SITE PLAN
TOWN OF VIENNA
POLICE STATION

Town of Vienna, Virginia

FIRE MARSHAL NOTES

AVAILABLE FIRE FLOW 2,528 (GAL./MIN.)
SOURCE OF FIRE FLOW INFO. TOWN OF VIENNA
TYPE OF CONSTRUCTION – USBC IIB
USE GROUP CLASSIFICATION – USBC B, A3, & U
BUILDING HEIGHT 31.12' (FT.)
BUILDING TO BE FULLY SPRINKLERED YES ☒ NO ☐ (EX BLDG)

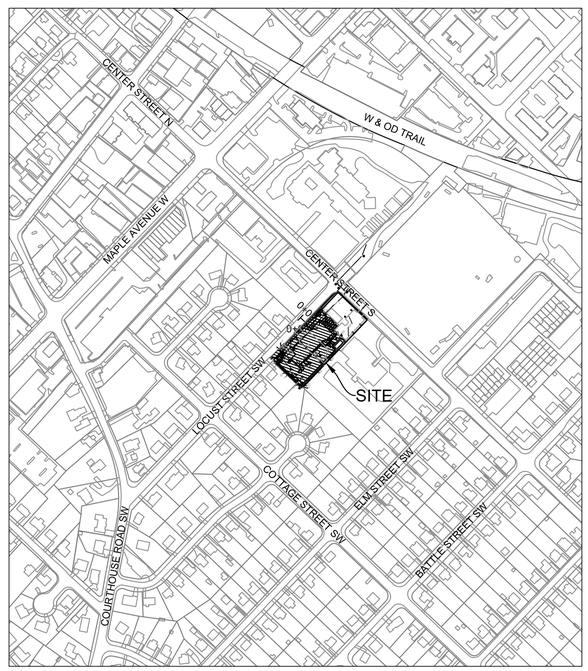
IF YES, CHECK APPROPRIATE STANDARD: NFPA 13☒ ; NFPA 13D ☐ ; NFPA 13R ☐
SEE PFM CHAPTER 9, PART 2 FOR FULL INFORMATION REQUIRED. FIRE FLOW REQUIREMENTS TO BE DETERMINED BY THE FIRE PREVENTION DIVISION.

OWNER INFORMATION:

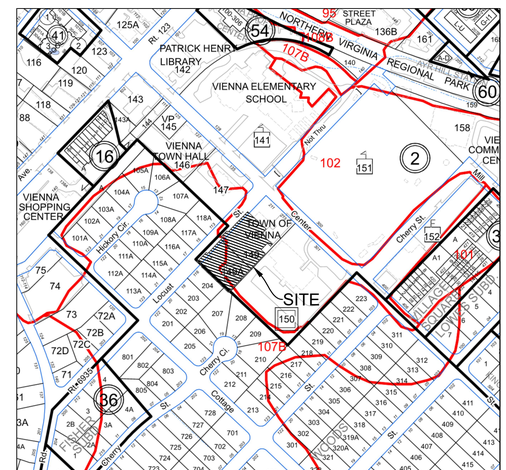
TAX MAP #:	38-4 ((2)) 149, 149A
SITE ADDRESS	211 CENTER ST (149)
	VIENNA, VA 22180
	114 LOCUST ST (149A)
	VIENNA, VA 22180
OWNER:	TOWN OF VIENNA
	DB 3321 PG 89 (149)
	DB 23068 PG 295 (149A)

SHEET INDEX

VICINITY MAP
SCALE 1"=300'



SOILS MAP
SCALE 1"=200'



SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS
95	URBAN LAND	N/A	N/A	N/A	IVB
107B	WHEATON MEADOWVILLE COMPLEX	FAIR	MARGINAL	MEDIUM	IVB

IS THE SITE LOCATED ON NATURALLY OCCURRING ASBESTOS (NOA) SOIL?
YES ☐ NO ☒

(SOIL INFORMATION PER FAIRFAX COUNTY MAPPING)

ZONING REQUIREMENTS:

	REQUIRED	REQUIRED	PROVIDED
ZONING:	RM-2 (LOT 149)	RS-10 (LOT 149A)	RM-2/RS-10
MINIMUM LOT AREA:	8,000 SF	10,000 SF	21,779.70/45,540.30 SF
MINIMUM LOT WIDTH:	70'	75'	129.4'/168.3'
- AT STREET LINE:	40'	45'	
MAXIMUM BUILDING HEIGHT:	3 STORIES NOT TO EXCEED 35'	2 ½ STORIES NOT TO EXCEED 35'	2 STORY - 35.37'*
			*SEE SHEET C-105A
MINIMUM YARD REQUIREMENTS :			
FRONT-	60' (MEASURED FROM THE STREET ℄)	50' (MEAS. FROM STREET ℄)	141' (MEAS. FROM ℄)
SIDE-	25'	12'	27.65'
REAR-	35'	35'	60.10'
MAXIMUM LOT COVERAGE:	25%	25%	69.71%

SEE SHEET C-103 FOR PARKING TABULATIONS

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Town of Vienna
Town of Vienna Police Station
215 Center Street South
Vienna, VA
PERMIT SUBMISSION

SEAL
COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
PROFESSIONAL ENGINEER

KEY PLAN

SCALE AS NOTED

NORTH VCS–83

No.	DATE	BY	Description

REVISIONS

DRAWN BY KM
APPROVED BY TC
CHECKED BY RW
DATE FEBRUARY 26, 2020

TITLE
COVER SHEET

PROJECT NO.

C-001

ABBREVIATIONS

A	A	AREA OR ARC
	AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
	AC	ACRE
	ACC	ACCESS DOOR
	ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
	ARCH	ARCHITECTURAL
	ASPH	ASPHALT
	ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B	BB	BOTTOM OF LINE
	BC	BOTTOM OF CURB
	BF	BASEMENT FLOOR
	BLD	BUILDING
	BLDG	BUILDING
	BM	BENCHMARK
	BOV	BLOW OFF VALVE
	BRK	BRICK
	BRL	BUILDING RESTRICTION LINE
	BW	BOTTOM OF WALL
C	C	COEFFICIENT OF RUNOFF
	CATV	CABLE TELEVISION
	CC	CENTER TO CENTER
	CFS (Q)	CUBIC FEET PER SECOND
	CH	CHORD
	CG	CURB AND GUTTER
	CIP	CAST IRON PIPE
	℄	CENTERLINE
	CON	CONCRETE PAD
	CONC	CONCRETE
	CO	CLEAN OUT
	CONT.	CONTINUATION
	CS	CURB STOP
	CSP	CONCRETE STOOP
	CSW	CONCRETE SIDEWALK
	CT	COURT
	CN	(RUNOFF) CURVE NUMBER
D	d	DEPTH
	DA	DRAINAGE AREA
	DB	DEED BOOK
	DETL	DETAIL
	DI	DROP INLET
	DIP	DUCTILE IRON PIPE
	DOM	DOMESTIC
	DR	DRIVE
	DTL	DETAIL
	DWA	ASPHALT DRIVEWAY
	DWC	CONCRETE APRON
	DWG	DRAWING
	D/W	DRIVE WAY
	△	DELTA
E	E	RATE OF SUPERELEVATION IN FEET PER FOOT
	EC	EROSION CONTROL
	ESMT	EASEMENT
	EG	EDGE OF GUTTER
	ELEV	ELEVATION
	EP	EDGE OF PAVEMENT
	ES	END SECTION
	EW	END WALL
	EX	EXISTING
	EXIST	EXISTING
	ELEC	ELECTRICAL
	EBL	EAST BOUND LANE
F	F	FIRE LINE
	FAR	FLOOR AREA RATIO
	FC	FACE OF CURB
	FDC	FIRE DEPARTMENT CONNECTION (SIAMESE)
	FW	FAIRFAX WATER
	FF	FIRST FLOOR
	FFE	FINISHED FLOOR ELEVATION
	FG	FINISHED GRADE
	FH	FIRE HYDRANT
	FP	FLOOD PLAIN
	FCPA	FAIRFAX COUNTY PARK AUTHORITY
	FOY	FOYER
	FPS	FEET PER SECOND
	FT	FEET
G	G	GAS
	GF	GARAGE FLOOR
	GFA	GROSS FLOOR AREA
	Gr.	GRADE
	GR	GUARD RAIL
H	HC	HANDICAPPED PARKING SPACE
	HGL	HYDRAULIC GRADE LINE
	HP	HIGH POINT
	HR	HAND RAIL
	HT	HEIGHT
I	I	RAINFALL INTENSITY
	ID	INSIDE DIAMETER
	IN	INCH
	INV	INVERT
	IP	IRON PIPE
	IPF	IRON PIPE FOUND
	IPS	IRON PIPE SET
J	JB	JUNCTION BOX
K	K	SIGHT DISTANCE COEFFICIENT
L	L	LENGTH
	LAT	LATERAL
	LL	LOWER LEVEL
	LP	LOW POINT
	LS	LOADING SPACE
	LCG	LIMITS OF CLEARING & GRADING
M	M	MONUMENT FOUND
	MECH	MECHANICAL
	MH	MANHOLE
	MI	MILE
	MS	MEDIAN STRIP
	MSL	MEAN SEA LEVEL
	MIN	MINIMUM
	MAX	MAXIMUM
N	N/F	NOW OR FORMERLY
	NFA	NET FLOOR AREA
	NO., #	NUMBER
	NBL	NORTH BOUND LANE
O	OC	ON CENTER
	OD	OUTSIDE DIAMETER
	OH	OVERHEAD
P	P	PERIMETER
	PC	POINT OF CURVATURE
	PCC	POINT OF COMPOUND CURVES
	PCEP	POINT OF CURVE EDGE OF PAVEMENT
	PCTC	POINT OF CURVATURE TOP OF CURB
	PFM	PUBLIC FACILITIES MANUAL
	PG	PAGE
	PGL	POINT OF GRADE LINE
	PI	POINT OF INTERSECTION
	PL	PROPERTY LINE
	PMP	OLD PUMP
	PRC	POINT OF REVERSE CURVES
	PRELIM	PRELIMINARY
	PROP, PR	PROPOSED
	PT	POINT OF TANGENCY
	PVMT	PAVEMENT
	PVT	POINT OF VERTICAL TANGENT
	P&P	PLAN AND PROFILE
	PSI	POUNDS PER SQUARE INCH
Q	Q	AMOUNT OF RUNOFF
R	R	RADIUS
	RCP	REINFORCED CONCRETE PIPE
	RD	ROAD
	RESTR.	RESTRAINED (VALVE)
	RET	RETAINING
	REV	REVISION
	RR	RAILROAD
	RTE, RT	ROUTE
	R/W	RIGHT OF WAY
	RGP	ROUGH GRADING PLAN
	ROM	REMOTE OUTSIDE MONITOR
S	SAN	SANITARY
	SD	SIGHT DISTANCE
	SECT	SECTION
	SEW	SEWER
	SHT	SHEET
	SF	SQUARE FEET
	SP	SITE PLAN
	SPEC	SPECIFICATION
	ST	STREET
	STA	STATION
	STD	STANDARD
	STM	STORM
	SVC	SERVICE
	S/W	SIDE WALK
	Sx	CROSS SLOPE
T	T	TANGENT
	TB	TEST BORE
	TBR	TO BE REMOVED
	TC	TOP OF CURB
	TCAN	TRASH CAN
	TEL	TELEPHONE
	TP	TEST PIT
	TB	TOP OF BANK
	TW	TOP OF WALL
U	UD	UNDER DRAIN
	UG	UNDERGROUND
	UL	UPPER LEVEL
	UP	UTILITY POLE
V	V	VELOCITY
	VA	VAN ACCESSIBLE
	VDOT	VIRGINIA DEPARTMENT OF TRANSPORTATION
	VF	VERTICAL FOOT
W	W\M	WATER MAIN
	W\L	WATER LINE
	WBL	WEST BOUND LANE
	WSEL	WATER SURFACE ELEVATION
X		
Y	YI	YARD INLET
	YR	YEAR
Z	Z	SIDE SLOPES

LEGEND

ADDITIONAL LEGEND INFORMATION PROVIDED ON APPLICABLE SHEETS

- PROPOSED IMPROVEMENTS BY OTHERS
- EXISTING INTERMEDIATE CONTOUR (86)
- EXISTING CONTOUR INDEX (200)
- PROPOSED CONTOUR (86)
- EXISTING EDGE OF PAVEMENT (EX. E.P.)
- PROPOSED EDGE OF PAVEMENT (PROP. E.P.)
- PROPOSED HEADER CURB
- EXISTING CURB
- PROPOSED CURB & GUTTER
- PROPOSED CG-6 (CG-6)
- TRANSITION FROM CG-6 TO CG-6R (CG-6 CG-6R)
- EXISTING WATERLINE W/TEE (W)
- PROPOSED WATERLINE W/TEE (W)
- EXISTING TELEPHONE LINE (T)
- PROPOSED TELEPHONE LINE (T)
- EXISTING STORM SEWER (EX. 15" RCP SD)
- PROPOSED STORM SEWER (23 15" RCP 24)
- EXISTING SANITARY SEWER (SS)
- PROPOSED SANITARY SEWER (A SS SS)
- EXISTING ELECTRIC SERVICE (E)
- PROPOSED ELECTRIC SERVICE (E)
- EXISTING GAS LINE (G)
- PROPOSED GAS LINE (G)
- PROPERTY LINE
- EASEMENT LINE
- CENTER LINE (10+00 11+00)
- LIMITS OF CLEARING & GRADING
- EXISTING SPOT ELEVATIONS (×12.0)
- PROPOSED SPOT ELEVATION (+12.0)
- EXISTING TREE LINE
- EXISTING TREE W/TRUNK DIAMETER (12"DIM.)
- EXISTING TREE W/DRIPLINE
- PROPOSED TREE
- FLOW LINE OF SWALE
- FENCE LINE
- EXISTING UTILITY POLE
- PROPOSED UTILITY POLE
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE (W)
- PROPOSED WATER VALVE (W)
- WATER METER (SINGLE & DOUBLE)
- STREET SIGN (SEE SIGNAGE PLAN)
- PARKING INDICATOR INDICATES THE NUMBER OF PARKING SPACES (9)
- TEST PIT
- EXISTING STREET LIGHT
- PROPOSED STREET LIGHT
- PROPOSED TRAFFIC SIGNAL (APPROX. LOCATIONS)

GENERAL NOTES

ADDITIONAL DESIGN AND CONSTRUCTION NOTES ARE PROVIDED IN APPLICABLE SECTIONS.

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF VIENNA AND VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS.
2. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MOST CURRENT APPLICABLE FEDERAL, STATE , AND LOCAL LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED TO, ENVIRONMENTAL PROTECTION AGENCY (EPA), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), VIRGINIA OCCUPATIONAL AND SAFETY HEALTH COMPLIANCE PROGRAM (VOSH ENFORCEMENT), VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT, NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), AND NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH).
3. WHEN DURING THE COURSE OF CONSTRUCTION, ANY OBJECT OF AN UNUSUAL NATURE IS ENCOUNTERED, THE CONTRACTOR SHALL CEASE WORK IN THAT AREA AND IMMEDIATELY NOTIFY THE PROPER AUTHORITY, TOWN OF VIENNA AND/OR THE ARCHITECT/ENGINEER.
4. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN IN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUANCE OF SERVICE.
5. ALL UTILITIES WHICH WILL BE PLACED UNDER EXISTING PUBLIC STREETS SHALL BE BORED OR JACKED, UNLESS PERMISSION TO OPEN CUT IS OBTAINED FROM VDOT.
6. CONTROLLED FILLS MUST BE COMPACTED TO 95% AS DETERMINED PER STANDARD PROCTOR AASHTO T-99 OR ASTM D 698. DENSITY MUST BE CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER AND THE RESULTS SUBMITTED TO TOWN OF VIENNA PRIOR TO FOOTING CONSTRUCTION.
7. ALL FILL SOILS UNDER EXPANDED PAVED AREAS SHALL BE COMPACTED TO 95% OF THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM SPECIFICATION D-698 STANDARD PROCTOR METHOD, WITHIN + OR - 2% OF OPTIMUM MOISTURE FOR THE FULL WIDTH OF ANY DEDICATED RIGHT-OF-WAY AND ALL PARKING LOTS; PRIVATE STREETS; PARKING BAYS; CURB AND GUTTER; AND SIDEWALKS ADJACENT TO STREETS AND PARKING LOTS (NOT INTENDED TO INCLUDE LEADWALKS), WITH UPPER 1.0 FT. COMPACTED TO 100% OF THE MAXIMUM DRY DENSITY PER ASTM D-698.
8. ALL STREET CUT AND PATCH WORK IN PUBLIC RIGHT-OF-WAY REQUIRED FOR UTILITIES INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH TOWN OF VIENNA AND VDOT STANDARDS AND SPECIFICATIONS.
9. A SMOOTH GRADE SHALL BE MAINTAINED FROM EDGE OF PAVEMENT OF EXISTING ROAD TO PROPOSED CURB AND GUTTER AND/OR PROPOSED PAVEMENT TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR THE PONDING OF ANY WATER ON THE ROADWAY. REMOVE AND RECONSTRUCT EXISTING PAVEMENT AND/OR CURB AS DICTATED BY FIELD CONDITIONS TO PROVIDE POSITIVE DRAINAGE AT TIE-IN-POINTS.
10. PROPOSED SIDEWALKS MUST BE CONSTRUCTED WITH UD3 UNDERDRAINS WHEN LONGITUDINAL GRADES ARE 3% OR GREATER UNLESS SOIL TEST CONFIRM THAT THEY ARE NOT NEEDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION (APPLIES TO SIDEWALK IN RIGHT-OF-WAY ONLY).
11. THE DEVELOPER WILL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING STREET AND UTILITIES WHICH OCCURS AS A RESULT OF HIS CONSTRUCTION PROJECT WITHIN OR CONTIGUOUS TO THE EXISTING RIGHT-OF-WAY.
12. COMPACTION OF BACKFILL IN UTILITY TRENCHES SHALL BE IN ACCORDANCE WITH TOWN OF VIENNA & V.D.O.T. STANDARDS & SPECIFICATIONS.
13. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO GRAVE SITES OR BURIAL PLOTS ON THIS PROPERTY.
14. THERE ARE NO DOWNSTREAM IMPOUNDMENTS IN THE INFLUENCE AREA OF THE PROPOSED DEVELOPMENT.
15. THIS PLAN COMPLIES FULLY WITH THE AMENDED CHESAPEAKE BAY PRESERVATION ORDINANCE PER THE JULY 7, 2003 BOARD POLICY FOR THE TREATMENT OF APPROVED AND PENDING PLANS OF DEVELOPMENT, WITH AN EFFECTIVE DATE OF NOVEMBER 18, 2003 AND WITH REVISIONS ADOPTED BY THE BOARD WITH AN EFFECTIVE DATE OF JULY 12, 2005.
16. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL. THE DEVELOPER SHALL SUBMIT A SIGNING, STRIPING AND/OR SIGNALIZATION PLAN TO THE VDOT LAND DEVELOPMENT SECTION A MINIMUM OF 30 DAYS PRIOR TO PERMIT APPLICATION. THE DEVELOPER SHALL NOT COMMENCE CONSTRUCTION OF ANY PAVEMENT COURSE WITHOUT AN APPROVED STRIPING PLAN.
17. ALL RETAINING WALLS 3' AND GREATER IN HEIGHT REQUIRE A SEPARATE BUILDING PERMIT.
18. ALL ROOF DRAINS AND NON-STANDARD PIPE WILL BE CONSTRUCTED UNDER A SEPARATE PLUMBING PERMIT PER IBC INTERNATIONAL PLUMBING CODE.
19. ALL EXTERIOR LIGHTING FIXTURES PROPOSED WITH THIS PLAN SHALL BE FULL CUT-OFF OR DIRECTIONALLY SHIELDED TYPES.
20. ALL ADA ACCESSIBILITY IMPROVEMENTS PROPOSED/SHOWN ON THIS PLAN, INCLUDING BUT NOT LIMITED TO PARKING SPACES, AISLES, ROUTES, AND SLOPES, COMPLY WITH THE 2010 ASA STANDARDS FOR ACCESSIBLE DESIGN AND THE 2012 USBC.

TOWN OF VIENNA GENERAL NOTES

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

SURVEY NOTES

1. THE SITE SHOWN HERON IS REFERENCED TO THE VIRGINIA COORDINATE SYSTEM OF 1983 AS COMPUTED FROM FIELD RUN BOUNDARY AND HORIZONTAL AND VERTICAL CONTROL SURVEY .
2. THE SITE SHOWN HERON IS REFERENCED TO THE NATIONAL VERTICAL DATUM 1929
3. THE BOUNDARY INFORMATION SHOWN HEREON, WITH A MAXIMUM PERMISSIBLE ERROR OF CLOSURE WITHIN THE LIMIT OF ONE (1) IN TWENTY THOUSAND (20,000), WAS COMPILED BY DEWBERRY ENGINEERS INC.
4. EXISTING TOPOGRAPHIC AND PLANIMETRIC INFORMATION WAS COMPILED FROM FIELD RUN SURVEY BY DEWBERRY ENGINEERS INC DATED 8/12/2012.
4. EXISTING STORM AND SANITARY UTILITY INFORMATION WAS COMPILED FROM FIELD SURVEY BY DEWBERRY ENGINEERS INC DATED 8/12/2012..

Dewberry®

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SEAL
COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
PROFESSIONAL ENGINEER

KEY PLAN

SCALE NORTH
N/A

No.	DATE	BY	Description

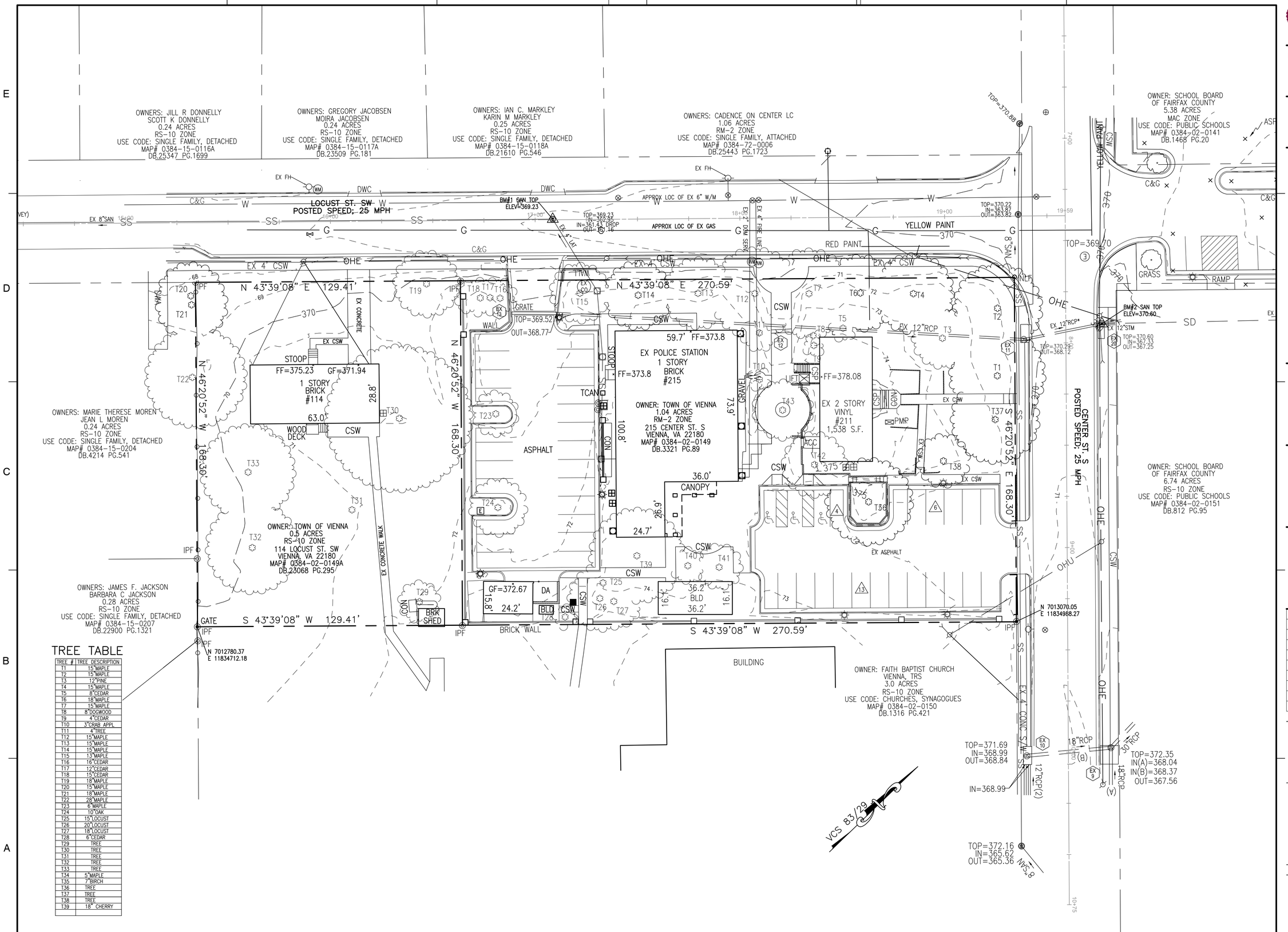
REVISIONS

DRAWN BY KM
APPROVED BY TC
CHECKED BY RW
DATE FEBRUARY 26, 2020

TITLE
ABBREVIATIONS, NOTES & LEGEND

PROJECT NO.

C-002



TREE TABLE

TREE #	TREE DESCRIPTION
T1	15"MAPLE
T2	15"MAPLE
T3	12"PINE
T4	15"MAPLE
T5	8"CEDAR
T6	18"MAPLE
T7	15"MAPLE
T8	8"DOGWOOD
T9	4"CEDAR
T10	3"CRAB APPL
T11	4"TREE
T12	15"MAPLE
T13	15"MAPLE
T14	15"MAPLE
T15	13"MAPLE
T16	16"CEDAR
T17	12"CEDAR
T18	15"CEDAR
T19	18"MAPLE
T20	15"MAPLE
T21	18"MAPLE
T22	28"MAPLE
T23	6"MAPLE
T24	10"OAK
T25	15"LOCUST
T26	20"LOCUST
T27	18"LOCUST
T28	6"CEDAR
T29	TREE
T30	TREE
T31	TREE
T32	TREE
T33	TREE
T34	5"MAPLE
T35	7"BIRCH
T36	TREE
T37	TREE
T38	TREE
T39	18" CHERRY

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PERMIT SUBMISSION

SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
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PROFESSIONAL ENGINEER

KEY PLAN

SCALE

SCALE IN FEET
1" = 20'
1 INCH

NORTH

VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

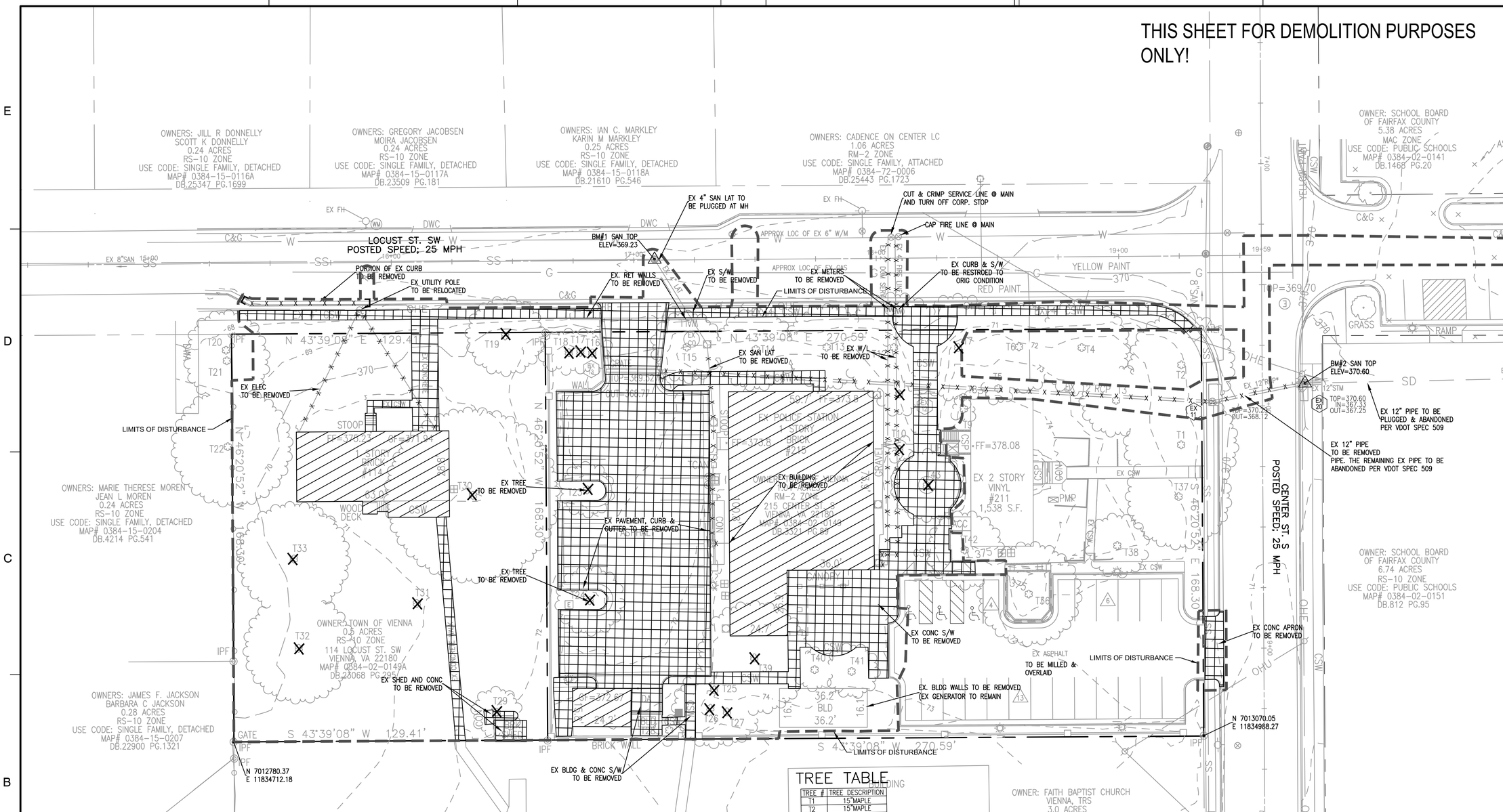
TITLE

EXISTING CONDITIONS

PROJECT NO.

