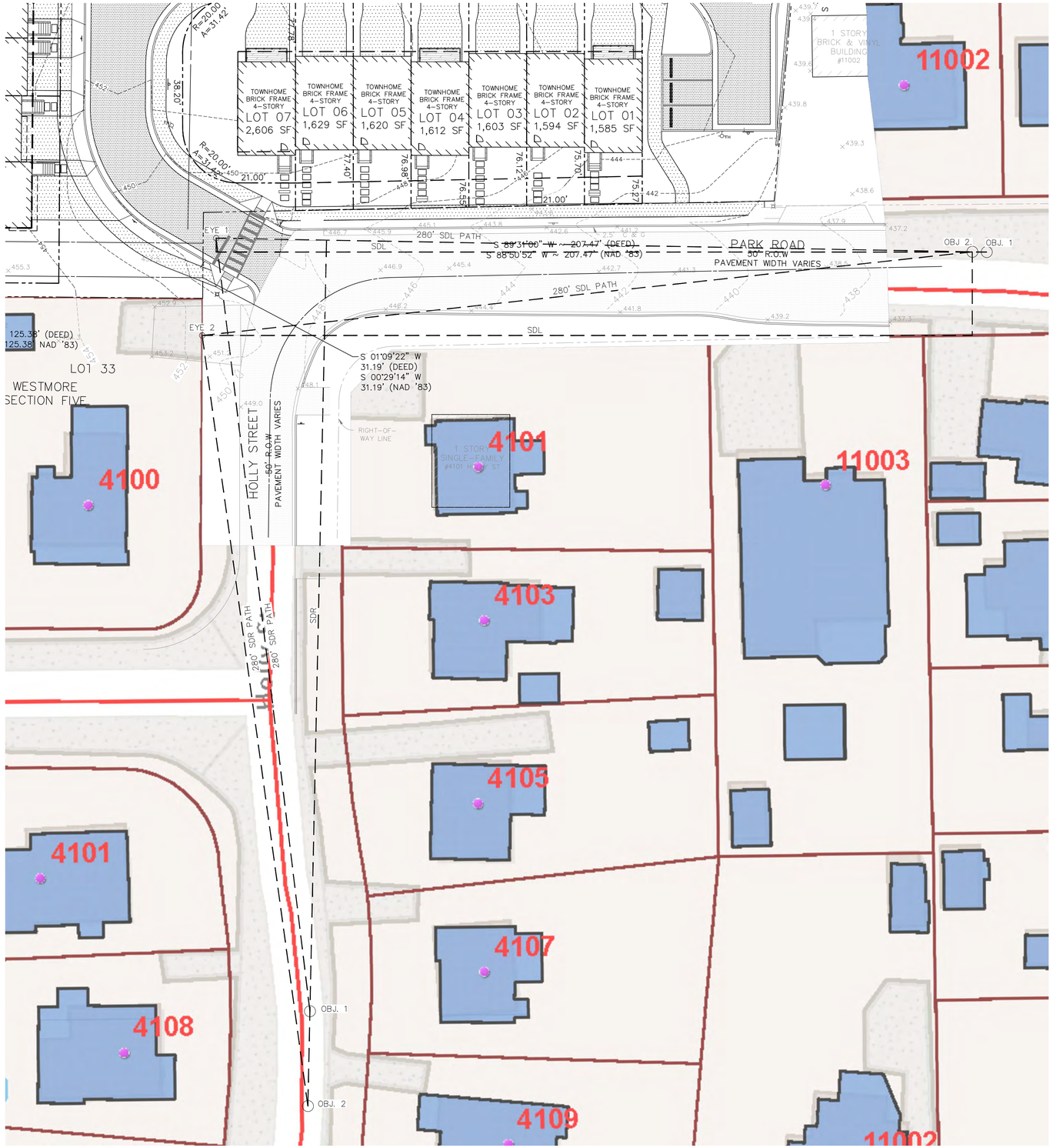
Height of Eye 3.5'											Height of Object 3.5'	
Design Speed (mph)**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**	**65**	**70**
SDL=SDR: 2 Lane Major Road	225	280	335	390	445	500	555	610	665	720	775
SDR: 4 Lane Major Road (Undivided) or 3 Lane	250	315	375	440	500	565	625	690	750	815	875
SDL: 4 Lane Major Road (Undivided) or 3 Lane	240	295	355	415	475	530	590	650	710	765	825
SDR: 4 Lane Major Road (Divided – 18' Median)	275	340	410	480	545	615	680	750	820	885	955
SDL: 4 Lane Major Road (Divided – 18' Median)	240	295	355	415	475	530	590	650	710	765	825
SDR: 5 Lane Major Road (continuous two-way turn-lane)	265	335	400	465	530	600	665	730	800	860	930
SDL: 5 Lane Major Road (continuous two-way turn-lane)	250	315	375	440	500	565	625	690	750	815	875
SDR: 6 Lane Major Road (Divided – 18' Median)	290	360	430	505	575	645	720	790	860	935	1005
SDL: 6 Lane Major Road (Divided – 18' Median)	250	315	375	440	500	565	625	690	750	815	875
SDL: (Where left turns are physically restricted)	210	260	310	365	415	465	515	566	620	670	725

Units: Feet

TABLE A1-3 INTERSECTION SIGHT DISTANCE

Source: 2018 AASHTO Green Book, Chapter 9, Section 9.5.3, page 9-37 thru 9-52, Table 9-6 thru 9-17

**For all tables, use design speed if available, if not use legal speed.



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SITE DISTANCE EXHIBIT

DRAWING TITLE

002A

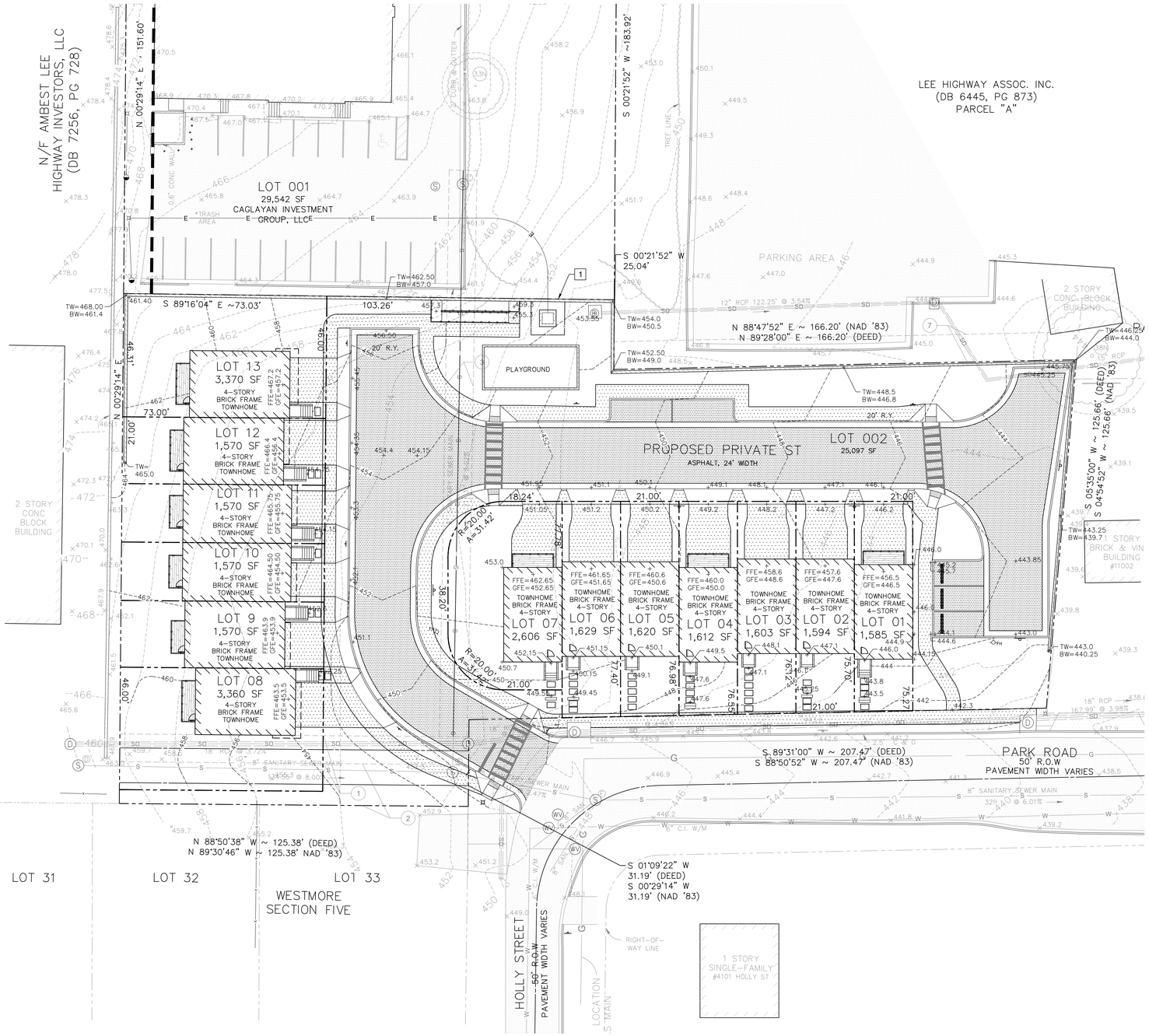
DRAWING NO.

SITE PLAN LEGEND

- BUILDING FACE
- EXTERIOR DOOR
- RETAINING WALL
- GUARD RAIL
- WOOD FENCE
- STAIRS
- CONCRETE WHEEL STOP
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PAVEMENT MARKING
- WOOD DECK
- UTILITY POLE
- LIGHT POST
- TRAFFIC SIGN
- UTILITY EASEMENT
- 60 PROPOSED CONTOUR
- +91.50 PROPOSED SPOT ELEVATION
- 2% PROPOSED SLOPE
- 90 DEMOLISHED CONTOUR

GRADING PLAN KEYNOTES

1 CONCRETE RETAINING WALL, ADJACENT TO PROPERTY LINE
MIN. HEIGHT: 1.00'
MAX. HEIGHT: 6.60'



GRADING PLAN NOTES

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GRADING PLAN

DRAWING TITLE

003

DRAWING NO.

FIRE PLAN LEGEND

[redacted] LARGEST FIRE APPARATUS

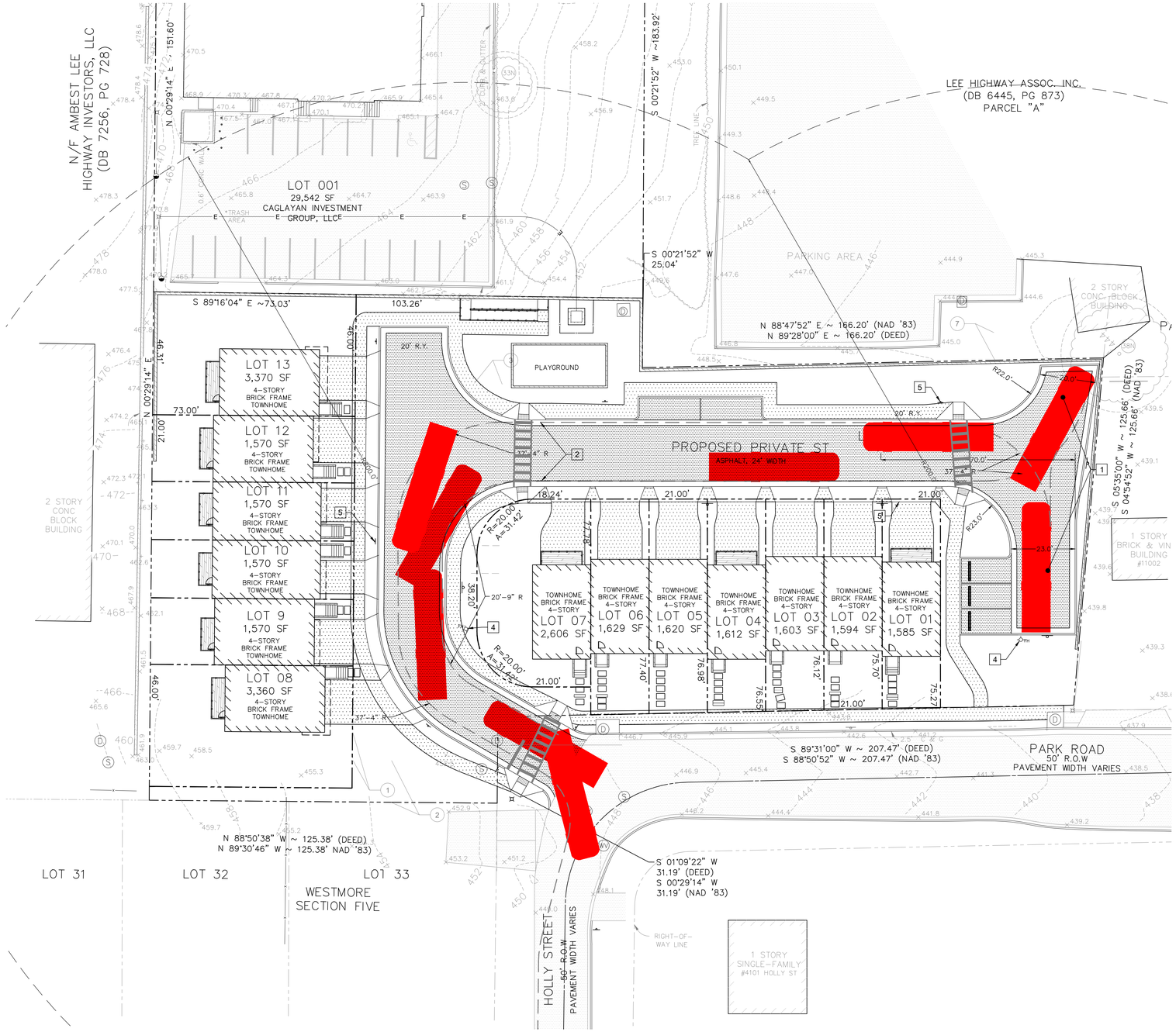
– – – – – FIRE APPARATUS TRAVEL PATH

FIRE PLAN KEYNOTES

1. TURN–AROUND AREA FOR EMERGENCY VEHICLES
2. TRAVEL PATH OF FAIRFAX CITY'S LARGEST FIRE APPARATUS (100–FT AERIAL PLATFORM LADDER TRUCK) BASED ON MANUFACTURER'S PUBLISHED TURNING RADIUS
3. FAIRFAX TOWER LADDER 403 TRUCK SPECIFICATIONS:

OVERALL LENGTH:	46'–9.25"
OVERALL HEIGHT:	12'–2"
OVERALL WIDTH:	10'–2"
INSIDE TURN RADI:	20'–9"
CURB TO CURB RADI:	37'–4"
WALL TO WALL RADI:	45'–0"
WHEELBASE:	257"
INSIDE CRAMP ANGLE:	45°
TREAD WIDTH:	17.7"
AXLE TRACK:	82.92"
CHASSIS OVERHANG:	78"
BUMPER OVERHANG:	26"

4. TWO NEW FIRE HYDRANTS TO SERVE ALL 13 TOWNHOMES WITHIN 200–FT RADIUS
5. "FIRE LANE NO PARKING" SIGNS TO BE PLACED THROUGHOUT DEVELOPMENT ALONG PRIVATE ROAD (TYP.). FINAL LOCATION TO BE DETERMINED DURING SITE PLAN REVIEW.



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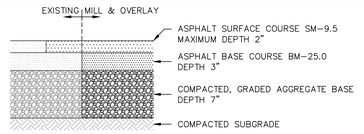
FIRE PLAN

DRAWING TITLE

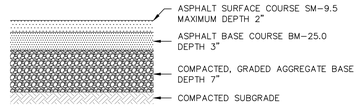
004

DRAWING NO.

ASPHALT PAVEMENT SECTIONS



ASPHALT MILL AND OVERLAY CROSS SECTION

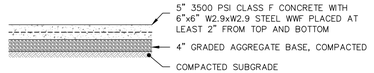


FULL DEPTH ASPHALT CROSS SECTION

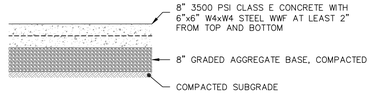
ASPHALT PAVEMENT SECTIONS NOTES

1. MILL AND OVERLAY AS REQUIRED TO ATTAIN ADA ACCESSIBLE GRADES AND SLOPES AS REQUIRED.
2. MINIMUM ASPHALT MILLING DEPTH IS 1".
3. UTILIZE A VERTICAL SAWCUT AT THE INTERFACE BETWEEN EXISTING ASPHALT PAVEMENT AND MILLE AND OVERLAY SECTION.
4. TACK COAT TO BE INSTALLED AT INTERFACE BETWEEN SURFACE AND BASE COURSE, AND BETWEEN MILL AND OVERLAY AND EXISTING PAVEMENT SECTIONS.

CONCRETE PAVEMENT SECTIONS



NON VEHICLE-LOADED CONCRETE (SIDEWALK) AND HVAC EQUIPMENT PAD CROSS SECTION



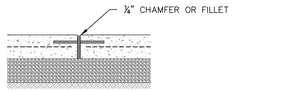
VEHICLE-LOADED CONCRETE (DRIVEWAY) AND GARAGE SLAB CROSS SECTION

CONCRETE PAVEMENT SECTIONS NOTES

1. CONTRACTOR TO REFER TO THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL & THE VIRGINIA CONSTRUCTION CODE FOR CONSTRUCTION METHODS AND MATERIALS.
2. CONCRETE REINFORCEMENT MUST BE PLACED AT LEAST 2" FROM CONCRETE SURFACES AND EDGES. UTILIZE REINFORCEMENT STANDS IF REQUIRED.
3. PROVIDE A LIGHT BROOM FINISH ON THE CONCRETE SURFACE.

CONCRETE JOINTS

CONCRETE CONTROL JOINT CROSS SECTION

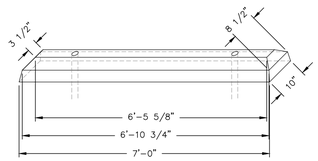


VEHICLE-LOADED CONCRETE EXPANSION JOINT CROSS SECTION

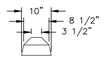
CONCRETE JOINTS NOTES

1. CONTROL JOINTS SHOULD BE SPACED EQUAL TO THE WIDTH OF THE PAVEMENT IN QUESTION TO FORM SQUARES. HOWEVER, CONTROL JOINTS SHOULD BE PLACED NO MORE THAN 6' APART.
2. EXPANSION JOINTS SHOULD BE PLACED NO MORE THAN 30' APART AND BE ½" WIDE. EXPANSION JOINTS SHOULD BE PLACED WHERE CONCRETE PAVEMENT ABUTS A STRUCTURE, WALL, COLUMN, FOOTING, OR CURB.
3. EXPANSION JOINTS SHOULD CONSIST OF SEALED CORK, ASPHALT IMPREGNATED FIBER SHEETING, ISO STRIP OFF, OR APPROVED EQUIVALENT.
4. DOWELS SHOULD BE GRADE 60 STEEL, AT LEAST 16" LONG, ¾" MINIMUM DIAMETER, AND MAXIMUM 12" SPACING ON CENTER. EDGE OF DOWEL MUST BE AT LEAST 2" FROM CONCRETE SURFACE AND EDGES.

CONCRETE WHEEL STOP



ISOMETRIC VIEW

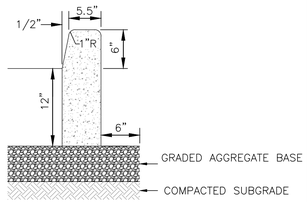


CROSS SECTION

CONCRETE WHEEL STOP NOTES

1. THE DIMENSION BETWEEN THE LONG EDGE OF THE CONCRETE WHEEL STOP CLOSEST TO THE END OF THE PARKING SPACE AND THE END OF THE PARKING SPACE IS 2.5'.
2. THE CONCRETE WHEEL STOP SHALL BE PLACED CENTERED RELATIVE TO THE WIDTH AXIS OF THE PARKING SPACE.
3. EACH CONCRETE WHEEL STOP MUST BE SECURED WITH TWO #7 REBAR ANCHORAGE PINS WITH A MINIMUM EMBEDMENT DEPTH OF 15".
4. THE STEEL REINFORCEMENT IN THE CONCRETE WHEEL STOPS (EXCLUDING THE ANCHORAGE PINS) MUST BE #3 REBAR AND AT LEAST 2" FROM ALL FINISHED SURFACES.

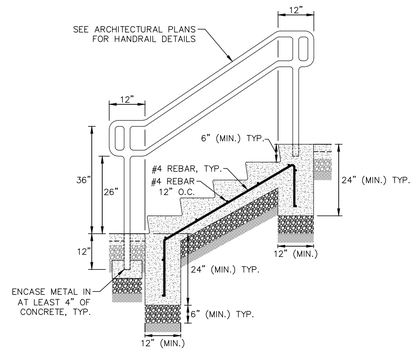
CONCRETE HEADER CURB DETAILS



CONCRETE HEADER CURB / CURB & GUTTER (PRIVATE PROPERTY) NOTES

1. MATERIALS AND CONSTRUCTION METHODS SHALL BE CONSISTENT WITH THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL. CONCRETE SHALL BE 3500 PSI CLASS E CONCRETE.
2. CONSTRUCT EXPANSION JOINTS AT MAX 15' INTERVALS, AT BEGINNING AND ENDS OF ALL CURVE P.O.T'S, AT STRUCTURES, AND AT MID POINT OF ALL CURB RETURNS. INSTALL 1/2" PRE-FORMED EXPANSION JOINT FILLER, NON-EXTRUDING.
3. INSTALL 1/2" EXPANSION JOINT AT BACK OF CURB WHERE ADJACENT TO CONCRETE SIDEWALK.
4. INSTALL BITUMINOUS SEALANT AGAINST FACE OF GUTTER ADJACENT TO ASPHALT PAVEMENT.
5. WHENEVER NEW CONCRETE CURB (AND GUTTER) MEETS EXISTING CONCRETE CURB (AND GUTTER), ASSURE CURBS ARE ON LINE AND ON GRADE.
6. TRANSITION CURBS SHALL BE USED WHENEVER A DIFFERENT TYPE OF CURB IS CALLED OUT. TRANSITIONS MUST BE 10' LONG (MIN.) UNLESS NOTED OTHERWISE.

CONCRETE STAIR DETAILS



CONCRETE STAIR DETAILS NOTES

1. STAIR TREAD WIDTH IS 12" WITH A 1" RECESS. STAIR HEIGHT IS 6". REFER TO SITE PLAN FOR NUMBER OF STAIRS.
2. ALL CONCRETE CORNERS AND EDGES SHOULD HAVE A FILLET OF 1/2".
3. CONCRETE MUST HAVE A COMPRESSIVE STRENGTH OF 3500 PSI WITH NO BLACK PIGMENT ADDITIVE AND WITH A LIGHT BROOM FINISH.
4. SUBGRADE MUST BE COMPACTED TO 95% PROCTOR DENSITY.
5. HANDRAILS SHALL BE PAINTED MATTE BLACK.

SITE DETAILS NOTES

1. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL NOTES.

