



PLANNING COMMISSION WORK SESSION
Wednesday, August 7, 2024 @ 6 PM
Town Hall – 2nd Floor, East Conference Room

AGENDA

CALL TO ORDER

ROLL CALL

WORK SESSION BUSINESS

- **2400421** – A request for preliminary plan approval for a major subdivision submitted by Ali Billoo for a subdivision containing nine (9) lots and sixteen (16) dwelling units located at 336 W Strasburg Road, identified on tax map 20A11, section 4, parcel 23B. The property is zoned R-2, Residential District.
- **2400429** - A request for preliminary plan approval for a major subdivision submitted by Douglas N. McCarty, Dennis P. McCarty and Donald “Jay” McCarty for a subdivision containing eighteen (18) lots and thirty-three (33) dwelling units (16 duplexes and 1 existing SFD) located at 344 W. Main Street, identified on tax map 20A6, section 5, parcels 8, 8A and 8B. The property is zoned R-2, Residential District.
- Draft Zoning Ordinance

OTHER

ADJOURNMENT

2400421 – PRELIMINARY PLAT APPROVAL MAJOR SUBDIVISION
ALI BILLOO – 336 W. STRASBURG ROAD



TOWN OF FRONT ROYAL
DEPARTMENT OF PLANNING & ZONING
102 EAST MAIN STREET
P.O. BOX 1560
FRONT ROYAL, VA 22630

2400421
RECEIVED
Main: 540.635.4236
Fax: 540.631.2727
Internet: www.frontroyalva.com

TOWN OF FRONT ROYAL
PLANNING & ZONING DEPARTMENT

APPLICATION FOR PRELIMINARY PLAN APPROVAL
(involving new streets, utilities or more than 8 lots)
MAJOR SUBDIVISIONS

The undersigned hereby applies for review by the Town of Front Royal Planning Commission of the Preliminary Major Subdivision Plat submitted herewith:

1. Applicant's Name Ali Billoo Phone 703-346-6254
Address 7214 Sipes Lane, Annandale VA, 22003 billshomes@hotmail.com
2. Present Owner (if other than applicant) _____
Address _____ Phone _____
3. Interest of applicant if other than owner _____

4. Name and profession of person designing preliminary plat Racey Engineering, PLLC
Joshua Turner, P.E.: Civil Engineer
Address 312 West Main Street, Luray VA, 22835 Phone 540-743-9227
5. Location of subdivision 336 West Strasburg Road, Front Royal VA, 22630

6. Total acreage 3.52 Zoning Classification R2
No. of Lots 9 Tax Map Number 20A114 23B
7. Acreage of adjoining land in same ownership (if any) 0.05853
8. Development Plans:
(A) Proposed number of dwellings. 14
(B) Length of new public roads. 340'
(C) Amount of open space. 1,780 sf

PLEASE COMPLETE REVERSE SIDE

9. Deed restrictions that apply or are contemplated. (If no restrictions, state "none", if "Yes" attach copy) none

10. Date of Sketch Plat Approval _____ (Optional)

11. Attach: (A) Two Full Size Copies of Preliminary Plat
(B) Digital Copy of Preliminary Plat
(C) One 11 x 17 Copy of Preliminary Plat
(D) Additional documents required by Section 148-310.C of the Subdivision and Land Development Ordinance.

I hereby state that all of the above information and the statements contained herein submitted with this application are true.

2/11/24
Date

[Signature]
Signature of Applicant

Designated contact for applicant: _____

By submitting this application, the applicant grants permission to Town officials and employees to enter upon the property, which is the subject of this application, during reasonable hours and for purposes related to the application process.

Fee \$725.00 * pd check # 3897 Date Paid 7-11-24
725.00

*Preliminary Plat fee is \$500 per plat and \$25 per lot.

1. Action of the Town Planning Commission

Date _____ Approved _____ Disapproved _____

2. Notification of approval/disapproval sent to:

Town Council _____ Date _____

Applicant _____ Date _____

3. Amount of performance bond required for approval of final plat \$ _____

Comments:

Connie Potter

From: David Beahm <Dbeahm@warrencountyva.gov>
Sent: Monday, July 15, 2024 1:09 PM
To: Connie Potter
Cc: Gerry Maiatico; Gordon Foster; Inspections; Kevin Perry; Matthew Byers
Subject: RE: Request for Comments – Major Subdivision Preliminary Plan Review – Tax Map 20A114----23B – 336 West Strasburg Rd., Front Royal, VA – 2400421
Attachments: 2400421_Application_Preliminary Plan_Major Subdivision_336 W Strasburg Rd.pdf; 2400421_Plan_STRASBURG ROAD SUBDIVISION_062824.pdf; 2400421_Stormwater Computations Packet.pdf

Comments – Ali Billoo – Preliminary Plan Approval Major Subdivision – 2400421:

- Erosion and Sediment Control (ESC) Items:
 - Application and permits are required for ESC permit, which would be a normal submission including a full plan review application.
 - The area of disturbance exceeds one (1) acre, more than two dwellings and a new subdivision which will additionally require a Stormwater permit through the Department of Environmental Quality (DEQ). Approval by DEQ (Construction General Permit) would be required prior to any ESC Permit and any type of Building Permit being issued by Warren County.
 - Each lot when developed for a residential dwelling unit would then be required to have an Agreement In Lieu Of which would be obtained at that time.
- Site Plan Review:
 - If or when any building construction related activity were to take place, a Site Plan Review and Permit for Building Code Compliance would be required to be completed for including emergency access, utilities, structure placement for required fire separation, fire hydrants, fire lane markings, required fire signage, etc.
- Building Inspections Items:
 - If or when any building construction related activity (structure, electrical, plumbing, mechanical, fire suppression, energy, etc.) were to start, it would be subject to the normal requirements of application, review and approval prior to work beginning.
- Fire Marshal's Office Comments (standard):
 - We would defer all comments for the site development/new construction/retrofit/change of use to the Building Official. Upon approval and issuance of the CO, the facility (as applicable) shall be maintained in accordance with the Virginia Statewide Fire Prevention Code.

If anything should change in the scope, additional requirements may be required.

Respectfully,

David C. Beahm, CBO
Building Official
County of Warren
540-636-9973
Fax 540-636-4698
dbeahm@warrencountyva.gov
www.warrencountyva.gov



2400421
Energy Services
Review Comments

Date: 07/18/2024

Permit #: 2400421

Permit Date: 07/12/2024

Review Date: 07/12/2024

Permit Type: Major Subdivision - Preliminary Plat

Review Type: Application Review

Target Date: 07/26/2024

**Scheduled
Time:** 00:00

**Completed
Date:**

Description: This had been sent out before; however, the previous application is VOID. Please review this application as a new submission. Thank you!

Review Status: Approved

Assigned To: Mary Lynn

Time In: 00:00

Time Out: 00:00

Hours: 0.0

Notes

The subdivider, developer or builder shall be responsible for all engineering, trenching, backfilling and installation and expense of conduits for the underground electric system. See attached conduit policy for specifications.

All materials and improvements comprising the underground electric system shall be dedicated to the Town of Front Royal and shall be depicted on the subdivision plat. A tenfoot-wide easement shall be dedicated to the Town of Front Royal for the operation, maintenance and repair of the underground electric system.

The Town of Front Royal shall supply and install electrical conductors and such transformers, pedestals and other electrical equipment.

07/18/2024 All underground electric systems shall include connections for streetlight poles located every three hundred (300) feet along subdivision streets. Pole location shall be subject to the approval of the Town of Front Royal. Except where otherwise approved, pole location shall be staggered on the opposite sides of the street. No overhead wires shall be permitted to serve streetlights. All streetlights poles and bases shall be equipped with wiring and connections to the underground electric system and shall be in accordance with the conditions and specifications of the Department of Energy Services. Streetlight poles and bases shall be supplied and installed by the subdivider or developer at his sole expense, or, at the Town's option, streetlight poles and bases may be installed by the Town of Front Royal at the subdivider's or developer's expense.

A pre-engineering meeting can be scheduled by calling the Department of Energy Services at (540)635-3027.

Property Information

Parcel#: 20A114 23B

BILLS INVESTMENTS LLC

336 W STRASBURG RD

Zoning: R-2Lot: 23BBblock:

BILLS INVESTMENTS LLC

7214 SIPES LANE

ANNANDALE, VA 22003



PUBLIC WORKS COMMENTS

Date: 07/24/2024

Permit #: 2400421

Permit Date: 07/12/2024

Review Date: 07/12/2024

Permit Type: Major Subdivision - Preliminary Plat

Review Type: Application Review

Target Date: 07/26/2024

Scheduled Time: 00:00

Completed Date:

Description: Major Subdivision Preliminary Plan 14 Dwellings - 9 Lots

Review Status: Complete

Assigned To: Robert B. Boyer

Time In: 00:00

Time Out: 00:00

Hours: 0.0

Notes

The plans show this street being a public street maintained by the town, if so, the private forced sewer main needs to be relocated out of the street behind the right of way.

The town will want a document showing the property owners will maintain, repairing and replacing the forced sewer lines at their cost.

The proposed 6" water main shall 6" class 52 ductile iron pipe and all water services shall be 3/4" k copper.

Each dwelling must have its own water tap connected directly to the water main, each water meter crock needs to be located at the edge of the town right of way.

07/24/2024

Each mechanical joint tee shall include three mechanical joint gate valves also and the last hydrant in the cul-de-sac needs a mechanical joint gate valve shown there as well.

Plans need to show the installation of the CG-6 curb and gutter and CG-9 driveway aprons to include a 6" sidewalk.

Where the tie-in at the existing 15" culvert is shown there needs to be a storm water manhole installed there.

The Storm Water Management lot will require documentation that it will be owned and maintained and repaired by the property owner at their expense.

Property Information

Parcel#: 20A114 23B

BILLS INVESTMENTS LLC

336 W STRASBURG RD

Zoning: R-2Lot: 23BBlock:

BILLS INVESTMENTS LLC

7214 SIPES LANE

ANNANDALE, VA 22003

From: Brown, Robert (DEQ) <robert.brown@deq.virginia.gov>
Sent: Friday, July 19, 2024 12:37 PM
To: Connie Potter <cpotter@frontroyalva.com>
Subject: RE: Request Preliminary Plan Review 2400429

Hi Connie!

DEQ does not typically provide formal comments on preliminary plans. However, if the developer or engineer want to discuss their design at any point, they can contact us directly and we will be happy to set up a meeting with them. Otherwise, they will have to wait until the plans are finalized to submit for DEQ review.



Robert A. Brown, PE

Stormwater Plan Reviewer

[Virginia Department of Environmental Quality](https://www.deq.virginia.gov/)

4411 Early Road

Harrisonburg, VA 22801

(540) 217-7154

STRASBURG ROAD SUBDIVISION

FOR

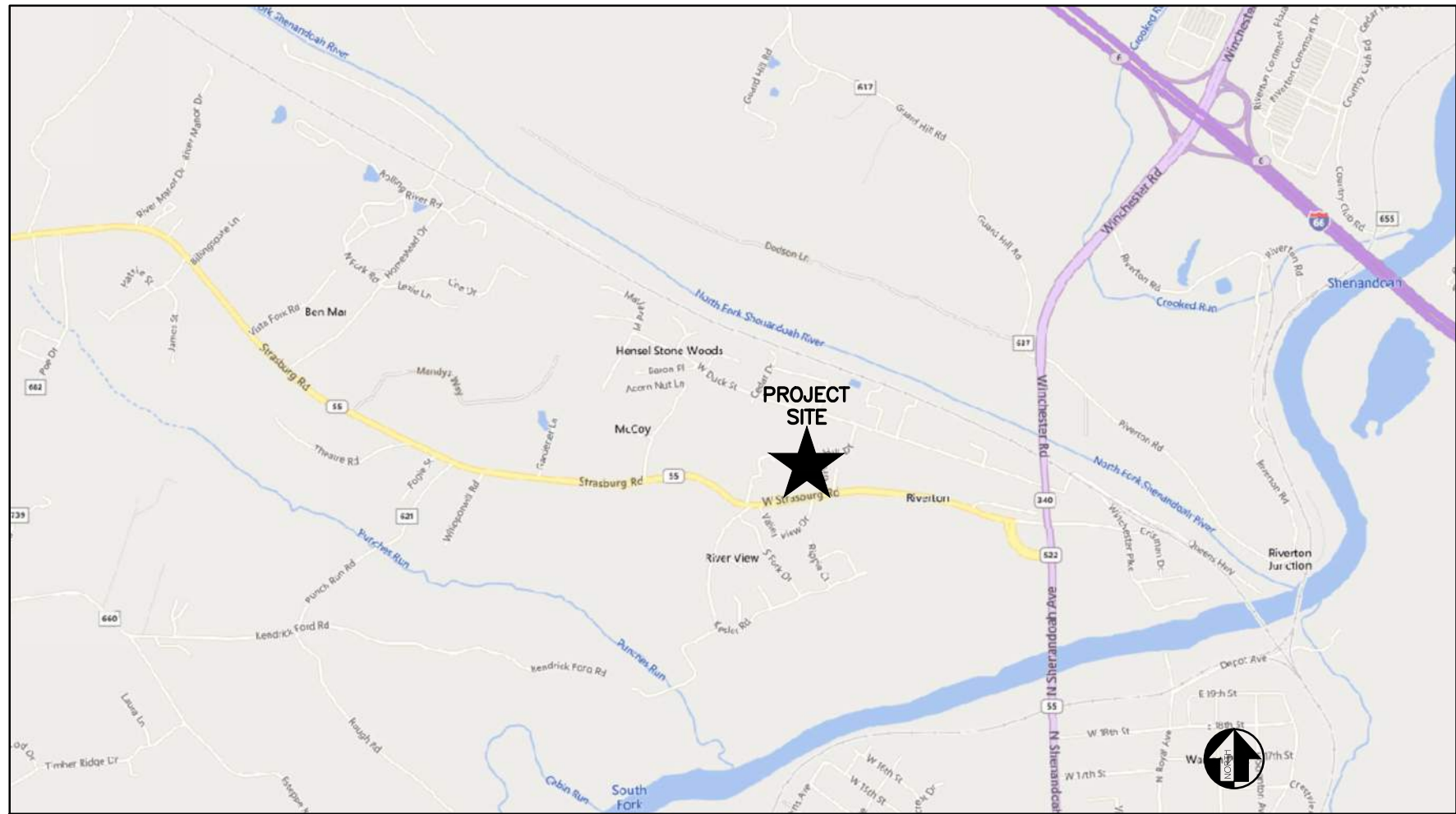
ALI BILLOO

TOWN OF FRONT ROYAL

WARREN COUNTY, VA

PROJECT SITE SUMMARY:

SITE ADDRESS:	336 W. STRASBURG ROAD FRONT ROYAL, VA 22630
OWNER/APPLICANT: ADDRESS:	ALI BILLOO 7214 SIPES LANE ANNANDALE, VA 22003 (703) 346-6254
TELEPHONE NO:	
PROJECT ENGINEER: CONTACT: ADDRESS:	RACEY ENGINEERING, PLLC JOSHUA P. TURNER, P.E. 312 WEST MAIN STREET LURAY, VIRGINIA 22835 (540) 743-9227
TELEPHONE NO:	
TAX MAP/PARCEL ID:	20A114 23B
DEED BOOK/INST NO:	INST#: 4952
PRESENT ZONING:	R2 (RESIDENTIAL)
MAG DISTRICT:	NORTH RIVER-TOWN
PROPERTY CLASS:	RESIDENTIAL
FLOOD ZONE; FEMA MAP NO.:	X; 51187C0104C
PRESENT USE: PROPOSED USE:	DWELLING SUBDIVISION
PROPERTY AREA:	3.52 ACRES
TOTAL DISTURBED AREA:	2.94 ACRES
SETBACKS:	FRONT - 30' BUILDING BACK - 10' BUILDING SIDE - 25' BUILDING
BEST MANAGEMENT PRACTICES:	[STORMTECH ISOLATOR ROW PLUS, BMP SPEC. NO. 12 - FILTERING PRACTICE] LATITUDE: 38°56'58.92" N LONGITUDE: 78°12'35.64" W



VICINITY MAP
SCALE: 1" = 2000'

PROJECT COORDINATES
38° 56' 56.35" N
78° 12' 37.02" W

PROPOSED USE:

THE PROPOSED SITE INCLUDES THE CONSTRUCTION OF A NEW SUBDIVISION CONSISTING OF 8 DUPLEX UNITS WITH ASSOCIATED PARKING, ACCESS ROADWAY, AND STORMWATER MANAGEMENT. THE ESTIMATED START TIME FOR THIS PROJECT IS MID TO LATE 2024, AND THE ESTIMATED COMPLETION TIME IS EARLY 2025. THERE IS AN EXPECTED 0.84 ACRE INCREASE IN IMPERVIOUS AREA FROM THIS PROJECT.



SINCE THE SITE DISTURBANCE IS GREATER THAN ONE (1) ACRE, A VSMP GENERAL CONSTRUCTION PERMIT IS REQUIRED. CONTRACTOR TO OBTAIN PERMIT COVERAGE NUMBER FROM THE DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) THROUGH THE VSMP PROGRAM ADMINISTRATOR. SEE "VPDES GENERAL PERMIT REQUIREMENTS" ON SHEET T101 FOR MORE INFORMATION.

APPROVAL BLOCK

PLANNING DIRECTOR/ZONING ADMINISTRATOR

DATE

Sheet List Table

Sheet Number	Sheet Title
T100	COVER SHEET
T101	PROJECT NOTES
C100	EXISTING FEATURES
C101	PLAT SHEET
C200	LAYOUT PLAN
C201	UTILITY PLAN
C202	UTILITY PROFILES
C300	GRADING PLAN
C301	STORMTECH UG-1 DETAILS
C302	STORMTECH UG-1 DETAILS
C303	ROAD AND ENTRANCE PLAN
C400	ESC NARRATIVE
C401	ESC PLAN PHASE 1
C402	ESC PLAN PHASE 2
C500	ESC DETAILS
C501	ESC DETAILS
C502	CONSTRUCTION DETAILS
C600	DRAINAGE MAP
C601	VRRM MAP
C602	DEQ COVER SHEET

No.	By	Submittal / Revision	Date
1	HV	1ST SUBMITTAL TOWN	06/28/24



PERMIT
REVIEW SET



CHECKED:JPT

DRAWN:HV

DESIGNED:HV

STRASBURG ROAD SUBDIVISION

COVER SHEET

ALI BILLOO
WARREN COUNTY, VA

RACEY PROJECT NUMBER: 9276 PUBLISH DATE: 6/28/2024

T100

CONSTRUCTION STANDARDS

- THE COUNTY OF WARREN / TOWN OF FRONT ROYAL CONSTRUCTION STANDARDS AND SPECIFICATIONS
- VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD & BRIDGE SPECIFICATIONS
- VDOT ROAD AND BRIDGE STANDARDS
- VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH)
- VIRGINIA DEPARTMENT OF HEALTH (VDH) SPECIFICATIONS
- VIRGINIA STORMWATER MANAGEMENT HANDBOOK
- MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
- VIRGINIA WORK AREA PROTECTION MANUAL

CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CONSTRUCTION STANDARDS AS IDENTIFIED IN THESE PLANS. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS, EXPENSE, MAINTAIN COPIES OF THE PERMITS AND LICENSES ON-SITE AT ALL TIMES DURING CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
2. THE CONTRACTOR SHALL MAINTAIN A SET OF CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND A STORMWATER POLLUTION PREVENTION PLAN (IF APPLICABLE) ON-SITE AT ALL TIMES DURING CONSTRUCTION. A DESIGNATED RESPONSIBLE PERSON SHALL BE AVAILABLE FOR CONTACT BY INSPECTORS OR AGENCY OFFICIALS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE START OF CONSTRUCTION. IF ANY DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES ARE FOUND BETWEEN THE DRAWINGS, SPECIFICATIONS, SITE CONDITIONS, OR ANY RELATIVE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE ENGINEER AFTER THE DISCOVERY OF SUCH DISCREPANCY, INCONSISTENCIES, OR AMBIGUITIES SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE ALL SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL ORDINANCES AND CODES.
4. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE OWNER AND ENGINEER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM. DEVIATIONS FROM OR CHANGES TO THESE PLANS WILL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SPECIFICATIONS, INCLUDING THE NOTES CONTAINED THEREON, WITHOUT FIRST OBTAINING WRITTEN AUTHORIZATION FOR SUCH DEVIATIONS FROM THE OWNER AND ENGINEER. IT SHALL BE RESPONSIBLE FOR THE PAYMENT OF ALL COSTS OF WORK STOPPAGE, DELAY, AND/OR REWORK, INCLUDING THE COST OF THE PROJECT, AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ALL SUCH COSTS TO CORRECT ANY SUCH WORK AND FROM ALL SUCH DELAYS, PENALTIES, COMPENSATION AND PUNITIVE DAMAGES AND COSTS OF ANY NATURE RESULTING THEREFROM.
5. CONTRACTOR TO VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY, ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND NOTIFY THE OWNER AND THE ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK. IF IT IS NECESSARY FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES ASSOCIATED WITH THE PROJECT WORK SCOPE DURING CONSTRUCTION, NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
6. THE LOCATION OF EXISTING UTILITIES AS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE AND IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES ASSOCIATED WITH THE PROJECT WORK SCOPE DURING CONSTRUCTION. AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY DEMOLITION, GRADING, OR CONSTRUCTION ACTIVITY THE CONTRACTOR SHALL NOTIFY THE UTILITY OF ANY CITY OR COUNTY OF ANY SUCH WORK. THE UTILITY OF ANY CITY OR COUNTY OF ANY CITY OR COUNTY OF ANY CITY, A CERTIFIED PRIVATE UTILITY LOCATION COMPANY SHALL BE HIRED TO IDENTIFY ANY ADDITIONAL EXISTING UTILITIES ON PRIVATE PROPERTY. IN ANY SITUATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS EXPENSE, ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
7. PROPERLY SECURE THE CONSTRUCTION AREA AT ALL TIMES AGAINST UNAUTHORIZED ENTRY AND DAMAGE TO EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOSS OF THE OWNER IS NOT RESPONSIBLE FOR THE LOSS OF ANY MATERIAL STORED AT THE SITE.
8. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY THROUGHOUT THE ENTIRE DURATION OF CONSTRUCTION UNTIL CLOSEOUT PROCEDURES ARE COMPLETED.
9. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL REQUEST THE MEETING WITH THE VESOP AUTHORITY AT LEAST ONE WEEK IN ADVANCE. IMMEDIATE NOTICE OF ANY CANCELLATION OR NO SHOW IS NOT GUARANTEED, AND CONTRACTOR SHOULD PROVIDE AMPLE NOTICE FOR DESIRED MEETING TIMES.
10. ANY DAMAGE OCCURRING TO THE EXISTING SITE INFRASTRUCTURE ON THIS OR THE ADJACENT SITE DURING THE CONSTRUCTION OPERATIONS AND/OR MOBILIZATION, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL EXISTING DAMAGED ITEMS INCLUDING CONCRETE AND/OR PAVEMENT SECTIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS PRIOR TO PROJECT COMPLETION AT THE EXPENSE OF THE CONTRACTOR.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING WITH MATCHING MATERIALS ANY PAVEMENT, DRIVEWAYS, CURBS, ETC. THAT ARE DAMAGED OR THAT ARE DAMAGED DURING CONSTRUCTION INSIDE AND OUTSIDE OF THE LIMITS OF CONSTRUCTION.
12. THE CONTRACTOR IS RESPONSIBLE TO REMOVE ALL THE REMOVED/DEMOLISHED MATERIAL FROM THE PROJECT SITE, UNLESS OTHERWISE NOTED, AND DISPOSE OF THE MATERIAL IN A SAFE, LEGAL MANNER.
13. ANY AND ALL UTILITIES AND/OR OBSTRUCTIONS (POWER POLES, TELEPHONE PEDESTALS, GUY WIRES, WATER MAINS, ETC.) THAT ARE REQUIRED TO BE RELOCATED OR ADJUSTED DUE TO CONSTRUCTION SHALL BE DONE SO AT THE OWNERS/DEVELOPERS EXPENSE.
14. DIMENSIONS AND RADII ARE TO FACE OF CURB AND TO OUTSIDE FACE OF BUILDINGS, WHERE APPLICABLE, UNLESS OTHERWISE INDICATED.
15. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL/BUILDING PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, EXACT BUILDING UTILITY LOCATIONS.
16. SLOPES WITHIN THE LIMITS OF THE HANDICAPPED PARKING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. CROSSWALKS AND SIDEWALKS SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.0% AND A MAXIMUM LONGITUDINAL SLOPE OF 5.0% IN DIRECTION OF TRAVEL. SLOPES IN HANDICAP RAMPS SHALL BE BUILT IN CONFORMANCE WITH THE LATEST ADA AND LOCAL DESIGN STANDARDS, THE MORE STRINGENT SHALL APPLY.
17. ALL PAINT STRIPING, PAVEMENT MARKINGS, AND SIGNAGE SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. ALL NEW SIGNS SHALL BE MOUNTED ON GALVANIZED POSTS AND IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
18. FIRE LANE DESIGNATION AND MARKING (IF REQUIRED) IS TO BE DETERMINED BY THE LOCAL FIRE DEPARTMENT WITH JURISDICTION, PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
19. ALL GROUND COVER AND LANDSCAPING SHALL BE PROPERLY MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. DEAD PLANT MATERIALS SHALL BE REMOVED AND REPLACED DURING THE NORMAL PLANTING SEASON.
20. ALL GRASS OR TURF AREAS THAT ARE IMPACTED OR DISTURBED BY VEHICLES, EQUIPMENT, OR ACTIVITY SHALL BE REPAIRED, REGRADED, AND RESEED TO THE SATISFACTION OF THE OWNER.
21. WHENEVER CONSTRUCTION OPERATIONS ENCROACH ON THE RIGHT-OF-WAY OF ADJACENT ROADWAYS, TRAFFIC CONTROL SHALL BE PROVIDED IN ACCORDANCE WITH LOCAL AND STATE STANDARDS.
22. NO MATERIALS OR EQUIPMENT SHALL BE STORED OR STOCKPILED WITHIN THE RIGHT-OF-WAY OF ADJACENT ROADWAYS.
23. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR COMPLETING AND IMPLEMENTING TRAFFIC CONTROL PLAN.

1. LAND DISTURBANCE SHALL NOT COMMENCE UNTIL A REGISTRATION STATEMENT FOR THE VPDES GENERAL PERMIT FOR DISCHARGE FROM CONSTRUCTION ACTIVITIES (9VAC25-880) HAS BEEN SUBMITTED AND A LIMIT COVERING THE CONSTRUCTION OF THE PROJECT. THE DEPARTMENT OF ENVIRONMENTAL QUALITY IS PROVIDED TO THE PROGRAM ADMINISTRATOR, THIS INCLUDES THE DEVELOPMENT AND IMPLEMENTATION OF A STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
2. THE VESCP AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY AND ONE WEEK PRIOR TO FINISH OF CONSTRUCTION. THE VESCP AUTHORITY CAN BE CANCELED WITHOUT FIRST HOLDING A PRE-CONSTRUCTION CONFERENCE WITH THE VESCP AUTHORITY.
3. THE FULL AND COMPLETE SWPPP SHALL BE KEPT ONSITE AT ALL TIMES DURING CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE APPROVED VERSION OF THIS DOCUMENT FROM THE OWNER OR ENGINEER PRIOR TO BEGINNING CONSTRUCTION. THE SWPPP SHALL BE COMPRISED OF THE FOLLOWING:
 - A. EROSION AND SEDIMENT CONTROL NARRATIVE AND PLAN
 - B. STORMWATER MANAGEMENT NARRATIVE AND PLAN, ALONG WITH ANY SWM CALCULATIONS, REPORTS, AND/OR SUPPORTING APPENDICES
 - C. POLLUTION PREVENTION PLAN (PPP)
 - D. ANY ADDITIONAL CONTROL MEASURES NECESSARY TO ADDRESS A TMDL PURSUANT TO 9VAC25-870-54.6 OF THE CODE OF VIRGINIA.
4. THE SWPPP SHALL BE AMENDED WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION,

5. RETAIN A COPY OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION ON SITE AND ADHERE TO THE STANDARDS LISTED AT ALL TIMES.

6. PRIOR TO ANY LAND DISTURBING ACTIVITY, CONTRACTOR SHALL PROVIDE THE NAME, CERTIFICATION INFORMATION, AND CONTACT INFORMATION OF THE DESIGNATED RESPONSIBLE LAND DISTURBER (RLD) TO THE APPROPRIATE AUTHORITY.

1. PRIOR TO STARTING ANY DEMOLITION CONTRACTOR SHALL ENSURE THAT COPIES OF ALL APPLICABLE PERMITS AND APPROVALS ARE MAINTAINED ON SITE AND AVAILABLE FOR REVIEW. CONTRACTOR ALSO SHALL HAVE COMPLETED THE PRE-CONSTRUCTION CONFERENCE.
2. CONTRACTOR SHALL INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL AND/OR TREE PROTECTION MEASURES PRIOR TO SITE DISTURBANCE.
3. CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) ALL UTILITIES AND SERVICES, INCLUDING, BUT NOT LIMITED TO WATER, ELECTRIC, SANITARY, AND STORM SEWER, TELEPHONE, CABLE, FIBER, OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.
4. CONTRACTOR SHALL CONTACT THE APPLICABLE UTILITY SERVICE PROVIDER AND SHALL BE RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN IDENTIFIED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.

5. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES & ADJACENT LANDOWNERS/BUSINESSES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS WHICH MAY BE REQUIRED TO MINIMIZE THE IMPACT ON THE ADJACENT PROPERTY OWNERS/TENANTS.
6. CONTRACTOR SHALL PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL OSHA REQUIREMENTS, TO ENSURE THE SAFETY OF THE PUBLIC AND ALL PARTIES INVOLVED.
7. THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, COLLAPSE, OR OVERLOADING OF EXISTING STRUCTURES OR ANY OTHER ADJACENT STRUCTURES. REMAINING ON OR OFF SITE, THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF THEIR ACTIVITIES.
8. IN THE ABSENCE OF SPECIFICATIONS, THE CONTRACTOR SHALL PERFORM EARTH MOVEMENT ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION WALLS, FOOTINGS, AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE WITH DIRECTION BY OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.
9. CONTRACTOR SHALL CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM DUST AND NOISE LEVELS TO ADJACENT COMMUNITIES AND SENSITIVE FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AGENCY.
10. USE DUST CONTROL MEASURES TO LIMIT AIRBORNE DUST DURING DEMOLITION IN ACCORDANCE WITH FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ADJACENT STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR PRE-DEMOLITION CONDITION.
11. CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE ENTRY OF UNAUTHORIZED PERSONS AT ANY TIME.
12. THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS ARE TO BE IN ACCORDANCE WITH STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
13. DEBRIS SHALL NOT BE BURNED ON THE SUBJECT SITE. ALL DEMOLITION WASTES AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND APPLICABLE CODES.

1. ALL MATERIALS USED FOR FILL OR BACK-FILL SHALL BE FREE OF WOOD, ROOTS, OR ANY OTHER NON-COMPACTIBLE SOIL TYPE MATERIAL. UNSATISFACTORY MATERIALS ALSO INCLUDE MAN-MADE FILLS AND REFUSE DEBRIS DERIVED FROM ANY SOURCE.
2. SATISFACTORY MATERIAL FOR USE AS FILL FOR THIS PROJECT (UNLESS OTHERWISE SPECIFIED) INCLUDE THOSE CLASSIFIED IN ASTM D-2487 AS GW, GP, GM, GC, SW, SP, SM, SC, ML, AND CL GROUPS. THE MATERIALS SHALL BE COMPACTED WITHIN PLUS OR MINUS 2 PERCENTAGE POINTS OF OPTIMUM TO FACILITATE COMPACTION. GENERALLY, UNSATISFACTORY MATERIALS INCLUDE MATERIALS CLASSIFIED IN ASTM D-2487 AS PT, CH, MH, OL, OH, AND ANY SOIL TOO WET TO FACILITATE COMPACTION. CH AND MH SOILS MAY BE USED SUBJECT TO APPROVAL BY A PROFESSIONAL GEOTECHNICAL ENGINEER.
3. MATERIALS USED TO CONSTRUCT EMBANKMENTS FOR ANY PURPOSE, BACK-FILL AROUND DRAINAGE STRUCTURES, UTILITIES, OR OTHER STRUCTURES SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST SET OUT IN ASTM STANDARD D-698. THE CONTRACTOR SHALL, PRIOR TO ANY OPERATIONS INVOLVING FILLING OR BACKFILLING, SUBMIT THE RESULTS OF THE PROCTOR TEST TOGETHER WITH A CERTIFICATION THAT THE PROCTOR TEST RESULTS AND THE MATERIALS TO BE USED ON THE PROJECT. TESTS SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER.
4. EMBANKMENT FILL AND TRENCH BACK-FILL SHALL BE PLACED IN LIFTS AT A MAXIMUM UN-COMPACTED DEPTH OF 8-INCHES AND 6-INCHES, RESPECTIVELY. DENSITY TESTS SHALL BE CONDUCTED AT THE FOLLOWING MINIMUM FREQUENCIES:
 - EMBANKMENTS FOR ROADS, STREETS, DAMS, ETC: ONE TEST PER LIFT PER 10,000 SQUARE FEET.
 - BACK-FILL AROUND STRUCTURES AND IN TRENCHES: ONE TEST PER LIFT PER 500 LINEAL FEET.

1. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM WITH THE STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION'S, LATEST EDITION, EXCEPT WHERE TOWN OF FRONT ROYAL STANDARDS ARE APPLICABLE.
2. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES HAVING UNDERGROUND UTILITIES ON SITE OR IN THE RIGHT-OF-WAY PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL CONTACT UTILITY LOCATING COMPANY AND LOCATE ALL UTILITIES PRIOR TO GRADING START.
3. ALL STORM SEWER SHALL BE DUAL WALL HDPE PIPE WITH SMOOTH INTERIOR AND CORRUGATED EXTERIOR WALLS, EXCEPT AS NOTED. MINIMUM COVER IN PAVED AREAS SHALL BE 2' UNLESS OTHERWISE NOTED.
4. STORM DRAIN PIPE AND FLORED END SECTIONS ARE TO BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR HDPE PIPE AND END SECTIONS, OR SECTION 302 OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS, LATEST EDITION, OR THE REQUIREMENTS OF ASTM DESIGNATION C-76 FOR REINFORCED CONCRETE CULVERT AND STORM DRAIN PIPE.

5. CONCRETE DRAINAGE STRUCTURES MAY BE EITHER PRECAST OR CAST-IN-PLACE. ALL SHALL BE VDOT STANDARD (PER SECTION 100 OF THE ROAD AND BRIDGE STANDARDS).
6. ALL EXISTING STORM SEWER PIPES, DROP INLETS, AND CURB INLETS BEING UTILIZED BY A PART OF THE DRAINAGE SYSTEM SHALL BE CLEANED OF ERODED MATERIAL AT ALL STAGES OF CONSTRUCTION, AS DIRECTED BY THE ENGINEER. THE COST INCIDENTAL TO THIS IS TO BE INCLUDED IN THE CONTRACT PRICE FOR THE OTHER DRAINAGE ITEMS.
7. ALL STORM SEWER SHALL HAVE A MINIMUM OF 6" AGGREGATE BEDDING MATERIAL.
8. FOR STORM SEWER LINES WITH OVER 8' OF COVER, REFER TO THE MANUFACTURERS GUIDELINES FOR PROPER BACKFILL.
9. DRAIN BASINS AND INLINE DRAINS SHALL BE NYLOPLAST OR APPROVED EQUAL.
10. ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC (H20) LOADING (UNLESS OTHERWISE NOTED) AND BE INSTALLED ACCORDINGLY.
11. STORM SEWER PIPES AS SHOWN ON THE PLANS ARE MEASURED FROM THE CENTERLINE OF EACH STRUCTURE AND INVERT ELEVATIONS ARE ESTABLISHED BASED ON THIS CENTER LINE DISTANCE. LENGTH OF ALL STORM SEWER PIPES WITH FLARED END SECTIONS WILL BE MEASURED TO THE JOINT. CONTRACTOR SHALL LOCATE ALL END SECTIONS TO MATCH THE BANK SLOPE AND THE PIPE SLOPE SHALL BE ADJUSTED AS NECESSARY.
12. ALL DROP INLETS AND CURB INLETS SHALL HAVE VDOT STD. IS-1 SHAPING AND ST-1 STEPS, WHERE APPLICABLE.
13. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
14. BOOT CONNECTIONS SHALL BE PROVIDED FOR ALL PLASTIC PIPES THAT TIE INTO A CONCRETE STRUCTURE.
15. ALL STORM SEWER PIPES, MANHOLES, AND CURB INLETS SHALL BE CLEANED OF DEBRIS AND ERODED MATERIALS AT THE LAST STAGES OF CONSTRUCTION.
16. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURE IN OPERABLE CONDITIONS.
17. ALL CURB AND GUTTER SHALL BE VDOT STANDARD, EXCEPT AS NOTED.

18. THE PAVEMENT DESIGN IS SUBJECT TO CHANGE DUE TO SOIL CONDITIONS AT THE TIME OF CONSTRUCTION, AS DETERMINED BY THE INSPECTORS FOR THE OWNER OR THE LOCALITY.
19. ANY NECESSARY PAVEMENT WIDENING BETWEEN THE EXISTING PAVEMENT AND PROPOSED IMPROVEMENTS IS THE RESPONSIBILITY OF THE CONTRACTOR.
20. WHERE PAVEMENT IS BEING REMOVED, THE CONTRACTOR SHALL REMOVE AGGREGATE BASE MATERIAL TO SUB-GRADE.
21. EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY CONTRACTOR (WHICH ARE NOT TO BE REMOVED) SHALL BE REPAIRED TO LIKE-NEW CONDITION.
22. IN ACCORDANCE WITH HANDICAP ACCESSIBILITY REQUIREMENTS, ALL APPLICABLE CODES AND REQUIREMENTS FOR ACCESSIBILITY FOR DISABLED PERSONS SHALL BE STRICTLY COMPLIED WITH.
23. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE SO THAT RUNOFF WILL DRAIN BY GRAVITY FLOW ACROSS NEW PAVEMENT AREAS TO NEW OR EXISTING DRAINAGE INLETS OR SHEET FLOW OVERLAND.
24. ALL UNSUITABLE MATERIAL UNDER STRUCTURES AND/OR PAVED AREAS SHALL BE DISPOSED OF OFFSITE AT THE CONTRACTOR'S EXPENSE.
25. AFTER PLACEMENT OF SUBGRADE AND PRIOR TO PLACEMENT OF PAVEMENT, CONTRACTOR SHALL TEST AND OBSERVE PAVEMENT AREAS FOR EVIDENCE OF PONDING. ALL AREAS SHALL ADEQUATELY DRAIN TOWARD THE INTERESTED TO CONVEY STORM RUNOFF. CONTRACTOR SHALL IMMEDIATELY NOTIFY OWNER AND ENGINEER IF ANY DISCREPANCIES ARE DISCOVERED.
26. WHEN TYING INTO EXISTING PAVEMENT, THE CONTRACTOR SHALL NEATLY SAW CUT TO A STRAIGHT LINE THE EXISTING PAVEMENT, AND ALL PAVING ON THE NEW PAVEMENT SIDE OF THE CUT SHALL BE COMPLETELY REMOVED AND REPLACED WITH SPECIFIED MATERIAL. THE CUT LINE SHALL BE FULL-DEPTH AND COATED WITH A TACK COAT TO FURNISH A BOND BETWEEN THE EXISTING SURFACE COURSE AND THE NEW SURFACE COURSE.
27. WHEN TYING TO EXISTING CURB/GUTTER, THE CONTRACTOR SHALL NEATLY SAW CUT THE EXISTING PAVEMENT AND IT SHALL BE REMOVED FOR A DISTANCE OF 2'0" FROM FACE OF THE CURB AND 2'0" FROM THE EDGE OF CURB AND GUTTER AND THE SUBGRADE, BASE COURSE, AND PAVING SHALL BE REPLACED WITH NEW PRODUCTS.

1. NOTHING ON THESE CONTRACT DRAWINGS SHALL BE CONSTRUED AS A GUARANTEE THAT UTILITIES INDICATED AS EXISTING ARE IN THE LOCATION INDICATED OR THAT THEY ACTUALLY EXIST, OR THAT OTHER EXISTING UTILITIES ARE WITHIN THE AREA OF OBSERVATION. PRIOR TO COMMENCEMENT OF WORK, THE CONTRACTOR SHALL MAKE ALL REASONABLE INVESTIGATIONS TO DETERMINE THE EXISTENCE, LOCATIONS, AND ELEVATIONS OF EXISTING UTILITIES IN THE WORK AREA. CONTACT THE ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS, IF THERE APPEARS TO BE A CONFLICT, OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLANS TO PERMIT REVISIONS.
2. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT SHOWN ON THESE PLANS. IF A UTILITY IS DAMAGED DURING CONSTRUCTION, STOP WORK IMMEDIATELY AND NOTIFY THE ENGINEER. DAMAGE TO UTILITIES (INCLUDING UNDERGROUND) OR PROPERTY OF OTHERS BY CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS BY CONTRACTOR AT NO COST TO OWNER.
3. THE CONTRACTOR SHALL PROVIDE THE TOWN OF FRONT ROYAL A MINIMUM OF 96 HOURS NOTIFICATION PRIOR TO ANY INTERRUPTION OF WATER SERVICES, SEWER SERVICES, STREET TRAFFIC, OR STORM WATER. AND THE WORK SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE TOWN OF FRONT ROYAL.
4. THE CONTRACTOR SHALL COORDINATE WATER, SEWER, AND STORM WATER CONNECTIONS/CONSTRUCTION WITH THE TOWN OF FRONT ROYAL FOR PURPOSES OF ON-SITE INSPECTION.
5. THE CONTRACTOR SHALL CONTACT THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AS IDENTIFIED OR REQUIRED FOR PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING WATER AND SEWER SERVICES HAVE BEEN IDENTIFIED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.

6. THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND ENSURE PROPER DEPTHS ARE ACHIEVED. THE JURISDICTION UTILITY REQUIREMENTS SHALL ALSO BE MET, AS WELL AS COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING THE EXISTING UTILITY/SERVICE. WHERE CONFLICTS EXIST WITH THESE SITE PLANS, ENGINEER IS TO BE NOTIFIED PRIOR TO CONSTRUCTION TO RESOLVE.
7. THE CONTRACTOR SHALL PERFORM WHATEVER TEST EXCAVATION OR OTHER INVESTIGATION IS NECESSARY TO VERIFY TIE-IN INVERTS, CROSSINGS, LOCATIONS AND CLEARANCES, AND SHALL REPORT IMMEDIATELY ANY DISCREPANCIES TO THE ENGINEER.
8. ALL PROPOSED UTILITIES ARE TO BE INSTALLED UNDERGROUND. ALL OF THESE UTILITIES (WATER, SANITARY SEWER, ELECTRICITY, ETC.) SHALL BE INSTALLED AND TESTED SATISFACTORILY PRIOR TO COMMENCING ANY PAVING OPERATIONS WHERE SUCH UTILITIES ARE WITHIN THE LIMITS OF PAVEMENT.
9. ALL EXCAVATION FOR UNDERGROUND PIPE INSTALLATION MUST COMPLY WITH OSHA STANDARDS FOR THE CONSTRUCTION INDUSTRY (29 CFR PART 1926).
10. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES AND THE MEP ENGINEERS ON THE REQUIREMENTS FOR AND LIMITS OF UNDERGROUND ELECTRICAL SERVICES, GAS SERVICES, COMMUNICATION SERVICES AND OTHER UTILITIES NOT DETAILED ON THE CIVIL PLANS.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH SECTION 59.1-406, ET SEQ. OF THE CODE OF VIRGINIA (OVERHEAD) VOLTAGE LINES SAFETY ACT.
12. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, DOOR ACCESS, AND EXTERIOR GRADING. THE UTILITY SERVICE SIZES ARE TO BE DETERMINED BY THE ARCHITECT.
13. MAINTAIN A MINIMUM OF 18" OF VERTICAL CLEARANCE BETWEEN STORM, SANITARY, AND ALL UTILITIES (UNLESS OTHERWISE NOTED).
14. CROSS CONNECTION CONTROL AND BACK FLOW PREVENTION SHALL BE IN ACCORDANCE WITH THE VA UNIFORM STATEWIDE BUILDING CODE.
15. ALL CLEANOUTS AND VAULTS WITHIN VEHICULAR AREAS SHALL BE TRAFFIC BEARING.
16. CONTRACTOR SHALL SAW CUT, REMOVE, AND REPLACE ASPHALT PAVEMENT AS NECESSARY TO INSTALL UNDERGROUND ELECTRIC, TELEPHONE, SANITARY SEWER, WATER, AND COMMUNICATION CONDUITS.
17. UNDERGROUND UTILITIES INSTALLED ON PRIVATE PROPERTY OR IN PRIVATE UTILITY EASEMENTS AND BUILDING DEDICATED STORM DRAIN SHALL BE DESIGNED AND INSTALLED PER THE CURRENT EDITION OF THE VIRGINIA UNIFORM STATEWIDE BUILDING CODE.
18. THE RIM ELEVATIONS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS SHALL BE ADJUSTED, IF REQUIRED, TO MATCH PROPOSED GRADES IN ACCORDANCE WITH ALL APPLICABLE STANDARDS.
19. BRACING OF UTILITY POLES MAY BE REQUIRED BY UTILITY COMPANIES WHEN TRENCHING OR EXCAVATION IS IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR. THERE IS NO SHARE OF RISK FOR THIS WORK. THE COST IS INCIDENTAL TO THE VARIOUS PAY ITEMS FOR INSTALLATION OF PIPE.

1. ALL CONSTRUCTION MATERIALS AND INSTALLATION SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE TOWN OF FORT ROYAL OR THE VDOT ROAD AND BRIDGE STANDARDS, THE MOST STRINGENT SHALL APPLY.
2. WATER LINES WITHIN THE RIGHT-OF-WAY SHALL BE SDR-18 PVC CONFORMING TO THE APPLICABLE ASTM AWWA AND/OR OTHER APPROPRIATE STANDARD.
3. ONSITE WATER LINES (3" AND LARGER) SHALL BE AWWA C900, CLASS 200, PVC OR CEMENT-LINED DUCTILE IRON PRESSURE PIPE.
4. DUCTILE IRON PIPE SHALL BE OF THE MECHANICAL JOINT OR RESTRAINED JOINT VARIETY, CONFORMING TO ANSI 21-51 (AWWA C151, LATEST REVISION) WITH A MINIMUM THICKNESS CLASS OF 52 FOR ALL PIPE DIAMETERS. ALL FITTINGS SHALL BE MECHANICAL JOINT, DUCTILE IRON IN ACCORDANCE WITH AWWA C110. SPONGES SHALL BE C10/C111, LATEST REVISIONS, WITH A MINIMUM PRESSURE RATING OF 250 POUNDS PER SQUARE INCH.

5. ONSITE WATER LINES (2" AND SMALLER) SHALL BE SDR-11 (200 PSI), OR BETTER, HDPE CONFORMING TO AWWA C901/C906.
6. MINIMUM COVER OVER TOP OF DOMESTIC WATER PIPE MUST BE 42 INCHES.
7. DOMESTIC WATER LINES SHALL BE BACTERIA TESTED. ALL WATER LINES SHALL BE TESTED AT 200 PSI IN ACCORDANCE WITH NFPA 244, NFPA 13 AND ALL OTHER LOCAL AND STATE REQUIREMENTS.
8. SANITARY SEWER LINES SHALL BE DUCTILE IRON OR SDR-26 PVC CONFORMING TO THE APPLICABLE ASTM, AWWA, ANSI, OR OTHER APPROPRIATE STANDARD.
9. MINIMUM COVER OVER TOP OF SEWER PIPE MUST BE 36 INCHES.
10. WATER AND SANITARY LINES SHALL BE INSTALLED WITH A MINIMUM OF 6" OF BEDDING STONE AS INDICATED IN THE STANDARD DETAILS.
11. CONTRACTOR SHALL LOCATE AND UNCOVER ALL SEWER MANHOLES OR WATER VALVE BOXES AFTER COMPLETION OF ALL PAVING AND TO ADJUST THEM TO THE FINAL GRADES. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR CLEANING OUT SEWER MAINS FOR FINAL INSPECTION, IF NECESSARY.
12. FINAL ACCEPTANCE BY THE OWNER AND THE TOWN OF FRONT ROYAL SHALL NOT BE MADE UNTIL ALL REQUIRED APPROVED UTILITY PLANS IS COMPLETED INCLUDING PAVING, GRADING, AND ALL REQUIRED ADJUSTMENTS.
13. THE OWNER OR THEIR REPRESENTATIVES AND THE TOWN OF FRONT ROYAL WILL INSPECT ALL WATER AND SANITARY SEWER LINES, CONNECTIONS, AND APPURTENANCES THERETO, AS SHOWN ON THE APPROVED UTILITY PLANS.

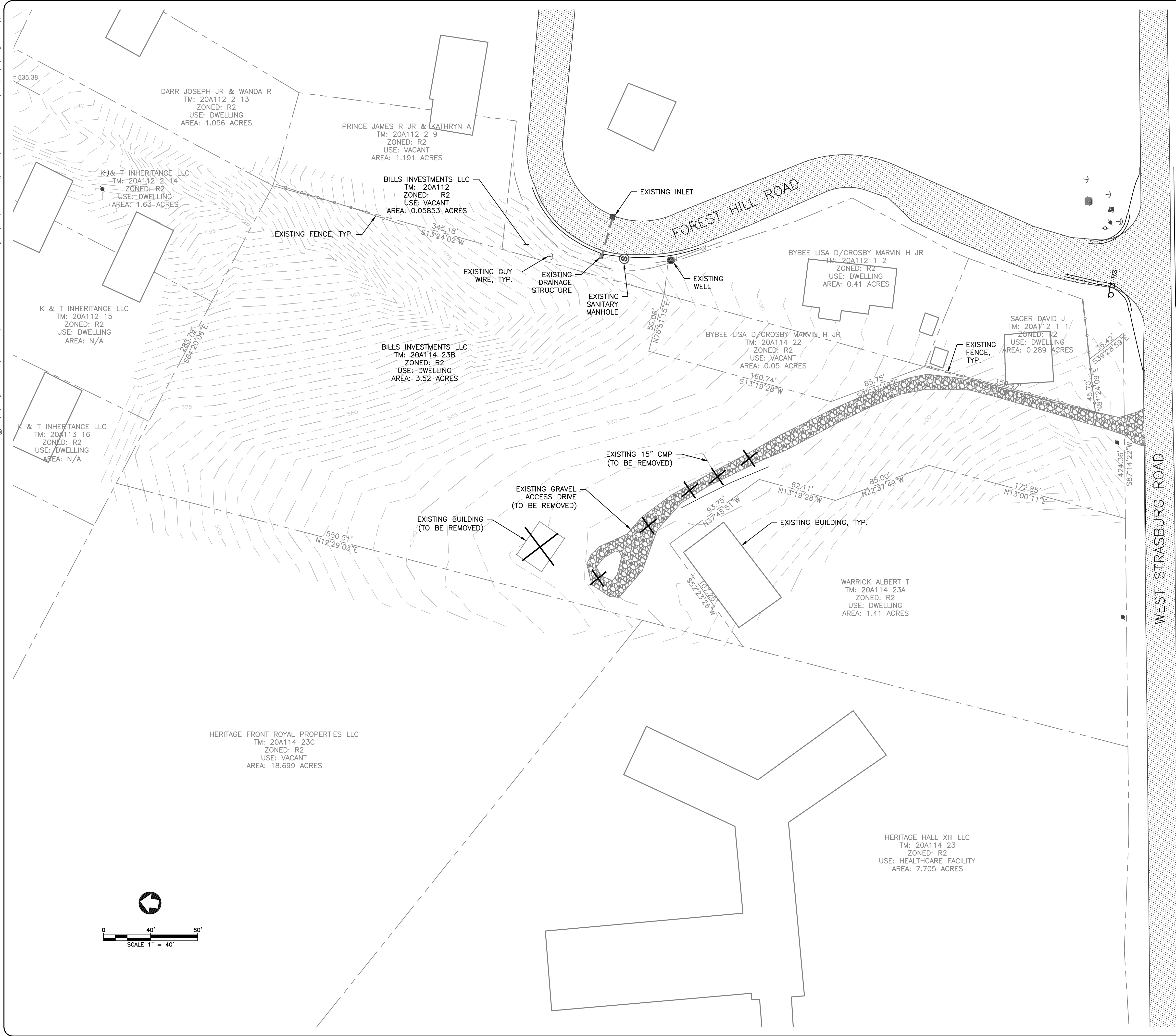
1. IF NOTED WITHIN THE PLANS OR REQUIRED FOR THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER COMPLETE SHOP DRAWING SUBMITTAL PACKAGES FOR REVIEW AND APPROVAL. THE REQUIRED SUBMITTALS INCLUDE BUT ARE NOT LIMITED TO: DETENTION SYSTEMS, RETAINING WALLS, SHORING, STORMWATER QUALITY DEVICES OR MEASURES.

THE METHODOLOGY OF THIRVIRGINIA RUNOFF REDUCTION METHOD (VRRM) IS CONTINGENT UPON THE UNDERSTANDING THAT ALL PROPOSED BMP'S WILL BE MAINTAINED AND REMAIN FULLY FUNCTIONAL THROUGHOUT THE LIFE OF THE DEVELOPMENT (FOREVER). THE PLANS, SEQUENCE OF CONSTRUCTION, DETAILS, AND MAINTENANCE PROCEDURES PROPOSED IN THIS PLAN SET HAVE BEEN PROVIDED TO ENSURE THE PROPOSED BMP'S ARE PROPERLY INSTALLED AND MAINTAINED. THE ENGINEER-OF-RECORD IS NOT PROVIDING ANY DESIGN OR CONSTRUCTION SPECIFICATIONS FOR ANY OPERATIONAL OR WATERWAY TO THE STRUCTURAL AND/OR NON-STRUCTURAL BMP'S NOT FULLY PROVIDED AND CONTINUALLY MAINTAINED-AS SPECIFIED IN THE BMP SPECIFICATIONS AND MAINTENANCE PROCEDURES PROVIDED IN THIS PLAN SET AND ADDITIONAL REQUIREMENTS FROM DEQ, THE LOCALITY, AND OTHER AGENCIES.

LEGEND	EXISTING	PROPOSED
PROPERTY LINE		
BUILDING RESTRICTION LINE		
CONTOUR (1' INTERVAL)		
CULVERT PIPE		
WATER LINE		
SANITARY SEWER LINE		
UNDERGROUND ELECTRIC LINE		
OVERHEAD ELECTRIC		
UNDERGROUND FIBER OPTIC		
STORM DRAIN PIPING		
LIMITS OF DISTURBANCE		
CENTER OF ROAD		
GAS LINE		
LANDSCAPE BUFFER LINE		
FENCE (1)		
FENCE (2)		
CURB & GUTTER		
GRAVEL AREA		
ASPHALT AREA		
CONCRETE AREA		
LANDSCAPED AREA		
TREE LINE		
IRON PIN/ROD		
SPOT ELEVATION		
MANHOLE (UNSPECIFIED)		
STORM MANHOLE		
SEWER MANHOLE		
WATER METER		
HYDRANT		
WATER VALVE/WATER VALVE BOX		
CLEANOUT		
GRATE INLET		
GAS VALVE		
TELEPHONE PEDESTAL		
UTILITY POLE		
LIGHT POLE		
SIGN		
BORE LOCATION		
BENCHMARK		
STATION MARKER		
GUIDE WIRE		
QUANTITY OF PARKING SPACES		
TREE		
TREE		

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P:\2022\9276 - Al Billoo - Strasburg Road Subdivision - 20A114-23B-Civil\8. DESIGN\4. DWG\CIVIL\COMPOSITE
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SURVEY SOURCE AND INFORMATION:

SOURCE: THIS TOPOGRAPHIC SURVEY WAS COMPLETED BY RACEY ENGINEERING, PLLC ON OR BEFORE FEBRUARY 9, 2024, FROM ACTUAL CONVENTIONAL AND RTK GPS SURVEY METHODS FROM RACEY ENGINEERING, PLLC ESTABLISHED CONTROL. THIS MAP MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED.

HORIZONTAL AND VERTICAL DATUM: VA NAD83, NAVD88 BASED UPON GPS OBSERVATION PERFORMED BY RACEY ENGINEERING, PLLC.

CONTOUR INTERVAL: 1 FT.

THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE COMMITMENT OR TITLE REPORT AND DOES NOT THEREFORE, NECESSARILY INDICATE ALL EASEMENTS AND ENCUMBRANCES ON THE PROPERTY THAT MIGHT BE DISCLOSED IN A TITLE SEARCH.

UTILITIES SHOWN HEREON ARE BASED ON VISIBLE, PHYSICAL EVIDENCE. UNDERGROUND UTILITIES WERE NOT MARKED AS PART OF THIS PROJECT. IT SHALL BE THE RESPONSIBILITY OF THE OWNER/CONTRACTOR TO HAVE UTILITIES MARKED PRIOR TO LAND DISTURBANCE OF ANY KIND. SEE SHEET T101 FOR MORE INFORMATION.

PROPERTY LINES SHOWN HEREON ARE COMPILED FROM RECORD PLAT (DEED BOOK 306, PAGE 41) AND TOWN/COUNTY GIS OVERLAY.

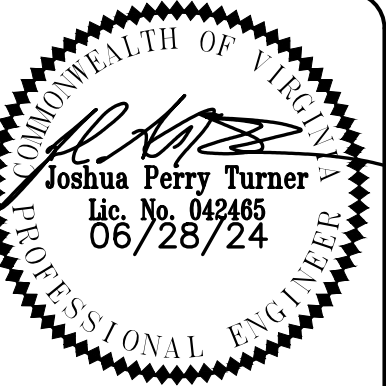
RACEY ENGINEERING, PLLC MAY PROVIDE BENCHMARKS FOR THE CONSTRUCTION OF THE IMPROVEMENTS SHOWN ON THESE PLANS. ALL OTHER EXISTING ELEVATIONS ARE FOR REFERENCE TO EXISTING CONDITIONS ONLY. DO NOT USE SPOT ELEVATIONS, FINISH FLOOR ELEVATIONS, ELEVATIONS ON MANHOLES, ELEVATIONS ON SURVEY NAILS, SURVEY HUBS, CONTROL POINTS (HORIZONTAL POINTS PROVIDED) OR ANY OTHER POINTS FOR CONSTRUCTION OTHER THAN THE PROVIDED BENCHMARKS. FAILURE TO UTILIZE AND VERIFY THE PROVIDED BENCHMARKS COULD RESULT IN DAMAGES AND ADDITIONAL COST THAT ARE THE CONTRACTOR'S RESPONSIBILITY.

DEMOLITION NOTES:

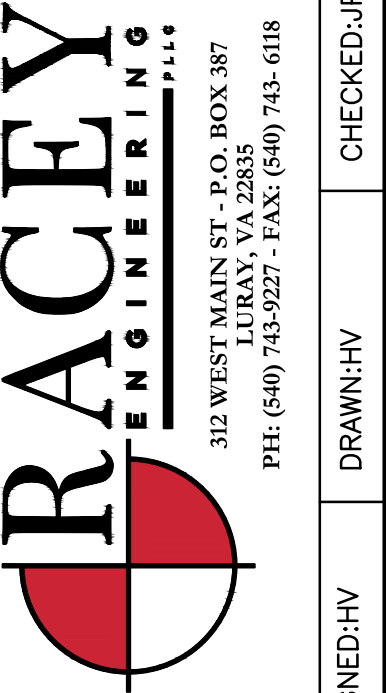
- PRIOR TO STARTING ANY DEMOLITION CONTRACTOR IS SHALL ENSURE THAT COPIES OF ALL APPLICABLE PERMITS AND APPROVALS ARE MAINTAINED ON SITE AND AVAILABLE FOR REVIEW. CONTRACTOR ALSO SHALL HAVE COMPLETED THE PRE-CONSTRUCTION CONFERENCE.
- CONTRACTOR SHALL INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL AND/OR TREE PROTECTION MEASURES PRIOR TO SITE DISTURBANCE.
- CONTRACTOR SHALL LOCATE (VERTICALLY AND HORIZONTALLY) ALL UTILITIES AND SERVICES, INCLUDING, BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE. THE CONTRACTOR SHALL USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES.
- CONTRACTOR SHALL CONTACT THE APPLICABLE UTILITY SERVICE PROVIDER AND SHALL BE RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL PROVIDE THE OWNER WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTION AND UTILITY COMPANY REQUIREMENTS.
- CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES & ADJACENT LANDOWNERS/BUSINESSES REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS WHICH MAY BE REQUIRED TO MINIMIZE THE IMPACT ON THE ADJACENT PROPERTY OWNERS/TENANTS.
- CONTRACTOR SHALL PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, FOLLOWING ALL OSHA REQUIREMENTS, TO ENSURE THE SAFETY OF THE PUBLIC AND ALL PARTIES INVOLVED.
- THE CONTRACTOR SHALL PROVIDE ALL THE "MEANS AND METHODS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE.
- THE DEMOLITION CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS OF DAMAGE TO ALL ITEMS THAT ARE TO REMAIN AS A RESULT OF THEIR ACTIVITIES.
- IN THE ABSENCE OF SPECIFICATIONS, THE CONTRACTOR SHALL PERFORM EARTH MOVEMENT ACTIVITIES, DEMOLITION AND REMOVAL OF ALL FOUNDATION WALLS, FOOTINGS, AND OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE WITH DIRECTION BY OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.
- CONTRACTOR SHALL CONDUCT DEMOLITION ACTIVITIES IN SUCH A MANNER TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND OTHER ADJACENT FACILITIES. STREET CLOSURE PERMITS MUST BE RECEIVED FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY.
- USE DUST CONTROL MEASURES TO LIMIT AIRBORNE DUST DURING DEMOLITION IN ACCORDANCE WITH FEDERAL, STATE, AND/OR LOCAL STANDARDS. AFTER THE DEMOLITION IS COMPLETE, ADJACENT STRUCTURES AND IMPROVEMENTS SHALL BE CLEANED OF ALL DUST AND DEBRIS CAUSED BY THE DEMOLITION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION.
- CONTRACTOR IS RESPONSIBLE TO SAFEGUARD SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE ENTRY OF UNAUTHORIZED PERSONS AT ANY TIME.
- THIS DEMOLITION PLAN IS INTENDED TO IDENTIFY THOSE EXISTING ITEMS/CONDITIONS WHICH ARE TO BE REMOVED. IT IS NOT INTENDED TO PROVIDE DIRECTION OTHER THAN THAT ALL METHODS AND MEANS ARE TO BE IN ACCORDANCE WITH STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE.
- DEBRIS SHALL NOT BE BURIED ON THE SUBJECT SITE. ALL DEMOLITION WASTES AND DEBRIS (SOLID WASTE) SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND APPLICABLE CODES.

✕ TO BE REMOVED

Date	06/28/24
App'd	JPT
By	HV
Revision	
Submital	1ST SUBMITTAL TOWN
No.	



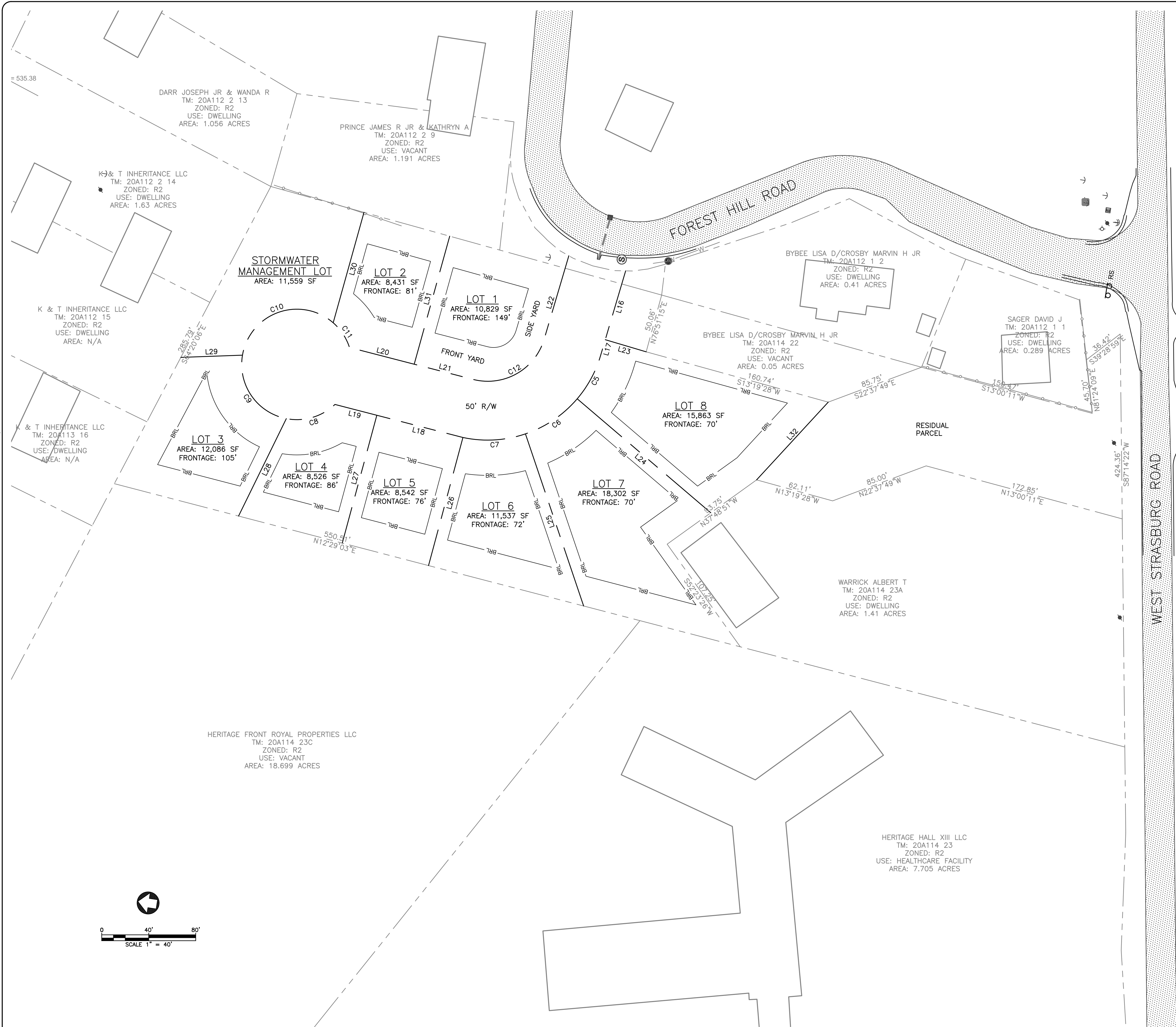
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STRASBURG ROAD SUBDIVISION
EXISTING FEATURES
ALI BILLOO
WARREN COUNTY, VA

RACEY PROJECT NUMBER: 9276
PUBLISH DATE: 6/28/2024

C100



PARCEL LINE DATA		
SEGMENT	LENGTH	DIRECTION
L16	61.08	N82° 30' 26"W
L17	14.36	N82° 30' 26"W
L18	75.67	N5° 28' 49"E
L19	36.80	N5° 28' 49"E
L20	56.89	S5° 28' 51"W
L21	51.79	S5° 28' 51"W
L22	62.96	S82° 30' 26"E
L23	36.31	N7° 29' 34"E
L24	149.44	N31° 27' 54"E
L25	154.58	N62° 18' 59"E
L26	112.83	N83° 57' 50"W
L27	112.67	S83° 51' 58"E
L28	92.32	N72° 52' 29"W
L29	52.49	S11° 06' 00"E
L30	97.52	N83° 25' 14"W
L31	113.03	S83° 28' 50"E
L32	89.96	S56° 20' 11"E

PARCEL CURVE DATA			
SEGMENT	LENGTH	RADIUS	DELTA
C5	41.84	100.39	23.88
C6	53.85	100.23	30.78
C7	53.94	100.07	30.88
C8	44.80	47.00	54.61
C9	72.67	47.00	88.60
C10	99.61	47.00	121.44
C11	25.48	47.00	31.07
C12	76.78	50.00	87.99

CURRENT ZONING - R2
TAX MAP NUMBER: 20A114-23B

PER ZONING ORDINANCE:
FRONT SETBACK: 30'
SIDE SETBACK: 10'
REAR SETBACK: 25'
MINIMUM FRONTAGE: 70'
MINIMUM LOT SIZE: 8,000 SF

CORNER LOTS:
FRONT SETBACK: 30'
SIDE SETBACK: 10'
ROAD-ADJACENT SETBACK: 25'
REAR SETBACK: 25'
MINIMUM FRONTAGE: 100'

No.	Submital / Revision	By	Appr'd	Date
A	1ST SUBMITTAL TOWN	HV	JPT	06/28/24



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312 WEST MAIN ST - P.O. BOX 387
LURAY, VA 22835
PH: (540) 743-9227 - FAX: (540) 743-6118

CHECKED:JPT

DRAWN:HV

DESIGNED:HV

STRASBURG ROAD SUBDIVISION

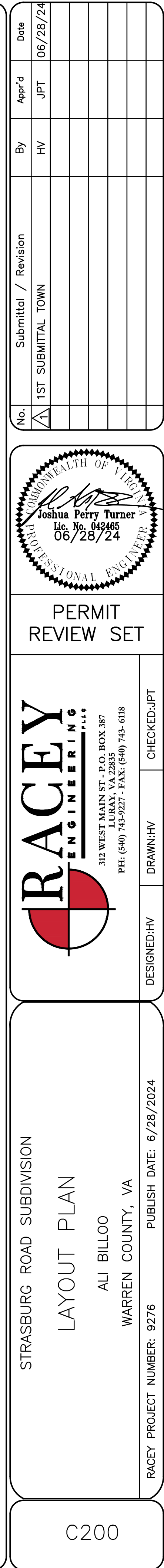
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ALI BILLOO
WARREN COUNTY, VA

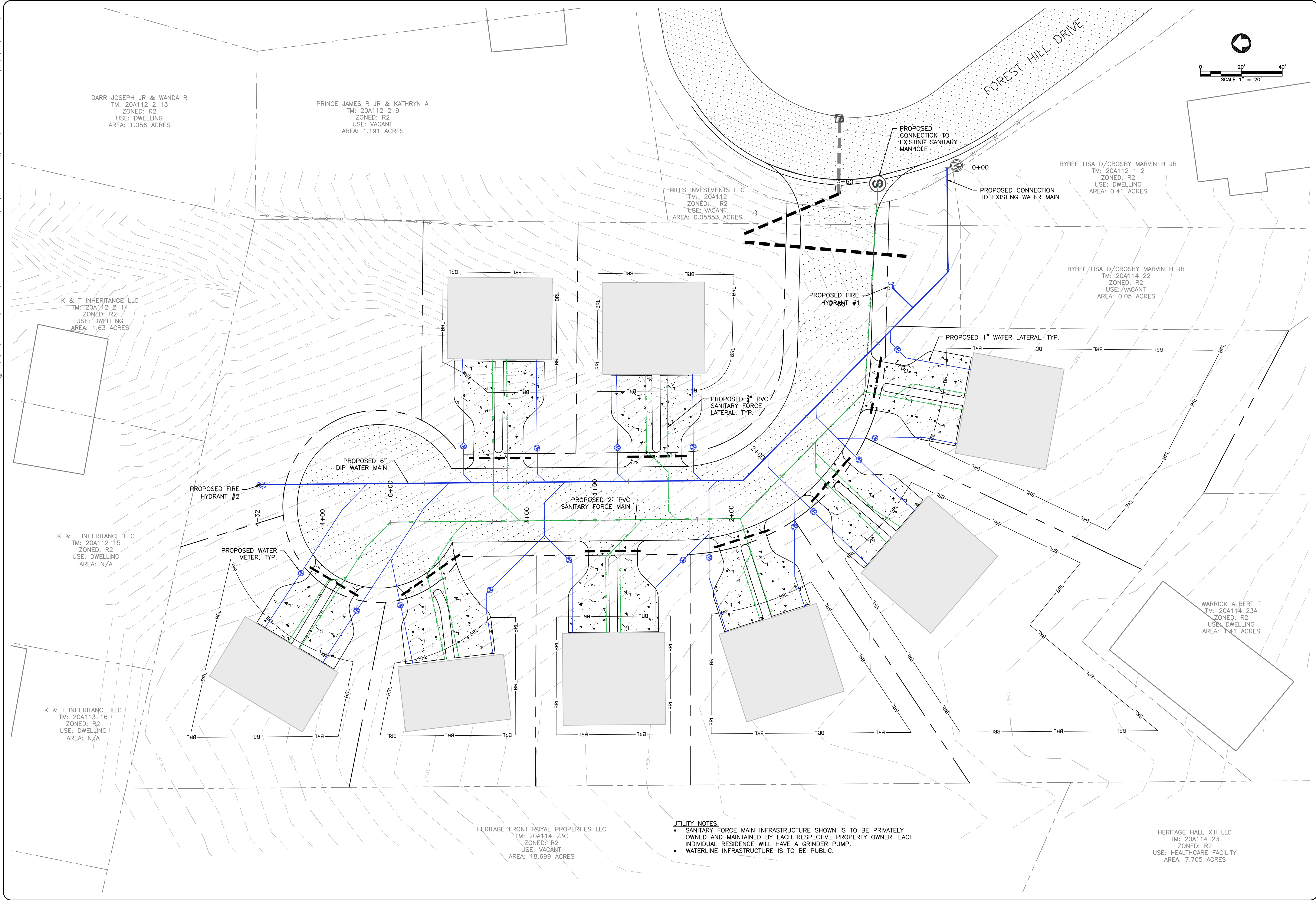
PUBLISH DATE: 6/28/2024

RACEY PROJECT NUMBER: 9276

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P:\2022\9276 - Ali Billoo - Strasburg Road Subdivision - 20A114-23B-Civil\8. DESIGN\4. DWG\CIVIL\COMPOSITE P:\2022\9276 - Ali Billoo - Strasburg Road Subdivision - 20A114-23B-Civil\8. DESIGN\4. DWG\CIVIL\COMPOSITE



No.	Submittal / Revision	By	App'd	Date
1	1ST SUBMITTAL TOWN	HV	JPT	06/28/24

COMMONWEALTH OF VIRGINIA

Joshua Perry Turner
Lic. No. 042465
06/28/24

PROFESSIONAL ENGINEER

PERMIT REVIEW SET

RACEY ENGINEERING PLLC

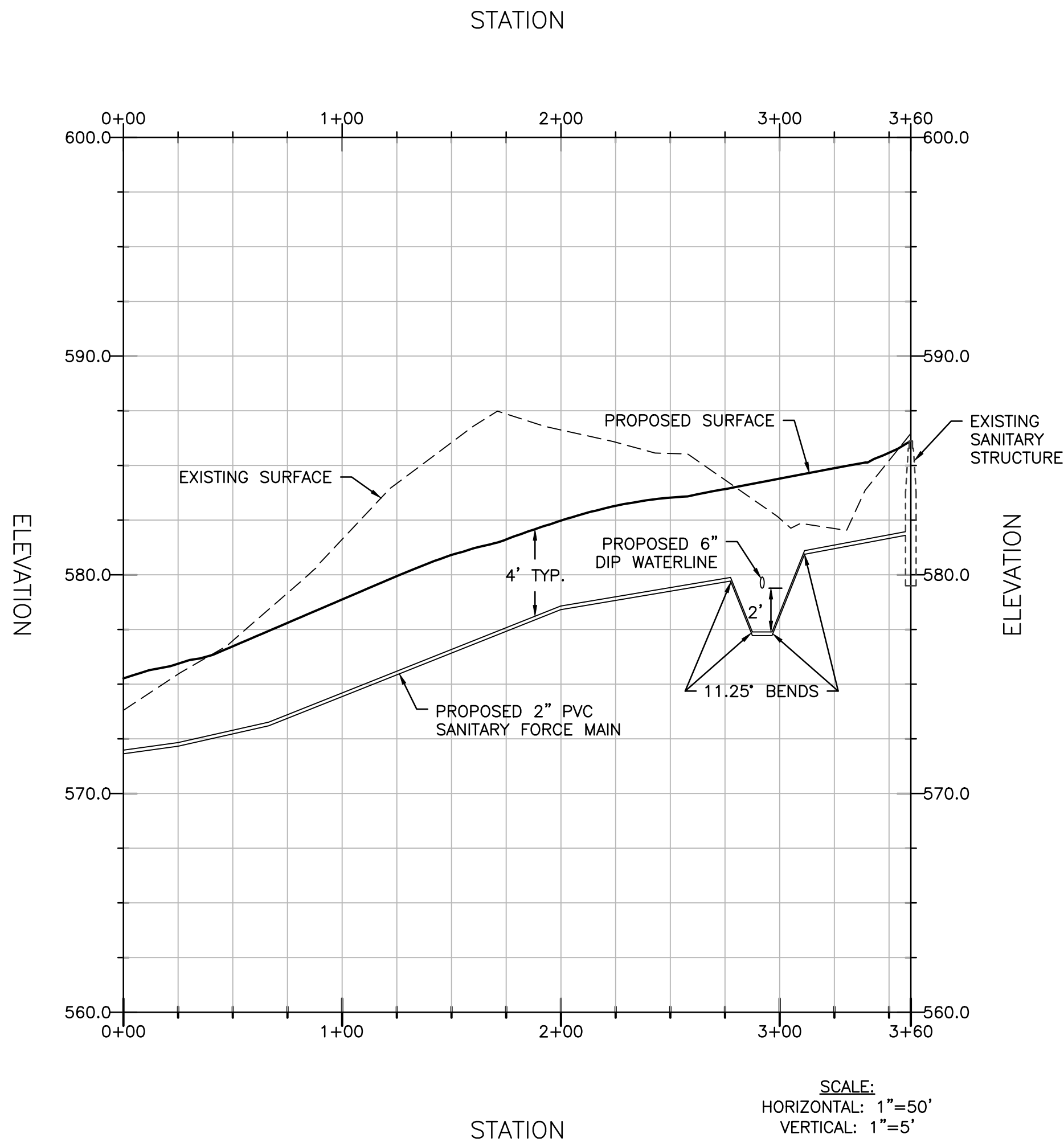
312 WEST MAIN ST. - P.O. BOX 387
LURAY, VA 22835
PH: (540) 743-5827 - FAX: (540) 743-6118

DESIGNED:HV DRAWN:HV CHECKED:JPT

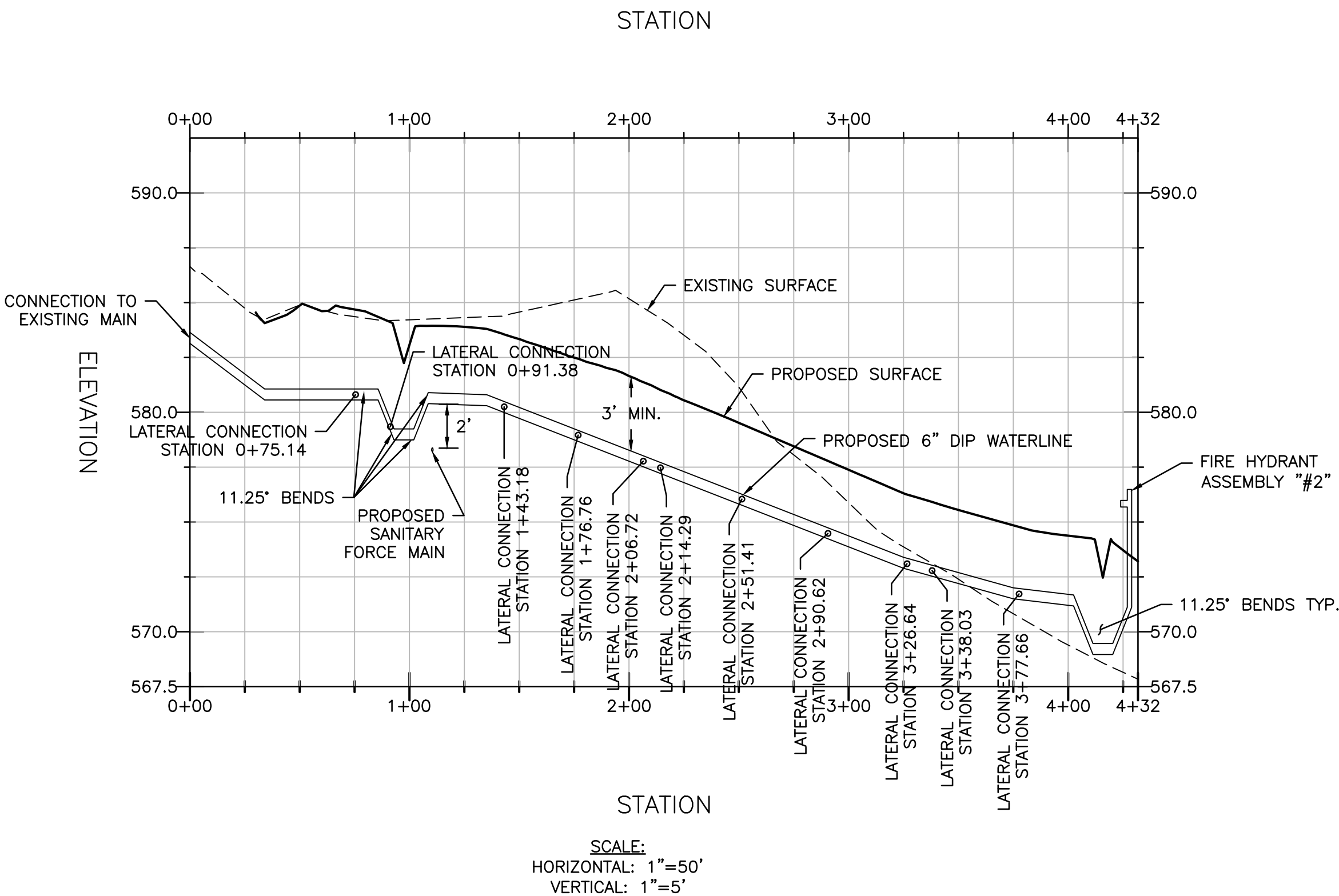
STRASBURG ROAD SUBDIVISION
UTILITY PLAN
ALI BILLOO
WARREN COUNTY, VA
RACEY PROJECT NUMBER: 9276 PUBLISH DATE: 6/28/2024

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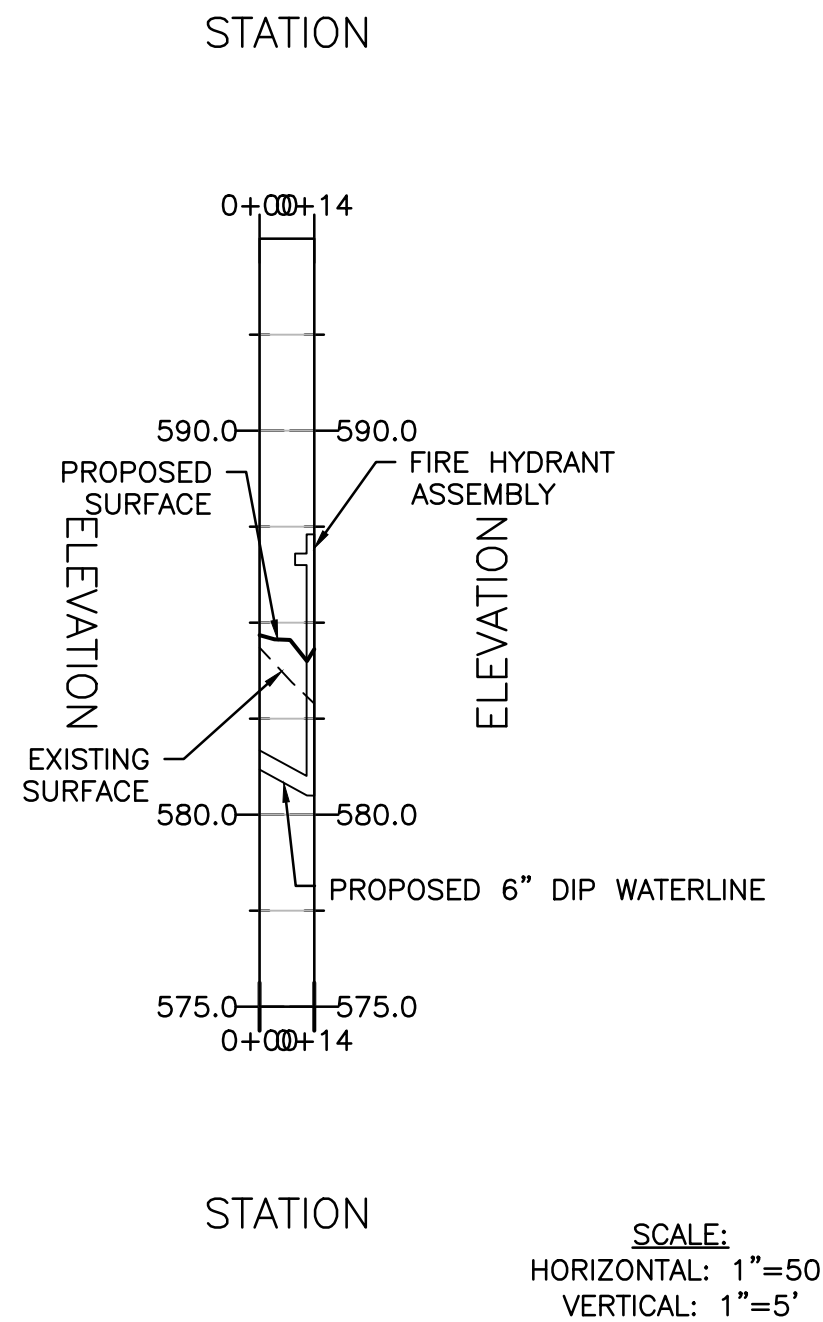
SANITARY SEWER PROFILE



WATER MAIN PROFILE



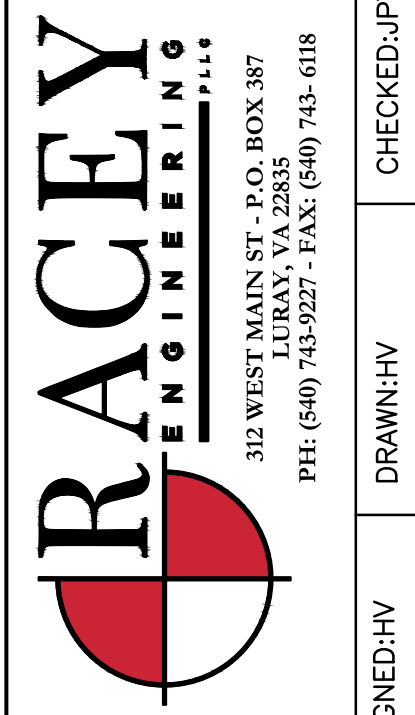
FIRE HYDRANT #1



No.	By	App'r'd	Date
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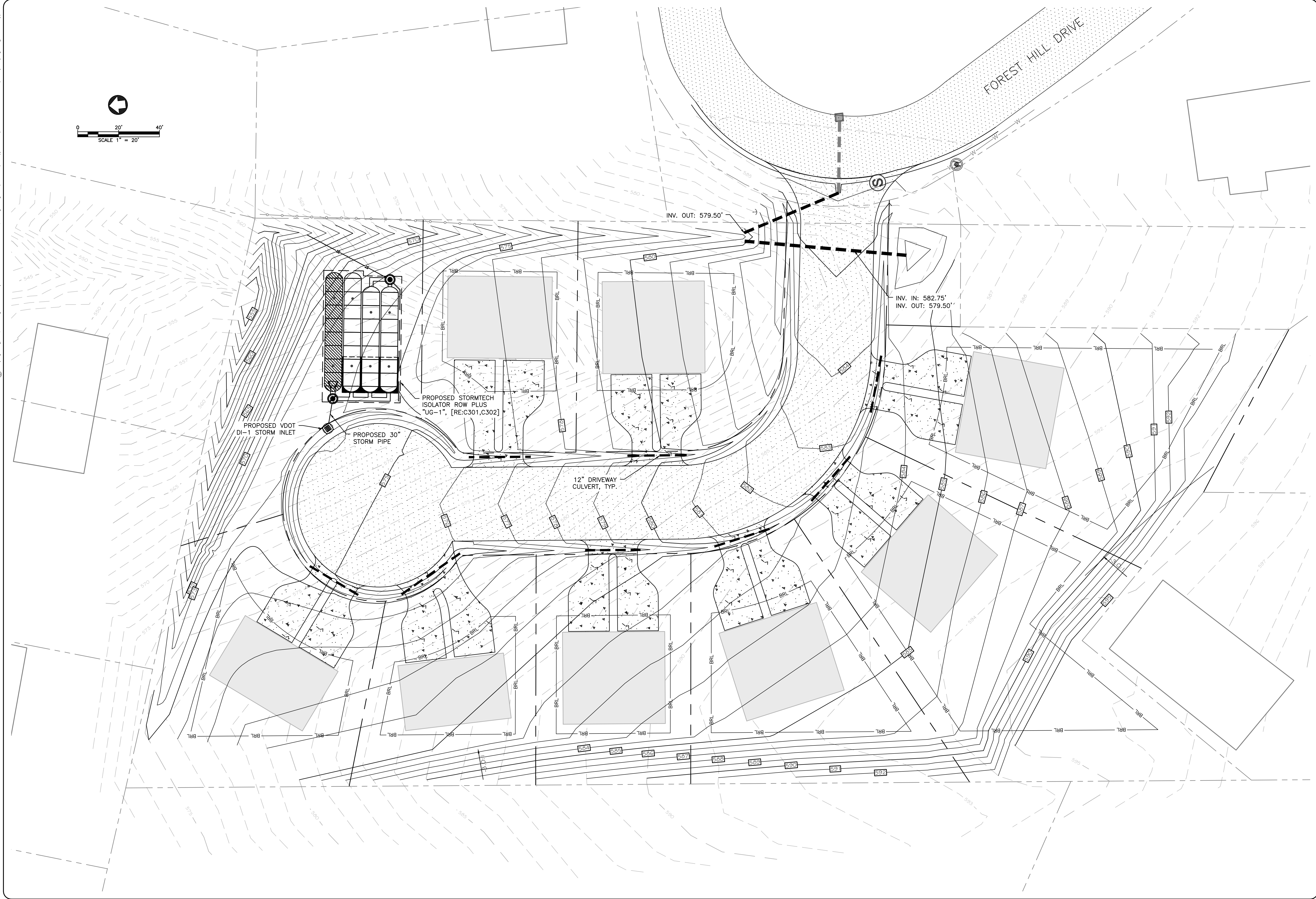


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STRASBURG ROAD SUBDIVISION
UTILITY PROFILES
ALI BILLOO
WARREN COUNTY, VA
RACEY PROJECT NUMBER: 9276
PUBLISH DATE: 6/28/2024



C300

STRASBURG ROAD SUBDIVISION
GRADING PLAN
ALI BILLOO
WARREN COUNTY, VA
RACEY PROJECT NUMBER: 9276
PUBLISH DATE: 6/28/2024

RACEY
ENGINEERING, PLLC
312 WEST MAIN ST. - P.O. BOX 387
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1	1ST SUBMITTAL TOWN	HV	JPT	06/28/24

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	



9276 - FRONT ROYAL SUBDIVISION

FRONT ROYAL, VA, USA

MC-7200 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-7200.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT², THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

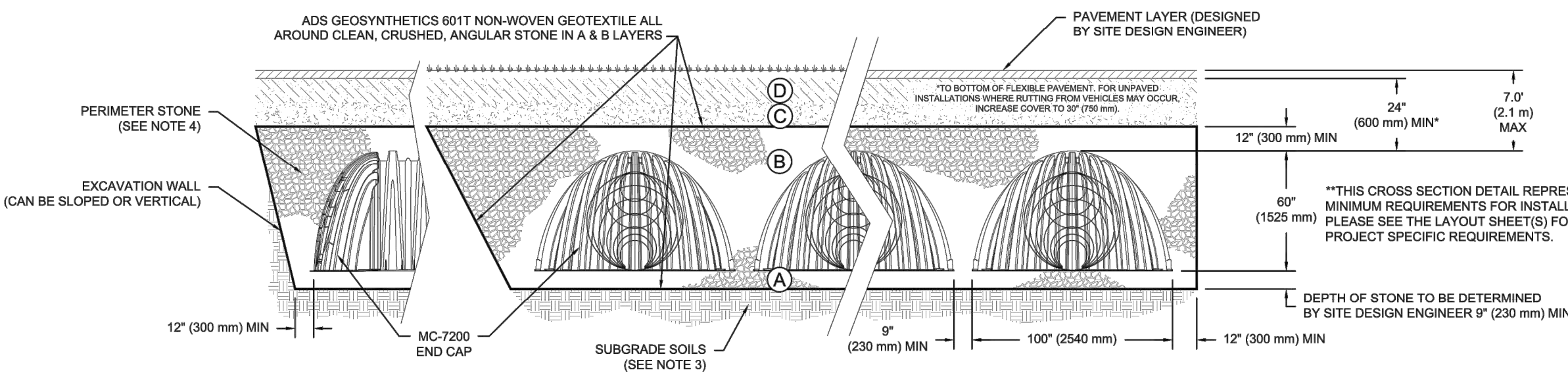
- #### IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-7200 CHAMBER SYSTEM
- STORMTECH MC-7200 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
 - STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE". CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONE/HOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
 - THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
 - JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
 - MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
 - INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
 - EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
 - STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
 - STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
 - THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
 - ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.
- #### NOTES FOR CONSTRUCTION EQUIPMENT
- STORMTECH MC-7200 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
 - THE USE OF EQUIPMENT OVER MC-7200 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER TRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-7200 CONSTRUCTION GUIDE".
 - FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.
- USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.
- CONTACT STORMTECH AT 1-888-862-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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ACCEPTABLE FILL MATERIALS: STORMTECH MC-7200 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A' LAYER) TO THE 'C' LAYER ABOVE.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION RISKS MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 - ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
 - WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
- MC-7200 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
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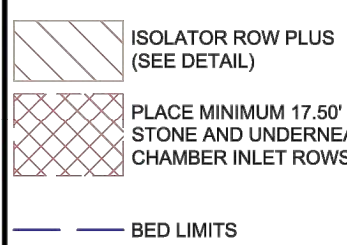
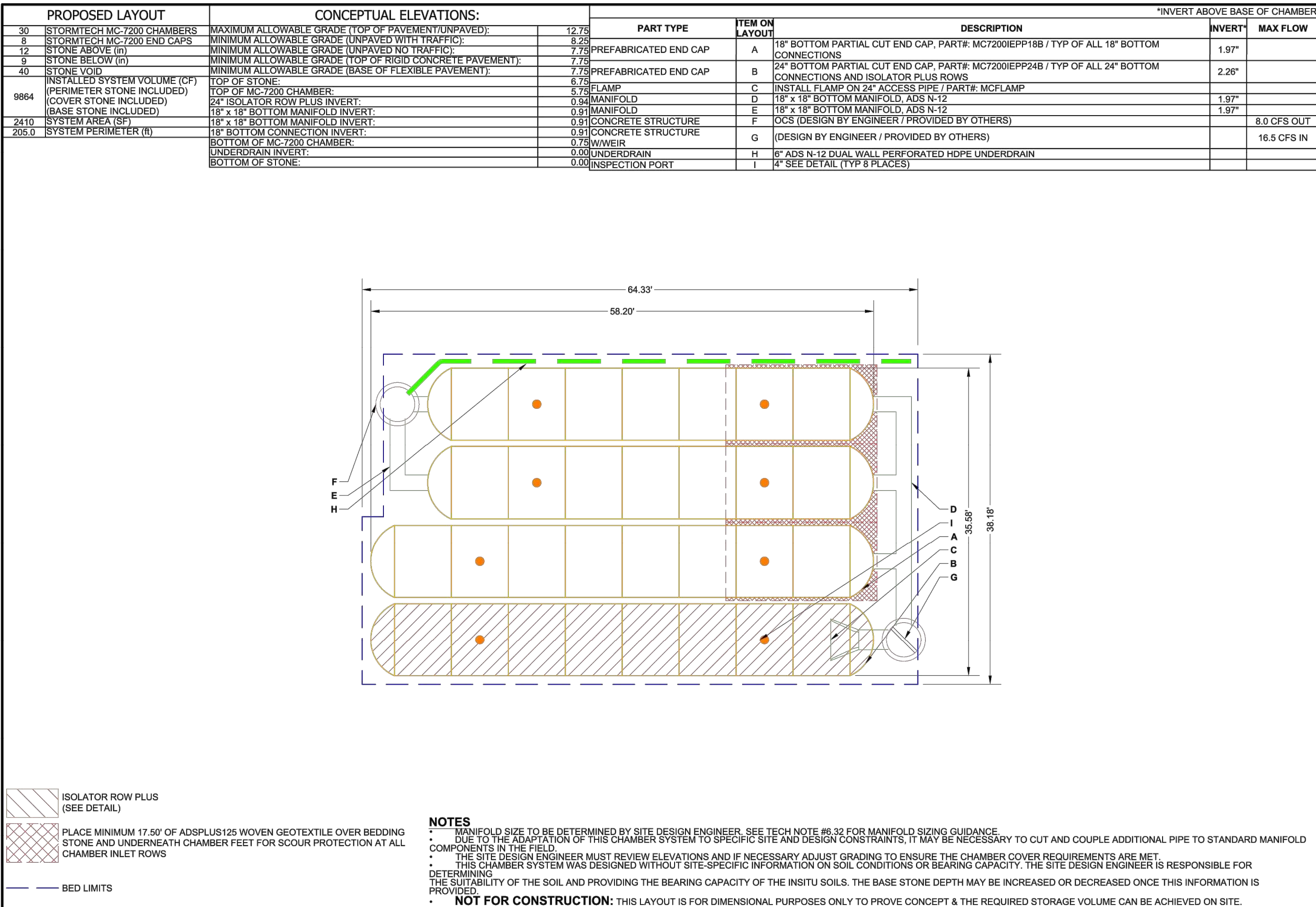
9276 - FRONT ROYAL SUBDIVISION
FRONT ROYAL, VA, USA

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PROJECT #: _____ CHECKED: N/A

StormTech®
Chamber System

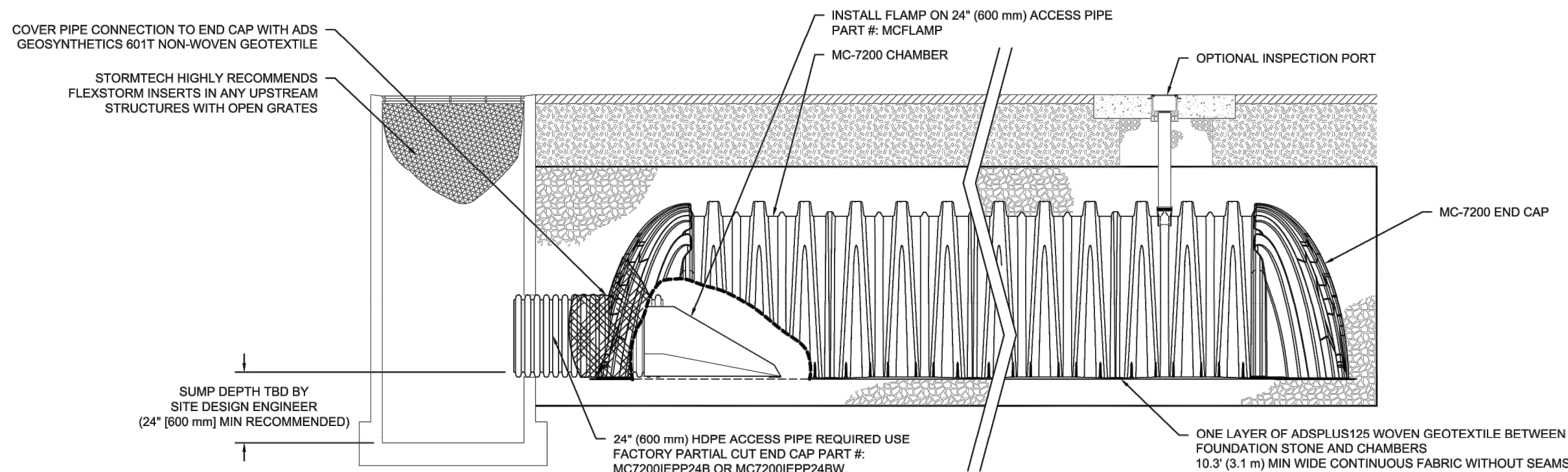
4640 TRULAMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

DESIGN: 4/8
SHEET 3 OF 5



NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSTALLED SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.



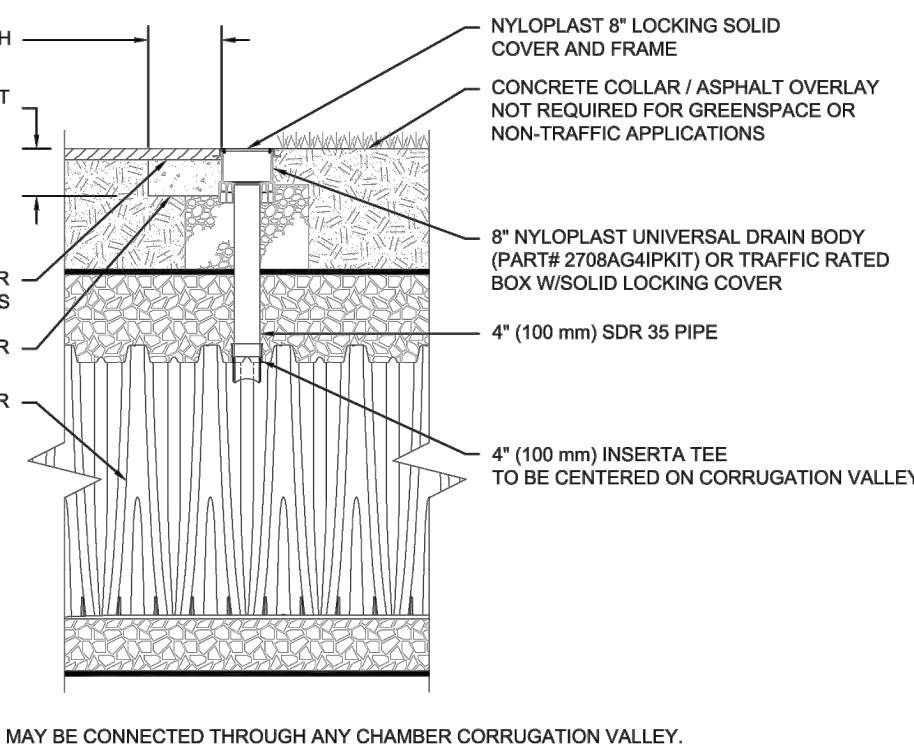
MC-7200 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
- B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
- B.3. IF MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
- B.3.1. FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3.2. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION, ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



4" PVC INSPECTION PORT DETAIL
(MC SERIES CHAMBER)
NTS

9276 - FRONT ROYAL SUBDIVISION
FRONT ROYAL, VA, USA

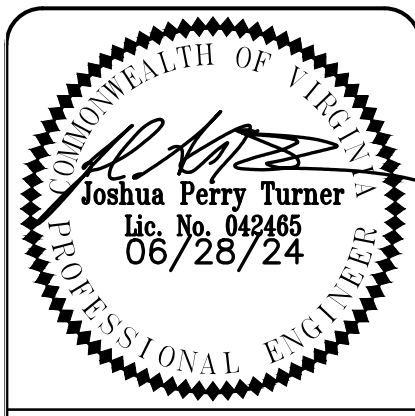
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StormTech®
Chamber System

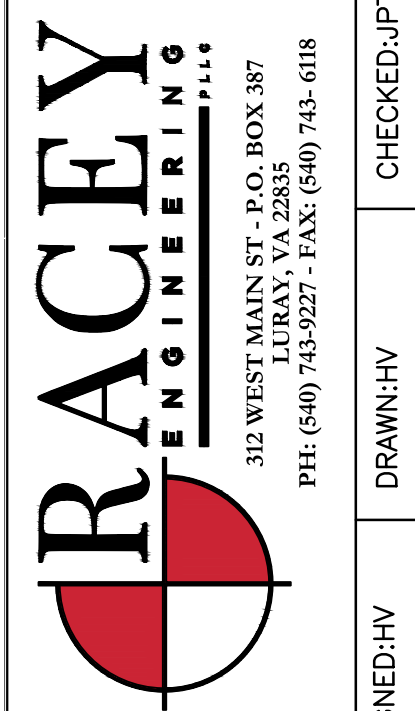
4640 TRULAMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

DESIGN: 4/8
SHEET 4 OF 5

Date	06/28/24
By	HV
Submitted / Revision	1ST SUBMITTAL TOWN
No.	

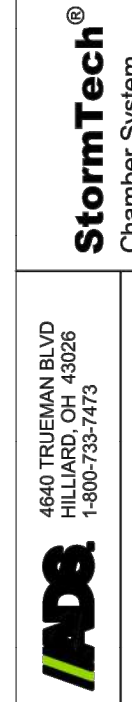
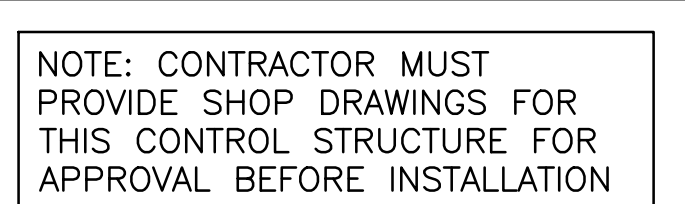


PERMIT
REVIEW SET



STRASBURG ROAD SUBDIVISION	ALU BILLOO	PUBLISH DATE: 6/28/2024
STORMTECH UG-1 DETAILS	WARREN COUNTY, VA	
RACEY PROJECT NUMBER: 9276		

C301

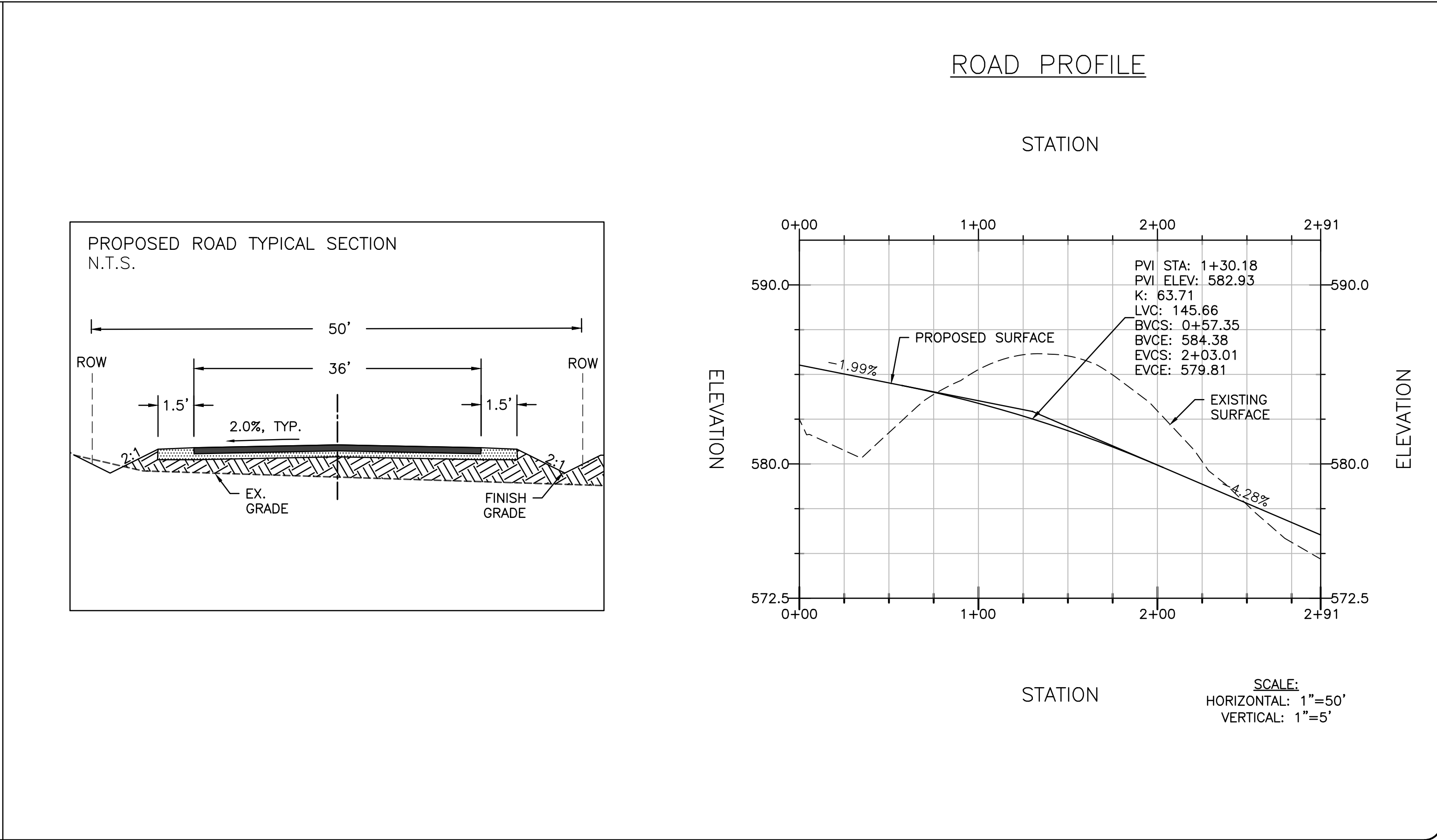
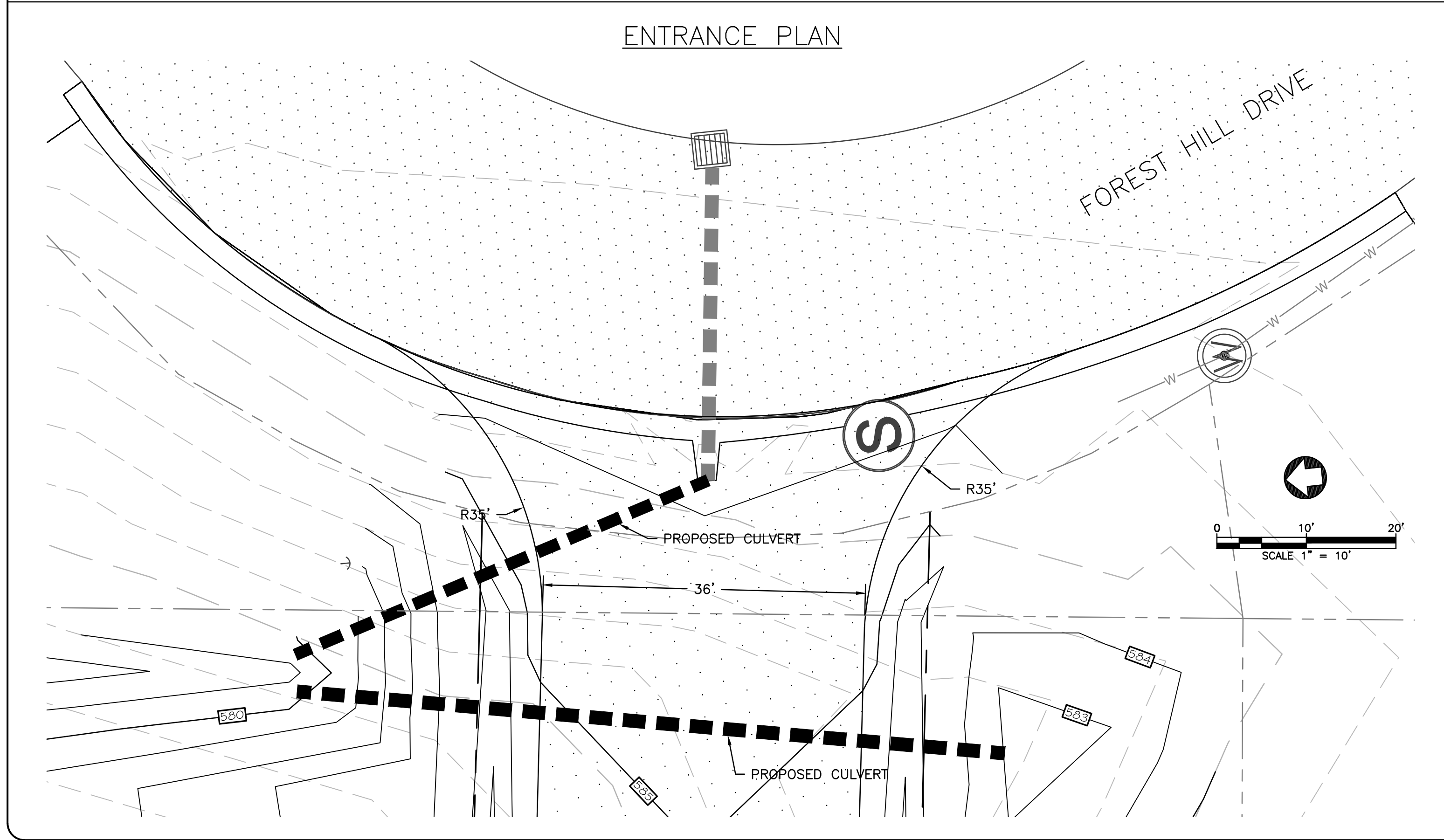
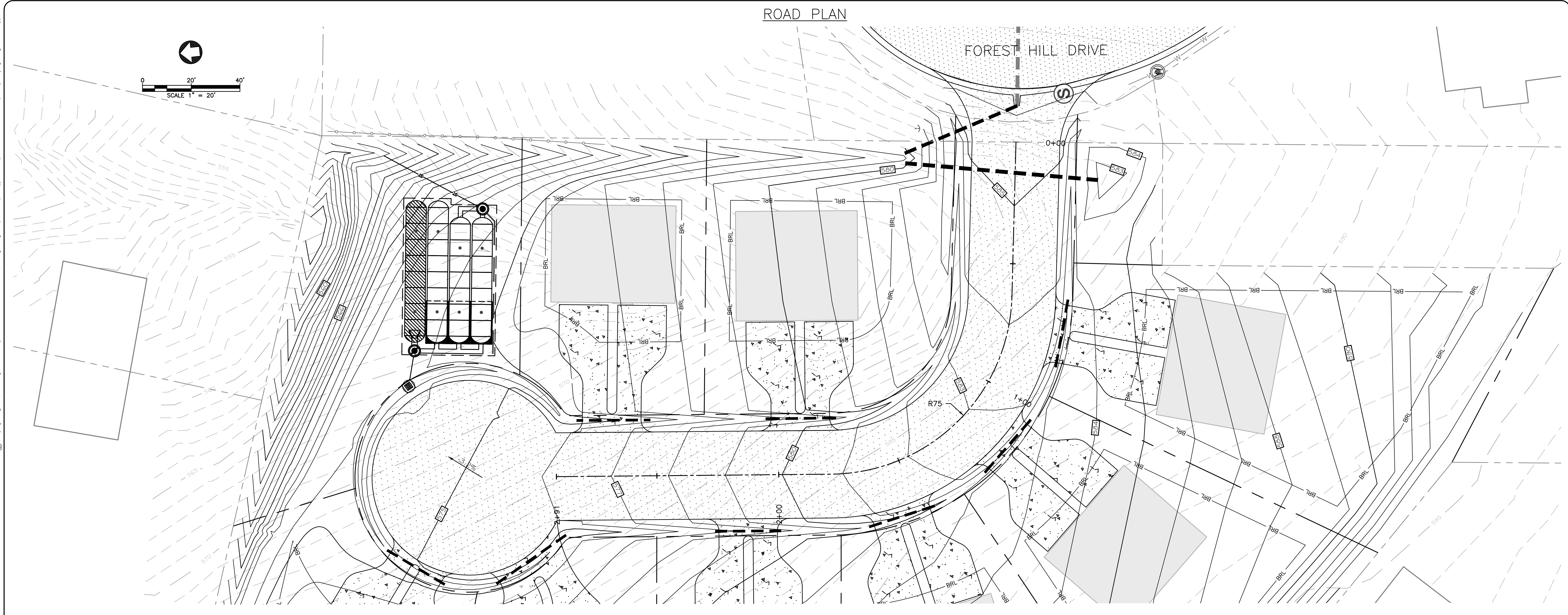


Chamber Model	Chamber Storage	Chamber Footprint	Treatment Rate
SC-150LP	15.0 cf (0.42 m ³)	11.45 sf (1.06 m ²)	0.11 cfs (3.11 L/s)
SC-310	31.0 cf (0.88 m ³)	17.7 sf (1.64 m ²)	0.16 cfs (4.53 L/s)
SC-740	74.9 cf (2.12 m ³)	27.8 sf (2.58 m ²)	0.26 cfs (7.36 L/s)
DC-780	78.4 cf (2.22 m ³)	27.8 sf (2.58 m ²)	0.26 cfs (7.36 L/s)
MC-3500	175.0 cf (4.96 m ³)	42.9 sf (3.99 m ²)	0.40 cfs (11.32 L/s)
MC-4500	162.6 cf (4.60 m ³)	30.1 sf (2.80 m ²)	0.28 cfs (7.93 L/s)
MC-7200	267.3 cf (7.57 m ³)	50.0 sf (4.65 m ²)	0.45 cfs (12.74 L/s)

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P:\2022\9276 - Ali Billoo - Strasburg Road Subdivision - 20A114-23B-Civil\8. DESIGN\1. DWG\CIVIL\COMPOSITE

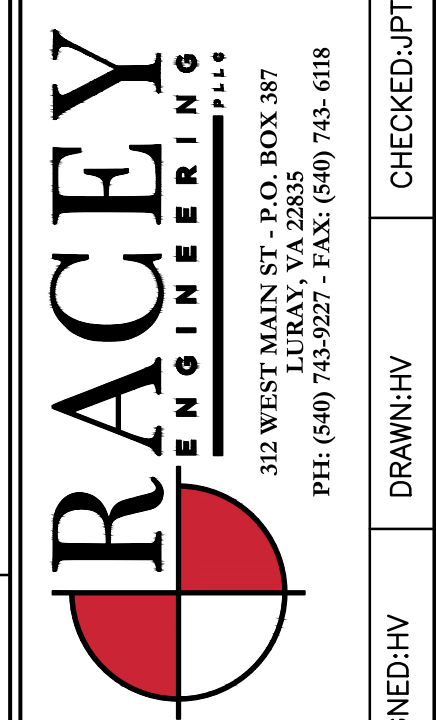
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No.	Submittal / Revision	By	App'd	Date
1	1ST SUBMITTAL TOWN	HV	JPT	06/28/24



PERMIT
REVIEW SET



STRASBURG ROAD SUBDIVISION	DESIGNED:HV	DRAWN:HV	CHECKED:JPT
ROAD AND ENTRANCE PLAN	ALI BILLOO	WARREN COUNTY, VA	PUBLISH DATE: 6/28/2024
C303	RACEY PROJECT NUMBER: 9276		

****TERMS OF ENGINEER DESIGNS (INDUSTRY STANDARDS).**
THE ENGINEER IS PROVIDING NOTICE TO THE CLIENT OF THE FOLLOWING SPECIFIC TERMS: THE PLAN PREPARATIONS HAVE BEEN MADE WITH ALL REASONABLE AND PROFESSIONAL CARE GIVEN TO DESIGN DETAILS AND COORDINATION. HOWEVER, UNINTENTIONAL ERRORS, OR OMISSIONS, ARE A NORMAL PART OF ANY WELL PREPARED ENGINEERING DESIGN/CONSTRUCTION DOCUMENTS. THIS PLAN REPRESENTATION IS BASED ON THE CLIENT'S UNDERSTANDING AND ACCEPTANCE OF THIS PREMISE, AND THAT THE CONSTRUCTION CONTRACT BUDGET WILL CONTAIN A REASONABLE CONTINGENCY COST TO COVER THESE TYPES OF NORMAL DESIGN OR COORDINATION ERRORS OR OMISSIONS.

THE STANDARDS OF CARE FOR ALL PROFESSIONAL ENGINEERING AND RELATED SERVICES PERFORMED OR FURNISHED BY ENGINEER ARE OF THE CARE AND SKILL ORDINARILY USED BY MEMBERS OF THE SUBJECT PROFESSION PRACTICING UNDER SIMILAR CIRCUMSTANCES AT THE SAME TIME AND IN THE SAME LOCALITY. ENGINEER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN CONNECTION WITH ENGINEER'S SERVICES. ENGINEER AND ITS CONSULTANTS MAY USE OR RELY UPON THE DESIGN SERVICES OF OTHERS, INCLUDING, BUT NOT LIMITED TO, CONTRACTOR'S, MANUFACTURERS, AND SUPPLIERS.

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION:
THE PROJECT IS LOCATED ON FOREST HILL DRIVE APPROXIMATELY 500 FT FROM THE INTERSECTION WITH WEST STRASBURG ROAD IN FRONT ROYAL, VA ON LAND HAVING TAX MAP# 20A114 23B. THE AREA OF THE PROPERTY IS 3.52 ACRES. THE PROJECT CONSISTS OF CONSTRUCTING A SUBDIVISION WITH ASSOCIATED ACCESS, PARKING, UTILITIES, AND STORMWATER BMP'S. THE EXPECTED LIMITS OF DISTURBANCE AS OUTLINED ON THE SITE PLAN IS 2.94 ACRES. THE PROJECT WILL HAVE A 0.83 ACRE INCREASE IN IMPERVIOUS AREA IN THE POST-DEVELOPMENT CONDITION.

EXISTING SITE CONDITIONS:
THE EXISTING SITE CURRENTLY IS COVERED BY WOODS WITH ONE EXISTING BUILDING AND AN EXISTING GRAVEL ACCESS DRIVE. EXISTING SLOPES RANGE FROM 4% TO 20%.

ADJACENT AREA:
THE IMMEDIATE ADJACENT AREAS TO THE NORTH, EAST, AND SOUTH ARE A RESIDENTIAL NEIGHBORHOOD. THE ADJACENT AREA TO THE WEST IS A COMMUNITY CENTER BUILDING.

OFF-SITE AREAS:
NO OFF-SITE CONSTRUCTION IS PROPOSED, BUT IF BORROW FILL OR A WASTE PIT IS UTILIZED OFF-SITE, THE AREA SHALL BE CONTROLLED UNDER A SEPARATE OR EXISTING LAND DISTURBING PERMIT.

SOILS:
THE SOILS MAP AND SOILS DESCRIPTIONS HAVE BEEN INCLUDED ON THIS SHEET. THE SOIL DATA WAS OBTAINED FROM THE USDA (WEB) SOIL SURVEY.

Note: K-factor is a factor that indicates susceptibility of soil to sheet and rill erosion by water with values ranging from 0.02 to 0.69 (the higher the value the more susceptible the soil is to erosion). Hydrologic Soil Groups indicate runoff potential of the soil with Group A having high infiltration, Group B having Moderate infiltration, Group C having slow infiltration, and Group D having very slow infiltration. The pH value is used to approximate the required lime rate to be applied to the soil when seeding.

CRITICAL AREAS:
ALL SLOPES STEEPER THAN 3:1 ARE CONSIDERED TO BE CRITICAL AND HAVE ADDITIONAL MEASURES PROPOSED TO ENSURE ADEQUATE STABILIZATION IS ACHIEVED. EXTRA CARE SHOULD BE TAKEN DURING CONSTRUCTION TO ENSURE THAT THE PERIMETER EROSION AND SEDIMENT CONTROLS ARE BEING IMPLEMENTED CORRECTLY TO PREVENT SEDIMENT FROM ESCAPING THE PROJECT WORK AREA AND PASSING THROUGH OR ACCUMULATING IN THE EXISTING DRAINWAY. GOOD JUDGMENT PERTAINING TO WEATHER AND SITE CONDITIONS SHOULD ALWAYS BE USED WHEN PERFORMING A LAND DISTURBING ACTIVITY.

EROSION AND SEDIMENT CONTROL MEASURES:
UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. THIS PLAN DEPICTS ADEQUATE PERIMETER CONTROLS WITH THE UNDERSTANDING THAT FIELD CONDITIONS MAY REQUIRE ADDITIONAL CONTROLS OR MODIFICATIONS TO MEASURES AS SPECIFIED HEREIN. THE ENGINEER, LOCAL EROSION AND SEDIMENT CONTROL ADMINISTRATOR, AND DEQ RESERVES THE RIGHT TO PRESCRIBE ADDITIONAL MEASURES DURING CONSTRUCTION.

STRUCTURAL MEASURES:
TEMPORARY CONSTRUCTION ENTRANCE (3.02) SHALL BE INSTALLED AS SHOWN ON THE PLANS TO AID IN PREVENTING MUD AND SEDIMENT FROM BEING TRACKED ONTO THE STATE HIGHWAY. EXTRA PRECAUTIONS MAY BE REQUIRED BY THE CONTRACTOR TO ENSURE THAT NO MUD IS BEING TRACKED ONTO THE HIGHWAY BY CONSTRUCTION VEHICLES.

SILT FENCE (3.05) SHALL BE INSTALLED AS SHOWN ON THE PLANS TO FILTER SEDIMENT LADEN RUNOFF FROM DISTURBED AREAS BEFORE IT LEAVES THE SITE.

STORM DRAIN INLET PROTECTION (3.07) SHALL BE INSTALLED TO PREVENT SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA.

CULVERT INLET PROTECTION (3.08) SHALL BE INSTALLED AS A SEDIMENT FILTER LOCATED AT THE INLET TO STORM SEWER CULVERTS.

TEMPORARY DIVERSION DIKE (3.09) SHALL BE INSTALLED AS INDICATED ON THE SITE PLAN TO DIVERT SEDIMENT LADEN RUNOFF INTO THE PROPOSED SEDIMENT TRAP. TEMPORARY DIVERSION DIKES MUST BE MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.

TEMPORARY RIGHT-OF-WAY DIVERSION (3.11) SHALL BE INSTALLED AS SHOWN ON THE PLAN TO SHORTEN THE FLOW LENGTH WITHIN A SLOPING RIGHT-OF-WAY, THEREBY REDUCING THE EROSION POTENTIAL BY DIVERTING THE STORM RUNOFF TO A STABILIZED OUTLET.

TEMPORARY SEDIMENT TRAP (3.13) SHALL BE INSTALLED AS SHOWN ON THE SITE PLAN AND MUST BE CONSTRUCTED TO AT LEAST THE MINIMUM SIZE REQUIREMENTS PROVIDED. THE SEDIMENT TRAP WILL SERVE AS THE PRIMARY EROSION AND SEDIMENT CONTROL FOR THE AREA. ONCE THE DESIRED GRADE IS REACHED IN THE FILLING OPERATION, ALL DISTURBED AREAS ARE TO BE PERMANENTLY SEEDED. ONCE STABILIZED, THE SEDIMENT TRAP MAY BE FILLED IN.

OUTLET PROTECTION (3.18) SHALL BE INSTALLED TO PREVENT SCOUR AT STORMWATER OUTLETS, TO PROTECT THE OUTLET STRUCTURE, AND TO MINIMIZE THE POTENTIAL FOR SOWNSTREAM EROSION BY REDUCING THE VELOCITY AND ENERGY OF CONCENTRATED STORMWATER FLOWS.

TEMPORARY ROCK CHECK DAM (3.20) SHALL BE INSTALLED ALONG DITCHLINES AND DIVERSION DIKES AS SHOWN ON THE PLAN. THEY SHOULD BE REMOVED UPON COMPLETION OF CONSTRUCTION.

PERMANENT SEEDING (3.32) SHALL BE USED IN DISTURBED AREAS WHERE PERMANENT, LONG-LIVED VEGETATION COVER IS NEEDED AND ROUGH-GRADED AREAS WHICH WILL NOT BE BROUGHT TO FINAL GRADE FOR MORE THAN 6 MONTHS TO REDUCE EROSION, DECREASE SEDIMENT YIELD, AND PERMANENTLY STABILIZE DISTURBED AREAS

MULCHING (3.35) SHALL BE USED IN AREAS OF TEMPORARY AND PERMANENT SEEDING TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINDROP IMPACT AND REDUCING THE VELOCITY OF OVERLAND FLOW. THIS WILL PROMOTE GROWTH OF VEGETATION BY INCREASING AVAILABLE MOISTURE AND PROVIDING INSULATION AGAINST EXTREME HEAT AND COLD.

SOIL STABILIZATION BLANKET MATTING (3.36) SHALL BE USED ON ALL SLOPES STEEPER THAN 3:1 AS OUTLINED ON THE PLANS TO AID IN CONTROLLING EROSION ON CRITICAL SLOPES.

DUST CONTROL (3.39) SHALL BE USED TO PREVENT DUST AND AIRBORNE SUBSTANCES FROM SPREADING OUTSIDE OF THE LIMITS OF DISTURBANCE.

VEGETATIVE MEASURES:
PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE [FIVE (5) DAYS FOR CUT OR FILL SLOPES]. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN (7) DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN FOURTEEN (14) DAYS. PERMANENT SOIL STABILIZATION SHALL BE APPLIED TO ALL AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN SIX (6) MONTHS. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION. VEGETATIVE STABILIZATION SHALL BE UNIFORM, MATURE ENOUGH TO SURVIVE, AND ADEQUATE TO INHIBIT EROSION.

TOPSOIL THAT HAS BEEN STOCKPILED SHALL BE SURROUNDED WITH SILT FENCE ON THE DOWNSTREAM SIDE AND PROTECTED BY MULCH AND/OR TEMPORARY VEGETATION IMMEDIATELY AFTER GRADING. TOPSOIL SHALL NOT BE STOCKPILED IN DRAINWAYS.

MAINTENANCE:
ALL CONTROL MEASURES SHALL BE INSPECTED DAILY BY THE SITE SUPERINTENDENT OR HIS REPRESENTATIVE AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 1/4 INCH OF RAIN PER 24 HOUR PERIOD. IT IS RECOMMENDED THAT THE CONTRACTOR UTILIZE INSPECTION REPORTS AND KEEP QUALITY RECORDS OF ALL MAINTENANCE. ANY DAMAGED STRUCTURAL MEASURES ARE TO BE REPAIRED BY THE END OF THE DAY. SEEDED AREAS SHALL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND OF GRASS IS MAINTAINED. ALL AREAS SHALL BE FERTILIZED AND RE-SEEDED AS NEEDED UNTIL GRASS IS ESTABLISHED.

TEMPORARY SILT FENCE (AND ALL PERIMETER CONTROL MEASURES) SHALL BE CHECKED REGULARLY FOR SEDIMENT BUILD-UP. IF THE TEMPORARY SILT FENCE IS CLOGGED BY SEDIMENT 1/2 THE HEIGHT OF THE INSTALLATION, IT SHALL BE REMOVED AND CLEANED OR REPLACED IMMEDIATELY.

THE CONTRACTOR IS RESPONSIBLE FOR KEEPING EXISTING PUBLIC ROADS IN A CLEAN, DUST, AND MUD FREE CONDITION AT ALL TIMES.

TEMPORARY STABILIZATION:
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH TEMPORARY SEEDING IF THE AREA WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 14 DAYS. SEEDING REQUIREMENTS SHALL FOLLOW TABLE 3.31-B AND 3.31-C SHOWN ON SHEET C500.

PERMANENT STABILIZATION:
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINAL GRADING. SEEDING SHALL BE DONE ACCORDING TO SPECIFICATION NO. 3.32 OF THE VESCH AND TABLE 3.32-C ON SHEET C500. IN LIEU OF TESTING THE TOPSOIL TO DETERMINE IF AND WHAT RATE TO APPLY SOIL SUPPLEMENTS, THE CONTRACTOR CAN PROVIDE THE FOLLOWING MINIMUM SPECIFICATIONS:

TOPSOIL SHALL BE SPREAD AT A MINIMUM DEPTH OF 4" UNLESS OTHERWISE SPECIFIED IN ANY AREA WHERE THE EXISTING TOPSOIL HAS BEEN STRIPPED DURING CONSTRUCTION.

PULVERIZED AGRICULTURE LIMESTONE SHALL BE INCORPORATED INTO THE SOIL AT A MINIMUM RATE OF 92 LBS PER 1000 SF (2 TONS PER ACRE). FERTILIZE WITH 10-20-10 AT A MINIMUM RATE OF 23 LBS PER 1000 SF (1000 LBS PER ACRE)

STORMWATER MANAGEMENT:

SWM NARRATIVE:

THE TOTAL SITE HAS BEEN MANAGED FOR WATER QUANTITY IN ACCORDANCE WITH VIRGINIA STORMWATER MANAGEMENT ACT. THE SITE IS LOCATED WITHIN THE NORTH FORK SHENANDOAH RIVER WATERSHED. THE HUC 8 CODE OF THE WATERSHED IS 02070007.

WATER QUANTITY:

THE PROJECT SITE IS ANALYZED AT ONE (1) EVALUATION POINT TO THE NORTH OF THE SITE IN AN EXISTING SWALE. THE SITE MEETS CHANNEL PROTECTION BY 9VAC25-66-B.3.A. WHERE THE UNDERGROUND DETENTION TANKS AND OUTLET CONTROL STRUCTURE ARE UTILIZED TO SATISFY THE ENERGY BALANCE EQUATION. THE SITE MEETS FLOOD PROTECTION BY 9VAC25-870-66.C.1, WHERE THE SITE UTILIZES THE DETENTION FROM THE UNDERGROUND STORAGE TO RELEASE THE PEAK FLOWRATE FROM THE 10-YR 24-HOUR STORM EVENT AT LESS THAN THE PRE-DEVELOPMENT 10-YR 24-HOUR STORM EVENT TO AN EXISTING DRAINWAY THAT DOES NOT EXPERIENCE LOCALIZED FLOODING.

WATER QUALITY:

THE TOTAL SITE, WHICH CONSISTS OF 2.94 ACRES OF DISTURBANCE, HAS BEEN MANAGED FOR WATER QUALITY IN ACCORDANCE WITH THE VIRGINIA STORMWATER MANAGEMENT ACT. THE VIRGINIA RUNOFF REDUCTION METHOD RE- DEVELOPMENT WORKSHEET - V3.0 WAS USED TO DETERMINE THE NUTRIENT LOAD REMOVAL REQUIRED. THE PHOSPHORUS LOAD REDUCTION REQUIRED WAS DETERMINED TO BE 2.19 LB/YR. THE STORMTECH ISOLATOR ROW PLUS WILL PROVIDE A REDUCTION OF 1.84 LB/YR. THE REMAINING 0.35 LB/YR WILL BE OFFSET WITH THE PURCHASE OF NUTRIENT CREDITS.

MANAGEMENT STRATEGIES AND SITE USE REQUIREMENTS:

SEQUENCE OF CONSTRUCTION:

1. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD PRIOR TO ANY LAND DISTURBANCE ON-SITE. CONTRACTOR TO SCHEDULE THIS MEETING WITH THE WARREN COUNTY E&S ADMINISTRATOR, DEQ, THE OWNER, AND ENGINEER AT LEAST 2 WEEKS PRIOR TO START OF CONSTRUCTION.
2. PERIMETER EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED (LOD MARKED, SILT FENCE, SEDIMENT TRAPS, DIVERSIONS, ETC.) AS A FIRST STEP IN THE LAND DISTURBANCE ACTIVITY.
3. DEMOLITION WORK MAY COMMENCE FOLLOWING INSTALLATION OF PERIMETER CONTROLS.
4. CLEAR AND GRUB. STRIP AND STOCKPILE TOPSOIL FOR RE-SPREAD USE UPON CLOSEOUT. TOPSOIL MAY BE USED, SHAPED AND COMPACTED AS DIVERSION BERMS AND DIKES IN THE FIELD.
5. BEGIN CONSTRUCTION AND GRADING OPERATIONS. (NOTE: R-TANK STORAGE CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURERS REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS).
6. ONCE ENTIRE AREA IS STABILIZED, THE TEMPORARY SEDIMENT TRAP CAN BE REMOVED AND FINAL GRADES CAN BE REACHED.

CONSTRUCTION SHALL BE SEQUENCED SUCH THAT GRADING OPERATIONS WILL BEGIN AND END AS QUICKLY AS POSSIBLE.

THE SITE SUPERINTENDENT AND THE DEQ CERTIFIED RESPONSIBLE LAND DISTURBER SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL MEASURES. MAINTENANCE OF THESE MEASURES THROUGHOUT THE PROJECT IS CRITICAL TO THE EFFECTIVENESS OF THE PROGRAM.

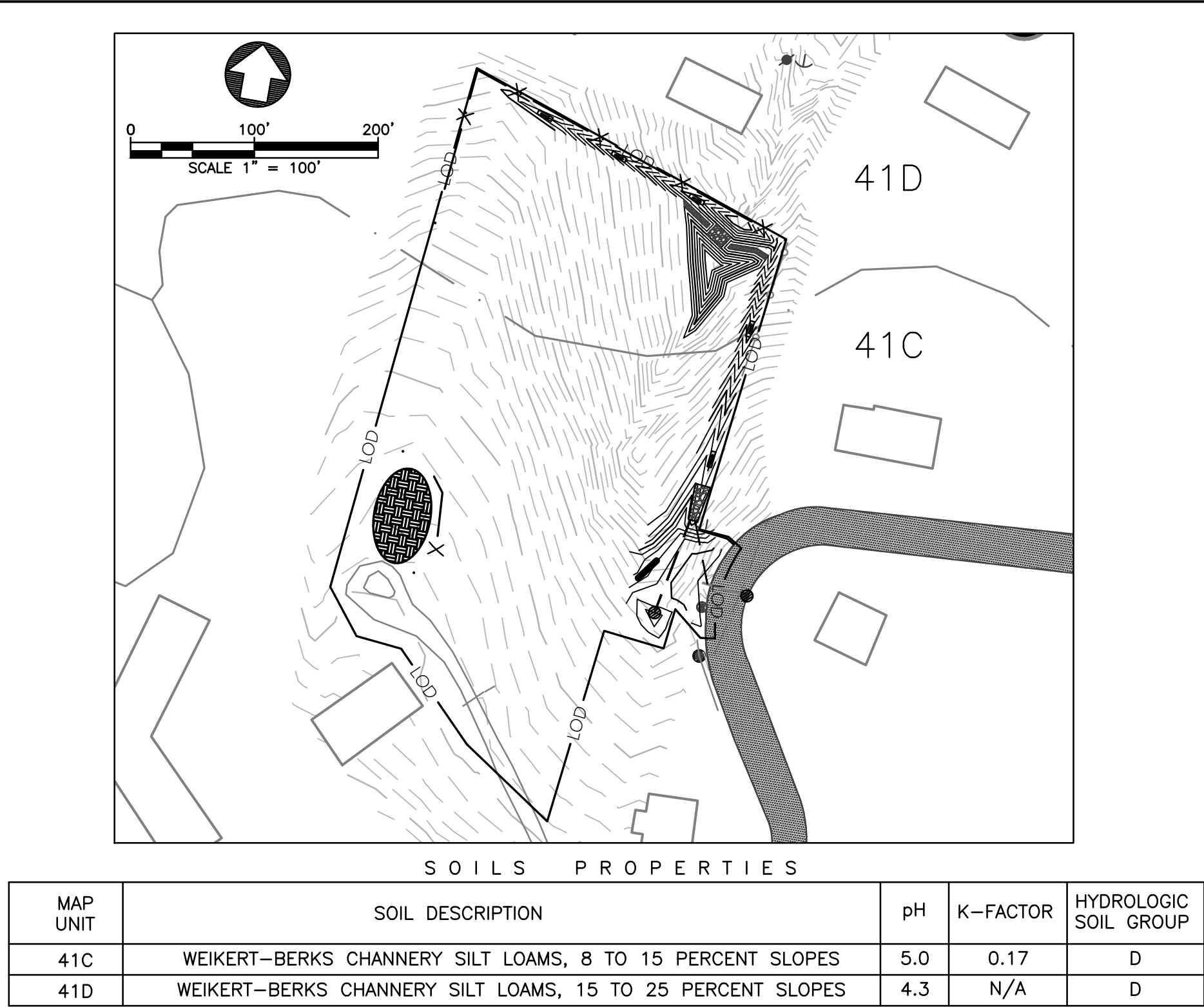
DEVICES SPECIFIED IN THIS PLAN ARE CONSIDERED MINIMUM EROSION AND SEDIMENT CONTROLS. ADDITIONAL CONTROL MEASURES MAY BE NECESSARY DUE TO UNUSUAL CONDITIONS OR PHASING OR OTHER UNFORESEEN CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADDITIONAL MEASURES TO THOSE SHOWN, AS NEEDED, IN ORDER TO CONTROL THE EROSION ON THE SITE. ALL MEASURES SHALL BE INSTALLED ACCORDING TO THE STANDARDS AND SPECIFICATION OF THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

ALL APPLICABLE EROSION AND SEDIMENT CONTROLS SHALL BE ADHERED TO THROUGHOUT THE LIFE OF THE PROJECT.

IN NO CASE SHALL ANY, DESIGNATED OR STIPULATED, HAZARDOUS MATERIALS BE PLACED AT ANY LOCATION ON THE PROJECT SITE.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

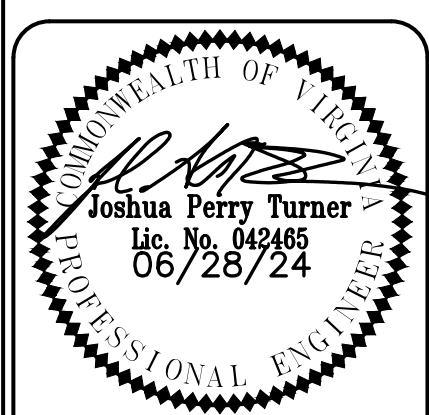
- ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS EROSION AND SEDIMENT CONTROL REGULATIONS (9VAC25-840).
- ES-2: THE PLAN-APPROVING AUTHORITY MUST BE NOTIFIED ONE 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. THE NAME OF THE RESPONSIBLE LAND DISTURBER MUST BE PROVIDED TO THE PLAN-APPROVING AUTHORITY PRIOR TO ACTUAL ENGAGEMENT IN THE LAND-DISTURBING ACTIVITY SHOWN ON THE APPROVED PLAN. IF THE NAME IS NOT PROVIDED PRIOR TO ENGAGING IN THE LAND-DISTURBING ACTIVITY, THE PLAN'S APPROVAL WILL BE REVOKED.
- ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS SOON AS THE FIRST STEP IN CLEARING.
- ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO OFF SITE BORROW OR WASTED AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- ES-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.
- ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED, AFTER WHICH, UPON APPROVAL OF THE PLAN-APPROVING AUTHORITY, THE CONTROLS SHALL BE REMOVED. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
- ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES AT LEAST EVERY 2 WEEKS AND IMMEDIATELY AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
- ES-10: THE CONTRACTOR IS RESPONSIBLE FOR THE DAILY REMOVAL OF SEDIMENT THAT HAS BEEN TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE.
- ES-11: SEEDING OPERATIONS SHALL BE INITIATED WITHIN 7 DAYS AFTER REACHING FINAL GRADE OR UPON SUSPENSION OF GRADING OPERATIONS FOR AN ANTICIPATED DURATION OF GREATER THAN 14 DAYS OR UPON COMPLETION OF GRADING OPERATIONS FOR A SPECIFIC AREA.
- ES-12: THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SURFACE AND AIR MOVEMENT OF DUST FROM EXPOSED SOILS WHICH MAY PRESENT HEALTH HAZARDS, TRAFFIC SAFETY PROBLEMS, OR HARM ANIMAL OR PLANT LIFE.
- ES-13: A VSPM IS REQUIRED FOR PROJECTS DISTURBING 2,500 SQUARE FEET OR GREATER IN A DESIGNATED CHESAPEAKE BAY PRESERVATION AREA (CBPA) OR 1 ACRE, OR GREATER OUTSIDE THE CBPA, UNLESS THE DEVELOPMENT IS WITHIN A COMMON PLAN OF DEVELOPMENT. FOR MORE INFORMATION VISIT THE VIRGINIA STORMWATER MANAGEMENT PROGRAM PERMITTING WEB PAGE AT: [HTTP://WWW.DEFQ.VIRGINIA.GOV/PROGRAMS/WATER/STORMWATERMANAGEMENT/VSPMPERMITS/CONSTRUCTIONGENERALPERMIT.ASPX](http://www.defq.virginia.gov/PROGRAMS/WATER/STORMWATERMANAGEMENT/VSPMPERMITS/CONSTRUCTIONGENERALPERMIT.ASPX)
- VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS**
SECTION 9VAC25-840-40
MINIMUM STANDARDS
- A VESCP must be consistent with the following criteria, techniques and methods:
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 seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.
 2. During construction of the project, soil stock piles 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.
 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.
 4. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.
 5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
 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 disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of 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 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.
 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.



MAP UNIT	SOIL DESCRIPTION	pH	K-FACTOR	HYDROLOGIC SOIL GROUP
41C	WEIKERT-BERKS CHANNERY SILT LOAMS, 8 TO 15 PERCENT SLOPES	5.0	0.17	D
41D	WEIKERT-BERKS CHANNERY SILT LOAMS, 15 TO 25 PERCENT SLOPES	4.3	N/A	D

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.
9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
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.
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.
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 extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.
13. When a live watercourse must be crossed by construction facilities more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.
14. All applicable federal, state and local requirements pertaining to working in or crossing live watercourses shall be met.
15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
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.
 - e. Rehabilitation shall be accomplished in accordance with this chapter.
 - f. Applicable safety requirements shall be complied with.
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. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. 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.
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 VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.
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. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:
 - 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:
 - (1) 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
 - (2) (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.
 - (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 be contained within the pipe or system.
 - c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
 - (1) Improve the channels 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, the bed, or the banks; or
 - (2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;
 - d. 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
 - (4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
- 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 condition of the subject project.
- f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.
- g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized 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 that may cause 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 management 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 considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.
- k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.
- l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to § 62.1-44.15:54 or 62.1-44.15:65 of the Act.
- m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of § 62.1-44.15:52 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§ 62.1-44.15:24 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 9VAC25-870-48 of the Virginia Stormwater Management Program (VSPM) Regulations.
- n. Compliance with the water quantity minimum standards set out in 9VAC25-870-66 of the Virginia Stormwater Management Program (VSPM) Regulations shall be deemed to satisfy the requirements of subdivision 19 of this subsection.

Date	06/28/24
App'd	JPT
By	HV
Submittal / Revision	1ST SUBMITTAL TOWN
No.	1



PERMIT REVIEW SET

CHECKED-JPT
DRAWN-HV
DESIGNED-HV

STRASBURG ROAD SUBDIVISION	ESC NARRATIVE	ALI BILLOO	WARREN COUNTY, VA	PUBLISH DATE: 6/28/2024	RACEY PROJECT NUMBER: 9276
C400					

SEDIMENT TRAP CALCULATIONS			
ELEVATION	AREA (SF)	INCR. VOLUME (CY)	CUMMULATIVE VOLUME (CY)
555	152	0	0
558	886	57.67	57.67
559	1,252	39.59	97.26
560	1,674	54.19	151.44
561	2,171	71.20	222.65
562	2,745	91.04	313.69

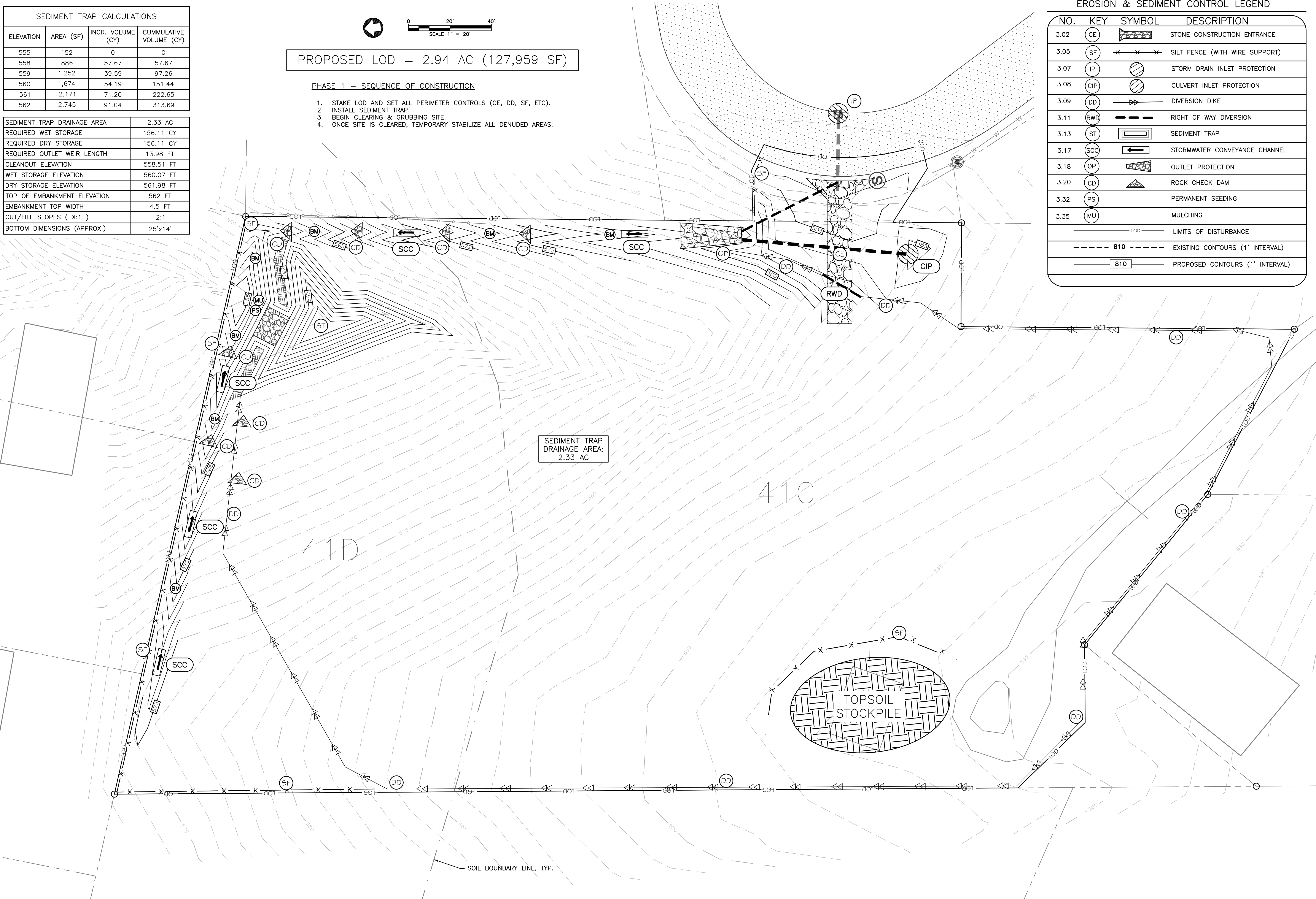
SEDIMENT TRAP DRAINAGE AREA		2.33 AC
REQUIRED WET STORAGE		156.11 CY
REQUIRED DRY STORAGE		156.11 CY
REQUIRED OUTLET WEIR LENGTH		13.98 FT
CLEANOUT ELEVATION		558.51 FT
WET STORAGE ELEVATION		560.07 FT
DRY STORAGE ELEVATION		561.98 FT
TOP OF EMBANKMENT ELEVATION		562 FT
EMBANKMENT TOP WIDTH		4.5 FT
CUT/FILL SLOPES (X:1)		2:1
BOTTOM DIMENSIONS (APPROX.)		25'x14'

PROPOSED LOD = 2.94 AC (127,959 SF)

PHASE 1 - SEQUENCE OF CONSTRUCTION

1. STAKE LOD AND SET ALL PERIMETER CONTROLS (CE, DD, SF, ETC).
2. INSTALL SEDIMENT TRAP.
3. BEGIN CLEARING & GRUBBING SITE.
4. ONCE SITE IS CLEARED, TEMPORARY STABILIZE ALL DENUDED AREAS.

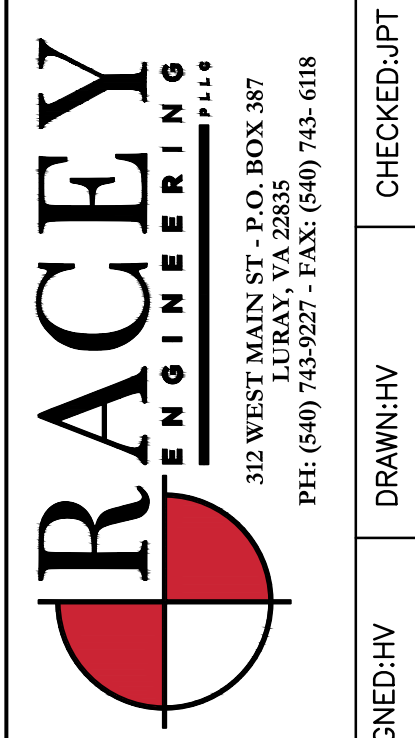
EROSION & SEDIMENT CONTROL LEGEND			
NO.	KEY	SYMBOL	DESCRIPTION
3.02	CE		STONE CONSTRUCTION ENTRANCE
3.05	SF		SILT FENCE (WITH WIRE SUPPORT)
3.07	IP		STORM DRAIN INLET PROTECTION
3.08	CIP		CULVERT INLET PROTECTION
3.09	DD		DIVERSION DIKE
3.11	RWD		RIGHT OF WAY DIVERSION
3.13	ST		SEDIMENT TRAP
3.17	SCC		STORMWATER CONVEYANCE CHANNEL
3.18	OP		OUTLET PROTECTION
3.20	CD		ROCK CHECK DAM
3.32	PS		PERMANENT SEEDING
3.35	MU		MULCHING
--- LOD --- LIMITS OF DISTURBANCE			
--- 810 --- EXISTING CONTOURS (1' INTERVAL)			
--- 810 --- PROPOSED CONTOURS (1' INTERVAL)			



No.	App'd	By	Submital / Revision	Date
1ST SUBMITTAL TOWN	JPT	HV		06/28/24



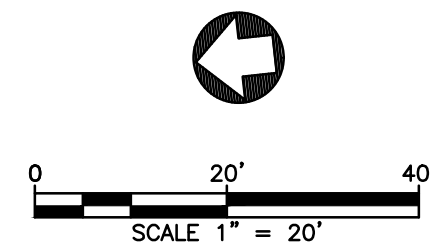
PERMIT
REVIEW SET



STRASBURG ROAD SUBDIVISION
ESC PLAN PHASE 1
ALI BILLOO
WARREN COUNTY, VA
RACEY PROJECT NUMBER: 9276
PUBLISH DATE: 6/28/2024

C401

P:\2022\9276 - Ali Billoo - Strasburg Road Subdivision - 20A114-23B-Civil\8. DESIGN\4. DWG\CIVIL\COMPOSITE
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PROPOSED LOD = 2.94 AC (127,959 SF)

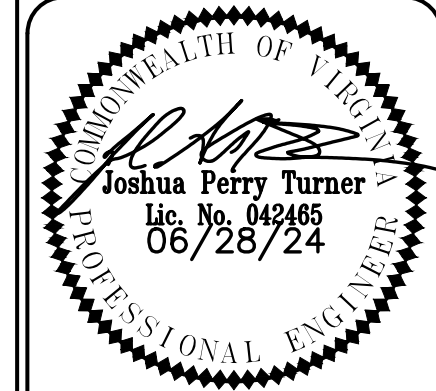
PHASE 2 - SEQUENCE OF CONSTRUCTION

1. CONTINUE CONSTRUCTION AND GRADING OPERATIONS.
2. THE ENTIRE SITE IS TO BE STABILIZED PRIOR TO THE CONVERSION OF THE SEDIMENT TRAP.
3. ONCE SITE IS STABILIZED, DETENTION CAN BE INSTALLED AND SEDIMENT TRAP CAN BE REMOVED. SILT FENCE IS TO REMAIN FOR THE DURATION OF THE PROJECT.
4. WHEN THE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED AND APPROVED, THE PERIMETER CONTROLS MAY BE REMOVED.