C-101

THIS SHEET FOR DEMOLITION PURPOSES ONLY!



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T12	15"MAPLE
T13	15"MAPLE
T14	15"MAPLE
T15	13"MAPLE
T16	16"CEDAR
T17	12"CEDAR
T18	15"CEDAR
T19	18"MAPLE
T20	15"MAPLE
T21	18"MAPLE
T22	28"MAPLE
T23	6"MAPLE
T24	10"OAK
T25	15"LOCUST
T26	20"LOCUST
T27	18"LOCUST
T28	6"CEDAR
T29	TREE
T30	TREE
T31	TREE
T32	TREE
T33	TREE
T34	5"MAPLE
T35	7"BIRCH
T36	TREE
T37	TREE
T38	TREE

LEGEND

- EX BUILDING TO BE REMOVED
- PAVEMENT/SIDEWALK TO BE REMOVED
- X X X X X X X X UTILITY TO BE REMOVED
- EX TREE TO BE REMOVED
- LIMITS OF CLEARING & GRADING

GENERAL DEMOLITION NOTES

THIS SHEET IS INTENDED TO IDENTIFY THE NECESSARY DEMOLITION REQUIRED TO PERFORM SITE RELATED IMPROVEMENTS.

1. **NO DEMOLITION CAN BEGIN UNTIL REQUIRED DEMOLITION PERMITS ARE OBTAINED.**
2. **NO DEMOLITION CAN BEGIN UNTIL REQUIRED (PHASE I) EROSION AND SEDIMENT CONTROLS ARE IN PLACE.**
3. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MOST CURRENT APPLICABLE FEDERAL, STATE , AND LOCAL LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED TO, ENVIRONMENTAL PROTECTION AGENCY (EPA), OCCUPATIONAL SAM FETY AND HEALTH ADMINISTRATION (OSHA), VIRGINIA OCCUPATIONAL AND SAFETY HEALTH COMPLIANCE PROGRAM (VOSH ENFORCEMENT), VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT, NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), AND NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH).
4. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY HAZARDOUS MATERIALS DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL DOCUMENT SAME TO THE OWNER'S REPRESENTATIVE AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN IN ACCORDANCE WITH THE PROJECT SPECS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE UTILITY PROVIDERS, PAYMENT OF ASSOCIATED FEES AND PROCUREMENT OF ALL NECESSARY PERMITS.
6. PRIOR TO COMMENCING NEW WORK, THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING ADJACENT AREAS. ALL ADJACENT AREAS DAMAGED DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO
7. IN ALL AREAS WHERE NEW ROAD CONSTRUCTION MEETS EXISTING FACILITIES, A SMOOTH, CLEAN, EVEN TRANSITION SHALL BE FORMED. ALL PAVEMENT MATCH LINES SHALL BE SAWCUT TO FULL DEPTH AND PROPERLY SEALED, PER VDOT STANDARDS.
8. EXISTING FEATURES TO REMAIN MAY BE TEMPORARILY RELOCATED AND/OR ADJUSTED DURING CONSTRUCTION. CONTRACTOR TO RESTORE TO ORIGINAL CONFIGURATION AND CONDITION, IF DISTURBED. IN GENERAL, ALL EXISTING ITEMS THAT ARE IN CONFLICT WITH PROPOSED CONDITIONS, SHALL BE ADJUSTED OR RELOCATED TO FACILITATE THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
9. MISCELLANEOUS SITE ITEMS, INCLUDING BUT NOT LIMITED TO SIGNS, POSTS, WHEEL STOPS, ETC., THAT ARE IN CONFLICT WITH PROPOSED CONDITIONS ARE TO BE REMOVED BY THE CONTRACTOR.
10. ANY WORK THAT IS TO BE PERFORMED WITHIN THE PROPERTY BUT OUTSIDE THE LIMITS OF CLEARING AND GRADING WILL BE DONE BY HAND, OR BY SEPARATE PERMIT (FOR WORK DONE BY UTILITY PROVIDERS).

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SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
PROFESSIONAL ENGINEER

KEY PLAN

SCALE

SCALE IN FEET
1" = 20'
1 INCH

NORTH
VCS-83

No.	DATE	BY	Description

REVISIONS

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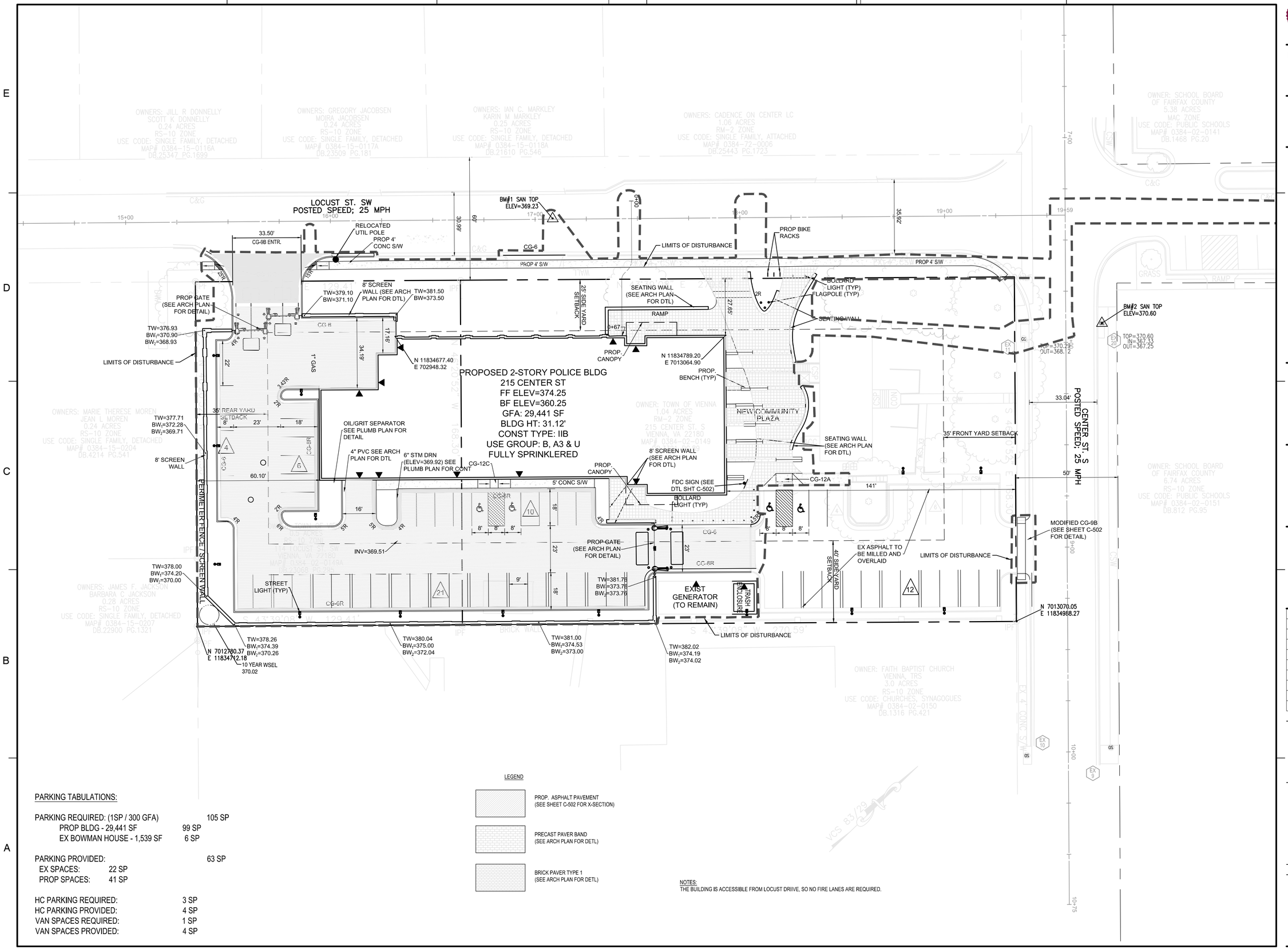
DATE	FEBRUARY 26, 2020

TITLE

DEMOLITION PLAN

PROJECT NO.

C-102



PARKING TABULATIONS:

PARKING REQUIRED: (1SP / 300 GFA)		105 SP
PROP BLDG - 29,441 SF	99 SP	
EX BOWMAN HOUSE - 1,539 SF	6 SP	
PARKING PROVIDED:		63 SP
EX SPACES:	22 SP	
PROP SPACES:	41 SP	
HC PARKING REQUIRED:	3 SP	
HC PARKING PROVIDED:	4 SP	
VAN SPACES REQUIRED:	1 SP	
VAN SPACES PROVIDED:	4 SP	

LEGEND

- PROP. ASPHALT PAVEMENT (SEE SHEET C-502 FOR X-SECTION)
- PRECAST PAVER BAND (SEE ARCH PLAN FOR DETL)
- BRICK PAVER TYPE 1 (SEE ARCH PLAN FOR DETL)

NOTES:
THE BUILDING IS ACCESSIBLE FROM LOCUST DRIIVE, SO NO FIRE LANES ARE REQUIRED.

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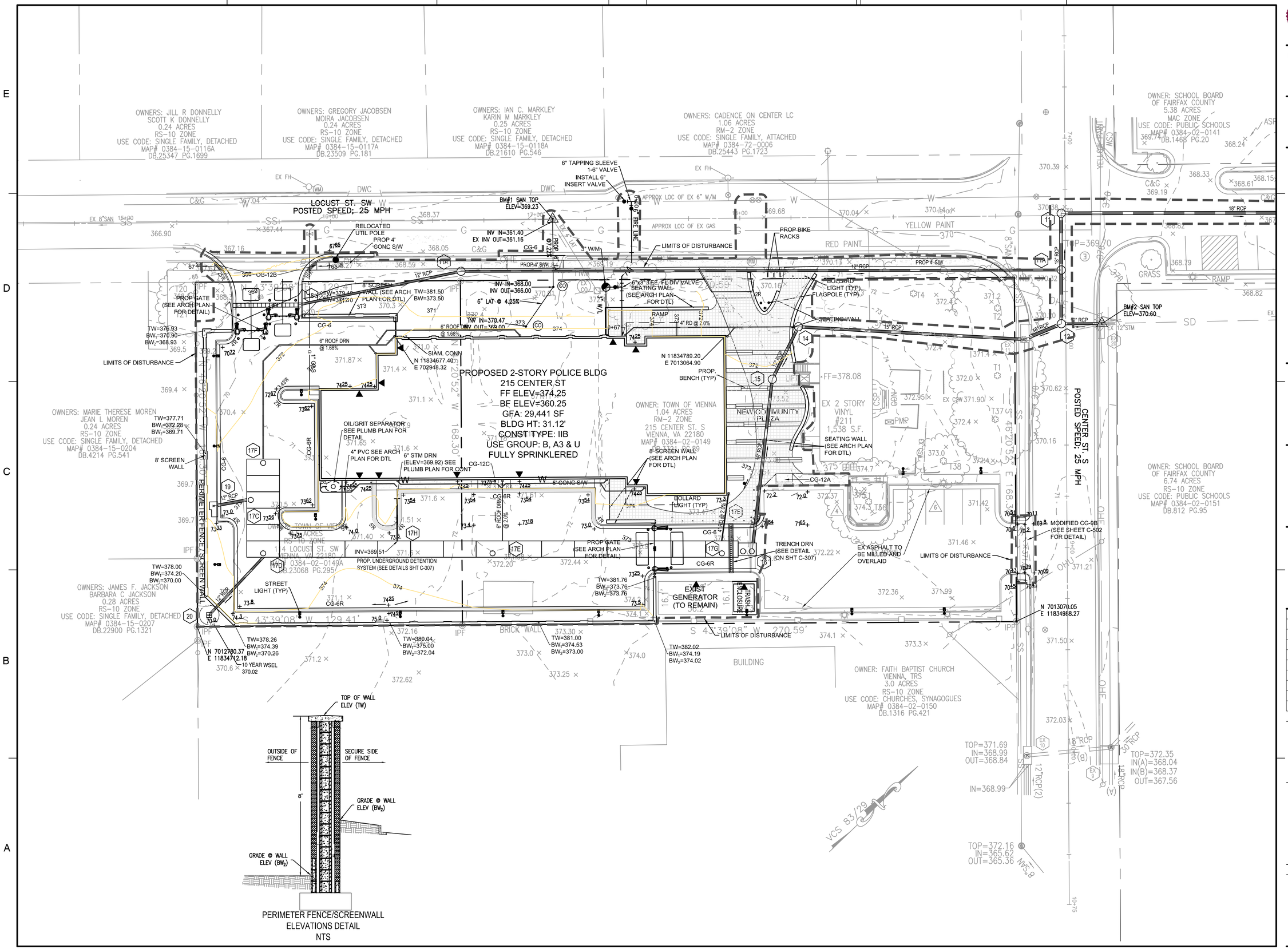
TITLE

SITE PLAN

PROJECT NO.

C-103

SHEET NO. C-103 OF



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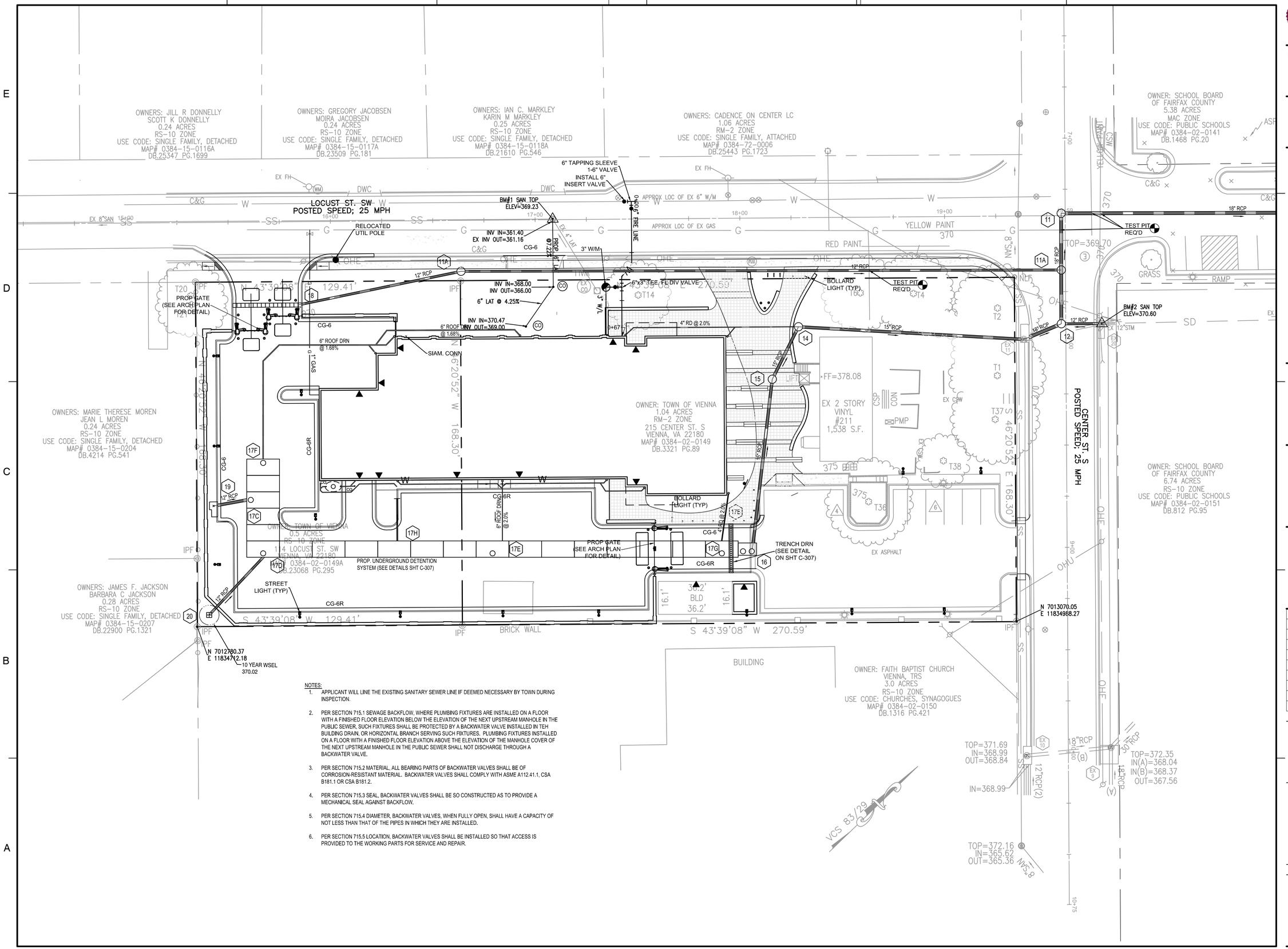
TITLE

GRADING PLAN

PROJECT NO.

C-104

SHEET NO. C-104 OF



NOTES:

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

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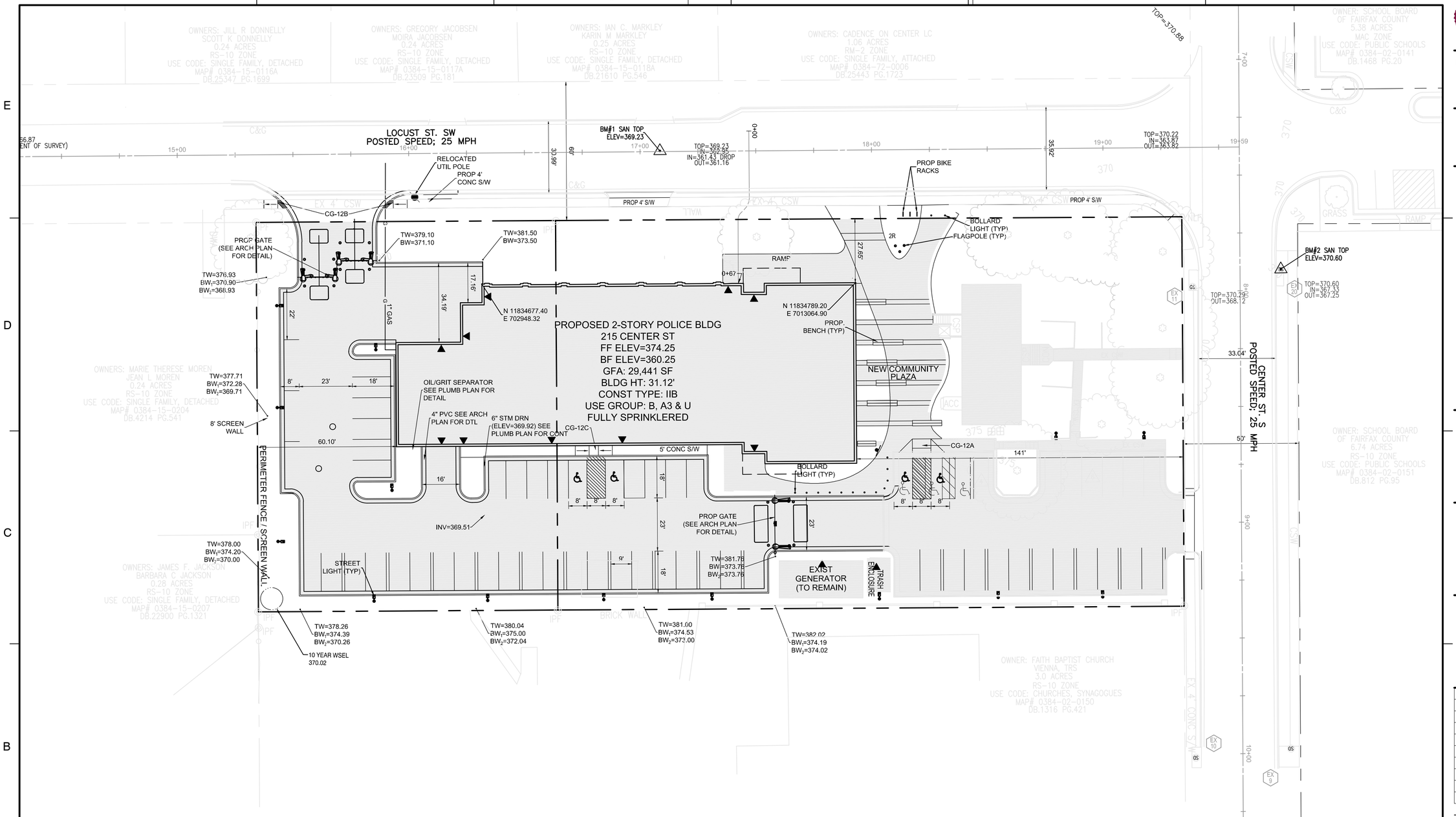
TITLE

UTILITY PLAN

PROJECT NO.

C-105

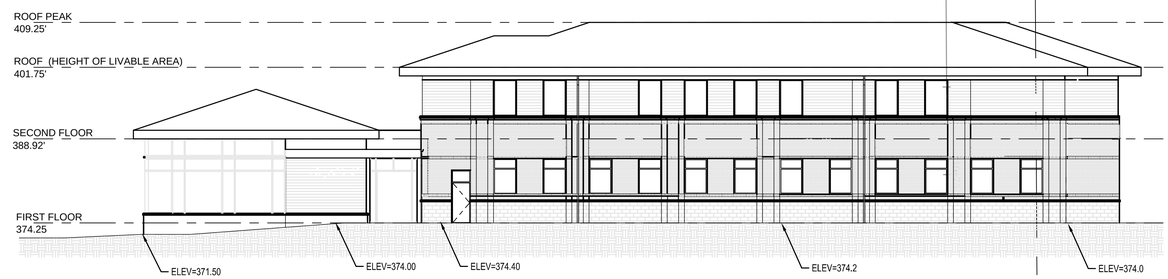
SHEET NO. C-105 OF



LOT COVERAGE AREA

COVERAGE AREA COMPUTATION:

PERMISSABLE:	
LOT AREA	67,320 SF
LOT COVERAGE AREA	16,830 SF
% COVERAGE	25%
PROVIDED:	
LOT AREA	67,320 SF
LOT COVERAGE AREA	46,991 SF
PAVEMENT	25,695 SF
BUILDINGS	15,739 SF
PLAZA/SW	5,557 SF
% COVERAGE	69.80%



AVERAGE GRADE = 373.88'

BLDG HT=409.25'-373.88= 35.37'
HT OF LIVABLE AREA = 401.75-373.88 = 27.87'

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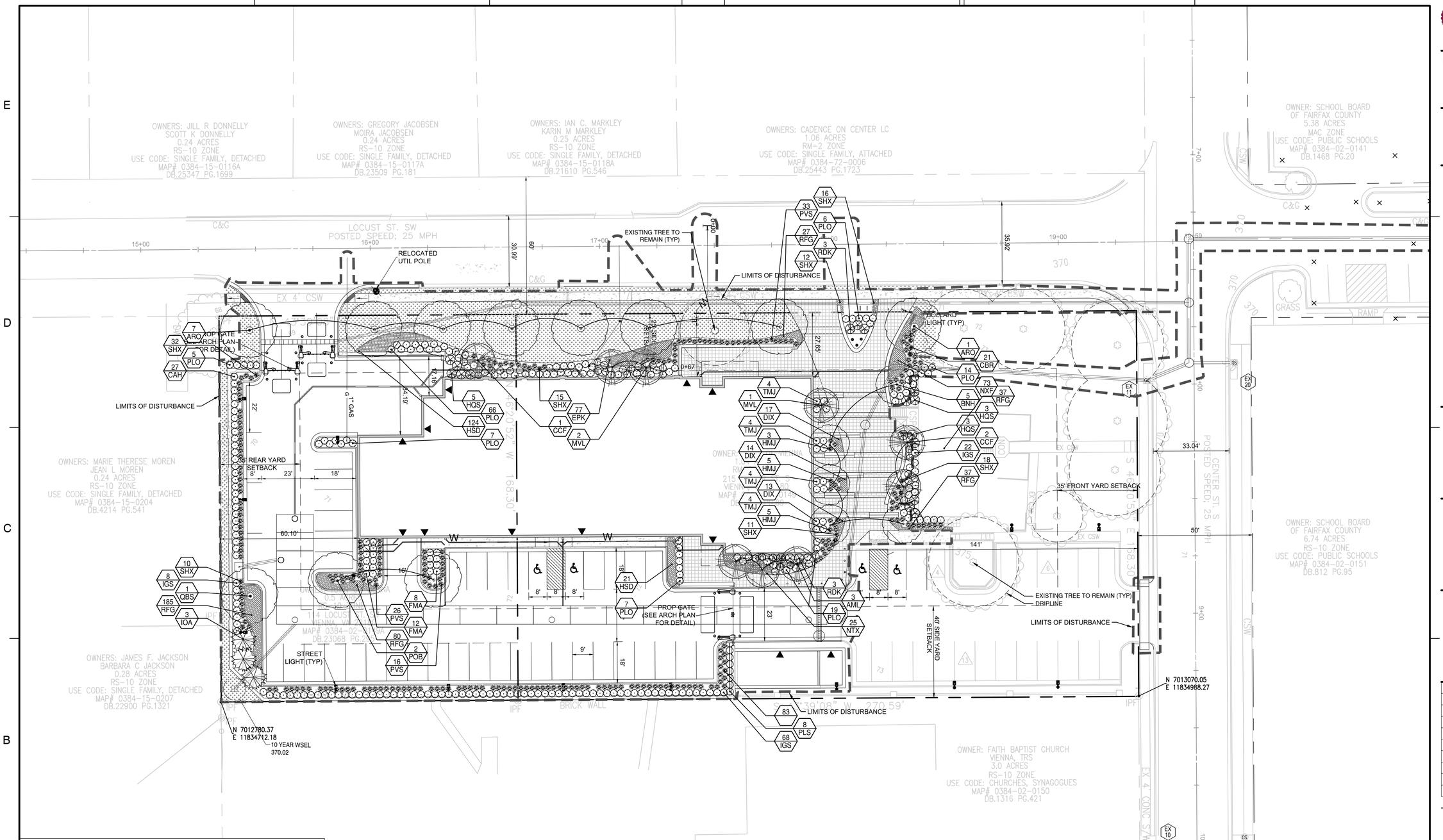
LOT COVERAGE CALCULATION

PROJECT NO.