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DocuSigned by:
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PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

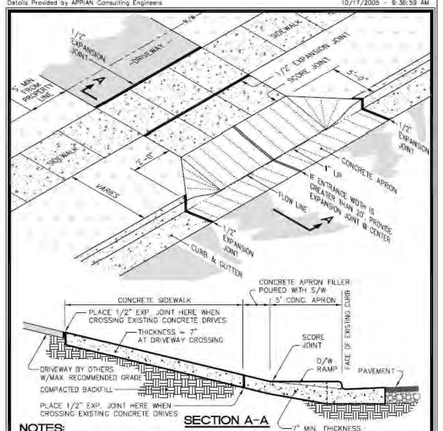
SITE DETAILS

DRAWING TITLE

005

DRAWING NO.

Details Provided by APPIAN Consulting Engineers 10/17/2005 – 9:36:59 AM



NOTES:

1. Residential driveway to be 12' minimum, 16' maximum desirable.
2. Omitted
3. All concrete shall be 3000 psi @ 28 days air entrained.
4. Curb shall be tapered to finish flush with sidewalk.
5. Beginning radius shall not encroach on adjacent properties based on a projection of property line from the right-of-way to the curb line.
6. Sidewalk section shall not be required along streets which are not planned for sidewalk.

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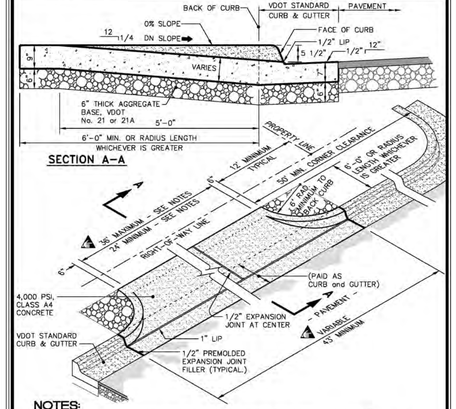
STREET CURB CUT FOR DRIVEWAYS ON C&G STREETS

SCALE: Not To Scale	DETAIL # 1-404.03
REVISION DATE: July, 2005	SHEET # 1 of 1

Details Provided by APPIAN Consulting Engineers 10/17/2005 – 9:34:17 AM



NOTES:

1. Use of gutterpan across entrance may be waved by approval of City Engineer.
2. Entrance width and radius shall be sized to accommodate turning radius of proposed trucks to/from site development.
3. VDOT standards may be substituted if approved by City Engineer.
4. Gravel driveways on collector and arterial streets shall be paved a minimum of 10 feet from edge of curb or to the right-of-way line, whichever is greater.
5. For one-way driveway, the width is 15' minimum and 24' maximum. entrance/exit shall be marked accordingly by sign or pavement arrow.
6. Entire entrance including gutter and apron shall be poured monolithically.
7. Width of curb & gutter shall match width of existing curb & gutter.

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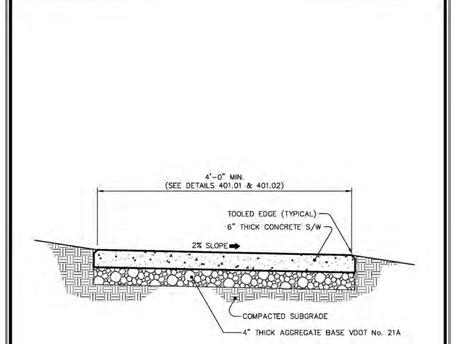
COMMERCIAL DRIVEWAY ENTRANCE

SCALE: Not To Scale	DETAIL # 1-404.06
REVISION DATE: July, 2005	SHEET # 1 of 1

Details Provided by APPIAN Consulting Engineers 10/17/2005 – 9:37:38 AM



NOTES:

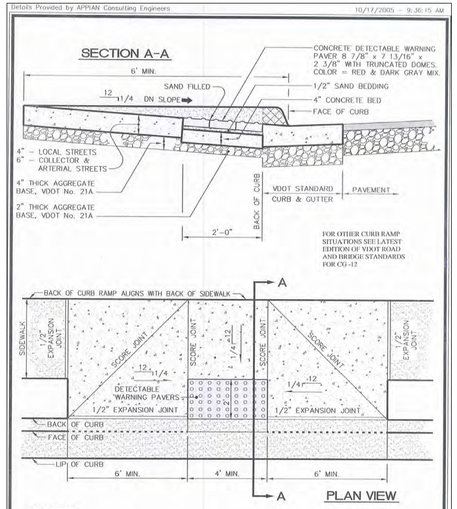
1. Concrete to be Class A3 or better.
2. Longitudinal expansion joint not to exceed 80 feet.

Department of Public Works, 10455 Armstrong Street, Fairfax, VA 22030-3630 — CITY of FAIRFAX — USE WITH THE FAIRFAX STANDARD SPECIFICATIONS ONLY — Voice (703) 246-6330, FAX (703) 591-9727, www.fairfaxva.gov

STANDARD SIDEWALK DETAIL

SCALE: Not To Scale	DETAIL # 1-404.01
REVISION DATE: July, 2005	SHEET # 1 of 1

Details Provided by APPIAN Consulting Engineers 10/17/2005 – 9:36:15 AM



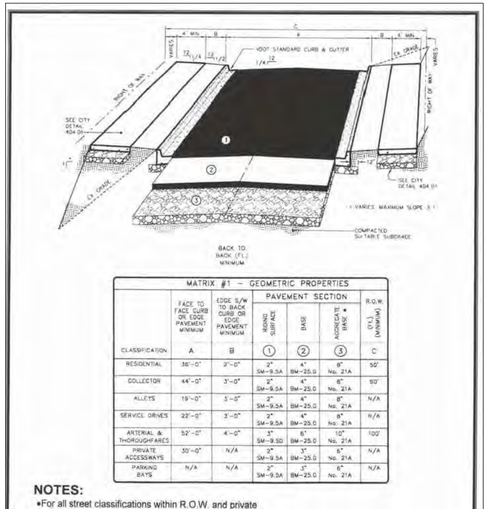
NOTES:

1. All concrete to be Class A-3 or better.

Department of Public Works, 10455 Armstrong Street, Fairfax, VA 22030-3630 — CITY of FAIRFAX — USE WITH THE FAIRFAX STANDARD SPECIFICATIONS ONLY — Voice (703) 246-6330, FAX (703) 591-9727, www.fairfaxva.gov

CURB RAMP

SCALE: Not To Scale	DETAIL # 1-401.04
REVISION DATE: July, 2005	SHEET # 1 of 1



MATRIX #1 – GEOMETRIC PROPERTIES

	FACE TO FACE CURB ON LOCAL PAVEMENT MINIMUM	EDGE S/W TO BACK CURB OR EDGE PAVEMENT MINIMUM	PAVEMENT SECTION: WEARING SURFACE (1)	PAVEMENT SECTION: BASE (2)	PAVEMENT SECTION: AGGREGATE BASE (3)	R.O.W. (T.L.) MINIMUM
CLASSIFICATION	A	B	①	②	③	C
RESIDENTIAL	36'-0"	2'-0"	2" SM-9.5A	4" BM-25.0	8" No. 21A	50'
COLLECTOR	44'-0"	3'-0"	2" SM-9.5A	4" BM-25.0	6" No. 21A	60'
ALLEYS	19'-0"	1'-0"	2" SM-9.5A	4" BM-25.0	8" No. 21A	N/A
SERVICE DRIVES	22'-0"	3'-0"	2" SM-9.5A	4" BM-25.0	8" No. 21A	N/A
ARTERIAL & THOROUGHFARES	52'-0"	4'-0"	2" SM-9.5D	4" BM-25.0	12" No. 21A	100'
PRIVATE ACCESSWAYS	30'-0"	N/A	2" SM-9.5A	4" BM-25.0	6" No. 21A	N/A
PARKING BAYS	N/A	N/A	2" SM-9.5A	4" BM-25.0	8" No. 21A	N/A

NOTES:

•For all street classifications within R.O.W. and private

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TYPICAL CURB and GUTTER STREET SECTION

SCALE: None To Scale	DETAIL # 1-401.01
REVISION DATE: January 2019	Sheet # 1 of 1

SITE DETAILS NOTES

1. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL NOTES.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION

REZONING PLANS

12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
CAGLAYAN INVESTMENT GROUP
32713 LATROBE ST
CHANTILLY, VA 20152
571.594.6363

CONTRACTOR
TBD

CIVIL ENGINEER
PATRICK HORGAN
HUSKA CONSULTING, LLC
1050 30TH STREET, NW
WASHINGTON, DC 20007
703.425.3862

LAND SURVEYOR
DOMINION SURVEYS, INC.
8808-H PEAR TREE VILLAGE COURT
ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

FAIRFAX CITY DPW DETAILS

DRAWING TITLE

006

DRAWING NO.

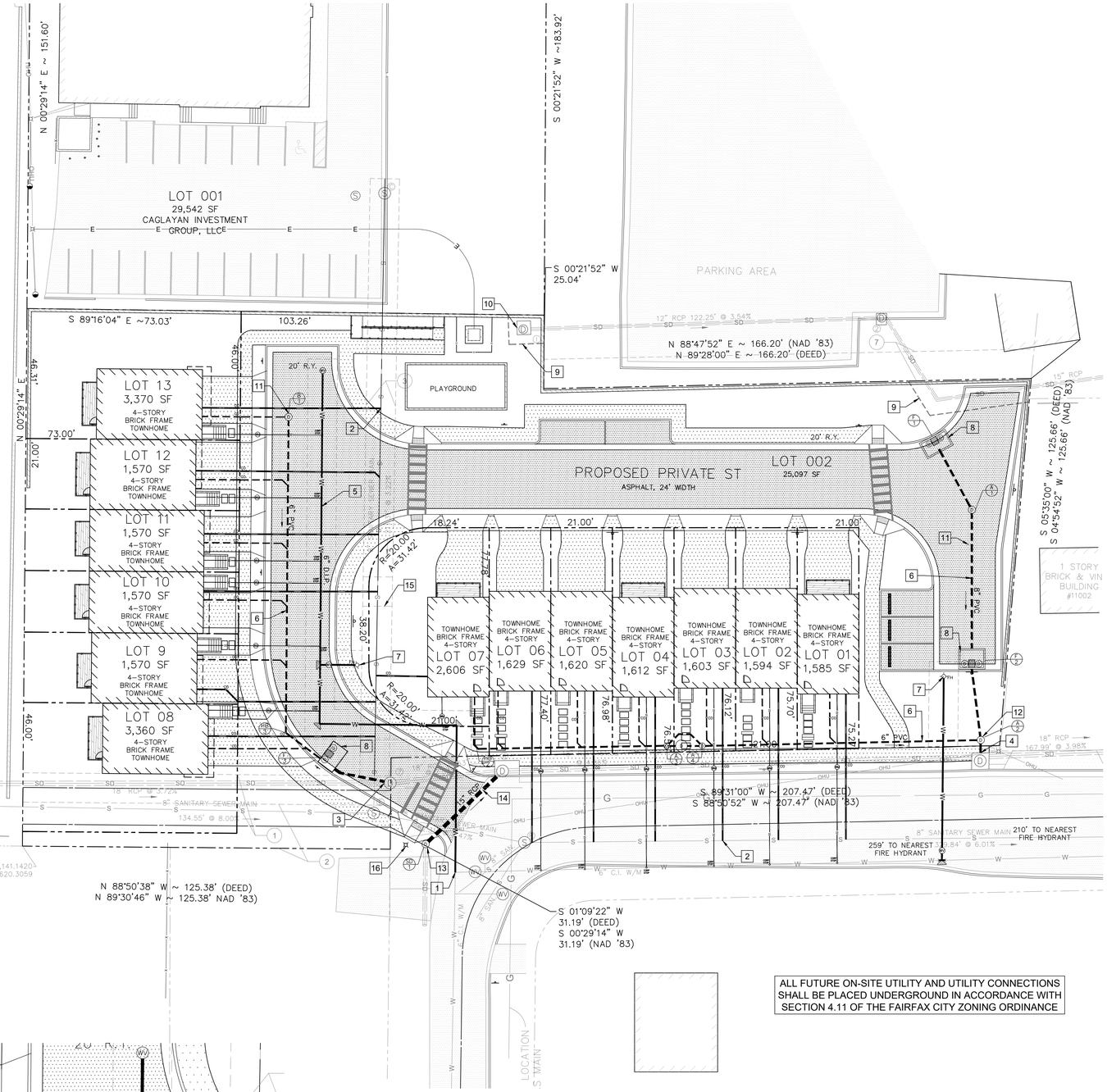
UTILITY PLAN LEGEND

- 4" PVC — COMBINED/SANITARY SEWER
- (S) — COMBINED/SANITARY SEWER MANHOLE
- 6" PVC — STORM SEWER LATERAL
- (D) — STORM SEWER MANHOLE
- PERFORATED SCH40 PVC UNDERDRAIN
- ○CO — CLEANOUT
- ○OW — OBSERVATION WELL
- X" COPPER W — WATER SERVICE LATERAL
- TEE CONNECTION W/ SOLID SLEEVES
- (WM) — WATER METER
- (WV) — WATER VALVE
- ○ CURB STOP — CURB STOP
- ○ CORP STOP — CORPORATION STOP
- CONCRETE THRUST BLOCK

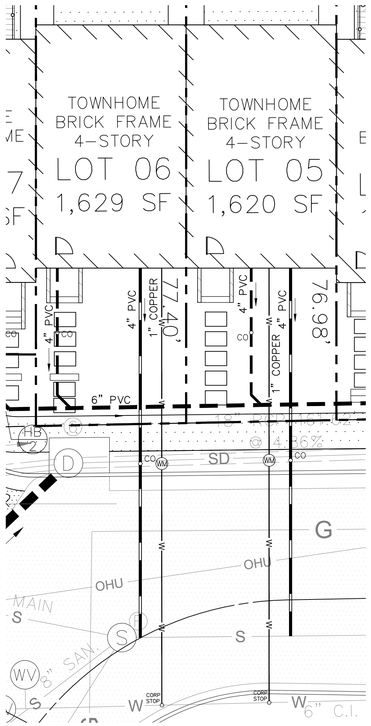
STORMWATER STRUCTURE TABLE				
STRUCTURE ID	DESCRIPTION	RIM ELEV.	INV. IN	INV. OUT
A1	48" HP MANHOLE	443.65	439.78	439.68
A2	48" HP MANHOLE	440.40	10"=435.7 6"=436.6	435.60
B1	24" NYOPLAST MANHOLE	455.30		452.30
F1	ADS BAYFILTER	444.00		440.00
F2	ADS BAYFILTER	443.00	439.22	436.00
F3	ADS BAYFILTER	449.50	447.25	445.40
SD 1	48" CONC. MANHOLE	450.00	446.60	446.50

UTILITY PLAN KEYNOTES

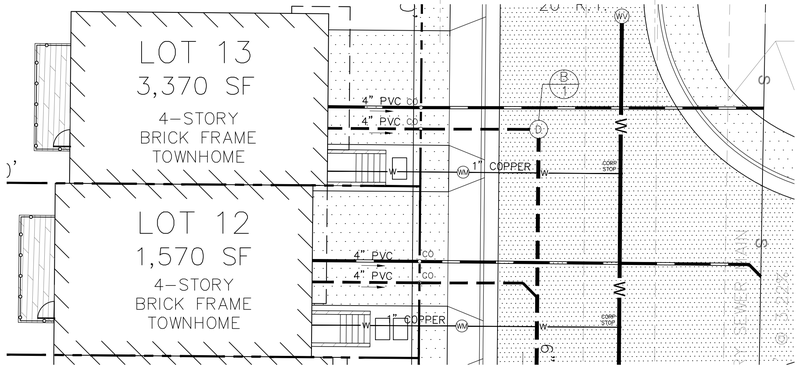
1. NEW CONNECTION TO EXISTING FAIRFAX WATER 6" D.I.P. WATER MAIN
2. TYPICAL 4" SCH40 PVC SANITARY SEWER LATERAL W/ CLEANOUT AS SHOWN BACKWATER VALVE MAY BE REQUIRED TIE-IN TO 8" SANITARY SEWER MAIN WITH 45° BEND AND 4"x8" ECCENTRIC WYE BRANCH CONNECTION AND CONCRETE CRADDLE (STD. DETAIL 4.12).
3. NEW CONNECTION TO FAIRFAX CITY 18" R.C.P. STORM MAIN VIA CORE DRILL INTO EXISTING CONCRETE MANHOLE
4. NEW CONNECTION TO FAIRFAX CITY 18" R.C.P. STORM MAIN VIA VIA CORE DRILL TO EXISTING CURB INLET
5. NEW 6" D.I.P FAIRFAX WATER MAIN ON PRIVATE PROPERTY WITH 10-FT SURROUNDING UTILITY EASEMENT
6. NEW 6-10" SCH80 PVC STORM MAIN TO BE PRIVATELY OWNED AND MAINTAINED (TYPICAL)
7. NEW FAIRFAX WATER FIRE HYDRANT WITHIN 10-FT UTILITY EASEMENT
8. ADS BAYFILTER WITH INLET GRATE TO COLLECT RUNOFF FROM PROPOSED PRIVATE STREET 6-10" SCH40 PVC OVERFLOW PIPE PROVIDED. SEE SHEET 012 FOR ADDITIONAL INFORMATION
9. PROPOSED 10-FT WIDE STORM SEWER EASEMENT OVER EXISTING STORM SEWER MAIN AND STRUCTURE
10. EXTEND TOP OF EXISTING STORM SEWER MANHOLE 4'-9" TO BE FLUSH WITH PROPOSED GRADE
11. ADS 48" HP STORM DRAIN MANHOLE (H-20 LOADING) PROVIDE CONCRETE LOAD RING POURED IN PLACE AROUND GRATE AND FRAME
12. ADS 48" HP STORM DRAIN MANHOLE
13. NEW 48" CONCRETE STORM MANHOLE CONNECT EXISTING 15" DRIVEWAY CULVERT TO MANHOLE
14. NEW 15" RCP STORM MAIN CONNECT TO EXISTING CURB INLET VIA CORE DRILL
15. 10-FT UTILITY EASEMENT FOR LOT 10 SANITARY SEWER LATERAL ENCROACHING INTO LOT 07
16. EXISTING DOMINION UTILITY POLE TO BE RELOCATED TO ALLOW FOR NEW COMMERCIAL ENTRANCE, CONCRETE SIDEWALK, AND ADA CONCRETE RAMP. UTILITY POLE SHALL BE RELOCATED PER CURRENT DOMINION POWER STANDARDS AND SPECIFICATIONS. FINAL DESIGN AND LOCATION TO BE DETERMINED DURING SITE PLAN REVIEW.



ALL FUTURE ON-SITE UTILITY AND UTILITY CONNECTIONS SHALL BE PLACED UNDERGROUND IN ACCORDANCE WITH SECTION 4.11 OF THE FAIRFAX CITY ZONING ORDINANCE



LOT 01-07 TYPICAL UTILITY CONNECTION LAYOUT



LOT 08-13 TYPICAL UTILITY CONNECTION LAYOUT

UTILITY PLAN NOTES

1. THIS PLAN CONVEYS INFORMATION PERTAINING TO THE 'WET' UTILITIES, CONSISTING OF SANITARY SEWER, STORM SEWER, AND WATER DISTRIBUTION PIPES. ANY 'DRY' UTILITY INFORMATION SHOWN IS FOR INFORMATION AND COORDINATION PURPOSES ONLY.
2. UNLESS OTHERWISE APPROVED BY THE FAIRFAX WATER INSPECTOR, MAINTAIN A MINIMUM 12" OF VERTICAL AND HORIZONTAL CLEARANCE BETWEEN FAIRFAX WATER UTILITIES AND OTHER UTILITIES IN PUBLIC SPACE.
3. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL INFORMATION.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

BAR SCALE
20 16 12 8 4 0 10 20 30
1" = 20'

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
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TBD

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COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER
SEAL

UTILITY PLAN

DRAWING TITLE

007

DRAWING NO.

Sanitary Sewer Capacity Analysis

New Development Flow

Daily Flowrate per Person	100.0	GPD
Number of Proposed Bedrooms per Townhome Dwelling	4.0	
Max. Number of Persons per Bedroom	2.0	
Four Bedroom Townhome Dwellings Daily Flowrate, q_{DW}	800.0	GPD
Number of Four Bedroom Townhome Dwellings	13	
Submain Sewer Peak Flow Factor, PF	4.00	
Proposed Design Flow, Q_D	41,600	GDP
	0.064	**CFS**

Existing Development Flow

Daily Flowrate per Person	100.0	GPD
Average Number of Bedrooms per Dwelling	3.0	
Max. Number of Persons per Bedroom	2.0	
Dwellings Daily Flowrate, q_{DW}	600.0	GPD
Shopping Centers Flowrate, q_{SC}	250.0	GPD/1,000 GFA
Service Stations Flowrate, q_{SS}	10.0	GPD/Vehicle
Existing Dwellings	42	
Exisitng Shopping Centers GFA	161576	SF
Service Station Daily Vehicles	576.00	Vehicles
Submain Sewer Peak Flow Factor, PF	4.00	
Proposed Design Flow, Q_D	285,416	GDP
	0.442	**CFS**

Total Design Flow, Q **0.506 CFS**

Park Rd Townhomes 12/16/2022

Sewer Conveyance - Hydrology and Hydraulic Calculations

Hydraulics																								Flow Type
Pipe Inverts				Pipe Parameters								Time of Concentration				Additional Flow		Velocity		Flowrate		Flow Area		Hydraulic Radius		
Upstream		Downstream		Length	Diam.	Mat'l	n	Slope	V	Q	R	A	T_c US_{dir}[2]	T_c Pipe[3]	T_c DS_{sys}[4]	T_c US_{sys}[5]	$Q_{add'l}$[1]	$Q_{add'l\,us}$[2]	V/V_{full}	V_{full}	Q/Q_{full}	Q_{full}	A/A_{full}	A_{full}	R/R_{full}	R_{full}	
ID	Invert	ID	Invert	(ft)	(in)			(ft/ft)	(fps)	(cfs)	(ft)	(sf)	(min)	(sec)	(min)	(min)	(cfs)	(cfs)		(fps)		(cfs)		(sf)		(ft)	
S-G	421.70	DS	413.58	406.1	8	CONC.	0.013	2.00%	4.06	0.44	0.12	0.10	5.0	100	6.7	5.0	0.00	0.00	0.83	4.90	0.26	1.71	0.30	0.35	0.74	0.17	CHANNEL

Hydrology and Hydraulic Calculations Methodology

Note all sewer conveyance calculations shown here are for the 10 year storm event

n,Manning's roughness coefficient I, rainfall intensity V, veloc Q, flowrate R, hydraulic radius Com., compacted

1 At the engineer's option, an additional flowrate may be added which will propagate downstream in the system. This flowrate is not affected by time of concentration.

