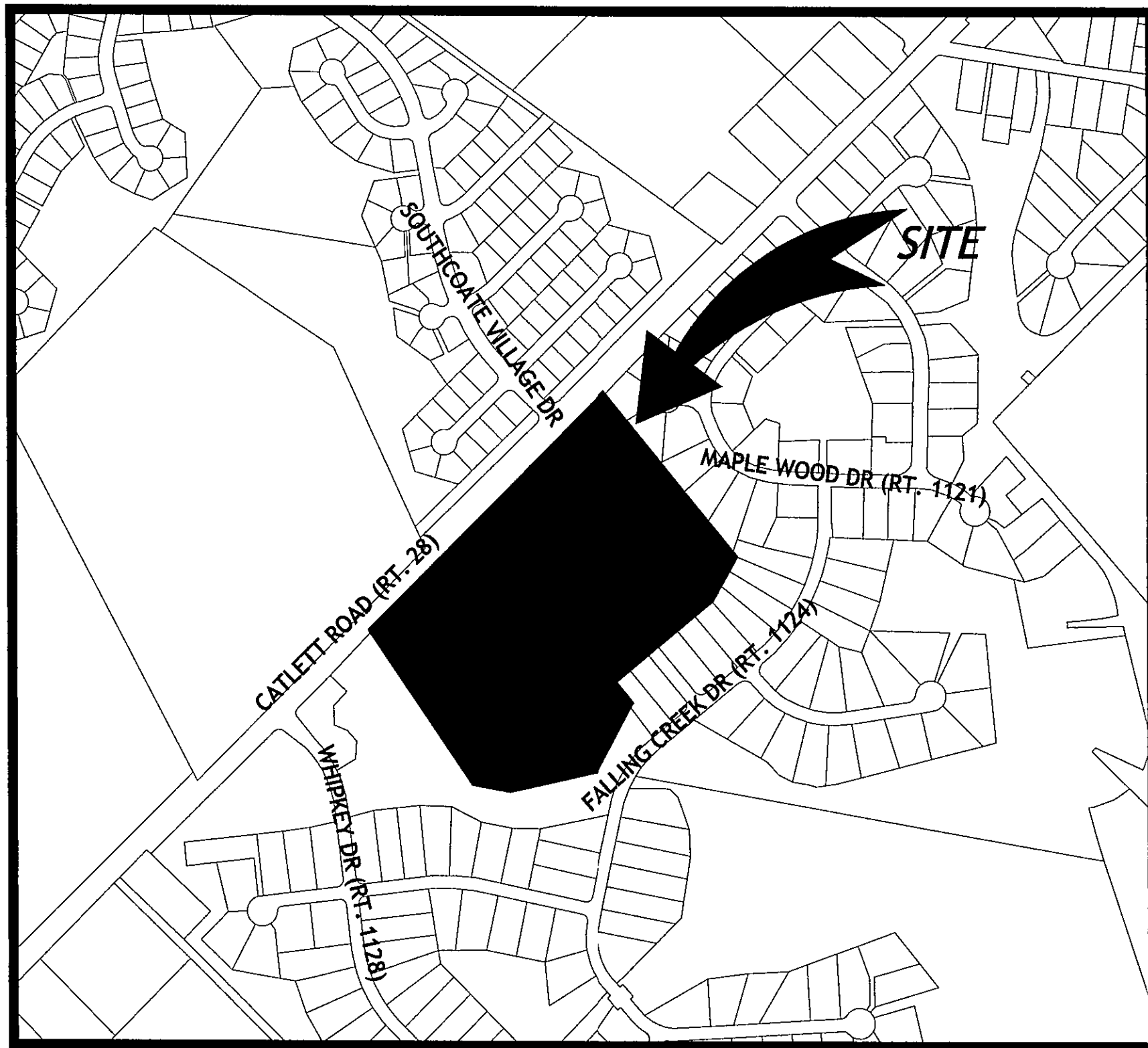


GENERAL NOTES

1. THE SUBJECT PROPERTY SHOWN HEREON IS ZONED IN THE RESIDENTIAL ZONING DISTRICT R-1. SOURCE OF TITLE CAN BE FOUND AT THE INSTRUMENT NUMBERS BELOW:
- |              |                    |              |             |            |
|--------------|--------------------|--------------|-------------|------------|
| MCPI         | DEED BOOK & PAGE # | ZONING       | CURRENT USE | AREA       |
| 6889-61-2415 | D.B. 1655 PG. 966  | R-1(CLUSTER) | RESIDENTIAL | 26.1512 AC |
2. PROJECT IS BY-RIGHT PURSUANT TO ZONING ORDINANCE 4-103.
3. FIELD TOPOGRAPHY SHOWN HEREON WAS PERFORMED BY J2 ENGINEERS IN JANUARY 26, 2021. ALL HORIZONTAL AND VERTICAL DATA IS REFERENCED TO:  
HORIZONTAL: VCS 83 VA NORTH STATE PLANE COORDINATE SYSTEM.  
VERTICAL: NAVD88
4. TYPE 1 SOILS INFORMATION SHOWN HEREON IS TAKEN FROM DIGITAL MAPS PROVIDED BY FAUQUIER COUNTY ON MARCH 8TH, 2021.
5. THE SUBJECT PROPERTY IS LOCATED ON FEMA FLOOD INSURANCE RATE MAP, NUMBER 51061C, PANEL 0410C, DATED FEBRUARY 6, 2008. THE PROPERTY IS LOCATED IN ZONE X & ZONE AE.
6. ALL APPLICABLE STATE AND FEDERAL PERMITS SHALL BE OBTAINED PRIOR TO DISTURBANCES WITHIN JURISDICTIONAL WATERS AND WETLANDS.
7. PUBLIC STREETS SHALL BE DESIGNED TO THE STANDARDS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND THE DESIGN STANDARDS MANUAL, OR APPROVED MODIFICATION. ALL PUBLIC STREETS SHOWN SHALL BE CONTAINED WITHIN A DEDICATED PUBLIC RIGHT-OF-WAY.