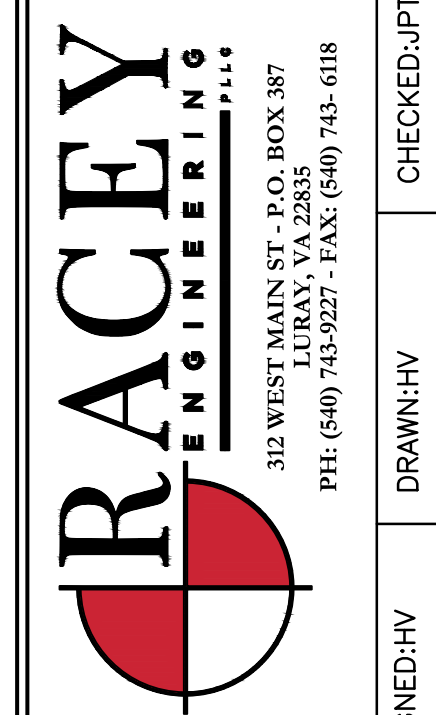
EROSION & SEDIMENT CONTROL LEGEND

NO.	KEY	SYMBOL	DESCRIPTION
3.02	CE		STONE CONSTRUCTION ENTRANCE
3.05	SF		SILT FENCE (WITH WIRE SUPPORT)
3.07	IP		STORM DRAIN INLET PROTECTION
3.08	CIP		CULVERT INLET PROTECTION
3.09	DD		DIVERSION DIKE
3.11	RWD		RIGHT OF WAY DIVERSION
3.13	ST		SEDIMENT TRAP
3.17	SCC		STORMWATER CONVEYANCE CHANNEL
3.18	OP		OUTLET PROTECTION
3.20	CD		ROCK CHECK DAM
3.32	PS		PERMANENT SEEDING
3.35	MU		MULCHING
			LOD LIMITS OF DISTURBANCE
			810 EXISTING CONTOURS (1' INTERVAL)
			810 PROPOSED CONTOURS (1' INTERVAL)

No.	Submitted	Revision	By	App'd	Date
1ST SUBMITTAL	TOWN		HV	JPT	06/28/24



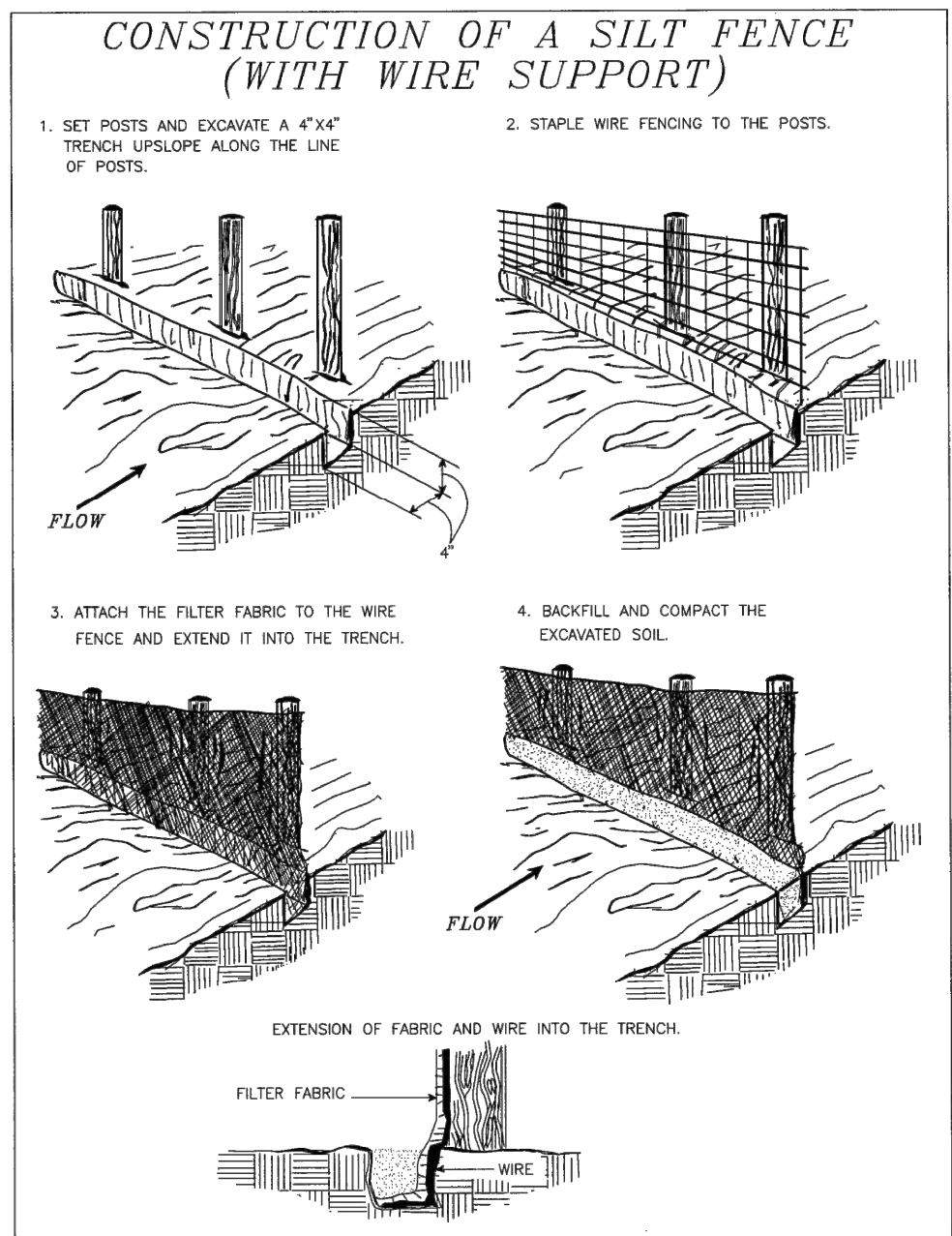
PERMIT
REVIEW SET



DESIGNED:HV
DRAWN:HV
CHECKED:JPT

STRASBURG ROAD SUBDIVISION
ESC PLAN PHASE 2
ALI BILLOO
WARREN COUNTY, VA
RACEY PROJECT NUMBER: 9276
PUBLISH DATE: 6/28/2024

C402



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

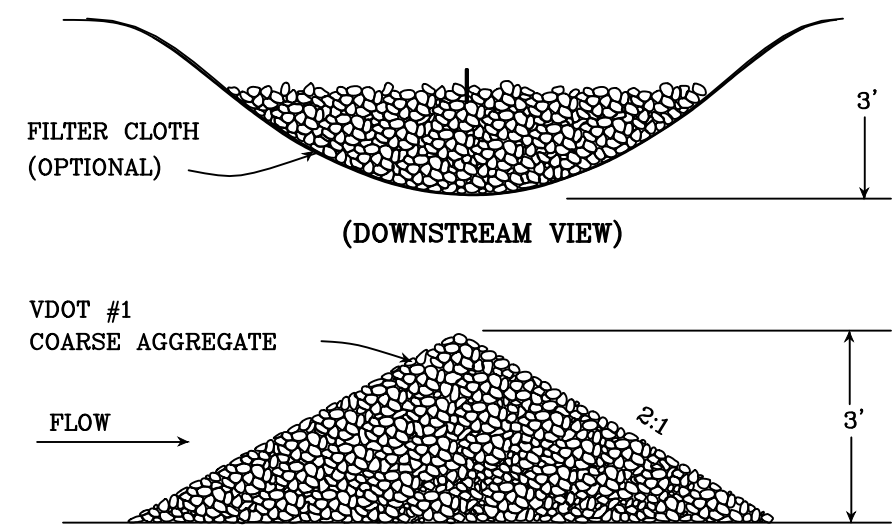
Plate 3.05-1

SILT FENCE - WITHOUT WIRE SUPPORT

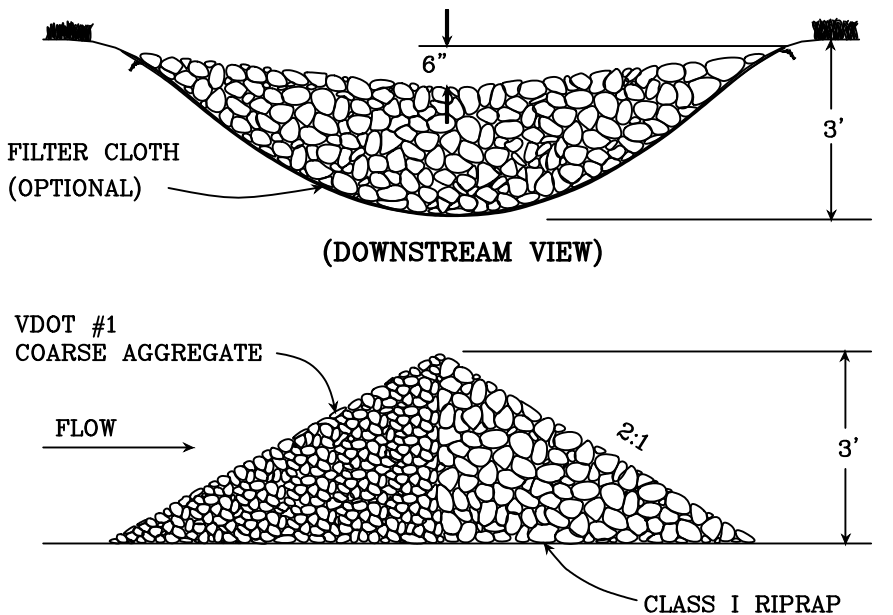
N.T.S. - SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK - PLATE 3.05-2

ROCK CHECK DAM

2 ACRES OR LESS OF DRAINAGE AREA:



2-10 ACRES OF DRAINAGE AREA:

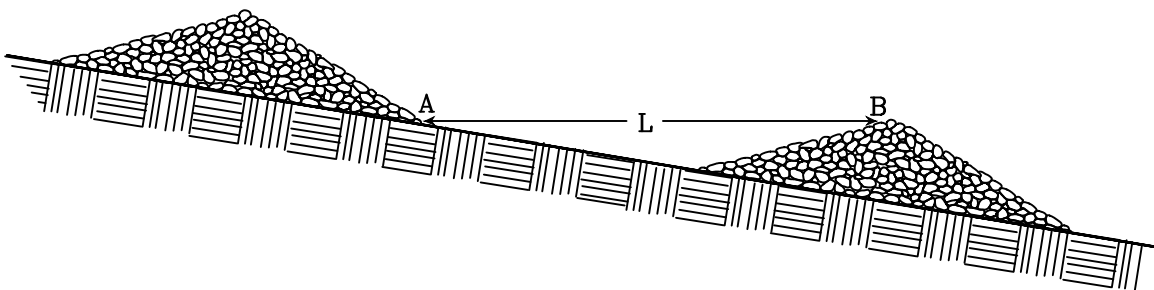


SOURCE: VA. DSWC

PLATE. 3.20-1

SPACING BETWEEN CHECK DAMS

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

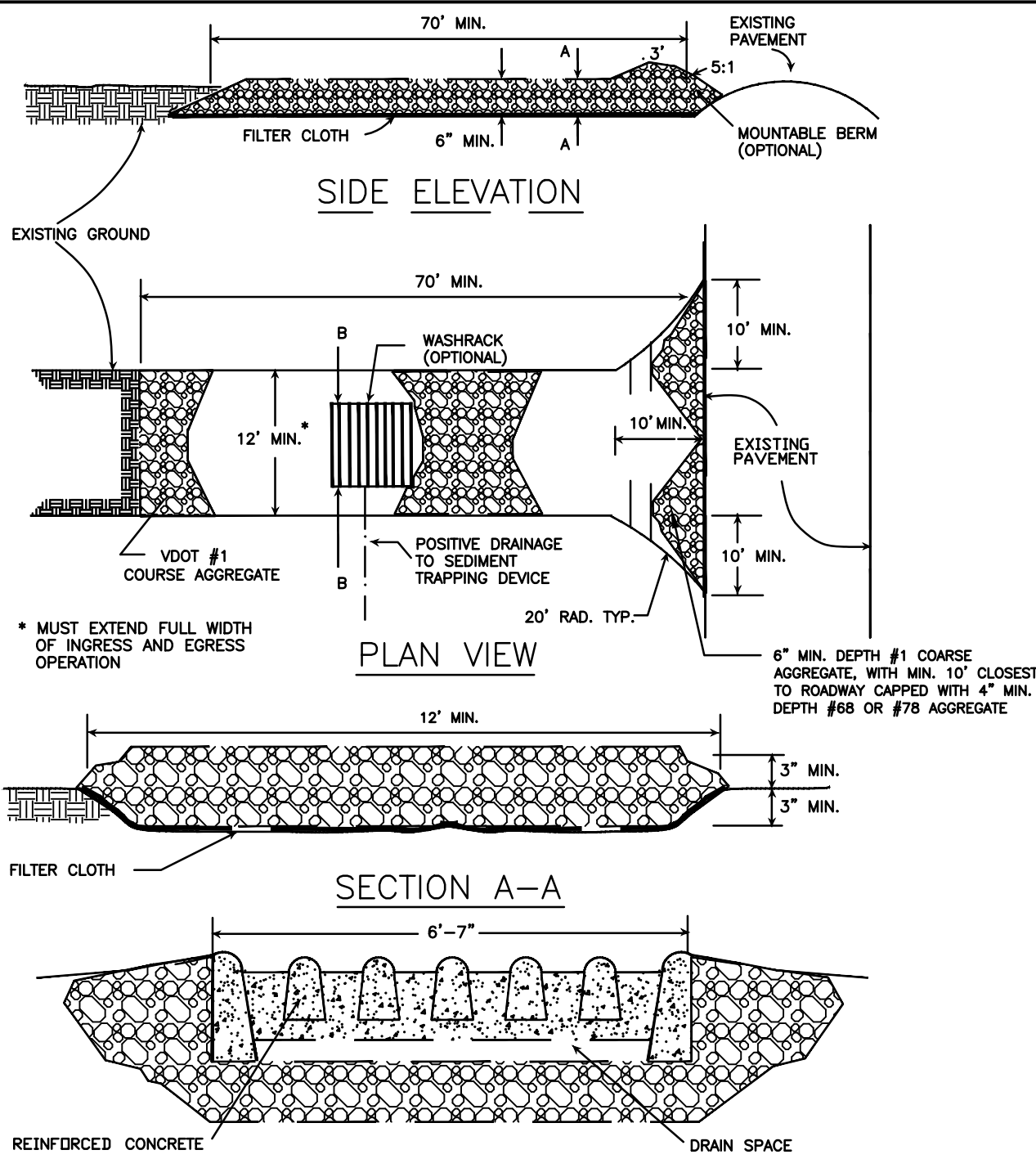


SOURCE: VA. DSWC

PLATE. 3.20-2

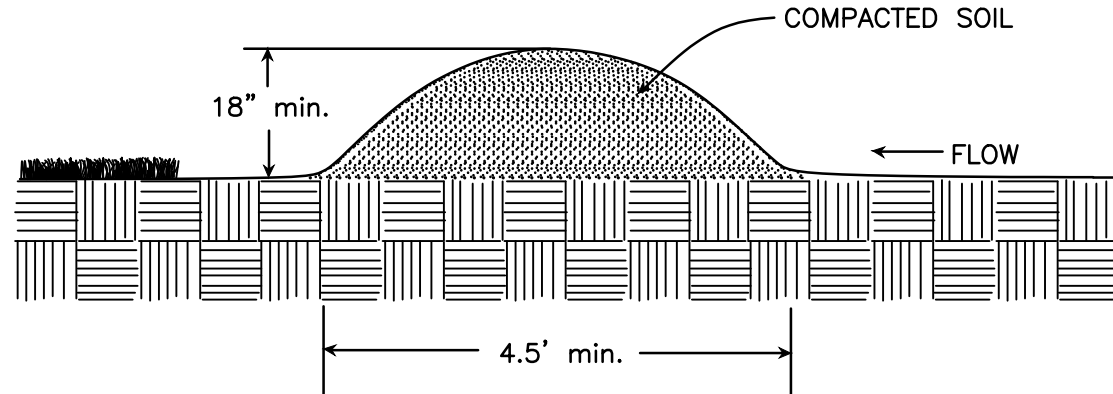
ROCK CHECK DAM

N.T.S. - SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK - PLATE 3.20



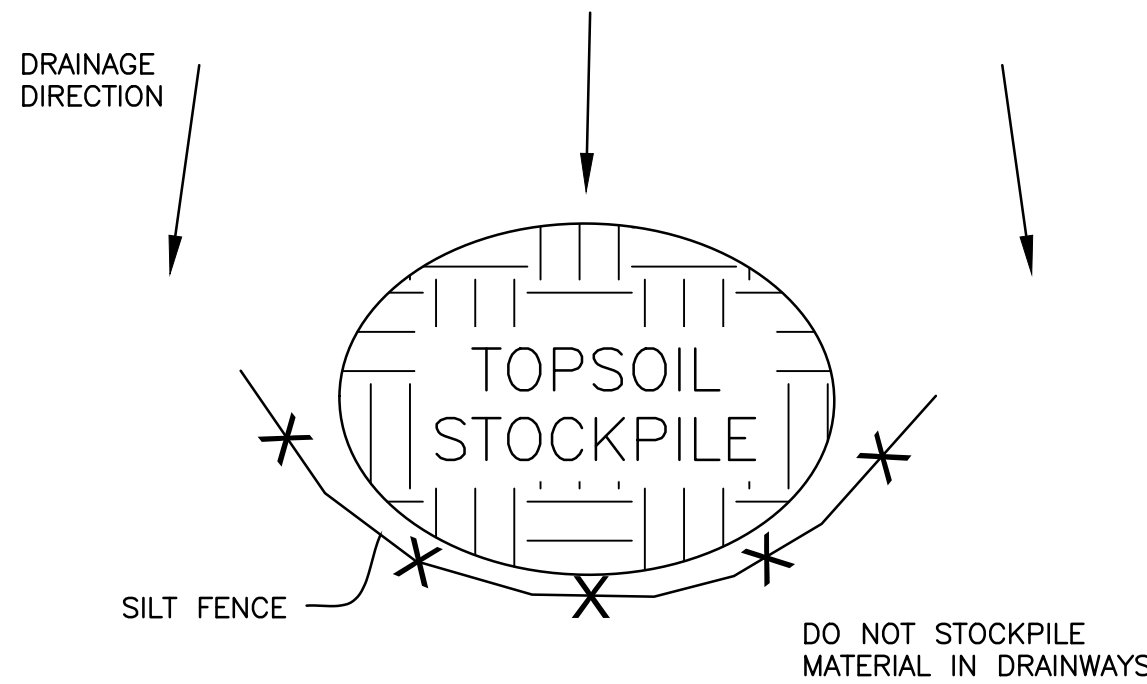
TEMPORARY STONE CONSTRUCTION ENTRANCE

N.T.S. - SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK - PLATE 3.02-1



TEMPORARY DIVERSION DIKE

N.T.S. - SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK - PLATE 3.09-1



MATERIAL STOCKPILE

N.T.S.

Table C-SSM-09-2 Liming

Liming Requirements for Temporary Sites

pH Test	Recommended Application of Agricultural Limestone
below 4.2	3 tons per acre
4.2 to 5.2	2 tons per acre
5.2 to 6	1 ton per acre

Source: Va. DSWC

Table C-SSM-09-3 Plant Material for Temporary Seeding

Acceptable Temporary Seeding Plant Materials "Quick Reference for all Regions"

Planting Dates	Species	Rate (pounds per acre)
Sept. 1 - Feb. 15	50/50 Mix of annual ryegrass (<i>Lolium multi-florum</i>) & cereal (winter) rye (<i>Secale cereale</i>)	50 - 100
Feb. 16 - Apr. 30*	Annual ryegrass (<i>Lolium multi-florum</i>)	60 - 100
May 1* - Aug. 31	German millet (<i>Setaria italica</i>)	50

* The shift date for annual rye to German millet should be April 15 for the Piedmont and Coastal Plain, rather than May 1.

Table C-SSM-09-4 Temporary Seeding Applications

Temporary Seeding Plant Materials, Seeding Rates, and Dates

Species	Seeding Rate lbs./ 1,000 ft ²	North ^a								Plant Characteristics
		3/1	5/1	8/15	2/15	5/1	9/1	11/15		
Oats (<i>Avena sativa</i>)	50 - 100	2.0	X	-	-	X	-	-		Use spring varieties (e.g., Noble).
Rye ^d (<i>Secale cereale</i>)	50 - 110	2.5	X	-	X	X	-	X		Use for late fall seedings, winter cover. Tolerates cold and low moisture.
German millet (<i>Setaria italica</i>)	50	1.0	-	X*	-	-	X*	-		Warm-season annual. Dies at first frost. May be added to summer mixes.
Annual ryegrass ^c (<i>Lolium multi-florum</i>)	60	1.5	X*	-	X	X*	-	X		May be added in mixes. Will mow out of most stands.

Korean Lespedeza ^b (<i>Lespedeza stipulacea</i>)	25	1.5	X	X	-	X	X	-		Warm-season annual legume. Tolerates acid soils. May only be used in a mix with another grass (e.g., annual or cereal rye); it is not suitable as a pure seeding for this purpose.
---	----	-----	---	---	---	---	---	---	--	--

- Northern Piedmont and Mountain regions. See Figure C-ENV-01-1 and Figure C-ENV-01-2.
- Southern Piedmont and Coastal Plain.
- May be used as a cover crop with spring seeding.
- May be used as a cover crop with fall seeding.
- May not be planted between these dates.
- May be planted between these dates.

* The shift date for annual rye to German millet should be April 15 for the Piedmont and Coastal Plain, rather than May 1.

TEMPORARY SEEDING

Table C-SSM-10-6 Suggested and Example Site-Specific Seeding Mixtures for Appalachian/Mountain Area

Site Condition	Seed Mix	Application Rate (pounds per acre)
Minimum-Care Lawn Commercial or Residential	Turf-Type Tall Fescue	90-100%
	Improved Perennial Ryegrass*	0-10%
	Kentucky Bluegrass	0-10%
High-Maintenance Lawn	Bluegrass - minimum of three to five varieties from VCI list for use in Virginia	125
	Improved VCI Turf-Type Tall Fescue	150 - 200
General Slope (3H:1V or less)	Tall Fescue****	50 - 75
	Red Top and/or Hard Fescue	10 - 20
	White Clover and/or Birdsfoot Trefoil***	10 - 20
	Seasonal Nurse Crop **	30 - 40
	Tall Fescue****	50 - 75
Low-Maintenance Slope (> 3:1) or Inaccessible Area***	Red Top or Hard Fescue	10 - 20
	Annual Lespedeza	10 - 15
	White Clover and/or Birdsfoot Trefoil***	10 - 20
	Seasonal Nurse/Cover Crop**	30 - 40

* Perennial ryegrass will germinate faster and at lower soil temperatures than fescue, thereby providing cover and erosion resistance for seedbed.

** Use seasonal nurse crop in accordance with seeding dates as stated below:

March 1 through May 15 - annual/cereal rye

May 16 through August 15 - foxtail/German millet

August 16 through February 28 - annual/cereal rye

*** All legume seed must be properly inoculated. Legumes recommended unless periodic N fertilization maintenance intended.

Flatpea at 20 lbs/acre may be utilized where warranted. All legume seed must be properly inoculated. Weeping lovegrass may also be included in any slope or low-maintenance mixture during warmer seeding periods; add 10 to 20 lbs/acre in mixes.

**** Increase seeding rate if Kentucky 31 is used rather than VCI/VCI improved varieties.

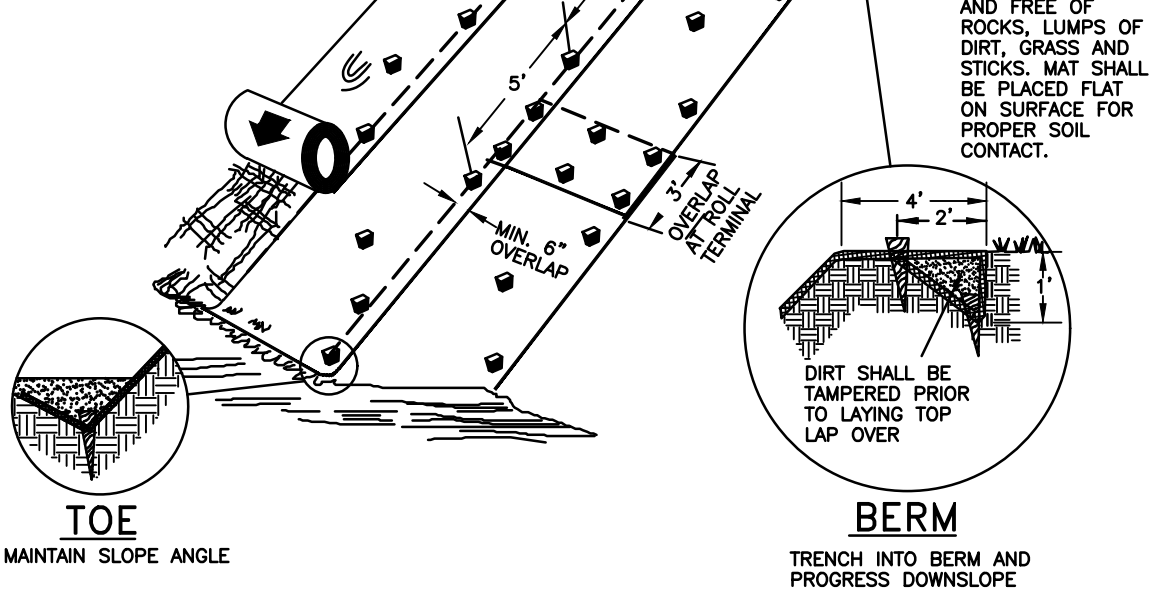
Note: Seed mixes are suggested and subject to modification based on site-specific conditions by an agronomist or other qualified revegetation professionals. All seed rates expressed as PLS (Pure Live Seed; see Table C-SSM-10-9).

PERMANENT SEEDING

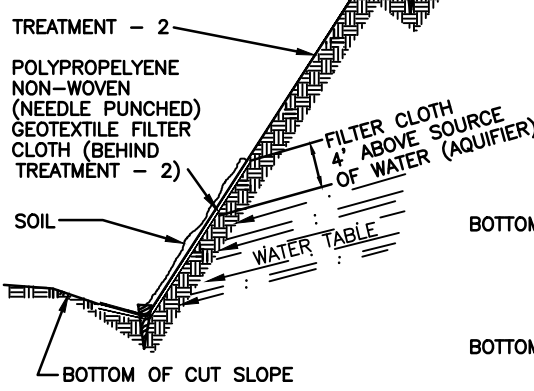
TYPICAL TREATMENT - 2 SOIL STABILIZATION MATTING SLOPE INSTALLATION

FILL SLOPE SECTION

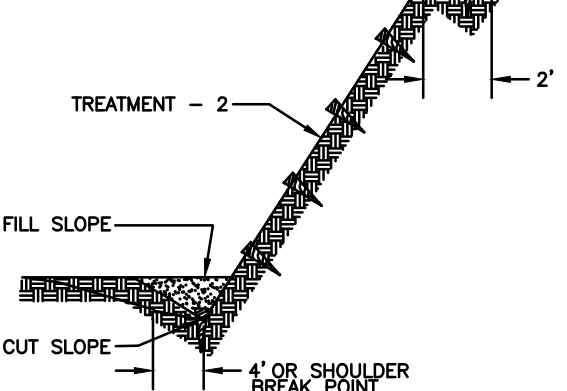
SOIL STABILIZATION MATS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE FOR BEST RESULTS.



SLOPE LINING (WET SLOPE)



SLOPE LINING (DRY SLOPE)



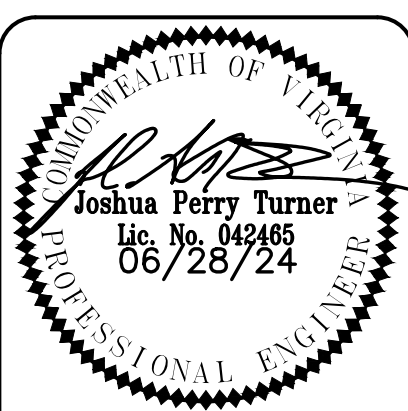
SOURCE: VDOT ROAD AND BRIDGE STANDARDS

PLATE: 3.36-5

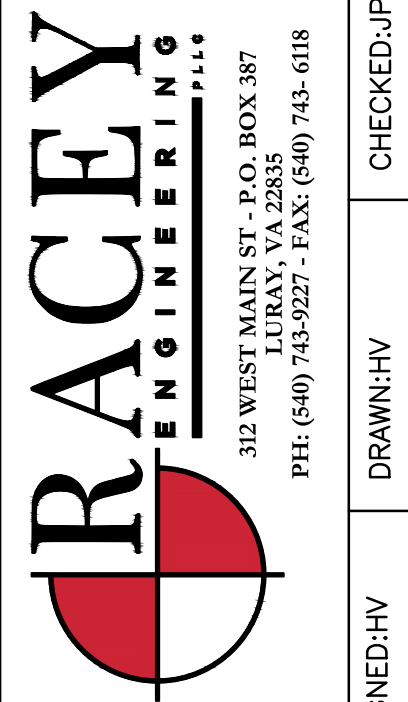
EC-3 STABILIZATION MATTING

N.T.S. - SOURCE: VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK - PLATE 3.36-5

Date	06/28/24
App'd	JPT
By	HV
Submital / Revision	
1ST SUBMITTAL TOWN	
No.	



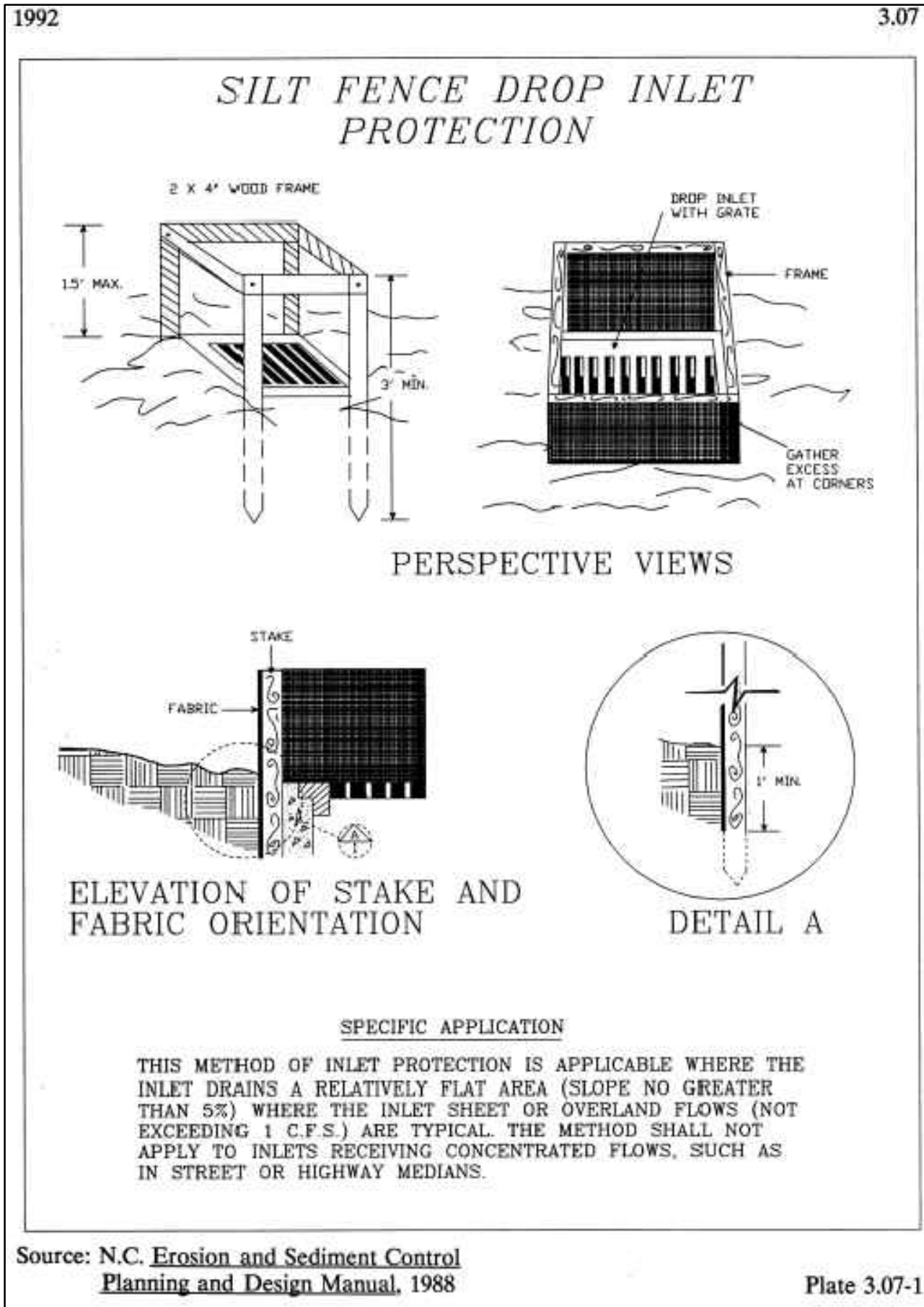
PERMIT REVIEW SET



STRASBURG ROAD SUBDIVISION
ESC DETAILS
ALI BILLOO
WARREN COUNTY, VA

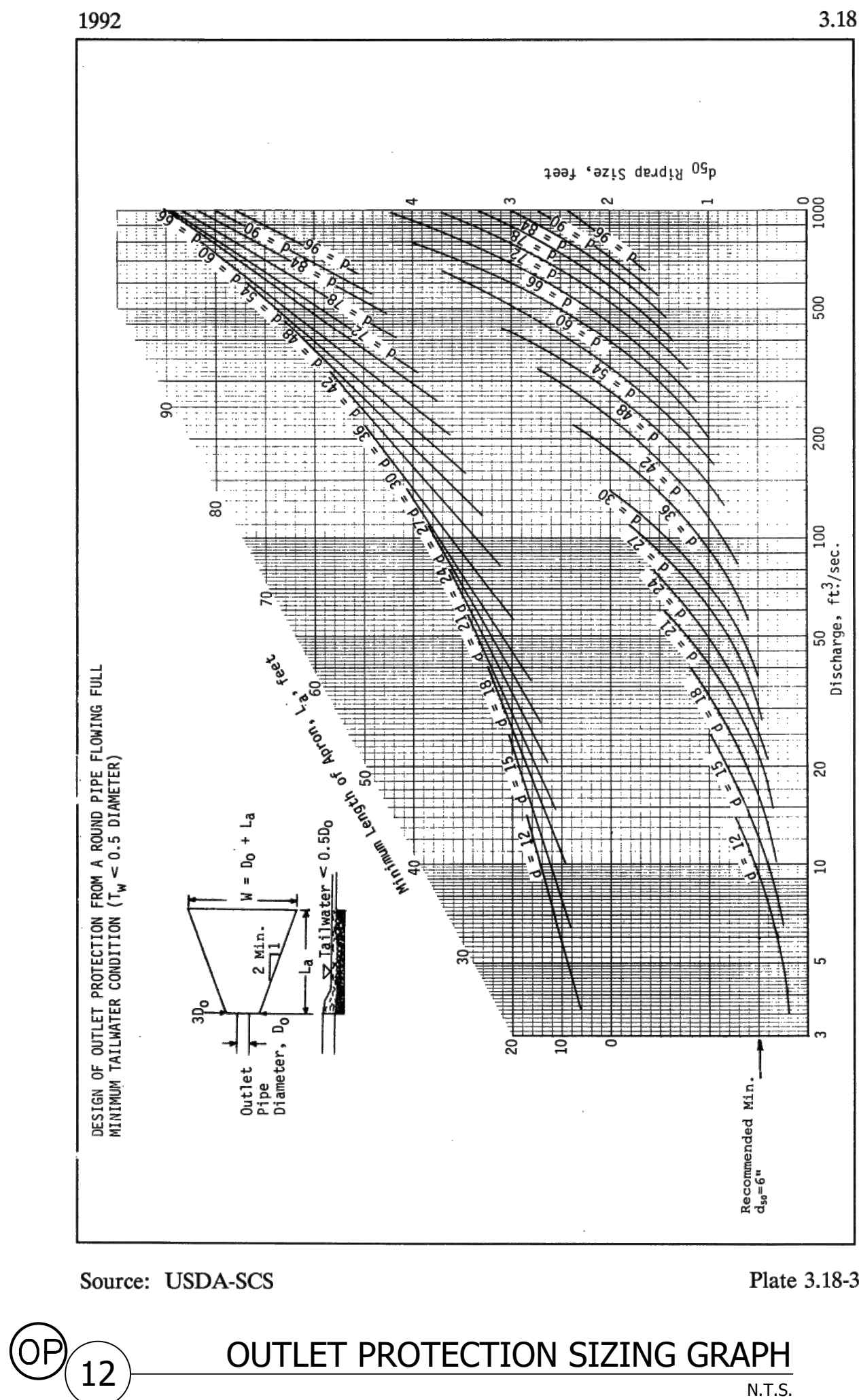
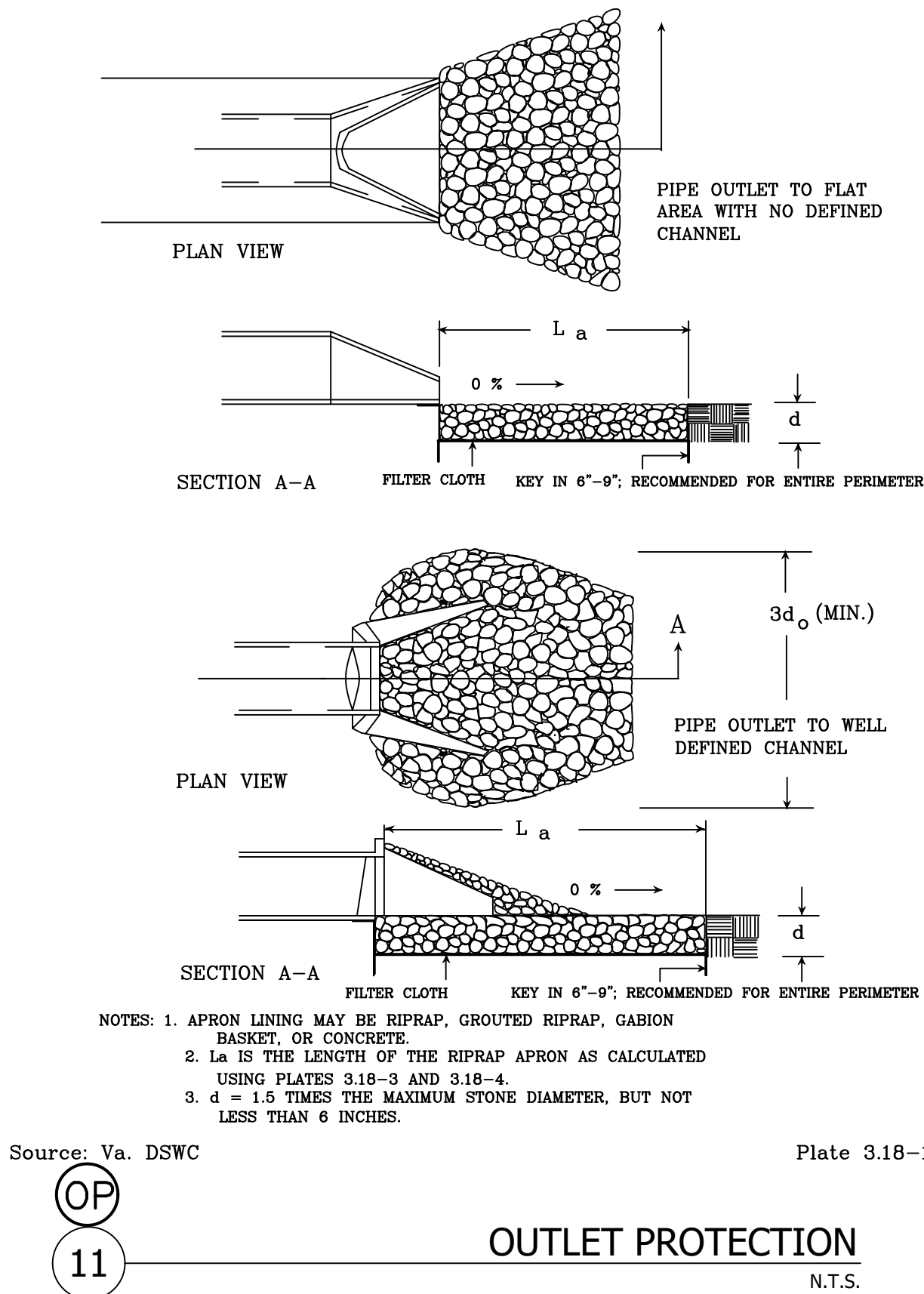
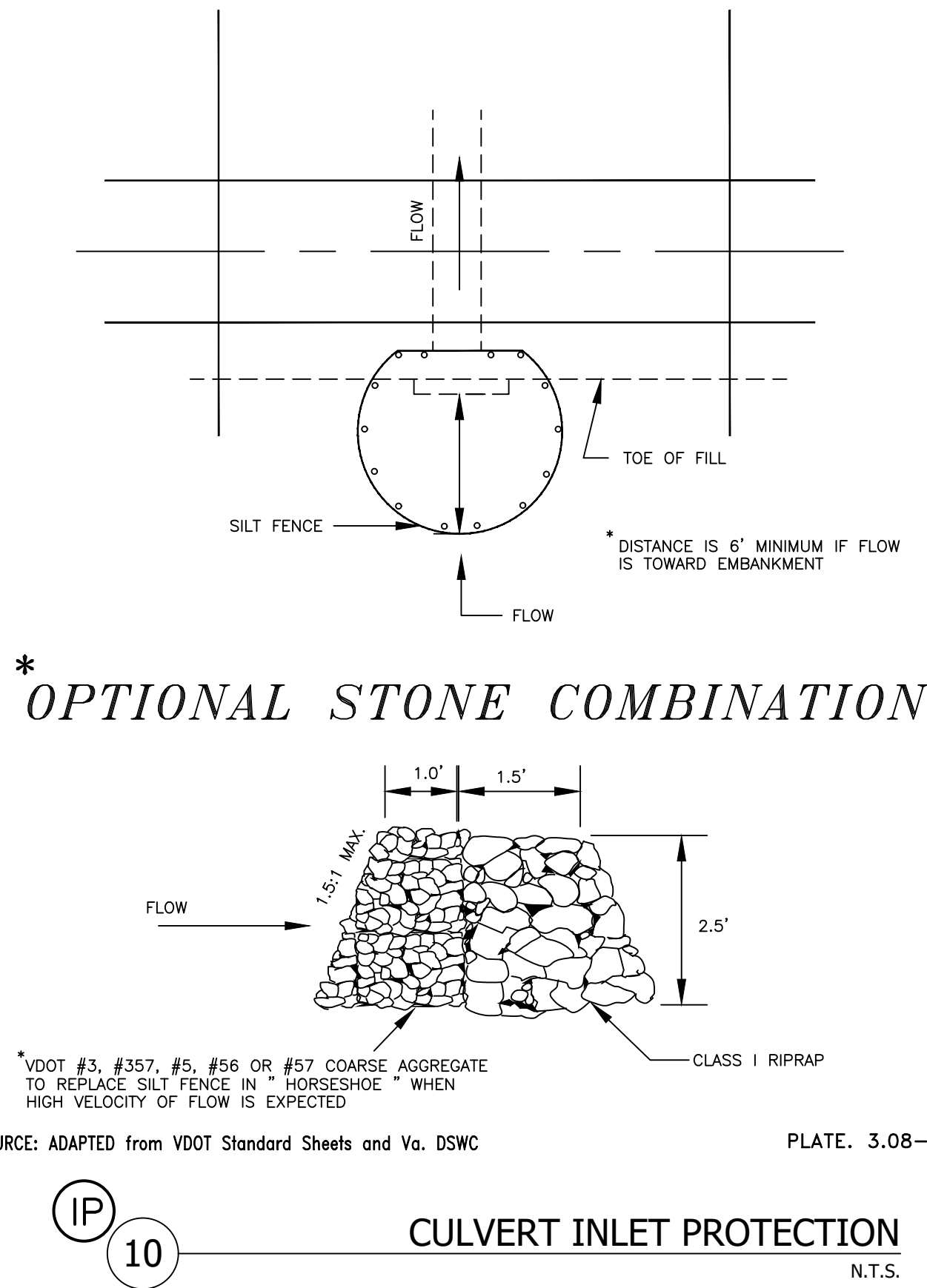
RACEY PROJECT NUMBER: 9276 PUBLISH DATE: 6/28/2024

C500



IP 9 DROP INLET PROTECTION

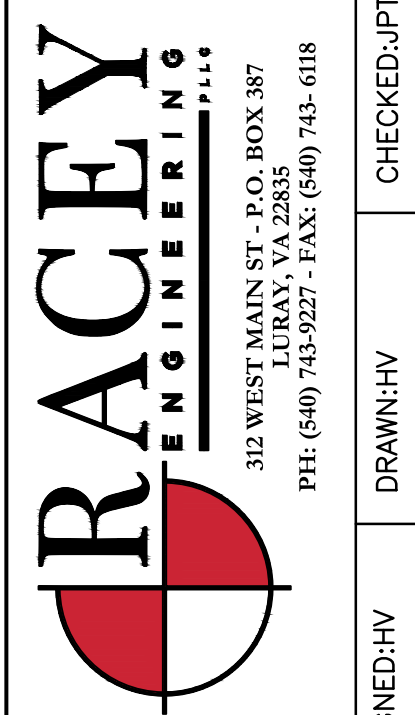
N.C. EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL 1988 - PLATE 3.07-1



No.	Submittal / Revision	By	App'd	Date
1	1ST SUBMITTAL TOWN	HV	JPT	06/28/24



PERMIT REVIEW SET



STRASBURG ROAD SUBDIVISION

ESC DETAILS

ALI BILLOO

WARREN COUNTY, VA

RACEY PROJECT NUMBER: 9276

PUBLISH DATE: 6/28/2024

C501

PRE-DEVELOPMENT

DA-PRE:
 AREA: 3.88 AC
 TC: 12.1 MIN
 CN: 79

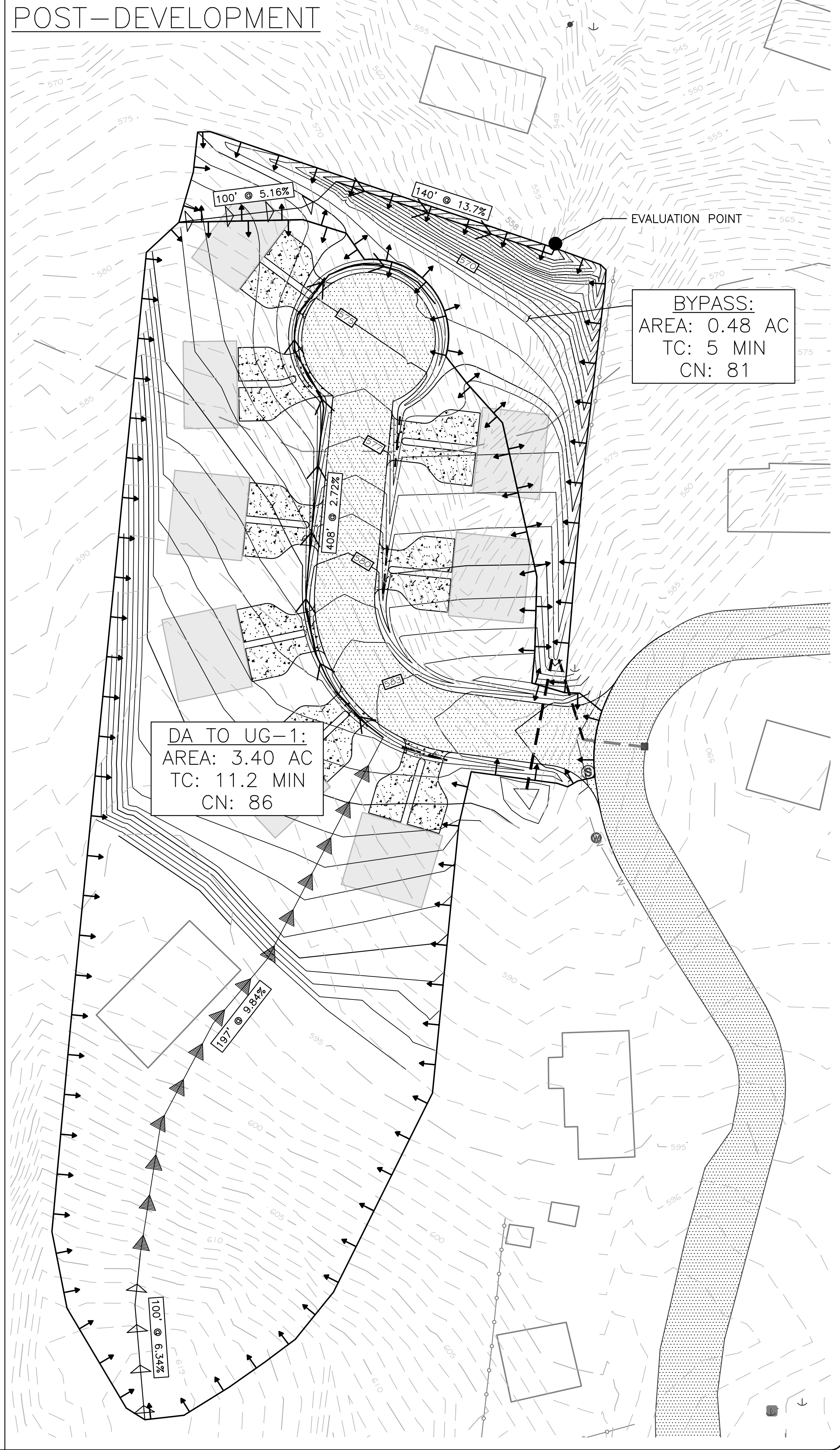
EVALUATION POINT

100' @ 5.3%

684' @ 9.05%

The map displays a site with a proposed road layout indicated by a line with arrows showing the direction of travel. The road starts at the bottom left, curves around the perimeter, and ends at the top right. A drainage system is shown with arrows indicating the flow direction, leading to a water body on the right side of the map. The terrain is represented by contour lines with elevations ranging from 545 to 610 feet. Several buildings are shown as simple rectangular outlines. A specific point on the road is labeled 'EVALUATION POINT'. Two segments of the road are labeled with their length and grade: '100' @ 5.3%' and '684' @ 9.05%'. A north arrow is located in the bottom right corner.

DRAINAGE SUMMARY TABLE					
EVALUATION POINT					
DRAINAGE AREA ID	AREA	1 YR (CFS)	2 YR (CFS)	10 YR (CFS)	100 YR (CFS)
PRE-DEVELOPMENT					
DA PRE	3.88	4.262	6.245	12.470	24.830
TOTAL AREA PRE	3.88				
POST-DEVELOPMENT					
DA TO UG-1	3.40	5.776	7.826	13.780	24.840
UG-1 OUT		2.106	2.578	11.700	24.430
BYPASS	0.48	0.724	1.019	1.928	3.689
DA POST		2.208	2.757	12.220	27.080
TOTAL AREA POST	3.88				



 RACEY ENGINEERING INC. • FLS.	312 WEST MAIN ST. • P.O. BOX 387 FARMINGTON, CT 06030-0387 PH: (540) 743-9227 • FAX: (540) 743-0118		CHECKED: JF
	DRAWN: HV	DESIGNED: HV	DATE: 01/11/01

RACEY PROJECT NUMBER: 9276 PUBLISH DATE: 6/28/2024

C600

DESIGNED:HV	DRAWN:HV	CHECKED:JPT
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A. APPLICATION TYPE

☒ INITIAL SUBMISSION
☐ RESUBMISSION DEQ PLAN # : _____
☐ MODIFICATION with ACREAGE INCREASE DEQ PLAN # : _____
☐ MODIFICATION without ACREAGE INCREASE DEQ PLAN # : _____

B. DESIGN PROFESSIONAL

CONTACT NAME: JOSHUA P. TURNER, P.E.
MAILING ADDRESS: 312 WEST MAIN STREET, LURAY VA
TELEPHONE NO: 540-743-9227
EMAIL ADDRESS: JTURNER@RACEYENGINEERING.COM

C. PROJECT DEVELOPER

PROJECT DEVELOPER:
CONTACT NAME:
MAILING ADDRESS:
TELEPHONE NO:
EMAIL ADDRESS:

D. PROPERTY OWNER

PROPERTY OWNER: ALI BILLOO
CONTACT NAME: ALI BILLOO
MAILING ADDRESS: 7214 SIPES LANE, ANNANDALE VA
TELEPHONE NO: 703-346-6254
EMAIL ADDRESS: BILLSHOMES@HOTMAIL.COM

E. PROJECT INFORMATION

PROJECT NAME: STRASBURG ROAD SUBDIVISION
ADDRESS (911 ADDRESS IF AVAILABLE):
COUNTY (IF NOT LOCATED WITHIN A CITY):
TAX MAP NO. (OR GPIN): 20A114 23B
LATITUDE (6 DIGITS, DECIMAL DEGREES): 38.9490
LONGITUDE (6 DIGITS, DECIMAL DEGREES): 78.2103
TOTAL LAND AREA OF DEVELOPMENT (1/100th ACRE): 3.52 AC
ESTIMATED AREA TO BE DISTURBED (1/100th ACRE): 2.94 AC
PROJECT STATUS: ☐ FEDERAL ☐ STATE ☐ PUBLIC ☒ PRIVATE
PART OF A LARGER COMMON PLAN OF DEVELOPMENT? ☐ YES ☐ NO
OFFSITE IMPROVEMENTS PROPOSED? ☐ YES ☐ NO

F. OFFSITE SUPPORT ACTIVITY INFORMATION

OFFSITE SUPPORT ACTIVITY NAME:
ADDRESS (911 ADDRESS IF AVAILABLE):
COUNTY (IF NOT LOCATED WITHIN A CITY):
TAX MAP NO. (OR GPIN):
LATITUDE (6 DIGITS, DECIMAL DEGREES):
LONGITUDE (6 DIGITS, DECIMAL DEGREES):
ESTIMATED AREA TO BE DISTURBED (1/100th ACRE):

G. PLAN INFORMATION

GENERAL PLAN INFORMATION	SHEET NO.
1. VICINITY MAP	T100
2. NORTH SCALE	T100
3. PLAN LEGEND	T101
4. PLAN SCALE	T100
5. SHEET INDEX	T100

PRE-DEVELOPMENT SITE INFORMATION	SHEET NO.
6. NARRATIVE OF PRE-DEVELOPMENT SITE CONDITIONS	C400
7. EXISTING PROPERTY BOUNDARIES (INC. LEASE BOUNDARIES)	C100
8. EXISTING TOPOGRAPHY (EXISTING CONTOURS)	C100
9. EXISTING STREAMS, PONDS, DITCHES, WETLANDS & OTHER WATERS	N/A
10. EXISTING KARST FEATURES	N/A
11. EXISTING 100-YEAR FEMA FLOODPLAIN	N/A
12. RESOURCE PROTECTION AREAS	N/A
13. EXISTING IMPROVEMENTS (BUILDINGS, ROADS, PARKING & UTILITIES)	C100
14. EXISTING VEGETATIVE AREAS (FOREST, OPEN SPACE & TURF)	C601
15. EXISTING LAND COVER / USE TABULATION	C601
16. EXISTING EASEMENTS (DEED BOOK/PAGE REF. OR INSTRUMENT #)	T100
17. PRE-DEV. DRAINAGE AREAS (ACREAGE, DIVIDES & FLOW PATHS)	C600

POST-DEVELOPMENT SITE INFORMATION	SHEET NO.
18. NARRATIVE OF POST-DEVELOPMENT SITE CONDITIONS	C400
19. PROPOSED PROPERTY BOUNDARIES (INC. LEASE BOUNDARIES)	C100
20. PROPOSED LIMITS OF LAND DISTURBANCE (CLEARING & GRADING)	C401
21. PROPOSED GRADING (PROPOSED CONTOURS INC. SWM PRACTICES)	C300
22. PROPOSED 100-YEAR FLOODPLAIN	N/A
23. PROPOSED IMPROVEMENTS (BLDGS, ROADS, PARKING & UTILITIES)	C200
24. PROPOSED VEGETATIVE AREAS (FOREST, OPEN SPACE & TURF)	C601
25. PROPOSED LAND COVER / USE TABULATION	C601
26. PROPOSED EASEMENTS	N/A
27. POST-DEV. DRAINAGE AREAS (ACREAGE, DIVIDES & FLOW PATHS)	C600

EROSION & SEDIMENT CONTROL INFORMATION	SHEET NO.
28. NARRATIVE OF PROP. EROSION & SEDIMENT CONTROLS	C400
29. MINIMUM STANDARDS (9VAC25-840-40)	C400
30. CRITICAL EROSION AREAS (VESCH, CHAPTER 6)	C400
31. PROP. EROSION & SEDIMENT CONTROLS (VESCH, CHAPTER 3)	C401
32. EROSION & SEDIMENT CONTROL DETAIL DRAWINGS	C500
33. HYDROLOGIC & HYDRAULIC COMPUTATIONS	COMPS BOOK
34. INSPECTION, OPERATION & MAINTENANCE REQUIREMENTS	C400

PLAN SUBMISSION CHECKLIST

[SEE DEQ GUIDANCE MEMO NO. 22-2012 FOR ADDITIONAL INSTRUCTIONS]

G. PLAN INFORMATION (CONT.)

POST-DEVELOPMENT WATER QUANTITY & WATER QUALITY INFO.	SHEET NO.
35. NARRATIVE OF PROP. SWM FACILITIES / PRACTICES	C600
36. PROP. SWM FACILITIES / PRACTICES	C600
37. HYDROLOGIC & HYDRAULIC COMPUTATIONS *	COMPS BOOK
38. LONG-TERM INSP., OPERATION & MAINTENANCE REQUIREMENTS	C400
39. OUTFALL SUMMARY TABLE WITH PRE, POST, AND ALLOWABLE DISCHARGE RATES USED FOR QUANTITY ASSESSMENT; IDENTIFY THE TYPE OF CONVEYANCE SYSTEM AT EACH POINT OF DISCHARGE	C600

* STORM DRAIN DESIGN COMPUTATIONS AND HYDRAULIC GRADE LINE COMPUTATIONS SHOULD BE PROVIDED AND SHOULD INCLUDE EACH PIPE SEGMENT. IN ADDITION, STORM SEWER LONGITUDINAL PROFILES WITH HYDRAULIC GRADE LINE ELEVATIONS SHOULD BE INCLUDED FOR VISUAL REPRESENTATION. DESIGN CALCULATIONS AND CROSS-SECTIONS SHOULD BE PROVIDED FOR ALL OPEN MANMADE CHANNELS. CROSS-SECTIONS SHOULD SHOW AND LABEL THE 1-YEAR, 2-YEAR, AND 10-YEAR WATER SURFACE ELEVATIONS.

SOILS & GEOTECHNICAL INFORMATION	SHEET NO.
40. SOILS MAP (INC. NRCS SOIL TYPES)	C400
41. SOILS TABULATION	C400
42. GEOTECHNICAL INVESTIGATION / REPORT	COMPS BOOK

OTHER SUPPORTING INFORMATION	SHEET NO.
43. BOUNDARY SURVEY (18VAC10-20-370)	C100
44. PHYSICAL IMPROVEMENT SURVEY (18VAC10-20-380)	C100
45. TOPOGRAPHIC SURVEY (18VAC10-20-382)	C100

H. LAND COVER TABULATION

EXISTING LAND COVER / USE	ACRES
1. IMPERVIOUS COVER	0.14
IMPERVIOUS COVER (% OF TOTAL LAND AREA OF DEVELOPMENT)	5%
2. MANAGED TURF	0.23
3. OPEN SPACE	0
4. FOREST COVER	2.66
5. PRIME FARMLAND (NRCS FARMLAND CLASSIFICATION)	N/A

PROPOSED LAND COVER / USE ("SITE" TAB OF VRRM SPREADSHEET)	ACRES
1. IMPERVIOUS COVER	1.07
IMPERVIOUS COVER (% OF TOTAL LAND AREA OF DEVELOPMENT)	35%
2. MANAGED TURF	1.96
3. OPEN SPACE	0
4. FOREST COVER	0

I. SOILS TABULATION

MAP UNIT SYMBOL	MAP UNIT NAME	HSG	K FACTOR	ERODIBILITY	ACRES IN LOD	% OF LOD
41C	WEIKERT-BERKS CHANNERY SILT LOAMS	D	0.17	LOW	0.94	32%
41D	WEIKERT-BERKS CHANNERY SILT LOAMS	D	N/A	LOW	2.00	68%

J. EROSION & SEDIMENT CONTROL

ESC PLAN VARIANCE REQUEST: ☐ YES ☒ NO

IF "YES", PLEASE PROVIDE JUSTIFICATION FOR THE VARIANCE REQUEST:

K. STORMWATER MANAGEMENT

APPLICABLE DESIGN CRITERIA: ☐ PART II B
☐ PART II C (GRANDFATHERING)
☐ PART II C (TIME LIMITS ON APPLICABILITY)
☐ "SAFE HARBOR"

OFFSITE COMPLIANCE OPTION(S)? ☐ YES ☒ NO

IF "YES", PLEASE DESCRIBE THE OFFSITE COMPLIANCE OPTION(S):

DISCHARGE TO A KARST FEATURE(S)? ☐ YES ☒ NO

IF "YES", PLEASE DESCRIBE THE KARST FEATURE(S):

IF "YES", PLEASE DESCRIBE ANY KNOWN NATURAL HERITAGE RESOURCES IN THE KARST FEATURE(S):

SWM PLAN EXCEPTION REQUEST? ☐ YES ☒ NO

IF "YES", PLEASE PROVIDE THE JUSTIFICATION FOR THE EXCEPTION REQUEST:

L. STORMWATER MANAGEMENT FACILITIES / PRACTICES

FACILITY NO.	FACILITY TYPE	LAT.	LONG.	REC. WATER	TOT. ACRES TREATED	IMP. ACRES TREATED	PLAN SHEET NO.
12	FILTER DEVICE	38.9497	-78.2099	02070006	3.40	1.16	C301

M. OWNER / DEVELOPER CERTIFICATION

I hereby certify that coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities will be obtained, if required, prior to commencing land-disturbing activities.

I hereby certify that all wetlands permits required by law will be obtained, if required, prior to commencing land disturbing activities.

I hereby certify that permission to construct any offsite improvements, if proposed, will be obtained prior to commencing land disturbing activities.

I hereby certify that all offsite nonpoint source nutrient credits will be obtained, if proposed, prior to commencing land disturbing activities.

I hereby certify that construction record drawings (as-built drawings) for all permanent stormwater management facilities/practices will be prepared and submitted to DEQ prior to project closeout. The construction record drawings will be appropriately sealed and by a professional registered in the Commonwealth of Virginia, certifying that the stormwater management facilities/practices have been constructed in accordance with the approved plan(s).

I hereby certify that a long-term maintenance agreement(s) for all permanent stormwater management facilities/practices and other techniques specified to manage the quality and quantity of runoff will be submitted to DEQ, if required, prior to project closeout. The long-term maintenance agreement(s) will be recorded in the local land records prior to termination of coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities.

OWNER / DEVELOPER NAME:
OWNER / DEVELOPER TITLE:
SIGNATURE:
DATE:

N. DESIGN PROFESSIONAL CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I hereby certify that the plans and hydrologic & hydraulic computations herein are in compliance with the Stormwater Management Act and attendant regulations, the Erosion and Sediment Control Law and attendant regulations, and applicable DEQ guidance.

DESIGN PROFESSIONAL NAME:
LICENSE NO.:
SIGNATURE:
DATE:

O. DUAL COMBINED ADMINISTRATOR (DCA) CERTIFICATION

[INCLUDE THIS SECTION / CERTIFICATION IF REQUESTING A STREAMLINED PLAN REVIEW IN ACCORDANCE WITH DEQ GUIDANCE MEMO NO. 22-2011, OTHERWISE DELETE]

I hereby certify that I have reviewed the plans and hydrologic & hydraulic computations herein for compliance with the Stormwater Management Act and attendant regulations, the Erosion and Sediment Control Law and attendant regulations, and applicable DEQ guidance, and recommend the plans and computations for DEQ approval.

DCA NAME:
DCA CERTIFICATION NO.:
SIGNATURE:
DATE:

APPROVAL BLOCK

DEQ PLAN # 20____ - 0____

DEPT. OF ENVIRONMENTAL QUALITY

DATE

Date	App'd	By	Submittal / Revision	No.
06/28/24	JPT	HV	1ST SUBMITTAL TOWN	1



PERMIT REVIEW SET



RACEY
ENGINEERING
312 WEST MAIN ST. - P.O. BOX 367
LURAY, VA 22835
PH: (540) 743-9227 - FAX: (540) 743-6118

CHECKED:JPT

DRAWN:HV

DESIGNED:HV

STRASBURG ROAD SUBDIVISION

DEQ COVER SHEET

ALI BILLOO

WARREN COUNTY, VA

RACEY PROJECT NUMBER: 9276

PUBLISH DATE: 6/28/2024

C602

Stormwater Computations Packet

FOR

STRASBURG ROAD SUBDIVISION

Front Royal, Virginia

Prepared for:

Ali Billoo
7214 Sipes Lane
Annandale, VA 22003
Ph: 703-346-6254



Prepared by:

Racey Engineering, PLLC
312 W. Main Street
Luray, VA 22835
(540) 743-9227



June 28, 2024
Racey Project #: 9276

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POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.331 (0.297-0.368)	0.396 (0.356-0.441)	0.477 (0.428-0.532)	0.541 (0.483-0.601)	0.628 (0.558-0.696)	0.696 (0.616-0.769)	0.767 (0.674-0.845)	0.841 (0.734-0.926)	0.948 (0.819-1.04)	1.03 (0.883-1.14)
10-min	0.518 (0.465-0.576)	0.621 (0.558-0.692)	0.749 (0.671-0.833)	0.846 (0.755-0.940)	0.971 (0.863-1.08)	1.07 (0.946-1.18)	1.17 (1.03-1.29)	1.28 (1.12-1.41)	1.42 (1.23-1.57)	1.54 (1.31-1.69)
15-min	0.638 (0.574-0.711)	0.767 (0.689-0.854)	0.927 (0.831-1.03)	1.05 (0.936-1.16)	1.21 (1.08-1.34)	1.34 (1.18-1.48)	1.46 (1.29-1.61)	1.60 (1.39-1.76)	1.78 (1.54-1.96)	1.92 (1.64-2.12)
30-min	0.854 (0.767-0.950)	1.04 (0.931-1.15)	1.28 (1.15-1.43)	1.48 (1.32-1.64)	1.73 (1.54-1.92)	1.94 (1.72-2.14)	2.15 (1.89-2.37)	2.38 (2.07-2.62)	2.70 (2.33-2.97)	2.95 (2.52-3.25)
60-min	1.05 (0.944-1.17)	1.28 (1.15-1.43)	1.62 (1.46-1.81)	1.89 (1.69-2.10)	2.27 (2.02-2.51)	2.58 (2.28-2.85)	2.91 (2.55-3.20)	3.26 (2.84-3.59)	3.78 (3.26-4.15)	4.20 (3.59-4.62)
2-hr	1.25 (1.12-1.39)	1.52 (1.37-1.70)	1.94 (1.74-2.16)	2.28 (2.04-2.54)	2.78 (2.47-3.08)	3.19 (2.82-3.53)	3.64 (3.20-4.02)	4.13 (3.61-4.55)	4.86 (4.19-5.34)	5.48 (4.68-6.02)
3-hr	1.35 (1.21-1.51)	1.64 (1.47-1.83)	2.08 (1.86-2.32)	2.44 (2.18-2.71)	2.96 (2.63-3.28)	3.40 (3.00-3.76)	3.89 (3.41-4.29)	4.42 (3.85-4.87)	5.21 (4.48-5.73)	5.88 (5.01-6.47)
6-hr	1.68 (1.52-1.88)	2.03 (1.84-2.27)	2.55 (2.30-2.84)	2.98 (2.68-3.32)	3.61 (3.22-4.01)	4.15 (3.68-4.59)	4.74 (4.17-5.23)	5.39 (4.70-5.93)	6.36 (5.48-6.99)	7.19 (6.12-7.89)
12-hr	2.06 (1.86-2.30)	2.48 (2.24-2.76)	3.11 (2.80-3.45)	3.64 (3.26-4.03)	4.43 (3.94-4.89)	5.11 (4.51-5.63)	5.87 (5.14-6.45)	6.72 (5.82-7.36)	8.00 (6.83-8.75)	9.11 (7.68-9.96)
24-hr	2.42 (2.23-2.64)	2.92 (2.70-3.19)	3.69 (3.39-4.02)	4.32 (3.96-4.70)	5.25 (4.80-5.69)	6.04 (5.48-6.54)	6.88 (6.21-7.45)	7.81 (6.98-8.45)	9.16 (8.08-9.91)	10.3 (8.97-11.1)
2-day	2.82 (2.59-3.08)	3.40 (3.12-3.71)	4.28 (3.92-4.67)	5.00 (4.57-5.45)	6.05 (5.51-6.59)	6.93 (6.26-7.53)	7.88 (7.06-8.56)	8.90 (7.92-9.68)	10.4 (9.14-11.3)	11.6 (10.1-12.7)
3-day	3.00 (2.76-3.27)	3.62 (3.33-3.95)	4.55 (4.18-4.96)	5.31 (4.86-5.78)	6.41 (5.84-6.98)	7.32 (6.63-7.97)	8.30 (7.47-9.03)	9.36 (8.36-10.2)	10.9 (9.60-11.9)	12.1 (10.6-13.3)
4-day	3.19 (2.94-3.47)	3.84 (3.54-4.18)	4.82 (4.43-5.24)	5.62 (5.15-6.12)	6.77 (6.17-7.37)	7.72 (7.00-8.41)	8.73 (7.87-9.51)	9.81 (8.79-10.7)	11.4 (10.1-12.4)	12.6 (11.1-13.8)
7-day	3.70 (3.42-4.00)	4.44 (4.11-4.80)	5.50 (5.09-5.96)	6.36 (5.87-6.90)	7.57 (6.95-8.19)	8.55 (7.81-9.25)	9.58 (8.71-10.4)	10.6 (9.63-11.6)	12.2 (10.9-13.2)	13.4 (11.9-14.6)
10-day	4.22 (3.92-4.55)	5.06 (4.70-5.44)	6.18 (5.73-6.66)	7.06 (6.54-7.60)	8.27 (7.63-8.89)	9.23 (8.49-9.92)	10.2 (9.35-11.0)	11.2 (10.2-12.1)	12.6 (11.4-13.6)	13.7 (12.4-14.9)
20-day	5.68 (5.31-6.09)	6.74 (6.30-7.23)	8.04 (7.51-8.62)	9.06 (8.44-9.71)	10.4 (9.68-11.2)	11.5 (10.6-12.3)	12.5 (11.6-13.4)	13.6 (12.5-14.6)	15.0 (13.7-16.1)	16.1 (14.6-17.3)
30-day	6.96 (6.56-7.40)	8.21 (7.73-8.74)	9.62 (9.05-10.2)	10.7 (10.0-11.4)	12.1 (11.3-12.9)	13.2 (12.3-14.0)	14.2 (13.2-15.1)	15.2 (14.1-16.2)	16.5 (15.3-17.6)	17.5 (16.1-18.7)
45-day	8.69 (8.21-9.18)	10.2 (9.66-10.8)	11.8 (11.1-12.4)	12.9 (12.2-13.7)	14.4 (13.6-15.2)	15.5 (14.6-16.4)	16.6 (15.6-17.5)	17.5 (16.4-18.5)	18.8 (17.5-19.9)	19.6 (18.3-20.8)
60-day	10.4 (9.84-10.9)	12.1 (11.5-12.8)	13.8 (13.1-14.5)	15.1 (14.3-15.8)	16.6 (15.7-17.5)	17.7 (16.7-18.6)	18.7 (17.7-19.7)	19.7 (18.6-20.7)	20.8 (19.6-22.0)	21.6 (20.3-22.8)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

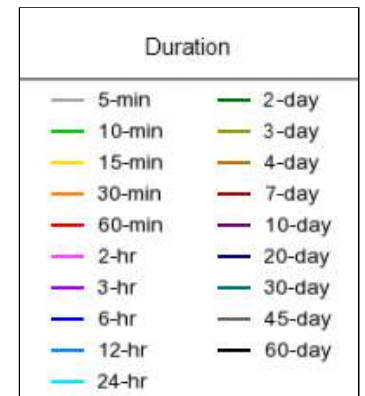
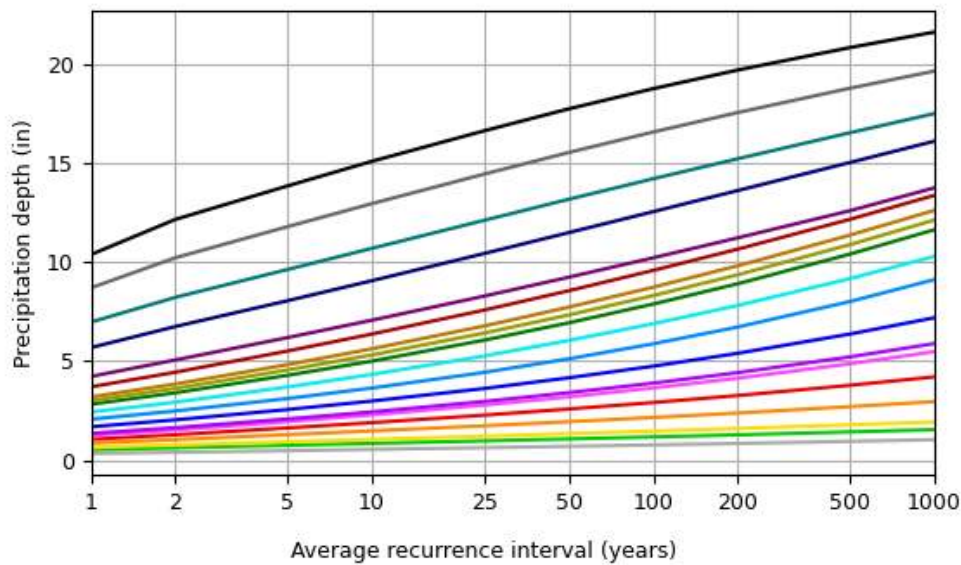
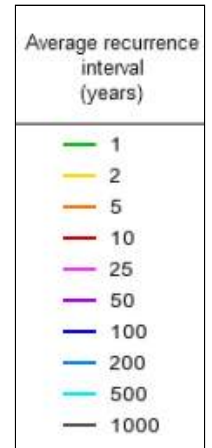
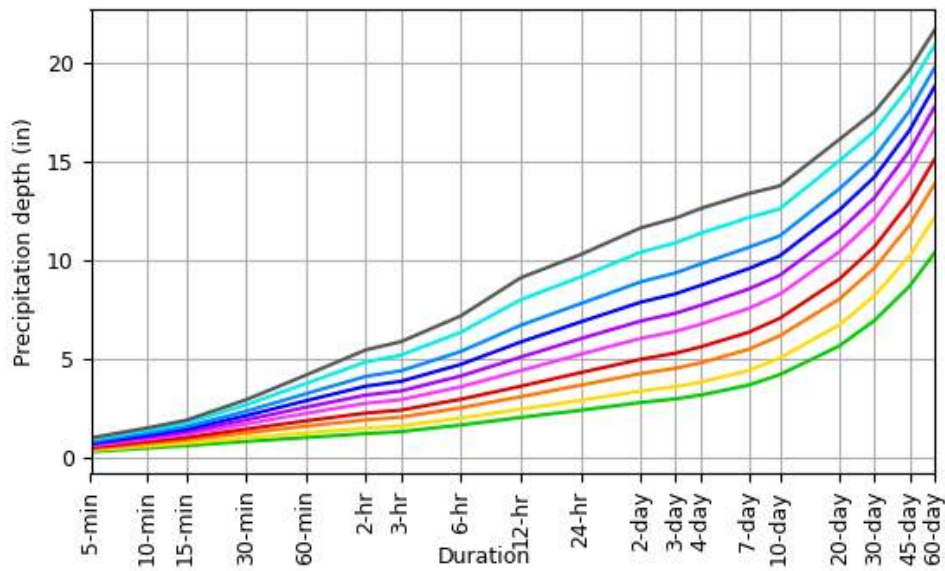
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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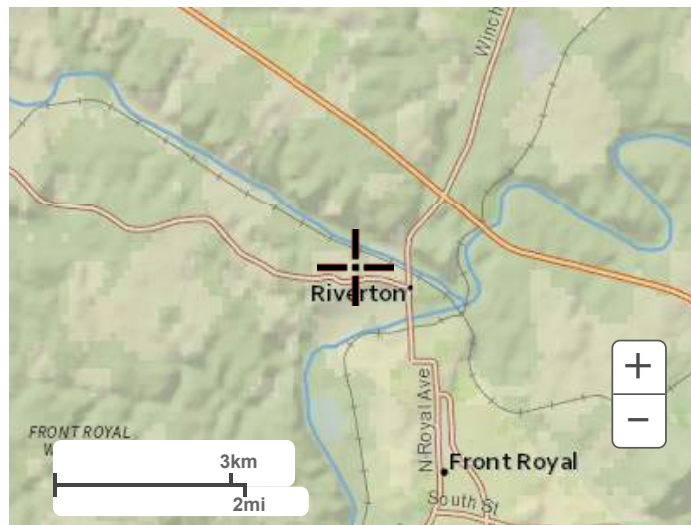
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 38.9496°, Longitude: -78.2102°



Maps & aerials

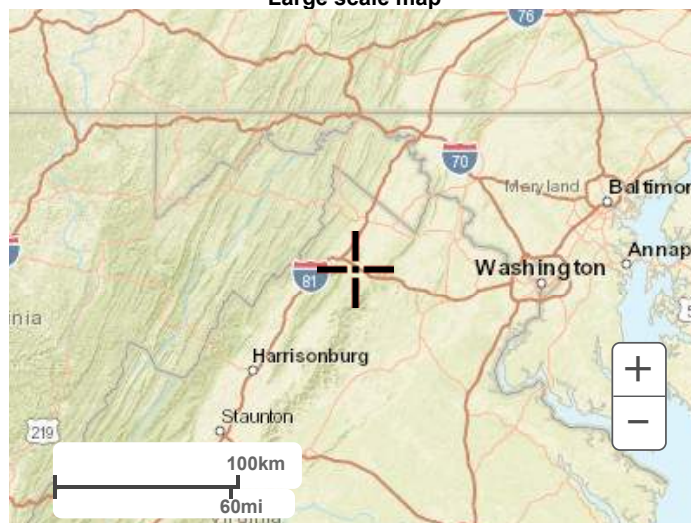
Small scale terrain



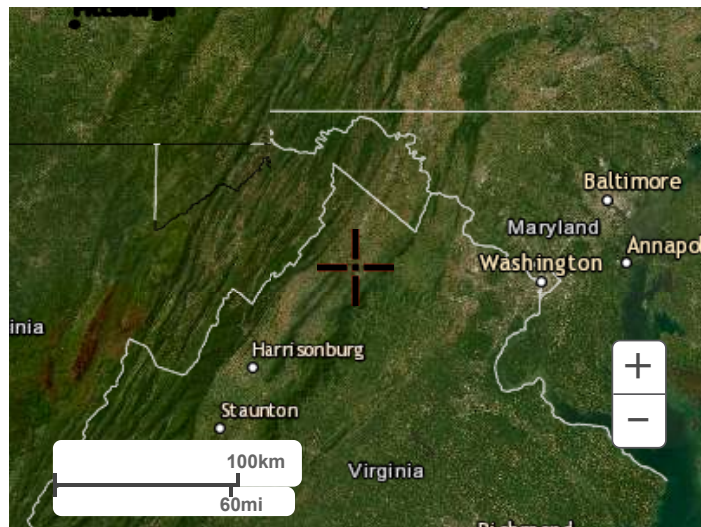
Large scale terrain



Large scale map



Large scale aerial



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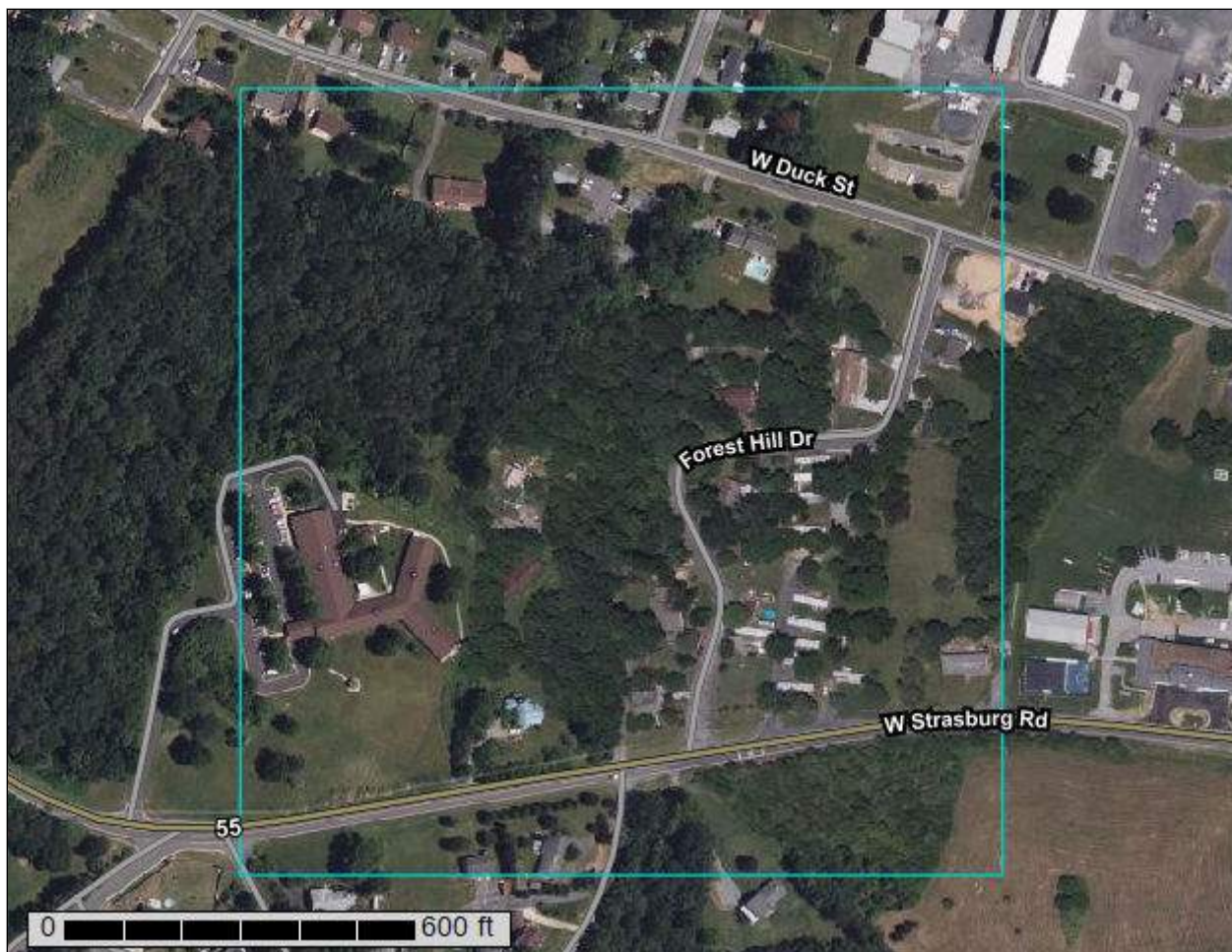
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for Warren County, Virginia



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Warren County, Virginia
Survey Area Data: Version 18, Sep 6, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2020—Sep 23, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1C	Berks channery silt loam, 8 to 15 percent slopes	1.2	2.9%
41C	Weikert-Berks channery silt loams, 8 to 15 percent slopes	20.3	50.4%
41D	Weikert-Berks channery silt loams, 15 to 25 percent slopes	13.1	32.5%
41E	Weikert-Berks channery silt loams, 25 to 65 percent slopes	4.6	11.4%
42B	Zoar silt loam, 0 to 7 percent	1.1	2.7%
Totals for Area of Interest		40.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Warren County, Virginia

1C—Berks channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2sgcg
Elevation: 320 to 3,570 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 47 to 56 degrees F
Frost-free period: 148 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Berks and similar soils: 85 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berks

Setting

Landform: Mountain slopes, ridges
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Upper third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bw1 - 8 to 14 inches: very channery silt loam
Bw2 - 14 to 26 inches: very channery silt loam
C - 26 to 36 inches: extremely channery silt loam
R - 36 to 46 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

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Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Dry Uplands (DU2), Dry Uplands (DU3)
Hydric soil rating: No

Minor Components

Brinkerton

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

41C—Weikert-Berks channery silt loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2v4w0
Elevation: 390 to 1,940 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 47 to 56 degrees F
Frost-free period: 148 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Weikert and similar soils: 50 percent
Berks and similar soils: 40 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Weikert

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Gray and brown acid residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Ap - 0 to 5 inches: channery silt loam
Bw - 5 to 10 inches: extremely channery silt loam
C - 10 to 13 inches: extremely channery silt loam
R - 13 to 23 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Custom Soil Resource Report

Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Droughty Shales (SD2)
Hydric soil rating: No

Description of Berks

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Ap - 0 to 7 inches: channery silt loam
Bw1 - 7 to 12 inches: channery silt loam
Bw2 - 12 to 21 inches: very channery silt loam
C - 21 to 25 inches: extremely channery silt loam
R - 25 to 35 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland

Other vegetative classification: Dry Uplands (DU2)
Hydric soil rating: No

Minor Components

Brinkerton

Percent of map unit: 2 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: Yes

41D—Weikert-Berks channery silt loams, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2v4w1
Elevation: 340 to 4,040 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 47 to 56 degrees F
Frost-free period: 148 to 192 days
Farmland classification: Not prime farmland

Map Unit Composition

Weikert and similar soils: 50 percent
Berks and similar soils: 40 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Weikert

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Gray and brown acid residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: channery silt loam
Bw - 4 to 10 inches: very channery silt loam
C - 10 to 16 inches: extremely channery silt loam
R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent

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Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Shale Hills (SH2)
Hydric soil rating: No

Description of Berks

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 7 inches: channery silt loam
Bw1 - 7 to 14 inches: very channery silt loam
Bw2 - 14 to 21 inches: extremely channery silt loam
C - 21 to 36 inches: extremely channery silt loam
R - 36 to 46 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.06 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e

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Hydrologic Soil Group: B

Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland

Other vegetative classification: Dry Uplands (DU2)

Hydric soil rating: No

Minor Components

Fluvaquents

Percent of map unit: 2 percent

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex, linear

Other vegetative classification: Wetlands (W2)

Hydric soil rating: Yes

41E—Weikert-Berks channery silt loams, 25 to 65 percent slopes

Map Unit Setting

National map unit symbol: 2v4w9

Elevation: 460 to 2,320 feet

Mean annual precipitation: 36 to 50 inches

Mean annual air temperature: 52 to 55 degrees F

Frost-free period: 148 to 192 days

Farmland classification: Not prime farmland

Map Unit Composition

Weikert and similar soils: 60 percent

Berks and similar soils: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Weikert

Setting

Landform: Ridges

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Interfluvium, nose slope, side slope

Down-slope shape: Convex

Across-slope shape: Linear, convex

Parent material: Gray and brown acid residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

O_i - 0 to 1 inches: slightly decomposed plant material

A - 1 to 4 inches: channery silt loam

B_w - 4 to 10 inches: very channery silt loam

C - 10 to 16 inches: extremely channery silt loam

R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 25 to 65 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Hydric soil rating: No

Description of Berks

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Residuum weathered from shale and siltstone and/or fine grained sandstone

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: channery silt loam
Bw1 - 4 to 9 inches: channery silt loam
Bw2 - 9 to 15 inches: very channery silt loam
BC - 15 to 22 inches: extremely channery silt loam
C - 22 to 36 inches: extremely channery silt loam
R - 36 to 46 inches: bedrock

Properties and qualities

Slope: 25 to 65 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 2.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: F147XY008PA - Shallow Mixed Sedimentary Upland
Other vegetative classification: Not Suited (NS)
Hydric soil rating: No

42B—Zoar silt loam, 0 to 7 percent

Map Unit Setting

National map unit symbol: kdxj
Elevation: 440 to 1,210 feet
Mean annual precipitation: 38 to 46 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 140 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Zoar and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Zoar

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Alluvium formed in materials derived from shale and sandstone

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 28 inches: silty clay loam
H3 - 28 to 65 inches: clay loam

Properties and qualities

Slope: 0 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F147XY007PA - Loamy To Coarse Terrace

Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Custom Soil Resource Report

Map—K Factor, Whole Soil



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

	.02
	.05
	.10
	.15
	.17
	.20
	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

Soil Rating Lines

	.02
	.05
	.10
	.15
	.17
	.20

	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

Soil Rating Points

	.02
	.05
	.10
	.15
	.17
	.20
	.24
	.28
	.32
	.37
	.43
	.49
	.55
	.64
	Not rated or not available

Water Features

	Streams and Canals
	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads
	Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Warren County, Virginia
Survey Area Data: Version 18, Sep 6, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2020—Sep 23, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1C	Berks channery silt loam, 8 to 15 percent slopes	.17	1.2	2.9%
41C	Weikert-Berks channery silt loams, 8 to 15 percent slopes	.17	20.3	50.4%
41D	Weikert-Berks channery silt loams, 15 to 25 percent slopes		13.1	32.5%
41E	Weikert-Berks channery silt loams, 25 to 65 percent slopes		4.6	11.4%
42B	Zoar silt loam, 0 to 7 percent	.32	1.1	2.7%
Totals for Area of Interest			40.3	100.0%

Rating Options—K Factor, Whole Soil

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Health Properties

Soil health is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans. This folder contains information on soil properties that are important indicators of soil health.

Soil Health - Soil Reaction (pH)

Soil reaction (pH) is a measure of acidity or alkalinity. Chemically, it is a measurement of the hydrogen ion activity [H⁺] in the soil solution. The pH scale ranges from 0 to 14; a pH of 7 is considered neutral. If pH values are greater than 7, the solution is considered basic or alkaline; if they are below 7, the solution is acidic.

Significance:

The acidity or alkalinity of a soil affects the availability of plant nutrients, the activity of microorganisms, and the solubility of soil minerals (Brady, 1990). In general, pH values between 6 and 7.5 are optimum for general crop growth. Site-specific interpretations for soil health will depend on specific land uses and crop tolerances.

In acid soils, calcium and magnesium, nitrate-nitrogen, phosphorus, boron, and molybdenum are deficient but aluminum and manganese are abundant, in some cases at levels toxic to some plants (USDA-NRCS, 2008). Phosphorus, iron, copper, zinc, and boron are frequently deficient in very alkaline soils. Bacterial populations and activity decline at low pH levels, whereas fungi adapt to a large range of pH (acidic and alkaline). Nitrification and nitrogen fixation are also inhibited by low pH (USDA-NRCS, 2008). To increase pH, liming, adding organic residues rich in basic cations, and rotating crops to interrupt the acidifying effect of leguminous crops are effective. Applying ammonium-based fertilizers, urea, sulfur, or ferrous sulfate; irrigating with acidifying fertilizers; or using acidifying residues (acid moss, pine needles, sawdust) decrease soil pH (USDA-NRCS, 2008).

Factors Affecting Soil Reaction:

Inherent factors.—The natural soil pH reflects the combined effects of climate, vegetation, topography, parent material, and time. Temperature and rainfall are two major factors that control the intensity of leaching and soil mineral weathering. Acidity is generally associated with leached soils, and alkalinity is generally associated with soils in drier regions. In arid climates, soil weathering and leaching are less intense, cations accumulate, and the soil becomes neutral or alkaline. In soils where the pH is less than 5, aluminum becomes soluble and reacts with water to produce hydrogen ions. Sandy soils may acidify more easily compared to clay soils because they have a low buffering capacity and tend to leach more readily. Vegetation has an effect on soil pH through the type of organic matter that is added; certain types of vegetation are soil acidifying (USDA-NRCS, 2008).

Dynamic factors.—The conversion of uncultivated land into cropland can result in drastic pH changes after a few years. These changes are caused by the removal of cations by crops, the acceleration of leaching, the effect of fertilizers and amendments, and the variations in organic matter content and soil buffering capacity (USDA-NRCS, 2008). Inorganic amendments (lime and gypsum) and organic amendments rich in cations increase soil pH. Ammonium from organic matter mineralization (nitrification), ammonium-based fertilizers, and sulfur compounds lower the pH. High rates of water percolation and infiltration can increase the leaching of cations and accelerate soil acidification.

Measurement:

The pH reported here is measured using the 1:1 soil to water ratio method (Soil Survey Staff, 2014). A crushed soil sample is mixed with an equal amount of water, and the pH of the suspension is measured.

References:

Brady, N.C. 1990. The nature and properties of soils. 10th ed. Macmillan Publishers, NY.

Smith, J.L., and J.W. Doran. 1996. Measurement and use of pH and electrical conductivity for soil quality analysis. In: J.W. Doran and A.J. Jones (eds.) Methods for Assessing Soil Quality. Soil Science Society of America Special Publication 49:169-185.

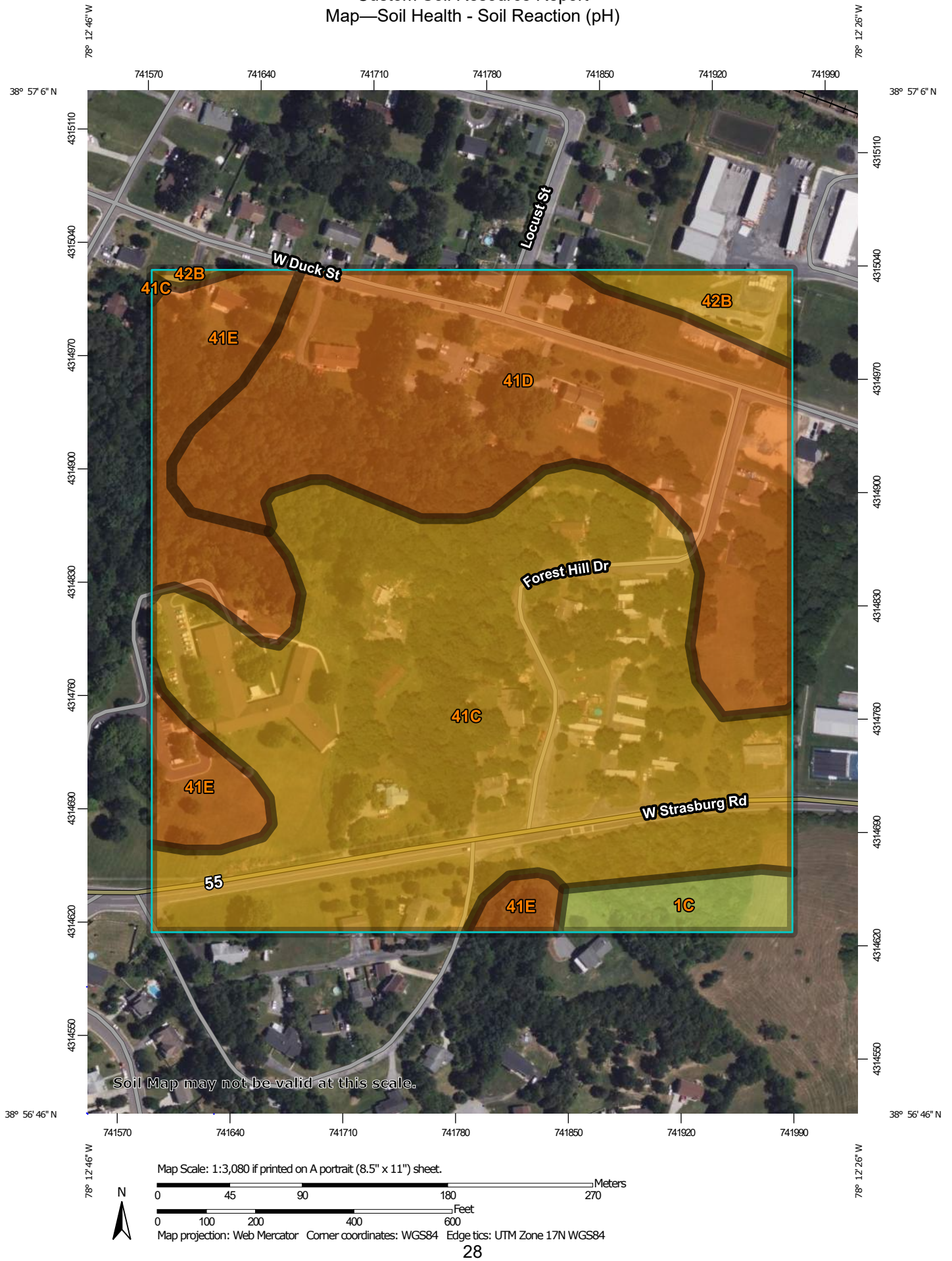
Custom Soil Resource Report

Soil Survey Staff. 2014. Kellogg Soil Survey Laboratory methods manual. Soil Survey Investigations Report No. 42, Version 5.0. R. Burt and Soil Survey Staff (eds.). U.S. Department of Agriculture, Natural Resources Conservation Service.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2008. Soil quality indicators—Soil pH.

Custom Soil Resource Report

Map—Soil Health - Soil Reaction (pH)



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Ultra acid (pH < 3.5)
-  Extremely acid (pH 3.5 - 4.4)
-  Very strongly acid (pH 4.5 - 5.0)
-  Strongly acid (pH 5.1 - 5.5)
-  Moderately acid (pH 5.6 - 6.0)
-  Slightly acid (pH 6.1 - 6.5)
-  Neutral (pH 6.6 - 7.3)
-  Slightly alkaline (pH 7.4 - 7.8)
-  Moderately alkaline (pH 7.9 - 8.4)
-  Strongly alkaline (pH 8.5 - 9.0)
-  Very strongly alkaline (pH > 9.0)
-  Not rated or not available

Soil Rating Lines

-  Ultra acid (pH < 3.5)
-  Extremely acid (pH 3.5 - 4.4)
-  Very strongly acid (pH 4.5 - 5.0)
-  Strongly acid (pH 5.1 - 5.5)
-  Moderately acid (pH 5.6 - 6.0)
-  Slightly acid (pH 6.1 - 6.5)
-  Neutral (pH 6.6 - 7.3)
-  Slightly alkaline (pH 7.4 - 7.8)
-  Moderately alkaline (pH 7.9 - 8.4)
-  Strongly alkaline (pH 8.5 - 9.0)
-  Very strongly alkaline (pH > 9.0)
-  Not rated or not available

Soil Rating Points

-  Ultra acid (pH < 3.5)
-  Extremely acid (pH 3.5 - 4.4)

-  Very strongly acid (pH 4.5 - 5.0)
-  Strongly acid (pH 5.1 - 5.5)
-  Moderately acid (pH 5.6 - 6.0)
-  Slightly acid (pH 6.1 - 6.5)
-  Neutral (pH 6.6 - 7.3)
-  Slightly alkaline (pH 7.4 - 7.8)
-  Moderately alkaline (pH 7.9 - 8.4)
-  Strongly alkaline (pH 8.5 - 9.0)
-  Very strongly alkaline (pH > 9.0)
-  Not rated or not available

Background

 Aerial Photography

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Warren County, Virginia
Survey Area Data: Version 18, Sep 6, 2022

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Date(s) aerial images were photographed: Jun 8, 2020—Sep 23, 2020

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Table—Soil Health - Soil Reaction (pH)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1C	Berks channery silt loam, 8 to 15 percent slopes	5.8	1.2	2.9%
41C	Weikert-Berks channery silt loams, 8 to 15 percent slopes	5.0	20.3	50.4%
41D	Weikert-Berks channery silt loams, 15 to 25 percent slopes	4.3	13.1	32.5%
41E	Weikert-Berks channery silt loams, 25 to 65 percent slopes	4.3	4.6	11.4%
42B	Zoar silt loam, 0 to 7 percent	5.0	1.1	2.7%
Totals for Area of Interest			40.3	100.0%

Rating Options—Soil Health - Soil Reaction (pH)*Aggregation Method:* Dominant Component*Component Percent Cutoff:* None Specified*Tie-break Rule:* Higher*Interpret Nulls as Zero:* No*Layer Options (Horizon Aggregation Method):* Surface Layer (Not applicable)**Soil Qualities and Features**

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report Map—Hydrologic Soil Group



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

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 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

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Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1C	Berks channery silt loam, 8 to 15 percent slopes	B	1.2	2.9%
41C	Weikert-Berks channery silt loams, 8 to 15 percent slopes	D	20.3	50.4%
41D	Weikert-Berks channery silt loams, 15 to 25 percent slopes	D	13.1	32.5%
41E	Weikert-Berks channery silt loams, 25 to 65 percent slopes	D	4.6	11.4%
42B	Zoar silt loam, 0 to 7 percent	C	1.1	2.7%
Totals for Area of Interest			40.3	100.0%

Rating Options—Hydrologic Soil Group*Aggregation Method:* Dominant Condition*Component Percent Cutoff:* None Specified*Tie-break Rule:* Higher

References

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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf



Water Quantity Compliance: 9VAC25-870-66

Project: Strasburg Road Subdivision

Date: 6/13/2024

Designed: HV

Evaluation Point #1

Racey Project No.: 9276

Site Input Data:

$P =$	2.42	1-yr, 24-hour storm event precipitation depth, inches [from NOAA-Atlas 14]
$A_{site,pre} =$	3.88	Pre-development Site Area, acres
$A_{site,post} =$	3.88	Post-development Site Area, acres
$Q_{1pre} =$	4.26	1-yr Pre-development flowrate, cfs [routed from TR-55]
$Q_{1post} =$	2.21	1-yr Post-development flowrate, cfs [routed from TR-55 using Adjusted CN_{post}]
$Q_{1pre,forested} =$	3.68	1-yr Pre-dev, forested flowrate, cfs [routed from TR-55 using completely forested land cover]
$Q_{10pre} =$	12.47	10-yr Pre-development flowrate, cfs [routed from TR-55]
$Q_{10post} =$	12.22	10-yr Post-development flowrate, cfs [routed from TR-55 using Adjusted CN_{post}]
$CN_{pre} =$	79	Pre-Development Curve Number
$CN_{pre,forested} =$	77	Pre-Development, completely forested Curve Number
$CN_{post} =$	86	Post-Development Curve Number, Adjusted per VRRM Spreadsheet
$Vol_{1pre} =$	11392	1-yr Pre-Development Volume, cubic feet [routed from TR-55 hydrograph]
$Vol_{1post} =$	16368	1-yr Post-Development Volume, cubic feet [routed from TR-55 hydrograph]
$Vol_{1pre,forested} =$	10032	1-yr Pre-Development Forested Volume, cubic feet [routed from TR-55 hydrograph]

A. Channel Protection:

Runoff Depth Equation (TR-55):

$$RV = \frac{(P - I_a)^2}{(P - I_a) + S} \quad I_a = 0.2S$$

$$S = \left(\frac{1000}{CN} \right) - 10$$

RV = Runoff Depth, inches

S = Potential maximum retention after runoff begins

I_a = Initial abstraction, volume that must be filled before runoff begins

	Pre-Development	Post-Development (Adjusted)	Pre-Development, Forested
P	2.42		
CN	79	86	77
$S = \left(\frac{1000}{CN} \right) - 10$	2.66	1.63	2.99
$I_a = 0.2S$	0.53	0.33	0.60



$RV = \frac{(P - I_a)^2}{(P - I_a) + S}$	0.78	1.18	0.69
--	------	------	------



$$RV_{pre} = 0.78 \text{ inches}$$

$$RV_{post} = 1.18 \text{ inches}$$

$$RV_{pre,forested} = 0.69 \text{ inches}$$

Energy Balance Equation:

$$Q_{allowable} \leq Q_{1pre} \left(\frac{RV_{pre}}{RV_{post}} \right) (IF) \quad \text{Equation based on the assumption that Pre-vs. Post-Development Site Areas are the same}$$

The Equation can be re-written to take into account differing Pre- vs. Post-Development Site Areas:

$$Q_{allowable} \leq Q_{1pre} \left(\frac{Vol_{1pre}}{Vol_{1pos}} \right) (IF)$$

$Q_{allowable}$ = Allowable post development flowrate released from Site Area, cfs

Vol_{1pre} = Pre – development Volume from Hydrograph in cubic feet (ft^3)

Vol_{1post} = Post – development Volume from Hydrograph in cubic feet (ft^3)

IF =Improvement Factor; 0.9 for Sites < 1.0 acre, 0.8 for Sites > 1.0 acres

$$Vol_{pre} = \underline{11392} \text{ cubic feet}$$

$$Vol_{post} = \underline{16368} \text{ cubic feet}$$

$$Q_{1pre} = 4.26 \text{ cfs}$$

$$IF = 0.80$$

$$Q_{allowable} \leq Q_{1pre} \left(\frac{Vol_{pre}}{Vol_{post}} \right) (IF) = \underline{2.373}$$

$$Q_{allowable} = \underline{2.37} \text{ cfs}$$



allowable

Allowable Discharge Check:

Under no condition shall: $Q_{allowable} > Q_{1pre}$ $\longrightarrow$ 2.37 > 4.26 **OK ✓**

Under no condition shall: $Q_{allowable} < Q_{1pre,forested} * \frac{Vol_{pre,forested}}{Vol_{post}}$ $\longrightarrow$ 2.37 < 1.56 **OK ✓**

Therefore, $Q_{allowable} = 2.37$ cfs

$Q_{1post} = 2.21$ cfs

Does the proposed discharge leaving the site meet the allowable discharge?

$Q_{1post} \leq Q_{allowable}$ 2.21 ≤ 2.37 **CHANNEL PROTECTION COMPLIANCE MET!!!**

B. Flood Protection

1.) Has Limits of Analysis (LOA) been determined?

YES	▼
-----	---

2.) Does any channel (Natural or Man-Made) in LOA experience localized flooding?

NO	▼
----	---

If yes, is $Q_{10post} < Q_{10pre}$?

$Q_{10pre} = 12.47$ cfs

$Q_{10post} = 12.22$ cfs

<

If no, does Q_{10post} cause any channel (Natural or Man-Made) to experience flooding?

NO	▼
----	---

FLOOD PROTECTION COMPLIANCE MET!!!
VERIFY WITH COMP IN PLANS OR COMP PACKET

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

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Summary

Project Title: STRASBURG ROAD SUBDIVISION

Date: 45457

Total Rainfall (in):	43
Total Disturbed Acreage:	3.03

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	2.66	2.66	88
Managed Turf (acres)	0.00	0.00	0.00	0.23	0.23	8
Impervious Cover (acres)	0.00	0.00	0.00	0.14	0.14	5
					3.03	100

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	1.96	1.96	65
Impervious Cover (acres)	0.00	0.00	0.00	1.07	1.07	35
					3.03	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post- ReDevelopment	Post- Development (New Impervious)	Adjusted Pre- ReDevelopment
Site Rv	0.50	0.30	0.95	0.13
Treatment Volume (ft ³)	5,469	2,261	3,207	1,006
TP Load (lb/yr)	3.44	1.42	2.02	0.63

Baseline TP Load (lb/yr): 0.861* **Reduction below new development load limitation not required*

Pre- ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
0.30	1.13	0.68

Total TP Load Reduction Required (lb/yr)	2.19	0.56	1.63
--	------	------	------

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre- ReDevelopment
TN Load (lb/yr)	24.58	5.28

Site Compliance Summary

Maximum % Reduction Required Below Pre-ReDevelopment Load	20%
--	-----

** Note: % Reduction will reduce post-development TP load to less than or equal to baseline load of 0.86 lb/yr (0.41 lb/ac/yr)
[Required reduction for Post-ReDev. = Post-ReDev TP load - baseline load of 0.861 lb/yr], baseline load = site area x 0.41 lb/ac/yr*

Total Runoff Volume Reduction (ft ³)	0
Total TP Load Reduction Achieved (lb/yr)	1.84
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	1.59
Remaining TP Load Reduction (lb/yr) Required	0.35

**Reduction below new development load limitation not required*

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	1.96	0.00	0.00	0.00	0.00	1.96
Impervious Cover (acres)	1.07	0.00	0.00	0.00	0.00	1.07
Total Area (acres)	3.03	0.00	0.00	0.00	0.00	3.03

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	1.84	0.00	0.00	0.00	0.00	1.84
TN Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

Drainage Area A Summary**Land Cover Summary**

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	1.96	1.96	65
Impervious Cover (acres)	0.00	0.00	0.00	1.07	1.07	35
					3.03	

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
14.b. Manufactured Treatment Device- Filtering	0.21	1.88	6,643.49	0.00	4.17	1.67	2.50	

Total Impervious Cover Treated (acres)	1.00
Total Turf Area Treated (acres)	1.59
Total TP Load Reduction Achieved in D.A. (lb/yr)	1.84
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Runoff Volume and CN Calculations

	1-year storm	2-year storm	10-year storm
Target Rainfall Event (in)	0.00	0.00	0.00

Drainage Areas	RV & CN	Drainage Area A	Drainage Area B	Drainage Area C	Drainage Area D	Drainage Area E
CN		86	0	0	0	0
RR (ft ³)		0	0	0	0	0
1-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	100	0	0	0	0
2-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	100	0	0	0	0
10-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	100	0	0	0	0

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.262	2	722	11,392	-----	-----	-----	DA-PRE
2	SCS Runoff	3.681	2	722	10,032	-----	-----	-----	DA-PRE-WOODS
4	SCS Runoff	5.776	2	720	14,999	-----	-----	-----	DA TO UG-1
6	SCS Runoff	0.724	2	718	1,447	-----	-----	-----	BYPASS
8	Reservoir	2.106	2	732	14,951	4	567.63	4,235	UG-1 OUT
12	Combine	2.208	2	732	16,368	6, 8,	-----	-----	DA POST
9276 - DRAINAGE_061224.gpw					Return Period: 1 Year			Thursday, 06 / 20 / 2024 Page 52	

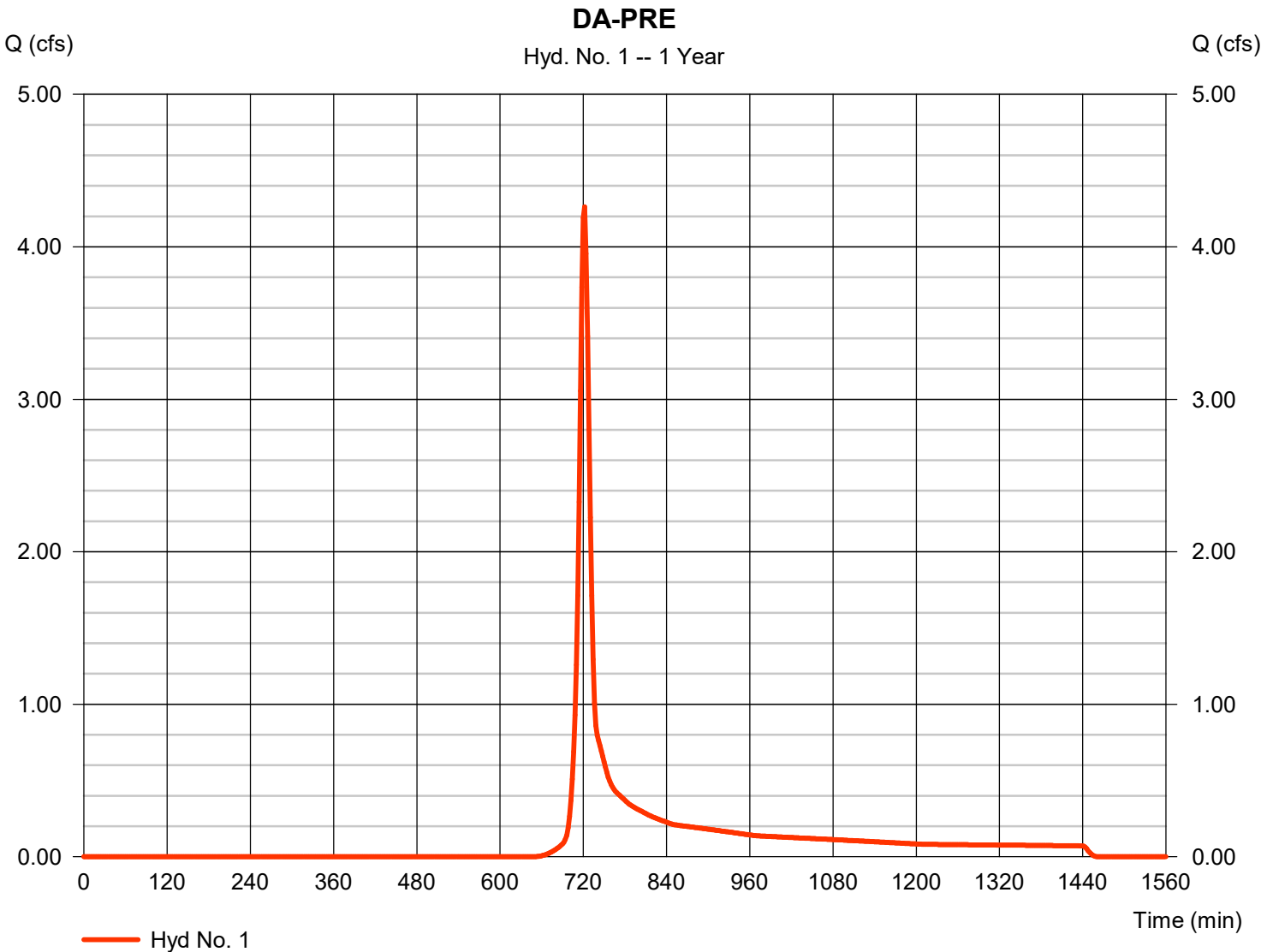
Hydrograph Report

Hyd. No. 1

DA-PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.262 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	11,392 cuft
Drainage area	=	3.880 ac	Curve number	=	79*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.10 min
Total precip.	=	2.42 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.256 x 98) + (0.345 x 80) + (3.279 x 77)] / 3.880



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 1

DA-PRE

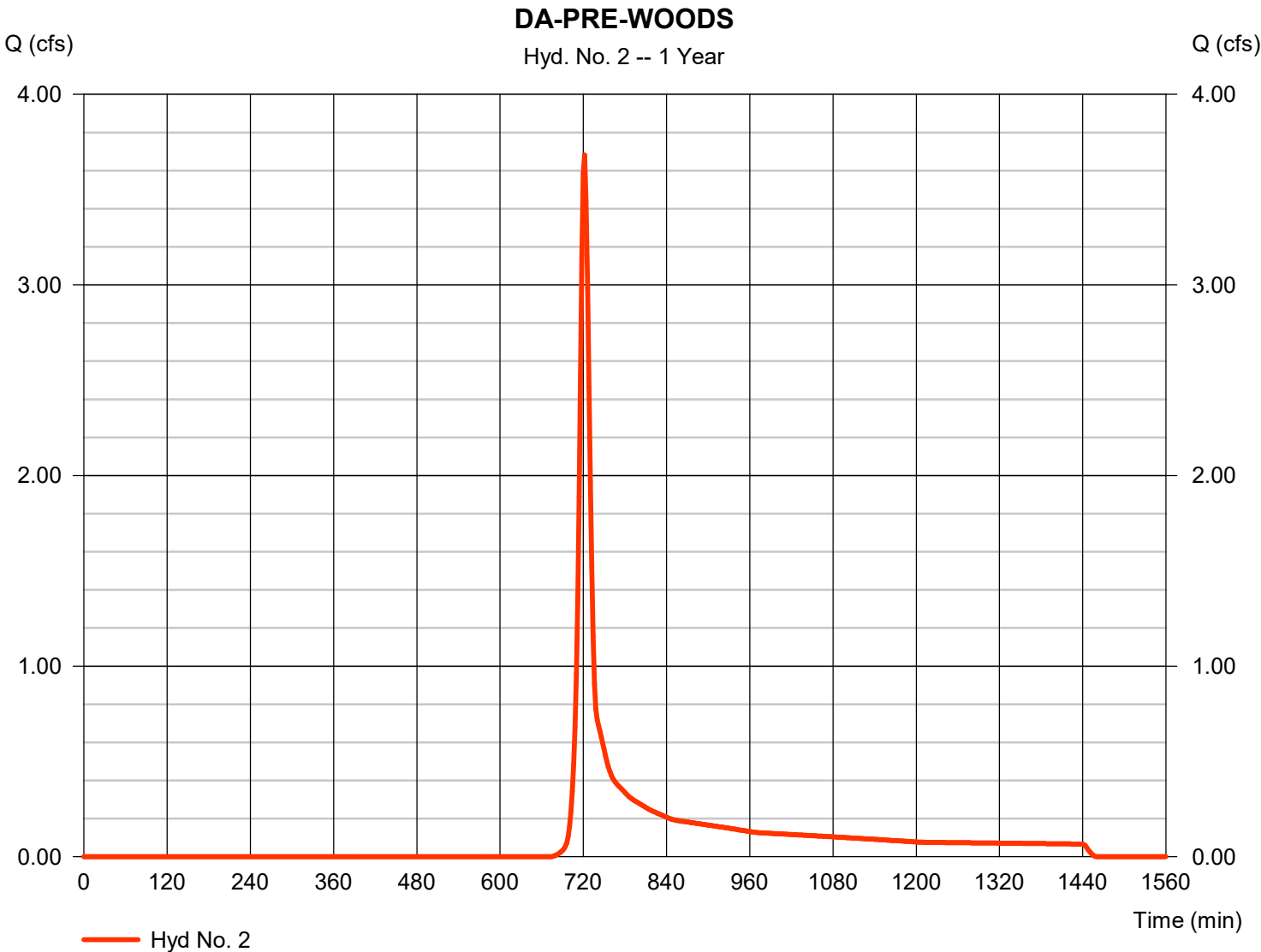
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.92	0.00	0.00	
Land slope (%)	= 5.80	0.00	0.00	
Travel Time (min)	= 9.76	+	0.00	+
			0.00	= 9.76
Shallow Concentrated Flow				
Flow length (ft)	= 684.00	0.00	0.00	
Watercourse slope (%)	= 9.05	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=4.85	0.00	0.00	
Travel Time (min)	= 2.35	+	0.00	+
			0.00	= 2.35
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	=0.00	0.00	0.00	
Flow length (ft)	(0)0.0	0.0	0.0	
Travel Time (min)	= 0.00	+	0.00	+
			0.00	= 0.00
Total Travel Time, Tc				12.10 min

Hydrograph Report

Hyd. No. 2

DA-PRE-WOODS

Hydrograph type	= SCS Runoff	Peak discharge	= 3.681 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 10,032 cuft
Drainage area	= 3.880 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 12.10 min
Total precip.	= 2.42 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



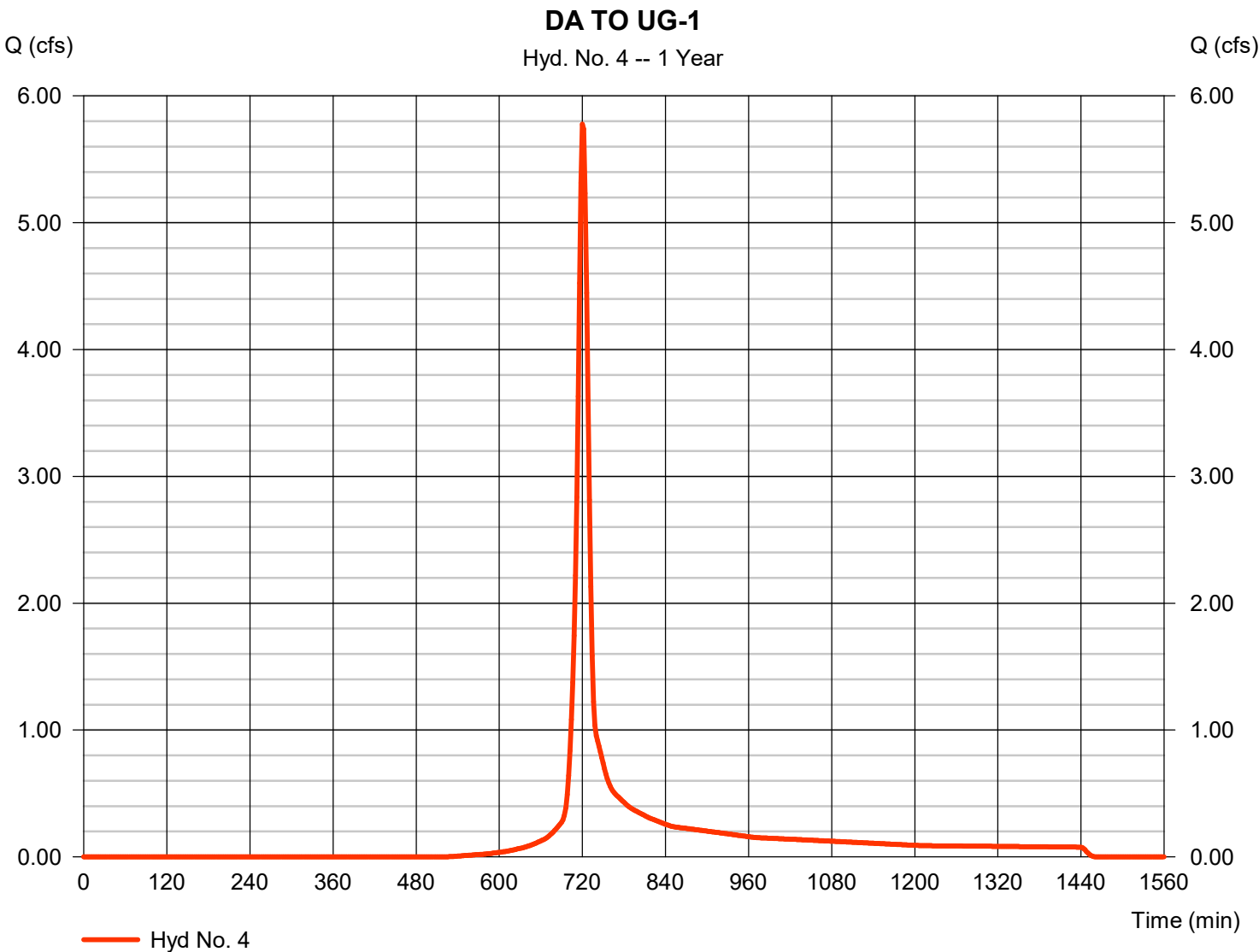
Hydrograph Report

Hyd. No. 4

DA TO UG-1

Hydrograph type	= SCS Runoff	Peak discharge	= 5.776 cfs
Storm frequency	= 1 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 14,999 cuft
Drainage area	= 3.400 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 11.20 min
Total precip.	= 2.42 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.160 x 98) + (1.590 x 80) + (0.650 x 77)] / 3.400



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No. 4

DA TO UG-1

<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 100.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 2.92	0.00	0.00	
Land slope (%)	= 6.34	0.00	0.00	
Travel Time (min)	= 9.42	+	0.00	+
			0.00	= 9.42
Shallow Concentrated Flow				
Flow length (ft)	= 197.00	149.25	0.00	
Watercourse slope (%)	= 9.84	8.57	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	=5.06	5.95	0.00	
Travel Time (min)	= 0.65	+	0.42	+
			0.00	= 1.07
Channel Flow				
X sectional flow area (sqft)	= 4.09	0.00	0.00	
Wetted perimeter (ft)	= 6.40	0.00	0.00	
Channel slope (%)	= 2.72	0.00	0.00	
Manning's n-value	= 0.018	0.015	0.015	
Velocity (ft/s)	=10.11	0.00	0.00	
Flow length (ft)	(0)408.0	0.0	0.0	
Travel Time (min)	= 0.67	+	0.00	+
			0.00	= 0.67
Total Travel Time, Tc				11.20 min

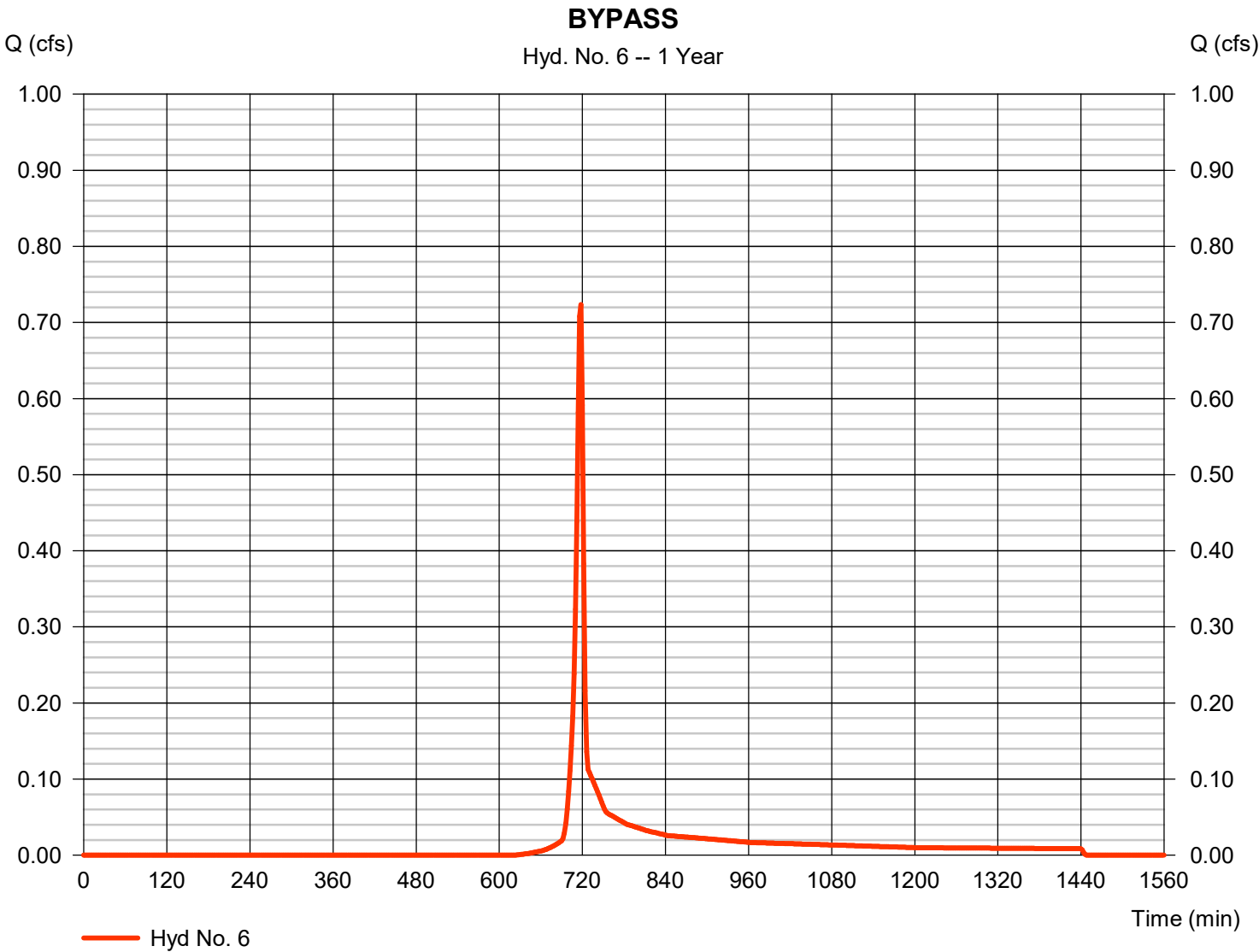
Hydrograph Report

Hyd. No. 6

BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.724 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	1,447 cuft
Drainage area	=	0.480 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.42 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.450 x 80) + (0.030 x 98)] / 0.480



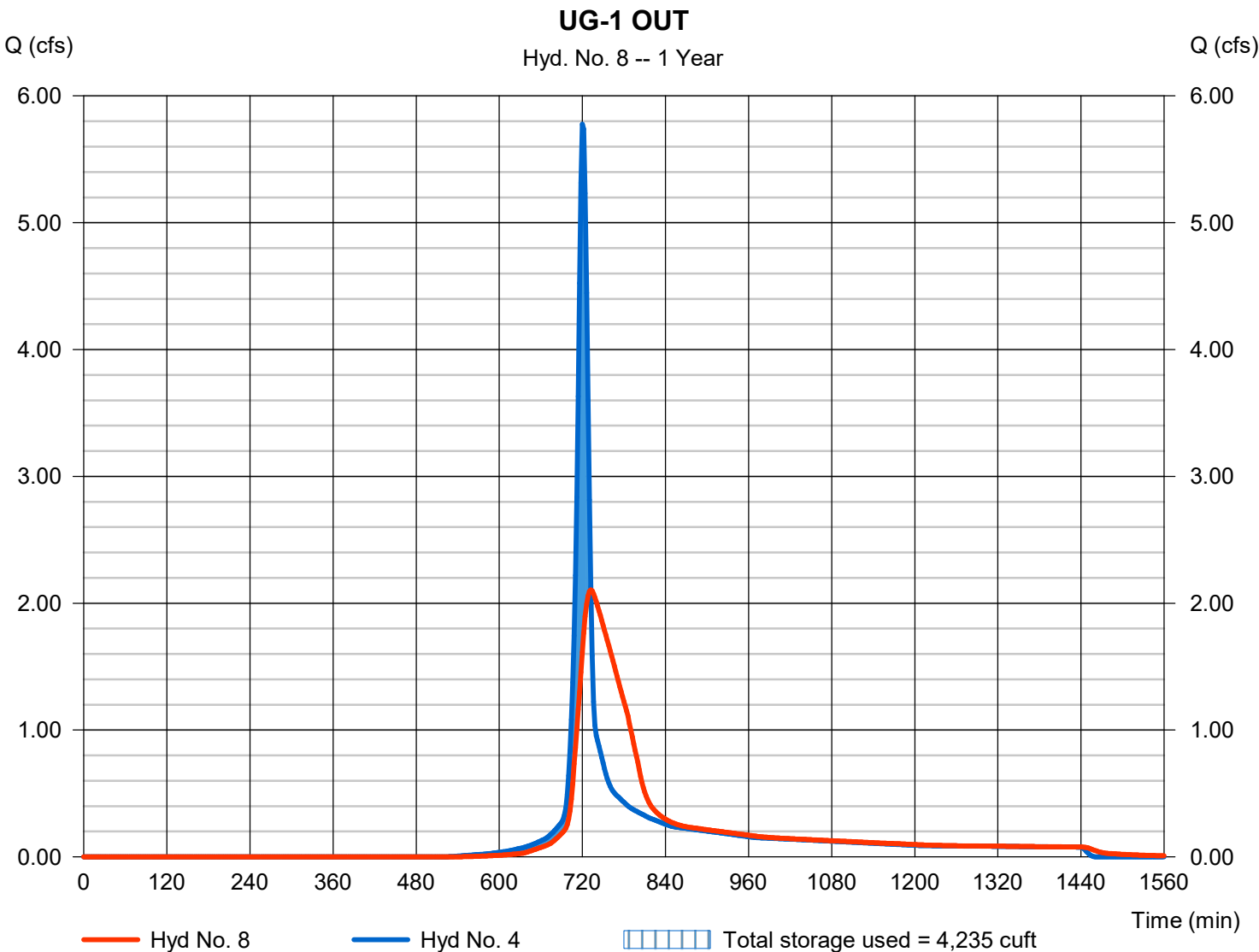
Hydrograph Report

Hyd. No. 8

UG-1 OUT

Hydrograph type	= Reservoir	Peak discharge	= 2.106 cfs
Storm frequency	= 1 yrs	Time to peak	= 732 min
Time interval	= 2 min	Hyd. volume	= 14,951 cuft
Inflow hyd. No.	= 4 - DA TO UG-1	Max. Elevation	= 567.63 ft
Reservoir name	= UG-1	Max. Storage	= 4,235 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - UG-1

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	565.00	n/a	0	0
1.00	566.00	n/a	1,204	1,204
2.00	567.00	n/a	1,892	3,096
3.00	568.00	n/a	1,812	4,908
4.00	569.00	n/a	1,683	6,591
5.00	570.00	n/a	1,474	8,065
6.00	571.00	n/a	1,076	9,141
6.75	571.75	n/a	723	9,864

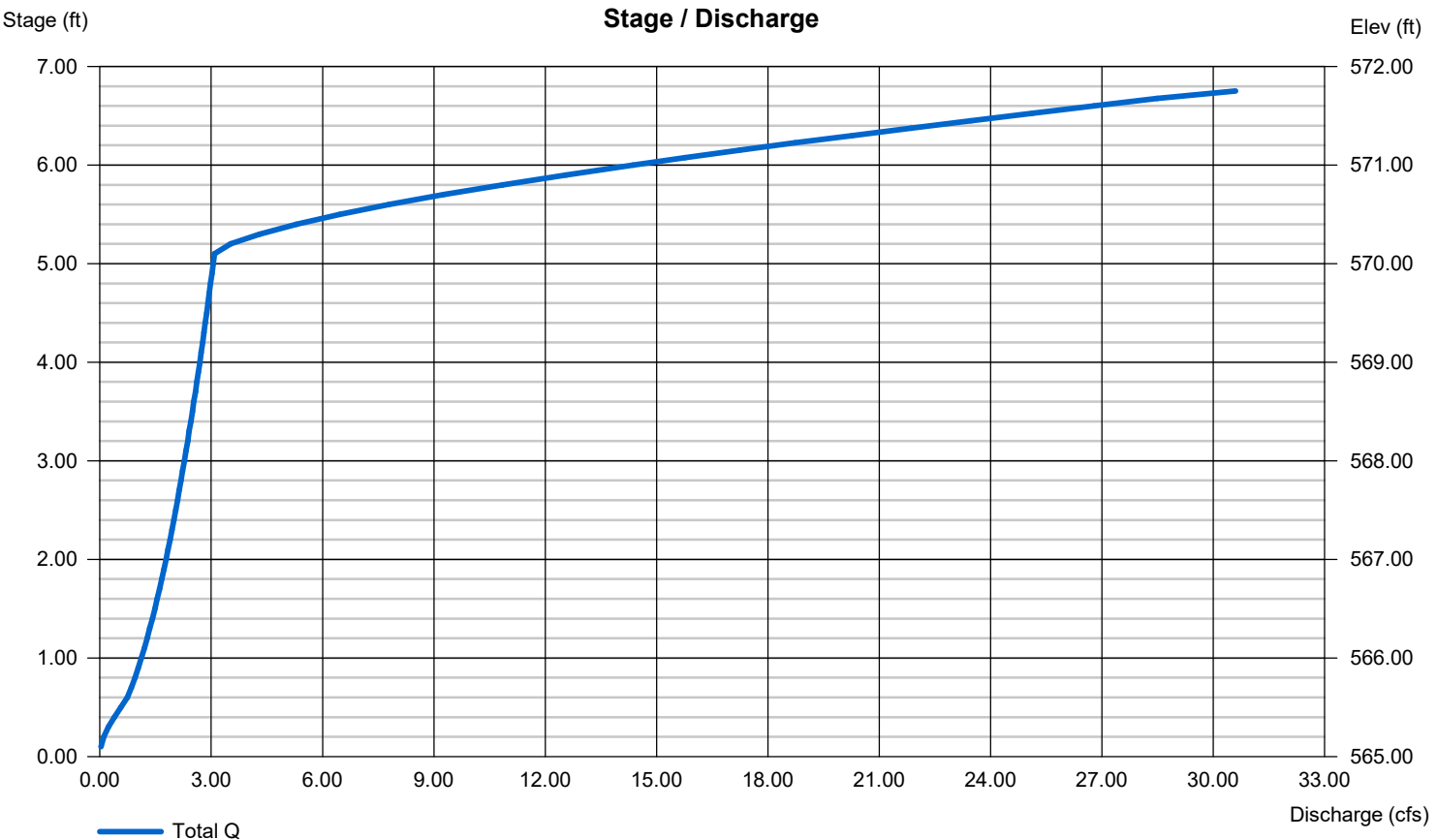
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	7.50	0.00	0.00
Span (in)	= 24.00	7.50	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 565.00	565.00	0.00	0.00
Length (ft)	= 20.00	0.10	0.00	0.00
Slope (%)	= 5.00	0.00	0.00	n/a
N-Value	= .017	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.47	4.00	0.00	0.00
Crest El. (ft)	= 571.70	570.10	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	Rect	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

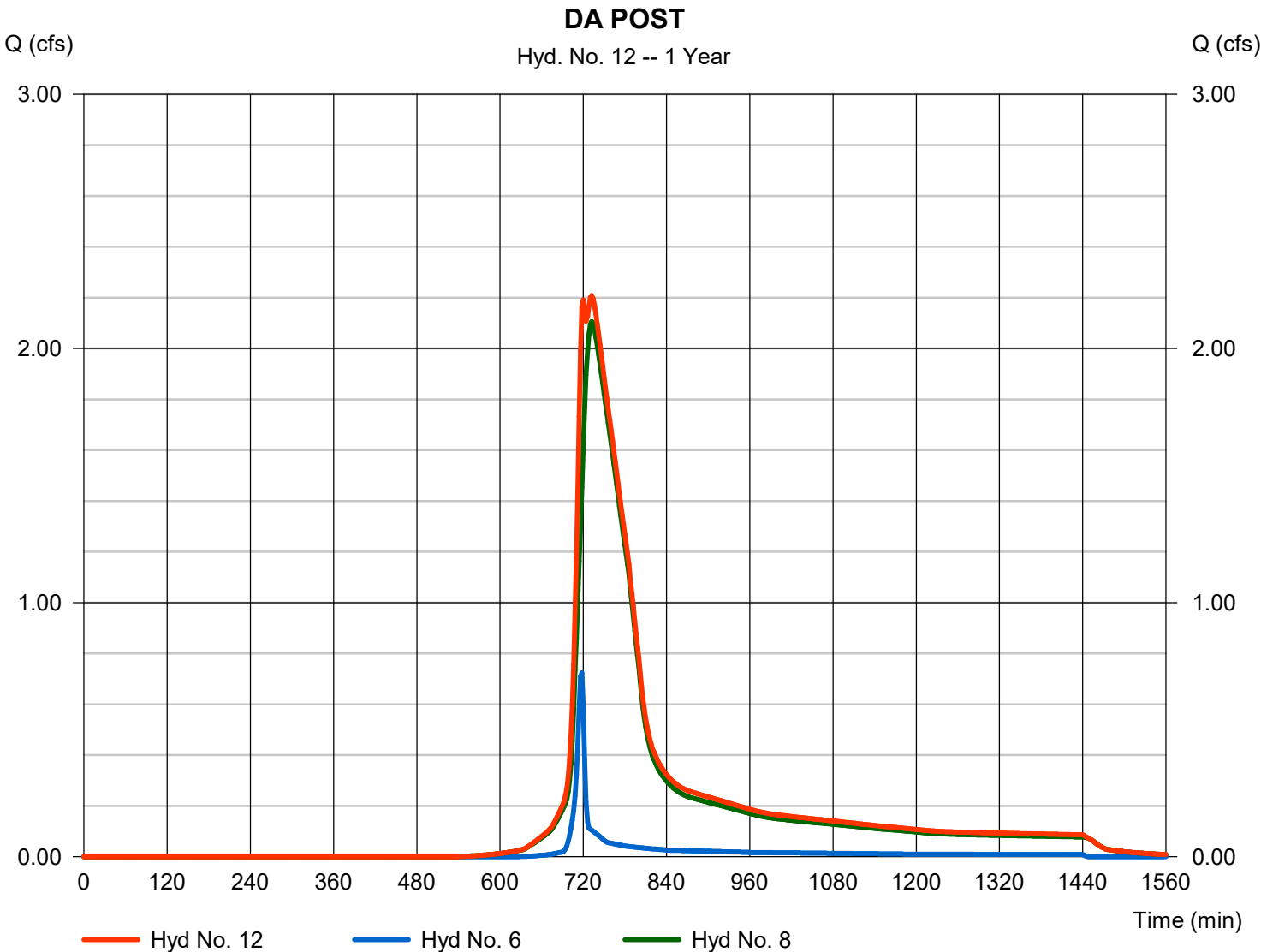


Hydrograph Report

Hyd. No. 12

DA POST

Hydrograph type	= Combine	Peak discharge	= 2.208 cfs
Storm frequency	= 1 yrs	Time to peak	= 732 min
Time interval	= 2 min	Hyd. volume	= 16,368 cuft
Inflow hyds.	= 6, 8	Contrib. drain. area	= 0.480 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	6.245	2	722	16,417	-----	-----	-----	DA-PRE
2	SCS Runoff	5.565	2	722	14,757	-----	-----	-----	DA-PRE-WOODS
4	SCS Runoff	7.826	2	720	20,290	-----	-----	-----	DA TO UG-1
6	SCS Runoff	1.019	2	718	2,046	-----	-----	-----	BYPASS
8	Reservoir	2.578	2	732	20,226	4	568.71	6,099	UG-1 OUT
12	Combine	2.757	2	720	22,229	6, 8,	-----	-----	DA POST
9276 - DRAINAGE_061224.gpw					Return Period: 2 Year			Thursday, 06 / 20 / 2024 Page 62	

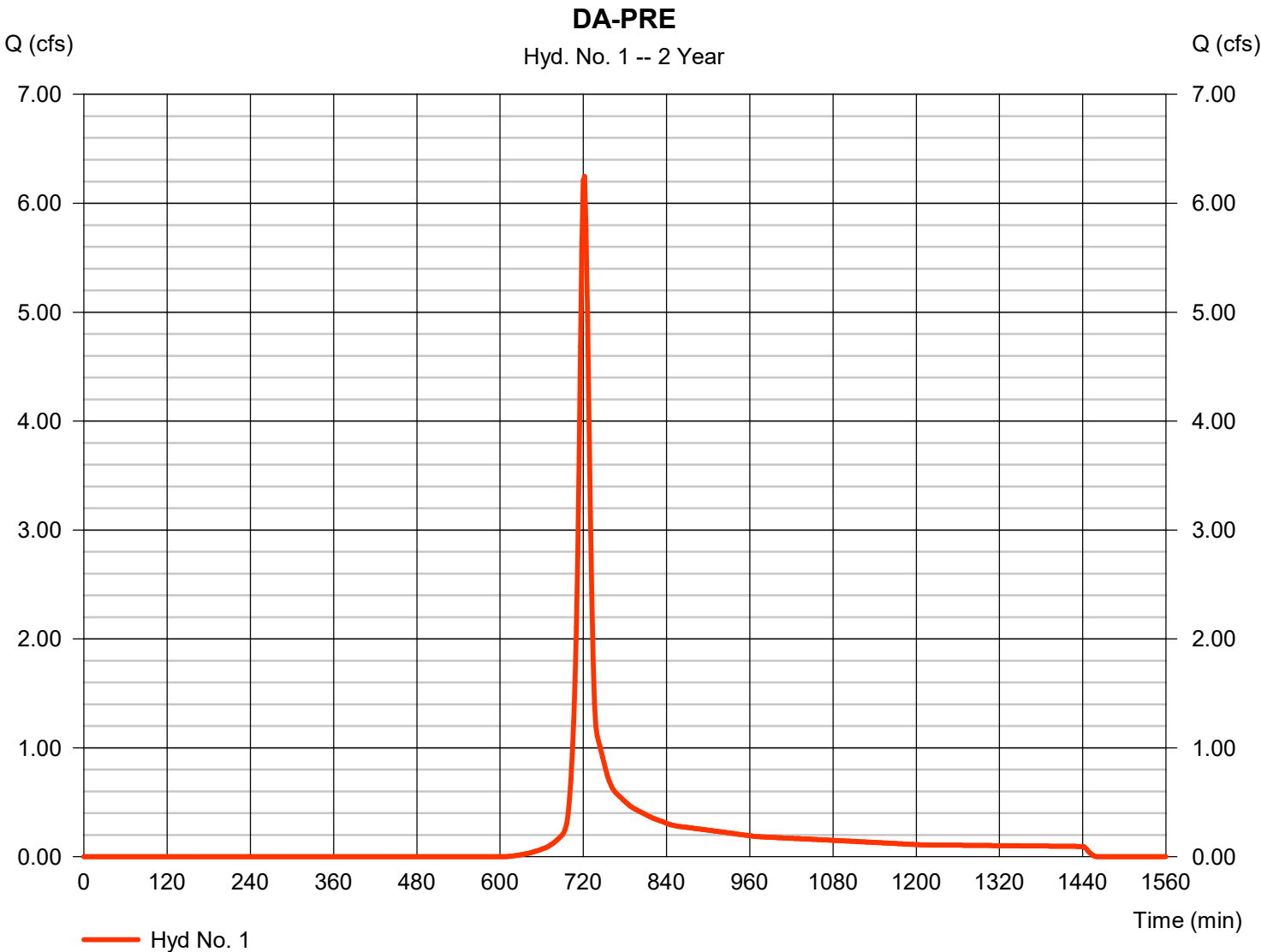
Hydrograph Report

Hyd. No. 1

DA-PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.245 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	16,417 cuft
Drainage area	=	3.880 ac	Curve number	=	79*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.10 min
Total precip.	=	2.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.256 x 98) + (0.345 x 80) + (3.279 x 77)] / 3.880

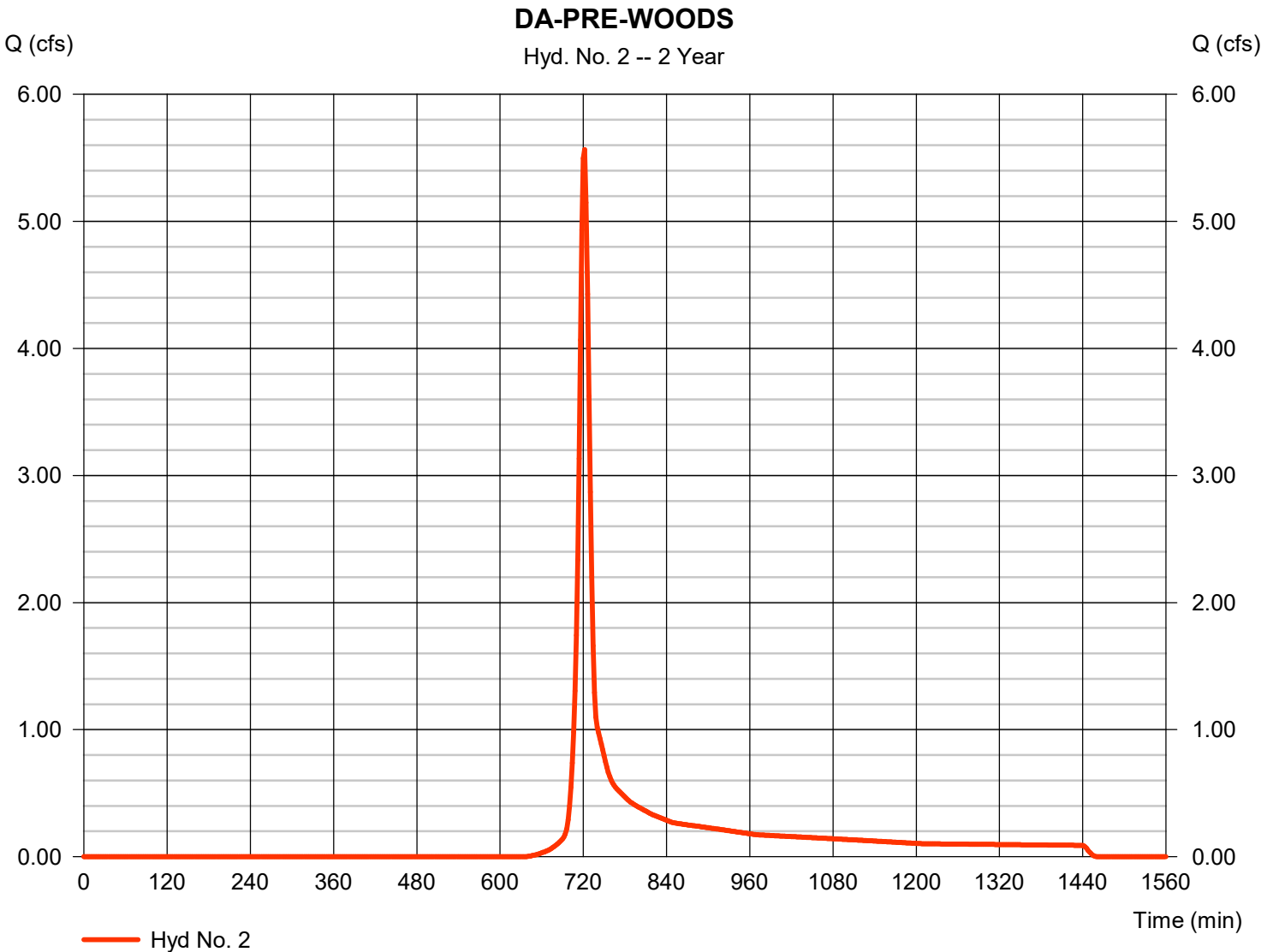


Hydrograph Report

Hyd. No. 2

DA-PRE-WOODS

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.565 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	14,757 cuft
Drainage area	=	3.880 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	12.10 min
Total precip.	=	2.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



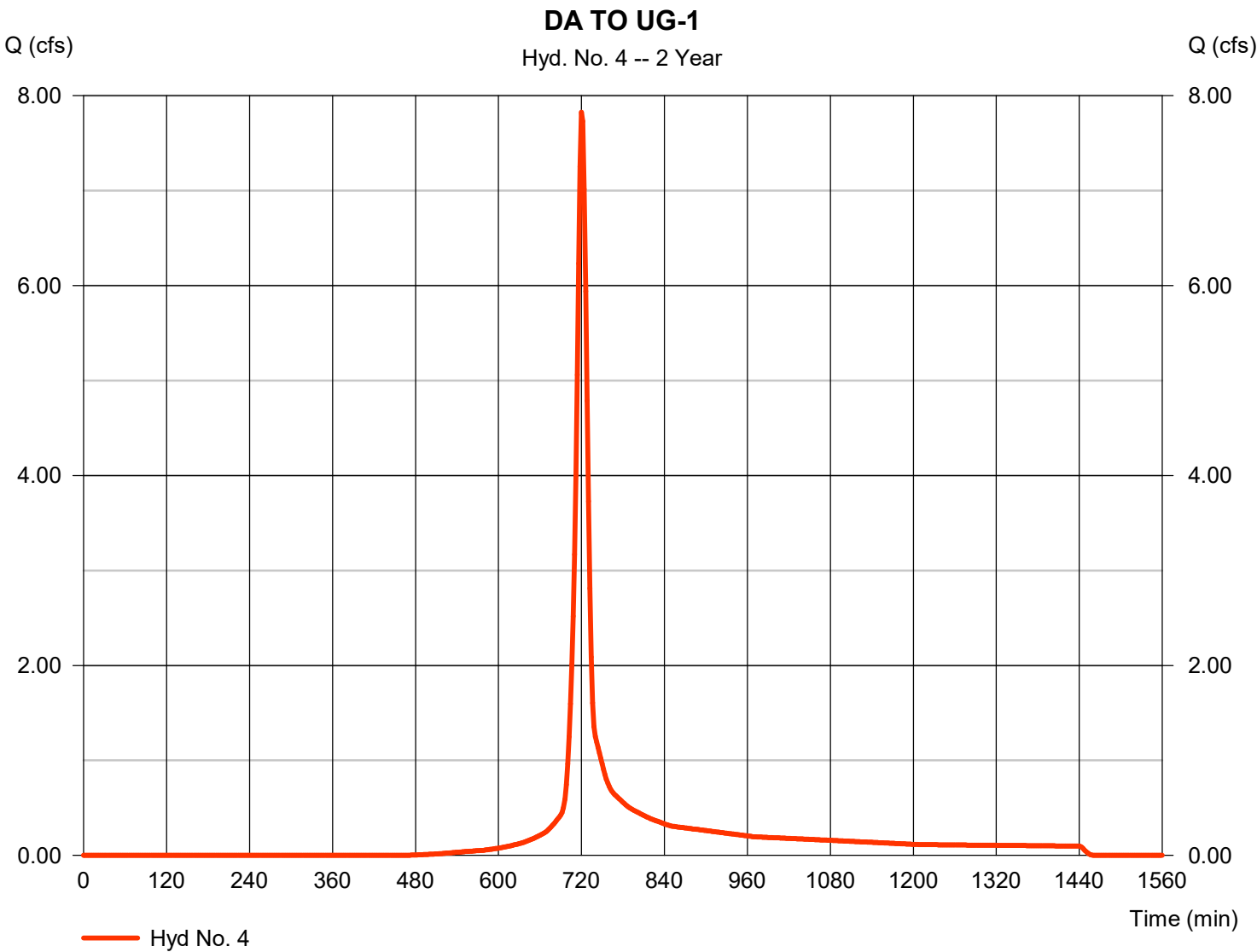
Hydrograph Report

Hyd. No. 4

DA TO UG-1

Hydrograph type	= SCS Runoff	Peak discharge	= 7.826 cfs
Storm frequency	= 2 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 20,290 cuft
Drainage area	= 3.400 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 11.20 min
Total precip.	= 2.92 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.160 x 98) + (1.590 x 80) + (0.650 x 77)] / 3.400



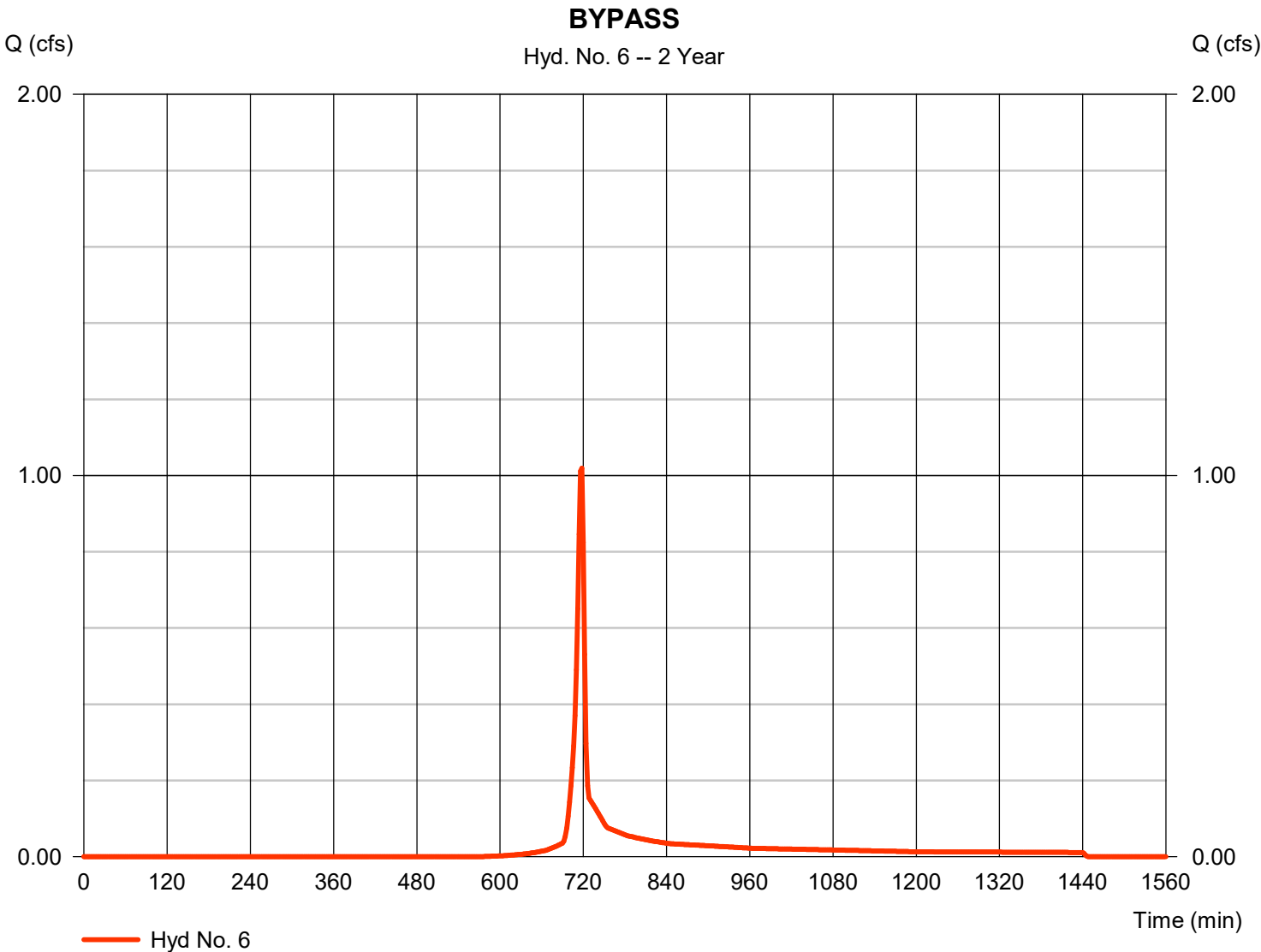
Hydrograph Report

Hyd. No. 6

BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.019 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,046 cuft
Drainage area	=	0.480 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	2.92 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.450 x 80) + (0.030 x 98)] / 0.480



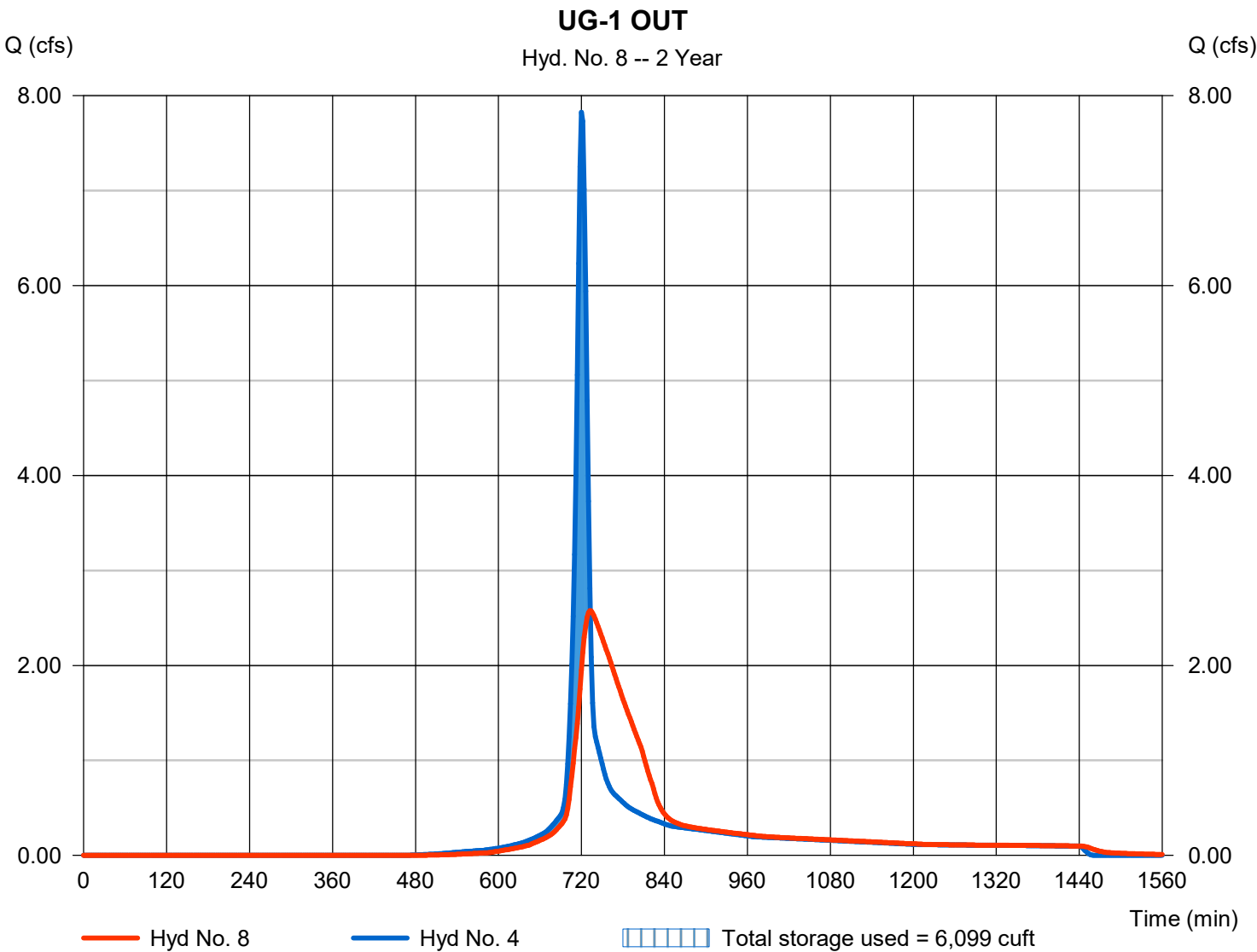
Hydrograph Report

Hyd. No. 8

UG-1 OUT

Hydrograph type	= Reservoir	Peak discharge	= 2.578 cfs
Storm frequency	= 2 yrs	Time to peak	= 732 min
Time interval	= 2 min	Hyd. volume	= 20,226 cuft
Inflow hyd. No.	= 4 - DA TO UG-1	Max. Elevation	= 568.71 ft
Reservoir name	= UG-1	Max. Storage	= 6,099 cuft

Storage Indication method used.