2 The sum of the additional flowrates added to the system upstream of the run in question.

3 Circular channel ratios are tabulated in the reference tab and have nested if statements that hinge on the flow type for the pipe run in question

Park Rd Townhomes 12/16/2022

Sewer Conveyance - Hydraulic Gradeline Calculations

From	To	WSE_{down}[1]	D	A_{full}	Q	L	R_{full}	n	S_{fr}	H_{fr}	V_{out}	H_o[2]	V_{in}[3]	H_i[4]	Angle[5]	K	H_{bend}[6]	Plunging[7]	IS-1[8]	H_{str}[9]	H_{total}	WSE_{up}	Top El[10]	Top - WSE_{up}	Remarks
		(ft)	(in)	(sf)	(cfs)	(ft)	(ft)		(ft/ft)	(ft)	(fps)	(ft)	(fps)	(ft)	(degrees)		(ft)			(ft)	(ft)	(ft)	(ft)	(ft)	
DS	S-G	414.11	8	0.35	0.44	406.10	0.17	0.013	0.13%	0.54	4.06	0.08	4.06	0.09	0	0.00	0.00	NO	NO	0.17	0.71	421.93	433.14	11.21	ADEQUATE

Hydraulic Gradeline Calculations Methodology

S_{fr},friction slope = $0.453Q^2n^2/A^2R^{4/3}$ H_{fr},friction loss = $L*S_{fr}$ V_o,velocity out H_o,structure outlet loss=$0.25(0.3 \text{ if top pipe})*V_o^2/2g$ g,gravity=32.2 V_{in},velocity in H_i,structure inlet loss=$0.35*V_i^2/2g$

H_b, structure bend loss=$K*V_i^2/2g$ H_{str},structure loss = $H_o+H_i+H_b$ H_{total}, total head loss=$H_{fr}+H_{str}$

1 Water surface elevation in bottom structure of pipe run. For the first (most downstream) run of HGL analysis per VDOT standards use the greater of the tailwater elevation (if known) or 80% full depth.

2 Expansion loss for upper structure of pipe run. If the upstream structure is a wye, the expansion losses are taken as zero.

3 Velocity of water entering pipe run. If pipe run is at the top of the system, set this to the velocity out of the pipe run. Otherwise, use upstream pipe's velocity. If multiple pipes feed in, use the inlet velocity with the greatest momentum (QxV)

4 Contraction loss for upper structure of pipe run. If the upstream structure is a wye, the expansion losses are taken as zero.

5 Angle of deflection in the horizontal plane between the upper structure of the pipe run in question and the next upstream pipe. If multiple pipes in, this is the angle of the pipe which creates the most headloss. If no pipes in, set to zero.

6 Bend loss for upper structure of pipe run. By default this formula uses the listed inlet velocity. However, if multiple pipes feed into this run bend losses must be calculated for all inflowing pipes and the maximum chosen.

7 If 20%+ of the total flow is coming from a curb/grate inlet, or if there's an inlet pipe with an invert greater than the crown of the outlet pipe, plunging losses apply.

8 The engineer may specify IS-1 inlet shaping for a structure which allows the inlet head losses to be reduced by 50%.

9 Structure loss (sum of expansion, contraction, and bend loses) for the upstream structure of the pipe run.

10 Top elevation of upper structure of pipe run.

BAR SCALE

100 80 60 40 20 0 50 100 200

1" = 100'

NAD '83

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

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SEAL

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION

REZONING PLANS

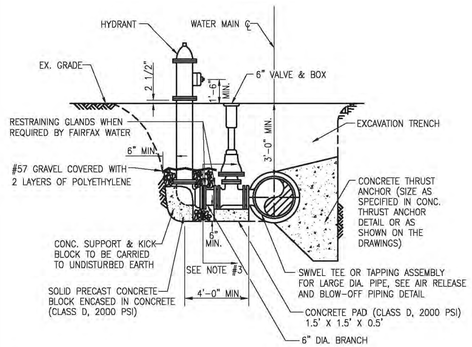
12/16/2022

SANITARY SEWER CAPACITY ANALYSIS

DRAWING TITLE

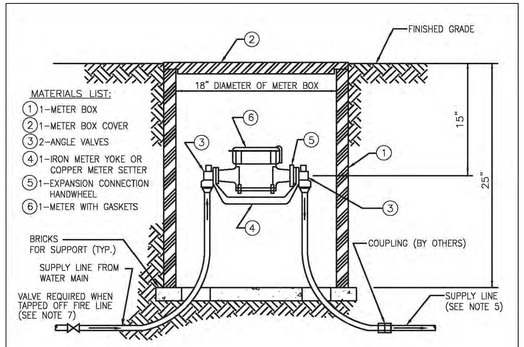
008

DRAWING NO.



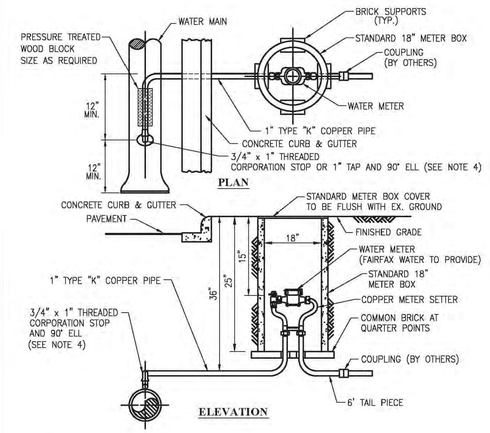
NOTES:
1. 8" SWIVEL TEE IS NOT USED, VALVE MUST BE RESTRAINED TO TEE WITH RESTRAINING GLANDS BY CONTRACTOR.
2. HYDRANTS SHALL HAVE SHOP-APPLIED COATINGS AS FOLLOWS:
   - HYDRANT BARREL: KENNEDY SAFETY RED OR MUELLER RED #10
   - TOPS AND CAPS: KENNEDY SILVER OR MUELLER SILVER #18
   - WHERE INDICATED BY FAIRFAX WATER, THE TOP SHALL BE SHOP-COATED RED AND THE BARREL AND CAPS SHALL BE SHOP-COATED SILVER IN LIEU OF THE ABOVE.
3. POLYETHYLENE ENCASEMENT TO BE INSTALLED UP TO 6-INCHES BELOW PROPOSED GRADE. ENCASEMENT SHALL BE INSTALLED SO AS NOT TO PREVENT DISCHARGE OF WATER THROUGH HYDRANT DRAIN HOLES.
4. FOR HYDRANT LOCATION IN REGARD TO FACE OF CURB, SEE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL.

DATE: 7/17	FAIRFAX WATER STANDARD DETAILS	SCALE: NOT TO SCALE
	STANDARD HYDRANT INSTALLATION	DRAWING NO.: 30



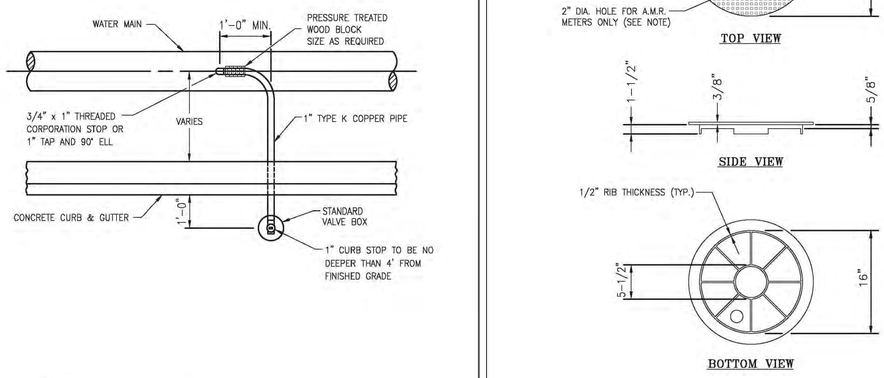
NOTES:
1. THE WATER METER BOX SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION IN A GREEN SPACE AND SO AS NOT TO BE A TRIP HAZARD.
2. WATER METER TO BE INSTALLED BY FAIRFAX WATER AS SHOWN IN THE DIAGRAM ABOVE. METER TO BE INSTALLED BY CUSTOMER WHEN TAPPED OFF FIRE LINE.
3. THE METER INSTALLATION WILL BE INSPECTED AND APPROVED BY FAIRFAX WATER. CALL 703-289-6402 FOR INSPECTION PRIOR TO PLACING LINE IN SERVICE.
4. FAIRFAX WATER TO SUPPLY ITEMS SHOWN IN MATERIALS LIST. ALL OTHER MATERIALS TO BE SUPPLIED BY THE CUSTOMER.
5. BACKFLOW PREVENTION WILL BE REQUIRED IN ACCORDANCE WITH FAIRFAX COUNTY REGULATIONS.
6. FAIRFAX WATER MAINTAINS THE SUPPLY LINE BETWEEN THE METER AND THE MAIN, METER, METER BOX, AND METER BOX COVER ONLY. FAIRFAX WATER WILL NOT MAINTAIN SUPPLY LINE WHEN TAPPED OFF FIRE LINE.
7. A 3" MINIMUM GATE VALVE WITH A 2" OPERATING NUT MUST BE INSTALLED ON THE SERVICE LINE WHEN TAPPED OFF THE FIRE LINE.
8. NO STRUCTURES, POLES, SIGN POSTS, TREES OR SHRUBS TO BE INSTALLED WITHIN FOUR FEET OF METER CROCK.

DATE: 7/17	FAIRFAX WATER STANDARD DETAILS	SCALE: NOT TO SCALE
	EXTERIOR METER INSTALLATION 5/8" THROUGH 1" METER SIZES	DRAWING NO.: 6



NOTES:
1. NO PLASTIC TUBING TO BE USED INSIDE METER BOX.
2. METER BOX, METER BOX COVER AND COPPER METER SETTER TO BE FAIRFAX WATER STANDARD TYPE.
3. THREADED SERVICE CLAMP TO BE USED ON 3" AND 20" & LARGER WATER MAINS.
4. COAT WITH PETROLATUM TAPE PER SECTION 13110 CATHODIC PROTECTION.
5. NO STRUCTURES, POLES, SIGN POSTS, TREES OR SHRUBS TO BE INSTALLED WITHIN FOUR FEET OF METER CROCK.

DATE: 7/17	FAIRFAX WATER STANDARD DETAILS	SCALE: NOT TO SCALE
	1" SERVICE CONNECTION WITH 1" METER	DRAWING NO.: 1A



NOTE:
WHERE CURB BOX IS LOCATED IN PAVEMENT, USE VALVE BOX INSTEAD OF CURB BOX.

DATE: 7/17	FAIRFAX WATER STANDARD DETAILS	SCALE: NOT TO SCALE
	1" SERVICE CONNECTION WITH CURB STOP	DRAWING NO.: 2

NOTE:
INSTALL 2" DIAMETER HOLE BETWEEN RIBS FOR AUTOMATIC METER READING METERS WHERE INDICATED ON THE PLANS OR BY FAIRFAX WATER.

DATE: 7/17	FAIRFAX WATER STANDARD DETAILS	SCALE: NOT TO SCALE
	CAST IRON METER BOX COVER	DRAWING NO.: 4

UTILITY DETAILS NOTES

1. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL NOTES.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION

REZONING PLANS

12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
CAGLAYAN INVESTMENT GROUP
32713 LATROBE ST
CHANTILLY, VA 20152
571.594.6363

CONTRACTOR
TBD

CIVIL ENGINEER
PATRICK HORGAN
HUSKA CONSULTING, LLC
1050 30TH STREET, NW
WASHINGTON, DC 20007
703.425.3862

LAND SURVEYOR
DOMINION SURVEYS, INC.
8808-H PEAR TREE VILLAGE COURT
ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

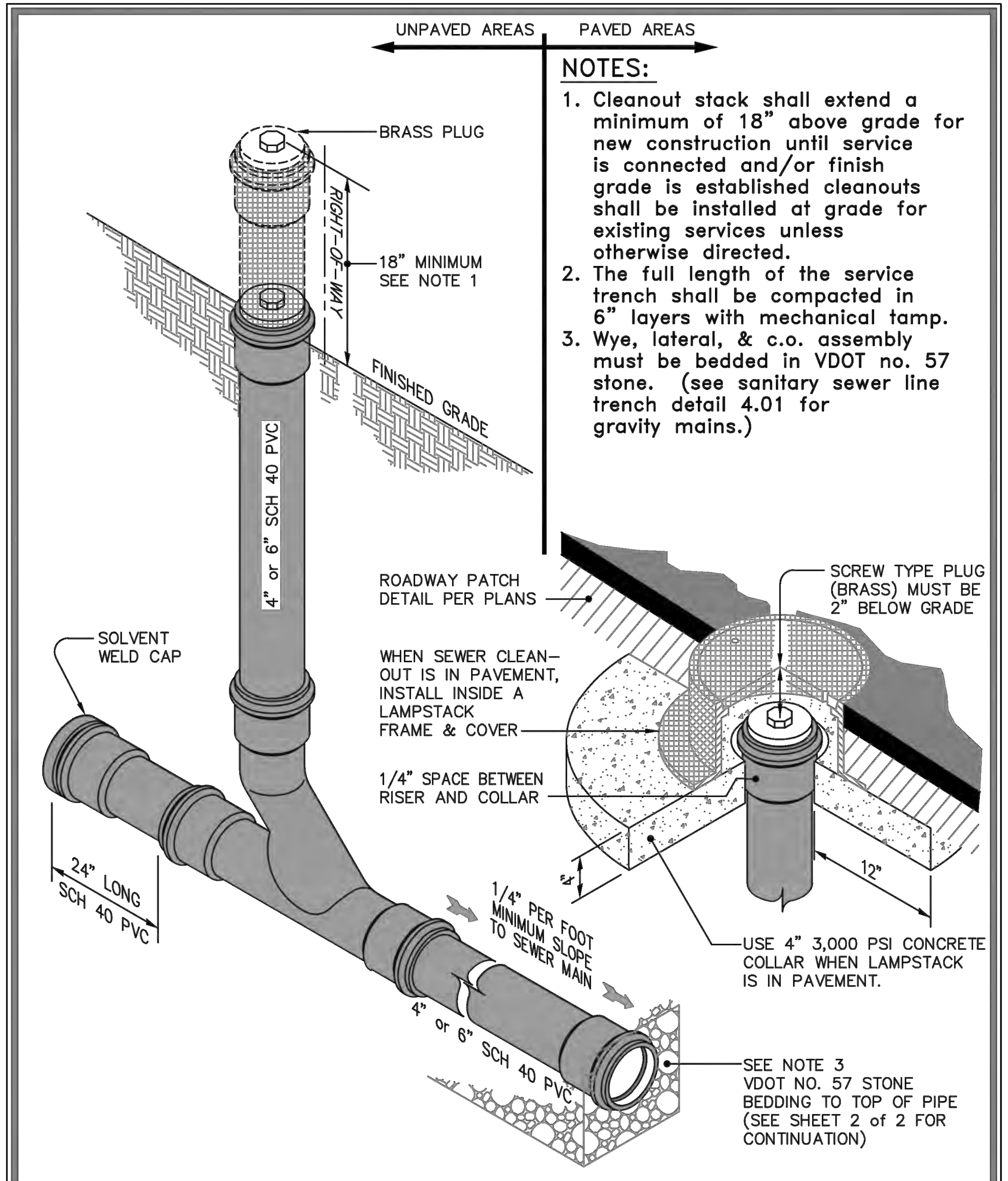
SEAL

FAIRFAX WATER DETAILS

DRAWING TITLE

009

DRAWING NO.


UNPAVED AREAS
PAVED AREAS
NOTES:
1. Cleanout stack shall extend a minimum of 18" above grade for new construction until service is connected and/or finish grade is established cleanouts shall be installed at grade for existing services unless otherwise directed.
2. The full length of the service trench shall be compacted in 6" layers with mechanical tamp.
3. Wye, lateral, & c.o. assembly must be bedded in VDOT no. 57 stone. (see sanitary sewer line trench detail 4.01 for gravity mains.)
BRASS PLUG
RIGHT-OF-WAY
18" MINIMUM SEE NOTE 1
FINISHED GRADE
4" or 6" SCH 40 PVC
ROADWAY PATCH DETAIL PER PLANS
SCREW TYPE PLUG (BRASS) MUST BE 2" BELOW GRADE
SOLVENT WELD CAP
WHEN SEWER CLEAN-OUT IS IN PAVEMENT, INSTALL INSIDE A LAMPSTACK FRAME & COVER
1/4" SPACE BETWEEN RISER AND COLLAR
24" LONG SCH 40 PVC
1/4" PER FOOT MINIMUM SLOPE TO SEWER MAIN
12"
USE 4" 3,000 PSI CONCRETE COLLAR WHEN LAMPSTACK IS IN PAVEMENT.
4" or 6" SCH 40 PVC
SEE NOTE 3
VDOT NO. 57 STONE BEDDING TO TOP OF PIPE (SEE SHEET 2 of 2 FOR CONTINUATION)

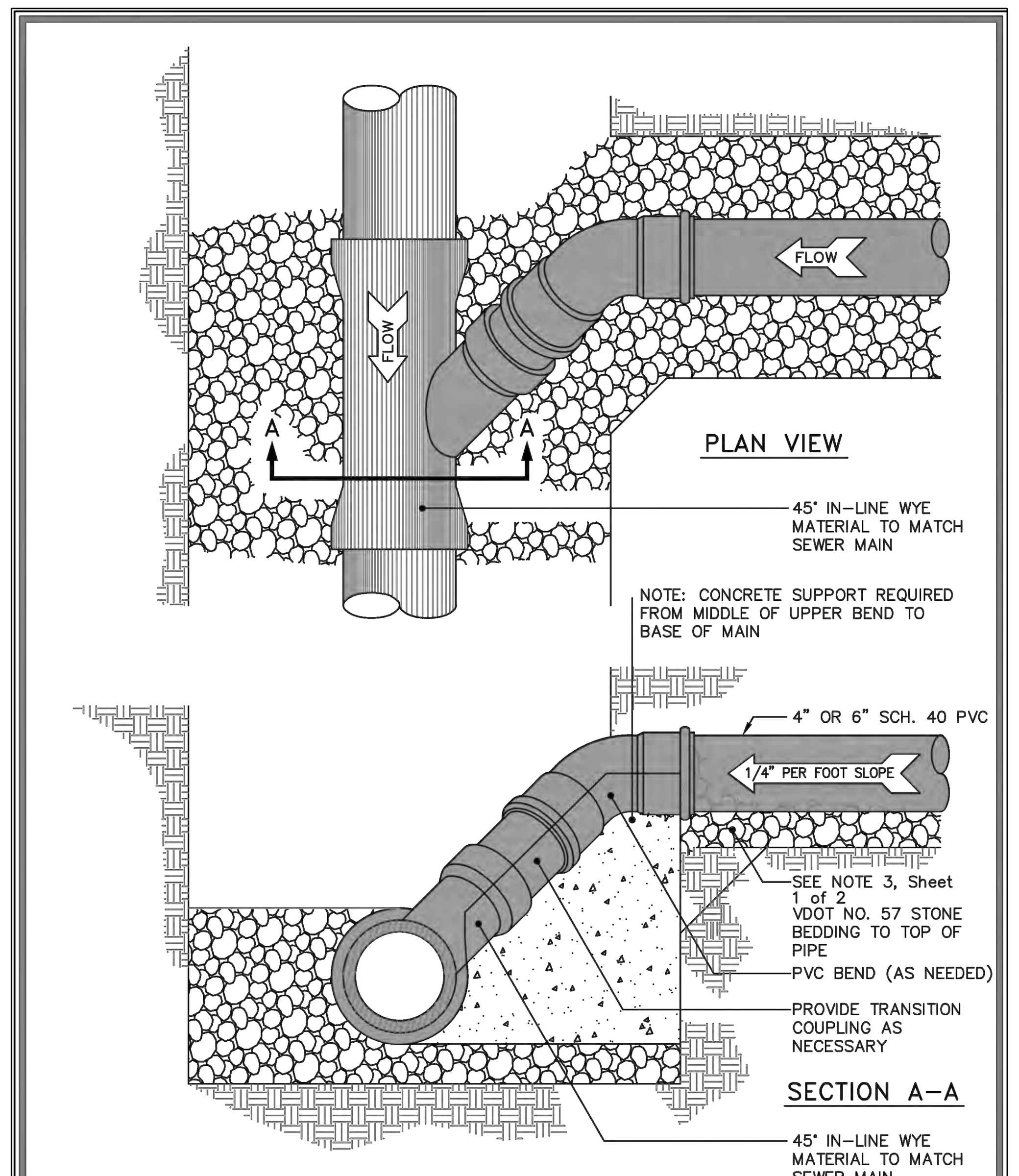
Department of Public Works
10455 Armstrong Street
Fairfax, VA 22030-3630

CITY of FAIRFAX
USE WITH THE FAIRFAX STANDARD SPECIFICATIONS ONLY

Voice (703) 385-7810
FAX (703) 591-5727
www.fairfaxva.gov

TYPICAL PVC SEWER LATERAL CLEANOUT WITH IN-LINE WYE

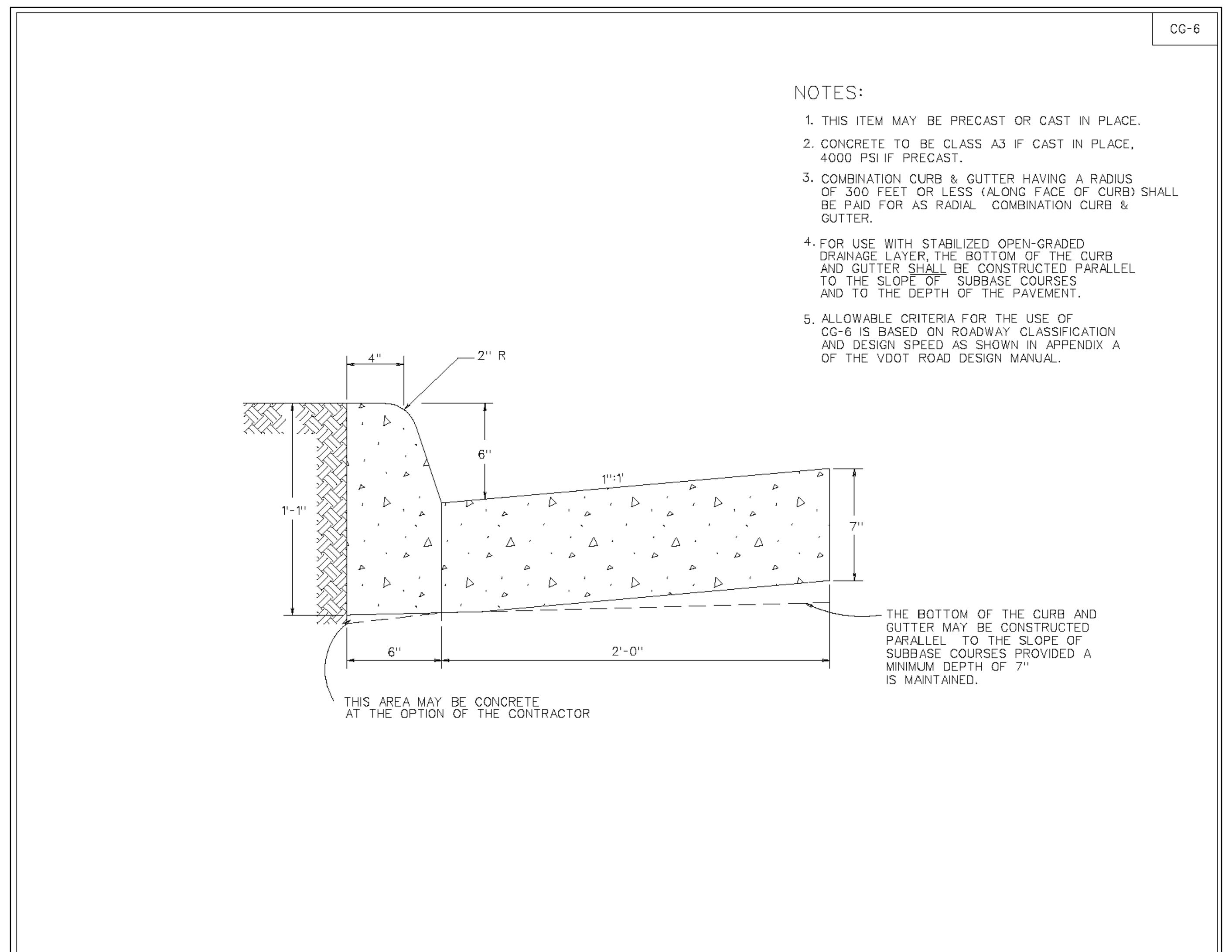
SCALE: Not To Scale | DETAIL # 4.12 | REVISION DATE: February 2017 | SHEET #: 1 of 2