C-105A

SHEET NO. C-105A OF



PLANTING LEGEND

- LAWN
- GROUNDCOVER / PERENNIALS
- EXISTING TREE (TO REMAIN)
- UNDERSTORY TREE
- CANOPY TREE
- SHRUB

SEE C-107, C-108 AND C-109 FOR ADDITIONAL INFORMATION

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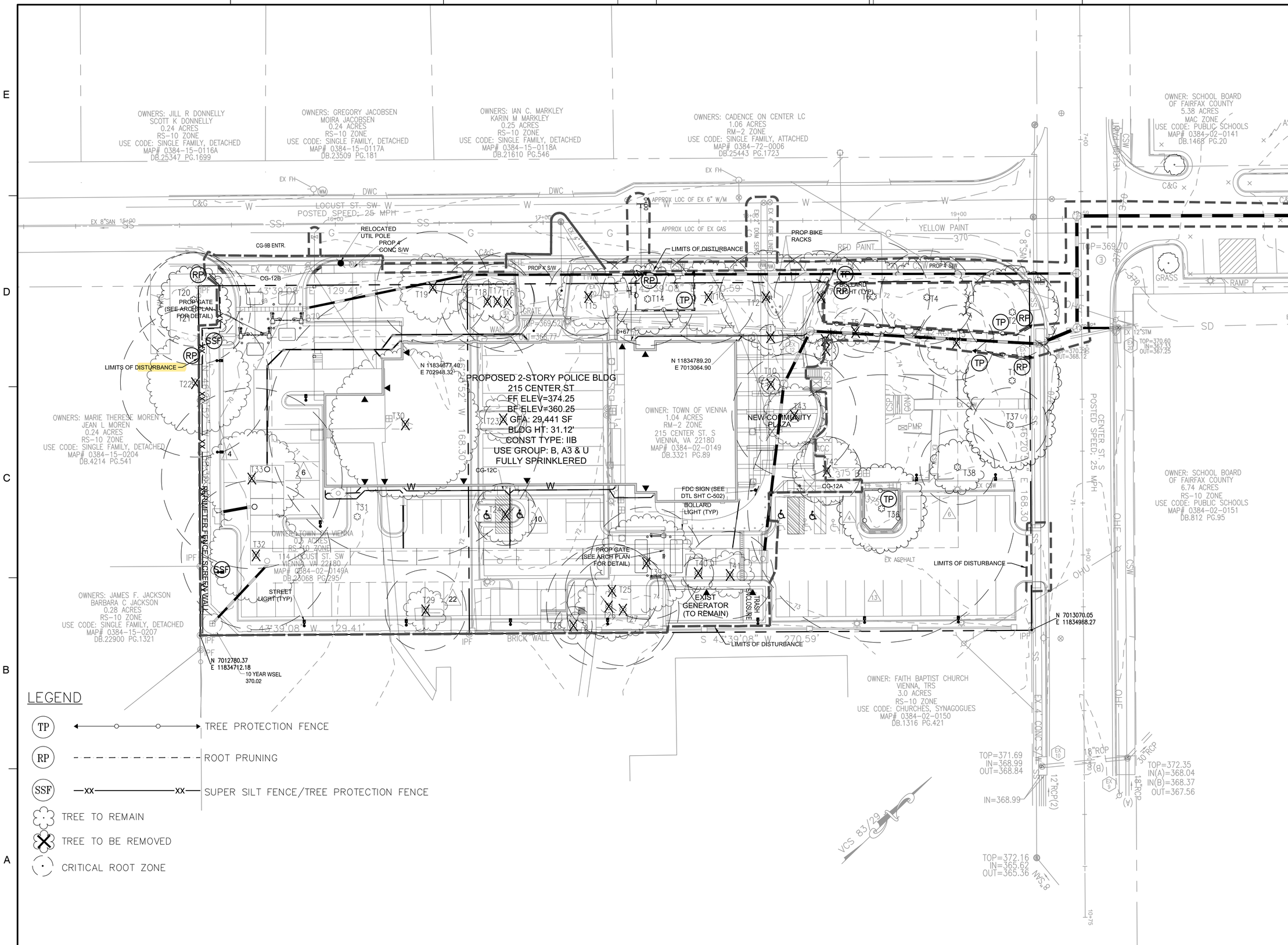
TITLE

LANDSCAPE PLAN

PROJECT NO.

C-106



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TREE PRESERVATION PLAN

PROJECT NO.

C-107

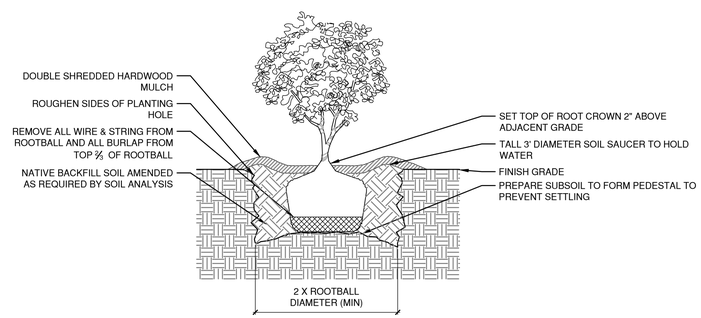
PLANT SCHEDULE

QTY	KEY	LATIN NAME	COMMON NAME	SIZE	ROOT CONDITION	20-YEAR CCA PER TREE (SF)	TOTAL CCA PROVIDED (SF)
Trees							
3	AML	Amelanchier canadensis	Shadblow Serviceberry	2 - 2 1/2" cal.	B&B - 3 STEM	100	300
8	ARO	Acer rubrum 'October Glory'	October Glory Red Maple	2 - 2 1/2" cal.	B&B	300	2,400
5	BNH	Betula nigra "BNMTF"	Dura Heat River Birch	2 - 2 1/2" cal.	B&B - 3 STEM	200	1,000
3	CCF	Cercis canadensis 'Forest Pansy'	Forest Pansy Redbud	2 - 2 1/2" cal.	B&B	100	300
3	IOA	Ilex opaca	American Holly	8' ht.	B&B	200	600
3	MVL	Magnolia virginiana	Sweetbay Magnolia	2 - 2 1/2" cal.	B&B - 3 STEM	200	600
2	PAX	Platanus x acerifolia 'Morton Circle'	Exclamation London Planetree	2 - 2 1/2" cal.	B&B	300	600
1	QBS	Quercus bicolor	Swamp White Oak	2 - 2 1/2" cal.	B&B	300	300
28							**6,100**
Shrubs							
27	CAH	Clethra alnifolia 'Hummingbird'	Hummingbird Summersweet	3 gal.			
20	FMA	Fothergilla major 'Mt Airy'	Mt Airy Fothergilla	3 gal.			
11	HQS	Hydrangea quercifolia 'Snow Queen'	Oakleaf Hydrangea	5 gal.			
98	IGS	Ilex glabra 'Shamrock'	Shamrock Inkberry	3 gal.			
124	PLO	Prunus laurocerasus 'Otto Luyken'	Otto Luyken Cherry Laurel	3 gal.			
8	PLS	Prunus laurocerasus 'Schipkaensis'	Schip Laurel	5 gal.			
6	RDK	Rosa x 'Radtko'	Double Knockout Rose	3 gal.			
16	TMJ	Taxus x media 'Hicksii'	Hicks Yew	3 gal.			
Perennials and Grasses							
21	CBR	Carex buchananii 'Red Rooster'	Red Rooster Carex	1 gal.	12" o.c.		
44	DIX	Dryopteris intermedia	Evergreen Woodfern	1 gal.	12" o.c.		
77	EPK	Echinacea purperea 'Magnus'	Purple Coneflower	1 qt.	18" o.c.		
13	HMJ	Hakonechloa macra	Japanese Forest Grass	1 gal.	18" o.c.		
145	HSD	Hemerocallis 'Stella D'Oro'	Stell D'Oro Daylily	1 gal.	18" o.c.		
25	NTX	Nassella tenuissima	Mexican Feathergrass	1 gal.	24" o.c.		
73	NXF	Nepeta x faassenii 'Walker's Low'	Walker's Low Catmint	1 gal.	18" o.c.		
75	PVS	Panicum virgatum	Switchgrass	1 gal.	18" o.c.		
366	RFG	Rudbeckia fulgida 'Goldstrum'	Goldstrum Black-Eyed Susan	1 qt.	12" o.c.		
114	SHX	Sporobolus heterolepsis	Prairie Dropseed	1 gal.	24" o.c.		
Turf 5,238 sf							
		Tall fescue blend					

CROWN COVERAGE CALCULATIONS

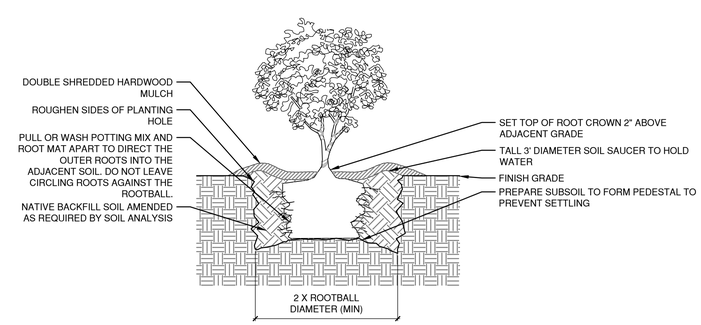
	Acreage	sq. ft.
Gross Site Area	1.55	67,320
Crown Coverage Required (20%)*	0.31	13,464
Crown Coverage Provided		
Proposed	0.14	6,100
Existing	0.17	7,470
Total Crown Coverage Provided	0.31	13,570

*Property is split zoned. Crown coverage requirements are based on the more restrictive RS-16 zoning district (18-252.E.1).



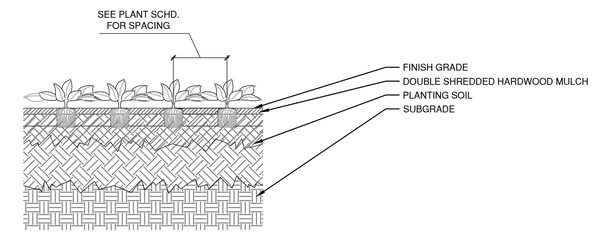
1 B&B SHRUB PLANTING

Scale: NTS



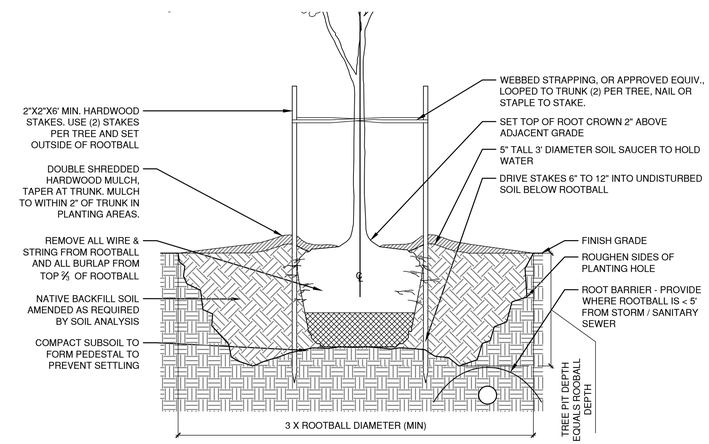
2 CONTAINER SHRUB PLANTING

Scale: NTS



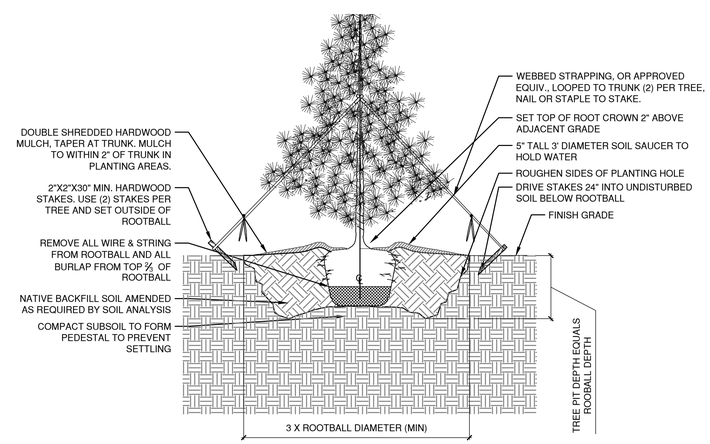
3 PERENNIAL PLANTING

Scale: NTS



4 TREE PLANTING

Scale: NTS



5 EVERGREEN TREE PLANTING

Scale: NTS

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TITLE

LANDSCAPE SCHEDULE & DETAILS

PROJECT NO.

C-108

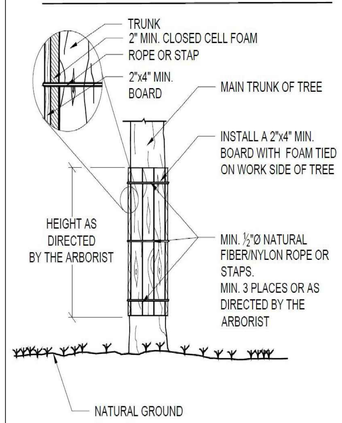
TREE INVENTORY

TREE NUMBER	COMMON NAME	SCIENTIFIC NAME	SIZE (DBH)	CRZ (RAD. FEET)	CONDITION	ACTION	COMMENTS
1	RED MAPLE	*Acer rubrum*	15	22.5	GOOD		
2	RED MAPLE	*Acer rubrum*	15	22.5	GOOD		
3	HEMLOCK	*Tsuga canadensis*	12	18	FAIR	REMOVE	
4	RED MAPLE	*Acer rubrum*	15	22.5	GOOD		
5	CEDAR	*Cedrus sp.*	8	12	GOOD	REMOVE	
6	RED MAPLE	*Acer rubrum*	18	27	GOOD		
7	RED MAPLE	*Acer rubrum*	15	22.5	GOOD	REMOVE	
8	JAPANESE MAPLE	*Acer palmatum*	1	1.5	GOOD	REMOVE	8' HT
9	CEDAR	*Cedrus sp.*	4	6	GOOD	REMOVE	
10	MAPLE	*Acer rubrum*	3	4.5	GOOD	REMOVE	
11	MAPLE	*Acer rubrum*	4	6	GOOD	REMOVE	
12	RED MAPLE	*Acer rubrum*	15	22.5	GOOD	REMOVE	
13	RED MAPLE	*Acer rubrum*	15	22.5	FAIR	REMOVE	
14	RED MAPLE	*Acer rubrum*	15	22.5	GOOD		
15	RED MAPLE	*Acer rubrum*	13	19.5	FAIR	REMOVE	
16	LEYLAND CYPRESS	*Cupressocyparis x leylandi*	16	24	GOOD	REMOVE	
17	LEYLAND CYPRESS	*Cupressocyparis x leylandi*	12	18	FAIR	REMOVE	
18	LEYLAND CYPRESS	*Cupressocyparis x leylandi*	15	22.5	GOOD	REMOVE	
19	RED MAPLE	*Acer rubrum*	18	27	FAIR	REMOVE	
20	RED MAPLE	*Acer rubrum*	15	22.5	FAIR		OFFSITE
21	RED MAPLE	*Acer rubrum*	18	27	FAIR		OFFSITE
22	RED MAPLE	*Acer rubrum*	24	36	FAIR	REMOVE	OFFSITE - **DO NOT** REMOVE WITHOUT WRITTEN PERMISSION FROM OFFSITE OWNER
23	RED MAPLE	*Acer rubrum*	6	9	FAIR	REMOVE	
24	RED OAK	*Quercus rubra*	10	15	FAIR	REMOVE	
25	LOCUST	*Robinia pseudoacacia*	15	22.5	FAIR	REMOVE	
26	LOCUST	*Robinia pseudoacacia*	20	30	FAIR	REMOVE	
27	LOCUST	*Robinia pseudoacacia*	18	27	FAIR	REMOVE	
28	CEDAR	*Juniperus virginiana*	6	9	FAIR	REMOVE	
29	HEDGE MAPLE	*Acer sp*	8/5	19.5	FAIR	REMOVE	
30	RED OAK	*Quercus rubra*	44	66	FAIR	REMOVE	
31	DOGWOOD	*Cornus florida*	4/3	0	DEAD	REMOVE	
32	VIRGINIA PINE	*Pinus virginiana*	24	36	GOOD	REMOVE	
33	RED MAPLE	*Acer rubrum*	29	43.5	FAIR	REMOVE	
36	CATALPA	*Catalpa speciosa*	19/24	64.5	GOOD		
37	RED MAPLE	*Acer rubrum*	12	18	FAIR		
38	HEMLOCK	*Tsuga canadensis*	12	18	FAIR		
39	CHERRY	*Prunus sp*	18	27	GOOD	REMOVE	
40	DOGWOOD	*Cornus florida*	5	7.5	FAIR	REMOVE	
41	DOGWOOD	*Cornus florida*	5/9	21	GOOD	REMOVE	
42	ZELKOVA	*Zelkova serrata*	11	16.5	GOOD	REMOVE	
43	JAPANESE MAPLE	*Acer palmatum*	8/3/4/3/2	30	GOOD	REMOVE	

TREE INVENTORY NOTES

1. TREE INVENTORY AND CONDITION EVALUATION PERFORMED BY JANICE M. CENA (MA-4469A) ON FEBRUARY 24, 2020.
2. CONDITION EVALUATION PER 10TH EDITION OF THE GUIDE FOR PLANT APPRAISAL, PUBLISHED BY THE ISA.
3. CRITICAL ROOT ZONE (CRZ) IS EQUAL TO 1.5 FOOT OF RADIUS FOR EVERY INCH CALIPER.

TRUNK PROTECTION DETAIL

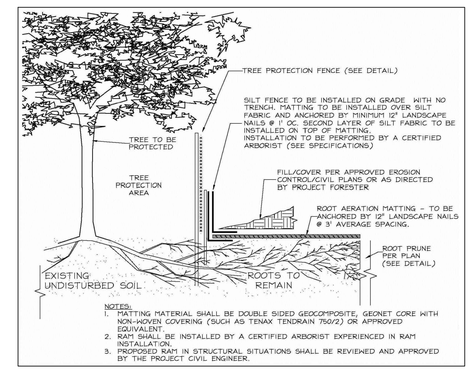


NOTES:
1. COMPLETE ALL INSTALLATION UNDER THE DIRECTION OF A CERTIFIED ARBORIST
2. TIE BOARDS WITH WITH 1/2" DIAMETER ROPE OR STAPS SUFFICIENT TO PROTECT ALL AREAS OF THE TREE EXPOSED TO CONSTRUCTION.
3. PROTECT THE TRUNK FROM DAMAGE DUE TO THE STRAPS WITH ADDITIONAL FOAM AND BOARDS AS NEEDED

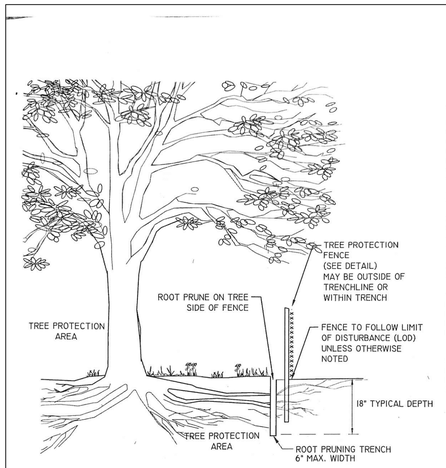
TREE PROTECTION STANDARDS

THE FOLLOWING TREE PROTECTION PRACTICES ARE TO BE FOLLOWED.

1. A PRE-CONSTRUCTION MEETING WITH THE TOWN OF VIENNA'S URBAN ARBORIST SHALL BE HELD ONSITE SO THAT THE ARBORIST CAN EXPLAIN PROTECTION MEASURES TO OPERATORS, CONSTRUCTION SUPERVISORS, AND/OR CONTRACTOR'S REPRESENTATIVES.
2. CONTRACTOR SHALL STAKE CLEARING LIMITS ONSITE IN ORDER TO FACILITATE LOCATION FOR TRENCHING AND FENCING INSTALLATION FOR TREE PROTECTION.
3. NO CLEARING OR GRADING SHALL BEGIN IN AREAS WHERE TREE PRESERVATION MEASURES HAVE NOT BEEN COMPLETED.
4. THE USE OF HEAVY EQUIPMENT IS STRICTLY PROHIBITED WITHIN TREE PRESERVATION AREAS, INCLUDING FOR THE PURPOSE OF REMOVING UNWANTED TREES. STRUCTURES, PADS, ETC. SHALL BE REMOVED BY HAND.
5. THE SEQUENCE FOR TREE PRESERVATION MEASURES, IF REQUIRED, SHALL BE IN THIS ORDER: ROOT PRUNING TRENCHING, TREE PROTECTION FENCING, TREE PRUNING AND CHEMICAL TREATMENT, AERATION SYSTEMS INSTALLED, THESE MEASURES SHALL BE DIRECTED INTHE FIELD BY THE CONSTRUCTION SUPERVISOR.
6. TREE PROTECTION FENCING SHALL BE MAINTAINED BY THE CONTRACTOR THROUGH DURATION OF CONSTRUCTION. NO ALTERATION SHALL OCCUR WITHOUT PRIOR APPROVAL BY A TOWN REPRESENTATIVE.
7. CRITICAL ROOT ZONE SHALL BE DEFINED AS 1.5' RADIUS PER 1" OF DBH (DIAMETER AT BREAST HEIGHT), WHICH SHALL BE MEASURED AT A HEIGHT OF 4.5' FROM HIGHEST POINT OF GROUND AT BASE OF TRUNK.
8. PROTECTION PROVIDED SHALL CONSIST OF FENCING AROUND THE TREE TO THE DRIP LINE, AND ENCLOSED AREAS SHALL BE KEPT FREE OF ALL SOIL, EQUIPMENT, AND CONSTRUCTION MATERIAL STORAGE, WHICH INCLUDES FINAL GRADING AND LANDSCAPING EFFORTS.
9. ROOT PRUNING REQUIREMENTS: UNLESS OTHERWISE INSTRUCTED BY THE TOWN'S ARBORISTS, ROOT PRUNING MUST BE PERFORMED WHEN LIMITS OF DISTURBANCE FALL WITHIN CRITICAL ROOT ZONE OF TREES TO BE SAVED. ROOTS SHALL BE PRUNED TO A MINIMUM DEPTH OF 12" AT OR BEFORE THE LIMITS OF DISTURBANCE.
10. TREES THAT ARE DETERMINED BY THE TOWN ARBORIST TO BE IN 'POOR' CONDITION SHALL NOT COUNT TOWARD CANOPY COVERAGE CALCULATIONS.
11. ALL PRUNING SHALL BE DONE IN ACCORDANCE WITH CURRENT AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A300 PRUNING STANDARDS. SPIKES SHALL NOT BE USED TO CLIMB LIVE TREES UNLESS THE TREE IS BEING REMOVED.



TRENCHLESS SILT FENCE
NOT TO SCALE



NOTES

1. ROOT PRUNING SHALL BE DONE WITH A TRENCHER OR VIBRATORY PLOW TO A DEPTH OF 18". ROOTS OVER 1.5" IN DIAMETER SHALL HAVE A CLEAN CUT MADE BY A CLEAN SAW ON THE SURFACE OF THE ROOT, WHICH IS STILL ATTACHED TO THE TREE. DO NOT PAINT THE CUT ROOT END. IF EXCAVATION IS FOR INSTALLATION OF UNDERGROUND UTILITIES, LEAVE THE ROOT INTACT AND THREAD THE LINES UNDERNEATH.

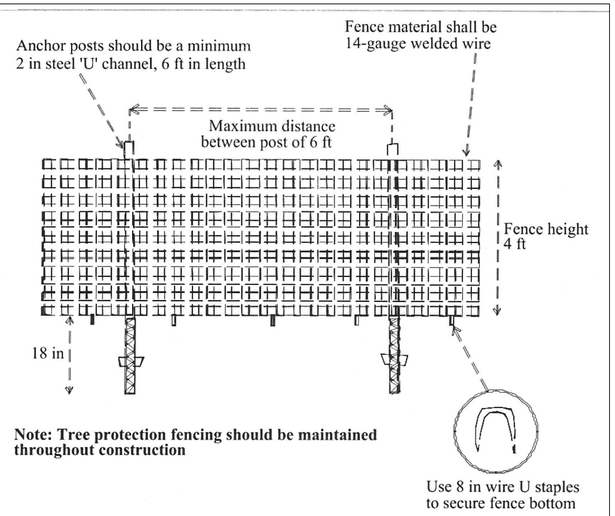
2. ROOT PRUNING SHALL TAKE PLACE PRIOR TO ANY CLEARING AND GRADING. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.

3. ROOT PRUNING SHALL BE CONDUCTED WITH THE SUPERVISION OF A CERTIFIED ARBORIST.

4. BACKFILL THE ROOT-PRUNING TRENCH WITH EXCAVATED SOIL AND MULCH AND MARK LOCATION FOR FUTURE REFERENCE. SILT FENCE MAY BE INSTALLED IN TRENCH PRIOR TO BACKFILLING AS LONG AS THE TRENCH IS NOT OPEN FOR LONGER THAN 48 HOURS WITHOUT WATERING.

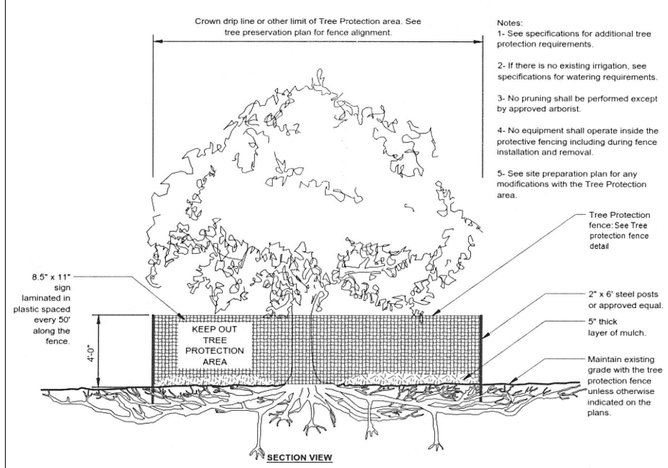
5. ROOT PRUNING WORK WILL NOT BE DONE WHEN MORE THAN THE TOP 1 INCH OF SOIL IS FROZEN. ROOT PRUNING WILL NOT BE UNDERTAKEN WHEN THE SOIL IS WET AND CONDITIONS ARE MUDDY.

ROOT PRUNING
SECTION
NOT TO SCALE



Note: Tree protection fencing should be maintained throughout construction

TREE PROTECTION FENCE INSTALLATION
(SCALE: N.T.S.)
(SOURCE: PFM 6-12)



S-X TREE PROTECTION

Dewberry®

Dewberry Engineers Inc.
8401 ARLINGTON BLVD.
FAIRFAX, VA 22031
703.849.0100 (PHONE)
703.206.0805 (FAX)

Town of Vienna
Town of Vienna Police Station
215 Center Street South
Vienna, VA
PERMIT SUBMISSION

SEAL
COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
PROFESSIONAL ENGINEER

KEY PLAN

SCALE
SCALE IN FEET
1" = N/A
1 INCH

NORTH
VCS-83

No.	DATE	BY	Description

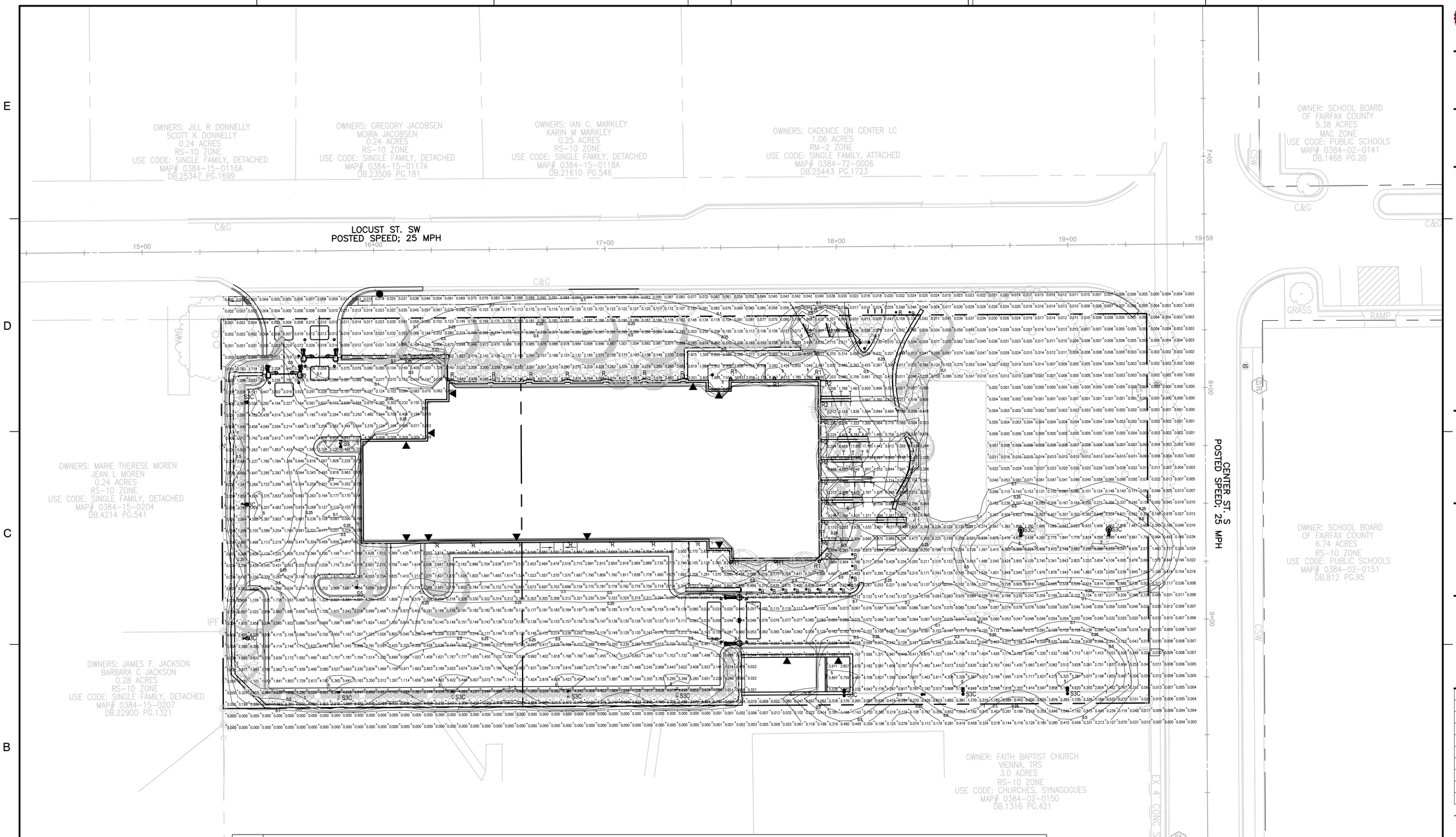
REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE
TREE PRESERVATION DETAILS

PROJECT NO.