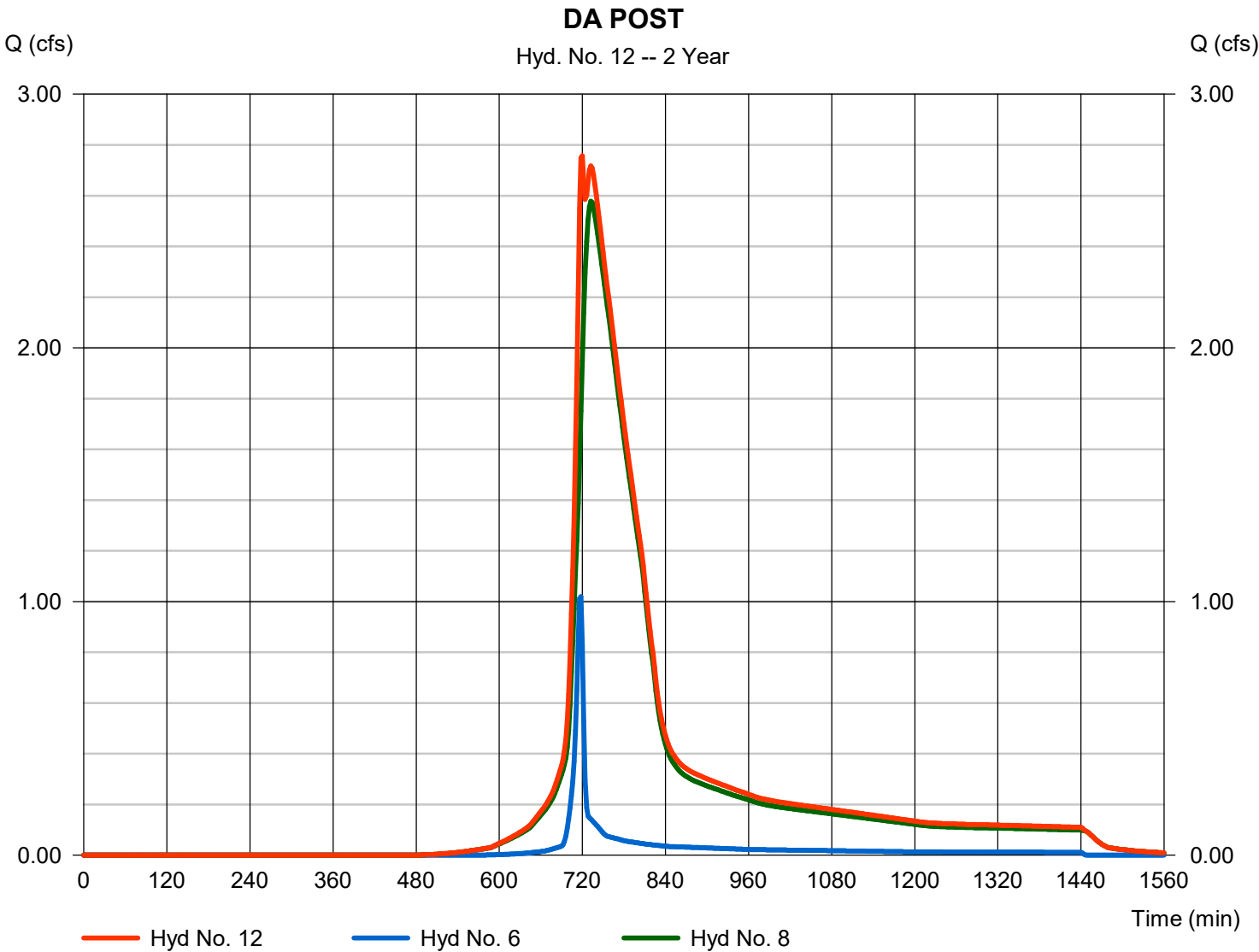


Hydrograph Report

Hyd. No. 12

DA POST

Hydrograph type	= Combine	Peak discharge	= 2.757 cfs
Storm frequency	= 2 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 22,229 cuft
Inflow hyds.	= 6, 8	Contrib. drain. area	= 0.480 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	12.47	2	720	32,335	-----	-----	-----	DA-PRE
2	SCS Runoff	11.54	2	720	29,998	-----	-----	-----	DA-PRE-WOODS
4	SCS Runoff	13.78	2	720	36,119	-----	-----	-----	DA TO UG-1
6	SCS Runoff	1.928	2	716	3,909	-----	-----	-----	BYPASS
8	Reservoir	11.70	2	724	36,009	4	570.85	8,979	UG-1 OUT
12	Combine	12.22	2	724	39,837	6, 8,	-----	-----	DA POST
9276 - DRAINAGE_061224.gpw					Return Period: 10 Year			Thursday, 06 / 20 / 2024 Page 69	

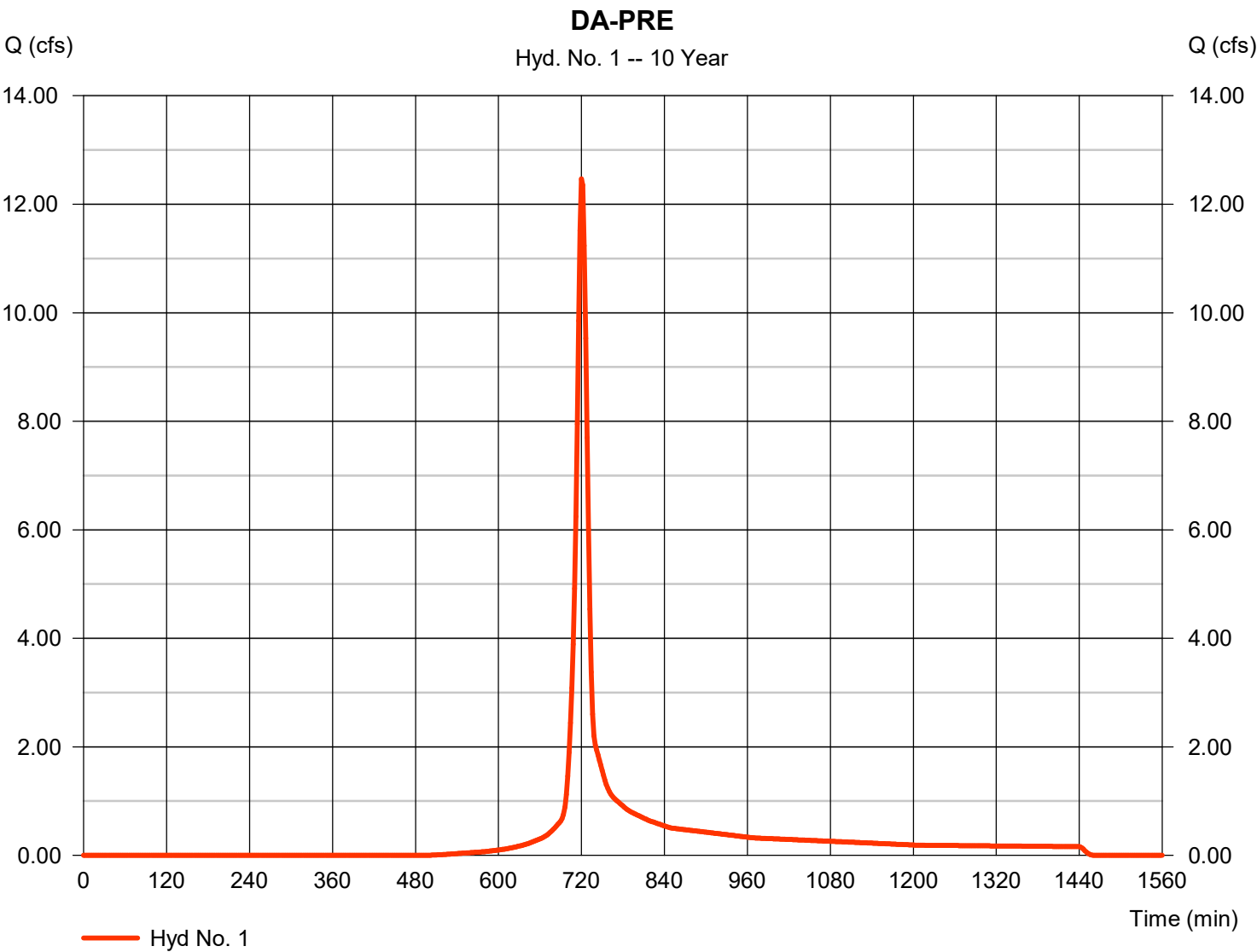
Hydrograph Report

Hyd. No. 1

DA-PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.47 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	32,335 cuft
Drainage area	=	3.880 ac	Curve number	=	79*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.10 min
Total precip.	=	4.32 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.256 x 98) + (0.345 x 80) + (3.279 x 77)] / 3.880

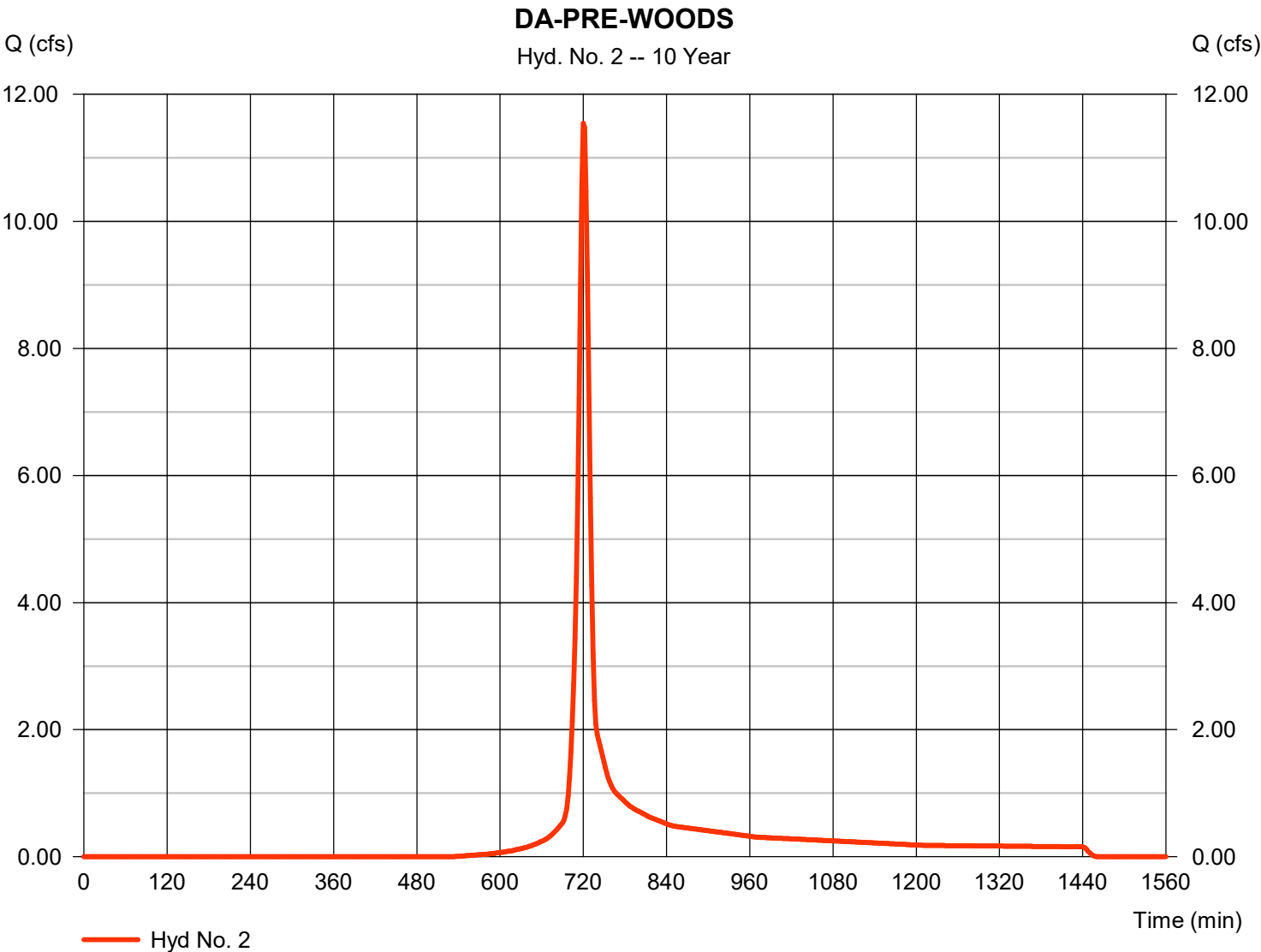


Hydrograph Report

Hyd. No. 2

DA-PRE-WOODS

Hydrograph type	= SCS Runoff	Peak discharge	= 11.54 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 29,998 cuft
Drainage area	= 3.880 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 12.10 min
Total precip.	= 4.32 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



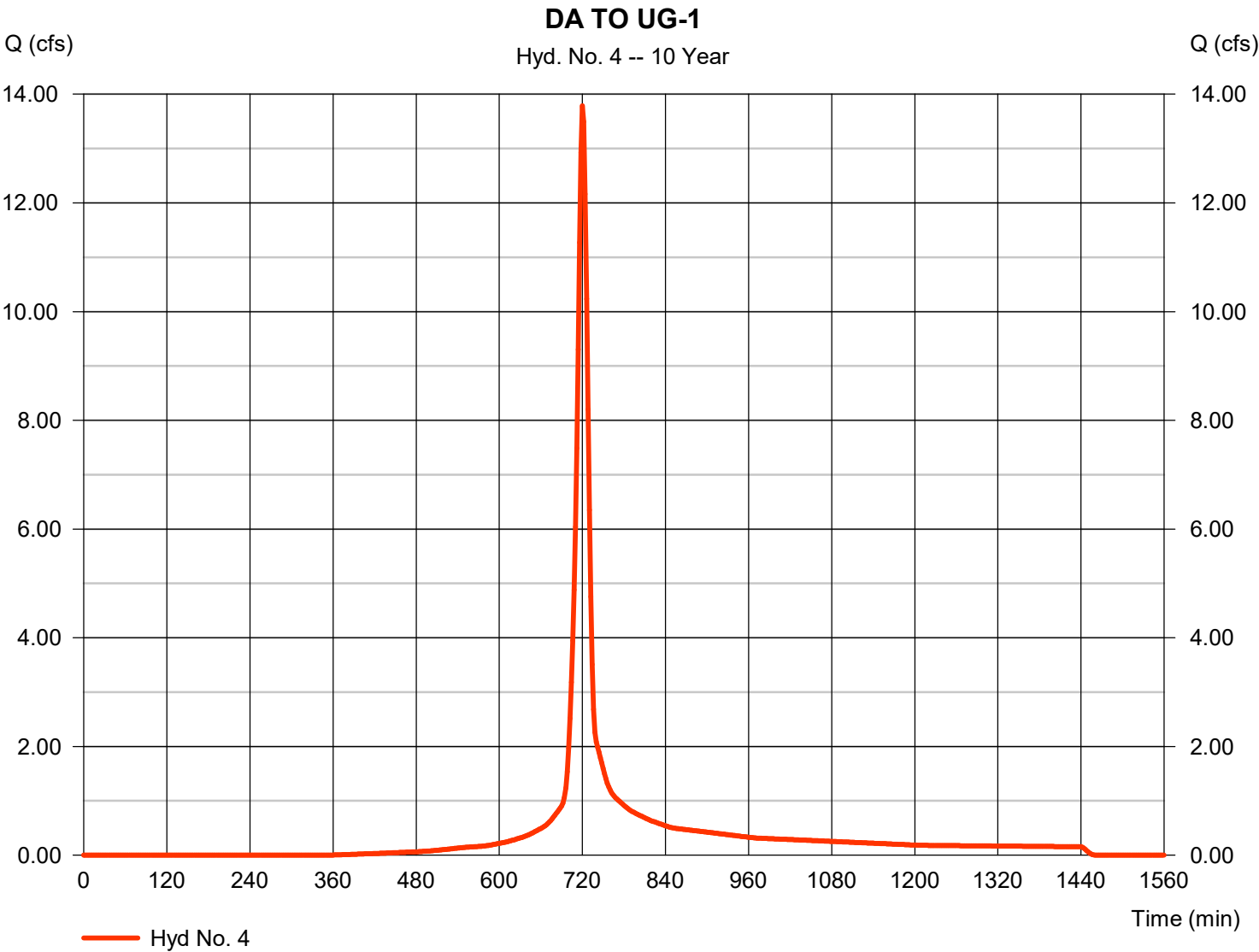
Hydrograph Report

Hyd. No. 4

DA TO UG-1

Hydrograph type	= SCS Runoff	Peak discharge	= 13.78 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 36,119 cuft
Drainage area	= 3.400 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 11.20 min
Total precip.	= 4.32 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(1.160 x 98) + (1.590 x 80) + (0.650 x 77)] / 3.400



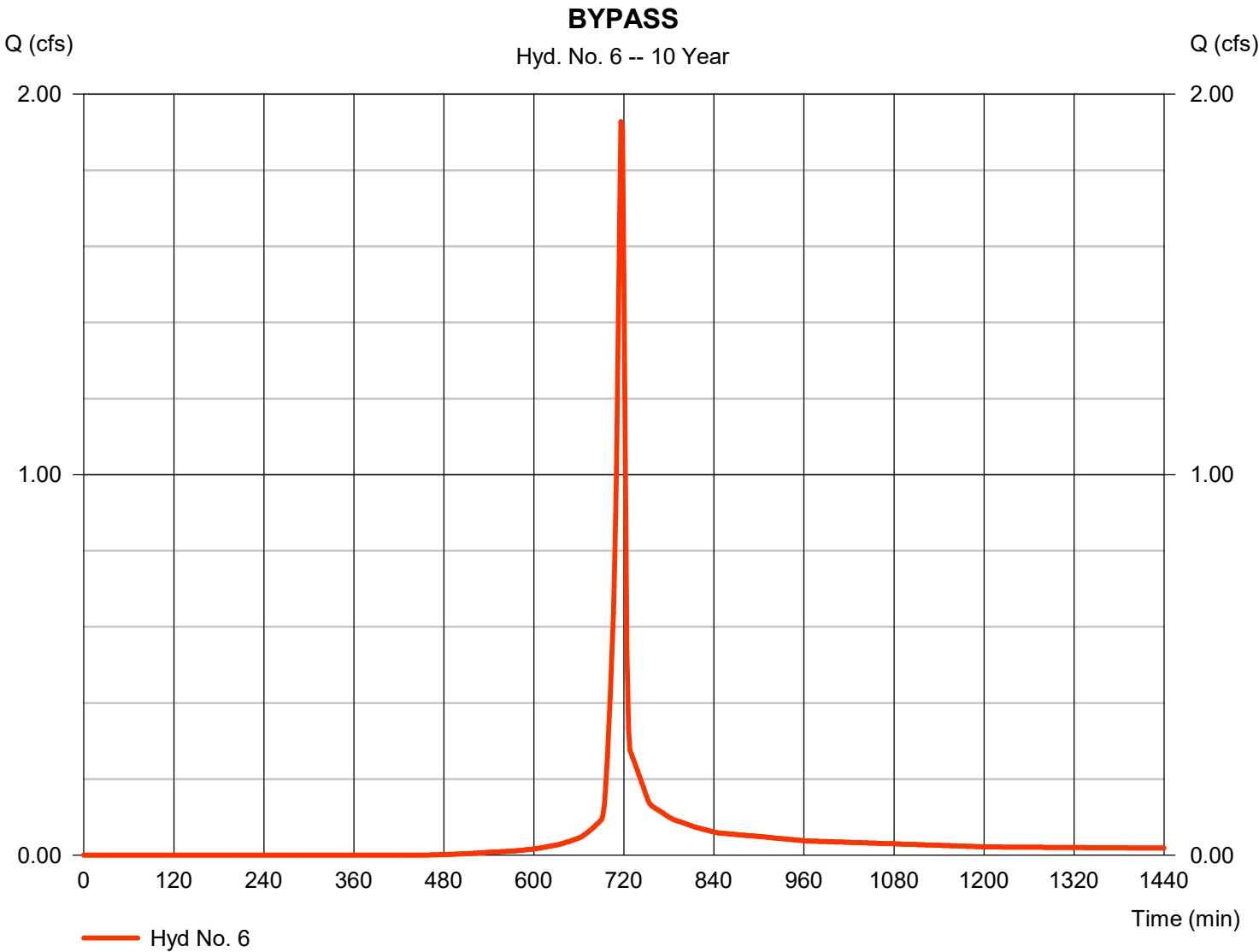
Hydrograph Report

Hyd. No. 6

BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.928 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	3,909 cuft
Drainage area	=	0.480 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.32 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.450 x 80) + (0.030 x 98)] / 0.480



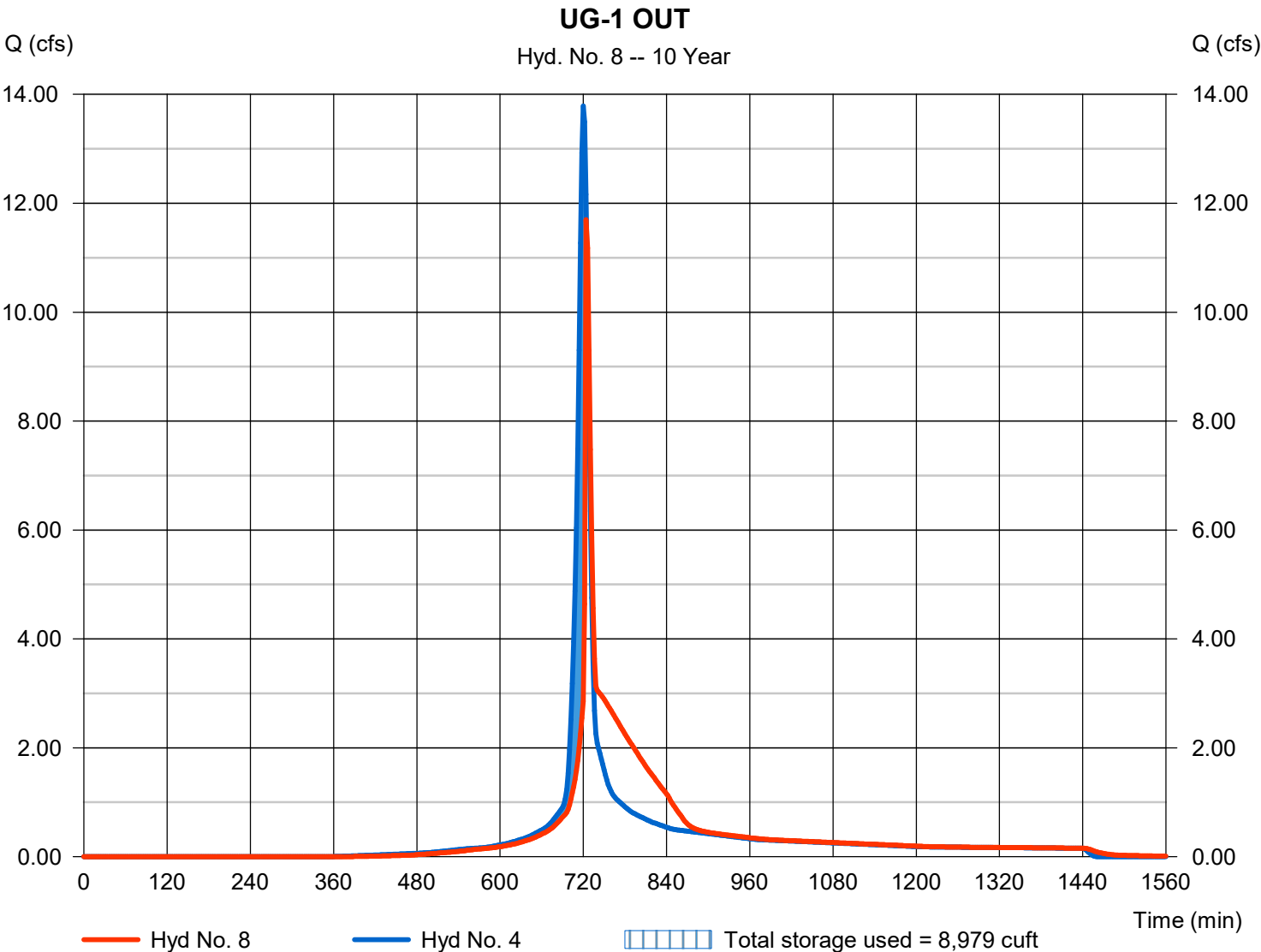
Hydrograph Report

Hyd. No. 8

UG-1 OUT

Hydrograph type	= Reservoir	Peak discharge	= 11.70 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 36,009 cuft
Inflow hyd. No.	= 4 - DA TO UG-1	Max. Elevation	= 570.85 ft
Reservoir name	= UG-1	Max. Storage	= 8,979 cuft

Storage Indication method used.

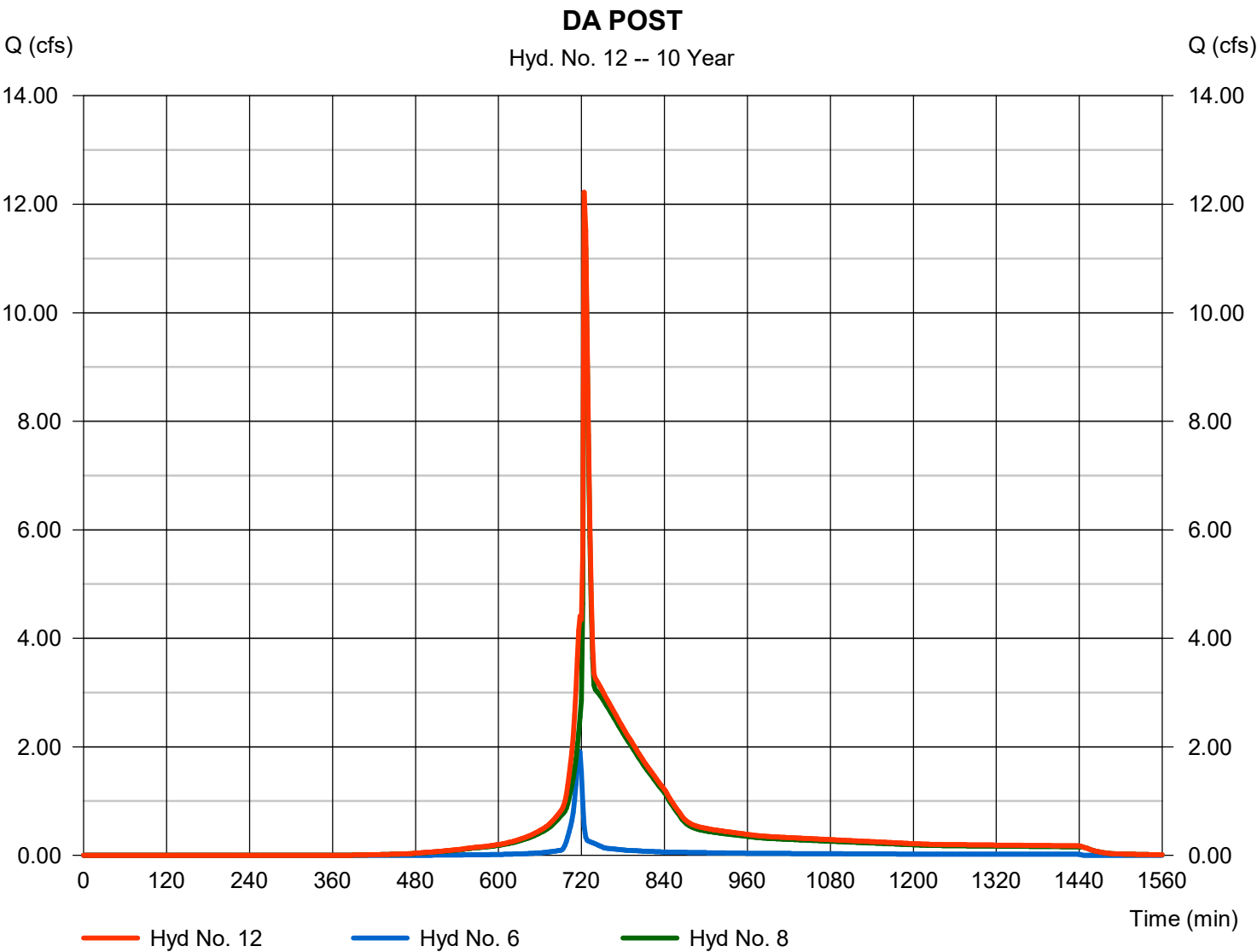


Hydrograph Report

Hyd. No. 12

DA POST

Hydrograph type	= Combine	Peak discharge	= 12.22 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 39,837 cuft
Inflow hyds.	= 6, 8	Contrib. drain. area	= 0.480 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2021

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	24.83	2	720	64,993	-----	-----	-----	DA-PRE
2	SCS Runoff	23.73	2	720	61,847	-----	-----	-----	DA-PRE-WOODS
4	SCS Runoff	24.84	2	720	66,825	-----	-----	-----	DA TO UG-1
6	SCS Runoff	3.689	2	716	7,667	-----	-----	-----	BYPASS
8	Reservoir	24.43	2	722	66,625	4	571.49	9,617	UG-1 OUT
12	Combine	27.08	2	720	74,132	6, 8,	-----	-----	DA POST
9276 - DRAINAGE_061224.gpw					Return Period: 100 Year			Thursday, 06 / 20 / 2024 Page 76	

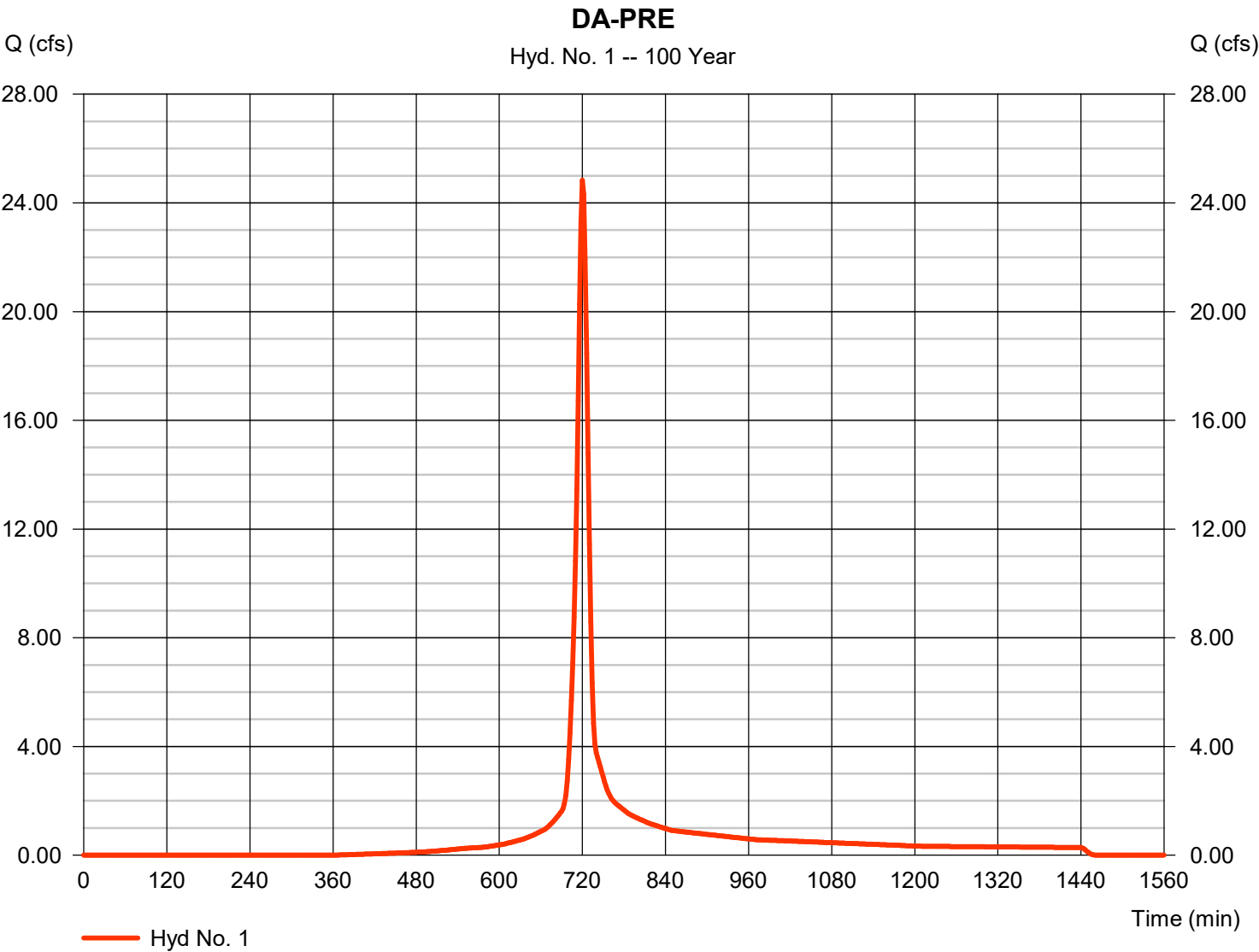
Hydrograph Report

Hyd. No. 1

DA-PRE

Hydrograph type	=	SCS Runoff	Peak discharge	=	24.83 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	64,993 cuft
Drainage area	=	3.880 ac	Curve number	=	79*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	12.10 min
Total precip.	=	6.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.256 x 98) + (0.345 x 80) + (3.279 x 77)] / 3.880

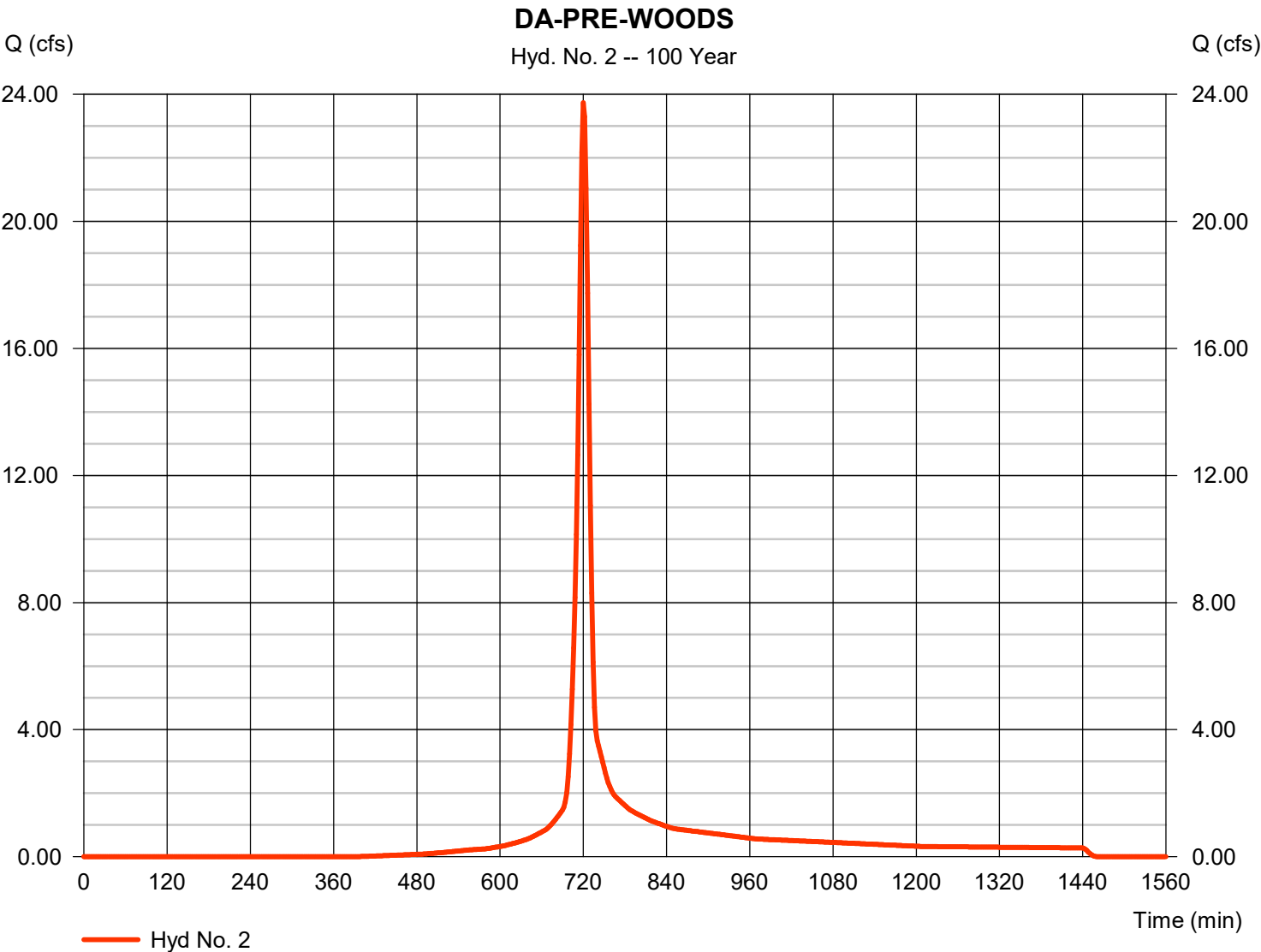


Hydrograph Report

Hyd. No. 2

DA-PRE-WOODS

Hydrograph type	= SCS Runoff	Peak discharge	= 23.73 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 61,847 cuft
Drainage area	= 3.880 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 12.10 min
Total precip.	= 6.88 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



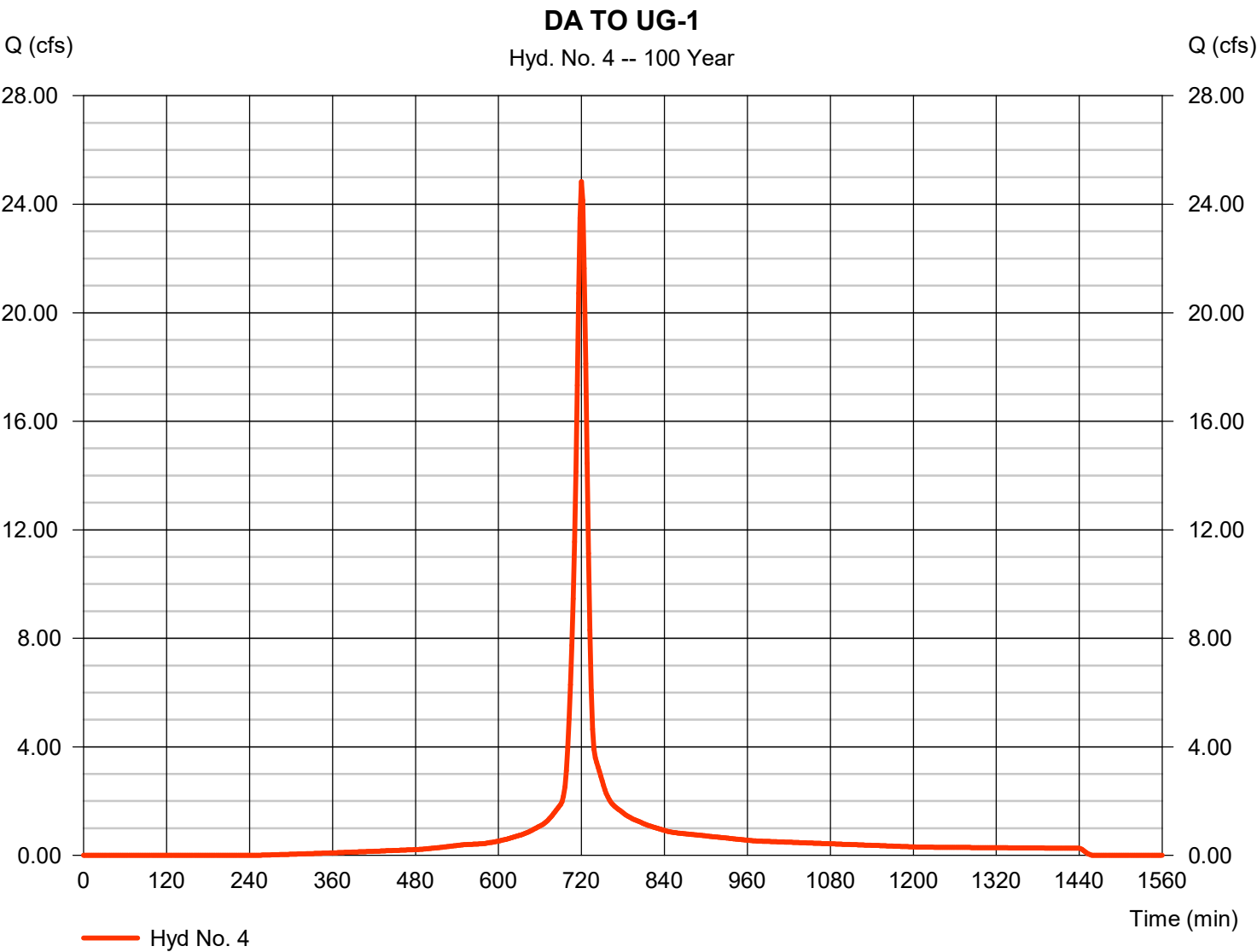
Hydrograph Report

Hyd. No. 4

DA TO UG-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	24.84 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	66,825 cuft
Drainage area	=	3.400 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.20 min
Total precip.	=	6.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.160 x 98) + (1.590 x 80) + (0.650 x 77)] / 3.400



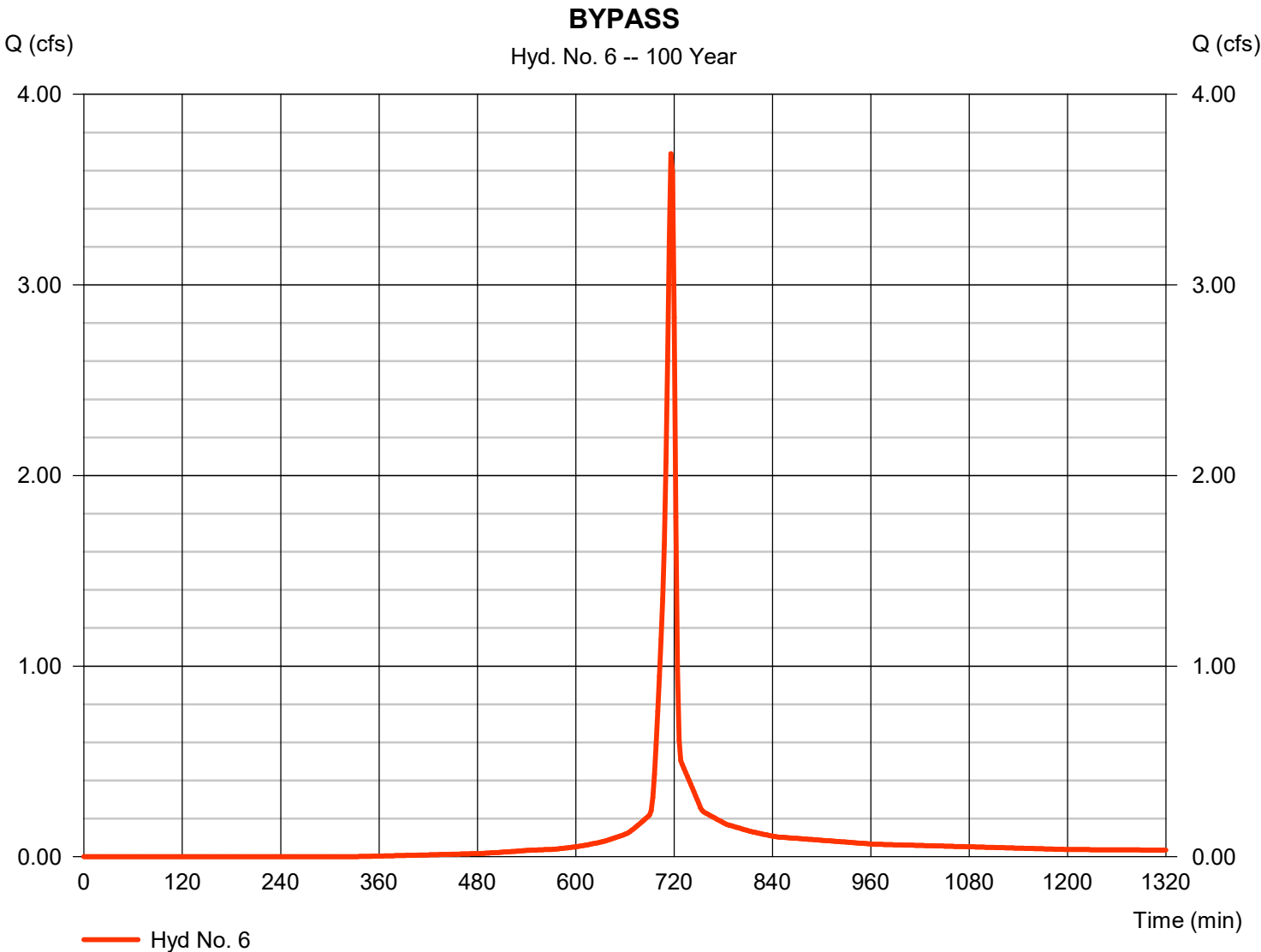
Hydrograph Report

Hyd. No. 6

BYPASS

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.689 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	7,667 cuft
Drainage area	=	0.480 ac	Curve number	=	81*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.88 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.450 x 80) + (0.030 x 98)] / 0.480



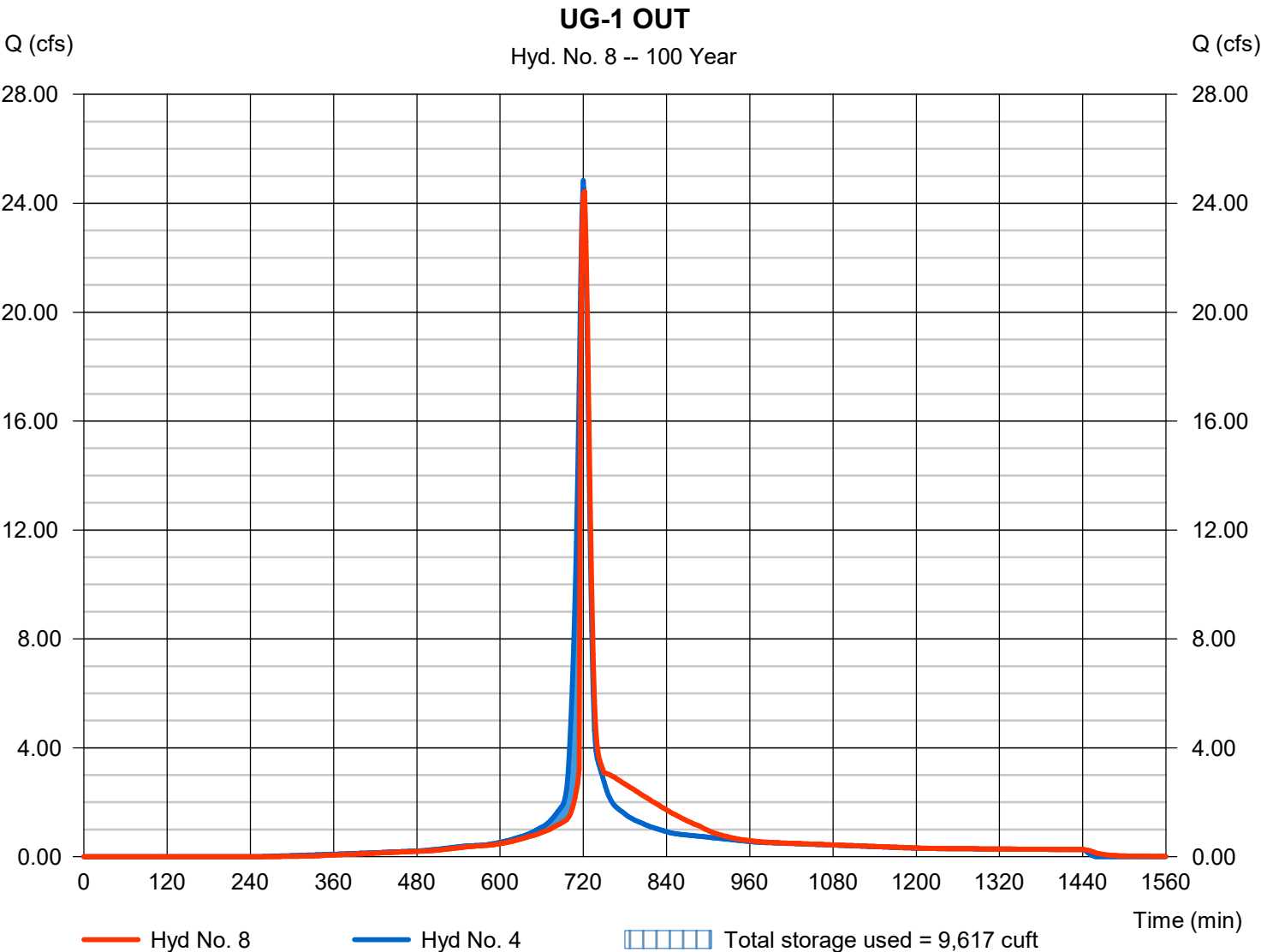
Hydrograph Report

Hyd. No. 8

UG-1 OUT

Hydrograph type	= Reservoir	Peak discharge	= 24.43 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 66,625 cuft
Inflow hyd. No.	= 4 - DA TO UG-1	Max. Elevation	= 571.49 ft
Reservoir name	= UG-1	Max. Storage	= 9,617 cuft

Storage Indication method used.

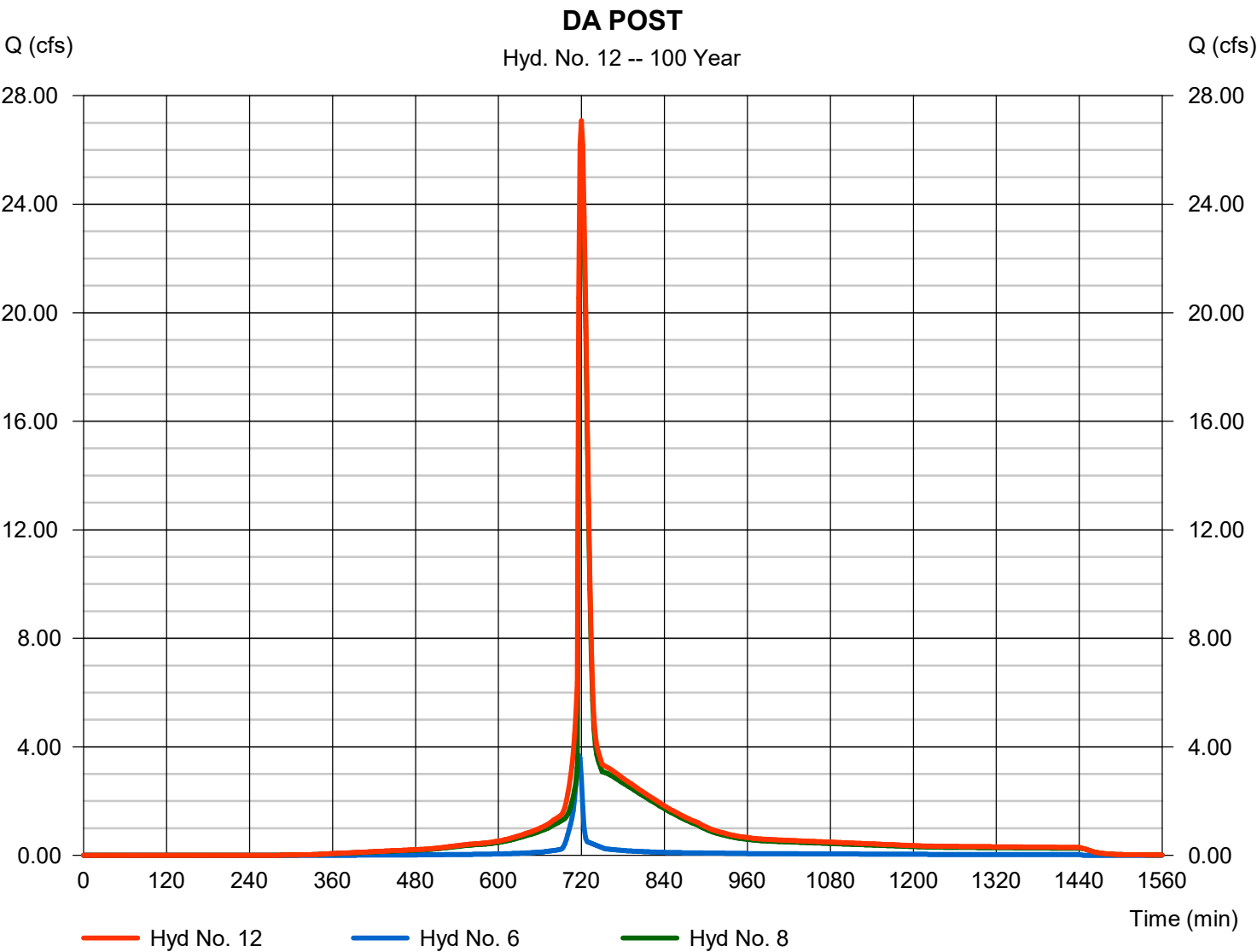


Hydrograph Report

Hyd. No. 12

DA POST

Hydrograph type	= Combine	Peak discharge	= 27.08 cfs
Storm frequency	= 100 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 74,132 cuft
Inflow hyds.	= 6, 8	Contrib. drain. area	= 0.480 ac



2400429 – PRELIMINARY PLAT APPROVAL MAJOR SUBDIVISION
DOUGLAS N. MC CARTY, DENNIS P. MC CARTY
AND DONALD “JAY” MC CARTY
344 W. MAIN STREET



TOWN OF FRONT ROYAL
DEPARTMENT OF PLANNING & ZONING
102 EAST MAIN STREET
P.O. BOX 1560
FRONT ROYAL, VA 22630

2400429
Main: 540.635.4236
Fax: 540.631.2727
Internet: www.frontroyalva.com

APPLICATION FOR PRELIMINARY PLAN APPROVAL (involving new streets, utilities or more than 8 lots) MAJOR SUBDIVISIONS

The undersigned hereby applies for review by the Town of Front Royal Planning Commission of the Preliminary Major Subdivision Plat submitted herewith:

1. Applicant's Name McCarty (Douglas N, Dennis P, Donald J); c/o "Jay" Phone 703-407-7559
Address P.O. Box 253 Clifton, VA 20124
2. Present Owner (if other than applicant) Same as above
Address _____ Phone _____
3. Interest of applicant if other than owner n/a
4. Name and profession of person designing preliminary plat Monteverde Engineering
Seth Roderick, PE
Address 250 E. Elizabeth St., Ste 114, Harrisonburg, VA 22802 Phone 540-820-0898
5. Location of subdivision 344 W. Main St., Front Royal, VA 22630
6. Total acreage 4.59 Ac. Zoning Classification R-2
No. of Lots 3 ^(3 existing lots) _(18 proposed) Tax Map Number 20A6-5-8, 8A & 8B
7. Acreage of adjoining land in same ownership (if any) n/a
8. Development Plans:
(A) Proposed number of dwellings. 33
(B) Length of new public roads. n/a
(C) Amount of open space. _____ 0.25 ac



PLEASE COMPLETE REVERSE SIDE

9. Deed restrictions that apply or are contemplated. (If no restrictions, state "none", if "Yes" attach copy) none
10. Date of Sketch Plat Approval _____ (Optional)
11. Attach: (A) Two Full Size Copies of Preliminary Plat
(B) Digital Copy of Preliminary Plat
(C) One 11 x 17 Copy of Preliminary Plat
(D) Additional documents required by Section 148-310.C of the Subdivision and Land Development Ordinance.

I hereby state that all of the above information and the statements contained herein submitted with this application are true.

July 17, 2024

Date

D. Jay McCarty
Signature of Applicant

Designated contact for applicant: D. "Jay" McCarty

By submitting this application, the applicant grants permission to Town officials and employees to enter upon the property, which is the subject of this application, during reasonable hours and for purposes related to the application process.

Fee ~~\$975.00~~ ^(18 LOTS) \$950.00 * Check # 532 Date Paid 7/18/2024

*Preliminary Plat fee is \$500 per plat and \$25 per lot.

1. Action of the Town Planning Commission
Date _____ Approved _____ Disapproved _____
2. Notification of approval/disapproval sent to:
Town Council _____ Date _____
Applicant _____ Date _____
3. Amount of performance bond required for approval of final plat \$ _____

Comments:

Connie Potter

From: David Beahm <Dbeahm@warrencountyva.gov>
Sent: Friday, July 19, 2024 10:10 AM
To: Connie Potter
Cc: Gerry Maiatico; Gordon Foster; Inspections; Kevin Perry; Matthew Byers
Subject: RE: Request for Comments – Major Subdivision Preliminary Plan Review – Tax Map
 20A6-5-8, 8A & 8B – 344 W. Main St., Front Royal – 2400429
Attachments: 2024-07-15_Front Royal Site Plan_PROJECT.pdf; 2400429_Application_McCarty_Squirrel
 Hill_344 W. Main Street.pdf; Calc Package_updated.pdf; preliminary plan check list.PDF

Comments – McCarty (Douglas N., Dennis P., Donald J.) – Preliminary Plan Approval Major Subdivision – 2400429:

- Erosion and Sediment Control (ESC) Items:
 - The application and permits are already in the process (initial application is considered incomplete at this time, but design firm has been notified) for the full plan review for this project.
 - The area of disturbance exceeds one (1) acre and more than two dwellings on existing streets within the Town limits. It should be requested of the Department of Environmental Quality (DEQ) if a Stormwater permit is required for this project. If a permit is required, the approval by DEQ (Construction General Permit) would be required prior to any ESC Permit and any type of Building Permit being issued by Warren County.
 - Each lot when developed for a residential dwelling unit would then be required to have an Agreement In Lieu Of which would be obtained at that time.
- Site Plan Review:
 - If or when any building construction related activity were to take place, a Site Plan Review and Permit for Building Code Compliance would be required to be completed for including emergency access, structure placement for required fire separation, fire lane markings, required fire signage, and possibly for utilities, and fire hydrants.
- Building Inspections Items:
 - If or when any building construction related activity (structure, electrical, plumbing, mechanical, fire suppression, energy, etc.) were to start, it would be subject to the normal requirements of application, review and approval prior to work beginning.
- Fire Marshal's Office Comments (standard):
 - We would defer all comments for the site development/new construction/retrofit/change of use to the Building Official. Upon approval and issuance of the CO, the facility (as applicable) shall be maintained in accordance with the Virginia Statewide Fire Prevention Code.

If anything should change in the scope, additional requirements may be required.

Respectfully,

David C. Beahm, CBO
 Building Official
 County of Warren
 540-636-9973
 Fax 540-636-4698
dbeahm@warrencountyva.gov
www.warrencountyva.gov



2400429
Energy Services
Comments

Date: 07/23/2024

Permit #: 2400429

Permit Date: 07/18/2024

Review Date: 07/18/2024

Permit Type: Major Subdivision - Preliminary Plat

Review Type: Application Review

Target Date: 08/01/2024

Scheduled Time: 00:00

Completed Date:

Description: Squirrel Hill Subdivision Duplexes (33)

Review Status: Approved

Assigned To: Mary Lynn

Time In: 00:00

Time Out: 00:00

Hours: 0.0

Notes

The subdivider, developer or builder shall be responsible for all engineering, trenching, backfilling and installation and expense of conduits for the underground electric system. See attached conduit policy for specifications.

All materials and improvements comprising the underground electric system shall be dedicated to the Town of Front Royal and shall be depicted on the subdivision plat. A tenfoot-wide easement shall be dedicated to the Town of Front Royal for the operation, maintenance and repair of the underground electric system.

The Town of Front Royal shall supply and install electrical conductors and such transformers, pedestals and other electrical equipment.

07/23/2024

All underground electric systems shall include connections for streetlight poles located every three hundred (300) feet along subdivision streets. Pole location shall be subject to the approval of the Town of Front Royal. Except where otherwise approved, pole location shall be staggered on the opposite sides of the street. No overhead wires shall be permitted to serve streetlights. All streetlights poles and bases shall be equipped with wiring and connections to the underground electric system and shall be in accordance with the conditions and specifications of the Department of Energy Services. Streetlight poles and bases shall be supplied and installed by the subdivider or developer at his sole expense, or, at the Town's option, streetlight poles and bases may be installed by the Town of Front Royal at the subdivider's or developer's expense.

A pre-engineering meeting can be scheduled by calling the Department of Energy Services at (540)635-3027.



2400429
Public Works
Comments

Date: 08/02/2024

Permit #: 2400429

Permit Date: 07/18/2024

Review Date: 07/18/2024

Permit Type: Major Subdivision - Preliminary Plat

Review Type: Application Review

Target Date: 08/01/2024

Scheduled Time: 00:00

Completed Date:

Description: Squirrel Hill Subdivision Duplexes (33)

Review Status: Complete

Assigned To: Robert B. Boyer

Time In: 00:00

Time Out: 00:00

Hours: 0.0

Notes

- 08/01/2024 Still reviewing plans will update once completed.
The town requires 20' utility easements 10' on each side of the pipe.
- Town construction standards W-6 and S-9 and any sanitary sewer laterals connecting directly to the manhole shall be gore drill and have a rubber boot.
- Any sanitary sewer main lines connecting directly to the manhole shall be 8" SDR 35, SS-1 shows 6"
- The applicant needs to provide a draft document show who will be responsible for maintain the private dry pond.
- 08/02/2024 Any new sewer main extensions shall be 8" SDR35 PVC pipe and sewer laterals shall be 4" sch. 40 PVC pipe
- All water services shall type k copper where it's within the town right of way.
- Orchard St new CG-6 on both sides should be 37' to the back of the curb which is 18' from the centerline of the town right-of-way.
- The CG-6 curb and gutter, CG-9 driveway aprons and either 6' sidewalk or a 5' sidewalk with a 1' grass needs to be shown and labeled on each street.

Property Information

Parcel#: 20A6 5 8A

MC CARTY DONALD J/MCCARTY DENNIS P/
MCCARTY DOUGLAS NEIL

344 W MAIN ST

Zoning: R-2Lot: 8Block:

MC CARTY DONALD J/MCCARTY DENNIS P/
MCCARTY DOUGLAS NEIL

12425 CHAPEL RD

CLIFTON, VA 20124

From: Brown, Robert (DEQ) <robert.brown@deq.virginia.gov>
Sent: Friday, July 19, 2024 12:37 PM
To: Connie Potter <cpotter@frontroyalva.com>
Subject: RE: Request Preliminary Plan Review 2400429

Hi Connie!

DEQ does not typically provide formal comments on preliminary plans. However, if the developer or engineer want to discuss their design at any point, they can contact us directly and we will be happy to set up a meeting with them. Otherwise, they will have to wait until the plans are finalized to submit for DEQ review.



Robert A. Brown, PE

Stormwater Plan Reviewer

[Virginia Department of Environmental Quality](https://www.deq.virginia.gov/)

4411 Early Road

Harrisonburg, VA 22801

(540) 217-7154

PRELIMINARY SITE PLAN

SQUIRREL HILL DEVELOPMENT



PLAN DATA

ENGINEER:	
FIRM	MONTEVERDE ENGINEERING & DESIGN STUDIO
ADDRESS	250 E. ELIZABETH ST, SUITE 114 HARRISONBURG, VA 22802
CONTACT NAME	SETH RODERICK
EMAIL	sroderick@monteverdedesigns.com
PHONE	(540) 228-0202
OWNER:	
LANDOWNER	MCCARTY DONALD J/MCCARTY DENNIS P
CONTACT NAME	JAY MCCARTY
ADDRESS	PO BOX 253, CLIFTON, VA 20124
EMAIL	jay1mccarty@gmail.com
PHONE	(703) 407-7559

SITE DATA

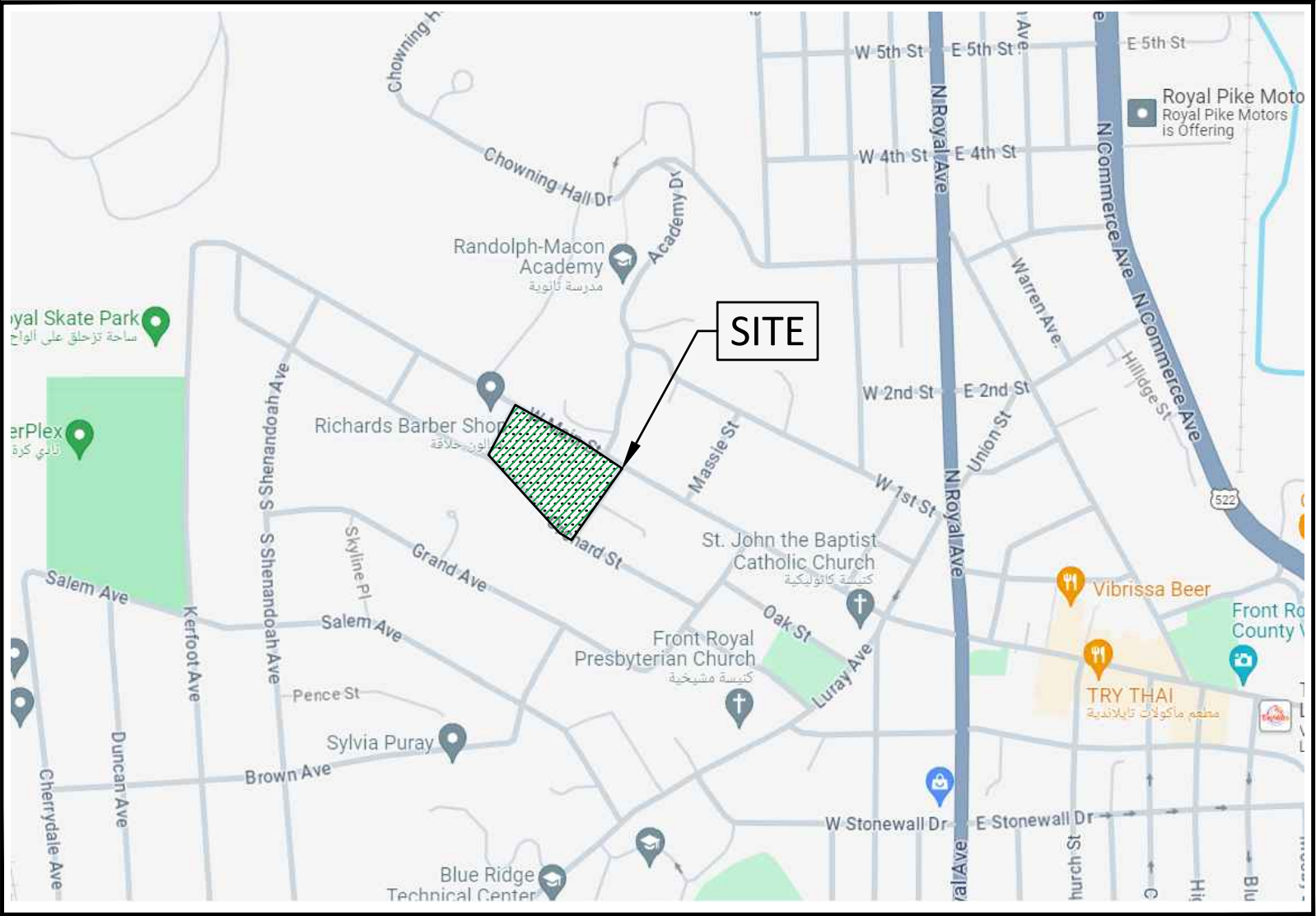
SITE INFORMATION:	
TAX MAP #	20A6 5 8 _ 20A6 5 8A _ 20A6 5 8B
DEEDBOOK/PAGE	DB 517-254_DB 517-254
ACREAGE	4.6 AC
ZONING	R-2
SETBACKS	FRONT= 30', SIDE= 10', REAR= 25'
MIN. LOT SIZE	4,000 SQ.FT
MIN. LOT WIDTH	70 FT, 100 FT FOR CORNER LOTS (PER PAIR)

AREA TABLE

TOTAL AREA	4.5987 AC
OPEN SPACE AREA	0.2494 AC (15%)
NUMBER OF DUPLEX LOTS	32
NUMBER OF SINGLE HOUSE LOT	1
DENSITY	7.18 UNITS/AC

344W MAIN ST
FRONT ROYAL, VA 22630

VICINITY MAP



VICINITY MAP
SCALE: 1" = 1,000'

SHEET INDEX

Sheet List Table	
Sheet Number	Sheet Title
C0.01	TITLE SHEET
C1.01	GENERAL NOTES
C2.01	EXISTING CONDITIONS
C2.02	DEMOLITION PLAN
C3.01	EROSION & SEDIMENT PHASE I
C3.02	EROSION & SEDIMENT PHASE II
C3.03	EROSION & SEDIMENT NOTES
C4.01	PRELIMINARY SUBDIVISION PLAT
C4.02	SITE DIMENSION PLAN
C5.01	UTILITY LAYOUT
C5.02	UTILITY PROFILES
C6.01	GRADING PLAN
C6.02A	PRE. DEV. DRAINAGE AREAS
C6.02B	POST DEV. DRAINAGE AREA
C6.03	SWM PLAN
C6.04	STORM SEWER PROFILES
C9.01	E&S DETAILS
C9.02	SITE DETAILS
C9.03	SITE DETAILS

PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT
344 W MAIN ST
FRONT ROYAL, VA 22630

VIRGINIA CERTIFIED RESPONSIBLE LAND DISTURBER

NAME-PRINTED	SIGNATURE	DATE
PHONE #	COMPANY	
ADDRESS		

THIS PLAN DOES NOT GUARANTEE THE EXISTENCE OR NON-EXISTENCE OF UTILITIES WITHIN THE WORK LIMITS. CALL MISS UTILITY AT 811 OR 1-800-552-7001 BEFORE DIGGING. EACH "PERSON" AS DEFINED IN THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT MUST PROVIDE THEIR OWN NOTICE OF EXCAVATION. SUBCONTRACTORS MAY NOT WORK UNDER ANOTHER COMPANY'S TICKET UNLESS THEY ARE UNDER THE DIRECT SUPERVISION OF THE COMPANY THAT PROVIDED THE NOTICE OF EXCAVATION.

ALLOW REQUIRED TIME FOR MARKING – BEGIN EXCAVATION ONLY AFTER CHECKING THE POSITIVE RESPONSE SYSTEM. EXCAVATION MAY BEGIN WHEN: ALL NOTIFIED UTILITIES HAVE EITHER MARKED THEIR LINES OR REPORTED THAT THEY HAVE NO FACILITIES IN THE AREA OF EXCAVATION OR THE MARKING PERIOD HAS EXPIRED (AFTER 7:00 AM ON THE THIRD WORKING DAY AFTER NOTICE TO THE CENTER.) OR MISS UTILITY INFORMS YOU THAT NO MEMBER OPERATORS NEED TO BE NOTIFIED OF THE EXCAVATION. YOU WILL STILL GET A TICKET NUMBER!
RESPECT THE MARKS – PROTECT AND PRESERVE THE MARKINGS FROM THE TIME EXCAVATION BEGINS UNTIL THE WORK IS COMPLETED. CALL MISS UTILITY TO UPDATE THE TICKET IF WORK WILL CONTINUE PAST 15 DAYS OR IF THE MARKS BECOME ILLEGIBLE DUE TO TIME, WEATHER, CONSTRUCTION OR ANY OTHER CAUSE.
EXCAVATE CAREFULLY – IF THE EXCAVATION IS WITHIN 2 FEET OF A MARKED UTILITY LINE, EXPOSE THE UTILITY LINE BY HAND DIGGING AND KEEP ALL MECHANIZED EQUIPMENT AT LEAST 2 FEET AWAY FROM THE EXTREMITIES OF THE UTILITY.



TOWN OF FRONT ROYAL DIRECTORY:

PLANNING DIRECTOR / ZONING ADMINISTRATOR LAUREN KOPISHKE 102 E. MAIN STREET FRONT ROYAL, VA 22630 (540) 635-4236	FIRE CHIEF JAMES G. BONZANO II 200 SKYLINE VISTA DRIVE FRONT ROYAL, VA 22630 (540) 636-3830
EROSION & SEDIMENT CONTROL WARREN COUNTY DEPT. OF BUILDING INSPECTIONS DAVID BEAHM 220 N COMMERCE AVE. STE. # 400 FRONT ROYAL, VA 22630 (540) 636-9973	BUILDING OFFICIAL WARREN COUNTY DEPT. OF BUILDING INSPECTIONS DAVID BEAHM 220 N COMMERCE AVE. STE. # 400 FRONT ROYAL, VA 22630 (540) 636-9973
PUBLIC WORKS DIRECTOR ROBERT BOYER 800 CROSBY ROAD FRONT ROYAL, VA 22630 (540) 635-7819	

ALL TOWN REAL ESTATE TAXES HAVE BEEN PAID IN FULL

DIRECTOR OF FINANCE

DATE

REVIEWED AND APPROVED BY THE TOWN OF FRONT ROYAL

DIRECTOR OF PLANNING & ZONING

DATE

TOWN MANAGER

DATE

DIRECTOR OF PUBLIC WORKS

DATE

DIRECTOR OF ENERGY SERVICES

DATE

Revisions:		
No.	Description	Date

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

TITLE SHEET

Project number:	
Date:	JULY 15, 2024
Drawn by:	xxx
Checked by:	xxx

C0.01



THIS PLAN DOES NOT GUARANTEE THE EXISTENCE OR NON-EXISTENCE OF UTILITIES WITHIN THE WORK LIMITS. CALL MISS UTILITY AT 811 OR 1-800-552-7001 BEFORE DIGGING. EACH "PERSON" AS DEFINED IN THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT MUST PROVIDE THEIR OWN NOTICE OF EXCAVATION. SUBCONTRACTORS MAY NOT WORK UNDER ANOTHER COMPANY'S TICKET UNLESS THEY ARE UNDER THE DIRECT SUPERVISION OF THE COMPANY THAT PROVIDED THE NOTICE OF EXCAVATION.

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RESPECT THE MARKS – PROTECT AND PRESERVE THE MARKINGS FROM THE TIME EXCAVATION BEGINS UNTIL THE WORK IS COMPLETED. CALL MISS UTILITY TO UPDATE THE TICKET IF WORK WILL CONTINUE PAST 15 DAYS OR IF THE MARKS BECOME ILLEGIBLE DUE TO TIME, WEATHER, CONSTRUCTION OR ANY OTHER CAUSE.
EXCAVATE CAREFULLY – IF THE EXCAVATION IS WITHIN 2 FEET OF A MARKED UTILITY LINE, EXPOSE THE UTILITY LINE BY HAND DIGGING AND KEEP ALL MECHANIZED EQUIPMENT AT LEAST 2 FEET AWAY FROM THE EXTREMITIES OF THE UTILITY.

STANDARD PROJECT LINETYPES			
EXISTING LEGEND		PROPOSED LEGEND	
	EXISTING CONTOUR (MINOR)		PROPOSED CONTOUR (MINOR)
	EXISTING CONTOUR (MAJOR)		PROPOSED CONTOUR (MAJOR)
	STORM INLET		CURB INLET
	STORM STRUCTURE		DROP INLET
	STORM DRAIN		STORM DRAIN
	ELECTRICAL TRANSFORMER		ELECTRICAL TRANSFORMER
	CABLE PEDESTAL		CABLE PEDESTAL
	TELEPHONE/COMMUNICATION PEDESTAL		TELEPHONE/COMMUNICATION PEDESTAL
	OVERHEAD ELECTRIC		OVERHEAD ELECTRIC
	ELECTRICAL		ELECTRICAL
	SANITARY SEWER LINE		SANITARY SEWER LINE
	SANITARY SEWER CLEANOUT		SANITARY SEWER CLEANOUT
	SANITARY SEWER MANHOLE		SANITARY SEWER MANHOLE
	GAS VALVE		GAS VALVE
	GAS TAP		GAS TAP
	GAS LINE		GAS LINE
	GATE/FENCE		GATE/FENCE POST
	PROPERTY LINE		PROPERTY LINE
	ADJACENT LOT LINE		INTERIOR LOT LINE
	FOUND IRON PIN		SETBACK
	P.K. NAIL		GATE VALVE
	FIRE HYDRANT		FIRE HYDRANT
	WATER LINE		WATER LINE
	WATER METER		WATER METER
	WATER VALVE		WATER VALVE
	UTILITY POLE		UTILITY POLE
	LIGHT POLE		LIGHT POLE
	EXISTING INLET LABEL		INLET LABEL
	CATCHMENT AREA		CATCHMENT AREA
	CATCHMENT OUTLET		CATCHMENT OUTLET
	CURB AND GUTTER		30" CURB AND GUTTER (STD CG-6)
	EDGE OF PAVEMENT		REVERSE CURB AND GUTTER (STD CG-6R)
	MAILBOX		6" CURB (STD CG-2)
	WELL		DUMPSTER
	RPA		ASPHALT
	WETLAND		CONCRETE
NOTE: PROJECT STANDARDS SHOWN ABOVE ARE GENERAL LINETYPES AND SYMBOLS USED AMONG A VARIETY OF PROJECTS. NOT ALL INFORMATION SHOWN ABOVE MAY BE APPLICABLE TO THIS PLAN SET. CONTACT DESIGN FIRM TO CONFIRM ANY DIFFERENTIATION OR CONFLICTING INFORMATION.			CALCULATED BUFFER YARD
			CALCULATED OPEN SPACE
			WALL
			DRAINAGE
			ACCESSIBLE PARKING
			LIMITS OF DISTURBANCE

GENERAL NOTES (ALL MAY NOT APPLY):

- WORK IN THIS PROJECT SHALL CONFORM TO THE LATEST EDITIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE SPECIFICATIONS, THE VDOT ROAD AND BRIDGE STANDARDS, THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS, THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK, THE VIRGINIA STORMWATER MANAGEMENT REGULATIONS AND THE TOWN OF FRONT ROYAL STANDARDS AND SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN ANY OF THESE STANDARDS, SPECIFICATIONS OR PLANS, THE MOST STRINGENT SHALL GOVERN. ALL UTILITIES TO BE DEDICATED TO THE TOWN OF FRONT ROYAL WATER AND/OR SANITARY SEWER SYSTEM SHALL BE CONSTRUCTED AND TESTED TO CONFORM TO COMMONWEALTH OF VIRGINIA/STATE BOARD OF HEALTH WATERWORKS AND/OR SEWERAGE REGULATIONS AND THE TOWN OF FRONT ROYAL DESIGN AND CONSTRUCTION STANDARDS MANUAL.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED CONTINUOUSLY, RELOCATED WHEN AND AS NECESSARY, AND SHALL BE CHECKED AFTER EVERY RAINFALL. SEEDED AREAS SHALL BE CHECKED REGULARLY AND SHALL BE WATERED, FERTILIZED, RESEEDED AND MULCHED AS NECESSARY TO OBTAIN A DENSE STAND OF GRASS.
- ALL DRAIN INLETS SHALL BE PROTECTED FROM SILTATION. INEFFECTIVE PROTECTION DEVICES SHALL BE IMMEDIATELY REPLACED AND THE INLET CLEANED. FLUSHING IS NOT AN ACCEPTABLE METHOD OF CLEANING.
- WHEN THE CRUSHED STONE CONSTRUCTION ENTRANCE HAS BEEN COVERED WITH SOIL OR HAS BEEN PUSHED INTO THE SOIL BY CONSTRUCTION TRAFFIC, IT SHALL BE REPLACED WITH A DEPTH OF STONE EQUAL TO THAT OF ORIGINAL APPLICATION.
- THE LOCATION OF EXISTING UTILITIES AS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PUBLIC OR PRIVATE UTILITIES THAT LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING, AT HIS EXPENSE, ALL EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
- FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION CALL MISS UTILITY 1 (800) 552-7001.
- ALL UNDERGROUND FACILITIES LOCATED WITHIN RIGHTS-OF-WAY SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF ANY PART OF THE PAVEMENT STRUCTURE.
- INSTALLATION OF CONCRETE STORM PIPE SHALL COMPLY WITH VDOT STANDARD DRAWING PB-1.
- ALL MATERIALS USED FOR FILL OR BACK-FILL SHALL BE FREE OF WOOD, ROOTS, ROCKS, BOULDERS OR ANY OTHER NON-COMPACTABLE SOIL TYPE MATERIAL. UNSATISFACTORY MATERIALS ALSO INCLUDE MAN-MADE FILLS AND REFUSE DEBRIS DERIVED FROM ANY SOURCE.
- SATISFACTORY MATERIAL FOR USE AS FILL FOR PUBLIC STREETS INCLUDE MATERIAL CLASSIFIED IN ASTM D-2487 AS GW, GP, GM, GC, SW, SP, SM, SC, ML, AND CL GROUPS. THE MOISTURE CONTENT SHALL BE CONTROLLED WITHIN PLUS OR MINUS 2 PERCENTAGE POINTS OF OPTIMUM TO FACILITATE COMPACTION. GENERALLY, UNSATISFACTORY MATERIALS INCLUDE MATERIALS CLASSIFIED IN ASTM D-2487 AS PT, CH, MH, OL, OH, AND ANY SOIL TOO WET TO FACILITATE COMPACTION. CH AND MH SOILS MAY BE USED SUBJECT TO APPROVAL OF THE CITY ENGINEER. SOILS SHALL HAVE A MINIMUM DRY DENSITY OF 92LB/CUBIC FOOT PER ASTM D-698 AND SHALL HAVE A PLASTICITY INDEX LESS THAN 12.
- COMPACTION OF FILL MATERIAL UNDER BUILDING SLABS SHALL BE BASED UPON RECOMMENDATIONS OF SOILS ENGINEER AFTER COMPLETION OF STANDARD PROCTOR TEST AND SHALL MEET BEARING REQUIREMENTS OF ARCHITECT FOR BUILDINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING.
- MATERIALS USED TO CONSTRUCT EMBANKMENTS FOR ANY PURPOSE, BACK-FILL AROUND DRAINAGE STRUCTURES OR IN UTILITY TRENCHES OR ANY OTHER DEPRESSION REQUIRING FILL OR BACK-FILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AS SET OUT IN ASTM STANDARD D-698. THE CONTRACTOR SHALL, PRIOR TO ANY OPERATIONS INVOLVING FILLING OR BACKFILLING, SUBMIT THE RESULT OF THE PROCTOR TEST TO THE CITY'S ON-SITE INSPECTOR TOGETHER WITH A CERTIFICATION THAT THE SOIL TESTED IN REPRESENTATIVE OF THE MATERIALS TO BE USED ON THE PROJECT. TESTS SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND THE CERTIFICATIONS MADE BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY.
- CERTIFICATIONS FOR MATERIALS INCLUDING, BUT NOT LIMITED TO STONE, CONCRETE, PIPES, PRECAST UNITS, HANDRAILS, STABILIZATION MATS, TRAFFIC SIGNAL ITEMS, MUST BE PROVIDED TO THE CITY'S ON-SITE INSPECTOR AND APPROVED BY THE INSPECTOR PRIOR TO INSTALLATION. SEE INSPECTOR FOR MATERIALS CERTIFICATION CHECKLIST.
- EMBANKMENT FILL AND TRENCH BACK-FILL SHALL BE PLACED IN LIFTS AT A MAXIMUM UNCOMPACTED DEPTH OF 8-INCHES AND 6-INCHES, RESPECTIVELY. DENSITY TESTS SHALL BE CONDUCTED AT THE FOLLOWING MINIMUM FREQUENCIES:
 - EMBANKMENT FOR ROADS, STREETS, DAMS, ETC.: ONE TEST PER LIFT PER 10,000 SQUARE FEET OF LIFT.
 - BACK-FILL AROUND STRUCTURES AND IN TRENCHES: ONE TEST PER LIFT PER 500 LINEAL FEET OF TRENCH.
- COMPACTION TESTS FOR STREET PAVEMENT STRUCTURE SHALL BE MADE IN CUT AND FILL AREAS AT THE FOLLOWING MINIMUM FREQUENCIES:
 - SUB-GRADE: ONE TEST PER LANE PER 500 LINEAL FEET.
 - STONE BASE: ONE TEST PER LANE PER 6" COMPACTED LIFT PER 500 LINEAL FEET.
 - HOT ASPHALTIC CONCRETE: ONE TEST PER LANE PER LIFT PER 500 LINEAL FEET.
- ALL EXCAVATIONS, INCLUDING TRENCHES, SHALL BE KEPT DRY TO PROTECT THEIR INTEGRITY.
- TEST RESULTS SHALL BE SUBMITTED TO THE TOWN ENGINEER AND ENGINEER OF RECORD. FAILURE TO CONDUCT DENSITY TESTS AND SUBMIT TEST RESULTS SHALL BE CAUSE FOR NON ACCEPTANCE OF THE FACILITY. TESTS SHALL BE CONDUCTED AT THE SOLE COST OF THE DEVELOPER OR HIS AGENT.
- COMBINATION UNDER-DRAINS TYPE CD-1 SHALL BE INSTALLED AT THE LOWER END OF THE CUT SECTIONS. UNDER-DRAINS TYPE CD-2 SHALL BE INSTALLED AT THE LOW POINT OF ALL VERTICAL CURVES.
- STANDARD UD-1 AND UD-3 UNDER-DRAINS SHALL BE INSTALLED WHERE INDICATED ON PLANS ON FURTHER WHERE DETERMINED NECESSARY IN THE FIELD BY THE COUNTY INSPECTORS.
- TOWN INSPECTORS HAVE FULL AUTHORITY TO REJECT FILL OR BACKFILL MATERIALS, REQUIRE UNDERCUTTING OR SUB GRADE STABILIZATION, REQUIRE PROVISIONS FOR SUB DRAINAGE, OR REQUIRE OTHER MEASURES WHICH AFFECT THE INTEGRITY OF ROAD AND UTILITY CONSTRUCTION. FAILURE TO COMPLY WITH INSPECTORS' DIRECTIVES SHALL BE CAUSE FOR NON-ACCEPTANCE OF THE FACILITY.
- TRAFFIC CONTROL ON PUBLIC STREETS SHALL BE IN CONFORMANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND AS FURTHER DIRECTED BY COUNTY INSPECTORS. TOWN INSPECTORS MUST BE NOTIFIED 24-HOURS IN ADVANCE OF ANY PLANNED WORK OR ACTIVITY IN CITY RIGHT-OF-WAY THAT REQUIRES FLAGGING, LANE CLOSURE OR STREET CLOSURE. ALL SIGNAGE AND OTHER CONTROL DEVICES SHALL BE IN PLACE BEFORE SUCH ACTIVITIES CAN COMMENCE.
- ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER OF RECORD, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH INCONSISTENCIES OR AMBIGUITIES. WORK DONE BY THE CONTRACTOR AFTER HIS DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.
- A PRECONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ARRANGE THE MEETING WITH THE TOWN ENGINEER. AT THIS TIME, THE CONTRACTOR SHALL PROVIDE A SCHEDULE AND TRAFFIC CONTROL PLAN FOR WORK WITHIN THE TOWN RIGHT-OF-WAY.
- INSTALL TOWN STANDARD STREET CENTERLINE MONUMENTS WHERE REQUIRED FOR NEW STREETS.
- IF TRAFFIC SIGNAL PLANS HAVE BEEN REVISED OR CHANGED SINCE APPROVAL, THE DEVELOPER MUST PROVIDE TO THE DIRECTOR OF PUBLIC WORKS AS-BUILT DRAWINGS REFLECTING CHANGES. PROVISION OF AS-BUILT DRAWINGS IS A CONDITION OF BOND RELEASE.



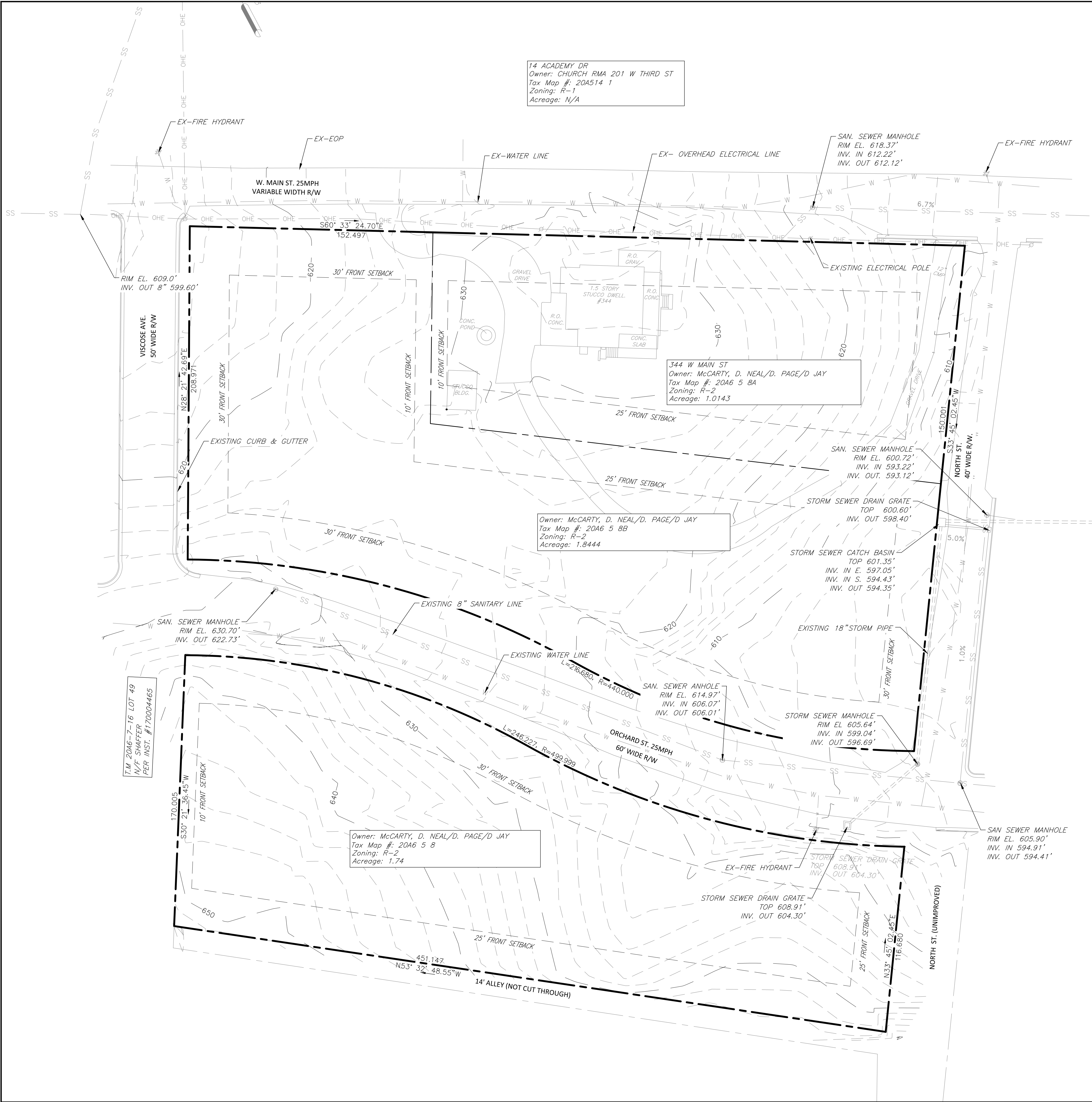
PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT
344 W MAIN ST
FRONT ROYAL, VA 22630

Revisions:		
No.	Description	Date

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

GENERAL NOTES	
Project number:	
Date:	JULY 15, 2024
Drawn by:	xxx
Checked by:	xxx

C1.01



SITE INFORMATION
TAX MAP #: 20A6 5 8 _ 20A6 5 8A _ 20A6 5 8B
DEEDBOOK: NA- DB 517-254_DB 517-254
ACREAGE: 4.6 AC
A: R-2
ADDRESS: 344 W MAIN ST, FRONT ROYAL,
VA 22630
OWNER: MCCARTY DONALD J/MCCARTY DENNIS P
PO BOX 253, CLIFTON, VA 20124

SOIL GROUP			
MAP UNIT SYMOL	MAP UNIT NAME	ACRE S	PERCENT
17C	DRAYKE LOAM, 7 TO 15 PERCENT SLOPES	1.59	34.60 %
23D	LODI SILT LOAM 15 TI 25 PERCENT SLOPES	3.01	65.40 %



PRELIMINARY SITE PLAN
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EXISTING
CONDITIONS

Project number:	
Date:	JULY 15, 2024
Drawn by:	XXX
Checked by:	XXX

C2.01

TOWN OF FRONT ROYAL DEMOLITION NOTES:

1. NO LAND DISTURBING ACTIVITY SHALL OCCUR PRIOR TO OBTAINING A LAND DISTURBANCE PERMIT.
2. ALL WASTES AND UNSUITABLE MATERIALS ARE TO BE LEGALLY DISPOSED OF BY CONTRACTOR, NO BURNING, BURIAL, DISCHARGE, OR DUMPING IS ALLOWED ON SITE.
3. CONTRACTOR RESPONSIBLE FOR COORDINATING WITH ALL APPLICABLE UTILITY COMPANIES AND OWNER AS NECESSARY DURING CONSTRUCTION AND DURING RELOCATION OF EXISTING UTILITIES.
4. CONTRACTOR TO NOTIFY ENGINEER AND APPLICABLE UTILITY SERVICE PROVIDER OF ANY CONFLICTS WITH UNDERGROUND UTILITIES.
5. CONTRACTOR TO SUPPLY THE TOWN OF FRONTROYAL WITH THE NAME AND CERTIFICATION NUMBER OF THE RESPONSIBLE LAND DISTURBER AND POST THE LAND DISTURBANCE BOND AT THE AMOUNT SET BY THE TOWN OF FRONTROYAL WHEN OBTAINING THE LAND DISTURBANCE PERMIT.
6. CONTRACTOR RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMIT, BONDS, AND FEES AT CONTRACTORS EXPENSE FOR THIS PROJECT THAT HAVE NOT BEEN OBTAINED BY OWNER. CONTRACTOR SHALL COORDINATE WITH OWNER.
7. DEMOLITION CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS IN THE FIELD. ANY DISCREPANCIES FOUND SHALL BE REPORTED TO OWNER AND CIVIL ENGINEER PRIOR TO ANY SUBMISSION OF BIDS.
8. ALL PORTIONS OF WORK SHALL BE DONE IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL CODES (ORDINANCES AND STANDARDS).
9. CONTRACTOR TO ESTABLISH AND PROPERLY FLAG EXTERIOR PROPERTY LINES PRIOR TO DEMOLITION.
10. DEMOLITION CONTRACTOR TO ACQUIRE ALL NECESSARY PERMITS TO COMPLETE DEMOLITION. VERIFY WITH THE TOWN OF FRONTROYAL BUILDING DEPARTMENT, ZONING, RIGHT OF WAY, AND ALL OTHER GOVERNING AUTHORITIES.
11. DEMOLITION CONTRACTOR TO NOTIFY UTILITY NOTIFICATION CENTER NO LESS THAN 48 HOURS OR MORE THAN FIVE WORKING DAYS PRIOR TO DEMOLITION OF EXISTING UTILITIES AS REQUIRED BY LOCAL UTILITIES.
12. DEMOLITION CONTRACTOR TO PROVIDE ALL BARRICADES, SCAFFOLDING, AND OTHER MEANS OF PROTECTION REQUIRED TO COMPLY WITH ALL STATE LAWS, AND LOCAL MUNICIPAL ORDINANCES TO SAFEGUARD AGAINST INJURY TO PERSONS AND/OR DAMAGE TO ADJOINING PROPERTIES.
13. ANY FILL MATERIAL REQUIRED SHALL BE CLEAN, NO CONCRETE RUBBLE, ORGANIC MATTER, DEMOLITION DEBRIS, STONES LARGER THAN 2 INCHES IN ANY DIRECTION, ETC.
14. CONTRACTOR RESPONSIBLE FOR REPAIRING ANY DAMAGED SITE ELEMENTS NOT SPECIFICALLY PLANNED FOR DEMOLITION.
15. SAW CUT SHALL BE STAGGERED BETWEEN PAVEMENT AND STONE LAYERS TO ALLOW FOR JOINTED UNION WITH NEW PAVEMENT STRUCTURE.
16. EXISTING BASE STONE MAY REMAIN FOR PROPOSED PAVEMENT IF OF SUFFICIENT DEPTH AND QUALITY, AND IF REMAINING FREE OF FINES.
17. ALL TREES AND DECORATIVE LANDSCAPING OUTSIDE OF DEMO LIMITS SHALL BE PRESERVED OR REPLACED, AS NEEDED.

PROPOSED LEGEND
DEMOLITION

- ASPHALT, CONCRETE, AND ASSOCIATED INFRASTRUCTURE TO BE REMOVED
- BUILDING, WALL AND OVERHANG AREA(S) TO BE REMOVED



PRELIMINARY SITE PLAN
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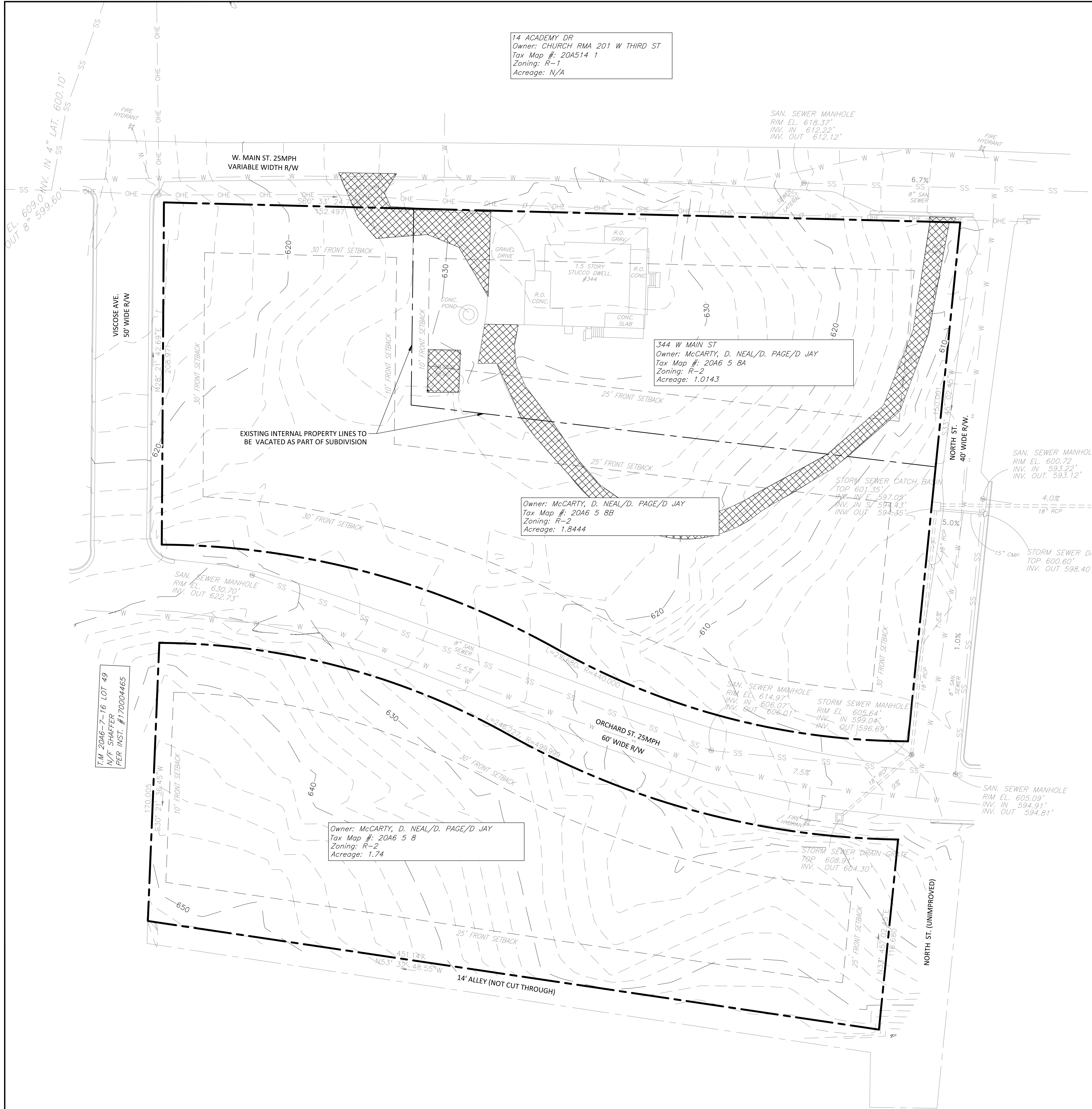
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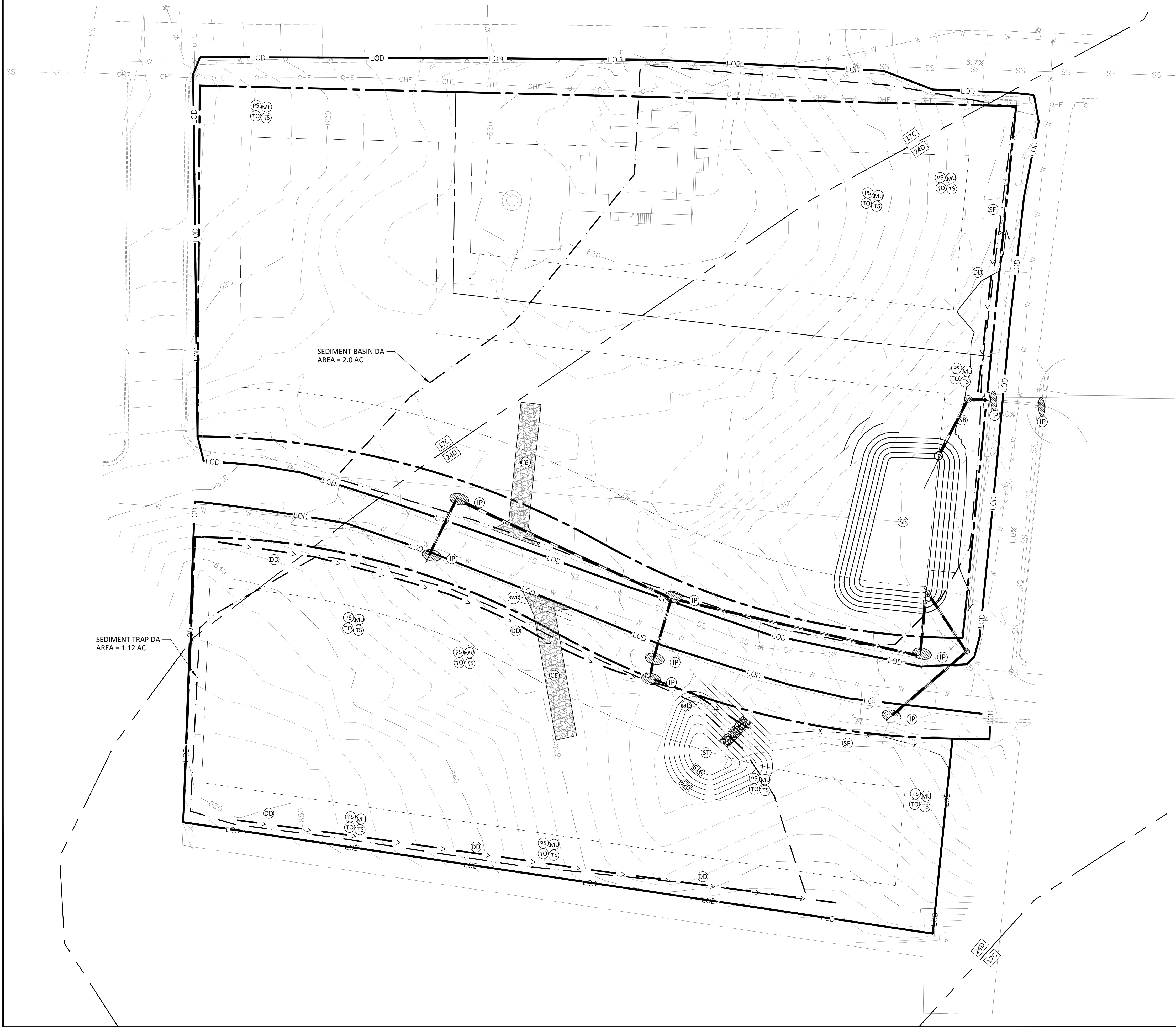
DEMOLITION PLAN

Project number:	
Date:	JULY 15, 2024
Drawn by:	xxx
Checked by:	xxx

C2.02



SOIL GROUP			
MAP UNIT SYMOL	MAP UNIT NAME	ACRES	PERCENT
17C	DRAYKE LOAM,7 TO 15 PERCENT SLOPES	1.52	34.60 %
23D	LODI SILT LOAM 15 TI 25 PERCENT SLOPES	3.01	65.40 %



PROPOSED EROSION AND SEDIMENT CONTROL LEGEND		
(CE)	CONSTRUCTION ENTRANCE (3.02)	
(CRS)	CONSTRUCTION ROAD STABILIZATION (3.03)	
(SF)	SILT FENCE (3.05)	
(IP)	STORM DRAIN INLET PROTECTION (3.07)	
(DD)	TEMPORARY DIVERSION DIKE (3.09)	
(ST)	TEMPORARY SEDIMENT TRAP (3.13)	
(TO)	TOP SOILING (3.30)	
(TS)	TEMPORARY SEEDING (3.31)	
(PS)	PERMANENT SEEDING (3.32)	
(MU)	MULCHING (3.35)	
(DC)	DUST CONTROL (3.39)	
LIMITS OF DISTURBANCE		
(SB)	TEMPORARY SEDIMENT BIEN (3.14)	
(RWD)	TEMPORARY RIGHT-OF-WAY DIVERSION (3.11)	

EROSION AND SEDIMENT CONTROL SEQUENCING

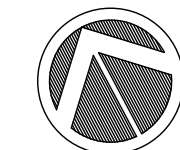
- SOILS ON SITE ARE LIKELY TO BE URBAN SOILS COMPACTED AND MIXED FROM PREVIOUS DEVELOPMENT.
- A COPY OF EROSION & SEDIMENT CONTROL PLANS AND PERMIT MUST BE KEPT ON SITE AT ALL TIMES.
- ALL PUMPING OF SEDIMENT LADEN WATER FROM EXCAVATIONS SHALL BE THROUGH A SEDIMENT FILTER BAG OVER A STABILIZED SURFACE.
- CONCRETE WASH WATER SHALL BE HANDLED IN ACCORDANCE WITH LOCAL ORDINANCES. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE OR GROUND WATER SYSTEMS.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES.

PHASE I:

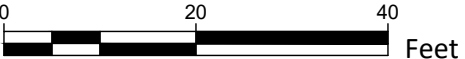
- CONTRACTOR IS TO SCHEDULE PRE-CONSTRUCTION MEETING WITH TOWN AND ENGINEER OF RECORD.
- NOTIFY TOWN OF FRONT ROYAL AT LEAST 1 WEEK PRIOR TO LAND DISTURBING ACTIVITIES.
- INSTALL INLET PROTECTION ON THE EXISTING INLET LOCATIONS ADJACENT TO SITE.
- INSTALL CONSTRUCTION ENTRANCE, PERIMETER CONTROLS (E.G. SILT FENCING, DIVERSIONS), CONSTRUCTION ROAD STABILIZATION AND SEDIMENT TRAP.
- 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 THE PAVED ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY WITH DRY METHODS (NO WASHING) AT THE END OF EACH DAY.
- CLEAR AND GRUB SITE.
- REMOVE AND STOCKPILE TOPSOIL FOR REUSE AT CLOSE OF PROJECT.
- COMMENCE ROUGH GRADING, CUT AND FILL. PLACE FILL IN LIFTS NO GREATER THAN 8", COMPACT TO 95% MAX PROCTOR DENSITY. DO NOT PLACE FILL IF IN SITU SOIL OR FILL MATERIAL IS SATURATED OR FROZEN. GRADE SITE SO THAT ALL AREAS WITHIN SEDIMENT TRAP DRAINAGE AREA, AS DEPICTED ON PHASE I E&S PLAN, DRAIN TO SEDIMENT TRAP PRIOR TO FINAL GRADING.

PHASE II:

- INSTALL STORM DRAIN SYSTEM, STORM DETENTION TANKS, AND INLET PROTECTION AS EACH INLET IS INSTALLED. STORMTECH STRUCTURE #1 TO BE INSTALLED AFTER DECOMMISSIONING SEDIMENT TRAP.
- INSTALL SITE UTILITIES.
- INSTALL RETAINING WALLS AND BUILDING FOUNDATION. FILL AREAS SHALL SLOPE TOWARDS SEDIMENT TRAP DRAINAGE AREA UNTIL FINAL GRADING IS ESTABLISHED.
- BRING BUILDING PAD TO GRADE AND STABILIZE.
- BRING PARKING AREA TO GRADE AND STABILIZE.
- BRING SITE TO FINAL GRADE AND PLACE CRS AND TS AS DEPICTED IN PHASE II E&S PLAN. DECOMMISSION SEDIMENT TRAP ONLY AFTER CRS AND TS ARE IN PLACE.
- INSTALL STORMTECH STRUCTURE #1.
- UPON TEMPORARY CESSATION OF AN EARTH DISTURBING ACTIVITY OR ANY STAGE OR PHASE OF AN ACTIVITY WHERE A CESSATION OF EARTH DISTURBANCE WILL EXCEED 14 DAYS THE SITE SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBING ACTIVITIES.
- IMMEDIATELY AFTER EARTH DISTURBING ACTIVITIES CEASE, THE CONTRACTOR SHALL STABILIZE THE DISTURBED AREAS. IF WEATHER DOES NOT PERMIT VEGETATION, MULCH MUST BE APPLIED (VESCH - 3.35).
- INSTALL CURBS AND ASPHALT PAVING, AND SIDEWALKS.
- IN AREAS TO BE TOPSOILED AND PLANTED SCARIFY SUBSOIL 6 TO 12 INCHES PRIOR TO PLACEMENT OF TOPSOIL. ALL AREAS TO BE VEGETATED SHALL HAVE 4 INCHES MINIMUM TOPSOIL. TOPSOIL SHALL NOT BE PLACED WHEN FROZEN OR EXCESSIVELY WET.



SCALE: 1" = 30'-0"



PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT

344 W MAIN ST
FRONT ROYAL, VA 22630

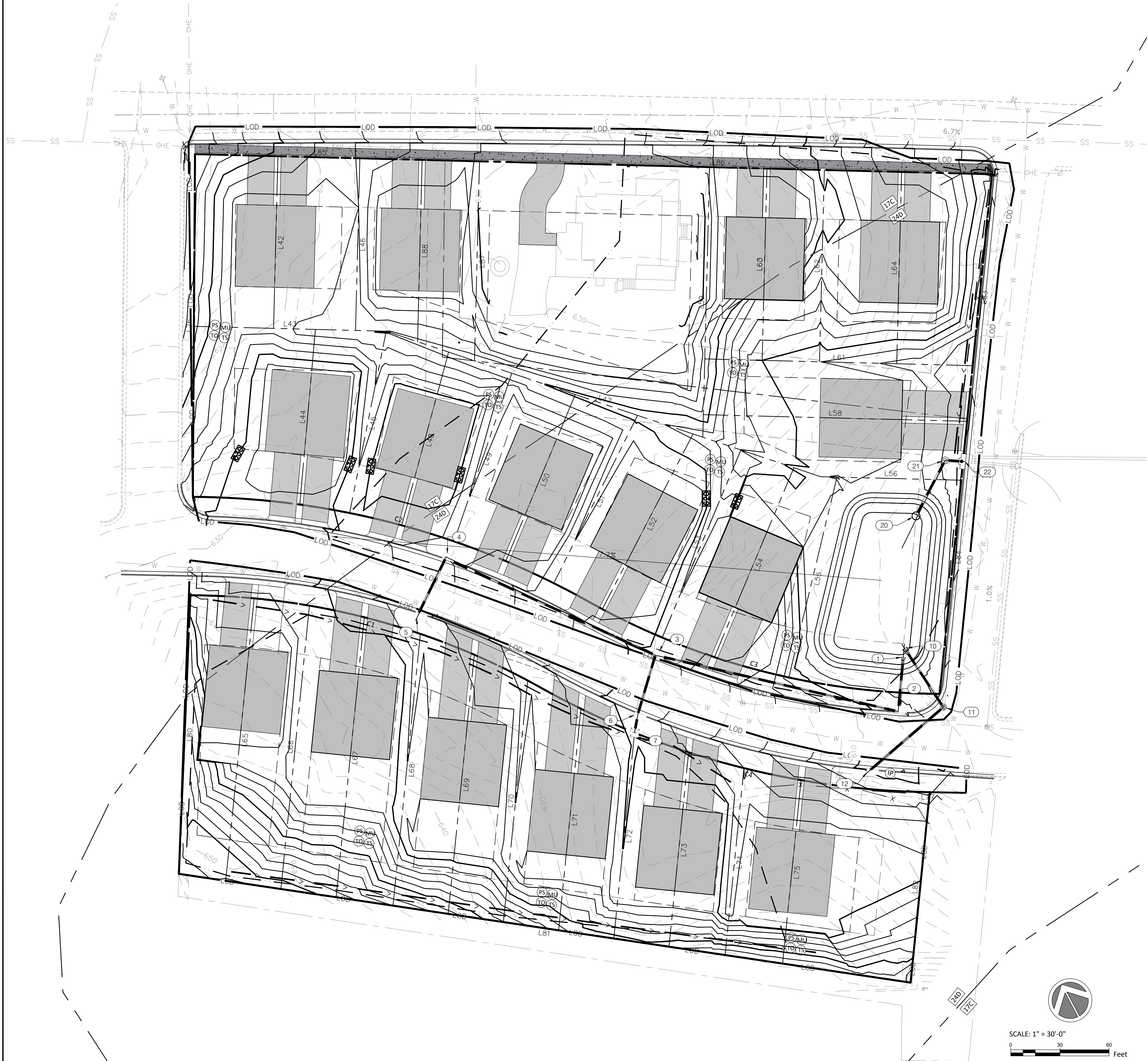
Revisions:		
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PRELIMINARY ISSUE
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EROSION & SEDIMENT
PHASE I

Project number:	
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Drawn by:	xxx
Checked by:	xxx

C3.01



PROPOSED EROSION AND SEDIMENT CONTROL LEGEND

CE	CONSTRUCTION ENTRANCE (3.02)	
CRS	CONSTRUCTION ROAD STABILIZATION (3.03)	
SF	SILT FENCE (3.05)	
IP	STORM DRAIN INLET PROTECTION (3.07)	
DD	TEMPORARY DIVERSION DIKE (3.09)	
ST	TEMPORARY SEDIMENT TRAP (3.13)	
TO	TOP SOILING (3.30)	
TS	TEMPORARY SEEDING (3.31)	
PS	PERMANENT SEEDING (3.32)	
ML	MULCHING (3.35)	
DC	DUST CONTROL (3.39)	
	LIMITS OF DISTURBANCE	

EROSION AND SEDIMENT CONTROL SEQUENCING

- SOILS ON SITE ARE LIKELY TO BE URBAN SOILS COMPACTED AND MIXED FROM PREVIOUS DEVELOPMENT.
- A COPY OF EROSION & SEDIMENT CONTROL PLANS AND PERMIT MUST BE KEPT ON SITE AT ALL TIMES.
- ALL PUMPING OF SEDIMENT LADEN WATER FROM EXCAVATIONS SHALL BE THROUGH A SEDIMENT FILTER BAG OVER A STABILIZED SURFACE.
- CONCRETE WASH WATER SHALL BE HANDLED IN ACCORDANCE WITH LOCAL ORDINANCES. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE OR GROUND WATER SYSTEMS.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES.

PHASE I:

- CONTRACTOR IS TO SCHEDULE PRE-CONSTRUCTION MEETING WITH TOWN AND ENGINEER OF RECORD.
- NOTIFY TOWN OF FRONT ROYAL AT LEAST 1 WEEK PRIOR TO LAND DISTURBING ACTIVITIES.
- INSTALL INLET PROTECTION ON THE EXISTING INLET LOCATIONS ADJACENT TO SITE.
- INSTALL CONSTRUCTION ENTRANCE, PERIMETER CONTROLS (E.G. SILT FENCING, DIVERSIONS), CONSTRUCTION ROAD STABILIZATION AND SEDIMENT TRAP.
- 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 WITH DRY METHODS (NO WASHING) AT THE END OF EACH DAY.
- CLEAR AND GRUB SITE.
- REMOVE AND STOCKPILE TOPSOIL FOR REUSE AT CLOSE OF PROJECT.
- COMMENCE ROUGH GRADING, CUT AND FILL. PLACE FILL IN LIFTS NO GREATER THAN 8", COMPACT TO 95% MAX PROCTOR DENSITY. DO NOT PLACE FILL IF IN SITU SOIL OR FILL MATERIAL IS SATURATED OR FROZEN. GRADE SITE SO THAT ALL AREAS WITHIN SEDIMENT TRAP DRAINAGE AREA, AS DEPICTED ON PHASE I E&S PLAN, DRAIN TO SEDIMENT TRAP PRIOR TO FINAL GRADING.

PHASE II:

- INSTALL STORM DRAIN SYSTEM, STORM DETENTION TANKS, AND INLET PROTECTION AS EACH INLET IS INSTALLED. STORMTECH STRUCTURE #1 TO BE INSTALLED AFTER DECOMMISSIONING SEDIMENT TRAP.
- INSTALL SITE UTILITIES.
- INSTALL RETAINING WALLS AND BUILDING FOUNDATION. FILL AREAS SHALL SLOPE TOWARDS SEDIMENT TRAP DRAINAGE AREA UNTIL FINAL GRADING IS ESTABLISHED.
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- BRING SITE TO FINAL GRADE AND PLACE CRS AND TS AS DEPICTED IN PHASE II E&S PLAN. DECOMMISSION SEDIMENT TRAP ONLY AFTER CRS AND TS ARE IN PLACE.
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PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT
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Revisions:		
No.	Description	Date

PRELIMINARY ISSUE
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EROSION & SEDIMENT PHASE II

Project number:	
Date:	JULY 15, 2024
Drawn by:	XXX
Checked by:	XXX

C3.02

EROSION AND SEDIMENT CONTROL NARRATIVE

1. PROJECT DESCRIPTION: THIS PROJECT WILL CONSIST OF 32 NEW DUPLEX RESIDENTIAL LOTS/HOMES. THE DISTURBED AREA FOR THIS PROJECT WILL BE 4.59 AC.
2. EXISTING SITE CONDITIONS: THIS SITE IS LOCATED AT FRONT ROYAL, VA 22630 , AND PROJECT AREA CONSISTS OF AN EXISTING VEGETATION ,STRUCTURES AND HOUSE. SLOPES RANGE FROM 0 TO 12.
3. ADJACENT AREAS: THIS PARCEL AND ALL ADJOINING PARCELS ARE ZONED R-2 THE PARCEL IS SINGLE FAMILY RESIDENTIAL URBAN (TOWN).
4. OFF-SITE AREAS: THIS SITE WILL REQUIRE EXPORT OF SOIL OFF SITE. ANY OFF-SITE LAND-DISTURBING ACTIVITY ASSOCIATED WITH THE PROJECT MUST BE PERMITTED THROUGH THE APPROPRIATE JURISDICTION.
5. SOILS: THE SITE LIES IN THE FOLLOWING SOIL TYPES:
- DRAYKE LOAM AND LODI SILT LOAM (17C, 24D)
- SEE SHEET C3.01 AND CALCULATION PACKET FOR ADDITIONAL SOIL DESCRIPTION AND INFORMATION.
6. CRITICAL AREAS: THERE ARE 2 SEDIMENT TRAPS, SEVERAL SMALL CHANNELS ON SITE, ALL NECESSARY REQUIREMENTS SHOULD BE TAKEN TO PREVENT EROSION . STEEP SLOPES ON SITE WILL BE LINED WITH RIP-RAP OR EROSION CONTROL MATTING TO STABILIZE THE SLOPE AND PREVENT EROSION.
7. EROSION AND SEDIMENT CONTROL MEASURES: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, THIRD EDITION, 1992, AS WELL AS ANY ADDITIONAL MEASURES REQUIRED BY APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
- STRUCTURAL PRACTICES
- 3.02 - CONSTRUCTION ENTRANCE - A STABILIZED STONE PAD WITH FILTER FABRIC UNDERLINER LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.
- MAINTENANCE: WHEN STONE IS CHOKED WITH SEDIMENT PERIODIC TOP DRESSING WITH ADDITIONAL STONE, WASH AND REWORKING OF THE EXISTING TONE AS CONDITIONS DEMAND AND/OR CLEANOUT OF TRAPPED SEDIMENT.*
- 3.05SILT FENCE BARRIER - A TEMPORARY SEDIMENT BARRIER CONSISTING OF A SYNTHETIC FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED.
- MAINTENANCE: SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.*
- 3.07STORM DRAIN INLET PROTECTION - A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.
- MAINTENANCE: STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP.*
- 3.08CULVERT INLET PROTECTION - A SEDIMENT FILTER LOCATED AT THE INLET TO STORM CULVERTS.
- MAINTENANCE: STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. AGGREGATE SHALL BE REPLACED OR CLEANED WHEN INSPECTION REVEALS THAT CLOGGED VOIDS ARE CAUSING PONDING PROBLEMS WHICH INTERFERE WITH ON-SITE CONSTRUCTION. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP.*
- 3.09TEMPORARY DIVERSION DIKE - A TEMPORARY RIDGE OF COMPACTED SOIL CONSTRUCTED AT THE TOP OR BASE OF A SLOPING DISTURBED AREA.
- MAINTENANCE: THE MEASURE SHALL BE INSPECTED AFTER EVERY STORM AND REPAIRS MADE TO THE DIKE, FLOW CHANNEL, OUTLET OR SEDIMENT TRAPPING FACILITY, AS NECESSARY. ONCE EVERY TWO WEEKS, WHETHER A STORM EVEN HAS OCCURRED OR NOT, THE MEASURE SHALL BE INSPECTED AND REPAIRS MADE IF NEEDED. DAMAGES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.*
- 3.12DIVERSION - A CHANNEL CONSTRUCTED ACROSS A SLOPE WITH SUPPORTING EARTHEN RIDGE ON LOWER SIDE.
- MAINTENANCE: BEFORE FINAL STABILIZATION, THE DIVERS SHALL BE INSPECTED AFTER EVERY RAINFALL AND AT LEAST ONCE EVERY TWO WEEKS. SEDIMENT SHALL BE REMOVED FROM THE CHANNEL AND REPAIRS MADE AS NECESSARY. SEEDED AREAS WHICH FAIL TO ESTABLISH A VEGETATIVE COVER SHALL BE RESEEDED AS NECESSARY.*
- 3.13TEMPORARY SEDIMENT TRAP - A TEMPORARY PONDING AREA FORMED BY CONSTRUCTING AN EARTHEN EMBANKMENT WITH A STONE OUTLET.
- MAINTENANCE: SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN VOLUME OF THE WET STORAGE. SEDIMENT REMOVED FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS. FILTER STONE SHALL BE REGULARLY CHECKED TO INSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOCKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED. THE STRUCTURE SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE HEIGHT OF THE STONE OUTLET SHOULD BE CHECKED TO ENSURE THAT ITS CENTER IS AT LEAST ONE FOOT BELOW THE TOP OF THE EMBANKMENT.*
- 3.18OUTLET PROTECTION - STRUCTURALLY LINED APRONS OR OTHER ACCEPTABLE ENERGY DISSIPATING DEVICES PLACED AT THE OUTLETS OF PIPES OR PAVED CHANNEL SECTIONS.
- 3.20ROCK CHECK DAMS - SMALL TEMPORARY STONE DAMS CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH.
- MAINTENANCE: CHECK DAMS SHOULD BE CHECKED OF SEDIMENT ACCUMULATION AFTER EACH RUNOFF-PRODUCING STORM EVENT. SEDIMENT SHOULD BE REMOVED WHEN IT REACHED ON HALF OF THE ORIGINAL HEIGHT OF THE MEASURE. REGULAR INSPECTION SHOULD BE MADE TO INSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES. EROSION CAUSED BY HIGH FLOWS AROUND THE EDGES OF THE DAM SHOULD BE CORRECTED IMMEDIATELY.*
- 3.26DEWATERING STRUCTURE - A TEMPORARY SETTLING AND FILTER DEVICE FOR WATER WHICH IS DISCHARGED FROM DEWATERING ACTIVITIES.
- MAINTENANCE: FILTER DEVICES MUST BE INSPECTED FREQUENTLY AND REPAIRED OR REPLACED ONCE SEDIMENT BUILD-UP PREVENTS THE STRUCTURE FROM FUNCTIONING AS DESIGNED*
- VEGETATIVE PRACTICES
- 3.30 - TOPSOIL (STOCKPILE) - METHODS OF PRESERVING AND USING THE SURFACE LAYER OF UNDISTURBED SOIL, OFTEN ENRICHED IN ORGANIC MATTER, IN ORDER TO OBTAIN A MORE DESIRABLE PLANTING AND GROWTH MEDIUM.
- 3.31 - TEMPORARY SEEDING - THE ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS BY SEEDING WITH APPROPRIATE RAPIDLY GROWING ANNUAL PLANTS.
- 3.32 - PERMANENT SEEDING - THE ESTABLISHMENT OF PERENNIAL VEGETATIVE COVER ON DISTURBED AREAS BY PLANTING SEED.
- 3.35 - MULCHING - APPLICATION OF PLANT RESIDUES OTHER SUITABLE MATERIALS TO THE SOIL SURFACE.
- 3.39 - DUST CONTROL - REDUCING SURFACE AND AIR MOVEMENT OF DUST DURING LAND DISTURBING, DEMOLITION, AND CONSTRUCTION ACTIVITIES.

8. PERMANENT STABILIZATION: ALL DISTURBED AREAS SHALL BE STABILIZED WITH PERMANENT SEEDING WITHIN SEVEN WORKING DAYS OF FINAL GRADING, WEATHER AND SOIL CONDITIONS PERMITTING, AS SPECIFIED IN THE PROJECT'S STANDARDS AND SPECIFICATIONS FOR VIRGINIA.
9. STORMWATER RUNOFF CONSIDERATIONS: THIS SITE PLAN COVERS GRADING AND CONSTRUCTION FOR A RESIDENTIAL DEVELOPMENT IN FRONT ROYAL, VA. THIS PLAN INCLUDES THE CONSTRUCTION OF UTILITIES, ROAD WIDENING, AND BUILDING PAD GRADING. THIS PLAN PROPOSES AN INCREASE OF 1.01 ACRES OF IMPERVIOUS AREA. IN THE EXISTING CONDITION, THE SITE IS COVERED BY AREAS OF GRASS, WOODLAND, AND SHRUBS. THERE IS AN EXISTING BUILDING AND GRAVEL ROADS, WHICH THE BUILDING WILL REMAIN, THE GRAVEL ROAD WILL BE REMOVED IN NEW PROPOSED LOTS. SITE SLOPES RANGE FROM 2-25%. THE SITE HAS BEEN DIVIDED INTO THREE POINTS OF ANALYSIS TO EVALUATE COMPLIANCE WITH STORMWATER MANAGEMENT REGULATIONS. POA.#1 AT THE EXISTING INLET STRUCTURE ON NORTH ST. IN THE DEVELOPED CONDITION, RUNOFF FROM THIS SITE AREA IS DIRECTED TOWARD A DETENTION BASIN AND THEN DISCHARGED TO THE EXISTING STRUCTURE. POA.#2 THE NORTHWEST PORTION OF THE SITE RECEIVES AN UNCONTROLLED AREA WITHIN THE SITE BOUNDARY. POA #3, LOCATED ON THE SOUTHEAST SIDE OF THE PROPERTY, RECEIVES AN UNCONTROLLED DRAINAGE AREA.
- WATER QUALITY COMPLIANCE FOR THE SITE IS ACHIEVED BY PURCHASING 3.13 LB/YR.

- 10.MAINTENANCE: THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF EROSION AND SEDIMENT CONTROLS. TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH THE APPROVED PROJECT SPECIFIC STANDARDS AND SPECIFICATIONS. REPAIR OF ALL INEFFECTIVE TEMPORARY ESC MEASURES SHALL OCCUR WITHIN 24 HOURS OF IDENTIFICATION, OR AS SOON AS CONDITIONS ALLOW IF COMPLIANCE WITH THIS TIME FRAME WOULD RESULT IN GREATER ENVIRONMENTAL IMPACTS. TEMPORARY BMPS WILL BE REMOVED UPON ACHIEVING VEGETATIVE STABILIZATION. DISTURBED AREAS NOT ATTAINING AN ACCEPTABLE VEGETATIVE COVER SHALL BE RE-SEEDED AS NEEDED UNTIL STABILIZATION IS ACHIEVED. TEMPORARY ESC BMPS SHOULD BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL RESULTING FROM REMOVAL OF BMPS OR VEGETATION SHALL BE PERMANENTLY STABILIZED ON SITE.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

- ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 9VAC25-840 EROSION AND SEDIMENT CONTROL REGULATIONS.
- ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE 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.
- ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-5: PRIOR TO COMMENCING LAND-DISTURBING ACTIVITIES IN AREAS OTHER THAN 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.
- ES-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.
- ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
- MINIMUM STANDARDS (MS):
- ALL LAND-DISTURBING ACTIVITIES UNDERTAKEN ON PRIVATE AND PUBLIC LANDS IN THE COMMONWEALTH OF VIRGINIA MUST MEET THE 19 "MINIMUM STANDARDS" FOR ESC IN SECTION 9VAC25-840-40 OF THE VIRGINIA ESC REGULATIONS. THE APPLICANT WHO SUBMITS THE ESC PLAN TO THE PROGRAM AUTHORITY FOR APPROVAL IS RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE MINIMUM STANDARDS THAT APPLY TO HIS/HER ACTIVITIES.
- MS-1: SOIL STABILIZATION. 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 SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
- MS-2 SOIL STOCKPILE STABILIZATION. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES 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 PERMANENT STABILIZATION. 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 & TRAPS. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
- MS-5 STABILIZATION OF EARTHEN STRUCTURES. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- MS-6 SEDIMENT TRAPS & SEDIMENT BASINS. 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. SEDIMENT TRAPS:
1. ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
 2. MINIMUM STORAGE CAPACITY OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA.
- B. SEDIMENT BASINS:
1. CONTROL DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES.
 2. MINIMUM STORAGE CAPACITY OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA.
 3. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A TWENTY-FIVE YEAR STORM OF 24-HOUR DURATION.
- MS-7 CUT AND FILL SLOPES DESIGN & CONSTRUCTION. 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 DOWN SLOPES. 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 SLOPE MAINTENANCE. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
- MS-10 STORM SEWER INLET PROTECTION. 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 STORMWATER CONVEYANCE PROTECTION. 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 WORK IN LIVE WATERCOURSE. 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 EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
- MS-13 CROSSING LIVE WATERCOURSE. 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 NONERODIBLE MATERIAL SHALL BE PROVIDED.
- MS-14 REGULATION OF WATERCOURSE CROSSING. ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
- MS-15 STABILIZING OF WATERCOURSE. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
- MS-16 UNDERGROUND UTILITY LINE INSTALLATION. 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.
- E. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.

F. APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.

MS-17 VEHICULAR SEDIMENT TRACKING. 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. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. 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 REMOVAL OF TEMPORARY MEASURES. 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 VESCP AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

MS-19 STORMWATER MANAGEMENT. 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. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MANMADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS:

- 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:
1. 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
 - 1.1. 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.
 - 1.2. ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A 10-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
 - 1.3. PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
- C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
1. IMPROVE THE CHANNELS TO A CONDITION WHERE A 10-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, THE BED, OR THE BANKS; OR
 2. IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
 3. 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 10-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
 4. PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.
- 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 CONDITION OF THE SUBJECT PROJECT.
- F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
- G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED 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 THAT MAY CAUSE 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 MANAGEMENT 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 CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
- K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.
- L. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO:
1. DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS;
 2. DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND
 3. REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MANMADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:65 OF THE ACT.
- M. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMPP) REGULATION OR ARE EXEMPT PURSUANT TO SUBDIVISION C 7 OF § 62.1-44.15:34 OF THE ACT.
- N. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMPP) REGULATION SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF THIS SUBDIVISION 19.



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PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT

344 W MAIN ST
FRONT ROYAL, VA 22630

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

EROSION &
SEDIMENT NOTES

Project number:		
Date:	JULY 15, 2024	
Drawn by:	xxx	
Checked by:	xxx	

C3.03

BUILDING INFORMATION:

DUPLEX (2 UNITS) BUILDING SIZE: 2,400 SF (48'W x 50' D)
UNIT SIZE: (A) 1,200 SF (24' W x 50' D)

ZONING INFORMATION:

ZONING: R-2
FRONT SETBACK: 30'
CORNER SIDE: 25'
SIDE YARD: 10'
REAR YARD: 25'
FRONTAGE: 70' (AT SETBACK LINE)
CORNER LOT FRONTAGE: 100' (AT SETBACK LINE)

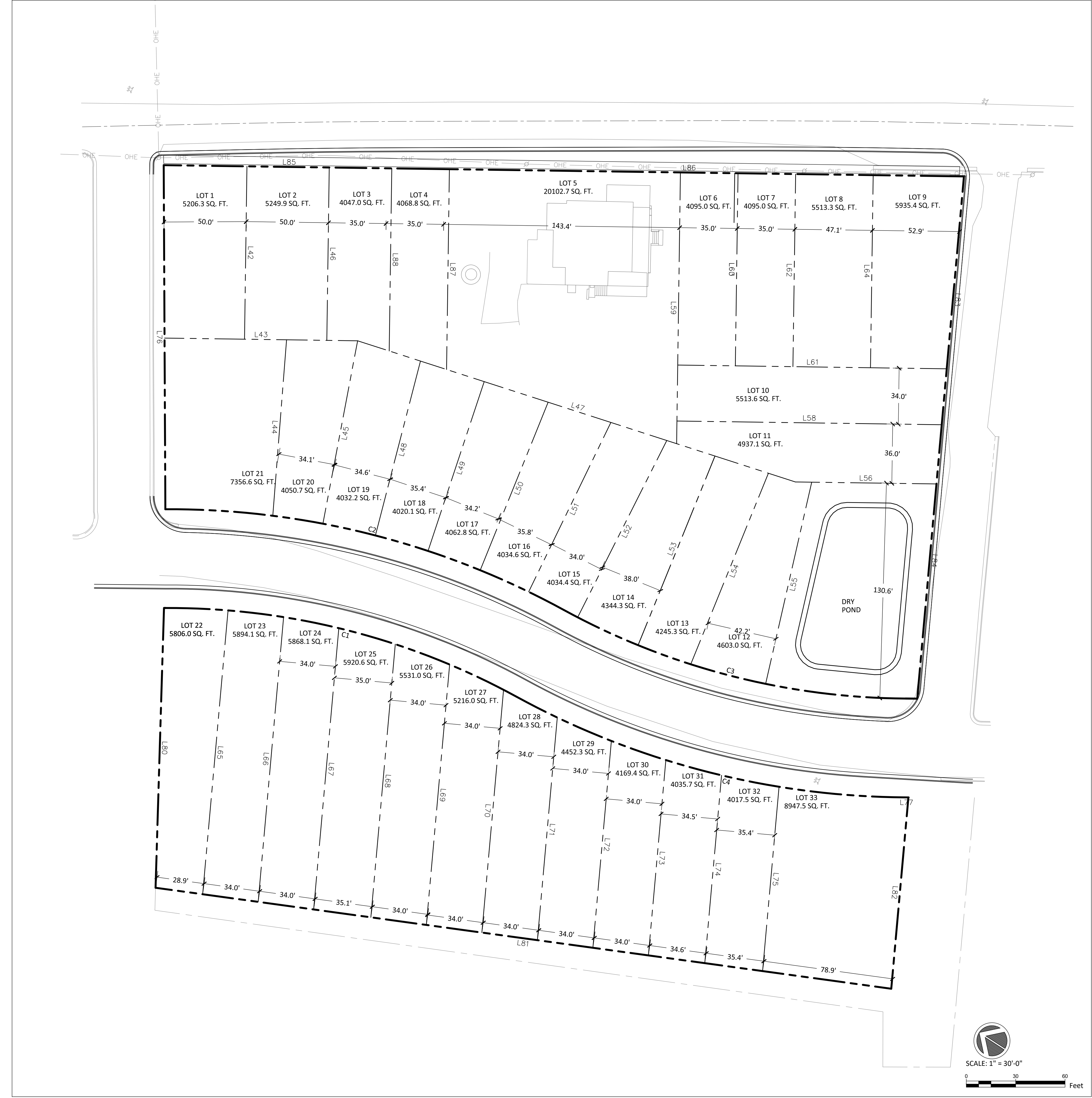
NOTE:

STRUCTURES SHALL BE LOCATED THIRTY (30) FEET OR MORE FROM ANY STREET RIGHT-OF-WAY WHICH IS 50 FEET OR GREATER IN WIDTH OR 55 FEET OR MORE FROM THE CENTER OF ANY STREET RIGHT-OF-WAY LESS THAN 50 FEET IN WIDTH; HOWEVER, NO BUILDING NEED BE SET BACK MORE THAN THE AVERAGE OF THE SETBACKS OF THE IMMEDIATELY ADJOINING STRUCTURES ON EITHER SIDE.

THE MINIMUM LOT SIZE FOR A DUPLEX STRUCTURE IS 8,000 SQUARE FEET. A DUPLEX LOT MAY BE FURTHER SUBDIVIDED INTO SEPARATE PARCELS FOR EACH DWELLING UNIT OF THE DUPLEX, PROVIDED THAT THE RESULTING LOT SIZE FOR EACH DUPLEX DWELLING UNIT IS A MINIMUM OF 4,000 SQUARE FEET.

THE MINIMUM LOT WIDTH AT THE SETBACK LINE SHALL BE SEVENTY (70) FEET.

EACH CORNER LOT SHALL HAVE A MINIMUM WIDTH AT THE SETBACK LINE OF ONE HUNDRED (100) FEET



Line Table		
Line #	Length	Direction
L84	168.455	S33° 44' 38.30"W
L83	150.001	S33° 45' 02.45"W
L80	170.005	S30° 21' 36.45"W
L81	451.147	N53° 32' 48.55"W
L82	116.680	N33° 45' 02.45"E
L66	173.636	N33° 45' 02.45"E
L64	117.000	N29° 26' 31.45"E
L62	117.000	N29° 26' 31.45"E
L63	117.000	N29° 26' 31.45"E
L59	164.755	N29° 26' 31.45"E
L44	107.199	N33° 06' 36.89"E
L45	113.066	S39° 23' 35.28"W
L49	108.366	S46° 59' 27.67"W
L48	109.399	S43° 08' 14.65"W
L58	160.884	S60° 33' 28.55"E
L50	110.058	S50° 38' 51.73"W
L51	114.356	S54° 31' 42.04"W
L52	120.276	S55° 23' 10.01"W
L54	125.252	S50° 46' 14.36"W
L55	125.758	S41° 30' 50.79"W

Line Table		
Line #	Length	Direction
L68	166.547	S33° 45' 02.45"W
L70	148.020	N33° 45' 02.45"E
L72	126.134	S33° 45' 02.45"W
L74	114.537	S33° 45' 02.45"W
L75	112.394	S33° 45' 02.45"W
L73	119.122	S33° 45' 02.45"W
L71	135.763	S33° 45' 02.45"W
L65	173.076	S33° 45' 02.45"W
L67	171.545	S33° 45' 02.45"W
L69	158.806	S33° 45' 02.45"W
L47	279.421	S43° 29' 32.33"E
L53	124.033	N50° 46' 14.36"E
L86	333.710	S60° 33' 28.55"E
L85	152.497	S60° 33' 24.70"E
L61	163.445	S60° 33' 28.55"E
L56	85.713	S60° 33' 28.55"E
L43	117.312	S60° 33' 24.70"E
L76	208.971	N28° 21' 42.69"E
L42	105.000	S29° 26' 34.71"W
L46	105.000	S29° 26' 34.71"W

Line Table		
Line #	Length	Direction
L88	110.919	S29° 26' 34.71"W
L87	121.663	S29° 26' 34.71"W

Curve Table			
Curve #	Length	Radius	Delta
C1	222.081	439.985	028.9199
C2	252.358	499.983	028.9191
C3	216.680	440.000	028.2156
C4	246.227	499.999	028.2156



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SQUIRREL HILL DEVELOPMENT
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PRELIMINARY
SUBDIVISION PLAT

Project number:	
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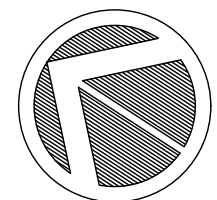


- SIGNAGE & STRIPING NOTES:**
1. STOP SIGNAGE SHALL MATCH MUTCD STANDARDS FOR R1-1 , AND SHALL MEASURE 30"x30".
 2. DO NOT ENTER SIGNAGE SHALL MATCH MUTCD STANDARDS FOR R5-1, AND SHALL MEASURE 30"x30".
 3. ONE WAY SIGNAGE SHALL MATCH MUTCD STANDARDS FOR R6-1(RIGHT), AND SHALL MEASURE 54"x18".
 4. ADA SIGNAGE SHALL MATCH CODE OF VIRGINIA SECTION 36-99.11, AND SHALL MEASURE 12"x18" WITH VAN ACC. PLAQUE MEASURING 12"x6".
 5. SIGNAGE SHALL BE MOUNTED SUCH THAT 7" OF CLEARANCE EXISTS BETWEEN BOTTOM OF SIGN AND THE GROUND.
 6. SIGNS SHALL BE OF METAL CONSTRUCTION.
 7. SIGNS SHALL BE SECURELY MOUNTED TO THE POST, PERPENDICULAR TO THE FLOW OF TRAFFIC.
 8. POSTS SHALL BE 2-IN, 14-GA SQUARE TUBE WITH BREAKAWAY BASE, IN CONFORMANCE WITH VDOT STD. STP-1.
 9. POSTS SHALL BE PLACED SO THAT 24"-60" EXISTS BETWEEN EDGE OF SIGN AND FACE OF CURB (NOT APPLICABLE TO ADA SIGNAGE, WHICH SHALL BE PLACED IN ACCORDANCE WITH ASSOCIATED REGULATIONS).
 10. UNLESS OTHERWISE NOTED, ALL LINES SHALL BE 4"-WIDE.
 11. STOP BAR TO MEASURE 24"-WIDE, EXTEND FROM GUTTER PAN TO DRIVEWAY CENTERLINE, AND BE PLACED SUCH THAT 4" EXISTS BETWEEN CLOSEST EDGE OF STOP BAR AND EXTERIOR EDGE OF CROSSWALK.
 12. DO NOT ENTER BAR TO MEASURE 24"-WIDE AND EXTEND FROM GUTTER PAN TO GUTTER PAN.
 13. STOP BAR, DO NOT ENTER BAR, AND CROSSWALK MARKINGS SHALL BE PREFORMED THERMOPLASTIC (TYPE B, CLASS I ALKYD.).
 14. ALL OTHER LINES AND TEXT SHALL BE TYPE A PAINT.
 15. UNLESS OTHERWISE NOTED, ALL STRIPING AND TEXT SHALL BE WHITE IN COLOR.
 16. UNLESS OTHERWISE NOTED, ALL TEXT SHALL MEASURE 27" IN HEIGHT.
 17. COORDINATE WITH OWNER TO OBTAIN "SHAKA CLUB" STENCIL AND PAINT COLOR INFO.

- ACCESSIBLE ROUTES:**
1. ALL ACCESSIBLE ROUTES SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
 2. RUNNING SLOPES OF ACCESSIBLE PATHS SHALL NOT EXCEED 20:1 (H-V, 5%) EXCEPT WHEN RUNNING ADJACENT TO ROADS / DRIVES THAT EXCEED THIS GRADE CONSTRAINT UNAVOIDABLY.
 3. CROSS-SLOPES OF ACCESSIBLE PATHS SHALL NOT EXCEED 50:1 (H-V, 2%) EXCEPT WHEN CROSSING STOP-CONTROLLED ENTRANCES AND INTERSECTIONS.
 4. ALL ACCESSIBLE PARKING AND LOADING ZONES SHALL NOT EXCEED 2% IN ANY DIRECTION FOR FULL LENGTH AND WIDTH.
 5. CONTRACTOR SHALL REVIEW ANY/ALL NOTED CONFLICTS WITH ENGINEER IN ADVANCE OF PAVING ASPHALT/CONCRETE IN VICINITY OF ACCESSIBLE ROUTES.

- MARKING OF FIRE LANES:**
1. FIRE LANES SHALL BE DESIGNATED AND MARKED IN ACCORDANCE WITH ROCKINGHAM COUNTY'S STANDARD FOR DESIGNATION AND MARKING OF FIRE LANES. AN ON SITE VISIT SHALL BE SCHEDULED WITH THE FIRE MARSHAL'S OFFICE PRIOR TO THE PLACEMENT OF ANY SIGNS OR MARKINGS DESIGNATING A FIRE LANE. AN APPOINTMENT FOR THIS PURPOSE CAN BE SCHEDULED BY CALLING 540-564-3175 AT LEAST 48 HOURS PRIOR.
 2. FINAL APPROVAL SHALL BE OBTAINED FROM THE FIRE MARSHAL'S OFFICE PRIOR TO THE PLACEMENT OF ANY SIGNS OR PAVEMENT MARKINGS DESIGNATING A FIRE LANE.
 3. ALL MARKINGS SHALL BE MADE WITH RED, TRAFFIC GRADE PAINT, APPROPRIATE FOR THE SURFACE TO WHICH IT WILL BE APPLIED.
 4. ALL CURBS SHALL BE PAINTED RED IN THE DESIGNATED FIRE LANES.
 5. THE WORDS "NO PARKING FIRE LANE" SHALL BE MARKED EVERY 70 FEET ON CURBS WITH A MINIMUM OF FOUR-INCH HIGH WHITE LETTERS. WHERE THERE IS A CURB ON BOTH SIDES, THE CURB MARKINGS SHALL ALTERNATE EVERY 35 FEET.
 6. IN AREAS WHERE THERE IS NO CURB ON THE OUTSIDE EDGE OF THE FIRE LANE; THE OUTSIDE EDGE OF THE FIRE LANE SHALL BE INDICATED BY A SIX-INCH WIDE RED LINE, MARKED ON THE GROUND.
 7. IN AREAS WHERE A CURB IS NOT PRESENT AT ALL; A SIX-INCH WIDE RED LINE ON THE GROUND SHALL INDICATE BOTH EDGES OF THE FIRE LANE.
 8. IN AREAS WHERE A CURB IS NOT PRESENT, THE PAVEMENT MARKINGS SHALL READ: "FIRE LANE NO PARKING" IN 18 INCH RED LETTERS. THE MARKINGS SHALL BE PAINTED NO MORE THAN 70 FEET APART IN THE DIRECTION OF TRAFFIC FLOW. IF THE TRAFFIC FLOWS IN BOTH DIRECTIONS THE WORDS SHALL BE ALTERNATED EVERY 70 FEET.

- HEAVY DUTY PAVEMENT
- LIGHT DUTY PAVEMENT



SCALE: 1" = 30'-0"

0 30 60 Feet



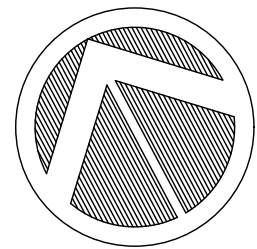
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SITE DIMENSION
PLAN

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0 30 60 Feet



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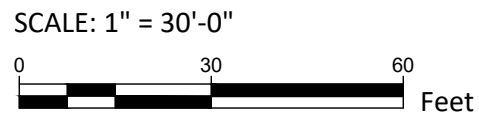
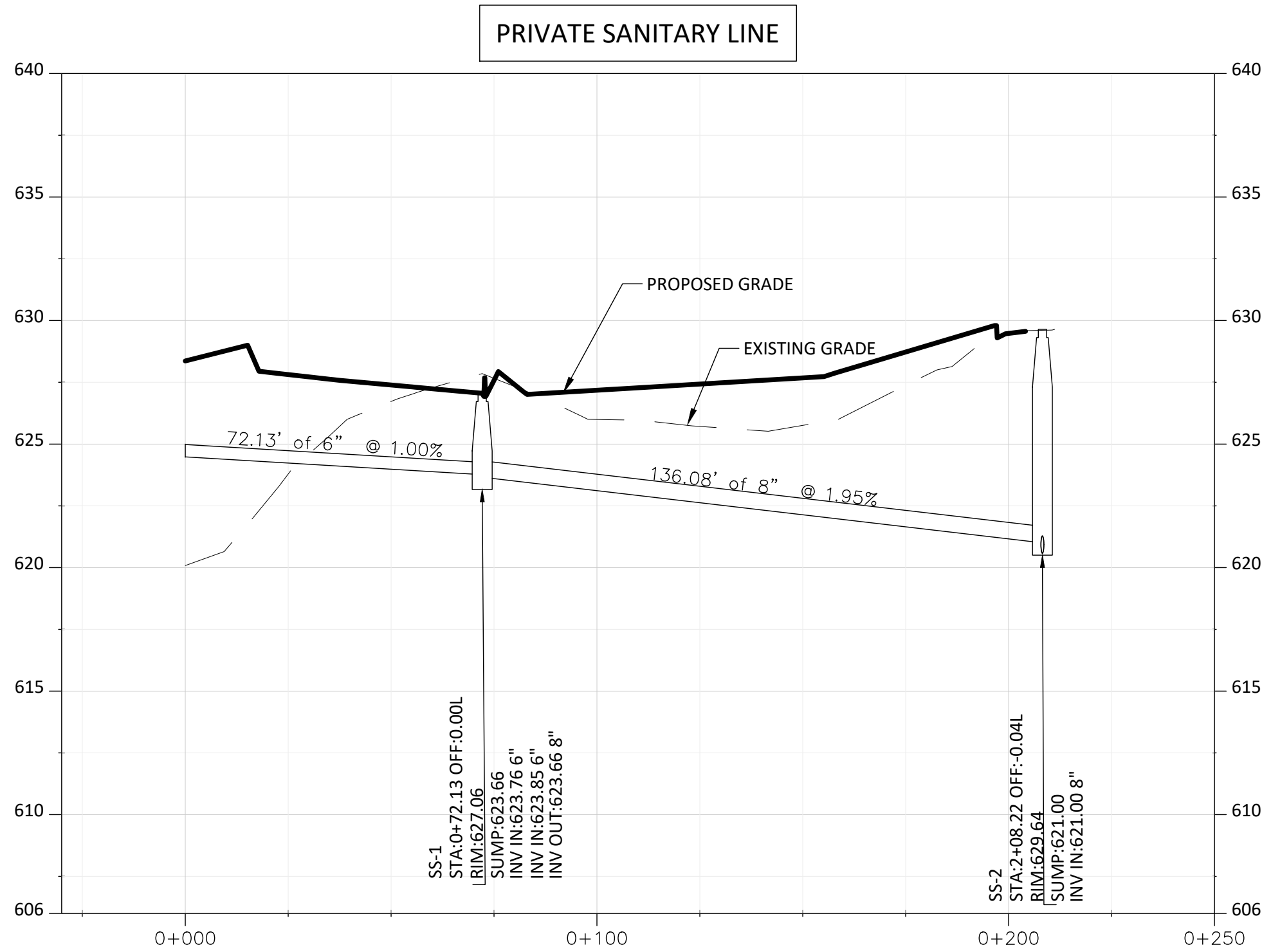
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UTILITY LAYOUT

Project number:	
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C5.01



WATER SERVICE DESIGN TABLE					
LOT ID	DESIGN FLOW GPM	SERVICE LINE SIZE (MAIN TO METER)	LENGTH (FT) MAIN TO METER	METER SIZE	SERVICE LINE SIZE (METER TO BUILDING)
9 E 5	EXISTING WATER METER TO BE ABANDONED				
LOT #1	12.0	1"	17.0	5/8" x 3/4"	3/4"
LOT #2	12.0	1"	17.0	5/8" x 3/4"	3/4"
LOT #3	12.0	1"	19.0	5/8" x 3/4"	3/4"
LOT #4	12.0	1"	19.0	5/8" x 3/4"	3/4"
LOT #5	12.0	1"	—	5/8" x 3/4"	3/4"
LOT #6	12.0	1"	20.5	5/8" x 3/4"	3/4"
LOT #7	12.0	1"	25.3	5/8" x 3/4"	3/4"
LOT #8	12.0	1"	31.8	5/8" x 3/4"	3/4"
LOT #9	12.0	1"	43.5	5/8" x 3/4"	3/4"
LOT #10	12.0	1"	19.2	5/8" x 3/4"	3/4"
LOT #11	12.0	1"	19.4	5/8" x 3/4"	3/4"
LOT #12	12.0	1"	31.0	5/8" x 3/4"	3/4"
LOT #13	12.0	1"	31.5	5/8" x 3/4"	3/4"
LOT #14	12.0	1"	31.8	5/8" x 3/4"	3/4"
LOT #15	12.0	1"	40.5	5/8" x 3/4"	3/4"
LOT #16	12.0	1"	41.1	5/8" x 3/4"	3/4"

WATER SERVICE DESIGN TABLE					
LOT ID	DESIGN FLOW GPM	SERVICE LINE SIZE (MAIN TO METER)	LENGTH (FT) MAIN TO METER	METER SIZE	SERVICE LINE SIZE (METER TO BUILDING)
9 E 5	EXISTING WATER METER TO BE ABANDONED				
LOT #17	12.0	1"	43.0	5/8" x 3/4"	3/4"
LOT #18	12.0	1"	42.2	5/8" x 3/4"	3/4"
LOT #19	12.0	1"	39.9	5/8" x 3/4"	3/4"
LOT #20	12.0	1"	43.5	5/8" x 3/4"	3/4"
LOT #21	12.0	1"	43.6	5/8" x 3/4"	3/4"
LOT #22	12.0	1"	15.8	5/8" x 3/4"	3/4"
LOT #23	12.0	1"	15.0	5/8" x 3/4"	3/4"
LOT #24	12.0	1"	18.7	5/8" x 3/4"	3/4"
LOT #25	12.0	1"	17.3	5/8" x 3/4"	3/4"
LOT #26	12.0	1"	17.3	5/8" x 3/4"	3/4"
LOT #27	12.0	1"	17.3	5/8" x 3/4"	3/4"
LOT #28	12.0	1"	25.3	5/8" x 3/4"	3/4"
LOT #29	12.0	1"	25.7	5/8" x 3/4"	3/4"
LOT #30	12.0	1"	29.7	5/8" x 3/4"	3/4"
LOT #31	12.0	1"	29.7	5/8" x 3/4"	3/4"
LOT #32	12.0	1"	29.2	5/8" x 3/4"	3/4"
LOT #33	12.0	1"	28.2	5/8" x 3/4"	3/4"

TOWN OF FRONT ROYAL UTILITY NOTES:

- CONTRACTOR SHALL PROVIDE AND INSTALL 12"x8" TAPPING SLEEVE AND 8" TAPPING VALVE IN AN OSHA SAFE TRENCH INCLUDING ALL TRAFFIC CONTROL. CITY FORCES WILL PRESSURE TEST THE SLEEVE IN PLACE AND TAP THE EXISTING WATER MAIN UPON EXECUTION OF A WORK AUTHORIZATION AGREEMENT. WATER MAIN CONNECTION SHALL BE COORDINATED THOUGH THE DEPARTMENT OF PUBLIC UTILITIES, SCHEDULE IS DEPENDENT UPON CREW AVAILABILITY AND SHOULD BE ASSUMED TO REQUIRE 7 DAYS PRIOR NOTICE.
- SANITARY SEWER LATERALS SHALL BE 4" PVC SDR-26 CAST IRON SOIL PIPE OR DUCTILE IRON PLACED WITH A MINIMUM SLOPE OF 2% AND A MINIMUM COVER OF 36"
- WATER LATERAL TO BE PLACED WITH A MINIMUM COVER OF 36".
- CONTRACTOR RESPONSIBLE FOR PRIMARY AND SECONDARY ELECTRIC DITCHES AND EXCAVATION/STONE BASE FOR TRANSFORMER FIBERGLASS BOX PAD. HEC TO PROVIDE CONDUIT AND WIRE, BOTH PRIMARY AND SECONDARY.
- LEAK TESTING OF WATER MAIN EXTENSION SHALL BE PROVIDED AND CONFORM TO HARRISONBURG DCSM (SEE TESTING REQUIREMENTS ON PG T-2 OF DCSM).
- WATER MAIN EXTENSION SHALL BE FLUSHED AND DISINFECTED PRIOR TO BEING MADE OPERATIONAL, IN CONFORMANCE WITH REQUIREMENTS SET FORTH IN HARRISONBURG DCSM (SEE FLUSHING AND DISINFECTION REQUIREMENTS ON PG T-7 OF DCSM).
- CONTRACTOR IS REQUIRED TO FURNISH ALL MATERIALS, LABOR, EQUIPMENT, POWER, MAINTENANCE, ETC. TO IMPLEMENT A TEMPORARY PUMPING SYSTEM FOR THE PURPOSE OF DIVERTING THE EXISTING SANITARY SEWER SYSTEM CAPACITY AROUND THE WORK AREA FOR THE DURATION OF THE PROJECT. THE DESIGN, INSTALLATION AND OPERATION OF THE TEMPORARY PUMPING SYSTEM SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT HE AND/OR HIS SUBCONTRACTOR SPECIALIZES IN THE DESIGN AND OPERATION OF TEMPORARY BYPASS PUMPING SYSTEMS. THE CONTRACTOR SHALL PROVIDE AT LEAST THREE (3) REFERENCES OF PROJECTS OF A SIMILAR SIZE AND COMPLEXITY AS THIS PROJECT, RECENTLY PERFORMED SUCCESSFULLY. THE BYPASS SYSTEM SHALL MEET THE REQUIREMENTS OF ALL CODES AND REGULATORY AGENCIES HAVING JURISDICTION. CONTRACTOR SHALL PROVIDE A COPY OF THE BYPASS PUMPING PLAN TO CITY OF HARRISONBURG PUBLIC UTILITIES DEPARTMENT 72 HOURS PRIOR TO IMPLEMENTATION. A TRIAL RUN FOR LEAKAGE OF THE BYPASS PUMPING DISCHARGE PIPING SHALL BE DEMONSTRATED IN THE PRESENCE OF THE CITY UTILITIES INSPECTOR USING CLEAN WATER PRIOR TO ACTUAL OPERATION. PUMPING SYSTEM MUST BE CONTINUOUSLY MANNED UNTIL GRAVITY PIPE FLOW CAN BE RE-ESTABLISHED

NOTES:

- CONTRACTOR SHALL PROVIDE AND INSTALL 12"x8" TAPPING SLEEVE AND 8" TAPPING VALVE IN AN OSHA SAFE TRENCH INCLUDING ALL TRAFFIC CONTROL. CITY FORCES WILL PRESSURE TEST THE SLEEVE IN PLACE AND TAP THE EXISTING WATER MAIN UPON EXECUTION OF A WORK AUTHORIZATION AGREEMENT. WATER MAIN CONNECTION SHALL BE COORDINATED THOUGH THE DEPARTMENT OF PUBLIC UTILITIES, SCHEDULE IS DEPENDENT UPON CREW AVAILABILITY AND SHOULD BE ASSUMED TO REQUIRE 7 DAYS PRIOR NOTICE.
- WATER LATERAL TO BE PLACED WITH A MINIMUM COVER OF 36".
- LEAK TESTING OF WATER MAIN EXTENSION SHALL BE PROVIDED AND CONFORM TO HARRISONBURG DCSM (SEE TESTING REQUIREMENTS ON PG T-2 OF DCSM).
- WATER MAIN EXTENSION SHALL BE FLUSHED AND DISINFECTED PRIOR TO BEING MADE OPERATIONAL, IN CONFORMANCE WITH REQUIRMENTS SET FORTH IN HARRISONBURG DCSM (SEE FLUSHING AND DISINFECTION REQUIREMENTS ON PG T-7 OF DCSM).