FLOW
FLOW
A
A
PLAN VIEW
45° IN-LINE WYE MATERIAL TO MATCH SEWER MAIN
NOTE: CONCRETE SUPPORT REQUIRED FROM MIDDLE OF UPPER BEND TO BASE OF MAIN
4" OR 6" SCH. 40 PVC
1/4" PER FOOT SLOPE
SEE NOTE 3, Sheet 1 of 2
VDOT NO. 57 STONE BEDDING TO TOP OF PIPE
PVC BEND (AS NEEDED)
PROVIDE TRANSITION COUPLING AS NECESSARY
SECTION A-A
45° IN-LINE WYE MATERIAL TO MATCH SEWER MAIN

CITY of FAIRFAX
USE WITH THE FAIRFAX STANDARD SPECIFICATIONS ONLY

TYPICAL PVC SEWER LATERAL CLEANOUT WITH IN-LINE WYE

SCALE: Not To Scale | DETAIL # 4.12 | REVISION DATE: February 2017 | SHEET #: 2 of 2


CG-6
NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB AND 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 CG-6 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE VDOT ROAD DESIGN MANUAL.
4"
2" R
6"
1'-1"
1":1'
7"
6"
2'-0"
THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES PROVIDED A MINIMUM DEPTH OF 7" IS MAINTAINED.
THIS AREA MAY BE CONCRETE AT THE OPTION OF THE CONTRACTOR

SPECIFICATION REFERENCE 105 502

COMBINATION 6" CURB & GUTTER

VIRGINIA DEPARTMENT OF TRANSPORTATION

REV. 9/06 201.03

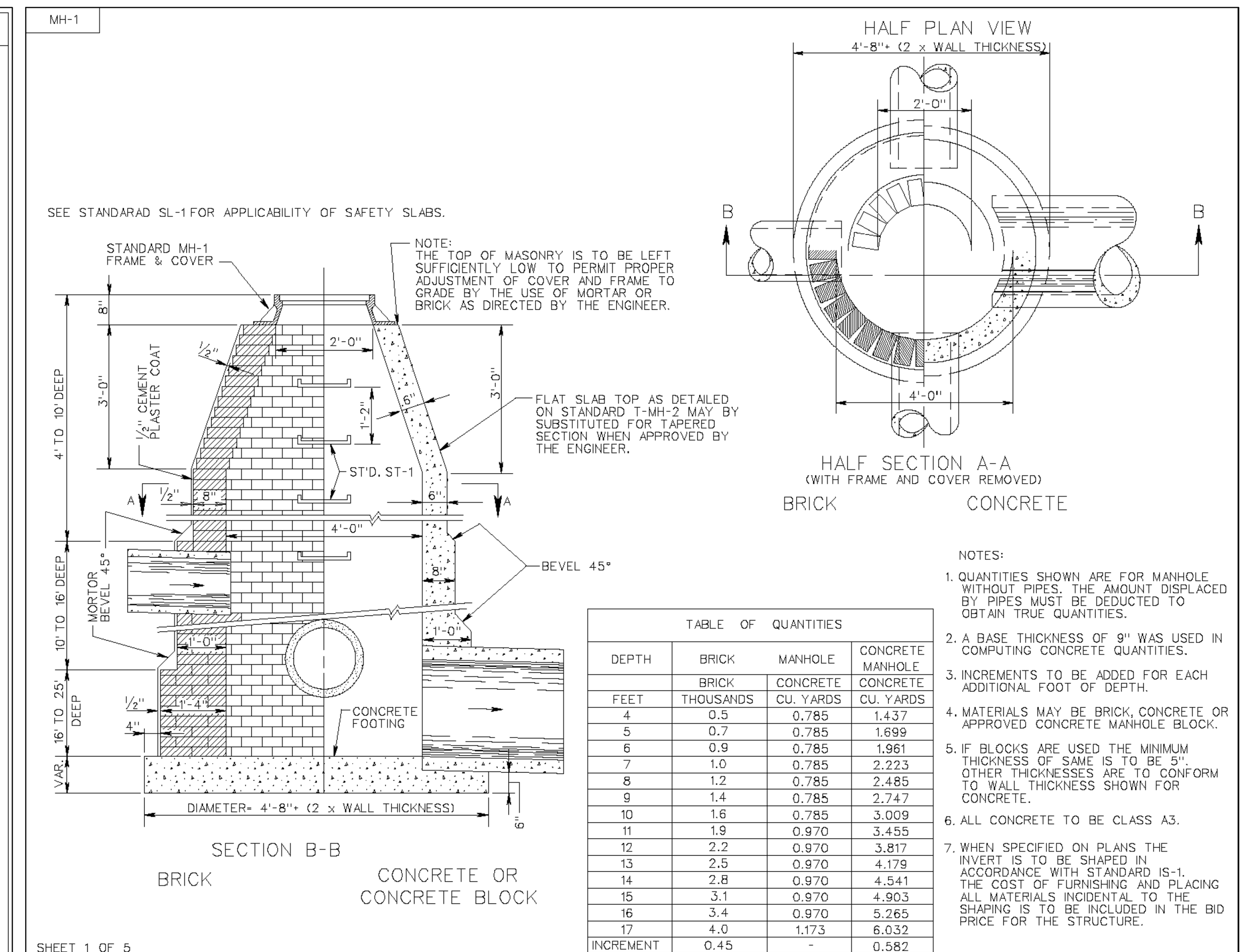

MH-1
SEE STANDARAD SL-1 FOR APPLICABILITY OF SAFETY SLABS.
STANDARD MH-1 FRAME & COVER
NOTE: THE TOP OF MASONRY IS TO BE LEFT SUFFICIENTLY LOW TO PERMIT PROPER ADJUSTMENT OF COVER AND FRAME TO GRADE BY THE USE OF MORTAR OR BRICK AS DIRECTED BY THE ENGINEER.
4' TO 10' DEEP
10' TO 16' DEEP
16' TO 25' DEEP
VAR.
½" CEMENT PLASTER COAT
MORTOR BEVEL 45°
2'-0"
1'-2"
3'-0"
ST'D. ST-1
4'-0"
FLAT SLAB TOP AS DETAILED ON STANDARD T-MH-2 MAY BY SUBSTITUTED FOR TAPERED SECTION WHEN APPROVED BY THE ENGINEER.
BEVEL 45°
CONCRETE FOOTING
DIAMETER= 4'-8"+ (2 x WALL THICKNESS)
SECTION B-B
BRICK
CONCRETE OR CONCRETE BLOCK
HALF PLAN VIEW
4'-8"+ (2 x WALL THICKNESS)
2'-0"
4'-0"
HALF SECTION A-A (WITH FRAME AND COVER REMOVED)
BRICK
CONCRETE
SHEET 1 OF 5

TABLE OF QUANTITIES

DEPTH	BRICK	MANHOLE	CONCRETE MANHOLE
	BRICK	CONCRETE	CONCRETE
FEET	THOUSANDS	CU. YARDS	CU. YARDS
4	0.5	0.785	1.437
5	0.7	0.785	1.699
6	0.9	0.785	1.961
7	1.0	0.785	2.223
8	1.2	0.785	2.485
9	1.4	0.785	2.747
10	1.6	0.785	3.009
11	1.9	0.970	3.455
12	2.2	0.970	3.817
13	2.5	0.970	4.179
14	2.8	0.970	4.541
15	3.1	0.970	4.903
16	3.4	0.970	5.265
17	4.0	1.173	6.032
INCREMENT	0.45	-	0.582

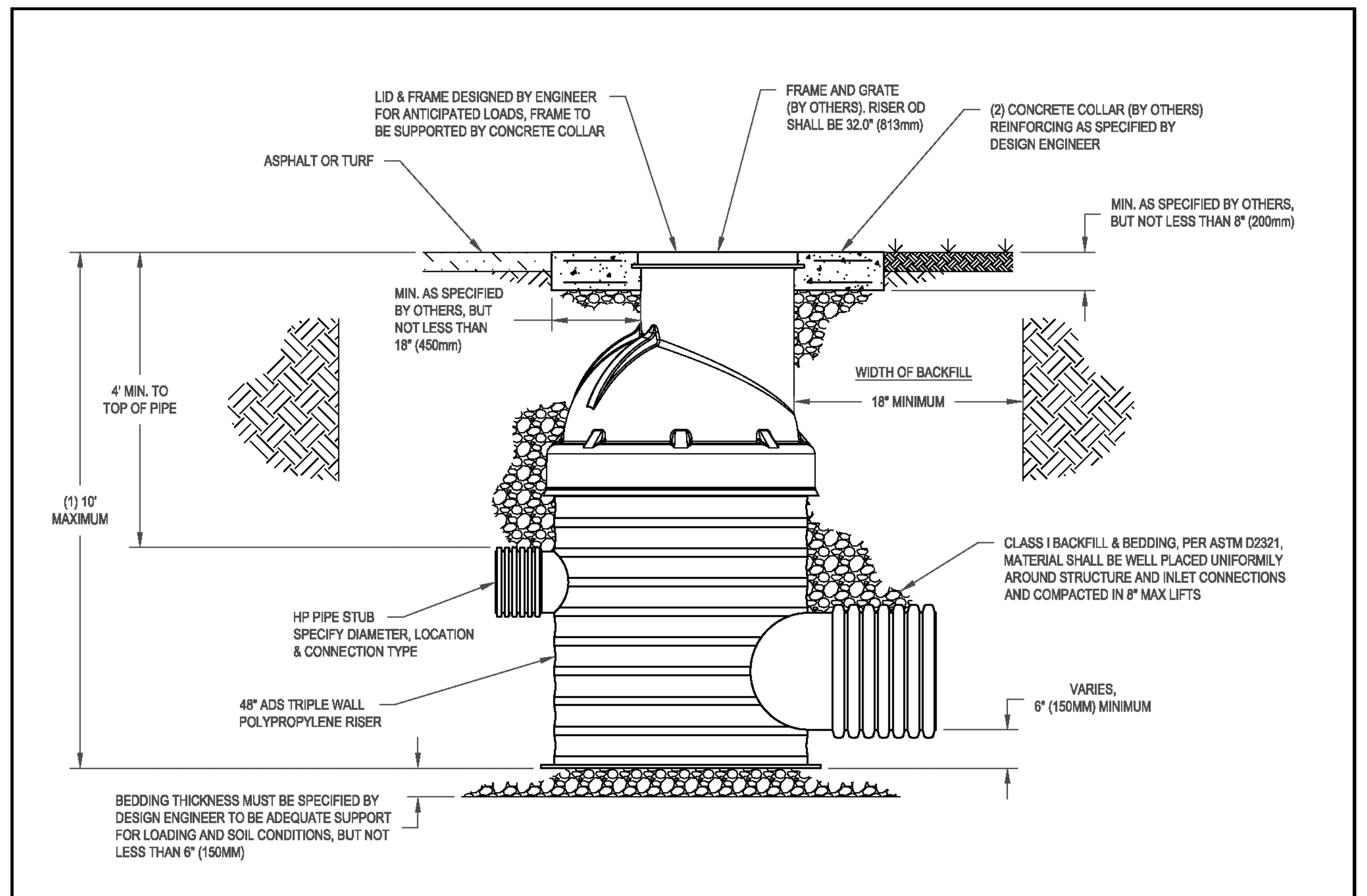
NOTES:
1. QUANTITIES SHOWN ARE FOR MANHOLE WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.
2. A BASE THICKNESS OF 9" WAS USED IN COMPUTING CONCRETE QUANTITIES.
3. INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH.
4. MATERIALS MAY BE BRICK, CONCRETE OR APPROVED CONCRETE MANHOLE BLOCK.
5. IF BLOCKS ARE USED THE MINIMUM THICKNESS OF SAME IS TO BE 5". OTHER THICKNESSES ARE TO CONFORM TO WALL THICKNESS SHOWN FOR CONCRETE.
6. ALL CONCRETE TO BE CLASS A3.
7. WHEN SPECIFIED ON PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

REV. 7/01 106.01

MANHOLE FOR 12" - 48" PIPE CULVERTS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE 302


LID & FRAME DESIGNED BY ENGINEER FOR ANTICIPATED LOADS, FRAME TO BE SUPPORTED BY CONCRETE COLLAR
FRAME AND GRATE (BY OTHERS). RISER OD SHALL BE 32.0" (813mm)
(2) CONCRETE COLLAR (BY OTHERS) REINFORCING AS SPECIFIED BY DESIGN ENGINEER
ASPHALT OR TURF
MIN. AS SPECIFIED BY OTHERS, BUT NOT LESS THAN 8" (200mm)
MIN. AS SPECIFIED BY OTHERS, BUT NOT LESS THAN 18" (450mm)
WIDTH OF BACKFILL
18" MINIMUM
4' MIN. TO TOP OF PIPE
(1) 10' MAXIMUM
CLASS I BACKFILL & BEDDING, PER ASTM D2321, MATERIAL SHALL BE WELL PLACED UNIFORMILY AROUND STRUCTURE AND INLET CONNECTIONS AND COMPACTED IN 8" MAX LIFTS
HP PIPE STUB SPECIFY DIAMETER, LOCATION & CONNECTION TYPE
48" ADS TRIPLE WALL POLYPROPYLENE RISER
VARIES, 6" (150MM) MINIMUM
BEDDING THICKNESS MUST BE SPECIFIED BY DESIGN ENGINEER TO BE ADEQUATE SUPPORT FOR LOADING AND SOIL CONDITIONS, BUT NOT LESS THAN 6" (150MM)

NOTES:
1. FOR BURIAL DEPTHS GREATER THAN 10', OR WHERE GROUND WATER WILL BE ENCOUNTERED, CONTACT ADS APPLICATIONS ENGINEERING
2. AVOID CONSTRUCTION LOADING ON DOME AND STRUCTURE PRIOR TO CONCRETE COLLAR INSTALLATION.

*CONTACT SALES REPRESENTATIVE FOR DETAILED PRODUCT SUBMITTAL DRAWINGS & PRODUCT INFORMATION.

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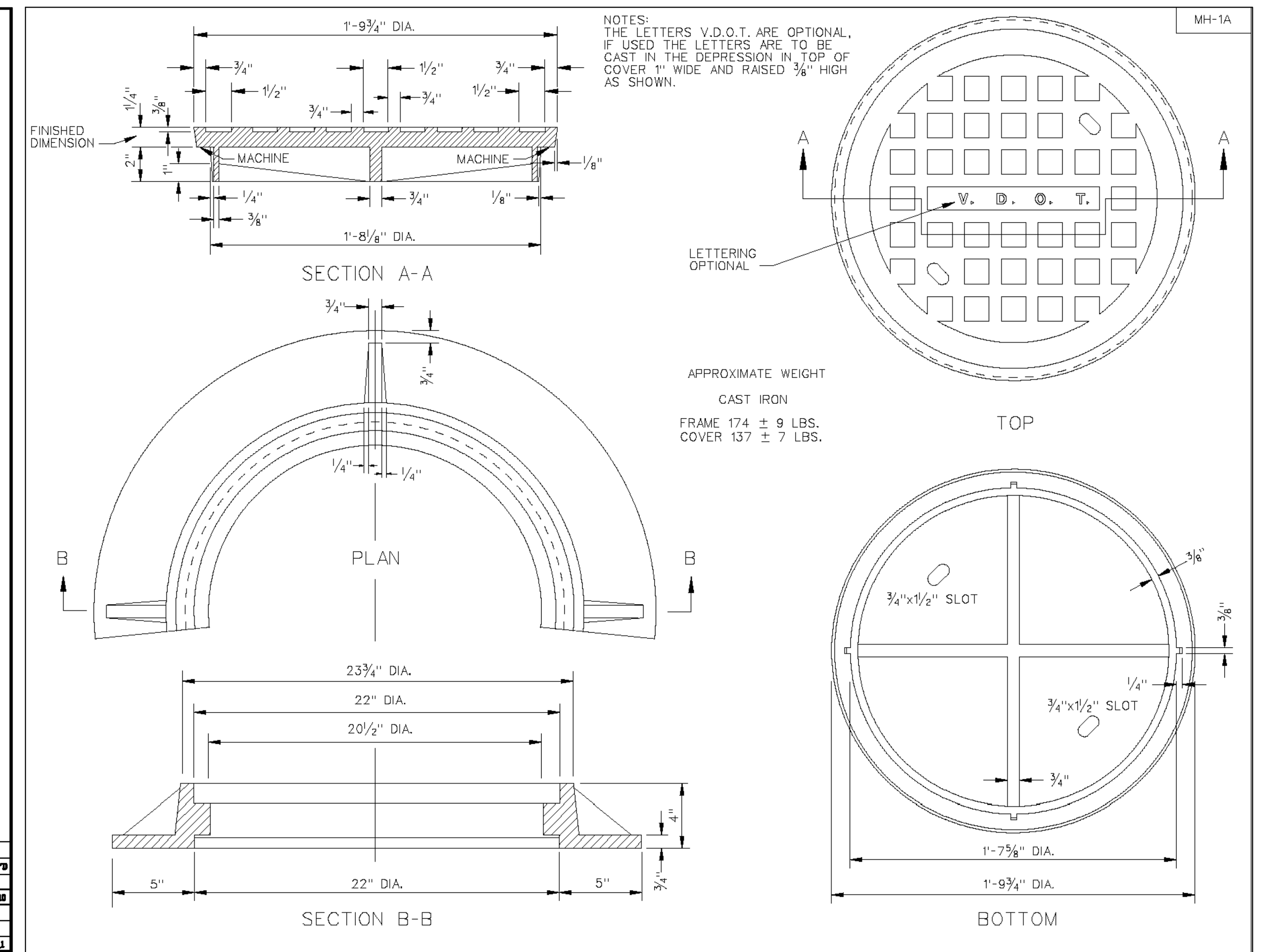
REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
A	RENUMBERED	TJR	02/16/16	

HP MANHOLE INSTALLATION (48in)

DRAWING NUMBER: STD-403

ADS 4640 TRUEMAN BLVD HILLIARD, OHIO 43026 ADVANCED DRAINAGE SYSTEMS, INC.

JJC 11-12-10 JAB NTS 1 OF 1


MH-1A
NOTES: THE LETTERS V.D.O.T. ARE OPTIONAL, IF USED THE LETTERS ARE TO BE CAST IN THE DEPRESSION IN TOP OF COVER 1" WIDE AND RAISED ⅜" HIGH AS SHOWN.
1'-9¾" DIA.
FINISHED DIMENSION
MACHINE
MACHINE
1'-8⅛" DIA.
SECTION A-A
V. D. O. T.
LETTERING OPTIONAL
TOP
APPROXIMATE WEIGHT
CAST IRON
FRAME 174 ± 9 LBS.
COVER 137 ± 7 LBS.
PLAN
23¾" DIA.
22" DIA.
20½" DIA.
22" DIA.
SECTION B-B
¾"x1½" SLOT
¾"x1½" SLOT
1'-7⅝" DIA.
1'-9¾" DIA.
BOTTOM

SPECIFICATION REFERENCE 224 302

STANDARD MANHOLE FRAME AND COVER

VIRGINIA DEPARTMENT OF TRANSPORTATION

106.06

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
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571.594.6363

CONTRACTOR
TBD

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LAND SURVEYOR
DOMINION SURVEYS, INC.
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ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by:
Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

UTILITY DETAILS NOTES

1. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL NOTES.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION

REZONING PLANS

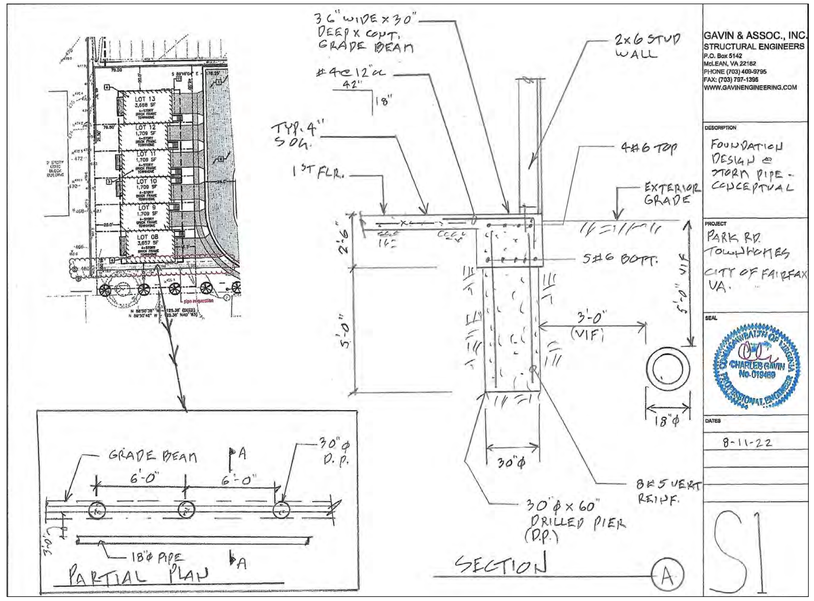
12/16/2022

UTILITY DETAILS

DRAWING TITLE

010

DRAWING NO.



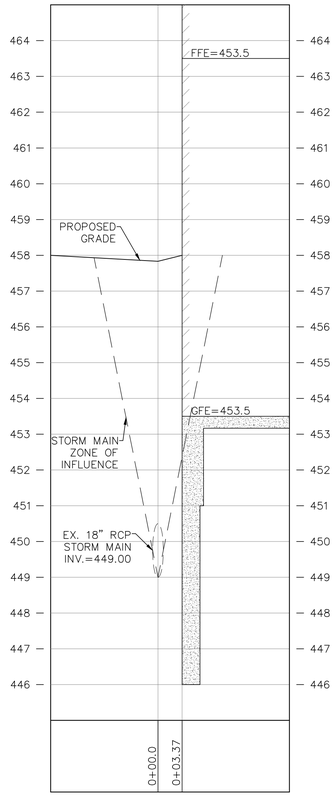
GAVIN & ASSOC., INC.
STRUCTURAL ENGINEERS
P.O. Box 5142
McLEAN, VA 22182
PHONE (703) 409-9795
FAX: (703) 757-1356
WWW.GAVINENGINEERING.COM

DESCRIPTION
FOUNDATION DESIGN & STORM PIPE - CONCEPTUAL

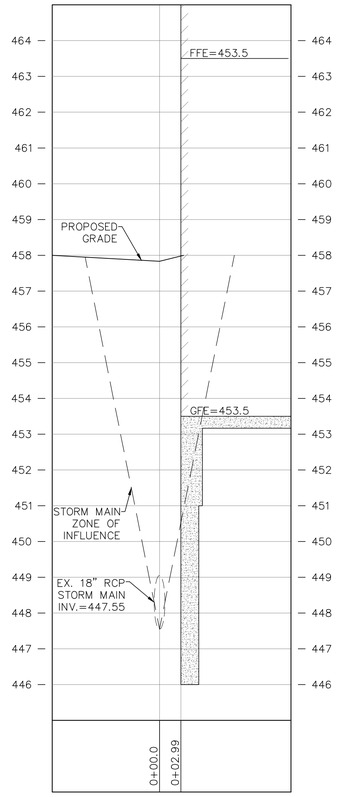
PROJECT
PARK RD TOWNHOMES
CITY OF FAIRFAX VA.