C-109



	LTG - LED LIGHTING FIXTURE SCHEDULE												
SYMBOL	TYPE	DESCRIPTION	MOUNTING	BASIS OF DESIGN MANUFACTURER	MODEL	LIGHT SOURCE TYPE	TOTAL LUMENS	COLOR (°K)	CRI (min)	CONTROL TYPE	CONNECTED VOLTAGE	FIXTURE WATTS	NOTES
•	R	4" APERTURE DOWNLIGHT	RECESSED	COOPER LIGHTING	LDSQ4B-20-_-D10-4LBSQ1LI	LED	2000	3000	80	0-10V DIM	120 V	21 W	LISTED FOR USE IN WET LOCATIONS
○	R1	4" APERTURE DOWNLIGHT	RECESSED	COOPER LIGHTING	LDSQ4B-10-_-D10-4LBSQ1LI	LED	1000	3000	80	0-10V DIM	120 V	11 W	LISTED FOR USE IN WET LOCATIONS
—	R2	4" APERTURE WALL-WASH	RECESSED	COOPER LIGHTING	LDSQ4B-10-_-4LBSQWW1LI	LED	1000	3000	80	0-10V DIM	120 V	11 W	LISTED FOR USE IN WET LOCATIONS
	S3	SITE FIXTURE AND POLE	POLE (10'-0")	SELUX	SA2CL-R3-1-5G450-30-10-BZ-120 POLE:A35-10-BZ-REC2	LED	4350	3000	80	0-10V DIM	120 V	100 W	FULL CUTOFF, TYPE 3 DISTRIBUTION
	S3C	SITE FIXTURE AND POLE	POLE (10'-0")	SELUX	SA2CL-R3-1-5G450-30-10-BZ-120-HS POLE:A35-10-BZ	LED	4350	3000	80	0-10V DIM	120 V	100 W	FULL CUTOFF, TYPE 3 DISTRIBUTION, HOUSE-SIDE SHIELD
	S5	SITE FIXTURE AND POLE	POLE (10'-0")	SELUX	SA2CL-R5S-1-5G450-30-10-BZ-120 POLE:A35-10-BZ-REC2	LED	4350	3000	80	0-10V DIM	120 V	100 W	FULL CUTOFF, TYPE 5 DISTRIBUTION
•	B	SITE BOLLARD	BOLLARD	LITHONIA	KBR8-LED-16C-350-30K-SYM-MVOLT-_-SF-DBLXD	LED	888	3000	80	0-10V DIM	120 V	20 W	FULL CUTOFF, SYMMETRIC
	T	LINEAR LED STRIP - EXTERIOR	SURFACE	LUMINII	KBM-F-H-30K-EPF-EC-12	LED	144	3000	70	0-10V DIM	120 V	3 W	PROVIDE COMPATIBLE DRIVER
	U	LINEAR LED STRIP - EXTERIOR	SURFACE	LUXRAIL	06-SSS-2-PMC-NR-ASYM-3K-HR-1	LED	81	3000	80	0-10V DIM	120 V	1 W	

Dewberry

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SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
PROFESSIONAL ENGINEER

KEY PLAN

SCALE

SCALE IN FEET
1" = 20'
1 INCH

NORTH

VCS-83

No.	DATE	BY	Description

REVISIONS

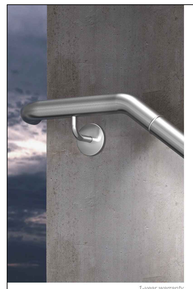
DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

LIGHTING PLAN

PROJECT NO.

C-110



T-year warranty

luxrail™ | INTERIOR/EXTERIOR APPLICATIONS

IP65 LM79 LM80

Application
ANSI and ADA compliant, **luxrail** is an indoor/outdoor LED-based handrail that delivers functional illumination. Three intensities may be specified: standard output, mid output, and high output. The standard light output version delivers illuminance levels appropriate for exterior applications (2 footcandles at grade) as well as for dark interior environments with low ambient illumination levels (e.g., themed environments, theatres and residential areas). The high output version delivers illuminance levels applicable to interior environments – providing in excess of 10 footcandles along the path of egress (ANSI required for stair treads). Independent photometric test reports and IES Format data are available at **www.iolighting.com**.

luxrail's standard handrail gripping surfaces are circular in cross section and meet 2004 ADAAG (Americans with Disability Act Accessibility Guidelines). Patented optical assemblies deliver 10°, 25°, and 55° beam spreads, as well as an asymmetric option. The 25° and 55° beam patterns are most suitable for illuminating pathways, while the 10° beam spread offers accent lighting for optional glass or stainless steel cable railing infills. Reference page 54 of this catalog for information regarding infill options. Projected average rated life is 50,000 hours at 70% of lamp lumen output. Contact factory for IES LM-80 compliance. To ensure proper performance, architectural details should allow for ventilation and air flow around the fixture. Ambient temperature surrounding the fixture shall not exceed 122°F (50°C).

Light Output
Three luminous intensities are available for white light. All values below represent the initial raw lumens of the LED. IES format photometry of Lighting Facts labels represent actual light output measured in lumens and candle power. Light output losses include optical, thermal and power supply inefficiencies. IES LM-79 format files may be obtained from the factory or downloaded from **www.iolighting.com.** Results are typical measurements.

	Standard Output	Mid Output	High Output
2700K White:	72 lms/ft	181 lms/ft	253 lms/ft
3000K White:	81 lms/ft	203 lms/ft	284 lms/ft
3500K White:	83 lms/ft	206 lms/ft	289 lms/ft
4000K White:	88 lms/ft	219 lms/ft	307 lms/ft
5000K White:	88 lms/ft	219 lms/ft	307 lms/ft

Construction
luxrail may be post mounted or wall mounted. **io** recommends installation be completed by a qualified handrail installer. Mounting hardware (post or wall) is typically required up to 6' O.C., depending on the handrail alloy. Final post and wall bracket spacing must be determined by a licensed architect or structural engineer. **luxrail** is available in stainless steel and aluminum. Vandal resistant access chamber allows units to be removed for maintenance purposes.

All handrail component parts are engineered for quick installation. Field welding or cutting is typically not required. All parts are prefabricated to field dimensions and are assembled in the field with mechanical connection or epoxy. Contact **io** Lighting for recommended handrail installers.

The LED light fixture inside the caprail is UL Listed for wet locations. Handrail alloy options include stainless steel and aluminum. Contact factory for maintenance guidelines.

Electrical
luxrail houses a low voltage LED-based light fixture that is integrated into the underside of the handrail. 24 volt 100 watt power supplies are provided as a standard. For detailed information regarding daisy chain limitations, remote distance limitations, power supply options, and dimming options consult the **io** website **(www.iolighting.com)** or an **io** representative.

Driver Remote Distance
7'–0" (2.1m) w/22 AWG
18'–0" (5.5m) w/18 AWG
46'–0" (14.0m) w/14 AWG
71'–0" (21.6m) w/12 AWG

Dimming modules must be specified separately. For detailed information download the power supply specification sheet from **www.iolighting.com.**

Power Consumption
Power consumption does not include power supply losses.

Standard Output	Mid Output	High Output
1.02 w/ft	2.54 w/ft	3.81 w/ft

Dimensions

LED lighting facts — io Lighting

Light Output (Lumens)	512
Watts	12.4
Lumens per Watt (Efficacy)	41
Color Accuracy (Color Rendering Index (CRI))	83
Light Color (Correlated Color Temperature (CCT))	2992 (Warm White)
Warranty**	Yes

Warm White 2000K – Daylight 6500K – 2700K 3000K 4000K 5000K

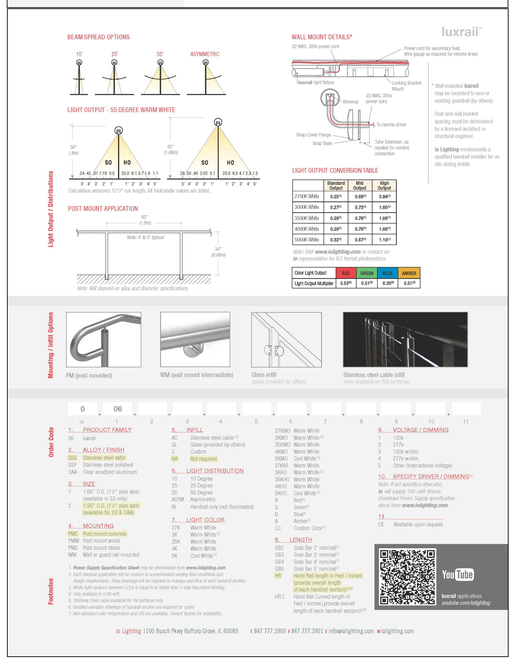
IES Results, actual LED Luxrail Extrusions, are according to IESNA LM-79-2008 Approved Method for the Electrical and Photometric Testing of Solid-State Lighting. The U.S. Department of Energy (DOE) certified product has been sent! Results.

** See www.lightingfacts.com/products for details.

Registered to Author: - 1-866-450-6864 (717)397-7510
Model Number: 2.CS.LSWM.CS.1.06.2
Type: Exterior wall-mounted light

Label reference 30° **luxrail** fixture with a 55° beam spread in High Output 3000K. Lighting Facts for additional beam spreads and light output levels may be obtained from io Lighting.

io Lighting 1100 Busch Pkwy Buffalo Grove, IL 60089 t 847.777.3900 f 847.777.3901 e info@iolighting.com w iolighting.com



	Standard Output	Mid Output	High Output
27KWI White	0.20[1]	0.80[1]	0.84[1]
30KWI White	0.27[1]	0.75[1]	1.00[1]
35KWI White	0.29[1]	0.79[1]	1.08[1]
40KWI White	0.29[1]	0.79[1]	1.08[1]
50KWI White	0.32[1]	0.87[1]	1.19[1]

Note: Visit **www.iolighting.com** or contact an **io** representative for IES format photometrics.

Color Light Output	RED	GREEN	BLUE	AMBER
Light Output Multiplier	0.52[1]	0.31[1]	0.30[1]	0.51[1]

* Wall mounted **luxrail** may be mounted to new or existing guardrail (by others).

Post and wall bracket spacing must be determined by a licensed architect or structural engineer.

io Lighting recommends a qualified handrail installer be on site during install.

io Lighting 1100 Busch Pkwy Buffalo Grove, IL 60089 t 847.777.3900 f 847.777.3901 e info@iolighting.com w iolighting.com

HANDRAIL LIGHTING
N.T.S

luminii

Kurba Horizontal | Flexible LED strip - 24 VDC

Kurba Horizontal is a direct view, small profile, energy efficient and flexible LED strip suitable for wet locations capable of horizontal bends up to 2.5" radius. Built with robust factory made power feeds or joiners, Kurba Horizontal mounts to a specifically designed aluminum extruded channel.

Applications:
Outdoor wet location

Operating voltage
24 VDC

Operating temperature
-4 F to 113 F
[-20 ° C to 45 ° C]

Average life
50,000 hours

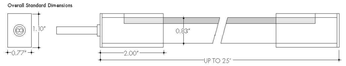
Dimming
low voltage dimmer and class 2 dimming power supply required

Approvals
Class 2 wet listed, IP67

Warranty
3 years

RoHS Compliant

Overall Standard Dimensions



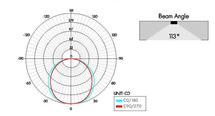
Technical information

Model	KBM-XX
LEDS/ft	22
Light output at 3000K	122 lm/ft
Average power consumption at 4'	3.4 W/ft
Ordering increment	3.28"
Maximum run length (in series)	26 ft

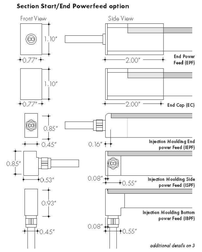
CCT Info/Lumen Multiplier

Color temperature	Multiplier (relative to neutral white)
2400K	1.00
2700K	1.03
3000K	1.00
3500K	1.09
4100K	1.10

CANDLE POWER DISTRIBUTION (41K)



Section Start/End Powerfeed option



Ordering code

MODEL		COLOR TEMPERATURE		SECTION START		SECTION END		LENGTH
KBM-F-H	-	24K	-	EPF	-	EC	-	

KBM-F-H - Kurba medium, flat horizontal

24K - 2400K
27K - 2700K
30K - 3000K
35K - 3500K
41K - 4100K

EPF - End power feed (9" wire lead)
EC - End cap
IEPF - Injection Moulding End power feed (9" wire lead)
IBPF - Injection Moulding Bottom power feed (9" wire lead)
ISPF - Injection Moulding Side power feed (9" wire lead)
IEC - Injection Moulding End cap

see table above for ordering increment, for additional information reference page3

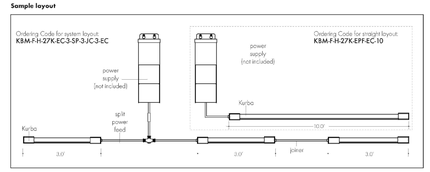
REV1..8 010820220 | page 1 of 5 | www.luminii.com | tel: 224-333-6033

luminii

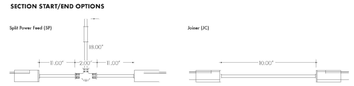
Kurba Horizontal | Flexible LED strip - 24 VDC

Kurba System Run

Sample layout



SECTION START/END OPTIONS



Ordering code for system run

MODEL		COLOR TEMPERATURE		SECTION START		FIXTURE LENGTH		JOINER TYPE		FIXTURE LENGTH		SECTION END
KBM-F-H	-	24K	-	EPF	-		-	SP	-		-	EC

KBM-F-H - Kurba medium, flat horizontal

24K - 2400K
27K - 2700K
30K - 3000K
35K - 3500K
41K - 4100K

EC - End cap
EPF - End power feed (9" wire lead)
IEC - Injection Moulding End cap

slave table on page 1 for fixture set options and maximum run lengths

SP - Split power feed
JC - Joiner

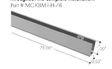
reference page3 for actual measurements

EC - End cap
EPF - End power feed (9" wire lead)
IEC - Injection Moulding End cap

Each system run must be kept under power supply max wattage. Refer to page 4 for power supply information. Additional runs can be added to system, by continuing the same ordering code logic reference sample above.

Mounting Accessories & Optional Connectors

aluminum channel,
IK08 rated, when aluminum channel used throughout the complete installation.
Part # MCX2000-HK-FB



mounting bracket,
recommended every 8 inches
Part # MXMXM-1.5-PK4

Splice Box: Wire rated, low voltage splice box, gray
Part # SVSP-WET

Connector: Low voltage splice first wire cable management gray
Part # SVSF-WET-CM

REV1..8 010820220 | page 2 of 5 | www.luminii.com | tel: 224-333-6033

STRIP LIGHTING
N.T.S

selux

Date: _____ Customer: _____
Project: _____
Type: _____ Qty: _____

Saturn Cutoff 2 LED

Order Code: SAC2L

Pole Order Code: Series Height Finish Options

SAC2L	Series	SAC2L Saturn Cutoff LED					
	Optics	R1 Type I	R2 Type II	R3 Type III	R3W Type III (Wide)	R4 Type IV	R5R Type V (Round)	R5S Type V (Square)	R5Q Type V (Rectangular)
	Mounting	1 Single	1A Single Arm Mount	2 Double	W Wall Mount				
	Light Engine	5G450 4,094lm/35W	5G700 6,269lm/53W	5G105 9,993lm/85W					
	CCT	27 2700K	30 3000K	40 4000K					
	Power Cord Length	8' 8'	10' 10'	12' 12'	14' 14'	16' 16'	18' 18'	XX' XX'	
	Finish	WH White	BK Black	BL Semi-Matte Black	BZ Bronze	SV Silver	SP Specify Premium Color		
	Voltage	120 120V	240 240V	277 277V	347[2] 347V	480[2] 480V			
	Options	DM* Dimming (0-10V)	HS[1] House Side Shield (180°)	HL30*[3,5] Hi-Lo Switching Low Output 30%	HL50*[3,5] Hi-Lo Switching Low Output 50%	DS No Uplight Finish	PCT Photocell Tenon		

Pole Motion Sensor[6]
(with factory-set photocell)
see page 3 for order code

*Type I, II, III, IV only.
*DM or HLXX, cannot be combined.
*HSN: 240V or 277V only
*Only available at 120/230/240/277V. Consult factory for 208/347/480V.

Product Modifications
Please list modification requirements for review by factory:

Approvals

Date:

IP65 RoHS

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In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at www.selux.us are the most recent versions and supercede all other printed or electronic versions.

Page 1 of 11
(Rev. 09/2020)
SAC2L_SS-R.3

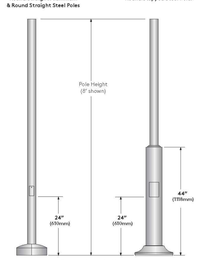
selux

Saturn Cutoff 2 LED

Pole Information
Refer to pole specification sheets for construction details, anchor-age information and additional options.

A35 & S35
Round Straight Aluminum & Round Straight Steel Poles

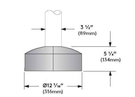
S635
Round Stepped Steel Poles



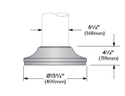
Shown with standard base covers.

Base Cover Information
Refer to pole specification sheets for construction details, anchorage information and additional options.

Standard Base Cover (BC5)
Supplied with A35 and S35
Two-piece cast aluminum



Standard Base Cover (BC6)
Supplied with S635
One-piece cast aluminum



Pole Data Chart

Pole Series	Bolt Circle	EPA Information 70mph	80mph	90mph	100mph	110mph	Height	Finish	Options
S635 3 1/4" Diameter Stepped Steel Pole	Ø10"	57.6	44.3	34.6	27.5	22.8	8 ft.	WH White	REC OFD Receptacle with weatherproof cover* (120V only)
A35 3 1/4" Diameter Straight Aluminum Pole	Ø7 1/2"	16.1	12.2	9.4	7.3	5.9		BK Black	
S35 3 1/4" Diameter Straight Steel Pole	Ø7 1/2"	14.8	11.3	8.6	6.7	5.4		BL Semi-matte Black	REC2 GFCI Receptacle with padlockable in-use cover* (120V only)
S635 3 1/4" Diameter Stepped Steel Pole	Ø10"	45.6	35.0	27.3	21.4	17.8		BZ Bronze	
A35 3 1/4" Diameter Straight Aluminum Pole	Ø7 1/2"	12.4	9.5	7.1	5.4	4.3	10 ft.	SV Silver	REC3 USB and Duplex Receptacle with weather proof cover
S35 3 1/4" Diameter Straight Steel Pole	Ø7 1/2"	11.4	8.5	6.5	4.9	3.9		SP Specify Premium Color	
S635 3 1/4" Diameter Stepped Steel Pole	Ø10"	37.6	28.7	22.5	17.5	14.4			REC4 USB Duplex Receptacle with weatherproof padlockable in-use
A35 3 1/4" Diameter Straight Aluminum Pole	Ø7 1/2"	9.9	7.5	5.4	4.0	3.1	12 ft.		
S35 3 1/4" Diameter Straight Steel Pole	Ø7 1/2"	9.1	6.7	4.9	3.6	2.8			MS Motion Sensor w/ Photocell Shroud (Meets Title 24 Requirements)
S635 3 1/4" Diameter Stepped Steel Pole	Ø10"	31.7	24.2	16.6	14.6	11.9	14 ft.		
A35 3 1/4" Diameter Straight Aluminum Pole	Ø7 1/2"	8.0	5.8	4.2	3.0	2.2			
S35 3 1/4" Diameter Straight Steel Pole	Ø7 1/2"	7.5	5.5	3.8	2.7	1.9			
S635 3 1/4" Diameter Stepped Steel Pole	Ø10"	21.7	15.8	12.5	9.6	7.6	16 ft.		
A35 3 1/4" Diameter Straight Aluminum Pole	Ø7 1/2"	4.9	5.2	2.2	1.4	N/A			
S35 3 1/4" Diameter Straight Steel Pole	Ø7 1/2"	4.4	2.8	1.9	N/A	N/A			

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(Rev. 09/2020)
SAC2L_SS-R.3

POLE LIGHT DETAIL
N.T.S

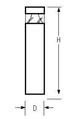
KBR8 LED
LED Specification Bollard

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Height: 8" Round (20.3 cm); 40" (101.6 cm)
Weight (max): 27 lbs (12.25 kg)



Introduction
The KBR8 Bollard is a stylish, fully integrated LED solution for walkways. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 70% in energy savings over comparable 100W metal halide luminaires, the KBR8 Bollard is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information — **EXAMPLE:** KBR8 LED 16C 700 40K SYM MVOLT DDBXD

KBR8 LED												
Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Control options	Other options		Finish (required)
KBR8 LED	**Asymmetric** 12C 12 LEDs[1] **Symmetric** 16C 16 LEDs[2]	350 350 mA 450 450 mA[3,4] 530 530 mA 700 700 mA	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted AMBLW Amber-limited wavelength[5,6]	A57 Asymmetric[7] SYM Symmetric[7]	MVOLT[8] 120[9] 208[9] 240[9] 277[9] 347[9]	**Shipped installed** PE Photoelectric cell, button type DMG 0-10v dimming wires pulled outside fixture (for use with a dimming system) ordered separately ELCW Emergency battery backup[10]	**Shipped installed** SF Single fuse (120, 277, 347)[10] DF Double fuse (208, 240)[10] H24 24" overall height H30 30" overall height H36 36" overall height PG Ground-fault receptacle[11] LRB Without anchor bolts (13x18 base) LRBK 4 bolt mbolt base without anchor bolts[12]	**Shipped separately** Accessories (see below)	DWHXD White DNAXD Natural aluminum DDBXD Dark bronze DBLXD Black DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Accessories
Ordered and shipped separately.
MRA8 U Anchor bolts for KBR8 LED*

NOTES
1 Only available in the 12C, A57 version.
2 Only available in the 16C, SYM version.
3 Only available with 450 AMBLW version.
4 Not available with ELCW.
5 MVOLT driver operates in any line voltage from 120-277V (50/60Hz). Specify 120, 208, 240, 277, or 347V options only when ordering with fuse (SF, DF options), or photocontrol (PE option).
6 Not available with 347V. Not available with fusing. Not available with 450 AMBLW.
7 Single fuse (SF) requires 120, 277, or 347 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
8 MVOLT driver available with LRBA option.

LITHONIA LIGHTING. One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • www.lithonia.com

BOLLARD LIGHT DETAIL
N.T.S

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SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
PROFESSIONAL ENGINEER

KEY PLAN

SCALE NORTH

No.	DATE	BY	Description

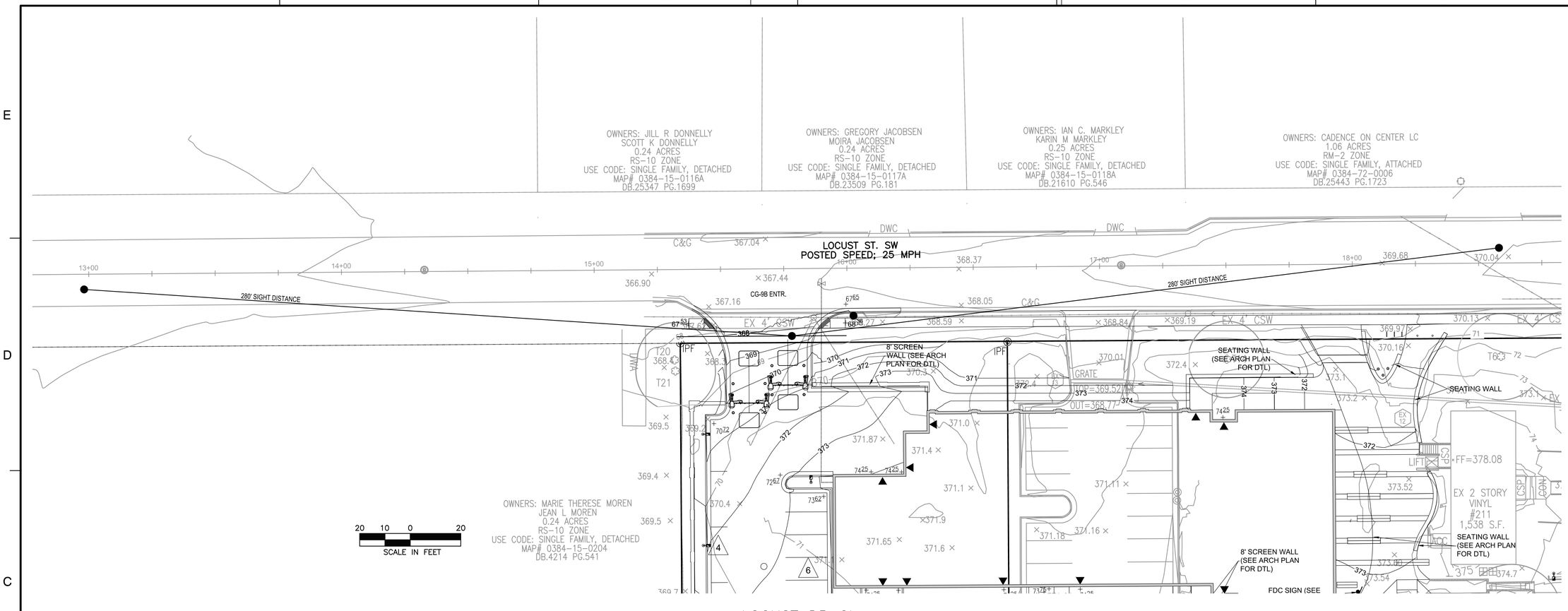
REVISIONS

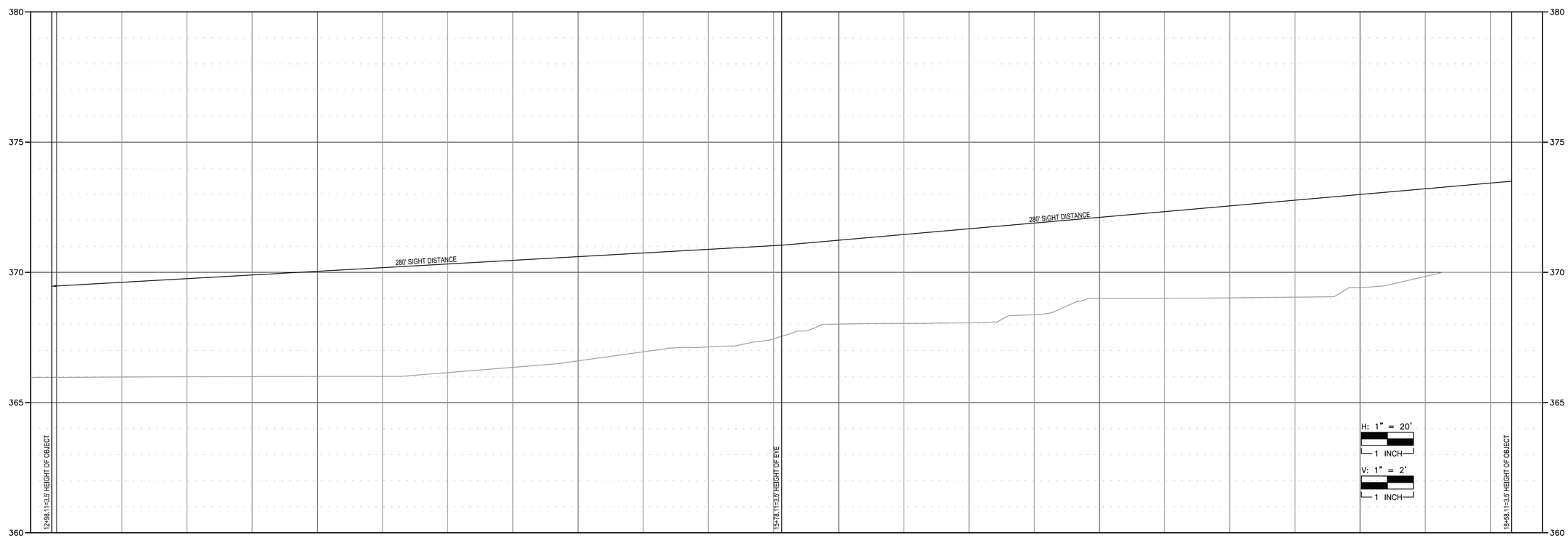
DRAWN BY KM
APPROVED BY TC
CHECKED BY RW
DATE FEBRUARY 26, 2020

TITLE
SITE LIGHTING DETAILS

PROJECT NO.