8. ALL UNDERGROUND UTILITIES WITHIN STREET RIGHT-OF-WAYS SHALL BE INSTALLED TO THE REQUIRED DISTANCE BEYOND RIGHT-OF-WAY LINE PRIOR TO THE INSTALLATION OF ANY SUBBASE MATERIAL, CURB AND GUTTER, OR SIDEWALK.
9. STORM WATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE FAUQUIER COUNTY DESIGN STANDARDS MANUAL CHAPTER 2. LOW IMPACT DEVELOPMENT TECHNIQUES WILL BE IMPLEMENTED WHERE FEASIBLE.
10. ALL CONSTRUCTION SHALL CONFORM TO CURRENT FAUQUIER COUNTY, VDOT, AND FAUQUIER COUNTY WATER & SANITATION AUTHORITY STANDARDS AND SPECIFICATIONS.
11. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE DEVELOPER OR HIS AGENT OF ANY LEGAL RESPONSIBILITY WHICH MAYBE REQUIRED BY APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS OR ANY OTHER ORDINANCE ENACTED BY THE COUNTY OF FAUQUIER.
12. CONSTRUCTION INSPECTIONS ARE REQUIRED THROUGHOUT CONSTRUCTION BY THE DESIGN ENGINEER OR OTHER QUALIFIED PROFESSIONAL TO ENSURE THAT STORM WATER MANAGEMENT FACILITIES ARE CONSTRUCTED IN CONFORMANCE WITH THE APPROVED DESIGN PLAN.
13. THIS DEVELOPMENT IS SERVED BY A PUBLIC WATER AND SEWER TO BE PROVIDED BY THE FAUQUIER COUNTY WATER AND SANITATION AUTHORITY (FCWSA). ESTIMATED USAGE = 400 GPD X 19 UNITS = 7600 GPD.
14. ALL PUBLIC ROADS ARE TO BE PUBLICLY MAINTAINED AND ALL PRIVATE ROADS ARE TO BE PRIVATELY MAINTAINED.
15. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND RECONNECTING ALL EXISTING WATER SERVICE CONNECTIONS.
16. A DEMOLITION PERMIT IS REQUIRED TO REMOVE ALL EXISTING STRUCTURES.