SEAL
COMMONWEALTH OF VIRGINIA
No. 019469
CHARLES GAVIN
PROFESSIONAL ENGINEER

DATES
8-11-22



UPHILL CROSS SECTION



DOWNHILL CROSS SECTION

BAR SCALE
2 0 1 2 4
1" = 2'
VERTICAL

BAR SCALE
10 0 5 10 20
1" = 10'
HORIZONTAL

UTILITY PROFILES NOTES

1. THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN IN THE PROFILES ARE SHOWN APPROXIMATELY, ARE BASED ON AVAILABLE INFORMATION PROVIDED BY THE SURVEYOR, CONTRACTOR, MISS UTILITY, AND ASSUMPTIONS FROM THE ENGINEER. CONTRACTOR TO VERIFY.
2. THE CONTRACTOR MUST DETERMINE THE LOCATIONS AND ELEVATIONS OF THE VARIOUS EXISTING UTILITIES, BY HAND EXCAVATION IF NECESSARY, PRIOR TO COMMENCING CONSTRUCTION. DISCREPANCIES FOUND BETWEEN FIELD CONDITIONS AND PROFILES SHALL BE REPORTED TO THE ENGINEER; PROPOSED UTILITY LOCATIONS AND ELEVATIONS MAY NEED TO BE ADJUSTED DEPENDING ON THE DISCREPANCIES, AND CONSULTATION FROM THE ENGINEER IS RECOMMENDED.
3. THE EXISTING AND PROPOSED GRADES ARE SHOWN APPROXIMATELY ON THE UTILITY PROFILES.
4. UNLESS OTHERWISE APPROVED BY THE FAIRFAX WATER INSPECTOR, MAINTAIN A MINIMUM 12" OF SEPARATION BETWEEN FAIRFAX WATER UTILITIES AND OTHER UTILITIES IN PUBLIC SPACE.
5. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL INFORMATION.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
CAGLAYAN INVESTMENT GROUP
32713 LATROBE ST
CHANTILLY, VA 20152
571.594.6363

CONTRACTOR
TBD

CIVIL ENGINEER
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703.425.3862

LAND SURVEYOR
DOMINION SURVEYS, INC.
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ALEXANDRIA, VA 22309
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COMMONWEALTH OF VIRGINIA
DocuSigned by:
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

STORM MAIN CROSS SECTIONS

DRAWING TITLE

011

DRAWING NO.

STORMWATER MANAGEMENT PLAN LEGEND

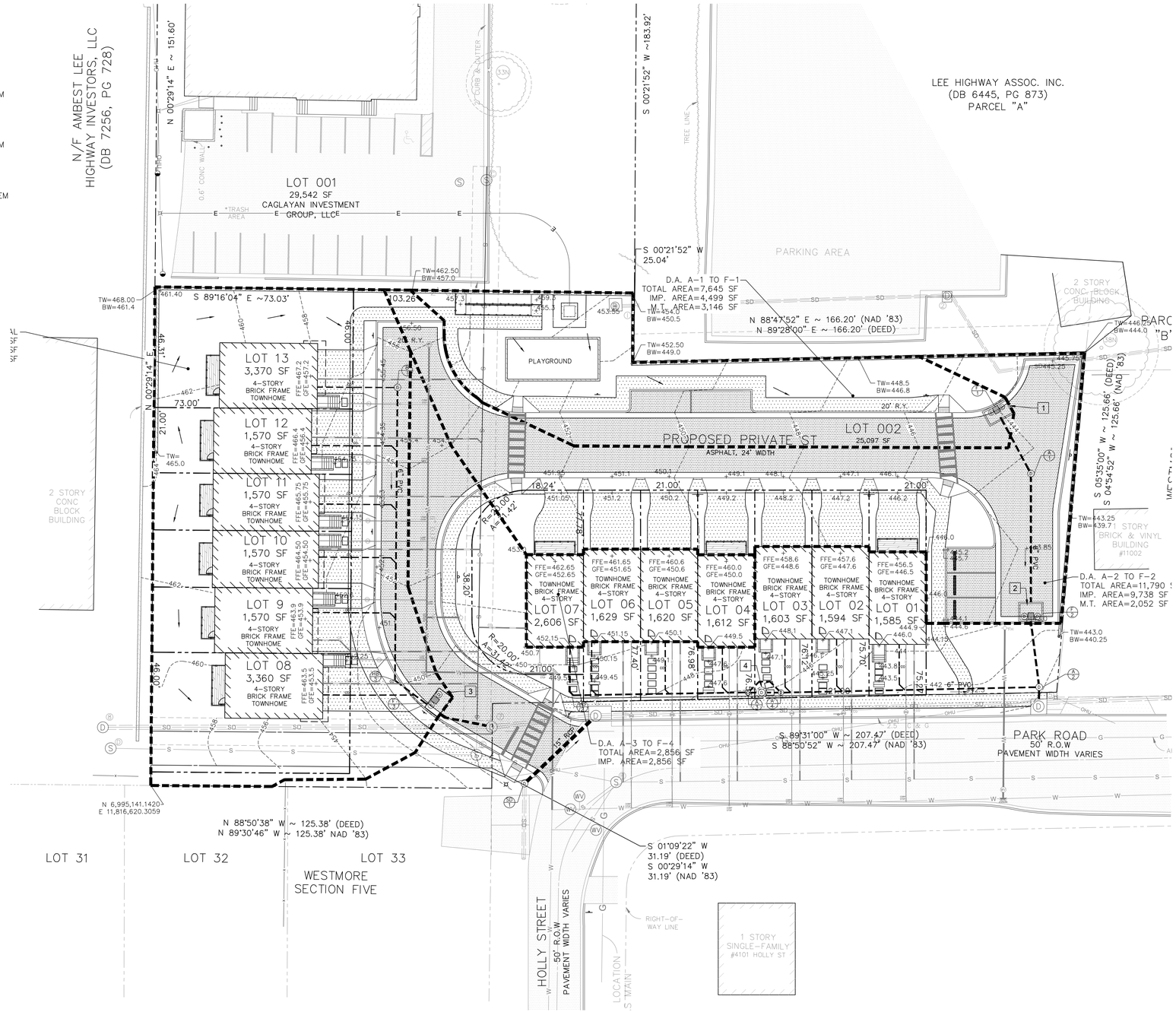
DRAINAGE DIVIDE

STORMWATER MANAGEMENT PLAN KEYNOTES

1. 5'X7' PRECAST CONCRETE VAULT WITH GRATE INLET
   ADS BAYFILTER CARTRIDGE MODEL: 645 (ENHANCED)
   NUMBER OF CARTRIDGES: 2
   6" SCH80 PVC PIPE TO OVERFLOW TO TIE INTO CITY STORM SEWER SYSTEM VIA CORE DRILL CONNECTION TO EXISTING CURB INLET
2. 6'X9' PRECAST CONCRETE VAULT WITH GRATE INLET
   ADS BAYFILTER CARTRIDGE MODEL: 645 (ENHANCED)
   NUMBER OF CARTRIDGES: 4
   8" SCH80 PVC PIPE TO OVERFLOW TO TIE INTO CITY STORM SEWER SYSTEM VIA CORE DRILL CONNECTION TO EXISTING CURB INLET
3. 6'X9' PRECAST CONCRETE VAULT WITH GRATE INLET
   ADS BAYFILTER CARTRIDGE MODEL: 645 (ENHANCED)
   NUMBER OF CARTRIDGES: 4
   10" SCH80 PVC PIPE TO OVERFLOW TO TIE INTO CITY STORM SEWER SYSTEM VIA NEW CONCRETE DOGHOUSE MANHOLE
4. 48" DIAMETER PRECAST MANHOLE WITH SOLID COVER
   ADS BAYFILTER CARTRIDGE MODEL: 645 (ENHANCED)
   NUMBER OF CARTRIDGES: 1
   EXTERNAL BY-PASS:
   UPSTREAM AND DOWNSTREAM 30" HP MANHOLE WITH 6" SCH40 PVC PIPE TO SERVE AS BY-PASS LINE

PRO-RATA SHARE ASSESSMENT INFORMATION			
COVER TYPE	EXISTING (SF)	PROPOSED (SF)	INCREASE (SF)
LOT AREA	50,778		
IMPERVIOUS	14,154	32,336	18,182
BUILDINGS	5,090	10,093	5,003
DRIVEWAYS	454	4,387	3,933
MISCELLANEOUS	8,610	17,856	9,246
MANAGED TURF	36624	18442	-18,182

VRRM SITE INFORMATION			
COVER TYPE	EXISTING (SF)	PROPOSED (SF)	INCREASE (SF)
LOT AREA	50,778		
HSG A			
IMPERVIOUS	0	0	0
MANAGED TURF	0	0	0
HSG B			
IMPERVIOUS	0	0	0
MANAGED TURF	0	0	0
HSG C			
IMPERVIOUS	14154	32336	18,182
MANAGED TURF	36624	18442	-18,182
HSG D			
IMPERVIOUS	0	0	0
MANAGED TURF	0	0	0
PERCENT IMPERVIOUS	27.9	63.7	



STORMWATER MANAGEMENT PLAN NOTES

1. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL INFORMATION.

APPROVAL	DATE	REVISIONS
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	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

BAR SCALE
20 16 12 8 4 0 10 20 30
1" = 20'

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

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COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

STORMWATER MANAGEMENT PLAN

DRAWING TITLE

012

DRAWING NO.

Project Name: **Park Rd Townhomes**
Date: **12/16/2022**
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.16

Maximum reduction required: 20%
The site's net increase in impervious cover (acres) is: 0.417401286
Post-Development TP Load Reduction for Site (lb/yr): 0.92

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be			0.84		0.84
Impervious Cover (acres)			0.32		0.32
					1.17

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			0.42		0.42
Impervious Cover (acres)			0.74		0.74
Area Check	OK.	OK.	OK.	OK.	1.17

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)	0.39	0.23	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.39	0.23	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.12	0.17	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.12	0.17	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft^3): 2,898

Runoff Reduction Volume and TP By Drainage Area

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft^3)	0	0	0	0	0	0
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	0.91	0.58	0.00	0.00	0.00	1.49
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.58	0.37	0.00	0.00	0.00	0.95
TP LOAD REMAINING (lb/yr)	0.33	0.21	0.00	0.00	0.00	0.54
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

Total Phosphorus

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	1.82
TP LOAD REDUCTION REQUIRED (lb/yr)	0.92
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.95
TP LOAD REMAINING (lb/yr):	0.87
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00 **

** TARGET TP REDUCTION EXCEEDED BY 0.04 LB/YEAR **

Total Nitrogen (For Information Purposes)

POST-DEVELOPMENT LOAD (lb/yr)	13.03
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	13.03

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)			0.12		0.12	0.22
Impervious Cover (acres)			0.39		0.39	0.95
				Total	0.51	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr): 0.91
Post Development Treatment Volume in D.A. A (ft^3): 1,448

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists--

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft^3)	Runoff Reduction (ft^3)	Remaining Runoff Volume (ft^3)	Total BMP Treatment Volume (ft^3)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0	0.12	0.39	0	0	1,448	1,448	64	0.00	0.91	0.58	0.33	

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
14. Manufactured BMP (no RR)				
0	0.00	0.00	0.00	0.00
0	0.00	6.50	0.00	6.50

Bayfilter (F-1)
Runoff Reduction 0%
Totla Phosphorous Removal 50%

Define Drainage Area
Total Drainage Area (A) = 7,645 SF
Total Impervious Area (A_I) = 4,499 SF
Managed Turf Area (A_C) = 3,146 SF
Forested Area (A_N) = 0 SF

HSG C
Drainage Area R_v 0.64

Calculate Peak Discharge
Total Treatment Volume (Tv) 408 CF
Runoff Volume, Q_a 0.64 IN
CN 88.12
Time of Concentration, Tc 6.00 MIN
Initial abstraction, I_a 0.273
I_a / P 0.273
Unit Peak Discharge, q_u 950
Peak discharge, q_{PTv} **0.17 CFS**

Filtering Device Sizing
Manufacturer ADS
Filtering Device Bayfilter
Cartridge Model 645
Treatment Flowrate 45.00 GPM
Treatment Volume 2500.0 CF

Bayfilter (F-2)
Runoff Reduction 0%
Totla Phosphorous Removal 50%

Define Drainage Area
Total Drainage Area (A) = 11,790 SF
Total Impervious Area (A_I) = 9,738 SF
Managed Turf Area (A_C) = 2,052 SF
Forested Area (A_N) = 0 SF
HSG C
Drainage Area R_v 0.79

Calculate Peak Discharge
Total Treatment Volume (Tv) 777 CF
Runoff Volume, Q_a 0.79 IN
CN 93.82
Time of Concentration, Tc 6.00 MIN
Initial abstraction, I_a 0.151
I_a / P 0.151
Unit Peak Discharge, q_u 950
Peak discharge, q_{PTv} **0.32 CFS**

Filtering Device Sizing
Manufacturer ADS
Filtering Device Bayfilter
Cartridge Model 645
Treatment Flowrate 45.00 GPM
Treatment Volume 2500.0 CF
Convert to CFS 0.10 CFS
Required Number of Cartridges 4

Bayfilter (F-3)
Runoff Reduction 0%
Totla Phosphorous Removal 50%

Define Drainage Area
Total Drainage Area (A) = 17,399 SF
Total Impervious Area (A_I) = 9,925 SF
Managed Turf Area (A_C) = 7,474 SF
Forested Area (A_N) = 0 SF
HSG C
Drainage Area R_v 0.63

Calculate Peak Discharge
Total Treatment Volume (Tv) 913 CF
Runoff Volume, Q_a 0.63 IN
CN 87.69
Time of Concentration, Tc 6.00 MIN
Initial abstraction, I_a 0.299
I_a / P 0.299
Unit Peak Discharge, q_u 950
Peak discharge, q_{PTv} **0.37 CFS**

Filtering Device Sizing
Manufacturer ADS
Filtering Device Bayfilter
Cartridge Model 645
Treatment Flowrate 45.00 GPM
Treatment Volume 2500.0 CF
Convert to CFS 0.10 CFS
Required Number of Cartridges 4

Bayfilter (F-4)
Runoff Reduction 0%
Totla Phosphorous Removal 50%

Define Drainage Area
Total Drainage Area (A) = 2,856 SF
Total Impervious Area (A_I) = 2,856 SF
Managed Turf Area (A_C) = 0 SF
Forested Area (A_N) = 0 SF
HSG C
Drainage Area R_v 0.90

Calculate Peak Discharge
Total Treatment Volume (Tv) 214 CF
Runoff Volume, Q_a 0.90 IN
CN 98.00
Time of Concentration, Tc 6.00 MIN
Initial abstraction, I_a 0.041
I_a / P 0.041
Unit Peak Discharge, q_u 1000
Peak discharge, q_{PTv} **0.09 CFS**

Filtering Device Sizing
Manufacturer ADS
Filtering Device Bayfilter
Cartridge Model 645
Treatment Flowrate 45.00 GPM
Treatment Volume 2500.0 CF
Convert to CFS 0.10 CFS
Required Number of Cartridges 1

MTD - Filter Devices Methodology
$T_v = (R_v \times A) / 12$
$R_v = (A_I \times Rv_I) + (A_2 \times Rv_2) + \ldots (A_n \times Rv_n)$
$Q_a = Tv / A$
P = 1.0 inch in Virginia
I_a taken from Table 4-1 of the NRCS TR-55
$q_{PTv} = q_u \times A \times Q_a$ A is in square miles

HSG	R_I	R_{MT}	R_F
A	0.9	0.20	0.12
B	0.9	0.23	0.16
C	0.9	0.27	0.19
D	0.9	0.29	0.24

CN Values (from Table 2-2a USDA TR-55 & VRRM Spreadsheet)

Cover Type	CN
Impervious	98.0
Managed Turf, HSG C	74.0
Residential Disctricts 1/4 acre, HSG C	75.0
Woods, fair condition, HSG C	70.0

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)			0.17		0.17	0.22
Impervious Cover (acres)			0.23		0.23	0.95
				Total	0.40	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. B (lb/yr): 0.58
Post Development Treatment Volume in D.A. B (ft^3): 923

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists--

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft^3)	Runoff Reduction (ft^3)	Remaining Runoff Volume (ft^3)	Total BMP Treatment Volume (ft^3)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0	0.17	0.23	0	0	923	923	64	0.00	0.58	0.37	0.21	

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
14. Manufactured BMP (no RR)				
0	0.00	0.00	0.00	0.00
0	0.00	4.14	0.00	4.14

Runoff Volume and CN Calculations

	1-year storm	2-year storm	10-year storm
Target Rainfall Event (in)	2.58	3.11	4.78

Drainage Areas	RV & CN	Drainage Area A	Drainage Area B	Drainage Area C	Drainage Area D	Drainage Area E
CN		92	88	0	0	0
RR (ft^3)		0	0	0	0	0
1-year return period	RV wo RR (ws-in)	1.77	1.45	0.00	0.00	0.00
	RV w RR (ws-in)	1.77	1.45	0.00	0.00	0.00
	CN adjusted	92	88	0	0	0
2-year return period	RV wo RR (ws-in)	2.27	1.92	0.00	0.00	0.00
	RV w RR (ws-in)	2.27	1.92	0.00	0.00	0.00
	CN adjusted	92	88	0	0	0
10-year return period	RV wo RR (ws-in)	3.87	3.46	0.00	0.00	0.00
	RV w RR (ws-in)	3.87	3.46	0.00	0.00	0.00
	CN adjusted	92	88	0	0	0

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

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LAND SURVEYOR
DOMINION SURVEYS, INC.
8808-H PEAR TREE VILLAGE COURT
ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER
SEAL

STORMWATER CALCULATIONS NOTES

1. REFER TO THE CIVIL COVER SHEET FOR ADDITIONAL INFORMATION.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

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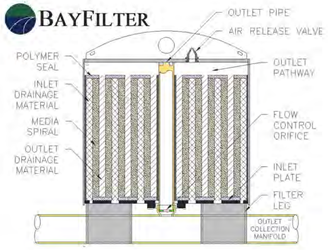
REZONING PLANS
12/16/2022

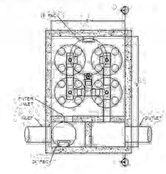
STORMWATER MANAGEMENT CALCULATIONS
DRAWING TITLE

013
DRAWING NO.

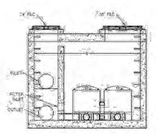
6'x9' Internal Bypass Vault

Creation Date:	11/17/2022 6:51:24 AM
Treatment Flow Rate:	0.16 cfs
Cartridge Type:	BayFilter™ 622
# of Cartridges:	4
Model Number:	BF-6-9-4
Rim Elevation:	444 ft.
Inlet Elevation:	442 ft.
Outlet Elevation:	440 ft.
Drop:	24 in.





ENHANCED MEDIA CARTRIDGES TO BE USED IN ACCORDANCE WITH VA DEQ APPROVAL LETTER

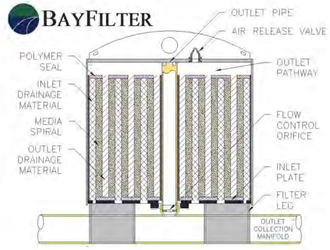


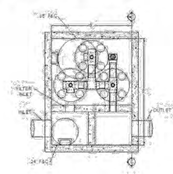
BAYSAVER TECHNOLOGIES

ADS

6'x8' Internal Bypass Vault

Creation Date:	11/17/2022 6:43:47 AM
Treatment Flow Rate:	0.3 cfs
Cartridge Type:	BayFilter™ 645
# of Cartridges:	3
Model Number:	BF-6-8-3
Rim Elevation:	443 ft.
Inlet Elevation:	439.21 ft.
Outlet Elevation:	436 ft.
Drop:	39 in.





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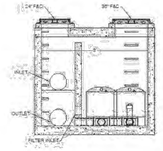
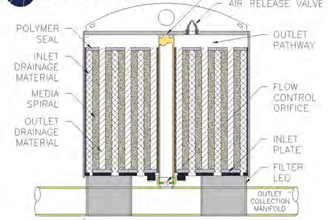


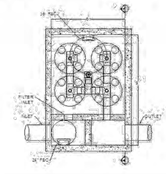
BAYSAVER TECHNOLOGIES

ADS

6'x9' Internal Bypass Vault

Creation Date:	8/9/2022 1:21:47 PM
Treatment Flow Rate:	0.37 cfs
Cartridge Type:	BayFilter™ 645
# of Cartridges:	4
Model Number:	BF-6-9-4
Rim Elevation:	449.5 ft.
Inlet Elevation:	447.25 ft.
Outlet Elevation:	445.4 ft.
Drop:	22 in.
Top of Weir Elevation:	448.23 ft.





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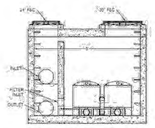
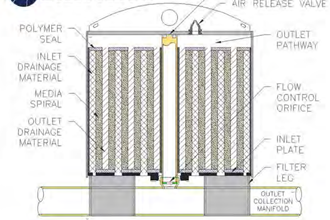


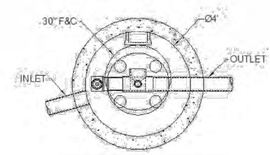
BAYSAVER TECHNOLOGIES

ADS

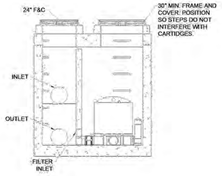
48" Manhole

Creation Date:	11/16/2022 3:44:51 PM
Treatment Flow Rate:	0.1 cfs
Cartridge Type:	BayFilter™ 645
# of Cartridges:	1
Model Number:	BF-48-1
Rim Elevation:	446.3 ft.
Inlet Elevation:	441.7 ft.
Outlet Elevation:	438.7 ft.
Drop:	36 in.