C-111





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SCALE

NORTH

VCS-83

No.	DATE	BY	Description

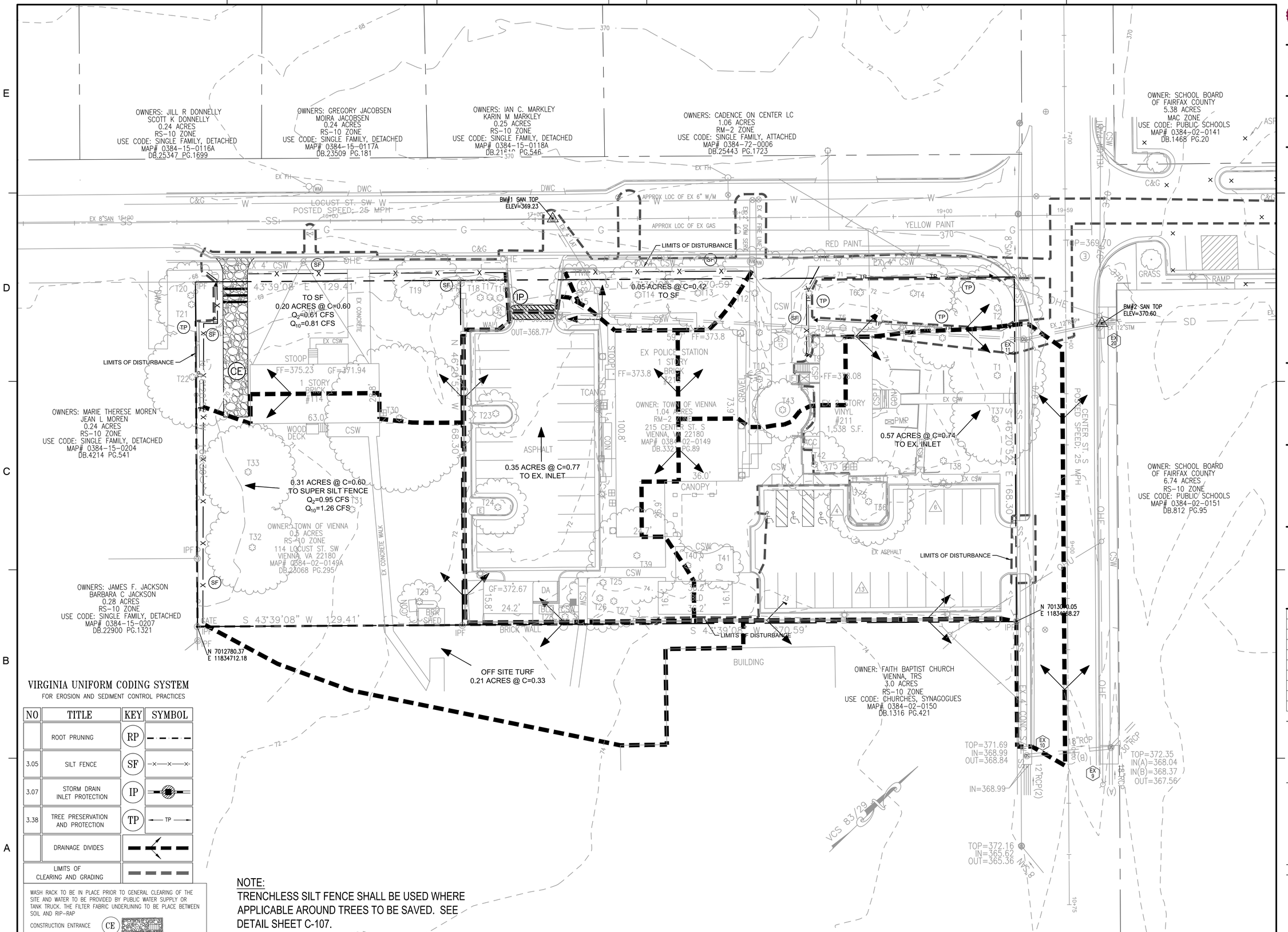
REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

SIGHT DISTANCE PLAN & PROFILE - SIGHT

PROJECT NO.



VIRGINIA UNIFORM CODING SYSTEM

FOR EROSION AND SEDIMENT CONTROL PRACTICES

NO	TITLE	KEY	SYMBOL
	ROOT PRUNING	RP	
3.05	SILT FENCE	SF	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.38	TREE PRESERVATION AND PROTECTION	TP	TP
	DRAINAGE DIVIDES		
	LIMITS OF CLEARING AND GRADING		

WASH RACK TO BE IN PLACE PRIOR TO GENERAL CLEARING OF THE SITE AND WATER TO BE PROVIDED BY PUBLIC WATER SUPPLY OR TANK TRUCK. THE FILTER FABRIC UNDERLINING TO BE PLACE BETWEEN SOIL AND RIP-RAP

CONSTRUCTION ENTRANCE CE

NOTE:
TRENCHLESS SILT FENCE SHALL BE USED WHERE APPLICABLE AROUND TREES TO BE SAVED. SEE DETAIL SHEET C-107.

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KEY PLAN

SCALE

SCALE IN FEET
1" = 20'
1 INCH

NORTH
VCS-83

No.	DATE	BY	Description

REVISIONS

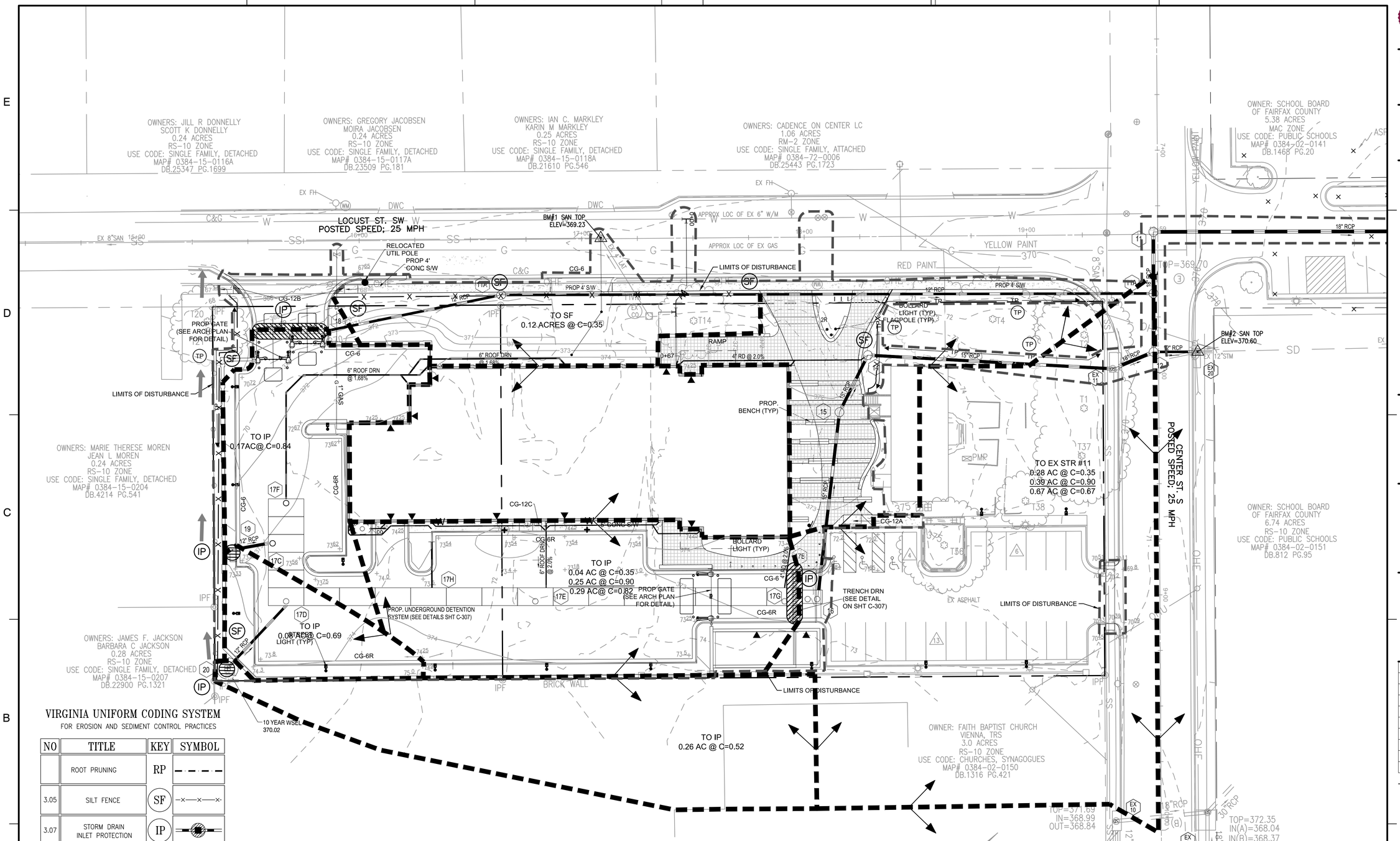
DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

EROSION AND SEDIMENT CONTROL PLAN - PHASE I

PROJECT NO.

C-201



VIRGINIA UNIFORM CODING SYSTEM

FOR EROSION AND SEDIMENT CONTROL PRACTICES

NO	TITLE	KEY	SYMBOL
	ROOT PRUNING	RP	
3.05	SILT FENCE	SF	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.38	TREE PRESERVATION AND PROTECTION	TP	TP
	DRAINAGE DIVIDES		
	LIMITS OF CLEARING AND GRADING		
	OVERLAND RELIEF		

WASH RACK TO BE IN PLACE PRIOR TO GENERAL CLEARING OF THE SITE AND WATER TO BE PROVIDED BY PUBLIC WATER SUPPLY OR TANK TRUCK. THE FILTER FABRIC UNDERLINING TO BE PLACE BETWEEN SOIL AND RIP-RAP

CONSTRUCTION ENTRANCE CE

NOTE:
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1 INCH

NORTH
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No.	DATE	BY	Description

REVISIONS

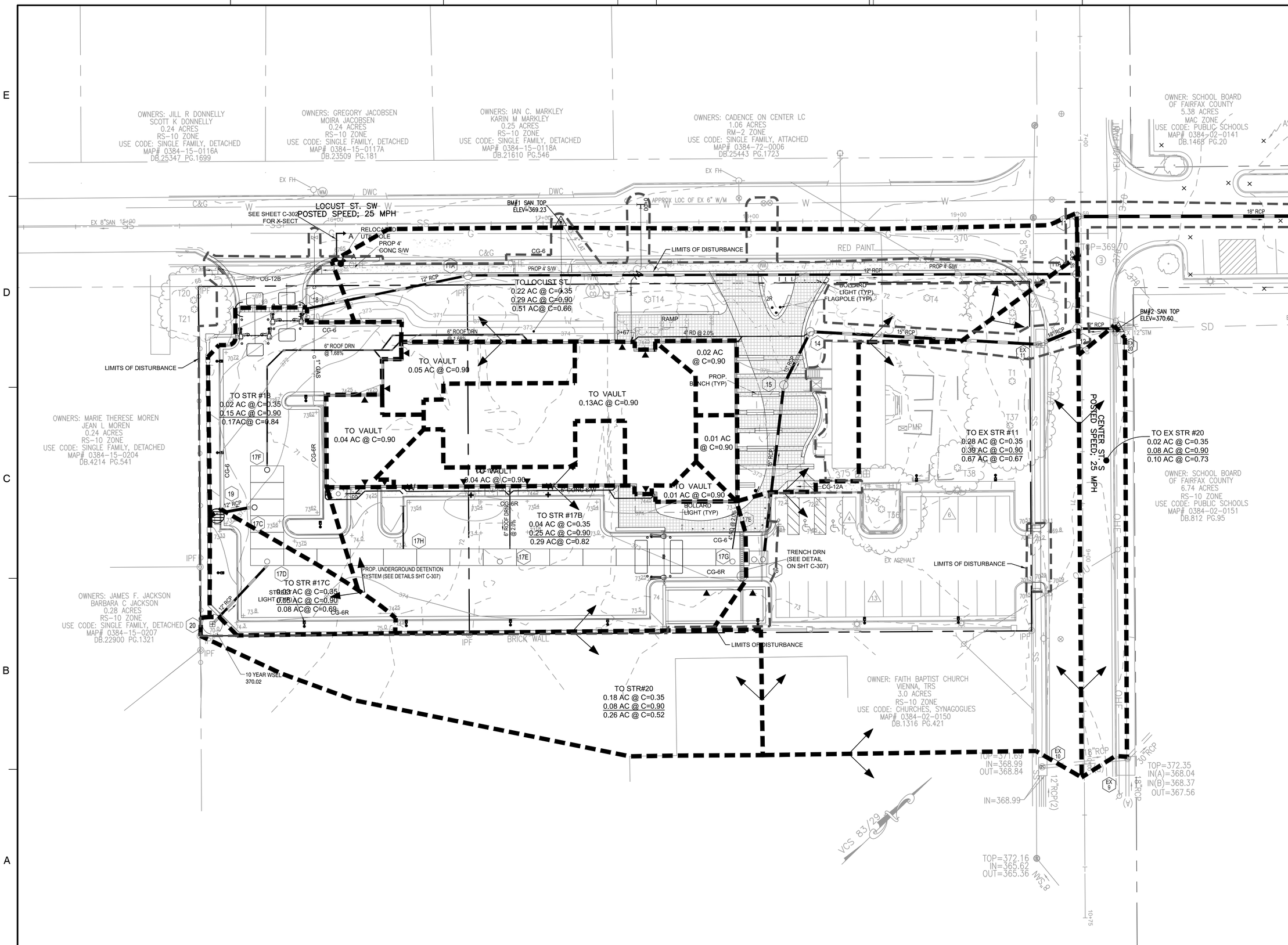
DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

EROSION AND SEDIMENT CONTROL PLAN - PHASE II

PROJECT NO.

C-202



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1 INCH

NORTH

VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY	KM
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DATE	FEBRUARY 26, 2020

TITLE

EROSION AND SEDIMENT CONTROL - PHASE II DIVIDES

PROJECT NO.

C-202A

MINIMUM STANDARDS

MS-1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN 7 DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR. (SEE TEMPORARY AND PERMANENT SEEDING TABLES ON SHEET C-204)

MS-2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

MS-3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE, AND WILL INHIBIT EROSION.

MS-4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

MS-5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

MS-6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA, AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.

B. SURFACE RUNOFF FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY SEDIMENT BASINS. THE MINIMUM STORAGE CAPACITY FOR A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL APPLY TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

MS-7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.

MS-8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME, OR SLOPE DRAIN STRUCTURE.

MS-9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

MS-10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.

MS-11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.

MS-12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT, AND STABILIZE THE WORK AREA TO THE GREATEST POSSIBLE EXTENT DURING CONSTRUCTION. NON-ERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NON-ERODIBLE COVER MATERIALS.

MS-13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NON-ERODIBLE MATERIAL SHALL BE PROVIDED.

MS-14. ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

MS-15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

MS-16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:

A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION. (GENERAL LAND CONSERVATION NOTE #4)
E. RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REGULATIONS.
F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

MS-17. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.

MS-18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM. TRAPPED SEDIMENT AND DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

MS-19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION, AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY, AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:

A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE, OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
I. THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
II. (A) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS; AND
(B) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
(C) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT

C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
I. IMPROVE THE CHANNEL TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
II. IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
III. DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL, OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
IV. PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION, OR OTHER MEASURES TO PREVENT DOWNSTREAM EROSION SATISFACTORY TO THE PLAN-APPROVING AUTHORITY.
D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.
F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH MAINTENANCE REQUIREMENTS OF THE FACILITY AND DESIGNATE THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATERS PLACED AT THE OUTFALL OF THE DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABLE TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
I. INCREASED VOLUMES OF SHEET FLOWS CAUSING EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
J. IN APPLYING THESE STORMWATER RUNOFF CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT AS A WHOLE SHALL BE TREATED AS A SINGLE PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT STATE SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EXECUTED IN A MANNER THAT MINIMIZES THE IMPACT ON THE PHYSICAL, CHEMICAL, AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS, AND OTHER STATE WATERS.

GENERAL LAND CONSERVATION NOTES

11-0406.1 (38-93-PFM) NO DISTURBED AREA WHICH IS NOT ACTIVELY BEING WORKED SHALL REMAIN DENUDED FOR MORE THAN 14 CALENDAR DAYS UNLESS OTHERWISE AUTHOR-IZED BY THE DIRECTOR.

11-0406.2 ALL E&S CONTROL MEASURES APPROVED WITH THE PHASE I E&S CONTROL PLAN SHALL BE PLACED AS THE FIRST STEP IN GRADING.

11-0406.3 (38-93-PFM) ALL STORM AND SANITARY SEWER LINES NOT IN STREETS SHALL BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER BACKFILL. NO MORE THAN 500' (150 M) SHALL BE OPEN AT ANY ONE TIME.

11-0406.4 (38-93-PFM) ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES SHALL BE COMPACTED, SEEDED AND MULCHED WITHIN 14 DAYS AFTER BACKFILL.

11-0406.5 (38-93-PFM) ALL TEMPORARY EARTH BERMS, DIVERSIONS AND SEDIMENT CONTROL DAMS SHALL BE SEEDED AND MULCHED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY (AS SOON AS POSSIBLE BUT NO LATER THAN 48 HR) AFTER COMPLETION OF GRADING. STRAW OR HAY MULCH IS REQUIRED. ALL SOIL STOCKPILES SHALL BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER GRADING.

11-0406.6 DURING CONSTRUCTION, ALL STORM SEWER INLETS SHALL BE PROTECTED BY SEDIMENT TRAPS, MAIN-TAINED AND MODIFIED DURING CONSTRUCTION PROGRESS AS REQUIRED.

11-0406.7 ANY DISTURBED AREA NOT COVERED BY § 11-0406.1 AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED IMMEDIATELY WITH HAY OR STRAW MULCH AT THE RATE OF 2 TONS/ACRE (4483 KG/HA) AND OVER-SEEDED BY APRIL 15.

11-0406.8 AT THE COMPLETION OF ANY PROJECT CON-STRUCTION AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED.

EROSION CONTROL NARRATIVE

PROJECT DESCRIPTION

THE PROJECT PROPOSES THE CONSTRUCTION OF A 2-STORY POLICE STATION WITH ASSOCIATED PARKING AND A COMMUNITY PLAZA. APPROXIMATELY 1.40 ACRES WILL BE DISTURBED WITH THIS PLAN.

EXISTING SITE CONDITIONS

THE SITE CONSIST OF AN EXISTING 1-STORY POLICE STATION WITH AN ASSOICATED PARKING LOT. AN EXISTING 1 STORY RESIDENCE ALSO SITS ON THE SITE WITH A SMALL BRICK SHED. THE TOPOGRAPHY IS RELATIVELY FLAT WITH FEW TREES.

ADJACENT AREAS

THE SITE IS BORDERED ON THE SOUTH BY CHURCH, TO THE WEST AND NORTH BY SINGLE FAMILY DETACHED HOMES, AND TO THE EAST BY A SCHOOL.

OFF-SITE AREAS

TO PROVIDE AND ADEQUATE OUTFALL FOR THE SITE, PROPOSED STORM SEWER IS PROPOSED TO CROSS CENTER STREET AND TIE INTO A 24" STORM LINE ON THE SCHOOL BOARD PROPERTY NORTH OF THE PROPERTY.

SOILS

A SOILS MAP WITH SOIL TYPE DESCRIPTIONS AND DATA IS PROVIDED ON THE COVER SHEET, SHEET C-001.

CRITICAL AREAS

THERE ARE NO CRITICAL AREAS ASSOCIATED WITH THIS PLAN.

EROSION AND SEDIMENT CONTROL MEASURES

1. SILT FENCE BARRIER – 3.05
SILT FENCE SEDIMENT BARRIERS WILL BE INSTALLED DOWNSLOPE OF AREAS WITH MINIMAL GRADES TO FILTER SEDIMENT-LADEN SHEET FLOW AS INDICATED ON THE PLANS.

2. TEMPORARY CONSTRUCTION ENTRANCE – 3.02
A TEMPORARY CONSTRUCTION ENTRANCE WITH A WASH RACK SHALL BE INSTALLED AS SHOWN ON THE PLAN. DURING MUDDY CONDITIONS, DRIVERS OF CONSTRUCTION VEHICLES WILL BE REQUIRED TO WASH THEIR WHEELS BEFORE ENTERING HARTLAND ROAD.

3. STORM DRAIN INLET PROTECTION – 3.07
ALL STORM SEWER INLETS AND CULVERTS SHALL BE PROTECTED DURING CONSTRUCTION. SEDIMENT-LADEN WATER SHALL BE FILTERED BEFORE ENTERING THE STORM SEWER INLETS AND CULVERTS.

4. TREE PROTECTION – 3.38
TREE PROTECTION SHALL BE PROVIDED AS SHOWN ON THE PLAN TO ENSURE SURVIVAL OF DESIRABLE TREES WHERE THEY WILL BE EFFECTIVE FOR EROSION AND SEDIMENT CONTROL. SEE DETAIL SHEET 14. THE INSTALLATION OF TREE PROTECTION FENCING, INCLUDING SUPER SILT FENCE IF IT IS TO BE USED AS TREE PROTECTION FENCING, SHALL BE INSTALLED UNDER THE SUPERVISION OF A CERTIFIED ARBORIST, AND ACCOMPLISHED IN A MANNER THAT DOES NOT HARM EXISTING VEGETATION THAT IS TO BE PRESERVED (SEE DETAIL ON SHEET C-109)

STORMWATER RUNOFF CONSIDERATIONS

STORMWATER RUNOFF WILL DRAIN THROUGH ITS NATURAL PATH THROUGH THE PROPOSED EROSION AND SEDIMENT CONTROLS.

MANAGEMENT STRATEGIES (PHASE I)

1. CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. CLEAR ONLY THE AREAS AS SHOWN ON EROSION AND SEDIMENT CONTROL PHASE I PLAN FOR THE INSTALLATION OF PERIMETER CONTROLS SUCH AS SILT FENCE, TREE PROTECTION, CONSTRUCTION ENTRANCE, ETC.

MANAGEMENT STRATEGIES (PHASE II)

1. PHASE II OF THE EROSION AND SEDIMENT CONTROL PROGRAM MAY BEGIN ONLY AFTER CONTRACTOR FIRST OBTAINS AN APPROPRIATE APPROVAL FROM THE SITE INSPECTOR.
2. GRADING OPERATIONS MAY COMMENCE ONCE PERIMETER CONTROLS, DIVERSIONS AND TRAPPING MEASURES ARE INSTALLED TO THE SATISFACTION OF THE SITE INSPECTOR.
3. STORM SEWER PIPE SYSTEM IS TO BE INSTALLED IN THE FIRST STAGE OF CONSTRUCTION.
4. AREAS THAT ARE NOT TO BE DISTURBED WILL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC.
5. FOR VEGETATIVE STABILIZATION OF ALL DENUDED AREAS SEE EROSION AND SEDIMENT CONTROL MAINTENANCE PROGRAM.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
7. AFTER ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY EROSION & SILTATION CONTROLS WILL BE CLEANED UP AND REMOVED AT THE DIRECTION OF THE SITE INSPECTOR.

GENERAL EROSION & SEDIMENT CONTROL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC50-30 EROSION AND SEDIMENT CONTROL REGULATIONS.
2. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ON WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO , OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
8. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
10. THE INSTALLATION OF UTILITIES ON SLOPES 4:1 AND STEEPER SHALL BE PERFORMED IN ACCORDANCE WITH LINEAR PROJECT NOTES, THIS SHEET.
11. THERE ARE NO STOCKPILES PROPOSED WITH THIS PLAN.

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COMMONWEALTH OF VIRGINIA
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KEY PLAN

SCALE

SCALE IN FEET
1" =
1 INCH

NORTH

VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

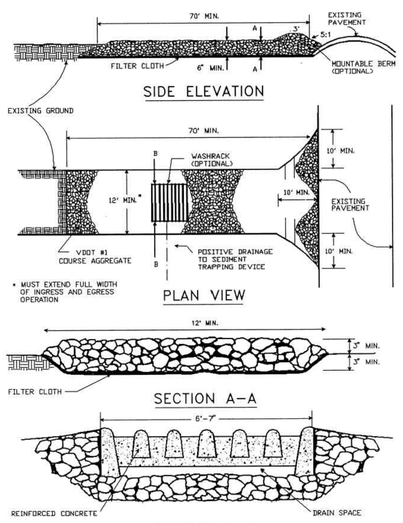
EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT NO.

C-203

1992 3.02

STONE CONSTRUCTION ENTRANCE

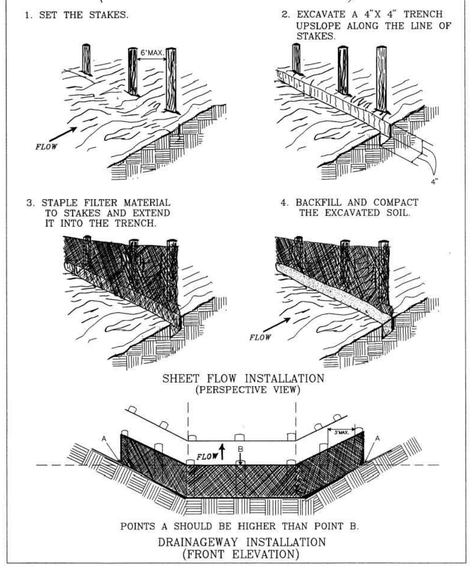


Source: Adapted from 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC

Plate 3.02-1

1992 3.05

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)

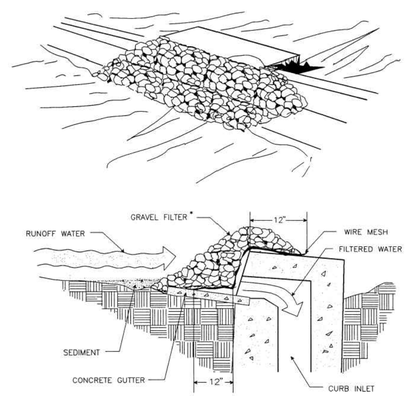


Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Plate 3.05-2

1992 3.07

GRAVEL CURB INLET SEDIMENT FILTER



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

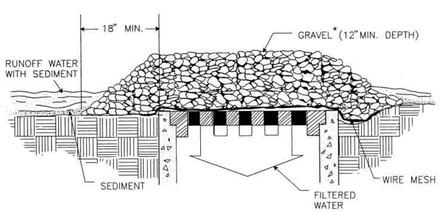
Source: Va. DSWC

Plate 3.07-6

NOTE:
TRENCHLESS SILT FENCE SHALL BE USED WHERE APPLICABLE AROUND TREES TO BE SAVED. SEE DETAIL SHEET C-107.

1992 3.07

GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE.

Source: Va. DSWC

Plate 3.07-2

1992 3.32

TABLE 3.32-D
SITE SPECIFIC SEEDING MIXTURES FOR PIEDMONT AREA

	Total Lbs. Per Acre
Minimum Care Lawn	
- Commercial or Residential	175-200 lbs.
- REBEL TALL FESCUE	95-100%
- Improved Perennial Ryegrass	0-5%
- Kentucky Bluegrass	0-5%
High-Maintenance Lawn	200-250 lbs.
- REBEL TALL FESCUE	100%
General Slope (3:1 or less)	
- REBEL TALL FESCUE	128 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
	150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	
- REBEL TALL FESCUE	108 lbs.
- Red Top Grass	2 lbs.
- Seasonal Nurse Crop *	20 lbs.
- White and/or Red Clover	20 lbs.
	150 lbs.

* Use seasonal nurse crop in accordance with seeding dates as stated below:
February 16th through April ..... Annual Rye
May 1st through August 15th ..... Foxtail Millet
August 16th through October ..... Annual Rye
November through February 15th ..... Winter Rye

1992 3.31

Mulching

1. Seedings made in fall for winter cover and during hot and dry summer months shall be mulched according to MULCHING, Std. & Spec. 3.35, except that hydromulches (fiber mulch) will not be considered adequate. Straw mulch should be used during these periods.

2. Temporary seedings made under favorable soil and site conditions during optimum spring and fall seeding dates may not require mulch.

Re-seeding

Areas which fail to establish vegetative cover adequate to prevent rill erosion will be re-seeded as soon as such areas are identified.