SCOPE OF WORK FOR INSTALLING SANITARY SEWER MANHOLE #4:

- PROVIDING A COPY OF THEIR VIRGINIA UNDERGROUND UTILITY AND EXCAVATION CONTRACTORS CERTIFICATE.
- COMPLETE COORDINATION OF WORK WITH ALL UTILITY COMPANIES.
- LOCATION OF ALL UNDERGROUND UTILITIES, WHETHER SHOWN ON THE DRAWINGS OR NOT.
- INSTALL BYPASS SYSTEM FOR THE EXISTING LINE SEE NOTE 7 ON THIS SHEET.
- PRE-CONSTRUCTION WITH PUBLIC UTILITY DEPARTMENT
- INSTALL NEW STANDARD MH-1 SANITARY MANHOLE STRUCTURE #4
- REPAIR OR COST OF REPAIR TO ANY DAMAGED UNDERGROUND UTILITIES, TO THE COMPLETE SATISFACTION OF THE UTILITY COMPANY INVOLVED.



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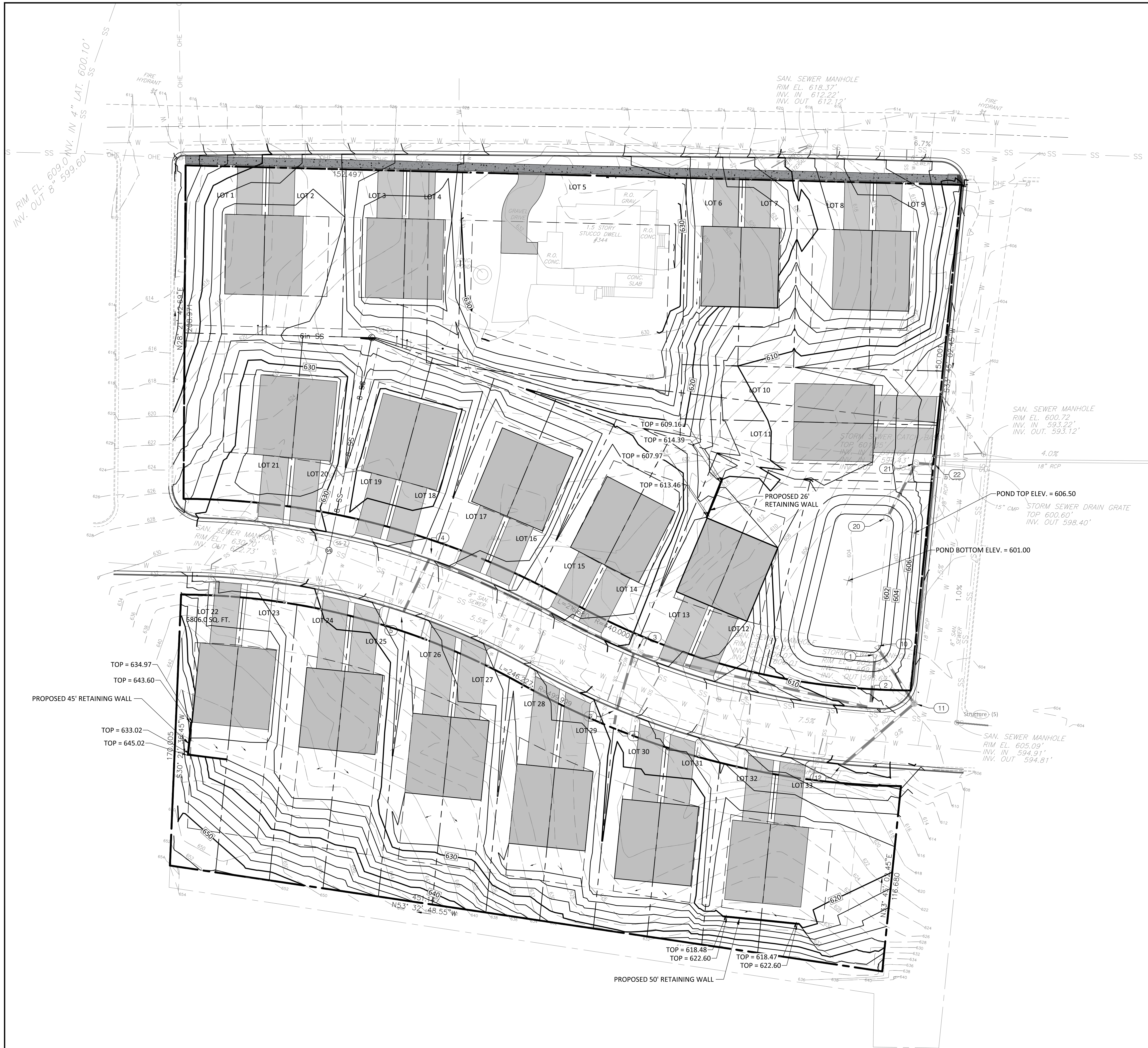
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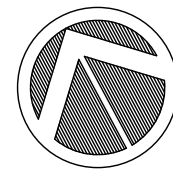
UTILITY PROFILES

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- RETAINING WALL NOTES:
1. WALLS SHALL BE CONSTRUCTED WITH SEGMENTAL BLOCK UNITS (ANCHOR DIAMOND PRO OR EQUAL AS APPROVED BY OWNER) WITH GEOSYNTHETIC REINFORCING WHERE REQUIRED BY DESIGN. SET TOP AND BOTTOM OF WALL PER GRADES INDICATED ON PLANS. THE DESIGN OF THE WALLS SHALL BE DELEGATED. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS SEALED BY AN ENGINEER LICENSED IN THE COMMONWEALTH OF VIRGINIA FOR APPROVAL PRIOR TO CONSTRUCTION.
 2. WALLS SHALL BE CONSTRUCTED USING SM OR MORE GRANULAR BACKFILL WITH AN MAX ACTIVE EQUIVALENT FLUID PRESSURE OF 32 PSF PER FOOT OF HEIGHT. GEOTECHNICAL ENGINEER OF RECORD SHALL APPROVE BACKFILL PRIOR TO CONSTRUCTION.
 3. ANY PORTION OF THE RETAINING WALL OVER THREE (3) FEET IN HEIGHT SHALL INCLUDE A FENCE (NOT SHOWN ON THESE PLANS) AT LEAST FORTY-TWO (42) INCHES HIGH ALONG THE TOP TO PROTECT PERSONS FROM INJURY DUE TO FALLING. THE FENCE TYPE AND LAYOUT SHALL BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION. FENCE INSTALLATION TO UTILIZE SLEEVE-IT FENCE POST ANCHORING SYSTEM.
 4. PROVIDE AN INTERNAL DRAINAGE SYSTEM DESIGNED TO REMOVE INCIDENTAL WATER THAT INFILTRATES INTO THE SOIL BEHIND THE WALL. GROUND WATER CAN BE PRESENT WITHIN THE SOIL DUE TO SURFACE INFILTRATION OR WATER TABLE FLUCTUATION. IF GROUND WATER IS ENCOUNTERED DURING CONSTRUCTION, AN ADEQUATE DRAINAGE SYSTEM MUST BE INSTALLED.



SCALE: 1" = 30'-0"

0 20 40 Feet



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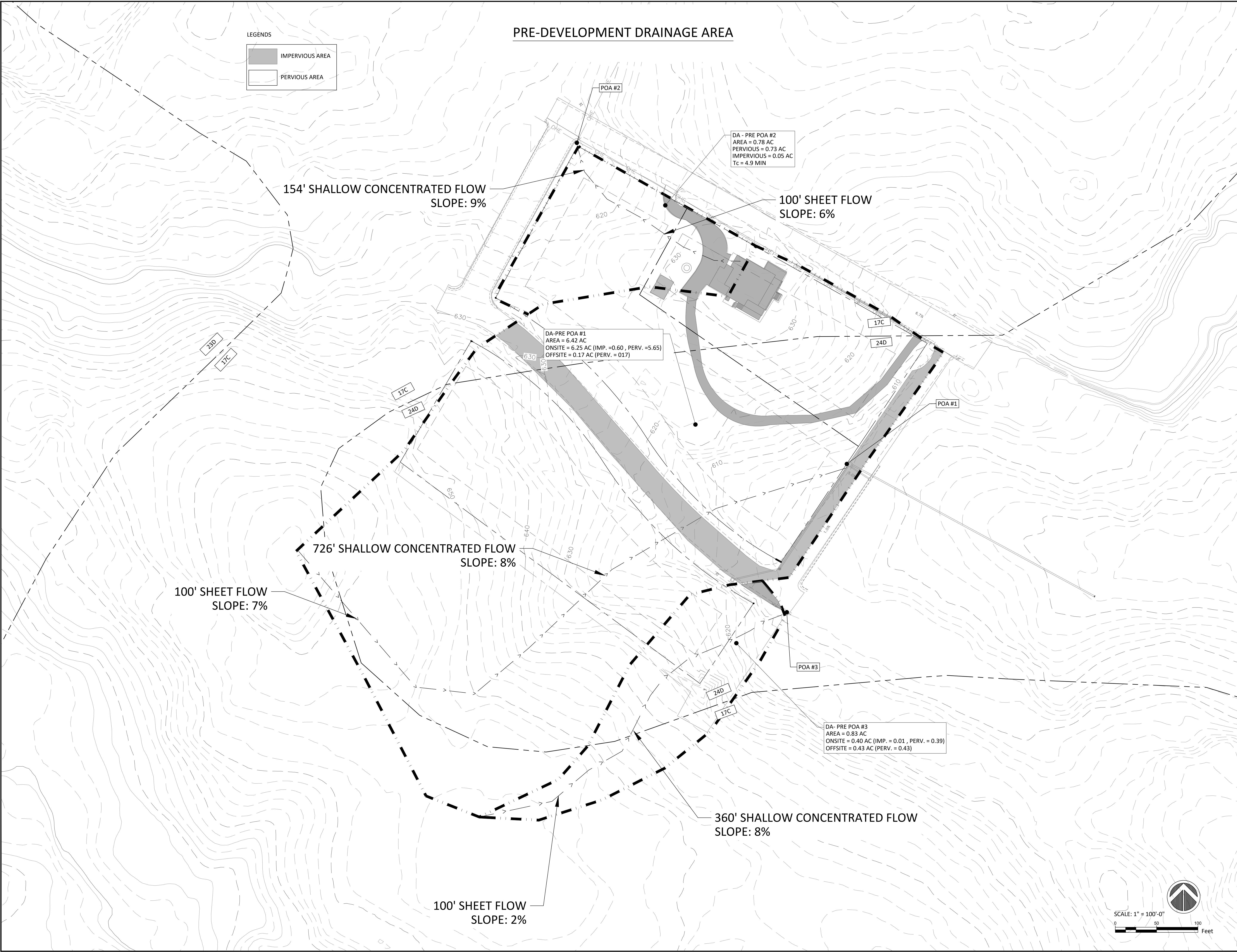
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GRADING PLAN

Project number:	
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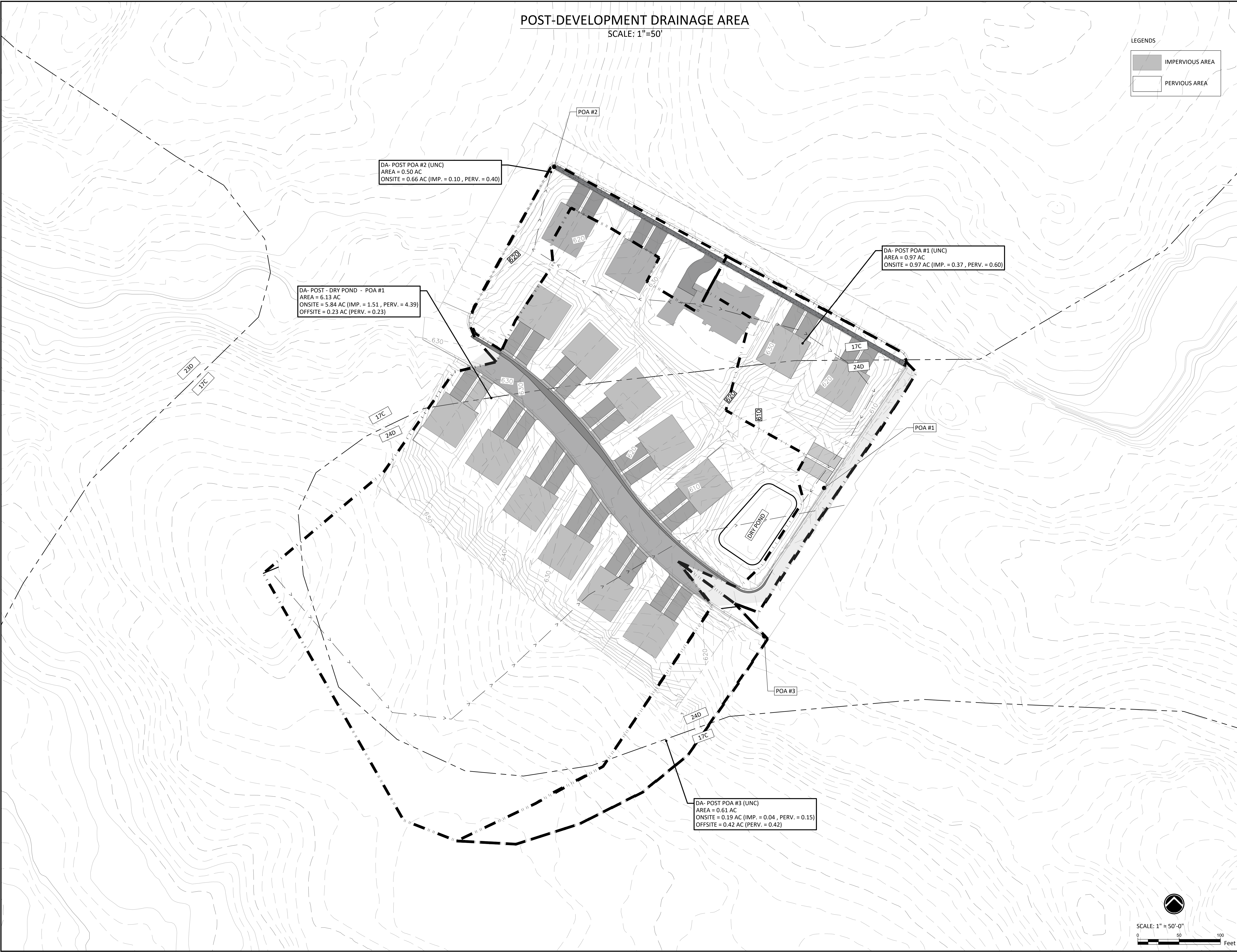
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PRE. DEV.
DRAINAGE AREAS

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LEGENDS

IMPERVIOUS AREA

PERVIOUS AREA

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Revisions:		
No.	Description	Date

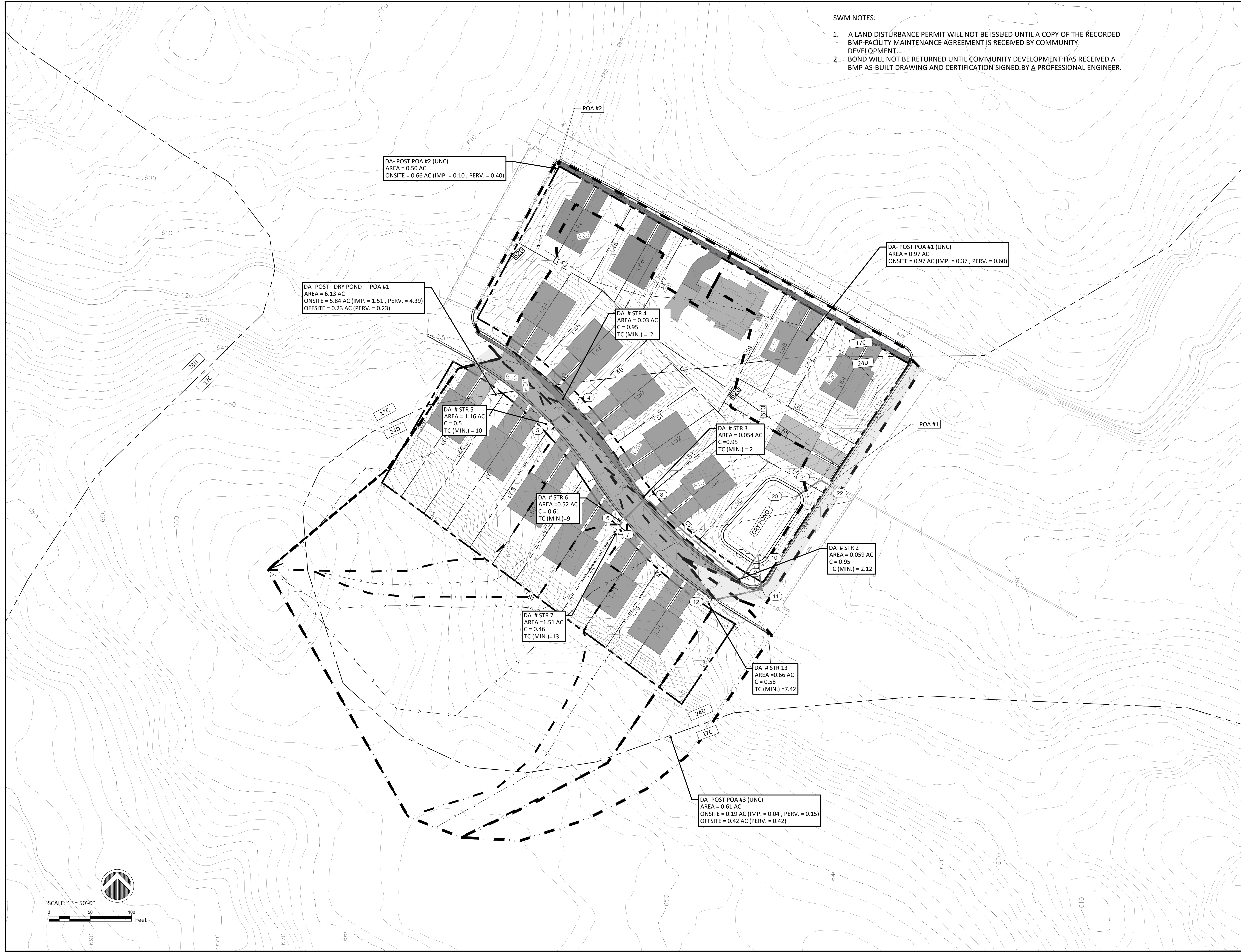
PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

POST DEV.

DRAINAGE AREA

Project number:	
Date:	JULY 15, 2024
Drawn by:	XXX
Checked by:	XXX

C6.02B



- SWM NOTES:**
1. A LAND DISTURBANCE PERMIT WILL NOT BE ISSUED UNTIL A COPY OF THE RECORDED BMP-FACILITY MAINTENANCE AGREEMENT IS RECEIVED BY COMMUNITY DEVELOPMENT.
 2. BOND WILL NOT BE RETURNED UNTIL COMMUNITY DEVELOPMENT HAS RECEIVED A BMP AS-BUILT DRAWING AND CERTIFICATION SIGNED BY A PROFESSIONAL ENGINEER.



PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT
344 W MAIN ST
FRONT ROYAL, VA 22630

Revisions:		
No.	Description	Date

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

SWM PLAN

Project number:	
Date:	JULY 15, 2024
Drawn by:	XXX
Checked by:	XXX

C6.03



PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT
344 W MAIN ST
FRONT ROYAL, VA 22630

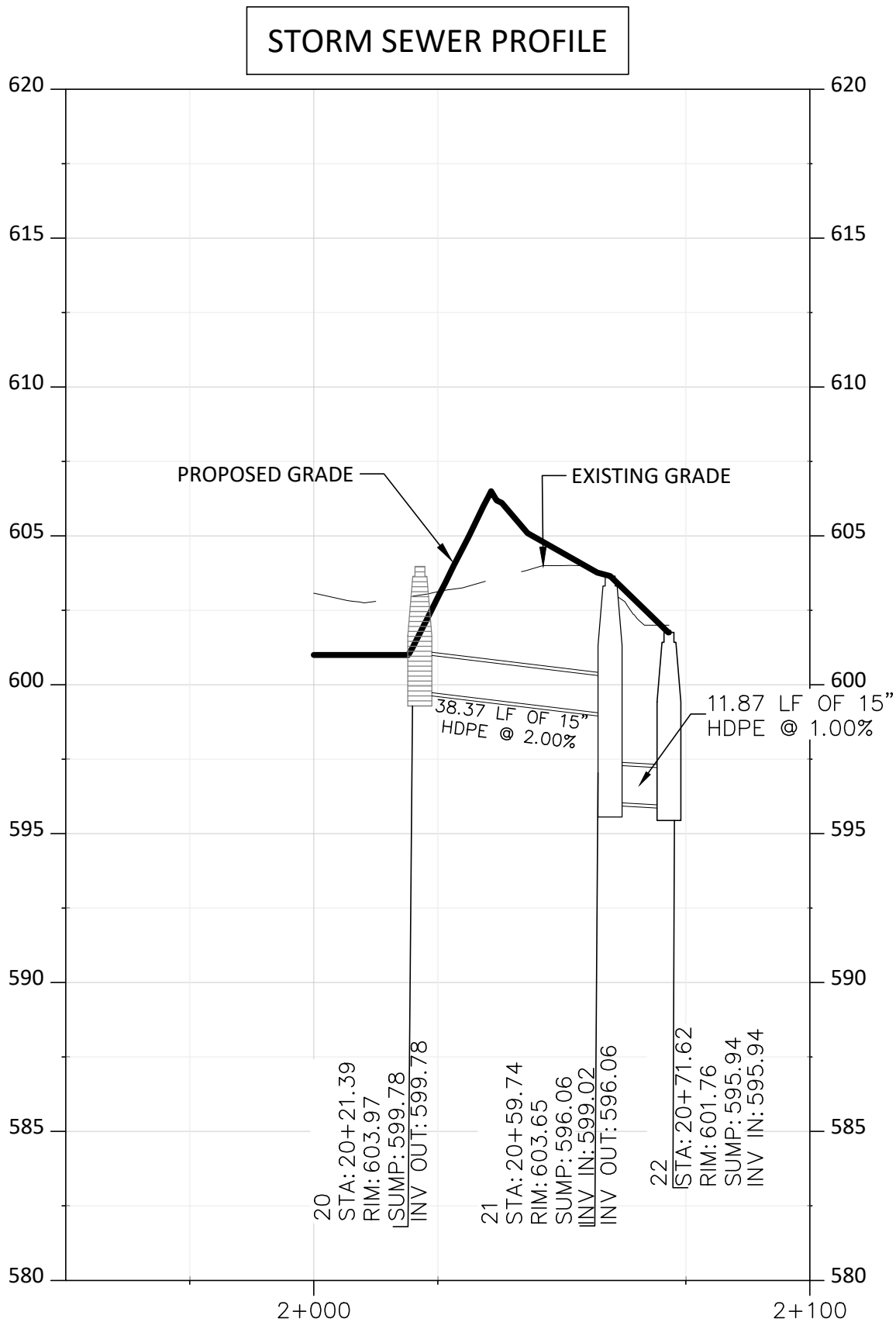
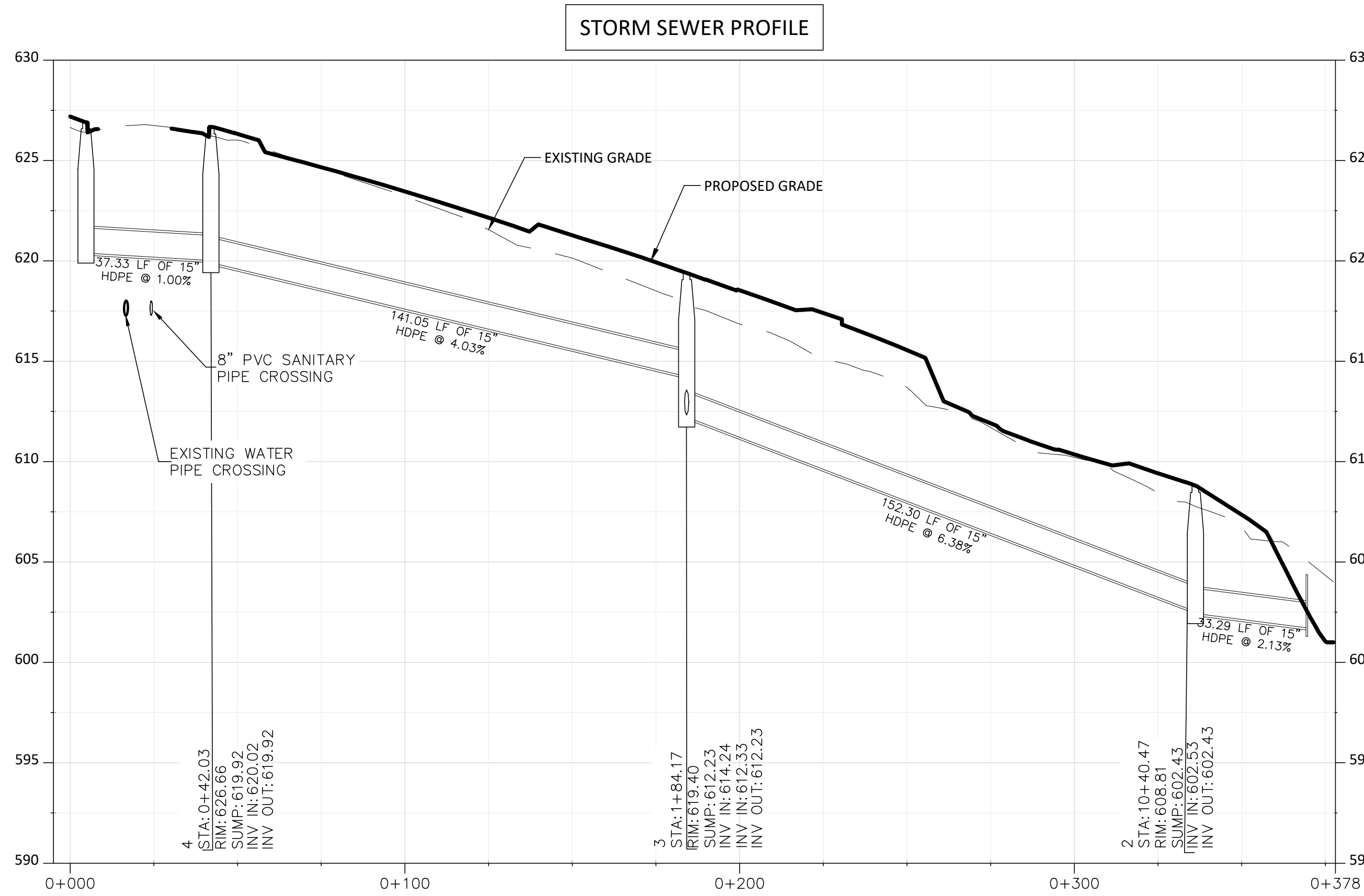
Revisions:		
No.	Description	Date

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

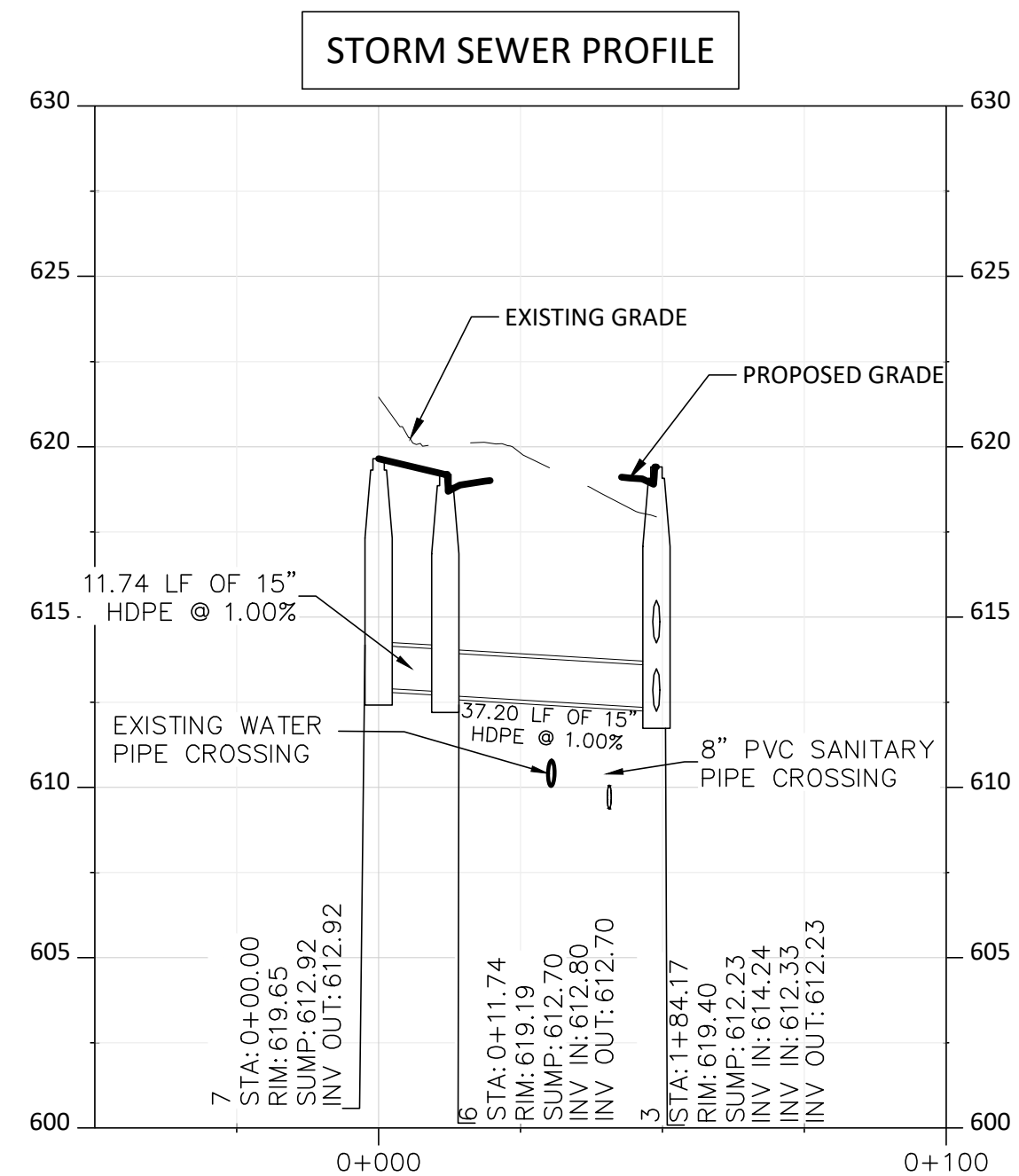
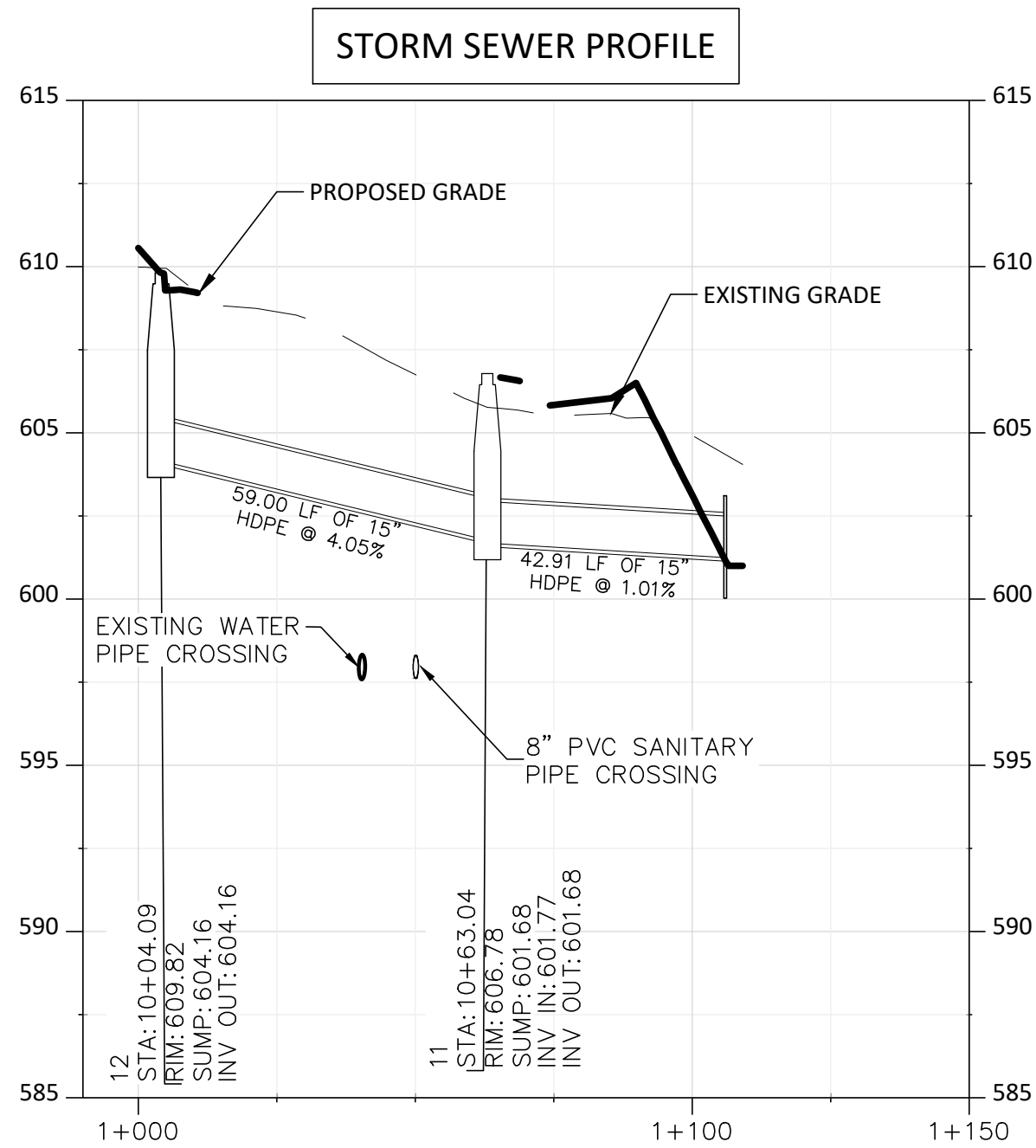
**STORM SEWER
PROFILES**

Project number:	
Date:	JULY 15, 2024
Drawn by:	XXX
Checked by:	XXX

C6.04

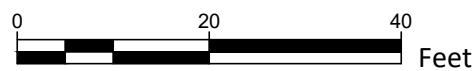


STRUCTURE TABLE			
STRUCTURE NAME:	DETAILS:	PIPES IN:	PIPES OUT
5	48" RIM = 626.92 SUMP = 620.4 INV OUT = 620.39		15" CORRUGATED HDPE PIPE INV OUT = 620.39
4	48" RIM = 626.66 SUMP = 619.9 INV IN = 620.02 INV OUT = 619.92	15" CORRUGATED HDPE PIPE INV IN = 620.02	15" CORRUGATED HDPE PIPE INV OUT = 619.92
7	48" RIM = 619.65 SUMP = 612.9 INV OUT = 612.92		15" CORRUGATED HDPE PIPE INV OUT = 612.92
3	48" RIM = 619.40 SUMP = 612.2 INV IN = 614.24 INV IN = 612.33 INV OUT = 612.23	15" CORRUGATED HDPE PIPE INV IN = 614.24 15" CORRUGATED HDPE PIPE INV IN = 612.33	15" CORRUGATED HDPE PIPE INV OUT = 612.23
6	48" RIM = 619.19 SUMP = 612.7 INV IN = 612.80 INV OUT = 612.70	15" CORRUGATED HDPE PIPE INV IN = 612.80	15" CORRUGATED HDPE PIPE INV OUT = 612.70
12	48" RIM = 609.82 SUMP = 604.2 INV OUT = 604.16		15" CORRUGATED HDPE PIPE INV OUT = 604.16
2	48" RIM = 608.81 SUMP = 602.4 INV IN = 602.53 INV OUT = 602.43	15" CORRUGATED HDPE PIPE INV IN = 602.53	15" CORRUGATED HDPE PIPE INV OUT = 602.43
11	48" RIM = 606.78 SUMP = 601.7 INV IN = 601.77 INV OUT = 601.68	15" CORRUGATED HDPE PIPE INV IN = 601.77	15" CORRUGATED HDPE PIPE INV OUT = 601.68
1	??? RIM = 604.38 SUMP = ??? INV IN = 601.72	15" CORRUGATED HDPE PIPE INV IN = 601.72	
20	48" RIM = 603.97 SUMP = 599.8 INV OUT = 599.78		15" CORRUGATED HDPE PIPE INV OUT = 599.78
21	48" RIM = 603.65 SUMP = 596.1 INV IN = 599.02 INV OUT = 596.06	15" CORRUGATED HDPE PIPE INV IN = 599.02	15" CORRUGATED HDPE PIPE INV OUT = 596.06
10	??? RIM = 603.11 SUMP = ??? INV IN = 601.25	15" CORRUGATED HDPE PIPE INV IN = 601.25	
22	48" RIM = 601.76 SUMP = 595.9 INV IN = 595.94	15" CORRUGATED HDPE PIPE INV IN = 595.94	



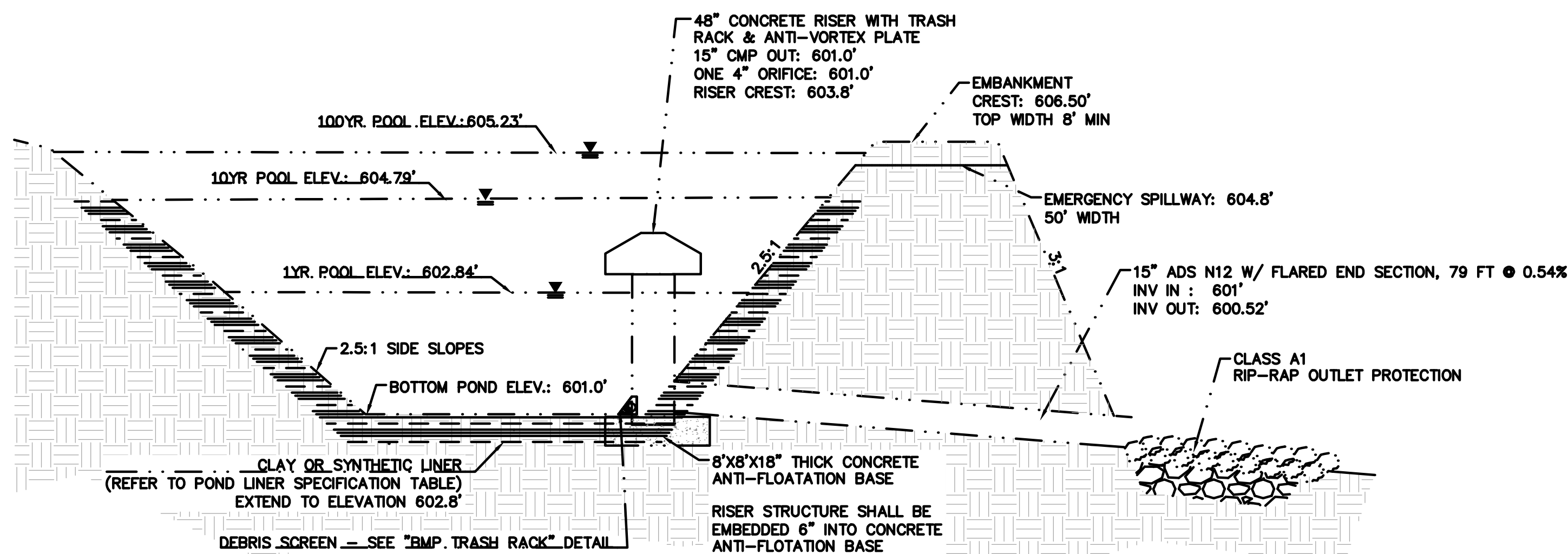
Pipe Table				
NAME	SIZE	LENGTH	SLOPE	MATERIAL
Pipe - (1)	15"	11.74'	1.00%	Corrugated HDPE Pipe
Pipe - (2)	15"	37.20'	1.00%	Corrugated HDPE Pipe
Pipe - (3)	15"	58.95'	4.05%	Corrugated HDPE Pipe
Pipe - (4)	15"	42.91'	1.01%	Corrugated HDPE Pipe
Pipe - (5)	15"	37.33'	1.00%	Corrugated HDPE Pipe
Pipe - (7)	15"	151.99'	6.38%	Corrugated HDPE Pipe
Pipe - (8)	15"	33.28'	2.13%	Corrugated HDPE Pipe
Pipe - (9)	15"	38.36'	2.00%	Corrugated HDPE Pipe
Pipe - (10)	15"	11.87'	1.00%	Corrugated HDPE Pipe
Pipe - (6) (1)	15"	140.94'	4.03%	Corrugated HDPE Pipe

SCALE: 1" = 30'-0"



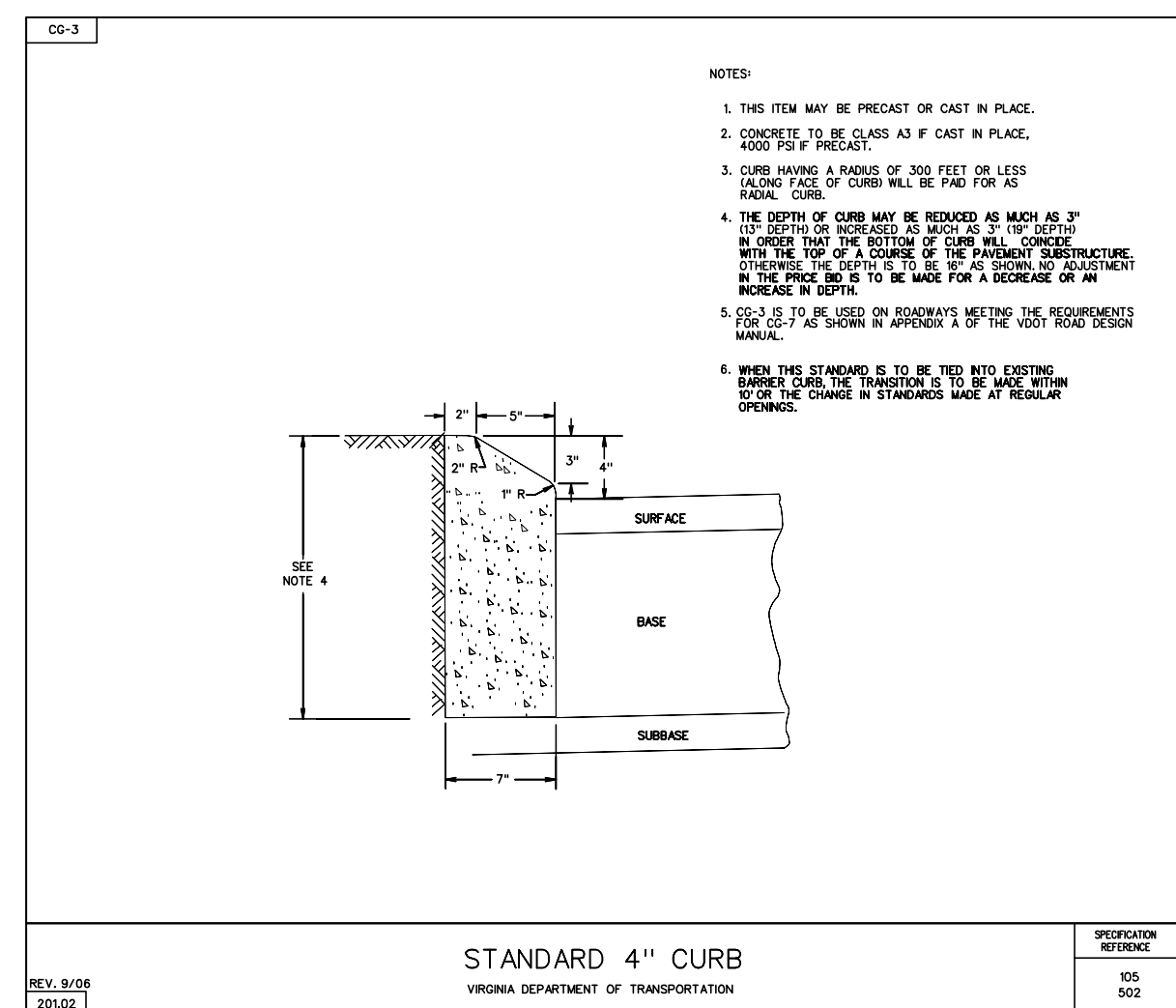
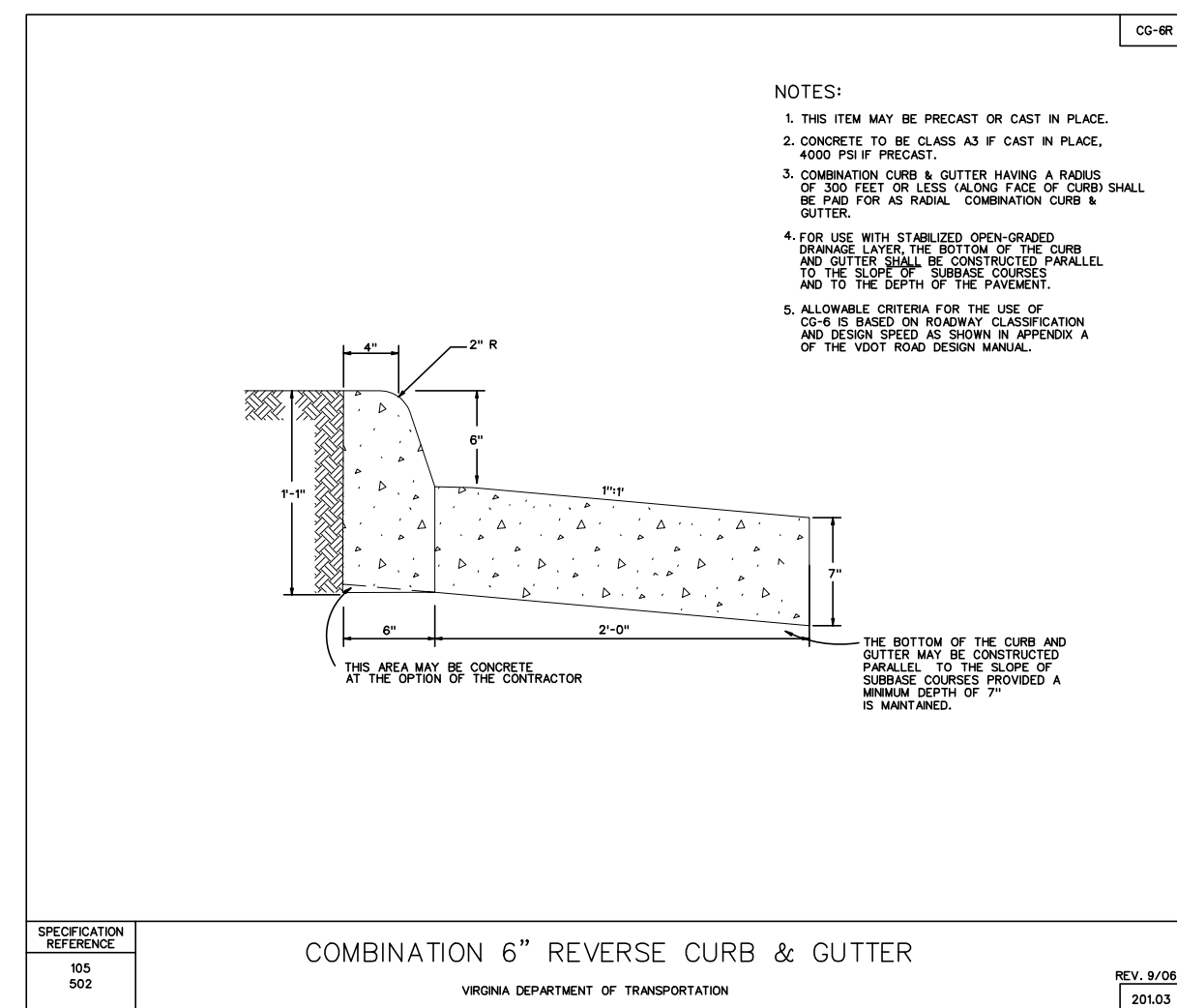
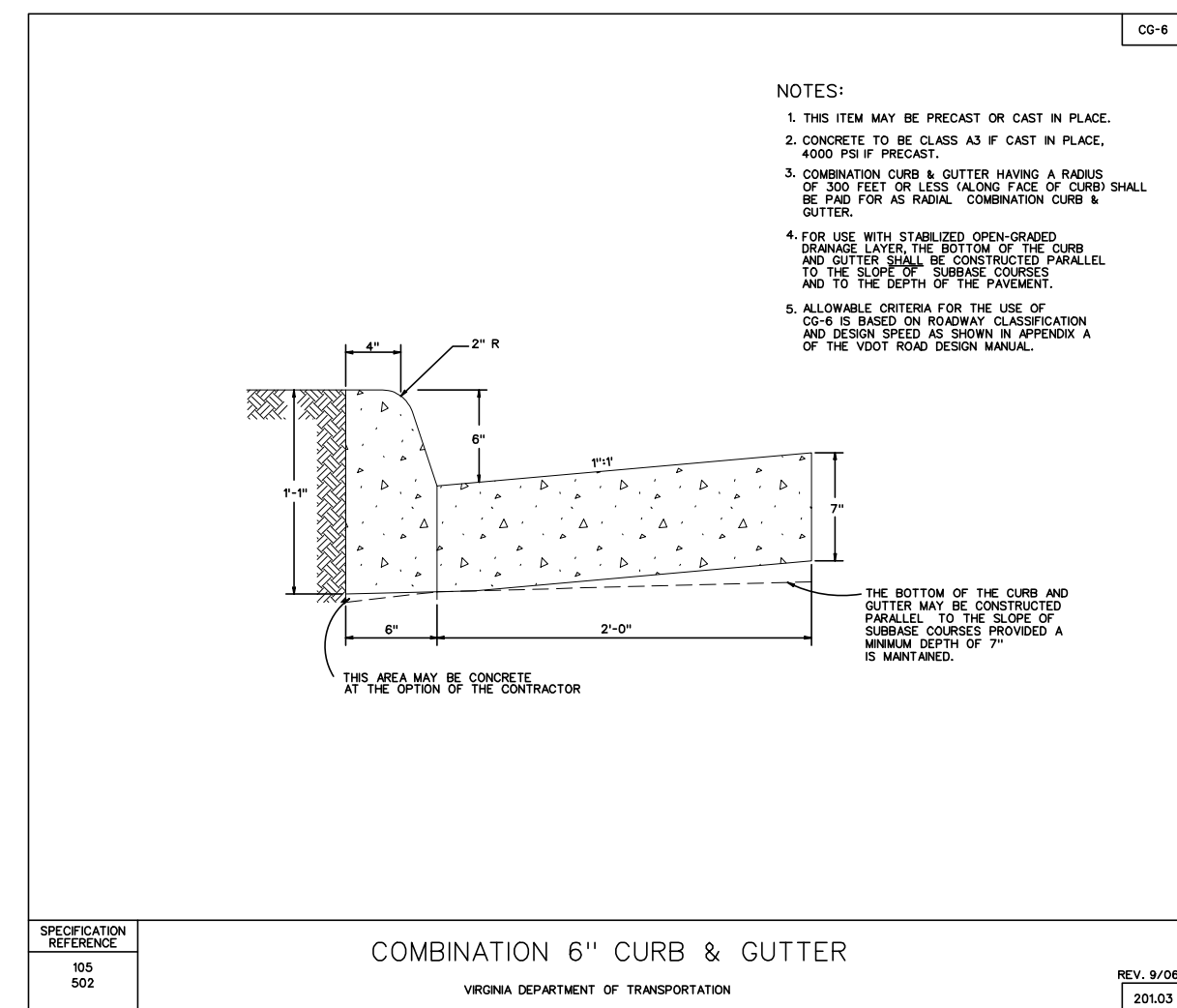
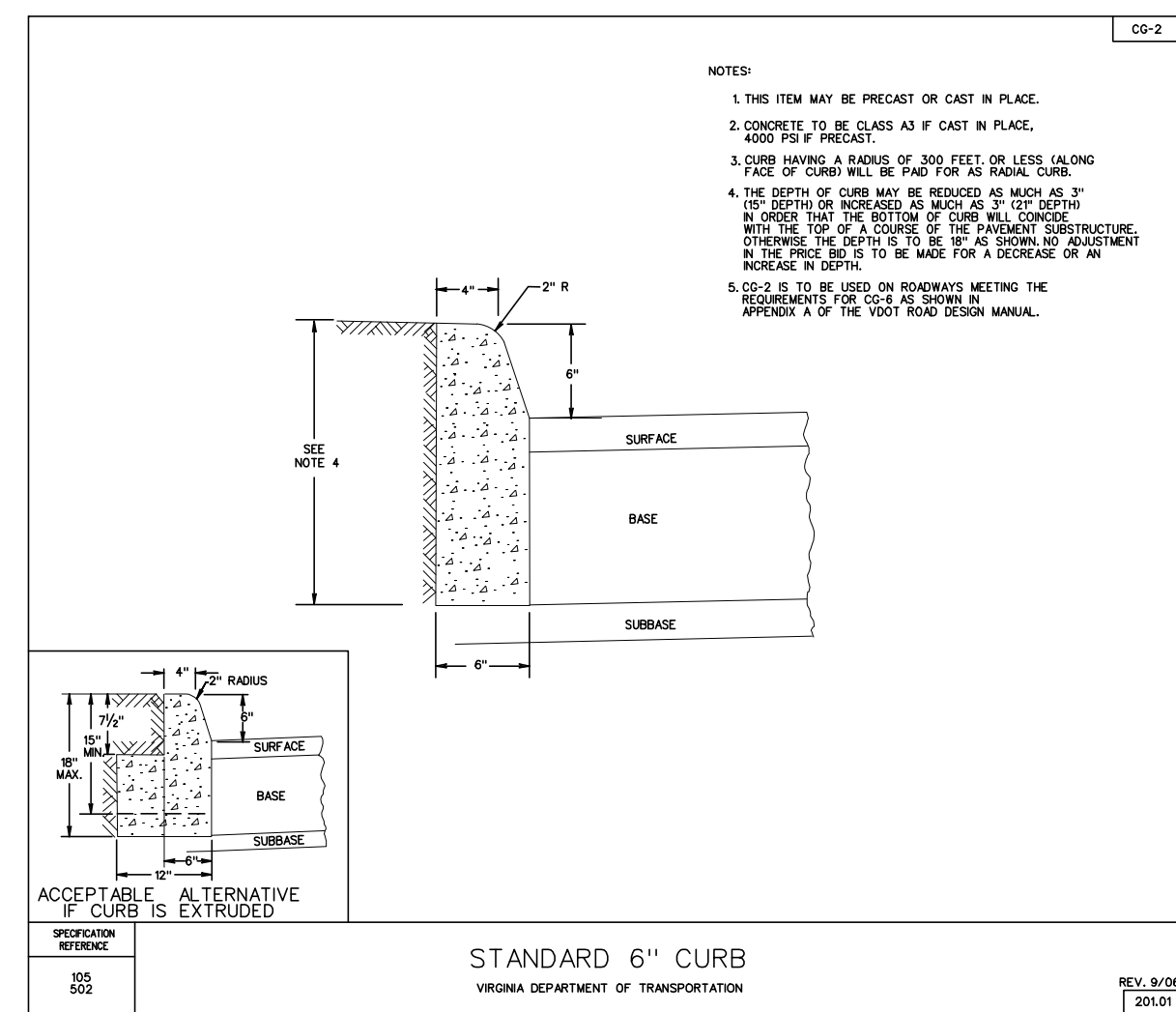
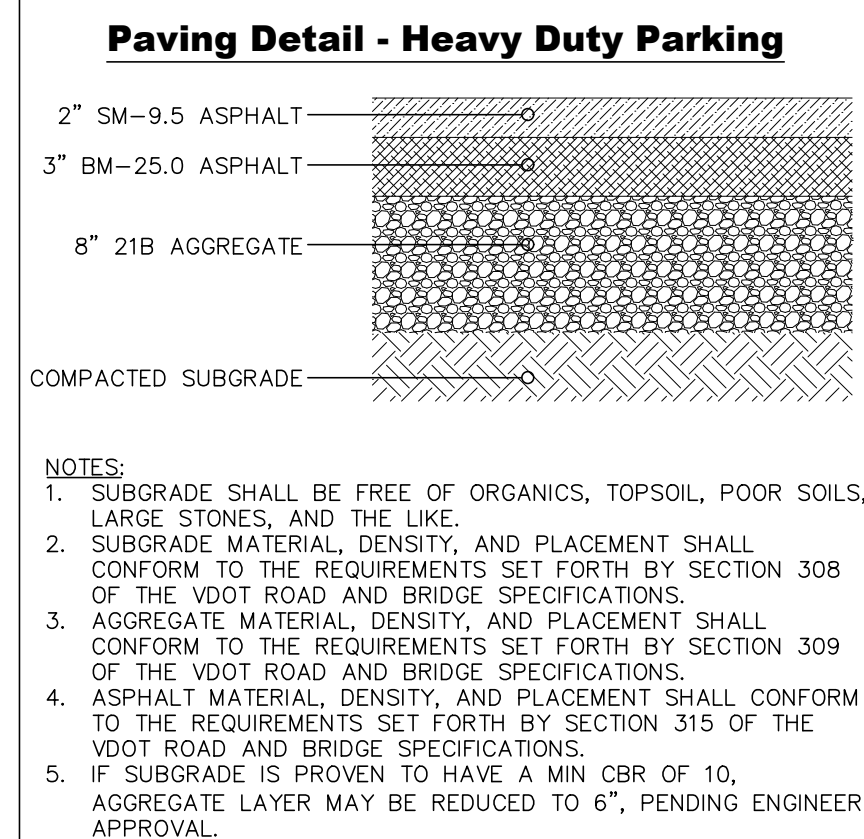
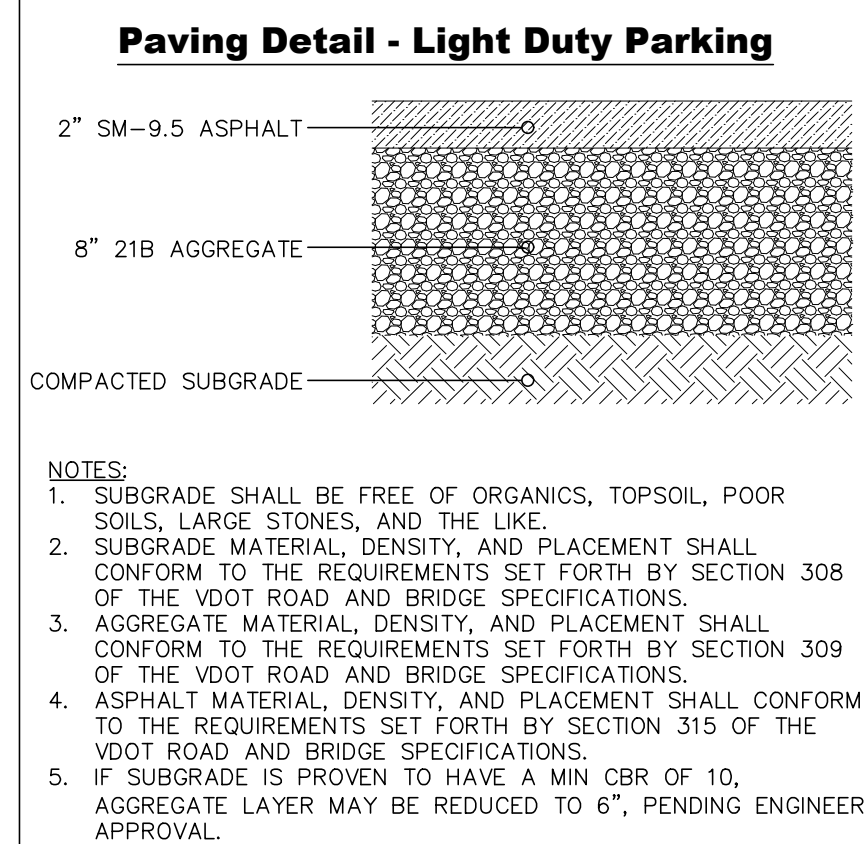
1. FILL MATERIAL SHALL BE FREE OF ORGANIC MATERIALS, CONSTRUCTION WASTE, STONES GREATER THAN 6-IN IN DIAMETER, AND OTHER OBJECTIONABLE MATERIAL. CENTER OF THE EMBANKMENT SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, OR CL ("IMPERVIOUS CORE", AS DEPICTED IN EMBANKMENT CROSS-SECTION, THIS SHEET)
2. FILL SHALL BE PLACED IN LIFTS NO GREATER THAN 8", WHICH SHOULD EXTEND THE ENTIRE LENGTH OF THE EMBANKMENT. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT.
3. FILL MATERIAL SHALL BE COMPACTED WITH APPROPRIATE EQUIPMENT WHILE THERE IS A SUITABLE MOISTURE CONTENT IN MATERIAL TO ACHIEVE 95% COMPACTION.
4. THE SURFACE LAYER OF COMPACTED FILL SHALL BE STABILIZED PRIOR TO PLACEMENT OF TOP SOIL. TOP SOIL SHALL BE STABILIZED WITH SEED UPON ACHIEVEMENT OF FINAL GRADE.
5. EMBANKMENT SHALL INCLUDE A CUTOFF TRENCH LOCATED ALONG CENTERLINE, MEASURING A MINIMUM OF 4'-WIDE AND 4'-DEEP (SEE EMBANKMENT CROSS-SECTION, THIS SHEET).

VA-DEQ EMBANKMENT CORE SOIL SPECIFICATIONS			
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D-2434	CM/SEC	1 X 10 ⁻⁶ (-6)
PLASTICITY INDEX OF CLAY	ASTM D-4242	%	NOT LESS THAN 15
LIQUID LIMIT OF CLAY	ASTM D-2216	%	NOT LESS THAN 30
CLAY PARTICLES PASSING	ASTM D-422	%	NOT LESS THAN 30
CLAY COMPACTION	ASTM D-2216	%	95% OF STANDARD
PROCTOR DENSITY			



NOTE: CONTRACTOR IS REQUIRED TO PROCURE CONSTRUCTION MONITORING SERVICES FROM A QUALIFIED GEOTECHNICAL ENGINEER FOR CONSTRUCTION OF THE STORMWATER DETENTION POND, INCLUDING POND EXCAVATION, INSTALLATION OF IMPERMEABLE LINER, AND EMBANKMENT CONSTRUCTION. A SYNTHETIC LINER SHALL BE INSTALLED SHOULD THE GEOTECHNICAL ENGINEER DETERMINE UPON EXCAVATION FOR THE BASIN THAT A SYNTHETIC LINER IS WARRANTED.

EMBANKMENT MATERIAL TESTING MUST BE CONDUCTED BY A QUALIFIED GEOTECHNICAL ENGINEER AND THE RESULTS INCLUDED ON THE AS-BUILT CONSTRUCTION RECORD DRAWINGS, WHICH ARE TO BE SUBMITTED AS PART OF DEQ'S PERMIT NOTICE OF TERMINATION PACKAGE.



PRELIMINARY SITE PLAN
SQUIRREL HILL DEVELOPMENT
344 W MAIN ST
FRONT ROYAL, VA 22630

344 W MAIN ST
FRONT ROYAL, VA 22630

[illegible]

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

SITE DETAILS

Project number:	
Date:	JULY 15, 2024
Drawn by:	XXX
Checked by:	XXX

C9.02

Stormwater Calculations

SQUIRREL HILL DEVELOPMENT

344 West Main Street
Front Royal, VA 22630

MCCARTY DONALD J/MCCARTY DENNIS P

c/o Jay McCarty
PO BOX 253, CLIFTON, VA 20124

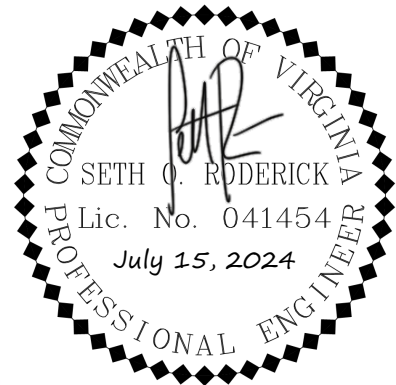


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Drainage Areas & Land Cover Tables
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Stormwater Narrative

Compliance Strategy Summary

Channel Protection– 1 YR

9VAC25-875-600.B.3.A – POA.1: $Q_{1\text{-allowable}} = 2.467$ cfs, $Q_{1\text{-post}} = 1.95$ cfs
9VAC25-875-600.B.3.A – POA.2 : $Q_{1\text{-allowable}} = 0.618$ cfs, $Q_{1\text{-post}} = 0.58$ cfs
9VAC25-875-600.B.3.A – POA.3: $Q_{1\text{-allowable}} = 0.49$ cfs, $Q_{1\text{-post}} = 0.44$ cfs

Flood Protection– 10 YR

9VAC25-875-600.C.2.B – POA.1 : $Q_{10\text{-pre}} = 17.86.62$ cfs, $Q_{10\text{-post}} = 13.95$ cfs
9VAC25-875-600.C.2.B – POA.2 : $Q_{10\text{-pre}} = 2.58$ cfs, $Q_{10\text{-post}} = 1.872$ cfs
9VAC25-875-600.C.2.B – POA.3 : $Q_{10\text{-pre}} = 0.99$ cfs, $Q_{10\text{-post}} = 0.71$ cfs

This site plan covers grading and construction for a residential development in Front Royal, VA. This plan includes construction of utilities, road widening, and building pad grading. This plan proposes an increase of 1.01 acres of impervious area.

In the existing condition, the site is primarily managed turf with an existing house and gravel road. Site slopes range from 2-25%. The site ultimately drains toward an unnamed perennial stream that flows under Resort Drive. This site is within the South Fork Shenandoah River-Gooney Run (PS48) watershed. This watershed is impaired by E. Coli, sediment, mercury and PCB.

This site has been divided into three points of analysis. POA.1 is located on the northeast side of the site where water enters an existing structure on North St. In the developed condition, runoff from this area of the site is directed toward a dry pond that outfalls through a pipe tied to the existing storm structure. POA.2 is located where water flows off the site towards the north. POA.3 is located on the southeast side of the site where water flows to exiting curb inlet. Water quantity compliance is achieved at each POA by meeting energy balance for the 1-year storm event and a reduction of the 10-year peak discharge.

Water quality compliance for the site is achieved by purchasing 3.14 lb of phosphorus credits.



SECTION 1.

SITE DATA





NOAA Atlas 14, Volume 2, Version 3
Location name: Front Royal, Virginia, USA*
Latitude: 38.9257°, Longitude: -78.186°
Elevation: 572 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.338 (0.304-0.376)	0.405 (0.364-0.451)	0.487 (0.437-0.542)	0.552 (0.493-0.613)	0.638 (0.567-0.706)	0.706 (0.625-0.780)	0.778 (0.683-0.857)	0.853 (0.744-0.938)	0.961 (0.830-1.06)	1.05 (0.896-1.15)
10-min	0.530 (0.476-0.590)	0.637 (0.572-0.709)	0.764 (0.686-0.850)	0.863 (0.771-0.958)	0.991 (0.881-1.10)	1.09 (0.966-1.21)	1.20 (1.05-1.32)	1.30 (1.14-1.43)	1.45 (1.25-1.59)	1.57 (1.34-1.72)
15-min	0.654 (0.588-0.728)	0.787 (0.707-0.876)	0.950 (0.852-1.06)	1.07 (0.958-1.19)	1.24 (1.10-1.37)	1.36 (1.20-1.50)	1.49 (1.31-1.64)	1.63 (1.42-1.79)	1.82 (1.57-2.00)	1.96 (1.68-2.16)
30-min	0.876 (0.788-0.975)	1.06 (0.957-1.19)	1.32 (1.18-1.47)	1.51 (1.35-1.68)	1.78 (1.58-1.96)	1.99 (1.76-2.19)	2.20 (1.94-2.43)	2.44 (2.12-2.68)	2.76 (2.38-3.04)	3.02 (2.58-3.33)
60-min	1.08 (0.970-1.20)	1.32 (1.18-1.47)	1.67 (1.50-1.86)	1.94 (1.74-2.16)	2.33 (2.07-2.58)	2.64 (2.34-2.92)	2.98 (2.62-3.28)	3.34 (2.92-3.68)	3.87 (3.34-4.26)	4.31 (3.69-4.75)
2-hr	1.28 (1.15-1.42)	1.56 (1.40-1.74)	1.99 (1.79-2.22)	2.34 (2.09-2.60)	2.84 (2.53-3.15)	3.26 (2.88-3.61)	3.72 (3.27-4.10)	4.23 (3.68-4.65)	4.97 (4.29-5.47)	5.61 (4.79-6.17)
3-hr	1.38 (1.24-1.54)	1.68 (1.51-1.88)	2.13 (1.91-2.38)	2.50 (2.23-2.78)	3.03 (2.69-3.36)	3.49 (3.08-3.86)	3.98 (3.49-4.40)	4.53 (3.94-4.99)	5.34 (4.59-5.88)	6.04 (5.14-6.65)
6-hr	1.72 (1.56-1.93)	2.08 (1.88-2.33)	2.62 (2.35-2.92)	3.06 (2.74-3.40)	3.70 (3.30-4.11)	4.26 (3.77-4.71)	4.86 (4.27-5.37)	5.53 (4.82-6.10)	6.54 (5.62-7.19)	7.39 (6.28-8.13)
12-hr	2.11 (1.91-2.36)	2.54 (2.29-2.84)	3.19 (2.87-3.54)	3.73 (3.34-4.14)	4.54 (4.04-5.02)	5.24 (4.62-5.78)	6.03 (5.27-6.63)	6.90 (5.97-7.57)	8.23 (7.01-9.02)	9.38 (7.89-10.3)
24-hr	2.49 (2.29-2.71)	3.00 (2.76-3.28)	3.79 (3.48-4.13)	4.45 (4.07-4.84)	5.41 (4.93-5.87)	6.22 (5.64-6.75)	7.11 (6.40-7.71)	8.08 (7.20-8.75)	9.50 (8.36-10.3)	10.7 (9.30-11.6)
2-day	2.89 (2.66-3.16)	3.49 (3.20-3.82)	4.40 (4.03-4.81)	5.14 (4.70-5.61)	6.23 (5.66-6.79)	7.14 (6.45-7.77)	8.13 (7.28-8.84)	9.20 (8.17-10.0)	10.8 (9.44-11.7)	12.1 (10.5-13.2)
3-day	3.08 (2.83-3.36)	3.72 (3.42-4.06)	4.67 (4.29-5.10)	5.46 (5.00-5.96)	6.60 (6.00-7.20)	7.55 (6.82-8.22)	8.56 (7.69-9.33)	9.66 (8.62-10.5)	11.3 (9.91-12.3)	12.6 (11.0-13.8)
4-day	3.27 (3.01-3.57)	3.94 (3.63-4.30)	4.95 (4.55-5.40)	5.78 (5.29-6.30)	6.97 (6.34-7.60)	7.95 (7.20-8.68)	9.00 (8.11-9.82)	10.1 (9.06-11.1)	11.8 (10.4-12.9)	13.1 (11.4-14.4)
7-day	3.79 (3.50-4.11)	4.55 (4.21-4.94)	5.66 (5.22-6.13)	6.54 (6.03-7.10)	7.79 (7.15-8.44)	8.81 (8.04-9.55)	9.89 (8.98-10.7)	11.0 (9.94-12.0)	12.6 (11.3-13.7)	13.9 (12.3-15.2)
10-day	4.33 (4.02-4.67)	5.18 (4.82-5.58)	6.35 (5.88-6.84)	7.26 (6.71-7.81)	8.51 (7.84-9.16)	9.50 (8.73-10.2)	10.5 (9.63-11.3)	11.6 (10.5-12.5)	13.0 (11.8-14.1)	14.2 (12.8-15.5)
20-day	5.81 (5.42-6.23)	6.90 (6.44-7.40)	8.24 (7.68-8.84)	9.28 (8.64-9.96)	10.7 (9.92-11.5)	11.8 (10.9-12.6)	12.9 (11.9-13.8)	14.0 (12.8-15.0)	15.5 (14.1-16.6)	16.6 (15.0-17.9)
30-day	7.12 (6.70-7.58)	8.40 (7.90-8.95)	9.85 (9.26-10.5)	11.0 (10.3-11.6)	12.4 (11.6-13.2)	13.5 (12.6-14.4)	14.6 (13.6-15.5)	15.6 (14.5-16.7)	17.0 (15.7-18.2)	18.0 (16.6-19.3)
45-day	8.88 (8.38-9.38)	10.4 (9.87-11.0)	12.1 (11.4-12.7)	13.3 (12.5-14.0)	14.8 (13.9-15.6)	15.9 (15.0-16.8)	17.0 (15.9-18.0)	18.0 (16.9-19.1)	19.3 (18.0-20.5)	20.2 (18.8-21.5)
60-day	10.6 (10.0-11.1)	12.4 (11.7-13.0)	14.1 (13.4-14.8)	15.4 (14.6-16.2)	17.0 (16.1-17.9)	18.1 (17.1-19.1)	19.2 (18.1-20.2)	20.2 (19.0-21.3)	21.4 (20.1-22.6)	22.2 (20.8-23.5)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

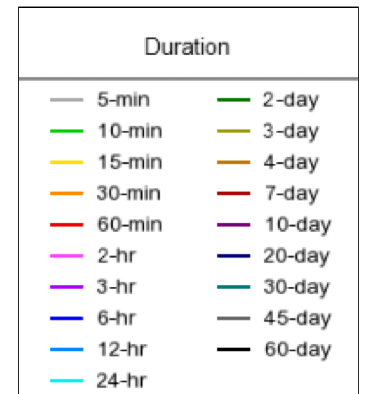
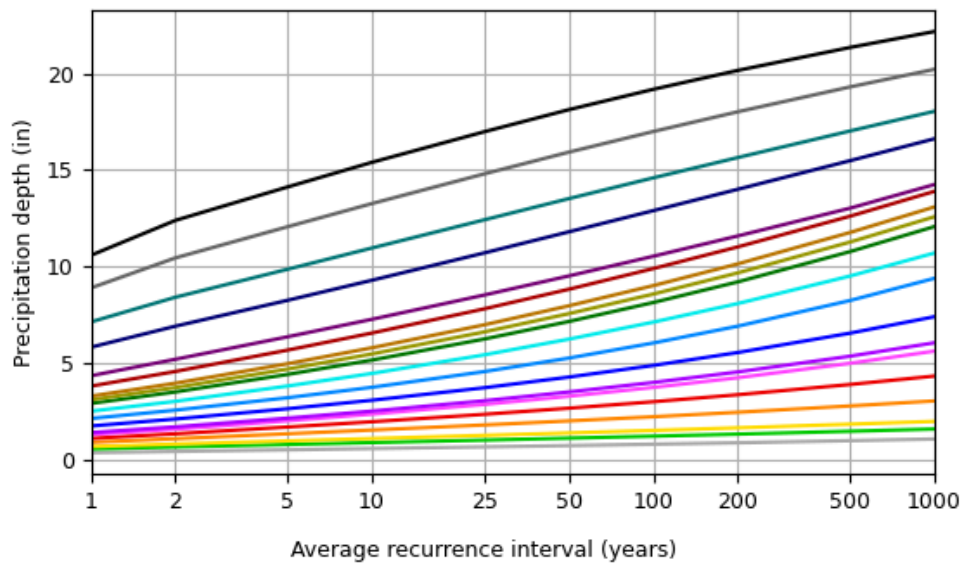
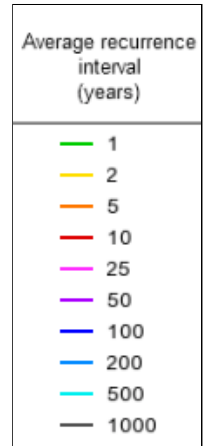
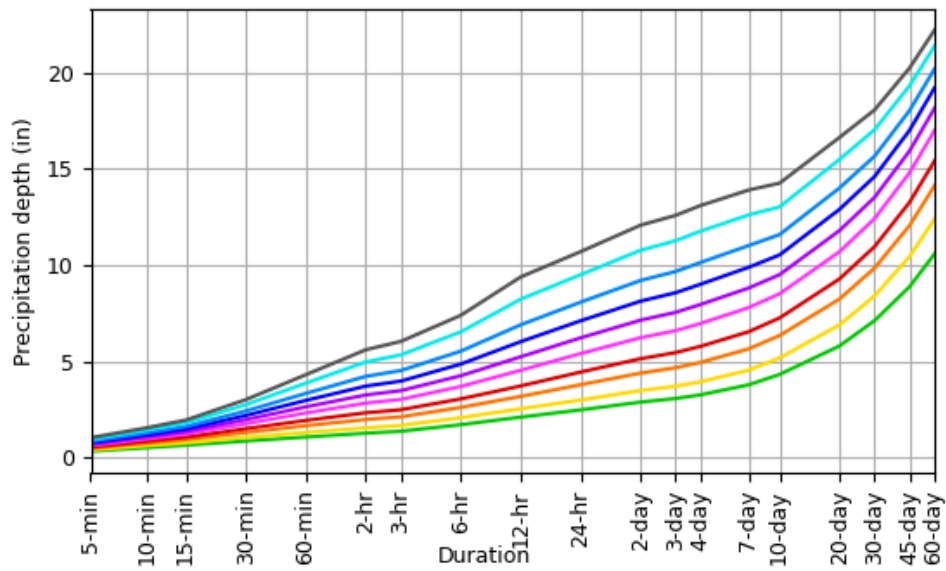
Please refer to NOAA Atlas 14 document for more information.

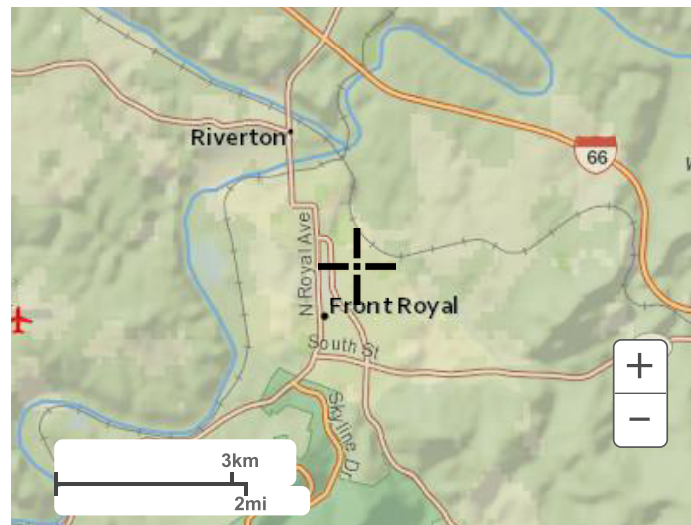
[Back to Top](#)

PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 38.9257°, Longitude: -78.1860°

[Back to Top](#)**Maps & aerals****Small scale terrain**



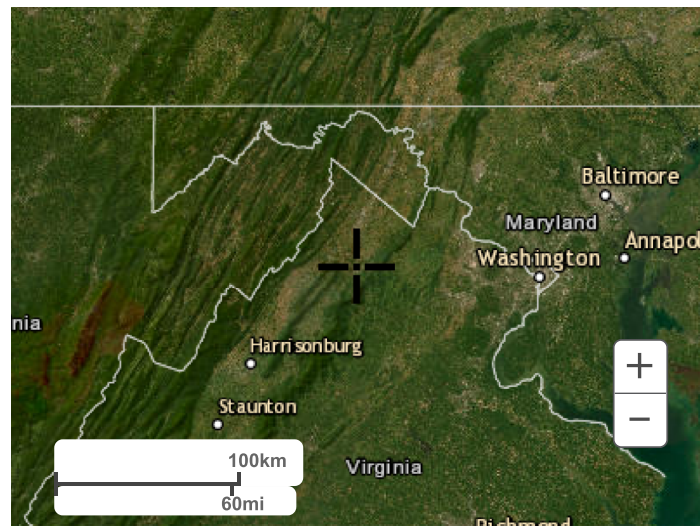
Large scale terrain



Large scale map



Large scale aerial



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1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov
[Disclaimer](#)

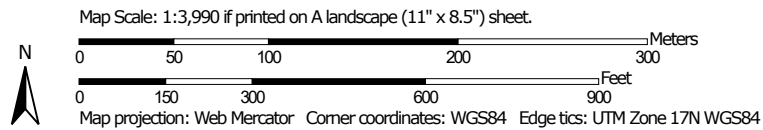
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Warren County, Virginia
Survey Area Data: Version 19, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 8, 2020—Sep 23, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
17B	Drayke loam, 2 to 7 percent slopes	3.7	6.0%
17C	Drayke loam, 7 to 15 percent slopes	37.4	60.2%
23D	Lodi silt loam, 15 to 25 percent slopes	3.1	4.9%
24D	Lodi silt loam, 15 to 25 percent slopes, rocky	18.0	28.9%
Totals for Area of Interest		62.2	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Warren County, Virginia

17B—Drayke loam, 2 to 7 percent slopes

Map Unit Setting

National map unit symbol: 30x26
Elevation: 400 to 1,800 feet
Mean annual precipitation: 38 to 46 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 140 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Drayke and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Drayke

Setting

Landform: Fans
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Colluvium weathered from rocks high ferromagnesium minerals

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 44 inches: clay
H3 - 44 to 66 inches: cobbly clay loam

Properties and qualities

Slope: 2 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F130AY005PA - Mixed Metamorphic - Metabasalt Footslopes And Terraces
Hydric soil rating: No

17C—Drayke loam, 7 to 15 percent slopes

Map Unit Setting

National map unit symbol: 30x27

Elevation: 400 to 1,800 feet

Mean annual precipitation: 38 to 46 inches

Mean annual air temperature: 46 to 59 degrees F

Frost-free period: 140 to 170 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Drayke and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Drayke

Setting

Landform: Mountain slopes

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Mountaintop

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Colluvium weathered from rocks high in ferromagnesium minerals

Typical profile

H1 - 0 to 9 inches: loam

H2 - 9 to 44 inches: clay

H3 - 44 to 66 inches: cobbly clay loam

Properties and qualities

Slope: 7 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B

Ecological site: F130AY005PA - Mixed Metamorphic - Metabasalt Foothills And
Terraces

Hydric soil rating: No

23D—Lodi silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: kdwb

Elevation: 440 to 870 feet

Mean annual precipitation: 38 to 46 inches

Mean annual air temperature: 46 to 59 degrees F

Frost-free period: 140 to 170 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Lodi and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lodi

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Residuum from weathered limestone

Typical profile

H1 - 0 to 6 inches: silt loam

H2 - 6 to 12 inches: clay loam

H3 - 12 to 41 inches: clay

H4 - 41 to 62 inches: clay

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: F147XY003PA - Mixed Limestone Upland

Hydric soil rating: No

24D—Lodi silt loam, 15 to 25 percent slopes, rocky

Map Unit Setting

National map unit symbol: kdwf

Elevation: 510 to 750 feet

Mean annual precipitation: 38 to 46 inches

Mean annual air temperature: 46 to 59 degrees F

Frost-free period: 140 to 170 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Lodi and similar soils: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lodi

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 6 inches: silt loam

H2 - 6 to 12 inches: clay loam

H3 - 12 to 41 inches: clay

H4 - 41 to 62 inches: clay

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Ecological site: F147XY003PA - Mixed Limestone Upland

Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Water Features

This folder contains tabular reports that present soil hydrology information. The reports (tables) include all selected map units and components for each map unit. Water Features include ponding frequency, flooding frequency, and depth to water table.

Hydrologic Soil Group and Surface Runoff (W Main Street_Front Royal)

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

Surface runoff refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

Report—Hydrologic Soil Group and Surface Runoff (W Main Street_Front Royal)

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff—Warren County, Virginia			
Map symbol and soil name	Pct. of map unit	Surface Runoff	Hydrologic Soil Group
17B—Drayke loam, 2 to 7 percent slopes			
Drayke	85	Medium	B
17C—Drayke loam, 7 to 15 percent slopes			
Drayke	85	Medium	B
23D—Lodi silt loam, 15 to 25 percent slopes			
Lodi	85	High	B
24D—Lodi silt loam, 15 to 25 percent slopes, rocky			
Lodi	90	High	B

SECTION 2.

EROSION CONTROL

CALCULATIONS



Design Calculations for Sediment Trap

Project Name: Pleasant Hill Townhomes

Designer: Monteverde Engineering & Design Studio

- The following are the calculations for the volume of the proposed trap:

Drainage Area Contributing to Sediment Trap: 1.08 acres

Total Storage Required = 134 C.Y./acre = 134 C.Y./acre x 1.08 acres: 145 C.Y. or 3,907 C.F

Cleanout Storage Required = 34 C.Y./acre = 34 C.Y./acre x 1.08 acres: 36.7 C.Y. or 991 C.F.

Wet Storage Required = 67 C.Y./acre = 67 C.Y./acre x 1.08 acres: 72.4 C.Y. or 1,954 C.F

Dry Storage Required = 67 C.Y./acre = 67 C.Y./acre x 1.08 acres: 72.4 C.Y. or 1,954 C.F

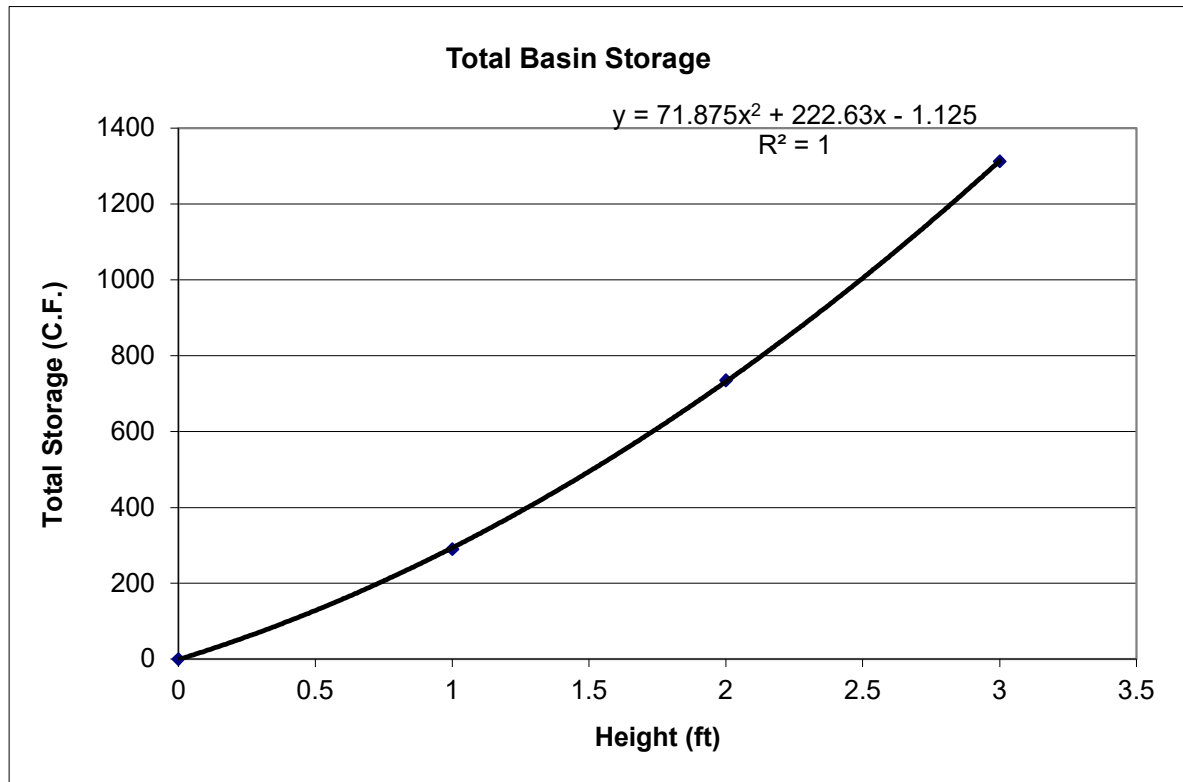
- The following displays the contour area for the proposed trap:

Elevation (ft)	Contour Area (S.F.)
<u>616.00</u>	<u>407</u>
<u>617.00</u>	<u>697</u>
<u>618.00</u>	<u>1,062</u>
<u>619.00</u>	<u>1,503</u>
<u>620.00</u>	<u>1,988</u>

- The following chart displays the total storage for the trap in increments of varying feet.
0 corresponds to the bottom elevation of 616.00

Elevation (ft)	Total Storage (C.F.)	Total Storage (C.Y.)
0.00	0	0
1.00	552	20
2.00	1,432	53
3.00	2,714	101
4.00	4,460	165

- The following graph is the total storage plotted against the elevation:



- The wet storage elevation was calculated to be at a volume of 1,954 C.F. or 72.4 C.Y.
The equation from the graph can be solved for x to determine the elevation corresponding to the required wet storage volume:

Height, x (ft)	Wet Storage, y (C.F.)
2.44	1,954

The wet storage elevation is 2.44 ft from the bottom: 618.44

- The dry storage elevation was calculated to be at a volume of 3,907 C.F. or 145 C.Y.
The equation from the graph can be solved for x to determine the elevation corresponding to the required dry storage volume:

Height, x (ft)	Dry Storage, y (C.F.)
3.75	3,907

The dry storage elevation is 3.75 ft from the bottom: 619.75

- Cleanout: The sediment must be removed when it occupies half of the wet storage volume.
The c/o storage elevation was calculated to be at a volume of 991 C.F. or 36.7 C.Y.
The equation from the graph can be solved for x to determine the elevation corresponding to the required cleanout storage volume:

Height, x (ft)	Cleanout Storage, y (C.F.)
1.55	991

The cleanout storage elevation is 1.55 ft from the bottom: 617.55

- Sediment Trap Geometry:

Side Slopes = 2:1
 Outlet Elevation = 618.44
 Embankment Height = (Dry Storage + 1.0' Freeboard) - Original Ground Level
 (619.75 + 1.0') - 618.00 = 2.75 ft
 Top Width = 2.50 ft
 Length of Outlet = 6 x acreage = 6.50 ft

Design Calculations for Sediment Basin

Project Name

- The following is the calculations for the volume of the proposed basin:

Drainage Area Contributing to Sediment Basin: 2.00 acres

Total Storage Required = 134 C.Y./acre = 134 C.Y./acre x 2 acres: 268 C.Y. or 7,236 C.F.

Cleanout Storage Required = 34 C.Y./acre = 34 C.Y./acre x 2 acres: 68 C.Y. or 1,836 C.F.

Wet Storage Required = 67 C.Y./acre = 67 C.Y./acre x 2 acres: 134 C.Y. or 3,618 C.F.

Dry Storage Required = 67 C.Y./acre = 67 C.Y./acre x 2 acres: 134 C.Y. or 3,618 C.F.

- Pond Design Data:

Area	=	2.00	acres	
C	=	<u>0.30</u>		
Tc	=	<u>14</u>	min	
Q25	=	<u>2.74</u>	cfs	
Q2	=	<u>2.38</u>	cfs	
Outlet Pipe Dia.	=	<u>48</u>	inches	(From Plate 3.14-8)

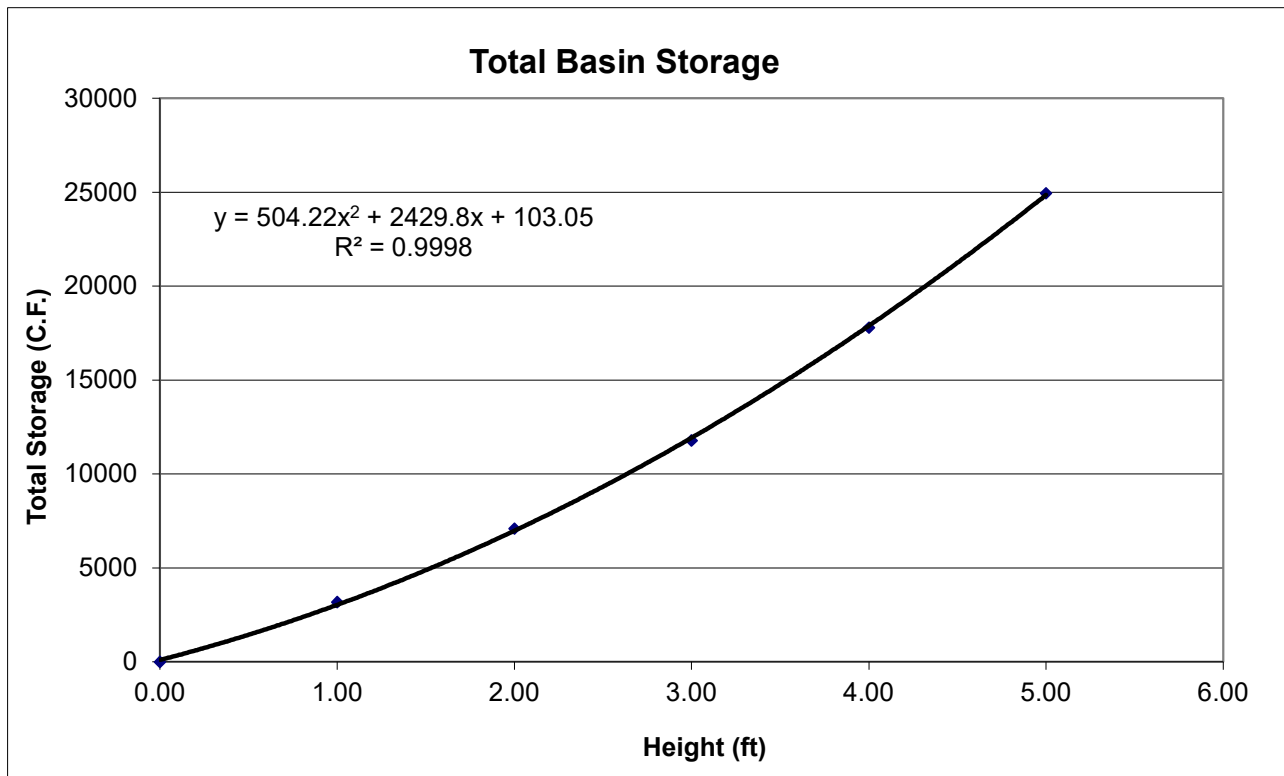
- The following displays the contour area for the proposed basin:

Elevation (ft)	Contour Area (S.F.)
<u>601.00</u>	<u>2,825</u>
<u>602.00</u>	<u>3,530</u>
<u>603.00</u>	<u>4,293</u>
<u>604.00</u>	<u>5,110</u>
<u>605.00</u>	<u>6,900</u>
<u>606.00</u>	<u>7,400</u>

- The following chart displays the total storage for the basin in increments of varying feet.
0 corresponds to the bottom elevation 601.00

Elevation (ft)	Total Storage (C.F.)	Total Storage (C.Y.)
<u>0.00</u>	0	0
<u>1.00</u>	3,178	118
<u>2.00</u>	7,089	263
<u>3.00</u>	11,791	437
<u>4.00</u>	17,796	659
<u>5.00</u>	24,946	924

- The following graph is the total storage plotted against the elevation:



- The wet storage elevation was calculated to be at a volume of 3,618 C.F. or 134 C.Y. The equation from the graph can be solved for x to determine the elevation corresponding to the required wet storage volume:

Height,x (ft)	Wet Storage,y (C.F.)
1.12	3,459

The wet storage elevation is 1.12 ft from the bottom: 602.12

- The dry storage elevation was calculated to be at a volume of 7,236 C.F. or 268 C.Y. The equation from the graph can be solved for x to determine the elevation corresponding to the required dry storage volume:

Height,x (ft)	Dry Storage,y (C.F.)
2.03	7,123

The dry storage elevation is 2.03 ft from the bottom: 603.03

- **Cleanout:** The sediment must be removed when it occupies half of the wet storage volume. The c/o storage elevation was calculated to be at a volume of 1,836 C.F. or 68 C.Y. The equation from the graph can be solved for x to determine the elevation corresponding to the required cleanout storage volume:

Height,x (ft)	Cleanout Storage,y (C.F.)
0.61	1,738

The cleanout storage elevation is 0.61 ft from the bottom: 601.61

- **Dewatering Orifice:** Using the modified version of the discharge equation and the basic equation for the area of a circular orifice in Chapter 3 of VESCH, the dewatering orifice is sized to provide a minimum 6 hour drawdown time:

$$Q = S / 21,600 \text{ sec.} = 3,459 / 21,600 \text{ sec.} = 0.16 \text{ cfs}$$

$$A = \frac{Q}{0.6 \sqrt{64.32 \times h}} = \frac{0.16}{0.6 \sqrt{64.32 \times 0.45}} = 0.05 \text{ S.F.}$$

$$d = 2 \sqrt{A / 3.14} = \sqrt{2 \times 0.05 / 3.14} = 0.25 \text{ ft} = 3 \text{ in}$$

Orifice Diameter = 3 in
 Perforated Tube Diameter = 5 in (orifice diameter + 2")
 Perforated Tube Height = 0.41 ft
 Top of Dam = 606.03

- **Anti-Seep Collar Design (From VESCH)**

Depth of water at principal spillway crest (Y) = 2.03 ft
 Slope of upstream face of embankment (Z) = 2.5 :1
 Slope of principal spillway barrel (S_b) = 0.15 ft/ft
 Length of barrel in saturated zone (L_s) = 33.0199 ft
 Number of collars required = 1 (From Plate 3.14-12)
 Projection (V) = 3.4 ft (From Plate 3.14-12)
 Principal Spillway Diameter = 1.25 ft
 Projection (P) = 1.1 ft
 Collar Spacing from Riser (2P) = 2.15 ft
 Collar Spacing from previous collar (14P) = 15.05 ft

- **Final Design Elevations**

Top of Dam = 606.00
 Emergency Spillway Elevation = 604.03
 Top of Riser = 603.03
 Dewatering Orifice Invert = 602.12
 Cleanout Elevation = 601.61
 Bottom Elevation = 601.00
 Riser Diameter = 48 Inch
 Dewatering Orifice Diameter = 3 Inch

SECTION 3.
STORMWATER
CALCULATIONS
AND
WATER QUALITY ANALYSIS



Project Name: Squirrel Hill Development - POA #1
 Address /Tax Map #: 344 W Main St, Front Royal, VA 22630
 Engineer: MV

VSMP Water Quantity Compliance

Energy Balance Equation:

$$Q_{1\text{-yr-Developed}} \leq I.F. * Q_{1\text{-yr-Pre-developed}} * (RV_{1\text{-yr-Pre-Developed}} / RV_{1\text{-yr-Developed}})$$

I.F. = Improvement Factor (0.8 for sites > 1 ac or 0.9 for sites ≤ 1 acre)

$Q_{1\text{-yr-Developed}}$ = 1-yr Post-Developed flow rate (cfs)

$Q_{1\text{-yr-Pre-developed}}$ = 1-yr Pre-Developed flow rate (cfs)

$RV_{1\text{-yr-Pre-Developed}}$ = Pre-Developed Runoff Volume (cf)

$RV_{1\text{-yr-Developed}}$ = Post-Developed Runoff Volume (cf)

$Q_{1\text{-yr-Developed}}$ =	1.950 cfs	Total to POA
$Q_{1\text{-yr-Pre-developed}}$ =	4.742 cfs	Onsite to POA
$RV_{1\text{-yr-Pre-Developed}}$ =	11875 cf	Onsite to POA
$RV_{1\text{-yr-Developed}}$ =	18986 cf	Onsite to POA
Offsite 1yr	0.094 cfs	Total Offsite to POA
Area =	6 ac	
I.F. =	0.8	

$$Q_{1\text{-yr-Developed}} \leq I.F. * Q_{1\text{-yr-Pre-developed}} * (RV_{1\text{-yr-Pre-Developed}} / RV_{1\text{-yr-Developed}})$$

1.950	<	2.467
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Project Name: Squirrel Hill Development - POA #2
 Address /Tax Map #: 344 W Main St, Front Royal, VA 22630
 Engineer: MV

VSMP Water Quantity Compliance

Energy Balance Equation:

$$Q_{1\text{-yr-Developed}} \leq I.F. * Q_{1\text{-yr-Pre-developed}} * (RV_{1\text{-yr-Pre-Developed}} / RV_{1\text{-yr-Developed}})$$

I.F. = Improvement Factor (0.8 for sites > 1 ac or 0.9 for sites ≤ 1 acre)

$Q_{1\text{-yr-Developed}}$ = 1-yr Post-Developed flow rate (cfs)

$Q_{1\text{-yr-Pre-developed}}$ = 1-yr Pre-Developed flow rate (cfs)

$RV_{1\text{-yr-Pre-Developed}}$ = Pre-Developed Runoff Volume (cf)

$RV_{1\text{-yr-Developed}}$ = Post-Developed Runoff Volume (cf)

$Q_{1\text{-yr-Developed}}$ =	0.580 cfs	Total to POA
$Q_{1\text{-yr-Pre-developed}}$ =	0.677 cfs	Onsite to POA
$RV_{1\text{-yr-Pre-Developed}}$ =	1377 cf	Onsite to POA
$RV_{1\text{-yr-Developed}}$ =	1207 cf	Onsite to POA

Area = 6 ac

I.F. = 0.8

$$Q_{1\text{-yr-Developed}} \leq I.F. * Q_{1\text{-yr-Pre-developed}} * (RV_{1\text{-yr-Pre-Developed}} / RV_{1\text{-yr-Developed}})$$

0.580	<	0.618
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Project Name: Squirrel Hill Development - POA #3
 Address /Tax Map #: 344 W Main St, Front Royal, VA 22630
 Engineer: MV

VSMP Water Quantity Compliance

Energy Balance Equation:

$$Q_{1\text{-yr-Developed}} \leq I.F. * Q_{1\text{-yr-Pre-developed}} * (RV_{1\text{-yr-Pre-Developed}} / RV_{1\text{-yr-Developed}})$$

I.F. = Improvement Factor (0.8 for sites > 1 ac or 0.9 for sites ≤ 1 acre)

$Q_{1\text{-yr-Developed}}$ = 1-yr Post-Developed flow rate (cfs)

$Q_{1\text{-yr-Pre-developed}}$ = 1-yr Pre-Developed flow rate (cfs)

$RV_{1\text{-yr-Pre-Developed}}$ = Pre-Developed Runoff Volume (cf)

$RV_{1\text{-yr-Developed}}$ = Post-Developed Runoff Volume (cf)

$Q_{1\text{-yr-Developed}}$ =	0.220 cfs	Total to POA
$Q_{1\text{-yr-Pre-developed}}$ =	0.23 cfs	Onsite to POA
$RV_{1\text{-yr-Pre-Developed}}$ =	666 cf	Onsite to POA
$RV_{1\text{-yr-Developed}}$ =	459 cf	Onsite to POA
Offsite 1yr	0.22 cfs	Total Offsite to POA
Area =	6 ac	
I.F. =	0.8	

$$Q_{1\text{-yr-Developed}} \leq I.F. * Q_{1\text{-yr-Pre-developed}} * (RV_{1\text{-yr-Pre-Developed}} / RV_{1\text{-yr-Developed}})$$

0.440	<	0.487
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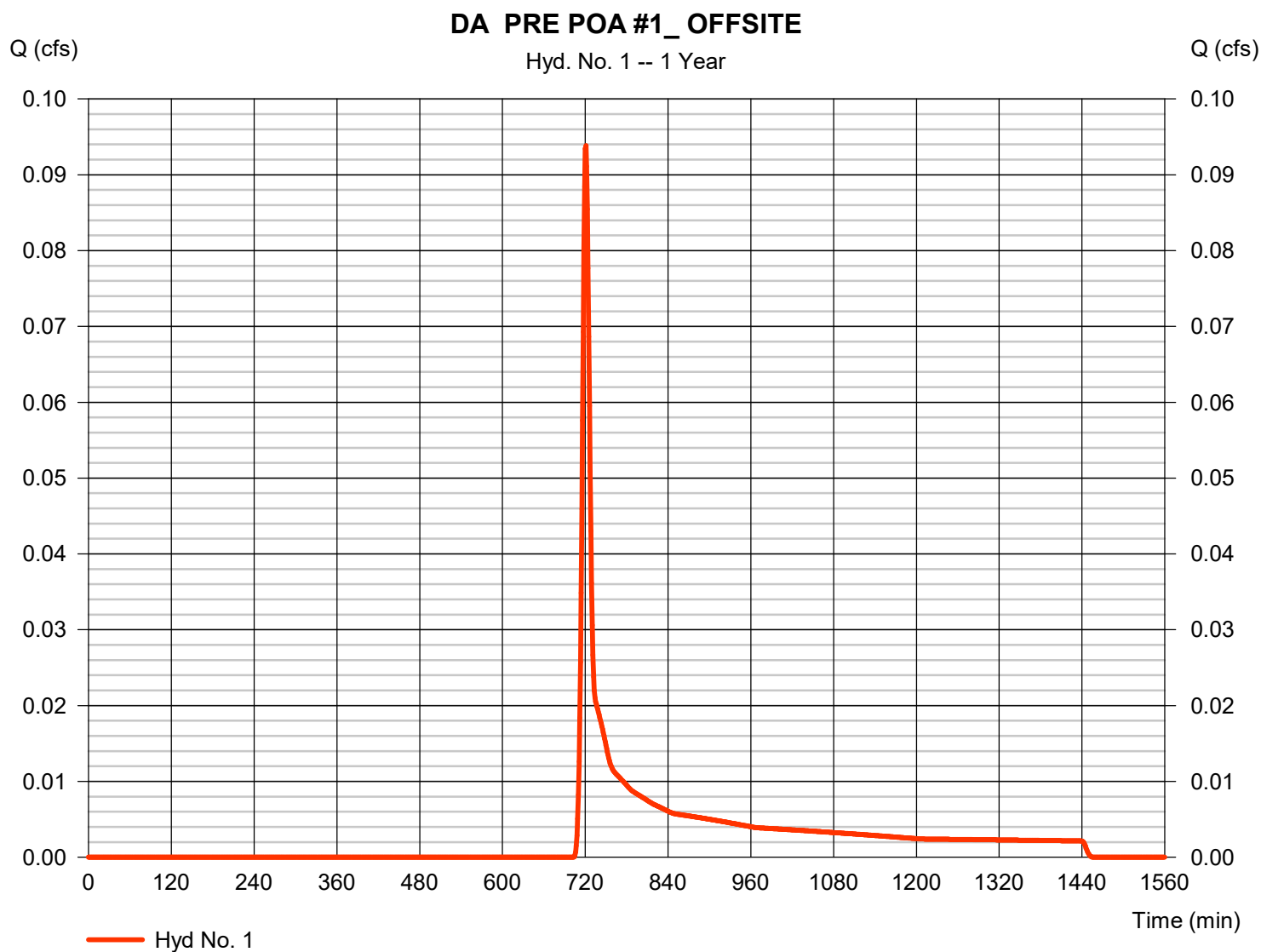
Monday, 07 / 15 / 2024

Hyd. No. 1

DA PRE POA #1_ OFFSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.094 cfs
Storm frequency	=	1 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	257 cuft
Drainage area	=	0.170 ac	Curve number	=	69*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.20 min
Total precip.	=	2.49 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = + (0.170 x 69) / 0.170



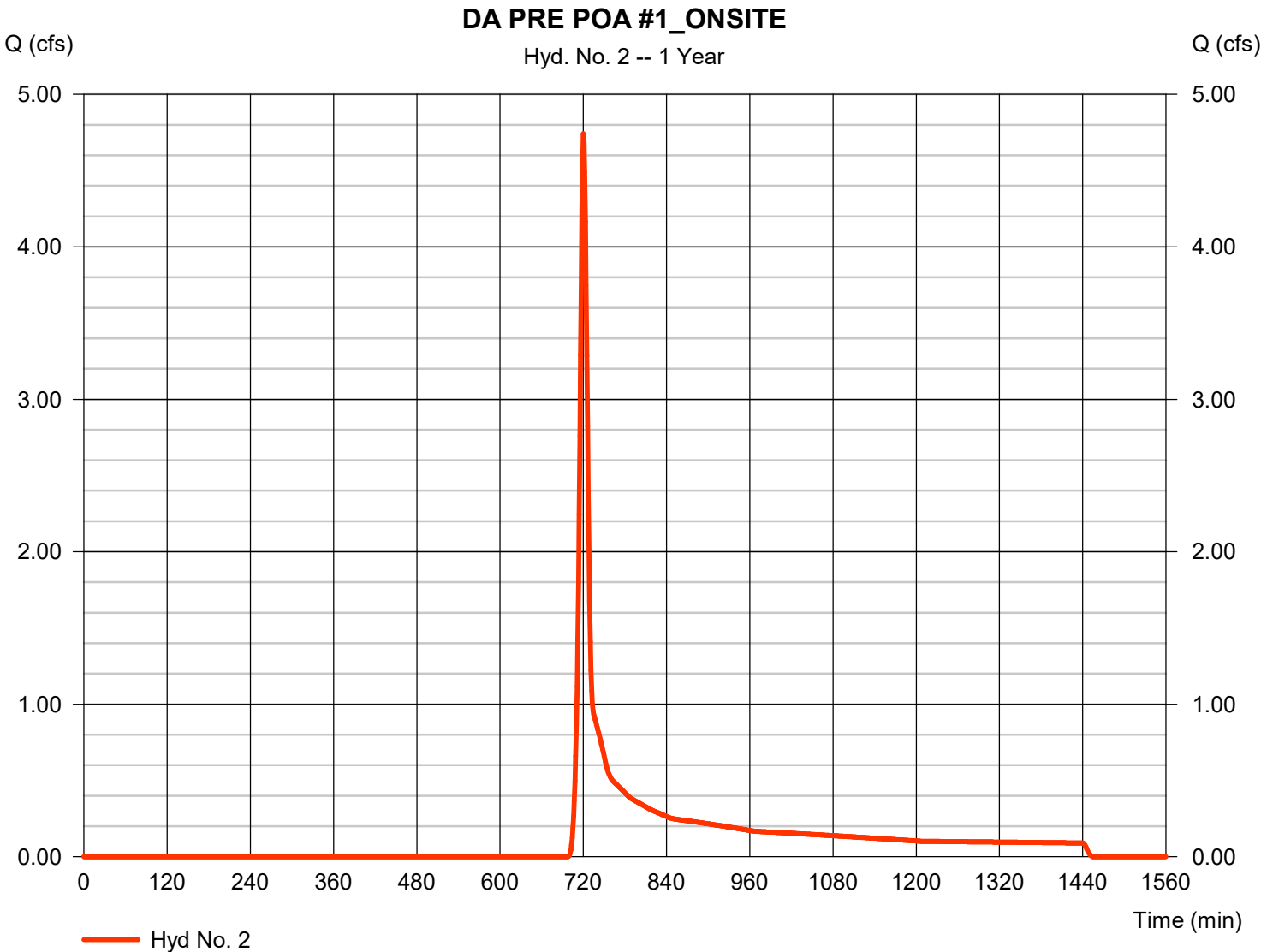
Hydrograph Report

Hyd. No. 2

DA PRE POA #1_ONSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.742 cfs
Storm frequency	=	1 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	11,875 cuft
Drainage area	=	6.250 ac	Curve number	=	72*
Basin Slope	=	7.7 %	Hydraulic length	=	848 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.20 min
Total precip.	=	2.49 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.600 x 98) + (5.650 x 69)] / 6.250



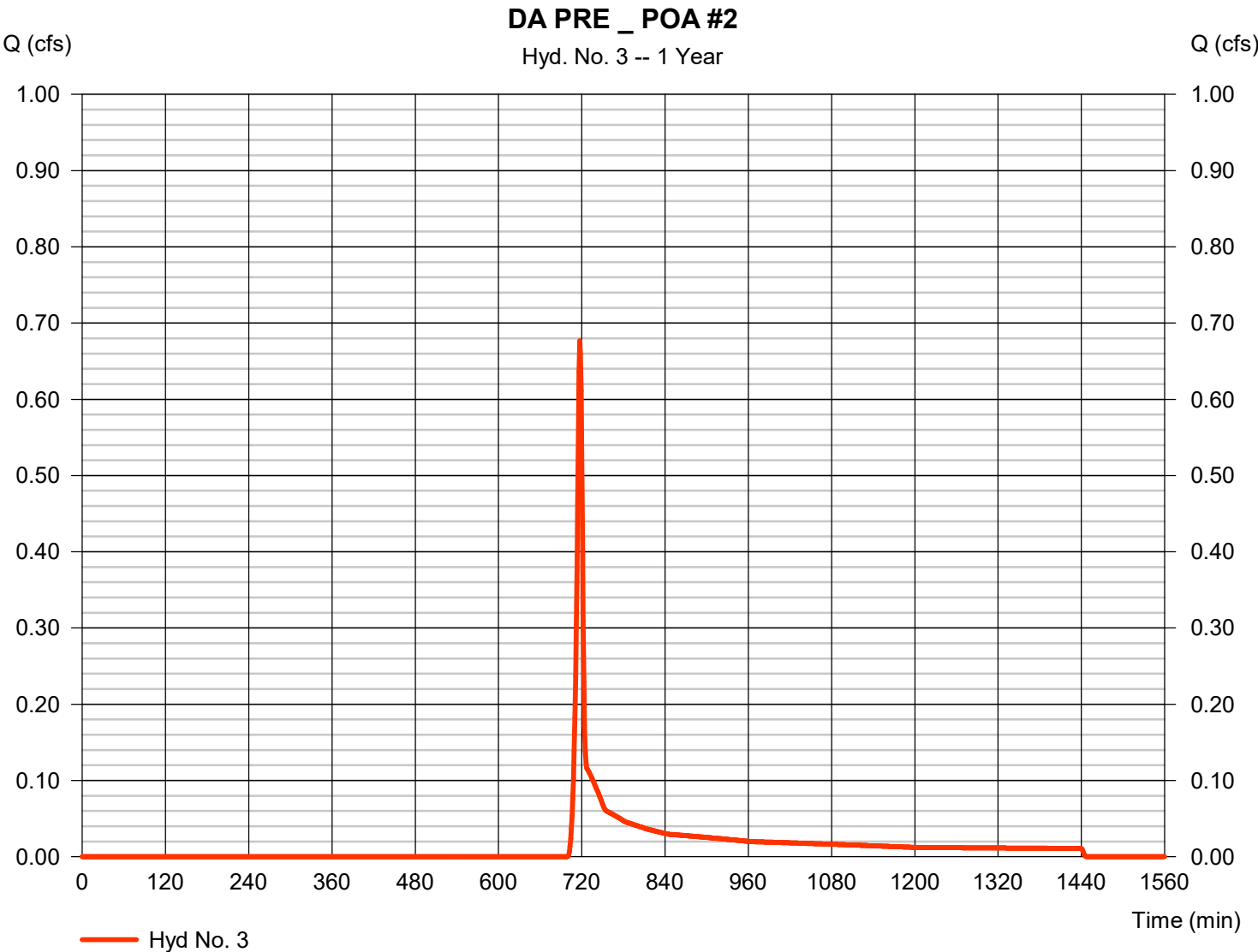
Hydrograph Report

Hyd. No. 3

DA PRE _ POA #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.677 cfs
Storm frequency	=	1 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	1,377 cuft
Drainage area	=	0.780 ac	Curve number	=	71*
Basin Slope	=	7.9 %	Hydraulic length	=	254 ft
Tc method	=	TR55	Time of conc. (Tc)	=	4.70 min
Total precip.	=	2.49 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.050 x 98) + (0.730 x 69)] / 0.780



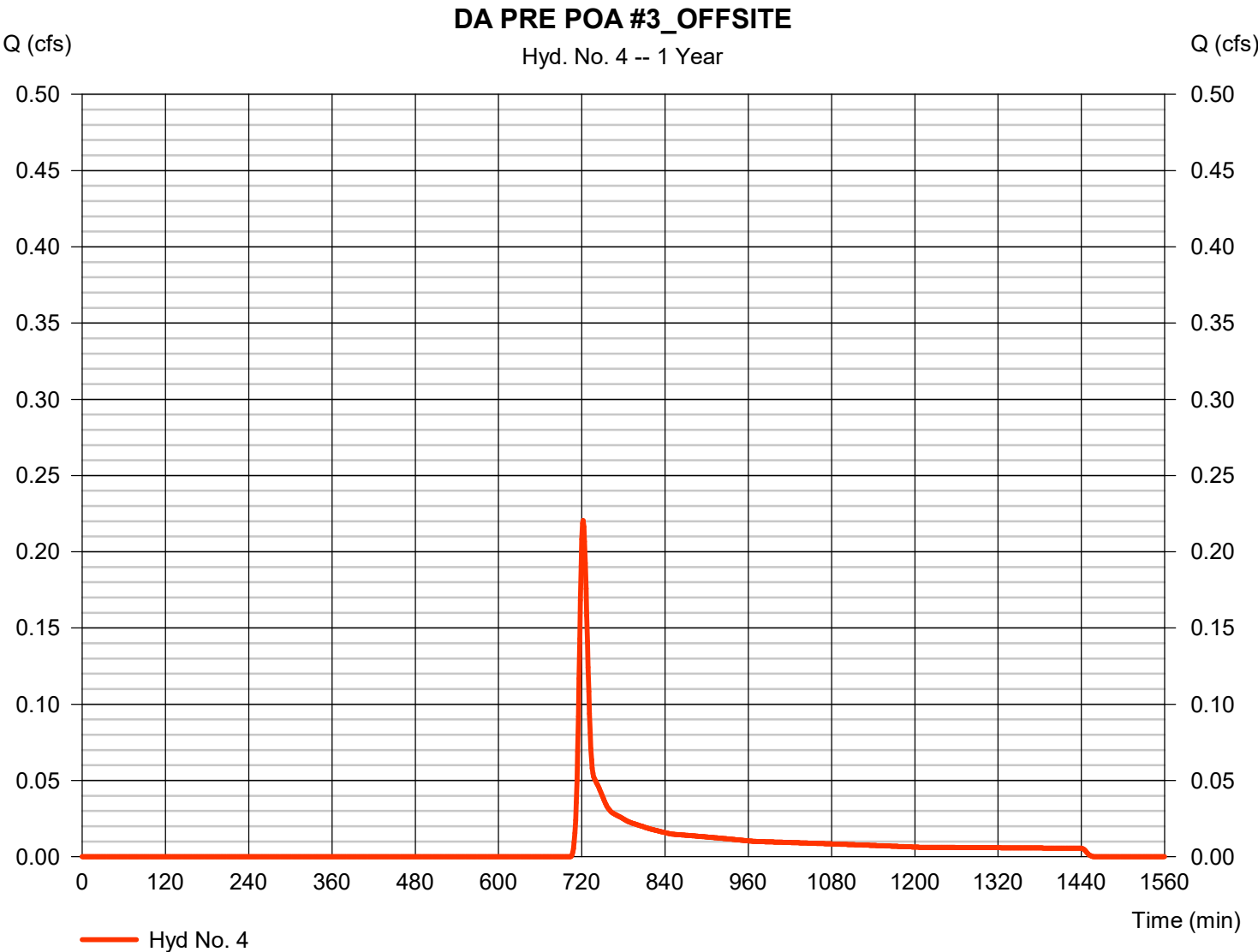
Hydrograph Report

Hyd. No. 4

DA PRE POA #3_OFFSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.220 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	1 min	Hyd. volume	=	661 cuft
Drainage area	=	0.430 ac	Curve number	=	69*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.40 min
Total precip.	=	2.49 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.430 x 69)] / 0.430



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Monday, 07 / 15 / 2024

Hyd. No. 5

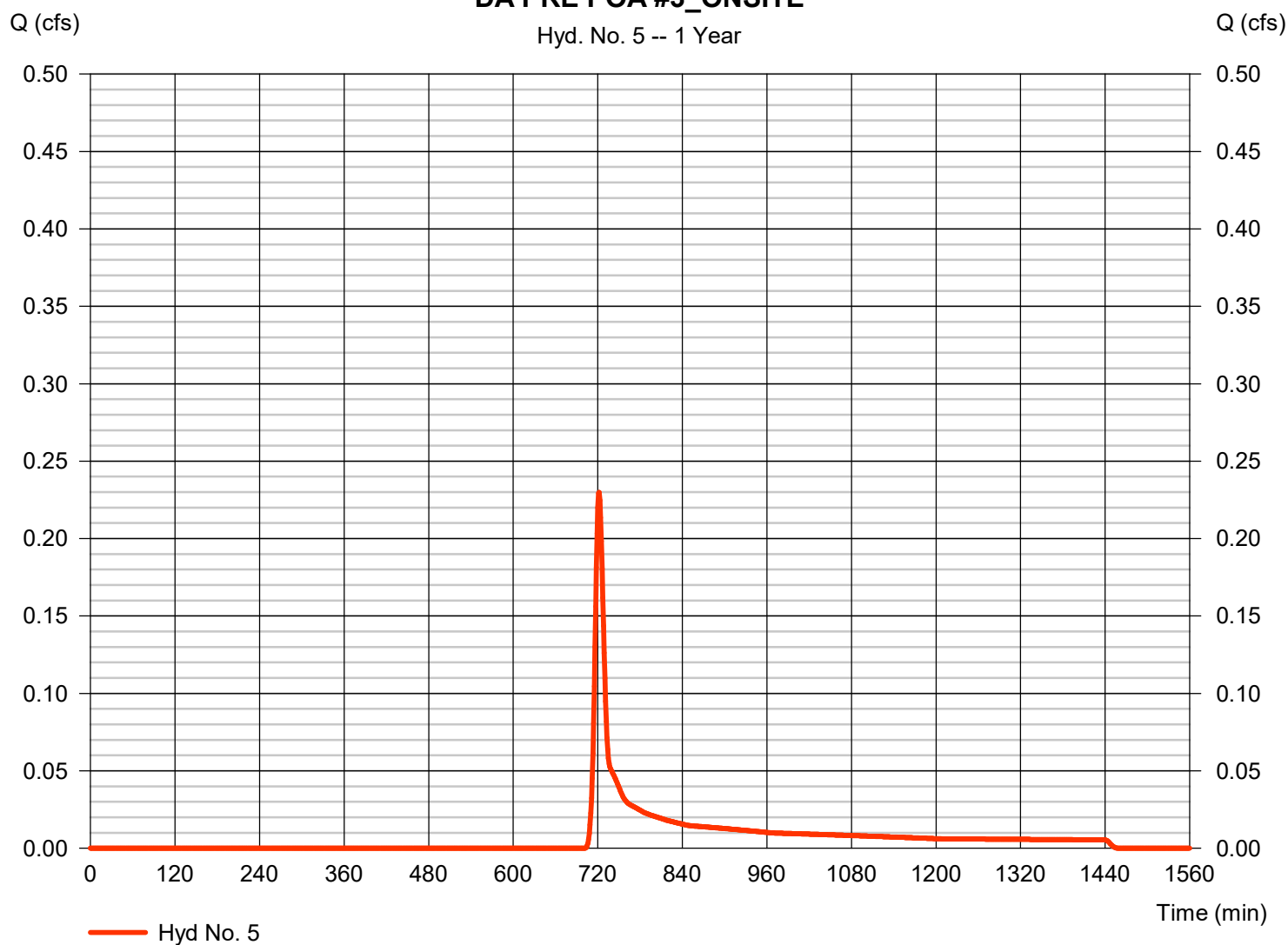
DA PRE POA #3_ONSITE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.230 cfs
Storm frequency	= 1 yrs	Time to peak	= 722 min
Time interval	= 1 min	Hyd. volume	= 666 cuft
Drainage area	= 0.400 ac	Curve number	= 70*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 11.40 min
Total precip.	= 2.49 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(0.010 \times 98) + (0.390 \times 69)] / 0.400$

DA PRE POA #3_ONSITE

Hyd. No. 5 -- 1 Year



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

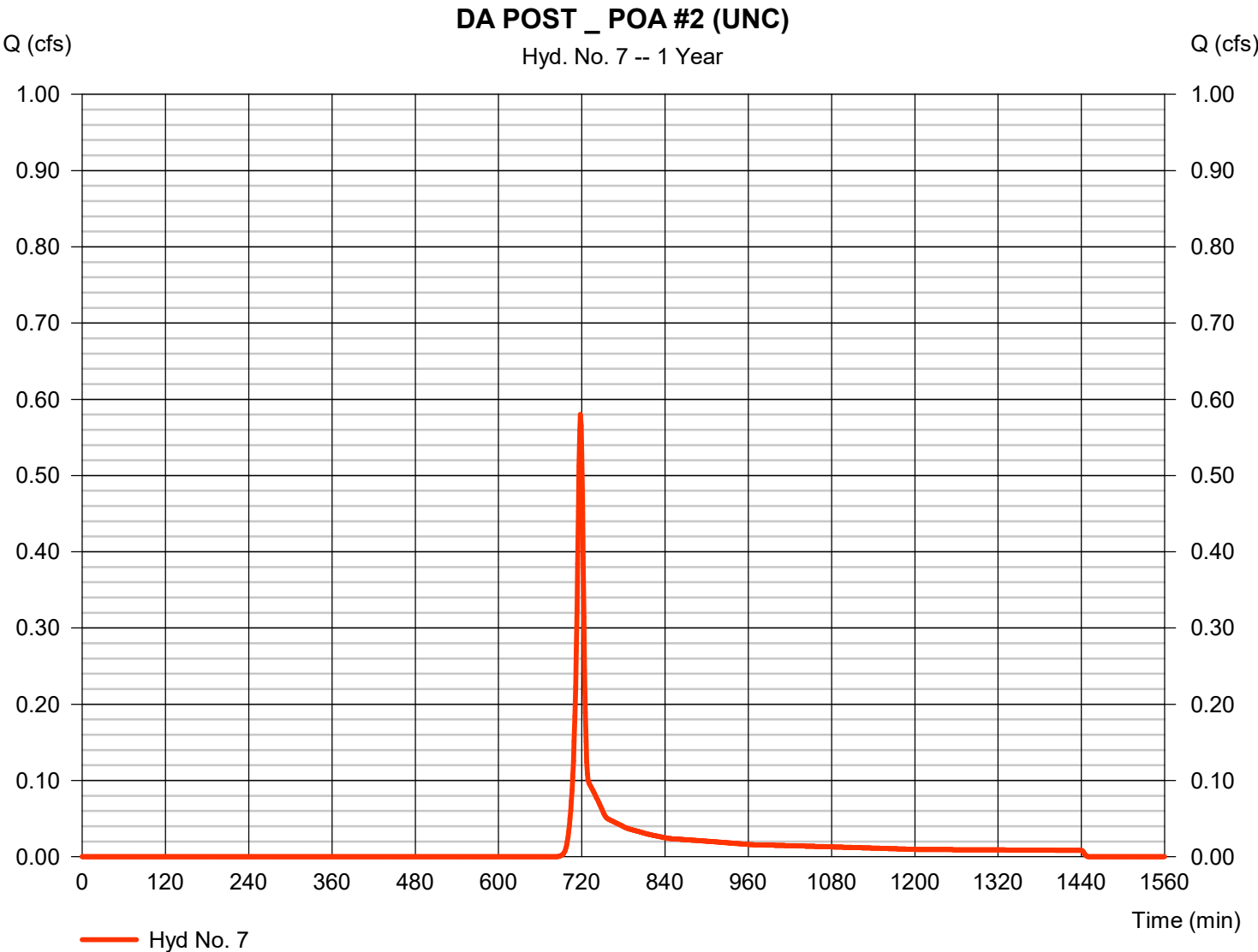
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Hyd. No. 7

DA POST _ POA #2 (UNC)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.580 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	1,207 cuft
Drainage area	=	0.500 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.49 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 98) + (0.400 x 69)] / 0.500



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

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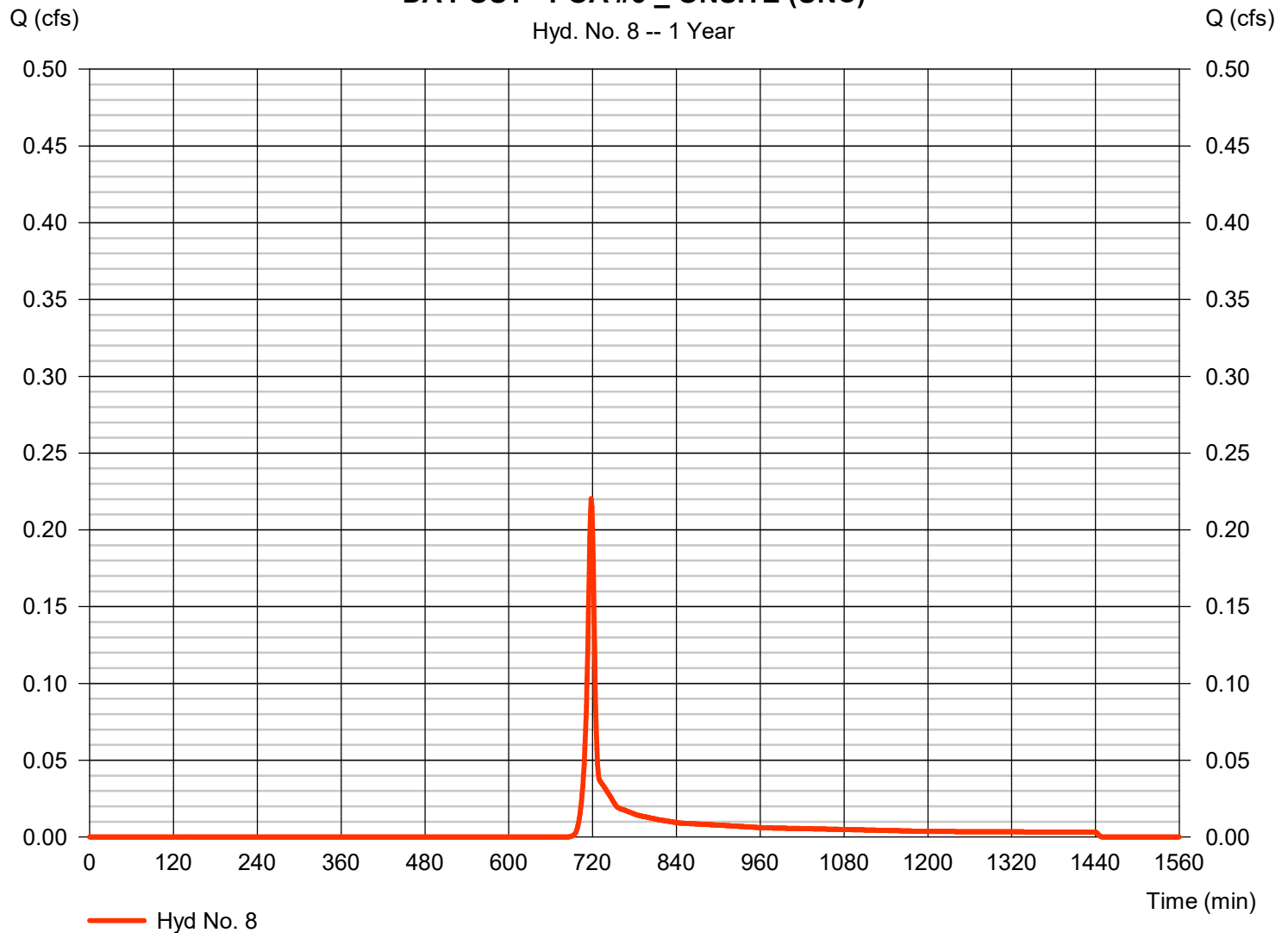
Hyd. No. 8

DA POST - POA #3 _ ONSITE (UNC)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.220 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 459 cuft
Drainage area	= 0.190 ac	Curve number	= 75*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 2.49 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(0.150 \times 69) + (0.040 \times 98)] / 0.190$

DA POST - POA #3 _ ONSITE (UNC)



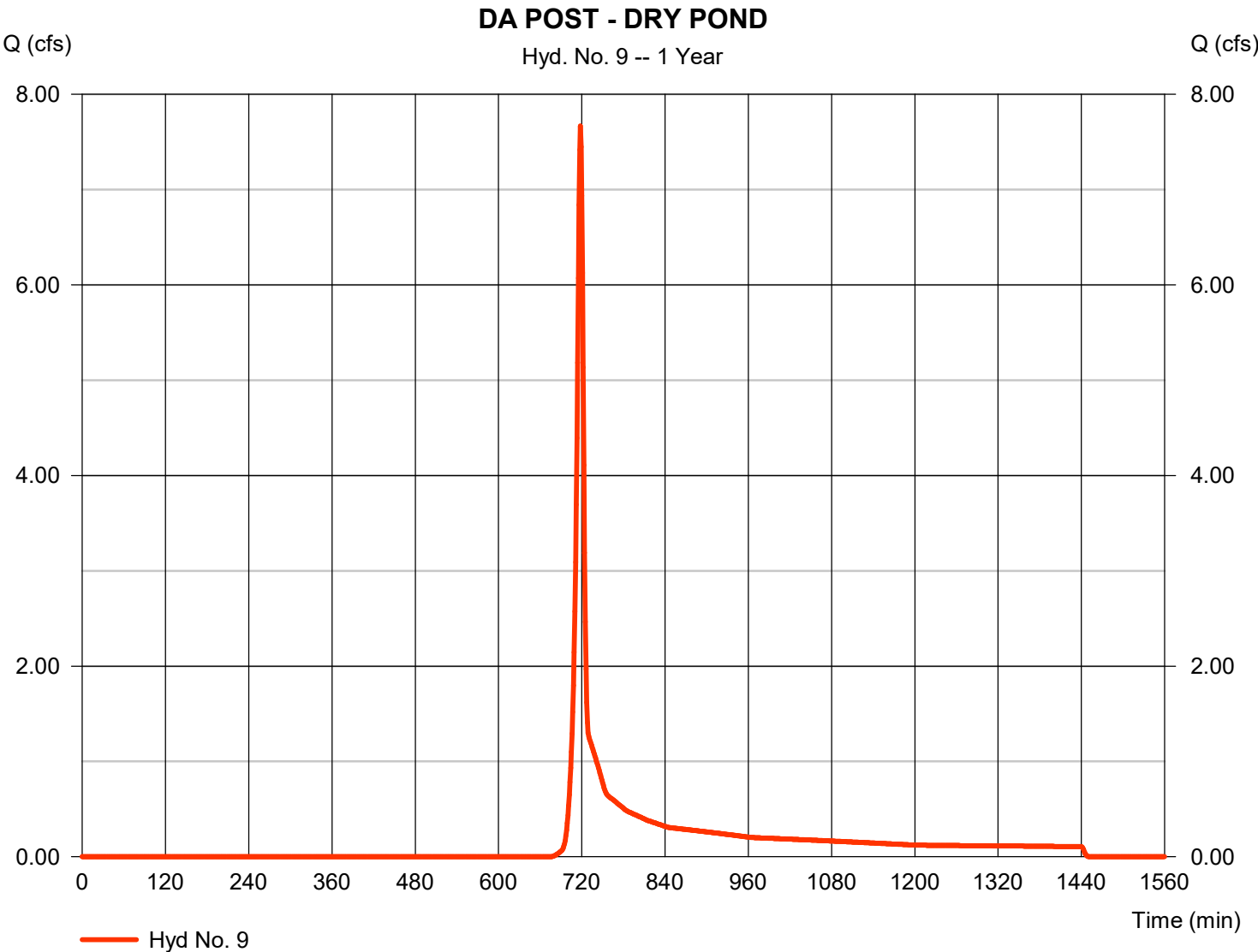
Hydrograph Report

Hyd. No. 9

DA POST - DRY POND

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.669 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	15,799 cuft
Drainage area	=	6.130 ac	Curve number	=	76*
Basin Slope	=	7.8 %	Hydraulic length	=	847 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.49 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.510 x 98) + (4.620 x 69)] / 6.130



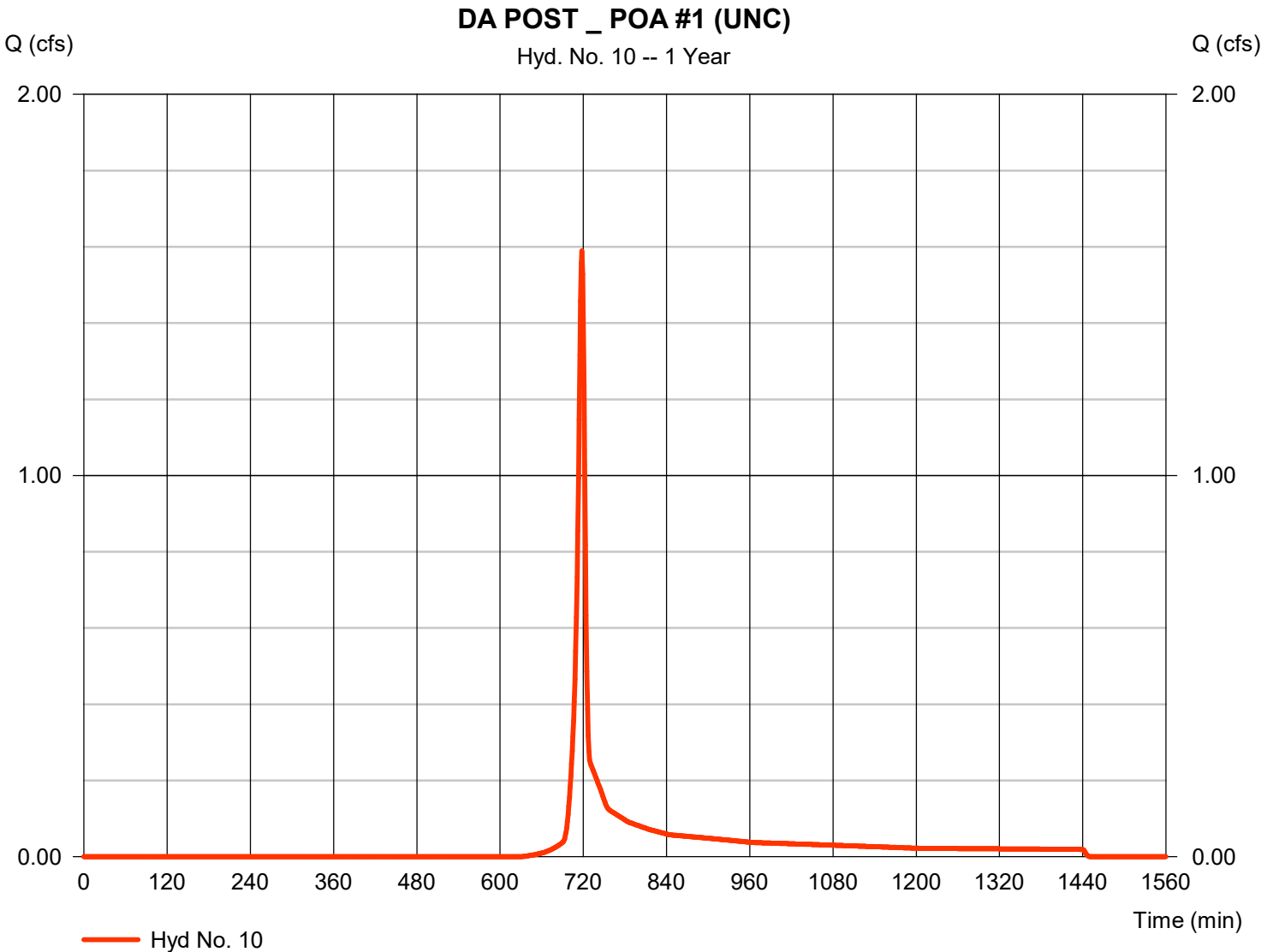
Hydrograph Report

Hyd. No. 10

DA POST _ POA #1 (UNC)

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.589 cfs
Storm frequency	=	1 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	3,203 cuft
Drainage area	=	0.970 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	2.49 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.370 x 98) + (0.600 x 69)] / 0.970



Hydrograph Report

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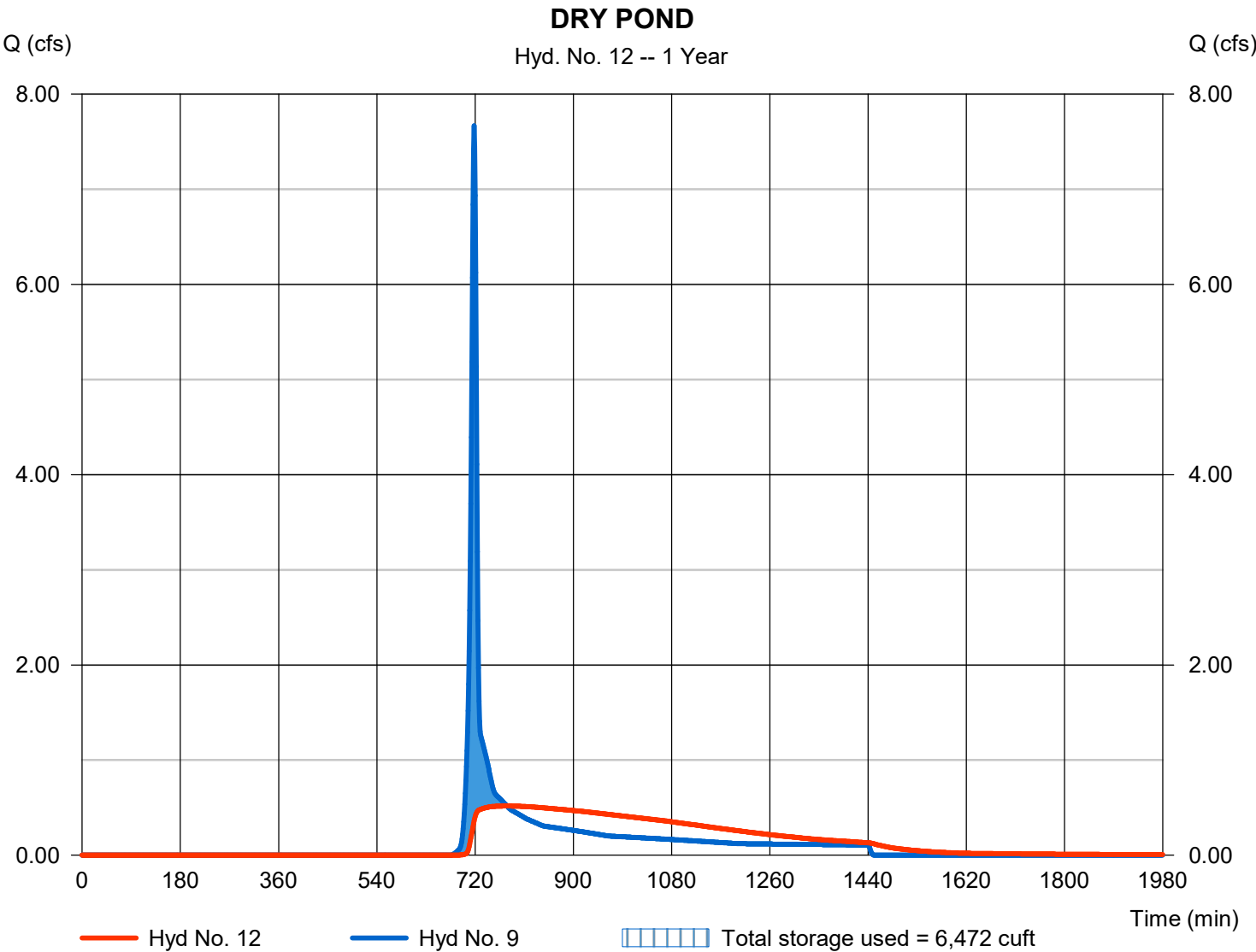
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Hyd. No. 12

DRY POND

Hydrograph type	= Reservoir	Peak discharge	= 0.517 cfs
Storm frequency	= 1 yrs	Time to peak	= 779 min
Time interval	= 1 min	Hyd. volume	= 15,784 cuft
Inflow hyd. No.	= 9 - DA POST - DRY POND	Max. Elevation	= 602.84 ft
Reservoir name	= Dry Pond	Max. Storage	= 6,472 cuft

Storage Indication method used.