CONSTRUCTION PLAN  
ONE CATLETT ROAD  
CONP-21-014796  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA



VICINITY MAP  
SCALE : 1"=500'

APPLICANT/OWNER  
ONE CATLETT ROAD, LLC  
PURMA DOKKU  
(PURMA@PCSERVICESINC.COM)  
44345 PREMIER PLAZA #120  
ASHBURN, VIRGINIA 20147

OWNER AUTHORIZATION LETTER

One Catlett Road, LLC (Owner) hereby provides authorization for appropriate County and State personnel permission to enter the property located at PIN 6889-61-2415.

One Catlett Road, LLC  
Name: Lalitha Dokku  
Title: Owner

Fauquier County Water and Sanitation Authority

FCWSA - APPROVED

These plans and profiles meet the Design and Construction Standards of the FCWSA as required in the Authority's Utility Standards Manual (USM).

This is not an assurance that the FCWSA intends to offer its water and/or sewer services or to own and/or operate the facilities associated with the project depicted on these plans.

This Approval is good for five (5) years from the below date.

Authorized Signature: [Signature] Date: 07/21/2022

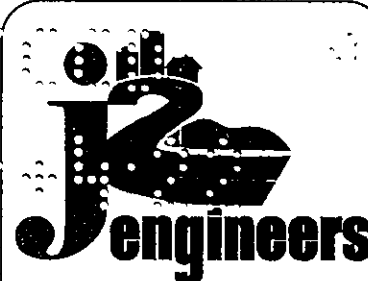
|                                 |            |
|---------------------------------|------------|
| ENVIRONMENTAL DIVISION          | 08/03/2022 |
| DATE                            | 8-3-22     |
| FAUQUIER COUNTY REVIEW ENGINEER | 8/3/22     |
| DATE                            | 8/3/22     |
| FAUQUIER COUNTY SOIL SCIENTIST  | 8/3/22     |
| DATE                            | 8/3/22     |
| VDOT                            | 8/4/22     |
| DATE                            | 8/4/22     |
| FAUQUIER COUNTY ZONING          |            |

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02 - NOTES & DETAILS  
03 - NOTES & DETAILS  
04 - NOTES & DETAILS  
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11 - GRADING PLAN  
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16 - ROAD PROFILES - SHELBY DR  
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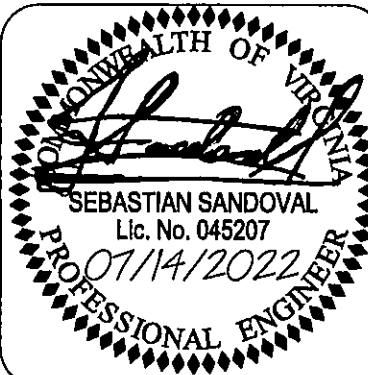
PLAN STATUS

| DATE       | DESCRIPTION                             |
|------------|-----------------------------------------|
| 03/12/2021 | MSR SUBMISSION TO FAUQUIER COUNTY       |
| 04/20/2021 | 2ND MSR SUBMISSION TO FAUQUIER COUNTY   |
| 05/21/2021 | 1ST SUBMISSION TO FAUQUIER COUNTY       |
| 09/17/2021 | 2ND SUBMISSION TO FAUQUIER COUNTY       |
| 11/29/2021 | 3RD SUBMISSION TO FAUQUIER COUNTY       |
| 04/08/2022 | 4TH SUBMISSION TO FAUQUIER COUNTY       |
| 07/14/2022 | SIGNATURE SUBMISSION TO FAUQUIER COUNTY |
| -          | -                                       |
| -          | -                                       |
| -          | -                                       |



J2 Engineers, Inc.  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026

703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: AS NOTED

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

COVER SHEET  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS   |
|-------------|
| DESCRIPTION |
| No.         |
| DATE        |

SHEET

01  
OF  
63

NOTICE REQUIRED

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR BLASTING AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.