ENHANCED MEDIA CARTRIDGES TO BE USED IN ACCORDANCE WITH VA DEQ APPROVAL LETTER



BAYSAVER TECHNOLOGIES

ADS

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION

REZONING PLANS

12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
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571.594.6363

CONTRACTOR
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8808-H PEAR TREE VILLAGE COURT
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703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by:
Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

BAYFILTER DETAILS

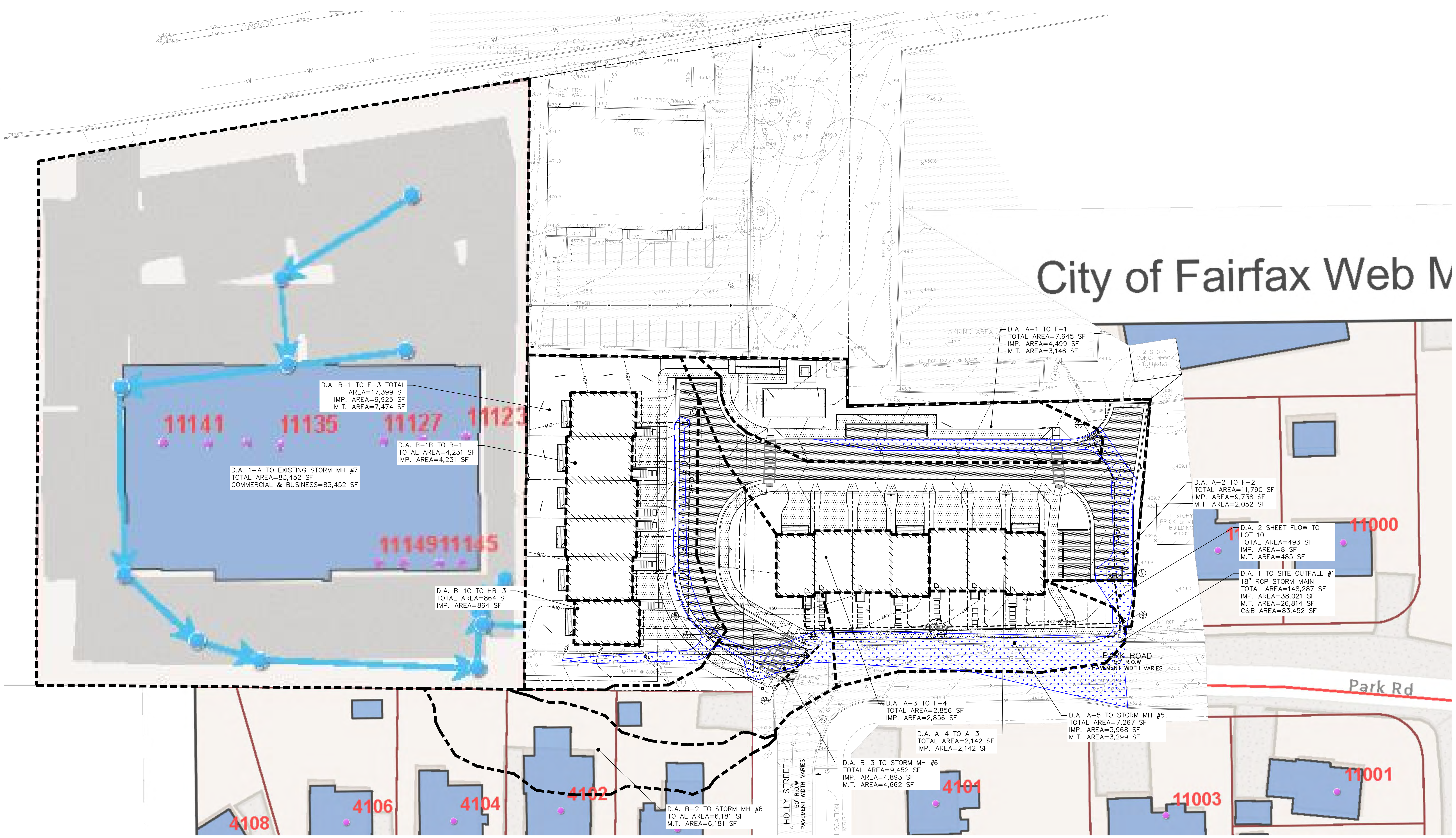
DRAWING TITLE

014

DRAWING NO.

DRAINAGE PLAN LEGEND

- DRAINAGE DIVIDE
- OVERLAND SHEET FLOW ARROW
- 100-YR OVERLAND RELIEF FLOW BOUNDARY



NAD '83

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

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ADEQUATE OUTFALL ANALYSIS

THE SUBJECT PROPERTY CONSIST OF TWO DRAINAGE AREAS, 1 & 2, THAT IS BROKEN DOWN INTO THREE DRAINAGE AREAS (1-A, A, & B) FOR THE PURPOSES OF HYDRAULIC ANALYSIS OF THE EXISTING AND PROPOSED STORM DRAIN SYSTEM. THE THREE DRAINAGE AREAS ARE FURTHER BROKEN DOWN INTO DRAINAGE AREAS FOR EACH INDIVIDUAL STORM SEWER STRUCTURE ON THE ABOVE PLAN. THE SITE IS LOCATED IN THE ACCOTINK WATERSHED WITH A TOTAL DRAINAGE AREA 51.0 SQ. MI. (32,640 ACRES).

DRAINAGE AREA 1-A IS 83,452 SF (1.9158 ACRES) AND CONSIST ENTIRELY OF THE COMMERCIALLY ZONED LOT 0140 WEST OF THE SUBJECT PROPERTY. THE RUNOFF IN THE DRAINAGE AREA IS COLLECTED VIA AN ON SITE DRAINAGE SYSTEM AND CONNECTED TO AN EXISTING 18" RCP STORM MAIN THAT RUNS ALONG THE SOUTHERN BORDER OF THE SUBJECT PROPERTY. THE FLOW CONTINUES IN THE CITY STORM DRAIN SYSTEM EAST TO THE SITE OUTFALL, AN EXISTING 18" RCP STORM MAIN IN THE PARK RD R.O.W.

DRAINAGE AREA A IS 31,700 SF (0.7277 ACRES) AND CONSIST OF THE EASTERN PORTION OF THE SUBJECT PROPERTY. THE DRAINAGE AREA IS BROKEN DOWN INTO FIVE SUB-DRAINAGE AREAS FOR THE PURPOSES OF ANALYSIS. THE RUNOFF SHALL BE COLLECTED VIA A PROPOSED ON SITE DRAINAGE SYSTEM AND CONNECTED TO THE SITE OUTFALL VIA A NEW CORE DRILL CONNECTION TO AN EXISTING CURB INLET NEAR THE SOUTHEASTERN CORNER OF THE SUBJECT PROPERTY.

DRAINAGE AREA B IS 33,032 SF (0.7583 ACRES) AND CONSIST OF THE WESTERN PORTION OF THE SUBJECT PROPERTY. THE DRAINAGE AREA IS BROKEN DOWN INTO THREE SUB-DRAINAGE AREAS FOR THE PURPOSES OF ANALYSIS. THE RUNOFF SHALL BE COLLECTED VIA A PROPOSED ON SITE DRAINAGE SYSTEM AND CONNECTED TO THE SITE OUTFALL VIA A NEW CORE DRILL CONNECTION TO AN EXISTING MANOLE NEAR THE HOLLY DR AND PARK RD INTERSECTION.

THE LIMIT OF ANALYSIS FOR CHANNEL PROTECTION AND FLOOD PROTECTION IS THE SITE OUTFALL BECAUSE THE SITE'S CONTRIBUTING DRAINAGE AREA IS LESS THAN 1.0% OF THE TOTAL WATERSHED AREA 9VAC25-870-66.B.4.a). NATURAL DRAINAGE DIVIDES ARE HONORED IN THE POST-DEVELOPMENT CONDITION FOR BOTH CONCENTRATED AND NON-CONCENTRATED FLOW.

(1.9158+0.7277+0.7583)/32,640=0.010%

THE POST DEVELOPMENT PEAK FLOW FOR THE 2-YR STORM EVENT IS 5.88 CFS. THE EXISTING 18" RCP STORM MAIN IN THE PARK RD R.O.W HAS ADEQUATE CAPACITY TO CONVEY THE 2-YR PEAK FLOW, SEE CALCULATIONS SHEET 016 (FAIRFAX COUNTY CODE SECTION 124-4-4.B.1.a).

THE POST DEVELOPMENT PEAK FLOW RATE FROM THE 10-YR STORM EVENT IS 10.14 CFS. THERE IS NO EVIDENCE THAT THE EXISTING STORMWATER CONVEYANCE SYSTEM CURRENTLY EXPERIENCES LOCALIZED FLOODING. THE EXISTING 18" RCP STORM MAIN IN THE PARK RD R.O.W HAS ADEQUATE CAPACITY TO CONVEY THE 10-YR PEAK FLOW, SEE CALCULATIONS SHEET 016 (9VAC25-870-66.C.1).

DRAINAGE AREA 2 IS 493 SF (0.0113 ACRES). THE DRAINAGE AREA SHEET FLOWS WEST TO EAST AND LEAVES THE SUBJECT PROPERTY AS SHEET FLOW. THE TOTAL IMPERVIOUS AREA IS REDUCED IN THE POST DEVELOPMENT CONDITION. THEREFORE, THE PEAK FLOW RATE IN THE POST DEVELOPMENT CONDITION IS LESS THAN THAT OF THE PRE DEVELOPMENT CONDITION, SEE CALCULATIONS SHEET 016 (9VAC25-870-66.D). NATURAL DRAINAGE DIVIDES ARE HONORED IN THE POST-DEVELOPMENT CONDITION FOR BOTH CONCENTRATED AND NON-CONCENTRATED FLOW.

IT IS THE OPINION OF THE ENGINEER THAT REQUIREMENTS FOR THE ADEQUACY OF THE DOWNSTREAM DRAINAGE SYSTEM HAVE BEEN MET; AND IT IS THE ENGINEER'S PROFESSIONAL OPINION THAT NO ADJACENT OR DOWNSTREAM PROPERTIES WILL SUFFER ADVERSE IMPACTS DUE TO THIS PROPOSED DEVELOPMENT ACTIVITY.

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

BAR SCALE
30 24 18 12 6 0 15 30 60
1" = 30'

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
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12/17/2022
PROFESSIONAL ENGINEER

SEAL

DRAINAGE PLAN
DRAWING TITLE

015
DRAWING NO.

TR-55 Calculations - Water Quantity Compliance

1-year 24-hr rainfall depth, P1 =	2.58	IN
2-year 24-hr rainfall depth, P2 =	3.11	IN
10-year 24-hr rainfall depth, P10 =	4.78	IN

D.A. 1 to Site Outfall #1

Total Area	148,279	SF
Pre Dev. Managed Turf, A_{MT} =	46,724	SF
Post Dev. Managed Turf, A_{MT} =	26,837	SF
Pre Dev. Impervious Cover, A_{IMP} =	18,645	SF
Post Dev. Impervious Cover, A_{IMP} =	37,990	SF
Commerical & Business Area, $A_{C\&B}$	83,452	
Pre Dev. Curve Number, CN_{pre} =	88.5	
Post Dev. Curve Number, CN_{post} =	91.4	
Pre Dev. Potential Max. Abstraction, Spre =	1.29	IN
Post Dev. Potential Max. Abstraction, Spost =	0.94	IN
Pre Dev. 1-yr Adj. Runoff, Q1pre =	1.49	IN
Post Dev. 1-yr Adj. Runoff, Q1post =	1.72	IN
Pre Dev. 2-yr Adj. Runoff, Q2pre =	1.96	IN
Post Dev. 2-yr Adj. Runoff, Q2post =	2.21	IN
Pre Dev. 10-yr Adj. Runoff, Q10pre =	3.52	IN
Post Dev. 10-yr Adj. Runoff, Q10post =	3.81	IN
Pre Dev. 1-yr Peak Runoff Flowrate, q1pre =	**3.964**	CFS
Post Dev. 1-yr Peak Runoff Flowrate, q1post =	**4.566**	CFS
Pre Dev. 2-yr Peak Runoff Flowrate, q2pre =	**5.216**	CFS
Post Dev. 2-yr Peak Runoff Flowrate, q2post =	**5.879**	CFS
Pre Dev. 10-yr Peak Runoff Flowrate, q10pre =	**9.349**	CFS
Post Dev. 10-yr Peak Runoff Flowrate, q10post =	**10.136**	CFS
Δ 1-yr Peak Runoff, $Q_{1\Delta}$	**0.602**	CFS
Δ 2-yr Peak Runoff, $Q_{2\Delta}$	**0.663**	CFS
Δ 10-yr Peak Runoff, $Q_{10\Delta}$	**0.788**	CFS

D.A. 2 Sheet Flow to Lot 10

Total Area	493	SF
Pre Dev. Managed Turf, A_{MT} =	351	SF
Post Dev. Managed Turf, A_{MT} =	485	SF
Pre Dev. Impervious Cover, A_{IMP} =	142	SF
Post Dev. Impervious Cover, A_{IMP} =	8	SF
Pre Dev. Curve Number, CN_{pre} =	80.9	
Post Dev. Curve Number, CN_{post} =	74.4	
Pre Dev. Potential Max. Abstraction, Spre =	2.36	IN
Post Dev. Potential Max. Abstraction, Spost =	3.44	IN
Pre Dev. 1-yr Adj. Runoff, Q1pre =	0.99	IN
Post Dev. 1-yr Adj. Runoff, Q1post =	0.67	IN
Pre Dev. 2-yr Adj. Runoff, Q2pre =	1.39	IN
Post Dev. 2-yr Adj. Runoff, Q2post =	1.00	IN
Pre Dev. 10-yr Adj. Runoff, Q10pre =	2.78	IN
Post Dev. 10-yr Adj. Runoff, Q10post =	2.22	IN
Pre Dev. 1-yr Peak Runoff Flowrate, q1pre =	**0.009**	CFS
Post Dev. 1-yr Peak Runoff Flowrate, q1post =	**0.006**	CFS
Pre Dev. 2-yr Peak Runoff Flowrate, q2pre =	**0.012**	CFS
Post Dev. 2-yr Peak Runoff Flowrate, q2post =	**0.009**	CFS
Pre Dev. 10-yr Peak Runoff Flowrate, q10pre =	**0.025**	CFS
Post Dev. 10-yr Peak Runoff Flowrate, q10post =	**0.020**	CFS
Δ 1-yr Peak Runoff, $Q_{1\Delta}$	**-0.003**	CFS
Δ 2-yr Peak Runoff, $Q_{2\Delta}$	**-0.003**	CFS
Δ 10-yr Peak Runoff, $Q_{10\Delta}$	**-0.005**	CFS

Water Quantity Compliance Methodology

Rainfall depths per the Virginia Stormwater Management Handbook Vol. II
Initial abstraction, Ia = 0.2 x S
Thus, Q = ((P - 0.2 x S)^2) / (P + 0.8 x S)
Potential max. retention, S = 1000/CN - 10
Unit peak discharge, qu = 500
Drainage area (mi^2), Am = (Aexcom + Aeximp) / (660)
Peak discharge, q = qu x Am x Q x Fp

CN Values (from Table 2-2a USDA TR-55 & VRRM Spreadsheet)

Cover Type	**CN**
Impervious	98.0
Managed Turf, HSG C	74.0
Woods, fair condition, HSG C	70.0

Park Rd Townhomes 12/17/2022
Sewer Conveyance - Hydrology and Hydraulic Calculations

Upstream ID	Upstream Invert	Downstream ID	Downstream Invert	Length	Diam.	Mat'l	n	Slope	I_{100}	V	Q	R	A	Imp.	M.T.	B&C	CN	S	Runoff	Peak Q	$\sum Q_{DA}$	$Q_{add'l}$[6]	$Q_{add'l}US$[7]	V_{100}/V_{full}	V_{full}	Q_{100}/Q_{full}	Q_{full}	A_{100}/A_{full}	A_{full}	R_{100}/R_{full}	R_{full}	Flow Type
Hydraulics: Pipe Inverts				Pipe Parameters					Flow Parameters					Hydrology: Drainage Area[1]								Additional Flow		Circular Channel Ratios[8]: Velocity		Flowrate		Flow Area		Hydraulic Radius		
				(ft)	(in)			(ft/ft)	(in/hr)	(fps)	(cfs)	(ft)	(sf)	(SF)	(SF)	(SF)		(in)	(in)	(cfs)	(cfs)	(cfs)	(cfs)		(fps)		(cfs)		(sf)		(ft)	
F-1	440.00	A1	439.78	22.22	8	PVC	0.011	1.00%	3.11	3.08	0.26	0.11	0.08	4446	3156	0	88.04	1.36	1.92	0.26	0.26	0.00	0.00	0.75	4.09	0.18	1.43	0.24	0.35	0.65	0.17	CHANNEL
A1	439.68	F-2	439.22	46.04	8	PVC	0.011	1.00%	3.11	3.08	0.26	0.11	0.08	0	0	0	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.75	4.09	0.18	1.43	0.24	0.35	0.65	0.17	CHANNEL
F-2	436.00	A2	435.70	22.16	10	PVC	0.011	1.35%	3.11	4.58	0.78	0.15	0.16	9760	2065	0	93.81	0.66	2.44	0.52	0.78	0.00	0.00	0.83	5.52	0.26	3.01	0.30	0.55	0.74	0.21	CHANNEL
A2	435.60	SD 5	435.52	4.07	10	PVC	0.011	2.00%	3.11	5.73	1.04	0.16	0.17	0	0	0	0.00	0.00	0.00	0.00	1.04	0.00	0.00	0.85	6.71	0.28	3.66	0.31	0.55	0.78	0.21	CHANNEL
HB2	445.40	A3	443.80	66.05	6	PVC	0.011	2.42%	3.11	3.64	0.15	0.07	0.04	2856	0	0	98.00	0.20	2.88	0.15	0.15	0.00	0.00	0.69	5.26	0.14	1.03	0.19	0.20	0.58	0.13	CHANNEL
A3	441.80	F-4	441.70	2.00	6	PVC	0.011	5.00%	3.11	4.61	0.15	0.06	0.03	0	0	0	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.61	7.55	0.10	1.48	0.14	0.20	0.49	0.13	CHANNEL
F-4	438.70	A4	438.55	6.09	6	PVC	0.011	2.46%	3.11	3.67	0.15	0.07	0.04	0	0	0	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.69	5.30	0.14	1.04	0.19	0.20	0.58	0.13	CHANNEL
A4	438.45	A2	436.60	88.80	6	PVC	0.011	2.08%	3.11	4.08	0.26	0.09	0.06	2142	0	0	98.00	0.20	2.88	0.11	0.26	0.00	0.00	0.84	4.87	0.27	0.96	0.30	0.20	0.75	0.13	CHANNEL
B1	452.30	HB3	448.35	104.59	6	PVC	0.011	3.78%	3.11	4.75	0.22	0.08	0.04	4231	0	0	98.00	0.20	2.88	0.22	0.22	0.00	0.00	0.72	6.56	0.17	1.29	0.21	0.20	0.62	0.13	CHANNEL
HB3	448.35	F3	447.25	15.69	6	PVC	0.011	7.01%	3.11	6.19	0.26	0.07	0.04	864	0	0	98.00	0.20	2.88	0.04	0.26	0.00	0.00	0.69	8.94	0.15	1.76	0.19	0.20	0.58	0.13	CHANNEL
F3	445.40	SD 7	445.15	17.67	10	PVC	0.011	1.41%	3.11	4.33	0.61	0.14	0.14	4830	7474	0	83.42	1.99	1.57	0.35	0.61	0.00	0.00	0.77	5.65	0.20	3.08	0.25	0.55	0.67	0.21	CHANNEL
SD 7	444.40	SD 6	443.42	33.80	18	RCP	0.013	2.90%	3.11	8.20	4.29	0.27	0.50	0	0	83452	94.00	0.64	2.46	3.68	4.29	0.00	0.00	0.81	10.12	0.24	17.89	0.28	1.77	0.72	0.38	CHANNEL
SD 6	443.08	SD 5	435.23	161.62	18	RCP	0.013	4.86%	3.11	10.22	4.70	0.26	0.46	4893	4662	0	86.29	1.59	1.78	0.30	4.70	0.00	0.00	0.78	13.10	0.20	23.15	0.26	1.77	0.69	0.38	CHANNEL
SD 5	435.42	SD 4	428.73	167.99	18	RCP	0.013	3.98%	3.11	10.13	5.98	0.29	0.55	3968	3299	0	87.10	1.48	1.84	0.24	5.98	0.00	0.00	0.85	11.86	0.29	20.96	0.31	1.77	0.78	0.38	CHANNEL
SD 1	446.50	SD 6	444.55	32.12	15	RCP	0.012	6.07%	3.11	2.81	0.11	0.04	0.02	0	6181	0	74.00	3.51	0.98	0.11	0.11	0.00	0.00	0.20	14.05	0.01	17.24	0.02	1.23	0.13	0.31	CHANNEL

Hydrology and Hydraulic Calculations Methodology
Note all sewer conveyance calculations shown here are for the 100 year storm event
n,Manning's roughness coefficient I, rainfall intensity V, velocity Q, flowrate R, hydraulic radius A, flow area Imp., impervious
1 TR-55 CN values are **98.00** for impervious areas and are **74** for managed turf, HSG C **94** for business & commerical, HSG C Design Storm is 100-yr, 24-hr: 3.11 in
2 Time of concentration of flow to upstream structure of run by direct, overland flow if an inlet. Else take as 5 minutes. If not 5 minutes, provide separate Tc calculation justification
3 Flow time in pipe from upstream structure in run to downstream structure in run
4 Time of concentration of flow to downstream structure via storm sewer system
5 Controlling time of concentration of flow to upstream structure
6 At the engineer's option, an additional flowrate may be added which will propagate downstream in the system. This flowrate is not affected by time of concentration.
7 The sum of the additional flowrates added to the system upstream of the run in question.
8 Circular channel ratios are tabulated in the reference tab and have nested if statements that hinge on the flow type for the pipe run in question
9 For BMP overflows manually enter the adjust curve number from the VRRM worksheet

Park Rd Townhomes 12/17/2022
Sewer Conveyance - Hydrology and Hydraulic Calculations