Pond No. 1 - Dry Pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 601.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	601.00	2,826	0	0
1.00	602.00	3,532	3,172	3,172
2.00	603.00	4,295	3,907	7,079
3.00	604.00	5,115	4,699	11,778
4.00	605.00	5,990	5,546	17,324
5.00	606.00	6,923	6,450	23,774
5.50	606.50	7,410	3,582	27,356

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	4.00	0.00	0.00
Span (in)	= 15.00	4.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 601.00	601.00	0.00	0.00
Length (ft)	= 24.00	0.00	0.00	0.00
Slope (%)	= 2.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.56	50.00	0.00	0.00
Crest El. (ft)	= 603.80	604.80	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= 1	Broad	---	---
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

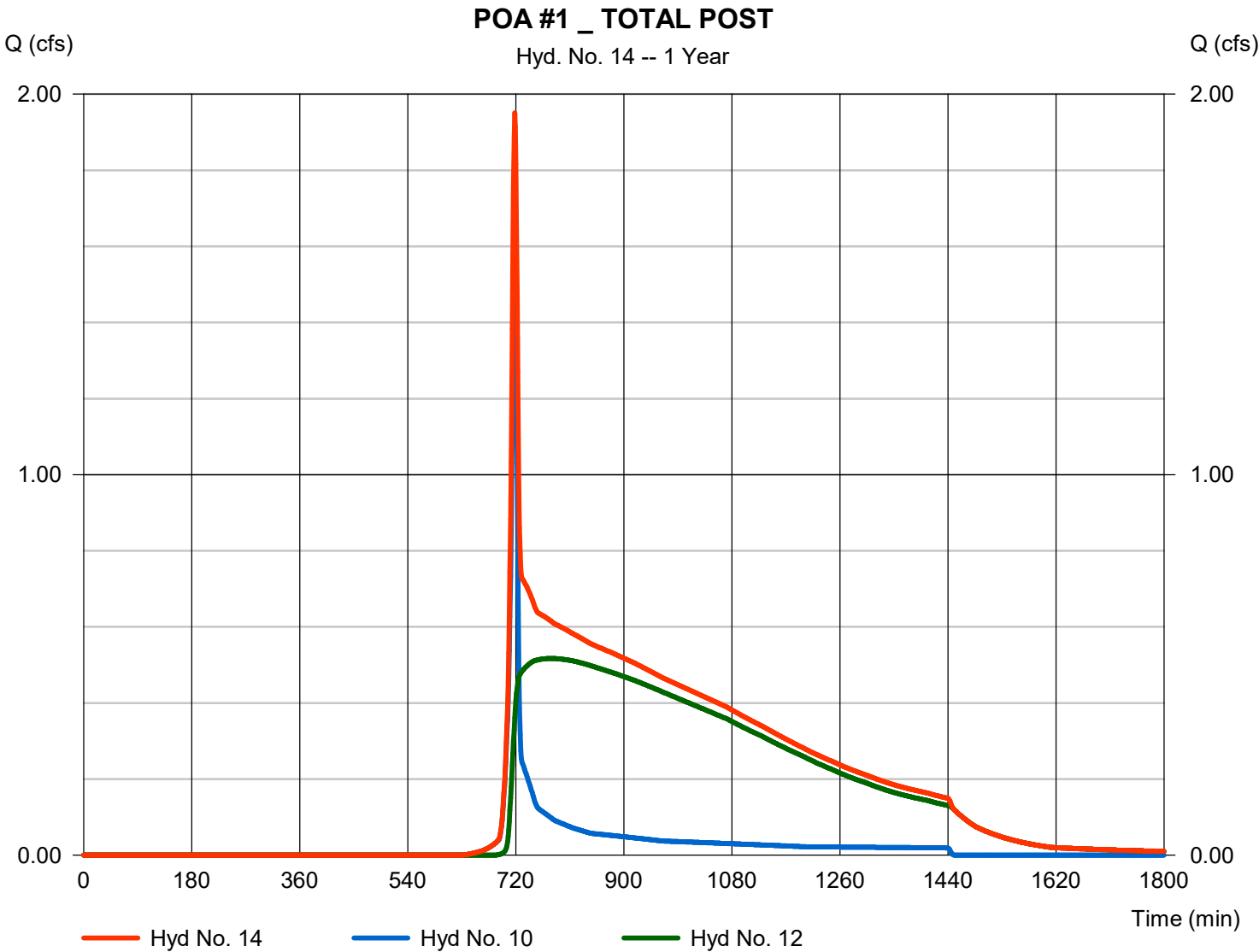
Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	601.00	0.00	0.00	---	---	0.00	0.00	---	---	---	---	0.000
1.00	3,172	602.00	0.37 ic	0.36 ic	---	---	0.00	0.00	---	---	---	---	0.358
2.00	7,079	603.00	0.56 ic	0.54 ic	---	---	0.00	0.00	---	---	---	---	0.541
3.00	11,778	604.00	4.31 ic	0.57 ic	---	---	3.74	0.00	---	---	---	---	4.313
4.00	17,324	605.00	10.84 ic	0.05 ic	---	---	10.76 s	11.63	---	---	---	---	22.43
5.00	23,774	606.00	12.35 ic	0.02 ic	---	---	12.28 s	170.89	---	---	---	---	183.19
5.50	27,356	606.50	13.04 ic	0.02 ic	---	---	12.88 s	288.15	---	---	---	---	301.05

Hydrograph Report

Hyd. No. 14

POA #1 _ TOTAL POST

Hydrograph type	= Combine	Peak discharge	= 1.950 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 18,986 cuft
Inflow hyds.	= 10, 12	Contrib. drain. area	= 0.970 ac



Hydrograph Report

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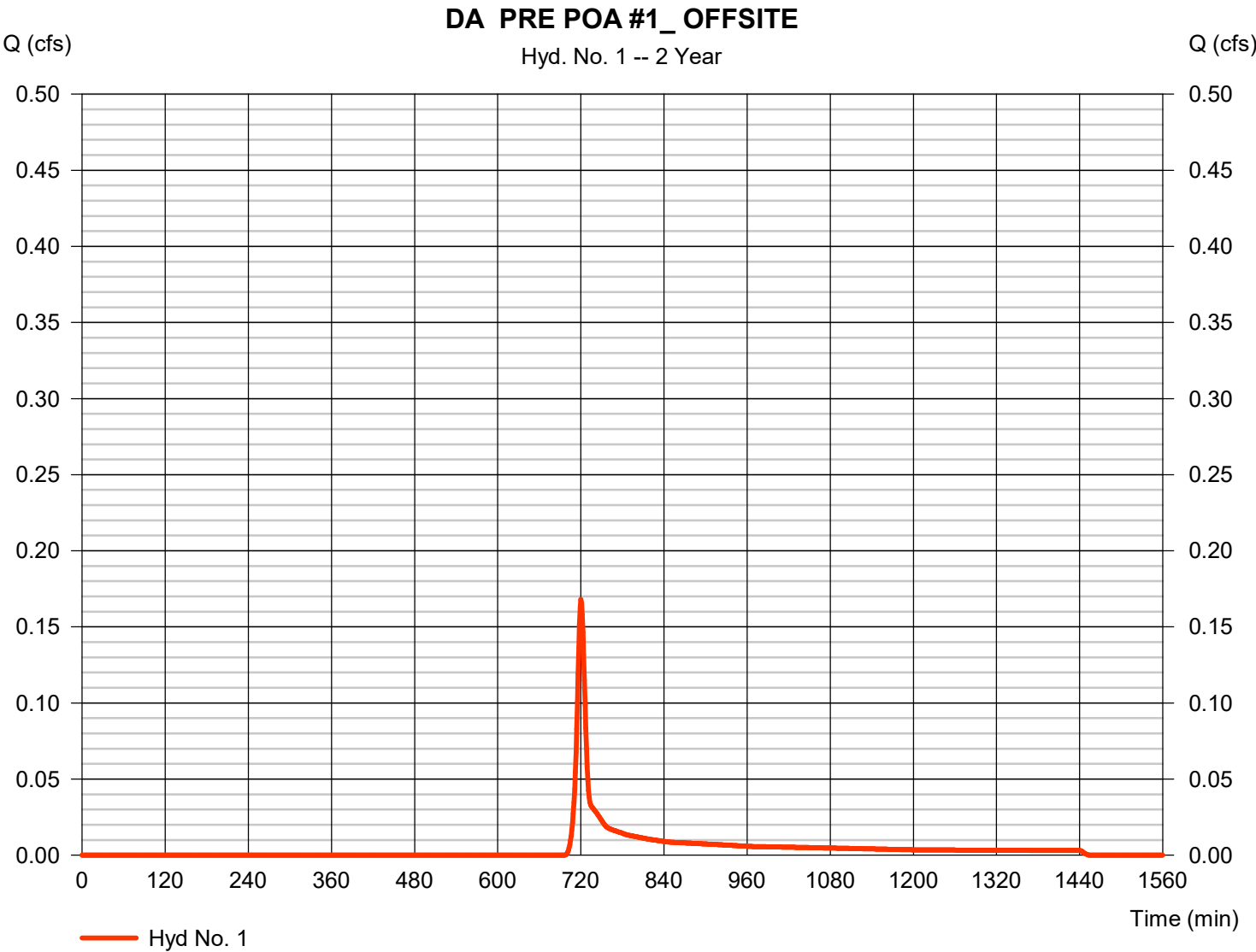
Monday, 07 / 15 / 2024

Hyd. No. 1

DA PRE POA #1_ OFFSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.168 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	413 cuft
Drainage area	=	0.170 ac	Curve number	=	69*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	9.20 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = + (0.170 x 69)] / 0.170



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

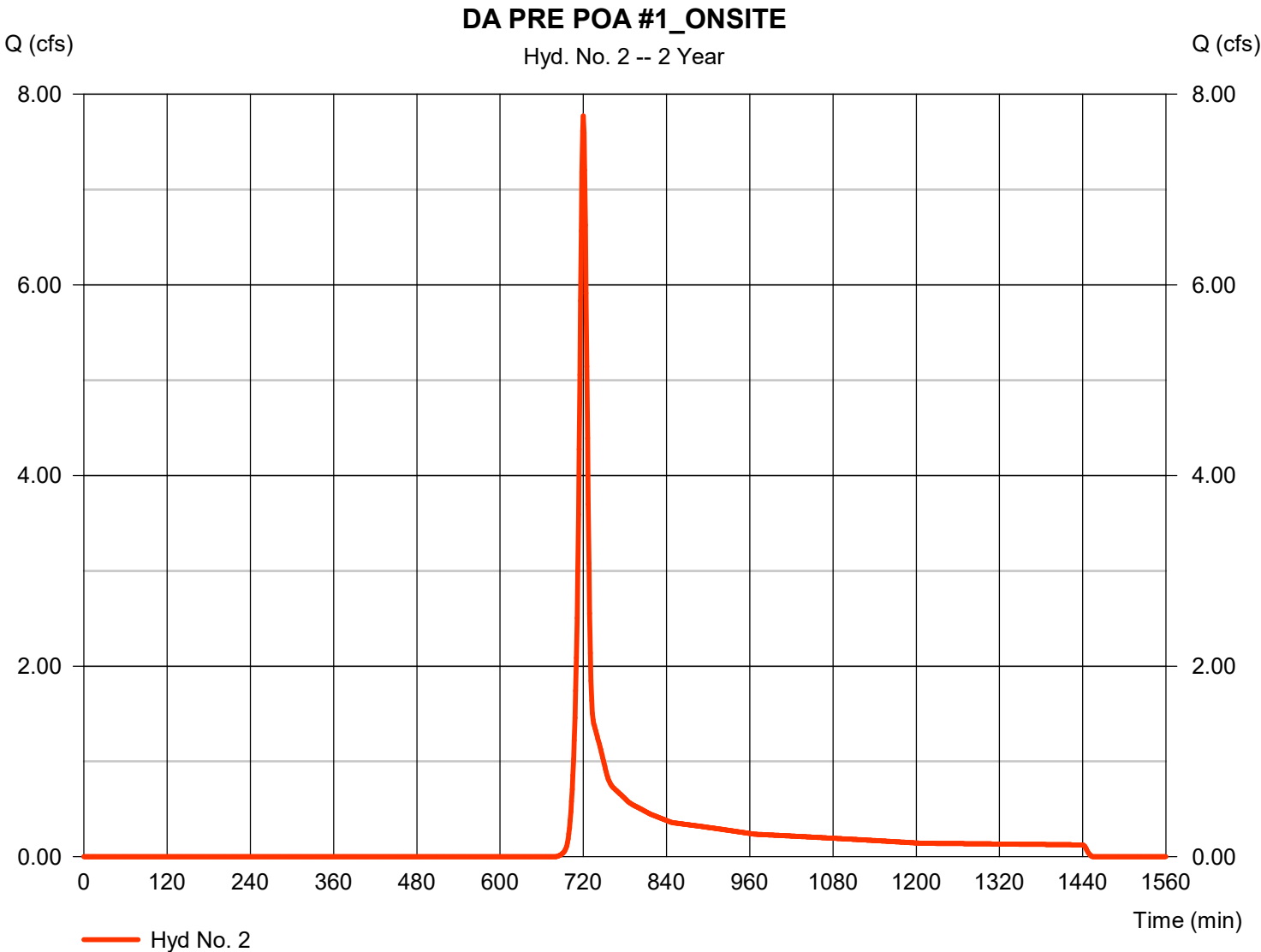
Monday, 07 / 15 / 2024

Hyd. No. 2

DA PRE POA #1_ONSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.773 cfs
Storm frequency	=	2 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	18,333 cuft
Drainage area	=	6.250 ac	Curve number	=	72*
Basin Slope	=	7.7 %	Hydraulic length	=	848 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.20 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.600 x 98) + (5.650 x 69)] / 6.250



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

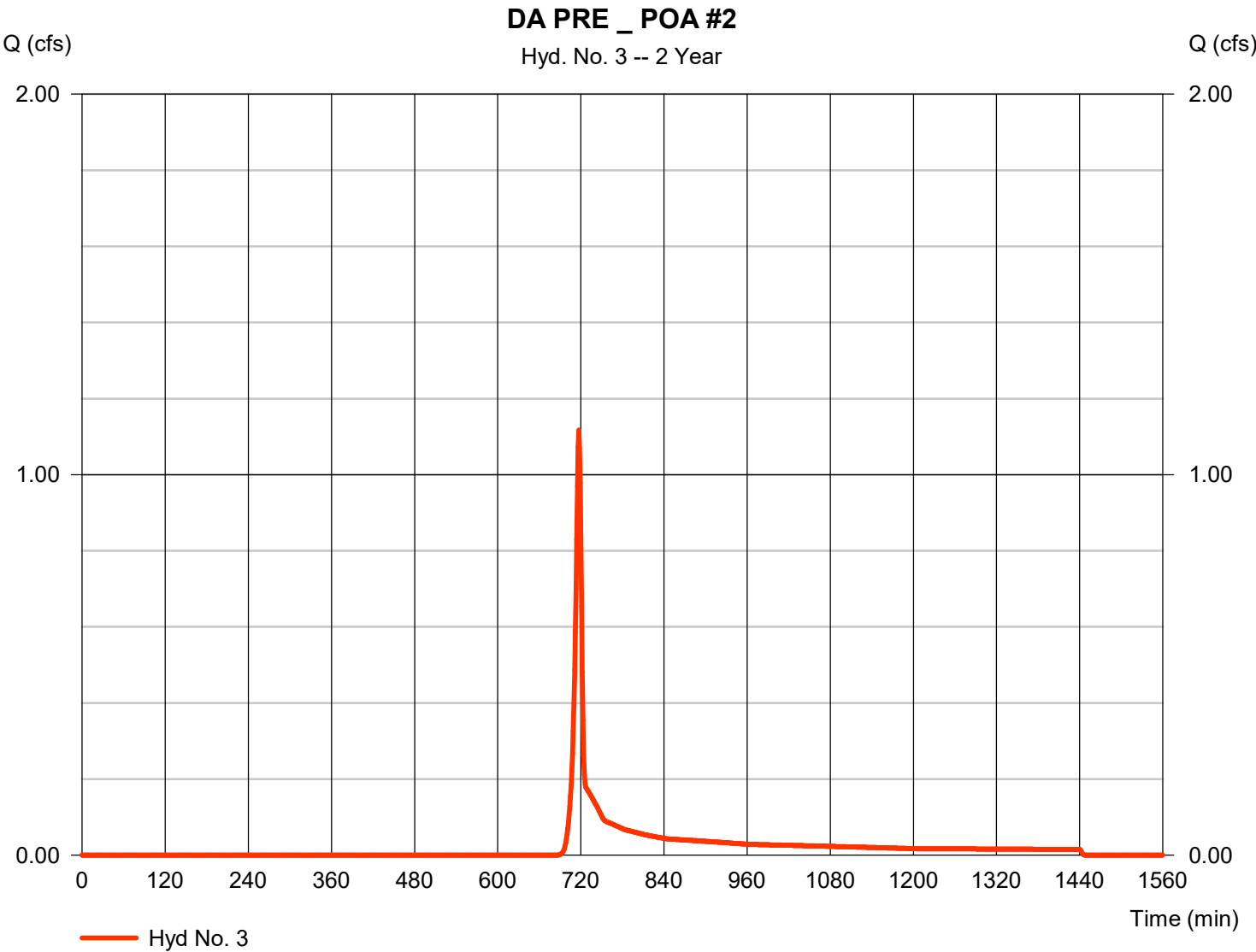
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Hyd. No. 3

DA PRE _ POA #2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.117 cfs
Storm frequency	=	2 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	2,153 cuft
Drainage area	=	0.780 ac	Curve number	=	71*
Basin Slope	=	7.9 %	Hydraulic length	=	254 ft
Tc method	=	TR55	Time of conc. (Tc)	=	4.70 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.050 x 98) + (0.730 x 69)] / 0.780



Hydrograph Report

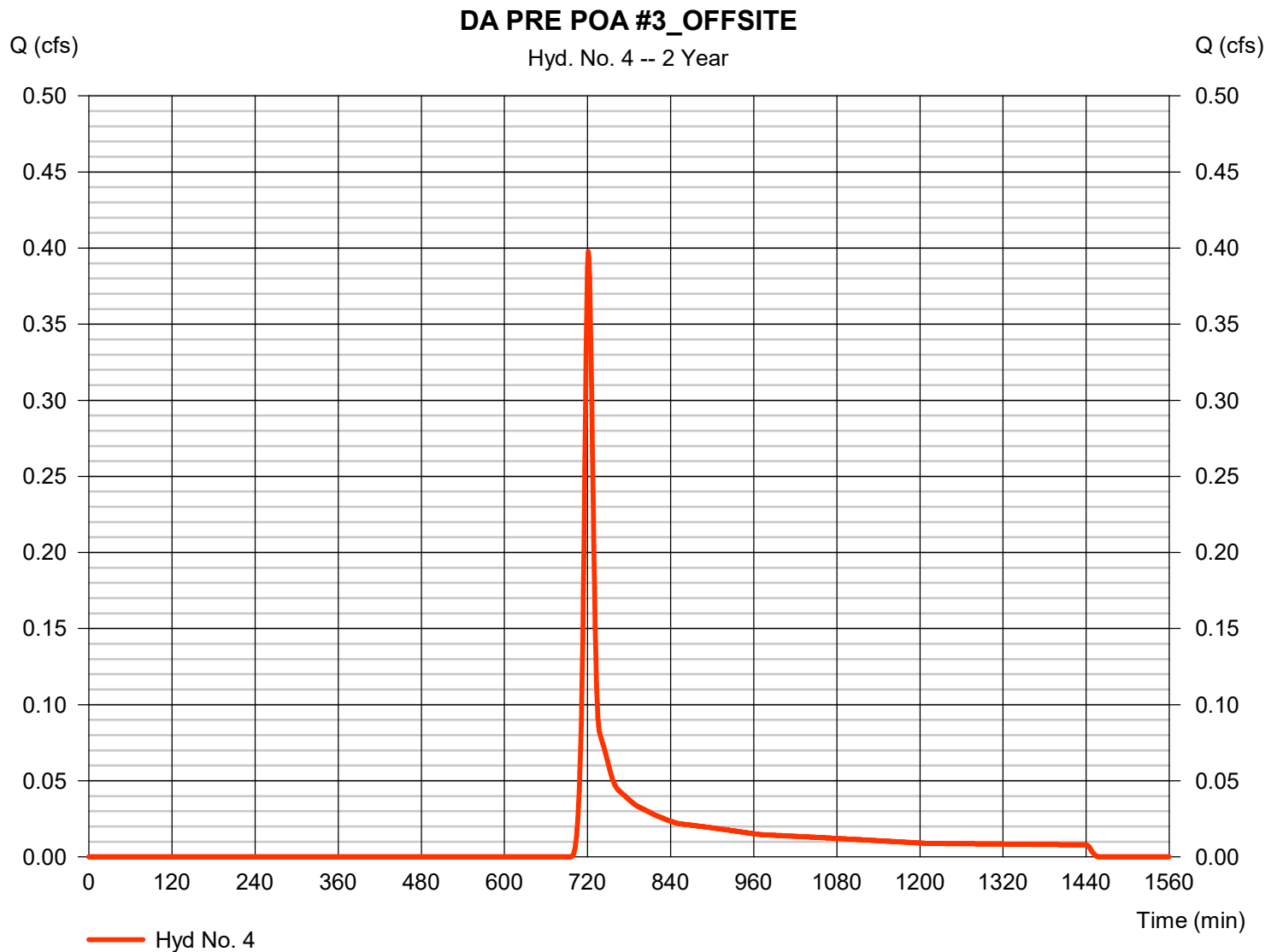
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

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Hyd. No. 4

DA PRE POA #3_OFFSITE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.398 cfs
Storm frequency	= 2 yrs	Time to peak	= 721 min
Time interval	= 1 min	Hyd. volume	= 1,064 cuft
Drainage area	= 0.430 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 11.40 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(0.430 \times 69)] / 0.430$ 

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

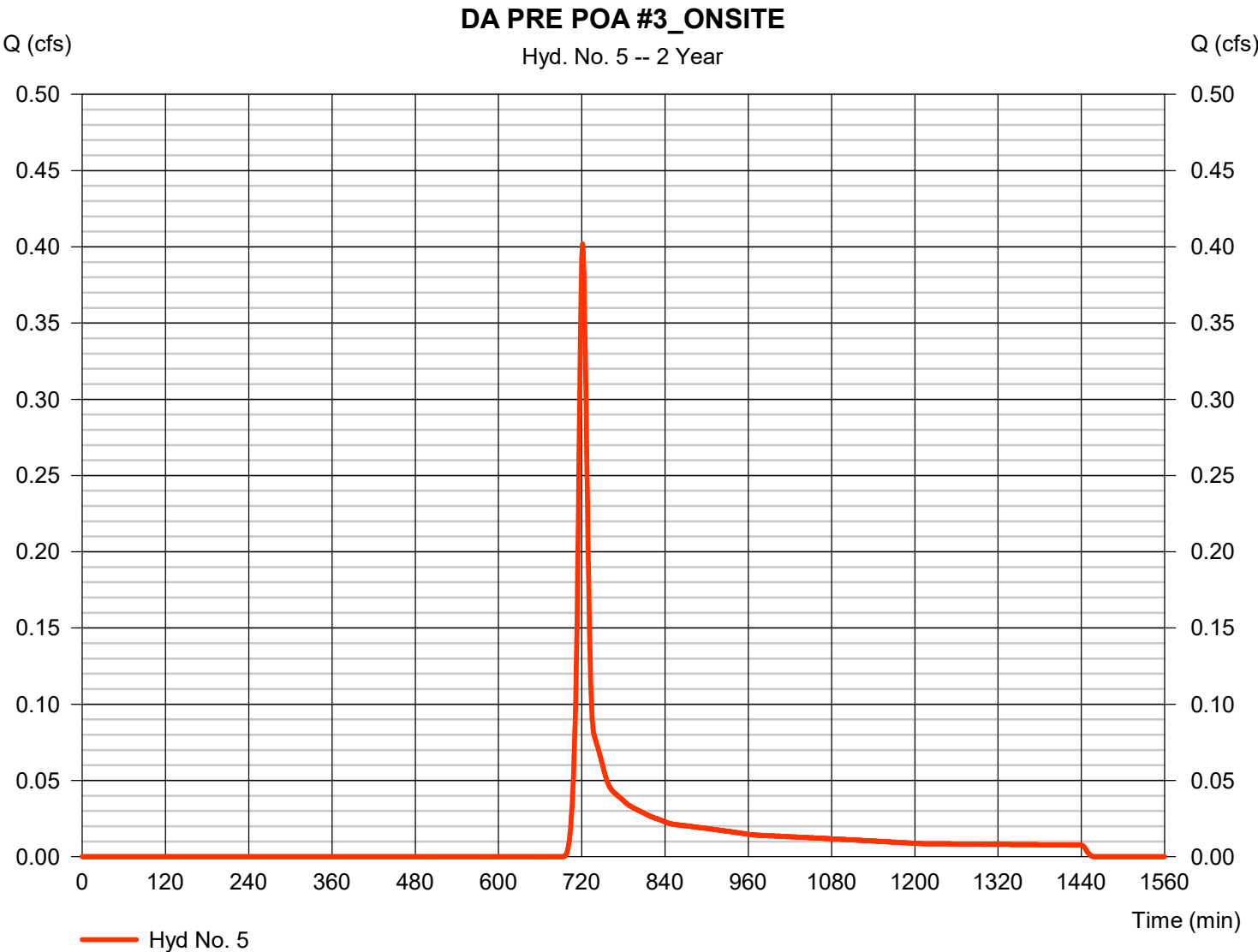
Monday, 07 / 15 / 2024

Hyd. No. 5

DA PRE POA #3_ONSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.402 cfs
Storm frequency	=	2 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	1,056 cuft
Drainage area	=	0.400 ac	Curve number	=	70*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.010 x 98) + (0.390 x 69)] / 0.400



Hydrograph Report

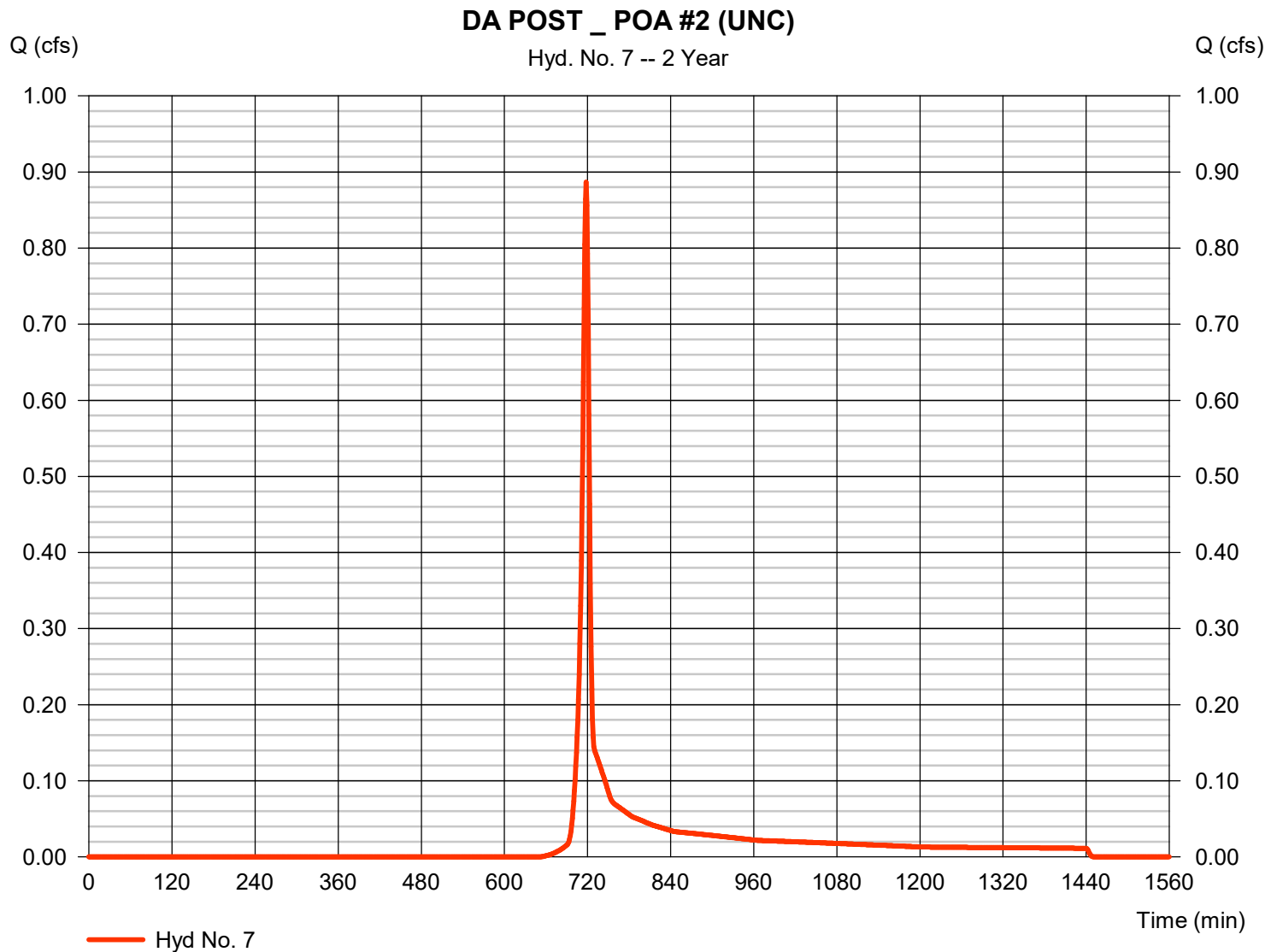
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

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Hyd. No. 7

DA POST _ POA #2 (UNC)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.887 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 1,798 cuft
Drainage area	= 0.500 ac	Curve number	= 75*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(0.100 \times 98) + (0.400 \times 69)] / 0.500$ 

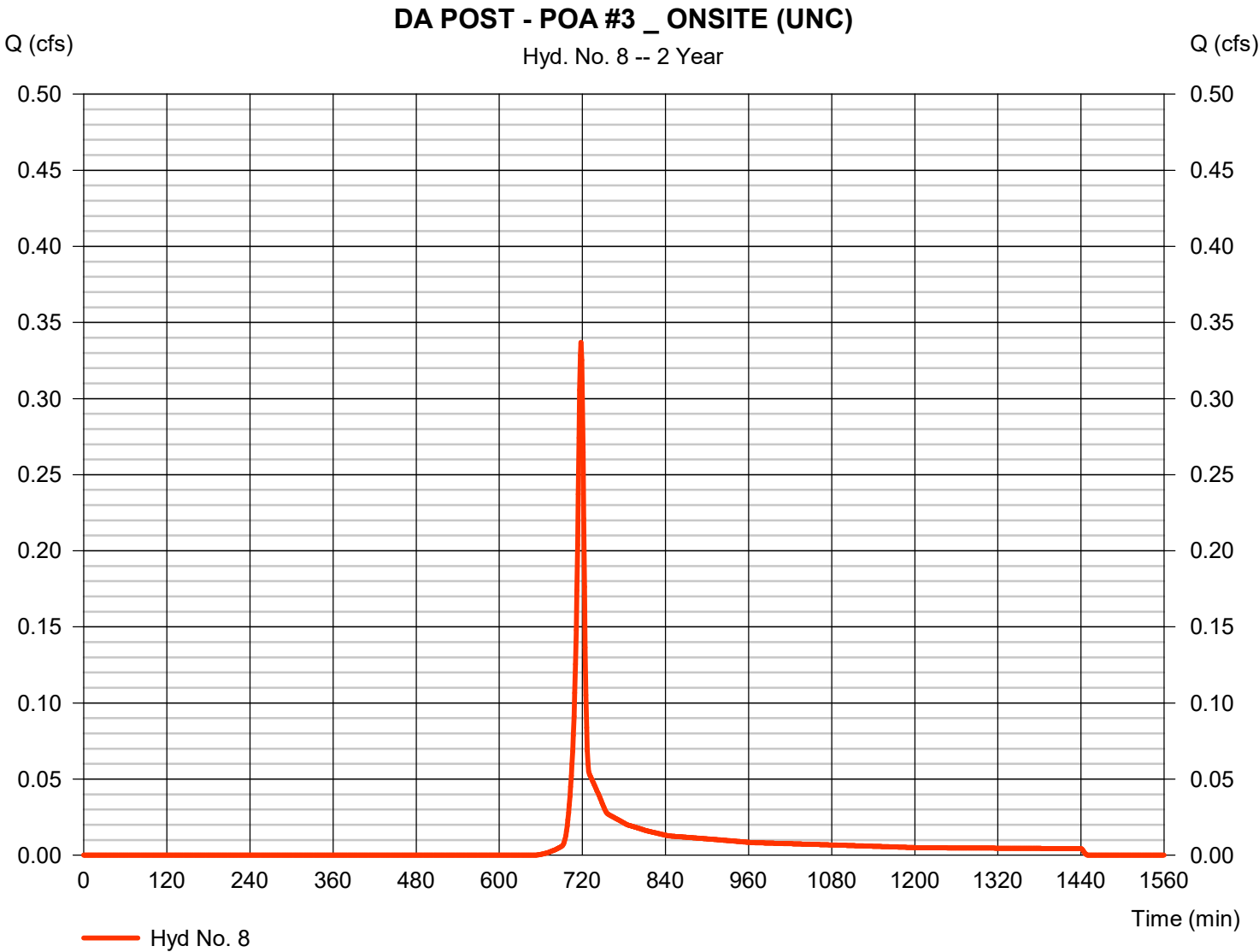
Hydrograph Report

Hyd. No. 8

DA POST - POA #3 _ ONSITE (UNC)

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.337 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	683 cuft
Drainage area	=	0.190 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.00 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.150 x 69) + (0.040 x 98)] / 0.190



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

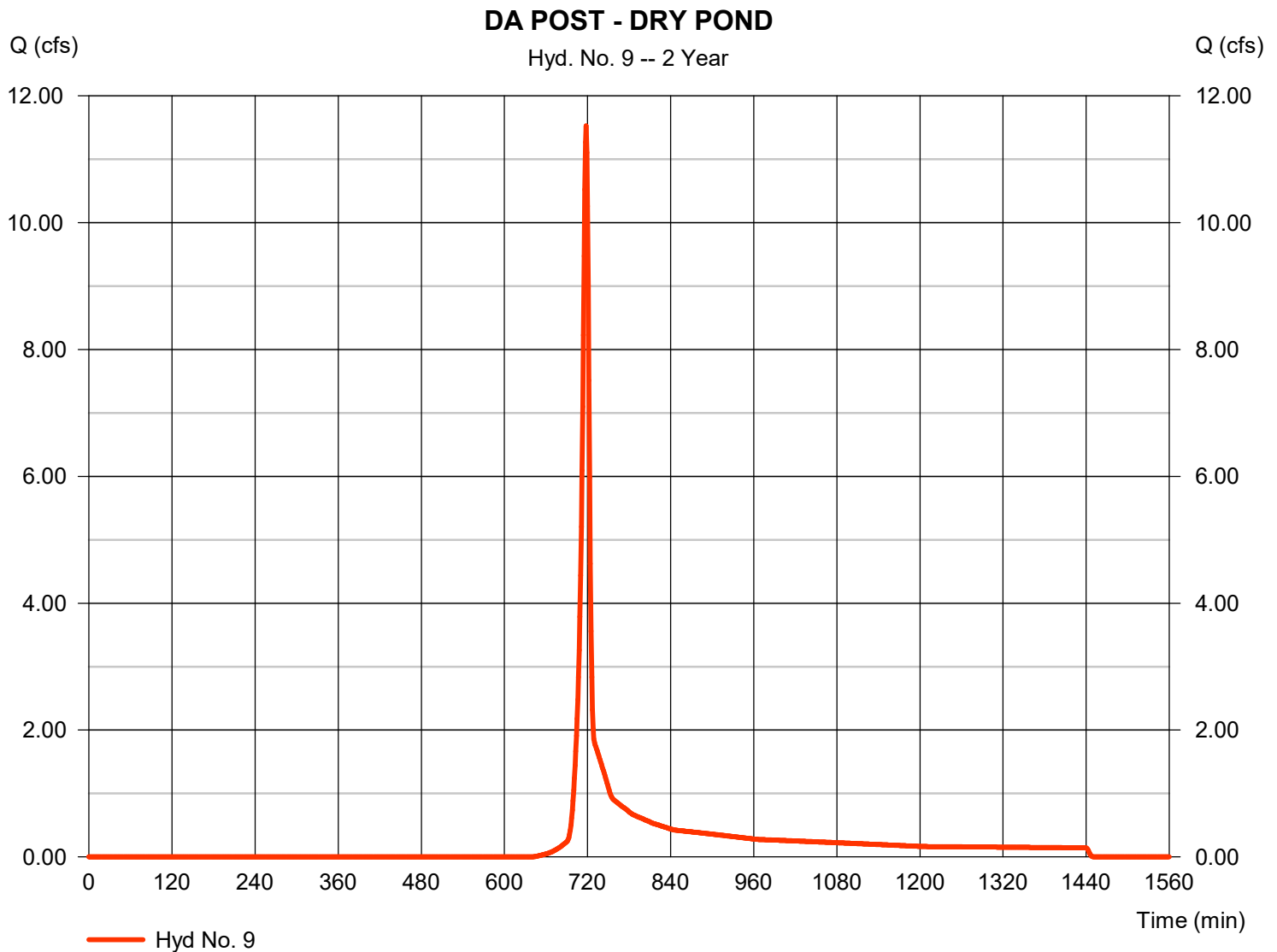
Monday, 07 / 15 / 2024

Hyd. No. 9

DA POST - DRY POND

Hydrograph type	= SCS Runoff	Peak discharge	= 11.53 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 23,292 cuft
Drainage area	= 6.130 ac	Curve number	= 76*
Basin Slope	= 7.8 %	Hydraulic length	= 847 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(1.510 \times 98) + (4.620 \times 69)] / 6.130$



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

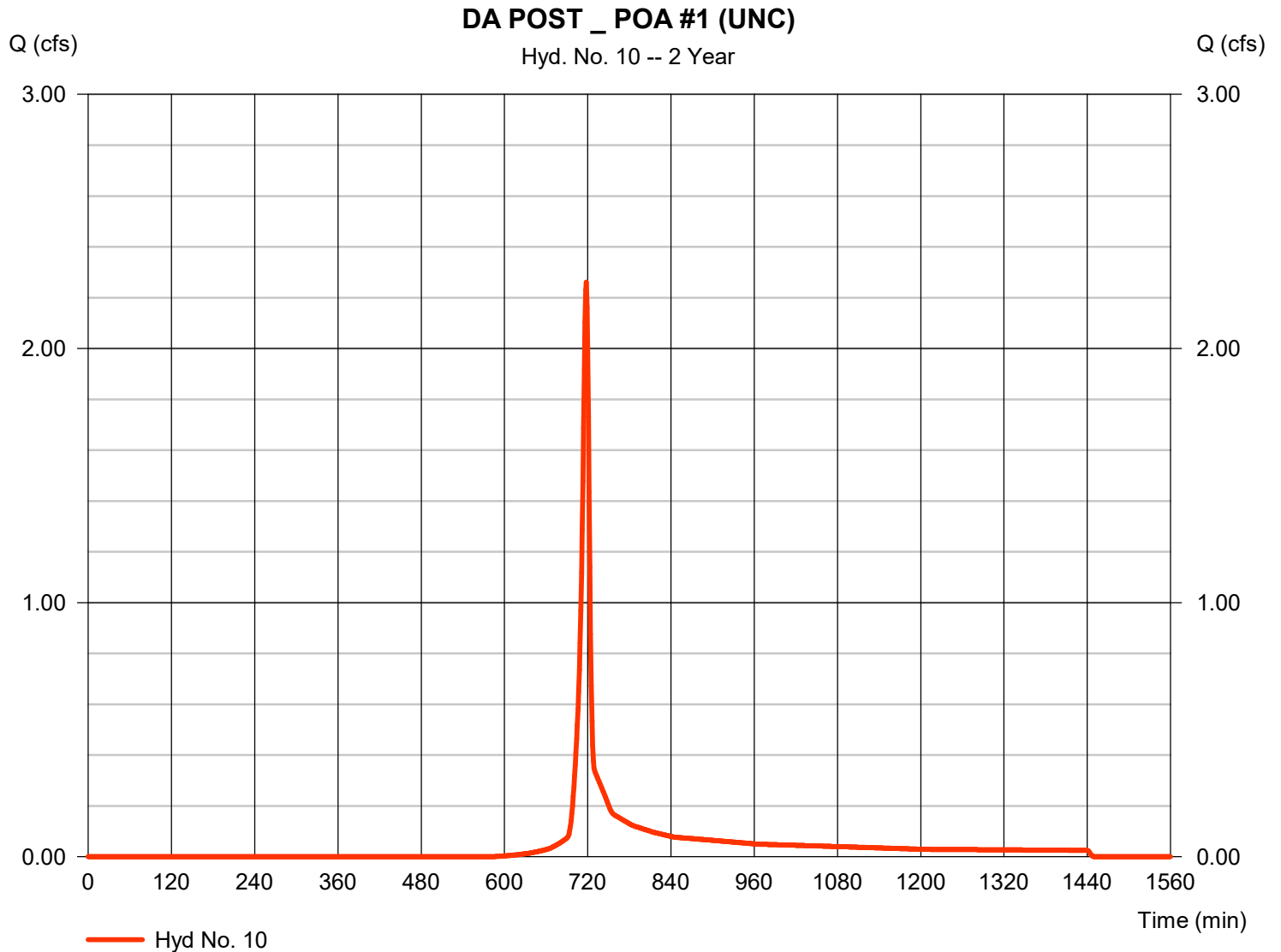
Monday, 07 / 15 / 2024

Hyd. No. 10

DA POST _ POA #1 (UNC)

Hydrograph type	= SCS Runoff	Peak discharge	= 2.261 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 4,539 cuft
Drainage area	= 0.970 ac	Curve number	= 80*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.00 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = $[(0.370 \times 98) + (0.600 \times 69)] / 0.970$



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

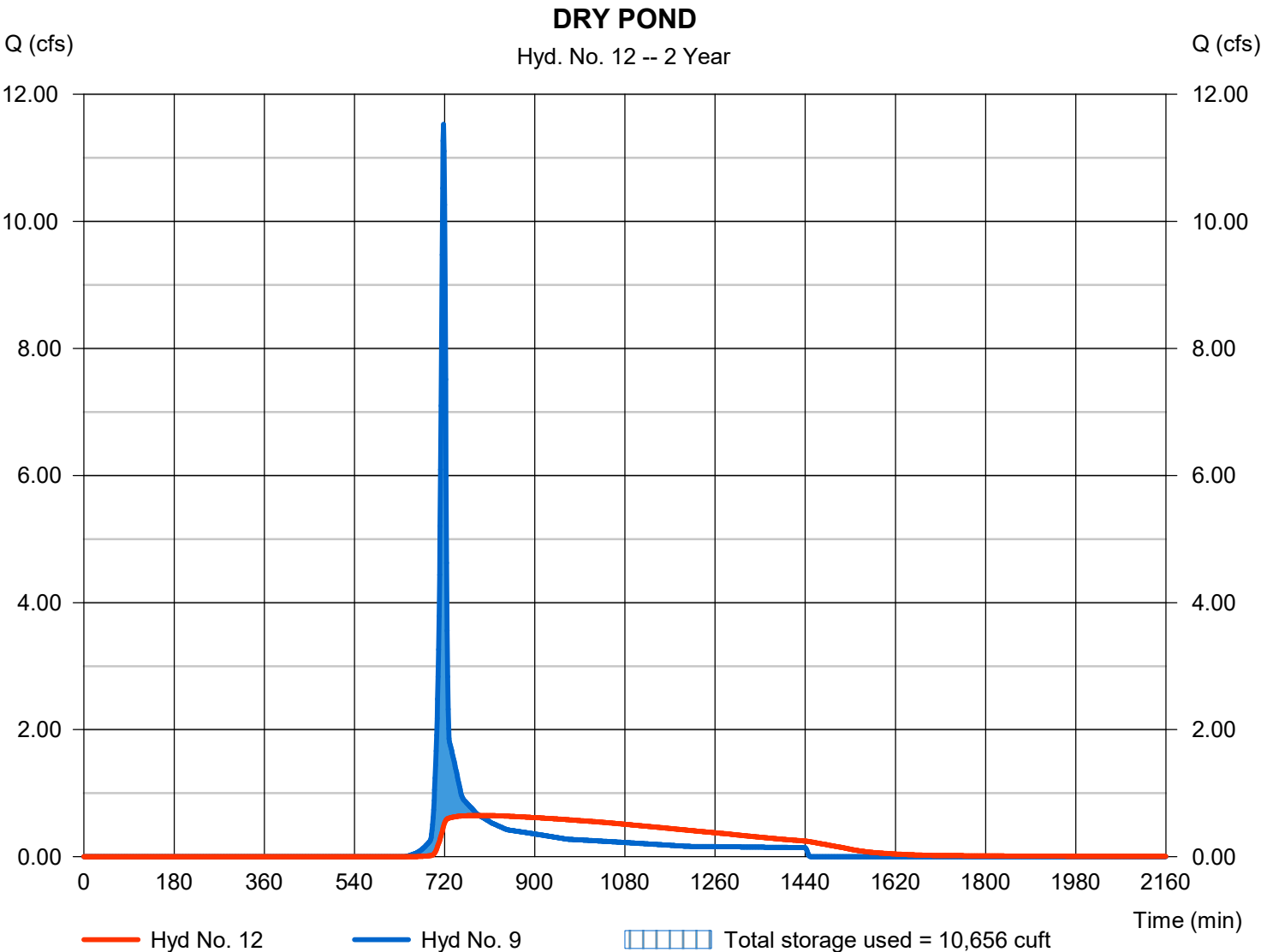
Monday, 07 / 15 / 2024

Hyd. No. 12

DRY POND

Hydrograph type	= Reservoir	Peak discharge	= 0.649 cfs
Storm frequency	= 2 yrs	Time to peak	= 789 min
Time interval	= 1 min	Hyd. volume	= 23,277 cuft
Inflow hyd. No.	= 9 - DA POST - DRY POND	Max. Elevation	= 603.76 ft
Reservoir name	= Dry Pond	Max. Storage	= 10,656 cuft

Storage Indication method used.



Hydrograph Report

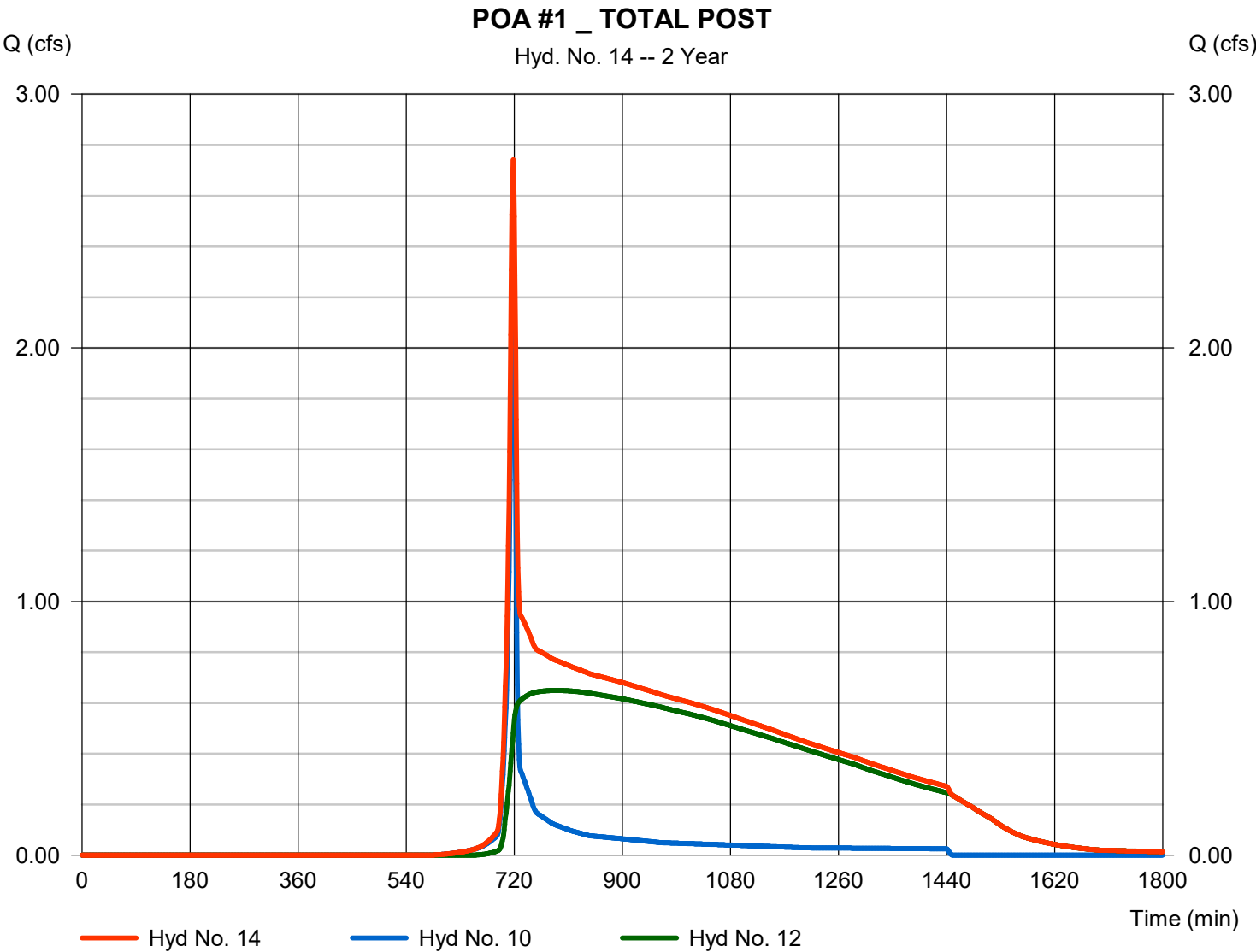
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

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Hyd. No. 14

POA #1 _ TOTAL POST

Hydrograph type	= Combine	Peak discharge	= 2.741 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 27,816 cuft
Inflow hyds.	= 10, 12	Contrib. drain. area	= 0.970 ac



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

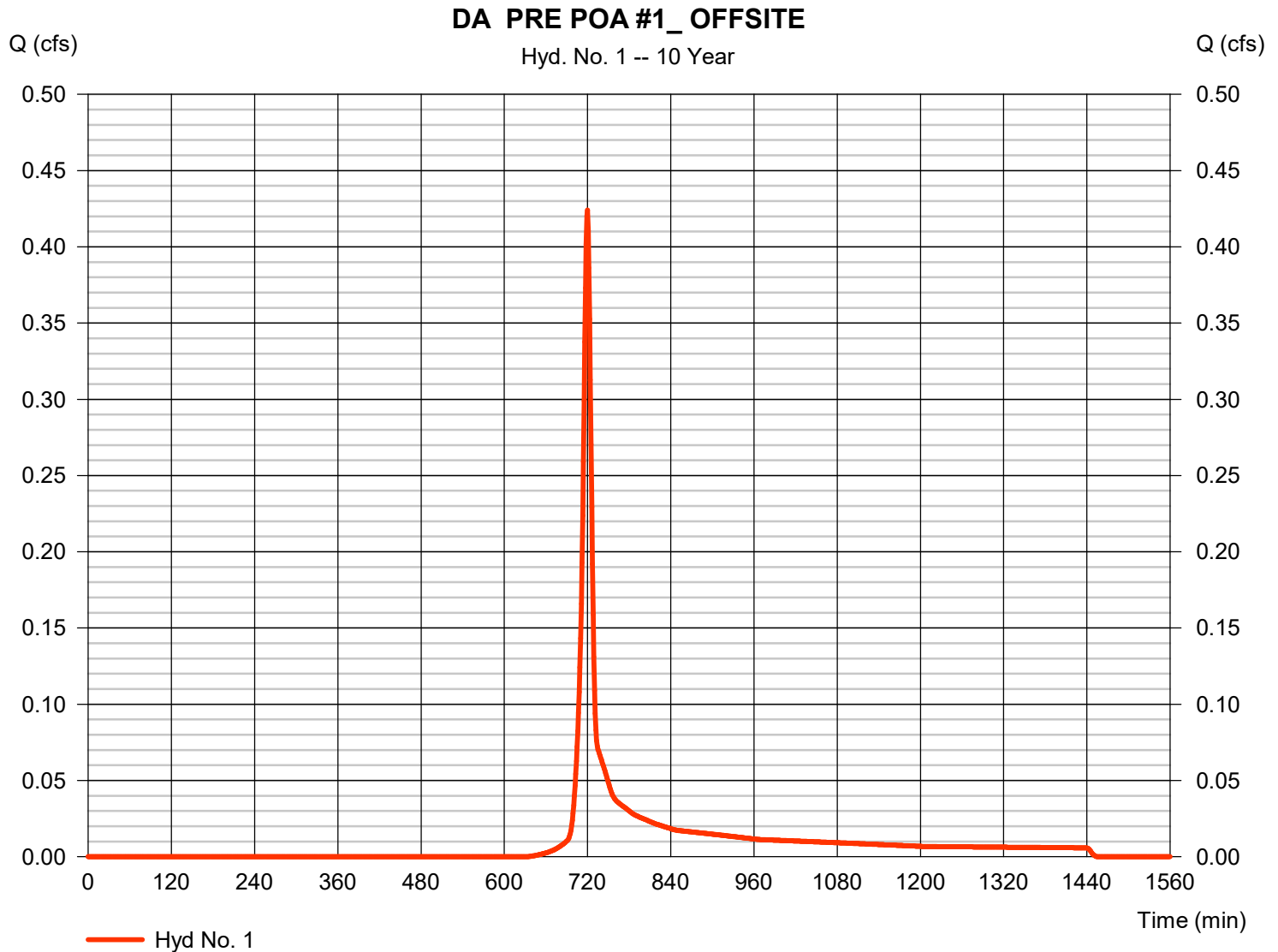
Monday, 07 / 15 / 2024

Hyd. No. 1

DA PRE POA #1_ OFFSITE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.424 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 1 min	Hyd. volume	= 968 cuft
Drainage area	= 0.170 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.20 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = + (0.170 x 69) / 0.170



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

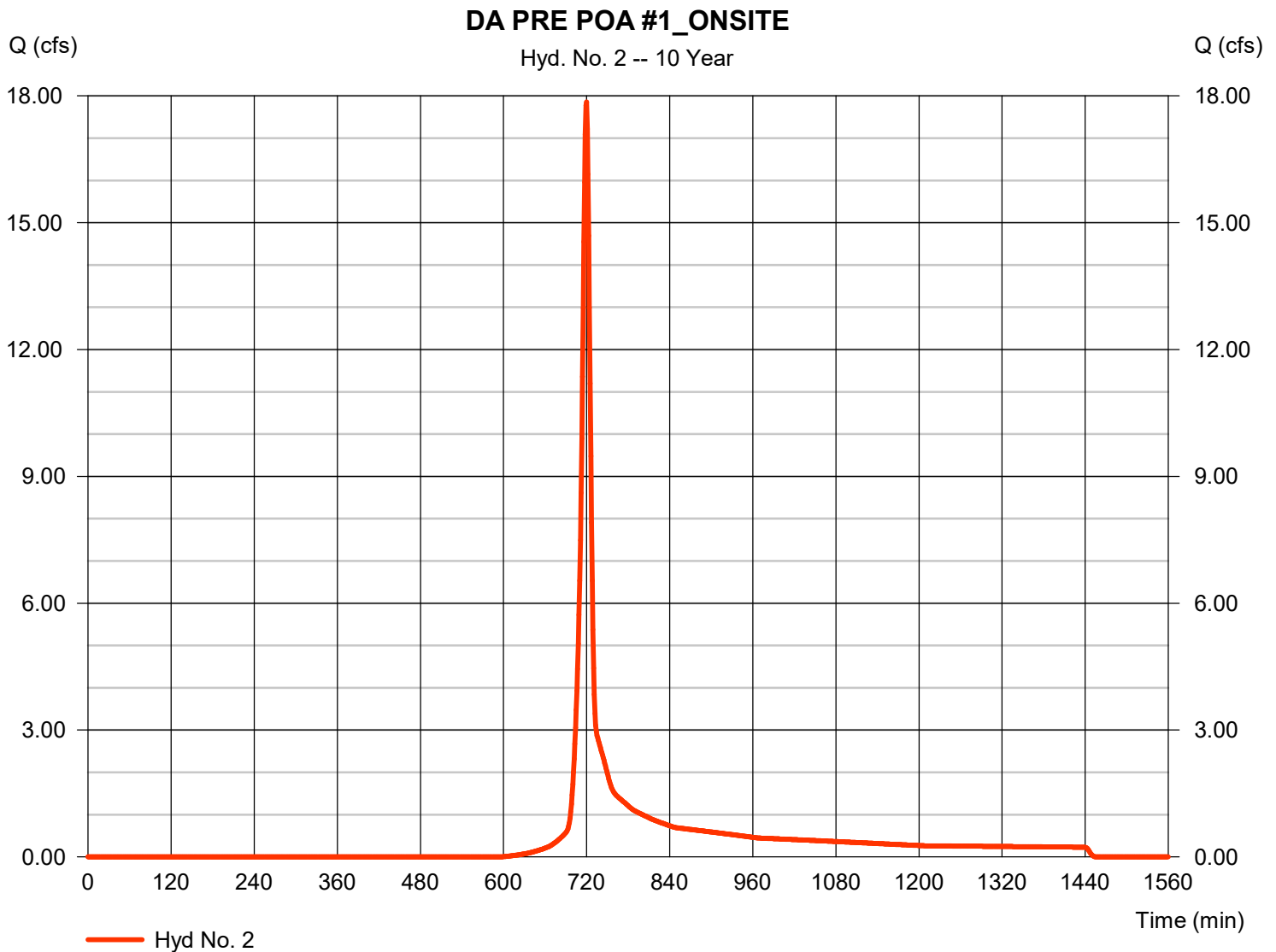
Monday, 07 / 15 / 2024

Hyd. No. 2

DA PRE POA #1_ONSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	17.86 cfs
Storm frequency	=	10 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	40,463 cuft
Drainage area	=	6.250 ac	Curve number	=	72*
Basin Slope	=	7.7 %	Hydraulic length	=	848 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.20 min
Total precip.	=	4.45 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = $[(0.600 \times 98) + (5.650 \times 69)] / 6.250$



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Monday, 07 / 15 / 2024

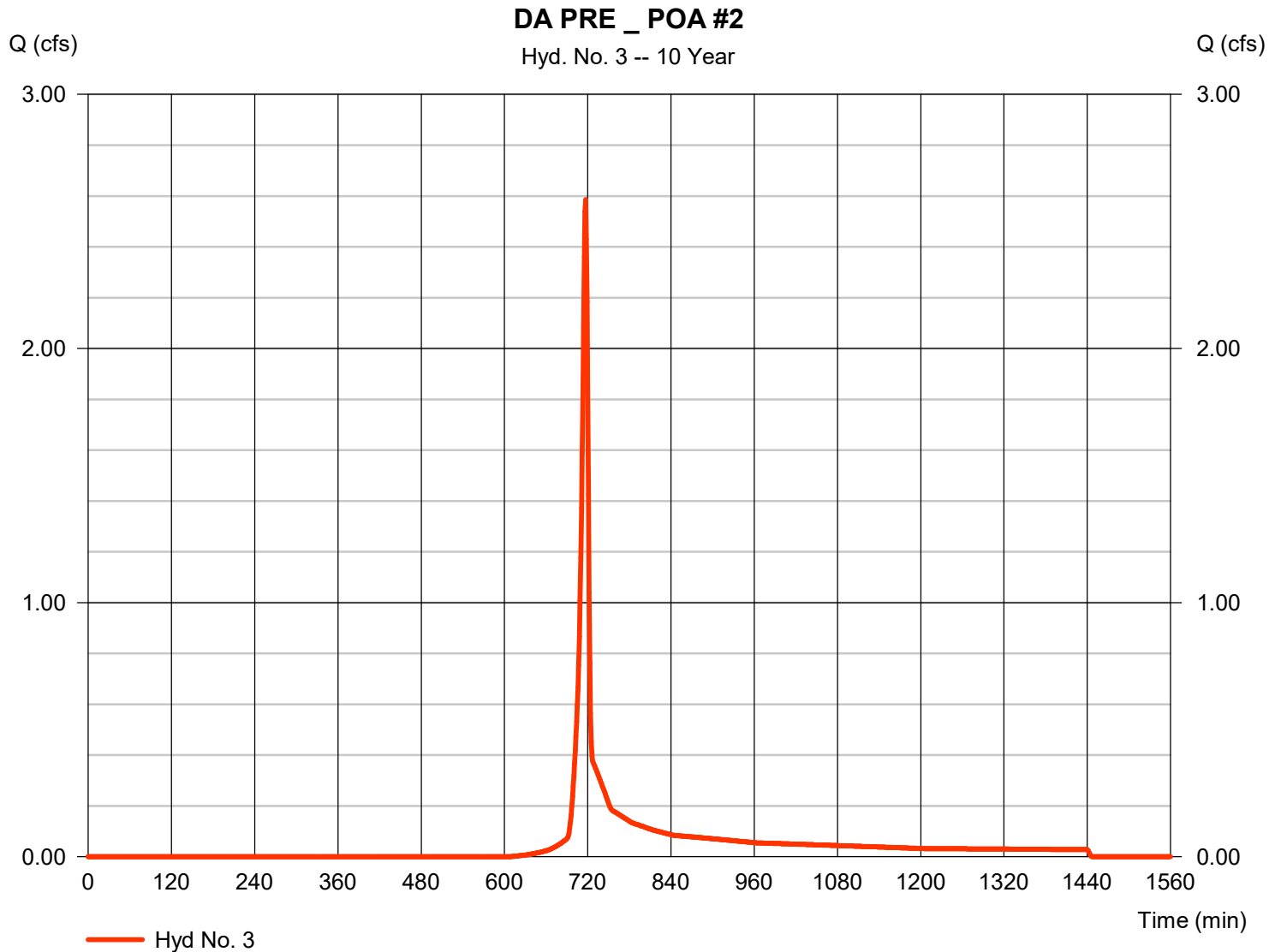
Hyd. No. 3

DA PRE _ POA #2

Hydrograph type = SCS Runoff
 Storm frequency = 10 yrs
 Time interval = 1 min
 Drainage area = 0.780 ac
 Basin Slope = 7.9 %
 Tc method = TR55
 Total precip. = 4.45 in
 Storm duration = 24 hrs

Peak discharge = 2.585 cfs
 Time to peak = 717 min
 Hyd. volume = 4,843 cuft
 Curve number = 71*
 Hydraulic length = 254 ft
 Time of conc. (Tc) = 4.70 min
 Distribution = Type II
 Shape factor = 484

* Composite (Area/CN) = $[(0.050 \times 98) + (0.730 \times 69)] / 0.780$



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

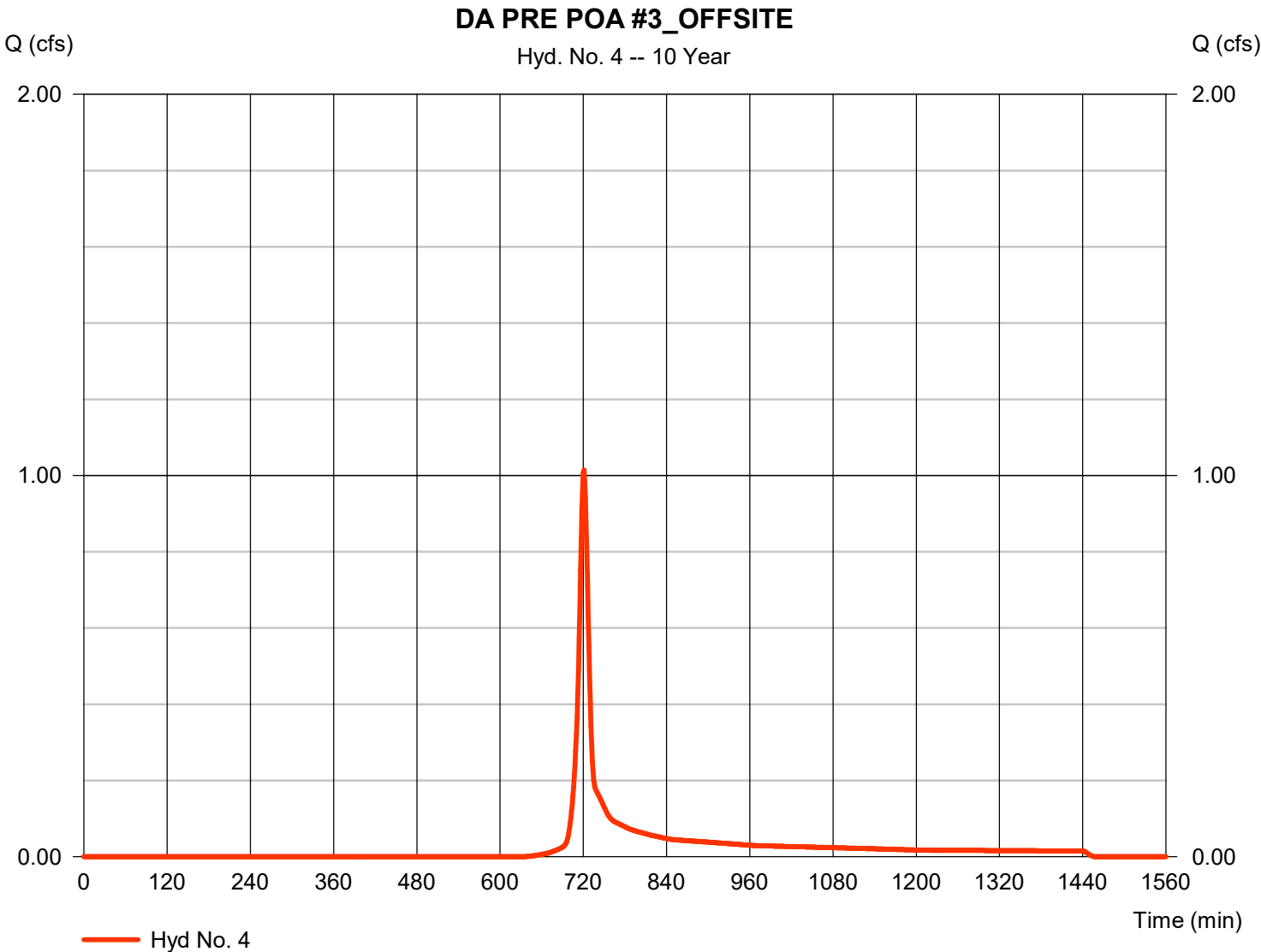
Monday, 07 / 15 / 2024

Hyd. No. 4

DA PRE POA #3_OFFSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.014 cfs
Storm frequency	=	10 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	2,491 cuft
Drainage area	=	0.430 ac	Curve number	=	69*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.40 min
Total precip.	=	4.45 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.430 x 69)] / 0.430



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

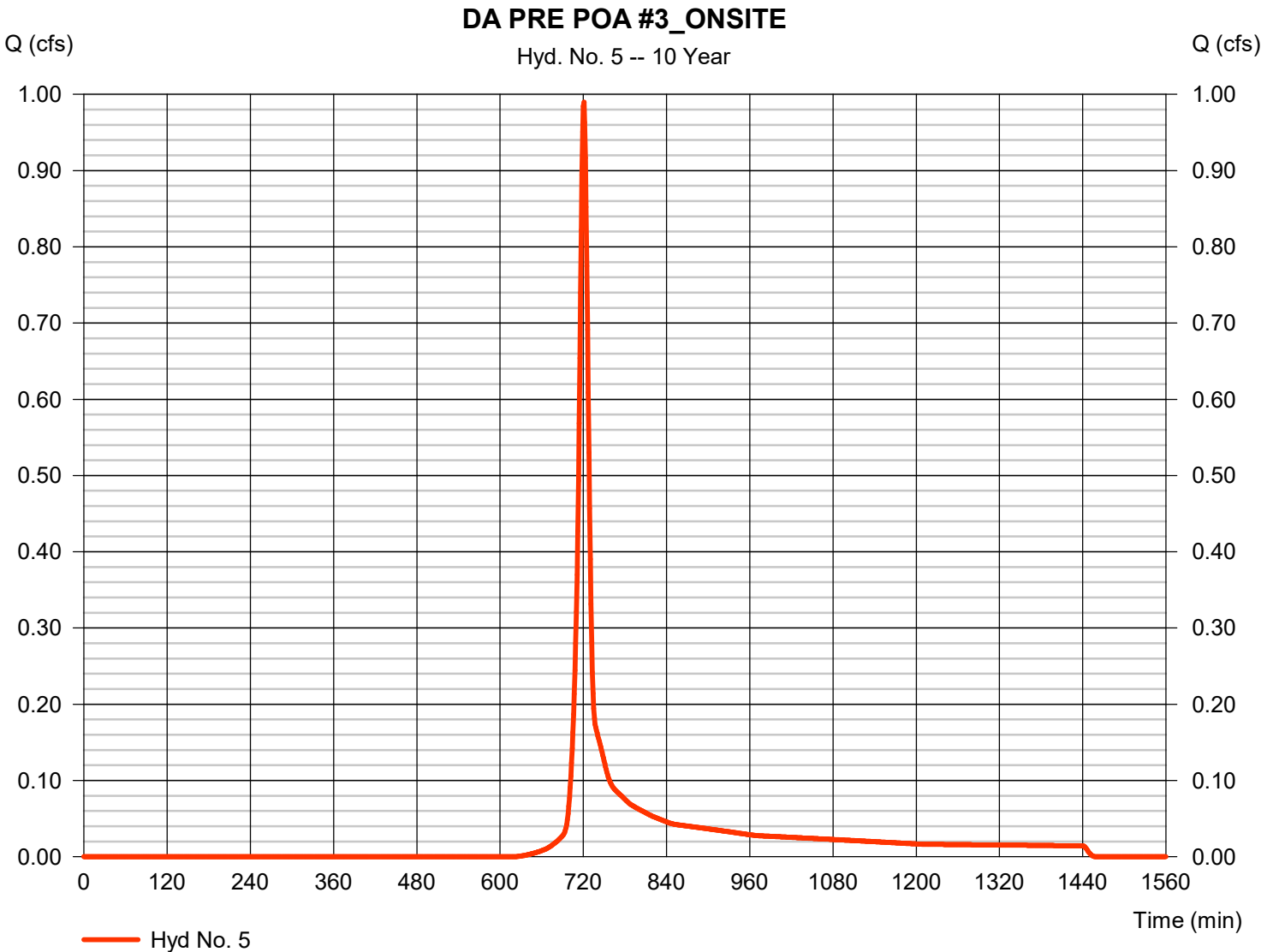
Monday, 07 / 15 / 2024

Hyd. No. 5

DA PRE POA #3_ONSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.990 cfs
Storm frequency	=	10 yrs	Time to peak	=	721 min
Time interval	=	1 min	Hyd. volume	=	2,422 cuft
Drainage area	=	0.400 ac	Curve number	=	70*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	4.45 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.010 x 98) + (0.390 x 69)] / 0.400



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

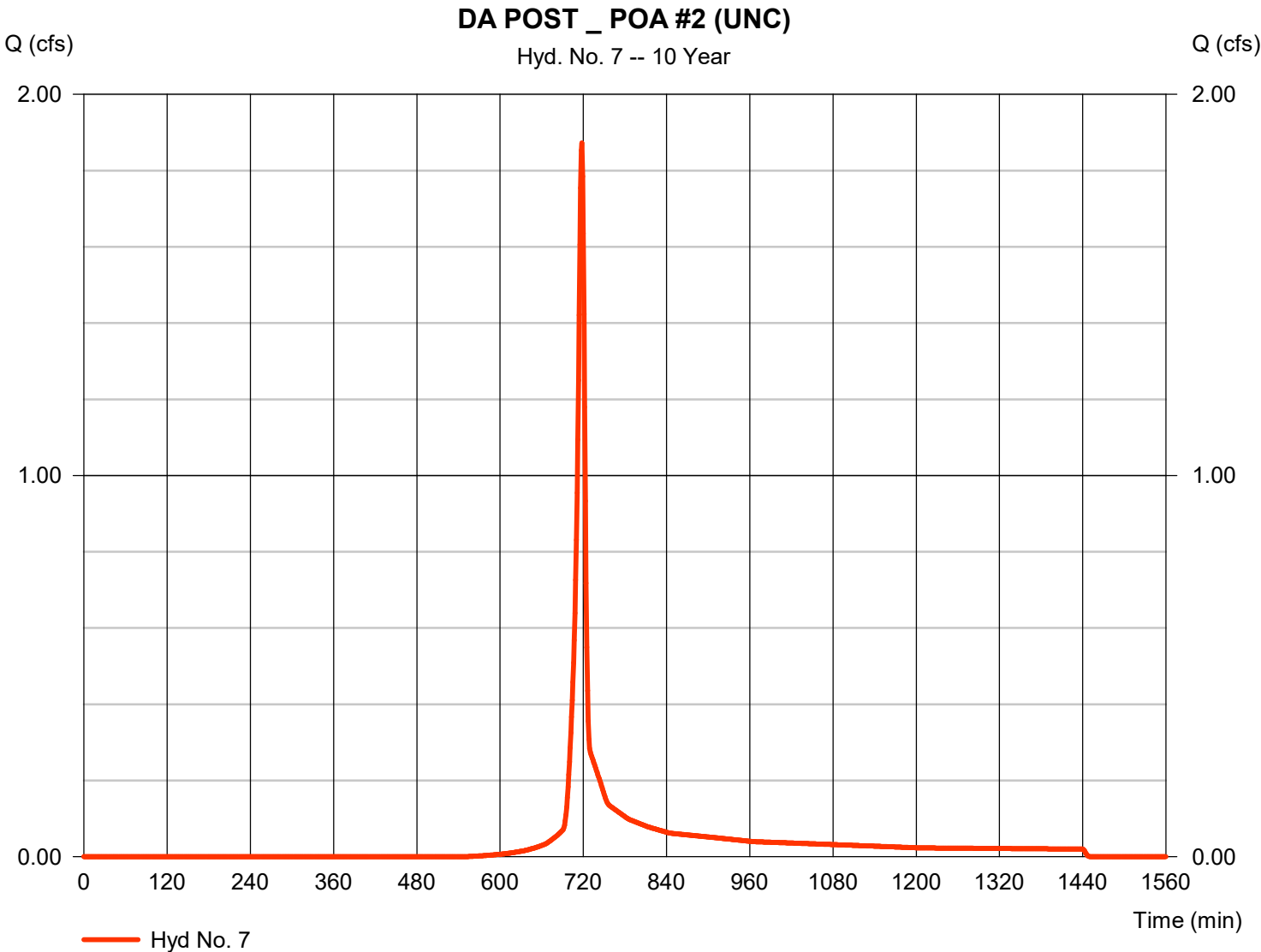
Monday, 07 / 15 / 2024

Hyd. No. 7

DA POST _ POA #2 (UNC)

Hydrograph type	= SCS Runoff	Peak discharge	= 1.872 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 3,765 cuft
Drainage area	= 0.500 ac	Curve number	= 75*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.100 x 98) + (0.400 x 69)] / 0.500



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

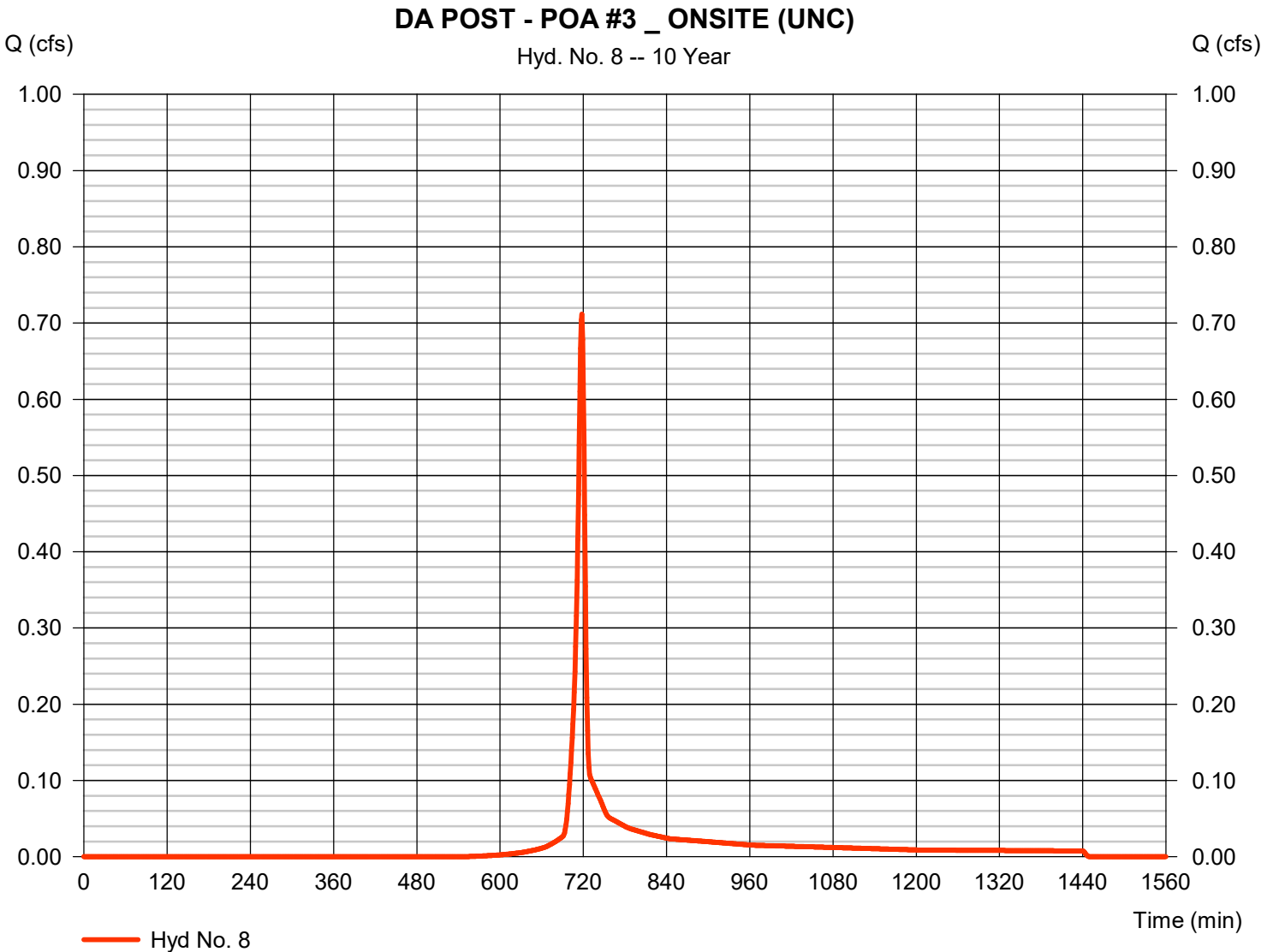
Monday, 07 / 15 / 2024

Hyd. No. 8

DA POST - POA #3 _ ONSITE (UNC)

Hydrograph type	= SCS Runoff	Peak discharge	= 0.712 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 1,431 cuft
Drainage area	= 0.190 ac	Curve number	= 75*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.45 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.150 x 69) + (0.040 x 98)] / 0.190



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

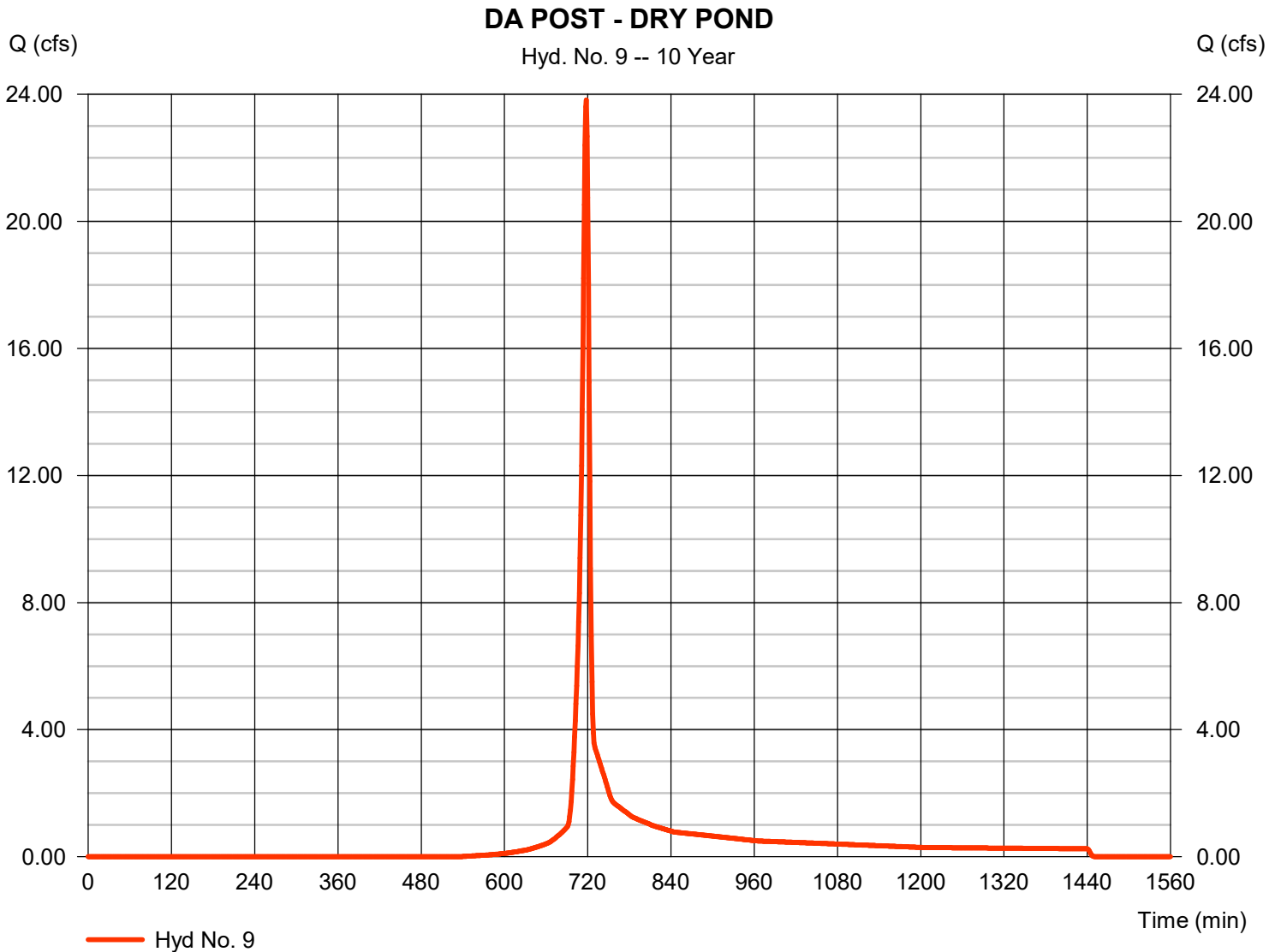
Monday, 07 / 15 / 2024

Hyd. No. 9

DA POST - DRY POND

Hydrograph type	=	SCS Runoff	Peak discharge	=	23.82 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	47,959 cuft
Drainage area	=	6.130 ac	Curve number	=	76*
Basin Slope	=	7.8 %	Hydraulic length	=	847 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.45 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = $[(1.510 \times 98) + (4.620 \times 69)] / 6.130$



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

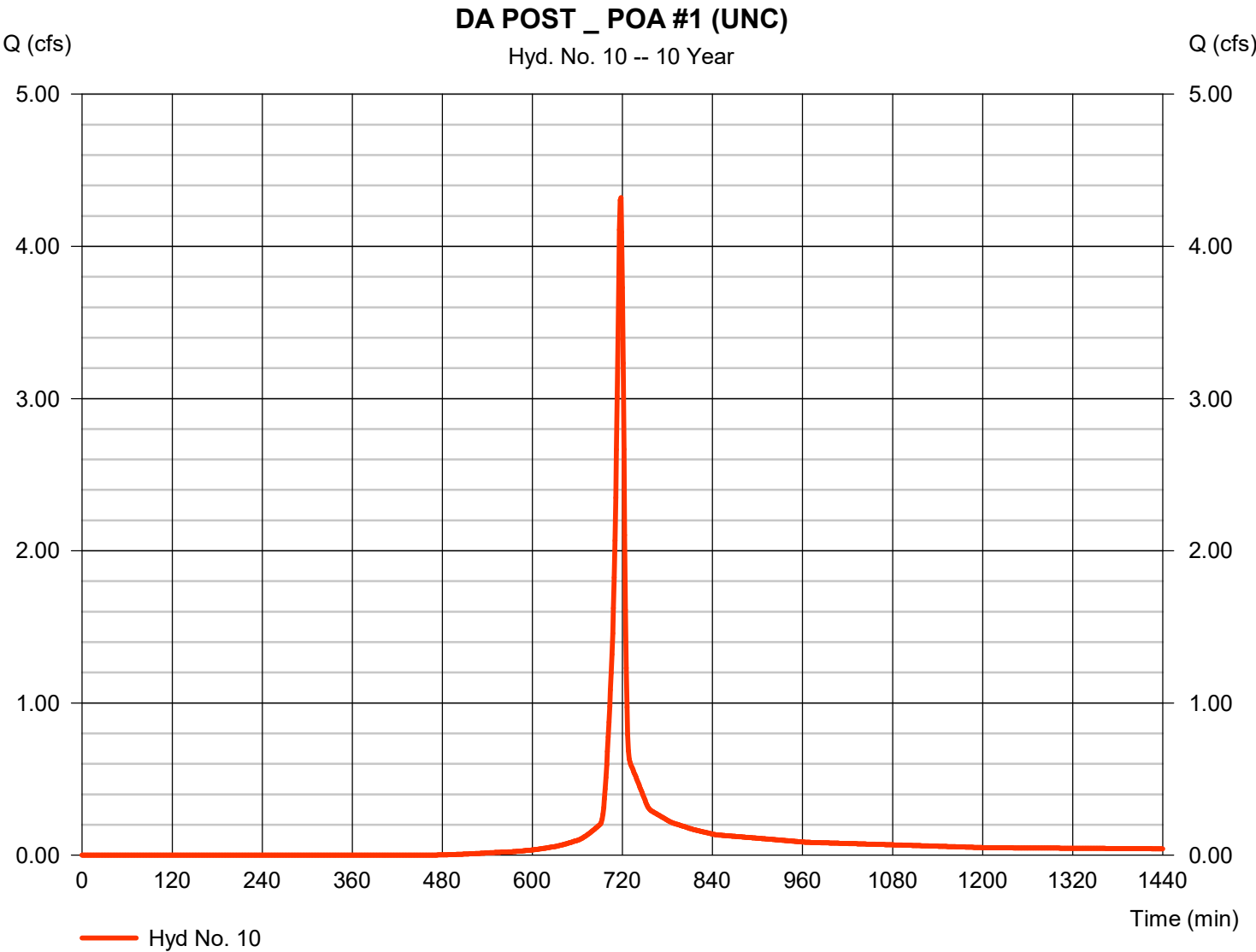
Monday, 07 / 15 / 2024

Hyd. No. 10

DA POST _ POA #1 (UNC)

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.319 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	8,784 cuft
Drainage area	=	0.970 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	4.45 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.370 x 98) + (0.600 x 69)] / 0.970



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

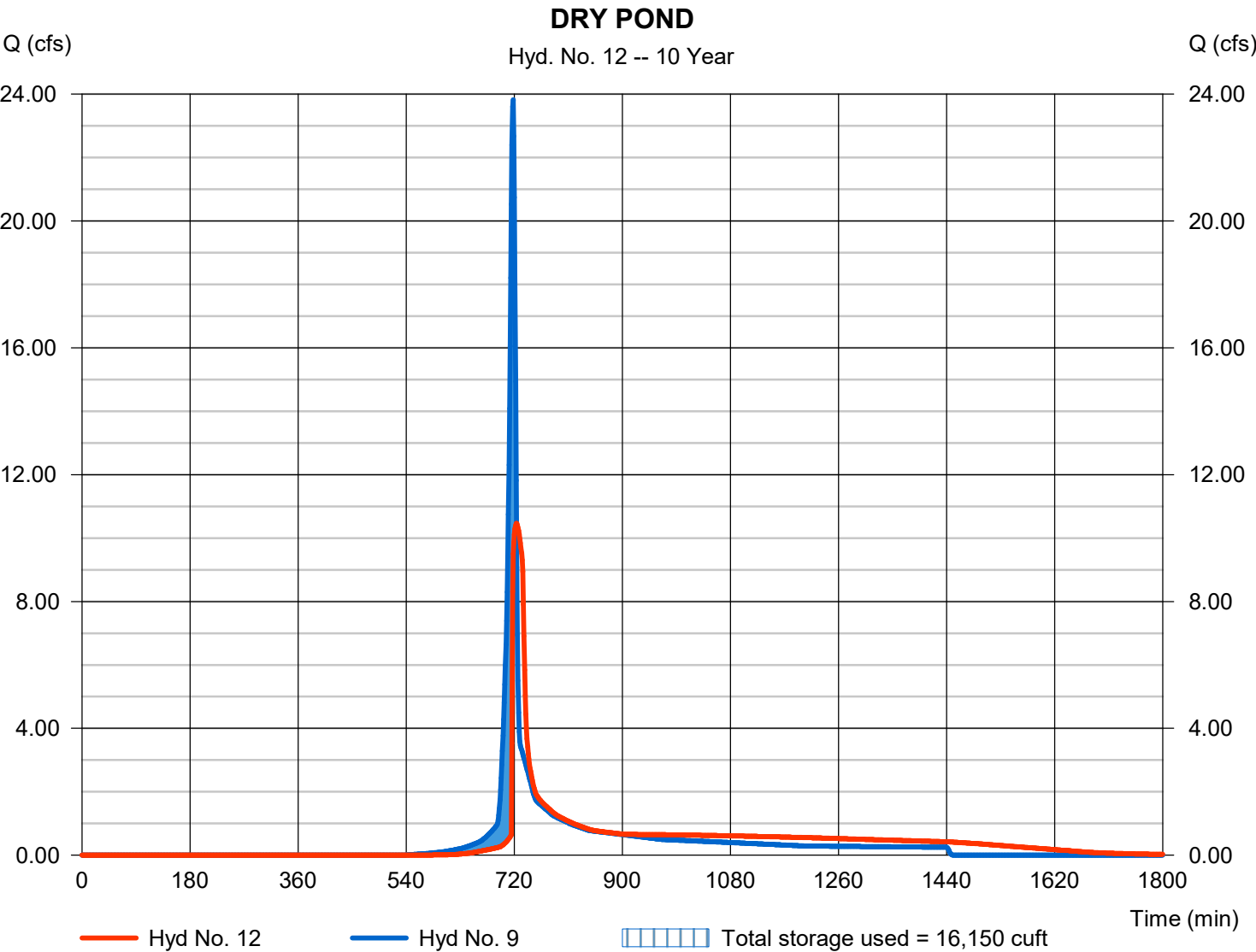
Monday, 07 / 15 / 2024

Hyd. No. 12

DRY POND

Hydrograph type	= Reservoir	Peak discharge	= 10.46 cfs
Storm frequency	= 10 yrs	Time to peak	= 723 min
Time interval	= 1 min	Hyd. volume	= 47,944 cuft
Inflow hyd. No.	= 9 - DA POST - DRY POND	Max. Elevation	= 604.79 ft
Reservoir name	= Dry Pond	Max. Storage	= 16,150 cuft

Storage Indication method used.

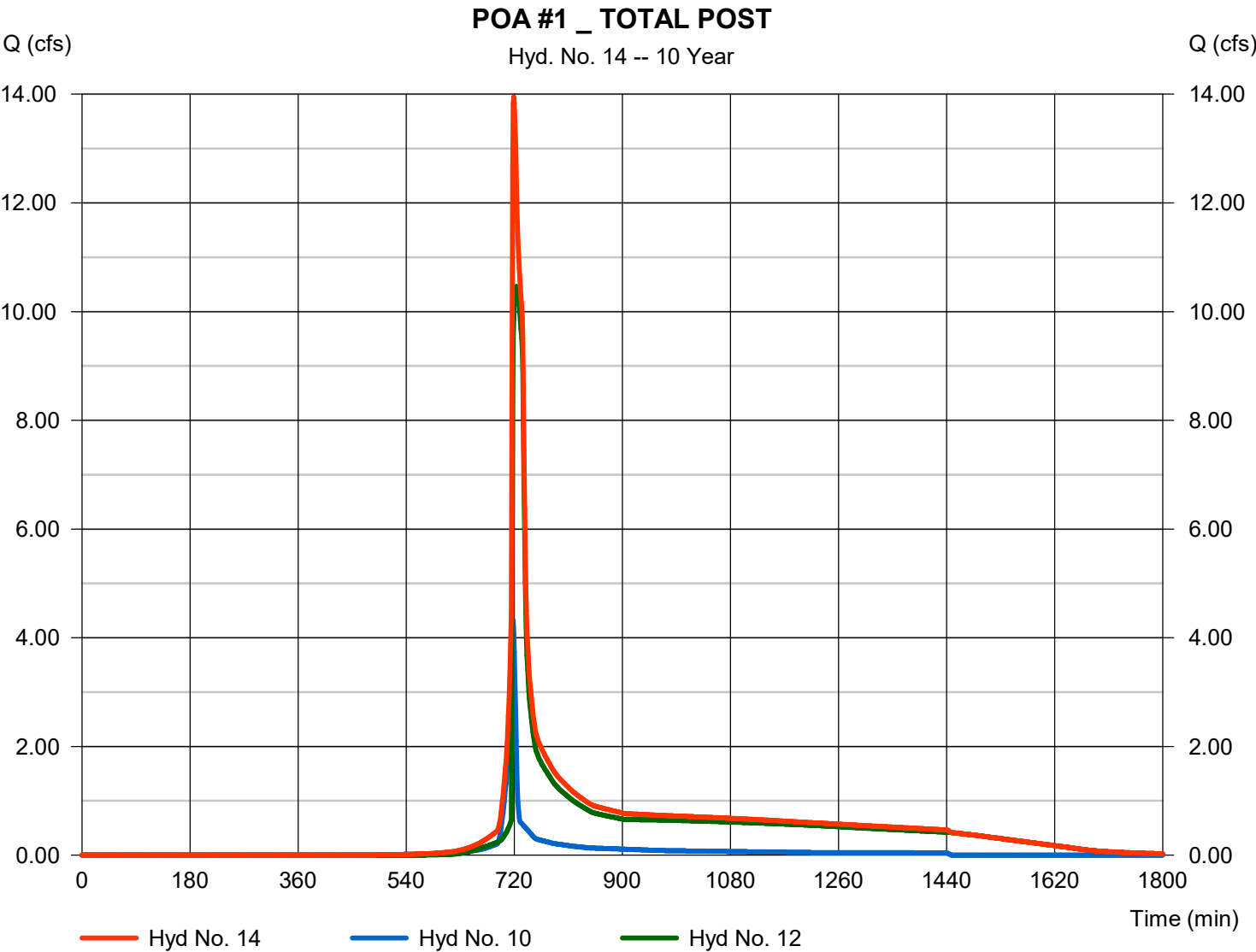


Hydrograph Report

Hyd. No. 14

POA #1 _ TOTAL POST

Hydrograph type	= Combine	Peak discharge	= 13.95 cfs
Storm frequency	= 10 yrs	Time to peak	= 719 min
Time interval	= 1 min	Hyd. volume	= 56,727 cuft
Inflow hyds.	= 10, 12	Contrib. drain. area	= 0.970 ac



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

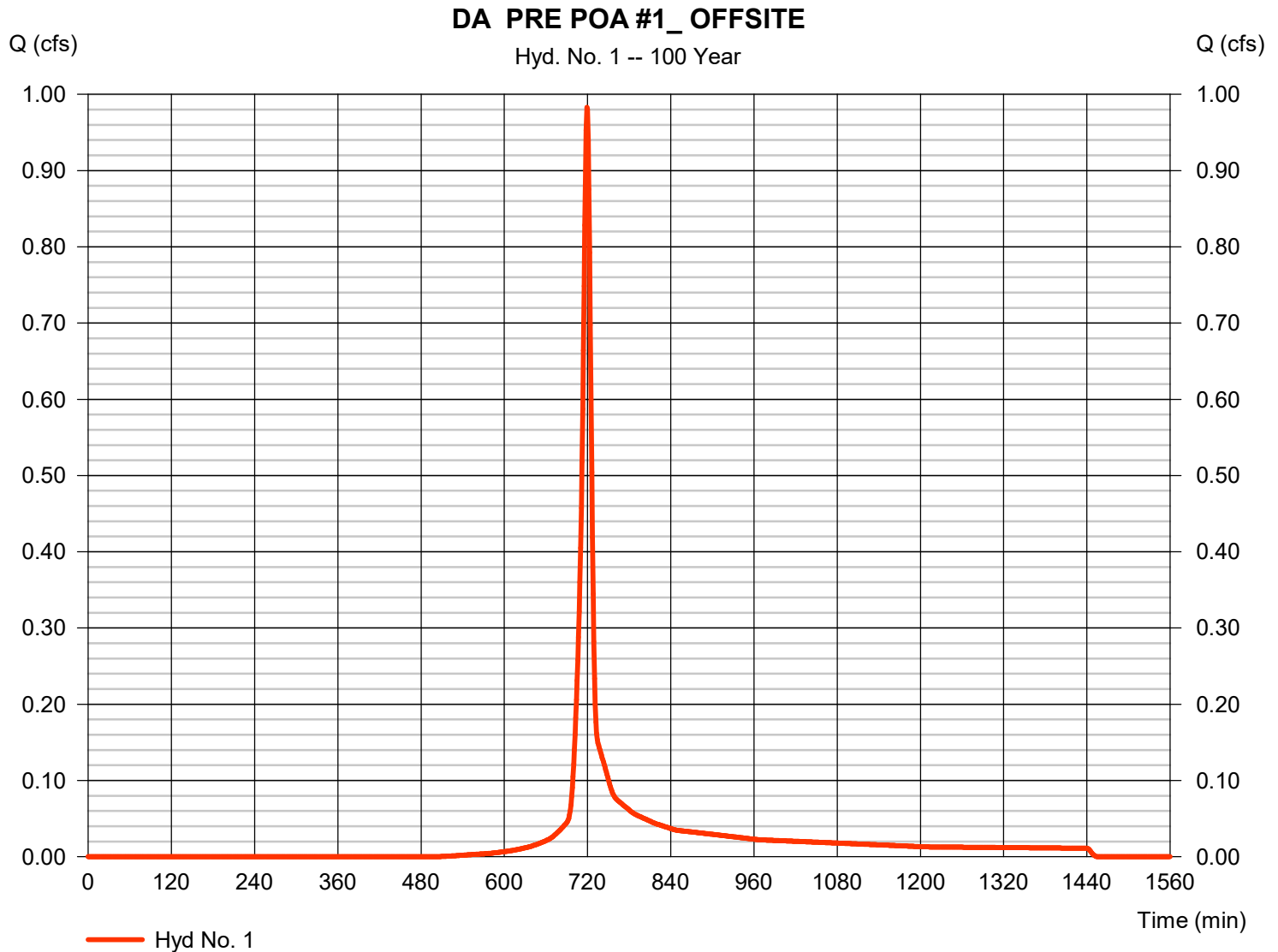
Monday, 07 / 15 / 2024

Hyd. No. 1

DA PRE POA #1_ OFFSITE

Hydrograph type	= SCS Runoff	Peak discharge	= 0.983 cfs
Storm frequency	= 100 yrs	Time to peak	= 719 min
Time interval	= 1 min	Hyd. volume	= 2,224 cuft
Drainage area	= 0.170 ac	Curve number	= 69*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 9.20 min
Total precip.	= 7.11 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = + (0.170 x 69) / 0.170



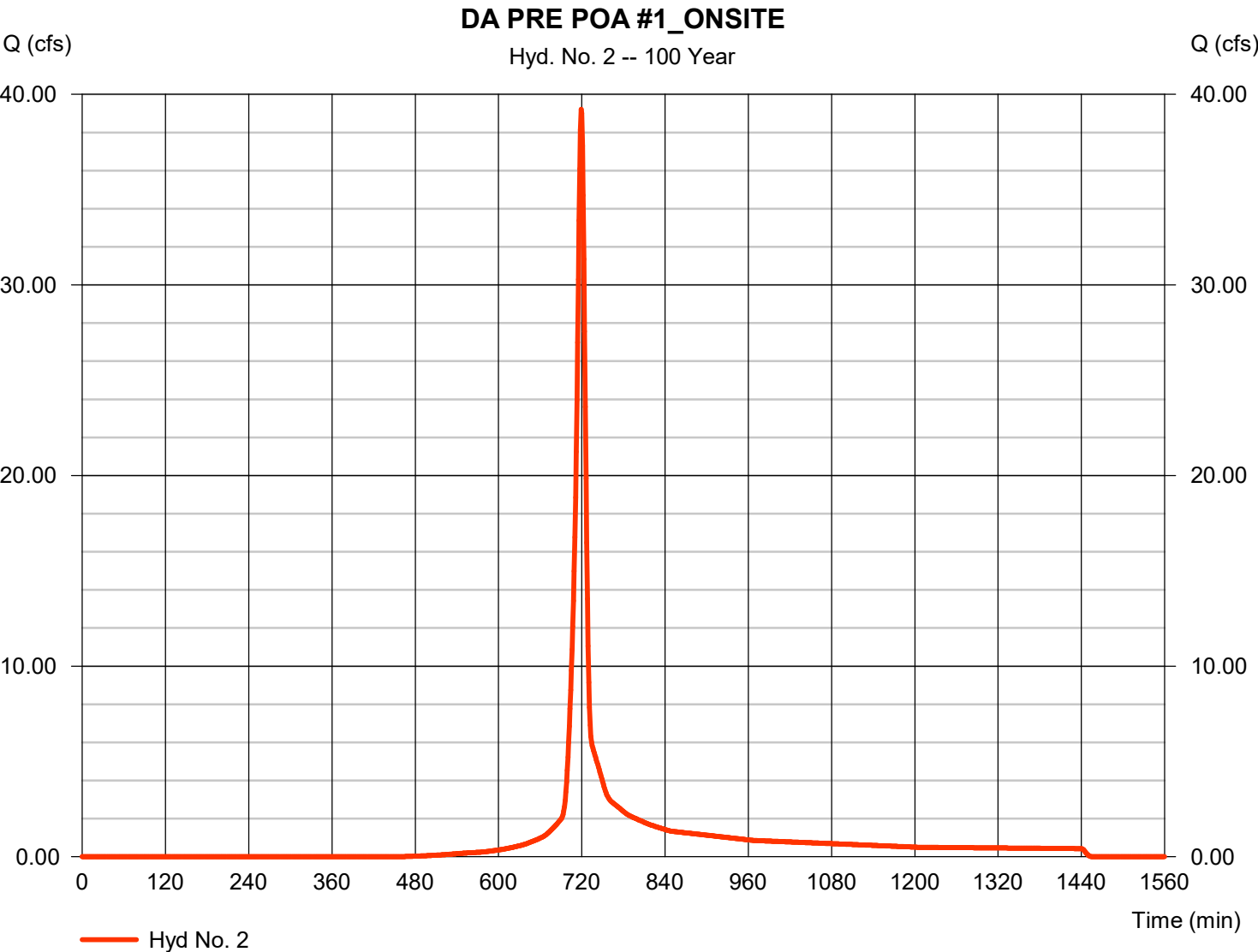
Hydrograph Report

Hyd. No. 2

DA PRE POA #1_ONSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	39.22 cfs
Storm frequency	=	100 yrs	Time to peak	=	719 min
Time interval	=	1 min	Hyd. volume	=	89,002 cuft
Drainage area	=	6.250 ac	Curve number	=	72*
Basin Slope	=	7.7 %	Hydraulic length	=	848 ft
Tc method	=	TR55	Time of conc. (Tc)	=	9.20 min
Total precip.	=	7.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.600 x 98) + (5.650 x 69)] / 6.250



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

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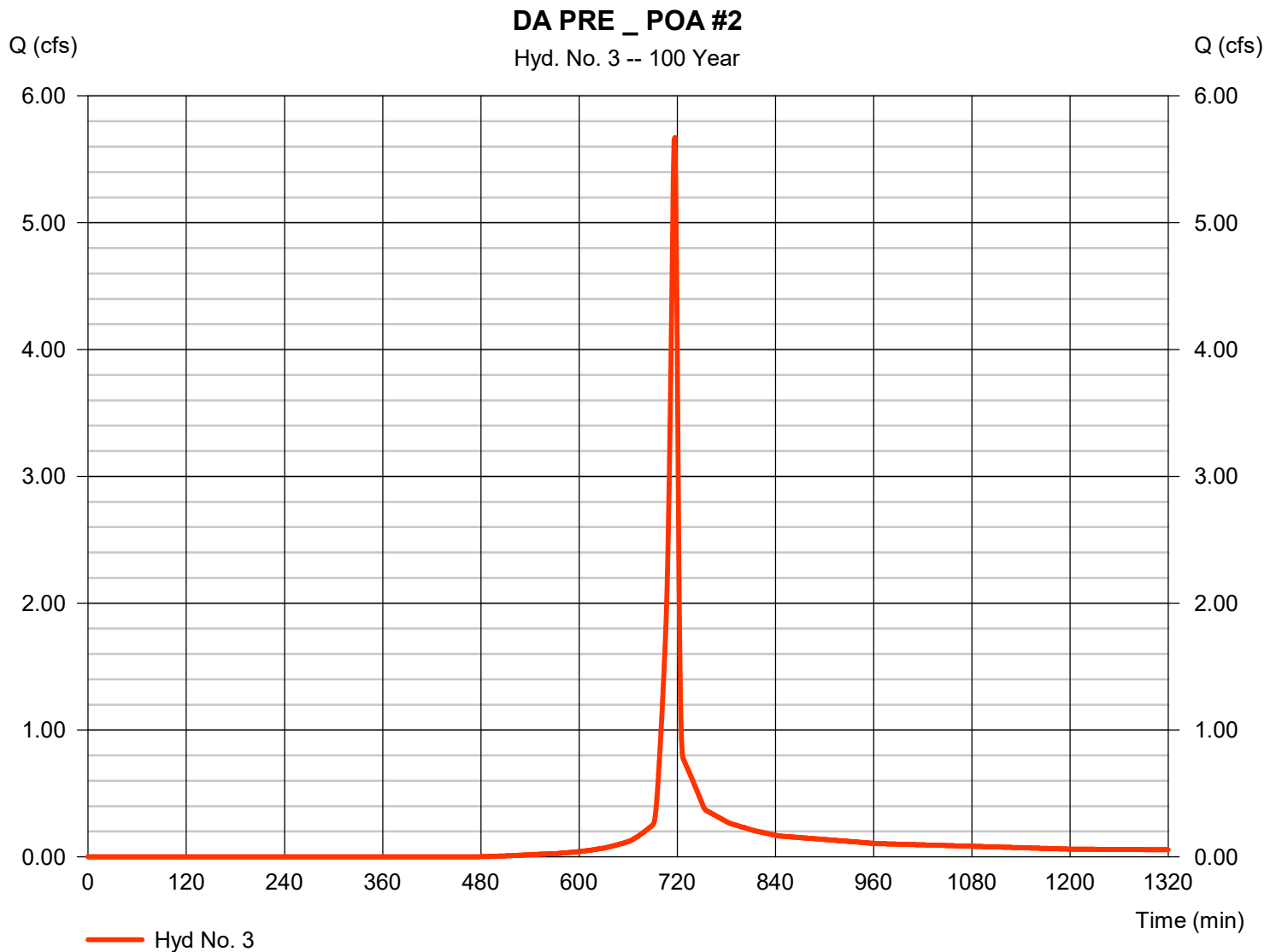
Hyd. No. 3

DA PRE _ POA #2

Hydrograph type = SCS Runoff
 Storm frequency = 100 yrs
 Time interval = 1 min
 Drainage area = 0.780 ac
 Basin Slope = 7.9 %
 Tc method = TR55
 Total precip. = 7.11 in
 Storm duration = 24 hrs

Peak discharge = 5.670 cfs
 Time to peak = 717 min
 Hyd. volume = 10,805 cuft
 Curve number = 71*
 Hydraulic length = 254 ft
 Time of conc. (Tc) = 4.70 min
 Distribution = Type II
 Shape factor = 484

* Composite (Area/CN) = $[(0.050 \times 98) + (0.730 \times 69)] / 0.780$



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

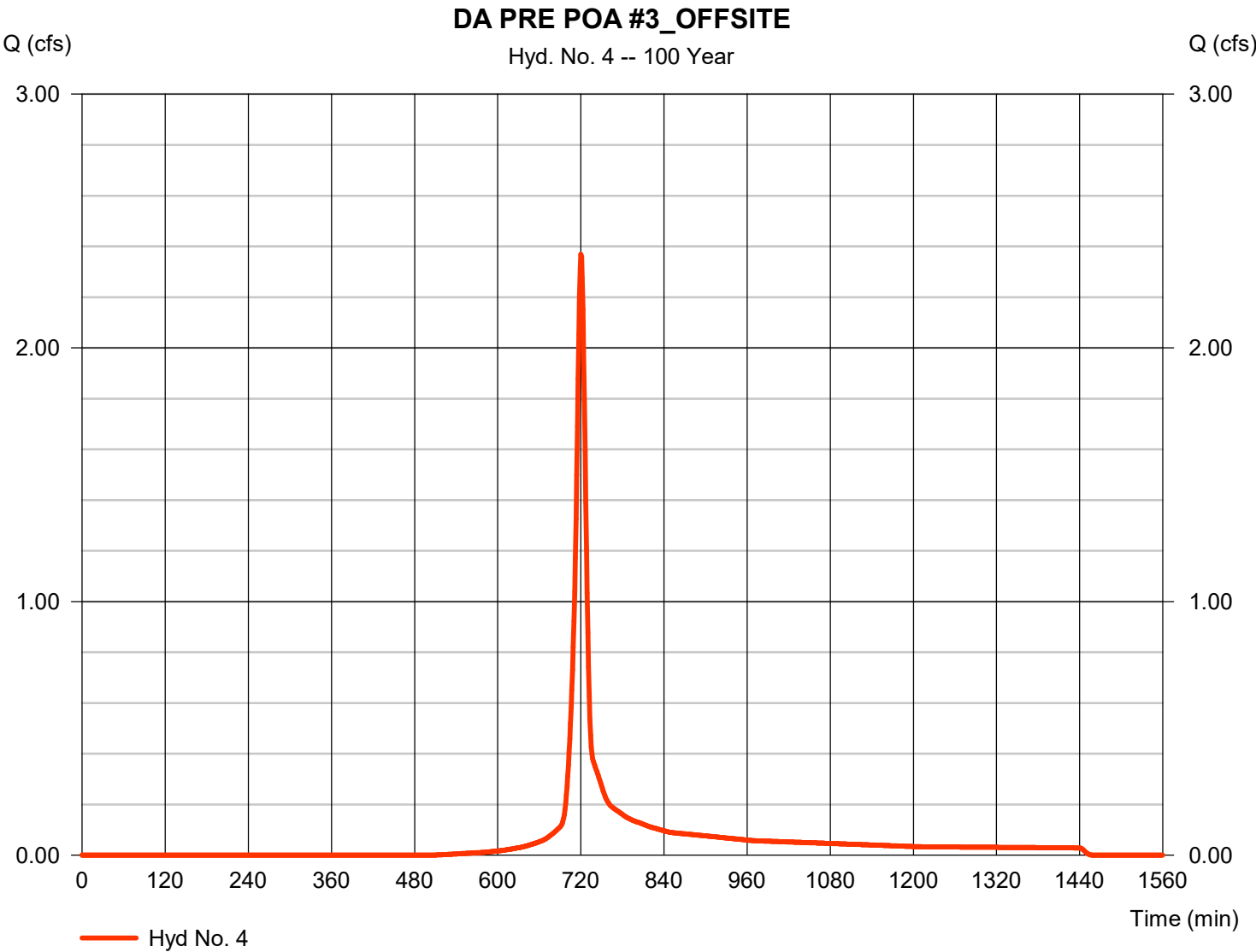
Monday, 07 / 15 / 2024

Hyd. No. 4

DA PRE POA #3_OFFSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.368 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	5,727 cuft
Drainage area	=	0.430 ac	Curve number	=	69*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	11.40 min
Total precip.	=	7.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.430 x 69)] / 0.430



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

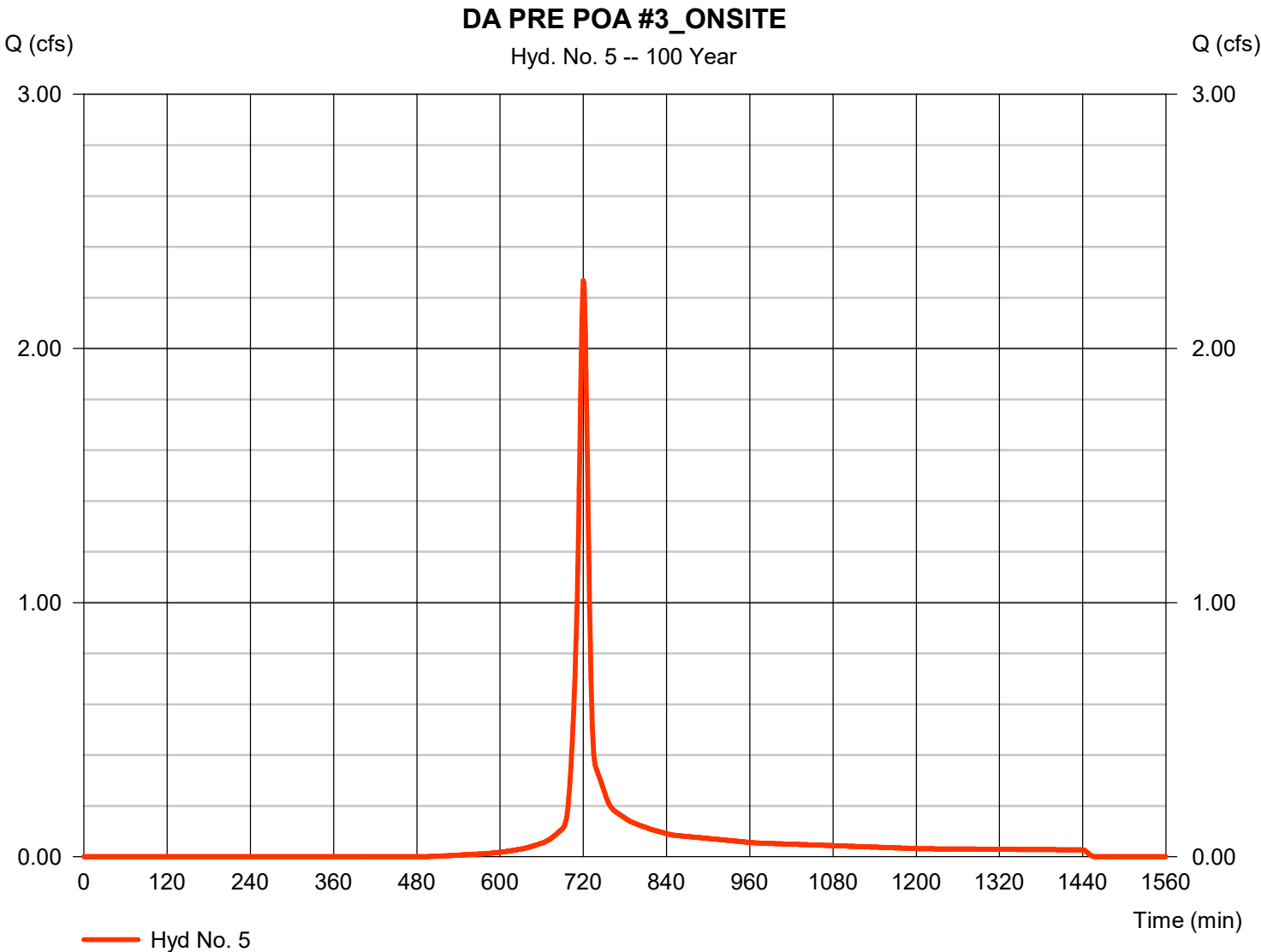
Monday, 07 / 15 / 2024

Hyd. No. 5

DA PRE POA #3_ONSITE

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.267 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	5,483 cuft
Drainage area	=	0.400 ac	Curve number	=	70*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.40 min
Total precip.	=	7.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.010 x 98) + (0.390 x 69)] / 0.400



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

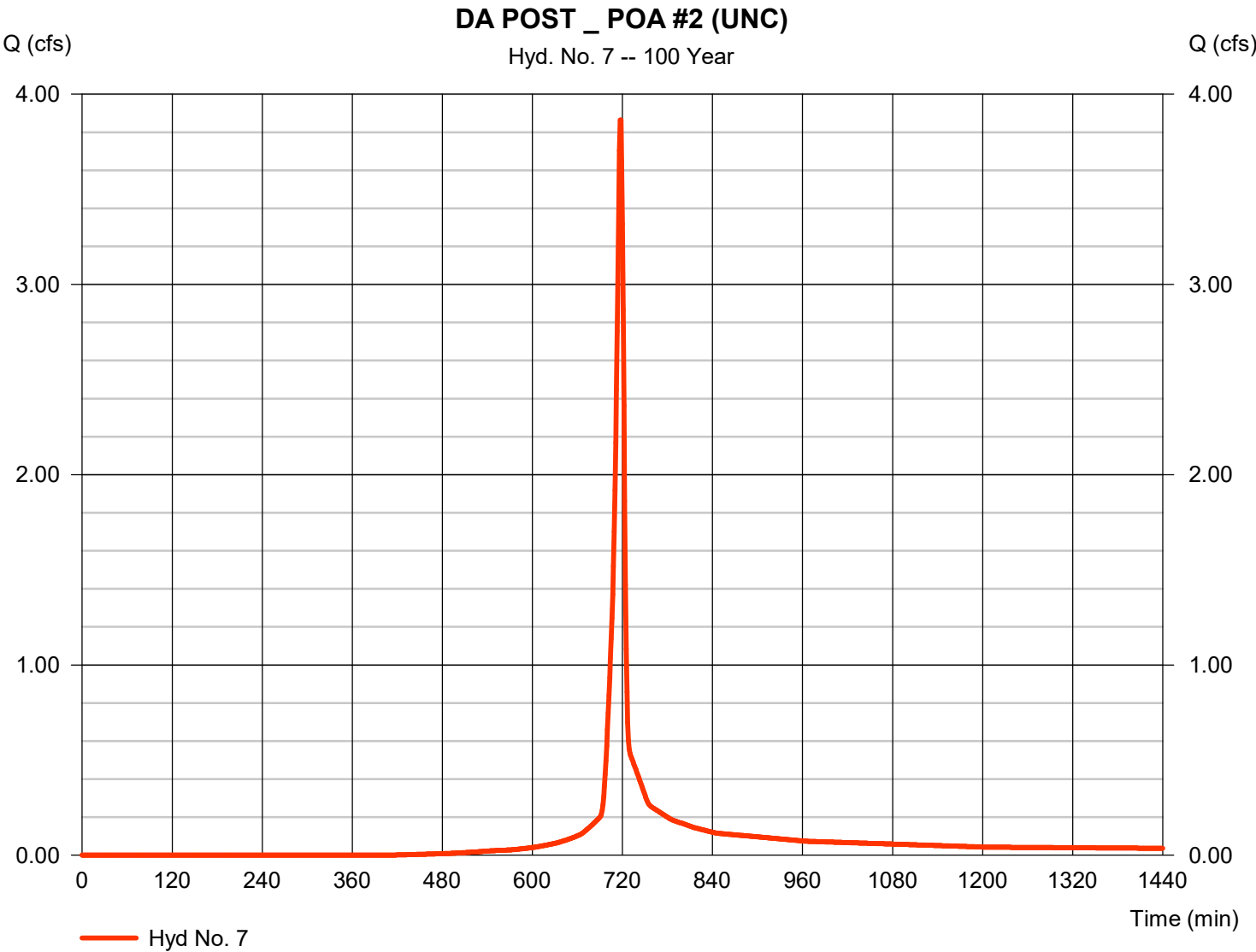
Monday, 07 / 15 / 2024

Hyd. No. 7

DA POST _ POA #2 (UNC)

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.865 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	7,948 cuft
Drainage area	=	0.500 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.100 x 98) + (0.400 x 69)] / 0.500



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

Monday, 07 / 15 / 2024

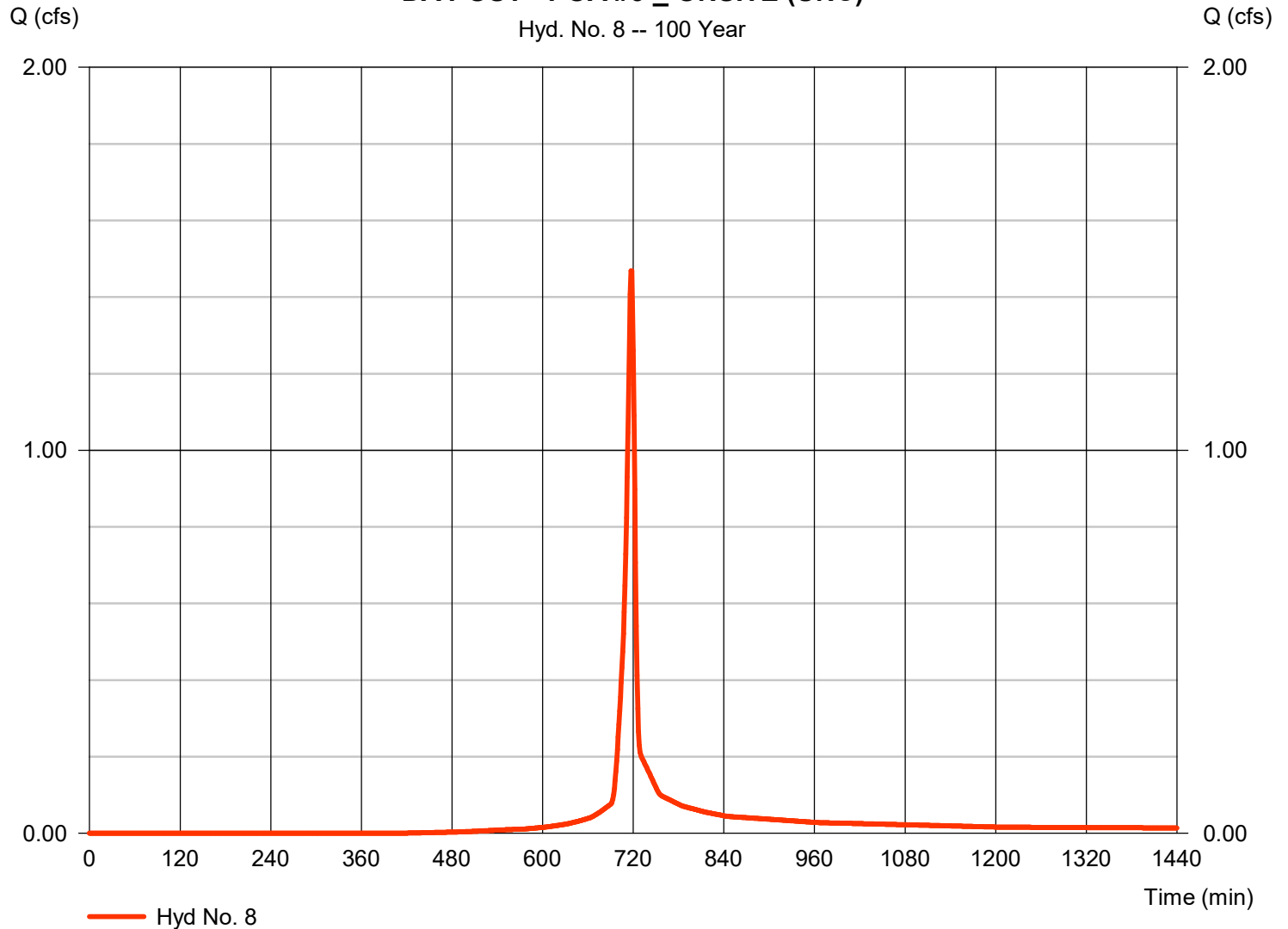
Hyd. No. 8

DA POST - POA #3 _ ONSITE (UNC)

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.469 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	1 min	Hyd. volume	=	3,020 cuft
Drainage area	=	0.190 ac	Curve number	=	75*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = $[(0.150 \times 69) + (0.040 \times 98)] / 0.190$

DA POST - POA #3 _ ONSITE (UNC)



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

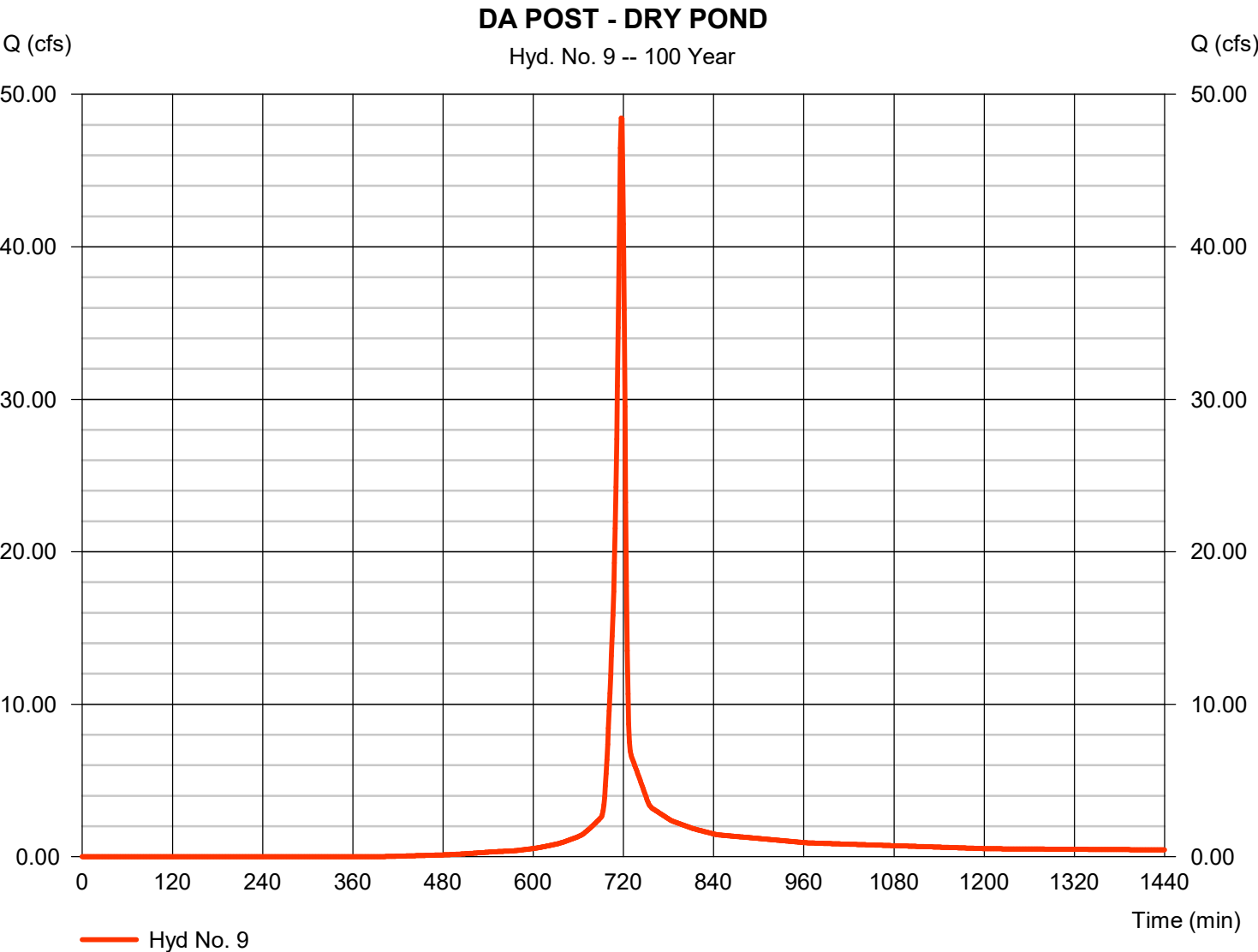
Monday, 07 / 15 / 2024

Hyd. No. 9

DA POST - DRY POND

Hydrograph type	=	SCS Runoff	Peak discharge	=	48.45 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	99,944 cuft
Drainage area	=	6.130 ac	Curve number	=	76*
Basin Slope	=	7.8 %	Hydraulic length	=	847 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(1.510 x 98) + (4.620 x 69)] / 6.130



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

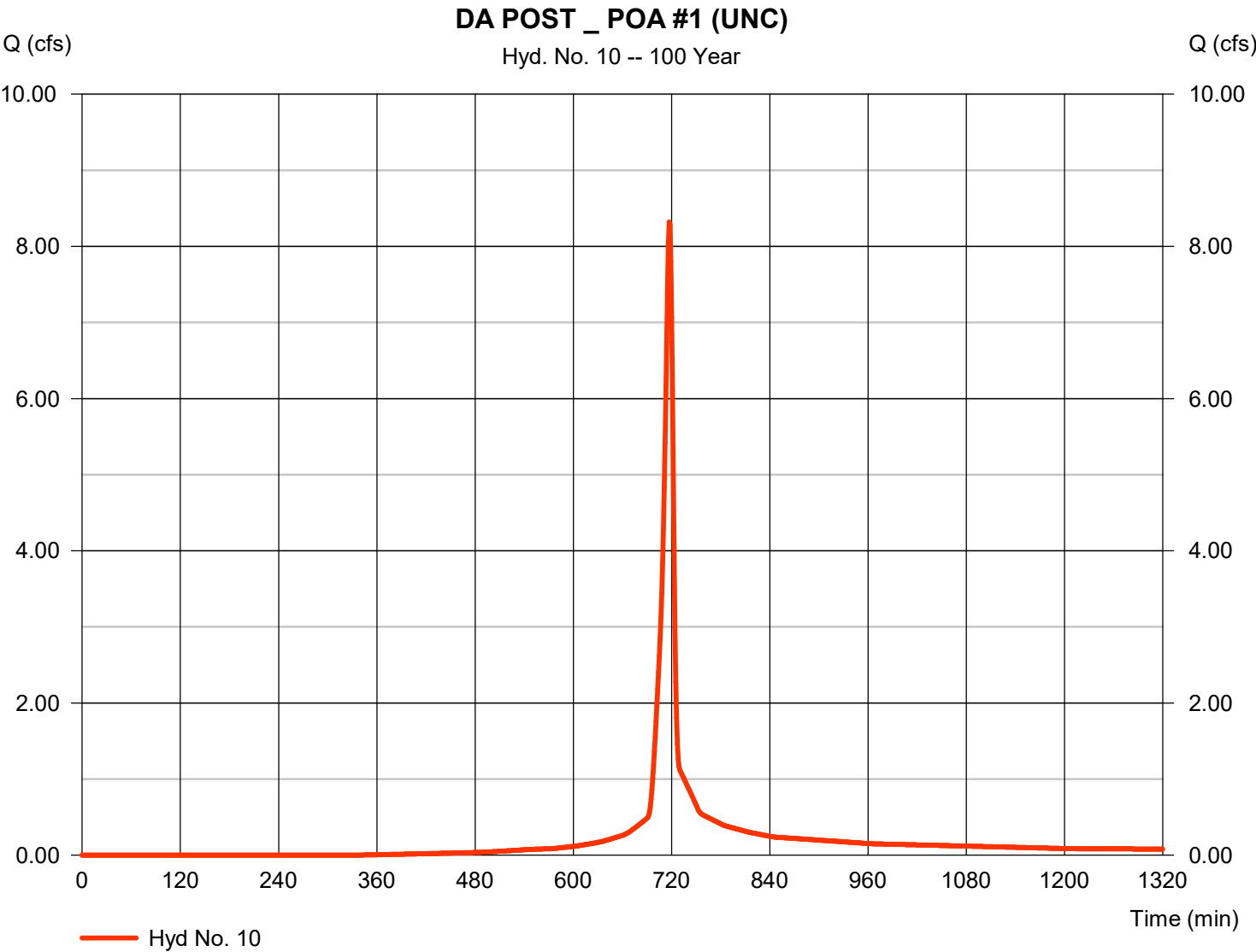
Monday, 07 / 15 / 2024

Hyd. No. 10

DA POST _ POA #1 (UNC)

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.320 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	17,415 cuft
Drainage area	=	0.970 ac	Curve number	=	80*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	7.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.370 x 98) + (0.600 x 69)] / 0.970



Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2020

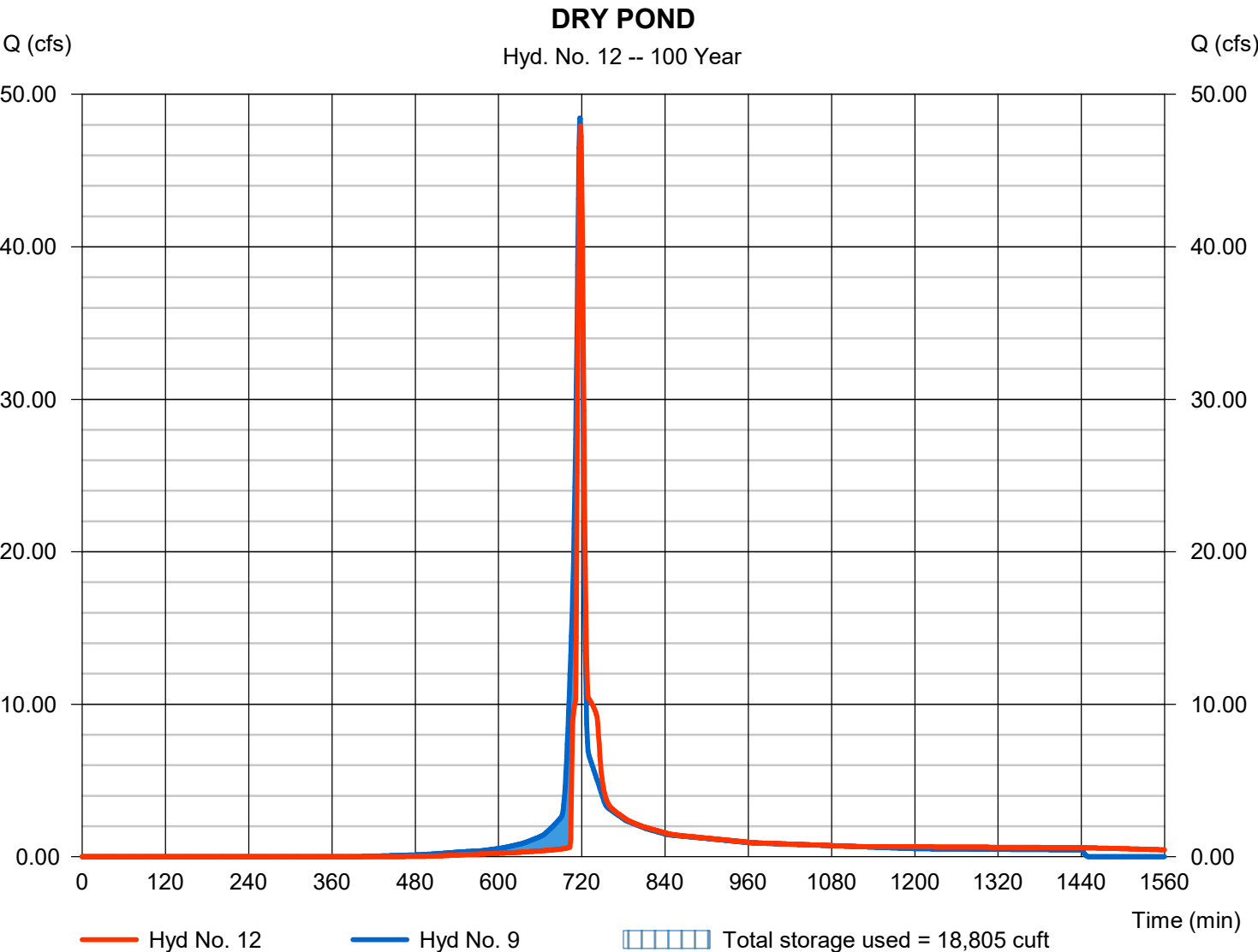
Monday, 07 / 15 / 2024

Hyd. No. 12

DRY POND

Hydrograph type	= Reservoir	Peak discharge	= 47.92 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 99,929 cuft
Inflow hyd. No.	= 9 - DA POST - DRY POND	Max. Elevation	= 605.23 ft
Reservoir name	= Dry Pond	Max. Storage	= 18,805 cuft

Storage Indication method used.

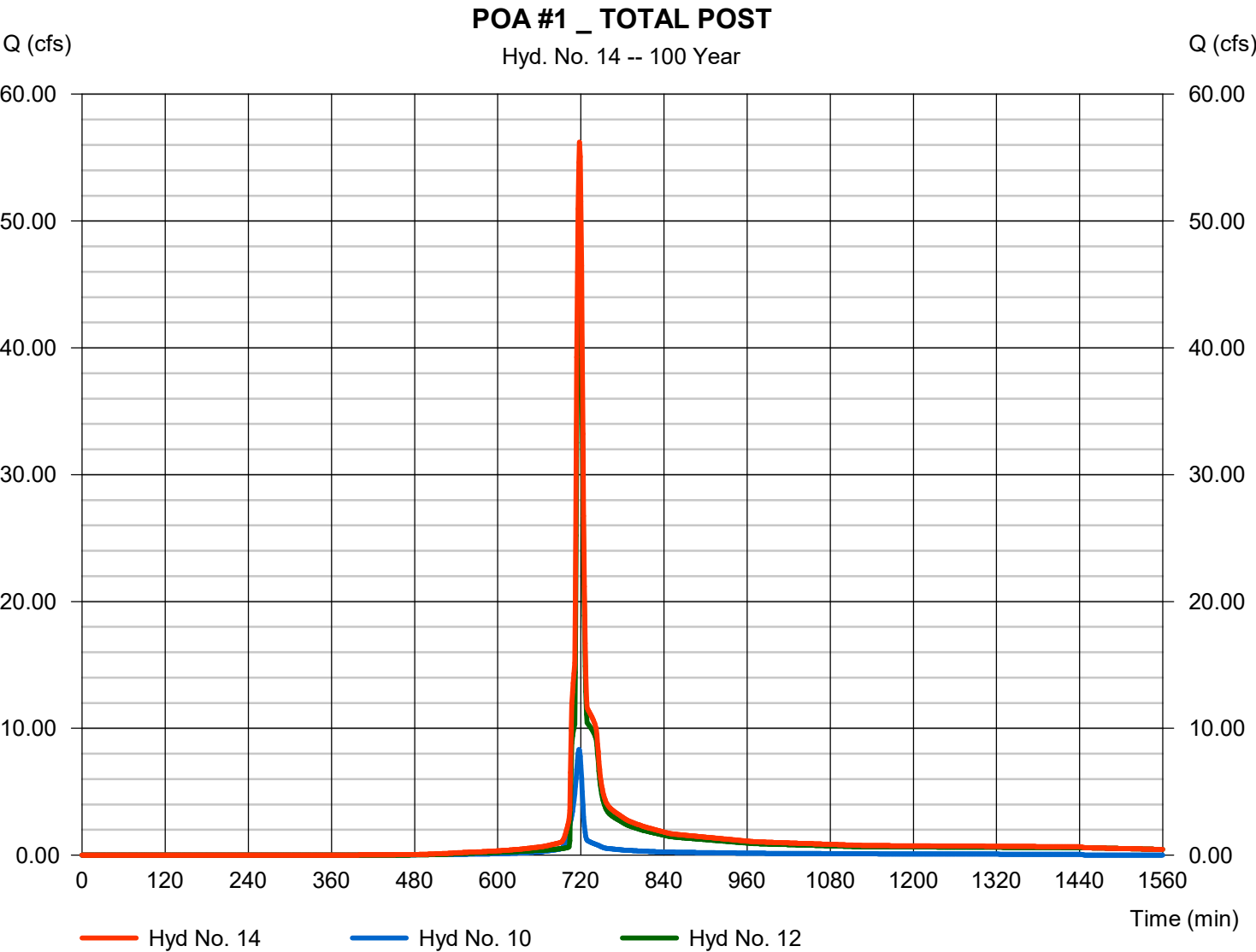


Hydrograph Report

Hyd. No. 14

POA #1 _ TOTAL POST

Hydrograph type	= Combine	Peak discharge	= 56.21 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 1 min	Hyd. volume	= 117,344 cuft
Inflow hyds.	= 10, 12	Contrib. drain. area	= 0.970 ac



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

Project Name: Squirrel Hill Development
Date: 7/12/2024

CLEAR ALL

BMP Design Specifications List: 2013 Draft Stds & Specs

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Land Cover (acres)	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land		0.00			0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed		4.94	0.00	0.00	4.94
Impervious Cover (acres)		1.65	0.00	0.00	1.65
					6.59

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

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

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr) 3.13

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary		Treatment Volume and Nutrient Loads	
Forest/Open Space Cover (acres)	0.00	Treatment Volume (acre-ft)	0.2130
Weighted Rv (forest)	0.00	Treatment Volume (cubic feet)	9,276
% Forest	0%	TP Load (lb/yr)	5.83
Managed Turf Cover (acres)	4.94	TN Load (lb/yr) (Informational Purposes Only)	41.70
Weighted Rv (turf)	0.20		
% Managed Turf	75%		
Impervious Cover (acres)	1.65		
Rv (impervious)	0.95		
% Impervious	25%		
Site Area (acres)	6.59		
Site Rv	0.39		

Drainage Area A

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rn
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)					0.00	0.00
Impervious Cover (acres)					0.00	0.00
Total					0.00	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr)	0.00
Post Development Treatment Volume in D.A. A (ft ³)	0

Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft ³)	Runoff Reduction (ft ³)	Remaining Runoff Volume (ft ³)	Total BMP Treatment Volume (ft ³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lbs)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
1. Vegetated Roof (RR)													
1.a. Vegetated Roof #1 (Spec #5)	45				0	0	0	0	0	0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #5)	60				0	0	0	0	0	0.00	0.00	0.00	
2. Rooftop Disconnection (RR)													
2.a. Simple Disconnection to A/B Soils (Spec #1)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.b. Simple Disconnection to C/D Soils (Spec #1)	25			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (existing C/D soils) (Spec #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (Spec #6)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (Spec #6)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1, Micro-Biorentention #1 (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2, Micro-Biorentention #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #6)	0			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Planter, Urban Bioretention (Spec #9, Appendix A)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement (RR)													
3.a. Permeable Pavement #1 (Spec #7)	45			0	0	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #7)	75					0	0	25		0.00	0.00	0.00	
4. Grass Channel (RR)													
4.a. Grass Channel A/B Soils (Spec #3)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #3)	10			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils as per specs (see Spec #4)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale (RR)													
5.a. Dry Swale #1 (Spec #10)	40			0	0	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (Spec #10)	60			0	0	0	0	40	0.00	0.00	0.00	0.00	
6. Bioretention (RR)													
6.a. Bioretention #1 or Micro-Biorentention #1 or Urban Bioretention (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
6.b. Bioretention #2 or Micro-Biorentention #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
7. Infiltration (RR)													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
8. Extended Detention Pond (RR)													
8.a. ED #1 (Spec #15)	0			0	0	0	0	15	0.00	0.00	0.00	0.00	
8.b. ED #2 (Spec #15)	15			0	0	0	0	15	0.00	0.00	0.00	0.00	
9. Sheetflow to Filter/Open Space (RR)													
9.a. Sheetflow to Conservation Area, A/B Soils (Spec #2)	75			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.b. Sheetflow to Conservation Area, C/D Soils (Spec #2)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.c. Sheetflow to Vegetated Filter Strip, A Soils or Compost Amended B/C/D Soils (Spec #2 & #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL RUNOFF REDUCTION IN D.A. A (ft³) 0

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS REMAINING AFTER APPLYING RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
1. Vegetated Roof (RR)				
0		0.00	0.00	0.00
0		0.00	0.00	0.00
2. Rooftop Disconnection (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
3. Permeable Pavement (RR)				
25	0.00	0.00	0.00	0.00
25		0.00	0.00	0.00
4. Grass Channel (RR)				
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
5. Dry Swale (RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
6. Bioretention (RR)				
40	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
7. Infiltration (RR)				
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
8. Extended Detention Pond (RR)				
0	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
9. Sheetflow to Filter/Open Space (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00

TOTAL RUNOFF REDUCTION IN D.A. A (ft³) 0
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)

10. Wet Swale (no RR)													
10.a. Wet Swale #1 (Spec #11)	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
10.b. Wet Swale #2 (Spec #11)	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
11. Filtering Practices (no RR)													
11.a. Filtering Practice #1 (Spec #12)	0			0	0	0	0	60	0.00	0.00	0.00	0.00	
11.b. Filtering Practice #2 (Spec #12)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
12. Constructed Wetland (no RR)													
12.a. Constructed Wetland #1 (Spec #13)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
12.b. Constructed Wetland #2 (Spec #13)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13. Wet Ponds (no RR)													
13.a. Wet Pond #1 (Spec #14)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
13.b. Wet Pond #1 (Coastal Plain) (Spec #14)	0			0	0	0	0	45	0.00	0.00	0.00	0.00	
13.c. Wet Pond #2 (Spec #14)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13.d. Wet Pond #2 (Coastal Plain) (Spec #14)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device - Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device - Filtering	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.c. Manufactured Treatment Device - Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 3.13

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr) 0.00
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr) 0.00

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr) 0.00
TOTAL NITROGEN REMOVED IN D.A. A (lb/yr) 0.00

10. Wet Swale (Coastal Plain) (no RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
11. Filtering Practices (no RR)				
30	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00
12. Constructed Wetland (no RR)				
25	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00
13. Wet Ponds (no RR)				
30	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
14. Manufactured BMP (no RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00

Drainage Area C

Drainage Area A Land Cover (acres)

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

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. C (lb/yr)	0.00
Post Development Treatment Volume in D.A. C (ft ³)	0

Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft ³)	Runoff Reduction (ft ³)	Remaining Runoff Volume (ft ³)	Total BMP Treatment Volume (ft ³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
1. Vegetated Roof (RR)													
1.a. Vegetated Roof #1 (Spec #5)	45				0	0	0	0		0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #5)	60				0	0	0	0		0.00	0.00	0.00	
2. Rooftop Disconnection (RR)													
2.a. Simple Disconnection to A/B Soils (Spec #1)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.b. Simple Disconnection to C/D Soils (Spec #1)	25			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (Vegeting C/D soils) (Spec #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (Spec #6)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1, Micro-Bioretentation #1 (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2, Micro-Bioretentation #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #6)	0			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Planter, Urban Bioretention (Spec #9, Appendix A)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement (RR)													
3.a. Permeable Pavement #1 (Spec #7)	45			0	0	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #7)	75				0	0	0	25		0.00	0.00	0.00	
4. Grass Channel (RR)													
4.a. Grass Channel A/B Soils (Spec #3)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #3)	10			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils (50 per spec) (see Spec #5)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale (RR)													
5.a. Dry Swale #1 (Spec #10)	40			0	0	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (Spec #10)	60			0	0	0	0	40	0.00	0.00	0.00	0.00	
6. Bioretention (RR)													
6.a. Bioretention #1 or Micro-Bioretentation #1 or Urban Bioretention (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
6.b. Bioretention #2 or Micro-Bioretentation #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
7. Infiltration (RR)													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
8. Extended Detention Pond (RR)													
8.a. ED #1 (Spec #15)	0			0	0	0	0	15	0.00	0.00	0.00	0.00	
8.b. ED #2 (Spec #15)	15			0	0	0	0	15	0.00	0.00	0.00	0.00	
9. Sheetflow to Filter/Open Space (RR)													
9.a. Sheetflow to Conservation Area, A/B Soils (Spec #2)	75			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.b. Sheetflow to Conservation Area, C/D Soils (Spec #2)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.c. Sheetflow to Vegetated Filter Strip, A Soils or Compost Amended B/C/D Soils (Spec #2 & #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL RUNOFF REDUCTION IN D.A. C (ft³) 0

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 0.00
TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. C (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. C (lb/yr) 0.00
TOTAL PHOSPHORUS REMAINING AFTER APPLYING RUNOFF REDUCTION PRACTICES IN D.A. C (lb/yr) 0.00

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

10. Wet Swale (no RR)													
10.a. Wet Swale #1 (Spec #11)	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
10.b. Wet Swale #2 (Spec #11)	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
11. Filtering Practices (no RR)													
11.a. Filtering Practice #1 (Spec #12)	0			0	0	0	0	60	0.00	0.00	0.00	0.00	
11.b. Filtering Practice #2 (Spec #12)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
12. Constructed Wetland (no RR)													
12.a. Constructed Wetland #1 (Spec #13)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
12.b. Constructed Wetland #2 (Spec #13)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13. Wet Ponds (no RR)													
13.a. Wet Pond #1 (Spec #14)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
13.b. Wet Pond #1 (Coastal Plain) (Spec #14)	0			0	0	0	0	45	0.00	0.00	0.00	0.00	
13.c. Wet Pond #2 (Spec #14)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13.d. Wet Pond #2 (Coastal Plain) (Spec #14)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 3.13
TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. C (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. C (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. C (lb/yr) 0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. C (lb/yr) 0.00
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. C (lb/yr) 0.00

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. C (lb/yr) 0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. C (lb/yr) 0.00
TOTAL NITROGEN REMOVED IN D.A. C (lb/yr) 0.00

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
1. Vegetated Roof (RR)				
0		0.00	0.00	0.00
0		0.00	0.00	0.00
2. Rooftop Disconnection (RR)				
0		0.00	0.00	0.00
0		0.00	0.00	0.00
0		0.00	0.00	0.00
15		0.00	0.00	0.00
15		0.00	0.00	0.00
40		0.00	0.00	0.00
60		0.00	0.00	0.00
0		0.00	0.00	0.00
40		0.00	0.00	0.00
3. Permeable Pavement (RR)				
25		0.00	0.00	0.00
25		0.00	0.00	0.00
4. Grass Channel (RR)				
20		0.00	0.00	0.00
20		0.00	0.00	0.00
20		0.00	0.00	0.00
5. Dry Swale (RR)				
25		0.00	0.00	0.00
35		0.00	0.00	0.00
6. Bioretention (RR)				
40		0.00	0.00	0.00
60		0.00	0.00	0.00
7. Infiltration (RR)				
15		0.00	0.00	0.00
15		0.00	0.00	0.00
8. Extended Detention Pond (RR)				
10		0.00	0.00	0.00
10		0.00	0.00	0.00
9. Sheetflow to Filter/Open Space (RR)				
0		0.00	0.00	0.00
0		0.00	0.00	0.00
0		0.00	0.00	0.00

TOTAL RUNOFF REDUCTION IN D.A. C (ft³) 0
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. C (lb/yr) 0.00
SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)

10. Wet Swale (Coastal Plain) (no RR)				
25		0.00	0.00	0.00
35		0.00	0.00	0.00
11. Filtering Practices (no RR)				
30		0.00	0.00	0.00
45		0.00	0.00	0.00
12. Constructed Wetland (no RR)				
25		0.00	0.00	0.00
55		0.00	0.00	0.00
13. Wet Ponds (no RR)				
30		0.00	0.00	0.00
20		0.00	0.00	0.00
40		0.00	0.00	0.00
30		0.00	0.00	0.00
14. Manufactured BMP (no RR)				
0		0.00	0.00	0.00
0		0.00	0.00	0.00
0		0.00	0.00	0.00

Drainage Area E

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)					0.00	0.00
Impervious Cover (acres)					0.00	0.00
					0.00	
					0.00	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. E (lb/yr)	0.00
Post Development Treatment Volume in D.A. E (ft ³)	0

Stormwater Best Management Practices (RR = Runoff Reduction)

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft ³)	Runoff Reduction (ft ³)	Remaining Runoff Volume (ft ³)	Total BMP Treatment Volume (ft ³)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
1. Vegetated Roof (RR)													
1.a. Vegetated Roof #1 (Spec #5)	45			0	0	0	0	0		0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #5)	60			0	0	0	0	0		0.00	0.00	0.00	
2. Rooftop Disconnection (RR)													
2.a. Simple Disconnection to A/B Soils (Spec #1)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.b. Simple Disconnection to C/D Soils (Spec #1)	25			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (Vegeting C/D soils) (Spec #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (Spec #6)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1, Micro-Bioretentation #1 (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2, Micro-Bioretentation #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #6)	0			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Planter, Urban Bioretention (Spec #9, Appendix A)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement (RR)													
3.a. Permeable Pavement #1 (Spec #7)	45			0	0	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #7)	75			0	0	0	0	25	0.00	0.00	0.00	0.00	
4. Grass Channel (RR)													
4.a. Grass Channel A/B Soils (Spec #3)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #3)	10			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils (50 per spec) (see Spec #5)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale (RR)													
5.a. Dry Swale #1 (Spec #10)	40			0	0	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (Spec #10)	60			0	0	0	0	40	0.00	0.00	0.00	0.00	
6. Bioretention (RR)													
6.a. Bioretention #1 or Micro-Bioretentation #1 or Urban Bioretention (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
6.b. Bioretention #2 or Micro-Bioretentation #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
7. Infiltration (RR)													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
8. Extended Detention Pond (RR)													
8.a. ED #1 (Spec #15)	0			0	0	0	0	15	0.00	0.00	0.00	0.00	
8.b. ED #2 (Spec #15)	15			0	0	0	0	15	0.00	0.00	0.00	0.00	
9. Sheetflow to Filter/Open Space (RR)													
9.a. Sheetflow to Conservation Area, A/B Soils (Spec #2)	75			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.b. Sheetflow to Conservation Area, C/D Soils (Spec #2)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.c. Sheetflow to Vegetated Filter Strip, A Soils or Compost Amended B/C/D Soils (Spec #2 & #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	

TOTAL IMPERVIOUS COVER TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL RUNOFF REDUCTION IN D.A. E (ft³) 0

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. E (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. E (lb/yr) 0.00
TOTAL PHOSPHORUS REMAINING AFTER APPLYING RUNOFF REDUCTION PRACTICES IN D.A. E (lb/yr) 0.00

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
1. Vegetated Roof (RR)				
0		0.00	0.00	0.00
0		0.00	0.00	0.00
2. Rooftop Disconnection (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
3. Permeable Pavement (RR)				
25	0.00	0.00	0.00	0.00
25		0.00	0.00	0.00
4. Grass Channel (RR)				
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
5. Dry Swale (RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
6. Bioretention (RR)				
40	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
7. Infiltration (RR)				
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
8. Extended Detention Pond (RR)				
10	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
9. Sheetflow to Filter/Open Space (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00

TOTAL RUNOFF REDUCTION IN D.A. E (ft³) 0
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. E (lb/yr) 0.00
SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)

10. Wet Swale (no RR)													
10.a. Wet Swale #1 (Spec #11)	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
10.b. Wet Swale #2 (Spec #11)	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
11. Filtering Practices (no RR)													
11.a. Filtering Practice #1 (Spec #12)	0			0	0	0	0	60	0.00	0.00	0.00	0.00	
11.b. Filtering Practice #2 (Spec #12)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
12. Constructed Wetland (no RR)													
12.a. Constructed Wetland #1 (Spec #13)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
12.b. Constructed Wetland #2 (Spec #13)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13. Wet Ponds (no RR)													
13.a. Wet Pond #1 (Spec #14)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
13.b. Wet Pond #1 (Coastal Plain) (Spec #14)	0			0	0	0	0	45	0.00	0.00	0.00	0.00	
13.c. Wet Pond #2 (Spec #14)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13.d. Wet Pond #2 (Coastal Plain) (Spec #14)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

10. Wet Swale (Coastal Plain) (no RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
11. Filtering Practices (no RR)				
30	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00
12. Constructed Wetland (no RR)				
25	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00
13. Wet Ponds (no RR)				
30	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
14. Manufactured BMP (no RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00

TOTAL IMPERVIOUS COVER TREATED (ac) 0.00 AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac) 0.00 AREA CHECK: OK.

TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr) 3.13

TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. E (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. E (lb/yr) 0.00
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. E (lb/yr) 0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. E (lb/yr) 0.00
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. E (lb/yr) 0.00

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. E (lb/yr) 0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. E (lb/yr) 0.00
TOTAL NITROGEN REMOVED IN D.A. E (lb/yr) 0.00

Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.00	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.00	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	
Site Treatment Volume (ft ³)	0					
Runoff Reduction Volume and TP By Drainage Area						
	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft ³)	0	0	0	0	0	0
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
TP LOAD REMAINING (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
Total Phosphorus						
FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	5.83					
TP LOAD REDUCTION REQUIRED (lb/yr)	3.13					
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.00					
TP LOAD REMAINING (lb/yr):	5.83					
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	3.13					
Total Nitrogen (For Information Purposes)						
POST-DEVELOPMENT LOAD (lb/yr)	41.70					
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00					
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	41.70					

Runoff Volume and Curve Number Calculations

Enter design storm rainfall depths (in):

1-year storm	2-year storm	10-year storm
2.18	2.62	3.85

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

*Notes (see below):

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

Drainage Area Curve Numbers and Runoff Depths*

Curve numbers (CN, CNadj) and runoff depths (RV_{Developed}) are computed with and without reduction practices.

Drainage Area A		A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00			
Forest/Open Space – undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft ³):	0			
	CN	30	55	70	77					
Managed Turf – disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00					
	CN	39	61	74	80					
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00					
	CN	98	98	98	98					
		CN _(D.A. A)								
		0								
		1-year storm	2-year storm	10-year storm						
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00						
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00						
Adjusted CN*		0	0	0						
*See Notes above										
Drainage Area B		A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00			
Forest/Open Space – undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft ³):	0			
	CN	30	55	70	77					
Managed Turf – disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00					
	CN	39	61	74	80					
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00					
	CN	98	98	98	98					
		CN _(D.A. B)								
		0								
		1-year storm	2-year storm	10-year storm						
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00						
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00						
Adjusted CN*		0	0	0						
*See Notes above										
Drainage Area C		A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00			
Forest/Open Space – undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft ³):	0			
	CN	30	55	70	77					
Managed Turf – disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00					
	CN	39	61	74	80					
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00					
	CN	98	98	98	98					
		CN _(D.A. C)								
		0								
		1-year storm	2-year storm	10-year storm						
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00						
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00						
Adjusted CN*		0	0	0						
*See Notes above										
Drainage Area D		A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00			
Forest/Open Space – undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft ³):	0			
	CN	30	55	70	77					
Managed Turf – disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00					
	CN	39	61	74	80					
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00					
	CN	98	98	98	98					
		CN _(D.A. D)								
		0								
		1-year storm	2-year storm	10-year storm						
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00						
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00						
Adjusted CN*		0	0	0						
*See Notes above										
Drainage Area E		A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00			
Forest/Open Space – undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft ³):	0			
	CN	30	55	70	77					
Managed Turf – disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00					
	CN	39	61	74	80					
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00					
	CN	98	98	98	98					
		CN _(D.A. E)								
		0								
		1-year storm	2-year storm	10-year storm						
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00						
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00						
Adjusted CN*		0	0	0						
*See Notes above										

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

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Summary

Total Rainfall = 43 inches

Site Land Cover Summary

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	4.94	0.00	0.00	4.94	75
Impervious Cover (acres)	0.00	1.65	0.00	0.00	1.65	25
					6.59	100

Site Tv and Land Cover Nutrient Loads

Site Rv	0.39
Treatment Volume (ft ³)	9,276
TP Load (lb/yr)	5.83
TN Load (lb/yr)	41.70

Total TP Load Reduction Required (lb/yr)	3.13
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Site Compliance Summary

Total Runoff Volume Reduction (ft ³)	0
Total TP Load Reduction Achieved (lb/yr)	0.00
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	5.83
Remaining TP Load Reduction (lb/yr) Required	3.13

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Total Area (acres)	0.00	0.00	0.00	0.00	0.00	0.00

Drainage Area Compliance Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00
TN Load Reduced (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

Drainage Area A Summary

Land Cover Summary

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

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
----------	----------------------------------	--------------------------------------	---	---------------------------------------	-------------------------------------	--------------------	----------------------	-------------------------------------

Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Drainage Area B Summary

Land Cover Summary

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

0.00

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
----------	----------------------------------	--------------------------------------	---	---------------------------------------	-------------------------------------	--------------------	----------------------	-------------------------------------

Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Drainage Area C Summary**Land Cover Summary**

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

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
----------	----------------------------------	--------------------------------------	---	---------------------------------------	-------------------------------------	--------------------	----------------------	-------------------------------------

Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Drainage Area D Summary**Land Cover Summary**

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

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
----------	----------------------------------	--------------------------------------	---	---------------------------------------	-------------------------------------	--------------------	----------------------	-------------------------------------

Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Drainage Area E Summary**Land Cover Summary**

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

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
----------	----------------------------------	--------------------------------------	---	---------------------------------------	-------------------------------------	--------------------	----------------------	-------------------------------------

Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Runoff Volume and CN Calculations

	1-year storm	2-year storm	10-year storm
Target Rainfall Event (in)	2.18	2.62	3.85

Drainage Areas	RV & CN	Drainage Area A	Drainage Area B	Drainage Area C	Drainage Area D	Drainage Area E
CN		0	0	0	0	0
RR (ft ³)		0	0	0	0	0
1-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	0	0	0	0	0
2-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	0	0	0	0	0
10-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	0	0	0	0	0

Version 2.8 - June 2014 - 2011 BMP Stds & Specs

- 1 Fixed summary sheet - totals /percentage column fixed
- 2 Corrected nitrogen efficiency percentages
- 3 Corrected the Rv value in column J for managed turf
- 4 Checked and revised runoff reduction credit values assigned

Version 3.0 - 2011 and draft 2013 BMP Stds & Specs*General*

- 1 Added error checks and user prompts to Site tab, DA tabs, and Runoff Volume and CN tab for data input errors.
- 2 Various format changes throughout the spreadsheet.
- 3 Combined 2011 and 2013 BMP spreadsheets into one spreadsheet with a user selection option included in Site tab (row 2).
- 4 User input cell color changed from cyan blue to green; calculation cells changed from mid-grey to light grey; and added final result cell in indigo.

Site tab

- 5 Locked annual rainfall of 43 inches for use throughout Virginia since regulatory site based TP load limit is based on this value.
- 6 Corrected error in formula for summation of nitrogen removal from runoff reduction practices for each Drainage Area tab (cell V79).
- 7 Added button and shortcut (Ctrl+Shift+R) to clear user inputs from all worksheets.
- 8 Added shortcut (Ctrl+Shift+D) to clear land cover data from Site tab.
- 9 Added data entry instruction when user inputs blank (row 8).
- 10 Moved and revised TP load reduction requirement (now in blue) to columns A to H, rows 27-30.

D.A. tabs

- 11 Added MTDs: Hydrodynamic, Filtering, Generic.
- 12 Added "Total BMP Treatment Volume (ft³)" column.
- 13 Rearranged previous Turf and Impervious input rows to adjacent cells in same row so each practice now located in one row.
- 14 Consolidated BMP Practice heading and added (RR or no RR label) to each practice to identify those with and without Runoff Reduction.
- 15 Added " Total Phosphorus Available for Removal in D.A. _ (lbs)".
- 16 Added button to clear BMP credit areas entered for each practice.
- 17 Added user prompts to assist with user-input Rainwater Harvesting runoff reduction credit, and MTDs.
- 18 Renamed Credit and Phosphorus/Nitrogen Efficiency column headers to Runoff Removal Credit and Phosphorus/Nitrogen Removal Efficiency for clarity.
- 19 Removed "RR" from Column headings referring to runoff volume and TP load from upstream practices (which may be RR or non-RR practices).
- 20 Renamed "10. Wet Swale (Coastal Plain)" to "10. Wet Swale" in BMP heading in order to improve clarity. The practice is well suited for but not limited to the Coastal Plain.
- 21 Renamed "14. Manufactured BMPs" section heading to "14. Manufactured Treatment Device"s for consistency with Virginia BMP Clearinghouse.
- 22 Added "Micro-Bioretenention #1" and "Micro-Bioretenention #2" to Bioretention headings (6.a and 6.b on tab, respectively) from Spec 9.
- 23 Replaced zero values from all data entry cells with blank cells, blocked out calculation and data entry cells where input or calculations are not applicable.