TABLE 3.31-B

ACCEPTABLE TEMPORARY SEEDING PLANT MATERIALS

"QUICK REFERENCE FOR ALL REGIONS"

Planting Dates	Species	Rate (lbs./acre)
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (Lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 - 100
Feb. 16 - Apr. 30	Annual Ryegrass (Lolium multi-florum)	60 - 100
May 1 - Aug 31	German Millet (Setaria italica)	50

Source: Va. DSWC

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KEY PLAN

SCALE N/A
NORTH

No.	DATE	BY	Description

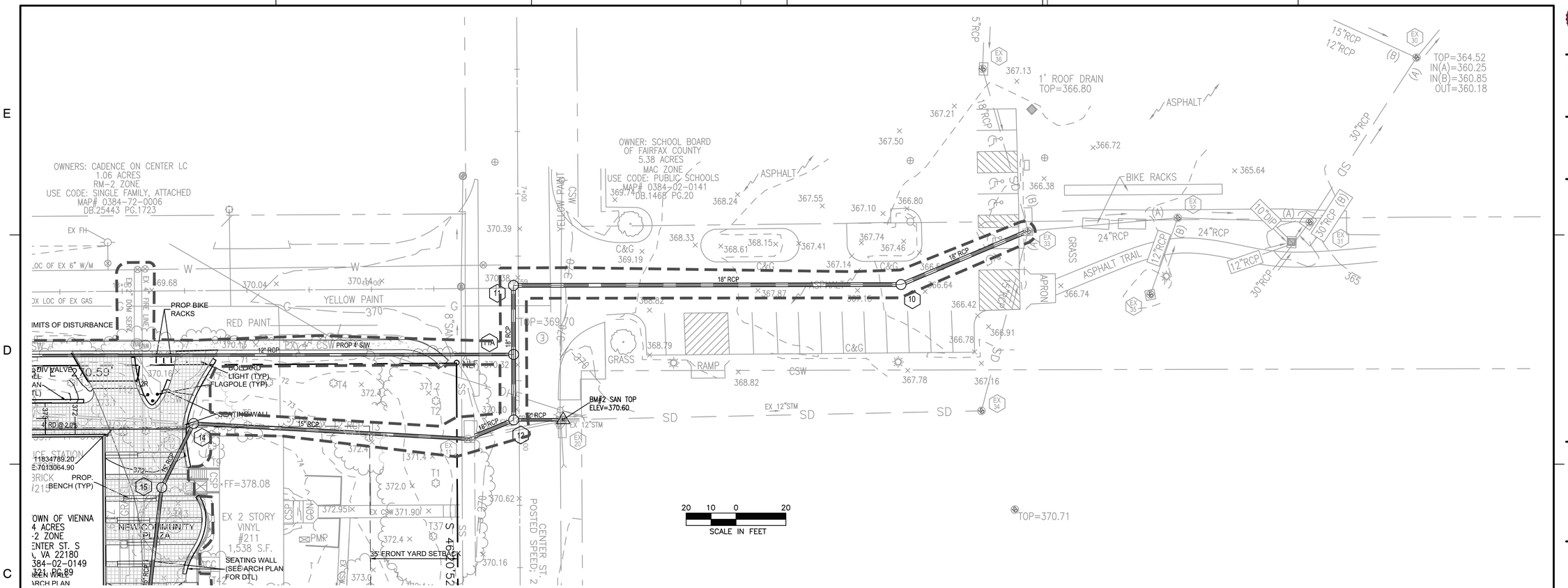
REVISIONS

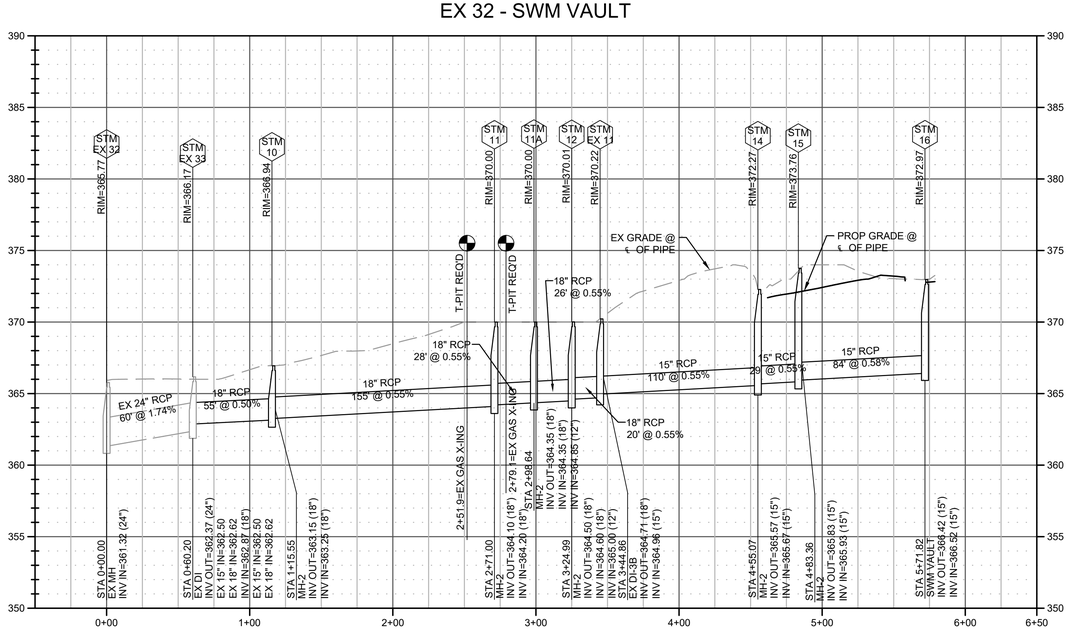
DRAWN BY KM
APPROVED BY TC
CHECKED BY RW
DATE FEBRUARY 26, 2020

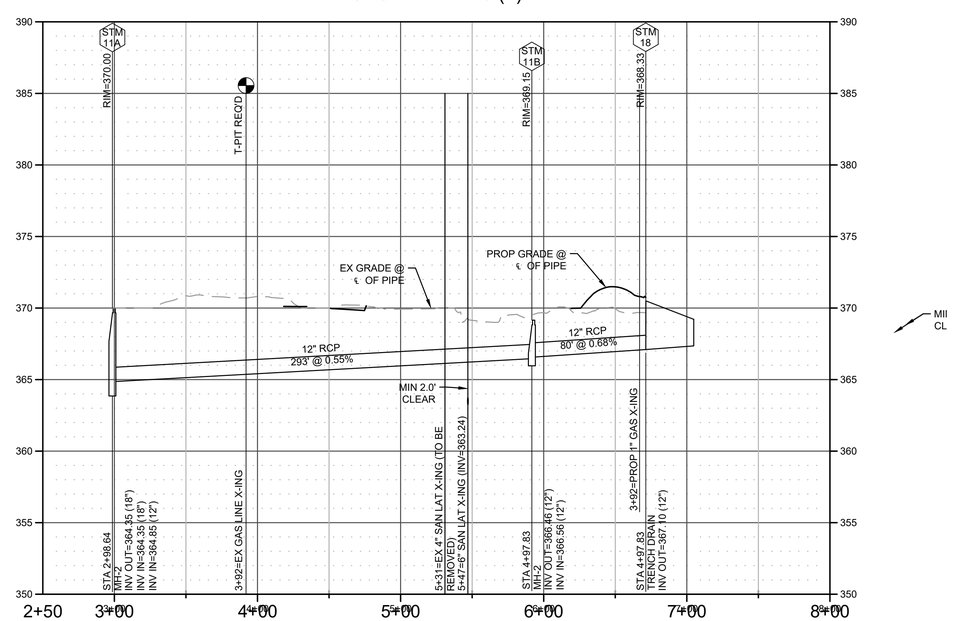
TITLE
EROSION AND SEDIMENT CONTROL DETAILS

PROJECT NO.

C-204







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KEY PLAN

SCALE

NORTH

VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

STORM SEWER PLAN & PROFILE

PROJECT NO.

C-301

STORM SEWER DESIGN COMPUTATIONS

STORM SEWER DESIGN COMPUTATIONS

OUTLET FROM	OUTLET TO	INC. DRAINAGE AREA	ACCUM. DRAINAGE AREA (AC.)	"C" COEFFICIENT	INCREMENTAL CA	ACCUMULATED CA	TIME TO INLET (MIN)	"I" (IN/HR)	INCREMENTAL "Q" (CFS)	ACCUMULATED "Q" (CFS)	PIPE DIAMETER (IN.)	SLOPE (%)	"n"	MAXIMUM "Q" (CFS)	"V" VELOCITY (FPS)	LENGTH OF RUN (FT)	FLOW TIME (MIN)	UPPER INVERT	LOWER INVERT	FALL (FT)	LOSSES (FT)	REMARKS
	17B	0.29	0.29	0.82	0.24	0.24		6.78	1.61	**1.61**												FLOWS DIRECTLY INTO VAULT
19	17C	0.08	0.08	0.69	0.06	0.06		6.78	0.37	**0.37**	12	2.00		5.42	3.8	16		369.00	368.67			
20	17D	0.26	0.26	0.52	0.14	0.14		6.78	0.92	**0.92**	12	0.50		2.97	3.2	39		366.98	366.92			
ROOF	17E	0.05	0.05	0.90	0.05	0.05		6.78	0.31	**0.31**	6	2.00		0.92	4.0							
ROOF	17F	0.05	0.05	0.90	0.05	0.05		6.78	0.31	**0.31**	6	1.68		0.85	3.8							
ROOF	17G	0.01	0.01	0.90	0.01	0.01		6.78	0.06	**0.06**	4	2.00		0.31	3.8							
ROOF	17H	0.04	0.04	0.90	0.04	0.04		6.78	0.24	**0.24**												
ROOF	17J	0.13	0.13	0.90	0.12	0.12		6.78	0.79	**0.79**												
16	15	-	0.91		-	0.33		6.78		**1.61**	15	0.58		5.29	3.6	84		366.42	365.63	0.79		OUTFALL FROM SWM VAULT
15	14	-	0.91	-	-	0.33		6.78	-	**1.61**	15	0.55		5.15	3.5	29		365.83	365.67	0.16		
ROOF	14	0.02	0.02	0.90	0.02	0.02		6.78	0.12	**0.12**	4											
14	EX 11	-	0.93	-	-	0.35		6.78	-	**1.73**	15	0.55		5.15	4.0	110		365.57	364.96	0.61		
EX 11	12	0.67	1.60	0.67	0.45	0.80		6.78	3.04	**4.78**	18	0.55		8.38	4.8	20		364.71	364.60	0.11		
EX20	12	0.10	0.10	0.73	0.07	0.07		6.78	0.49	**0.49**	12	11.36		12.92	7.5	20		367.25	365.00	2.25		
12	11	-	1.60	-	-	0.80		6.78	-	**4.78**	18	0.55		8.38	4.8	54		364.50	364.20	0.30		
12	11A	-	1.60	-	-	1.60		6.78	-	**4.78**	18	0.55		8.38	4.8	26		364.50	364.35	0.15		
18	11B	0.17	0.17	0.84	0.14	0.14		6.78	0.97	**0.97**	12	0.68		3.16	3.4	80		367.10	366.56	0.54		
11B	11A	-	0.17	-	-	0.14		6.78	-	**0.97**	12	0.55		2.84	3.1	293		366.46	364.85	1.61		
11A	11	-	1.77	-	-	1.74		6.78	-	**5.74**	18	0.55		8.38	4.8	28		364.35	364.20	0.15		
11	10	-	1.60	-	-	0.80		6.78	-	**5.74**	18	0.55		8.38	4.8	155		364.10	363.25	0.85		
10	EX 33	-	1.60	-	-	0.80		6.78	-	**5.74**	18	0.50		7.99	3.9	55		363.15	362.87	0.28		
EX 36	EX 33	-								**4.75**												PER APP'D ES PLAN
EX 34	EX 33	-								**1.71**												PER APP'D ES PLAN
EX 33	EX 32									**12.20**	24	1.74		32.1	9.10	60.20		362.37	361.32	1.05		
EX 35	EX 32	0.08	0.08	0.52	0.042	0.042		6.78	0.28	**0.28**												PER APP'D ES PLAN
EX 32	EX 31	-		-						**12.49**	24	0.60		18.85	6.10	52.90		361.64	361.32	0.32		
EX31	EX 30										30	1.26		49.52	9.40	78.80		361.24	360.25	0.99		

STORMWATER INLET COMPUTATIONS

STORM WATER INLET COMPUTATIONS

NUMBER	TYPE	THROAT	STATION	SIDE OF STREET	DRAINAGE AREA	"C" COEFFICIENT	INCREMENTAL CA	"I"	INCREMENTAL Q	Q CARRY OVER	Q_T TOTAL FLOW	S_L LONGITUDINAL SLOPE	S_X ROAD CROSS SLOPE	T GUTTER SPREAD	W DEPRESSION WIDTH	W/T	$S_W = S_X + a / W$	S_W / S_X	E_O RATIO OF FLOW IN GUTTER a LOCAL DEPRESSION	$S_W = a/(12W)$	$S_e(FT/FT) = S_X + S_W E_O$	LT OR P EFFECTIVE LENGTH	D L/LT	E OR H	Q: INTERCEPTED D/H	QB CARRY OVER	T MAX ALLOWED SPREAD @ SAG	REMARKS
19	**DI-3B**	**6**			**0.08**	**0.69**	0.06	6.78	0.37	0.00	0.37	0.021	0.02	**4.01**	2.0	0.50	0.353	17.67	0.99	2.0	0.083	0.10	6.61	0.91	0.99	0.37	0.01	-	
20	DI-1				**0.26**	**0.52**	0.14	6.78	0.92	0.00	0.92	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.160	1.000	0.92	0.00		
17E	TRENCH				0.29	0.82	0.24	6.78	1.61	0.00	1.61	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.08	1.00	1.61	0.00		TRENCH DRAIN
18	TRENCH				0.17	0.84	0.14	6.78	0.97	0.00	0.97	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.06	1	0.97	0		TRENCH DRAIN

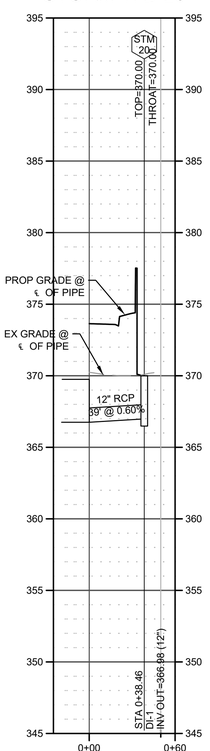
OPEN INSTRUCTIONS FOR HGL COMPS

HYDRAULIC GRADE LINE COMPUTATIONS

3/4/2020

Inlet Str.	Outlet Water Surf Elev (ft)	Do (in)	Qo (cfs)	Lo (ft)	Sfo (%)	Hf (ft)	JUNCTION LOSS: Vo (fps)	Ho (ft)	Qi (cfs)	Vi (fps)	QiVi	Vi^2/2g	Hi (ft)	Angle (deg)	Ha (ft)	Ht (ft)	1.3Ht (ft)	0.5Ht (ft)	Final H (ft)	Inlet Water Surf Elev (ft)	Opening Elev. (ft)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
10	**364.07**	**18**	**5.74**	**55.00**	**0.30**	**0.16**	**3.90**	**0.06**	**5.74**	**4.80**	**27.55**	**0.36**	**0.13**	**23**	**0.07**	**0.25**		**0.13**	**0.29**	**364.36**	**366.94**
11	**364.45**	**18**	**5.74**	**155.00**	**0.30**	**0.46**	**4.80**	**0.09**	**5.74**	**4.80**	**27.55**	**0.36**	**0.13**	**90**	**0.25**	**0.47**		**0.23**	**0.70**	**365.15**	**370.00**
12	**365.40**	**18**	**5.74**	**54.00**	**0.30**	**0.16**	**4.80**	**0.09**	**5.74**	**4.80**	**27.55**	**0.36**	**0.13**	**68**	**0.21**	**0.43**		**0.21**	**0.38**	**365.78**	**370.01**
EX11	**365.80**	**18**	**5.74**	**20.00**	**0.30**	**0.06**	**4.80**	**0.09**	**2.70**	**4.00**	**10.80**	**0.25**	**0.09**	**26**	**0.06**	**0.23**	**0.30**	**0.15**	**0.21**	**366.01**	**370.22**
14	**366.01**	**15**	**2.70**	**110.00**	**0.17**	**0.19**	**4.00**	**0.06**	**1.61**	**3.50**	**5.64**	**0.19**	**0.07**	**67**	**0.11**	**0.24**		**0.12**	**0.31**	**366.32**	**372.27**
		12							**0.97**	**3.10**	**3.01**	**0.15**		**1**	**0.00**						
		4							**0.12**	**3.00**	**0.36**	**0.14**		**37**	**0.05**						
18	**366.62**	**12**	**0.97**	**243.00**	**0.07**	**0.18**	**3.10**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**	**0.00**	**0.04**	**0.05**	**0.02**	**0.20**	**366.82**	**367.66**
15	**366.67**	**15**	**1.61**	**29.00**	**0.06**	**0.02**	**3.50**	**0.05**	**1.61**	**3.60**	**5.80**	**0.20**	**0.07**	**20**	**0.03**	**0.15**		**0.08**	**0.09**	**366.76**	**373.76**
16	**366.76**	**15**	**1.61**	**84.00**	**0.06**	**0.05**	**3.60**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**	**0.00**	**0.05**	**0.07**	**0.03**	**0.08**	**366.85**	**372.97**
19	**369.47**	**12**	**0.37**	**16.00**	**0.01**	**0.00**	**3.80**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**	**0.00**	**0.06**	**0.07**	**0.04**	**0.04**	**369.51**	**373.32**
20	**367.72**	**12**	**0.92**	**39.00**	**0.07**	**0.03**	**3.20**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0**	**0.00**	**0.04**	**0.05**	**0.03**	**0.05**	**367.77**	**370.00**

STORM 17D-20



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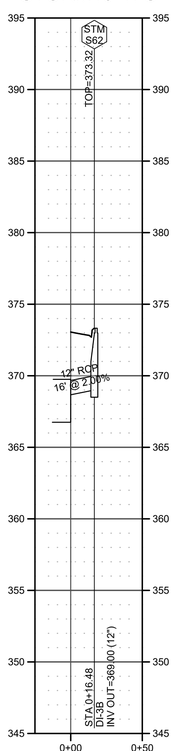

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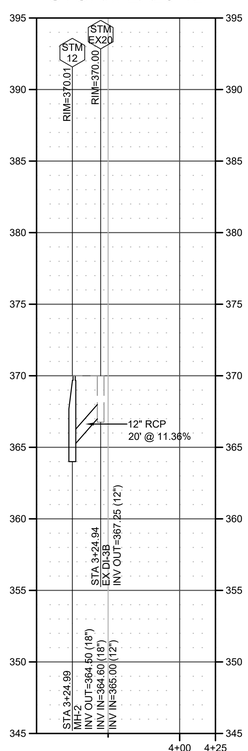


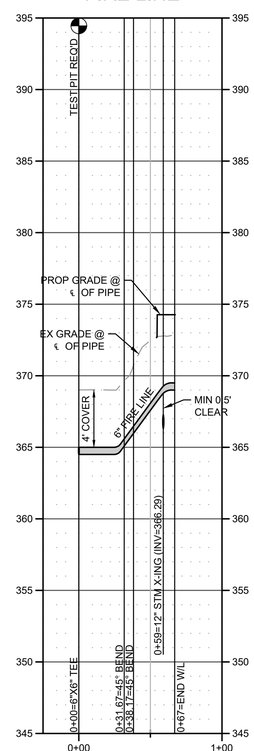
H: 1" = 50'

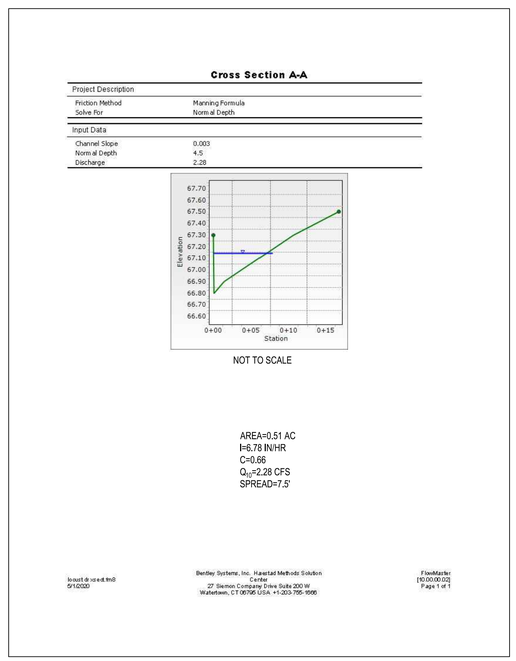
1 INCH

V: 1" = 5'

1 INCH

FIRE LINE





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PROFESSIONAL ENGINEER

KEY PLAN

SCALE

SCALE IN FEET
1" = 20'
1 INCH

NORTH

VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY KM

APPROVED BY TC

CHECKED BY RW

DATE FEBRUARY 26, 2020

TITLE

STORM & WATER PROFILES

PROJECT NO.

C-302

STORMWATER MANAGEMENT (SWM) PLAN & ADEQUATE OUTFALL NARRATIVE

TOWN OF VIENNA POLICE STATION IS DEFINED BY 1.40 ACRES OF DISTURBED AREA. THE SWM PLAN PROVIDED HEREIN PROVIDES WATER QUALITY AND WATER QUANTITY FOR THIS AREA IN ACCORDANCE WITH SECTION 23–17 OF THE TOWN CODE. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY VAULT PROPOSED IN THIS SITE PLAN WILL BE PRIVATELY OWNED AND MAINTAINED.

HYDROLOGY WAS DEVELOPED USING NRCS METHODOLOGIES AND HEC–1. THE NOAA–C RAINFALL DISTRIBUTION DEVELOPED FROM NOAA ATLAS 14 RAINFALL DATA WAS USED TO GENERATE PROJECT HYDROGRAPHS. THE TIME STEP USED IN ALL HEC–1 MODELS PROVIDED IN THIS PLAN IS 1 MINUTE. FOR THE PURPOSE OF THIS PLAN ALL SOILS ARE ASSUME HYDROLOGIC SOIL GROUP (HSG) TYPE D.

I. WATER QUALITY CONTROL REQUIREMENTS

BECAUSE THE SITE AREA INCLUDES NEW DEVELOPMENT ON PRIOR DEVELOPED LAND, THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) REDEVELOPMENT WORKSHEET WAS USED TO DEMONSTRATE WATER QUALITY COMPLIANCE.

AS CALCULATED BY THE VRRM WORKSHEET (SEE THIS SHEET) THE TOTAL PROJECT LOAD REDUCTION REQUIRED FOR PHOSPHORUS IS 1.15 LB/YR. THIS REDUCTION WILL BE MET BY PURCHASING NUTRIENT CREDITS THROUGH "ECO–CAP" (SEE LETTER OF NUTRIENT CREDIT AVAILABILITY THIS SHEET). THIS PROJECT IS LOCATED IN HUC CODE 02070008. NO ONSITE WATER QUALITY FACILITIES ARE PROPOSED WITH THIS PROJECT.'

II. WATER QUANTITY CONTROL REQUIREMENTS

THERE ARE 2 MAJOR POINTS OF OUTFALL (LABELED AS OUTFALL #1 AND OUTFALL #2) WHERE CONCENTRATED FLOW LEAVES THE PROJECT SITE. NEITHER OUTFALL DISCHARGES DIRECTLY INTO A FLOODPLAIN. THE RECEIVING DRAINAGE SYSTEMS FOR BOTH OUTFALLS ARE MANMADE AND LOCATED ENTIRELY IN THE PINEY BRANCH WATERSHED. THERE ARE NO KNOWN NATURAL DRAINAGE SYSTEMS DOWNSTREAM OF THESE OUTFALL IN THEIR RESPECTIVE EXTENTS OF REVIEW. ALL RECEIVING DRAINAGE SYSTEMS ARE CLOSED CONDUITS AND/OR MANMADE DITCHES AND SWALES.

CHANNEL PROTECTION AND FLOOD PROTECTION

AS BOTH OUTFALLS DRAIN INTO MANMADE (NOT NATURAL) SYSTEMS, CHANNEL PROTECTION AND FLOOD PROTECTION WILL BE MET FOR THIS PROJECT BY ENSURING THAT THE POST–DEVELOPMENT PEAK DISCHARGES TO EACH OUTFALL FOR THE 2– AND 10–YR 24–HOUR STORM EVENTS ARE RELEASE AT A RATE THAT IS LESS THAN THE CORRESPONDING PRE–DEVELOPMENT PEAK DISCHARGE. THIS WILL BE ACCOMPLISHED BY INSTALLING AN UNDERGROUND STORMWATER DETENTION SYSTEM IN THE PARKING LOT BEHIND THE PROPOSED POLICE STATION (38°53'58"N, 77°15'48"W) . THE DETENTION SYSTEM WILL CONSIST OF TWENTY (20) STORMCAPTURE MODULES BY OLDCASTLE INFRASTRUCTURE. THE INTERNAL DIMENSIONS OF EACH MODULE WILL BE 15' LONG X 7' WIDE X 3' HIGH. THE DETENTION SYSTEM WILL OUTFALL INTO A FLOW CONTROL STRUCTURE (STR–16), WHICH WILL CONTAIN A WEIR WALL WITH 3" DIAMETER ORIFICE AT ITS BASE (SEE PLANS FOR DETAILS). THE TOTAL DRAINAGE AREA TO THE DETENTION SYSTEM WILL BE 0.91 AC. A SUMMARY OF THE PRE– AND POST–DEVELOPED PEAK DISCHARGES TO EACH OUTFALL CAN BE FOUND IN THE DETENTION SUMMARY TABLES ON THIS SHEET.

ADEQUACY CONCLUSION

IT IS THE OPINION OF THE ENGINEER THAT ALL WATER QUANTITY REQUIREMENTS OF SECTION 23–17 OF THE TOWN CODE HAVE BEEN MET AND THAT ALL OUTFALLS PROPOSED WITH THIS PLAN ARE ADEQUATE FOR CHANNEL AND FLOOD PROTECTION.

MAINTENANCE OF PROPOSED SWM DETENTION SYSTEM

THE UNDERGROUND SWM DETENTION VAULT PROPOSED WITH THIS PLAN IS TO BE PRIVATELY OWNED AND MAINTAINED.

INSPECTIONS

REGULAR INSPECTIONS ARE CRITICAL TO SCHEDULE SEDIMENT REMOVAL OPERATIONS, AND RELIEVE ANY ORIFICE CLOGGING. FREQUENT INSPECTIONS ARE ESPECIALLY NEEDED FOR UNDERGROUND VAULTS, SINCE THEY ARE OUT OF SIGHT AND CAN BE EASILY FORGOTTEN. MAINTENANCE INSPECTIONS SHOULD BE CONDUCTED WITHIN 24 HOURS FOLLOWING A STORM THAT EXCEEDS 1/2 INCH OF RAINFALL, TO EVALUATE THE CONDITION AND PERFORMANCE OF THE VAULT. INSPECTIONS SHOULD INCLUDE CHECKING FOR THE FOLLOWING:

- CHECK TO SEE IF SEDIMENT ACCUMULATION HAS EXCEEDED 6 INCHES. IF SO, SCHEDULE A CLEANOUT.
- INSPECT FOR SIGNS OF CLOGGING OF THE INLET OR OUTLET STRUCTURES AND DOWNSTREAM STORM SEWER.
- INSPECT WHETHER THE CONTRIBUTING DRAINAGE AREA TO THE VAULT IS STABLE AND NOT A SOURCE OF SEDIMENT.
- CHECK CONCRETE STRUCTURES AND OUTLETS FOR ANY EVIDENCE OF SPALLING, JOINT FAILURE, LEAKAGE, CORROSION, ETC.

THE RESULTS OF THE INSPECTION WILL THEN DETERMINE THE LEVEL OF MAINTENANCE REQUIRED.

ROUTINE MAINTENANCE TASKS

A CLEANUP SHOULD BE SCHEDULED AT LEAST ONCE A YEAR TO REMOVE TRASH AND FLOATABLES THAT ACCUMULATE IN THE VAULT. SEDIMENT CLEANOUTS ARE RECOMMENDED EVERY 2 TO 3 YEARS OR AS NEEDED.

NUTRIENT CREDIT AVAILABILITY CONFIRMATION

Eco-Cap

February 25, 2020

Scott Clarke, P.E.
Dewberry
8401 Arlington Boulevard
Fairfax, VA 22031

Virginia Oaks Nutrient Bank - Credit Availability

Project Reference: Town of Vienna Police Station, Fairfax County

This letter is to confirm the availability of Nutrient Credits sufficient to meet your project requirements at the Virginia Oaks Nutrient Bank located in Prince William County, Virginia 8 Digit Hydrologic Unit Code (HUC) 02070010. The nutrient reductions resulting from this activity will generate nonpoint source Nutrient "Credits" which are transferable to those entities requiring nutrient reductions in accordance with the Chesapeake Bay Watershed Nutrient Credit Exchange Program (VA Code § 62. 1-44. 19:14) and the Virginia Stormwater Credit Program (VA Code § 62. 1-44. 15:35).