Upstream ID	Upstream Invert	Downstream ID	Downstream Invert	Length	Diam.	Mat'l	n	Slope	I_{100}	V	Q	R	A	Imp.	M.T.	B&C	CN	S	Runoff	Peak Q	$\sum Q_{DA}$	$Q_{add'l}$[6]	$Q_{add'l}US$[7]	V_{100}/V_{full}	V_{full}	Q_{100}/Q_{full}	Q_{full}	A_{100}/A_{full}	A_{full}	R_{100}/R_{full}	R_{full}	Flow Type
Hydraulics: Pipe Inverts				Pipe Parameters					Flow Parameters					Hydrology: Drainage Area[1]								Additional Flow		Circular Channel Ratios[8]: Velocity		Flowrate		Flow Area		Hydraulic Radius		
				(ft)	(in)			(ft/ft)	(in/hr)	(fps)	(cfs)	(ft)	(sf)	(SF)	(SF)	(SF)		(in)	(in)	(cfs)	(cfs)	(cfs)	(cfs)		(fps)		(cfs)		(sf)		(ft)	
F-1	440.00	A1	439.78	22.22	8	PVC	0.011	1.00%	4.78	3.68	0.47	0.14	0.13	4446	3156	0	88.04	1.36	3.46	0.47	0.47	0.00	0.00	0.90	4.09	0.33	1.43	0.37	0.35	0.85	0.17	CHANNEL
A1	439.68	F-2	439.22	46.04	8	PVC	0.011	1.00%	4.78	3.68	0.47	0.14	0.13	0	0	0	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.90	4.09	0.33	1.43	0.37	0.35	0.85	0.17	CHANNEL
F-2	436.00	A2	435.70	22.16	10	PVC	0.011	1.35%	4.78	5.32	1.34	0.19	0.25	9760	2065	0	93.81	0.66	4.07	0.86	1.34	0.00	0.00	0.96	5.52	0.44	3.01	0.45	0.55	0.93	0.21	CHANNEL
A2	435.60	SD 5	435.52	4.07	10	PVC	0.011	2.00%	4.78	6.59	1.74	0.20	0.26	0	0	0	0.00	0.00	0.00	0.00	1.74	0.00	0.00	0.98	6.71	0.48	3.66	0.48	0.55	0.96	0.21	CHANNEL
HB2	445.40	A3	443.80	66.05	6	PVC	0.011	2.42%	4.78	4.21	0.23	0.09	0.05	2856	0	0	98.00	0.20	4.54	0.23	0.23	0.00	0.00	0.80	5.26	0.23	1.03	0.28	0.20	0.71	0.13	CHANNEL
A3	441.80	F-4	441.70	2.00	6	PVC	0.011	5.00%	4.78	5.36	0.23	0.08	0.04	0	0	0	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.71	7.55	0.16	1.48	0.20	0.20	0.60	0.13	CHANNEL
F-4	438.70	A4	438.55	6.09	6	PVC	0.011	2.46%	4.78	4.24	0.23	0.09	0.05	0	0	0	0.00	0.00	0.00	0.00	0.23	0.00	0.00	0.80	5.30	0.22	1.04	0.28	0.20	0.71	0.13	CHANNEL
A4	438.45	A2	436.60	88.80	6	PVC	0.011	2.08%	4.78	4.64	0.41	0.11	0.09	2142	0	0	98.00	0.20	4.54	0.17	0.41	0.00	0.00	0.95	4.87	0.43	0.96	0.44	0.20	0.92	0.13	CHANNEL
B1	452.30	HB3	448.35	104.59	6	PVC	0.011	3.78%	4.78	5.50	0.34	0.09	0.06	4231	0	0	98.00	0.20	4.54	0.34	0.34	0.00	0.00	0.84	6.56	0.27	1.29	0.30	0.20	0.75	0.13	CHANNEL
HB3	448.35	F3	447.25	15.69	6	PVC	0.011	7.01%	4.78	7.24	0.42	0.09	0.06	864	0	0	98.00	0.20	4.54	0.07	0.42	0.00	0.00	0.81	8.94	0.24	1.76	0.28	0.20	0.72	0.13	CHANNEL
F3	445.40	SD 7	445.15	17.67	10	PVC	0.011	1.41%	4.78	5.19	1.08	0.18	0.22	4830	7474	0	83.42	1.99	3.02	0.67	1.08	0.00	0.00	0.92	5.65	0.35	3.08	0.40	0.55	0.88	0.21	CHANNEL
SD 7	444.40	SD 6	443.42	33.80	18	RCP	0.013	2.90%	4.78	9.51	7.20	0.34	0.74	0	0	83452	94.00	0.64	4.09	6.12	7.20	0.00	0.00	0.94	10.12	0.40	17.89	0.42	1.77	0.91	0.38	CHANNEL
SD 6	443.08	SD 5	435.23	161.62	18	RCP	0.013	4.86%	4.78	11.92	8.01	0.32	0.68	4893	4662	0	86.29	1.59	3.29	0.56	8.01	0.00	0.00	0.91	13.10	0.35	23.15	0.38	1.77	0.86	0.38	CHANNEL
SD 5	435.42	SD 4	428.73	167.99	18	RCP	0.013	3.98%	4.78	11.72	10.19	0.36	0.86	3968	3299	0	87.10	1.48	3.37	0.44	10.19	0.00	0.00	0.99	11.86	0.49	20.96	0.48	1.77	0.97	0.38	CHANNEL
SD 1	446.50	SD 6	444.55	32.12	15	RCP	0.012	6.07%	4.78	5.62	0.24	0.08	0.06	0	6181	0	74.00	3.51	2.19	0.24	0.24	0.00	0.00	0.40	14.05	0.02	17.24	0.05	1.23	0.25	0.31	CHANNEL

Hydrology and Hydraulic Calculations Methodology
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1 TR-55 CN values are **98.00** for impervious areas and are **74** for managed turf, HSG C **94** for business & commerical, HSG C Design Storm is 100-yr, 24-hr: 4.78 in
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Park Rd Townhomes 12/17/2022
Sewer Conveyance - Hydraulic Gradeline Calculations

From	To	WSE_{down}[1]	D	A_{full}	Q	L	R_{full}	n	S_{fr}	H_{fr}	V_{out}	H_o[2]	V_{in}[3]	H_i[4]	Angle[5]	K	H_{bend}[6]	Plunging[7]	IS-1[8]	H_{str}[9]	H_{total}	WSE_{up}	Top El[10]	Top - WSE_{up}	Remarks
		(ft)	(in)	(sf)	(cfs)	(ft)	(ft)		(ft/ft)	(ft)	(fps)	(ft)	(fps)	(ft)	(degrees)		(ft)			(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
SD 6	SD 1	446.15	15	1.23	0.11	32.12	0.31	0.012	0.00%	0.00	2.81	0.04	2.81	0.00	0	0.00	0.00	YES	NO	0.05	0.05	446.56	450.00	3.44	ADEQUATE
SD 4	SD 5	429.93	18	1.77	5.98	167.99	0.38	0.013	0.32%	0.54	10.13	0.40	10.22	0.00	90	0.70	0.36	NO	NO	0.76	1.30	435.96	439.44	3.48	ADEQUATE
SD 5	SD 6	436.71	18	1.77	4.70	161.62	0.38	0.013	0.20%	0.32	10.22	0.41	8.20	0.00	45	0.47	0.06	NO	NO	0.46	0.79	443.53	447.61	4.08	ADEQUATE
SD 6	SD 7	444.44	18	1.77	4.29	33.80	0.38	0.013	0.17%	0.06	8.20	0.26	4.33	0.00	45	0.47	0.14	YES	NO	0.51	0.57	444.89	452.59	7.70	ADEQUATE
SD 7	F3	445.69	10	0.55	0.61	17.67	0.21	0.011	0.06%	0.01	4.33	0.07	6.19	0.00	45	0.47	0.28	YES	NO	0.45	0.46	445.70	449.50	3.80	ADEQUATE
F3	HB3	447.56	6	0.20	0.26	15.69	0.13	0.011	0.16%	0.02	6.19	0.15	4.75	0.00	45	0.47	0.16	NO	NO	0.31	0.34	448.48	455.30	6.82	ADEQUATE
HB3	B1	448.79	6	0.20	0.22	104.59	0.13	0.011	0.11%	0.11	4.75	0.09	4.75	0.00	0	0.00	0.00	YES	YES	0.06	0.17	452.43	455.30	2.87	ADEQUATE
A2	A4	436.95	6	0.20	0.26	88.80	0.13	0.011	0.15%	0.13	4.08	0.06	3.67	0.07	0	0.00	0.00	NO	YES	0.07	0.20	438.62	446.00	7.38	ADEQUATE
A4	F-4	438.86	6	0.20	0.15	6.09	0.13	0.011	0.05%	0.00	3.67	0.05	4.61	0.12	0	0.00	0.00	NO	NO	0.17	0.17	438.86	446.30	7.44	ADEQUATE
F-4	A3	441.98	6	0.20	0.15	2.00	0.13	0.011	0.05%	0.00	4.61	0.08	3.64	0.07	0	0.00	0.00	NO	YES	0.08	0.08	441.98	446.30	4.32	ADEQUATE
A3	HB2	444.11	6	0.20	0.15	66.05	0.13	0.011	0.05%	0.03	3.64	0.05	3.64	0.07	0	0.00	0.00	NO	NO	0.12	0.16	445.53	449.70	4.18	ADEQUATE
SD 5	A2	436.71	10	0.55	1.04	4.07	0.21	0.011	0.16%	0.01	5.73	0.13	4.58	0.11	90	0.70	0.18	NO	YES	0.21	0.22	436.72	440.40	3.68	ADEQUATE
A2	F-2	436.93	10	0.55	0.78	22.16	0.21	0.011	0.09%	0.02	4.58	0.08	3.08	0.05	0	0.00	0.00	YES	NO	0.17	0.19	436.95	443.00	6.05	ADEQUATE
F-2	A1	439.64	8	0.35	0.26	46.04	0.17	0.011	0.03%	0.02	3.08	0.04	3.08	0.05	0	0.00	0.00	NO	YES	0.04	0.06	439.87	443.65	3.78	ADEQUATE
A1	F-1	440.20	8	0.35	0.26	22.22	0.17	0.011	0.03%	0.01	3.08	0.04	3.08	0.05	0	0.00	0.00	YES	NO	0.11	0.12	440.21	444.00	3.79	ADEQUATE

Hydraulic Gradeline Calculations Methodology
S_{fr},friction slope = $0.453Q^2n^2/A^2R^{4/3}$ H_{fr},friction loss = $L*S_{fr}$ V_o,velocity out H_o,structure outlet loss=0.25(0.3 if top pipe)*$V_o^2/2g$ g,gravity=32.2 V_i,velocity in H_i,structure inlet loss=0.35*$V_i^2/2g$
H_Δ, structure bend loss=K*$V_i^2/2g$ H_{str},structure loss = $H_o+H_i+H_\Delta$ H_{total}, total head loss=$H_{fr}+H_{str}$
1 Water surface elevation in bottom structure of pipe run. For the first (most downstream) run of HGL analysis per VDOT standards use the greater of the tailwater elevation (if known) or 80% full depth.
2 Expansion loss for upper structure of pipe run. If the upstream structure is a wye, the expansion losses are taken as zero.
3 Velocity of water entering pipe run. If pipe run is at the top of the system, set this to the velocity out of the pipe run. Otherwise, use upstream pipe's velocity. If multiple pipes feed in, use the inlet velocity with the greatest momentum (QxV)
4 Contraction loss for upper structure of pipe run. If the upstream structure is a wye, the expansion losses are taken as zero.
5 Angle of deflection in the horizontal plane between the upper structure of the pipe run in question and the next upstream pipe. If multiple pipes in, this is the angle of the pipe which creates the most headloss. If no pipes in, set to zero.
6 Bend loss for upper structure of pipe run. By default this formula uses the listed inlet velocity. However, if multiple pipes feed into this run bend losses must be calculated for all inflowing pipes and the maximum chosen.
7 If 20%+ of the total flow is coming from a curb/grate inlet, or if there's an inlet pipe with an invert greater than the crown of the outlet pipe, plunging losses apply.
8 The engineer may specify IS-1 inlet shaping for a structure which allows the inlet head losses to be reduced by 50%.
9 Structure loss (sum of expansion, contraction, and bend loses) for the upstream structure of the pipe run.
10 Top elevation of upper structure of pipe run.

Park Rd Townhomes 12/17/2022
Sewer Conveyance - Hydraulic Gradeline Calculations

From	To	WSE_{down}[1]	D	A_{full}	Q	L	R_{full}	n	S_{fr}	H_{fr}	V_{out}	H_o[2]	V_{in}[3]	H_i[4]	Angle[5]	K	H_{bend}[6]	Plunging[7]	IS-1[8]	H_{str}[9]	H_{total}	WSE_{up}	Top El[10]	Top - WSE_{up}	Remarks
		(ft)	(in)	(sf)	(cfs)	(ft)	(ft)		(ft/ft)	(ft)	(fps)	(ft)	(fps)	(ft)	(degrees)		(ft)			(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
SD 6	SD 1	446.45	15	1.23	0.24	32.12	0.31	0.012	0.00%	0.00	5.62	0.15	5.62	0.00	0	0.00	0.00	YES	NO	0.19	0.19	446.63	450.00	3.38	ADEQUATE
SD 4	SD 5	429.93	18	1.77	10.19	167.99	0.38	0.013	0.94%	1.58	11.72	0.53	11.92	0.00	90	0.70	0.47	NO	NO	1.01	2.59	436.15	439.44	3.29	ADEQUATE
SD 5	SD 6	437.16	18	1.77	8.01	161.62	0.38	0.013	0.58%	0.94	11.92	0.55	9.51	0.00	45	0.47	0.23	NO	NO	0.78	1.72	443.70	447.61	3.92	ADEQUATE
SD 6	SD 7	444.61	18	1.77	7.20	33.80	0.38	0.013	0.47%	0.16	9.51	0.35	5.19	0.00	45	0.47	0.19	YES	NO	0.71	0.87	445.06	452.59	7.53	ADEQUATE
SD 7	F3	445.79	10	0.55	1.08	17.67	0.21	0.011	0.17%	0.03	5.19	0.10	7.24	0.00	45	0.47	0.38	YES	NO	0.63	0.66	445.82	449.50	3.68	ADEQUATE
F3	HB3	447.59	6	0.20	0.42	15.69	0.13	0.011	0.39%	0.06	7.24	0.20	5.50	0.00	45	0.47	0.22	NO	NO	0.42	0.48	448.51	455.30	6.79	ADEQUATE
HB3	B1	448.93	6	0.20	0.34	104.59	0.13	0.011	0.27%	0.28	5.50	0.12	5.50	0.00	0	0.00	0.00	YES	NO	0.15	0.44	452.47	455.30	2.83	ADEQUATE
A2	A4	437.73	6	0.20	0.41	88.80	0.13	0.011	0.38%	0.34	4.64	0.08	4.24	0.10	0	0.00	0.00	NO	NO	0.18	0.52	438.68	446.00	7.32	ADEQUATE
A4	F-4	438.89	6	0.20	0.23	6.09	0.13	0.011	0.12%	0.01	4.24	0.07	5.36	0.16	0	0.00	0.00	NO	NO	0.23	0.23	438.90	446.30	7.40	ADEQUATE
F-4	A3	442.01	6	0.20	0.23	2.00	0.13	0.011	0.12%	0.00	5.36	0.11	4.21	0.10	0	0.00	0.00	NO	NO	0.21	0.21	442.01	446.30	4.29	ADEQUATE
A3	HB2	444.14	6	0.20	0.23	66.05	0.13	0.011	0.12%	0.08	4.21	0.07	4.21	0.10	0	0.00	0.00	NO	NO	0.16	0.25	445.56	449.70	4.14	ADEQUATE
SD 5	A2	437.16	10	0.55	1.74	4.07	0.21	0.011	0.45%	0.02	6.59	0.17	5.32	0.15	90	0.70	0.23	NO	NO	0.56	0.58	437.18	440.40	3.22	ADEQUATE
A2	F-2	437.73	10	0.55	1.34	22.16	0.21	0.011	0.27%	0.06	5.32	0.11	3.68	0.07	0	0.00	0.00	YES	NO	0.24	0.30	437.79	443.00	5.21	ADEQUATE
F-2	A1	439.72	8	0.35	0.47	46.04	0.17	0.011	0.11%	0.05	3.68	0.05	3.68	0.07	0	0.00	0.00	NO	NO	0.13	0.18	439.94	443.65	3.71	ADEQUATE
A1	F-1	440.28	8	0.35	0.47	22.22	0.17	0.011	0.11%	0.02	3.68	0.05	3.68	0.07	0	0.00	0.00	YES	NO	0.16	0.19	440.30	444.00	3.70	ADEQUATE

Hydraulic Gradeline Calculations Methodology
S_{fr},friction slope = $0.453Q^2n^2/A^2R^{4/3}$ H_{fr},friction loss = $L*S_{fr}$ V_o,velocity out H_o,structure outlet loss=0.25(0.3 if top pipe)*$V_o^2/2g$ g,gravity=32.2 V_i,velocity in H_i,structure inlet loss=0.35*$V_i^2/2g$
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9 Structure loss (sum of expansion, contraction, and bend loses) for the upstream structure of the pipe run.
10 Top elevation of upper structure of pipe run.

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	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
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CAGLAYAN INVESTMENT GROUP
32713 LATROBE ST
CHANTILLY, VA 20152
571.594.6363

CONTRACTOR
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CIVIL ENGINEER
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WASHINGTON, DC 20007
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LAND SURVEYOR
DOMINION SURVEYS, INC.
8808-H PEAR TREE VILLAGE COURT
ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

DRAINAGE PLAN CALCULATIONS
DRAWING TITLE

016
DRAWING NO.

Tree List for 11004Park Rd. Fairfax City, VA

Prepared by Bill Becker, ISA Certified Arborist # MA-0216A November 18, 2021
Lot size = 50,788 s. f. Existing canopy = 25,200 s. f. Preserved canopy = 0 s. f.
** denotes written permission to be obtained before removal.
N denotes neighbor's tree. R denotes City ROW tree.

Tree #	Common Name Botanical name	DBH Hgt.	Condition	Life Esp.	Preservation Measures	Canopy Sq. Ft.
1	Black Locust Robinia pseudoacacia	10"	Fair	>10	Remove – within limits of disturbance.	N/A
2	Black Locust Robinia pseudoacacia	10"	Fair	>10	Remove – within limits of disturbance.	N/A
3	Black Locust Robinia pseudoacacia	13"	Fair	>10	Remove – within limits of disturbance.	N/A
4	Tulip Poplar Liriodendron tulipifera	19"	Dead	0	Remove – within limits of disturbance.	N/A
5	Tulip Poplar Liriodendron tulipifera	19"	Dead	0	Remove – within limits of disturbance.	N/A
6	Pin Oak Quercus palustris	40"	Fair	>7	Remove – within limits of disturbance.	N/A
7	Black Locust Robinia pseudoacacia	16"	Dead	0	Remove – within limits of disturbance.	N/A
8	Bradford Pear Pyrus callervana	16"	Fair	>10	Remove – within limits of disturbance.	N/A
9	Black Locust Robinia pseudoacacia	12"	Poor	<3	Remove – within limits of disturbance.	N/A
10	Wild Cherry Prunus serotina	36"	Poor	<3	Remove – within limits of disturbance.	N/A
11	Tulip Poplar Liriodendron tulipifera	28"	Fair	>10	Remove – within limits of disturbance.	N/A
12	Tulip Poplar Liriodendron tulipifera	24"	Fair	>10	Remove – within limits of disturbance.	N/A
13	White Ash Fraxinus americana	18"	Fair	>10	Remove – within limits of disturbance.	N/A
14	Red Maple Acer rubrum	28"	Fair	>10	Remove – within limits of disturbance.	N/A
15	Tulip Poplar Liriodendron tulipifera	41"	Fair	>10	Remove – within limits of disturbance.	N/A
16	Tulip Poplar Liriodendron tulipifera	24"	Fair	>10	Remove – within limits of disturbance.	N/A
17	Sugar Maple Acer saccharum	4"	Good	>10	Remove – within limits of disturbance.	N/A
18	Sugar Maple Acer saccharum	4"	Good	>10	Remove – within limits of disturbance.	N/A
19	Tulip Poplar Liriodendron tulipifera	25"	Good	>10	Remove – within limits of disturbance.	N/A
20	Pin Oak Quercus palustris	25"	Good	>10	Remove – within limits of disturbance.	N/A
21	Eastern Redcedar Juniperus virginiana	16"	Good	>10	Remove – within limits of disturbance.	N/A
22	Eastern Redcedar Juniperus virginiana	9"	Good	>10	Remove – within limits of disturbance.	N/A
23	Eastern Redcedar Juniperus virginiana	16"	Good	>10	Remove – within limits of disturbance.	N/A
24	Wild Cherry Prunus serotina	4"	Poor	<3	Remove – within limits of disturbance.	N/A
25N	White Pine Pinus strobus	18"	Dead	0	Remove with permission – close to limits of disturbance. **	N/A
26N	Leyland Cypress Cupressocyparis leylandii	6"	Good	>10	Remove with permission – close to limits of disturbance. **	N/A
27N	Leyland Cypress Cupressocyparis leylandii	8"	Good	>10	Remove with permission – close to limits of disturbance. **	N/A
28N	Leyland Cypress Cupressocyparis leylandii	8"	Good	>10	Remove with permission – close to limits of disturbance. **	N/A
29N	Leyland Cypress Cupressocyparis leylandii	8"	Good	>10	Remove with permission – close to limits of disturbance. **	N/A
30N	Leyland Cypress Cupressocyparis leylandii	8"	Good	>10	Remove with permission – close to limits of disturbance. **	N/A
31N	Leyland Cypress Cupressocyparis leylandii	8"	Good	>10	Remove with permission – close to limits of disturbance. **	N/A
32N	Leyland Cypress Cupressocyparis leylandii	8"	Fair	>10	Remove with permission – close to limits of disturbance. **	N/A
33N	Black Locust Robinia pseudoacacia	8"	Fair	>10	Save – install protective fence.	N/A
34N	Black Walnut Juglans Nigra	8"	Fair	>10	Save – install protective fence.	N/A
35N	White Mulberry Morus alba	8"	Fair	>10	Save – install protective fence.	N/A
36N	Black Walnut Juglans Nigra	16"	Fair	>10	Save – install protective fence.	N/A
37N	White Pine Pinus strobus	17"	Fair	>7	Remove with permission – close to limits of disturbance. **	N/A
38N	Black Walnut Juglans nigra	14"	Good	>10	Save – install protective fence.	N/A

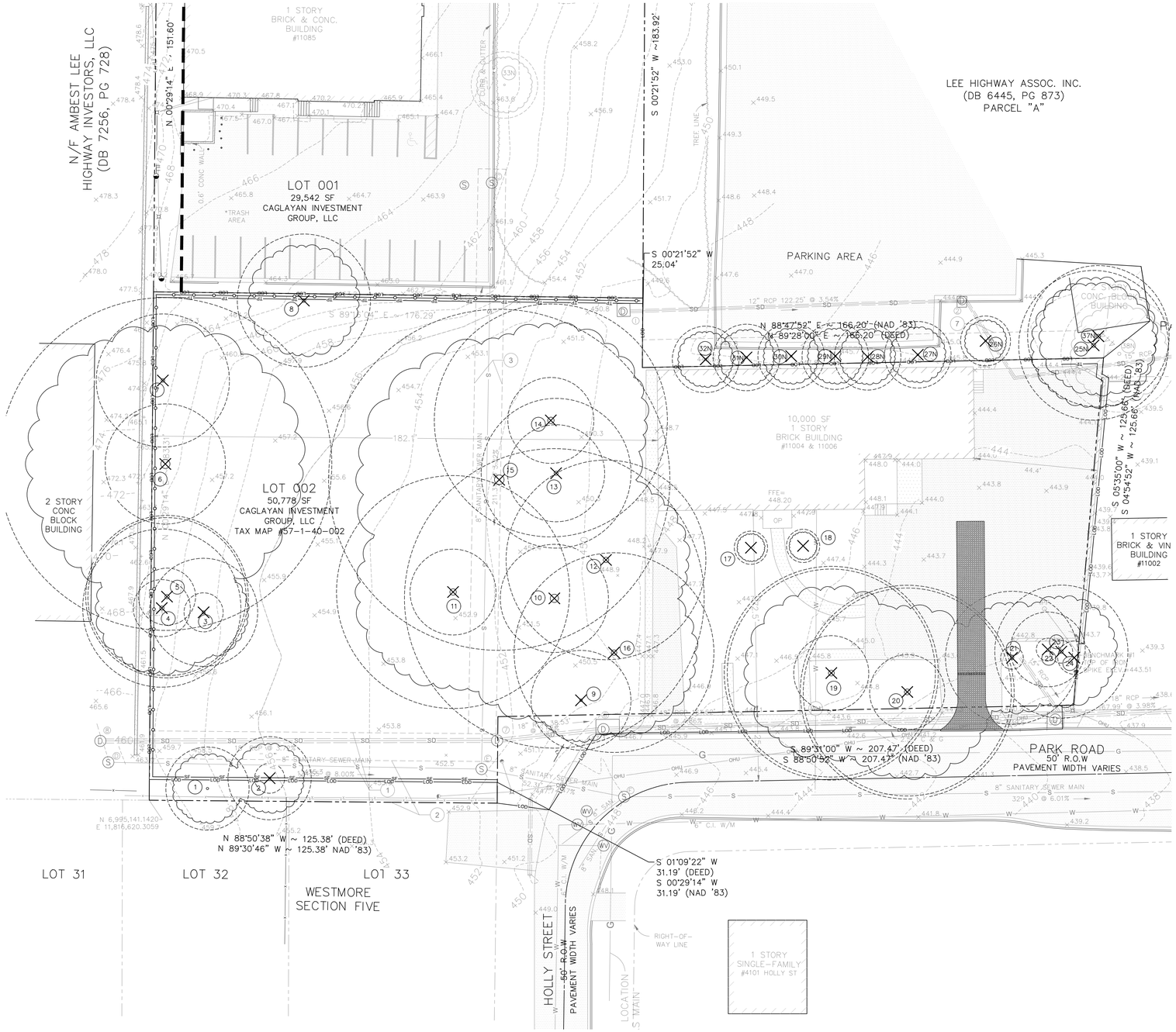
Becker Landscaping & Tree Service
10698 Moore Dr.
Manassas, Va. 20111
703-330-5204

Narrative of Tree Preservation
11004 Park Rd., Fairfax City, Va.