CONTACT "MISS UTILITY" AT  
1-800-552-7001  
FOR UTILITY MARKING PRIOR TO CONSTRUCTION

EMERGENCY DIAL 911  
POLICE - FIRE - RESCUE

540-422-8605 540-422-8800

## GEOTECHNICAL NOTES

1. THESE PLANS WERE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY ECS, LLC MID ATLANTIC. DATED MARCH 18, 2005

BEFORE FILLING OPERATIONS BEGIN, REPRESENTATIVE SAMPLES OF EACH PROPOSED FILL MATERIAL SHOULD BE COLLECTED. THE SAMPLES SHOULD BE TESTED TO DETERMINE THE MAXIMUM DRY DENSITY, OPTIMUM MOISTURE CONTENT, NATURAL MOISTURE CONTENT, GRADATION AND PLASTICITY OF THE SOIL. THESE ARE NEEDED FOR QUALITY CONTROL DURING COMPACTION AND TO DETERMINE IF THE FILL MATERIAL IS ACCEPTABLE. THE PROPOSED FILL MATERIAL SHOULD HAVE A LIQUID LIMIT LESS THAN 45 PERCENT AND A PLASTICITY INDEX LESS THAN 15. MATERIAL CLASSIFIED AS OL, OH, MH, OR CH SHOULD DEFINITELY NOT UTILIZED.

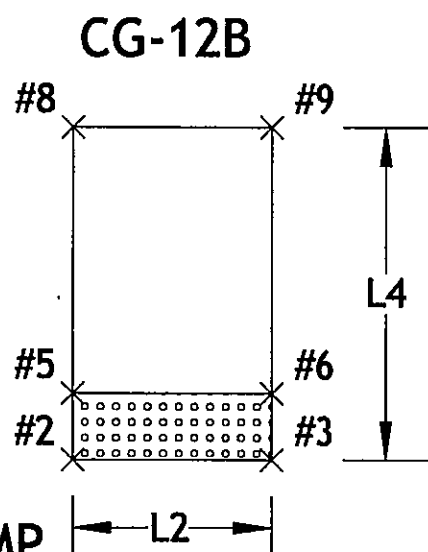
ALL COMPACTED FILL SHALL BE CONSTRUCTED BY SPREADING ACCEPTABLE SOIL IN LOOSE LAYERS NOT MORE THAN EIGHT INCHES THICK. THE SOILS USED WITHIN THE PROPOSED BUILDING PAVEMENT OR FOR REPLACEMENT IN ANY UNDERCUT AREAS SHOULD BE COMPACTED IN THIN LIFTS TO AT LEAST 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ATSD 6.98). THE UPPER 12 INCHES OF FILL BENEATH PAVEMENTS AND GRADE SLABS SHOULD BE COMPACTED TO 98 PERCENT.

THE MOISTURE CONTENT OF THE FILL SOILS SHOULD BE MAINTAINED WITHIN ± TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT DETERMINED FROM THE STANDARD PROCTOR DENSITY TEST. THIS PROVISION MAY REQUIRE THE CONTRACTOR TO DRY THE SOIL DURING THE PERIODS OF WET WEATHER OR WET THE SOIL DURING THE HOT PROCTOR MONTHS.