Water Quality Compliance tab

- 24 Optimized and reorganized for improved information output.
- 25 Added "Runoff Reduction Volume and TP By Drainage Area".

Runoff Volume and CN tab

- 26 Reorganized and renamed Channel and Flood Protection tab to Runoff Volume and CN to more accurately reflect information provided.
- 27 Added user notes regarding limitations of Runoff Volume and CN tab for water quantity calculations.
- 28 Renamed CN_{weighted} to CN_(D,A,X) for the CNs based on soils and land cover types for each drainage area

Summary tab

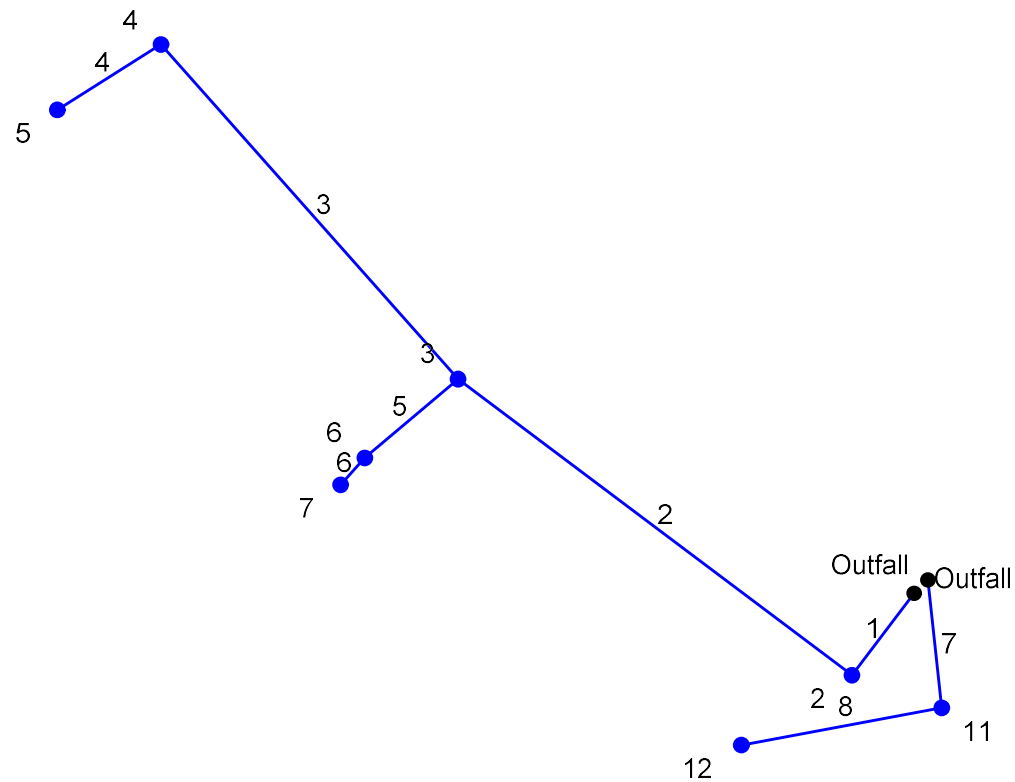
- 29 Added "Print Preview" button.
- 30 Fixed runtime error in Summary tab update macro.
- 31 Added "BMP Treatment Volume", "TP Load from Upstream practice", "TP Removed" and "TP remaining" columns to Summary tab.
- 32 Optimized macro efficiency and eliminated screen updating/flashing during macros.
- 33 Corrected Summary tab macro -Turf missing routine missing "<>"
- 34 Added Error Summary Table to Summary tab (appears only if errors on Site tab or Drainage Area tabs are present)
- 35 Expanded and improved Runoff Coefficient and CN calculation section.

SECTION 4.

CHANNEL, CULVERT, AND STORM SEWER REPORTS



Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	33.3	123.4	Curb	0.00	0.06	0.95	2.1	602.47	2.13	603.18	15	Cir	0.012	1.50	608.81	Pipe - (8)
2	1	152.0	97.7	Curb	0.00	0.05	0.95	1.9	603.28	6.38	612.98	15	Cir	0.012	1.50	619.40	Pipe - (7)
3	2	140.9	11.7	Curb	0.00	0.03	0.95	1.5	614.99	4.03	620.67	15	Cir	0.012	1.50	626.66	Pipe - (6) (1)
4	3	37.3	-88.7	Curb	0.00	1.16	0.50	9.9	620.77	0.99	621.14	15	Cir	0.012	1.00	626.92	Pipe - (5)
5	2	37.2	-86.5	Curb	0.00	0.52	0.61	8.1	613.08	0.99	613.45	15	Cir	0.012	0.50	619.19	Pipe - (2)
6	5	11.7	-6.1	DrGrt	0.00	1.51	0.46	11.0	613.55	1.02	613.67	15	Cir	0.012	1.00	619.65	Pipe - (1)
7	End	42.9	84.7	MH	0.00	0.01	0.95	1.0	601.58	1.98	602.43	15	Cir	0.012	0.99	606.78	Pipe - (4)
8	7	58.9	82.7	Curb	0.00	0.66	0.58	8.8	602.52	4.05	604.91	15	Cir	0.012	1.00	609.82	Pipe - (3)
Project File: Front Royal Storm Sewer Network.stm												Number of lines: 8				Date: 7/12/2024	

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	2	Curb-	608.81	Cir	4.00	4.00	15	Cir	603.18	15	Cir	603.28
2	3	Curb-	619.40	Cir	4.00	4.00	15	Cir	612.98	15 15	Cir Cir	614.99 613.08
3	4	Curb-	626.66	Cir	4.00	4.00	15	Cir	620.67	15	Cir	620.77
4	5	Curb-	626.92	Cir	4.00	4.00	15	Cir	621.14			
5	6	Curb-	619.19	Cir	4.00	4.00	15	Cir	613.45	15	Cir	613.55
6	7	DropGrate	619.65	Cir	4.00	4.00	15	Cir	613.67			
7	11	Manhole	606.78	Cir	4.00	4.00	15	Cir	602.43	15	Cir	602.52
8	12	Curb-	609.82	Cir	4.00	4.00	15	Cir	604.91			
Project File: Front Royal Storm Sewer Network.stm							Number of Structures: 8			Run Date: 7/12/2024		

Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	2	0.32	4.20	0.61	3.91	Curb	9.0	6.00	0.00	0.00	0.00	6.000	2.00	0.080	0.020	0.013	0.12	1.49	0.28	1.41	2.0	Off
2	3	0.27	4.57	0.63	4.20	Curb	9.0	6.00	0.00	0.00	0.00	6.000	2.00	0.080	0.020	0.013	0.12	1.53	0.28	1.45	2.0	1
3	4	0.16	2.21	0.41	1.96	Curb	9.0	6.00	0.00	0.00	0.00	6.000	2.00	0.080	0.020	0.013	0.09	1.17	0.25	1.09	2.0	2
4	5	2.66	0.00	0.44	2.21	Curb	9.0	6.00	0.00	0.00	0.00	6.000	2.00	0.080	0.020	0.013	0.10	1.22	0.26	1.14	2.0	3
5	6	1.56	1.54	0.49	2.61	Curb	9.0	6.00	0.00	0.00	0.00	6.000	2.00	0.080	0.020	0.013	0.10	1.29	0.26	1.21	2.0	2
6	7	3.06	0.00	1.51	1.54	DrGrt	0.0	0.00	0.00	2.00	2.00	6.000	2.00	0.020	0.020	0.013	0.04	6.10	0.04	6.10	0.0	5
7	11	0.05	0.00	0.00	0.05	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.080	0.020	0.013	0.00	0.00	0.00	0.00	0.0	Off
8	12	1.83	0.00	0.35	1.47	Curb	9.0	6.00	0.00	0.00	0.00	6.000	2.00	0.080	0.020	0.013	0.08	1.06	0.24	0.98	2.0	Off
Project File: Front Royal Storm Sewer Network.stm														Number of lines: 8					Run Date: 7/12/2024			
NOTES: Inlet N-Values = 0.016; Intensity = 52.90 / (Inlet time + 11.30) ^ 0.80; Return period = 10 Yrs. ; * Indicates Known Q added.All curb inlets are throat.																						

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)		
	(in)	(cfs)									(ft)											(K)	(ft)
1	15	7.40	602.47	603.64	1.17	1.13	6.20	1.28	604.92	0.000	33.3	603.18	603.97 j	0.79	0.82	9.07	1.28	605.25	0.000	0.000	0.000	1.50	n/a
2	15	7.27	603.28	603.97	0.69	0.69	10.49	2.92	606.89	0.000	152.0	612.98	613.54	0.56	0.53	13.70	2.92	616.46	0.000	0.000	0.000	1.50	n/a
3	15	2.76	614.99	615.37	0.38*	0.31	8.88	1.23	616.59	0.000	140.9	620.67	621.05	0.38	0.31	8.88	1.23	622.27	0.000	0.000	0.000	1.50	n/a
4	15	2.66	620.77	621.31	0.54*	0.50	5.29	0.44	621.74	0.000	37.3	621.14	621.68	0.54	0.50	5.29	0.44	622.11	0.000	0.000	0.000	1.00	n/a
5	15	4.44	613.08	613.80	0.72*	0.74	6.02	0.56	614.37	0.000	37.2	613.45	614.17	0.72	0.74	6.02	0.56	614.74	0.000	0.000	0.000	0.50	n/a
6	15	3.06	613.55	614.17	0.62	0.61	4.99	0.48	614.65	0.000	11.7	613.67	614.24	0.57	0.55	5.55	0.48	614.72	0.000	0.000	0.000	1.00	n/a
7	15	1.83	601.58	602.19	0.61	0.50	3.07	0.58	602.77	0.000	42.9	602.43	602.79 j	0.36	0.30	6.13	0.58	603.38	0.000	0.000	0.000	0.99	n/a
8	15	1.83	602.52	602.82	0.30*	0.23	7.92	0.97	603.80	0.000	58.9	604.91	605.21	0.30	0.23	7.92	0.97	606.19	0.000	0.000	0.000	1.00	n/a
Project File: Front Royal Storm Sewer Network.stm														Number of lines: 8					Run Date: 7/12/2024				
Notes: * depth assumed; j-Line contains hyd. jump ; c = cir e = ellip b = box																							



Application Number: _____

148-1010 PRELIMINARY PLAN DETAIL CHECK LIST

The preliminary plan shall indicate the proposed layout of the subdivision including supplemental information and data required for the location of proposed lots, parcels, streets, storm drainage and public utilities. The preliminary plan or any portion thereof involving engineering, planning, landscape architecture or land surveying shall be prepared by the appropriate professional licensed in the Commonwealth of Virginia. All proposed improvements shall reference design standards in ARTICLE 8 – DESIGN STANDARDS, and other applicable sections of this ordinance. Unless otherwise approved by the Director, the preliminary plan shall include the following:

- ☒ Y ☐ N ☐ N/A 1. Cover Sheet (or first sheet) requirements:
- a. Revision block. Show date and nature of all revisions.
 - b. Index of sheets.
 - c. Name, address and phone number of owner and developer.
 - d. Name, address and phone number of plan preparer.
 - e. Zoning designation(s) with minimum lot size requirements.
 - f. Front, side and rear yard setback dimensions.
 - g. FEMA Flood Zone designations, if applicable.
 - h. Vicinity map (1'=1000'), with sheet index for multiple sheets.
 - i. Area Tabulation showing total area and number of lots, streets, open space and residue. The number of units by type when mixed uses are proposed.
 - j. Off-street parking tabulation.
 - k. Tax map number and/or parcel identification.
 - l. Legend of symbols, abbreviations and line types used.



Application Number: _____

m. Approval Block:

All Town Real Estate Taxes Have Been Paid in Full

Director of Finance

Date

Reviewed and Approved by the Town of Front Royal

Director of Planning & Zoning

Date

Town Council

Date

Director of Environmental Services

Date

Director of Energy Services

Date

- ☒ Y ☐ N ☐ N/A 2. Title Block requirements, on each sheet
- a. Plan type.
 - b. Owner's name
 - c. Lot, block and subdivision name.
 - d. Town and County designation.
 - e. Sheet number.
 - f. Plan date.
- ☒ Y ☐ N ☐ N/A 3. Scale of plan, written and graphic, on each sheet.
- ☒ Y ☐ N ☐ N/A 4. North arrow and meridian reference on each sheet.
- ☒ Y ☐ N ☐ N/A 5. Preparer's seal, signature and date on each sheet. (Original signature on first sheet)



Application Number: _____

- ☒Y ☐N ☐N/A 6. Sheets prepared at a scale of no greater than one (1) inch equals one hundred (100) feet and drawn in ink on pages no larger than twenty four by thirty six (24 x 36) inches unless otherwise approved by the Director. Plan view portions of the plan shall be drawn to scale and show the location of all proposed improvements. Profiles, if required, shall be submitted on standards federal aid plan and profile sheets and shall have a scale of one (1) inch equals fifty (50) feet horizontal and one (1) inch equals five (5) feet vertical, unless otherwise approved. Special studies as required may be submitted on standard cross section paper at the above-noted scale and size. If prepared on more than one sheet, match lines shall clearly indicate where the several sheets join.
- ☒Y ☐N ☐N/A 7. All dimensions, angular and linear, for locating property lines, lots, street centerlines, alleys, easements and other proposed improvements. Angular measurements shall be expressed in bearings shown in degrees, minutes and seconds. Linear dimensions shall be expressed in feet to the nearest one hundredth of a foot. All curves shall be defined by their radius, arc length, central angle, tangent length, chord bearing and chord distance. A line and/or curve table may be used provided the data being tabulated and numbered corresponds with the respective information shown throughout the plan.
- ☐Y ☐N ☒N/A 8. Proposed phasing of the subdivision, including maximum length of road segments for each phase, temporary street turnarounds and assurance of utility line continuity.
- ☒Y ☐N ☐N/A 9. The total tract boundaries of the proposed subdivision and the source of title for all boundary information. Indicate if boundary information shown is based on a current field survey or based on deeds of record. When the property is of land acquired from more than one source of title, the outlines of the several tracts shall be indicated by means of a dotted line or within an inset block.
- ☒Y ☐N ☐N/A 10. Existing topography shown with a contour interval of not greater than five (5) feet and based on USGS datum. The source of the topography shall be identified.



Application Number: _____

- ☒Y ☐N ☐N/A 11. Show proposed and existing water supply and distribution with available fire flow data. Note source of fire flow information. Show location and detail of proposed connection to existing line. Location of existing and proposed fire hydrant(s).
- ☒Y ☐N ☐N/A 12. Show location, type, grade, and size of all proposed and existing sanitary sewers, manholes, gas lines, storm sewers, inlets, ditches, culverts and other utilities. Show location of proposed connections to existing utilities.
- ☒Y ☐N ☐N/A 13. A conceptual plan for stormwater management and surface drainage on the entire proposed subdivision. Show proposed overlot grading with contours. Provide preliminary computations for storm drainage outfall into existing system and/or calculations proving outfall to adequate channel.
- ☒Y ☐N ☐N/A 14. All existing or proposed utility transmission lines, bridges, culverts and railroads.
- ☐Y ☐N ☒N/A 15. Preliminary design of any proposed bridges or large culverts which may require review by other state or local agencies. The preliminary design must meet all applicable requirements of the appropriate state and local agencies and shall be submitted to such agencies by the applicant.
- ☒Y ☐N ☐N/A 16. Building restriction setback lines with dimensions.
- ☒Y ☐N ☐N/A 17. Lot numbers. All lots within each block shall be numbered consecutively.
- ☒Y ☐N ☐N/A 18. Blocks consecutively numbered or lettered in alphabetical order. The blocks in numbered additions to subdivisions bearing the same name shall be numbered or lettered consecutively throughout the several additions.
- ☒Y ☐N ☐N/A 19. Names and widths of all proposed streets and the functional classification of each, along with a statement of any condition governing the use of the streets.



Application Number: _____

- ☒ Y ☐ N ☐ N/A 20. Names and/or route numbers of all existing roads or streets adjoining the property. Indicate if access is limited. NOTE: If the subdivision proposes a new street within three thousand (3000) feet of an existing state road, the Virginia Department of Transportation (VDOT) must review all such streets.
- ☐ Y ☐ N ☒ N/A 21. Proposed average daily trip (ADT) information. Indicate if a traffic impact analysis was prepared.
- ☐ Y ☐ N ☒ N/A 22. Tie-in of proposed streets with existing streets. Show intersection sight distance.
- ☐ Y ☐ N ☒ N/A 23. Show any VDOT required improvements to existing streets or roads, if applicable.
- ☒ Y ☐ N ☐ N/A 24. Location, character, size, height and orientation of any required street sign or other proposed signage.
- ☐ Y ☐ N ☒ N/A 25. Typical street section of proposed street showing entire width of right-of-way, depth and type of pavement, base and subbase and curb line or ditch section, sidewalk and cut or fill slope.
- ☐ Y ☐ N ☒ N/A 26. Preliminary street centerline sight distance calculations.
- ☒ Y ☐ N ☐ N/A 27. The location and width of existing and proposed right-of-ways and easements and their intended use and purpose.
- ☒ Y ☐ N ☐ N/A 28. Soils map and soils data. Show location of any required test borings.
- ☐ Y ☐ N ☒ N/A 29. Show any special flood hazard area(s) subject to inundation by the 1% annual chance flood as shown on FEMA Flood Insurance Maps. Provide floodplain limit study, if required.
- ☒ Y ☐ N ☐ N/A 30. Approximate location of existing buildings on the property and within two hundred (200) feet outside of the perimeter boundary lines.
- ☐ Y ☐ N ☒ N/A 31. The location and area of any parcel of land proposed for non-residential use, such as a park or playground or other public use or for the use of the proposed subdivision lot owners. Indicate any conditions governing the use, dedication or preservation of such areas, including provisions for permanent maintenance.



Application Number: _____

- ☐Y ☐N ☒N/A 32. The location of any cemetery, grave, object or other structure indicating a place of burial.
- ☐Y ☐N ☒N/A 33. Show any historical buildings, structures or sites designated on the Virginia Landmarks Register that are located within or adjacent to the proposed subdivision.
- ☐Y ☐N ☒N/A 34. Steep Slope analysis.
- ☒Y ☐N ☐N/A 35. Any necessary notes that may be required to explain the intent and purposes of specific items on the plan or profile.
- ☒Y ☐N ☐N/A 36. Adjoining property owner information, including name, use, deed reference and/or subdivision lot designations.
- ☐Y ☐N ☒N/A 37. Significant physical features on the property (watercourses, wetlands, wooded areas, etc) and other significant man-made or natural features within the subdivision.

Reviewed By: _____ Date: _____

DRAFT ZONING ORDINANCE REWRITE

Lauren Kopishke
Director of Planning and Zoning
Town of Front Royal, Virginia
102 E. Main Street, 22630

Lauren,

Thank you for the opportunity to re-organize and streamline Front Royal's Zoning Ordinance. It's been a pleasure working with you on this project. This memo concludes Summit's work on the project and transfers remaining decisions to the Town. It is the Town's decision whether to review and adopt as is or to make changes based on specific topics that are currently being worked on. you all are working on.

The new Ordinance will be easier to navigate and should begin to change the Town's development patterns over time to implement the Future Land Use map of the adopted Comprehensive Plan.

This memo has been written to summarize the changes for future reference and so you can share this with the Planning Commission and Town Council.

The draft I am sending to you is coded in different fonts and colors so that it's clear where wording comes from and how the draft is reflective of changes we have discussed. Black Calibri font is original language. Green Arial font is language borrowed from other Virginia zoning ordinances. Blue Times New Roman font is language from existing Front Royal ordinance. (There is a note to this effect in the document.) As discussed, the bulk of the ordinance has been transferred to the new draft, except where changes were needed. In the zoning districts where we have made changes, track changes has been enabled so you can see everything we recommend changing.

All you have to do to create a final draft, after Planning Commission has approved the changes, is to change all to the same font and color and accept all changes. Please note that there a few comments left that you will need to address, as discussed.

You will see either yellow or green highlights throughout the document. The yellow highlights are to be filled in with the date of adoption. The green highlights denote internal or external references. They have been checked twice, and then highlighted green to note that they are correct.

If you add or remove any sections, please pay close attention to these, as any internal references might change.

As we moved everything over from the existing ordinance to the new structure, we highlighted the sections that we copied to ensure, and ensure anyone who wants to check, that everything was moved over. I have put a copy of the highlighted Chapter 175 in the final folder for your reference. To help anyone familiar with the existing ordinance, existing/previous chapter number have been left in parentheses in the section titles.

The following is a summary of the changes we have made to the Zoning Ordinance.

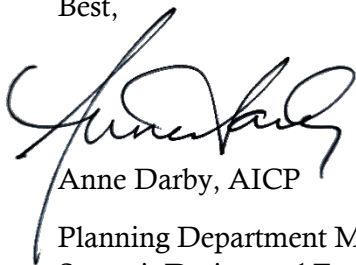
1. This document follows a completely new organizational format, intended to be more comprehensive, intuitive, and easily navigable.
2. There is new introductory language explaining clearly the Town's authority to enact the Zoning Ordinance, its purpose and intent, relationship to other laws, et cetera. The new

language states clearly that there will be no development until compliance with the ordinance.

3. The Purpose section is original language and reflects current vision and conditions in the Town, rather than the common 1970s language about “light and air” in the existing ordinance.
4. There is a new section, Division 2.3, which outlines Transitional Provisions. This is very important for enacting a new zoning ordinance, and no language to this effect exists in the current ordinance. This section explains what will happen to any current applications or permits issued before new construction has begun; basically anything already in process will adhere to the existing ordinance so as not to disrupt development already in process.
5. There is a new section called “Administration, decision-making, and enforcement” which outlines the roles of staff positions and elected/appointed bodies in the land use process. The Board of Architectural review description has been moved to this section from the Historic District Overlay sections and internal references have been changed appropriately.
6. District Changes. To remove barriers to appropriate infill development and the addition of new housing stock, we made the following changes to five of the 14 existing zoning districts:
 - a. Residential District R-1A: added single-family attached, two-family dwellings, and townhouses, and reduced minimum lot size, width, yards, and lot coverage to roughly the average of existing homes in the district.
 - b. Residential District R-2: added Townhouses as a permitted principal use and multi-family dwelling units as permitted by special use permit, and reduced minimum lot size, width, yards, and lot coverage to roughly the average of existing homes in the district.
 - c. Residential District R-3: reduced minimum lot widths and setbacks to roughly the average of existing homes in the district.
 - d. C-1 Community Business District: removed restrictions on ground floor residential units, and added single-family dwellings, townhouses, and multi-family dwellings as permitted principal uses, reduced minimum lot width, increased maximum height, and adjusted setbacks to better match the existing building patterns.
 - e. C-2 Downtown Business District: added townhouses and multi-family dwellings as permitted principal uses. Amended “retail stores” to exclude “tobacco and electronic vapor products.” Removed automobile garages and sales lots from uses permitted by special use permit. Lowered minimum district size from 10 to 5 acres.
7. For clarity and consistency, we changed all references to “Special Permits” to “Special Use Permits” (both terms are used in the existing document).

I hope these changes will prove useful to the Town! Please let me know if you have any questions.

Best,



Anne Darby, AICP

Planning Department Manager
Summit Design and Engineering



INTRODUCTION, PURPOSE, HOW TO USE

ARTICLE 1 – GENERAL PROVISIONS

DIVISION 1.1 – AUTHORITY, ESTABLISHMENT, AND PURPOSES

Section 1.1.1. Short title – This chapter shall be known and may be cited as the “Town of Front Royal Zoning Ordinance,” the “Zoning Ordinance,” or referred to herein as “this Chapter” or “this Ordinance.” The accompanying map shall be known as the “Town of Front Royal Official Zoning Map” or the “Zoning Map.”

Section 1.1.2 Authority – This Zoning Ordinance is adopted in accordance with the enabling authority contained in Title 15.2, Chapter 22 of the Code of Virginia, the Charter of the Town of Front Royal, and all other relevant laws of the Commonwealth of Virginia.

Section 1.1.3 Effective Date, repeal of prior zoning ordinance

This chapter shall be effective upon adoption by the Front Royal Town Council. Upon adoption, it shall supersede any and all previous Zoning regulations in the Town.

Section 1.1.4 General Purpose and Intent

This ordinance is enacted in order to promote the health, safety, and welfare of the present and future residents of the Town of Front Royal and to implement the Town’s adopted Comprehensive Plan. More specifically, this ordinance is intended to:

- A. To promote orderly and harmonious growth and development of the built environment,
- B. To implement the vision and intent of the adopted Comprehensive Plan,
- C. To promote the efficient and effective expenditure of Town funds and tax dollars,
- D. To provide for the protection of the natural environment and the Shenandoah River,
- E. To encourage viable economic development and enlargement of the tax base,
- F. To develop the Town in a manner consistent with the community’s vision,
- G. To concentrate development and density in a manner that benefits Town residents,
- H. To provide for a harmonious transition between areas of different character,
- I. To anticipate and accommodate future development,
- J. To provide a sufficient and appropriate mix of housing types and housing options, and to make housing affordable and accessible to the largest number of Front Royal residents,
- K. To provide a mix of options and uses that benefits Town residents and ensures economically sustainable development,
- L. To guide development to maximize benefits to residents and minimize taxpayer burden, and
- M. To guide the location and character of future development.

Commented [ADA1]: This document shows new language in black Calibri, and language copied from existing FR ZO in blue Times New Roman.

As of December 2022, I am making sure that everything that needs to be in the ZO is taken from the existing FR ZO. Then all changes will be deliberate, to make sure missing things are added, to bring into compliance with state code, and to make sure it's consistent with the comp plan.

Note to self: when this is fleshed out, save a new copy to start the next steps.

Commented [ADA2R1]: New language taken from other ordinances will be shown in green Arial font.

DIVISION 1.2 – RELATIONSHIP TO OTHER LAWS

Section 1.2.1 References to the Code of Virginia and Federal Law

Whenever any provision of this Ordinance refers to or cites a section of the Code of Virginia or federal laws and statutes, and that section is later amended or superseded, this Chapter shall be deemed to refer to the amended section or the section that corresponds to the superseded section.

Section 1.2.2 Conflicts between provisions of this Ordinance and with other Town codes or laws

If a provision of this Ordinance is inconsistent with another provision of this Ordinance, or with a provision found in other codes or ordinances of the Town, the provision that imposes greater restrictions or more stringent controls will govern.

Section 1.2.3 Conflicts with Federal or State law

If a provision of this Ordinance is inconsistent with a provision found in the law or regulations of the Commonwealth of Virginia or of the Federal government, the more restrictive provision will govern, to the extent permitted by law.

Section 1.2.4 Conflicts with private agreements

The Town will not be responsible for monitoring or enforcing private easements, covenants, and restrictions, although the County may inquire if land is subject to easements, covenants, and restrictions during the review of development applications. Private easements, covenants, and restrictions notwithstanding, all development, unless expressly exempted by this Ordinance, must comply with this Ordinance's minimum requirements.

Section 1.2.5 Existing vested rights

Nothing in this Ordinance is intended to repeal, supersede, annul, impair, or interfere with any vested rights under applicable laws, provided that such rights are lawfully established and remain in effect.

Section 1.2.6 Consistency with the adopted Comprehensive Plan

This Ordinance is intended to ensure all development within the Town's jurisdiction is consistent with the vision, goals, objectives, and policies of the adopted Comprehensive Plan. All amendments to this Ordinance's text or the Official Zoning Map should be consistent with the Town's adopted Comprehensive Plan or any adopted amendments thereto.

Section 1.2.7 General application of ordinance

The regulations and restrictions in this ordinance shall apply to all buildings, structures, land, water, and uses within the territorial limits of the Town of Front Royal, Virginia. All buildings and structures erected after approval of this Ordinance, all uses of land, water, or buildings established hereafter, all structural alterations or relocations of existing buildings occurring hereafter, and all enlargements of, additions to, changes in and relocations of existing uses occurring hereafter shall be subject to all regulations of this ordinance which are applicable to such buildings, structures, uses, or land. Existing buildings, structures, and uses which comply with the regulations of this Ordinance shall likewise be subject to all regulations of this ordinance and, if they do not comply with the regulations of this Ordinance, shall be governed by the provision of **Division 2.4 (Nonconforming Uses and Features)**.

Section 1.2.8 No development until compliance with this ordinance

Unless exempted, no land within Town limits shall be developed without compliance with this Ordinance and all other applicable state and federal regulations, including a Zoning Certificate, if required. A building or structure shall not be occupied unless a Certificate of Occupancy is approved, if required, in accordance with the Building Code of Warren County.

Section 1.2.9 Exemptions

Activities related to the development and operation of railroads and public utilities, as well as property owned by the Commonwealth of Virginia, are exempted from the requirements of this Ordinance.

Section 1.2.10 Permits and certificates

No construction may commence, no use may be established or changed, and no structure shall be constructed, erected, altered, moved, or demolished unless and until all permits required by Article 3 and Article 4 of this Ordinance.

Section 1.2.11 Severability

Should any section or any provision of this Ordinance be decided by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the Ordinance as a whole, or any part thereof other than the part so held to be unconstitutional or invalid, and such remainder of this Ordinance shall continue in full force and effect.

Section 1.2.12 Rules of language construction

A. Words used in the present tense include the future tense; words used in the singular number include the plural number, and words in the plural number include the singular number, unless the obvious construction of the wording indicates otherwise.

B. The word "shall" is mandatory; "may" is permissive.

C. Unless otherwise specified, all distances shall be measured horizontally and at right angles to the line in relation to which the distance is specified.

D. The word "building" includes the word "structure;" the word "lot" includes the words "plot" and "parcel."

E. The word "used" shall be deemed also to include "erected," "reconstructed," "altered," "placed" or "moved."

F. The terms "land use" and "use of land" shall be deemed also to include "building use" and "use of building."

G. The word "state" means the Commonwealth of Virginia.

H. The word "town" means the Town of Front Royal, Virginia.

I. The word "person" includes a firm, association, organization, partnership, trust, company or corporation as well as an individual.

The word "he" includes "she" and "they."

ARTICLE 2 – APPLICATION OF REGULATIONS

DIVISION 2.1 – APPLICATION OF DISTRICT REGULATIONS

Section 2.1.1 - Application of district regulations.

The regulations set by this ordinance within each district shall be minimum or maximum limitations as appropriate to the case and shall apply uniformly to each class or kind of structure or land, and particularly, except as hereinafter provided:

Section 2.1.2 -Use, Occupancy, and Construction

Each use, building and structure, whether primary or accessory, shall hereafter be established only in compliance with all applicable regulations of the zoning district upon which the particular use, building or structure is located, except for nonconforming uses and structures as provided in this chapter.

Section 2.1.3 – Height, Bulk, Density, Lot Coverage, and Open Spaces

No building or other structure shall hereafter be erected or altered:

- a. To exceed the height or bulk;
- b. To accommodate or house a greater number of buildings, families or to have greater floor area;
- c. To occupy a greater percentage of lot area;
- d. To have narrower or smaller rear yards, front yards, side yards or other open areas than herein required; or in any other manner contrary to the provisions of this ordinance.

DIVISION 2.2 – ESTABLISHMENT OF DISTRICTS; OFFICIAL ZONING MAP; INTERPRETATION OF BOUNDARIES

Section 2.2.1 - Establishment of Districts, Official Zoning Map (175-4)

The Town of Front Royal is hereby divided into zones or districts, as shown on the Official Zoning Map, which, together with all explanatory matter thereon, is hereby adopted by reference and declared to be part of this chapter, together with all future notations, references and amendments.

Section 2.2.2 -Identification of Official Zoning Map (175-5)

The Official Zoning Map shall be identified by the signatures of the Town Council and attested to by the Secretary of the body, together with the date of the adoption of this chapter.

Section 2.2.3 -Changes on Zoning Map (175-6)

A. If, in accordance with the provisions of this chapter and the Code of the Commonwealth of Virginia, changes are made in district boundaries or other matters portrayed on the Official Zoning Map, such changes shall be entered on the Official Zoning Map promptly after the amendment has been approved by the Town Council.

B. No changes of any nature shall be made on the Official Zoning Map or matter shown thereon except in conformity with the procedures set forth in this chapter or any state law, if applicable. All changes shall be noted on the Official Zoning Map by date with a brief description of the nature of the change. Such change

shall also be accurately reflected in the minutes of the Town Council meetings at which the change is adopted.

Section 2.2.4 -Location of Official Zoning Map (175-7)

The Official Zoning Map shall be located in a public place, as designated by the Council, and shall be the final authority as to the current zoning status of land and water areas in the Town, regardless of unofficial copies which may have been made or published from time to time.

Section 2.2.5 -Replacement of Official Zoning Map (175-8)

A. In the event that the Official Zoning Map becomes damaged, destroyed, lost or difficult to interpret because of the nature or number of changes and additions, the Town Council may, by resolution, adopt a new Official Zoning Map, which shall supersede the prior Official Zoning Map. The new Official Zoning Map may correct drafting or other errors or omissions in the prior Zoning Map, but no such correction shall have the effect of amending the original Official Zoning Map or any subsequent amendment thereof. The new Official Zoning Map shall be identified by the signatures of the Town Council, attested by the Secretary of that body and bearing the following words: "This is to certify that this Official Zoning Map supersedes and replaces the Official Zoning Map adopted as part of Ordinance No. of the Town of Front Royal, Virginia."

B. Unless the prior Official Zoning Map has been lost or has been totally destroyed, the prior map or any parts thereof remaining shall be preserved, together with all available records pertaining to this adoption or amendments.

Section 2.2.6 -Enumeration of Districts (175-9)

A. For the purpose of this Chapter, the incorporated area of Front Royal, Virginia, is hereby divided into the following zoning districts:

Agriculture and Open Space Preservation District	A-1
Estate Residential District	R-E
Suburban Residential District	R-S
Residential District	R-1
Residential District	R-1A
Residential District	R-2
Residential District	R-3
Planned Neighborhood Development	PND
Mixed-Use Campus Development	MCD
Community Business District	C-1
Commercial District	C-2
Highway Corridor Business District	C-3

Limited Industrial	I-1
Industrial Employment	I-2

B. In addition to the above-stated zoning districts, following additional districts (overlapping the above-stated enumerated zoning districts) have been created for portions of the incorporated area of Front Royal, Virginia, as provided in this Chapter:

- Floodplain District
- Historic Front Royal District
- Entrance Corridor District

Section 2.2.7 -Classification of Annexed Territory (175-9.1)

Any property coming into the territorial jurisdiction of the Town of Front Royal by annexation or otherwise shall be temporarily classified in the “Agriculture and Open Space Preservation District A-1 “which shall apply pending the orderly amendment of the zoning ordinance.

Section 2.2.8 -Interpretation of Boundaries (175-9.2)

Unless district boundary lines are fixed by dimensions or otherwise clearly shown or described, and where uncertainty exists with respect to the boundaries of any of the aforesaid districts as shown on the Zoning Map, the following rules shall apply:

- A. Where district boundaries are indicated as approximately following or being at right angles to the center lines of streets, highways, alleys, railroad main tracks or existing lot lines, such center lines or lines at right angles to such center lines shall be construed to be such boundaries, as the case may be.
- B. Where a district boundary is indicated to follow a river, creek or branch or other body of water, said boundary shall be construed to follow the center line at low water or at the limits of the jurisdiction, and in the event of change in the shoreline, such boundary shall be construed as moving with the actual shoreline.
- C. If no distance, angle, curvature, description or other means is given to determine a boundary line accurately and the foregoing provisions do not apply, the same shall be determined by the use of the scale shown on said Zoning Map. In case of subsequent dispute, the matter shall be referred to the Board of Zoning Appeals which shall determine the boundary.

Section 2.2.9 – Split Zoning

Changes made in base zoning district boundaries on the Official Zoning Map shall not result in two or more zoning district classifications on an individual parcel of land.

Section 2.2.10 -Excluded Uses (175-9.3)

Within each zoning district of this chapter, uses that are not expressly listed as permitted, or permitted with a special use permit, shall be deemed excluded. The use of property by a use that is excluded from the underlying zoning district shall be a violation of this chapter, except where such use is established as a legally nonconforming use.

Section 2.2.11 -Temporary Emergency Uses (175-9.4)

Despite the other provisions of this chapter, Town Council may authorize temporary housing and temporary emergency response facilities when necessary to respond to the public needs during a local, state or national disaster caused by either natural or man-made events. If such uses are temporarily established in the future by action of Town Council, the time period they are authorized for shall be specified with the action of approval.

DIVISION 2.3 – TRANSITIONAL PROVISIONS

Section 2.3.1 – Effective Date

This Ordinance shall become effective on (date) , 2024, and repeals and replaces Chapter 175 of the Front Royal Municipal Code, or the “Zoning Ordinance of Front Royal, Virginia,” as originally adopted (date) and subsequently amended.

Section 2.3.2 – Violations Continue

Any violation of the previous zoning ordinance shall continue to be a violation under this Ordinance, unless the development complies with the express terms of this Ordinance, a subsequently adopted ordinance, or other applicable ordinances, laws, or statutes.

Section 2.3.3 – Complete Applications

- A. Any development application submitted and accepted as complete before (adoption date) , but still pending final action as of that date, shall be reviewed and decided in accordance with the regulations in effect when the application was accepted. To the extent such an application is approved and proposes development that does not comply with this Ordinance, the subsequent development, although permitted, shall be nonconforming and subject to the provisions of Division 2.4, Nonconforming Uses and Structures .
- B. Completed applications shall be processed and comply with any time frames for review, approval, and completion as established in the regulations in effect at the time of application acceptance. If the application fails to comply with the required time frames, it shall expire and future development shall be subject to the requirements of this Ordinance.
- C. An applicant with a pending application accepted before (adoption date) may opt to have the proposed development reviewed and decided under the standards of this Ordinance by withdrawing the pending application and submitting a new application in accordance with the procedures and standards of this Ordinance.
- D. Any Zoning Permit issued prior to the date of effect of this Ordinance, regardless if construction has begun, shall be valid and subject to the regulations of the Zoning Ordinance in effect when the permit was issued. Consistent with Section 4.1.1 of this

Commented [AD3]: None of these sections exist in current ordinance. It is very important that these are in a new ordinance, to address any applications submitted or approved at the time of the adoption of the new ordinance!

Chapter, the Zoning Permit shall become invalid if the authorized work is not commenced within one year of its issuance.

Section 2.3.4 – Approved Zoning Subject to Proffers

Lands subject to a zoning classification approved subject to proffers before (adoption date) shall continue to be subject to the approved conditional rezoning and proffers until or unless the City Council amends the zoning classification of the lands in accordance with the procedures and standards of this Ordinance and the Code of Virginia.

DIVISION_2.4 – NONCONFORMING USES AND FEATURES

Section 2.4.1 – Continuation (175-124)

A. Any legal use that was in operation, or any building or structure that legally existed prior to the effective adoption date of this chapter, that no longer conforms to the requirements of this chapter at the effective adoption date, may be continued so long as the use, building and/or structure remains otherwise lawful. Such legally nonconforming uses, buildings and structures shall conform to all applicable laws in effect at the time when the use, building and/or structure was established.

B. If there is any change of ownership, possession, or lease, of any legally nonconforming use, building or structure, it may continue according to the requirements of this chapter.

C. When the boundaries of a district are changed, any uses, buildings, and/or structures, which become nonconforming as a result of such change, shall be subject to the provisions of this Chapter.

Section 2.4.2 – Vested Rights (175-125)

Pursuant to §15.2-2307 of the Virginia Code, plans for the establishment of new uses, buildings and/or structure may proceed, despite if the requirements of this chapter are not complied with, if a vested right is determined by the Zoning Administrator, after concurrence with the Town Attorney.

Section 2.4.3 – Discontinuance (175-126)

If any legally nonconforming use is discontinued for a period exceeding two (2) years after the enactment of this chapter, it shall be deemed abandoned, and any use thereafter shall conform to the use requirements of this chapter. However, the Town Council may approve, by a special use permit, the use to be reinstated and continued, if the structure was declared blighted by the Town Council and a spot blight abatement plan was approved by the Town Manager or designee pursuant to Town Code Chapter 9-303.

Section 2.4.4 – Parking Exemption for the Reuse of Existing Properties (175-127)

Regardless of Section 2.4.3, the reuse of properties with existing parking areas and/or loading spaces shall be exempt from the requirement to comply with the current parking area and loading space requirements of this Chapter, or Chapter 148; provided that, the following conditions are met.

1. A zoning permit was previously issued by the Town on the property for a business (commercial) or industrial use.
2. Town Council may require site improvements when a special use permit is required.
3. The number of existing parking spaces shall not be reduced for display or other purposes.
4. When the existing parking area and/or loading spaces are in disrepair, the Zoning Administrator may require the following types of maintenance improvements at the time of issuance of a zoning permit:
 - a. Additional landscaping.
 - b. The demarcation of existing parking spaces by striping, restriping, wheel stops, or signage.
 - c. The resurfacing of the existing surface material.

Section 2.4.5 – Nonconforming Lots of Record (175-128)

A. Except as hereinafter provided, the minimum lot width and lot area shall be required for the establishment of any new lot, or use of a lot, in the R-1 Residential District. Wherever possible, the consolidation of existing nonconforming lots is encouraged to meet the minimum lot size requirements. All new construction shall conform to the yard dimensions and all other regulations for the R-1 Residential District.

1. The Administrator may issue an administrative variance of up to twenty percent (20%) of the required lot width and/or area, where it is found that the proposed new construction is consistent with the structure size, orientation and pattern of development on the street and in the immediate neighborhood.
2. On lots with an area or lot width of less than eighty percent (80%) of the minimum required, approval for construction may be granted by special use permit by the Town Council, where the Council finds the application meets the following conditions:
 - a. The proposed structure has a finished floor area of not less than ninety percent (90%) of the amount of finished floor area prevalent in comparative homes. Finished floor areas do not include basement areas.
 - b. The proposed structure is compatible with comparative homes in terms of building orientation, scale, proportion and site layout.
 - c. The site grading provides for adequate drainage on and off the site, without any adverse impact onto adjoining properties.
3. For the purpose of this section, comparative homes shall mean characteristics that are present in at least sixty percent (60%) of the homes located on both sides of the street in the immediate block where the proposed structure is located.
4. The Council may approve a reduction of the required lot width and/or area, by not more than forty percent (40%), where necessary, to achieve increased compatibility with other structures in the immediate block.

B. In any other residential district, a single dwelling may be erected on any single lot of record, notwithstanding limitations imposed by other provisions of this chapter. This provision shall apply even though such lot fails to meet the requirements for lot area and/or lot width, that are generally applicable in the district, provided that yard dimensions shall conform to the regulations for the district in which such lot is located. All other uses, except a single dwelling, are required to meet the minimum lot area requirements for the district in which it is located.

C. In any commercial or industrial district, a permitted structure may be erected on any single lot of record at the effective date of adoption or amendment of this chapter, notwithstanding limitations imposed by other provisions of this chapter. This provision shall apply even though such lot fails to meet the requirements for lot area and/or lot width, that are generally applicable in the district, provided that yard dimensions shall conform to the regulations for the district in which such lot is located.

D. If any nonconforming lot of record contains a conforming use and/or structure, such use and/or structure may be replaced in the area of the preexisting use and/or structure should damage or destruction occur. Expansion of said use and/or structure may occur within the limits of this chapter.

E. Except as otherwise noted herein, a variance of yard requirements may be obtained only through action of the Board of Zoning Appeals.

Section 2.4.6 – Changes of Use (175-129)

A nonconforming use, if changed to a conforming use, shall not thereafter be changed back to any nonconforming use. A nonconforming use may, by ~~special permit~~ **Special Use Permit**, be changed to another nonconforming use, provided that the Town Council shall find that the proposed use is equally appropriate or more appropriate in the zoning district than the existing nonconforming use.

Section 2.4.7 – Expansions and Other Types of Alterations (175-130)

A. Except by approval of a special use permit by Town Council, a nonconforming use, building or structure shall not be enlarged, increased or extended to occupy a greater area of land area than was occupied at the effective date of adoption of this chapter unless such expansion conforms to the requirements of this chapter. However, the Town Council may approve by a special use permit the expansion of a nonconforming building or structure that will not create a new nonconformity, if it was deemed blighted by Town Council pursuant to Town Code Chapter 9-303 and the proposed expansion is part of a spot blight abatement plan to remedy the blighted building or structure.

B. New nonconforming structures or buildings shall not be erected in connection with a nonconforming use of land.

C. A nonconforming building or structure may be enlarged if the expansion does not create a new nonconformity and does not increase the degree or intensity of the existing nonconformity, as determined by the Zoning Administrator.

D. A nonconforming structure or building shall not be moved, for any distance or reason, unless it shall thereafter conform to the zoning district regulations for the district in which it is located after it is moved.

Section 2.4.8 – Replacement, Removal, Repair, and Reconstruction (175-131)

A. If a nonconforming use of land is damaged or destroyed, such use may be replaced to the extent to which it existed prior to said damage or destruction. Removal or destruction of a building or structure in which a nonconforming use was located shall eliminate the use which the structure or building was used for (a nonconforming use), except if the structure was declared blighted by the Town Council and a spot blight abatement plan pursuant to Town Code Chapter 9-303 was approved by the Town Manager or designee prior to the use being damaged or destroyed, in which case, the blighted building or structure may be completely replaced upon the approval of a special use permit by the Town Council.

B. Nonconforming buildings and structures that are damaged by a natural event or man-made accident may be repaired and/or reconstructed to their previous condition and size if the work does not exceed fifty percent (50%) of the replacement value.

C. Town Council may approve a special use permit for the repair and/or reconstruction of a building or structure beyond 50% of the market value, provided that the special use permit application is submitted within twelve (12) months of said damage or destruction or at any time if the building or structure was deemed blighted by Town Council pursuant to Town Code Chapter 9-303. Otherwise, when the repair and/or reconstruction work to a nonconforming building or structure exceeds 50% of the market value, it may only be repaired and/or reconstructed to the requirements of this chapter, as applicable for new construction.

D. If a nonconforming building or structure was deemed blighted by the Town Council pursuant to Town Code Chapter 9-303, the Town Manager or designee may approve the demolition and reconstruction of said building or structure as part of a spot blight abatement plan. The Town Manager or designee shall impose a time period in which demolition and reconstruction must occur.

E. Nothing in this chapter shall be deemed to prevent the strengthening or restoring to a safe condition of any structure or part thereof declared to be unsafe by any official charged with protecting the public safety, upon order of such official

Section 2.4.9 – Percent of Damage (175-132)

The cost of land or any factors other than the cost of the structure are excluded in the determination of fair market value for the purpose of calculating the percent of damage. Such percentage shall be determined by the Town Manager or designee

Section 2.4.10 – Uses Under ~~Special Permit~~Special Use Permit Provisions (175-133)

Any use which is permitted by a ~~special permit~~Special Use Permit in a zoning district under the terms of this chapter (other than a change through the Town Council action from one nonconforming use to another nonconforming use) shall not be deemed a nonconforming use in such zoning district, but shall without further action be considered a conforming use.

ARTICLE 3 – ADMINISTRATION, DECISION MAKING, AND ENFORCEMENT

DIVISION 3.1 – ADMINISTRATIVE STAFF

Section 3.1.1 - Planning Director – Duties and Authority

The Director of the Department of Planning and Zoning ("Planning Director") is designated by the Town Manager to assist in the administration of this Ordinance. Any act authorized by this Ordinance to be carried out by the Planning Director may be delegated to staff under the

Planning Director's direction, with appropriate authorization. The designated Planning Director for the purposes of this Ordinance is the Director of the Department of Planning and Community Development, or the head of the equivalent department that carries out the planning and zoning functions of the Town.

Section 3.1.2 - Zoning Administrator – duties and authority- (175-147)

The Director of Planning shall be designated as the Zoning Administrator and have all necessary authority for the enforcement and administration of the Zoning Ordinance. The Zoning Officer, or other individual as appointed by the Town Manager, shall serve as the deputy of the Zoning Administrator.

Section 3.1.3 - Building Inspector

All building inspections in the Town of Front Royal shall be conducted by the Warren County Building Inspections Department.

Section 3.1.4 - Flood Plain Administrator

The Director of the Department of Planning and Zoning, or their designee, shall act as the Floodplain Administrator.

DIVISION 3.2 – DECISION-MAKING BODIES

Section 3.2.1 - TOWN COUNCIL

The Town Council of Front Royal has adopted this Zoning Ordinance and must approve and adopt any amendments to either the text or map. For all legislative land use applications, the Town Council shall review the recommendation of the Planning Commission and determine whether to grant a Special Use Permit ("SUP") or adopt an Amendment to re-zone or conditionally re-zone a property.

Section 3.2.2 - PLANNING COMMISSION

The duties of the Planning Commission shall be as described in Chapter 28, Section 5 of the Town of Front Royal Municipal Code.

The Planning Commission shall review and provide a recommendation to the Town Council for legislative land use applications, including Special Use Permits or Amendments to the Zoning Map.

Section 3.2.3 - BOARD OF ZONING APPEALS

1. Membership and Terms of Office of the Board of Zoning Appeals (175-138)

A. A Board consisting of five (5) Town residents shall be appointed by the Circuit Court of the county. Members of the Board shall each be compensated in an amount determined by the Town Council. Members shall be removable malfeasance, misfeasance or nonfeasance, upon written charges and after public hearing. Appointments for vacancies occurring otherwise than by expiration of term shall in all cases be for the unexpired term.

B. The term of office shall be for five (5) years, except that, of the first five (5) members appointed, one (1) shall serve for five (5) years, one for four (4) years, one for three (3) years, one for two (2) years and one for one (1) year. One (1) of the five (5) appointed members may be an active member of the Planning Commission.

C. Members may be removed for cause by the appointing authority upon written charges and after a public hearing held after at least fifteen (15) days notice.

D. Any member of the Board shall be disqualified to act upon a matter before the Board with respect to property in which the member has an interest.

E. The Board shall choose annually, from its own membership, its own Chairman, Vice Chairman, who shall act in the absence of the Chairman, and Secretary.

2. Powers of the Board of Zoning Appeals (175-139)

The Board of Zoning Appeals shall have the following powers and duties:

A. To hear and decide appeals from any order, requirement, decision and determination made by an administrative officer in the administration or enforcement of this chapter.

B. To authorize, upon appeal in specific cases, such variance from the terms of the chapter as will not be contrary to the public interest when, owing to special conditions, a literal enforcement of the provisions will result in unnecessary hardship, provided that the spirit of the chapter shall be observed and substantial justice done, as follows:

1. When a property owner can show that his property was acquired in good faith and where, by reason of the exceptional narrowness, shallowness, size or shape of a specific piece of property at the time of the effective date of the chapter, or where, by reason of exceptional topographic conditions or other extraordinary situation or condition of the piece of property, or of the condition, situation, or development of property immediately adjacent thereto, the strict application of the terms of the chapter would effectively prohibit or unreasonably restrict the use of the property, or where the Board is satisfied, upon the evidence heard by it, that the granting of such variance will alleviate a clearly demonstrable hardship, as distinguished from a special privilege or convenience sought by the applicant, provided that all variances shall be in harmony with the intended spirit and purpose of the chapter.
2. No such variance shall be authorized by the Board, unless it finds:
 - a. That the strict application of the chapter would produce undue hardship.
 - b. That such hardship is not shared generally by other properties in the same zoning district and the same vicinity.
 - c. That the authorization of such variance will not be of substantial detriment to adjacent property and that the character of the district will not be changed by the granting of the variance.
3. No such variance shall be authorized except after notice and hearing as required by Section 15. 2-2204 of the Code of Virginia as amended.
4. No variance shall be authorized unless the Board finds that the condition or situation of the property concerned or the intended use of the property is not of so general or recurring a

nature as to make reasonably practicable the formulation of a general regulation to be adopted as an amendment to the chapter.

5. In authorizing a variance, the Board may impose such conditions regarding the location, character and other features of the proposed structure or use as it may deem necessary in the public interest and may require a guaranty or bond to ensure that the conditions imposed are being and will continue to be complied with.
6. In the event that a variance is not granted, the same variance application, or a variance application that is substantially the same, may not be submitted to the Board for consideration for a period of one (1) year from the date on which the variance request was denied.

C. To hear and decide appeals from the decision of the Zoning Administrator.

D. To hear and decide applications for interpretation of the district map where there is any uncertainty as to the location of a district boundary. Public hearings after appropriate notice must be held prior to such adjustments. The Board shall not have the power to change substantially the locations of district boundaries as established by this chapter. The Board shall not have the power to rezone property.

3. Rules and Regulations of the Board of Zoning Appeals (175-140)

A. The Board of Zoning Appeals shall adopt such rules and regulations as it may consider necessary.

B. The meeting of the Board shall be held at the call of its Chairman or at such time as a quorum of the Board may determine.

C. The Chairman or, in his absence, the Acting Chairman may administer oaths and compel the attendance of witnesses.

D. The Board shall keep minutes of its proceedings, showing the vote of each member upon each question or, if absent or failing to vote, indicating such fact. It shall keep records of its examinations and other official actions, all of which shall be immediately filed in the office of the Board and shall be a public record.

E. All meetings of the Board shall be open to the public.

F. A quorum shall be at least three (3) members.

G. A favorable vote of three (3) members of the Board shall be necessary to reverse any order, requirement, decision or determination of any administrative official or to decide in favor of the applicant on any matter upon which the Board is required to pass.

4. Appeals to the Board of Zoning Appeals (175-141)

A. An appeal to the Board may be taken by any person aggrieved or by any officer, department, board or bureau of the county or municipality affected by any decision of the Zoning Administrator. Such appeal shall be taken within thirty (30) days after the decision appealed from

by filing with the Zoning Administrator and with the Board a notice of appeal specifying the grounds thereof. The Administrator shall forthwith transmit to the Board all the papers constituting the record upon which the action appealed from was taken. An appeal shall stay all proceedings in furtherance of the action appealed from unless the Zoning Administrator certifies to the Board that by reason of facts stated in the certificate a stay would, in his opinion, cause imminent peril to life or property, in which case proceedings shall not be stayed otherwise than by a restraining order granted by the Board or by a court of record, on application and on notice to the Zoning Administrator, and for good cause shown.

B. From notices of violation for temporary or seasonal commercial uses, parking of commercial trucks in residential districts or similar short-term, recurring violations, as determined by the Zoning Administrator, an appeal shall be filed within ten (10) days of the date of receipt of such notice of violation.

5. Appeal Procedure (175-142)

Appeals shall be mailed to the Board of Zoning Appeals in care of the Zoning Administrator, and a copy of the appeal shall be mailed to the Secretary of the Planning Commission. A third copy shall be mailed to the individual, official, department or agency concerned, if any.

6. Public Hearing of Application of Appeal (175-143)

The Board shall fix a reasonable time for the hearing of an application or appeal, give public notice thereof as well as due notice to the parties in interest and decide the same within sixty (60) days. In exercising its powers, the Board may reverse or affirm, wholly or partly, or may modify an order, requirement, decision or determination of an administrative officer or decide in favor of the applicant on any matter upon which it is required to pass under this chapter or effect any variance from the chapter. The Board shall keep minutes of its proceedings and other official actions, which shall be filed in the office of the Board and shall be public records. The Chairman of the Board or, in his absence, the Acting Chairman may administer oaths and compel the attendance of witnesses.

7. Appeal of Decision of Board of Zoning Appeals (175-144)

A. Any person or persons jointly or severally aggrieved by any decision of the Board of Zoning Appeals, or any taxpayer or any officer, department, board or bureau of the municipality, may present to the Circuit Court of the county a petition specifying the grounds on which aggrieved within thirty (30) days after the filing of the decision in the office of the Board.

B. Upon the presentation of such petition, the Court shall allow a writ of certiorari to review the decision of the Board of Zoning Appeals and shall prescribe therein the time within which a return thereto must be made and served upon the relator's attorney, which shall not be less than ten (10) days and may be extended by the Court. The allowance of the writ shall not stay proceedings upon the decision appealed from; but, the Court may, on application, on notice to the Board and on due cause shown, grant a restraining order.

C. The Board of Zoning Appeals shall not be required to return the original papers acted upon by it, but shall be sufficient to return certified or sworn copies thereof or of such portions thereof as

may be called for by such writ. The return shall concisely set forth such other facts as may be pertinent and material to show the grounds of the decision appealed from and shall be verified.

D. If, upon the hearing, it shall appear to the Court that testimony is necessary for the proper disposition of the matter, it may take evidence or appoint a Commissioner to take such evidence as it may direct and report the same to the Court with his findings of fact and conclusions of law, which shall constitute a part of the proceedings upon which the determination of the Court shall be made. The Court may reverse or affirm, wholly or partly, or may modify the decision brought up for review.

E. Costs shall not be allowed against the Board, unless it shall appear to the Court that it acted in bad faith or with malice in making the decision appealed from.

Section 3.2.4 - BOARD OF ARCHITECTURAL REVIEW

A. Establishment and Terms of Office (175-84)

1. A Board to be known as the "Board of Architectural Review (BAR)" is hereby established and shall consist of five (5) voting members who shall be appointed by the Town Council. All members shall have a demonstrated interest competence or knowledge in historic preservation. One (1) member shall be a property owner/resident of an historic district overlay area and one (1) shall have professional training or equivalent experience in architecture, history, American studies, architectural history, archaeology or planning. All members shall be residents of Warren County, with knowledge of and demonstrated interest in the historic character of the Town. These members shall serve terms of four (4) years each.
2. BAR members may be reappointed for consecutive terms.
3. The BAR shall elect from its own membership a Chairman and Vice Chairman, who shall serve annual terms as such and who may succeed themselves. The Board shall appoint a Secretary who shall serve at its pleasure.
4. When a vacancy occurs, a new appointment shall be made by the Town Council for the unexpired terms within sixty (60) days after the vacancy occurs. The Town Council shall publicly announce and solicit qualified candidates for Board of Architectural Review vacancies.
5. Any appointed member of the BAR may be removed from office by the Town Council for inefficiency, neglect of duties or malfeasance. An appointment to fill a vacancy shall be only for the unexpired term on the vacancy.
6. Members shall make every effort to attend at least one (1) training session annually sponsored by the Department of Historic Resources, the Preservation Alliance of Virginia or other organizations that are involved with historic preservation issues, design and review standards or other work of the BAR.

B. Duties, powers and responsibilities:

The Board of Architectural Review shall have the power and authority for issuing or denying certificates of appropriateness for construction, reconstruction, substantial exterior alteration, razing or relocation within the historic district overlay area. In addition, the Board shall have the following duties:

1. To assist and advise the Town Council, the Planning Commission and other Town departments, agencies and property owners in matters involving historically significant sites and buildings or other properties in historic districts, such as but not limited to appropriate land usage, parking facilities and signs.
2. To continuously evaluate conditions and to advise owners of historic landmarks or contributing structures or other properties in historic districts on problems of preservation.
3. To conduct studies deemed necessary by the Town Council or the Planning Commission concerning location of historic districts and means of preservation, utilization, improvement and maintenance of historic assets in the Town.
4. To propose additional historic districts or additions or deletions to districts.
5. To adopt standards for review to supplement the standards set forth in this Article.
6. To establish an appropriate system of markers for selected historic sites and buildings, including proposals for the installation and care of such historic markers, and to invite each owner of a building of historical significance to display the marker thereon.
7. To cooperate with and enlist assistance from the Virginia Department of Historic Resources, the National Trust for Historic Preservation and other interested parties, both public and private, in its efforts to preserve, restore and conserve local historic landmarks, buildings, sites or areas within the Town.
8. To prepare and adopt specific guidelines, illustrated as necessary, for those historic districts which have special characteristics and architectural features that are peculiar to the district and which should be preserved and to make these guidelines available to property owners within each historic district and to the general public. After these historic districts are approved, specific guidelines shall be adopted for such historic districts as may require specific guidelines.
9. To sponsor public information activities, when deemed appropriate, publicizing historic preservation efforts, which activities may include, but not be limited to, speaking engagements, handouts, press releases and films.
10. To hold public meetings as often as necessary to fulfill the responsibilities assigned by this Article.

C. Organization and Meetings:

1. The Chairman shall conduct the meetings of the BAR.

2. The Secretary shall keep the minutes of the meetings and a permanent record of all resolutions, motions, transactions and determinations.
3. All members of the BAR, except for advisory members, shall be entitled to vote; and the decisions of the BAR shall be determined by a majority vote.
4. A quorum of three (3) voting members present is required before the BAR may take any official action.
5. The BAR shall meet within twenty (20) days after notification by the Zoning Administrator of an application for a certificate of appropriateness or a permit requiring action by the BAR.
6. The Board of Architectural Review shall have regularly scheduled meetings at least four (4) times a year. The meetings of the BAR shall be open to the public, and a full and impartial hearing shall be granted. All regularly scheduled meetings shall be conducted in the evening hours for the convenience of the public.
7. The BAR shall vote and announce its decision on any matter properly before it not later than forty-five (45) days after the conclusion of the hearing on the matter, unless the time is extended with the written consent of the applicant.
8. In matters covering the procedures for meetings not covered by this document, the BAR may establish its own rules, provided that they are not contrary to Town policy or the intent of this Article.

D. Authority to Receive Funding and Advisory Services:

1. All persons interested in the preservation of historic buildings or historic sites in the Town are invited to make gifts, devises and bequests to the Town to be used for that purpose. All such donations, other than money, shall be subject to acceptance by the Town Council. All donations of money shall be made through the Department of Finance, and it is hereby authorized and directed to receive such donations and to deposit them in a special fund to be known as the "Historic Buildings and Sites Trust Fund, " and shall be used only for the purpose of preserving and promoting the preservation of historic buildings and sites in the Town. Expenditures from such fund shall be made by the Town Manager as authorized, from time to time, by the Town Council.
2. The BAR may seek federal, state or private grants or funding to assist in the performance of its duties as herein defined.
3. Within the limits of funds that may be made available to the BAR for the performance of its work, the BAR may obtain services of qualified persons to advise and assist the BAR as required.
4. Upon request of the BAR, with approval by the Town Manager, the departments, boards, commissions, offices and agencies of the Town government shall furnish to the Board such

available information and render such service as may be required for the exercise of the powers and performance of the duties of the BAR.

E. Creation of Historic Districts and Landmarks (175-85)

1. The Board of Architectural Review shall prepare and recommend for adoption as part of this Article a district boundary map and an inventory map covering the area or areas to be considered for inclusion in an historic district overlay area. These maps, when adopted in accordance with the provisions of the Code of Virginia Section 15.2-2285, shall be as much a part of this Article as if fully described herein and shall be filed as a part of this Article by the Clerk of the Town of Front Royal. The inventory map shall delineate local historic landmarks, contributing properties and noncontributing properties. The inventory and district boundary maps may be amended, from time to time, in the same manner as the Zoning District Map.
2. The Board of Architectural Review may propose to the Planning Commission and the Town Council such amendments as deemed appropriate, including the establishment of historic districts or revision to existing historic districts. Upon receipt of said proposal, the Council may initiate such amendment pursuant to **Division 5.1**. The Board of Architectural Review shall prepare and submit simultaneously with said proposal a report to substantiate establishment of a historic district or a proposed amendment. Such report shall establish and define the historic district boundaries, as delineated upon an appropriate map, as well as describe the historic and/or architectural significance of the buildings, structures or sites to be protected, and the special characteristic, qualities and/or fabric to be preserved, and shall describe present trends and conditions, current and long-range planning and desirable public objectives for preservation. The report may also include plans for public action in or adjoining a district that is likely to affect its character or development/
3. Applications for the creation or expansion of an historic district or for the designation of landmarks or landmark sites may also be filed by the Planning Commission, the Town Council, the owner, the contract purchaser with the owner's written consent or the owner's agent or sixty percent (60%) of the owners of all buildings within a proposed historic district. All requests shall be made in the same manner as other zoning amendments, as provided for in **Division 5.2**.
4. Any historic district and any historic district map which have been created and adopted by the Front Royal Town Council prior to the amendment of this Article shall not be repealed but shall remain intact and in effect, subject now to the provisions of this amended Article.
5. Any historic district created and adopted by the Front Royal Town Council after February 1, 1993, shall remain in effect, except as amended or modified pursuant to the regulations herein, for an initial maximum period of ten (10) years from the date of its adoption. Subsequent action by the Front Royal Town Council shall be made to continue the district beyond the initial ten-year period.
6. Upon the presentation of a request to withdraw from an adopted subarea within the historic district overlay area, with such request having been duly executed by at least sixty-seven percent (67%) of the owners of taxable parcels (with a vote for each separate tax parcel) within the designated historic subarea, the Town Council, at its next meeting, shall take

appropriate action to remove the historic district designation. This provision shall be applicable only where the historic resource overlay area shall have been in place for a period of not less than two (2) years.

F. Criteria for Selection of Historic Districts and Landmarks (175-86)

Criteria for evaluating the merits of a given structure or space shall be based on architectural features as well as historic factors. Certain buildings or areas, although not associated with an historic personage or event, may be valuable examples of the Town's physical and cultural heritage. Structures of local significance shall be evaluated, as well as those of state and national significance, and any structures individually listed upon the National Register of Historic Places or the Virginia Landmarks Register shall be designated upon the Town Register. In addition, such evaluation shall be based on the following specific matters:

A. Architectural and landscape style: The evaluation shall respect the qualities of each architectural and landscape style and shall judge a structure's merit on how well it exemplifies the distinguishing characteristics of said style. Consideration will be given to:

1. The significance of the architectural design.
2. The scale and/or interrelationships of the structures and/or environmental features.
3. The significant patterns of development.
4. The quality of workmanship.
5. The amount of surviving original fabric.
6. The original location and use.
7. The remaining outbuildings or dependencies.
8. The surrounding environment; gardens, landscaping and walks.
9. The aesthetic quality.
10. The original integrity of the structure and its details.

B. Historical and/or cultural significance:- Structures or spaces relating to one (1) or more of the following criteria will be considered historically or culturally valuable:

1. Association with an historic personage.
2. Association with an historic event.
3. Work of the leading architect or master craftsman.
4. Site or structure of cultural significance.

C. In addition, sole or infrequent surviving building types and structures not historic in themselves but adding to the character of an historic district need to be looked at as potentially deserving preservation.

G. Boundaries of Historic Districts or Landmarks (175-87)

A. The boundaries of an historic district or overlay area shall, in general, be drawn to include areas containing buildings or places in which historic events occurred or having special public value because of notable architectural or other features relating to the cultural or artistic heritage of the community of such significance as to warrant conservation and preservation. The district may include either individual buildings or places of such character and a reasonable distance beyond, or it may include areas or groupings of structures which have significance relative to their patterns of development or social and economic or architectural interrelationships even though some structures in the area might not possess significant merit when considered alone. In any case, the location of the district shall be based upon careful studies that describe the characteristics of the area and support the purposes of conservation and preservation.

B. The boundaries of an historic district shall conform to the boundaries of individual lots of record. Where a street is proposed as an historic district boundary, the edge right-of-way adjoining the district shall be deemed the district boundary.

C. Historic districts are created as special overlay districts to be superimposed on other zoning districts contained in these regulations, and are to be so designated on the Official Zoning Map. The uses, housing types, minimum lot requirements, minimum yard requirements, maximum height and accessory uses and accessory signs shall be determined by the regulations applicable to the other districts over which the historic districts superimposed, except as these other districts may be modified by application of the regulations in the historic district.

D. A map delineating the adopted boundaries of each historic district shall be maintained in the office of the Zoning Administrator.

H. Certificate of Appropriateness Required (175-88)

A. No building or structure within the Chester Street and downtown business areas of the Historic Front Royal District shall be erected, reconstructed, altered or restored unless and until an application for a certificate of appropriateness shall have been approved under the provisions of this Article.

B. No building or structure within the downtown residential area of the Historic Front Royal District or property designated as a local historic landmark shall be erected, reconstructed or undergo substantial exterior alteration unless and until an application for a certificate of appropriateness shall have been approved under the provisions of this ordinance.

C. No building existing in any designated historic district shall be demolished or removed, in whole or in part, unless and until an application or a certificate of appropriateness shall have been approved by the Board of Architectural Review.

D. No application for a certificate of appropriateness to demolish a building in any historic district shall be considered by the BAR until a public hearing has been held thereon, pursuant to the notice of public hearing as required in Section 15.2-2204, Code of Virginia, as amended.

I. Board Review of Major Actions (175-89)

A. The following major actions and any other actions not specifically exempted by the terms of this ordinance or which, in the opinion of the Administrator, may constitute a major permanent and detrimental change to the character of an historic district shall be approved only after a public meeting and favorable action by a majority vote of the Board of Architectural Review:

1. The razing, demolishing or moving of a designated landmark or contributing structure.
2. Construction of any new main building, or an accessory building which exceeds five hundred (500) square feet in size within a designated historic district or on a site adjacent to a designated landmark site.
3. Any addition to or substantial alteration of a designated landmark or structure on a contributing property, which increases the square footage of the structure or otherwise alters substantially its size, height, contour or outline.
4. Any significant change or alteration of the exterior architectural style of a designated landmark or contributing property.
5. Any addition to a non-contributing structure, which alters substantially the size height, contour or outline by increasing the square footage and/or volume of the structure by one hundred percent (100%) or more of the original structure.
6. Any fence or sign that is not in conformance with the design guidelines adopted in accordance with this Article.
7. Any other major actions not specifically covered by the terms of this section but which would have a substantial effect on the character of the Historic District.

B. The Board of Architectural Review shall be guided in its review by the guidelines and criteria established in [Section 3.2.4\(M\)](#). The BAR shall have authority to request modifications in order to comply with the guidelines and criteria.

C. The Board of Architectural Review shall not disapprove an application except with respect to the criteria and guidelines set forth in [Section 3.2.4\(M\)](#). The BAR shall give reasons for its decisions, shall act promptly on applications before it and shall coordinate its procedures with those of other agencies and individuals charged with the administration of this Article. The BAR shall be strict in its judgment of plans for those structures designated as landmarks and contributing properties but shall be lenient in its judgment of plans for non-contributing properties. For plans involving new construction the Board's concern shall focus on whether such plans are compatible with and enhance the historic or architectural value of surrounding structures or the surrounding area.

D. In all final decisions rendered pursuant to this Article, the BAR shall briefly state its findings in writing, and in the case of disapproval, it may make recommendations to the applicant with respect to the design, texture, material, color, line, mass, dimension or lighting of the alteration or the improvement involved. The requirements of this section shall be deemed to have been satisfied

if such findings and recommendations, if any, are set forth in the regularly maintained minutes of the BAR.

J. Actions Requiring Administrative Review (Historic District) (175-89.1)

A. The following actions will require administrative review by the Zoning Administrator:

1. The razing, demolishing, or moving of a non-contributing structure or a structure which is substantially damaged to the point of being completely uninhabitable.
2. Construction of a new accessory structure less than five hundred (500) square feet in size within a designated historic district or on a site adjacent to a designated landmark site that is generally in keeping with the character of the historic district and its surroundings.
3. Substantial alteration of a non-contributing structure.
4. Any addition to a non-contributing structure, which increases the size (square footage and/or volume) of the structure by less than one hundred percent (100%) of the original structure.
5. Landscaping, fences and signs in conformance with the design guidelines adopted in accordance with this Article.

B. The Zoning Administrator shall be guided in his decisions by the standards and guidelines adopted by the Board of Architectural Review and shall have authority to request modifications of specific proposal in order that the proposal may comply with said standards and guidelines. In any case where the Administrator is uncertain of his authority to act on a particular application under this section or in any case where the Administrator and the applicant cannot agree on changes in the proposal, the application shall be referred to the Board of Architectural Review for action by said Board. In case of disapproval by the Administrator, the applicant may appeal the Administrator's decision within thirty (30) days thereof to the Board of Architectural Review. The Administrator shall keep a record of his decisions under this section and shall report such decisions to the Board of Architectural Review at its next regular meeting.

K. Exemptions from Review (Historic District) (175-90)

Certain minor actions which are deemed not to permanently affect the character of the historic district are exempted from review for architectural compatibility. Such actions shall include:

1. Repainting resulting in the same or a similar color. (Original painting of masonry surfaces is not exempted from review.)
2. Repair or construction in kind, resulting in no significant changes in appearance or form.
3. Addition or deletion of storm windows and doors, window gardens, awnings, temporary canopies or similar appurtenances and window air conditioners.
4. Addition or deletion of television or radio antennas, skylights or solar collectors in locations not visible from a public place.

5. Installation of plant materials but not including landscape treatment which substantially alters the contour of a contributing property or involves landscaping or construction of fences, pools and the like that affect the appearance of a contributing property.
6. Permitted outside storage in a residential or commercial district that does not require structural changes.
7. Improvements, alterations and renovations that can be accomplished without obtaining a building permit, except fences, signs, and window replacement.
8. Any changes to a structure that are not visible from a public street, alley or public place.
1. Temporary window signs

L. Authority to Stop Work (Historic District) (175-90.1)

The Zoning Administrator shall have authority to order that work be stopped and that an appropriate application be filed or reviewed in any case where, in his opinion, the action may produce arresting and spectacular effects, violent contrasts or materials or colors and intense and lurid colors or patterns or a multiplicity of incongruous details clearly inconsistent with the character of the present structures or with the prevailing character of the surroundings and the historic district or when it appears that the work does not conform to the list of administrative review or exempted actions stated herein and, in fact, is more extensive than originally represented.

M. Guidelines and Criteria for Review (Historic District) (175-91)

A. All reviewing bodies shall be guided by the following guidelines and criteria:

1. The historic archaeological or architectural value and significance of a structure and its relationship to the historic value of the surrounding area.
2. The age and character of the historic structure, its condition, and its probable life expectancy and the appropriateness of the proposed changes to the period or periods during which the structure was built.
3. The general compatibility of the site plan and the exterior design arrangement, texture and materials proposed to be used.
4. The view of the structure or area from a public street or road, present or future.
5. The present character of the setting of the structure or area and its surroundings.
6. The probable effect of proposed construction on trees, wooded areas or historic sites.
7. Any other factors, including aesthetic factors, which the reviewing bodies deem to be pertinent.
8. The appropriateness of the exterior architectural features of such building or structure to the compatibility with the exterior architectural features of landmarks, buildings or structures in the district, taking into consideration the following:

- a. General design.
- b. Character and appropriateness of design.
- c. Form.
- d. Proportion and scale.
- E. Mass.
- f. Configuration.
- g. Arrangement.
- h. Texture.
- i. Material
- j. The permanent color of exterior materials (excluding paint).
- k. The relationship of such elements to similar features of structures in the immediate surroundings.
- l. Congruity with the character of the Historic District.

B. The reviewing bodies shall not adopt or impose any specific architectural style in the administration of this Article.

C. The reviewing bodies shall also be guided by the purposes for which landmarks, landmark sites and historic districts are designated and by the particular standards and considerations contained in the Secretary of the Interior's Standards for Rehabilitation.

N. Issuance of Certificate of Appropriateness (Historic District) (175-92)

A. Within fifteen (15) days of approval for construction or alteration pursuant to **Section 3.2.4 (1)** a certificate of appropriateness signed by the Zoning Administrator and bearing the date of issuance but subject to the provisions of **Section 3.2.4(N)(1)** shall be made available to the applicant.

B. Any certificate of appropriateness issued **pursuant to Section 3.2.4 (1)** shall expire of its own limitations twelve (12) months from the date of issuance if the work authorized by said certificate has not commenced and, further, if any such work is suspended or abandoned for a period of twelve (12) months after being commenced. Any period or periods of time during which the right to use any such certificate is stayed pursuant to this Article shall be excluded from the computation of the twelve- month period.

O. Building Demolition and Relocation (Historic District) (175-93)

A. No historic landmark, building or structure within any historic district shall be razed, demolished or moved until the razing, demolition or movement thereof is approved by the Board of Architectural Review or approved on appeal as provided herein.

B. Notwithstanding the provisions of Subsection A, the owner of a historic landmark, building or structure shall, as a matter of right, be entitled to raze or demolish such a building or structure, provided that:

1. He has applied to the Town Council for such right;
2. The owner has, for the period of time set forth in the time schedule hereinafter contained and at a price reasonably related to its fair market value, made a bona fide offer to sell such building or structure and the land pertaining thereto to any person, firm, corporation, government or agency thereof or political subdivision or agency thereof which gives reasonable assurance that it is willing to preserve and restore the building or structure and the land pertaining thereto. In order to demonstrate the making of a bona fide offer to sell, the owner shall file a notice with the Zoning Administrator identifying the property and stating the offering price and the name of the real estate agent, if any. No time period set forth herein shall begin to run until said notice has been filed. Within five (5) days of receipt, copies of the notice shall be delivered by the Zoning Administrator to the members of the Town Council, the members of the Planning Commission and the Town Manager; and
3. No bona fide contract, binding upon all parties thereto, shall have been executed for the sale of any such building or structure and the land pertaining thereto prior to the expiration of the applicable time period set forth in the time schedule hereinafter contained. Any appeal from the decision of the BAR, whether instituted by the owner or by any other proper party, notwithstanding the provisions herein pertaining to a stay on appeal, shall not affect the right of the owner to make the bona fide offer to sell. No offer to sell shall be made more than one (1) year after the final decision of the BAR, but thereafter the owner may renew his request to the BAR to approve the razing or demolition of the historic landmark, building or structure. The time schedule for offers to sell shall be as follows:

OFFERING PRICE

MINIMUM OFFER-TO-SELL

Period (Months)

Less than \$25,000.00	3
\$25,000.00 to \$39,999.99	4
\$40,000.00 to \$54,999.99	5
\$55,000.00 to \$74,999.99	6
\$75,000.00 to \$89,999.99	7
\$90,000.00 or more	12

4. For the purpose of this Article, a bona fide offer to sell shall be defined as a selling price not greater than ten percent (10%) more than the fair market value appraisal of a certified land appraiser employing appropriate, recognized appraisal criteria for the area in question. The Town shall retain the right to contest the bona fide nature of the offer as follows: the reasonable relationship of the offering price to the fair market value of the historic landmark, building or structure, by filing injunctive proceedings in the Warren County Circuit Court, whenever the Town obtains an appraisal of the property in question by a certified land appraiser at a value at least ten percent (10%) below the offering price asked by the owner, regardless of any conflicting appraisal obtained by the property owner.

P. Appeals (Historic District) (175-94)

A. Any applicant aggrieved by a final decision of the Board of Architectural Review may appeal said decision to the Front Royal Town Council, provided that such appeal is filed, in writing, with the Town Clerk within ten (10) days after the final decision is rendered by the BAR. The Town Council will hear the matter at its next regularly scheduled meeting and will render its decision on the appeal at the following regularly scheduled meeting. The Council, in its discretion, may consider additional evidence and submissions during the period between meetings and at the second regularly scheduled meeting prior to rendering its decision.

B. Any applicant aggrieved by a final decision of the Board of Architectural Review following the decision rendered on appeal to the Front Royal Town Council, may appeal said decision to the Circuit Court of Warren County, Virginia, by filing a petition at law setting forth the alleged illegality of the BAR's action, provided that such petition is filed with the Circuit Court within thirty (30) days after the appealed decision of the Front Royal Town Council. The filing of said petition with the Circuit Court shall stay the decision of the BAR pending the outcome of the appeal, except that the filing of such petition shall not stay the decision of the BAR if such decision denies the right to raze or demolish an historic landmark, building or structure. The Circuit Court may reverse or modify the decision of the BAR, in whole or in part, if the Court finds, upon review, that the decision is arbitrary and constitutes an abuse of discretion. The Circuit Court may also affirm the decision of the BAR.

Maintenance, Public Safety, and Permitted Uses (Historic District) (175-95)

A. Nothing in this Article shall allow the BAR to prevent the routine maintenance or repair of any exterior elements of any building or structure so long as there is no change in form or materials; nor shall anything in this Article be construed to prevent the construction, reconstruction, alteration or demolition of any exterior elements that the authorized municipal officers shall certify as required by public safety.

B. Nothing in this Article shall be construed to prevent any use of any land, building or structure permitted by the regulations prescribed in this Chapter for the district in which such land, building or structure is otherwise located. Due to peculiar conditions of design and construction in historic neighborhoods where buildings and structures are often built close to the lot lines, it is in the public interest to retain a neighborhood's historic appearance by granting variances to normal yard requirements, where appropriate and where it is deemed that such a variance will not adversely

affect neighboring properties. The BAR may recommend to the Board of Zoning Appeals that such variance to standard yard requirements be made.

Q. Yard Variances (Historic District) (175-96)

Due to peculiar conditions of design and construction in historic neighborhoods where buildings and structures are often built close to the lot lines, it is in the public interest to retain a neighborhood's historic appearance by granting variances to normal yard requirements, where appropriate and where it is deemed that such a variance will not adversely affect neighboring properties. The BAR may recommend to the Board of Zoning Appeals that such variance to standard yard requirements be made.

Exemption for Public Works (Historic District) (175-98)

The Front Royal Town Council may exempt public structures, works, utilities and buildings from compliance with this Article where public safety is endangered or an emergency situation arises. Retroactive approval for emergency work undertaken shall be sought within thirty (30) days following completion of the work. All work shall strive to maintain architectural compatibility within the historic district for its public works and structures.

Section X.X - OATH REGARDING PROPERTY INTEREST OF LOCAL OFFICIALS ([VA Code Sec 15.2-2287](#))

In accordance with Section 15.2-2287 of the Code of Virginia, petitions brought by property owners, contract purchasers or the agents thereof, shall be sworn to under oath before a notary public or other official before whom oaths may be taken, stating whether or not any member of the local planning commission or governing body has any interest in such property, either individually, by ownership of stock in a corporation owning such land, partnership, as the beneficiary of a trust, or the settler of a revocable trust or whether a member of the immediate household of any member of the planning commission or governing body has any such interest.

ARTICLE 4 – STANDARD REVIEW PROCEDURES

DIVISION 4.1 - ZONING PERMITS (175-134)

A. No buildings, structures or uses shall be started, reconstructed, enlarged or substantially altered until after a zoning permit has been obtained from the Zoning Administrator.

B. Each application for a zoning permit shall be accompanied by one (1) hard copy, or one (1) digital copy of an adequately dimensioned drawing, to scale, unless as otherwise specified.

The drawing shall show:

- the size, shape and dimensions of the parcel of land on which the building is to be constructed, as surveyed and prepared by a licensed surveyor or registered architect, the nature of the proposed use of the building or land, the location and arrangement of off-street parking,
- the location of such building or use with respect to the property line of said parcel of land and to the right-of-way of any street or highway adjoining said parcel of land, the developers drainage plan for properly distributing surface water and additional information as required by this

chapter. Such dimensional drawing shall be prepared by a licensed surveyor or a registered engineer or architect for new main building.

- Any other information which the Administrator may deem necessary for the consideration of the application may be required. If the proposed building or use is in conformity with the provisions of this chapter, a permit shall be issued to the applicant by the Administrator.
- One (1) copy of the drawing shall be returned to the applicant with the permit.
- The required dimensional drawing is not required for applicants who have submitted site plans in accordance with **Chapter 148**.

Section 4.1.1 - Duration of valid zoning permit

Any zoning permit issued shall become invalid if the authorized work is not commenced within one (1) year of the date of issuance or is suspended or abandoned for a continuous period of one (1) year. The Zoning Administrator may, upon good cause shown, extend a permit with or without charge for an additional period not exceeding one (1) year.

Section 4.1.2 - Zoning permit fees

Fees established by the Town Council, and posted in accordance with **Division 4.2 Fees** shall be paid at the time of application and are non-refundable.

Section 4.1.3 - Plans of Development (15.2-2286(A)(8))

As consistent with §15.2-2286(A)(8) of the Code of Virginia, prior to issuance of a Zoning Permit, an applicant must submit a Plan of Development. Plans of Development will be either a Site Plan or a Sketch Plan, according to the size and complexity of the development.

1. Site Plan required. For any development other than one single- or two-family home, a Site Plan will be required. For developments of one single- or two-family home or an addition to a single- or two-family home, a Sketch Plan will be required. Both Site Plans and Sketch Plans must be submitted in a printed copy as well as in digital format as a Portable Document Format (PDF) file.
2. Site plan requirements in accordance with §15.2-2286(A)(8) of the Code of Virginia. Site plans shall require plans and profiles of water lines, sewer lines and storm drains, as well as storm water management ponds where applicable, parking lot details, size of spaces and travel aisles, landscaping plans, with individual plant species identified.
3. Sketch plan including the project name, north arrow, vicinity sketch, proposed use, location of trash receptacle, lighting plan, building elevations, building colors, building materials, roof drainage system, sprinkler systems, and compliance with the Chesapeake Bay Act.

Commented [ADA4]: This section created in response to LK's desire to have residential submittals less informal but not onerous.

Commented [AA5R4]: Please check new 2024 legislation for compliance.

Commented [AD6R4]: LK to talk to George and make changes.

Section 4.1.4 - Foundation Location Inspections (175-134.1)

A. For the purpose of this section, a "foundation" shall be defined as that portion of the building consisting of the footers, slab, block, concrete or other building materials constructed under and upon the ground and rising no more than three (3) feet above grade.

B. No building or structure shall be constructed beyond the foundation stage until such time as the foundation location has been inspected and approved by the Administrator. Upon construction of a foundation, the builder shall submit to the Zoning Administrator and the Building Inspector a plat prepared

by a certified land surveyor certifying the location of the foundation and all structural projections therefrom upon the property. The Zoning Administrator shall respond within ten (10) days. In the event that the foundation is in its proper location as shown on the zoning permit and all building setbacks and area requirements have been met, the Zoning Administrator shall mark the plat approved. If the plat is rejected, the Zoning Administrator shall give to the builder a written basis for the rejection.

C. No certificate of occupancy shall be issued without a foundation location survey plat marked approved by the Zoning Administrator.

D. The provisions of this section shall not apply to accessory buildings, as defined in Section 175-3, with an area of two hundred (200) square feet or less. Furthermore, the Zoning Administrator may waive the foundation location survey where previous surveys adequately demonstrate that the new building or addition, as proposed by the zoning permit application, will comply with the required setbacks.

Section 4.1.5 - Effect on Permits Issues Prior to Adoption (175-148)

Nothing contained herein shall require any change in the plans or construction of any building or structure for which a permit was granted prior to the effective date of this chapter. However, such construction must commence within thirty (30) days after this chapter becomes effective and be completed within a period of one (1) year after construction is initiated. If construction is discontinued for a period of six (6) months or more, further construction shall be in conformity with the provisions of this chapter for the district in which the operation is located.

DIVISION 4.2 – FEES

The Town Council shall adopt a schedule of fees to be paid upon the filing of each application, permit and inspection required by this zoning ordinance.

Section 4.2.1. Application and Permit Fees

Each application or other request for any permit, inspection or subdivision plat submitted for review for compliance with this zoning ordinance or site plan or use permit conditions shall be accompanied by a fee in accordance with the schedule adopted by the Town Council. Until all application fees, charges and expenses have been paid in full, no action shall be taken on any application or appeal.

Section 4.2.2. Fee Schedule to be posted

The Planning Director shall cause to be posted a current fee schedule on the Town website.

Section 4.2.3. Fees to be paid before applications processed

In accordance with Section 15.2-2286(16)(B) of the Code of Virginia, no application shall be processed for any Town approval until all outstanding real estate taxes or other fees have been paid.

Section 4.2.4. Freedom of Information Act

Freedom of Information Act (FOIA) requests for available information shall be submitted to the appropriate department that maintains the records sought for processing. Any request for records or documents from the Town is considered a FOIA request. All FOIA requests shall be communicated by the Department of the Town Manager and Town Attorney. FOIA regulations

allow the Town to assess a reasonable charge for the costs to access, search, duplicate, and supply the requested materials if they exist. The Town shall not assess fees if staff time is less than thirty (30) minutes and ten pages of 8 ½ x 11 paper. An individual requesting materials through a FOIA request will be notified as soon as practicably possible. The Town shall conform to all FOIA regulations established by the Commonwealth of Virginia to ensure access to all available Town documents.

DIVISION 4.3 – CERTIFICATES OF OCCUPANCY

Section 4.3.1 – Certificates of Occupancy (175-135)

Land may be used or occupied and buildings structurally altered or erected may be used or changed in use only after certificate of occupancy has been issued by the Administrator. Such a permit shall state that the building or the proposed use or the use of the land complies with the provisions of this chapter. A similar certificate shall be issued for the purpose of maintaining, renewing, changing or extending a nonconforming use. A certificate of occupancy either for the whole or a part of a building shall be applied for simultaneously with the application for a zoning permit. The permit shall be issued within ten (10) days after the erection or structural alteration of such building or part has conformed with the provisions of this chapter.

DIVISION 4.4 – VIOLATIONS AND PENALTIES

Section 4.4.1 - VIOLATIONS AND PENALTIES (175-145)

A. All departments, officials and public employees of this jurisdiction which are vested with the duty or authority to issue permits or licenses shall conform to the provisions of this chapter. They shall issue permits for uses, buildings or purposes only when they are in harmony with the provisions of this chapter. Any such permit, if issued in conflict with the provisions of this chapter, shall be null and void.

B. Any person, firm or corporation, whether as principal, agent, employed or otherwise, violating, causing or permitting the violation of any of the provisions of this chapter shall be guilty of a misdemeanor and, upon conviction thereof, may be fined up to one thousand dollars (\$1,000.). Such person, firm or corporation shall be deemed to be guilty of a separate offense for each and every day during which any portion of any violation of this chapter is committed, continued or permitted by such person, firm or corporation and shall be punishable as herein provided.

DIVISION 4.5 – BUILDING PERMITS

Building Permits for any development activities in the Town of Front Royal are issued by the Warren County Building Department. In order for a property owner to be issued a building permit by the Warren County, the Town must issue a letter of Zoning Approval, in accordance with stating that the proposed

development is in compliance with the requirements of this chapter. Until the letter of Zoning Approval is issued, no building activities may commence.

ARTICLE 5 – EXCEPTIONS OR CHANGES TO THE ZONING ORDINANCE

DIVISION 5.1 - Special Use Permits (175-136)

A. Where uses are permitted by ~~special permit~~ Special Use Permit, the location and beginning of operation of such uses shall require, in addition to the zoning permit and certificate of occupancy, a special use permit. The issuance of these permits shall be subject to such conditions as are required in this chapter and such conditions as are deemed necessary by the Front Royal Town Council, after recommendations of the Front Royal Planning Commission. At a minimum, a special use permit may only be permitted, when Town Council determines that the use (i) is not detrimental to the overall health, safety and general welfare of the public, (ii) does not conflict with the Comprehensive Plan, (iii) is substantially compatible with surrounding land uses, and (iv) complies with laws of the Commonwealth of Virginia. Application for a special use permit shall be made to the Zoning Administrator, and a public hearing shall be held in accordance with the provisions of Virginia Code §15.2-2204 or §15.2-2286. Special use permits are not transferable to another property. In the event that a special use request is denied, the same special use request, or substantially the same special use request, shall not be considered by the Town Council or the Board of Zoning Appeals for a period of one (1) year from the date on which the special use permit request was denied.

B. New special use permit applications shall include the submission of a preliminary site development plan to be reviewed in concurrence with the special use permit application. No special use permit application may be authorized to operate until a final site development plan is approved.

DIVISION 5.2 -Variances

Section 5.2.1 – Variances

Variances shall be permitted in accordance with the Code of Virginia Section 15.2-2309, as described in Section 3.2.3(2) of this Ordinance.

Section 5.2.1 - Administrative Variances (175-147.1)

The Zoning Administrator is authorized to grant a variance from the requirements contained in sections 6.4.7(c), 6.6.8(c), and 6.7.8(c), if the Zoning Administrator finds in writing that:

- A. The strict application of the ordinance would produce undue hardship or prove impractical due to topographic, architectural or other unusual conditions;
- B. Such hardship is not shared generally by other properties in the same zoning district and the same vicinity; and
- C. The authorization of the variance will not be of substantial detriment to adjacent property and the character of the zoning district will not be changed by the granting of the variance.

Commented [ADA7]: Existing Sec 175-147.1 references potential admin variances according to requirements in 175-15 ©, (R-1, front yard), 175-18€, (doesn't exist), 175-24©, (R-2) front yard, and 175-34© (R-3 front yard). Not sure if this has proved helpful at all but new references are to new existing sections.

Commented [ADA8R7]: Recommend, if palatable, adding all Residential lot requirements. Should be discussed with PC.

Commented [AD9R7]: LK to talk to George about limits of Administrative Variances.

DIVISION 5.3 – Conditional Zoning

Section 5.2.2 - CONDITIONAL ZONING PROFFERS IN REZONING APPLICATIONS (175-149)

A. Owners of land making applications to the Town of Front Royal for a zoning reclassification of their land in the Town of Front Royal may voluntarily proffer in writing, as part of the rezoning petition, certain conditions related to the future physical development and/or physical operation of the land to be rezoned, subject to the following requirements:

1. The rezoning of the land must itself give rise for the need for the conditions.
2. The conditions must have a reasonable relation to the rezoning of the land.
3. The conditions shall not include a cash contribution to the Town of Front Royal.
4. The conditions shall not include a mandatory dedication of real or personal property for open space, parks, schools, fire departments or other public facilities which are not otherwise provided for in Virginia Code 15.2-2241.
5. The conditions shall not include payment for or construction of off-site improvements, except those provided for in Virginia Code Section 15.2-2241.
6. No conditions shall be proffered that are not related to the physical development or physical operation of the property to be rezoned.
7. All conditions shall be in conformity with the Comprehensive Plan of the Town of Front Royal.
8. All conditions shall be in writing and shall be submitted to the Town of Front Royal as part of the rezoning petition prior to public hearing before the governing body.

B. Once proffered and accepted as part of an amendment to this chapter, the conditions shall continue in full force and effect until a subsequent amendment changes the zoning on the property covered by the conditions; provided, however, that such conditions shall continue if the subsequent amendment is part of a comprehensive implementation of a new or substantially revised Zoning Ordinance.

C. The Zoning Administrator shall administer and enforce the conditions attached to a rezoning or amendment to the Zoning Map, * including:

1. The ordering in writing of the remedy of any noncompliance with the conditions.
2. The bringing of legal action to ensure compliance with such conditions, including injunction, abatement or other appropriate action or proceeding.
3. Requiring a guaranty, satisfactory to the governing body, in an amount sufficient for and conditioned upon the construction of any physical improvements required by the conditions, or a contract for the construction of such improvements and the contractor's guaranty, in like amount and so conditioned, which guaranty shall be reduced or released by the

governing body, or agent thereof, upon the submission of satisfactory evidence that construction of such improvements has been completed in whole or in part.

D. The failure to meet all conditions shall constitute cause to deny the issuance of any of the required use, occupancy or building permits as may be appropriate.

E. The Zoning Map shall show by an appropriate symbol on the map the existence of conditions attached to zoning. The Zoning Administrator shall keep in his office and make available for public inspection a conditional zoning index. The index shall provide ready access to the ordinance creating conditions in addition to the regulations provided for in a particular zoning district or zone.

Section 5.2.3 - CONDITIONAL ZONING PROFFERS IN REZONING APPLICATIONS; HIGH GROWTH PERIODS (175-150)

As provided in Virginia Code Section 15.2-2298, notwithstanding any contrary provisions in **section 5.2.2** the provisions of this section shall apply during periods wherein the Town and/or County of Warren has had a population growth of five percent (5%) or more from the next-to-latest decennial census year, based on population reported by the United States Bureau of the Census, or during periods when Warren County is contiguous with at least three (3) counties which have experienced ten-percent population growth or more as described herein.

A. Owners of land making application to the Town of Front Royal for a zoning reclassification of their land in the Town of Front Royal may voluntarily proffer in writing, as part of the rezoning petition, certain conditions, subject to the following requirements:

1. The rezoning of the land must itself give rise to the need for the conditions.
2. The conditions must have a reasonable relation to the rezoning of the land.
3. All conditions shall be in conformity with the Comprehensive Plan for the Town of Front Royal.
4. The conditions may include a cash contribution to the Town of Front Royal or contributions of personal property and services.
5. The conditions may include dedication of real property for open space, parks, schools, fire departments or their public facilities.
6. The conditions may include payment for or construction of off-site improvements.
7. All conditions shall be in writing and shall be submitted to the Town of Front Royal as part of the rezoning application prior to public hearing before the governing body.
8. All applicable requirements of the Virginia Code shall be complied with, including, but not limited to, the requirements of §15.2-2298.

B. No proffer shall be accepted under this section unless and until the Town has adopted a capital improvement program. In the event that the proffered conditions include a dedication of real property or payment of cash, such property shall not transfer and such payment of cash shall not be made until the facilities for which such property is dedicated or such cash is tendered are included in the capital improvement program. However, the Town may accept proffered conditions which are not normally included in the capital improvement program. Proffered conditions shall provide for the disposition of dedicated property or cash payments in the event that said property or cash payments are not used for the purposes for which they are proffered.

C. Once preferred and accepted as part of an amendment to this chapter, the conditions shall continue in full force and effect until a subsequent amendment changes zoning of the property covered by the conditions; provided, however, that such conditions shall continue if the subsequent amendment is part of a comprehensive implementation of a new or substantially revised Zoning Ordinance.

D. The Zoning Administrator shall administer and enforce the conditions attached to a rezoning or amendment to the Zoning Map, including:

1. Ordering by written notice the remedy of any noncompliance with zoning conditions.
2. Bringing legal action to ensure compliance with such conditions, including injunction, abatement or other appropriate action or proceeding.
3. Requiring a guaranty satisfactory to the governing body in an amount sufficient for and conditioned upon the construction of any physical improvements required by the zoning conditions or a contract for the construction of such improvements and the contractor's guaranty in like amount and so conditioned, which guaranty shall be reduced or released by the governing body or agent thereof upon the submission of satisfactory evidence that the construction of such improvements has been completed, in whole or in part.

E. The failure to meet all conditions shall constitute cause to deny the issuance of any required use, occupancy or building permit as may be appropriate.

F. The Zoning Map shall show by an appropriate symbol on the map the existence of conditions attached to zoning. The Zoning Administrator shall keep in his office and make available for public inspection a Conditional zoning index. This index shall provide ready access to the ordinance creating conditions in addition to the regulations provided for in a particular zoning district or zone.

G. The Zoning Administrator shall record in the deed book records of the Office of the Clerk of the Circuit Court of Warren County a certificate with the name of the property owner and a description of the property and indicating that the property is subject to conditional zoning as shown on the Town of Front Royal Zoning Map.

DIVISION 5.2 – AMENDMENTS (175-146)

- The regulations, restrictions and boundaries established in this chapter may, from time to time, be amended, supplemented, changed, modified or repealed by a favorable majority of votes of the Town Council, provided that:
- A. A public hearing shall be held in relation thereto at which the parties in interest and citizens shall have an opportunity to be heard.
- B. Notices shall be given of the time and place of such hearings by publication in at least two (2) issues of some newspaper having a general circulation in the jurisdiction. Such notice shall be presented in accordance with Section 15.2-2204, Code of Virginia, as amended. After enactment of any such amendment, further publication shall not be required.
- C. When a proposed amendment of the Zoning Ordinance involves a change in the zoning classification of twenty-five (25) or less parcels of land, then, in addition to the advertising as above required, written notice shall be given by the Commission at least five (5) days before the hearing to the owner or owners, their agent or the occupant of each parcel involved and to the owners, their agent or the occupant of all abutting property and property immediately across the street or road from the property affected. In any county or municipality where notice is required under the provisions of this section, notice shall be given to the owner, their agent or the occupant of all abutting property and property immediately across the street from the property affected which lies in an adjoining county or municipality of the commonwealth. Notice sent by registered or certified mail to the last known address of such owner as shown on the current real estate tax assessment books shall be deemed adequate compliance with this requirement. If the hearing is continued, notice shall be remailed. Whenever the notices required hereby are sent by an agency, department or division of the local governing body, such notices may be sent by first class mail; provided, however, that a representative of such agency, department or division shall make affidavit that such mailings have been made and file such affidavit with the papers in the case. Costs of any notice required under this section shall be taxed to the applicant.
- D. Changes shall be made by the governing body in the Zoning Ordinance or the Zoning Map only after such changes have been referred to the Planning Commission for its recommendations. Action shall be taken by the governing body only after a report has been received from the Planning Commission, unless a period of ninety (90) days has elapsed after the date of the first regular meeting of the Commission after the proposed amendment has been referred to the Commission, after which time it may be assumed the Commission has approved the change or amendment. No land may be zoned to a more intensive use classification than was contained in the public notice without an additional public hearing after notice as required herein.
- E. Individual property owners may petition the governing body to have their property rezoned by submitting their request in writing to the Administrator. The application for rezoning shall be accompanied by a Phase I environmental site assessment based on the anticipated use of the property proposed for rezoning that meets generally accepted

national standards for such assessments, such as those developed by the American Society for Testing and Materials (ASTM), and Phase II environmental site assessments, that also meet accepted national standards, such as, but not limited to, those developed by ASTM, if the Town deems such to be reasonably necessary, based on the findings of the Phase I assessment, and in accordance with the regulations of the United States Environmental Protection Agency and ASTM; provided, however, that where the applicant clearly demonstrates to the satisfaction of the Director of Planning and Zoning that there will be no land disturbing activity as a consequence of the proposed rezoning, the requirement for a Phase I environmental site assessment may be waived in writing of such absence of land disturbing activity. An applicant shall disclose and remediate any contamination and other adverse environmental conditions of property revealed by such environmental assessment, prior to the approval of subdivision and development plans.

- After proper public hearing, the Planning Commission shall make its recommendation to the Town Council, who will then act upon the applicant's request. If the Planning Commission makes no recommendation within ninety (90) days from the date of referral, the Council may assume that the Commission concurs with the applicant.

ARTICLE 6 – ZONING DISTRICTS/DISTRICT REGULATIONS

DIVISION 6.1 - AGRICULTURE AND OPEN SPACE PRESERVATION DISTRICT (A-1)

Section 6.1.1 - STATEMENT OF INTENT (A-1) (175-10.2)

The A-1 District is composed of large contiguous parcels of at least ten (10) acres in size used for agricultural pursuits and other uses involving preservation of open spaces, including parks and forested areas. The standards set forth for this district are designed to promote and protect open spaces and agricultural and forested areas. Development is to be discouraged, and the only structures permitted shall be those which are directly related to agriculture and the open space uses provided herein.

Section 6.1.2 - USES PERMITTED BY RIGHT (A-1) (175-10.3)

Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the A-1 District, the following uses of land and buildings are permitted by-right in the A-1 District.

RESIDENTIAL:

Manufactured home, subject to the standards of Section 5.1.9C

Single family dwelling, provided that only one single family dwelling may be permitted per parcel.

COMMERCIAL:

INDUSTRIAL:

MISCELLANEOUS:

Accessory uses, structures and buildings.

Agriculture, excluding tenant housing and all slaughtering activities subject to the standards of
Section 6.1.9.A

Cemeteries

Home Occupations

Open space and Conservation Areas

Public Facilities

Public Parks and Playgrounds

Public Utilities

Signs, as set forth in Section Article 10

Special Childcare Services

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator

Section 6.1.3 - USES PERMITTED BY SPECIAL USE PERMIT (A-1) (175-10.4

A. The following uses are permitted within the A-1 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the A-1 District.

RESIDENTIAL:

Tenant housing for an agricultural use

COMMERCIAL:

Commercial outdoor recreation, including athletic and park facilities, amphitheaters, stadiums, botanical gardens, campgrounds and seasonal recreational facilities, subject to the standards of
Section 6.1.9.D

Flea Markets and Farmer's Market, subject to the standards of Section 6.1.9.E

Hospitals

INDUSTRIAL:

ORGANIZATIONAL:

Churches.

Schools.

MISCELLANEOUS:

Wireless telephone communication towers, and similar communication facilities subject to the standards found under [Article 11](#).

Any use permitted under [Section 6.1.4](#), or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of [Section 6.1.8](#) subject to the requirements of [Division 5.1](#). Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

B. In assessing the granting of a ~~special permit~~[Special Use Permit](#), the Town Council shall consider the effect on surrounding properties, hazards which may result if the proposed use is granted, traffic congestion, noise, noxious fumes or odors, effects on the surrounding landscape and the aesthetics of appearance and any and all other matters deemed relevant to the proposed ~~special permit~~[Special Use Permit](#) and its effects on the community.

Section 6.1.4 - AREA AND FRONTAGE (A-1) (175-10.5)

A. The minimum lot area shall be ten (10) acres.

B. The minimum public street frontage shall be one hundred fifty (150) feet. Upon application for a ~~special permit~~[Special Use Permit](#) to the Front Royal Town Council, the minimum public street frontage may be waived where the lot in question has acceptable private road access to a public street and the Council finds that such access is adequate for the uses employed upon the property and that no hazard or undue traffic congestion will be caused or created as the result.

Section 6.1.5 - SETBACK (A-1) (175-10.6)

Structures shall be located one hundred (100) feet or more from any public street right-of-way which is fifty (50) feet or greater in width or one hundred twenty (120) feet or more from the center of any street right-of-way less fifty (50) feet in width. A minimum width at the setback line shall be two hundred (200) feet.

Section 6.1.6 - YARDS (A-1) (175-10.7)

A. The minimum width of side yards for all structures shall be fifty (50) feet.

B. The minimum width for rear yards for all structures shall be fifty (50) feet.

Section 6.1.7 - LOT COVERAGE (A-1) (175-10.8)

The maximum total coverage for all structures shall not exceed fifteen percent (15%) of the lot area. The total impervious coverage shall be limited to thirty percent (30%) of the lot area.

Section 6.1.8 - HEIGHT (A-1) (175-10.9)

A. Except for uses that are categorized under subsection B, shown below, and uses that obtain approval of an alternative maximum height, as may be authorized in accordance with [Section 6.1.4](#), the maximum height in the A-1 District shall be thirty-five (35) feet.

B. Buildings and structures related to agricultural pursuits, including but not limited to, barns and silos, as well as church spires and cupolas may be erected to a height of sixty (60) feet from grade.

Section 6.1.9 - STANDARDS (A-1) (175-10.10)

A. Slaughtering Activities. All slaughtering activities in the A-1 District shall comply with the following standards.

1. Such activity shall not be conducted within one hundred fifty (150) feet of the property boundary.
2. No frequent or repetitive emission of noises or odors of such intensity and character as to interfere with the health, welfare and comfort of the public or neighboring landowners at or beyond the property line shall be permitted.

B. Farmers' Markets and Flea Markets. Where flea markets are permitted by approval of a special use permit, the following standards shall be complied with, in addition to any conditions placed on the special use permit, and Section 98-46 of the Town Code.

1. Adequate water and sanitary facilities shall be provided if found necessary based on the size, frequency and duration of the market.
2. A minimum fifty (50) foot setback shall be maintained from all property lines, excluding structures and uses in existence prior to July 1, 2001.
3. No adverse effect on adjoining properties, including but not limited to excessive or untimely noise or lighting, overflow parking, or visual problems potentially affecting property values or marketability, is found.
4. No manufactured buildings shall be permitted.
5. All tables, facilities and structures shall be maintained in a well-kept and attractive manner.
6. Unless otherwise approved as part of a special use permit, all temporary structures or facilities shall be removed during the days that the market is not in operation.
7. Operation of a Flea Market shall be confined to Friday, Saturday, Sunday, and Holidays, unless other dates are specifically approved by the Town Council in conjunction with the ~~Special Permit~~Special Use Permit. The hours of operation shall be posted on the property.
8. If a Flea Market or Farmers' Market elects to close during part of the year, or is required to close during part of the year by a condition of a special use permit, all tables and other temporary fixtures shall be removed within two (2) weeks of such closure. Such fixtures may be stored on the site, provided they are located within a completely enclosed building or otherwise screened from public view.
9. All Flea Markets and Farmers' Markets shall be swept clean, hosed down and/or picked clean daily. No food products or debris shall be permitted to remain upon the site overnight. All food products sold at the market must be displayed under sanitary conditions and sold

in compliance with all requirements of the Virginia Department of Health or Virginia Department of Agriculture and Consumer Services.

10. Any expansion, including, but not limited to, new construction, an increase in the days of operation, or other significant changes to the use of the property, shall only be authorized with a special use permit.
 11. Landscaping shall be provided where feasible and desirable for purposes of improvement aesthetics, screening, shade and the natural environment.
 12. Fencing may be required for purposes of improvement aesthetics, screening or public safety.
 13. The sale of live animals is prohibited.
 14. The sale of new merchandise or serving of food, other than farm and domestic products, shall only be authorized if the vendor obtains an itinerant merchant or peddler license, in accordance with the Town Code regulations for such uses.
 15. Farmers' Markets and Flea Markets on public property shall be classified as a public event.
- C. **Manufactured Housing.** Manufactured housing shall be permitted on individual parcels or lots in the A-1 District, provided the following standards are met:
1. The manufactured housing unit shall have a minimum width of nineteen (19) or more feet.
 2. The manufactured housing unit shall be attached to a permanent foundation in the ground.
 3. The manufactured housing unit shall have the appearance and character of conventional, site-built, single-family housing.
 4. Such manufactured housing units shall meet all applicable Building Code requirements.
- D. **Commercial Outdoor Recreation, Hospitals, Schools and Churches.** Where commercial outdoor recreation, hospitals, schools and/or churches are permitted by special use permit the following standards shall be complied with, in addition to any conditions placed on the special use permit.
1. A minimum of 50% of the lot area shall be designated as open space.
 2. Buildings and structures used in association with outdoor recreation, hospital, school and churches shall be setback from adjoining property lines by a distance of 200 feet, except that the setback **specified under Section 6.1.2** shall apply along property lines abutting a public road or the Shenandoah River.
 3. Amphitheaters, stadiums and other similar activities that involve the outdoor gathering of large groups of people shall submit a traffic impact study for evaluation by the Town during the special use permit application process if the total number of attendees is anticipated to exceed 2,500 persons. Gatherings of people above 2,500 may only be permitted by the Town on a temporary basis.

4. All outdoor lighting shall be reviewed and approved during the special use permit process. If outdoor lighting is authorized by special use permit, such lighting shall be designed so that light fixtures and the light that they emit minimize light glare to adjoining properties and the night-sky.
5. Campgrounds, and similar facilities, shall comply with all requirements of the Virginia Department of Health, except that in no circumstance shall a campground not be provided with public bathroom facilities with either public utilities or an approved independent well and sanitary sewer system.
6. The hours of operation for outdoor activities shall be defined on any special use permit that may be approved by the Town.

Section 6.1.10 - PERFORMANCE STANDARDS FOR URBAN AGRICULTURE (175-110.5)

Urban Agriculture shall comply with the following performance standards.

A. A zoning permit shall be required for the keeping of animals kept in association with urban agriculture when located on a lot less than 1 acre. Such a zoning permit application shall include a management plan that adequately addresses waste disposal, site suitability, setbacks, animal density, biosecurity and health measures, odor control, noise control, appearance, and maintenance. The management plan shall be reviewed by the Virginia Cooperative Extension Office, or other qualified expert, nonprofit organization or government entity. Conditions of approval or recommendations may be required as part of the zoning permit based on the management plan or other recommendations of the Virginia Cooperative Extension Office, or other qualified expert, nonprofit organization or government entity. The zoning permit shall only be valid for one (1) year; except that, the Zoning Administrator may successively renew the permit in additional one (1) year increments upon expiration; provide that, the use remains in compliance with the management plan and otherwise remains lawful.

B. Single family, duplex or two-family dwellings shall be permitted to keep up to six (6) female chickens (non-crowing hens only), six (6) bee hives, and/or six (6) rabbits.

C. Other types of residential uses, such as townhouses, condominiums, multi-family (apartments), are prohibited from keeping livestock, fowl or bees, except when authorized with a Special Use Permit or Proffer.

D. Commercial and industrial uses, excluding schools, are prohibited from keeping livestock, fowl or bees, except when authorized with a Special Use Permit or Proffer.

E. Roosters, livestock (excluding rabbits), and fowl (excluding hens) are prohibited on lots less than one (1) acre in land area.

F. Pigs are restricted, regardless of lot size, unless a Special Use Permit or Proffer is submitted and approved.

G. Chickens, bees, and rabbits are restricted from the front yard and corner side yard on corner lots.

H. Chickens and rabbits shall be kept within an enclosed area that includes a chicken coop or rabbit hutch. Such facilities shall be kept clean and maintained in good condition.

I. Chickens coops shall be setback at least ten (10) feet from side and rear property lines. Additional setbacks may be required by the Zoning Administrator if recommended as part of the submitted management plan or review agency recommendation.

J. Any permit issued for Urban Agriculture may be revoked by the Zoning Administrator if such use significantly deviates from the approved zoning permit and/or management plan; or if such use creates a violation of the Town Code, including, but not limited to, an unpermitted expansion, noise violation, unpermitted development activity, or nuisance.

K. The sale of goods or services related to Urban Agriculture is not authorized, except where such sale or services is allowed as a principal use of the property. This restriction shall not include the incidental selling or trading with neighbors, family or friends; nor shall it exclude selling produce off-site at farm markets or other venues.

L. The above requirements are considered in addition to all other requirements of the Town Code that may apply.

M. Urban agriculture is not permitted as a principal use of a property; except that, this restriction shall not apply to outdoor gardens.

N. Bee hives must be setback at least ten (10) feet from side and rear property lines, and shall be enclosed on all sides by a fence at least 4 feet in height. A sign between two (2) and four (4) square feet shall be clearly located on the fence to communicate that bees are being kept within the enclosure.

O. Harvesting of honey shall take place within an enclosed building.

DIVISION 6.2 - ESTATE RESIDENTIAL DISTRICT (R-E)

(Adopted 5-9-05)

Section 6.2.1 - STATEMENT OF INTENT (R-E) (175-10.11)

The R-E Estate Residential District is composed of quiet, very low-density residential areas, on estate-sized lots connected to public water and sewer, plus undeveloped areas where similar residential construction appears likely to occur. The standards set forth for this district are designed to stabilize and protect the essential character of the areas so delineated, to answer a need in the Town for executive-styled residential development on public water and sewer on larger lots than are traditional or currently being developed, to promote and encourage a suitable environment for family life where there are children and executive-style families, to provide areas for suitable expansion of the Town as facilities are provided and to prohibit all commercial activities. Development is, therefore, limited to executive-style concentration, and permitted uses are limited to single-unit dwellings, plus selected additional uses, such as public facilities that serve the residents of the district. Mobile homes or rooming houses are prohibited.

Section 6.2.2 - USES PERMITTED BY RIGHT (R-E) (175-10.12)

Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-E District, the following uses of land and buildings are permitted by-right in the R-E District:

RESIDENTIAL:

Single-family dwellings, detached

COMMERCIAL:

INDUSTRIAL:

ORGANIZATIONAL:

MISCELLANEOUS:

Accessory uses, structures and buildings.

Home occupations.

Open space and conservation areas.

Public facilities.

Public parks and playgrounds.

Public utilities.

Signs, as set forth in Article 10.

Special childcare services.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.2.3 - USES PERMITTED BY ~~SPECIAL PERMIT~~ SPECIAL USE PERMIT (R-E) (175-10.13)

A. The following uses are permitted within the R-E District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-E District:

RESIDENTIAL:

COMMERCIAL:

Day care, and day-care facilities as set forth in the Section 8.1.2

INDUSTRIAL:

ORGANIZATIONAL:

MISCELLANEOUS:

Any use permitted under [Section 6.2.3](#), or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of [Section 6.2.9](#) subject to the requirements of [Division 5.1](#). Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.2.4 - MODEL HOMES AND SALES OFFICES (R-E) (175-10.14)

Model homes and sales offices for the marketing of residential dwellings within a specific development in the R-E Estate Residential District shall be permitted in an R-E Estate Residential Zoning District upon approval of a zoning permit by the Zoning Administrator, subject to the following conditions:

A. The Zoning Administrator shall review and approve or deny all requests for permits authorizing model homes and sales offices for the marketing of residential dwellings within a specific development. In assessing a request for a permit, the Zoning Administrator shall consider the necessity for the model home and/or sales office, its location and its effects on the surrounding neighborhood and/or adjoining property and may require terms and conditions on the location, appearance and such other reasonable conditions as the Zoning Administrator shall deem necessary.

B. The model home shall be a custom site-built home similar in type and size to the other homes sold in the development and shall be used as a residential dwelling after expiration of the model home zoning permit.

C. Only one (1) sales office shall be approved for a development, regardless of the number of phases. A sales office must be located in a model home in the event that the development has an approved model home. Such sales offices shall be restricted to the marketing of residential dwellings at the specific development in question, and no other business whatsoever shall be conducted on the premises.

D. The request for a model home and/or sales office shall be filed by the developer.

E. Each model home and/or sales office shall have a minimum of four (4) off-street parking spaces in addition to other parking spaces required by this chapter.

F. All model homes and sales offices must be connected to Town water and sewer and must provide rest room facilities for the public.

G. The maximum allowable period for the operation of a model home or sales office shall be one (1) year. Applications for renewal for successive six-month periods may be submitted if additional time is necessary to complete sales within the development. All renewal applications must be filed at least thirty (30) days prior to the expiration of the original model home or sales office permit.

H. The Zoning Administrator, in granting a model home or sales office permit, may require the posting of a bond to ensure that the model home and sales office terms and conditions are adhered to and to ensure that the operations cease and the site is left in good order at the expiration of the permit.

Section 6.2.5 - AREA AND FRONTAGE (R-E) (175-10.15)

Area and frontage regulations shall be as follows:

- A. Minimum area per lot: one (1) acre.
- B. Minimum width at setback line: one hundred seventy-five (175) feet.

Section 6.2.6 - SETBACK (R-E) (175-10.16)

Structures shall be located one hundred (100) feet or more from any street right-of-way. A vacant lot may be assumed to be occupied by a building having a minimum setback.

Section 6.2.7 - YARDS (R-E) (175-10.17)

- A. Side: Each side yard shall be a minimum of fifty (50) feet.
- B. Rear: Each rear yard shall be a minimum of seventy-five (75) feet.
- C. Front: The required depth of the front yard shall be as provided in [Section 6.2.6](#)
- D. Accessory buildings shall be setback from side and rear property lines by no less than twenty-five (25) feet.

Section 6.2.8 - LOT COVERAGE (R-E) (175-10.18)

The maximum building coverage shall be twelve percent (12%).

Section 6.2.9 - HEIGHT (R-E) (175-10.19)

- A. Buildings may be erected up to four (4) stories, but not to exceed fifty-five (55) feet in height.
- B. No accessory building shall be more than two (2) stories high. All accessory buildings shall be less than the main building in height.

Section 6.2.10 - CORNER LOTS (R-E) (175-10.20)

- A. Of the two (2) sides of a corner lot, the front shall be deemed to be either of the two (2) sides fronting on streets.
- B. The side yard on the side facing the side street shall be one hundred (100) feet or more for both main and accessory buildings.
- C. Each corner lot shall have a minimum width at the setback line of two hundred twenty-five (225) feet.

DIVISION 6.3 - SUBURBAN RESIDENTIAL DISTRICT (R-S)

(Adopted 5-9-05)

Section 6.3.1 - STATEMENT OF INTENT (R-S) (175-10.21)

The R-S Suburban Residential District is composed of quiet, low-density residential areas, on suburban-sized lots, plus undeveloped areas where similar residential construction appears likely to occur. The standards set forth for this district are designed to stabilize and protect the essential character of the areas so delineated, to answer a need in the Town for residential development on larger lots on public water and sewer than are traditional or currently being developed, to promote and encourage a suitable environment for family life where there are children, to provide areas for suitable expansion of the Town as facilities are provided and to prohibit all commercial activities. Development is, therefore, limited to suburban-style concentration, and permitted uses are limited to single-unit dwellings, plus selected additional uses, such as public facilities that serve the residents of the district. Mobile homes or rooming houses are prohibited.

Section 6.3.2 - USES PERMITTED BY RIGHT (R-S) (175-10-22)

A. Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-S District, the following uses of land and buildings are permitted by-right in the R-S District:

RESIDENTIAL:

Single-family dwellings, detached

COMMERCIAL:

INDUSTRIAL:

ORGANIZATIONAL:

MISCELLANEOUS:

Accessory uses, structures and buildings

Home occupations

Open space and conservation areas

Public facilities

Public parks and playgrounds

Public utilities

Signs, as set forth in **Article 10**

Special childcare services

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator

Section 6.3.3 - USES PERMITTED BY ~~SPECIAL PERMIT~~ SPECIAL USE PERMIT (R-S) (175-10.23)

A. The following uses are permitted within the R-S District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-S District:

RESIDENTIAL:

COMMERCIAL:

Bed and Breakfasts, as set forth in **Section 8.1.2**

Day care, and day-care facilities as set forth in the **Section 8.1.2 of this chapter**

INDUSTRIAL:

ORGANIZATIONS:

Churches

Public Libraries

Schools

MISCELLANEOUS:

Any use permitted under **Section 6.3.3**, or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of **Section 6.3.9** subject to the requirements of **Division 5**. Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.3.4 - MODEL HOMES AND SALES OFFICES (R-S) (175-10.24)

Model homes and sales offices for the marketing of residential dwellings within a specific development in the R-S Suburban Residential District shall be permitted in an R-S Suburban Residential Zoning District upon approval of a zoning permit by the Zoning Administrator, subject to the following conditions:

A. The Zoning Administrator shall review and approve or deny all requests for permits authorizing model homes and sales offices for the marketing of residential dwellings within a specific development. In assessing a request for a permit, the Zoning Administrator shall consider the necessity for the model home and/or sales office, its location and its effects on the surrounding neighborhood and/or adjoining property and may require terms and conditions on the location, appearance and such other reasonable conditions as the Zoning Administrator shall deem necessary.

B. The model home shall be a standard site-built home similar in type and appearance to the other homes sold in the development and shall be used as a residential dwelling after expiration of the model home zoning permit.

C. Only one (1) sales office shall be approved for a development, regardless of the number of phases. A sales office must be located in a model home in the event that the development has an approved model home. Such sales offices shall be restricted to the marketing of residential dwellings at the specific development in question, and no other business whatsoever shall be conducted on the premises.

D. The request for a model home and/or sales office shall be filed by the developer.

E. Each model home and/or sales office shall have a minimum of four (4) off-street parking spaces in addition to other parking spaces required by this chapter.

F. All model homes and sales offices must be connected to Town water and sewer and must provide rest room facilities for the public.

G. The maximum allowable period for the operation of a model home or sales office shall be one (1) year. Applications for renewal for successive six-month periods may be submitted if additional time is necessary to complete sales within the development. All renewal applications must be filed at least thirty (30) days prior to the expiration of the original model home or sales office permit.

H. The Zoning Administrator, in granting a model home or sales office permit, may require the posting of a bond to ensure that the model home and sales office terms and conditions are adhered to and to ensure that the operations cease and the site is left in good order at the expiration of the permit.

Section 6.3.5 - AREA AND FRONTAGE (R-S) (175-10.25)

Area and frontage regulations shall be as follows:

A. Minimum area per lot: one-half ($\frac{1}{2}$) acre (twenty-one thousand seven hundred eighty square ft)

B. Minimum width at setback line: one hundred fifty (150) feet.

Section 6.3.6 - SETBACK (R-S) (175-10.26)

Structures shall be located fifty (50) feet or more from any street right-of-way which is fifty (50) feet or greater in width or seventy-five (75) feet or more from the center of any street right-of-way less than fifty (50) feet in width; however, no building need be set back more than the average of the setback of the immediately adjoining structures on either side. A vacant lot may be assumed to be occupied by a building having a minimum setback.

Section 6.3.7 - YARDS (R-S) (175-10.27)

A. Side: The minimum total width of the side yards shall be fifty (50) feet, with no one (1) side yard being less than twenty (20) feet.

B. Rear: Each rear yard shall be a minimum of fifty (50) feet.

C. Front: The required depth of the front yard shall be as provided in Section 6.3.6.

D. Accessory buildings shall be setback from side and rear property lines by no less than fifteen (15) feet.

Section 6.3.8 - LOT COVERAGE (R-S) (175-10.28)

The maximum building coverage shall be twenty-five percent (25%).

Section 6.3.9 - HEIGHT (R-S) (175-10.29)

A. Buildings may be erected up to three and one-half (3 1/2) stories, but not to exceed forty-five (45) feet in height.

B. A public or semipublic building, such as a school, church or library, may be erected to a height of sixty (60) feet from grade, provided that required front, side and rear yards shall be increased one (1) foot for each foot in height over fifty (50) feet.

C. Church spires, belfries, cupolas, municipal water towers, chimneys, flues, flagpoles, television antennas and radio aerials are exempt. Parapet walls may be up to four (4) feet above the height of the building on which the walls rest.

D. No accessory building which is within twenty (20) feet of any lot line shall be more than one (1) story high. All accessory buildings shall be less than the main building in height.

Section 6.3.10 - 175-10.30 CORNER LOTS (R-S)

A. Of the two (2) or more yards of a corner lot with frontage along multiple streets, the front yard shall be established by the following criteria:

1. For new subdivision applications, the front yard shall be identified by the applicant on the subdivision site plan and approved by the Town on the approved final plat.
2. For new construction on existing corner lots where no front yard is designated on the approved final plat, the property owner shall determine the front yard on the Zoning Permit application and shall be approved by the Town on the approved Zoning Permit.
3. For existing structures, the front yard shall be the yard with frontage that the front façade of the primary building faces.
4. The approved front yard established by this Code Section shall only be changed by review and approval of a revised final plat approved by the Planning Commission. Such future requests shall be approved if the Planning Commission determines that the proposed front yard is consistent with other properties along the same street frontages.

B. The side yard setback on the side facing the side street shall be fifty (50) feet or more for main buildings, and fifty (50) feet or more for accessory buildings.

C. Each corner lot shall have a minimum width at the setback line of two hundred (100) feet.

D. The rear yard setback if facing a street shall be fifty (50) feet or more for both main and accessory buildings.

DIVISION 6.4 - RESIDENTIAL DISTRICT (R-1)

Section 6.4.1 - STATEMENT OF INTENT (R-1) (175-11)

The R-1 District is composed of quiet, low-density residential areas, plus undeveloped areas where similar residential construction appears likely to occur. The standards set forth for this district are designed to stabilize and protect the essential character of the areas so delineated, to promote and encourage a suitable environment for family life where there are children, to provide areas for suitable expansion of the Town as facilities are provided and to prohibit all commercial activities. Development is, therefore, limited to relatively low concentration, and permitted uses are limited to single-unit dwellings, plus selected additional uses, such as schools, parks, churches and certain public facilities that serve the residents of the district. Mobile homes or rooming houses are prohibited.

Section 6.4.2 - USES PERMITTED BY RIGHT(R-1) (175-12)

A. Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-1 District, the following uses of land and buildings are permitted by-right in the R-1 District:

RESIDENTIAL:

Single-family dwellings, detached

COMMERCIAL:

INDUSTRIAL:

ORGANIZATIONAL:

Churches

Public libraries

Schools

MISCELLANEOUS:

Accessory uses, structures and buildings

Home occupations

Open space and conservation areas

Public facilities

Public parks and playgrounds

Public utilities

Signs, as set forth in Article 10

Special childcare services

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator

Section 6.4.3 - USES PERMITTED BY ~~SPECIAL PERMITS~~SPECIAL USE PERMIT (R-1) (175-12.1)

A. The following uses are permitted within the R-1 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-1 District:

RESIDENTIAL:

COMMERCIAL:

Bed and Breakfasts, as set forth in Section 8.1.3

Day care, and day-care facilities as set forth in the Section 8.1.2 of this chapter

INDUSTRIAL:

ORGANIZATIONAL:

Community Centers.

Fire and Rescue Squads and Police Stations.

MISCELLANEOUS:

Any use permitted under Section 6.4.3, or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of Section 6.4.9 subject to the requirements of Division 5.1. Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.4.4 - MODEL HOMES AND SALES OFFICES (R-1) (175-12.2)

Model homes and sales offices for the marketing of residential dwellings within a specific development shall be permitted in an R-1 Residential Zoning District upon approval of a zoning permit by the Zoning Administrator, subject to the following conditions:

A. The Zoning Administrator shall review and approve or deny all requests for permits authorizing model homes and sales offices for the marketing of residential dwellings within a specific development. In assessing a request for a permit, the Zoning Administrator shall consider the necessity for the model home and/or sales office, its location and its effects on the surrounding neighborhood and/or adjoining property and may require terms and conditions on the location, appearance and such other reasonable conditions as the Zoning Administrator shall deem necessary.

B. The model home shall be a standardly constructed home similar in type and appearance to the other homes sold in the development and shall be used as a residential dwelling after expiration of the model home zoning permit.

C. Only one (1) sales office shall be approved for a development, regardless of the number of phases. A sales office must be located in a model home in the event that the development has an approved model home. Otherwise, the sales office shall be located in a residential home located in the development. In assessing a request for a sales office, the Zoning Administrator shall consider the necessity for the sales office, its location and its effect on the surrounding neighborhood and/or adjoining property and may require terms and conditions on the location, appearance and other such reasonable conditions as the Zoning Administrator shall deem necessary. Such sales offices shall be restricted to the marketing of residential dwellings at the specific development in question, and no other business whatsoever shall be conducted on the premises.

D. The request for a model home and/or sales office shall be filed by the developer.

E. Each model home and/or sales office shall have a minimum of four (4) off-street parking spaces in addition to other parking spaces required by this chapter.

F. All model homes and sales offices must be connected to Town water and sewer and must provide rest room facilities for the public.

G. The maximum allowable period for the operation of a model home or sales office shall be one (1) year. Applications for renewal for successive six-month periods may be submitted if additional time is necessary to complete sales within the development. All renewal applications must be filed at least thirty (30) days prior to the expiration of the original model home or sales office permit.

H. The Zoning Administrator, in granting a model home or sales office permit, may require the posting of a bond to ensure that the model home and sales office terms and conditions are adhered to and to ensure that the operations cease and the site is left in good order at the expiration of the permit.

I. The Zoning Administrator may establish such additional requirements and conditions as may be in the best interests of the Town of Front Royal.

Section 6.4.5 - AREA AND FRONTAGE (R-1) (175-13)

Area and frontage regulations shall be as follows:

A. On-lot water and sewer:

1. Minimum area per lot: forty thousand (40,000) square feet.
2. Minimum width at setback line: one hundred (100) feet.

B. Public water or public sewer:

1. Minimum area per lot: thirty thousand (30,000) square feet.

2. Minimum width at setback line: eighty (80) feet.

C. Public water and public sewer:

1. Minimum area per lot: ten thousand (10,000) square feet.

1. Minimum width at setback line: seventy-five (75) feet.

Section 6.4.6 - SETBACK (R-1) (175-14)

Structures shall be located thirty-five (35) feet or more from any street right-of-way which is fifty (50) feet or greater in width or fifty-five (55) feet or more from the center of any street right-of-way less than fifty (50) feet in width; however, no building need be set back more than the average of the setback of the immediately adjoining structures on either side. A vacant lot fifty (50) feet or more in width may be assumed to be occupied by a building having a minimum setback.

Section 6.4.7 - YARDS (R-1) (175-15)

A. Side: The minimum total width of the side yards shall be twenty-five (25) feet, with no one (1) side yard being less than ten (10) feet.

B. Rear: Each rear yard shall be a minimum of thirty (30) feet.

C. Front: The required depth of the front yard shall be as **provided in Section 6.4.6**. On lots of less than two (2) acres in size or where the front yard provided for any single-family dwelling is less than 150 feet, the main or front building facade and entrance shall be oriented toward the front yard of the property, unless an administrative variance is granted pursuant to **Section 5.1.2**.

D. Accessory buildings shall be set back from side and rear property lines by no less than five (5) feet.

Section 6.4.8 - LOT COVERAGE (R-1) (175-16)

The maximum building coverage shall be thirty percent (30%).

Section 6.4.9 - HEIGHT (R-1) (175-17)

A. Buildings may be erected up to two and one-half (2 1/2) stories, but not to exceed thirty-five (35) feet in height.

B. A public or semipublic building, such as a school, church or library, may be erected to a height of sixty (60) feet from grade, provided that required front, side and rear yards shall be increased one (1) foot for each foot in height over thirty-five (35) feet.

C. Church spires, belfries, cupolas, municipal water towers, chimneys, flues, flagpoles, television antennas and radio aerials are exempt. Parapet walls may be up to four (4) feet above the height of the building on which the walls rest.

D. No accessory building which is within twenty (20) feet of any party lot line shall be more than one (1) story high. All accessory buildings shall be less than the main building in height.

Section 6.4.10 - CORNER LOTS (R-1) (175-18)

A. Of the two (2) or more yards of a corner lot with frontage along multiple streets, the front yard shall be established by the following criteria:

1. For new subdivision applications, the front yard shall be identified by the applicant on the subdivision site plan and approved by the Town on the approved final plat.
2. For new construction on existing corner lots where no front yard is designated on the approved final plat, the property owner shall determine the front yard on the Zoning Permit application and shall be approved by the Town on the approved Zoning Permit.
3. For existing structures, the front yard shall be the yard with frontage that the front façade of the primary building faces.
4. The approved front yard established by this Code Section shall only be changed by review and approval of a revised final plat approved by the Planning Commission. Such future requests shall be approved if the Planning Commission determines that the proposed front yard is consistent with other properties along the same street frontages.

B. The side yard setback on the side facing the side street shall be thirty (30) feet or more for main buildings, and thirty-five (35) feet or more for accessory buildings.

C. Each corner lot shall have a minimum width at the setback line of one hundred (100) feet.

D. The rear yard setback if facing a street shall be fifty (50) feet or more for both main and accessory buildings.

DIVISION 6.5 - RESIDENTIAL DISTRICT (R-1A)

Section 6.5.1 - STATEMENT OF INTENT (R-1A) (175-18.1)

The R-1A District is designed to accommodate single-family and two-dwelling duplex residential development of a medium density on smaller individual lots. The standards for this district are designed to ~~stabilize and protect~~ maintain the character of the designated areas and to protect and encourage a suitable environment for family life, with a diversity of housing options and density choices to allow for aging in place, and different income levels, that are in line with intentions of the Neighborhood Residential Future Land Use Map designation. Optional cluster subdivision standards are included with the intent and purpose of providing greater flexibility for larger development projects. To ensure quality development, the added development flexibility is balanced with requirements that require additional open space and recreational amenities. These additional requirements support development with ~~higher-a~~ diversity of property values and housing choices; better preservation of the natural environment, tree canopy; and a more active and healthy community.

Section 6.5.2 - USE REGULATIONS (R-1A) (175-18.2)

A. Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-1A District, the following uses of land and buildings are permitted by-right in the R-1A District:

RESIDENTIAL:

Single-family dwellings, detached

Single-Family, attached

Two-Family dwellings (Duplex)

COMMERCIAL:

INDUSTRIAL:

ORGANIZATIONAL:

Churches

Schools

MISCELLANEOUS:

Accessory uses, structures and buildings

Home occupations

Open space and conservation areas.

Public facilities, excluding Fire and Rescue Squads & Police Stations

Public parks and playgrounds

Public utilities

Signs, as set forth in **Article 10 of this chapter**

Special childcare services

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator

B. The following uses are permitted within the R-1A District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-1A District:

RESIDENTIAL:

COMMERCIAL:

Day care, and day-care facilities as set forth in **Section 8.1.2 of this chapter**

INDUSTRIAL:

ORGANIZATIONAL:

Fire and Rescue Squad & Police Stations.

Public Libraries.

Community Center.

MISCELLANEOUS:

Any use permitted under [Section 6.5.2](#), or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of [Section 6.2.8](#) subject to the requirements of [Division 5.1](#). Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line. Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.5.3 - AREA (R-1A) (175-18.3)

Notwithstanding the provisions of [Section 2.4.5](#), all newly established uses, with the exception of single-family dwellings, shall be required to meet the minimum area requirements at the time of establishment of the use.

A. Minimum lot size:

1. ~~Single-family~~Residential dwellings: seven thousand (~~57~~,000) square feet.
2. Schools: twenty thousand (20,000) square feet.
3. Churches: twenty thousand (20,000) square feet.
4. Parks and playgrounds: five thousand (5,000) square feet.
5. Public utilities: no regulation.
6. Other public facility uses: twenty thousand (20,000) square feet.

B. Minimum lot width:

1. ~~Single-family~~Residential dwellings:
 - a. Corner lots: seventy (70) feet.
 - b. Interior lots: fifty (50) feet.
2. Parks and playgrounds and public utilities: no regulation.
3. All other uses: one hundred (100) feet.

C. Minimum district size: ~~three-two~~ (~~32~~) acres.

Section 6.5.4 - HEIGHT (R-1A) (175-18.4)

A. ~~Single-family~~Residential dwellings: thirty-five (35) feet maximum.

B. Public or semipublic buildings: forty-five (45) feet maximum, provided that the required front, side and rear yards are increased by two (2) feet for each foot in height over thirty-five (35) feet.

C. Exemptions from height requirements:

1. Church spires.
2. Belfries.

3. Cupolas.
4. Municipal water towers.
5. Chimneys.
6. Flues.
7. Flagpoles.
8. Television antennas.
9. Radio aerials.

D. Height of Accessory buildings and structures:

1. On lots with an area of less than ~~five tenths a half~~ (0.5) acre: two-thirds (2/3) height of principal structure, with the exception where the principal structure is a one-story building, an accessory building may match the height of the principal structure.
2. On lots with an area of ~~five tenths a~~ half (0.5) acre or more: not to exceed height of principal structure or thirty-five (35) feet, whichever is less.

Section 6.5.5 - MINIMUM YARD DIMENSIONS (R-1A) (175-18.5)

A. Single-family Residential dwellings:

1. Front setback: ~~twenty-five~~ twenty-five (25) feet.
2. Side: ~~seven-five~~ (75) feet.
3. Corner side: twenty-five ~~(25)~~ (25) feet.
4. Rear: ~~twenty-five~~ (25) feet.

B. Other principal structures:

1. Front setback: twenty-five ~~(25)~~ (25) feet.
2. Side: fifteen ~~(15)~~ (15) feet.
3. Rear: thirty ~~(30)~~ (30) feet.
4. Corner side: twenty-five (25) feet.

C. Accessory buildings and structures:

1. Front setback: ~~thirty (30) feet.~~ Accessory buildings shall all be behind the primary structure by five (5) feet.
2. Side: five (5) feet ~~or fifty percent (50%) of building height, whichever is greater.~~
3. Rear: five (5) feet ~~or fifty percent (50%) of building height, whichever is greater.~~
4. Corner side: ~~twenty-five~~ fifteen (15) feet.

D. Notwithstanding the provisions above, the front setback on any lot located within a block that is fifty percent (50%) or more developed shall conform with any consistently established setback along the block.

E. The main or front building facade and entrance for any residential dwelling shall be oriented toward the front yard of the property, unless an administrative variance is granted pursuant to [Section 5.1.2](#)

Section 6.5.6 - LOT COVERAGE (R-1A) (175-18.6)

A. Maximum building coverage, primary and accessory buildings: ~~thirty-five~~ sixty five percent (~~35~~65%)

~~B. Accessory building coverage: thirty percent (30%) of any required yard~~

Section 6.5.7 - OFF-STREET PARKING (R-1A) (175-18.7)

A. Space requirements:

1. Single-family dwellings: two (2) spaces per unit.

2. Duplexes: one (1) space per unit.

23. Churches/assembly area: one (1) space per four (4) fixed seats in the main assembly or one (1) per one hundred (100) net square feet.

43. Schools: one (1) space per employee plus parking space for assembly areas as provided in

Subsection A (2) above.

54. Libraries: one (1) space per one thousand (1,000) gross square feet.

B. Location: Minimum setback for driveways and parking: three (~~32~~) feet from side and rear property lines for parking areas consisting of no more than 4,500 square feet in area. All parking areas with more than 4,500 square feet in area shall meet the requirements of [Section 145-870](#)

C. Parking spaces where one car is parked behind another car are permitted in this district for individual dwelling units.

Section 6.5.8 - OPTIONAL CLUSTER DEVELOPMENT STANDARDS (R-1A) (175-18.8)

A. In lieu of the traditional design standards of [Sections 6.5.3 through 6.5.7](#), the following design standards may be used for cluster developments in the R-1A District.

1. Area

a. Minimum lot size: 5,500 square feet

b. Minimum lot width:

(1) Corner lots: sixty (60) feet

(2) Interior lots: fifty (50) feet

c. Minimum district size: twenty (~~2~~10) acres

2. Height

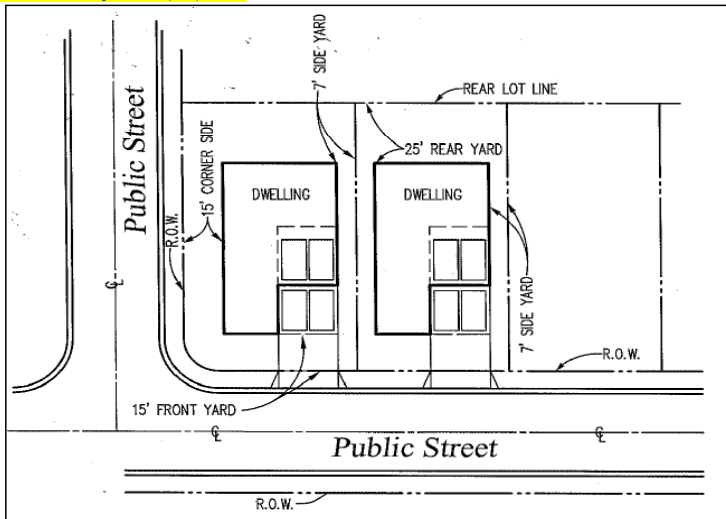
a. ~~Single family~~ Residential dwellings: thirty-five (35) feet maximum.

- b. Public or semipublic buildings: forty-five (45) feet maximum, provided that the required front, side and rear yards are increased by two (2) feet for each foot in height over thirty-five (35) feet.
- c. Exemptions from height requirements:
 - (1) Church spires.
 - (2) Belfries.
 - (3) Cupolas.
 - (4) Municipal water towers.
 - (5) Chimneys.
 - (6) Flues.
 - (7) Flagpoles.
 - (8) Television antennas.
 - (9) Radio aerials.
 - (10) Accessory buildings and structures: Not to exceed the height of principal structure, or thirty-five (35) feet, whichever is less.

3. Minimum Yard Dimensions.

a. ~~Single family~~ Residential dwellings, detached:

- (1) Front: Fifteen feet (15); provided that required off-street parking is at least eighteen (18) feet in length, and the required setbacks from any building are met as specified below under Section 6.5.8.A.5. An unenclosed porch may encroach within the required front yard an additional five (5) feet.
- (2) Side: ~~Seven-Five (75)~~ feet; except that the setback can be reduced to a minimum of ~~five-three (53)~~ feet when a separation of ~~fourteen-ten feet (1410)~~ feet is maintained between the adjacent structure.
- (3) Corner side: fifteen (15) feet; provided that any accessory building is not closer than other houses located along the same street.
- (4) Rear: Twenty five (25) feet.



- b. Accessory buildings and structures:
 - (1) Front: ~~fifteen (15) feet~~; Accessory buildings shall all be behind the primary structure by five (5) feet, provided that any accessory building is not closer than other houses located along the same street.
 - (2) Side: five (5) feet.
 - (3) Corner side: fifteen (15) feet; provided that any accessory building is not closer than other houses located along the same street.
 - (4) Rear: five (5) feet.
 - c. Notwithstanding the provisions above, the front setback on any lot located within a block that is fifty percent (50%) or more developed shall conform with any consistently established setback along the block.
 - d. The main or front building facade and entrance for any single-family dwelling shall be oriented toward the front yard of the property, unless an administrative variance is granted pursuant to Section 3.1.2 or alternatively, a special use permit, in accordance with Division 3.1, may be issued to allow frontage along open space areas when such request is submitted with a site plan or subdivision plan for review.
4. Lot Coverage.
- a. Maximum building coverage: ~~fifty-sixty five percent (5065%)~~.
5. Off-Street Parking.
- a. Space Requirements:
 - ~~(1) Single family dwellings: two (2) spaces per unit.~~
 - (2) Duplex: one (1) space per unit.
 - ~~(3) Churches/assembly area: one (1) space per four (4) fixed seats in the main assembly or one (1) per one hundred (100) net square feet.~~
 - ~~(4) Schools: one (1) space per employee, plus one (1) space per four (4) fixed seats in the main assembly, or alternatively for the latter, one (1) per one hundred (100) net square feet.~~
 - ~~(5) Libraries: one (1) space per one thousand (1,000) gross square feet.~~
 - b. Minimum setback for driveways and parking: three (3) feet from side and rear property lines for parking areas consisting of no more than 4,500 square feet in area. All parking areas with more than 4,500 square feet in area shall meet the requirements of Section 148-870.
 - c. As required under Section 148-870 A.10, required off-street parking spaces shall be setback at least five (5) feet from all buildings; excluding the setback between the side orientation of the parking space and a single-family detached dwelling, provided that a garage is provided that is recessed behind the front building façade of such dwelling.
 - d. Parking spaces where one car is parked behind another car are permitted in this district for individual dwelling units. Furthermore, within cluster subdivisions, regardless of other provisions within this Chapter or Chapter 148, up to one (1) space within a garage or carport may be counted as required off-street parking within a cluster development, provided that the minimum parking space dimensions are met.
6. Community Open Space.
- a. Minimum Community Open Space Area: A minimum amount of common open space shall be provided at the equivalence that the minimum lot area of all lots is reduced below 7,000 square feet. Below is an example of how the required minimum common open space for a cluster subdivision shall be calculated:

Commented [AD10]: If change excepted, must change numbering.

Total Number of Building Lots x 7,000 square feet = X

X - Total Area of Building Lots Proposed = Required Open Space

- b. No more than 50% of open space may be located within developmentally restricted areas, such as, but not limited to, the floodway.
- c. Surface water bodies may be included within common open space areas, but may not be counted towards the required amount of open space.
- d. Access to community open space shall be provided by adjoining street frontage. In lieu of adjoining street frontage, a 20-foot-wide public access easement may be authorized by the Planning Commission during the site plan or subdivision plan review process. In such consideration, the Planning Commission may require pedestrian improvements to ensure adequate access is provided to the common opens space.
- e. Cluster subdivisions shall provide recreational facilities within common open space based on the number of dwelling units. For the purpose of determining minimum requirements, one (1) recreational unit shall be provided for every 50 dwelling units.
 - (1) The number of recreational unit credits that each type of recreational facility receives shall be based on the table shown below.

Recreational Unit Type		Recreational Unit Credit
Playground, as described under 17A.8.3.6.2 (2)		1.5
Community Center, including an enclosed building with a meeting hall.		2.5
In-ground Swimming Pool with fencing.		2
Tennis Court Facility with fencing.		1
Pocket Park w/ vegetable gardens.		1
Pocket Park w/ meditation gardens.		1
Partial or full Athletic Fields or courts, such as soccer or baseball fields.		1
6' wide asphalt Hiking / Biking Trail (or other approved material)	≥ ¼ mile	1
	≥ 1 mile	2
	≥ 3 mile	3
	≥ 4 mile	4
Picnic Shelters with cooking facilities, picnic tables & trash receptacles.		1
Horseshoe pit and/or fire pit with seating area.		1
Covered structure with seating area		1
Improved/landscaped passive or active nature areas with wildflowers or edible landscaping or ornamental trees or orchards.		1
Neighborhood green/square of ½ acre or more with pathways.		1

Community park of 8 acres or more with pathways.	2
Other types of recreational facilities.	As equivalent to any of the above-listed types, as determined by the Planning Commission.

- (2) The first recreational unit type of a cluster subdivision shall consist of a playground, with the amenities described below. Alternative recreational unit types for the first recreational unit may be permitted by the Planning Commission for age-restricted communities.

1. A playground shall consist of a composite play system, or systems, with eight (8) play features and a sitting bench.

TABLE 5.5.8.A.6.e.(2)i.

Example Playground Recreational Unit Type

Quantity	Equipment
Minimum 2	2 to 5 year-old play features
Minimum 1	Slides
Minimum 1	Climbing features
Minimum 1	Overhead features
Minimum 1	Tunnels
Minimum 1	Play panels
Minimum 1	Swings (8 feet high, 2 seats)
Minimum 1	Sitting bench

2. Playgrounds shall be constructed to specifications equivalent to those issued by the U.S. Consumer Product Safety Commission in the document *Public Playground Safety Handbook (2010)*, or as may be amended in the future.
- (3) Each home shall be within one-quarter (1/4) of a mile from at least one qualifying recreational unit facility.
- (4) Recreational facilities shall be constructed in sequence with the phasing of development for the cluster subdivision.
- (5) Recreational facilities shall conform to the Virginia Uniform Statewide Building Code, including Handicap Accessibility (ADA) Standards.
- (6) Buildings or structures used for community recreational purposes may be located within transitional yards, as required below, but shall conform with the minimum setback requirements for principle structures.
- (7) Common open space, including all recreational units, shall be maintained in good condition by the developer until such time that it is dedicated to a Homeowner's Association or accepted as a public park by Warren County or the Town of Front Royal.
7. Transitional Yard. A minimum transitional yard area is required between any principal building and the following:

- a. Any planned limited access roadway (i.e. no curb cuts for individual driveways):
Minimum ~~25~~15 feet
- b. Any adjoining development that is not part of the R-1A cluster subdivision, unless such adjoining property shares the same ownership as the R1-A cluster subdivision:
Minimum ~~50~~30 feet.

DIVISION 6.6 - RESIDENTIAL DISTRICT (R-2)

Section 6.6.1 - STATEMENT OF INTENT (R-2) (175-19)

The R-2 District is composed of medium-density concentrations of residential uses and open areas where similar development appears likely to occur. The standards for this district are designed to stabilize and protect the essential character of the area so designated and to protect and encourage, insofar as compatible with the intensity of land use, a suitable environment for family life with a diversity of housing options and density choices to allow for aging in place, and different income levels, that are in line with intentions of the Neighborhood Residential Future Land Use Map designation. Development is, therefore, limited to low- to medium-density concentrations, and permitted uses are limited to single-family- and two-family-type, duplex and townhouse dwellings plus selected additional uses, such as schools, parks, churches and certain public facilities that serve the residents of the district. Home occupations, as defined by this chapter, are permitted. Mobile homes are prohibited.

Section 6.6.2 - USES PERMITTED BY RIGHT (R-2) (175-20)

Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-2 District, the following uses of land and buildings are permitted by-right in the R-2 District:

RESIDENTIAL:

Duplexes

Single-family dwellings, detached

Two-family dwellings

Townhouses

COMMERCIAL:

INDUSTRIAL:

ORGANIZATIONAL:

Churches

Schools

MISCELLANEOUS:

Accessory uses, structures and buildings.

Home occupations.

Open space and conservation areas.

Public facilities.

Public parks and playgrounds.

Public utilities.

Signs, as set forth in Section Article 10.

Special childcare services.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.6.3 - USES PERMITTED BY SPECIAL PERMIT/SPECIAL USE PERMIT (R-2) (175-20.1)

The following uses are permitted within the R-2 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-2 District:

RESIDENTIAL:

Multi-Family Dwelling Units

COMMERCIAL:

Bed and Breakfast Uses set forth in Section 8.1.3 of this chapter.

Day care, and day-care facilities as set forth in the Section 8.1.2 of this chapter.

Nursing homes, as set forth in Section 8.1.1

INDUSTRIAL:

ORGANIZATIONAL:

Fire and Rescue Squad & Police Stations

Public Libraries

Community Center (public)

MISCELLANEOUS:

Any use permitted under Section 6.6.2 or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of Section 6.6.10 subject to the requirements of Division 5.1. Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

~~Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.~~

Section 6.6.4 - MODEL HOMES AND SALES OFFICES (R-2) (175-20.2)

Model homes and sales offices for the marketing of residential dwellings within a specific development shall be permitted in an R-2 Residential Zoning District upon approval of a zoning permit by the Zoning Administrator, subject to the provisions and conditions set forth in ~~175-20.2~~ **Chapter Section 6.4.4**

Section 6.6.5 - AREA (R-2) (175-21)

The minimum lot area in R-2 Residential Districts shall be as follows:

A. The minimum lot size for a duplex structure is ~~eight-six~~ thousand (~~86,000~~) square feet. A duplex lot may be further subdivided into separate parcels for each dwelling unit of the duplex, provided that the resulting lot size for each duplex dwelling unit is a minimum of ~~four thousand three thousand~~ (~~43,000~~) square feet.

B. The minimum lot size for a townhouse structure is eight thousand (8,000) square feet.

B. The minimum lot size for all other uses is ~~eight-five~~ thousand (~~85,000~~) square feet.

Section 6.6.6 - SETBACK (R-2) (175-22)

Structures shall be located thirty (30) feet or more from any street right-of-way which is fifty (50) feet or greater in width or fifty-five (55) feet or more from the center of any street right-of-way less than fifty (50) feet in width; however, no building need be set back more than the average of the setbacks of the immediately adjoining structures on either side. A vacant lot fifty (50) feet or more in width may be assumed to be occupied by a building having a minimum setback.

Section 6.6.7 - FRONTAGE (R-2) (175-23)

The minimum lot width at the setback line shall be seventy (570) feet.

Section 6.6.8 - YARDS (R-2) (175-24)

A. Side: Each side yard shall be a minimum of ten (405) feet.

B. Rear: Each rear yard shall be a minimum of twenty-five (25) feet.

C. Front: The required depth of the front yard shall be as provided in Section 6.6.6. The main or front building facade and entrance for any residential structure shall be oriented toward the front yard of the property, unless an administrative variance is granted pursuant to Section 5.1.2.

D. Accessory buildings shall be setback from side and rear property lines by no less than five (5) feet. No accessory building is permitted within a required front yard.

Section 6.6.9 - LOT COVERAGE (R-2) (175-25)

The maximum building coverage shall be thirty-five percent (435%).

Section 6.6.10 - HEIGHT (R-2) (175-26)

A. Buildings may be erected up to two and one-half (2 1/2) stories, but not to exceed thirty-five (35) feet in height.

B. A public or semipublic building, such as a school, church or library, may be erected to a height of sixty (60) feet from grade, provided that required front, side and rear yards shall be increased one (1) foot for each foot in height over thirty-five (35) feet.

C. Church spires, belfries, cupolas, municipal water towers, chimneys, flues, flagpoles, television antennas and radio aerials are exempt. Parapet walls may be up to four (4) feet above the height of the building on which the walls rest.

D. Accessory buildings over one (1) story in height shall be at least ten (10) feet from any lot line. All accessory buildings shall be less than the main building in height.

Section 6.6.11 - CORNER LOTS (R-2) (175-27)

A. Of the two (2) or more yards of a corner lot with frontage along multiple streets, the front yard shall be established by the following criteria:

1. For new subdivision applications, the front yard shall be identified by the applicant on the subdivision site plan and approved by the Town on the approved final plat.
2. For new construction on existing corner lots where no front yard is designated on the approved final plat, the property owner shall determine the front yard on the Zoning Permit application and shall be approved by the Town on the approved Zoning Permit.
3. For existing structures, the front yard shall be the yard with frontage that the front façade of the primary building faces.
4. The approved front yard established by this Code Section shall only be changed by review and approval of a revised final plat approved by the Planning Commission. Such future requests shall be approved if the Planning Commission determines that the proposed front yard is consistent with other properties along the same street frontages.

B. The side yard setback on the side facing a side street shall be twenty-five (25) feet or more for main buildings, and thirty (30) feet or more for accessory buildings.

C. Each corner lot shall have a minimum width at the setback line of one hundred (~~400~~50) feet.

D. The rear yard setback if facing a street shall be fifty (~~50~~40) feet or more for both main and accessory buildings.

DIVISION 6.7 - RESIDENTIAL DISTRICT (R-3)

Section 6.7.1 - STATEMENT OF INTENT (R-3) (175-28)

The R-3 Residential District is composed of medium-to-high density concentrations of residential uses. The standards for this district are designed to stabilize and protect the essential character of the area so designated and to promote and encourage, insofar as compatible with the intensity of land use, a suitable environment for families desiring the amenities of apartment living and the convenience of being closest to shopping, employment centers and other community facilities. Development is, therefore, limited to medium- to high-density concentration, and permitted uses are limited to single-family, two-family and multi-family dwellings, plus selected additional uses,

such as schools, parks, churches and certain public facilities. Home occupations, as defined by this chapter, are permitted. Mobile homes are prohibited.

Section 6.7.2 - USES PERMITTED BY RIGHT (R-3) (175-29)

A. Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-3 District, the following uses of land and buildings are permitted by-right in the R-3 District:

RESIDENTIAL:

Duplexes.

Single-family dwellings, detached

Townhouses developed on sites of twenty thousand (20,000) square feet up to one (1) acre as set forth in Division 9.6

Two-family dwellings.

COMMERCIAL:

Hospitals and other semipublic facilities of an institutional nature.

Pharmaceutical centers as set forth in Division 9.4 of this chapter

Professional offices as set forth in Division 9.4 of this chapter

Nursing homes, as set forth in Section 8.1.1

INDUSTRIAL:

ORGANIZATIONS:

Churches

Schools

MISCELLANEOUS:

Accessory uses, structures and buildings.

Home occupations.

Open space and conservation areas.

Public facilities.

Public parks and playgrounds.

Public utilities.