1. All tree preservation activities shall be done according to the Fairfax City Erosion and Sediment Control Manual dated April, 2014 and meet industry standards as specified by the International Society of Arboriculture and the American National Standards Institute. Any treatments or activities specified not meeting these standards will be as specified and approved by the Fairfax City Urban Forester.
2. Excavation and demolition shall occur. Prior to excavation super silt fence which will also function as tree protective fence shall be installed. Signs shall be placed every 50' indicating the tree protection areas. No activity, materials or equipment shall go beyond the tree protective fence which shall remain in place until completion of construction.
3. The existing trees on the lot are predominately Upland Forest with some Landscaped Tree Canopy in fair to poor condition. Many trees are covered in vines. Several are dead.
4. The canopy coverage requirements will be met through the planting of trees.
5. There are no "Heritage", "Specimen", "Memorial" or "Street" trees on this lot or neighboring lots.
6. There are no proffered conditions, development plans, conceptual/final development plans, special permits, special exceptions or variance approvals.

Bill Becker

ISA Certified Arborist # MA – 0216A
November 18, 2021



SEDIMENT CONTROL PLAN LEGEND

- LOD LOD — LIMITS OF DISTURBANCE
- SF SF — SILT FENCE
- SSF SSF SSF — SUPER SILT FENCE
- TP TP — TREE PROTECTION
- CIP — CURB INLET PROTECTION
- STONE CONSTRUCTION ENTRANCE
- REMOVE TREE

EXISTING CONDITIONS PLAN NOTES

1. THIS EXISTING CONDITIONS PLAN IS BASED ON A SURVEY AND AUTOCAD FILES PERFORMED AND PROVIDED BY DOMINION ENGINEERS, INC..
2. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES ARE APPROXIMATE AND BASED ON AVAILABLE RECORDS AND, WHERE INFORMATION IS NOT AVAILABLE, ASSUMPTIONS. CONTRACTOR SHALL LOCATE AND CONFIRM ALL UTILITIES WITHIN THE BOUNDS OF CONSTRUCTION PRIOR TO UNDERTAKING ANY DEMOLITION OR EXCAVATION.

APPROVAL	DATE	REVISIONS
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	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

BAR SCALE
20 16 12 8 4 0 10 20 30
1" = 20'

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION
REZONING PLANS
12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

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COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Joseph
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12/17/2022
PROFESSIONAL ENGINEER

SEAL

TREE SURVEY
DRAWING TITLE

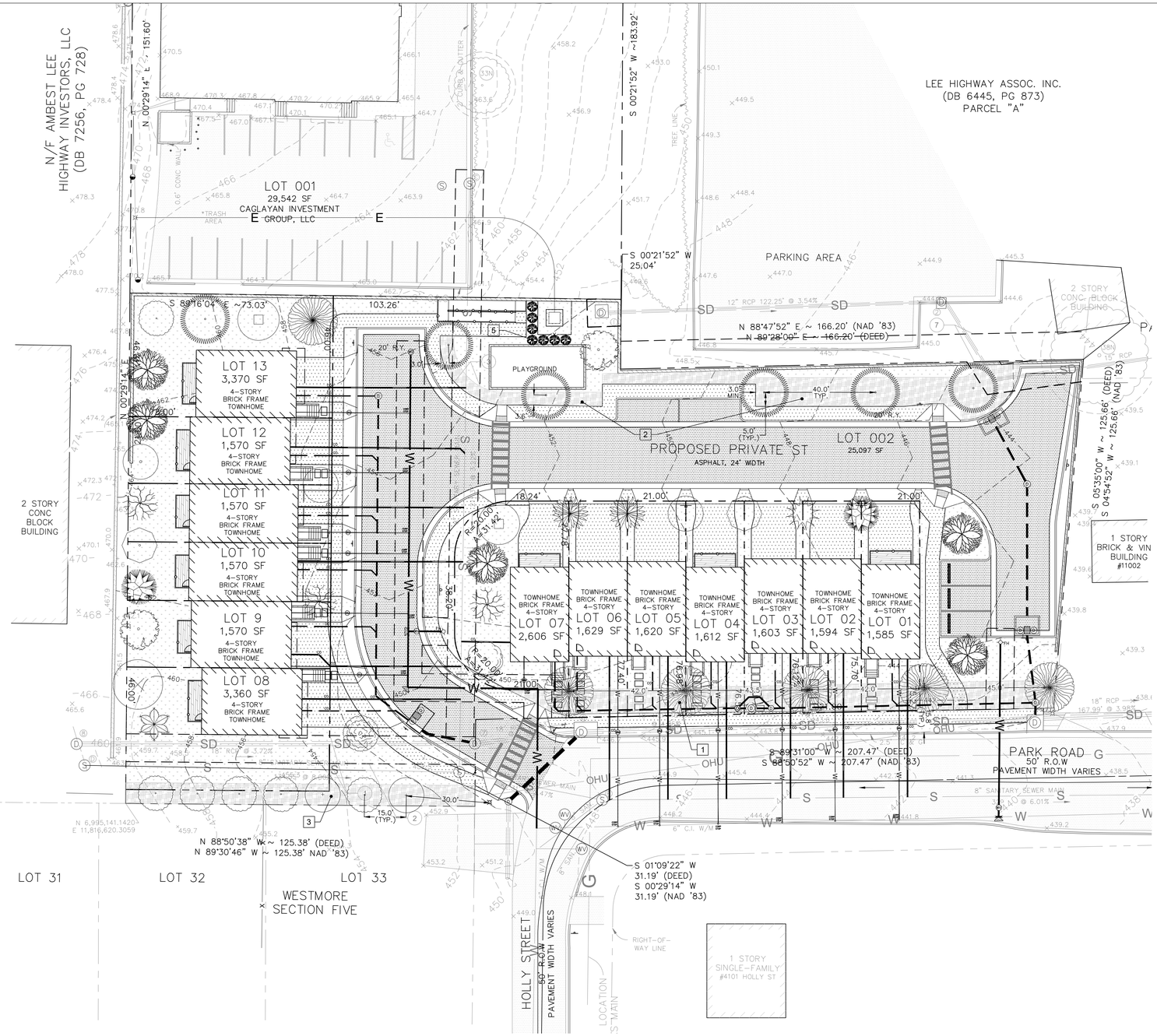
017
DRAWING NO.

LANDSCAPE PLAN LEGEND

- KWANZAN CHERRY PLANTING
- EASTERN HOPHORNBEAM PLANTING
- FRINGETREE OAK PLANTING
- JAPANESE STEWARTIA PLANTING
- SASSAFRAS PLANTING
- CAROLINA SILVERBELL PLANTING
- RED MAPLE PLANTING
- JAPANESE SNOWBELL PLANTING
- WHITE OAK PLANTING
- YELLOW BUCKEYE PLANTING
- KOUSA DOGWOOD PLANTING
- THORNLESS HONEYLOCUST PLANTING
- WILLOW OAK PLANTING
- DOWNEY SERVICEBERRY PLANTING
- JAPANESE MAPLE PLANTING
- RED BUD PLANTING
- ALLEGHENY SERVICEBERRY PLANTING
- LANDSCAPED MULCH COVER
- LANDSCAPED GRASS COVER
- UTILITY EASEMENT

Tree Planting Schedule 11004 Park Rd. Subdivision

Key	Common Name	Botanical Name	Qty.	Size Cal.	Type	Canopy s. f.	Subtotal s. f.	Comments
A	Star Magnolia	Magnolia stellatta	1	3"	B+B	125	125	
B	Yellow Buckeye	Aesculus flava	5	3"	B+B	175	875	
C	Redbud	Cercis canadensis	3	3"	B+B	125	375	
D	Japanese Snowbell	Styrax japonicus	2	3"	B+B	125	250	
E	Willow Oak	Quercus phellos	6	3"	B+B	250	1,500	Street tree.
F	Japanese Stewartia	Stewartia pseudocamellia	1	3"	B+B	125	125	
G	Fringetree	Chionanthus virginicus	2	3"	B+B	125	250	
H	Sassafras	Sassafras albidum	2	3"	B+B	125	250	
I	Thornless Honeylocust	Gleditsia triacanthos	2	3"	B+B	175	350	
J	Kousa Dogwood	Cornus kousa	4	3"	B+B	125	500	
K	Carolina Silverbell	Halesia carolina	6	3"	B+B	125	750	
L	Eastern Hophornbeam	Ostrya virginiana	1	3"	B+B	125	125	
M	Red Maple	Racer rubrum	6	3"	B+B	250	1,500	Street tree
N	White Oak	Quercus alba	1	3"	B+B	250	250	
O	Japanese Maple	Acer palmatum	1	3"	B+B	125	125	
P	Downey Serviceberry	Amelanchier arborea	1	3"	B+B	125	125	
Q	Kwanzan Cherry	Prunus kwanzan	1	3"	B+B	175	175	
R	Allegheny Serviceberry	Amelanchier laevis	1	3"	B+B	125	125	
	Total number of trees		46		**Total canopy s. f.**		7,775	



LANDSCAPE CONSERVATION PLAN KEYNOTES

1. 10-FT WIDE LANDSCAPE BUFFER ALONG PARK RD R.O.W.
   TOTAL LENGTH=188-FT
   1 TREE REQUIRED PER 40 LF
   TOTAL TREES REQUIRED=5
   TOTAL TREES PROVIDED=5
   PLANT 5 NEW TREES
2. 10-FT WIDE LANDSCAPE BUFFER ALONG NORTH SIDE OF PRIVATE RD
   TOTAL LENGTH=163-FT
   1 TREE REQUIRED PER 40 LF
   TOTAL TREES REQUIRED=5
   TOTAL TREES PROVIDED=5
   PLANT 5 NEW TREES
3. 7.5-FT WIDE TY-1 LANDSCAPE TRANSITION YARD ALONG ADJACENT R-M ZONED LOTS
   TOTAL LENGTH=125 LF
   6-FT TALL OPAQUE WOOD SCREENING FENCE ALONG PROPERTY LINE
   NO CANOPY TREES REQUIRED OR PROVIDED
   4 UNDERSTORY TREES REQUIRED PER 100 LF
   TOTAL UNDERSTORY TREES REQUIRED=5
   TOTAL UNDERSTORY TREES PROVIDED=7
4. TREE PLANTING'S LOCATION SHOWN CONCEPTUALLY AND SUBJECT TO CHANGE PER OWNER'S REQUEST AND FAIRFAX CITY ARBORIST APPROVAL. PLANTING LOCATION'S SHALL ADHERE TO THE REQUIREMENTS OF THE FAIRFAX CITY PUBLIC FACILITIES MANUAL (TYPICAL).

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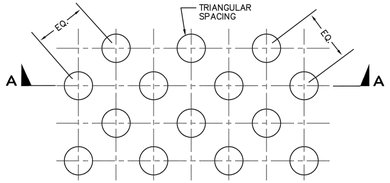
PROFESSIONAL ENGINEER

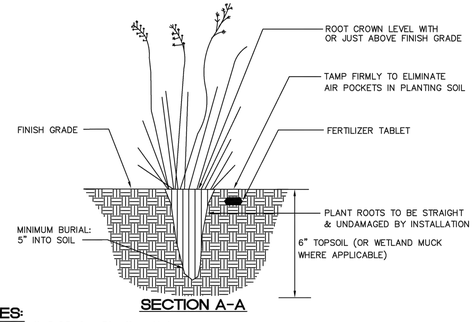
SEAL

LANDSCAPE PLAN
DRAWING TITLE

018
DRAWING NO.



PLAN VIEW



SECTION A-A

NOTES:
1. See Detail 8.08 for Planting Notes.
2. Layout plants in prepared bed as shown.
3. Spacing as specified per plant schedule.
4. Planting mix shall consist of 2" peat moss or 1" depth of compost (not to exceed 4 cubic yards of compost per 1000 sq. ft.) and tilled into the previously loosened planting bed.
5. Leaves and root crown to remain undamaged during planting.
6. Create planting hole with auger or as approved.

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10455 Armstrong Street
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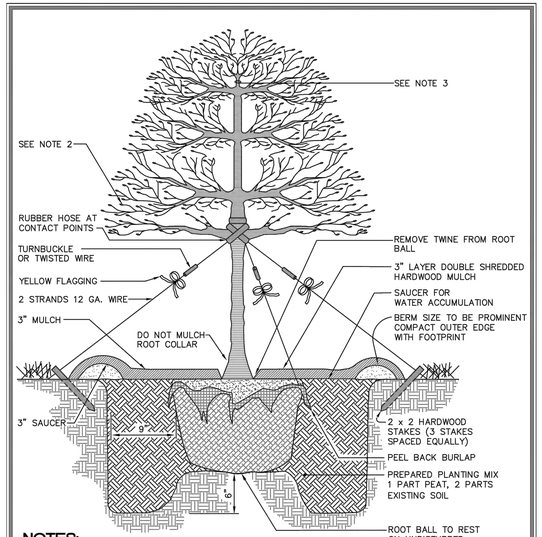
PLUG PLANTING DETAIL

SCALE:	DETAIL #
Not To Scale	8.07
REVISION DATE:	SHEET #:
December 2016	1 of 1



NOTES:
1. See Detail 8.08 for Planting Notes.
2. Prune only to remove dead or damaged branches. Raising of branches is to be performed when approved to provide clearances for pedestrians.
3. Never prune the leader.
4. Remove non-decomposing material from root ball.
5. Remove stakes and wire at end of warranty period or at end of one growing season as approved.

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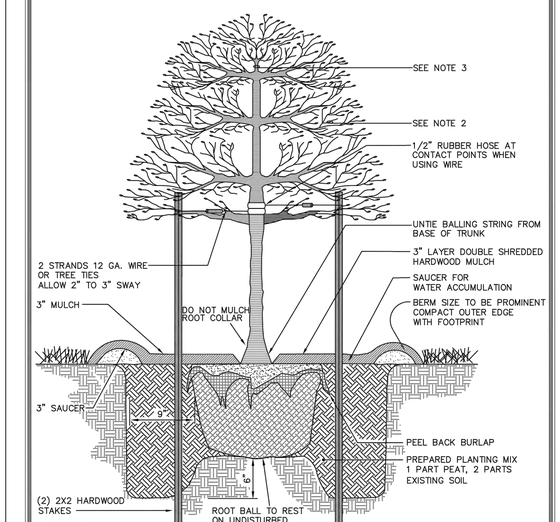
SINGLE-STEM TREE PLANTING and STAKING DETAIL

SCALE:	DETAIL #
Not To Scale	8.02
REVISION DATE:	SHEET #:
December 2016	1 of 1



NOTES:
1. See Detail 8.08 for Planting Notes.
2. Prune only to remove dead or damaged branches. Raising branches is to be performed when approved to provide clearances for pedestrians.
3. Never prune the leader.
4. Remove non-decomposing material from root ball.
5. Remove stakes and wire at end of warranty period or at end of one growing season as approved.

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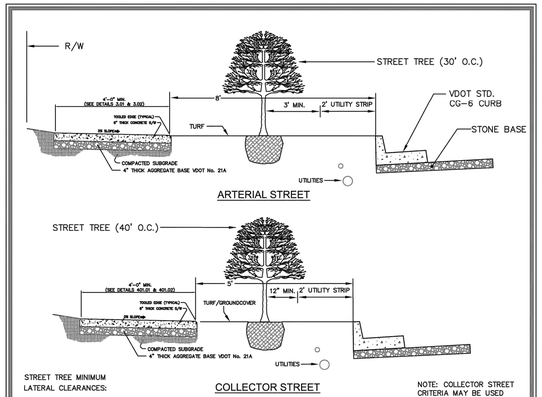
SINGLE-STEM TREE PLANTING UPRIGHT STAKING DETAIL

SCALE:	DETAIL #
Not To Scale	8.01
REVISION DATE:	SHEET #:
December 2016	1 of 1

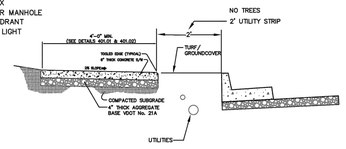


ARTERIAL STREET

COLLECTOR STREET

STREET TREE MINIMUM LATERAL CLEARANCES:
- 5' FROM WATER MAIN
- 5' FROM GAS BOX
- 5' FROM INLET OR MANHOLE
- 5' FROM FIRE HYDRANT
- 5' FROM STREET LIGHT

NOTE: COLLECTOR STREET CRITERIA MAY BE USED WHEN APPROVED.



RESIDENTIAL STREET

NOTES:
1. See Detail 8.08 for Planting Notes.
2. See Sheet 2 of 2 for Elevation View.
3. No trees within sightlines at intersections, at driveways, etc.

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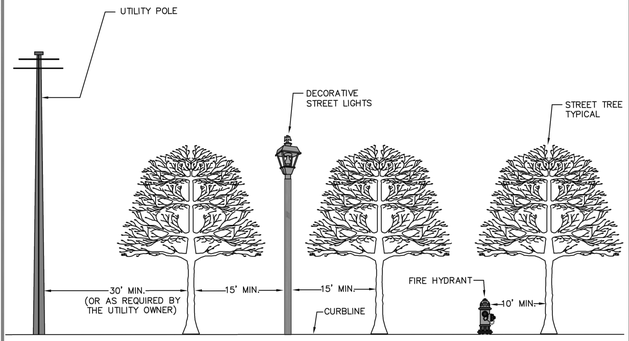
LANDSCAPE BUFFER DETAIL

SCALE:	DETAIL #
Not To Scale	8.11
REVISION DATE:	SHEET #:
December 2016	1 of 2

NOTES:
1. See Sheet 1 of 2 for Section View.
2. Do not place conduit within tree planting area (between utility strip and sidewalk).
3. Groundcover shall not exceed 18" mature height.



ELEVATION
NOT TO SCALE

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LANDSCAPE BUFFER DETAIL

SCALE:	DETAIL #
Not To Scale	8.11
REVISION DATE:	SHEET #:
December 2016	2 of 2

I. General
1. Landscape Specifications: Landscape specifications shall be as outlined below. Any item or procedure not mentioned below shall be as specified in the Landscape specification guidelines published by the Landscape Contractors Association (latest edition).
2. Plant Materials: The Landscape Contractor shall furnish and install and/or dig, ball, burlap, and transplant plant materials called for on the drawings and/or listed in the plant schedule. The City reserves the right to inspect plant material at the nursery source, before off-loading at the project site, when in storage or prior to installation.
3. Plant Names: Plant names used in the plant schedule shall be identified in accordance with Hortus Third, by L.H. Bailey, 1976.
4. Plant Standards: Plant materials shall be equal to or better than the requirements of the "American Standard for Nursery Stock" (ANSI Z60.1 latest edition), as published by the American Association of Nurseryman (hereinafter referred to as AAN standards). Plants shall be typical of their species and variety, shall have a normal habit of growth, and shall be first quality, sound, vigorous, well branched, and with healthy, well-furnished root systems. They shall be free of disease, insect pests, and mechanical injuries.
   (A) Plants shall be nursery grown and shall have been grown under the same climatic conditions as the location of the subject project for at least two years before planting. Neither heeled-in plant, nor plants from cold storage will be accepted.
   (B) Collected plants or transplanted trees when specified by the landscape architect may be used, provided that locations and soil conditions will permit proper balling.
5. Materials for Planting:
   (A) Stakes for guying trees shall be sound oak or other approved hardwood. Three stakes spread 120-degrees apart shall be used when detailed. Notch stakes for wire. See details. Trees located between sidewalk and curb shall have two stakes.
   (B) Tree Guys: Provide wire ties and guys of 2-strand, twisted, pliable galvanized steel wire not lighter than 12-gauge with zinc coated turnbuckles. Provide w-ply garden hose not less than 0.5-inch hose size, cut to lengths to protect tree trunks from damage by wires. Provide 14-gauge wire for trees less than 12-ft. height. Wire for guy may be twisted when a turnbuckle is not specified by the landscape architect. Use of tree ties in lieu of wire is acceptable.
   (C) Mulching: Mulch shall consist of double shredded hardwood mulch.
6. Planting Schedule: A professional horticulturist/nurseryman shall be consulted to determine the proper time, based on plant species and weather conditions, to move and install plant materials to minimize stress to the plant. Planting of deciduous material may be continued during the winter months provided there is no frost on the ground and frost-free soil planting mixtures are used.

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PLANTING NOTES DETAIL

SCALE:	DETAIL #
Not To Scale	8.08
REVISION DATE:	SHEET #:
December 2016	1 of 3

APPROVAL	DATE	REVISIONS
	03/04/2022	INITIAL SUBMISSION
	08/25/2022	SECOND SUBMISSION
	12/16/2022	THIRD SUBMISSION

HUSKA CONSULTING, LLC

NOT FOR CONSTRUCTION

REZONING PLANS

12/16/2022

11004 & 11006 PARK RD
FAIRFAX, VA 22306
TAX MAP #57-1-40-002
SQUARE 02, LOT 002

CLIENT
EMRE ZIREKOGLU
CAGLAYAN INVESTMENT GROUP
32713 LATROBE ST
CHANTILLY, VA 20152
571.594.6363

CONTRACTOR
TBD

CIVIL ENGINEER
PATRICK HORGAN
HUSKA CONSULTING, LLC
1050 30TH STREET, NW
WASHINGTON, DC 20007
703.425.3862

LAND SURVEYOR
DOMINION SURVEYS, INC.
8808-H PEAR TREE VILLAGE COURT
ALEXANDRIA, VA 22309
703.619.6555

COMMONWEALTH OF VIRGINIA
DocuSigned by: Patrick Horgan
PATRICK JOSEPH HORGAN
Lic. No. 061930
12/17/2022
PROFESSIONAL ENGINEER

SEAL

LANDSCAPE DETAILS

DRAWING TITLE

019

DRAWING NO.