The Virginia Oaks Nutrient Bank currently has **68.69** pounds of phosphorus Credits available to transfer and will be able to meet your removal requirement of **1.25** Credits.

Feel free to contact me if you require further assistance.

Casey J. Jensen

Casey J. Jensen
President
Eco-Cap, LLC

Credit Sales Coordinator
On behalf of Conservation Plus and the Virginia Oaks Nutrient Bank

Phone: (804) 836-6636 **Email:** ecocapva@gmail.com **Website:** ecocapva.us

WATER QUALITY CALCULATIONS – VRRM SPREADSHEET

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

◉ 2011 BMP Standards and Specifications ○ 2013 Draft BMP Standards and Specifications

Project Name:	TOWN OF VIENNA POLICE STATION
Date:	2/25/2020
Linear Development Project?	No

CLEAR ALL (Ctrl+Shift+R)

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

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.40

Maximum reduction required:	*20%*
The site's net increase in impervious cover (acres) is:	*0.46*
Post-Development TP Load Reduction for Site (lb/yr):	*1.15*

Check:
BMP Design Specifications List: 2011 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				0.66	0.66
Impervious Cover (acres)				0.74	0.74
					1.40

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				0.20	0.20
Impervious Cover (acres)				1.20	1.20
Area Check	OK.	OK.	OK.	OK.	1.40

Constants

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

Runoff Coefficients (Rv)

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

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.66	0.20
Weighted Rv(turf)	0.25	0.25
% Managed Turf	47%	21%
Impervious Cover (acres)	0.74	0.74
Rv(impervious)	0.95	0.95
% Impervious	53%	79%
Total Site Area (acres)	**1.40**	**0.94**
Site Rv	**0.62**	**0.80**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0723	0.0628
Pre-ReDevelopment Treatment Volume (cubic feet)	3,151	2,733
Pre-ReDevelopment TP Load (lb/yr)	**1.98**	**1.72**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.41	1.83
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)	*0.39*	

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

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

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

LAND COVER SUMMARY – POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.20
Weighted Rv (turf)	0.25
% Managed Turf	14%
Impervious Cover (acres)	1.20
Rv(impervious)	0.95
% Impervious	86%
Final Site Area (acres)	**1.40**
Final Post Dev Site Rv	**0.85**

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.20
Weighted Rv (turf)	0.25
% Managed Turf	21%
ReDev. Impervious Cover (acres)	0.74
Rv(impervious)	0.95
% Impervious	79%
Total ReDev. Site Area (acres)	**0.94**
ReDev Site Rv	**0.80**

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	0.46
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.0992
Final Post-Development Treatment Volume (cubic feet)	4,320
Final Post-Development TP Load (lb/yr)	**2.71**
Final Post-Development TP Load per acre (lb/acre/yr)	1.94

Post-ReDevelopment Treatment Volume (acre-ft)	0.0628
Post-ReDevelopment Treatment Volume (cubic feet)	2,733
Post-ReDevelopment Load (TP) (lb/yr)*	**1.72**
Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.83
Max. Reduction Required (Below Pre-ReDevelopment Load)	**20%**
TP Load Reduction Required for Redeveloped Area (lb/yr)	**0.34**

Post-Development Treatment Volume (acre-ft)	0.0364
Post-Development Treatment Volume (cubic feet)	1,586
Post-Development TP Load (lb/yr)	**1.00**
TP Load Reduction Required for New Impervious Area (lb/yr)	**0.81**

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	**1.15**

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	14.16
Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	19.42

OUTFALL #1 DETENTION SUMMARY

HEC–1 NODE	2–YEAR	10–YEAR	
PRE–1	3.29 cfs	5.41 cfs	(PRE–DEV)
POST–1	2.73 cfs	4.43 cfs	(POST–DEV)

OUTFALL #2 DETENTION SUMMARY

HEC–1 NODE	2–YEAR	10–YEAR	
PRE–2	3.14 cfs	5.66 cfs	(PRE–DEV)
POST–2	1.82 cfs	3.08 cfs	(POST–DEV)

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COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
Lic. No. 20112
PROFESSIONAL ENGINEER

KEY PLAN

SCALE — SCALE IN FEET 1" = 30' — 1 INCH

NORTH — VCS–83

No.	DATE	BY	Description

REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

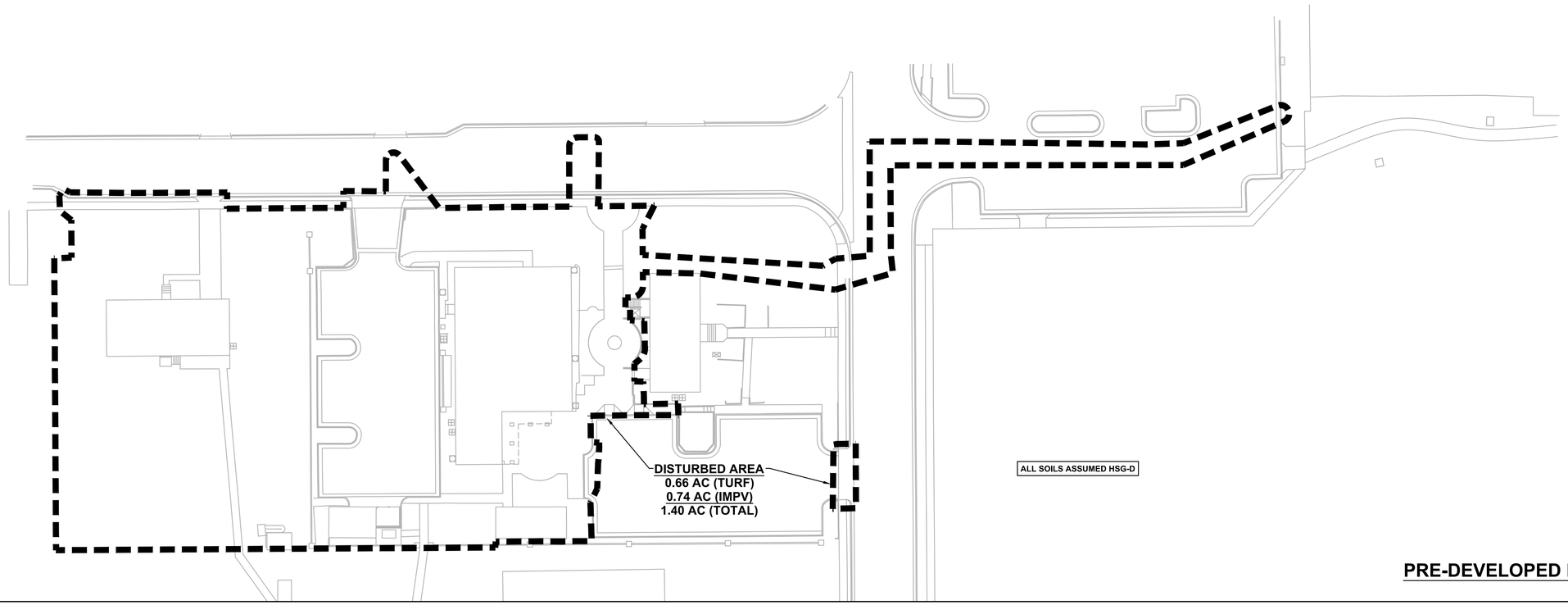
TITLE

SWM/OUTFALL NARRATIVES

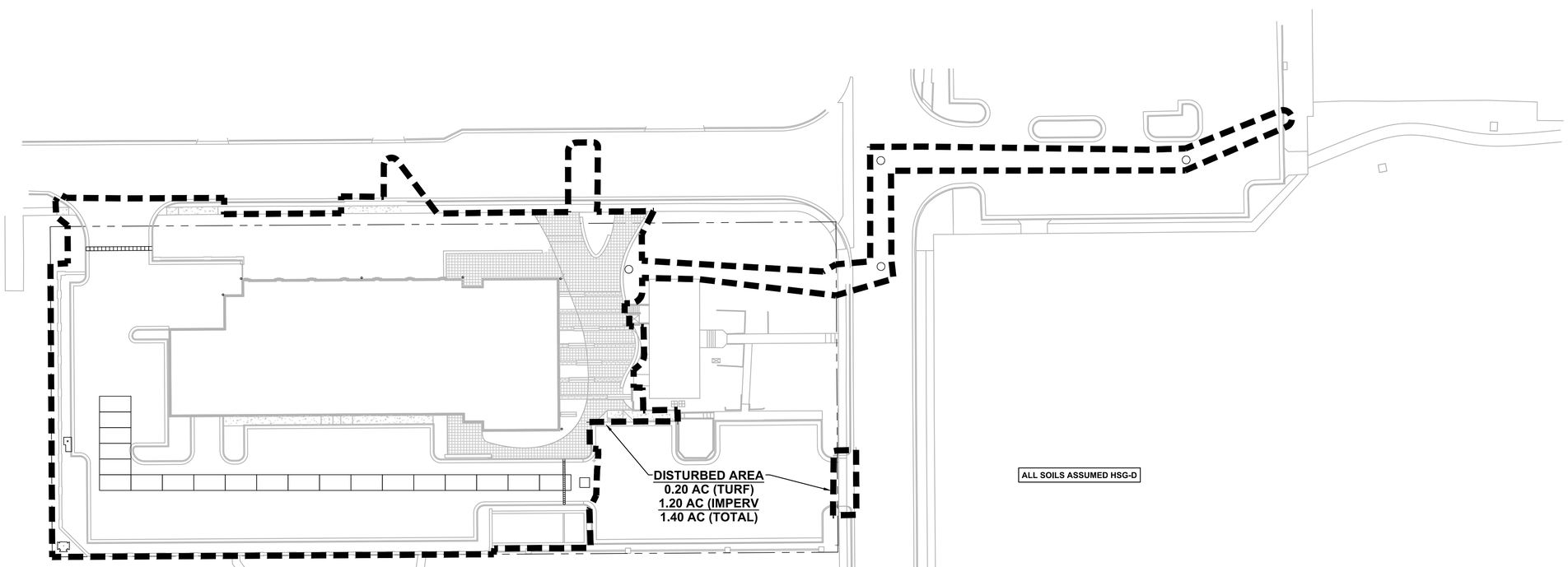
THIS SHEET FOR STORMWATER MANAGEMENT CALCULATIONS ONLY

PROJECT NO.

C-303



PRE-DEVELOPED LAND COVER



POST-DEVELOPED LAND COVER

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KEY PLAN

SCALE

SCALE IN FEET
1" = 30'
1 INCH

NORTH

VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

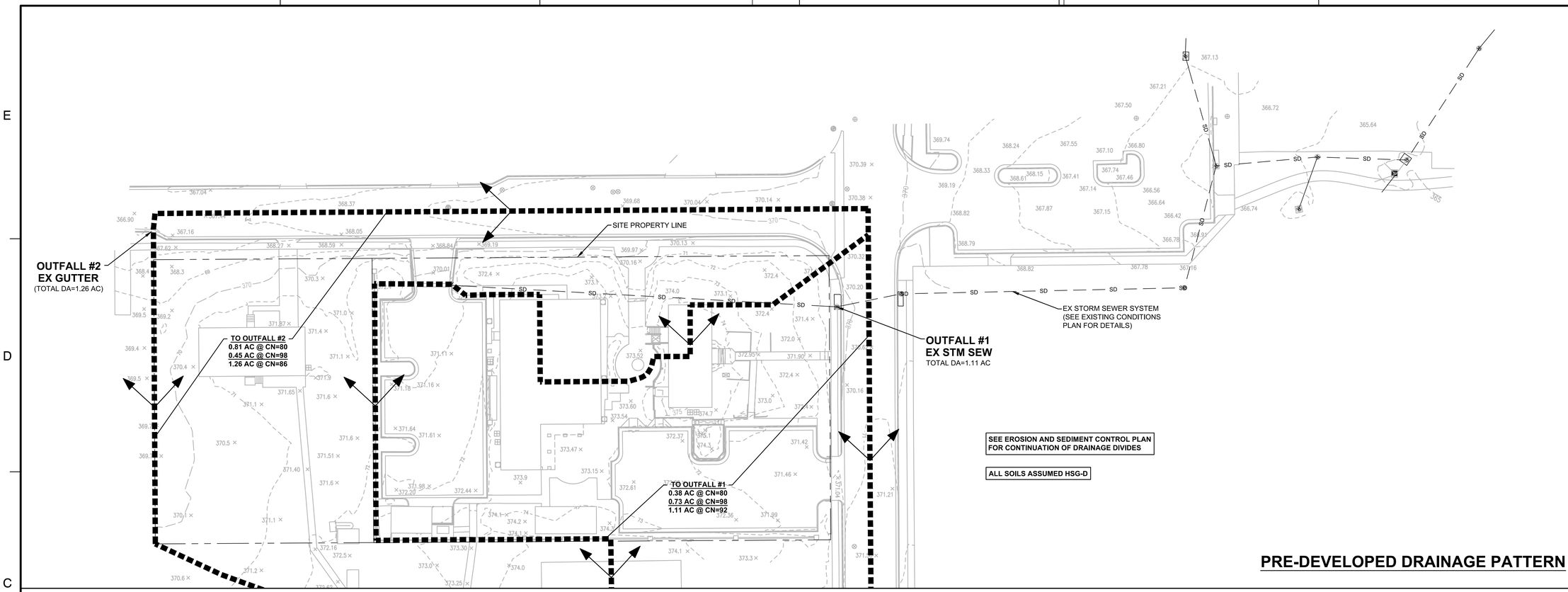
TITLE

PRE- AND POST-DEV LAND COVER

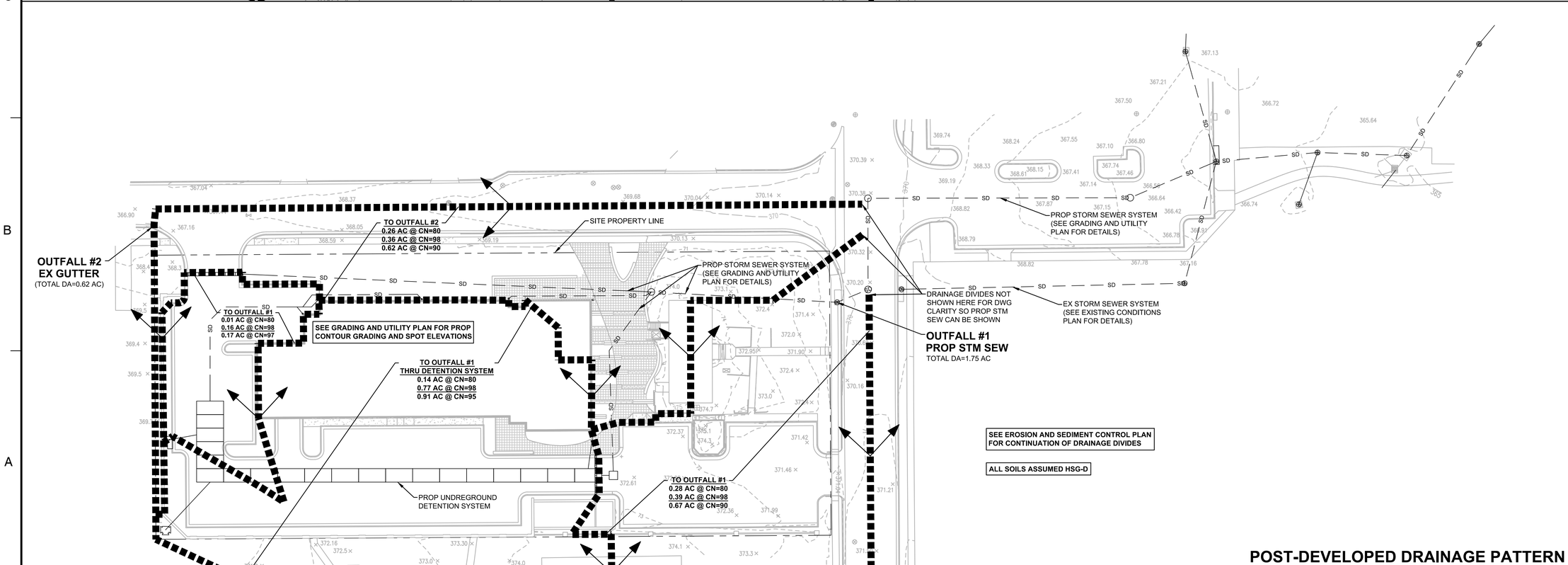
THIS SHEET FOR STORMWATER MANAGEMENT CALCULATIONS ONLY

PROJECT NO.

C-304



PRE-DEVELOPED DRAINAGE PATTERN



POST-DEVELOPED DRAINAGE PATTERN

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1 INCH

NORTH
VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

PRE- AND POST-DEV DRAINAGE PATTERNS

THIS SHEET FOR STORMWATER MANAGEMENT CALCULATIONS ONLY

PROJECT NO.

C-305

```
X    X  XXXXXXX   XXXXX          X
X    X  X       X     X        XX
X    X  X       X              X
XXXXXXX  XXXX    X       XXXXX  X
X    X  X       X              X
X    X  X       X     X        X
X    X  XXXXXXX   XXXXX         XXX
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```
THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                                    PAGE  1

  LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

    1           ID       VIENNA POLICE STATION
    2           ID       TOWN OF VIENNA, VIRGINIA
    3           ID       FAIRFAX COUNTY PFM 24-HOUR RAINFALL DEPTHS
    4           ID       WATER QUANTITY CONTROL
    5           ID       MANMADE OUTFALL FOR EXTENT OF REVIEW
    6           ID       2- AND 10-YR STORMS
                *DIAGRAM
    7           IT       1                    1500
    8           IO       5
                *
                *          2-YR      10-YR
    9           JR    PREC    3.17    4.87
                *
   10           KK   PRE-1
   11           KM  TOTAL PRE-DEVELOPED RUNOFF TO OUTFALL #1 (1.11 AC / RCN=92)
   12           KO                                                  21
   13           BA  0.0017
   14           PB    1.0
                * NOAA ATLAS C 24-HOUR RAINFALL DISTRIBUTION
   15           IN       6
   16           PC       0  0.0013  0.0023  0.0034  0.0044  0.0055  0.0065  0.0076  0.0087  0.0098
   17           PC  0.0109  0.0121  0.0132  0.0143  0.0155  0.0167  0.0178   0.019  0.0202  0.0214
   18           PC  0.0226  0.0238  0.0251  0.0263  0.0276  0.0288  0.0301  0.0314  0.0327   0.034
   19           PC  0.0353  0.0366  0.0379  0.0393  0.0406   0.042  0.0434  0.0447  0.0461  0.0475
   20           PC  0.0489  0.0504  0.0518  0.0532  0.0547  0.0562  0.0576  0.0591  0.0606  0.0621
   21           PC  0.0636  0.0651  0.0667  0.0682  0.0697  0.0713  0.0729  0.0745   0.076  0.0776
   22           PC  0.0793  0.0809  0.0826  0.0843  0.0861  0.0879  0.0898  0.0916  0.0936  0.0955
   23           PC  0.0975  0.0996  0.1017  0.1038   0.106  0.1082  0.1104  0.1127   0.115  0.1174
   24           PC  0.1198  0.1223  0.1247  0.1273  0.1298  0.1324  0.1351  0.1378  0.1405  0.1432
   25           PC  0.1461   0.149  0.1521  0.1554  0.1588  0.1623   0.166  0.1699  0.1739   0.178
   26           PC  0.1823  0.1868  0.1914  0.1961   0.201  0.2061  0.2117  0.2179  0.2247  0.2321
   27           PC    0.24   0.249  0.2591  0.2702  0.2825  0.2955  0.3157   0.337  0.3662  0.4067
   28           PC  0.4766  0.5933  0.6338   0.663  0.6843  0.7045  0.7176  0.7298  0.7409   0.751
   29           PC    0.76  0.7679  0.7753  0.7821  0.7883  0.7939   0.799  0.8039  0.8086  0.8132
   30           PC  0.8177   0.822  0.8261  0.8301   0.834  0.8377  0.8412  0.8446  0.8479   0.851
   31           PC   0.854  0.8568  0.8595  0.8622  0.8649  0.8676  0.8702  0.8727  0.8753  0.8778
   32           PC  0.8802  0.8826   0.885  0.8873  0.8896  0.8918   0.894  0.8962  0.8983  0.9004
   33           PC  0.9025  0.9045  0.9064  0.9084  0.9103  0.9121  0.9139  0.9157  0.9174  0.9191
   34           PC  0.9208  0.9224   0.924  0.9256  0.9271  0.9287  0.9303  0.9318  0.9334  0.9349
   35           PC  0.9364  0.9379  0.9394  0.9409  0.9424  0.9439  0.9453  0.9468  0.9482  0.9496
   36           PC  0.9511  0.9525  0.9539  0.9553  0.9566   0.958  0.9594  0.9607  0.9621  0.9634
   37           PC  0.9647   0.966  0.9673  0.9686  0.9699  0.9712  0.9724  0.9737  0.9749  0.9762
   38           PC  0.9774  0.9786  0.9798   0.981  0.9822  0.9834  0.9845  0.9857  0.9868  0.9879
   39           PC  0.9891  0.9902  0.9913  0.9924  0.9935  0.9945  0.9956  0.9967  0.9977  0.9987
   40           PC       1
   41           LS                  92
   42           UD    0.05
   43           KK   PRE-2
   44           KM  TOTAL PRE-DEVELOPED RUNOFF TO OUTFALL #2 (1.26 AC / RCN=86)
   45           KO                                                  21
   46           BA   0.002
   47           LS                  86
   48           UD    0.05
                *
   49           KK  TO-SWM
   50           KM  POST-DEVELOPED RUNOFF TO PROPOSED SWM VAULT (0.91 AC / RCN=95)
   51           KO                                                  21
   52           BA  0.0014
   53           LS                  95
   54           UD    0.05
                *
   55           KK     SWM
   56           KM  ROUTE THRU PROPOSED SWM VAULT
   57           KO                                                  21
   58           RS       1     ELEV  366.75
                * (20) 15' X 7' X 3'H (INSIDE DIM) STORMCAPTURE MODULES BY OLDCASTLE
   59           SA   0.048   0.048
   60           SE  366.75  369.75
                * 3" ORIFICE AT INVERT=366.75
   61           SL  366.88   0.049     0.6     0.5
                * 5' WEIR AT ELEVATION=369.25
   62           SS  369.25       5       3     1.5
                *
   63           KK    TO-1
   64           KM  POST-DEVELOPED RUNOFF TO OUTFALL #1 (0.67 AC / RCN=90)
   65           KO                                                  21
   66           BA   0.001
   67           LS                  90
   68           UD    0.05
                *
   69           KK    TO-1
   70           KM  POST-DEVELOPED RUNOFF TO OUTFALL #1 (0.17 AC / RCN=97)
   71           KO                                                  21
   72           BA  0.0003
   73           LS                  97
   74           UD    0.05
                *
   75           KK  POST-1
   76           KM  TOTAL POST-DEVELOPED RUNOFF TO OUTFALL #1 (1.75 AC)
   77           KO                                                  21
   78           HC       3
                *
   79           KK  POST-2
   80           KM  TOTAL POST-DEVELOPED RUNOFF TO OUTFALL #2 (0.62 AC / RCN=90)
   81           KO                                                  21
   82           BA   0.001
   83           LS                  90
   84           UD    0.05
                *
   85           ZZ
```

```
1                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE       (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  10         PRE-1
             .
  43         .       PRE-2
             .       .
  49         .       .     TO-SWM
             .       .       V
  55         .       .      SWM
             .       .       .
  63         .       .       .       TO-1
             .       .       .        .
  69         .       .       .        .       TO-1
             .       .       .        .        .
  75         .       .     POST-1.......................
             .       .       .
  79         .       .       .     POST-2
```

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 3.17 (2-YR)	RATIO 2 4.87 (10-YR)	
HYDROGRAPH AT +	PRE-1	.00	1	FLOW	3.29	5.51	TOTAL PRE-DEVELOPED 2- AND 10-YR FLOWS TO OUTFALL #1
				TIME	12.12	12.12	
HYDROGRAPH AT +	PRE-2	.00	1	FLOW	3.14	5.66	TOTAL PRE-DEVELOPED 2- AND 10-YR FLOWS TO OUTFALL #2
				TIME	12.12	12.12	
HYDROGRAPH AT +	TO-SWM	.00	1	FLOW	2.93	4.65	POST-DEVELOPED 2- AND 10-YR FLOWS INTO DETENTION SYSTEM
				TIME	12.12	12.12	
ROUTED TO +	SWM	.00	1	FLOW	0.31	1.61	POST-DEVELOPED 2- AND 10-YR FLOWS OUT OF DETENTION SYSTEM
				TIME	12.70	12.25	
			** PEAK STAGES IN FEET **				
			1	STAGE	368.66	369.44	POST-DEVELOPED 2- AND 10-YR STAGES INSIDE DETENTION SYSTEM
				TIME	12.80	12.27	
HYDROGRAPH AT +	TO-1	.00	1	FLOW	1.82	3.08	POST-DEVELOPED 2- AND 10-YR FLOWS UNDETAINED TO OUTFALL #1
				TIME	12.12	12.12	
HYDROGRAPH AT +	TO-1	.00	1	FLOW	0.65	1.01	POST-DEVELOPED 2- AND 10-YR FLOWS UNDETAINED TO OUTFALL #1
				TIME	12.12	12.10	
3 COMBINED AT +	POST-1	.00	1	FLOW	2.73	4.43	TOTAL POST-DEVELOPED 2- AND 10-YR FLOWS TO OUTFALL #1
				TIME	12.12	12.12	
HYDROGRAPH AT +	POST-2	.00	1	FLOW	1.82	3.08	TOTAL POST-DEVELOPED 2- AND 10-YR FLOWS TO OUTFALL #2
				TIME	12.12	12.12	

*** NORMAL END OF HEC-1 ***

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SEAL

COMMONWEALTH OF VIRGINIA
TIMOTHY CHARLES CULLEITON
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PROFESSIONAL ENGINEER

KEY PLAN

SCALE

SCALE IN FEET
1" = 30'
1 INCH

NORTH
VCS-83

No.	DATE	BY	Description

REVISIONS

DRAWN BY KM

APPROVED BY TC

CHECKED BY RW

DATE FEBRUARY 26, 2020

TITLE

PRE- AND POST-DEV
2- AND 10-YR FLOWS

THIS SHEET FOR STORMWATER MANAGEMENT CALCULATIONS ONLY

PROJECT NO.

C-306

GENERAL NOTES:

THE STORM CAPTURE™ SYSTEM BY OLDCASTLE PRECAST IS PART OF THE STORMWATER MANAGEMENT SYSTEM FOR THE RESPECTIVE SITE, AS PREPARED BY THE PROJECT DESIGN ENGINEER. IT IS THE RESPONSIBILITY OF THE DESIGN ENGINEER TO DETERMINE DESIGN FLOW RATES, PRE-TREATMENT AND POST-TREATMENT REQUIREMENTS, STORAGE VOLUME, AND ENSURE THE FINAL DESIGN MEETS ALL CONVEYANCE AND STORAGE REQUIREMENTS. SYSTEM DESIGN AND TYPE, SOIL ANALYSIS, LOADING REQUIREMENTS, COVER HEIGHT AND MODULE SIZE DETERMINE THE FOUNDATION TYPE AND REQUIREMENTS AS STATED HEREIN. ANY VARIATIONS FOUND DURING CONSTRUCTION FROM THE SITE AND SYSTEM ANALYSIS MUST BE REPORTED TO THE PROJECT DESIGN ENGINEER. THE PROJECT DESIGN ENGINEER IS RESPONSIBLE FOR OBTAINING A GEOTECHNICAL ENGINEERING REPORT VERIFYING THE BEARING CAPACITY STATED IN DESIGN NOTES.

DESIGN NOTES:

1. DESIGN LOADINGS:
   - A. AASHTO HS-20-44 W/ IMPACT.
   - B. DEPTH OF COVER = 6" - 5'-0".
   - C. ASSUMED WATER TABLE = BELOW BOTTOM.
   - D. EQUIVALENT FLUID PRESSURE = 45 PCF.
   - E. LATERAL LIVE LOAD SURCHARGE = 80 PSF.
   - F. NO LATERAL SURCHARGE FROM ADJACENT STRUCTURES.
2. CONCRETE 28 DAY COMPRESSIVE STRENGTH SHALL BE 6,000 PSI.
3. STEEL REINFORCEMENT: REBAR, ASTM A-615, GRADE 60.
4. CEMENT: ASTM C-150 SPECIFICATION.
5. STORM CAPTURE MODULE TYPE = DETENTION.
6. REQUIRED BASE LAYER DEPTH = 2" SAND BEDDING LAYER.
7. REQUIRED NATIVE ALLOWABLE SOIL BEARING PRESSURE = 3,000 PSF.
8. REFERENCE STANDARDS:
   - A. ASTM C 890
   - B. ASTM C 891
   - C. ASTM C 913
9. LESS THAN 6" OR GREATER THAN 5' OF COVER REQUIRES CUSTOM STRUCTURAL DESIGN AND MAY REQUIRE THICKER SUBGRADE.