Signs, as set forth in Article 10

Special childcare services.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.7.3 - USES PERMITTED BY ~~SPECIAL PERMITS~~SPECIAL USE PERMIT (R-3) (175-30)

The following uses are permitted within the R-3 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the R-3 District:

RESIDENTIAL:

Apartments as set forth in Division 9.7

Townhouses on sites over one (1) acre, as set forth in Division 9.6

COMMERCIAL:

Bed and Breakfast Uses set forth in Town Code Section 8.1.3

Community Centers (public).

Conversion of a structure originally designed and intended for occupancy as a single-family dwelling into a structure with more than one (1) dwelling.

Day care, and day-care facilities as set forth in the Town Code Section 8.1.2

Nursing homes, as set forth in Section 8.1.1

INDUSTRIAL:

ORGANIZATIONAL:

Art galleries and museums.

Fire and Rescue Squad & Police Stations

Public Libraries

Community Center (public)

MISCELLANEOUS:

Any use permitted under Section 6.7.2 or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of Section 6.7.11, subject to the requirements of Division 5.1. Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Cemetery, subject to the provisions in Section 8.1.5

Lodging houses, rooming houses and boarding houses.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.7.4 - MODEL HOMES AND SALES OFFICES (R-3) (175-30.1)

Model homes and sales offices for the marketing of residential dwellings within a specific development shall be permitted in an R-3 Residential Zoning District upon approval of a zoning permit by the Zoning Administrator, subject to the provisions and conditions set forth in this chapter **Section 6.7.4**

Section 6.7.5 - AREA (R-3) (175-31)

The minimum lot area in R-3 Residential Districts shall be as follows:

A. The minimum lot size for a duplex structure is seven thousand five hundred (7,500) square feet. A duplex lot may be further subdivided into separate parcels for each dwelling unit of the duplex, provided that the resulting lot size for each duplex dwelling unit is a minimum of three thousand seven hundred fifty (3,750) square feet.

B. The minimum lot size for townhouses shall be as stated in **Division 9.6 of this chapter**

C. The minimum lot size for apartments shall be as stated in **Division 9.7 of this chapter**

D. The minimum lot size for all other uses is six **thousand (6,000) square** feet. An additional one thousand five hundred (1,500) square feet shall be required for each additional dwelling unit above one (1) for all residential uses other than townhouses, apartments and duplexes.

Section 6.7.6 - SETBACK (R-3) (175-32)

Structures shall be located thirty (30) feet or more from any street right-of-way which is fifty (50) feet or greater in width or fifty-five (55) feet or more from the center of any street right-of-way less than fifty (50) feet in width; however, no building need be set back more than the average of the setbacks of the immediately adjoining structures on either side. A vacant lot fifty (50) feet or more in width may be assumed to be occupied by a building having a minimum setback.

Section 6.7.7 - SETBACK WIDTHS (R-3) (175-33)

A. The minimum lot width at the setback line shall be sixty (60) feet.

B. Notwithstanding the provisions of Subsection A, the minimum lot width at the setback line shall be consistent with the established lot width at the setback line for abutting lots fronting the same road or street on either side of the lot to be subdivided, provided as follows:

1. Subsection B shall only apply in cases of new subdivision or re-subdivision involving the creation of four (4) or fewer new lots.
2. Subsection B shall only apply in cases where the aforesaid abutting lots were established and in existence prior to April 10, 1978.
3. Under no circumstances shall the minimum lot width at the setback line for newly created lots be less than fifty (50) feet, regardless of the setback width of the abutting lots.

4. All corner lots shall be governed by the provisions of [Section 5.7.11c](#).
5. Where abutting lots have differing widths at their setback lines, the minimum setback width for newly created lots shall be consistent with the larger of the two abutting lots, or sixty (60) feet, whichever is lesser.
6. An "abutting lot" is defined as a lot sharing a common side yard boundary with the lot to be subdivided and fronting the same street as the lot to be subdivided.

Section 6.7.8 - YARDS (R-3) (175-34)

A. Side: Each side yard shall be a minimum of seven (7) feet.

B. Rear: Each rear yard shall be a minimum of twenty-five (25) feet.

C. Front: The required depth of the front yard shall be as provided in [Section 5.7.6](#). The main or front building facade and entrance for any single-unit residential structure, including duplexes and townhouses, shall be oriented toward the front yard of the property, unless an administrative [variance is granted pursuant to Section 175-147.1](#).

D. Accessory buildings shall be set back from side and rear property lines by no less than five (5) feet. No accessory building is permitted within a required front yard.

Section 6.7.9 - LOT COVERAGE (R-3) (175-35)

The maximum building coverage shall be forty percent (40%) unless as otherwise herein provided.

Section 6.7.10 - HEIGHT (R-3) (175-36)

A. Structures may be erected up to thirty-five (35) feet in height, except that:

1. The height limit for structures may be increased up to sixty (60) feet and up to five (5) stories, provided that required front, side and rear yards shall be increased one (1) foot for each foot of building height over thirty-five (35) feet.
2. Church spires, belfries, cupolas, monuments, municipal water towers, chimneys, flues, flagpoles, television antennas and radio aerials are exempt. Parapet walls may be up to four (4) feet above the height of the building on which the walls rest.

B. Accessory buildings over one (1) story in height shall be at least ten (10) feet from any lot line. All accessory buildings shall be less than the main building in height.

Section 6.7.11 - CORNER LOTS (R-3) (175-37)

A. Of the two (2) or more yards of a corner lot with frontage along multiple streets, the front yard shall be established by the following criteria:

1. For new subdivision applications, the front yard shall be identified by the applicant on the subdivision site plan and approved by the Town on the approved final plat.
2. For new construction on existing corner lots where no front yard is designated on the approved final plat, the property owner shall determine the front yard on the Zoning Permit application and shall be approved by the Town on the approved Zoning Permit.
3. For existing structures, the front yard shall be the yard with frontage that the front façade of the primary building faces.
4. The approved front yard established by this Code Section shall only be changed by review and approval of a revised final plat approved by the Planning Commission. Such future requests shall

be approved if the Planning Commission determines that the proposed front yard is consistent with other properties along the same street frontages.

B. The side yard setback on the side facing a side street shall be twenty (~~20~~15) feet or more for main buildings, and thirty (~~30~~20) feet or more for accessory buildings.

C. Each corner lot shall have a minimum width at the setback line of one hundred (~~100~~50) feet.

D. The rear yard setback if facing a street shall be fifty (~~50~~40) feet or more for both main and accessory buildings.

DIVISION 6.8 - PLANNED NEIGHBORHOOD DEVELOPMENT DISTRICT (PND)

Section 6.8.1 - STATEMENT OF INTENT (PND) (175-37.1)

Pursuant to Sections 15.2-2201 and 15.2-2286 of the Code of Virginia, the Town Council of the Town of Front Royal establishes the Planned Neighborhood Development (PND) zoning ordinance to allow planned neighborhood development on large tracts of land characterized by unified site design for a variety of housing types and densities, clustering of buildings, common open space, and a mix of building types and land uses in which project planning (as permitted herein) and density calculation are performed for the entire development rather than on an individual basis. The purposes of the ordinance are to provide an alternative form of development that:

A. Eliminates standard dimensional requirements while reserving sufficient natural open space for common use, conservation or recreational purposes, and providing adequate buffering between structures and adjacent properties;

B. Enhances the physical appearance of the Town by preserving the Town's natural assets and distinctive character;

C. Promotes more efficient use of land and provision of public facilities, utilities, streets, and services;

D. Provides the opportunity for innovative combinations of integrated housing, recreation, neighborhood-oriented commercial, professional uses, and increased public amenities within a single development;

E. Conserves natural and environmental resources and the integrity of natural systems;

F. Encourages innovative residential development so that housing demands are met by a greater variety of types, designs, and layouts of residential structures;

G. Encourages creative and site-sensitive developments by allowing increased overall density in exchange for planned neighborhood development pursuant to this chapter.

H. Promotes the design of a walkable environment for pedestrians within the neighborhood which provides a circulation system for various transportation modes.

I. Satisfies the general purposes of zoning regulations to promote health, safety, morals and general welfare of the community.

Section 6.8.2 - EVALUATION CRITERIA (PND) (175-37.2)

Application for rezoning to a Planned Neighborhood Development District shall specifically demonstrate achievement of the following objectives. Each proposed Planned Neighborhood Development will be evaluated on the extent to which these objectives are achieved:

- A. Provides a variety of housing types and designs at a range of densities and costs in an orderly relationship to one another.
- B. Employs architectural, landscape and/or other design features to provide compatibility between different uses.
- C. Includes a network of circulation systems for various transportation modes that connect to the surrounding area.
- D. Conserves a minimum of 25% open space, incorporating a system of parks, open spaces, recreational facilities, and public amenities within the development which enhance the total plan of development.
- E. Efficiently utilizes land to protect and preserve natural features such as trees, streams, and topographic features.
- F. Provides a mechanism to relate the type, design and layout of proposed development to the specific characteristics of the particular parcel.
- G. Exhibits consistency with the Town's Comprehensive Plan and provides overall benefits to the Town.
- H. Demonstrates adequate capacity of public facilities and utilities to serve the development.
- I. Minimizes traffic impacts upon the surrounding traffic network.

Section 6.8.3 - PERMITTED USES (PND) (175-37.3)

A. All planned neighborhood developments shall permit the following residential and accessory uses:

- 1. Detached single-family dwellings;
- 2. Two-family dwellings;
- 3. Multi-family dwellings;
- 4. Townhouses with a maximum of eight units per structure;
- 5. Accessory buildings or uses as defined in Article 11
- 6. Recreation or park facilities;

7. Retirement living facilities (handicapped accessible)
8. Municipal buildings or uses;
9. Public utilities: poles, lines, booster and relay stations, distribution transformers, pipes, meters and other facilities necessary for the provision and maintenance of public utilities, including water and sewerage systems. Such utilities shall be buried or otherwise screened in accordance with design standards of the development;
10. Home Occupations as set forth in **Division 8.3**
11. Public libraries;
12. Schools; and
13. Churches.
14. Special childcare services.
15. Open space and conservation areas.
16. Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

B. Planned neighborhood developments shall permit the following community and institutional uses under the terms set forth in **Section 6.3.4**, Density Bonus:

1. Day care centers; and
2. Community Halls

C. Planned neighborhood developments comprising 50 acres or more may contain the uses permitted in subsections A and B as well as the following commercial uses:

1. Neighborhood-oriented commercial businesses;
2. Personal services;
3. Business or professional offices; and
4. Neighborhood restaurants; and
5. Banks, branch banks and financial institutions.

D. Planned neighborhood developments may include the following uses provided such uses are either specifically approved as part of the original development plan or approved by special use permit in accordance with **Division 5.4** if proposed subsequent to approval of the Master Land Use Plan.

1. Bed and Breakfast home
2. Assisted Living Facility or other nursing home as permitted in the R-3 District.

3. Automotive fuel facilities in conjunction with neighborhood retail stores, provided adequate demonstration is made that the facility can be supported by the neighborhood in which it is located without attracting additional traffic into the neighborhood. Such facilities shall not include the storage or sale of automobiles, automotive mechanical or body repair work, painting, welding or other activities not normally associated with the dispensing of gasoline.

4. Art galleries and museums.

E. Except as otherwise specified for PND's, proposed uses within a PND shall be subject to the provisions set forth for such use in [this Zoning Ordinance](#)

F. Prohibited Uses

Junkyards, off-site signage, used automobiles and truck/trailer sales, manufactured and mobile homes, outdoor storage yards, and industrial uses are prohibited in a Planned Neighborhood Development.

Section 6.8.4 - STANDARDS (PND) (175-37.4)

A. Planned neighborhood developments shall contain not less than 20 contiguous acres.

B. The project area must be held in single ownership or all property owners within the proposed district must participate in the application.

C. Planned neighborhood developments shall be served by municipal water and sewer service and municipal electric service if located within the Town's electric service area.

D. Allowable base residential density. Overall residential density shall not exceed the overall allowable residential density of the parcel or parcels involved prior to the re-zoning, dedicated to uses other than the commercial uses set forth in [Sections 6.8.3 B and C](#). This base residential density may be increased at the Town Council's discretion up to a maximum of 6.0 dwelling units per acre.

E. Conservation lands. Lands with the following characteristics shall not be developed and shall not be platted as part of a residential, community, institutional or commercial lot within a planned neighborhood development: land within the 100-year flood plain; land with a natural slope in excess of 40 percent, and as determined by standard slope computation methods. These lands shall be designated on the plat for conservation purposes. Conservation lands may be used in computing the allowable base residential density. Nontidal wetlands may be platted, but shall be protected by preservation easements.

F. Management and ownership of common open space and facilities. All common spaces, properties, and facilities not deeded to the Town or other public entity shall be preserved for their intended purpose as specified on the approved plan. The developer shall provide for the establishment of a property owner's association conforming to the Virginia Property Owners' Association Act, Code of Virginia (1950) as amended, to ensure the maintenance of all common areas.

Section 6.8.5 - REVIEW AND CREATION OF THE PLANNED NEIGHBORHOOD DEVELOPMENT DISTRICT (PND) (175-37.5)

Whenever a tract of land meets the minimum requirements for classification as a PND district as stipulated herein, the owner may file an application with the Director of Planning, requesting rezoning to this classification. A preliminary conference with staff prior to such filing is required.

A. Concept Plan:

1. Procedure: The owner may present and file with the Director of Planning a Concept Plan for the project, along with the fee established in the schedule of fees, showing the rough layout of major roads within the project, and such areas within the project as may be planned for particular uses or mixtures of uses, as outlined below. Upon receipt, the Director of Planning shall forward the Concept Plan to the Planning Commission for review and comment. The Planning Commission may recommend to the Town Council approval, denial or modifications to the Concept Plan.

Upon review and recommendation by the Planning Commission the Director of Planning shall forward the Concept Plan to the Town Council for review and comment. The Town Council may approve, deny or approve conditionally with stated modifications. Approval of a Concept Plan is only an expression of apparent favor to be used in preparation of the PND Master Land Use Plan and does not authorize construction of improvements.

2. Submittal Requirements: The Concept Plan shall be prepared by a Virginia registered architect, landscape architect, land surveyor or engineer with seal and signature affixed to the plan. The plan shall be approximately to scale and clearly show the following:
 - a. Location map showing existing zoning and ownership of property and adjacent land;
 - b. Identification of principal natural features and/or unique site design features;
 - c. Relationship of the proposal with surrounding utilities and public facilities to serve the tract at the ultimate proposed densities;
 - d. The location and size of the components of the PND, including the general layout of the road system within the project, location of use areas within the project planned for particular uses or mixtures of uses and their acreage, residential densities, and the interior open space system and preservation areas;
 - e. Written description of the use areas;
 - f. A statement demonstrating consistency with the Town of Front Royal Comprehensive Plan, suitability of the tract for the type and intensity of the activities proposed, the anticipated availability of adequate road networks, and the objectives stated in [Section 6.8.1](#)

B. Master Land Use Plan: Within six months of the Town Council's approval or approval conditioned upon modifications of the Concept Plan, the developer/owner may prepare and file an application for an amendment to the official zoning map to a Planned Neighborhood Development (PND) District, as set forth in this chapter, together with the established in the schedule of fees for rezoning and an engineered Master Land Use Plan for development presenting a unified and organized arrangement of buildings, service areas, parking, landscaped areas, recreation areas, open space and community facilities. All information submitted for consideration as a Master Land Use Plan shall be of sufficient clarity and scale to accurately identify the location, nature, and character of the proposed district. At a minimum the information contained on a Master Land Use Plan shall include:

1. A map of the boundaries of the proposed development site, showing bearings, dimensions at a scale not greater than one (1) inch to six hundred (600) feet;
2. A statement of existing property owner(s) and the proposed developer;
3. Names and addresses of adjacent property owners;
4. A vicinity map drawn at a scale of between one (1) inch equals two hundred 2,000 feet and showing the relation of the property.
5. Topographic map with contour lines at vertical intervals of not greater than five (5) feet at a minimum scale of one inch to 200 feet;
6. A site analysis map of existing conditions, including but not limited to the location and delineation of sensitive environmental features, any 100-year floodplain, watercourse, non-tidal wetlands, areas greater than 15-percent slope, and significant geologic formations or man-made features, existing structures and public facilities, historic landmarks, existing zoning on-site and surrounding areas;
7. The overall scheme of development including general layout of proposed land uses at a scale of one (1) inch equals two hundred (200) feet;
8. The location and acreage of recreation areas, open space and conservation areas, parks within the development;
9. The location, acreage and type of nonresidential areas and uses, and community/ public uses.
10. For each residential area shown, the total number of units in each by type and density;
11. An access and circulation plan showing the general location of all existing and proposed streets and easements of right-of-way, bridges, culverts, railroads, and utility transmission lines;
12. A traffic analysis and description of the base existing conditions and traffic volumes for the connecting external road network serving the site, projected average daily traffic for all new streets within the subdivision based on the proposed land uses and the traffic growth on adjacent highways, trip generation rates for peak hours by development and

phase, and internal/external trip distribution and intersection and capacity analysis, identifying off-site access and traffic control improvements generated by the traffic demands of the proposed project at full development;

13. The proposed general location of all building areas and other improvements, except single-family and two-family dwellings and accessory buildings;
14. Notations showing the total gross development acreage, the net development acreage, acreage devoted to each land use category, the number of dwelling units and overall development density of the project;
15. General intent and schematic plans for water, sanitary sewer, storm water management, electrical services, and other utilities;
16. An approximate development schedule/phasing plan;
17. A general description of proposed agreements, provisions, or covenants that govern the use, maintenance, and continued protection of property to be held in common ownership.
18. Municipal boundaries through the property.
19. A narrative statement demonstrating consistency with the Town of Front Royal Comprehensive Plan, suitability of the tract for the type and intensity of the activities proposed, and the planning purposes to be achieved by the proposed PND as stated in **Section 6.8.1** the design theme and major elements, principal site features, and environmental components integrated into the plan.
20. An impact assessment on the environment and on community facilities, services and taxes.
21. Demographic profile of proposed development (population, housing, school children and employment).
22. Other relevant data which may be used to evaluate the project.
23. A set of design guidelines describing the design principles for the site arrangement, standards for development including proposed yards, building heights, building architecture, open space characteristics, landscaping, hardscape, and buffering, and streetscapes related to scale, proportions, and massing at the edge of the district.

The design guidelines will establish the appearance standards to be used as the basis for the appearance review occurring concurrent with the site development review. The purpose of the appearance standards shall be:

- a. To encourage development that enhances the character of the Town;
- b. To enhance and protect property values by encouraging excellent design;
- c. To encourage architectural freedom, imagination and variety, and to encourage creative design solutions that will enhance the Town's visual appearance.

d. To promote harmonious unified development within a planned neighborhood.

C. Demonstration of Purposes: The purposes shall be demonstrated in each of the components as follows:

1. Relationship of Building Site:

- a. The proposed non-residential development shall be designed and sited to accomplish a desirable view as observed from adjacent streets.
- b. Parking areas shall be enhanced with decorative elements, building wall extensions, plantings, berms, or other appropriate means to screen parking areas from view from the streets and adjacent properties.

2. Relationship to Adjoining Areas:

- a. Adjacent buildings of different architectural styles shall be made compatible by use of screens, sight breaks, materials and other methods.
- b. Landscaping shall provide a transition to adjoining property and screening between residential and commercial uses, and for off-street commercial parking and loading areas from public view.
- c. Texture, building lines and mass shall be harmonious with adjoining property. Monotonous texture, lines and mass shall be avoided.

3. Building Design and Landscaping: The applicant shall provide a narrative for all building types describing compliance with the following, including dimensional and qualitative specifications.

- a. Quality of design and landscaping, and compatibility with surrounding uses for proposed nonresidential development. Architectural style is not restricted.
- b. Materials and finishes of good, sound architectural quality that are harmonious with adjoining buildings.
- c. Suitable materials for the type and design of the building. Materials that are architecturally harmonious shall be used for all exterior building walls and other exterior building components.
- d. Building components, such as windows, doors, eaves, and parapets with appropriate proportion and relationships to one another.
- e. Use of harmonious colors and compatible accents.
- f. Mechanical equipment or other utility hardware on roof, ground, or buildings screened from view with materials harmonious with the building.

- g. Non-Monotonous design with visual interest provided by variation in detail, form, and siting.
- h. Exterior lighting used as part of the architectural concept. Fixtures, standards, and all exposed accessories harmonious with the building design.
- i. Landscaping treatment creating unity of design, enhance architectural features, strengthen vistas, and provide shade.
- j. Plant materials selected for interest in its structure, texture, and color and for its ultimate growth using indigenous plants and those that are hardy, harmonious to the design and of good appearance.
- k. Protection of plant materials by appropriate curbs, tree guards, or other devices in locations which are susceptible to injury by pedestrian or vehicular traffic.

4. Signs:

- a. Signs shall conform to the provisions of **Article 10 of this chapter** for residential districts and this section, except that signs erected on poles shall not be permitted.
- b. Every sign shall be of appropriate scale and proportion in relation to the surrounding buildings.
- c. Every sign shall be designed as an integral architectural element of the building and site to which it relates.
- d. The colors, materials, and lighting of every sign shall be harmonious with the building and site to which it relates.
- e. The number of graphic elements on a sign shall be held to the minimum needed to convey the sign's principal message and shall be in proportion to the area of the sign.
- f. Each sign shall be compatible with signs on adjoining plots or buildings.
- g. Logos shall conform to the criteria for all other signs.
- h. A coordinated, unified sign plan shall be utilized for direction and information within the PND.

5. Miscellaneous Structures: Miscellaneous structures and hardware shall be part of the architectural concept of the project. Materials, scale and colors shall be compatible with the building and surrounding uses.

D. The Planning Commission shall proceed in general as for any other rezoning application as required in the ordinance, and recommend to the Town Council to approve, conditionally approve or disapprove the application.

E. The Town Council shall proceed in general as for any other rezoning application as required in the ordinance. Subsequent to the public hearing and a recommendation from the Planning Commission, the Town Council shall approve, conditionally approve or disapprove the application for a Master Land Use Plan.

F. Upon approval of a Master Land Use Plan for development the official zoning map shall be amended to indicate the property as “PND - Planned Neighborhood Development”. Once the Town Council has approved the Master Land Use Plan, all accepted proffers shall constitute conditions, enforceable by the Zoning Administrator.

Section 6.8.6 - OPEN SPACE STANDARDS (PND) (175-37.6)

A. Planned neighborhood developments shall reserve a minimum of 25 percent of the acreage of the parcel as dedicated natural open space.

B. Up to 25 percent of this requirement may be satisfied with land covered by water or by stormwater detention or retention basins (dry ponds shall not be permitted as open space), if the Town Council determines that such a water body or basin is suitable for the purposes set forth in [Section 6.8.4](#). The dedicated open space shall not be included in subdivision lots. Dedicated open space shall include the land necessary to provide access to the open space.

C. Land characterized as conservation lands in [Section 6.3.4.1](#) of this ordinance may be used to fulfill the minimum open space requirement up to a maximum of 50 percent of the total dedicated natural open space within a planned neighborhood development.

D. Dedicated open space shall have shape, dimension, character, location, and topography to accomplish the open space purposes specified in [Section 6.8.1](#) and to ensure appropriate public access.

E. Dedicated open space land shall be shown on the planned neighborhood development Concept Plan and Master Land Use Plan and shall be labeled to specify that the land has been dedicated to open space purposes. The plans and final plat shall specify that the open space land shall not be further subdivided or developed and is permanently reserved for natural open space purposes.

F. The open space shall be conveyed by the applicant as a condition of plat approval and may be conveyed by any of the following means as determined by the Town Council:

1. Deeded in perpetuity to the Town of Front Royal or other governmental agency for the purposes herein.
2. Reserved for common use or ownership of all property owners within the development by covenants in the deeds approved by the Town Attorney. A copy of the proposed deed covenants shall be submitted with the application.
3. Deeded in perpetuity to a private, non-profit, tax-exempt organization legally constituted for conservation purposes under terms and conditions that ensure the perpetual protection and management of the property for conservation purposes. A copy of the proposed deeds and relevant corporate documents of the land trust shall be submitted with the application.

4. Deeded to a property owner's association within the development upon terms and conditions approved by the Town Attorney that will ensure the continued use and management of the land for the intended purposes. The formation and incorporation by the applicant of one or more appropriate property owners' associations shall be required prior to plat approval. A copy of the proposed property owner's deed and the by-laws and other relevant documents of the property owner's association shall be submitted with the application. The following shall be required if open space is to be dedicated to a property owner's association:

- a. Covenants providing for mandatory membership in the association and setting forth the owner's rights, interests, and privileges in the association and the common land, must be included in the deed for each lot or unit;
- b. The property owners' association shall have the responsibility of maintaining the open space and operating and maintaining recreational facilities;
- c. The association shall have the authority to levy charges against all property owners to defray the expenses connected with the maintenance of open space and recreational facilities; and
- d. The applicant shall maintain control of dedicated open space and be responsible for its maintenance until 75% of occupancy permits for residential units have been issued and development is sufficient to support the association.

G. The owner/developer shall convey or restrict the open space land by a deed instrument reviewed and approved by the Front Royal Town Attorney to ensure that the land will be held and managed in perpetuity for open space purposes and shall not be further developed.

H. If the planned neighborhood development is developed in phases, the provision of dedicated natural open space shall be phased with the construction of dwelling units and other improvements to ensure that a proportionate share of the total dedicated open space is preserved with each phase.

I. Streets and other impervious surfaces shall be excluded from the calculation of the minimum dedicated open space requirement; however, lands occupied by bike paths, landscaped grounds, or similar common recreational development (excluding tennis courts, golf courses, and buildings) may be counted as dedicated open space, provided that impervious surfaces constitute no more than 5 percent of the total required open space.

J. Open space shall be permanently dedicated for one of more of the following uses: natural resource conservation, recreational facilities, wetland and water course preservation, selective forestry, wildlife habitat, undeveloped parklands or scenic preservation.

Section 6.8.7 - OFF-STREET PARKING (PND) (175-37.7)

A. The number, design, location and construction of parking lots, bays, spaces and drives shall conform to the applicable requirements of Sections 9.10. and 9.10. Zoning Ordinance and Section 148-48 of the Subdivision and Land Development Ordinance. Parking for commercial land uses shall also comply with Section 175-45 of the Front Royal Town Code.

1. Parking areas shall be planted with trees a minimum of two inches in caliper measured six inches above ground level, so that there is at least one tree per ten parking spaces within the parking lot. Such trees must be protected by curbing or other means against damage by vehicles. A minimum planting area, equivalent to 162 square feet per tree, shall be provided.
2. Parking areas shall have a landscaped island at each end of each row of vehicle spaces. No more than 15 spaces shall be laid out without an intermediate landscape island. Such

Commented [CH11]: this reference section does not exist in the current doc, unsure what to refer to here.

Commented [AA12R11]: Lauren, please amend as you see fit. Sec 175-45 does not exist in current ordinance.

planting islands shall be not less than nine feet wide in the direction parallel to the row and not less than 18 feet long in the direction perpendicular to the row. Each such island shall have a suitable poured-in-place concrete curb, or approved equal, and shall be planted with grass or ground cover. All hydrants shall be located in such islands.

Section 6.8.8 - LANDSCAPING AND SCREENING (PND) (175-37.8)

A. Screening of Uses: Commercial, institutional, and community uses shall be screened from residential uses within and abutting the planned neighborhood development by a buffer yard 20 feet in width containing a minimum of three canopy trees, six understory trees, and nine shrubs per 100 feet of length (or an amount creating an equivalent effect and approved with the landscape plan) along the perimeter of the lot line abutting a residential use.

B. Screening along Public Roadways: Uses within a planned neighborhood development which abut an arterial street as defined in [Section 148-26\(C\)\(3\)](#) shall be screened by a buffer yard of 20 feet in width containing a minimum of three canopy trees, six understory trees and nine shrubs per 100 feet of frontage (or an amount creating an equivalent effect and approved with the landscape plan). Canopy trees shall be deciduous shade trees planted with a minimum of two and one-half inches in caliper at six inches above the ground with a mature height of at least 35 feet. Understory trees shall be deciduous shade or fruit trees planted at minimum one and ½ inch in caliper at six inches above the ground with a mature height of at least 12 feet.

C. Existing Vegetation: Notwithstanding any other provisions of this ordinance, existing vegetation shall be retained and maintained to the extent feasible in order to permit existing vegetation to fulfill or contribute to buffer and screening requirements. In lieu of strict compliance with the above buffer yard requirements, a developer may submit a detailed landscaping plan that will afford a degree of buffering and screening comparable to that provided by these regulations in making use of existing and new vegetation. For developments utilizing more than 10 percent existing vegetation as a density bonus credit, a Certified Arborist shall provide a detailed description of the existing vegetation with notation of specimen trees, to certify compliance. The Arborist report shall be accompanied by the proposed measures for ensuring preservation during and after construction in accordance with the preservation criteria stated in the Town of Front Royal Landscape Preservation and Planting Guide.

D. Screening of Refuse Collection Facilities: Uses, except single-family homes within a planned neighborhood development shall provide secure, safe, and sanitary facilities for the storage and pickup of refuse. Such facilities shall be convenient to collection and shall be appropriate to the type and size of use being served. All refuse storage facilities shall be screened on three sides by a solid wooden fence or masonry wall and a tight evergreen hedge. The fourth side shall be angled to minimize the view of the refuse collection facility or shall be screened by an opaque gate made of durable materials. The screening shall be of sufficient height and design to effectively screen the facility from the view from nearby residential uses, streets, adjacent properties, and recreational facilities.

Section 6.8.9 - DENSITY BONUSES (PND) (175-37.9)

Residential density bonuses up to a density of 6.0 dwelling units per acre dedicated to uses other than the commercial uses set forth in [Sections 6.8.3 \(B\) and \(C\)](#) may be approved and granted at the discretion of the Town Council upon a finding that a proposed density bonus promotes the purposes of the Planned Neighborhood Development and provides additional public benefit. Each of the following amenities and any other amenities or proffered conditions will be evaluated by the Town Council and used in negotiations with the applicant:

A residential density of up to 6.0 dwelling units per acre acceptable to both the applicant and the Town Council.

A. Dedicated Open Space: In exchange for increasing the dedicated natural open space beyond the required 25 percent, the project may qualify for a density bonus, provided the natural open space is increased by a minimum of 5 percent of the developable acreage. A bonus shall not be permitted for preservation areas or without sufficient justification of demonstrated benefit to the Town. Priority shall be given to protecting existing stands of mature trees.

B. Bikeways/Greenways: A system of bike paths and pedestrian greenways may qualify for a density bonus. In order to qualify, the bike paths or greenways shall form an integrated system of access within the development to principal off-site destinations, and be integrated with other planned or existing systems (i.e., Happy Creek Trail, Conservancy Park Trail, etc.).

C. Walk-Up Housing: A dwelling unit located above the ground floor of a structure that contains a non-residential use on the ground floor may be applied toward the allowable base density as one-half of a dwelling unit.

D. Community and Institutional Uses:

Day Care Center: In a PND with 75 or more residential units, a parcel may be designated, dedicated and developed for use as a day care center. This lot shall have a minimum of 100 square feet per residential unit within the PND, and be developed in accordance with the requirements [of Section 8.1.2 of this chapter](#).

Community Hall: In a PND with 100 or more residential lots or units, a community hall may be constructed, with an enclosed area of no less than 25 square feet for each residential unit or lot.

E. Developed Recreational Facilities: Such facilities may include, but shall not be limited to, tot lots and pocket parks, ball fields, courts or other athletic facilities, swimming pools, public pedestrian plazas or arcades with benches, water fountains and reflecting pools, terraces, sculptures, public art, involving unique design features and amenities. To be considered for a density bonus, such recreational facilities shall be developed at a minimum ratio of three acres per 100 units, in addition to the minimum requirement in Section 15.

F. Enhanced streetscapes: Streets s developed with widened sidewalk area, substantial landscaping above the required minimum, approved traffic calming measures, pedestrian-oriented features, and bicycle parking facilities may be considered for a density bonus.

G. Other: Additional density bonuses may be granted based upon such other innovative factors as may be proposed by the applicant and accepted by the Town Council in its sole discretion.

Section 6.8.10 - TRAFFIC IMPROVEMENTS (PND) (175-37.10)

Where a proposed planned neighborhood development borders on an existing street whose right-of-way, traffic carrying capacity, or sight lines are inadequate to safely and efficiently accommodate the traffic generated by the proposed development, the Town Council shall require the applicant to dedicate land for needed realignment or widening, and to undertake or fund the needed street improvements.

Section 6.8.11 - DIMENSIONAL STANDARDS (PND) (175-37.11)

A. Building Separation: No structure under 30 feet in height shall be located within 15 feet of any other structure. Buildings higher than 30 feet shall be separated by a distance equivalent to 50 percent of the height of the tallest building.

B. Height Limits: The height limits within a planned neighborhood development shall be the same as the height limits set forth in [Section 6.7.10](#) for structures in the R-3 residential district.

C. Except as otherwise specifically required by [Sections 6.8.1](#) through [6.8.11](#), modifications to the following design standards may be authorized by the Town as part of the rezoning or conditional rezoning application process, provided they are specifically approved, with the modified design standards taking precedence over the design standards of Chapter 148 and Chapter 175 of the Town Code.

1. Lot Area
2. Lot Width
3. Setbacks and Yard Area
4. Building Height
5. Building Separation

Section 6.8.12 - PERIMETER BOUNDARY (PND) (175-37.12)

A. No portion of a building, structure, or parking area, shall be located within 55 feet of abutting property that is not part of the proposed planned neighborhood, unless the zoning of the adjacent property permits uses similar to the proposed Planned Neighborhood District use to be located abutting the common boundary. Where proposed PND uses are similar to uses permitted on the adjacent property, the minimum separation shall be that same as required for the zoning district on the adjacent property.

B. No portion of a non-residential use, multi-family residential use, community use, institutional use or active recreational use shall be located within 100 feet of abutting property that is not part of the proposed planned neighborhood, unless the abutting property is developed as a Planned Neighborhood District, whereas the separation shall be equal to the existing yard requirement on the abutting Planned Neighborhood District property.

C. The minimum front yard requirement of the R-1 zoning district shall apply for a minimum of 200 feet from the border of a planned neighborhood development and adjoining property that share frontage on the same side of a street.

Section 6.8.13 - MULTI-FAMILY RESIDENTIAL DEVELOPMENT STANDARDS (PND) (175-37.13)

Multi-family housing. Such housing shall be either townhouses, multiplexes or Retirement Living Facilities.

A. Townhouses: The maximum number of dwelling units permitted within a townhouse structure shall be eight. Townhouse structures shall be developed in compliance with the following requirements:

1. There shall be a minimum of two and one-half parking spaces for each townhouse unit. The shared use of such overflow parking with other uses and activities is encouraged.
2. Walkways of four feet in width, constructed of concrete, stone, brick or similar masonry material, (not including asphalt), shall be installed from parking areas to townhouse units served by such parking areas.
3. The facades of townhouse units shall have variation in materials, setbacks, and design so that abutting units will not have the same or essentially the same architectural treatment of facades and rooflines.

B. Multiplex Structures: The maximum number of dwelling units permitted within a multiplex structure shall be thirty (30). Multiplex structures shall be developed in compliance with the following requirements:

1. There shall be a minimum of two and one-half parking spaces for each unit. The shared use of such overflow parking with other uses and activities is encouraged.
2. Walkways of four feet in width, constructed of concrete, stone brick or similar masonry material, (not including asphalt), shall be installed from parking areas to multiplex units served by such parking areas.
3. The minimum size of each individual unit shall be no less than 600 net square feet.

C. Retirement Living Facilities: The structures shall be developed in compliance with the following requirements:

1. The facilities shall be developed as either condominium or cooperative units.
2. There shall be no less than two parking spaces for each unit. The shared use of such overflow parking with other uses and activities is encouraged.
3. Walkways of four feet in width, constructed of concrete, stone, brick or similar masonry material (not including asphalt), shall be installed from parking areas to the retirement units served by such parking areas.

D. Accessory buildings shall be limited to one enclosed storage building not exceeding seven feet in height nor exceeding ten feet in length by ten feet in width.

Section 6.8.14 - UTILITIES (PND) (175-37.14)

Utilities, such as electric transmission cable television lines, and telephone lines, serving the planned neighborhood subdivision shall be installed underground.

Section 6.8.15 - ACCESSORY STRUCTURES (PND) (175-37.15)

Accessory structures shall not be located within any front yard or within five feet of any other structure and shall comply with the requirements of Town Code [Section 6.6.10.D](#)

Section 6.8.16 - NEIGHBORHOOD RECREATIONAL USES (PND) (175-37.16)

A minimum of 335 square feet for each residential unit shall be dedicated and developed for neighborhood recreational use to serve the recreational demands generated by the planned neighborhood development. Recreational facilities shall be specifically included in the development schedule and be constructed and fully improved by the developer at an equivalent or greater rate than the construction of residential structures.

Section 6.8.17 - COMMERCIAL USES DEVELOPMENT STANDARDS (PND) (175-37.17)

A. The total acreage of commercial users in Planned Neighborhood Development Districts shall comply with the following requirements.

Acreage of PND	Total Acreage of Commercial Uses
20 Acres – 50 Acres	No Minimum 5% Maximum
51 Acres – 100 Acres	5% Minimum 10% Maximum
101 Acres – Plus	5% Minimum 15% Maximum

The developer/owner shall provide specific justification of commercial areas proposed in excess of 5% of the total acreage, identifying specific impacts of the commercial development and demonstrating adequate mitigation of such impacts.

B. Commercial uses shall be designed with the intention of serving the immediate needs and convenience of residents within and immediately surrounding the Planned Neighborhood Development.

C. Commercial uses shall not receive a certificate of occupancy until building permits have been issued for fifty percent of the residential units within the Planned Neighborhood Development.

D. Commercial structures shall comply with the height requirements in this chapter [Section 6.10.5](#)

E. Commercial uses shall comply with the Performance Standards stated in [Sect. 6.10.7 of this Chapter](#)

F. Parking for commercial uses shall be in accordance with this chapter [Section 9.10.a](#)

Section 6.8.18 - DEVELOPMENT REVIEW (PND) (175-37.18)

Within one year of approval of a Master Land Use Plan for development of a Planned Neighborhood, prior to the approval of building permits, the applicant shall prepare and submit for review and approval an engineered Development Plan, along with the fee as established in the approved schedule of fees. The applicant may petition the Town Council for an extension of time for submission of a development plan, provided such extension is requested at least 20 days prior to the expiration of the one-year period. The Town Council may grant an extension upon demonstration of good cause for up to one year.

A. Development Plan: A Development Plan shall be submitted for all proposed commercial, residential, community facility, institutional, or multi-family residential development within a Planned Neighborhood Development. The Development Plan shall be drawn to scale and shall be accompanied by a narrative, as appropriate. The Development Plan shall comply with the provisions of Divisions 9.5, 9.6, and 9.7 and Section 148-20 of the Code of Front Royal, Virginia, unless otherwise provided for herein, and the following:

1. All information required for the master plan submission.
2. A development schedule. If phasing is proposed, indication of the proposed phasing schedule, along with a plan indicating phased sections.
3. A landscape plan prepared by a certified landscape architect or land surveyor shall be submitted with each site development plan application. The development plan shall identify proposed trees, shrubs, ground cover, natural features such as rock outcroppings, other landscaping elements and planting details. When existing natural growth is proposed to remain, the applicant shall include in the plans a description of the landscaping to be retained, a statement from a certified arborist that the material is desirable and healthy, and the proposed methods to protect the retained trees and growth during and after construction.
4. Proposed number of dwelling units by residential types, and the area of non-residential buildings by use type (retail, office, service, etc.).
5. Calculation of the percentage of land area covered by the various land uses, including landscaped areas.
6. Proposed circulation plan showing patterns of vehicular, pedestrian, or other traffic, parking areas (including the number of parking spaces).
7. Notes identifying any deviations from the approved master plan.

B. Development Plan Revisions, Modifications: After approval, all subsequent plans, plats, and permits for the PND shall be in substantial compliance with the approved PND Master Land Use Plan. Minor adjustment to the Master Land Use Plan may be approved administratively provided there is no increase in the overall density or number of housing units in the development and no reduction in useable open space. Revisions or modifications which substantially change the development, design, density, concept, uses, or magnitude shall cause the revised plan to be referred back through the review process as if it were an original submission.

Revisions to the Site Development Plan may be proposed by the applicant prior to the Town Council's review. The Town Council at its discretion may consider the application with minor revisions as proposed or may return the plan to the Planning Commission for further review.

C. Amendments to Planned Development Districts: Land area may be added to an established PND if it adjoins and is demonstrated to become an integral part of the approved development. The procedures for any addition of land shall be the same as for an original application and all requirements shall apply.

D. Final Plats: Final Plats shall be submitted concurrently with the Site Development Plan. Except as provided herein, Planned Neighborhood Development plats shall comply with the Zoning Ordinance, Chapter 175 and the Subdivision and Land Development Ordinance, Chapter 148 of the Town of Front Royal, Virginia, except that reasonable waivers and variances as described in Chapter 148 may be granted by the Town Council in order to facilitate creative design consistent with good community planning standards.

E. Recordation of Documents: Any applicable covenants, governance documents and easements shall be recorded in the Warren County Circuit Court Clerk's office within six (6) months of approval of the Final Plat.

F. Appearance Review: Appearance Review by the Planning Commission shall be required for all proposed commercial, community, institutional, or multi-family residential development within a planned neighborhood development to ensure conformity with the appearance standards established by the approved design guidelines for the Planned Neighborhood Development. Such review shall occur in conjunction with the Site Development Review. Compliance with the requirements for Appearance Review shall be in addition to all other requirements.

DIVISION 6.9 - COMMUNITY BUSINESS DISTRICT (C-1)

Section 6.9.1 - STATEMENT OF INTENT (C-1) (175-38)

The Community Business C-I District is intended to accommodate general business areas, highway-oriented commercial uses, and selected retailing operations. The Community Business C- I District recognizes the demand for a variety of land uses near or adjacent to the major traffic arteries in Town.

Section 6.9.2 - USE REGULATIONS (C-1) (175-39)

A. Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the C-1 District, the following uses of land and buildings are permitted by-right in the C-1 District:

RESIDENTIAL:

~~Up to three (3) dwelling units of any type, but not on the ground floor~~

Caretaker quarters

Single-Family dwellings

Townhouses

Multi-Family dwellings

COMMERCIAL:

Appliance stores and repair services

Assembly Halls

Automobile and truck sales lots and leasing agencies, in accordance with **Section 6.9.8.E**

Automobile service stations, in accordance with **Section 8.3.1**

Bakeries, when products are sold as retail on the premises.

Banks, branch banks, and financial institutions

Barber and beauty shops

Car washing

Catering Services

Contractor's offices, display rooms and storage

Commuter parking facilities

Department Stores

Drugstores

Florist shops/floral designers

Funeral homes

Furniture stores

Grocery stores

Hardware stores

Laundries, Laundromats and dry cleaners

Lumber and building supply, with storage under cover

Machinery sales and service

Motels, hotels, and tourist homes

Newspaper and other printing establishments

Personal Services

Retail Stores, as defined in **Section 6.9.2.C**

Pharmaceutical Center

Professional and Business Offices

Radio and television broadcasting stations, studios or offices.

Recreational Facility, Commercial

Restaurants, including drive-in restaurants

Special childcare services

Technology business, as defined in [Article 11](#) provided that such use does not involve broadcast or communications towers or manufacturing operations.

Theatres, Indoor

Veterinary hospitals

Wearing-apparel stores

INDUSTRIAL:

ORGANIZATIONAL:

Art galleries and museums.

Churches.

Public libraries.

MISCELLANEOUS:

Accessory uses, structures and buildings.

Home occupations.

Open Space

Public facilities.

Public parks and playgrounds.

Public utilities.

Signs, as set forth in [Article 10](#)

Special childcare services.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.9.3 - USES PERMITTED BY SPECIAL [USE](#) PERMIT (C-1)

A. The following uses are permitted within the C-1 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the C-1 District:

RESIDENTIAL:

~~Apartments or dwelling units, with four (4) or more units or where located on the ground floor, subject to the provisions of Division 5.2.~~

COMMERCIAL:

Automobile garages, excluding where repairs work is only an accessory use, subject to the requirements of Section 8.3.4 where motor vehicle painting or body work services are provided.

Automobile Parking Lots, commercial.

Bed & Breakfasts, as set forth in Section 107.3.

Day Care Facilities and schools, subject to the provisions of Section 8.1.2.F and any necessary improvements or changes to address the considerations of that section.

Farmers' markets, and flea markets, in accordance with Section 6.9.8.F

Kennels

Shopping centers as set forth in Section 175-111.

INDUSTRIAL:

Distribution facilities, subject to the standards and criteria for industrial uses provided in Section 6.14.8

Wholesale establishments with storage and processing, subject to the standards and criteria for industrial uses provided in Section 6.14.8

ORGANIZATIONAL:

Schools

MISCELLANEOUS:

Any use permitted under Section 6.9.2 or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of Section 6.9.3, subject to the requirements of Division 5.1. Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Conservation areas.

Communication towers, in accordance with Division 9.3

Conversion of a structure originally designed and intended for occupancy as a single-family dwelling into a structure with more than one (1) dwelling.

Boarding Houses, Clubs & Lodging Houses

Mini-warehouses, subject to the standards of Section 6.9.8 (former Section 175-44.G.)

Nursing homes, as set forth in [Section 6.1.1](#)

Parking Structures.

Structures with a height between 45 feet and 70 feet, and any residential structure not in conformance with the height limitation of [Section 6.9.3](#)

Structures with a gross floor area of 50,000 square feet or more.

~~Townhouse-style commercial development, where the intent is to divide the property into individual lots.~~

B. For the purpose of this section, "retail stores" are defined as buildings for the display and sale of merchandise at retail or for the rendering of personal services, but specifically exclusive of coal, wood and oil and lumberyards, accessory uses, adult bookstores (stores engaged in the sale of magazines and other publications of sexually-oriented nature), massage parlors and stores engaged in the sale of sexual aids, devices and merchandise.

Section 6.9.4 - AREA REGULATIONS (C-1) (175-40)

A. Minimum Lot Size:

1. Residential uses with four (4) or more units = 6,000 s.f first unit; 1,500 s.f each additional unit.
2. All other uses: 7,500 s.f.

B. Minimum Unit Size: The minimum average unit size (floor area) per dwelling unit, where fewer than four (4) units are provided shall be three hundred (300) square feet. No dwelling unit shall have less than two hundred fifty (250) square feet of living area. This living area shall not include bathroom, closet and storage space.

C. Minimum District Size: Five (5) acres.

D. Minimum Lot Width:

1. Interior Lot: Seventy-five (75) feet.
2. Corner Lot: Ninety (90) feet.

Section 6.9.5 - MAXIMUM HEIGHT OF BUILDINGS (C-1) (175-41)

A. ~~Residential Buildings~~Single-family dwellings: ~~435~~ feet, except as otherwise provided in this section.

B. Other Principal Buildings: ~~845~~ feet except as provided in [Section 6.9.2.B](#)

C. ~~Residential structures~~Multi-family dwellings may have a maximum overall height of ~~845~~ feet; provided that the slope of the roof exceeds 35 percent and the required yards are increased by one (1) foot for each foot in height over 35 feet.

D. Exemptions from height requirements:

1. Church spires.
2. Belfries.
3. Cupolas.
4. Municipal water towers.
5. Chimneys.
6. Flues.
7. Flagpoles.
8. Television antennas.
9. Radio aerials.
10. Parapet walls up to four (4) feet above the height of the building on which the wall rests.

E. Accessory buildings and structures: 35 feet; however, in no case, shall the height of an accessory structure exceed the height of the principal structure.

Section 6.9.6 - MINIMUM SETBACK AND YARD DIMENSIONS (C-1) (175-42)

A. Principal Structures, when abutting properties are in a commercial or industrial district.

1. Front setback:
 - a. Where no parking is provided between the structure and the street: Five (5) feet. Provided, however, that no drive aisle shall be located within five (5) feet of any structure having a setback less than fifteen (15) feet.
 - b. Where parking is provided between the structure and the street: fifty (50) feet.
2. Side: 405 feet on one (1) side only.
3. Rear: 455 feet.
4. Corner side: 455 feet.

B. Accessory Structures:

1. Front setback: 25 feet, except that accessory structures shall not be located closer to the street than the principal structure.
2. Side: 5 feet or 50% of building height, whichever is greater.
3. Rear: 5 feet or 50% of building height, whichever is greater.
4. Corner side: 2010 feet, except that accessory structures shall not be located closer to the street than the principal structure.

C. Transitional yards, when located adjoining a residential district:

1. Side yard: 15 feet.

2. Rear yard: 20 feet.

3. No structures, storage, use or parking shall be located in a transitional yard.

4. Transitional yards shall be landscaped in accordance with the provisions of Section 148-44.

~~D. Where parking is provided in a perpendicular manner between the principal structure and the street a minimum parking setback of ten (10) feet and a minimum building setback of fifty (50) feet shall be provided. The parking setback shall be landscaped in accordance with Section 148-48(E)(2).~~

~~E. The Town Council may waive the setback, yard and lot size requirements for townhouse style commercial project, approved by special permit Special Use Permit, where such waiver is needed to produce a functional and desirable site layout; provided, however, that no adverse impact to adjoining property results from the waiver.~~

Section 6.9.7 - OPEN SPACE REGULATIONS (C-1) (175-43)

A. Maximum building coverage for apartment structures exceeding four (4) units: ~~Fiftyseven-~~
five percent (~~50~~75%).

B. Maximum building coverage for all other structures: Seventy - five percent (75%).

C. Maximum impervious surface coverage: Ninety percent (90%), including off-street parking.

Section 6.9.8 - PERFORMANCE STANDARDS (C-1) (175-44)

A. Screening:

1. Except where otherwise specifically approved in the Town Code, permitted uses shall be conducted wholly within a completely enclosed building.

2. Outdoor storage, outdoor display or outdoor sale of goods shall only be permitted when each of the following standards are met.

a. Outdoor storage, outdoor display, or outdoor sale of goods shall be used in direct association with the primary use or uses of the property.

b. Outdoor storage, outdoor display and/or outdoor sales shall be screened to obstruct view from any adjacent public street. A screen may consist of a building, solid masonry wall, uniformly painted solid board fence or landscaping. The height of the screening shall be 6' feet unless an alternative height is approved by the Planning Commission during the review of a site plan.

3. The following types of outdoor display and/or outdoor sales shall be exempt from the requirements of Section 6.9.8 A.2.F.

a. Motor vehicles.

b. Power operated machines designed for outdoor labor, such as farming, construction or lawn maintenance, as well as large equipment, products, and materials designed to be kept outdoors.

- c. Plants and other landscaping products typically sold with plants.
 - d. Temporary or seasonal activities, such as but not limited to, peddlers, yard sales, and itinerant merchants that have obtained approval from the Town.
 - e. Pre-manufactured buildings.
 - f. Vending machines.
 - g. General products, goods, merchandise, and/or materials, provided that (i) no more than 200 square feet of area is used, and (ii) outdoor display and/or sales are restricted from the evening and night hours from 8PM to 5AM, except that general products, goods, merchandise, and/or materials may be kept outdoors if located under a roofed structure.
 - h. Flea markets, subject to any conditions issued with special use permit, performance standards of the underlying zoning district, and requirements of Section 98-46 of the Town Code.
4. Commercial development shall be permanently screened from adjoining and contiguous residential district by a wall, fence, evergreen hedge, and/or other suitable enclosure with a minimum height of six (6) feet. Any area between such enclosure and the property line shall be landscaped to form a permanent screening area. The requirement for a screening area may be waived if equivalent screening is provided by existing parks, recreational areas, or by topographic or other natural conditions.
 5. The provision of subsection 4 shall not apply when the (architectural) front of any commercial building faces the street across from a residential district or when strict application of the requirement relative to screening can be demonstrated as not serving the purpose for which it is intended.

B. Lighting: Lighting facilities shall be arranged in a manner that will protect the public roadway and neighboring properties from direct glare, intrusion or hazardous interference. Parking lot and building lighting shall be directed so that the lighting does not extend beyond the property boundary. Lighting facilities shall be required along private and public streets and within parking areas, installed at the developer's expense.

C. Miscellaneous:

1. No flammable or explosive liquids, solids or gases shall be stored in bulk above ground; provided, however, that tanks or drums of fuel directly connecting to energy devices, heating devices or appliances located on the same lot as the tanks or drums of fuel are excluded from this provision.
2. All fuel and raw materials stored outdoors shall be enclosed by a fence adequate to conceal the facilities from any adjacent properties or roadways.
3. No materials or wastes shall be deposited upon a lot in such form or manner that it may be transferred off the lot by natural causes or forces.
4. All refuse containers shall be adequately sized to handle the needs of the facility or development and all material or wastes which might cause fumes or dust, constitute a fire hazard, or may be edible or otherwise attractive to rodents or insects shall be stored only in completely closed containers.

5. All outdoor refuse storage areas shall be located in a paved area and hidden from general public view, either from within or outside the lot, by means of fences or walls, and landscape planting. A solid wood or masonry fence at least six (6) feet in height shall be provided on three (3) sides, with a solid opaque gate on the fourth side. Landscaping shall be incorporated to improve the visual appearance.

D. Landscaping: All sites and parking areas shall be landscaped in accordance with the provisions of Sections 148-46, 148-47 and 148-48.

E. Automobile and Truck Sales Lots and Leasing Agencies: Vehicle repair shall only be permitted as an accessory use to automobile and truck sales lots and leasing agencies, except where a special use permit is issued for automobile repair. All incidental repair of vehicles shall be conducted within a building enclosed on all sides.

F. Farmer's Markets & Flea Markets: Where farmer's markets are permitted under the provisions of this Chapter, the following standards shall be required:

1. Adequate water and sanitary facilities shall be provided if found necessary based on the size, frequency and duration of the market.
2. A minimum twenty-five (25) foot setback shall be maintained from all property lines, excluding structures and uses in existence prior to July 1, 2001.
3. No adverse effect on adjoining properties, including but not limited to excessive or untimely noise or lighting, overflow parking, or visual problems potentially affecting property values or marketability, is found.
4. All tables, facilities and structures shall be maintained in a well-kept and attractive manner.
5. No manufactured buildings shall be permitted.
6. Unless otherwise approved as part of a special use permit, all temporary structures or facilities shall be removed during the days that the market is not in operation.
7. Operation of a Flea Market shall be confined to Friday, Saturday, Sunday, and Holidays, unless other dates are specifically approved by the Town Council in conjunction with the Special Permit Special Use Permit. The hours of operation shall be posted on the property.
8. If a Flea Market or Farmers' Market elects to close during part of the year, or is required to close during part of the year by a condition of a special use permit, all tables and other temporary fixtures shall be removed within two (2) weeks of such closure. Such fixtures may be stored on the site, provided they are located within a completely enclosed building or otherwise screened from public view, in accordance with Section 5.9.8(A).
9. All Flea Markets and Farmers' Markets shall be swept clean, hosed down and/or picked clean daily. No food products or debris shall be permitted to remain upon the site overnight. All food products sold at the market must be displayed under sanitary conditions and sold in compliance with all requirements of the Virginia Department of Health or Virginia Department of Agriculture and Consumer Services.
10. Any expansion, including, but not limited to, new construction, an increase in the days of operation, or other significant changes to the use of the property, shall only be authorized with a special use permit.
11. Landscaping shall be provided where feasible and desirable for the purposes of improvement aesthetics, screening, shade and the natural environment.

12. Fencing may be required for purposes of improvement aesthetics, screening or public safety.

13. The sale of live animals is prohibited.

14. The sale of new merchandise or serving of food, other than farm and domestic products, shall only be authorized if the vendor obtains an itinerant merchant or peddler license, in accordance with the Town Code regulations for such uses.

15. Farmers' Markets and Flea Markets on public property shall be classified as a public event.

G. Mini-warehouses: Where mini-warehouses are permitted, the following standards shall be required:

1. No exterior storage shall be permitted.
2. No business activities other than rental of storage units and office use shall be conducted on the premises or within the building, except as specifically approved with the ~~special permit~~ Special Use Permit approval. The servicing or repair of motor vehicles, trucks, mobile homes, boats, trailers, lawn mowers, or other similar equipment shall not be conducted on the premises. The operation of a mini-warehouse shall in no way be deemed to include a transfer and storage business where the use of vehicles is part of such business.
3. When a mini-warehouse is built adjacent to or within 100 feet of a lot in a residential district without an intervening street, a solid wall or fence at least six (6) feet in height with a finished side facing the residential lot shall be erected between the mini-warehouse and the residential lot. However, the wall or fence shall not be required to extend into the front yard required on the lot on which it is located.
4. The minimum landscaped open space for a mini-warehouse building shall not be less than .20 times the gross acreage of the lot. Such landscaped open space shall not be open to vehicular traffic, and shall be used to buffer and shield adjacent uses from the mini-warehouse operation. The required amount of open space may be reduced with the ~~special permit~~ Special Use Permit approval for the reuse of an existing building/developed property.
5. The maximum height of the storage section of a mini-warehouse building shall be twenty-five (25) feet.
6. The maximum total storage area in a mini-warehouse building shall be seven thousand five hundred (7,500) square feet.
7. The maximum size of an individual storage unit shall be five hundred (500) square feet.
8. Buildings used in association with mini-warehousing shall be set back at least 150 feet from the public road.

DIVISION 6.10 - DOWNTOWN BUSINESS DISTRICT (C-2)

Section 6.10.1 - STATEMENT OF INTENT (C-2) (175-46)

The Downtown Business District C-2 is intended to encompass the major downtown retailing center and to provide for the orderly expansion of the central business district. The Downtown Business District C-2 should provide a framework for a strong nucleus of the business community, where all the amenities and services of downtown can be provided. In addition, certain high-density residential uses whose proximity to the downtown area would tend to strengthen the retail core shall be permitted. ~~Mobile homes for all purposes are prohibited.~~

Section 6.10.2 - USES PERMITTED BY RIGHT (C-2) (175-47)

A. Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the C-2 District, the following uses of land and buildings are permitted by-right in the C-2 District:

RESIDENTIAL:

Conversion of existing residential and/or commercial structures into buildings with a greater number of dwelling units, provided one off-street parking space is provided per unit.

Single-family and two-family dwellings.

Townhouses

Multi-Family dwellings

COMMERCIAL:

Assembly Halls

Bakeries, ~~when products are sold as retail on the premises.~~

Banks, branch banks, and financial institutions.

Barber and beauty shops

Bed & Breakfasts

Catering Services

~~Department Stores, 15,000 square feet or less~~

Day Care Facilities, subject to the provisions of Section 8.1.2(F) and any necessary improvements or changes to address the considerations of that section

Drugstores

Florist shops/floral designers

Funeral homes

Furniture stores

Grocery stores, 15,000 square feet or less

Hardware stores

Laundries, Laundromats, and dry cleaners

Lodging houses and boarding houses

Motels, hotels, and tourist homes.

Newspaper and other printing establishments

Personal Services

Pet Shops, without boarding kennel.

Retail Stores, as defined in [Section 6.10.2.B](#)

Professional and Business Offices

Radio and television broadcasting stations, studios or offices.

Recreational Facility, Commercial

Restaurants, excluding drive-in restaurants

Technology business, as defined in [Article 14](#), provided that such use does not involve broadcast or communications towers or manufacturing operations.

Theatres, Indoor

~~Wearing apparel stores~~

INDUSTRIAL:

ORGANIZATIONAL:

Art galleries and museums.

Churches, excluding churches with ground level frontage on E. Main Street.

Public libraries.

MISCELLANEOUS:

Accessory uses, structures and buildings.

Clubs

Home occupations.

Open space.

Public event, see Chapter 72 for additional permitting requirements for entertainment festivals.

Public facilities.

Public parks and playgrounds.

Public utilities.

Signs, as set forth in Section [Article 10](#)

Special childcare services.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

B. For the purpose of this section, "retail stores" are defined as buildings for the display and sale of merchandise at retail or for the rendering of personal services, but specifically exclusive of coal, wood and oil and lumberyards, accessory uses, tobacco and electronic vapor products, adult bookstores (stores engaged in the sale of magazines and other publications of a sexually-oriented nature), and stores engaged in the sale of sexual aids, devices and merchandise.

Section 6.10.3 - USES PERMITTED BY SPECIAL USE PERMIT (C-2) (175-48)

A. The following uses are permitted within the C-2 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the C-2 District:

RESIDENTIAL:

~~Apartment located in buildings constructed after January 1, 1999, in accordance with the area requirements in Section 6.10.4~~

COMMERCIAL:

~~Automobile garages, excluding where repairs work is only an accessory use, subject to the requirements of Section 6.10.6~~

Automobile service stations, in accordance with Section 6.3.1

Automobile and truck sales lots and leasing agencies, in accordance with Section 6.10.7.D

Bed & Breakfasts, as set forth in Section 6.1.4

Day Care Facilities, subject to the provisions of Section 6.1.2.B, and any necessary improvements or changes to address the considerations of that section.

Farmers' markets, in accordance with Section 6.10.7.E

INDUSTRIAL:

ORGANIZATIONAL:

Schools

MISCELLANEOUS:

Conservation areas.

~~Lodging houses and boarding houses~~

Section 6.10.4 - AREA REGULATIONS (C-2) (175-49)

A. Minimum Lot Size: There are no area requirements except in the case of new apartment structures, whereby the lot must be three thousand (3,000) square feet, plus an additional one thousand (1,000) square feet for each individual dwelling unit above one (1).

B. Minimum Unit Size: The minimum average unit size (floor area) in any structure containing dwellings shall be three (300) hundred square feet. No dwelling unit shall have less than two

hundred and fifty (250) square feet of floor area. This floor area shall not include bathroom, closet and storage space.

C. Minimum District Size: Ten (~~405~~) acres.

Section 6.10.5 - OPEN SPACE AND HEIGHT REGULATIONS (C-2) (175-50)

A. Maximum Building Coverage for new residential structures: 75%

B. Maximum Building Coverage for all other structures: 90%

C. Buildings may be erected up to forty-five (45) feet in height from grade as a matter of right. Buildings may be erected at heights between forty-five feet (45') and sixty feet (60') by Special Use Permit, with reasonable conditions necessitated by the historic and unique nature of the Downtown Business District, issued by Town Council after recommendation of the Planning Commission.

D. Church spires, belfries, cupolas, monuments, cooling towers, elevator shafts, chimneys, flues and flagpoles are exempt. Parapet walls may be up to four (4) feet above the height of the building on which the walls rests.

Section 6.10.6 - FRONTAGE AND YARDS (C-2) (175-51)

There are no frontage or yard requirements, except as follows:

~~A. Transitional yards, when located adjoining a residential district to the side or rear, shall be twenty (20) feet.~~

~~B.A.~~ Established Front Setback: Where a front setback has been established along one side of a subdivided block or street, all new construction shall conform to this established front setback, except where such variation is approved by the Board of Architectural Review with a Certificate of Appropriateness.

Section 6.10.7 - PERFORMANCE STANDARDS (C-2) (175-52)

A. Screening:

1. Permitted uses shall be conducted wholly within a completely enclosed building or within an area enclosed on all sides by a solid masonry wall, a uniformly painted solid board fence or a dense evergreen hedge at least six (6) feet in height. Public utilities and signs requiring natural air consideration, unobstructed view or other technical consideration necessary for property operation may be exempt from this provision. This exception does not include storing of any materials.
2. Commercial development shall be permanently screened from any adjoining and contiguous residential district by a wall, fence, evergreen hedge, and/or other suitable enclosure with a minimum height of five (5) feet. Any area between such enclosure and the property line shall be landscaped to form a permanent screening area. The requirement for a screening area may be waived if equivalent screening is provided by existing parks, recreational area, or by topographic or other natural conditions.

3. The provision of subsection 2 shall not apply when the (architectural) front of any commercial building faces the street across from a residential district or when strict application of the requirement relative to screening can be demonstrated as not serving the purpose for which it is intended.

B. Lighting: Lighting facilities shall be arranged in a manner that will protect the public roadway and neighboring properties from direct glare, intrusion or hazardous interference. Parking lot and building lighting shall be down-directed so that the lighting does not extend beyond the property boundary. Where needed, lighting facilities shall be required along private and public streets and within parking areas, installed at the developer's expense.

C. Outdoor Storage/Waste Disposal:

1. No flammable or explosive liquids, solids or gases shall be stored in bulk above ground; provided, however, that tanks or drums of fuel directly connecting to energy devices, heating devices or appliances located on the same lot as the tanks or drums of fuel are excluded from this provision.
2. All fuel, raw materials and products stored outdoors shall be enclosed by a fence adequate to conceal the facilities from any adjacent properties or roadways.
3. No materials or wastes shall be deposited upon a lot in such form or manner that it may be transferred off the lot by natural causes or forces.
4. All refuse containers shall be adequately sized to handle the needs of the facility or development and all material or wastes which might cause fumes or dust, constitute a fire hazard, or may be edible or otherwise attractive to rodents or insects shall be stored only in completely closed containers.
5. All outdoor refuse storage areas shall be located in a paved area and hidden from general public view, fences or walls, and landscape planting. A solid wood or masonry fence at least six (6) feet in height shall be provided on three (3) sides, with a solid opaque gate on the fourth side. Landscaping shall be incorporated to improve the visual appearance.

D. Automobile and Truck Sales Lots and Leasing Agencies: Vehicle repair shall only be permitted as an accessory use to automobile and truck sales lots and leasing agencies, except where a special use permit is issued for automobile repair. All incidental repair of vehicles shall be conducted within a building enclosed on all sides.

E. Farmer's Markets: Where farmer's markets are permitted in the C-2 District, the following standards shall be required in addition to the requirements of Chapter 78 and any other conditions imposed by special use permit.

1. Adequate water and sanitary facilities shall be provided if found necessary based on the size, frequency and duration of the market.
2. A minimum twenty-five (25) foot setback shall be maintained from all property lines.
3. No adverse effect on adjoining properties is found.
4. All tables, facilities and structures shall be maintained in a well-kept and attractive manner.
5. Any building used for the storage or sale of goods and materials shall be constructed on a permanent foundation and meet appropriate building code regulations. No trailers, manufactured homes, or mobile home units shall be permitted.
6. All temporary structures or facilities, including but not limited to canopy frames, table extensions and display shelving, shall be removed during the hours that the market is not in operation

DIVISION 6.11 - HIGHWAY CORRIDOR BUSINESS DISTRICT (C-3)

Section 6.11.1 - STATEMENT OF INTENT (C-3) (175-53.1)

The Highway Corridor Business C-3 District is intended to selected commercial uses, and retailing and service operations, located along the major transportation corridors into the Town. The Highway Corridor Business C-3 District recognizes the demand for a variety of land uses along the major entrances into Town and strives to ensure that such development is compatible in use, appearance and functional operation with the Town's economic development policies and action strategies.

Section 6.11.2 - USE REGULATIONS (C-3) (175-53.2)

Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the C-3 District, the following uses of land and buildings are permitted by-right in the C-3 District:

RESIDENTIAL:

Caretaker quarters.

COMMERCIAL:

Appliance stores and repair services

Assembly Halls

Automobile and truck sales lots and leasing agencies, in accordance with [Section 6.9.8.E](#)

Automobile service stations, in accordance with [Section 6.3.1](#)

Bakeries, when products are sold as retail on the premises.

Banks, branch banks, and financial institutions.

Barber and beauty shops

Billiard parlors and poolrooms.

Bowling alleys.

Commuter parking facilities.

Department Stores

Drugstores

Florist shops/floral designers

Funeral homes

Furniture stores

Grocery stores

Hardware stores

Lumber and building supply, with storage under cover

Machinery sales and service

Motels, hotels, and tourist homes.

Personal Services

Retail Stores, as defined in **Section 6.10.7 D.**

Pharmaceutical Center

Professional and Business Offices

Radio and television broadcasting stations, studios or offices.

Recreational Facility, Commercial

Restaurants, including drive-in restaurants

Technology business, as defined in **Article 11**, provided that such use does not involve broadcast or communications towers or manufacturing operations.

Theatres, Indoor

Veterinary hospitals

Wearing-apparel stores

INDUSTRIAL:

ORGANIZATIONAL:

Art galleries and museums.

Churches

Boarding Houses, Clubs & Lodging Houses.

Public libraries.

MISCELLANEOUS:

Accessory uses, structures and buildings.

Home occupations.

Open Space

Public facilities.

Public parks and playgrounds.

Public utilities.

Signs, as set forth in [Article 10](#).

Special childcare services.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.11.3 - USE PERMITTED BY SPECIAL USE PERMIT (C-3) (175-53.3)

The following uses are permitted within the C-3 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the C-3 District:

RESIDENTIAL:

COMMERCIAL:

Automobile Parking Lots, Commercial.

Shopping centers as set forth in [Division 9.5](#).

INDUSTRIAL:

Wholesale establishments with storage and processing, subject to the standards and criteria for industrial uses provided in [Section 6.14.6](#).

Distribution facilities, subject to the standards and criteria for industrial uses provided in [Section 6.14.8](#).

ORGANIZATIONAL:

MISCELLANEOUS:

Communications Towers and cable television facilities, with wireless telephone (cell phone) communications tower subject to the supplemental provisions prescribed in [Division 9.9](#).

Conservation Areas.

Parking Structures.

Structures with a gross floor area of 50,000 square feet or more.

Structures with a height between 45 feet and 70 feet.

C. For the purpose of this section, "retail stores" are defined as buildings for the display and sale of merchandise at retail or for the rendering of personal services, but specifically exclusive of coal, wood and oil and lumberyards, accessory uses, adult bookstores (stores engaged in the sale of magazines and other publications of sexually-oriented nature), massage parlors and stores engaged in the sale of sexual aids, devices and merchandise.

Section 6.11.4 - AREA REGULATIONS (C-3) (175-53.3)

A. Minimum Lot Size: One (1) acre.

B. Minimum District Size: Five (5) acres.

C. Minimum Lot Width: One Hundred (100) feet.

Section 6.11.5 - MAXIMUM HEIGHT OF BUILDINGS (C-3) (175-53.4)

A. Principal Buildings: - 45 feet, except as provided in **Section 6.11.2.B.**

B. Exemptions from height requirements

1. Church spires.
2. Belfries.
3. Cupolas.
4. Municipal water towers.
5. Chimneys.
6. Flues.
7. Flagpoles.
8. Television antennas.
9. Radio aerials.
10. Parapet walls up to four (4) feet above the height of the building on which the wall rests.

C. Accessory buildings and structures: 35 feet; however, in no case, shall the height of an accessory structure exceed the height of the principal structure.

D. Where the Town approves a structure exceeding 45 feet in height, the maximum height shall be seventy (70) feet and up to six (6) stories. All required yards shall be increased by two (2) feet for each foot over forty-five (45) feet.

Section 6.11.6 - MINIMUM SETBACK AND YARD DIMENSIONS (C-3) (175-53.5)

A. Principal Structures, when abutting properties are in a commercial or industrial district

1. Front Setback: Fifty (50) feet.
2. Side: Fifteen (15) feet.
3. Rear: Fifteen (15) feet.
4. Corner Side: Thirty-Five (35) feet.

B. Accessory Structures:

1. Front Setback: 50 feet, except that accessory structures shall not be located closer to the street than the principal structure.
2. Side: 10 feet or 50% of building height, whichever is greater.
3. Rear: 10 feet or 50% of building height, whichever is greater.
4. Corner Side: 30 feet, except that accessory structures shall not be located closer to the street than the principal structure.

C. Transitional yards, when located adjoining a residential district.

1. Side Yard: 20 feet.
2. Rear Yard: 25 feet.
3. No structures, storage, use or parking shall be located in a transitional yard.
4. Transitional yards shall be landscaped in accordance with the provisions of [Section 148-44B](#).

Commented [AD13]: This section of 148 does not exist.

Section 6.11.7 - OPEN SPACE REGULATIONS (C-3) (175-53.6)

A. Maximum building coverage: Seventy-five percent (75%)

B. Maximum impervious surface coverage: Ninety percent (90%), including off-street parking.

Section 6.11.8 - PERFORMANCE STANDARDS (C-3) (175-53.7)

A. Screening:

1. Except where otherwise specifically approved in the Town Code, permitted uses shall be conducted wholly within a completely enclosed building.
2. Outdoor storage, outdoor display or outdoor sale of goods shall only be permitted when each of the following standards are met.
 - a. Outdoor storage, outdoor display, or outdoor sale of goods shall be used in direct association with the primary use or uses of the property.
 - b. Outdoor storage, outdoor display and/or outdoor sales shall be screened to obstruct view from any adjacent public street. A screen may consist of a building, solid masonry wall,

uniformly painted solid board fence or landscaping. The height of the screening shall be 6' feet unless an alternative height is approved by the Planning Commission during the review of a site plan.

3. The following types of outdoor display and/or outdoor sales shall be exempt from the requirements of **Section 6.11.8 A. 3.B**.
 - a. Motor Vehicles.
 - b. Power operated machines designed for outdoor labor, such as farming, construction or lawn maintenance, as well as large equipment, products, and materials designed to be kept outdoors.
 - c. Plants and other landscaping products typically sold with plants.
 - d. Temporary or seasonal activities, such as but not limited to, peddlers and itinerant merchants that have obtained approval from the Town.
 - e. Pre-manufactured buildings.
 - f. Vending machines.
 - g. General products, goods, merchandise, and/or materials, provided that (i) no more than 200 square feet of area is used, and (ii) outdoor display and/or sales are restricted from the evening and night hours from 8PM to 5AM, except that general products, goods, merchandise, and/or materials may be kept outdoors if located under a roofed structure.
4. Commercial development shall be permanently screened from adjoining and contiguous residential district by a wall, fence, evergreen hedge, and/or other suitable enclosure with a minimum height of six (6) feet. Any area between such enclosure and the property line shall be landscaped to form a permanent screening area. The requirement for a screening area may be waived if equivalent screening is provided by existing parks, recreational areas, or by topographic or other natural conditions.
5. The provision of subsection 4 shall not apply when the (architectural) front of any commercial building faces the street across from a residential district or when strict application of the requirement relative to screening can be demonstrated as not serving the purpose for which it is intended.

B. Lighting: Lighting facilities shall be arranged in a manner that will protect the public roadway and neighboring properties from direct glare, intrusion or hazardous interference. Parking lot and building lighting shall be down-directed so that the lighting does not extend beyond the property boundary. All gasoline canopy lighting shall be down-directed and shielded to direct the lighting to the area under the canopy only. Lighting facilities shall be required along private and public streets and within parking areas, installed at the developer's expense.

C. Miscellaneous:

1. No flammable or explosive liquids, solids or gases shall be stored in bulk above ground; provided, however, that tanks or drums of fuel directly connecting to energy devices, heating devices or appliances located on the same lot as the tanks or drums of fuel are excluded from this provision.
2. All fuel and raw materials stored outdoors shall be enclosed by a fence adequate to conceal the facilities from any adjacent properties or roadways.

3. No materials or wastes shall be deposited upon a lot in such form or manner that it may be transferred off the lot by natural causes or forces.
4. All refuse containers shall be adequately sized to handle the needs of the facility or development and all material or wastes which might cause fumes or dust, constitute a fire hazard, or may be edible or otherwise attractive to rodents or insects shall be stored only in completely closed containers.
5. All outdoor refuse storage areas shall be located in a paved area and hidden from general public view, either from within or outside the lot, by means of fences or walls, and landscape planting. A solid wood or masonry fence at least six (6) feet in height shall be provided on three (3) sides, with a solid opaque gate on the fourth side. Landscaping shall be incorporated to improve the visual appearance.

D. Landscaping:

1. All new developments shall provide for the planting, replacement and/or maintenance of trees on the site to the extent that, at maturity of twenty (20) years, minimum tree cover shall be at least ten (10) percent of the site area. Such sites shall be planted in accordance with the provisions of [Section 148-46](#).
2. All sites and parking areas shall be landscaped in accordance with the provisions of Sections 148-46, 148-47 and 148-48.

Commented [AD14]: None of these sections exist in Ch 148

E. Building location and treatment:

1. Integrated development. All buildings within a property shall be developed as a cohesive entity, ensuring that building placement, architectural treatment, vehicular and pedestrian circulation and other development elements work together functionally and aesthetically. Architectural treatment shall be designed so that all building facades of the same building (whether front, side or rear) that are visible from the public right-of-way shall consist of similar architectural treatment in terms of materials, quality, appearance and detail.
2. Building bulk and mass. All buildings and parking areas should be designed with treatments to break up the mass and bulk. The treatment of buildings shall include vertical architectural treatment at least every fifty (50) feet to break down the scale of the building into smaller components. Any facade with a blank wall must be screened in a manner approved by the Zoning Administrator. Architectural details shall continue on all facades visible from the public right-of-way.
3. Materials. Building materials for structures and retaining walls should be typical of those prevalent in Front Royal and Warren County, including stucco, brick, wood siding and standing seam metal roofs. Inappropriate materials include reflective glass, and plastic and fiberglass replications of natural materials. No facade visible from adjoining property or the corridor highway shall be constructed of unadorned cinder block, concrete, corrugated metal or sheet metal.
4. Color. The permanent color of building materials (to be left unpainted) should resemble primarily earthen tones.

Section 6.11.9 - OFF-STREET PARKING (C-3) (175-53.8)

A. Space Requirements, except where specifically exempted under [Section 9.10.2](#)

1. Retail and personal service uses: 1 space per 200 gross square feet.
2. Restaurants:
 - a. Sit-Down: 1 space per 4 seats.
 - b. Carry-Out: 1 space per 50 net square feet of customer service area.
 - c. Drive-Through: 3 spaces plus stacking lanes for six (6) vehicles.
3. Offices, except medical offices: 1 space per 300 gross square feet.
4. Medical offices: 1 space per 200 gross square feet.
5. Furniture/appliance/lumber and building supply: 1 space per 400 gross square feet.
6. Hotels/Motels: 1 space per room and 1 additional space for every 10 rooms.
7. Theaters and Assembly Halls: 1 space per 4 fixed seats in the main assembly area, or 1 space per 100 net square feet.
8. Shopping centers: as provided in this chapter **Division 9.5**
9. Indoor court game facilities: 1 space for every two (2) players as designed.
10. Indoor recreation facilities: 1 space per 200 net square feet of improved area.
11. Other uses not specifically enumerated, see **Section 9.10.2**

B. Minimum setback for driveways and parking:

1. All parking areas adjoin commercial properties: Five (5) feet from side and rear property lines.
2. Front Setback: Ten (10) feet from public right-of-way, except where driveway entrance is located.
3. Parking areas adjoining residential district: Twenty-five (25) feet from side and rear property lines.
4. Parking areas shall be landscaped in accordance with the provisions of **148-48**.

C. Construction:

1. All driveway entrances shall be constructed to meet the requirements of the Virginia Department of Transportation for commercial entrances.
2. All parking areas and access aisles shall be paved.

DIVISION 6.12 - MIXED-USE CAMPUS DEVELOPMENT (MCD) DISTRICT

Section 6.12.1 - STATEMENT OF INTENT (175-53.9)

The purpose for establishing the MCD District is to implement the policies of the Comprehensive Plan that support the redevelopment or development of large tracts of land for principally non-residential purposes. In addition, the MCD District is intended to encourage greater creativity through regulations that are more flexible than the traditional zoning districts of this Chapter. The regulations of the MCD District are designed to permit development that includes a mixture of commercial, industrial and organizational land uses within a planned campus environment. The regulations herein will protect the health and safety of Town citizens while promoting the public's general welfare through the establishment of new economic development opportunities for the promotion of jobs, tax revenue, and a vibrant community.

Section 6.12.2 - PERMITTED USES (175-53.10)

By-Right. Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the MCD District, the following uses of land and buildings are permitted by-right in the MCD District:

RESIDENTIAL:

Caretaker quarters

Nursing Homes

COMMERCIAL:

Appliance stores and repair services

Assembly Halls

Automobile and truck sales lots and leasing agencies

Bakeries

Barber and beauty shops

Car washing

Catering Services

Department Stores

Drugstores

Florist shops/floral designers

Funeral Homes

Furniture stores

Grocery stores
Hardware stores
Hospitals
Laundries, Laundromats and dry cleaners
Lumber and building supply, with storage under cover
Machinery sales and services
Newspaper and other printing establishments
Personal Services
Retail Stores
Pharmaceutical Center
Professional and Business Offices
Recreational Facility, Commercial
Recreational Facility, Public
Restaurant, except drive-in
Shopping Center
Technology Businesses
Theatres, Indoor
Veterinary hospitals
Wearing-apparel stores
Wireless Telecommunication Facilities

INDUSTRIAL:

Contractor's offices, display rooms and storage
Light Manufacturing

ORGANIZATIONAL:

College or university, without living quarters
Community Center
Government Offices and Buildings
Schools, adult instructional facilities only

Churches

Parks and Playgrounds

Public utilities

Public events.

Public garage

Public transportation terminals

Public facilities

Commuter Parking Facilities

Fire and rescue squad stations

Libraries

Radio and television broadcasting stations, studios or offices

Art galleries and museums

MISCELLANEOUS:

Accessory uses, structures and buildings

Communal Garage

Home occupations

Open Space and Conservation Areas

Parking lot

Private Garage

Signs

Special childcare services.

Section 6.12.3 - USE PERMITTED BY SPECIAL USE PERMIT (MCD)

Special Use Permit. The following uses are permitted within the MCD District only by approval of a special use permit or where specifically designated on an approved Concept Plan, except as prohibited or restricted by separate restrictions of record that may pertain to property within the MCD District:

RESIDENTIAL:

Multi-family

Single-family attached or detached

COMMERCIAL:

Automobile Repair

Day Care and Day Care Facilities

Motels, hotels, lodging and tourist homes

Gasoline Sales

Restaurant, Drive-In

INDUSTRIAL:

Distribution facilities

Medium Industrial

Mini-Storage Facility

Wholesale and warehouse establishments

ORGANIZATIONAL:

College or university, with living quarters

Schools, other than adult instructional facilities

MISCELLANEOUS:

Section 6.12.4 - 175-53.11 REVIEW AND CREATION

A. The MCD District may only be established for properties that consist of at least 50 contiguous acres of land area.

B. In addition to the requirements of this Chapter, the following additional information shall be submitted with an application to rezone, or conditional rezone, property to the MCD District.

1. Concept Plan. A Concept Plan shall be submitted with an application for rezoning or conditional rezoning. The Concept Plan shall illustrate how the property is intended to be developed, and how the proposed development will conform to Town ordinances, including any associated proffers, and the Comprehensive Plan. When illustrating the intended development, the Concept Plan shall include the location of existing structures, and the existing and/or proposed location of the following.
 - a. Roads
 - b. Sidewalks and trails
 - c. Recreational facilities and parks
 - d. Open Space
 - e. Stormwater infrastructure
 - f. Topography
 - g. Floodplains
 - h. Wetlands
 - i. Sinkholes, caves or caverns
 - j. Hazardous areas
 - k. Tree canopy

- l. Archeological sites and historic structures
 - m. Endangered species
 - n. Land uses and building areas
 - o. Adjacent properties
 - p. Public and private utilities & easements
 - q. Other information related to the proposed development that is necessary to assess the impacts and scope of the project.
2. Traffic Impact Analysis (TIA). A detailed TIA shall be prepared and submitted with an application to rezone, or conditionally rezone, to the MCD District. The TIA shall show the expected average daily traffic movements over any and all existing and planned streets within the proposed planned development, including motor vehicle traffic generated by the uses within the planned development. The traffic impact analysis shall include vehicle traffic generated by the lots within the planned development and expected to be generated in the future from the development of any and all adjacent properties to which and from which additional street connections are reasonably projected to be made and to which and from which additional traffic is reasonably expected to be generated. The study shall also include an analysis of the impact of the projected traffic on the adjacent local, collector and arterial road network, an assessment of the capacity of nearby intersections and appropriate solutions for improvements to the network (based on identified traffic problems) in accordance with Institute of Transportation Engineers (ITE) standards for acceptable street and intersection service levels.
 3. Phase I Environmental Analysis. At a minimum, a Phase I Environmental Site Assessment shall be submitted with a rezoning application to the MCD District. The Phase I Environmental Site Assessment shall be based on the anticipated use of the property proposed for development, and shall be prepared by generally accepted national standards for such assessments, such as those developed by the American Society for Testing and Materials (ASTM). A Phase II Environmental Site Assessment may be required at the time of rezoning application, or site plan application, based on the findings of the Phase I Environmental Site Assessment. A Phase II Environmental Site Assessment shall be prepared in accordance with the regulations of the Environmental Protection Agency (EPA) and the ASTM. In circumstances where more detailed studies have been completed and provided to the Town, those studies shall be accepted in lieu of an Environmental Site Assessment.
 4. Impact Statement. The applicant shall provide an Impact Statement that provides a narrative of the existing and proposed land use of the property and describe how it conforms to the Comprehensive Plan. The Impact Statement shall also identify how the project will impact the following, and how those impacts are proposed to be mitigated.
 - a. Fiscal Impacts, capital and operating.
 - b. Impacts to the Quality of Life of citizens.
 - c. Impacts to Property Values.
 - d. Impacts to the Environment.
 - e. Impacts to Archeological and Historic Resources.

Section 6.12.5 - 175-53.12 SUBSTANTIAL CONFORMANCE TO CONCEPT PLAN

The submission of a concept plan with a rezoning application, including all conditions and elements proposed on the plan, shall be considered as proffers for the conditional rezoning of the property. Upon approval of the requested conditional rezoning, and acceptance of all conditions,

including the concept plan and all other proffers that may be offered, all future land use activities shall be in substantial conformance with the concept plan. All future site development plan applications and subdivision plat applications shall be in substantial conformance with the concept plan. Minor deviations of the concept plan that do not significantly alter the overall land use layout, or conflict with specific conditions on the plan, or other proffers, may be considered in substantial conformance. Major deviations to the concept plan shall undergo the review process standard for proffer revisions.

Section 6.12.6 - 175-53.13 AREA REGULATIONS (175-53.13)

Lot Size & Width. New lots created on property within the MCD District shall not have a minimum lot size or width, except for corner lots, which shall have a minimum lot width at the setback line of one hundred (100) feet.

Section 6.12.7 - MAXIMUM HEIGHT (175-53.14)

A. The maximum structural height of buildings used for colleges, universities or hospitals shall be 5 stories, up to a maximum of 70 feet.

B. The maximum structure height of buildings used for parking garages, hotels, or technology businesses shall be 4 stories, up to a maximum of 56 feet.

C. Except as authorized under [Section 6.12.4](#), the maximum building height shall be 3 stories, up to a maximum of 42 feet.

D. A clear zone void of structures, signage, vegetation, and berms shall be established in areas determined by the Director to ensure appropriate emergency access for all permitted land uses. Where a clear zone is required, an easement shall be obtained to establish required clear zone areas.

Section 6.12.8 - MINIMUM SETBACK AND YARD DIMENSIONS (175-53.15)

A. The following setback and yard dimension requirements shall apply to lots within the MCD District.

1. Yards abutting existing public streets: Thirty (30) feet.
2. Yards abutting new public or private streets: Twenty (20) feet.
3. Yards abutting alleys or internal travel lanes: Fifteen (15) feet.
4. Side yard: Zero (0) feet
5. Rear yard: Zero (0) feet
6. Residential uses that may be approved by special use permit shall provide a minimum rear yard of at least twenty-five (25) feet.

Section 6.12.9 - PERFORMANCE STANDARDS (175-53.16)

In addition to the other requirements of the Town Code, developments within the MCD District shall comply with the following standards.

A. Open Space Standards

1. At least thirty percent (30%) of the acreage of the property shall be dedicated open space with public access.
2. Up to 25 percent (25%) of the open space required by [subsection 6.13.6.B.4](#), may be satisfied with land covered by water.

3. Required open space, including ingress/egress to the required open space, shall not be located within individual building lots.
4. Required open space shall not be further subdivided, and any future development of open space shall only be for the purpose of enhancing the use that it is dedicated for.
5. Open space shall be permanently dedicated for one of more of the following uses: natural resource conservation, or recreational facilities, wetland and water course preservation, selective forestry, wildlife habitat, undeveloped parklands or scenic preservation.
6. The open space shall be conveyed by the applicant as a condition of plat approval and may be conveyed by any of the following means as determined by the Town Council:
 - a. Deeded in perpetuity to the Town of Front Royal or other governmental agency for the purposes herein.
 - b. Reserved for common use or ownership of all property owners within the development by covenants in the deeds approved by the Town Attorney. A copy of the proposed deed covenants shall be submitted with the application.
 - c. Deeded in perpetuity to a private, non-profit, tax-exempt organization legally constituted for conservation purposes under terms and conditions that ensure the perpetual protection and management of the property for conservation purposes. A copy of the proposed deeds and relevant corporate documents of the land trust shall be submitted with the application.
 - d. Deeded to a property owner's association within the development upon terms and conditions approved by the Town Attorney that will ensure the continued use and management of the land for the intended purposes. The formation and incorporation by the applicant of one or more appropriate property owners' associations shall be required prior to plat approval. A copy of the proposed property owner's deed and the by-laws and other relevant documents of the property owner's association shall be submitted with the application. The following shall be required if open space is to be dedicated to a property owner's association:
 - [1] Covenants providing for mandatory membership in the association and setting forth the owner's rights, interests, and privileges in the association and the common land, must be included in the deed for each lot or unit;
 - [2] The property owners' association shall have the responsibility of maintaining the open space and operating and maintaining recreational facilities;
 - [3] The association shall have the authority to levy charges against all property owners to defray the expenses connected with the maintenance of open space and recreational facilities; and
 - [4] The applicant shall maintain control of dedicated open space and be responsible for its maintenance until 75% of occupancy permits for residential units have been issued and development is sufficient to support the association.
7. If development occurs in phases, the provision of dedicated natural open space may also be phased with the construction of improvements.
8. Pre-development streets and other impervious surfaces shall be excluded from the calculation of the minimum dedicated open space requirement.

B. Lighting Standards.

1. All outdoor lighting shall be designed to the standards of the International Dark-Sky Association (IDA), or an equivalent set of standards that effectively reduce light pollution.
2. Lighting shall be provided within all parking lots.

C. Underground Utility Standards. All new utilities shall be located underground. The Planning Commission may authorize the use of overhead lines where underground lines would adversely impact wetlands or other physical features of the land, or where the use of overhead lines is temporary.

D. Buffer Standards. Landscaped buffers shall be provided for uses within the MCD District as follows:

1. A fifty-foot (50') buffer shall be provided between adjoining properties of a different zoning category and nonindustrial uses within the MCD District.
2. A one-hundred-foot (100') buffer shall be provided between industrial and nonindustrial uses within the MCD District.
3. A two-hundred-foot (200') buffer shall be provided between adjoining properties of a different zoning category and industrial uses within the MCD District.
4. Buildings or structures shall be restricted within buffer areas, excluding small buildings or structures necessary to provide public utilities. Fifty percent (50%) of buffer areas may be used for active uses other than buildings and structures.

E. Screening Standards. Screening shall be provided for uses within the MCD District as follows:

1. Service bays shall be screened or oriented so they are not visible from public streets.
2. Outdoor display or storage of goods or merchandise shall be restricted, unless screened from view. The Planning Commission may authorize specific locations for outdoor display or seasonal outdoor storage as part of the site plan review process. To minimize negative aesthetical impacts of any authorized outdoor display or seasonal outdoor storage that is not fully screened, the Planning Commission may require additional landscaping or other site improvements.
3. Dumpster pad sites and mechanical equipment systems shall be screened so they are not visible from public streets. Such screening shall consist of an evergreen screen, wood fencing, or masonry wall that is consistent with the architectural design of the principle building on the lot.
4. An ornamental fence, masonry or stone wall, and/or landscaping screen shall be provided around the perimeter of a development within the MCD District and adjoining properties of a different zoning category. General details of such screening shall be designated on the Concept Plan.

F. Miscellaneous Standards

1. The gross land area of land devoted to commercial retail shall not exceed forty (40) percent of the gross land area of the development.
2. The gross land area of land devoted to residential uses shall not exceed forty (40) percent of the gross land area of the development.
3. Pedestrian sidewalks, trails, and crosswalks shall be designed to connect clusters of buildings to common areas and retail areas.
4. Common areas shall be provided throughout the project. Common areas shall include amenities such as, but not limited to, pedestrian and bicycle trails, bicycle parking racks, pavilions, gardens, benches, picnic tables, and fountains.

5. Incidental automobile repairs shall be permitted as an accessory use for automobile and truck sales lots and leasing agencies only if the use is located within a fully enclosed building.

DIVISION 6.13 - LIMITED INDUSTRIAL DISTRICT (I-1)

Section 6.13.1 - STATEMENT OF INTENT (I-1) (175-54)

The primary purpose of the I-1 District is to permit certain industries in town which do not in any way detract from residential desirability of nearby areas and to permit industries to locate near a labor supply. Mobile homes for residential purposes are prohibited but may be used for certain other uses as stated below.

Section 6.13.2 - USES PERMITTED BY RIGHT (I-1) (175-55)

Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the I-1 District, the following uses of land and buildings are permitted by-right in the I-1 District:

RESIDENTIAL:

Caretaker quarters.

COMMERCIAL:

Automobile and truck sales lots and leasing agencies, in accordance with **Section 6.9.8 E**

Automobile garage (auto repair)

Automobile service stations (gas stations)

Coal and wood yards, lumberyards and feed/seed stores.

Commuter parking facilities

Contractor's offices, display rooms and storage.

Furniture stores

Lumber and building supply.

Veterinary hospitals

INDUSTRIAL:

Distribution facilities

Light Manufacturing.

Woodworking and upholstery shop.

Wholesale

ORGANIZATIONAL:

Laboratory, pharmaceutical and/or medical.

MISCELLANEOUS:

Accessory uses, structures and buildings.

Home occupations.

Open Space

Public facilities.

Public parks and playgrounds.

Public utilities.

Signs, as set forth in **Article 10**

Special childcare services.

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator.

Section 6.13.3 - USES PERMITTED BY ~~SPECIAL PERMIT~~ SPECIAL USE PERMIT (I-1) (175-56)

A. The following uses are permitted within the I-1 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the I-1 District:

RESIDENTIAL:

COMMERCIAL:

Assembly Halls.

Business Offices.

Clubs.

Barber and beauty shops.

Kennels.

Professional Offices.

Recreation facility, commercial.

Restaurant, including drive-in restaurants.

Retail Stores.

Technology Business

INDUSTRIAL:

Medium Industrial.

ORGANIZATIONAL:

MISCELLANEOUS:

Any use permitted under [Section 6.13.2](#), or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of [Section 6.13.2](#), subject to the requirements of [Division 3.1](#). Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Communications Towers and cable television facilities, with wireless telephone (cell phone) communications tower subject to the supplemental provisions prescribed in [Division 3.9](#).

Conservation Areas

Mini-warehouses

Parking Structures

Section 6.13.4 - AREA REGULATIONS (I-1) (175-57)

The minimum lot area shall be ten thousand (10,000) square feet.

Section 6.13.5 - SETBACK (I-1) (175-58)

Buildings shall be located twenty (20) feet or more from any street right-of-way which is fifty (50) feet or greater in width or forty-five (45) feet or more from the center line of any street right-of-way less than fifty (50) feet in width.

Section 6.13.6 - FRONTAGE AND YARDS (I-1) (175-59)

A. The minimum lot width shall be sixty (60) feet.

B. Each side and rear yard shall be a minimum of ten (10) feet. The side and rear yard adjoining or adjacent to a residential district shall be forty (40) feet.

Section 6.13.7 - HEIGHT (I-1) (175-60)

Buildings may be erected up to a height of forty-five (45) feet. Chimneys, flues, cooling towers, flagpoles, radio or communication towers or their accessory facilities not normally occupied by workmen are excluded from this limitation. Parapet walls are permitted up to four (4) feet above the height of the building on which the walls rest.

Section 6.13.8 - LOT COVERAGE (I-1) (175-61)

Buildings or groups of buildings with their accessory structures may cover up to seventy percent (70%) of the area of the lot.

Section 6.13.9 - CORNER LOTS (I-1) (175-62)

A. Of the two (2) or more yards of a corner lot with frontage along multiple streets, the front yard shall be established by the following criteria:

1. For new subdivision applications, the front yard shall be identified by the applicant on the subdivision site plan and approved by the Town on the approved final plat.
2. For new construction on existing corner lots where no front yard is designated on the approved final plat, the property owner shall determine the front yard on the Zoning Permit application and shall be approved by the Town on the approved Zoning Permit.
3. For existing structures, the front yard shall be the yard with frontage that the front façade of the primary building faces.
4. The approved front yard established by this Code Section shall only be changed by review and approval of a revised final plat approved by the Planning Commission. Such future requests shall be approved if the Planning Commission determines that the proposed front yard is consistent with other properties along the same street frontages.

B. The side yard setback on the side facing a side street shall be twenty (20) feet or more for main buildings, and twenty (20) feet or more for accessory buildings.

C. Each corner lot shall have a minimum width at the setback line of one hundred (100) feet.

D. The rear yard setback if facing a street shall be fifty (50) feet or more for both main and accessory buildings.

Section 6.13.10 - PLANS REQUIRED; ADDITIONAL REQUIREMENTS (I-1) (175-63)

A. Before a building permit shall be issued or construction commenced on any permitted use in this district or a permit issued for a new use, the plans, in sufficient detail to show compliance with substantive provisions of this chapter and the operations and processes, shall be submitted to the Zoning Administrator for study. The Administrator shall refer these plans to the Planning Commission for its recommendation. Modification of the plans may be required. Such plans shall be drawn in accordance with Sections 175-116 and 175-117.

B. Except where otherwise specifically approved in the Town Code, permitted uses shall be conducted wholly within a completely enclosed building.

C. Outdoor storage, outdoor display or outdoor sale of goods shall only be permitted when each of the following standards are met.

1. Outdoor storage, outdoor display, or outdoor sale of goods shall be used in direct association with the primary use or uses of the property.
2. Outdoor storage, outdoor display and/or outdoor sales shall be screened to obstruct view from any adjacent public street. A screen may consist of a building, solid masonry wall, uniformly painted solid board fence or landscaping. The height of the screening shall be 6' feet unless an alternative height is approved by the Planning Commission during the review of a site plan.
3. The following types of outdoor display and/or outdoor sales shall be exempt from the requirements of Section 6.13.10.C.2
 - a. Motor vehicles.

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- b. Power operated machines designed for outdoor labor, such as farming, construction or lawn maintenance, as well as large equipment, products, and materials designed to be kept outdoors. Plants and other landscaping products typically sold with plants.
- c. Temporary or seasonal activities, such as but not limited to, peddlers and itinerant merchants that have obtained approval from the Town.
- d. Pre-manufactured buildings.
- e. Vending machines.
- f. General products, goods, merchandise, and/or materials, provided that (i) no more than 200 square feet of area is used, and (ii) outdoor display and/or sales are restricted from the evening and night hours from 8PM to 5AM, except that general products, goods, merchandise, and/or materials may be kept outdoors if located under a roofed structure.

D. The Planning Commission may require landscaping within any established or required front setback area. The plans and execution must take into consideration traffic circulation. Landscaping may be permitted up to a height of three (3) feet and to within fifty (50) feet from the corner of any intersecting streets.

E. Sufficient area shall be provided to adequately screen permitted uses from adjacent business and residential districts and for off-street parking, which shall be in accordance with the provisions set forth in [Section 9.10.2](#)

F. The Administrator shall act on any application received within thirty (30) days after receiving the application. If formal notice in writing is given to the applicant, the time for action may be extended for a thirty-day period. Failure on the part of the Administrator to act on the application within the established time limit shall be deemed to constitute approval of the application.

DIVISION 6.14 - INDUSTRIAL EMPLOYMENT DISTRICT (I-2)

Section 6.14.1 - STATEMENT OF INTENT (I-2) (175-64)

The I-2 Industrial Employment District is designed to:

- A. Enable the establishment of industrial and employment uses and structures in appropriate locations of the town.
- B. Prevent land or structures from being used in a manner so as to create any dangerous, injurious, noxious or otherwise objectionable risk of fire, explosion, radioactivity or other hazardous condition; noise or vibration, smoke, dust, odor or other form of air pollution; electrical or other disturbance, glare or heat; liquid or solid waste; or other condition that would detract from the residential and commercial desirability of the adjoining areas.

C. Provide controls and standards for the establishment of industrial and employment uses and structures in keeping with the purposes of this Article and the Front Royal Comprehensive Plan.

Section 6.14.2 - USE REGULATIONS (I-2) (175-65)

Subject to the standards and requirements set forth in this Chapter, except as prohibited or restricted by separate restrictions of record that may pertain to property within the I-2 District, the following uses of land and buildings are permitted by-right in the I-2 District:

RESIDENTIAL:

Caretaker quarters

COMMERCIAL:

Automobile and truck sales lots and leasing agencies, in accordance with **Section 6.9.8 E**

Automobile garage (auto repair)

Automobile service stations (gas stations)

Business Offices

Coal and wood yards, lumberyards and feed/seed stores

Commuter parking facilities

Contractor's offices, display rooms and storage

Furniture stores

Lumber and building supply

Professional Offices

Technology Business

Veterinary hospitals

INDUSTRIAL:

Distribution facilities

Light Manufacturing

Woodworking and upholstery shop.

Wholesale

ORGANIZATIONAL:

Laboratory, pharmaceutical and/or medical

Schools

MISCELLANEOUS:

Accessory uses, structures and buildings

Home occupations

Open Space

Public facilities.

Public parks and playgrounds

Public utilities

Signs, as set forth in **Article 10**

Special childcare services

Such other uses as determined similar to one or more enumerated uses by the Zoning Administrator

Section 6.14.3 - USE PERMITTED BY SPECIAL USE PERMIT (I-2)

The following uses are permitted within the I-2 District only by approval of a special use permit, except as prohibited or restricted by separate restrictions of record that may pertain to property within the I-2 District:

RESIDENTIAL:

COMMERCIAL:

Airport (including heliports)

Assembly Halls.

Barber and beauty shops

Catering Services

Clubs

Daycare and daycare facilities

Kennels

Recreation facility, commercial

Restaurant, including drive-in restaurants

Retail Stores

INDUSTRIAL:

Automobile Graveyard

Hazardous Material Storage

Heavy Manufacturing

Medium Manufacturing

Scrap metal processing

ORGANIZATIONAL:

MISCELLANEOUS:

Any use permitted under [Section 6.14.2.A](#), or specifically listed above under this subsection, that proposes to occupy a building or structure that exceeds the height requirements of [Section 6.14.3](#), subject to the requirements of [Division 5.1](#). Additional heights approved by a special use permit shall be required to increase the required setback and yard area requirements by an equivalent distance from each property line.

Communications Towers and cable television facilities, with wireless telephone (cell phone) communications tower subject to the supplemental provisions prescribed in [Division 9.9](#)

Conservation Areas

Mini-warehouses

Parking Structures

Section 6.14.4 - AREA REGULATIONS (I-2) (175-66)

- A. Minimum lot size: twenty thousand (20,000) square feet.
- B. Minimum lot width: eighty (80) feet.
- C. Minimum district size: ten (10) acres.

Section 6.14.5 - MAXIMUM HEIGHT OF BUILDINGS (I-2) (175-67)

- A. All buildings/structures: seventy-five (75) feet, except as provided for in [Section 6.14.2.A](#).
- B. Exemptions to height requirements:
 - 1. Chimneys and flues.
 - 2. Cooling towers.
 - 3. Flagpoles.
 - 4. Radio and communications towers.
 - 5. Parapet walls up to four (4) feet above the height of the building on which the wall rests.
 - 6. Water towers.
 - 7. Elevator towers.

Section 6.14.6 - MINIMUM YARD DIMENSIONS (I-2) (175-68)

A. All structures:

1. Front: twenty-five (25) feet.
2. Side: ten (10) feet.
3. Rear: zero (0).
4. Corner side: twenty-five (25) feet.

B. Transitional requirements, when adjoining a residential district

1. Side: forty (40) feet.
2. Rear: forty (40) feet.
3. All transitional yards shall be landscaped in accordance with [Section 148-44.](#)

Commented [AD17]: Same section ref. Doesn't exist.

Section 6.14.7 - LOT COVERAGE (I-2) (175-69)

A. Maximum building coverage: - fifty percent (50%).

B. Maximum impervious surface coverage: - seventy-five percent (75%).

Section 6.14.8 - PERFORMANCE STANDARDS (I-2) (175-70)

The following performance standards shall apply to all uses within the I-2 Industrial Employment District:

A. Vibration:

1. No continuous, frequent or repetitive vibrations shall be produced which are discernible to a person of normal sensitivities, without instruments, on land that is not zoned for industrial uses.
2. Vibrations from temporary construction and vehicles leaving the property (such as trucks or trains) are excluded. Vibrations from on-site equipment or vehicles that remain primarily on-site are included.
3. Vibrations of no more than five (5) minutes in any one (1) day between the hours of 7:00 a.m. and 7:00 p.m. shall not be deemed continuous, frequent or repetitive.

B. Glare: Any operation or activity producing intense light or glare shall be performed in such a manner as not to create a glare effect across lot lines. Direct illumination from any source shall be screened from adjoining properties.

C. Heat:

1. Heat from an industrial use shall not at any time cause a temperature increase in the air on any adjacent property in excess of ten degrees Fahrenheit (10 F.).

2. Heat from an industrial use shall not at any time cause a temperature increase in a stream, wetland, lake or any other body of water, at or beyond the property line of the lot on which it is located, that would have an adverse effect on any aquatic life.

D. Liquid or Solid Wastes:

1. No industrial use shall result in the discharge of liquid or solid waste into any public sewer, private sewage system, public waters or into the ground except in compliance with applicable federal, state or local laws governing such discharge.
2. There shall be no accumulation outdoors of solid wastes conducive to the breeding of rodents or insects.
3. All discharges into any public sewer shall comply with the provisions of Section 134-2, et seq.

E. Smoke and Particulate Matter:

1. Open storage and open processing operations, including on-site transportation movements which are the source of windborne dust or other particulate matter or which involve dust or other particulate air contaminant generating equipment (such as used in paint spraying, grain handling, sand or gravel processing or sandblasting) shall be conducted so that dust and other particulate air contaminants are not transported in visible quantities across the boundary line of the tract on which the industrial use is located.
2. All industrial uses shall comply with state and federal air pollution control regulations.

F. Toxic and Hazardous Materials:

1. All toxic and hazardous materials used in industrial operations shall be registered with the Front Royal Fire Department for purposes of safety.
2. Activities involving the storage or use of materials or products which decompose by detonation shall be registered with the Front Royal Fire Department.
3. Explosives shall be stored, used and manufactured in accordance with applicable state and federal regulations.

G. Odor:

1. No continuous, frequent or repetitive emission of odors or odor-causing substances of such intensity and character as to be detrimental to the health and welfare of the public or neighboring landowners or to interfere with the comfort of the public or neighboring landowners at or beyond the property line shall be permitted. Any such odor or odor causing activity or substance shall be removed, stopped or so modified as to remove the odor.
2. An odor which is evident no more than once in any one (1) day for a period not exceeding five minutes shall not be deemed as continuous, frequent or repetitive within the meaning of these regulations.

H. Noise:

1. No industrial activity shall generate noise that tends to have an annoying or disruptive effect upon uses located beyond the property boundary.
2. Where technical evidence of violation is warranted, sound levels shall be measured at locations specified in **Section 6.14.3** with a sound level meter and associated octave band filter, manufactured in accordance with the American Standards Association. Measurements shall be made using the flat network of the sound level meter. No sound pressure level shall exceed the decibel levels in the octave bands shown herein.
3. Maximum permitted sound levels (in decibels):

Octave Band Cycles Per Second	Maximum Permitted Sound Level in Decibels
0 to 75	72
75 to 150	67
150 to 300	59
300 to 600	52
600 to 1200	46
1200 to 2400	41
2400 to 4800	38
Above 4800	35

4. Noise resulting from temporary construction activity between the hours of 7:00 a.m. and 7:00 p.m. shall be exempt from this section.

I. Screening:

1. Except where otherwise specifically approved in the Town Code, permitted uses shall be conducted wholly within a completely enclosed building.
2. Outdoor storage, outdoor display or outdoor sale of goods shall only be permitted when each of the following standards are met.
 - a. Outdoor storage, outdoor display, or outdoor sale of goods shall be used in direct association with the primary use or uses of the property.

- b. Outdoor storage, outdoor display and/or outdoor sales shall be screened to obstruct view from any adjacent public street. A screen may consist of a building, solid masonry wall, uniformly painted solid board fence or landscaping. The height of the screening shall be 6' feet unless an alternative height is approved by the Planning Commission during the review of a site plan.
3. The following types of outdoor display and/or outdoor sales shall be exempt from the requirements of Section 6.14.9.2.1:
- a. Motor vehicles.
 - b. Power operated machines designed for outdoor labor, such as farming, construction or lawn maintenance, as well as large equipment, products, and materials designed to be kept outdoors.
 - c. Plants and other landscaping products typically sold with plants.
 - d. Temporary or seasonal activities, such as but not limited to, peddlers and itinerant merchants that have obtained approval from the Town.
 - e. Pre-manufactured buildings.
 - f. Vending machines.
 - g. General products, goods, merchandise, and/or materials, provided that (i) no more than 200 square feet of area is used, and (ii) outdoor display and/or sales are restricted from the evening and night hours from 8PM to 5AM, except that general products, goods, merchandise, and/or materials may be kept outdoors if located under a roofed structure.
4. All sites and parking areas shall be landscaped in accordance with the provisions of Sections 148-46, 148-47 and 148-48.
5. Automobile graveyards and junkyards, including those in existence at the time of the adoption of this chapter, shall completely screen, on any side open to view from a public road, the operation or use by a solid masonry wall, a uniformly colored solid fence or dense evergreen plantings at least six (6) feet in height at the time of planting.

Section 6.14.9 - LOCATIONS FOR DETERMINATION OF PERFORMANCE STANDARDS (I-2) (175-71)

Measurements may be made at ground level or at habitable levels of buildings. Measurements shall be made at the property boundary of the parcel where the industrial use is located.

Section 6.14.10 - ADMINISTRATION AND ENFORCEMENT OF PERFORMANCE STANDARDS (I-2) (175-72)

A. Before a building permit or zoning permit shall be issued or construction commenced on any uses in this district or a permit issued for a new use, the development plans shall be submitted to the Zoning Administrator for review. Sufficient detail shall be provided on said plans to show compliance with the substantive provisions of this chapter and compliance of the operations and processes to the performance standards.

B. Determinations of a violation shall be made pursuant to a test using either the senses of the Zoning Administrator and a second municipal official/employee, or using equipment before notice of violation is issued. The operator of an industrial use shall be given written notice of the time and place of the test and given a reasonable opportunity to witness the test.

C. The Zoning Administrator will notify landowners and business operators/tenants in writing of violations and will then seek compliance. When notified of a violation, a landowner or tenant will have the opportunity to demonstrate that the operation predates the application of this Article and is therefore a valid nonconforming use. A finding of violation may be appealed to the Board of Zoning Appeals and then to the courts.

D. If a violation exists and the operator fails to take satisfactory action within two (2) weeks, the Zoning Administrator shall take or cause to be taken such action as is appropriate to cause correction of such violation. Failure to obey lawful orders concerning correction of such violation shall be punishable as provided generally for violations in the Zoning Ordinance and in other laws or regulations affecting the case.

Section 6.14.11 - OFF-STREET PARKING AND LOADING (I-2) (175-73)

A. Parking space requirements:

1. Industrial uses/manufacturing/distribution areas: one (1) space per employee and one (1) space for every vehicle used on site, plus one (1) space per delivery/loading bay.
2. Automobile garages: two (2) spaces per service bay, or two (2) spaces for every three hundred sixty (360) square feet. Every such facility shall have a minimum of three (3) spaces.
3. Industrial uses/office component: one (1) space per three hundred (300) square feet of office area.
4. Other uses not specifically enumerated: see [Section 9.10.2](#)

B. Location: Minimum setback for loading areas, driveways and parking: five (5) feet from side and rear property lines for parking areas with fewer than fifteen (15) spaces and five (5) feet from front property line except where driveway entrance is located. All parking areas with fifteen (15) or more spaces shall meet the requirements of Section 148-48.

C. Loading space requirements:

1. Number: one (1) space for first ten thousand (10,000) square feet of gross floor area, plus one (1) space for each additional forty thousand (40,000) square feet or fraction thereof. For purposes of this section, gross floor area shall include gross outdoor storage areas, covered or uncovered.
2. Size of space: minimum twelve (12) feet wide and fifty-five (55) feet in length, with a minimum clear height of fifteen (15) feet.

ARTICLE 7 – OVERLAY DISTRICTS

DIVISION 7.1 - FLOODPLAIN ZONING (DCR)

Section 7.1.1 - GENERAL PROVISIONS

1.1 – Statutory Authorization and Purpose and Intent [44 CFR 59.22(a)(2)]

Va. **Code** § 15.2-2283 specifies that zoning ordinances shall be for the general purpose of promoting the health, safety, or general welfare of the public and of further accomplishing the objectives of § 15.2-2200 which encourages localities to improve the public health, safety, convenience, and welfare of their citizens. To these ends, flood ordinances shall be designed to provide for safety from flood, to facilitate the provision of flood protection, and to protect against loss of life, health, or property from flood.

In accordance with these directed provisions, this ordinance is specifically adopted pursuant to the authority granted to localities by Va. **Code** § 15.2 - 2280.

The purpose of these provisions is to prevent: the loss of life, health, or property, the creation of health and safety hazards, the disruption of commerce and governmental services, the extraordinary and unnecessary expenditure of public funds for flood protection and relief, and the impairment of the tax base by:

- A. Regulating uses, activities, and development which, alone or in combination with other existing or future uses, activities, and development, will cause unacceptable increases in flood heights, velocities, and frequencies;
- B. Restricting or prohibiting certain uses, activities, and development from locating within districts subject to flooding;
- C. Requiring all those uses, activities, and developments that do occur in flood-prone districts to be protected and/or floodproofed against flooding and flood damage;
- D. Protecting individuals from buying land and structures which are unsuited for intended purposes because of flood hazards;
- E. Addressing a local need of property owners for flood insurance and to participate in the National Flood Insurance Program (NFIP); and
- F. In the absence of a designated Floodplain Administrator, the duties are conducted by the Planning Director. The duties and responsibilities of the Floodplain Administrator shall include:

1.2 – Applicability

These provisions shall apply to all privately and publicly owned lands within the jurisdiction of Front Royal and identified as areas of special flood hazard. These lands are also identified in the most recent Flood Insurance Study (FIS) and the Flood Insurance Rate Maps (FIRM) adopted by the Warren County Board of Supervisors on June 3, 2008 or shown on the flood insurance rate map (FIRM) or included in the flood insurance study (FIS) that are provided to Front Royal by FEMA.

1.3 - Compliance and Disclaimer of Liability [44 CFR 60.1(b)]

- A. No land shall hereafter be developed and no structure shall be located, relocated, constructed, reconstructed, enlarged, or structurally altered except in full compliance with the terms and provisions of this ordinance and any other applicable ordinances and regulations which apply to uses within the jurisdiction of this ordinance.

Commented [JE18]: Inserted DCR Text. Changed all references to the community to Front Royal. Updated styles to match our hierarchy. Noted where there was some further discussion needed. See comments. Also, kept all the DCR footnotes for our knowledge. We can delete them if not relevant. LK to review and see if she likes this more than the present FR floodplain overlay structure and language.

Commented [AA19R18]: LK and GS have reviewed, should be ok!

- B. The degree of flood protection sought by the provisions of this ordinance is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study, but does not imply total flood protection. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This ordinance does not imply that districts outside the floodplain district or land uses permitted within such district will be free from flooding or flood damages.
- C. Records of actions associated with administering this section shall be kept on file and maintained by the Floodplain Administrator's Office in perpetuity.¹
- D. This ordinance shall not create liability on the part of Front Royal or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

1.4 – Records [44 CFR 59.22(a)(9)(iii)]

Records of actions associated with administering this ordinance shall be kept on file and maintained by or under the direction of the Floodplain Administrator in perpetuity².

1.5 - Abrogation and Greater Restrictions [44 CFR 60.1(b)]

- A. To the extent that the provisions are more restrictive, this ordinance supersedes any ordinance currently in effect in flood-prone areas. To the extent that any other existing law or regulation is more restrictive or does not conflict it shall remain in full force and effect.
- B. These regulations are not intended to repeal or abrogate any existing ordinances including subdivision regulations, zoning ordinances, or building codes. In the event of a conflict between these regulations and any other ordinance, the more restrictive shall govern.
- C. This chapter shall also include any subsequent revisions and amendments to the Flood Insurance Rate Maps and the Flood Insurance Study effective June 3, 2008.

1.6 - Severability

If any section, subsection, paragraph, sentence, clause, or phrase of this ordinance shall be declared invalid for any reason whatever, such decision shall not affect the remaining portions of this ordinance. The remaining portions shall remain in full force and effect; and for this purpose, the provisions of this ordinance are hereby declared to be severable.

1.7 - Penalty for Violations [44 CFR 60.2(e)]

- 1) Enforcement. Any person who fails to comply with any of the requirements or provisions of this article or directions of the Floodplain Administrator or any authorized employee of Front Royal shall be guilty of the appropriate violation and subject to the penalties thereof. The Floodplain Administrator shall have all necessary authority on behalf of the governing body to administer and enforce this section, including the ordering in writing of the remedying of any condition found in violation of this section and the

¹ This is a requirement to participate in the NFIP and is more restrictive than the Library of Virginia policy. If these records are not available, there is no way to show that a structure was built in compliance with the regulations at the time. Maintaining these records is the only way the community can show that it has been fairly administering the program. **Address footnote and amend for final draft.**

² This is a requirement to participate in the NFIP and is more restrictive than the Library of Virginia policy. If these records are not available, there is no way to show that a structure was built in compliance with the regulations at the time. Maintaining these records is the only way the community can show that it has been fairly administering the program.

Commented [ADA20]: Lauren, please reference footnotes in this section and amend accordingly.

bringing of legal action to ensure compliance with this section, including abatement or other appropriate action or proceeding.

- 2) The VA USBC addresses building code violations and the associated penalties in Section 104 and Section 115. Violations and associated penalties of the Zoning Ordinance of Front Royal are addressed in **Division 4** of the Zoning Ordinance.

In addition to the above penalties, all other actions are hereby reserved, including an action in equity for the proper enforcement of this article. The imposition of a fine or penalty for any violation of, or noncompliance with, this article shall not excuse the violation or noncompliance or permit it to continue; and all such persons shall be required to correct or remedy such violations within a reasonable time. Any structure constructed, reconstructed, enlarged, altered or relocated in noncompliance with this article may be declared by Front Royal to be a public nuisance and abatable as such. Flood insurance may be withheld from structures constructed in violation of this article.³

Section 7.1.2 - ADMINISTRATION

2.1 - Designation of the Floodplain Administrator

The *Floodplain Administrator*⁴ is hereby appointed to administer and implement these regulations and is referred to herein as the Floodplain Administrator. The Floodplain Administrator may:

- A. Do the work themselves. In the absence of a designated Floodplain Administrator, the duties are conducted by Front Royal Planning Director, or any other appointed Front Royal official.
- B. Delegate duties and responsibilities set forth in these regulations to qualified technical personnel, plan examiners, inspectors, and other employees.
- C. Enter into a written agreement or written contract with another community or private sector entity to administer specific provisions of these regulations. Administration of any part of these regulations by another entity shall not relieve the community of its responsibilities pursuant to the participation requirements of the National Flood Insurance Program as set forth in the Code of Federal Regulations at 44 C.F.R. Section 59.22.

2.2 - Duties and Responsibilities of the Floodplain Administrator [44 CFR 60.3]

The duties and responsibilities of the Floodplain Administrator shall include but are not limited to:

- A. Review applications for permits to determine whether proposed activities will be located in the Special Flood Hazard Area (SFHA).
- B. Interpret floodplain boundaries and provide available base flood elevation and flood hazard information.
- C. Review applications to determine whether proposed activities will be reasonably safe from flooding and require new construction and substantial improvements to meet the requirements of these regulations.
- D. Review applications to determine whether all necessary permits have been obtained from the Federal, State, or local agencies from which prior or concurrent approval is required; in particular, permits from state agencies for any construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction (including bridges, culverts,

³ If this is not a part of the zoning ordinance specific fines and penalties will need to be adopted instead.

⁴ Instead of Floodplain Administrator you can appoint the zoning administrator, town manager or other official who can be specifically identified here. Floodplain administrator does not always have to be a standalone job, but someone has to have the job.

structures), any alteration of a watercourse, or any change of the course, current, or cross section of a stream or body of water, including any change to the 100-year frequency floodplain of free-flowing non-tidal waters of the State.

- E. Verify that applicants proposing an alteration of a watercourse have notified adjacent communities, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), and other appropriate agencies (VADEQ, USACE), and have submitted copies of such notifications to FEMA.
- F. Advise applicants for new construction or substantial improvement of structures that are located within an area of the Coastal Barrier Resources System established by the Coastal Barrier Resources Act that Federal flood insurance is not available on such structures; areas subject to this limitation are shown on Flood Insurance Rate Maps as Coastal Barrier Resource System Areas (CBRS) or Otherwise Protected Areas (OPA).
- G. Approve applications and issue permits to develop in flood hazard areas if the provisions of these regulations have been met, or disapprove applications if the provisions of these regulations have not been met.
- H. **Assure that all other State and Federal permits are obtained.**
- I. Inspect or cause to be inspected, buildings, structures, and other development for which permits have been issued to determine compliance with these regulations or to determine if non-compliance has occurred or violations have been committed.
- J. Review Elevation Certificates and require incomplete or deficient certificates to be corrected.
- K. Submit to FEMA, or require applicants to submit to FEMA, data and information necessary to maintain FIRMs, including hydrologic and hydraulic engineering analyses prepared by or for Front Royal, within six months after such data and information becomes available if the analyses indicate changes in base flood elevations.
- L. Maintain and permanently keep records that are necessary for the administration of these regulations, including:
 1. Flood Insurance Studies, Flood Insurance Rate Maps (including historic studies and maps and current effective studies and maps), and Letters of Map Change; and
 2. Documentation supporting issuance and denial of permits, Elevation Certificates, documentation of the elevation (in relation to the datum on the FIRM) to which structures have been floodproofed, inspection records, other required design certifications, variances, and records of enforcement actions taken to correct violations of these regulations.
- M. Enforce the provisions of these regulations, investigate violations, issue notices of violations or stop work orders, and require permit holders to take corrective action.
- N. Advise the Board of Zoning Appeals regarding the intent of these regulations and, for each application for a variance, prepare a staff report and recommendation.
- O. Administer the requirements related to proposed work on existing buildings:
 1. Make determinations as to whether buildings and structures that are located in flood hazard areas and that are damaged by any cause have been substantially damaged.
 2. Make reasonable efforts to notify owners of substantially damaged structures of the need to obtain a permit to repair, rehabilitate, or reconstruct. Prohibit the non-compliant repair of substantially damaged buildings except for temporary emergency protective measures necessary to secure a property or stabilize a building or structure to prevent additional damage.
- P. Undertake, as determined appropriate by the Floodplain Administrator due to the circumstances, other actions which may include but are not limited to: issuing press releases, public service announcements, and other public information materials related to permit requests and repair of damaged structures; coordinating with other Federal, State, and local agencies to assist with substantial damage determinations; providing owners of

Commented [JE21]: This was in Warren, not in DCR.

damaged structures information related to the proper repair of damaged structures in special flood hazard areas; and assisting property owners with documentation necessary to file claims for Increased Cost of Compliance coverage under NFIP flood insurance policies.

- Q. Notify the Federal Emergency Management Agency when the corporate boundaries of Front Royal have been modified and:
 - 1. Provide a map that clearly delineates the new corporate boundaries or the new area for which the authority to regulate pursuant to these regulations has either been assumed or relinquished through annexation; and
 - 2. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.
- R. Upon the request of FEMA, complete and submit a report concerning participation in the NFIP which may request information regarding the number of buildings in the SFHA, number of permits issued for development in the SFHA, and number of variances issued for development in the SFHA.
- S. It is the duty of the Floodplain Administrator to take into account flood, mudslide and flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use throughout the entire jurisdictional area of the Community, whether or not those hazards have been specifically delineated geographically (e.g. via mapping or surveying).

2.3 - Use and Interpretation of FIRMs [44 CFR 60.3]

The Floodplain Administrator shall make interpretations, where needed, as to the exact location of special flood hazard areas, floodplain boundaries, and floodway boundaries. The following shall apply to the use and interpretation of FIRMs and data:

- A. Where field surveyed topography indicates that adjacent ground elevations:
 - 1. Are below the base flood elevation in riverine SFHAs, or below the 1% storm surge elevation in coastal SFHAs, even in areas not delineated as a special flood hazard area on a FIRM, the area shall be considered as special flood hazard area and subject to the requirements of these regulations;
 - 2. Are above the base flood elevation and the area is labelled as a SFHA on the FIRM, the area shall be regulated as special flood hazard area unless the applicant obtains a Letter of Map Change that removes the area from the SFHA.
- B. In FEMA-identified special flood hazard areas where base flood elevation and floodway data have not been identified and in areas where FEMA has not identified SFHAs, any other flood hazard data available from a Federal, State, or other source shall be reviewed and reasonably used.
- C. Base flood elevations and designated floodway boundaries on FIRMs and in FISs shall take precedence over base flood elevations and floodway boundaries by any other sources if such sources show reduced floodway widths and/or lower base flood elevations.
- D. Other sources of data shall be reasonably used if such sources show increased base flood elevations and/or larger floodway areas than are shown on FIRMs and in FISs.
- E. If a Preliminary Flood Insurance Rate Map and/or a Preliminary Flood Insurance Study has been provided by FEMA:
 - 1. Upon the issuance of a Letter of Final Determination by FEMA, the preliminary flood

hazard data shall be used and shall replace the flood hazard data previously provided from FEMA for the purposes of administering these regulations.

2. Prior to the issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data shall be deemed the best available data pursuant to Article III, Section 3.1.A.3 and used where no base flood elevations and/or floodway areas are provided on the effective FIRM.
3. Prior to issuance of a Letter of Final Determination by FEMA, the use of preliminary flood hazard data is permitted where the preliminary base flood elevations or floodway areas exceed the base flood elevations and/or designated floodway widths in existing flood hazard data provided by FEMA. Such preliminary data may be subject to change and/or appeal to FEMA.

2.4 - Jurisdictional Boundary Changes [44 CFR 59.22, 65.3]

The County floodplain ordinance in effect on the date of annexation shall remain in effect and shall be enforced by the municipality for all annexed areas until the municipality adopts and enforces an ordinance which meets the requirements for participation in the National Flood Insurance Program. Municipalities with existing floodplain ordinances shall pass a resolution acknowledging and accepting responsibility for enforcing floodplain ordinance standards prior to annexation of any area containing identified flood hazards. If the FIRM for any annexed area includes special flood hazard areas that have flood zones that have regulatory requirements that are not set forth in these regulations, the governing body shall prepare amendments to these regulations to adopt the FIRM and appropriate requirements, and submit the amendments to the governing body for adoption; such adoption shall take place at the same time as or prior to the date of annexation and a copy of the amended regulations shall be provided to Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management) and FEMA.

In accordance with the Code of Federal Regulations, Title 44 Subpart (B) Section 59.22(a)(9)(v) all NFIP participating communities must notify the Federal Insurance Administration and optionally the State Coordinating Office in writing whenever the boundaries of the community have been modified by annexation or the community has otherwise assumed or no longer has authority to adopt and enforce floodplain management regulations for a particular area.

In order that all Flood Insurance Rate Maps accurately represent the community's boundaries, a copy of a map of the community suitable for reproduction, clearly delineating the new corporate limits or new area for which the community has assumed or relinquished floodplain management regulatory authority must be included with the notification.

2.5 - District Boundary Changes

The delineation of any of the Floodplain Districts may be revised by Front Royal where natural or man-made changes have occurred and/or where more detailed studies have been conducted or undertaken by the U. S. Army Corps of Engineers or other qualified agency, or an individual documents the need for such change. However, prior to any such change, approval must be obtained from the Federal Emergency Management Agency. A completed LOMR is a record of this approval.

2.6 - Interpretation of District Boundaries

Initial interpretations of the boundaries of the Floodplain Districts shall be made by the Zoning Officer. Should a dispute arise concerning the boundaries of any of the Districts, the Board of Zoning Appeals shall make the necessary determination. The person questioning or contesting the location of the District boundary shall be given a reasonable opportunity to present his case to the Board and to submit his own technical evidence if he so desires.

2.7 – Submitting Model Backed Technical Data [44 CFR 65.3]

A community's base flood elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, a community shall notify the Federal Emergency Management Agency of the changes by submitting technical or scientific data. The community may submit data via a LOMR. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.

2.8 – Letters of Map Revision

When development in the floodplain will cause or causes a change in the base flood elevation, the applicant, including state agencies, must notify FEMA by applying for a Conditional Letter of Map Revision and then a Letter of Map Revision.

Example cases:

- Any development that causes a rise in the base flood elevations within the floodway.
- Any development occurring in Zones A1-30 and AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation.
- Alteration or relocation of a stream (including but not limited to installing culverts and bridges) 44 Code of Federal Regulations §65.3 and §65.6(a)(12).

Section 7.1.3 - ESTABLISHMENT OF ZONING OVERLAY DISTRICT

3.1 - Description of Special Flood Hazard Districts [44 CFR 59.1, 60.3]

A. Basis of Districts

The various special flood hazard districts shall include the SFHAs. The basis for the delineation of these districts shall be the FIS and the FIRM for Front Royal prepared by the Federal Emergency Management Agency, Federal Insurance Administration, dated [redacted] {insert the effective date of the community's Flood Insurance Rate Map}⁵, and any subsequent revisions or amendments thereto.

Front Royal may identify and regulate local flood hazard or ponding areas that are not delineated on the FIRM. These areas may be delineated on a "Local Flood Hazard Map" using best available topographic data and locally derived information such as flood of record, historic high-water marks, or approximate study methodologies.

⁵ If preparing an ordinance amendment for adoption of a new FIRM and FIS, the new effective date should be used here, not the initial FIRM date. Every time a community receives a new FIRM, an ordinance amendment must be adopted to update the FIRM's effective date. This amendment must be adopted and approved by FEMA prior to the effective date of the new FIRM to avoid suspension from the NFIP.

The boundaries of the SFHA Districts are established as shown on the FIRM which is declared to be a part of this ordinance and which shall be kept on file at Front Royal offices.

1. The **Floodway District** is in an **AE Zone** and is delineated, for purposes of this ordinance, using the criterion that certain areas within the floodplain must be capable of carrying the waters of the one percent annual chance flood without increasing the water surface elevation of that flood more than one (1) foot at any point. The areas included in this District are specifically defined in **Table** of the above-referenced FIS and shown on the accompanying FIRM.

The following provisions shall apply within the Floodway District of an AE zone [44 CFR 60.3(d)]:

- a. Within any floodway area, no encroachments, including fill, new construction, substantial improvements, or other development shall be permitted unless it has been demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels within the community during the occurrence of the base flood discharge. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently-accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

Development activities which increase the water surface elevation of the base flood may be allowed, provided that the applicant first applies – with the {community's} endorsement – for a Conditional Letter of Map Revision (CLOMR), and receives the approval of the Federal Emergency Management Agency.

If Article III, Section 3.1.A.1.a is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article 4.

- b. The placement of manufactured homes (mobile homes) is prohibited, except in an existing manufactured home (mobile home) park or subdivision. A replacement manufactured home may be placed on a lot in an existing manufactured home park or subdivision provided the anchoring, elevation, and encroachment standards are met.
2. The **AE, or AH Zones** on the FIRM accompanying the FIS shall be those areas for which one-percent annual chance flood elevations have been provided and the floodway has **not** been delineated. The following provisions shall apply within an AE or AH zone [44 CFR 60.3(c)] where FEMA has provided base flood elevations⁶:
Until a regulatory floodway is designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within the areas of special flood hazard, designated as Zones A1-30, AE, or AH on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within Front Royal.

⁶ The requirement in 60.3(c)(10) only applies along rivers, streams, and other watercourses where FEMA has provided base flood elevations. The requirement does not apply along lakes, bays and estuaries, and the ocean coast.

Development activities in Zones AI-30, AE, or AH on the {community's} FIRM which increase the water surface elevation of the base flood by more than one foot may be allowed, provided that the applicant first applies – with the {community's} endorsement – for a Conditional Letter of Map Revision, and receives the approval of the Federal Emergency Management Agency.

3. The **A Zone** on the FIRM accompanying the FIS shall be those areas for which no detailed flood profiles or elevations are provided, but the one percent annual chance floodplain boundary has been approximated. For these areas, the following provisions shall apply [44 CFR 60.3(b)]:

The Approximated Floodplain District shall be that floodplain area for which no detailed flood profiles or elevations are provided, but where a one percent annual chance floodplain boundary has been approximated. Such areas are shown as Zone A on the maps accompanying the FIS. For these areas, the base flood elevations and floodway information from Federal, State, and other acceptable sources shall be used, when available. Where the specific one percent annual chance flood elevation cannot be determined for this area using other sources of data, such as the U. S. Army Corps of Engineers Floodplain Information Reports, U. S. Geological Survey Flood-Prone Quadrangles, etc., then the applicant for the proposed use, development and/or activity shall determine this base flood elevation. For development proposed in the approximate floodplain the applicant must use technical methods that correctly reflect currently accepted practices, such as point on boundary, high water marks, or detailed methodologies hydrologic and hydraulic analyses. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough review by the Floodplain Administrator.

The Floodplain Administrator reserves the right to require a hydrologic and hydraulic analysis for any development. When such base flood elevation data is utilized, the lowest floor shall be elevated to or above the base flood *level plus eighteen (18) inches*⁷.

During the permitting process, the Floodplain Administrator shall obtain:

- a. The elevation of the lowest floor (in relation to mean sea level), including the basement, of all new and substantially improved structures; and,
- b. If the structure has been floodproofed in accordance with the requirements of this article, the elevation (in relation to mean sea level) to which the structure has been floodproofed.

Base flood elevation data shall be obtained from other sources or developed using detailed methodologies comparable to those contained in a FIS for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty lots or five acres, whichever is the lesser⁸.

4. The **AO Zone** on the FIRM accompanying the FIS shall be those areas of shallow

⁷ The flood maps anticipate one foot of rise in BFE due to fill in the floodplain, so while building to BFE is all that is required; it will result in flooding if all assumptions made in mapping are correct. Flood insurance rounds up for freeboard so an 18 inch requirement offers the best “bang for the buck” in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data.

⁸ The recommended standard here is 5 lots instead of 50. Fifty lots is the breakpoint suggested in the federal regulations but the 5/5 rule is less confusing and captures more commercial development.

flooding identified as AO on the FIRM. For these areas, the following provisions shall apply [44 CFR 60.3(c)]:

- a. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated no less than two feet above the highest adjacent grade.
- b. All new construction and substantial improvements of non-residential structures shall
 - (1) Have the lowest floor, including basement, elevated to or above the flood depth specified on the FIRM, above the highest adjacent grade at least as high as the depth number specified in feet on the FIRM. If no flood depth number is specified, the lowest floor, including basement, shall be elevated at least two feet above the highest adjacent grade; or,
 - (2) Together with attendant utility and sanitary facilities be completely floodproofed to the specified flood level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
- c. Adequate drainage paths around structures on slopes shall be provided to guide floodwaters around and away from proposed structures.

5. The **Coastal A Zone**⁹ is labelled as AE on the FIRM; it is those areas that are seaward of the limit of moderate wave action (LiMWA) line. As defined by the VA USBC, these areas are subject to wave heights between 1.5 feet and 3 feet. For these areas, the following provisions shall apply:

Buildings and structures within this zone shall have the lowest floor elevated to or above the base flood elevation plus one foot¹⁰ of freeboard, and must comply with the provisions in Article III, Section 3.1.A.2 and Article IV, Sections 4.2 and 4.3.

6. The **VE or V Zones** on FIRMs accompanying the FIS shall be those areas that are known as Coastal High Hazard areas, extending from offshore to the inland limit of a primary frontal dune along an open coast or other areas subject to high velocity waves. For these areas, the following provisions shall apply [44 CFR 60.3(e)]:

- a. All new construction and substantial improvements in Zones V and VE, including manufactured homes, shall be elevated on pilings or columns so that:
 - (1) The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level *plus eighteen (18) inches*.¹¹ if the lowest horizontal structural member is parallel to the direction of wave approach or elevated at least two feet above

⁹ Instead of having a coastal A zone a community can include this area in the V zone, adopting these standards for Coastal A areas provides a higher degree of protection, reflects the level of surge risk seen in actual events, and helps ensure that buildings built now receive favorable insurance rates if FEMA does change their program requirements to include coastal A limitations. Right now the only provisions effecting this zone are found in the Virginia Building Code and are reflected in the language here.

¹⁰ If your community has adopted a higher freeboard (as is recommended) this one foot requirement might need to be changed for consistency with the freeboard required in A or V zones. Consider changing the one foot to 18" of freeboard.

¹¹ . Flood insurance rounds up for freeboard so an 18 inch requirement offers the best "bang for the buck" in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data.

- the base flood level if the lowest horizontal structural member is perpendicular to the direction of wave approach; and,
- (2) The pile or column foundation and structure attached thereto is anchored to resist flotation, collapse, and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one percent chance of being equalled or exceeded in any given year (one-percent annual chance).
- b. A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of Article III, [Section A.6.a.](#)
 - c. The Floodplain Administrator shall obtain the elevation (in relation to mean sea level) of the bottom of the lowest horizontal structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V and VE. The Floodplain Management Administrator shall maintain a record of all such information.
 - d. All new construction shall be located landward of the reach of mean high tide.
 - e. All new construction and substantial improvements shall have the space below the lowest floor either free of obstruction¹² or constructed with non-supporting breakaway walls, open wood-lattice work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purpose of this Section, a breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:
 - (1) Breakaway wall collapse shall result from water load less than that which would occur during the base flood; and
 - (2) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one percent chance of being equalled or exceeded in any given year.
 - f. The enclosed space below the lowest floor shall be used solely for parking of vehicles, building access, or storage. Such space shall not be partitioned into multiple rooms, temperature-controlled, or used for human habitation. *The enclosed space shall be less than 300 square feet.*¹³
 - g. The use of fill for structural support of buildings is prohibited. When non-structural fill is proposed in a coastal high hazard area, appropriate engineering analyses shall be conducted to evaluate the impacts of the fill prior to issuance of a permit.
 - h. The man-made alteration of sand dunes, which would increase potential flood

¹² An optional higher standard is to simply require that all areas below the lowest floor be free from obstructions that cannot be seen through. This makes it much easier to be sure that these areas are not converted to living spaces and means that breakaway walls do not need technical inspections.

¹³ Spaces that are 300 square feet or more trigger very high insurance rates, so limiting the size of these spaces to less than 300 square feet is a higher standard that can make the structure more affordable to insure.

damage, is prohibited.

7. *The mapped floodplain includes all of the above regions and also the regions designated as having a 0.2 percent annual chance of flooding on any flood map or flood insurance study. In this area no emergency service, medical service, or governmental records storage shall be allowed except by special exception using the variance process.*¹⁴

3.2 - Overlay Concept

The Floodplain Districts described above shall be overlays to the existing underlying districts as shown on the Official Zoning Ordinance Map, and as such, the provisions for the floodplain districts shall serve as a supplement to the underlying district provisions.

If there is any conflict between the provisions or requirements of the Floodplain Districts and those of any underlying district, the more restrictive provisions and/or those pertaining to the floodplain districts shall apply.

In the event any provision concerning a Floodplain District is declared inapplicable as a result of any legislative or administrative actions or judicial decision, the basic underlying provisions shall remain applicable.

Section 7.1.4 - DISTRICT PROVISIONS [44 CFR 59.22, 60.2, 60.3]

4.1 – Permit and Application Requirements

A. Permit Requirement

All uses, activities, and development occurring within any floodplain district, including placement of manufactured homes, shall be undertaken only upon the issuance of a permit. Such development shall be undertaken only in strict compliance with the provisions of this Ordinance and with all other applicable codes and ordinances, as amended, such as the Virginia Uniform Statewide Building Code (VA USBC) and Front Royal Subdivision Regulations. Prior to the issuance of any such permit, the Floodplain Administrator shall require all applications to include compliance with all applicable State and Federal laws and shall review all sites to assure they are reasonably safe from flooding. Under no circumstances shall any use, activity, and/or development adversely affect the capacity of the channels or floodways of any watercourse, drainage ditch, or any other drainage facility or system.

B. Site Plans and Permit Applications

All applications for development within any floodplain district and all permits issued for the floodplain shall incorporate the following information:

1. The elevation of the Base Flood at the site.
2. For structures to be elevated, the elevation of the lowest floor (including basement) or, in V zones, the lowest horizontal structural member.
3. For structures to be floodproofed (non-residential only), the elevation to which the structure will be floodproofed.
4. Topographic information showing existing and proposed ground elevations.

¹⁴ This limitation on the use of the 0.2 percent floodplain is not required by NFIP regulations but is an accepted standard for critical facilities in emergency management. Critical facilities that are built in mapped floodplain might not be eligible for rebuilding assistance after a disaster, therefore DCR recommends this provision to ensure that any decision made to build in these circumstances is carefully considered.

4.2 - General Standards

The following provisions shall apply to all permits:

- A. New construction and substantial improvements shall be built according to this ordinance and the VA USBC, and anchored to prevent flotation, collapse, or lateral movement of the structure.
- B. Manufactured homes shall be anchored to prevent flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state anchoring requirements for resisting wind forces.
- C. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- D. New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage.
- E. Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities, including duct work, shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- F. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- G. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
- H. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.
In addition to provisions A – H above, in all special flood hazard areas, the additional provisions shall apply:
- I. Prior to any proposed alteration or relocation of any channels or of any watercourse, stream, etc., within this jurisdiction a permit shall be obtained from the U. S. Corps of Engineers, the Virginia Department of Environmental Quality, and the Virginia Marine Resources Commission (a joint permit application is available from any of these organizations). Furthermore, in riverine areas, notification of the proposal shall be given by the applicant to all affected adjacent jurisdictions, the Department of Conservation and Recreation (Division of Dam Safety and Floodplain Management), other required agencies, and the Federal Emergency Management Agency.
- J. The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

4.3 - Elevation and Construction Standards [44 CFR 60.3]

In all identified flood hazard areas where base flood elevations have been provided in the FIS or generated by a certified professional in accordance with Article III, Section 3.1.A.3 the following provisions shall apply:

- A. **Residential Construction**
New construction or substantial improvement of any residential structure (including manufactured homes) in Zones A1-30, AE, AH, and A with detailed base flood elevations shall have the lowest floor, including basement, elevated to or above the base flood level

*plus eighteen(18) inches*¹⁵. See Article III, Section 3.1.A.5 and Article III, Section 3.1.A.6 for requirements in the Coastal A, VE, and V zones.

B. Non-Residential Construction

1. New construction or substantial improvement of any commercial, industrial, or non-residential building (or manufactured home) shall have the lowest floor, including basement, elevated to or above the base flood level *plus eighteen (18) inches*¹⁶. See Article III, Section 3.1.A.5 and Article III, Section 3.1.A.6 for requirements in the Coastal A, VE, and V zones.
2. Non-residential buildings located in all A1-30, AE, and AH zones may be floodproofed in lieu of being elevated provided that all areas of the building components below the elevation corresponding to the BFE *plus two feet*¹⁷ are water tight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification, including the specific elevation (in relation to mean sea level) to which such structures are floodproofed, shall be maintained by (title of community administrator).

C. Space Below the Lowest Floor

In zones A, AE, AH, AO, and A1-A30, fully enclosed areas, of new construction or substantially improved structures, which are below the regulatory flood protection elevation shall:

1. Not be designed or used for human habitation, but shall be used solely for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or entry to the living area (stairway or elevator).
2. Be constructed entirely of flood resistant materials below the regulatory flood protection elevation;
3. Include measures to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet the following minimum design criteria:
 - a. Provide a minimum of two openings on different sides of each enclosed area subject to flooding.
 - b. The total net area of all openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding.
 - c. If a building has more than one enclosed area, each area must have openings to

¹⁵ The flood maps anticipate one foot of rise in BFE due to fill in the floodplain, so while building to BFE is all that is required; it will result in flooding if all assumptions made in mapping are correct. Flood insurance rounds up for freeboard so an 18 inch requirement offers the best “bang for the buck” in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data

¹⁶ The flood maps anticipate one foot of rise in BFE due to fill in the floodplain, so while building to BFE is all that is required; it will result in flooding if all assumptions made in mapping are correct. Flood insurance rounds up for freeboard so an 18 inch requirement offers the best “bang for the buck” in reducing flood insurance rates and allows for an additional margin of safety in case the models have an error or are based on incomplete data

¹⁷ If your community has adopted the recommended freeboard you might need to change this provision to be consistent or higher than the freeboard otherwise required. Please note that the minimum requirements are BFE plus one foot – two feet of freeboard is the recommended minimum.

allow floodwaters to automatically enter and exit.

- d. The bottom of all required openings shall be no higher than one (1) foot above the adjacent grade.
- e. Openings may be equipped with screens, louvers, or other opening coverings or devices, provided they permit the automatic flow of floodwaters in both directions.
- f. Foundation enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires openings as outlined above.

D. Accessory Structures

- 1. Accessory structures of any size shall be prohibited within the SFHA and no variance shall be granted for accessory structures.

OR

- 2. Accessory structures in the SFHA shall comply with the elevation requirements and other requirements of Article IV, Section 4.3.B or, if not elevated or dry floodproofed, shall:

- a. Not be used for human habitation;
- b. Be limited to no more than *600 square feet*¹⁸ in total floor area;
- c. Be useable only for parking of vehicles or limited storage;
- d. Be constructed with flood damage-resistant materials below the base flood elevation;
- e. Be constructed and placed to offer the minimum resistance to the flow of floodwaters;
- f. Be anchored to prevent flotation;
- g. Have electrical service and mechanical equipment elevated to or above the base flood elevation;
- h. Shall be provided with flood openings which shall meet the following criteria:
 - (1) There shall be a minimum of two flood openings on different sides of each enclosed area; if a building has more than one enclosure below the lowest floor, each such enclosure shall have flood openings on exterior walls.
 - (2) The total net area of all flood openings shall be at least 1 square inch for each square foot of enclosed area (non-engineered flood openings), or the flood openings shall be engineered flood openings that are designed and certified by a licensed professional engineer to automatically allow entry and exit of floodwaters; the certification requirement may be satisfied by an individual certification or an Evaluation Report issued by the ICC Evaluation Service, Inc.
 - (3) The bottom of each flood opening shall be 1 foot or less above the higher of the interior floor or grade, or the exterior grade, immediately below the opening.
 - (4) Any louvers, screens or other covers for the flood openings shall allow the automatic flow of floodwaters into and out of the enclosed area.
- i. *A signed Declaration of Land Restriction (Non-Conversion Agreement) shall be*

¹⁸ This is the minimum size restriction set by FEMA Region III, but a community could choose a higher standard and limit accessory structures to a size less than 600 square feet. However, a variance could be issued for larger accessory structures, not to exceed 600 square feet. If a smaller size limit is chosen, additional language would be required in Article VI: Variances - see Footnote 23. The chosen size restriction should also be reflected in Article IV, Section 4.3.D.2.b, Article VI, Section M, and Article VIII-Glossary in the definition of "Appurtenant or accessory structure".

*recorded on the property deed.*¹⁹

- E. Standards for Manufactured Homes and Recreational Vehicles
 - 1. In zones A, AE, AH, and AO, all manufactured homes placed, or substantially improved, on individual lots or parcels, must meet all the requirements for new construction, including the elevation and anchoring requirements in Article III, Section 3.1.A.6 and Article IV, Sections 4.2 and 4.3.
 - 2. All recreational vehicles placed on sites must either:
 - a. Be on the site for fewer than 180 consecutive days, be fully licensed and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions); or
 - b. Meet all the requirements for manufactured homes in Article IV, Section 4.3.E.1.

4.4 - Standards for Subdivision Proposals

- A. All subdivision proposals shall be consistent with the need to minimize flood damage;
- B. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
- C. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards, and
- D. Base flood elevation data shall be obtained from other sources or developed using detailed methodologies, hydraulic and hydrologic analysis, comparable to those contained in a Flood Insurance Study for subdivision proposals and other proposed development proposals (including manufactured home parks and subdivisions) that exceed fifty²⁰ lots or five acres, whichever is the lesser.

Section 7.1.5 – EXISTING STRUCTURES IN FLOODPLAIN AREAS

Any structure or use of a structure or premises must be brought into conformity with these provisions when it is changed, repaired, or improved²¹ unless one of the following exceptions is established before the change is made:

- A. The floodplain manager has determined that:
 - 1. Change is not a substantial repair or substantial improvement AND
 - 2. No new square footage is being built in the floodplain that is not complaint AND
 - 3. No new square footage is being built in the floodway AND
 - 4. The change complies with this ordinance and the VA USBC AND
 - 5. *The change, when added to all the changes made during a rolling 5-year period does not constitute 50% of the structure's value.*²²
- B. The changes are required to comply with a citation for a health or safety violation.
- C. The structure is a historic structure and the change required would impair the historic

¹⁹ A non-conversion agreement is strongly recommended, especially if a variance is being issued for an accessory structure. However, the non-conversion agreement is not a requirement.

²⁰ The recommended standard here is 5 lots instead of 50. Fifty lots is the breakpoint suggested in the federal regulations, but the 5/5 rule is less confusing and captures more commercial development.

²¹ The assumption that all buildings will be brought in to compliance unless an exception is found is not required by the federal regulations, it is a recommended change for the sake of administrative efficiency and improved compliance.

²² This cumulative change requirement is a recommended higher standard. DCR has found that not having a time period for cumulative change can lead to people trying to split work up to avoid hitting the 50% limit which puts the community in a difficult place with enforcement and increases administrative burdens.

nature of the structure.

Section 7.1.6 - VARIANCES: FACTORS TO BE CONSIDERED [44 CFR 60.6]

Variances shall be issued only upon (i) a showing of good and sufficient cause, (ii) after the Board of Zoning Appeals has determined that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) after the Board of Zoning Appeals has determined that the granting of such variance will not result in (a) unacceptable or prohibited increases in flood heights, (b) additional threats to public safety, (c) extraordinary public expense; and will not (d) create nuisances, (e) cause fraud or victimization of the public, or (f) conflict with local laws or ordinances.

While the granting of variances generally is limited to a lot size less than one-half acre, deviations from that limitation may occur. However, as the lot size increases beyond one-half acre, the technical justification required for issuing a variance increases. Variances may be issued by the Board of Zoning Appeals for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, in conformance with the provisions of this Section.

Variances may be issued for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that the criteria of this Section are met, and the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

In passing upon applications for variances, the Board of Zoning Appeals shall satisfy all relevant factors and procedures specified in other sections of the zoning ordinance and consider the following additional factors:

- A. The danger to life and property due to increased flood heights or velocities caused by encroachments. No variance shall be granted for any proposed use, development, or activity within any Floodway District that will cause any increase in the one percent (1%) chance flood elevation.
- B. The danger that materials may be swept on to other lands or downstream to the injury of others.
- C. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.
- D. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owners.
- E. The importance of the services provided by the proposed facility to the community.
- F. The requirements of the facility for a waterfront location.
- G. The availability of alternative locations not subject to flooding for the proposed use.
- H. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
- I. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
- J. The safety of access by ordinary and emergency vehicles to the property in time of flood.
- K. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.
- L. The historic nature of a structure. Variances for repair or rehabilitation of historic structures may be granted upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is

the minimum necessary to preserve the historic character and design of the structure.

M. Variances will not be issued for any accessory structure within the SFHA. (*Note: See Article IV, Section 4.3.D.1).*

N. Such other factors which are relevant to the purposes of this Ordinance.

The Board of Zoning Appeals may refer any application and accompanying documentation pertaining to any request for a variance to any engineer or other qualified person or agency for technical assistance in evaluating the proposed project in relation to flood heights and velocities, and the adequacy of the plans for flood protection and other related matters.

Variances shall be issued only after the Board of Zoning Appeals has determined that the granting of such will not result in (a) unacceptable or prohibited increases in flood heights, (b) additional threats to public safety, (c) extraordinary public expense; and will not (d) create nuisances, (e) cause fraud or victimization of the public, or (f) conflict with local laws or ordinances.

Variances shall be issued only after the Board of Zoning Appeals has determined that the variance will be the minimum required to provide relief.

The Board of Zoning Appeals shall notify the applicant for a variance, in writing that the issuance of a variance to construct a structure below the one percent (1%) chance flood elevation (a) increases the risks to life and property and (b) will result in increased premium rates for flood insurance.

A record shall be maintained of the above notification as well as all variance actions, including justification for the issuance of the variances. Any variances that are issued shall be noted in the annual or biennial report submitted to the Federal Insurance Administrator.

Section 7.1.7 – Floodplain Overlay District Definitions

See Article 13 for Definitions.

DIVISION 7.2 - HISTORIC DISTRICT OVERLAY AREAS

(Adopted 10-23-78; Amended Entire Section 4-13-92 and 3-22-93)

Section 7.2.1 - STATEMENT OF INTENT (Historic District) (175-82)

A. The intent of this Article is to promote and protect the health, safety, comfort, recreation, prosperity and general welfare of the community through the identification, preservation and enhancement of buildings, structures, neighborhoods, landscapes, places and areas which have special historical, cultural, artistic, architectural or archaeological significance as provided by §15.2-2306 of the Code of Virginia, as amended.

B. It is hereby recognized that the deterioration, destruction or alteration of said buildings, structures, places and areas may cause the permanent loss of unique resources which are of great value to the people of Front Royal, Warren County, the State of Virginia and the nation and that the special controls and incentives are warranted to ensure that such losses are avoided when possible.

C. The purposes of establishing historic resource overlay areas are:

1. To preserve and improve the quality of life for residents of the Town of Front Royal by protecting familiar and treasured visual elements in the area.

2. To promote tourism by protecting historical and cultural resources attractive to visitors and thereby supporting local business and industry.
3. To stabilize and improve property values by providing incentive for the upkeep and rehabilitation of older structures and by encouraging desirable uses and forms of economic development.
4. To educate residents on the local cultural and historic heritage as embodied in the Historic District Overlay Areas and to foster a sense of pride in this heritage.
5. To promote local historic preservation efforts and to encourage the identification and nomination of qualified historic properties to the National Register of Historic Places and the Virginia Landmarks Register.
6. To prevent the encroachment of additions or new buildings and structures that are architecturally incongruous with their environs within areas of architectural harmony and historic character.

Section 7.2.2 - ACTIONS REQUIRING ADMINISTRATIVE REVIEW (Historic District) (175-89.1)

A. The following actions will require administrative review by the Zoning Administrator:

1. The razing, demolishing, or moving of a non-contributing structure or a structure which is substantially damaged to the point of being completely uninhabitable.
2. Construction of a new accessory structure less than five hundred (500) square feet in size within a designated historic district or on a site adjacent to a designated landmark site that is generally in keeping with the character of the historic district and its surroundings.
3. Substantial alteration of a non-contributing structure.
4. Any addition to a non-contributing structure, which increases the size (square footage and/or volume) of the structure by less than one hundred percent (100%) of the original structure.
5. Landscaping, fences and signs in conformance with the design guidelines adopted in accordance with this Article.

B. The Zoning Administrator shall be guided in his decisions by the standards and guidelines adopted by the Board of Architectural Review and shall have authority to request modifications of specific proposal in order that the proposal may comply with said standards and guidelines. In any case where the Administrator is uncertain of his authority to act on a particular application under this section or in any case where the Administrator and the applicant cannot agree on changes in the proposal, the application shall be referred to the Board of Architectural Review for action by said Board. In case of disapproval by the Administrator, the applicant may appeal the Administrator's decision within thirty (30) days thereof to the Board of Architectural Review. The Administrator shall keep a record of his decisions under this section and shall report such decisions to the Board of Architectural Review at its next regular meeting.

Section 7.2.3 - EXEMPTIONS FROM REVIEW (Historic District) (175-90)

Certain minor actions which are deemed not to permanently affect the character of the historic district are exempted from review for architectural compatibility. Such actions shall include:

1. Repainting resulting in the same or a similar color. (Original painting of masonry surfaces is not exempted from review.)
2. Repair or construction in kind, resulting in no significant changes in appearance or form.
3. Addition or deletion of storm windows and doors, window gardens, awnings, temporary canopies or similar appurtenances and window air conditioners.
4. Addition or deletion of television or radio antennas, skylights or solar collectors in locations not visible from a public place.
5. Installation of plant materials but not including landscape treatment which substantially alters the contour of a contributing property or involves landscaping or construction of fences, pools and the like that affect the appearance of a contributing property.
6. Permitted outside storage in a residential or commercial district that does not require structural changes.
7. Improvements, alterations and renovations that can be accomplished without obtaining a building permit, except fences, signs, and window replacement.
8. Any changes to a structure that are not visible from a public street, alley or public place.
9. Temporary window signs.

Section 7.2.4 - AUTHORITY TO STOP WORK (Historic District) (175-90.1)

The Zoning Administrator shall have authority to order that work be stopped and that an appropriate application be filed or reviewed in any case where, in his opinion, the action may produce arresting and spectacular effects, violent contrasts or materials or colors and intense and lurid colors or patterns or a multiplicity of incongruous details clearly inconsistent with the character of the present structures or with the prevailing character of the surroundings and the historic district or when it appears that the work does not conform to the list of administrative review or exempted actions stated herein and, in fact, is more extensive than originally represented.

Section 7.2.5 - GUIDELINES AND CRITERIA FOR REVIEW (Historic District) (175-91)

A. All reviewing bodies shall be guided by the following guidelines and criteria:

1. The historic archaeological or architectural value and significance of a structure and its relationship to the historic value of the surrounding area.
2. The age and character of the historic structure, its condition, and its probable life expectancy and the appropriateness of the proposed changes to the period or periods during which the structure was built.

3. The general compatibility of the site plan and the exterior design arrangement, texture and materials proposed to be used.
4. The view of the structure or area from a public street or road, present or future.
5. The present character of the setting of the structure or area and its surroundings.
6. The probable effect of proposed construction on trees, wooded areas or historic sites.
7. Any other factors, including aesthetic factors, which the reviewing bodies deem to be pertinent.
8. The appropriateness of the exterior architectural features of such building or structure to the compatibility with the exterior architectural features of landmarks, buildings or structures in the district, taking into consideration the following:
 - a. General design.
 - b. Character and appropriateness of design.
 - c. Form.
 - d. Proportion and scale.
 - E. Mass.
 - f. Configuration.
 - g. Arrangement.
 - h. Texture.
 - i. Material
 - j. The permanent color of exterior materials (excluding paint).
 - k. The relationship of such elements to similar features of structures in the immediate surroundings.
 - l. Congruity with the character of the Historic District.

B. The reviewing bodies shall not adopt or impose any specific architectural style in the administration of this Article.

C. The reviewing bodies shall also be guided by the purposes for which landmarks, landmark sites and historic districts are designated and by the particular standards and considerations contained in the Secretary of the Interior's Standards for Rehabilitation.

Section 7.2.6 - ISSUANCE OF CERTIFICATE OF APPROPRIATENESS (Historic District) (175-92)

A. Within fifteen (15) days of approval for construction or alteration pursuant to **Sec 3-2-3011** of this Chapter a certificate of appropriateness signed by the Zoning Administrator and bearing the

date of issuance but subject to the provisions of **Section 7.2.6.B**, shall be made available to the applicant.

B. Any certificate of appropriateness issued pursuant to Sec **3.2.3(1)** of this Chapter shall expire of its own limitations twelve (12) months from the date of issuance if the work authorized by said certificate has not commenced and, further, if any such work is suspended or abandoned for a period of twelve (12) months after being commenced. Any period or periods of time during which the right to use any such certificate is stayed pursuant to this Article shall be excluded from the computation of the twelve- month period.

Section 7.2.7 - BUILDING DEMOLITION AND RELOCATION (Historic District) (175-93)

A. No historic landmark, building or structure within any historic district shall be razed, demolished or moved until the razing, demolition or movement thereof is approved by the Board of Architectural Review or approved on appeal as provided herein.

B. Notwithstanding the provisions of Subsection A, the owner of a historic landmark, building or structure shall, as a matter of right, be entitled to raze or demolish such a building or structure, provided that:

1. He has applied to the Town Council for such right;
2. The owner has, for the period of time set forth in the time schedule hereinafter contained and at a price reasonably related to its fair market value, made a bona fide offer to sell such building or structure and the land pertaining thereto to any person, firm, corporation, government or agency thereof or political subdivision or agency thereof which gives reasonable assurance that it is willing to preserve and restore the building or structure and the land pertaining thereto. In order to demonstrate the making of a bona fide offer to sell, the owner shall file a notice with the Zoning Administrator identifying the property and stating the offering price and the name of the real estate agent, if any. No time period set forth herein shall begin to run until said notice has been filed. Within five (5) days of receipt, copies of the notice shall be delivered by the Zoning Administrator to the members of the Town Council, the members of the Planning Commission and the Town Manager; and
3. No bona fide contract, binding upon all parties thereto, shall have been executed for the sale of any such building or structure and the land pertaining thereto prior to the expiration of the applicable time period set forth in the time schedule hereinafter contained. Any appeal from the decision of the BAR, whether instituted by the owner or by any other proper party, notwithstanding the provisions herein pertaining to a stay on appeal, shall not affect the right of the owner to make the bona fide offer to sell. No offer to sell shall be made more than one (1) year after the final decision of the BAR, but thereafter the owner may renew his request to the BAR to approve the razing or demolition of the historic landmark, building or structure. The time schedule for offers to sell shall be as follows:

OFFERING PRICE**MINIMUM OFFER-TO-SELL****Period (Months)**

Less than \$25,000.00	3
\$25,000.00 to \$39,999.99	4
\$40,000.00 to \$54,999.99	5
\$55,000.00 to \$74,999.99	6
\$75,000.00 to \$89,999.99	7
\$90,000.00 or more	12

4. For the purpose of this Article, a bona fide offer to sell shall be defined as a selling price not greater than ten percent (10%) more than the fair market value appraisal of a certified land appraiser employing appropriate, recognized appraisal criteria for the area in question. The Town shall retain the right to contest the bona fide nature of the offer as follows: the reasonable relationship of the offering price to the fair market value of the historic landmark, building or structure, by filing injunctive proceedings in the Warren County Circuit Court, whenever the Town obtains an appraisal of the property in question by a certified land appraiser at a value at least ten percent (10%) below the offering price asked by the owner, regardless of any conflicting appraisal obtained by the property owner.

Section 7.2.8 - APPEALS (Historic District) (175-94)

A. Any applicant aggrieved by a final decision of the Board of Architectural Review may appeal said decision to the Front Royal Town Council, provided that such appeal is filed, in writing, with the Town Clerk within ten (10) days after the final decision is rendered by the BAR. The Town Council will hear the matter at its next regularly scheduled meeting and will render its decision on the appeal at the following regularly scheduled meeting. The Council, in its discretion, may consider additional evidence and submissions during the period between meetings and at the second regularly scheduled meeting prior to rendering its decision.

B. Any applicant aggrieved by a final decision of the Board of Architectural Review following the decision rendered on appeal to the Front Royal Town Council, may appeal said decision to the Circuit Court of Warren County, Virginia, by filing a petition at law setting forth the alleged illegality of the BAR's action, provided that such petition is filed with the Circuit Court within thirty (30) days after the appealed decision of the Front Royal Town Council. The filing of said petition with the Circuit Court shall stay the decision of the BAR pending the outcome of the appeal, except that the filing of such petition shall not stay the decision of the BAR if such decision denies the right to raze or demolish an historic landmark, building or structure. The Circuit Court may reverse or modify the decision of the BAR, in whole or in part, if the Court finds, upon review, that the decision is arbitrary and constitutes an abuse of discretion. The Circuit Court may also affirm the decision of the BAR.

Section 7.2.9 - MAINTENANCE, PUBLIC SAFETY AND PERMITTED USES (Historic District) (175-95)

A. Nothing in this Article shall allow the BAR to prevent the routine maintenance or repair of any exterior elements of any building or structure so long as there is no change in form or materials; nor shall anything in this Article be construed to prevent the construction, reconstruction, alteration or demolition of any exterior elements that the authorized municipal officers shall certify as required by public safety.

B. Nothing in this Article shall be construed to prevent any use of any land, building or structure permitted by the regulations prescribed in this Chapter for the district in which such land, building or structure is otherwise located. Due to peculiar conditions of design and construction in historic neighborhoods where buildings and structures are often built close to the lot lines, it is in the public interest to retain a neighborhood's historic appearance by granting variances to normal yard requirements, where appropriate and where it is deemed that such a variance will not adversely affect neighboring properties. The BAR may recommend to the Board of Zoning Appeals that such variance to standard yard requirements be made.

Section 7.2.10 - YARD VARIANCES (Historic District) (175-96)

Due to peculiar conditions of design and construction in historic neighborhoods where buildings and structures are often built close to the lot lines, it is in the public interest to retain a neighborhood's historic appearance by granting variances to normal yard requirements, where appropriate and where it is deemed that such a variance will not adversely affect neighboring properties. The BAR may recommend to the Board of Zoning Appeals that such variance to standard yard requirements be made.

Section 7.2.11 - (RESERVED) (175-97)

Section 7.2.12 - EXEMPTION FOR PUBLIC WORKS (Historic District) (175-98)

The Front Royal Town Council may exempt public structures, works, utilities and buildings from compliance with this Article where public safety is endangered or an emergency situation arises. Retroactive approval for emergency work undertaken shall be sought within thirty (30) days following completion of the work. All work shall strive to maintain architectural compatibility within the historic district for its public works and structures.

DIVISION 7.3 - ENTRANCE CORRIDOR OVERLAY DISTRICT (EC)

(Adopted 10-11-99)

Section 7.3.1 - STATEMENT OF INTENT (EC) (175-98.1)

Pursuant to Section 15.2-2306 of the Code of Virginia 1950, as amended, the intent of this Entrance Corridor Overlay District (EC) is to promote and protect the health, safety, comfort and general welfare of the community through establishing high quality design criteria. The implementation of these criteria will help to stabilize and improve property values; to protect and enhance the Town's attractiveness to tourists and other visitors; to sustain and enhance the economic benefits accruing to the Town from tourism; and to support and stimulate complimentary development appropriate to the historic and architectural character of the Town. Benefits attributable to the

promotion of superior design and appearance of structures constructed along the arterial entrance corridor will ultimately promote the public health, safety and general welfare of the citizens of the Town of Front Royal.

Section 7.3.2 - ESTABLISHMENT OF DISTRICTS (EC) (175-98.2)

The Entrance Corridor Overlay District (EC) will overlay all other zoning districts where it is applied so that any parcel of land lying in an EC shall also lie within one (1) or more other zoning districts. The regulations and requirements of both the underlying district(s) and the EC shall apply. However, when the regulations applicable to the EC conflict with the regulations of the underlying district, the more restrictive regulations shall apply.

Section 7.3.3 - DISTRICT BOUNDARIES (EC) (175-98.3)

- A. EC boundaries shall be designated on the official zoning map of the Town of Front Royal.
- B. The district boundaries shall be designated as the full depth of all parcels of land contiguous to the following public highways, and located within the corporate boundaries of the Town:
 - 1. U.S. Route 340 from Interstate 66 to the southern corporate limit, except those properties lying within the adopted boundaries of the Historic Front Royal District.
- C. Any property or project partially located within the EC shall be considered to be fully located within the EC and subject to the regulations herein.

Section 7.3.4 - REVIEW FOR DESIGN COMPLIANCE (EC) (175-98.4)

- A. When Required: The requirements of the EC District shall be applicable to any property located within the EC boundaries for new development, exterior renovations, and new land use activities that propose outdoor lighting, outdoor storage, outdoor sales, and/or outdoor display areas, except that the following exceptions shall be exempt from the requirements of the EC.
 - 1. Regular maintenance of structures, including minor alterations that do not significantly alter the appearance of the structure.
 - 2. Single-family detached dwellings.
 - 3. Accessory buildings under 200 square feet in area.
 - 4. Additions less than 500 square feet in area for buildings existing as of January 1, 1999.
 - 5. Exempt signs and temporary signs.
 - 6. Authorized temporary or seasonal activities and structures.
- B. Review Authority: The review authority responsible for the review and approval of projects in accordance with the EC shall be the Director, except for the construction of new buildings and new non-exempt ground-mounted signs, which shall be reviewed by the Planning Commission. Such review shall take place in conjunction with the review of the site development plan or a zoning permit for the property.

Section 7.3.5 - SITE AND DESIGN STANDARDS (EC) (175-98.5)

- A. Outside Storage, Outdoor Display or Outdoor Sales: In addition to the standards for the underlying zoning district, outdoor storage, outdoor display and/or outdoor sales within the EC

District shall be reviewed by the Planning Commission when located within the required yard adjacent to Route 340. The Planning Commission may place reasonable design conditions on such activities, including the designation of a specific area to be used, and/or the requirement of a distance buffer, screen or landscaping.

B. Utilities: Utility lines, including electric, cable and telephone, to serve the development project shall be installed underground. All junction and access boxes shall be screened. All utility pad fixtures, meter boxes, etc. shall be shown on the site plan and integrated with the architectural elements of the site.

C. Fences: Fences exceeding four (4) feet in height shall be located in the side and rear yards only. Chain link fences, including those with slats, are discouraged, particularly where visible from the public right-of-way. No chain link fence shall be permitted in the front yard in the EC.

D. Mechanical Equipment: Mechanical equipment shall be shielded and screened from the public view and designed to be perceived as an integral part of the building.

E. Integrated Development: All buildings within the property shall be developed as a cohesive entity, ensuring that building placement, architectural treatment, vehicular and pedestrian circulation and other development elements work together functionally and aesthetically. Architectural treatment shall be designed so that all building facades of the same building (whether front, side, or rear) that are visible from the public right-of-way, shall consist of similar architectural treatment in terms of materials, quality, appearance and detail.

F. Orientation: Building facades and entrances should be oriented in a manner toward the primary means of vehicular access.

G. Building Bulk and Mass: All buildings and parking areas should be designed with treatments to break up the mass and bulk. The treatment of buildings shall include vertical architectural treatment at least every 25-30 feet to break down the scale of the building into smaller components. Any facade with a blank wall shall be screened in a manner consistent with the requirements of environmental planting screens in [Section 148-44](#). Architectural details shall continue on all facades visible from the public right-of-way. Large expanses of blank walls facing the street are inappropriate.

Commented [AD22]: 148-44 does not exist.

H. Scale and Proportion: New construction should relate to the dominant proportions of buildings in the immediate area. The ratio of height to width and the ratio of mass (building) to void (openings) should be balanced. The scale and mass of a proposed project should relate to nearby buildings or the streetscape.

I. Materials: Building materials shall be typical of those prevalent in Front Royal/Warren County, including, but not limited to, stucco, brick, architectural block, wood siding and standing seam metal roofs. Inappropriate materials include reflective glass and metal wall panels. No facade visible from the adjoining property or the roadway shall be constructed of unadorned cinder block, unadorned concrete, corrugated metal or sheet metal.

J. Color: The permanent color of building materials (to be left unpainted) shall resemble the predominate tones, primarily earthen tones, prevalent in the historic areas of the community. Garish and striking colors shall be avoided.

K. Adjoining Historic Properties: New construction on properties that adjoin designated historic properties should seek to incorporate the scale, massing and treatment of the historic property into the new construction. Efforts shall be made to relate to the building height, when in proximity to the principle historic structure. New construction shall not overshadow the adjoining historic property.

L. Lighting: All outdoor lighting fixtures shall be down-directed, with light trespass not to exceed 0.5 foot-candles at the property line. All island canopy ceiling fixtures shall be recessed.

Section 7.3.6 - ADOPTION OF STANDARDS AND GUIDELINES (EC) (175.98.6)

The Front Royal Planning Commission may adopt written standards and guidelines to illustrate and clarify the design standards herein, provided that such standards and guidelines are consistent with the intent and provisions of the EC.

Section 7.3.7 - APPEALS (EC) (175-98.7)

Any decision made under the provisions of this Section may be appealed to the Front Royal Town Council, following the process outlined in Section 175-94 (A), by any applicant aggrieved by such decision. Further appeal may be made to the Circuit Court, pursuant to Section 15.2-2306.A.3 of the Code of Virginia 1950, as amended.

ARTICLE 8 – USE REGULATIONS (175-107)

DIVISION 8.1 – USES FOR ELDERLY, DAY CARE, BED AND BREAKFAST AND CEMETARIES

Section 8.1.1 - NURSING AND CONVALESCENT HOMES, INCLUDING HOMES FOR THE ELDERLY (175-107)

In addition to the requirements of the district in which the nursing or convalescent home is located, such uses shall meet the following requirements:

- A. All state rules and regulations for the licensing of such uses.
- B. All requirements of the State Health Department and Fire Marshal's office regarding such uses.
- C. Parking requirements as established in [Chapter 148](#).
- D. Architectural barriers, such as stairs, for residents of such establishments shall be overcome to the greatest extent possible. Additional safety features, such as handrails, in various areas shall be installed.

Section 8.1.2 - DAY CARE AND DAY-CARE FACILITIES IN RESIDENTIAL ZONING DISTRICTS BY ~~SPECIAL PERMIT~~ SPECIAL USE PERMIT (175-107.1)

The following provisions shall apply to day care and day-care facilities located in residential zoning districts:

A. All day-care operations in residential zoning districts shall be restricted to not more than one hundred (100) children per day-care facility.

B. All day-care operations and day-care facilities shall be licensed by the Commonwealth of Virginia in accordance with the provisions of Virginia Code Section 63.1-196, as amended, unless otherwise specifically exempted from such licensing requirements under provisions of the Virginia State Code.

C. Day-care operations in residential districts shall not be permitted in single-family or multi-family residential dwellings.

D. Day-care operations in residential districts shall be restricted to schools, churches, lodges, hospitals, rest, convalescent or nursing homes, offices or halls which are otherwise permitted by right in the respective residential district in question, or any of the aforementioned facilities which are currently in existence as a nonconforming use, or any of the aforementioned facilities which have previously been approved for non-day-care purposes by ~~special permit~~Special Use Permit. The day-care operation shall be an ancillary or additional use to the facility in question. Facilities shall not be constructed in residential districts solely for daycare use.

E. All day-care facilities in residential zoning districts shall be required to have a minimum lot size of twenty thousand (20,000) square feet for day-care operations with fifty (50) children or fewer and forty thousand (40,000) square feet for day-care operations with more than fifty (50) children.

F. In assessing the request for a special use permit to conduct day-care operations in residential zoning districts, the Council shall consider and may require the availability of safe on-site drop-off and pickup areas, outdoor play areas not located in the facility's front yard, fenced play areas and screening or noise buffers for adjacent properties. The Council shall also consider the nature and suitability of the proposed facility, the size, location and characteristics of the grounds or yard, the safety of the children to be cared for at the facility, peak and non-peak traffic patterns, parking, the effects on nearby property and residents, noise and such other factors which the Council deems pertinent in assessing the suitability of any proposed day-care operation in a residential zoning district.

Section 8.1.3 - BED AND BREAKFAST USES IN RESIDENTIAL ZONING DISTRICTS BY ~~SPECIAL PERMITS~~SPECIAL USE PERMIT (175-107.2)

The following provisions shall apply to Bed and Breakfast Uses located in residential zoning districts:

A. The minimum lot size for a Bed and Breakfast Home use shall be 1.5 acres if associated uses referenced in Subsection H are proposed on the property. The minimum lot size for a Bed & Breakfast with no associated uses in 0.5 acres.

B. The maximum number of guest rooms shall be ten (10) for Bed & Breakfasts with a lot size of 1.5 acres or greater. The maximum number of guest rooms shall be six (6) for Bed and Breakfasts with a lot size of 0.5 acres to 1.49 acres.

C. No provisions shall be allowed for cooking in individual guest rooms.

D. Parking shall be provided as follows: Two (2) spaces for residents, one (1) space per guest room and spaces for associated uses as determined by the Planning Commission. Tandem or stacked parking arrangements may be approved. Parking for associated uses must be provided on site.

E. The provision of the required parking and the traffic created due to this use shall not adversely impact any adjacent residential uses.

F. The exterior appearance of the structure shall not be altered from its single-family character.

G. Adequate landscaping, distancing and/or restriction of hours of operation shall be provided to buffer the adjacent residential uses from any noise or light generated by this use that is either uncharacteristic of residential neighborhoods or takes place at times uncharacteristic to residential neighborhoods.

H. Associated uses are allowable and may include but not be limited to catered events such as receptions and dinner parties, provided that such associated uses do not adversely impact any adjacent residential uses.

I. The owner must reside on premise.

J. Applicable provisions of the Uniform Statewide Building Code and all other laws, regulations, inspections, and licenses must be met.

K. Each Bed and Breakfast shall be allowed one (1) on premise sign no larger than two feet by two feet (2' x 2').

L. The owner must submit a plat of the property showing the existing conditions and location of the proposed parking.

Section 8.1.4 - BED AND BREAKFAST USES IN COMMERCIAL C-1 AND C-2 ZONING DISTRICTS BY SPECIAL USE PERMIT (175-107.3)

A. The maximum number of guest rooms shall be six (6).

B. No provisions shall be allowed for cooking in individual guest rooms.

C. The owner must reside on premise.

D. The exterior appearance of the structure must not be altered from its single-family character.

E. Parking shall be provided as follows: two (2) spaces for residents and one (1) space per guest room.

F. Applicable provisions of the Uniform Statewide Building Code and all other applicable laws, regulations, inspections, and licenses shall be met.

G. The owner must submit a plat of the property showing the existing conditions and the location of proposed parking.

Section 8.1.5 - CEMETERIES IN RESIDENTIAL DISTRICT (R-3) BY ~~SPECIAL PERMIT~~ SPECIAL USE PERMIT (175-107.4)

The following provisions shall apply to cemetery uses located in residential (R-3) zoning districts:

1. Cemetery uses shall be located within a churchyard and designated on a plat to be submitted with the application.
2. Cemetery uses shall be marked with a fence or stone.
3. The location of cemeteries shall be registered with the Planning and Zoning Department.
4. Cemetery uses shall be set back 150 feet from lot lines.
5. Cemetery uses shall be set back a minimum of 250 yards from a residence if property owner consent is not received to be located closer to the residence (§57-26 Code of Virginia).
6. Cemetery uses shall be set back a minimum of 300 yards from a city, town, or water company well (§57-26 Code of Virginia).

DIVISION 8.2 – TEMPORARY USES AND STRUCTURES

Section 8.2.1 - RECREATIONAL VEHICLES AND TRAVEL TRAILERS (175-100)

A. Recreational vehicles and travel trailers may be stored in a side, corner side, or rear yard of a lot, provided they are stored in a location that meets the minimum yard requirements as would be required for an accessory building of the same dimensions. Except as provided in subsection B below, no recreational vehicles shall be stored closer to a street than the minimum setback line or yard requirement in any district and occupancy shall be prohibited. Other restrictions, as found under Chapter 158, Section 19.1, apply to the parking of recreational vehicles within the public right of way.

B. Temporary parking of recreational vehicles and travel trailers that does not comply with Subsection A may be allowed in the front yard only for the following circumstances:

1. Temporary parking of up to three (3) consecutive days, located entirely on private property, and on a paved driveway, for the sole purposes of cleaning and preparing the unit for use or storage.
2. Temporary parking of up to fourteen (14) days within any calendar month, up to three times during the calendar year, for temporary accommodation of visitors. The vehicle shall not be permanently connected to public utility system. However, the vehicle may be connected to electricity temporarily for charging batteries or other purpose related to the preparation of the vehicle for use.
3. Temporary parking for the purpose of camping where campgrounds are permitted, or permitted by special use permit.

4. Extensions of time to the above restrictions of this subsection may only be granted under the same conditions as found under [Division 9.3.3](#)

Section 8.2.2 - TEMPORARY CONSTRUCTION TRAILERS (175-109)

A. Zoning permits for temporary trailers may be issued by the Zoning Administrator in any zoning district for construction purposes only. Temporary trailers may not be used for residential purposes or sales offices. All permits for temporary construction trailers shall be subject to the following conditions:

1. The Zoning Administrator shall review and approve or deny all requests for temporary construction trailer permits. In assessing a request for a temporary construction trailer permit, the Zoning Administrator shall consider the necessity for such temporary construction trailer, its location and its effects on the surrounding neighborhood and/or adjoining property owners and may require terms and conditions on the location and placement, type and number of trailers, screening and such other reasonable conditions as the Zoning Administrator shall deem necessary.
2. The location of temporary construction trailers on a specific site shall be necessary for the purpose of a construction office or storage.
3. The request for a temporary construction trailer permit shall be filed by the contractor, landowner or State Department of Highways and Transportation as being essential to the construction activity.
4. A minimum area of two thousand (2,000) square feet shall be provided for each temporary construction trailer space.
5. Each temporary construction trailer shall have a minimum of two (2) off-street parking spaces in addition to other parking spaces required by this chapter for other activities.
6. All sanitary facilities must conform to State Health Department trailer camp sanitation requirements.

B. The maximum period allowable for the placement of a temporary construction trailer shall be six (6) months or until completion of the project, whichever is shorter. Applications for renewal for a successive six-month periods may be submitted if additional time is required to complete the project. However, each renewal application must be filed at least thirty (30) days prior to the expiration of the original temporary construction trailer permit

C. The Zoning Administrator, in granting a temporary construction trailer permit, may require the posting of a bond to ensure that the temporary construction trailer will be removed and the site left in good order at the expiration of the permit.

D. The Zoning Administrator may establish such additional requirements and conditions as may be in the best interests of the Town.

Section 8.2.3 - TEMPORARY TRAILERS; NONRESIDENTIAL USES (175-109.1)

A. The Town Council in its discretion may grant a ~~special permit~~ Special Use Permit for approval not to exceed one (1) year for the use of a temporary trailer or a temporary manufactured home for specified nonresidential purposes related to the following permitted uses:

1. Hospitals.
2. Schools.
3. Churches.
4. Institutions.
5. Rest, convalescent or nursing homes.
6. Public utilities.
7. Industrial facilities.

B. The ~~special permit~~ Special Use Permit may be granted for any zoning district, provided that the underlying use is permitted in that zoning district. For good cause shown, Council may vote to grant a single extension for an additional period not to exceed one (1) year.

C. All temporary trailers approved under this section for a period of six (6) months or more shall be placed and anchored on a foundation appropriate for a two-year duration. All such foundations shall be skirted.

D. The ~~special permit~~ Special Use Permit application shall specify the event or solution that will terminate the need for the temporary trailer. In assessing the application for a ~~special permit~~ Special Use Permit, Council shall consider the following:

1. The effect on surrounding properties.
2. The effect on community appearance.
3. The stated need for a temporary facility, and the availability of alternative solutions.
4. Traffic and safety factors.
5. Such additional factors as may apply to the site, and the particulars of the application.

DIVISION 8.3 – AUTOMOBILE AND TRUCK USE REGULATIONS

Section 8.3.1 - AUTOMOBILE SERVICE STATIONS (175-110)

The Town Council, upon recommendation from the Planning Commission, may place certain restrictions on automobile service stations in the C-1, C-2, I-1 and I-2 Zones, in addition to the regulations of those zones, based on the following criteria:

A. The effect of such proposed buildings and use upon the character of the neighborhood, traffic conditions, public facilities and other matters pertaining to the public health, safety and general welfare.

B. All appliances for dispensing gasoline installed outside of enclosed buildings shall be located not less than fourteen (14) feet from any property line adjoining the public street and all such appliances shall be installed and maintained in such location as to prevent any part of vehicles being serviced from standing on the street, alley or sidewalk area.

Section 8.3.2 - INOPERATIVE MOTOR VEHICLES (175-110.1)

A. No more than one (1) inoperative motor vehicle, trailer or semitrailer, as defined by Virginia Code Section 46.2-100,, which is inoperative, shall be kept outside a completely enclosed building on any property zoned for residential or commercial purposes. Such inoperative vehicle must be fully screened year-round from public view by plantings, fencing or a professionally manufactured car cover. Any inoperative vehicle stored under a car cover shall not be maintained on the same lot for more than six months in a twelve-month period. In no case shall any inoperative vehicles be stored in the required parking spaces for the use or in any required yard adjoining a public street.

B. For the purpose of this section, the word "inoperative" shall mean:

1. A motor vehicle, pursuant to Virginia Code §15.2-904.A.(ii), which for a period of 60 days or longer has been partially or totally disassembled by the removal of tires and wheels, the engine, or other essential parts required for operation of the vehicle.
2. A motor vehicle, pursuant to Virginia Code §15.2-904.A.(iii), on which there are displayed neither valid license plates nor a valid inspection decal.

C. The provisions of this section shall not apply to a person, firm or corporation which has been regularly and continuously licensed and engaged in the business of an automobile dealer, salvage dealer or scrap processor at the property in question since June 26, 1970.

D. The owners of property zoned for residential or commercial purposes shall at the demand of the Town Council or its designated agent remove from their property any such inoperative motor vehicles, trailers or semitrailers that are not kept within a fully enclosed building or structure. Notice of the demand shall be sent to the property owner by first class mail to the owner's address as it appears in the Town tax records. In the event that the inoperative vehicle has not been placed in a fully enclosed building or structure, fully screened year- round from public view by plantings, fences or a professionally manufactured car cover, or removed from the property within ten (10) days from the date the notice was sent, then the Town or its designated agent may remove the inoperative vehicle, and thereafter dispose of the same upon furnishing the vehicle owner with ten (10) days' written notice. If the vehicle owner cannot be determined, the property shall be disposed of in accordance with Town Code Section 124-1 et seq.

E. The cost of inoperative vehicle removal, storage and/or disposal shall be chargeable to the owners of the vehicle or the owners of the premises, and may be collected by the Town as taxes and levies are collected. Every cost authorized by this section which is assessed against the owners of the premises shall constitute a lien against the property from which the vehicle was removed, and shall continue to constitute a lien until actual payment in full has been made to the Town.

Section 8.3.3 TRUCKS AND SEMITRAILERS (175-110.2)

A. In the zoning districts listed below in this subsection, it shall be unlawful for any person, firm or corporation to keep, park or store upon any lot in R-1, R-1A, R-2, R-3 Residential Zoning Districts or any residential portion of a PND or MCD District, any tractor truck or semitrailer designed to be used with a tractor truck, as defined in Virginia Code Section 46.2-100, or any truck with a registered gross weight in excess of twelve thousand (12,000) pounds. These provisions shall apply regardless of whether such a vehicle is kept, parked or stored in the open or within an enclosed structure.

1. R-1 District
2. R-1A District
3. R-2 District
4. R-3 District
5. PND District (only within areas approved solely for residential use)

B. The provisions of [subsection 8.3.3.A](#) shall not apply to any of the following vehicles:

1. School buses, church buses and other buses engaged in public transportation.
2. Pickup trucks with a registered gross weight of twelve thousand (12,000) pounds or less.
3. Panel truck with a registered gross weight of twelve thousand (12,000) pounds or less.
4. Motor homes, camping trailers and recreational vehicles as defined in Virginia Code Section 46.2-100. See Section [8.2.1](#) for recreational vehicle regulations.
5. Trailers of every type, except semitrailers designed to be used with a tractor truck.
6. Hospital mobile units and fire and rescue vehicles.
7. Vehicles owned and operated by public utilities.
8. Farm vehicles used in agricultural pursuits on parcels of land one (1) acre or larger.

C. The provisions of [subsection 8.3.3.A](#) shall not apply to any vehicle which comes upon property for pickups, deliveries and service to property made in the regular course of business or which comes upon the property in the course of construction, maintenance or improvement to the property or adjoining streets and facilities.

D. Other than areas where semitrailers are restricted, as listed above under subsection A, trailers may be used for temporary storage; provided that, (i) the location of the semitrailer(s) is not located in the required yard area adjacent to any public street, (ii) the location of the semitrailer(s) does not interfere with required parking, vehicular mobility and vehicular maneuvering, (iii) the location is on an all-weather surface material, (iv) all fire and building code requirements are complied with, (v) a zoning permit is obtained from the Town, and (vi) no more than one trailer for temporary storage shall be permitted on property in any commercial zoning district. A 6' high

opaque fence, hedge, landscape screen, wall, building wall, or berm may be used for screening to prevent view of a trailer used for temporary storage.

Section 8.3.4 - MOTOR VEHICLE PAINTING AND BODY WORK (175-110.3)

Motor vehicle body work and painting establishments shall comply with the following requirements:

- A. All work shall be conducted in a completely enclosed building.
- B. Used or damaged equipment removed from vehicles during the process shall be stored indoors, in a completely screened enclosure or shall be deposited in an approved covered outdoor collection receptacle for appropriate off-site disposal.
- C. Temporary overnight outdoor storage and parking of vehicles waiting for repair or pickup shall be permitted. All damaged vehicles shall be stored indoors or in a completely screened enclosure. No long-term storage (sixty (60) days or more) shall be permitted.
- D. A certificate of compliance with the Virginia Uniform Statewide Building Code shall be obtained for the use prior to commencement of the activity.
- E. All hazardous waste material, including paint, oil, antifreeze, etc., shall be disposed of only with a licensed hazardous waste removal firm.
- F. The facility shall be equipped with adequate filtering to ensure that no overspray or particulate matter from the operation shall be discernible beyond the property line.
- G. Notwithstanding the provisions of Article 13 pertaining to the definition of junkyard, authorization for the outdoor storage of up to eight (8) vehicles intended to be salvaged for parts may be made as part of the ~~special permit~~ Special Use Permit approval. Such vehicles shall be confined to a defined storage area that is effectively screened from public view.

DIVISION 8.4 - SHORT-TERM RENTALS (175-151)

Short-term rentals shall be permitted in all Zoning Districts by Special Use Permit and shall at a minimum meet the following requirements:

- A. The short-term rental owner of a dwelling unit to be used for a short-term rental shall apply for a Special Use Permit through the Department of Planning and Zoning and receive approval from Town Council prior to utilizing the dwelling unit as a short-term rental. Town Council may impose conditions necessary to mitigate adverse effects of the use on neighboring properties.
- B. The one-time application fee shall be \$400.
- C. Staff will conduct an inspection prior to the issuance of the Special Use Permit approval. Additional inspections will be conducted on a complaint basis to ensure compliance with the performance standards listed in this section, along with any additional conditions imposed by Town Council, if applicable.
- D. The maximum number of occupants in the dwelling unit shall be determined by the number of bedrooms; there shall be no more than two (2) adults per bedroom. However, the maximum number of occupants shall not exceed 10 people unless approved by Council.

- E. Parking for the use shall be located in driveways or other designated and approved parking areas.
- F. There shall be no visible evidence of the conduct of such short-term rentals on the outside appearance of the property.
- G. A fire extinguisher shall be provided and visible in all kitchen and cooking areas; smoke detectors shall be installed in all locations as identified in the 2015 or 2018 Uniform Statewide Building Code (2018 Version required usage beginning July 1, 2022); and a carbon monoxide detector must be installed on each floor in every dwelling.
- H. The owner of a dwelling used for short-term rentals shall give the Town written consent to inspect any dwelling used for short-term rental to ascertain compliance with all the above performance standards upon a twenty-four-hour notice.
- I. A property management plan demonstrating how the short-term rental will be managed and how the impact on neighboring properties will be minimized shall be submitted for review and approval as part of the permitting process to the Planning Department. The plan shall include local points of contact available to respond immediately to complaints, clean up garbage, manage unruly tenants and utility issues, etc. It shall also be posted in a visible location in the short-term rental. The contact numbers shall be provided to Town staff, public safety officials and, if applicable, the HOA of the subdivision. The plan must be provided as part of the rental contract.
- J. If the property is located within a subdivision governed by a homeowners' association, the Planning Department must receive proof that a notification to operate the short-term rental was sent to the HOA.
- K. The owners of the rental shall provide an emergency evacuation plan for the dwelling and the neighborhood.
- L. A copy of Chapter 106 of the Town of Front Royal Code relative to noise must be provided at the short-term dwelling.
- M. All outdoor burning shall be in compliance with Chapter 78 of the Town of Front Royal Code.
- N. Failure to comply with the approved conditions and/or supplemental regulations will subject the permit to revocation by the Zoning Administrator at any time.

DIVISION 8.5 – HOME OCCUPATIONS (175-108.1)

All home occupations shall meet the following standards:

- A. The use shall be clearly incidental to the principal use of the property for residential purposes and shall not change the exterior appearance of the dwelling unit, or change the character of the neighborhood.
- B. Operators of home occupations must be residents on the same parcel, or parcels, where the home occupation is located. Notwithstanding subsection B, nonresident employees may also work for the home occupation, but no more than one (1) nonresident employee may work from the parcel, or parcels, at the same time.
- C. No outdoor display, sales or storage of goods, materials or equipment shall be permitted, except that, the Zoning Administrator may authorize up to two (2) business vehicles, including any vehicle used by a nonresident employee. Indoor storage is permitted, provided that it does not

violate the other restrictions of this section, including, but not limited to, changing the appearance of the dwelling unit, changing the character of the neighborhood, or increasing traffic.

D. No wholesale or retail business shall be permitted unless it is conducted entirely by mail and/or telephone and does not involve the bulk shipment/delivery of merchandise to and from the premises; provided, however, that articles produced by the home occupation operators may be sold on the premises.

E. Provided that the other requirements of this section are complied with, home occupations shall include, but shall not be limited to, the following uses: home offices, computer repair services, ~~telecommunication services~~, artist studios, instructional services/tutoring, dressmaking, babysitting/babysitting services, or small item repair services. Uses that are restricted from being classified as home occupations shall include, but shall not be limited to, the following uses: motor vehicle repair, beauty/barber shops (with more than one (1) customer at a time), restaurants, animal hospitals/kennels, retail sales, and dance studios.

F. In the instance of a home occupation involving a nonresident employee, at least one (1) additional off-street parking place shall be provided.

G. No home occupation shall create greater vehicular or pedestrian traffic than is otherwise normal for the district in which it is located.

H. No home occupation shall create noise, dust, vibrations, smells, smoke, glare, electrical interference, fire hazard or any other hazard or nuisance to any greater or more frequent extent than that usually experienced in the district on residentially used zoning lots where no home occupation exists.

I. Notwithstanding other regulations within this Chapter, signs are not permitted for home occupations, except that the Zoning Administrator may authorize a sign for the following circumstances.

1. When the sign is located on an authorized business vehicle and does not exceed ten (10) square feet in size.
2. When the sign is located within the C-1, C-2, C-3, I-1, I-2, or MCD Zoning District, subject to the following conditions.
 - a. Shall not exceed four (4) square feet in size.
 - b. Shall not exceed six (6) feet in height, if freestanding.

ARTICLE 9 – DEVELOPMENT STANDARDS

DIVISION 9.1 – VISIBILITY AT INTERSECTIONS (175-101)

On a corner lot, nothing shall be erected, placed, planted or allowed to grow, except street signs, utility poles or traffic signs, in such a manner as to impede vision between a height of two and one-half (2 1/2) and ten (10) feet above the center-line grades of the intersecting streets in the area

bound by the street lines of such intersecting streets and a line joining the street center lines at a distance of fifty (50) feet from the point of intersection.

DIVISION 9.2 – LANDSCAPING

All landscaping requirements shall be developed in accordance with Town's adopted Landscape Preservation and Planting Guide. Details may be required at the discretion of the Planning Director.

DIVISION 9.3 - FENCES (175-102)

A. No fragile, readily flammable material, such as paper, cloth or canvas, shall constitute a part of any fence, nor shall any such material be employed as an adjunct or supplement to any fence.

B. Fences on corner lots shall meet the requirements of **Division 9.1**.

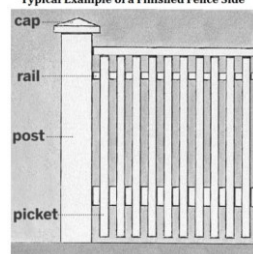
C. Fences in residential districts shall not exceed the height of four (4) feet in the required front yard or six (6) feet in the side or rear yard as measured from the topmost point thereof to the ground or surface, along the center line of the fence.

D. Within commercial zoning districts, fences located within the front yard shall not exceed the height of six (6) feet as measured from the topmost point thereof to the ground or surface, along the center line of the fence. Fences located within commercial zoning districts may be eight (8) feet in height when located within a side or rear yard. The Planning Director may authorize fences in the front yard to be up to eight (8) feet in height when the additional height is determined to be necessary for safety or screening purposes of permitted uses. Appropriate landscape screening may be required for approval of additional fence height in the front yard.

E. Fences surrounding industrial sites, public playgrounds, institutions or schools may not exceed a height of fourteen (14) feet.

F. No fence shall be constructed or altered to include protruding nails, or other materials, that would create a dangerous condition.

ILLUSTRATION 175-102.G.
Typical Example of a Finished Fence Side



G. Notwithstanding the other requirements of this chapter, a finished fence side shall face toward improved public streets and adjoining lots used for residential purposes. For the purposes of this requirement, a finished fence side shall consist of the side covered with pickets, or similar material, such as, but not limited to, panels, wire, and/or fabric, if any, and opposite of a side with exposed rails, or similar supports, excluding posts and caps, *Illustration 175-102.G. depicts a typical finished side of a fence.*

DIVISION 9.4 – PROFESSIONAL OFFICES (175-108)

Regulations pertaining to professional offices shall be as follows:

- A. Professional offices (doctors, lawyers, engineers and architects, among others) are permitted in the R-3 District after meeting all requirements of this chapter.
- B. All activity and equipment, other than parking, must be housed in a fully enclosed building.
- C. No noise or odor produced as a result of activity in such offices shall be discernible beyond the boundaries of the lot.
- D. All vehicular access to the site shall be from a street which meets Town standards for streets.
- E. No display in the building shall be visible from outside of the building.

DIVISION 9.5 - SHOPPING CENTERS (175-111)

Shopping centers shall be in single ownership or under a guaranteed unified management control. Shopping centers shall consist of harmonious selection of uses and groupings of buildings, service and parking areas, circulation and open space and shall be subject to the provisions of the Condominium Act of Virginia and shall comply with the following regulations:

A. Permitted principal uses shall be as follows:

- 1. Stores for the sale of goods at retail or the performance of customary personal services or services clearly incidental to retail sales.
- 2. Business, professional or banking offices.
- 3. Restaurants, cafes or similar places serving food and/or beverages.
- 4. Parking areas for transient auto vehicles, but not for the storage of new or used motor vehicles for sale.
- 5. Gasoline service stations, with repairs done within a building.
- 6. Theaters, not including drive-in theaters.

B. Permitted accessory uses located on the same lot with the permitted principal use. Only the customary

associated with a commercial district shall be permitted, provided that they are limited to the same lot as the principal uses.

C. Area and bulk regulations shall be as follows:

- 1. Lot size: The area for development shall be a minimum of two (2) acres.
- 2. Building height: two (2) stories or thirty-five (35) feet maximum.
- 3. Front yard: thirty (30) feet minimum.

4. Side yards: thirty (30) feet minimum.
5. Rear yard: thirty (30) feet minimum.
6. Lot coverage: twenty-five percent (25%) maximum.

D. Supplementary regulations.

1. Off-street parking and loading: Off-street parking shall be provided on the premises at the rate of five (5) parking spaces per one thousand (1,000) gross square feet for every shopping center facility ten thousand (10,000) square feet in size or less. For shopping centers over ten thousand (10,000) square feet, the parking requirement shall be four (4) parking spaces per one thousand (1,000) gross square feet. Parking shall be permitted in the areas required for front, side and rear yard setbacks up to a point of twenty- five (25) feet from any front, side or rear of the lot line of the shopping center. All parking areas shall be suitably paved with permanent hard-surfaced coverings. Off-street loading spaces shall be provided in accordance with [Section 9.10.1](#).
2. Access and traffic controls: All means of ingress or egress from the shopping center to any public street or state highway shall be located at least two hundred (200) feet from any other intersecting street or streets and shall be designed to conduct traffic in a safe manner. The developer shall be responsible for the purchase and erection of any necessary traffic control devices and the construction of additional acceleration or deceleration lanes or service walks as may be required by the State Department of Highways and Transportation or by the Town.
3. Interior circulation: Interior access ways shall be designed so as to prevent the blocking of vehicles entering or leaving the site. Areas provided for loading or unloading of trucks and/or other vehicles or for servicing of shops for rubbish collection or other services shall be adequate in size and shall be so arranged that they may be used without blocking or interfering with interior circulation and parking facilities.
4. Lighting: Lighting for buildings, signs, access ways and parking areas shall be so arranged as not to reflect toward public streets or cause any annoyance to surrounding property owners or residents.
5. Shopping cart storage: Establishments furnishing carts or mobile baskets shall provide definite areas on the site for the storage of said carts. Storage areas shall be clearly marked and designated for the storage of shopping carts and/or mobile baskets.
6. Screening: All lot lines abutting residential districts along the side yard or rear yard shall be appropriately screened by fences, walls or year-round planting and/or other suitable enclosures of a minimum height of four (4) feet. All outdoor storage areas shall be screened or enclosed.
7. Storage of trash or rubbish: Storage areas for trash and rubbish shall be completely screened, and all organic rubbish shall be contained in containers with tightly fitting lids. No such storage shall be permitted within any required yard space.

8. Signs: Signs shall conform to **Article 10**

9. Development plan required:

a. Prior to the issuance of a ~~special permit~~ Special Use Permit, ten (10) copies of a development plan shall be submitted to the Zoning Administrator for review by the Administrator, Planning Commission and Town Council.

b. The Development Plan shall contain the following data, together with supplementary data for a particular development, as deemed necessary by the Planning Commission or Town Council.

c. Development site information:

- [1] A vicinity map at a scale of not less than one (1) inch equals two thousand (2,000) feet.
- [2] A title insurance policy or attorney's certificate showing the owner or owners of the subject property, marketable title to the subject property in such owner or owners, the source of applicant's title or interest in the subject property and the place of record of the latest instrument in the chain of title for each parcel constituting the tract.
- [3] Total area of the tract.
- [4] Abutting Street names, widths and route numbers.
- [5] Owners, zoning districts and uses of each adjoining tract.
- [6] A topographic map with minimum contour intervals and scale acceptable to the Administrator.
- [7] Development design information.
- [8] A concept plan, illustrating the location and functional relationship between all proposed land uses.
- [9] A land use plan or plans, showing the location and arrangement of all proposed land uses, including the height and number of all buildings both above and below finished grade; the building setbacks and yard areas from the development boundaries and adjacent streets, road and alleys and easements; the proposed traffic circulation pattern, including the location and width of all streets, driveways, walkways and entrances to parking areas; all off-street parking and loading areas; all proposed open space areas, including common open space, dedicated open space and developed recreational open space; and the approximate location of existing and proposed utility systems of sanitary sewer, storm sewer, water, electric, telephone and gas lines, along with any necessary easements.
- [10] A plan or statement showing the location and design of all screening and indicating the type and height of such screening.

- [11] Statements or plans relating to all covenants, restrictions and conditions pertaining to the use, maintenance and operation of common spaces, and the percentage of the tract to be used as open space.
- [12] A statement in tabular form of the anticipated commercial floor area.
- [13] When the development is to be constructed in stages or units, a sequence-of-development schedule showing the order of construction of each principal functional element of such stages or units, the approximate completion date for each stage or unit and a cost estimate of all improvements within each stage or unit.
- [14] A plan or report indicating the extent, timing and estimated cost of all off-site improvements, such as road, sewer and drainage facilities, necessary to construct the proposed development, which plan or report shall relate to the sequence-of-development schedule if the development is to be constructed in stages or units.
- [15] Where required by the Planning Commission, a traffic-impact analysis, showing the effect of traffic generated by the project on surrounding roads.
- [16] Where required by the Planning Commission, a fiscal-impact analysis, listing Town revenue generated by the project and Town expenditures resulting from the construction of the project.

DIVISION 9.6 -TOWNHOUSES (Site Plan Requirements) (175-112)

All townhouses shall comply with the following regulations:

A. Area regulations shall be as follows:

- 1. Minimum lot size for townhouse construction: twenty thousand (20,000) square feet.
- 2. Minimum lot area per dwelling unit: two thousand five hundred (2,500) square feet.

B. Minimum width shall be as follows:

- 1. Minimum lot width for development: one hundred twenty-five (125) feet at setback line.
- 2. Minimum lot width per townhouse unit: twenty (20) feet.
 - a. In the case of a lot at the end of a row of townhouses, the lot width shall be forty (40) feet.
 - b. For corner lots at street intersections, the minimum lot width shall be fifty (50) feet.

C. Minimum yard requirements shall be as follows:

- 1. Front yard: forty (40) feet from the road right-of-way line. Required parking may be located in a front yard, but not closer than ten (10) feet to the ultimate street right-of-way and not closer than ten (10) feet to any townhouse unit.
- 2. Rear yard: forty (40) feet for each townhouse dwelling.

3. Side yard: twenty (20) feet for each end unit; thirty (30) feet for each corner lot at street intersections. When a townhouse abuts an R-1, or R-2 District, the side yard shall be thirty-five (35) feet.

D. Maximum building height shall be as follows:

1. Two and one-half (2) stories, but not to exceed thirty-five (35) feet.

E. Minimum parking space shall be as follows:

1. There shall be two (2) off-street parking spaces for each townhouse unit.
2. An off-street parking space shall be a minimum of ten by twenty (10 x 20) feet.
3. No parking space shall be located closer than ten (10) feet to any townhouse unit.

F. Other regulations for all townhouse construction:

1. There shall be no more than eight (8) townhouse units constructed in a continuous series.
2. Each dwelling shall be separated by a noncombustible party wall going through the roof, with a fire resistance of not less than two (2) hours duration.
3. Each townhouse shall front on a public or private street approved by the Town.
4. Concrete curb and gutters shall be installed along both sides of all new streets within the development. However, should a new street act as a boundary for townhouse developments, curb and gutter need only be installed on the side of the street adjacent to the development.
5. Walkways of four (4) feet in width, constructed of concrete or brick, shall be installed from parking areas to all townhouse structures served by such parking areas.
6. The radii of cul-de-sac shall be at least fifty (50) feet. No more than twenty-five (25) dwelling units shall be located on any cul-de-sac.
7. Accessory buildings are not permitted, except that on any lot there may be an enclosed storage shed not exceeding seven (7) feet in height nor exceeding ten (10) feet in length by ten (10) feet in width.
8. A ten-foot easement along the side and rear of each townhouse structure shall be provided in addition to the side yard in all townhouse developments.
9. Variation in townhouse design. The facades of dwelling units in a townhouse structure shall be varied by changed front yards of not less than three (3) feet and variation in materials and design so that not more than four (4) abutting units will have the same front yard depth and the same or essentially the same architectural treatment of facades and rooflines. Balconies and roofed porches may encroach up to five (5) feet into the front yards.
10. As determined by the Planning Commission and approved of by the Town Council, parking, as shown on the site plan, may be permitted in the rear of properties and access to such spaces may be permitted over an alley.

G. Special regulations for townhouse developments of one (1) acre and over. For townhouse developments of one (1) acre or more, the following regulations shall apply in addition to those previously noted:

1. Parking areas shall be set back at least thirty (30) feet from property lines of the development.
2. There shall be provided twenty-five hundredths (0.25) square feet of usable open space (not including parking or driveway areas) devoted to recreational use for every one (1) square foot of gross residential floor area. This space shall take the form of parks or play areas, etc. Usable open space shall not include front, rear or side yard areas of individual townhouse units.
3. Management of open space:
 - a. All open space shall be preserved for its intended purpose as expressed in the final site plan.
 - b. Should the units be for rental purposes, the developer or rental agent shall be responsible for maintenance and management of open space.
 - c. Should the units be for sale, there shall be an establishment of a nonprofit association, corporation, trust or foundation of all individuals or corporations owning residential property within the planned development to ensure the maintenance of open spaces.
 - d. When the development is to administer open space through an association, nonprofit corporation, trust or foundation, said organization shall conform to the following requirements:
 - [1] The developer must establish the organization prior to the sale of any lots and/or units.
 - [2] Membership in the organization shall be mandatory for all residential property owners, present or future, within the planned community, and said organization shall not discriminate in its members or shareholders.
 - [3] The organization shall manage all open space and recreational and cultural facilities, shall provide for the maintenance, administration and operation of said land and improvements and any other common land within the planned community and shall secure adequate liability insurance on the land.
 - [4] The organization shall conform to the Condominium Act, Code of Virginia 1950, as amended.
4. The horizontal distance between groups of townhouses shall be:
 - a. Two (2) times the average height of the two (2) groups of townhouses for front or rear walls facing front or rear walls.
 - b. One and one-half (1 1/2) times the average height for front or rear walls facing side walls.

- c. Equal to the height of the highest building for side walls facing side walls.
- 5. Access and service shall be provided in the front of each townhouse. Parking may be provided on the lot, as carports, as an integral part of the townhouse or a joint parking facility for a group of townhouses with such deed restrictions as are necessary to determine ownership and maintenance of common parking facilities and methods of assigning charges for maintenance, snow removal and repairs.
- 6. Usable open space devoted to recreational use as herein required shall be designed for use by tenants of the development and shall be improved and equipped by the developer in accordance with plans submitted and approved by the Town Planning Commission.
- 7. Screening shall be provided of sufficient height and density to screen the site from adjoining residential districts whether R-1 or R-2. A planting plan specifying type, size and location of existing and proposed planting material shall be submitted with the application for the permit. Screening shall be at least six (6) feet in height.
- 8. Parking facilities:
 - a. Required parking spaces shall be provided on the same lot as the building served or within three hundred (300) feet of property. All parking shall be off-street.
 - b. All access drives shall be at least fifteen (15) feet from any building on the lot and from exterior lot lines.
 - c. Parking areas shall not be designed or located so as to require or encourage cars to back into a public street in order to leave the lot.
 - d. Entrance and exit ways to parking areas shall have a minimum width of twelve (12) feet for each lane of traffic entering or leaving the site, but shall at no time exceed thirty (30) feet in width at the point of intersection with the street.
 - e. All dead-end parking lots shall be designed to provide sufficient back-up area for the end stalls of the parking area.
 - f. All access ways and parking areas shall be paved with a hard surface, a double-surface treatment or concrete covering.
 - g. Entrance and exit ways and interior access ways shall be designed so as to prevent the blocking of vehicles entering or leaving the site.
 - h. Any other requirements deemed necessary by the Planning Commission or Town Council for the public safety shall be complied with.
- 9. Drainage:
 - a. A storm runoff and drainage system shall be installed by the developer in accordance with sound engineering practice so as to adequately drain the project site, to adequately dispose of all runoff and drainage away from the project site and so as not to permit excess flow of water across streets or adjoining properties. Plans for such drainage

systems shall be submitted with the application for the permit and shall be subject to approval by the Town Engineer, who may request assistance from other agencies.

- b. All provisions of existing Town ordinances and regulations regarding storm drainage shall be complied with.
- 10. Lighting: Lighting for buildings, access ways and parking areas shall be so arranged as not to reflect toward public streets or cause any annoyance to building occupants or surrounding property owners or residents.
- 11. Storage of trash and rubbish: Exterior storage areas for trash and rubbish shall be well screened on three (3) sides with evergreen plantings, and trash shall be contained in vermin-proof containers. Interior storage areas for trash and rubbish shall at all times be kept in an orderly and sanitary fashion.
- 12. Site plan review and approval: Site plans for new townhouses shall be reviewed by the Planning Commission and approved or rejected by the Town Council. Such plans shall be drawn in accordance with the requirements of Chapter 148.

DIVISION 9.7 - APARTMENTS (175-113)

All apartment developments shall comply with the following regulations:

A. Area regulations: The minimum lot size for apartment developments is ten thousand (10,000) square feet for an apartment structure having three (3) units, with an additional two thousand (2,000) square feet of lot area for each additional unit above three (3).

B. The minimum lot width shall be one hundred twenty-five (125) feet at the setback line.

C. Minimum yard requirements shall be as follows:

- 1. Front yard: - forty (40) feet from road right-of-way. Required parking may be located in a front yard, but not closer than ten (10) feet to the ultimate street right-of-way.
- 2. Rear yard: - forty (40) feet.
- 3. Side yard: - thirty-five (35) feet on each side.

D. Maximum building height shall be three (3) stories, but not to exceed thirty-five (35) feet.

E. Other regulations for all apartment construction:

- 1. Each apartment structure and/or apartment parking area shall have parking areas on a dedicated public street or on an access easement meeting State Department of Transportation and Town standards.
- 2. Concrete curb and gutters shall be installed along both sides of all new streets within the development. However, should a new street act as a boundary for an apartment development, curb and gutter need only be installed on the side of the street adjacent to the development.

3. Walkways of four (4) feet in width, constructed of concrete or brick, shall be installed from parking areas to all apartment structures served by such parking areas.
4. The radii of cul-de-sac shall be at least fifty (50) feet. No more than twenty-five (25) dwelling units shall have sole principal access on any cul-de-sac.
5. Minimum parking space. There shall be two (2) off-street parking spaces for each unit. An off-street parking space shall be a minimum of ten by twenty (10 x 20) feet.

F. Special regulations for apartment developments of one (1) acre and over. For apartment developments of one (1) acre or more, the following regulations shall apply in addition to those previously noted:

1. Parking areas shall be set back at least thirty (30) feet from property lines of the development.
2. There shall be provided twenty-five hundredths (0.25) square feet of usable open space (not including parking or driveway areas) devoted to recreational use for every one (1) square foot of gross residential floor area. This space shall take the form of parks or play areas, etc.

3. Management of open space:

- a. All open space shall be preserved for its intended purpose as expressed in the final site plan.
- b. Should the units be for rental purposes, the developer or rental agent shall be responsible for maintenance and management of open space.
- c. Should the units be for sale, there shall be an establishment of a nonprofit association, corporation, trust or foundation of all individuals or corporations owning residential property within the planned development to ensure the maintenance of open spaces.
- d. When the development is to administer open space through an association, nonprofit corporation, trust or foundation, said organization shall conform to the following requirements:

- [1] The developer must establish the organization prior to the sale of any lots.
- [2] Membership in the organization shall be mandatory for all residential property owners, present or future, within the planned community, and said organization shall not discriminate in its members or shareholders.
- [3] The organization shall manage all open space and recreational and cultural facilities, shall provide for the maintenance, administration and operation of said land and improvements and any other common land within the planned community and shall secure adequate liability insurance on the land.
- [4] The organization shall conform to the Condominium Act, Code of Virginia 1950, as amended.

4. The horizontal distance between apartment structures shall be:

- a. Two (2) times the average height of the two (2) groups of apartments for front or rear walls facing front or rear walls;
 - b. One and one-half (1 1/2) times the average height for front or rear walls facing side walls; and
 - c. Equal to the height of the highest building for side walls facing side walls.
- 5. Parking may be provided in a joint parking facility for a group of apartments with such deed restrictions as are necessary to determine ownership and maintenance of common parking facilities and methods of assigning charges for maintenance, snow removal and repairs.
- 6. Usable open space devoted to recreational use as herein required shall be designed for use by tenants of the development and shall be improved and equipped by the developer in accordance with plans submitted and approved by the Town Planning Commission and Town Council.
- 7. Screening shall be provided of sufficient height and density to screen the site from adjoining residential districts whether R-1 or R-2. A planting plan specifying type, size and location of existing and proposed planting material shall be submitted with the application for the permit. Screening shall be at least six (6) feet in height.
- 8. Parking facilities:
 - a. Number of spaces. Off-street parking, whether garage or on lot, shall be provided on the premises at the rate of two (2) spaces for each apartment unit.
 - b. Location. Required parking spaces shall be provided on the same lot as the building served.
 - c. All access drives shall be at least fifteen (15) feet from any building on the lot and from exterior lot lines.
 - d. Parking areas shall not be designed or located so as to require or encourage cars to back into a public street in order to leave the lot.
 - e. Entrance and exit ways to parking areas shall have a minimum width of twelve (12) feet for each lane of traffic entering or leaving the site, but shall at no time exceed thirty (30) feet in width at the street line.
 - f. All dead-end parking lots shall be designed to provide sufficient back-up area for the end stalls of the parking area.
 - g. All access ways and parking areas shall be paved with a hard-surface, double-surface treatment or concrete covering.
 - h. Entrance and exit ways and interior access ways shall be designed so as to prevent the blocking of vehicles.

- i. Any other requirements deemed necessary by the Planning Commission or Town Council for the public health and safety shall be complied with.

9. Drainage:

- a. A storm runoff and drainage system shall be installed by the developer in accordance with sound engineering practice so as to adequately drain the project site, to adequately dispose of all runoff and drainage away from the project site and so as not to permit excess flow of water across streets or adjoining properties. Plans for such drainage system shall be submitted with the application for the permit and shall be subject to approval by the Town Engineer, who may seek assistance from other agencies.
 - b. All provisions of existing Town ordinances and regulations regarding storm drainage shall be complied with.
10. Lighting: Lighting for buildings, access ways and parking areas shall be so arranged as not to reflect toward public streets or cause any annoyance to building occupants or surrounding property owners or residents.
11. Storage of trash and rubbish: Exterior storage areas for trash and rubbish shall be well screened on three (3) sides with evergreen plantings and contained in vermin-proof containers. Interior storage areas for trash and rubbish shall at all times be kept in an orderly and sanitary fashion.
12. Site plan review and approval: Site plans for new apartment buildings shall be reviewed by the Planning Commission and approved or rejected by the Town Council. Such plan shall be drawn in accordance with the requirements of Chapter 148.

DIVISION 9.8 - PORTABLE STORAGE CONTAINERS (175-109.2)

A. Portable Storage Containers - Notwithstanding any contrary provision of the Town Code, portable storage containers located outside of a fully enclosed building or structure shall be permitted in all zoning districts, subject to the following restrictions:

B. In Residential Districts and commercial business districts no more than one (1) portable storage container shall be allowed on a lot of record, and for no longer than a total of thirty (30) days in any consecutive twelve (12) month period. In industrial districts, the use of portable storage containers shall be limited to a period of time not to exceed (90) days, unless the portable storage containers are converted to permanent structures that comply with all applicable zoning and building code requirements.

C. In agricultural districts, on lots where the principal use is a bona fide agricultural activity, and in industrial districts, there shall be no restriction on the number of portable storage containers permitted as accessory uses.

D. In commercial business districts, portable storage containers may be allowed for more than thirty (30) days in any consecutive twelve (12) month period upon approval of a special use permit.

E. In any district, if the owner or lawful occupant of property can demonstrate, to the reasonable satisfaction of the Zoning Administrator, the need to continue the use of a portable storage unit on the property to alleviate an issue or problem to permit or allow the reasonable use or repair of the property occasioned on or to the property due to an act of God (defined herein as a natural disaster or phenomena including a hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, earthquake, or fire caused by natural or non-negligent accidental causes), the Zoning Administrator may extend the use of portable storage containers on the property for a period of thirty (30) days longer than the corresponding period otherwise allowed in that district. The Town Manager may authorize additional extensions when such extension of time is necessary to permit or allow the reasonable use or repair of the property for the reasons set forth in the above sentence.

F. In residential districts, no portable storage containers shall have dimensions greater than sixteen feet (16') in length, eight feet (8') in height or eight feet (8') in width. Portable storage containers in commercial business districts shall be limited to twenty feet (20') in length, eight feet six inches (8' 6") in height or eight feet (8') in width.

G. No portable storage container shall be located closer than five (5) feet from the side or rear property line.

H. Portable storage containers shall not be located closer than eight (8) feet from required parking spaces, and shall not project into any area required for vehicular mobility and maneuvering.

I. Portable storage containers shall be allowed only upon issuance of a permit by the Zoning Administrator. The fee for such permit shall be set by Town Council by resolution.

J. Only one (1) portable storage container per one (1) calendar year period shall be allowed per lot or parcel of record in residential and commercial districts; and only one (1) portable storage container per twelve (12) consecutive month period shall be allowed per owner or lawful occupant of property.

DIVISION 9.8 - TOBACCO AND ELECTRONIC VAPOR RETAIL (new)

Insert text here

A. Text

1. Text

2. text

B. Text

DIVISION 9.9 - WIRELESS TELECOMMUNICATION TOWERS (175-110.4-4)

A. The following sites shall be considered by applicants as the preferred order of location of proposed broadcasting or communication facilities:

1. Existing wireless telecommunication towers.
2. Public structures, such as water towers, utility structures, fire stations, bridges, and other public buildings within all zoning districts not utilized primarily for residential uses.

3. New wireless telecommunication towers.

B. No new tower shall be permitted unless the applicant demonstrates to the reasonable satisfaction of Town Council that no other existing tower or structure can reasonably accommodate the applicant's proposed antenna.

C. The maximum height of any wireless telecommunication tower shall be made a condition of the ~~special permit~~ Special Use Permit, but in no event shall exceed one hundred fifty feet (150') above finished grade of the property upon which it stands.

D. Wireless telecommunication towers shall conform to each of the following minimum setback and minimum yard requirements:

1. Towers shall have a minimum front, side and rear yard setback equal to the height of the tower; except that, Town Council may allow a reduction to these setback standards when it is designed with breakpoint technology. If the wireless telecommunication tower has been constructed using breakpoint technology, as defined, the minimum setback distance shall be equal to one hundred percent (100%) of the distance from the top of the structure to the height of the breakpoint, plus the standard minimum setback distance for the underlying zoning district; except that, in no case shall the setback be less than $\frac{1}{2}$ the height of the entire tower.
2. Towers guys and accessory structures shall satisfy the minimum setback requirements of the underlying zoning district.
3. Towers shall not be located between the principal structure and a public street.

E. All towers shall be designed, structurally, electrically and in other respects, to accommodate both the applicant's antennas and comparable antennas for at least two (2) additional users.

F. Towers shall be illuminated as required by the Federal Communications Commission (FCC) and/or the Federal Aviation Administration (FAA), but no lighting shall be incorporated if not required by the FCC and/or FAA, other than essential security lighting. Site lighting shall not be directed toward adjacent properties.

G. The use of any portion of a tower for signs other than warning or equipment information signs is prohibited.

H. Before activating the facility into service the applicant/developer shall provide the Town with a certificate by a qualified consultant that the radio frequencies used by the facility shall not interfere with any other pre-existing radio frequencies in use within the coverage area of the facility including, but not limited to, public safety communication frequencies.

I. For any proposed tower, photographs shall be taken of a balloon test, which shall be conducted as follows:

1. The applicant shall provide the Administrator with at least seven (7) days prior notice of the conducting of the test; provided that this deadline may be extended due to inclement weather or by the agreement of the applicant and the Administrator.

2. The test shall consist of raising one or more balloons from the site to a height equal to the proposed facility.
3. The balloons shall be of a color or material that provides maximum visibility.
4. The photographs of the balloon test shall be taken from the nearest residence and from appropriate locations on abutting properties, along each publicly used road from which the balloon is visible, and other properties and locations as deemed appropriate by the Administrator.

J. If antennas are proposed to be added to an existing structure, all existing antennas and other equipment on the structure, as well as all ground equipment, shall be identified by owner, type and size. The method(s) by which the antennas will be attached to the mounting structure shall be depicted.

K. The Town shall require the review of the application by a third-party consultant retained by the Town at the expense of the applicant.

L. The applicant shall execute a letter of intent to allow other parties to share space (co-locate) on their tower and negotiate in good faith with other interested parties, including the Town Council and the Board of Supervisors of Warren County for emergency services radio and telephone facilities.

M. The tower construction shall be of a design that minimizes the visual impact of the tower and related facilities shall be camouflaged and/or screened from view from adjacent properties and rights-of-way to the greatest extent practicable. To this end, the application must provide for the retention of existing stands of trees and the installation of screening where existing trees do not mitigate the visual impact of the facility. Such screening shall, at a minimum, include a double row of evergreen trees at least two inches (2") in diameter at breast height separated by not further than ten feet (10') on center. The Planning Commission may recommend and the Council may require additional trees and screening when the minimum provisions do not mitigate adverse visual impacts of the facility.

N. The electromagnetic fields produced by the facility and any attachments to the tower do not exceed the radio frequency emissions standards established by the American National Standards Institute (ANSI).

O. The tower shall be inspected annually and certified as safe by a private firm acceptable to the Town and contracted for by the applicant. A copy of the inspection report with a certification that the tower is structurally safe and all microwave equipment is in proper working condition shall be provided to the Town Manager.

P. The tower shall be demolished and removed within ninety (90) days after abandonment. In order to ensure the demolition and removal of the tower, the applicant shall post and keep in place a renewable letter of credit or other security with adequate surety in a form acceptable to the Town Attorney and in an amount reasonably determined by the Town to be sufficient to pay for the costs of demolition and removal.

Q. Any equipment cabinet not located within an existing building shall be fenced only with the approval of the Administrator upon finding that the fence: (i) would protect the facility from trespass in areas of high volumes of vehicular or pedestrian traffic or in rural areas, to protect the facility from livestock or wildlife; (ii) would not be detrimental to the character of the area; (iii) would not be detrimental to the public health, safety or general welfare; and (iv) shall assist in the effective screening of the facility.

R. Each tower shall be constructed so that all cables, wiring and similar attachments that run vertically from the ground equipment to the antennas are placed on the pole to face the interior of the property and away from public view, as determined by the Administrator, or so that vertical cables, wiring and similar attachments are contained within the tower's structure.

S. The following shall be submitted to the Administrator after installation of the tower is completed and prior to issuance of a certificate of occupancy: (i) certification by a registered surveyor stating the height of the tower, measured both in feet above ground level and in elevation above mean sea level, using the benchmarks or reference datum identified in the application; and (ii) certification stating that any lightning rod's height does not exceed two (2) feet above the top of the tower and width does not exceed a diameter of one (1) inch.

DIVISION 9.10 – PARKING AND LOADING

Section 9.10.1 - PARKING (175-103)

Every building hereafter erected or moved shall be on a lot adjacent to a public or private street approved by the Town, and all buildings shall be located on lots as to provide safe and convenient access for servicing, fire protection and required off-street parking.

Section 9.10.2 - OFF-STREET PARKING (175-104)

All new uses or developments, and changes of use, shall comply with the off-street parking requirements of Chapter 148.

Section 9.10.3 - OFF-STREET LOADING (175-105)

All new uses or developments, and changes of use, shall comply with the off-street loading requirements of Chapter 148.

ARTICLE 10 – SIGNS

DIVISION 10.1- GENERAL PROVISIONS

Sec. 1. – Purpose and intent.

Sec. 2. – Definitions.

Sec. 3. – Permit required.

Commented [AD23]: This is LGAV MSO with GS/LK comments incorporated.

Sec. 4. – Permit not required.
Sec. 5. – Prohibited signs.
Sec. 6. – Measurements of sign area.
Sec. 7. – Maintenance and removal.
Sec. 8. – General requirements.
Sec. 9. – Nonconforming signs.
Sec. 10. – Non-commercial signs.
Sections 11-20. – Reserved.

DIVISION 10.2 - SIGN REGULATIONS BY USE AND DISTRICT

Sec. 21. – Residential district signs.
Sec. 22. – Commercial district signs.
Sec. 23. – Industrial district signs.

DIVISION 10.3. - GENERAL PROVISIONS

Section 10.3.1. – Findings, purpose and intent; interpretation.

- (a) Zoning ordinances shall be for the general purpose of promoting the health, safety or general welfare of the public. Signs obstruct views, distract motorists, displace alternative uses for land, and pose other problems that legitimately call for regulation. The purpose of this article is to regulate the size, color, illumination, movement, materials, location, height and condition of all signs placed on private property for exterior observation, thus ensuring the protection of property values, the character of the various neighborhoods, the creation of a convenient, attractive and harmonious community, protection against destruction of or encroachment upon historic areas, and the safety and welfare of pedestrians and wheeled traffic, while providing convenience to citizens and encouraging economic development. This article allows adequate communication through signage while encouraging aesthetic quality in the design, location, size and purpose of all signs. This article shall be interpreted in a manner consistent with the First Amendment guarantee of free speech. If any provision of this article is found by a court of competent jurisdiction to be invalid, such finding shall not affect the validity of other provisions of this article which can be given effect without the invalid provision.
- (b) Signs not expressly permitted as being allowed by right or by special use permit under this article, by specific requirements in another portion of this chapter, or otherwise expressly allowed by the governing body are forbidden.
- (c) A sign placed on land or on a building for the purpose of identification, protection or directing persons to a use conducted therein shall be deemed to be an integral but accessory and subordinate part of the principal use of land or building. Therefore, the intent of this article is to establish limitations on signs in order to ensure they are appropriate to the land, building or use to which they are appurtenant and are adequate for their intended purpose while balancing the individual and community interests identified in subsection (a) of this section.
- (d) These regulations are intended to promote signs that are compatible with the use of the property to which they are appurtenant, landscape and architecture of

surrounding buildings, are legible and appropriate to the activity to which they pertain, are not distracting to motorists, and are constructed and maintained in a structurally sound and attractive condition.

- (e) These regulations distinguish between portions of the City/County/Town designed for primarily vehicular access and portions of the City/County/Town designed for primarily pedestrian access.
- (f) These regulations do not regulate every form and instance of visual speech that may be displayed anywhere within the jurisdictional limits of the City/County/Town. Rather, they are intended to regulate those forms and instances that are most likely to meaningfully affect one or more of the purposes set forth above.
- (g) These regulations do not entirely eliminate all of the harms that may be created by the installation and display of signs. Rather, they strike an appropriate balance that preserves ample channels of communication by means of visual display while still reducing and mitigating the extent of the harms caused by signs.

Section 10.3.2. - **Definitions.** MOVE!

A-Frame sign means a two-faced sign with supports that are connected at the top and separated at the base, forming an “A” shape not more than four feet high. These are also referred to as “sandwich board” signs. They are included in the term “portable sign.”

Advertising means any words, symbol, color or design used to call attention to a commercial product, service, or activity.

Animated sign means a sign or part of a sign that is designed to rotate, move or appear to rotate or move. Such a sign is sometimes referred to as a “moving sign.”

Awning sign means a sign placed directly on the surface of an awning.

Banner means a temporary sign of flexible material affixed to a framework or flat surface.

Building frontage means the length of the main wall of a building which physically encloses usable interior space and which is the architecturally designed wall that contains the main entrance for use by the general public. Said frontage shall be measured at a height of ten (10) feet above grade.

Business sign means a sign which directs attention to a product, service or commercial activity available on the premises.

Canopy sign means a sign attached to a canopy.

Chalk-board sign means a single-faced, framed slate or chalk-board that can be written on with chalk or similar markers.

Changeable copy sign means a sign or part of a sign that is designed so that characters, letters or illustrations can be changed or rearranged without altering the face or surface of the sign, changeable at— intervals of not less than one hundred twenty (120) seconds without constituting a “flashing sign”.

Comprehensive sign plan means a plan for the signage of a property that includes multiple tenants or owners with shared parking or other facilities.

Feather sign. A lightweight, portable sign mounted along one edge on a single, vertical, flexible pole the physical structure of which at may resemble a sail, bow, or teardrop.

Flag means a piece of cloth or similar material, typically oblong or square, attachable by one edge to a pole or rope and used as a symbol or decoration; this includes pennants.

Flashing sign means a sign that includes lights that flash, blink, or turn on and off intermittently.

Freestanding sign means any non-portable sign supported by a fence, retaining wall, or by upright structural members or braces on or in the ground and not attached to a building.

Ground mounted sign means a sign that is supported by structures or supports in or upon the ground and independent of any support from any building or wall.

Height, means the maximum vertical distance from the base of the sign at normal grade to the top of the highest attached component of the sign. Normal grade shall be construed to be the lower of:

- (1) Existing grade prior to construction; or
- (2) The newly established grade after construction, exclusive of any filling, berming, mounding or excavating primarily for the purpose of mounting or elevating the sign.

Holiday Displays mean displays erected on a seasonal basis in observance of religious, national, or state holidays which are not intended to be permanent in nature and which contain no advertising material. *Seasonal basis* means 60 days prior to and 30 days following the date of the holiday.

Illegal sign means any sign erected without a required permit or which otherwise does not comply with any provisions of this article.

Illuminated sign means a sign that is backlit, internally lighted, or indirectly lighted, but does not include a neon sign.

Marquee means a permanent structure projecting beyond a building wall at an entrance to a building or extending along and projecting beyond the building's wall and generally designed and constructed to provide protection against the weather.

Marquee sign means a sign attached to and made a part of a marquee or any similar projections from a building, with changeable, fixed or both types of lettering in use.

Minor sign means a wall or freestanding sign not exceeding one (1) square foot in area, not exceeding four feet in height, and not illuminated.

Monument sign means a sign affixed to a structure built on grade in which the sign and the structure are an integral part of one another; not a pole sign.

Neon sign means a sign containing exposed tubes filled with light-emitting gas.

Nonconforming sign. Any sign which was lawfully erected in compliance with applicable regulations of the City/County/Town and maintained prior to the effective date of this chapter of the zoning ordinance and which fails to conform to current standards and restrictions of the zoning ordinance.

Off-premises sign means a sign that directs attention to a business, product, service or activity conducted, sold or offered at a location other than the premises on which the sign is erected.

Pole sign means a sign that is mounted on one (1) or more freestanding poles.

Portable sign means any temporary sign not affixed to a building, structure, vehicle or the ground. It does not include a flag or banner.

Projecting sign means any sign, other than a wall, awning or marquee sign, affixed to a building and supported only by the wall on which it is mounted.

Public area means any public place, public right-of-way, any parking area or right-of-way open to use by the general public, or any navigable body of water.

Public Art means items expressing creative skill or imagination in a visual form, such as painting or sculpture, for the purpose of beautifying or providing aesthetic influences to public areas or areas which are visible from a public area, and not for the purpose of attracting attention to an institution, organization, business, product, service, event, or location.

Roof sign means a sign erected or constructed, in whole or in part, upon or above the highest point of a building with a flat roof, or the lowest portion of a roof for any building with a pitched roof.

Sign. Any object, device, display, or structure, or part thereof, visible from a public place, a public right-of-way, any parking area or right-of-way open to use by the general public, or any navigable body of water which is designed and used to attract attention to an institution, organization, business, product, service, event, or location by any means involving words, letters, figures, designs, symbols, fixtures, logos, colors, illumination, or projected images for the purpose of communicating information to persons in a public area. The term does not include public art, architectural elements incorporated into the style or function of a building, or flags of any nation, state, or other geopolitical entity not related to a commercial business, product or service. The term "sign" also does not include the display of merchandise for sale on the site of the display.

Sign face means the portion of a sign structure bearing the message.

Sign structure means any structure bearing a sign face.

Temporary sign means a sign constructed of cloth, canvas, vinyl, paper, plywood, fabric, or other lightweight material not well suited to provide a durable substrate or, if made of some other material, is neither permanently installed in the ground nor permanently affixed to a building or structure with the date of installation conspicuously noted.

Vehicle or trailer sign means any sign attached to or displayed on a vehicle, if the vehicle or trailer is used for the primary purpose of advertising a business establishment, product, service or activity. Any such vehicle or trailer shall, without limitation, be considered to be used for the primary purpose of advertising if it fails to display current license plates, inspection sticker, or municipal decal, if the vehicle is inoperable, if evidence of paid-to-date local taxes cannot be made available, or if the sign alters the standard design of such vehicle or trailer.

Wall Sign means any sign attached to a wall or painted on or against a flat vertical surface of a structure.

Window sign means any sign visible outside the window and attached to or within 18 inches in front of or behind the surface of a window or door.

Section 10.3.2. - Permit required.

- (a) *In general*. A sign permit is required prior to the display and erection of any sign except as provided in section 4 of this Article.
- (b) *Application for permit*.

- (1) An application for a sign permit shall be filed with the City/County/Town [Community Development Department or equivalent] on forms furnished by that department. The applicant shall provide sufficient information to determine if the proposed sign is permitted under the zoning ordinance and other applicable laws, regulations, and ordinances. An application for a temporary sign shall state the dates intended for the erection and removal of the sign.
 - (2) The City/County/Town Zoning Administrator or designee shall promptly process the sign permit application and approve the application, reject the application, or notify the applicant of deficiencies in the application within 21 calendar days after receipt. Any complete application that complies with all provisions of this zoning ordinance, the building code, and other applicable laws, regulations, and ordinances shall be approved.
 - (3) If the application is rejected, the City/County/Town shall provide a list of the reasons for the rejection in writing. An application shall be rejected for non-compliance with the terms of the zoning ordinance, building code, or other applicable law, regulation, or ordinance.
- (c) *Permit fee.* A nonrefundable fee as set forth in the uncodified fee schedule adopted by the City/County/Town Council shall accompany all sign permit applications.
- (d) *Duration and revocation of permit.* If a sign is not installed within six months following the issuance of a sign permit (or within 30 days in the case of a temporary sign permit), the permit shall be void. The permit for a temporary sign shall state its duration, not to exceed 30 days unless another time is provided in the zoning ordinance. The City/County/Town may revoke a sign permit under any of the following circumstances:
- (1) The City/County/Town determines that information in the application was materially false or misleading;
 - (2) The sign as installed does not conform to the sign permit application; or
 - (3) The sign violates the zoning ordinance, building code, or other applicable law, regulation, or ordinance.
- (e) *Overlay district regulations.* All signs in the Historic Overlay District (HOD) require approval of the Board of Architectural Review (BAR) except when a sign permit is not required.
- (f) *Special use.* A comprehensive sign plan may be approved by special use permit in _____ districts. A comprehensive sign plan may be approved by special use permit in the _____ districts for uses allowed by special use permit. The comprehensive sign plan shall establish the time, manner, and placement of signs, frequency of message changes, the materials, the hours of lighting, the height of signs, the total number of square feet of sign surface, and the number of signs to be placed on a site. Height of signs shall not be modified above the height permitted in the Zoning Ordinance.

Section 10.3.3 - Permit not required.

A sign permit is not required for:

- (1) Signs erected by a governmental body or required by law.
- (2) Flags up to 16 square feet in size not containing any commercial advertising; provided, that no freestanding pole shall be erected in the public right-of-way nor be within five (5) feet of a service drive, travel lane or adjoining street.

- (3) The changing of messages on marquees and the repair of an existing permitted sign, except that repair of a nonconforming sign **must comply with § 10.3.1.**
- (4) Temporary signs as follows:
 - a. One (1) sign, no more than twelve (12) square feet in area, located on property where a building permit is active.
 - b. On any property for sale or rent, not more than one sign with a total area of up to twelve (12) square feet and a maximum height of six (6) feet when the sign abuts a road with a speed limit of 25 miles per hour or less, and when the sign abuts a road with a speed limit greater than 25 miles per hour not more than one sign with a total area of up to thirty two (32) square feet and a maximum height of eight (8) feet.
 - c. Official notices or advertisements posted or displayed by or under the direction of any public or court officer in the performance of his official or directed duties; provided, that all such signs shall be removed no more than ten (10) days after their purpose has been accomplished.
 - d. On residential property, one or more temporary signs with a total area of no more than twelve (12) square feet, and which are removed within 90 days after being erected.
 - e. On residential property, window signs, provided that the total extent of window signs do not obstruct more than 25% of the total area of all windows on each building façade.
- (6) Not more than two minor signs per parcel. Additional minor signs are permitted in certain districts with a permit.
- (7) A-frame signs more than fifty (50) feet from the nearest public right of way.
- (8) Pavement markings. Any sign applied directly and entirely to and flush with an asphalt, concrete, or similar paved surface.
- (9) A permanent window sign, provided that the aggregate area of all window signs on each window or door does not exceed twenty-five percent (25%) of the total area of the window or door.

Section 10.3.4. – Prohibited signs

In addition to signs prohibited elsewhere in this Code or by applicable state or federal law, the following signs are prohibited:

- (a) General prohibitions.
 - (1) Signs that violate any law of the Commonwealth relating to outdoor advertising.
 - (2) Signs attached to natural vegetation.
 - (3) Signs simulating, or which are likely to be confused with, a traffic control sign or any other sign displayed by a public authority. Any such sign presents an imminent serious threat to the health, safety and welfare of the public and is subject to immediate removal and disposal by an authorized Town official as constituting a nuisance.
 - (4) Vehicle or trailer signs.
 - (5) Freestanding signs more than 25 feet in height.
 - (6) Signs hanging from supports, except against the face of a building.

- (7) Any sign displayed without complying with all applicable regulations of this chapter.
- (b) Prohibitions based on materials.
 - (1) Signs painted directly on a building, except where expressly permitted by this chapter.
 - (2) Animated signs. This subsection does not apply to flags expressly permitted under this article or the changing of the message content no more often than once every one hundred twenty (120) seconds.
 - (3) Flashing signs or other signs displaying flashing, scrolling or intermittent lights or lights of changing degrees of intensity, except where such signs are expressly permitted within this article.
 - (4) Signs consisting of illuminated tubing or strings of lights outlining property lines or open sales areas, rooflines, doors, windows or wall edges of any building, except for temporary decorations not to exceed ninety (90) days per year.
 - (5) Signs that emit smoke, flame, scent, mist, aerosol, liquid, or gas.
 - (6) Signs that emit sound.
 - (7) Any electronic sign that is generated by a series of moving images, such as an LED, digital display, or other video technology, whether displayed on a building, vehicle, or mobile unit.
 - (8) Strings of flags visible from, and within 50 feet of, any public right-of-way.
 - (9) Pole signs less than 6 feet in height.
- (c) Prohibitions based on location.
 - (1) Off-premises signs.
 - (2) Signs erected on public land other than those approved by an authorized City/County/Town official in writing, required by law without such approval, or permitted under Virginia Code § 24.2-310 E. Any sign not so authorized is subject to immediate removal and disposal by any authorized official. Removal of the sign under this provision does not preclude prosecution of the person responsible for the sign.
 - (3) Signs on the roof surface or extending above the roofline of a building or its parapet wall.
 - (4) Neon signs, except in windows.
 - (5) A sign that obstructs free or clear vision, or otherwise causes a safety hazard for vehicular, bicycle, or pedestrian traffic due to its location.
 - (6) Window signs whose aggregate area on a window or door exceed twenty-five percent (25%) of the total area of the window or door.

Section 10.3.5 - Measurements of sign area and height.

- (a) Supports, uprights or structure on which any sign is supported shall not be included in determining the sign area unless such supports, uprights or structure are designed in such a way as to form an integral background of the display; except, however, when a sign is placed on a fence, wall, planter, or other similar structure that is designed to serve a separate purpose other than to support the sign, the entire area of such structure shall not be computed. In such cases, the sign area shall be computed in accordance with the preceding provisions.

- (b) In instances where there are multiple tenants or users on a property or in a building, allowable sign area for all parties shall not exceed the maximum sign area computed as if there were a single tenant or user.
- (c) *Sign area.*
 - (1) Sign area is calculated under the following principles:
 - a. With signs that are regular polygons or circles, the area can be calculated by the mathematical formula for that polygon or circle. With signs that are not regular polygons or circles, the sign area is calculated using all that area within a maximum of three abutting or overlapping rectangles that enclose the sign face.
 - b. The permitted area of a double-faced sign shall be considered to be the area on one side only. If one face contains a larger sign area than the other, the larger face shall be used in calculating the sign area. A double-faced sign must have an internal angle between its two faces of no more than 45 degrees.
 - c. For projecting signs with a thickness of four inches or more, the sign area also includes the area of the visible sides of the sign, calculated as a rectangle enclosing each entire side view.
 - (2) The supports, uprights or structure on which any sign is supported shall not be included in determining the sign area unless such supports, uprights or structure area are designed in such a manner as to form an integral background of the display.
- (d) *Maximum height.* The maximum height for any sign shall be 25 feet unless otherwise specified within this chapter.

Section 10.3.6 - Maintenance and removal.

- (a) All signs shall be constructed and mounted in compliance with the Virginia Uniform Statewide Building Code.
- (b) All signs and components thereof shall be maintained in good repair and in a safe, neat and clean condition.
- (c) The building official may cause to have removed or repaired immediately without written notice any sign which, in his opinion, has become insecure, in danger of falling, or otherwise unsafe, and, as such, presents an immediate threat to the safety of the public. If such action is necessary to render a sign safe, the cost of such emergency removal or repair shall be at the expense of the owner or lessee thereof as provided in chapter ____ of this Code, [Buildings and structures or its equivalent].
- (d) The owner of any advertising sign located on commercial property where the use or business has ceased operating shall, within 60 days of the cessation of use or business operation, replace the sign face with a blank face until such time as a use or business has resumed operating on the property.
- (e) *Sign condition, safety hazard, nuisance abatement, and abandonment.*
 - (1) Any sign which becomes a safety hazard or which is not kept in a reasonably good state of repair shall be put in a safe and good state of repair within 30 days of a written notice to the owner and permit holder.

- (2) Any sign which constitutes a nuisance may be abated by the City/County/Town under the requirements of Virginia Code §§ 15.2-900, 15.2-906, and/or 15.2-1115.

Section 10.3.7 – General requirements.

- (a) *Placement.* Except as otherwise permitted, all freestanding signs shall be set back from any street right-of-way at least half the height of the sign.
- (b) *Illumination.* All permitted signs may be backlit, internally lighted, or indirectly lighted, unless such lighting is specifically prohibited in this article.
- (1) In the case of indirect lighting, the source shall be so shielded that it illuminates only the face of the sign. However, shingle signs shall be indirectly illuminated or have shielded direct lighting, unless otherwise prohibited within this chapter. Indirect lighting shall consist of full cut-off or directionally shielded lighting fixtures that are aimed and controlled so that the directed light shall be substantially confined to the sign to minimize glare, sky glow, and light trespass. The beam width shall not be wider than that needed to light the sign.
- (2) Internal illumination shall be limited to the illumination standards for parking lot lighting in [Section 6.3.3](#). No sign shall be permitted to have an illumination spread of more than .05 foot candle at the lot line, shine into on-coming traffic, affect highway safety, or shine directly into a residential dwelling unit. In no event shall the illumination of any sign resulting from any internal or external artificial light source exceed 100 lumens. All lighting fixtures used to illuminate a sign shall be full-cutoff, as defined by the Illuminating Engineering Society of North America (IESNA), and shall have fully shielded or recessed luminaires with horizontal-mount flat lenses that prevent upward light scatter and protect the dark night sky, in accordance with standards of certifications of the International Dark-Sky Association (IDA). The Planning Director may authorize alternative design standards or certifications that reasonably achieve the purpose of controlling the spillover of light onto adjacent properties and the sky and protecting the public safety by preventing glare from outdoor light.
- (c) *Landscaping.* All non-temporary ground-mounted or monument signs shall be installed with a minimum surround of three (3) feet of regularly maintained floral and shrubbery landscaping in every direction.

Section 10.3.8 - Nonconforming signs.

- (a) Signs lawfully existing on the effective date of this chapter or prior ordinances, which do not conform to the provisions of this chapter, and signs which are accessory to a nonconforming use shall be deemed to be nonconforming signs and may remain except as qualified below. The burden of establishing nonconforming status of signs and of the physical characteristics/location of such signs shall be that of the owner of the property. Upon notice from the zoning administrator, a property owner shall submit verification that sign(s) were lawfully existing at time of erection. Failure to provide such verification shall be cause for order to remove sign(s) or bring sign(s) into compliance with the current ordinance.

- (b) No nonconforming sign shall be enlarged nor shall any feature of a nonconforming sign, such as illumination, be increased.
- (c) Nothing in this section shall be deemed to prevent keeping in good repair a nonconforming sign. Nonconforming signs shall not be extended or structurally reconstructed or altered in any manner, except a sign face may be changed so long as the new face is equal to or reduced in height and/or sign area.
- (d) No nonconforming sign shall be moved for any distance on the same lot or to any other lot unless such change in location will make the sign conform in all respects to the provisions of this article.
- (e) A nonconforming sign that is destroyed or damaged by any casualty to an extent not exceeding fifty (50) percent of its area may be restored within two (2) years after such destruction or damage but shall not be enlarged in any manner. If such sign is so destroyed or damaged to an extent exceeding fifty (50) percent, it shall not be reconstructed but may be replaced with a sign that is in full accordance with the provisions of this article.
- (f) A nonconforming sign which is changed to becoming conforming or is replaced by a conforming sign shall no longer be deemed nonconforming, and thereafter such sign shall be in accordance with the provisions of this article.
- (g) A nonconforming sign structure shall be subject to the removal provisions of section 175-131. In addition, a nonconforming sign structure shall be removed if the use to which it is accessory has not been in operation for a period of two years or more. Such structure sign shall be removed by the owner or lessee of the property. If the owner or lessee fails to remove the sign structure, the zoning administrator or designee shall give the owner fifteen (15) days' written notice to remove it. Upon failure to comply with this notice, the zoning administrator or designee may enter the property upon which the sign is located and remove any such sign or may initiate such action as may be necessary to gain compliance with this provision. The cost of such removal shall be chargeable to the owner of the property.

Section 10.3.9 – Non-commercial signs.

- (a) *Substitution.* Wherever this Article permits a sign with commercial content, non-commercial content is also permitted subject to the same requirements of size, color, illumination, movement, materials, location, height and construction.

DIVISION 10.4 - SIGN REGULATIONS BY USE AND DISTRICT

Section 10.4.1 – Residential district signs.

- (a) Except as otherwise prohibited in this Article, the following signs are permitted as accessory to residential uses in residential districts. Moving signs and electronic message signs are prohibited on residential properties in all residential districts.

TYPE	Flags	Temporary	Permanent
Size (each/total)	16 s.f./no limit	16 s.f./16 s.f.	3 s.f./3 s.f.

Illumination	As required by law	None	Indirect
Setback	Height of flagpole	None	None
Maximum Height	25 ft.	4 ft.	4 ft.
Location	Flag pole $\leq$ 8" diameter	Freestanding, portable, wall, or window	Wall or window sign or affixed to mailbox
Duration	Unlimited	90 days	Unlimited

(b) Except as provided otherwise in this Article, the following signs are permitted as accessory to non-residential uses in residential districts. Moving signs are prohibited as accessory uses for non-residential uses in all residential districts.

TYPE	Flags	Temporary signs	Changeable Message signs	Other permanent signs
Size (each/total)				
Illumination				
Setback				
Maximum Height				
Materials				
Duration				

Section 10.4.2 – Commercial district signs.

(a) *Generally.* Except as provided otherwise in this Article, the following signs are permitted as accessory uses in commercial districts. In addition, up to one minor sign per business is permitted as a wall sign.

TYPE	Freestanding	Wall	Flags	Temporary signs
Size (each/total)				
Maximum Number				
Illumination				
Setback				
Maximum Height				
Materials				
Duration				

(b) *Window signs.* Window signs are permitted up to 25% of the area of a window and count toward the maximum square footage of wall signs. Window signs are

permitted only on the first floor of a building unless the business advertised is only on the floor where the window sign is displayed.

Section 10.4.3 – Industrial district signs.

Except as provided otherwise in this Article, the following signs are permitted as accessory uses in industrial districts. In addition, up to one minor sign per business is permitted as a wall sign.

TYPE	Freestanding	Wall	Flags	Temporary signs
Size (each/total)				
Maximum Number				
Illumination				
Setback				
Maximum Height				
Materials				
Duration				

Window signs are permitted up to 25% of the area of a window and count toward the maximum square footage of wall signs. Window signs are permitted only on the first floor of a building unless the business advertised is only on the floor where the window sign is displayed.

ARTICLE 11 – DEFINITIONS

Definition Origin Key: (to be deleted in final)

1.Red is 175-3; 2. Dark Blue is Flood plain (Warren), 3. Green Times New Roman is Signs from 175. 4. Brown is historic; and 5. Cambria Black is directly from 15.2.2201 State Code Definitions; 6. Green Tw Cen Mt is DCR Floodplain; 7. LGA Sign Ordinance Definitions Orange, Verdana

ACCESS - A public or private right-of-way providing the ability to enter, approach or pass to and from an area to another area.

ACCESSORY BUILDING/ACCESSORY STRUCTURE - A building or structure that is subordinate to, and located on the same lot as the principal permitted use of the property, of which, the accessory building or accessory structure is used for purposes that are clearly incidental to that of the principal permitted use of the property, and which is not attached by any part of a common wall or roof to the main building, or buildings, if any. An accessory building shall not exceed the

height of the main building(s) located on the property; shall not be located within a required yard area that abuts a public road; and shall not be permitted where no main building exists on the property, except in the following: (i) temporary buildings or structures permitted under this chapter, (ii) accessory buildings without utilities that are used for storage purposes and do not exceed 256 square feet, and (iii) buildings, such as barns and silos, used for agricultural purposes.

ACCESSORY STRUCTURE or APPURTENANT STRUCTURE – For purposes of the floodplain regulations of this chapter, shall mean an accessory building not in excess of 200 square feet.

ACCESSORY USE - A use of a building, lot or portion thereof which is customarily incidental and subordinate to the principal permitted use of the main building or lot. Accessory uses shall include the use of accessory buildings as a separate accessory dwelling unit, provided that the lot is at least 12,000 square feet in size, the accessory building complies with the minimum setback and yard area requirements that are required for main buildings within the applicable zoning district, no more than one accessory dwelling is located on the property, and the accessory dwelling unit does not utilize more than 500 square feet. Urban agriculture is considered an accessory use when the requirements of Section 175-110.5 are complied with.

ADMINISTRATOR, THE - The official charged with the administration and enforcement of the Zoning Ordinance.

Advertising means any words, symbol, color or design used to call attention to a commercial product, service, or activity.

Affordable housing means, as a guideline, housing that is affordable to households with incomes at or below the area median income, provided that the occupant pays no more than thirty percent of his gross income for gross housing costs, including utilities. For the purpose of administering affordable dwelling unit ordinances authorized by this chapter, local governments may establish individual definitions of affordable housing and affordable dwelling units including determination of the appropriate percent of area median income and percent of gross income.

A-Frame sign means a two-faced sign with supports that are connected at the top and separated at the base, forming an "A" shape not more than four feet high. These are also referred to as "sandwich board" signs. They are included in the term "portable sign."

AGRICULTURE, URBAN (Urban Agriculture) – An umbrella term that describes a range of food growing practices conducted as an accessory use that may include the raising of crops, horticulture, aquaculture, hydroponics, forestry, gardening, apiculture, and both livestock and fowl keeping, subject to compliance with the regulations of Section 175-110.5.

AGRICULTURE/AGRICULTURAL PURSUITS – The tilling of soil, the raising of crops, horticulture, aquaculture, hydroponics, forestry, gardening, apiculture, livestock and fowl keeping and breeding, farm wineries, roadside stands, tenant houses necessary for the operation of a farm, and the production of natural products with resources primarily derived from the land upon which it is produced.

Yard maintenance, landscaping, noncommercial gardening and other customary incidental accessory uses shall not be deemed as "agriculture." Where agricultural uses are permitted under Chapter 175 of the Town Code, the provisions of Section 66-5 pertaining to slaughtering of stock shall not apply, provided that this exemption only applies to small scale slaughtering activities on a farm, and does not apply to slaughterhouses.

ALLEY - A public right-of-way which affords only a secondary means of vehicular access to the side or rear of property.

ALL-WEATHER SURFACE - Crushed rock, gravel or similar surface shall constitute an all-weather surface.

ALTERATION - Any change, modification or addition to a part of or all of the exterior of any building or structure.

AMENDMENT - A change in the Zoning Ordinance and/or Zoning Map granted by the Town Council after review and comment by the Town Planning Commission.

ANIMATED SIGN - A sign or part of a sign that moves or appears to move, including, but not limited to propellers, discs, digital screens, projections and flashing lights, but specifically excluding the hands of a clock, clocks, digital displays of only the time, date and temperature, weather vanes, and flags.

Animated sign means a sign or part of a sign that is designed to rotate, move or appear to rotate or move. Such a sign is sometimes referred to as a "moving sign."

Appurtenant or accessory structure - A non-residential structure which is on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Accessory structures are not to exceed 600 square feet.

ARCHITECT, REGISTERED - A licensed professional architect registered in the Commonwealth of Virginia by the Department of Professional and Occupational Registration as an architect.

ARTISTIC MURAL - A work of art (as a painting) applied to and made integral with a building wall that is prepared by a skilled artist and shows imaginative skill in arrangement or execution.

ASSISTED LIVING FACILITY - A residential facility for two or more persons that provides nursing assistance and/or support services for residency of elderly and/or disabled persons, where residents share common meals.

ATTIC - The space between the ceiling beams of the top habitable story and the roof rafters. An "attic" shall be considered a half-story and shall be included in the calculation of building height.

AUTOMOBILE GRAVEYARD - See "Junkyard."

AUTOMOBILE PARKING LOT, COMMERCIAL - A lot or portion thereof, other than an automobile sales lot, held out or used for the storage or parking of six (6) or more motor vehicles for a consideration, where service or repair facilities are not permitted. Such parking lot shall not be considered an accessory use; nor shall it be used for the storage of dismantled or wrecked vehicles, parts thereof or junk.

AUTOMOBILE SALES LOT - A lot arranged, designed or used for the storage and display for sale of any new or used motor vehicles capable of independent operation or any type of travel trailer and

recreational vehicle, provided that the travel trailer and recreation vehicle is unoccupied, and where repair work is done wholly enclosed within a building.

AUTOMOBILE SERVICE STATION - A place of business with pumps and underground storage tanks, having as its purpose the servicing, at retail, of motor vehicles with fuels and lubricants, and including minor repairs and inspections incidental thereto, but not including a general repair shop, paint or body shop, machine shop, vulcanizing shop or any operation requiring the removal or installation of a radiator, engine, cylinder head, crankcase, transmission, differential, fenders, doors, bumpers, grills, glass or other body parts or anybody repairing or painting. All repairs shall be conducted within a fully enclosed building.

AUTOMOBILE WRECKING YARD - An area where destroyed, abandoned and obsolete automobiles are disassembled and where parts of said disassembled automobiles are generally sold and where the remaining automobile bodies and their components are temporarily stored until they can be removed or reduced to scrap metal.

AWNING SIGN - A sign placed, painted or printed directly on the surface of an awning.

Awning sign means a sign placed directly on the surface of an awning.

BABYSITTING - An activity occurring in any private family home in which nine (9) children or fewer, including children residing on the premises and/or related by blood or marriage to the person who maintains the home, are received for care, protection and guidance during any part of the twenty-four-hour day. A Town business license is required for the care of any children not related by blood or marriage when such service is provided in a private family home during any eleven (11) days or more, either consecutive or nonconsecutive days, in any given month.

Banner means a temporary sign of flexible material affixed to a framework or flat surface.

Base flood - The flood having a one percent chance of being equaled or exceeded in any given year.

Base flood elevation - The water surface elevations of the base flood, that is, the flood level that has a one percent or greater chance of occurrence in any given year. The water surface elevation of the base flood in relation to the datum specified on the community's Flood Insurance Rate Map. For the purposes of this ordinance, the base flood is the 1% annual chance flood.

BASEMENT - Any area of the building having its floor sub-grade (below ground level) on all sides.

Basement - Any area of the building having its floor sub-grade (below ground level) on all sides.

BAY WINDOW - A convex window frame and pane(s) that projects outward from a house or other structure, which may project not more than three feet (3') into any required yard area.

BED AND BREAKFAST HOME - A single-family, owner-occupied dwelling with ten (10) or fewer guest rooms in which overnight accommodations and breakfast are provided for transient guests, none of whom remain any more than fourteen (14) consecutive nights. A "bed-and-breakfast home" shall also be known as a "Tourist Home".

BILLBOARD SIGN - See "off-premise sign."

BLOCK - The property bound on all sides by one (1) side of a street or a combination of a street line, railroad right-of-way, unsubdivided land, river, live stream, stream bed or any other barrier to the continuity of development.

BOARD OF ZONING APPEALS - The Board appointed to review appeals made by individuals with regard to decisions of the Zoning Administrator in the interpretation of this ordinance.

BOARDINGHOUSE - See "Lodging House".

BREAKAWAY WALL - A wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

BREAKPOINT TECHNOLOGY – Means the particular design of a monopole wireless telecommunication tower, certified by an engineer licensed in the Commonwealth of Virginia, that devises a specified point of the structure, referred to as the breakpoint, to have stress concentrated so that the breakpoint is at least five percent (5%) more susceptible to failure than any other point along the structure, so that in the event of a structural failure, the failure will occur at the breakpoint rather than at the base plate, anchor bolts, or any other point on the structure.

BUILDING - Any enclosed or open structure which is a combination of materials to form a construction for occupancy or use.

BUILDING COVERAGE, LOT COVERAGE - All areas on a lot which are under a roof or under projections from buildings.

Building frontage means the length of the main wall of a building which physically encloses usable interior space and which is the architecturally designed wall that contains the main entrance for use by the general public. Said frontage shall be measured at a height of ten (10) feet above grade.

BUILDING INSPECTOR - An appointed official of the Town of Front Royal, Virginia who is responsible for certifying building inspections.

BUILDING, MAIN - A building in which the principal use of the lot is conducted.

Business sign means a sign which directs attention to a product, service or commercial activity available on the premises.

CANOPY SIGN - A sign attached or otherwise affixed to a canopy.

CARETAKER QUARTERS – A dwelling unit located within a building that is used by a business enterprise, and is occupied by the owner or an employee of the business. Only one (1) caretaker quarters shall be permitted per building, and shall not utilize more than twenty percent (20%) of the ground floor area of the building.

CATERING SERVICES – An establishment that prepares meals or food on premise with pickup/delivery for consumption off-site.

CELLAR - A portion of a building having less than fifty percent (50%) of the total exterior wall area exposed. Such a portion of a building shall not be used for habitation. All portions of the total exterior

wall area exposed shall be counted for the purpose of height requirements, but shall not be considered a story.

CEMETERY - A place for burial of the human dead.

CERTIFICATE OF APPROPRIATENESS (C of A) - The approval statement signed by the Secretary of the Board of Architectural Review (BAR) and the Zoning Administrator that certifies approval by the BAR of the appropriateness of a particular request for the construction, alteration, reconstruction, repair, restoration, demolition or razing of all or a part of any building within an historic district overlay area, subject to the issuance of all other permits needed for the matter sought to be accomplished.

Chalk-board sign means a single-faced, framed slate or chalk-board that can be written on with chalk or similar markers.

CHANGE OF USE - Any change from one business activity to another, except a name change for a specific established business activity.

CHANGEABLE COPY SIGN - A sign or part of a sign that is designed so that characters, letters or illustrations can be changed or rearranged without altering the face or surface of the sign.

Changeable copy sign means a sign or part of a sign that is designed so that characters, letters or illustrations can be changed or rearranged without altering the face or surface of the sign.

CHURCH - Buildings or structures primarily intended for organized religious services and associated accessory uses.

CHURCHYARD- an area of land not exceeding two (2) acres, surrounding and located on the same lot or parcel as a church, which may be used as a cemetery.

CLINIC - An establishment where human patients who are not lodged overnight are admitted for examination or treatment by physicians or dentists.

Coastal A Zone - Flood hazard areas that have been delineated as subject to wave heights between 1.5 feet and 3 feet.

COMMISSION, THE - See "Planning Commission".

COMMON OPEN SPACE - An open tract or parcel of land owned in undivided interest, not devoted to structures but directly related and adjunct to a development, as herein provided.

COMMUNITY CENTER (public) - A structure designed and constructed for public use which includes a community meeting room, athletic or exercise facilities or similar uses.

COMMUNITY HALL - A community hall is a structure designed and constructed for civic uses and shall include a community meeting room, a library annex, space dedicated to historical or cultural displays or uses, athletic or exercise facilities, or uses found to be similar in intent and function with this section.

Comprehensive sign plan means a plan for the signage of a property that includes multiple tenants or owners with shared parking or other facilities.

Conditional Letter of Map Revision (CLOMR) - A formal review and comment as to whether a proposed flood protection project or other project complies with the minimum NFIP requirements for such projects with respect to delineation of special flood hazard areas. A CLOMR does not revise the effective Flood Insurance Rate Map or Flood Insurance Study.

Conditional zoning means, as part of classifying land within a locality into areas and districts by legislative action, the allowing of reasonable conditions governing the use of such property, such conditions being in addition to, or modification of the regulations provided for a particular zoning district or zone by the overall zoning ordinance.

CONTRIBUTING PROPERTIES - Properties so designated on the inventory map of landmarks and contributing properties, which is adopted as a part of this Article, being generally those properties which, by reason of form, materials, architectural details and relation to surrounding properties, contribute favorably to the general character of the part of the historic district in which they are located but, by reason of recent age, lack of historic significance or other factors, are not designated as local historic landmarks under the criteria of this Article.

CONVALESCENT HOME - See "Nursing Home".

COVERAGE - See "Building Coverage".

DAYCARE - The provision of care, protection and guidance to a group of children separated from their parents or guardian during a part of the day only.

DEMOLITION - The dismantling or tearing down of all or part of any building and all operations incidental thereto.

DENSITY - The number of dwelling units permitted on one (1) acre of land as specified herein.

Development - Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, temporary structures, mining, dredging, filling, grading, paving, excavation, drilling or other land-disturbing activities or permanent or temporary storage of equipment or materials.

DIRECTIONAL SIGN - An on-premises sign designed to guide vehicular and/or pedestrian traffic by using such words as "Entrance," "Exit," "Parking," "One Way" or similar directional instruction, but not including any advertising message.

DIRECTORY SIGN - A sign on which the names and locations of occupants or the use of a building or group of buildings is given.

DISTRICT - A portion of the Town of Front Royal within which, on a uniform basis, only certain uses of land and buildings are permitted as set forth in this chapter and within which certain lot areas and other uniform requirements are established.

DOMESTIC PRODUCTS - Processed, cooked, dried or preserved foodstuffs and other agricultural products meant for human consumption, to include, but not limited to, jellies, pickles, herbs, smoked meats, baked goods, candies, canned foods, and other prepared edibles.

DRIVE-IN EATING ESTABLISHMENT - Any place or premises used for sale, dispensing or serving of food, refreshments or beverages in automobiles, including those establishments where customers may serve themselves and may eat or drink the food, refreshments or beverages in motor vehicles on the premises; a refreshment stand; a fast-food or primarily a carry-out establishment.

DRIVEWAY - A space or area providing access specifically designated and reserved on a lot for the movement of vehicles from one lot to another or from a lot to a public street. "Driveways" for commercial or industrial properties shall be hard surfaced.

DUPLEX - A two-family residential structure, with each unit having its own exterior entrance; the residential units may be arranged one above the other, or be semidetached.

DWELLING - A building or portion thereof which is used or intended to be used exclusively for residential purposes and contains one (1) or more dwelling units.

DWELLING UNITS - One (1) room, or rooms connected together, constituting a separate, independent housekeeping establishment for owner occupancy or rental or lease on a weekly, monthly or longer basis and physically separated from any other rooms or dwelling units which may be in the same structure and containing independent cooking and sleeping facilities and containing not less than six hundred (600) square feet of residential floor area. Such units shall meet the requirements of the Building Code of the Town of Front Royal.

DWELLING, ATTACHED - A dwelling having any portion of each of two (2) walls in common with adjoining dwellings.

DWELLING, DETACHED - A dwelling which is entirely freestanding on a lot.

DWELLING, MULTIFAMILY - A building containing three or more dwelling units.

DWELLING, SEMIDETACHED - One (1) of two (2) buildings, arranged or designed as dwellings located on abutting walls without openings, and with each building having a separate lot with minimum dimensions required by district regulations.

DWELLING, SINGLE-FAMILY - A single residential dwelling unit, other than a mobile home or manufactured home, designed for occupancy by one (1) family, and not located on the same lot as another dwelling unit.

DWELLING, TEMPORARY - A residence designed as a portable dwelling but not necessarily attached to a permanent foundation.

DWELLING, TWO-FAMILY - A residential building containing not more than two (2) dwelling units, arranged one above the other or side by side, designed for occupancy by not more than two (2) families.

EASEMENT - A grant by a property owner of the use of his land by another party for a specific purpose. The initial property owner in the agreement may be compensated for the use of his property.

ELEVATED BUILDING - A non-basement building built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, pilings, or columns (posts and piers).

Elevated building - A non-basement building built to have the lowest floor elevated above the ground level by means of solid foundation perimeter walls, pilings, or columns (posts and piers).

Encroachment - The advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

ENCROACHMENT - The advance or infringement of uses, plant growth, fills, excavation, buildings, permanent structures or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

ENGINEER, REGISTERED - A licensed professional engineer registered in the Commonwealth of Virginia by the Department of Professional and Occupational Registration as an engineer.

Existing construction - For the purposes of the insurance program, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975 for FIRMs effective before that date. "Existing construction" may also be referred to as "existing structures" and "pre-FIRM."

EXTERIOR FEATURES (ARCHITECTURAL APPEARANCE) - The architectural style, general design and general arrangement of the exterior of a building or other structure, including the color, the kind and texture of the building material and the type and style of all windows, doors, light fixtures, signs, other appurtenant fixtures and other natural features, such as trees and shrubbery, that are subject to the public view from a public street, public way or other public places.

FALL ZONE – Means an area around the base of a wireless telecommunication tower required to be kept clear of buildings, other than those accessory to the wireless telecommunication tower, for the purpose of containing debris in the event of a tower structural failure. The fall zone is measured by a circular radius around the wireless telecommunication tower that equals the structure's height.

FAMILY - An individual or group of individuals related by blood, marriage, adoption or guardianship. For the purpose of this chapter, the definition of "family" shall include four (4) or fewer unrelated persons living together as a single housekeeping unit.

FARM PRODUCTS – Ice, wood, charcoal, meats, milk, butter, eggs, poultry, game, vegetables, fruits or other family supplies of a perishable nature or farm products grown or produced by them and not purchased by them for sale.

FARMERS' MARKET – A collection of two (2) or more vendors, selling farm or domestic products, garden produce, or nursery products, ornamental or otherwise, which have been grown or produced by the vendor offering the same for sale, in an open-air setting or with temporary or partially enclosed structures.

FAST-FOOD ESTABLISHMENT - See "Drive-in Eating Establishment."

Feather sign. A lightweight, portable sign mounted along one edge on a single, vertical, flexible pole the physical structure of which at may resemble a sail, bow, or teardrop.

FENCE - An artificially constructed barrier, made of any material, including but not limited to posts and wire, boards, or masonry intended to prevent escape or intrusion to make a boundary, or serve as screening.

Flag means a piece of cloth or similar material, typically oblong or square, attachable by one edge to a pole or rope and used as a symbol or decoration; this includes pennants.

FLAG SIGN – A flag used as a sign

FLAG SIGN, NON-TRADITIONAL – A flag sign other than a traditional flag sign. A "feather flag" is an example of a non-traditional flag sign.

FLAG SIGN, TRADITIONAL – A flag sign, excluding a sign on a “feather flag”, that does not exceed fifteen (15) square feet in area, and no one side exceeding a length of five feet (5’).

Flashing sign means a sign that includes lights that flash, blink, or turn on and off intermittently.

FLEA MARKET - An assembly of vendors, selling new or used goods in the open air or within temporary structures, which display and sell their wares on the lands of another for a consideration.

Flood Insurance Rate Map (FIRM) - an official map of a community, on which the Federal Emergency Management Agency has delineated both the special hazard areas and the risk premium zones applicable to the community. A FIRM that has been made available digitally is called a Digital Flood Insurance Rate Map (DFIRM).

Flood Insurance Study (FIS) - a report by FEMA that examines, evaluates and determines flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudflow and/or flood-related erosion hazards.

Flood or flooding - A general or temporary condition of partial or complete inundation of normally dry land areas from:

The overflow of inland or tidal waters; or, The unusual and rapid accumulation or runoff of surface waters from any source. Mudflows which are proximately caused by flooding as defined in paragraph (1)(b) of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current. The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature such as flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in paragraph 1 (a) of this definition.

Floodplain or flood-prone area - Any land area susceptible to being inundated by water from any source.

Floodproofing - any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodway - The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot at any point within the community.

FLOOR AREA OF A BUILDING OR BUILDINGS - The sum of the gross horizontal areas of the several floors of all buildings on the lot measured from the exterior faces of exterior walls. "Floor area" shall include the area of basements when used for residential, commercial or industrial purposes when such are permitted, but shall not include a basement or portion of a basement used for storage or housing of mechanical or central heating equipment.

Freeboard - A factor of safety usually expressed in feet above a flood level for purposes of floodplain management. “Freeboard” tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization in the watershed.

Freestanding sign means any non-portable sign supported by a fence, retaining wall, or by upright structural members or braces on or in the ground and not attached to a building.

FRONTAGE - See "Lot Width."

Functionally dependent use - A use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. This term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities, but does not include long-term storage or related manufacturing facilities.

FUNERAL PARLOR, HOME OR MORTUARY - An establishment used for human funeral services, which shall include facilities on the premises for embalming and may or may not include facilities for the performance of autopsies, other surgical procedures or cremation.

GARAGE, COMMUNAL - A garage used for the storage of vehicles for occupants of lots in the same adjacent block or blocks.

GARAGE, PRIVATE - An accessory building used for the storage of vehicles by the occupants of a lot on which such building is located.

GARAGE, PUBLIC - An accessory building, portion of a principal building or principal buildings used only for the storage of four (4) or more vehicles by others than only those occupants of a lot on which such building is located.

GAS STATION AND GASOLINE SALES – See “Automobile Service Station.”

General Repairs - includes patching, restoration, or replacement of damaged materials, elements, equipment, or fixtures. The work shall not make the building less conforming than it was before the repair was undertaken. Repairs shall be done in a manner that maintains the level of fire protection, means of egress, and accessibility.

GOVERNING BODY - The Town Council of Front Royal, Virginia.

GOVERNMENT OFFICES AND BUILDINGS – Offices and structures used primarily for conducting the affairs of government. This definition shall include school maintenance shops and work areas.

Ground mounted sign means a sign that is supported by structures or supports in or upon the ground and independent of any support from any building or wall.

HARD SURFACE - Concrete, blacktop and macadam or a similar surface.

HEALTH OFFICIAL (OFFICER) - The Director of the Warren County Department of Health or his designated deputy or a representative of the Virginia Department of Health - Warren County.

HEIGHT OF BUILDING - The vertical distance from the established grade of the center of the front of the building to the highest point of the roof surface of a flat roof, to the deck line for a mansard roof and to the mean height level between the eaves and ridge for hip, gable and gambrel roofs.

Height means the maximum vertical distance from the base of the sign at normal grade to the top of the highest attached component of the sign. Normal grade shall be construed to be the lower of: (1) Existing grade prior to construction; or (2) The newly established grade after construction, exclusive of any filling, berming,

mounding or excavating primarily for the purpose of mounting or elevating the sign.

Highest adjacent grade - the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

HISTORIC DISTRICT OVERLAY AREA or HISTORIC DISTRICT - Any area delineated by the Town Council and consisting of public or private property within the Town, containing one (1) or more historic landmarks as established by the Virginia Department of Historic Resources, or one (1) or more areas, neighborhoods, sites, places, structures, objects, artifacts or buildings in which historic events occurred or reflecting significantly the lives of historic personages or great ideas or ideals of the people, having special public value because of notable architectural, economic, ethnic, military, natural, political, religious or social factors, such landmarks, buildings, structures or areas having been designated by the Council as being of such historic, architectural or cultural interest and significance as to warrant conservation and preservation. Such designated district or districts shall not extend farther than the property line of the land pertaining to such historical landmarks, sites, buildings, signs, appurtenances, structures or objects.

Historic structure - Any structure that is: Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or, Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either: By an approved state program as determined by the Secretary of the Interior; or, Directly by the Secretary of the Interior in states without approved programs.

Holiday Displays mean displays erected on a seasonal basis in observance of religious, national, or state holidays which are not intended to be permanent in nature and which contain no advertising material.

HOME OCCUPATION - An occupation conducted entirely within an enclosed dwelling and clearly incidental and secondary to the residential occupancy thereof, carried on by a member or members of the family residing on the premises. All "home occupations" shall meet the standards in **Division K.3**

HOSPITAL - Any institution receiving inpatients and rendering medical, surgical and/or obstetrical care. This shall include general hospitals and institutions in which service is limited to special fields, such as cardiac, eye, ear, nose and throat, pediatric, orthopedic, skin and cancer, mental, tuberculosis, chronic disease and obstetrics. Such terms shall include group homes serving mentally retarded or other developmentally disabled persons.

HOTEL - A building designed or occupied as the more or less temporary abiding place for fourteen (14) or more individuals who are, for compensation, lodged with or without meals, and in which no provision is made for cooking in individual rooms or suites.

Hydrologic and Hydraulic Engineering Analysis - Analyses performed by a licensed professional engineer, in accordance with standard engineering practices that are accepted by the Virginia Department of Conservation and Recreation and FEMA, used to determine the base flood, other frequency floods, flood elevations, floodway information and boundaries, and flood profiles.

IDENTIFICATION SIGN - A sign which displays only the address and name or crest, insignia or trademark, occupation or profession of an occupant or the name of any building on the premises.

Illegal sign means any sign erected without a required permit or which otherwise does not comply with any provisions of this article.

Illuminated sign means a sign that is backlit, internally lighted, or indirectly lighted, but does not include a neon sign.

Incentive zoning means the use of bonuses in the form of increased project density or other benefits to a developer in return for the developer providing certain features, design elements, uses, services, or amenities desired by the locality, including but not limited to, site design incorporating principles of new urbanism and traditional neighborhood development, environmentally sustainable and energy-efficient building design, affordable housing creation and preservation, and historical preservation, as part of the development.

INSTITUTIONAL BULLETIN BOARD SIGN - A sign containing a surface upon which is displayed the name of a religious institution, school, library, community center or similar institutional or community service use and the announcement of its service.

JUNKYARD - Any land or building used for the abandonment, storage, keeping, collecting or bailing of paper, rags, scrap metals, other scrap or discarded materials or for the abandonment, demolition, dismantling, storage or salvaging of automobiles or other vehicles not in running condition, machinery or parts thereof. The term "junkyard" shall include the term "automobile graveyard," which shall be any lot or place which is exposed to the weather upon which more than three (3) motor vehicles of any kind, incapable of being operated, are placed.

KENNEL - Any place, private or commercial, equipped and/or used to house, board, breed, handle, train, or otherwise care for five (5) or more dogs six (6) months of age or older.

LAUNDROMAT - A building or part thereof where clothes or other household articles are washed or dry cleaned in self-service machines with a capacity for washing not exceeding twenty-five (25) pounds dry weight and where such washed clothes and articles may also be dried or ironed, and no delivery service is provided in connection therewith.

LAUNDRY - A building, or part thereof, other than a Laundromat, where clothes and other articles are washed, dried, ironed or dry-cleaned.

Letter of Map Amendment (LOMA) - An amendment based on technical data showing that a property was incorrectly included in a designated special flood hazard area. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a land as defined by meets and bounds or structure is not located in a special flood hazard area.

Letter of Map Revision (LOMR) - A revision based on technical data that may show changes to flood zones, flood elevations, floodplain and floodway delineations, and planimetric features. A Letter of Map Revision Based on Fill (LOMR-F), is a determination that a structure or parcel of land has been elevated by fill above the base flood elevation and is, therefore, no longer exposed to flooding associated with the base flood. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the community's floodplain management regulations.

Letters of Map Change (LOMC) - A Letter of Map Change is an official FEMA determination, by letter, that amends or revises an effective Flood Insurance Rate Map or Flood Insurance Study.

LOCAL HISTORIC LANDMARK - Any site (including significant trees or other plant life located thereon), building or structure of particular historic significance. "Landmarks" include sites, buildings or structures where the cultural, political, archaeological, spiritual, economic, social or artistic history of the community, state or nation is reflected or exemplified or which are identified with historic personages or with important events in local, state or national history or which embody the distinguishing characteristics of an architectural specimen, inherently valuable for a representation of a period, style or method of construction or a notable work of construction or a notable work of a master designer or architect whose individual genius influenced his age. Listing on the Virginia Landmarks Register and the National Register of Historic Places is encouraged for all "local historic landmarks."

Local planning commission means a municipal planning commission or a county planning commission.

LODGING HOUSE - A residential building, other than a hotel, motel or bed-and-breakfast home, where lodging is provided for compensation on a regular basis, pursuant to previous arrangements, but which is not open to the public or transient guests. Meals may be provided to the residents in a central location; however, no provisions shall be made for cooking in individual rooms or units. The maximum number of rooms or units shall be controlled by the area requirements of the district in which the use is located, but in no case shall the total number of lodging rooms or units exceed ten (10). A "Lodging House" shall also be known as a "Rooming House" or a "Boarding House."

LOT - A parcel of land occupied or to be occupied by a building and its accessory buildings or by a use and accessory uses, together with such open spaces as are required under the provisions of this chapter, having at least the minimum area required by this chapter for a lot in the zone in which such lot is situated and having its principal frontage on a public or private street approved by the Town.

LOT COVERAGE - The maximum percent of the lot which may be occupied by buildings or structures, including accessory buildings or structures.

LOT DEPTH - The average of the horizontal distances between front and rear lines of a lot measured perpendicular to the street line.

LOT INTERIOR - Any lot other than a corner lot.

LOT OF RECORD - A lot which has been recorded in the office of the Clerk of the Circuit Court.

LOT, CORNER - A lot abutting on two (2) or more streets at their intersection.

LOT, THROUGH (DOUBLE FRONTAGE) - A lot, other than a corner lot, which has a frontage on two (2) streets.

LOT, WIDTH OF - The horizontal distance between the side lines of a lot measured along the building setback line.

Lowest adjacent grade - the lowest natural elevation of the ground surface next to the walls of a structure.

Lowest floor - The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Federal Code 44CFR §60.3.

MAIN BUILDING – A building that is used in conjunction with the principal permitted use of the property.

Maintained - To keep unimpaired in an appropriate condition, operation and continuance as installed in accordance with the applicable building code, or as previously approved, and in accordance with the applicable operational and maintenance provisions of the State Unified Building code.

MANUFACTURE and/or MANUFACTURING - The processing and/or converting of raw, unfinished materials or products, or either of them, into articles or substances of different character or for use for a different purpose.

MANUFACTURED BUILDING – A building that is manufactured, typically in a factory, and is built in accordance with the United States Department of Housing and Urban Development Code, Manufactured Home Construction and Safety Standards, or other similar federal standards; and does not meet all local or state building code standards. Modular and pre-fabricated buildings that are manufactured and constructed in accordance with all local and state building code standards shall not be considered manufactured buildings.

Manufactured home - A structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term “manufactured home” also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

Manufactured home park or subdivision - a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

MANUFACTURED HOME PARK OR SUBDIVISION – A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

MANUFACTURING, HEAVY – The use of land where significant external effects are created, and pose significant risks due to the involvement of explosives, radioactive materials, poisons, pesticides, herbicides, or other hazardous materials in the manufacturing or other process.

MANUFACTURING, LIGHT – The use of land for processing, manufacturing, compounding, assembly, packaging, treatment or fabrication of materials and products, from processed or previously manufactured materials. Light industry is capable of operation in such a manner as to control the external effects of the manufacturing process, such as smoke, noise, soot, dirt, vibration, odor, etc. Uses may include, but are not limited to, a machine shop, the manufacturing of apparel, electrical appliances, electronic equipment, camera and photographic equipment, ceramic products, cosmetics and toiletries, business machines, paper products (but not the manufacturing of paper from pulpwood), musical instruments, medical appliances, tools or hardware, plastic products (but not the processing of raw materials), pharmaceuticals or optical goods, bicycles, and any other product of a similar nature as determined by the Director.

MANUFACTURING, MEDIUM – The use of land where goods or energy are generally mass produced from raw materials on a large scale through use of an assembly line or similar process, usually for sale to wholesalers or other industrial or manufacturing uses. Medium industry produces moderate external effects such as smoke, noise, soot, dirt, vibration, odor, etc.

Marquee means a permanent structure projecting beyond a building wall at an entrance to a building or extending along and projecting beyond the building's wall and generally designed and constructed to provide protection against the weather.

Marquee sign means a sign attached to and made a part of a marquee or any similar projections from a building, with changeable, fixed or both types of lettering in use.

Mean Sea Level – for purposes of the National Flood Insurance Program, the National Geodetic Vertical Datum (NGVD) of 1929 or the North American Vertical Datum (NAVD) of 1988 to which base flood elevations shown on a community's FIRM are referenced.

Military installation means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under jurisdiction of the U.S. Department of Defense, including any leased facility, or any land or interest in land owned by the Commonwealth and administered by the Adjutant General of Virginia or the Virginia Department of Military Affairs. "Military installation" does not include any facility used primarily for civil works, rivers and harbors projects, or flood control projects.

MINI-STORAGE FACILITY - (also known as mini-warehouse) - a self-service storage building, or group of buildings, consisting of individual, small, self-contained units for the storage of good, materials or supplies.

Minor sign means a wall or freestanding sign not exceeding one (1) square foot in area, not exceeding four feet in height, and not illuminated.

Mixed use development means property that incorporates two or more different uses, and may include a variety of housing types, within a single development.

MOBILE HOME – A residential dwelling built in a factory before the federal Manufactured Home Construction and Safety Standards went into effect on June 15, 1976. New or replacement mobile homes are not permitted within the Town.

MODULAR UNIT - A factory-fabricated transportable building designed to be used by itself or to be incorporated with similar units at a building site into a modular structure. The term is intended to apply to major assemblies and does not include prefabricated panels, trusses, plumbing trees and other prefabricated supplements incorporated into a structure at the site. Modular units are a permitted construction type when designed to comply with Virginia Uniform Statewide Building Code, and shall not be considered manufactured homes.

Monument sign means a sign affixed to a structure built on grade in which the sign and the structure are an integral part of one another; not a pole sign.

MOTEL - An establishment consisting of a group of living or sleeping accommodations with bathroom and closet space designed for use by transient automobile tourists; less than fifty percent (50%) of the living and sleeping accommodations are occupied or designed for occupancy by persons other than transient automobile tourists.

MULTIPLEX STRUCTURE - This term shall mean a residential dwelling unit designed with not more than thirty (30) separate dwelling units for a maximum occupancy by thirty (30) families living independently of each other.

NEIGHBORHOOD RECREATION USE - This term shall include basketball courts, tennis courts, playgrounds, tot lots, picnic areas, and the like.

NEIGHBORHOOD RESTAURANTS - A restaurant of not more than 20 seats, nor five employees, open for business not later than 10 p.m.

NEIGHBORHOOD-ORIENTED COMMERCIAL - This term shall include neighborhood-oriented retail businesses with not more than 15,000 square feet of gross floor area. The term shall include convenience stores, bookstores, dry cleaners, ice cream stores, barber and beauty shops, wearing apparel stores, bakeries, drugstores, gift shops, hardware stores, or other use found to be similar to one or more uses listed herein, but shall not include automobiles sales operations.

NONTIDAL WETLANDS - Those wetlands other than tidal wetlands that are inundated or saturated by surface or ground water at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, as defined by the U.S. Environmental Protection Agency pursuant to Section 404 of the Clean Water Act as amended.

Neon sign means a sign containing exposed tubes filled with light-emitting gas.

NEW CONSTRUCTION, Historic District Overlay - Any construction within an historic district overlay area that is independent and exclusive of an existing building or structure or part thereof.

New construction, Floodplain Zoning - For the purposes of determining insurance rates, structures for which the “start of construction” commenced on or after July 15, 1988, and includes any subsequent improvements to such structures. For floodplain management purposes, new construction means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

NONCONFORMING ACTIVITY (USE) - The otherwise legal use of a building, structure or tract of land that does not conform to the use regulations of this chapter for the district in which it is located, either at the effective date of this chapter or as a result of subsequent amendments to the chapter.

NONCONFORMING LOT - An otherwise legally platted lot that does not conform to the minimum area or width requirements of this chapter for the district in which it is located at the effective date of this chapter or as a result of subsequent amendments to this chapter.

Nonconforming sign. Any sign which was lawfully erected in compliance with applicable regulations of the City/County/Town and maintained prior to the effective date of this chapter of the zoning ordinance and which fails to conform to current standards and restrictions of the zoning ordinance.

NONCONFORMING STRUCTURE - An otherwise legal building or structure that does not conform to the lot area, yard, height, lot coverage or other area regulations of this chapter or is designed or intended for a use that does not conform to the use regulations of this chapter for the district in which it is located, either at the effective date of this chapter or as a result of subsequent amendments to the chapter.

NONCONTRIBUTING PROPERTIES - Properties with little historic or architectural value and with little or no contribution to the historic character of the district because of their recent age or alteration in such a way as to destroy their architectural integrity.

NURSING HOME - Also known as "extended-care home," "rest home" or "convalescent home." A nursing facility is any place containing beds for two (2) or more patients, established to render domiciliary and/or nursing care for chronic or convalescent patients and which is properly licensed by the state.

Official map means a map of legally established and proposed public streets, waterways, and public areas adopted by a locality in accordance with the provisions of **Division 2.2 hereof and § 15.2-2233 et seq** of Virginia's State Code.

Off-premises sign means a sign that directs attention to a business, product, service or activity conducted, sold or offered at a location other than the premises on which the sign is erected.

OFF-STREET PARKING AREA - Space provided for vehicular parking outside a right-of-way.

OPEN SPACE - Common space generally intended for passive recreation and not improved with a building, structure, vehicular travel lane, driveway, street, sidewalk, or parking area. Open space may include pedestrian ways, bike paths, trails interconnecting open space areas; undisturbed natural areas, woodlands, preservation areas; community facilities; landscaped grounds, buffers; playgrounds and tot lots; swimming and boating areas. Open space shall not include yards within individual residential lots, yards less than thirty (30) feet wide between buildings, lands occupied by tennis courts, golf courses, and buildings.

OPEN SPACE, USABLE LANDSCAPED - That space on the same lot and contiguous to the principal building or buildings (except as herein noted) which is either landscaped with shrubs, planted with grass or developed and maintained for recreation, environmental and /or aesthetic purposes, and excludes that portion of the lot which is utilized for off-street parking purposes.

OUTDOOR DISPLAY – The keeping of products, goods, merchandise, and/or materials, excluding signs, outside of an enclosed building for the purpose of making it known that similar items or related services are available for purchase.

OUTDOOR SALES – The retail selling of products, goods, merchandise, and/or materials, outside of an enclosed building.

OUTDOOR STORAGE – The keeping, without retail sale, of products, goods, merchandise, and/or materials outside of an enclosed building.

OVERHANG - Any projection, either roof, bay window or similar cantilevered construction, which extends beyond the foundation of a structure. No such construction shall project into any required yard more than three (3) feet, and no such projection shall have a vertical surface whose area is more than twenty-five percent (25%) of the area obtained by multiplying the mean height of the structure by the length of the structure along the yard which is violated. An "overhang" shall be included in the calculation of lot coverage.

PARKING SPACE - An area of not less than nine (9) feet wide by eighteen (18) feet long for each automobile or motor vehicle, such space being exclusive of necessary drives, aisle, entrances or exits and being fully accessible for the storage and parking of vehicles.

PEDDLER – A short-term temporary use of property that is permitted on commercially zoned, subject to compliance with the provisions of Chapter 98, Section 61, of the Town Code, or as amended.

PHARMACEUTICAL CENTER - An establishment in which only pharmaceutical services are provided. Its purpose shall be limited to providing the public and various health professionals with information and articles intended for use in diagnosis, cure, mitigation, treatment or prevention of a disease state, including drugs and medical instruments or devices of the type used under the strict supervision of a physician in the treatment of a specific disease entity. No articles shall be displayed for sale. The square footage of the "pharmaceutical center" shall be limited to a maximum of two thousand (2,000) square feet.

Planned unit development means a form of development characterized by unified site design for a variety of housing types and densities, clustering of buildings, common open space, and a mix of building types and land uses in which project planning and density calculation are performed for the entire development rather than on an individual lot basis.

PLANNED NEIGHBORHOOD DEVELOPMENT - Planned neighborhood development (PND) is used in two contexts. Depending upon the context, planned neighborhood development refers to the development authorized by the ordinance or a project which is proposed for consideration under this ordinance. This term shall have the same meaning as mixed-use development and planned unit development as defined in the Code of Virginia (1989 Session Virginia Acts of Assembly - Chapter 384).

PLANNING COMMISSION - The Planning Commission of the Town of Front Royal, Virginia.

Plat or "**plat of subdivision**" means the schematic representation of land divided or to be divided and information in accordance with the provisions of §§ 15.2-2241, 15.2-2242, 15.2-2258, 15.2-2262, and 15.2-2264, and other applicable statutes.

Pole sign means a sign that is mounted on one (1) or more freestanding poles.

PORCH - Any porch, veranda or gallery (as the terms are commonly and customarily defined) or similar projection from the main wall of a structure, constructed upon the ground, and covered by a roof, canopy or awning; provided that the term shall not include any carport or other such improvement designed for and capable of accommodating the parking of a motor vehicle protected from the elements. An unenclosed porch shall mean a porch with no side enclosure, other than the side of the structure to which the porch is attached, with no screens or windows. An unenclosed porch may project into a front or rear yard not to exceed ten feet (10') nor extend any nearer than fifteen (15') from any front or rear property line. The area of a porch shall be included in the calculation of lot coverage. A porch shall not be considered an overhang, nor vice versa.

Portable sign means any temporary sign not affixed to a building, structure, vehicle or the ground. It does not include a flag or banner.

PORTABLE STORAGE CONTAINERS – A large portable container, other than trailers and semitrailers, and which are typically referred to as "PODS" or cargo containers that are transported to a desired location for use as storage of products, goods, merchandise, and/or materials. Portable storage containers are subject to the provisions of [Division 9.3](#).

POST-FIRM STRUCTURES – A structure for which construction or substantial improvement occurred after July 15, 1988.

PRE-FIRM STRUCTURES – A structure for which construction or substantial improvement occurred on or before July 15, 1988.

Preliminary subdivision plat means the proposed schematic representation of development or subdivision that establishes how the provisions of §§ 15.2-2241 and 15.2-2242, and other applicable statutes will be achieved.

Primary frontal dune - a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes immediately landward and adjacent to the beach and subject to erosion and overtopping from high tides and waves during major coastal storms.

PRINCIPAL PERMITTED USE – A specific use, or uses, of a lot that are permitted on a particular lot, based on the regulations of the underlying zoning district, and the main use, or uses, of the property, as distinguished from an accessory use.

PROFESSIONAL OFFICES - A structure designed for use by a person, or persons, in offering a service which requires specialized knowledge gained by intensive academic preparation such as medicine, law, engineering, dentistry, and other like endeavors.

Projecting sign means any sign, other than a wall, awning or marquee sign, affixed to a building and supported only by the wall on which it is mounted.

Public area means any public place, public right-of-way, any parking area or right-of-way open to use by the general public, or any navigable body of water.

Public Art means items expressing creative skill or imagination in a visual form, such as painting or sculpture, which are intended to beautify or provide aesthetic influences to public areas or areas which are visible from the public realm, and is not advertising a business or product, or logo.

PUBLIC EVENT – Any temporary activity or entertainment festival that accommodates the assembly of groups or individuals on public property after all required authorizations are obtained from the local, state and/or federal government(s).

PUBLIC FACILITY - Any area, building or structure used or controlled for government purposes, that is owned, held, or operated by any department, branch or unit of the federal government, the Commonwealth of Virginia or one or more of its local governments, political subdivisions or municipal corporations.

PUBLIC PROPERTY – Property that is owned or operated by a local, state or federal government.

PUBLIC UTILITY - Any person, firm, corporation, municipal department or board duly authorized to furnish and furnishing, under federal, state or municipal regulations, to the public electricity, gas, steam, communications, telegraph, transportation, water or such other services as may be provided. Where public utilities are permitted under this Chapter, poles, lines, water towers, reservoirs, water and sewer treatment facilities, booster and relay stations, distribution transformers, pipes, meters, and other facilities necessary for the provision and maintenance of public utilities shall be permitted.

RECONSTRUCTION - Any or all work needed to remake or rebuild all or a part of any building to a sound condition but not necessarily of original materials.

RECREATION FACILITY (commercial) - A sports or activity facility which is open to the general public for a fee. These shall include but are not limited to the following: indoor skating rink, bowling alley, arcade, swimming pool, hard and soft courts, health spa, gymnasium, physical fitness center, dance studios or similar uses.

RECREATION FACILITY (public) – Facilities and uses sponsored by the Warren County Parks and Recreation Department and/or the Warren County School Administration and/or other public entities.

RECREATIONAL VEHICLE - also known as a “MOTOR HOME” and “TRAVEL TRAILER” every vehicular-type unit primarily designed as temporary living quarters for recreational, camping, travel or seasonal use, that either has its own motive power or is mounted in, or is towed by another vehicle. The basic entities are: travel, fifth wheel trailer, camping trailer and motor home. The parking and storing of such vehicles is guided by [Section 8.2.1](#). Such term refers also to travel trailers.

RE-FACE – The act of creating a new sign message by replacing or refurbishing the non-structural components or surface of an existing lawful sign, without creating a new nonconformity to the requirements of this chapter.

REPAIRS - Any work or all work involving the replacement of existing work with equivalent material for the purpose of maintenance but not including any addition, change or modification in construction.

Repetitive Loss Structure - A building covered by a contract for flood insurance that has incurred flood-related damages on two occasions in a 10-year period, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

Resident curator means a person, firm, or corporation that leases or otherwise contracts to manage, preserve, maintain, operate, or reside in a historic property in accordance with the provisions of § 15.2-2306 and other applicable statutes.

REST HOME - See "Nursing Home."

RESTAURANT - Any building in which, for compensation, food or beverages are dispensed for consumption on the premises, including, among other establishments, cafes, tearooms, confectionery shops and refreshment stands.

RESTORATION - Any or all work connected with the returning to or restoring of a building or a part of any building to its original condition through the use of original or nearly original materials.

RESTORATION, BEGINNING OF - After a nonconforming use or structure has been totally or partially destroyed, includes the clearing of debris within thirty (30) days of destruction and applying for a permit to rebuild within eighteen (18) months of said destruction.

RETAIL STORES AND SHOP - Buildings for display and sale of merchandise at retail or for the rendering of personal services, but specifically exclusive of coal, wood, oil and lumberyards, and accessory uses.

RETIREMENT LIVING FACILITIES - In accordance with Virginia Code Section 36-96.7, residential structures within a planned neighborhood development that are intended to be absent of school age children and which ensures, through covenants, management regulations or other similar legal instruments, enforceable by a homeowners' association or other similar private entity, that at least one of the residents of at least 80% of the units is 55 years of age or older. Such facilities may include extended care or nursing home facilities as defined in [Article 11 of this chapter](#).

REVIEWING BODIES - All individuals, boards or elected/appointed bodies, given review authority under this Article, including the Zoning Administrator, Board of Architectural Review and Town Council, upon appeal.

ROADSIDE STAND – The commercial sale of agricultural products that are grown, raised, and/or crafted on the same premises in conjunction with the use of the property for agriculture, as defined herein.

Roof sign means a sign erected or constructed, in whole or in part, upon or above the highest point of a building with a flat roof, or the lowest portion of a roof for any building with a pitched roof.

ROOMING HOUSE - See "Lodging House."

SANDWICH BOARD SIGN – A two-sided, self-supporting sign attached at the top with the two sides separated by approximately 45 degrees.

SCHOOLS - A public school, or a private school certified by the State of Virginia in accordance with the provisions of Virginia Code Section 22.1-319 et seq., or such educational and training institutions as are exempt from state certification under the provisions of Virginia State Code Section 22.1-320, as amended.

SCREENING - Any device, materials, coniferous or deciduous growth, or combination thereof, such as plantings, walls, fences, or earthen berms, of sufficient height and density, as determined by the Zoning Administrator, required to serve as an opaque barrier, to vision, light, or noise between adjoining properties.

SECTIONAL HOME - A dwelling made of two (2) or more modular units transported to the home site, put on a foundation and joined to make a single dwelling. Such units shall meet the requirements of the Building Code of the Town of Front Royal.

SETBACK - The minimum distance by which any building or structure must be separated from the front lot line.

Severe repetitive loss structure - a structure that: (a) Is covered under a contract for flood insurance made available under the NFIP; and (b) Has incurred flood related damage - (i) For which 4 or more separate claims payments have been made under flood insurance coverage with the amount of each such claim exceeding \$5,000, and with the cumulative amount of such claims payments exceeding \$20,000; or (ii) For which at least 2 separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

Shallow flooding area - A special flood hazard area with base flood depths from one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

SHOPPING CENTER - Any conglomeration of commercial activities sharing a parcel of land which is held in single ownership and sharing parking facilities.

Sign. Any object, device, display, or structure, or part thereof, visible from a public place, a public right-of-way, any parking area or right-of-way open to use by the general public, or any navigable body of water which is designed and used to

attract attention to an institution, organization, business, product, service, event, or location by any means involving words, letters, figures, designs, symbols, fixtures, logos, colors, illumination, or projected images. The term does not include public art, architectural elements incorporated into the style or function of a building, or flags of any nation, state, or other geopolitical entity not related to a commercial business, product or service. The term "sign" also does not include the display of merchandise for sale on the site of the display.

Sign face means the portion of a sign structure bearing the message.

Sign structure means any structure bearing a sign face.

SIGN, AREA OF - The entire area within a circle, triangle, parallelogram or trapezoid enclosing the extreme limits of writing, reproduction, emblem or any figure of similar character, together with any frame or other material or color forming an integral part of the display or used to differentiate the sign from the background against which it is placed, excluding the necessary supports or uprights on which such sign is placed. On double-faced signs, only one (1) display face shall be measured in computing total sign area where sign faces are parallel and are at no point more than two (2) feet from one another.

SIGN, BUSINESS - A sign which directs attention to a business, commodity, service, activity or product sold, conducted or offered upon the premises where such sign is located.

SIGN, HOME OCCUPATION - A sign not exceeding two (2) square feet (on each side) in an area directing attention to a product, commodity or service available on the premises, but which product, commodity or service is clearly a secondary use of the dwelling.

SIGN, IDENTIFICATION - A sign on the premises bearing the name of a subdivision, the name of a group housing project or of a school, college, park, church or other public or quasi-public facility or a professional or firm nameplate, but bearing information pertaining only to the premises on which such sign is located.

SIGN, OUTDOOR ADVERTISING - Any sign of any material and any character whatsoever, (including erection, construction, posting, painting, printing, tacking, nailing, gluing, sticking, carving or other fastening, affixing or making visible in any manner), which is placed for outdoor advertising purposes in any way whatsoever. Such sign is one which is not located on the premises of the activity, product, commodity or service to which it refers. The term "billboard" is covered by this definition.

SIGN, TEMPORARY - A sign applying to a seasonal or other brief activity, such as, but not limited to, summer camps, horse shows, auctions or sale of land.

SIGNIFICANT CHANGE - A permanent change that alters the general appearance (architectural character) of a building.

Site plan means the proposal for a development or a subdivision including all covenants, grants or easements and other conditions relating to use, location and bulk of buildings, density of development, common open space, public facilities and such other information as required by the subdivision ordinance to which the proposed development or subdivision is subject.

SPECIAL CHILDCARE SERVICES – One of the following types of daycare: a licensed summer camp under Virginia Code Section 35.1-1, a public school, a private school not operating as a child-care center outside the scope of regular classes as defined in Virginia Code Section 63.1-195, a facility operated by a

hospital on the hospital premises providing care to the children of hospital's employees while such employees are engaged in the performance of work for the hospital, a Sunday School, conducted by a church or religious institution, or a day care facility operated by a church or religious institution where children are cared for during short periods of time while the persons responsible for such children are attending religious services, and babysitting.

Special exception means a special use that is a use not permitted in a particular district except by a special use permit granted under the provisions of this chapter and any zoning ordinances adopted herewith.

Special flood hazard area - The land in the floodplain subject to a one (1%) percent or greater chance of being flooded in any given year as determined in [Section 21-21\(2\)\(3\) of this ordinance](#)

SPECIAL USE PERMIT - A permit granted by the Town Council, upon recommendation from the Planning Commission and after public hearing, for a use permitted by the Council to occupy land and/or a building erected thereon for a specific purpose not permitted by right, but permitted in accordance with standards or conditions established in this chapter or by the Planning Commission and/or Town Council in accordance with procedures established by law.

Start of construction - For other than new construction and substantial improvement, under the Coastal Barriers Resource Act (P.L. – 97-348), means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, substantial improvement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of the construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

STOOP - A porch without a roof, cover or overhang, which may project into a front or rear yard for a distance not exceeding ten (10) feet and into a side yard for a distance not exceeding five (5) feet.

STORY - That portion of a building other than a cellar or mezzanine, included between the surface of any floor to the beams of the floor next above it or, if there is not a floor above it, then the space between the floor and the top of the roof beams; a mezzanine shall be deemed a full story when it covers more than thirty-three (33%) of the area of the story beneath the mezzanine or if the vertical distance from the floor next below it to the floor next above it is twenty-four (24) feet or more.

STORY, HALF - A space under a sloping roof which has the line of intersection of roof decking and wall face not more than three (3) feet above the top floor level, and in which space not more than two-thirds (2/3) of the floor area is finished off for use.

Street means highway, street, avenue, boulevard, road, lane, alley, or any public way.

STRUCTURAL ALTERATION - Any change in the supporting members of a building or structure, such as bearing walls, partitions, columns, beams or girders, or any change in the width or number of exits or any substantial change in the roof.

STRUCTURE - Anything man-made, including but not limited to main buildings, outbuildings, fences, walls, lampposts, light fixtures, signs, signposts, billboards and paving.

Structure, Floodplain Zoning - for floodplain management purposes, a walled and roofed building, including a gas or liquid storage tank, that is principally above ground, as well as a manufactured home.

STRUCTURE, OUTDOOR ADVERTISING - Any structure of any kind or character erected or maintained for outdoor advertising purposes, upon which any outdoor advertising sign may be placed, including also outdoor advertising statuary.

STRUCTURE, PRINCIPAL - A structure in which the principal or primary use of the property is carried out.

SUBDIVISION - The division of a parcel of land into two (2) or more lots or parcels for the purpose of transfer of ownership or building development. The term includes resubdivision and, when appropriate to the context of the Front Royal Subdivision Ordinance, shall relate to the process of subdividing or to the land subdivided.

Subdivision, unless otherwise defined in an ordinance adopted pursuant to § 15.2-2240, means the division of a parcel of land into three or more lots or parcels of less than five acres each for the purpose of transfer of ownership or building development, or, if a new street is involved in such division, any division of a parcel of land. The term includes resubdivision and, when appropriate to the context, shall relate to the process of subdividing or to the land subdivided and solely for the purpose of recordation of any single division of land into two lots or parcels, a plat of such division shall be submitted for approval in accordance with § 15.2-2258. Nothing in this definition, section, nor any ordinance adopted pursuant to § 15.2-2240 shall preclude different owners of adjacent parcels from entering into a valid and enforceable boundary line agreement with one another so long as such agreement is only used to resolve a bona fide property line dispute, the boundary adjustment does not move by more than 250 feet from the center of the current platted line or alter either parcel's resultant acreage by more than five percent of the smaller parcel size, and such agreement does not create an additional lot, alter the existing boundary lines of localities, result in greater street frontage, or interfere with a recorded easement, and such agreement shall not result in any nonconformity with local ordinances and health department regulations. Notice shall be provided to the zoning administrator of the locality in which the parcels are located for review. For any property affected by this definition, any division of land subject to a partition suit by virtue of order or decree by a court of competent jurisdiction shall take precedence over the requirements of Article 6 (§ 15.2-2240 et seq.) and the minimum lot area, width, or frontage requirements in the zoning ordinance so long as the lot or parcel resulting from such order or decree does not vary from minimum lot area, width, or frontage requirements by more than 20 percent. A copy of the final decree shall be provided to the zoning administrator of the locality in which the property is located.

Substantial damage - Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. It also means flood-related damages sustained by a structure on two occasions in a 10-year period, in which the cost of the repair, on the average, equals or exceeds 25 percent of the market value of the structure at the time of each such flood event.

SUBSTANTIAL EXTERIOR ALTERATION - Any change, other than incidental repairs, to the supporting members of a building or portion thereof, such as the addition, removal or alteration of bearing walls, columns, beams, girders, roofs or foundations, that are visible on the exterior of the structure.

Substantial improvement - Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement. The term does not, however, include either: Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or; Any alteration of a historic structure, provided that the alteration will not preclude the structure's continued designation as a historic structure. Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement as defined above, must comply with all ordinance requirements that do not preclude the structure's continued designation as a historic structure. Documentation that a specific ordinance requirement will cause removal of the structure from the National Register of Historic Places or the State Inventory of Historic places must be obtained from the Secretary of the Interior or the State Historic Preservation Officer. Any exemption from ordinance requirements will be the minimum necessary to preserve the historic character and design of the structure.

SURVEYOR, LAND - A licensed professional surveyor registered in the Commonwealth of Virginia by the Department of Professional and Occupational Registration as a surveyor.

TECHNOLOGY BUSINESS - A business consisting of one or more than one in combination of the following:

1. Electronic Information Operations and Providers – Businesses that assist other businesses to better manage their paper documents by putting them in an electronic database that can easily be viewed by a larger group of people.
2. Internet Service Providers – Businesses that provide Internet service to businesses or residents.
3. Software Design and Development - Businesses that design software or businesses that develop the design of specific software.
4. Computer and Peripheral Sales and Assembly - Businesses that assemble computers or sell the hardware associated with computers.
5. Content Developers - Businesses that design and build computer systems.
6. Internet Based Sales and Services - Businesses whose primary trade is based on the Internet, be it sales or service providers.
7. Hardware Design, Manufacture, Assembly, and Development – Businesses that manufacture, assemble, or develop hardware design for computers.
8. Telecommunications Based Video Service Providers – Businesses that use video-conferencing or cable connections for employees to telecommute.
9. Outbound or Inbound Call Centers – Businesses that either market their product through phone calls or businesses that answer consumer questions.
10. Telecommunications Equipment Manufacturing, Assembly, and Service – Businesses that build, put together or service telecommunications equipment.

Temporary sign means a sign constructed of cloth, canvas, vinyl, paper, plywood, fabric, or other lightweight material not well suited to provide a durable substrate or, if made of some other material, is neither permanently installed in the ground nor permanently affixed to a building or structure which is permanently installed in the ground.

TEMPORARY TRAILERS – A transportable manufactured building, similar to a manufactured home, but not used for residential purposes.

THEATER, INDOOR - A building designed and/or used primarily for the commercial exhibition of motion pictures to the general public or used for performance of plays, acts and dramas by actors and/or actresses.

TOURIST HOME - See "Bed and Breakfast Home."

TOWNHOUSE - At least three (3) and not more than eight (8) attached dwelling units forming a continuous structure, each unit being separated by unpierced common or party walls of masonry construction going through the roof of said unit void of fenestration or means of ingress or egress from the basement through the roof with individual exterior entrances at grade and with not more than four (4) abutting "townhouses" or dwelling units having the same front yard setback; the setback differential shall be at least three (3) feet. Each "townhouse" unit shall occupy no fewer than two (2) stories in structure.

TRAILER – Every vehicle without motive power designed for carrying property and passengers wholly on its own structure and for being drawn by a motor vehicle.

TRAVEL TRAILER - Any recreational vehicle.

USE - The purpose or activity for which land or buildings thereon is designed, arranged or intended or for which it is occupied or maintained and shall include any manner of performance of such activity with respect to the performance standards of this chapter.

Variance means, in the application of a zoning ordinance, a reasonable deviation from those provisions regulating the shape, size, or area of a lot or parcel of land or the size, height, area, bulk, or location of a building or structure when the strict application of the ordinance would unreasonably restrict the utilization of the property, and such need for a variance would not be shared generally by other properties, and provided such variance is not contrary to the purpose of the ordinance. It shall not include a change in use, which change shall be accomplished by a rezoning or by a conditional zoning.

Vehicle or trailer sign means any sign attached to or displayed on a vehicle, if the vehicle or trailer is used for the primary purpose of advertising a business establishment, product, service or activity. Any such vehicle or trailer shall, without limitation, be considered to be used for the primary purpose of advertising if it fails to display current license plates, inspection sticker, or municipal decal, if the vehicle is inoperable, if evidence of paid-to-date local taxes cannot be made available, or if the sign alters the standard design of such vehicle or trailer.

Violation - the failure of a structure or other development to be fully compliant with the community's floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this ordinance is presumed to be in violation until such time as that documentation is provided.

Wall Sign means any sign attached to a wall or painted on or against a flat vertical surface of a structure.

Watercourse - A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

Window sign means any sign visible outside the window and attached to or within 18 inches in front of or behind the surface of a window or door.

WIRELESS TELEPHONE TELECOMMUNICATION TOWERS - Facilities for the proviso of personal wireless services, as defined by 47 U.S.C Section 332 (Section 704 of the Telecommunications Act of 1996), including those Federal Communications Commission licensed commercial wireless telecommunications services such as cellular, personal communications services (PCS), specialized mobile radio (SMR), enhanced specialized mobile radio (ESMR), and unlicensed wireless services and common carrier wireless exchange access services; also referred to generally as “tower(s)” under **Division 9** of this Chapter.

Working waterfront development area means an area containing one or more working waterfronts having economic, cultural, or historic public value of such significance as to warrant development and reparation.

Working waterfront means an area or structure on, over, or adjacent to navigable waters that provides access to the water and is used for water-dependent commercial, industrial, or governmental activities, including commercial and recreational fishing; tourism; aquaculture; boat and ship building, repair, and services; seafood processing and sales; transportation; shipping; marine construction; and military activities.

YARD - An open space of a generally uniform width or depth on the same land with a building or group of buildings, which open space lies between the building or group of buildings and the nearest lot line and is occupied and unobstructed from the ground upward except as otherwise provided herein.

YARD, FRONT - A yard extending across the full width of the lot and lying between the adjacent street right-of-way line and the building setback line.

YARD, REAR - A yard extending across the full width of the lot and lying between the rear property line of the lot and a line drawn generally parallel thereto, at such distance as specified in this chapter.

YARD, SIDE - A yard between the side lot line and a line drawn generally parallel thereto, at such distance as may be specified herein for any district, and extending from the front yard line to the rear yard line.

ZONING ADMINISTRATOR - See "Administrator."

ZONING MAP - The Official Zoning Map of the Town of Front Royal, Virginia, and all amendments thereto.

ZONING PERMIT - A permit issued by the Zoning Administrator to the applicant before the applicant may proceed with any work affected by any provision of this chapter or begin any uses of land and/or structures as permitted by this chapter.