INSTALLATION NOTES:

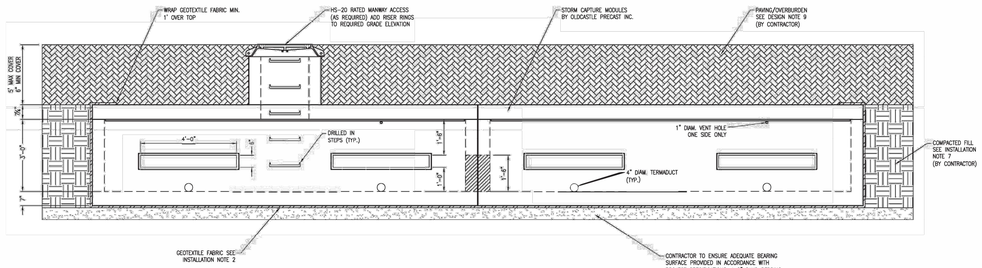
THE STORM CAPTURE™ MODULE SYSTEM IS TO BE INSTALLED IN ACCORDANCE WITH ASTM C891, INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES. PROJECT PLAN AND SPECIFICATIONS MUST BE FOLLOWED ALONG WITH ANY APPLICABLE REGULATIONS.

1. PLAN LINE, GRADE AND ELEVATIONS MUST BE FOLLOWED.
2. WHERE SPECIFIED, AN 8 OZ. NON-WOVEN GEOTEXTILE FABRIC MUST BE USED AS A SEPARATION LAYER AROUND THE STORM CAPTURE SYSTEM.
3. PENETRATIONS IN THE GEOTEXTILE MAY ONLY BE MADE WITH SMOOTH WALL PIPES. MAKE PENETRATIONS FOR ALL OUTLETS BEFORE MAKING PENETRATIONS FOR ANY INLETS.
4. ALL SUBGRADE MATERIALS IF SPECIFIED, MUST BE CLEAN, DURABLE CRUSHED AGGREGATE COMPACTED OR ROLLED TO ACHIEVE 95% STANDARD PROCTOR DENSITY. OLDCASTLE RECOMMENDS SIZE 5,56,OR 57 (PER ASTM C33).
5. DESIGNATED EMBEDDED LIFTERS MUST BE USED. USE PROPER RIGGING TO ASSURE ALL LIFTERS ARE EQUALLY ENGAGED WITH A MINIMUM 60 DEGREE ANGLE ON SLINGS AS NOTED AND IN ACCORDANCE WITH OLDCASTLE LIFTING PROCEDURES.
6. MODULES MUST BE PLACED AS CLOSE TOGETHER AS POSSIBLE, AND GAPS SHALL NOT BE GREATER THAN 3/4". ALL EXTERIOR SYSTEM JOINTS SHALL BE COVERED WITH A MIN. 8" JOINT WRAP ON SIDES AND TOP (CS-212 CONSEAL OR EQUIVALENT). IN A CLAMSHELL DESIGN INSTALL ONE ROW CS-102 CONSEAL (OR EQUIVALENT) BETWEEN PRECAST PIECES.
7. AUTHORIZATION SHOULD BE GIVEN BY THE PROJECT ENGINEER OR DESIGNATED PERSON PRIOR TO PLACEMENT ON BACKFILL FOR THE SYSTEM. CARE SHOULD BE TAKEN DURING PLACEMENT OF BACKFILL NOT TO DISPLACE MODULES OR JOINT WRAP. BACKFILL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY OR AS SPECIFIED, AND SHOULD NOT BE COMPACTED WITHIN 6" OF MODULE.
8. CONSTRUCTION EQUIPMENT EXCEEDING DESIGN LOADING SHALL NOT BE ALLOWED ON STRUCTURE.
9. TERMADUCTS TO BE KNOCKED OUT AT SPECIFIED LOCATIONS IN FIELD BY OTHERS. SEE SITE LAYOUT FOR LOCATIONS.

INLETS AND RISERS:

ALL PIPE INLETS SHALL EXTEND INSIDE MODULE A MINIMUM OF 4". PLACE A NON-SHRINK, NON-METALIC GROUT, MIN. 3,000 PSI IN ANNULAR SPACE TO ELIMINATE ALL VOIDS.

STORMCAPTURE



TYPICAL ELEVATION
SCALE: N.T.S.

NOTE:
TERMADUCT INSERTS TO BE KNOCKED OUT AT SPECIFIED LOCATIONS ONLY (BY OTHERS).

- PRELIMINARY -
NOT FOR CONSTRUCTION

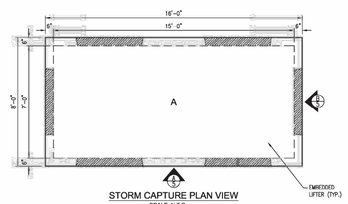
Oldcastle® Stormwater Solutions
7501 SOUTHPARK PLAZA, SUITE 200, LITTLETON, CO 80120
PHONE: 1-800-892-2537 FAX: 303-790-7041

STORMCAPTURE
TYPICAL ELEVATION

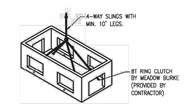
CUSTOMER:

DATE	SCALE: NTS	DRAWN: STS	ENGINEER: STS	CHECKED: JH	SALES CHECK:
DRAWING NUMBER: SC-315base with top slab			REVISION: REV DATE	SHEET: 2 OF 4	

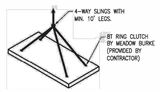
STORMCAPTURE



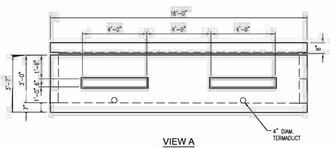
STORM CAPTURE PLAN VIEW
SCALE: N.T.S.



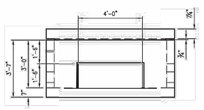
BOTTOM MODULE LIFTING DETAIL
N.T.S.



TOP SLAB LIFTING DETAIL
N.T.S.



VIEW A
SCALE: N.T.S.



VIEW B
SCALE: N.T.S.

- PRELIMINARY -
NOT FOR CONSTRUCTION

Oldcastle® Stormwater Solutions
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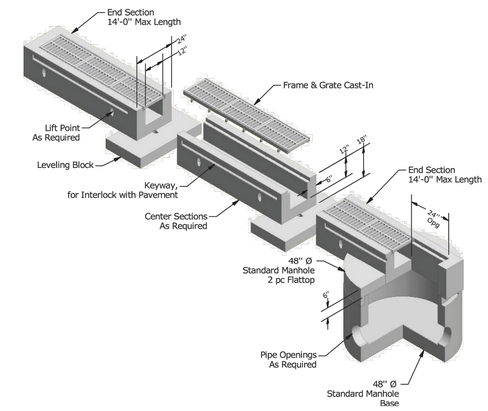
STORMCAPTURE
INTERIOR DETAILS

CUSTOMER:

DATE	SCALE: NTS	DRAWN: STS	ENGINEER: STS	CHECKED: JH	SALES CHECK:
DRAWING NUMBER: SC-315base with top slab			REVISION: REV DATE	SHEET: 4 OF 4	

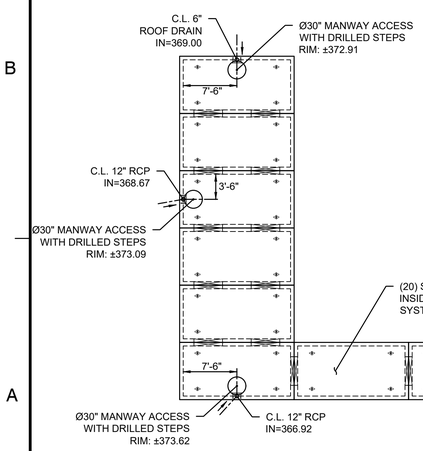
Trench Drain Structures — 20170324TED03

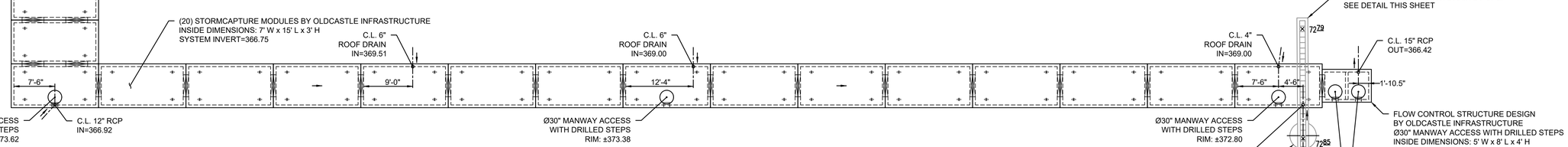


Isometric View

Notes
1) Concrete compressive strength 4,000 psi minimum.
2) Steel reinforcing design to conform to the requirements of ASTM C706 or A615, grade 60 rebar or WWP conforming to the requirements of ASTM A185, grade 65 or both.
3) Manhole sections conform to ASTM C478.
4) Designed for HS-20 loading, 30% impact.
5) See joint details for joint options.
6) Steps may be provided, see step detail sheet.

TITLE	DATE	
Precast 12" x 12" Trench Drain Manhole Assembly	03-21-17	CP&P CONCRETE PIPE & PRECAST LLC





NOTE:

1. SEE GRADING AND UTILITY PLAN FOR EVALUATING PROPOSED COVER OVER STORMCAPTURE MODULES.

SCHEMATIC LAYOUT - PROPOSED STORMCAPTURE DETENTION SYSTEM
SCALE: 1"=10'

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COMMONWEALTH OF VIRGINIA
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KEY PLAN

SCALE: AS SHOWN
NORTH

No.	DATE	BY	Description

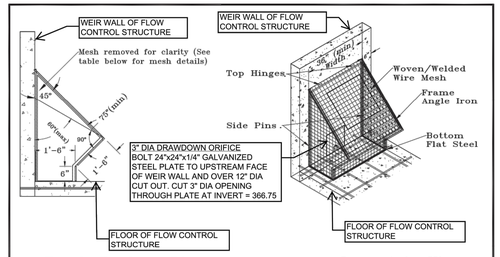
REVISIONS

DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE
STORMWATER MANAGEMENT DETAILS

PROJECT NO.

C-307



Trash Rack – Riser Isometric View

Mesh Details

Component → / Trash Rack Width ↓	Frame Angle Iron	Bottom Flat Steel	Woven/Welded Wire Mesh	Steel Rod for Grate
up to 36"	1½"X1½"X¼"	1½"X¼"	¼"	
between 36"–60"	2"X2"X¼"	2"X¼"	⅜"	
60" and larger	3"X3"X⅜"	3"X⅜"		⅝"

Min. Mesh Opening Size
1"

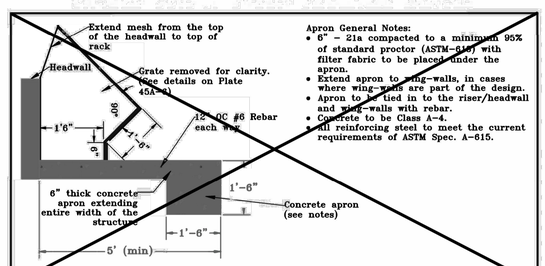
Trash Rack General Notes:
- 3' minimum trash rack width is required where available.
- Trash rack/mounting components to be Hot-dip galvanized.
- All mounting hardware to be stainless steel and threads to be coated in anti-sieze.
- Minimum ½ " x 3 " mounting bolts to be used for trash rack.
- Trash racks to be mounted using top hinge or side pin connection as per details shown in Plate 45B-6. All hinged/pinned trash racks to have locking mechanism. Mechanism to be installed on the upper half to minimize potential to become inaccessible due to submergence under water/sediment.
- Mesh opening size to be ½ of the diameter/width of orifice being protected, but not smaller than minimum mesh opening size provided in table above.

Additional Notes

Trash Racks 60" and wider:
- Large trash racks may be painted with dark anti-corrosive paint, in lieu of galvanizing.
- Additional structural reinforcements to be added to trash rack frame as deemed necessary to support all anticipated loads.
- A 3' x 3' (min) access door with locking mechanism to be installed on front face.

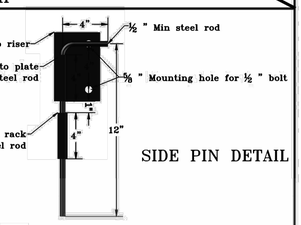
Trash Racks mounted on Headwalls:
- In case of space restrictions at headwalls, use 2' min width of trash rack.
- Add wire mesh on the back of trash rack to the top of headwall as shown in Plate 45B-6.

	LOW FLOW/BMP DRAWDOWN DEVICE	PLATE NO.	
		1 OF 2	

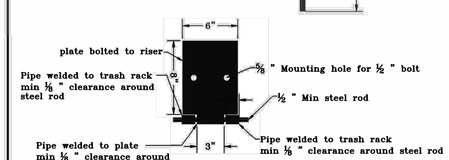


Apron General Notes:
- 6" – 21a compacted to a minimum 95% of standard proctor (ASTM-6167) with filter fabric to be placed under the apron.
- Extend apron to wing-walls, in cases where wing-walls are part of the design.
- Apron to be tied in to the riser/headwall and wing-walls with rebar.
- Concrete to be Class A-4.
- All reinforcing steel to meet the current requirements of ASTM Spec. A-615.

Trash Rack on Headwall



SIDE PIN DETAIL



TOP HINGE DETAIL

	LOW FLOW/BMP DRAWDOWN DEVICE (MOUNTING DETAILS)	PLATE NO.	
		2 OF 2	

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KEY PLAN

SCALE: AS SHOWN

NORTH

No.	DATE	BY	Description

REVISIONS

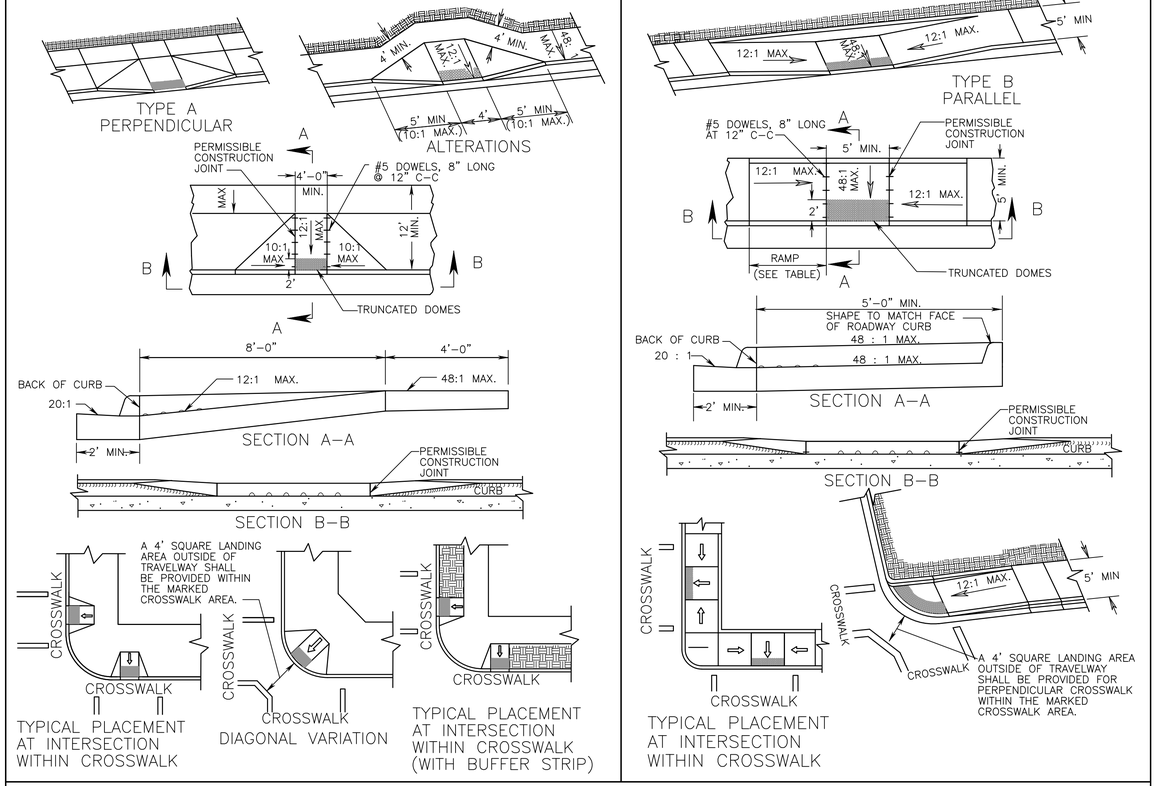
DRAWN BY	KM
APPROVED BY	TC
CHECKED BY	RW
DATE	FEBRUARY 26, 2020

TITLE

STORMWATER MANAGEMENT DETAILS

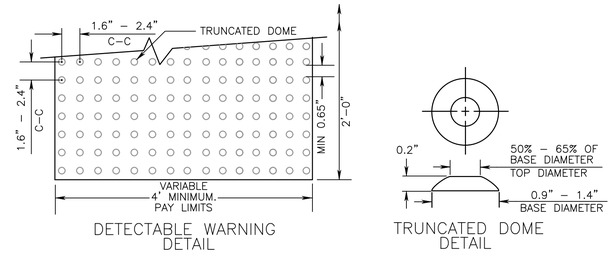
PROJECT NO.

C-308



THE SELECTION OF CURB TYPE AND THE CONFIGURATION OF THE UTILITY STRIP MAY VARY TO MEET EXISTING FIELD CONDITIONS AND ROADWAY GEOMETRICS PROVIDING THE DIMINSIONS AND SLOPES ARE AS NOTED.

THIS COMBINED (PARALLEL & PERPENDICULAR) DESIGN FOR ALTERATIONS CAN BE USED WITH ADJOINING BUFFER STRIP. LANDING AT BOTTOM OF TWO SLOPING SIDES WITH 60" X 60" MIN. DIMENSIONS. THE SHORT PERPENDICULAR RUN TO THE STREET CAN BE PROTECTED BY A LANDSCAPED SETBACK OR CONNECTED TO THE SIDEWALK WITH A WARPED SURFACE.



TYPE B PARALLEL APPLICATION		
ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	4	6
1	5	7
2	5	8
3	6	9
4	8	12
5	10	15
6	14	15

NOTE:

THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.

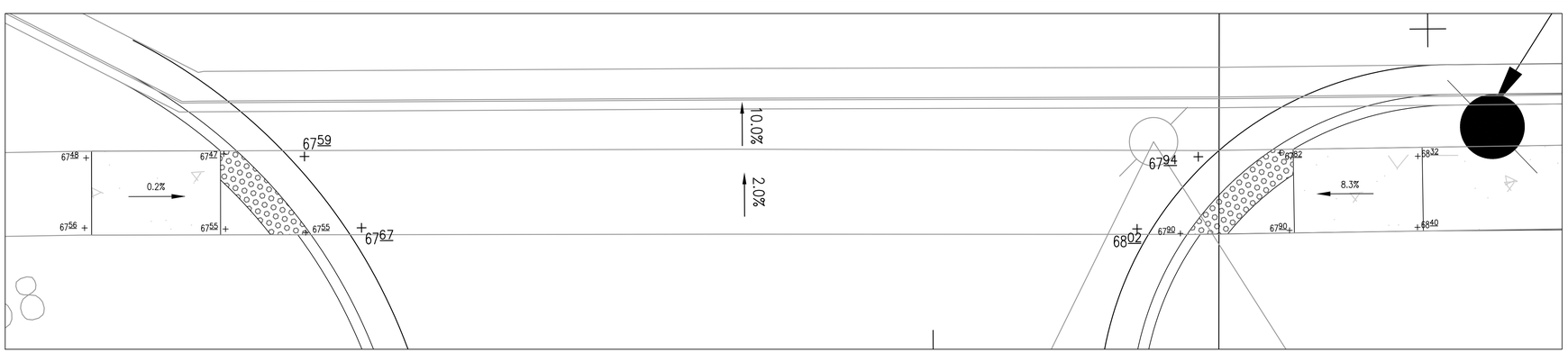
TYPE C PARALLEL & PERPENDICULAR APPLICATION		
ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	2	4
1	2	5
2	3	5
3	3	6
4	4	8
5	5	10
6	7	14
7	13	15
8	15	15

NOTES:

1. THE DETECTABLE WARNING SHALL BE PROVIDED BY TRUNCATED DOMES.
2. DETECTABLE WARNING TO BE CLASS A–3 CONCRETE (CLASS A–4 IF PRECAST) WITH SLIP RESISTANT INTEGRAL SURFACE COVERING THE FULL WIDTH OF THE RAMP FLOOR BY 2' IN LENGTH IN THE DIRECTION OF PEDESTRIAN TRAVEL. OTHER TYPES OF MATERIAL WITH THE TRUNCATED DOMES DETECTABLE WARNING MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
3. SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.
4. IF RAMP FLOOR IS PRECAST, HOLES MUST BE PROVIDED FOR DOWEL BARS SO THAT ADJOINING FLARED SIDES CAN BE CAST IN PLACE AFTER PLACEMENT OF PRECAST RAMP FLOOR. PRECAST CONCRETE SHALL BE CLASS A–4.
5. REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID–DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1½".
6. CURB / CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB / CURB AND GUTTER.
7. CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES. EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. ACCESSIBLE ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.
8. RAMPS MAY BE PLACED ON RADIAL OR TANGENTIAL SECTIONS PROVIDED THAT THE CURB OPENING IS PLACED WITHIN THE LIMITS OF THE CROSSWALK AND THAT THE SLOPE AT THE CONNECTION OF THE CURB OPENING IS PERPENDICULAR TO THE CURB.
9. TYPICAL CONCRETE SIDEWALK IS 4" THICK. WHEN THE ENTRANCE RADII CANNOT ACCOMMODATE THE TURNING REQUIREMENTS OF ANTICIPATED HEAVY TRUCK TRAFFIC THE CONCRETE SIDEWALK DEPTH SHOULD BE INCREASED TO 7".
10. WHEN CURB RAMPS ARE USED IN CONJUNCTION WITH A SHARED USE PATH, THE MINIMUM WIDTH SHALL BE THE WIDTH OF THE SHARED USE PATH.

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REV. 7/05
SPECIAL DESIGN SECTION
DRAWING NO. A 59



CG-12 RAMP ELEVATIONS - LOCUST STREET

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SEAL

COMMONWEALTH OF VIRGINIA
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PROFESSIONAL ENGINEER

KEY PLAN

SCALE — NORTH

AS NOTED

No.	DATE	BY	Description

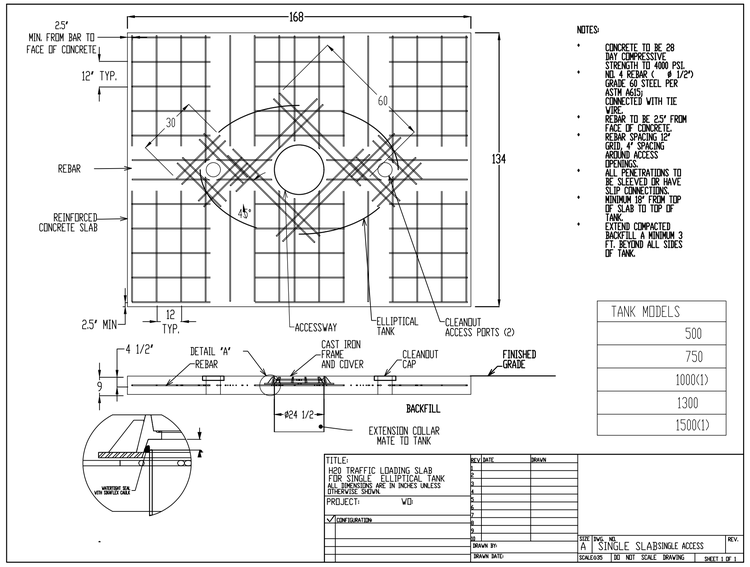
REVISIONS

DRAWN BY: KM
APPROVED BY: TC
CHECKED BY: RW
DATE: FEBRUARY 26, 2020

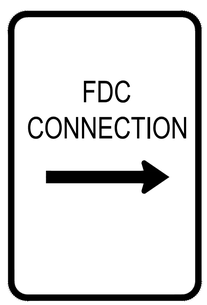
TITLE
CONSTRUCTION DETAILS

PROJECT NO.

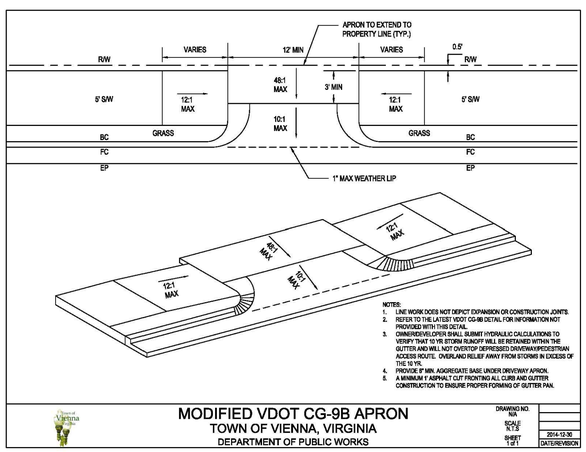
C-501

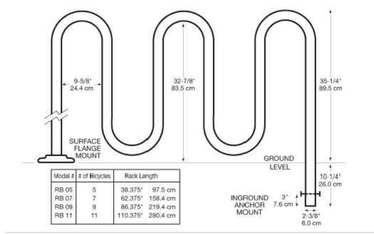


OIL/GRIT SEPARATOR
NTS

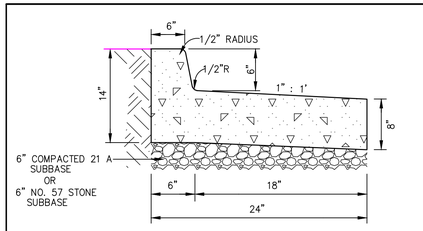


FDC SIGN
NTS





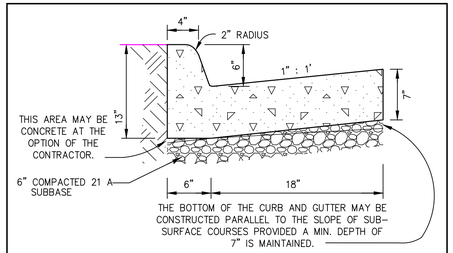
BIKE RACK DETAIL
NTS



NOTES:

1. CONSTRUCTION JOINTS AT 10' ON CURB.
2. ALL CONCRETE SHALL BE CLASS A-3, AIR ENTRAINED.
3. EXPANSION JOINTS IN CURB AND GUTTER TO BE 40' APART AND AT THE P.C. & P.T. OF CURVES.

REVERSE 6"
CURB AND GUTTER
CG-6R
NOT TO SCALE



THIS CURB IS TO BE USED WHEN DESIGN SPEED IS 40 MPH OR LESS ON RURAL HIGHWAYS AND 45 MPH OR LESS IN DEVELOPED URBAN & SUBURBAN AREAS.

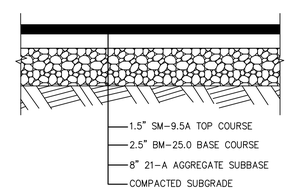
CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.

DETAIL PER VDOT ROAD AND BRIDGE STANDARDS STD. No. 201.03

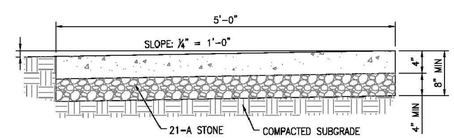
NOTES :
COMB. CURB & GUTTER HAVING A RADIUS OF 300' OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.

THIS ITEM MAY BE PRECAST OR CAST IN PLACE.

COMBINATION 6"
CURB AND GUTTER
CG-6
NOT TO SCALE



ON-SITE TYPICAL SECTION
NOT TO SCALE



STANDARD SIDEWALK

SIDEWALK NOTES:
1. ALL CONCRETE TO BE CLASS A-3, AIR ENTRAINED.
2. CONSTRUCTION JOINTS IN SIDEWALK TO BE 5' APART. IF SIDEWALK IS AS THE CURB, EXPANSION JOINTS TO MATCH JOINT IN CURB, EXPANSION JOINTS BETWEEN CURB AND SIDEWALK.
3. EXPANSION JOINTS REQUIRED WHERE SIDEWALKS MEET DRIVEWAY APRONS.

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KEY PLAN

SCALE NORTH

AS NOTED

No.	DATE	BY	Description

REVISIONS

DRAWN BY KM
APPROVED BY TC
CHECKED BY RW
DATE FEBRUARY 26, 2020

TITLE
CONSTRUCTION DETAILS

PROJECT NO.

C-502