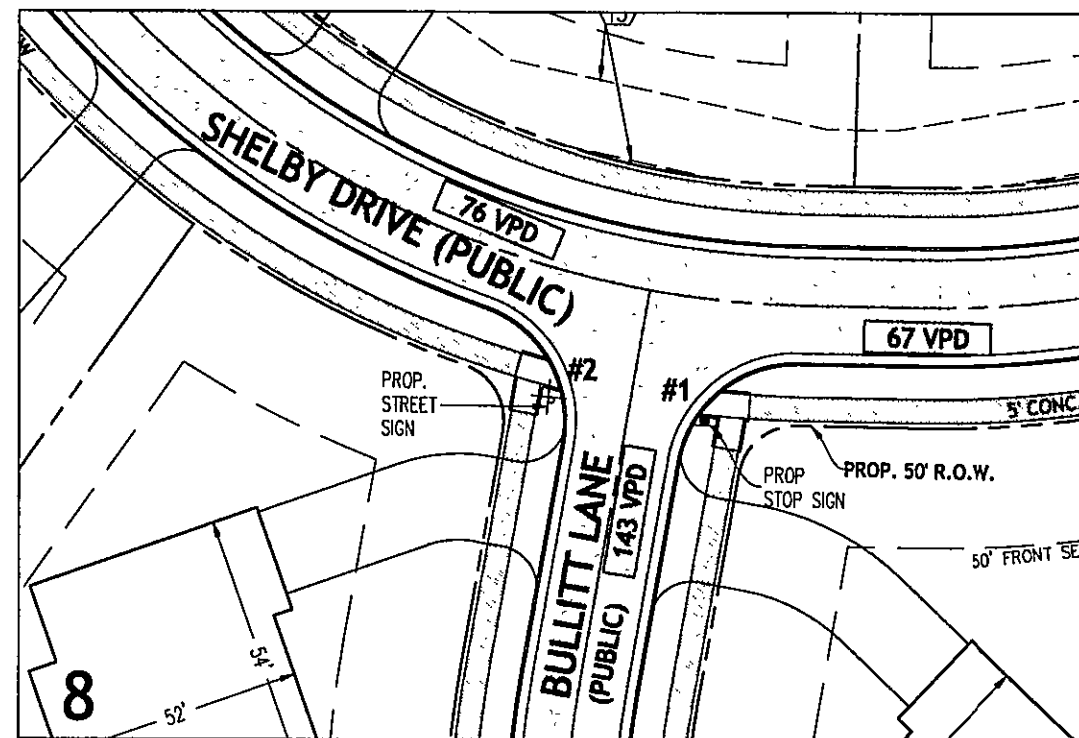
THE FILL SURFACE MUST BE ADEQUATELY MAINTAINED DURING CONSTRUCTION IN ORDER TO ACHIEVE AN ACCEPTABLE COMPACTED FILL. THE FILL SURFACE SHALL BE SLOPED TO ACHIEVE SUFFICIENT DRAINAGE AND TO PREVENT WATER FROM PONDING ON THE FILL. IF PRECIPITATION IS EXPECTED WHILE FILL CONSTRUCTION IS TEMPORARILY HALTED, THE SURFACE SHOULD BE COVERED WITH AN IMPERMEABLE DRAINAGE ECONOMIZER TO IMPROVE SURFACE RUNOFF. IF THE SURFACE SOILS BECOME EXCESSIVELY WET OR FROZEN, FILL OPERATIONS SHOULD BE HALTED AND THE GEOTECHNICAL ENGINEER SHOULD BE CONSULTED FOR GUIDANCE.

## NOTICE TO CONTRACTORS AND OWNERS

1. A GEOTECHNICAL ENGINEER MUST BE PRESENT DURING THE CONSTRUCTION OF THE CORE TRENCH, INSTALLATION OF THE BARRELS, AND CONSTRUCTION OF ALL STORMWATER MANAGEMENT FACILITIES.
2. IF THE CONTRACTOR/OWNER DETERMINES THAT AN ERROR, DISCREPANCY, OMISSION, ETC. EXISTS ON THE SITE PLAN, THE CONTRACTOR/OWNER SHALL NOTIFY THE ENGINEER PRIOR TO PRECASTING, STAKEOUT, INSTALLATION OR CONSTRUCTION OF ANY IMPROVEMENTS SHOWN ON THE SITE PLAN. THE ENGINEER WILL REVIEW THE PLANS AND PROVIDE A CLARIFICATION OR AN ADDENDUM AS PROMPTLY AS POSSIBLE.
3. CONTRACTOR RESPONSIBLE FOR VERIFICATION OF RELOCATED OVERHEAD UTILITY POLES LOCATIONS.



## VDOT - CURB RAMP



| RAMP NO. | CG-12 TYPE | Inv. | Inv.   | Inv.   | Inv. | Inv.   | Inv.   | Inv. | Inv.   | Inv.   | Inv. | Length | Length | Length | Length |
|----------|------------|------|--------|--------|------|--------|--------|------|--------|--------|------|--------|--------|--------|--------|
|          |            | #1   | #2     | #3     | #4   | #5     | #6     | #7   | #8     | #9     | #10  | L1     | L2     | L3     | L4     |
| #1       | CG-12/B    | N/A  | 312.20 | 312.26 | N/A  | 312.24 | 312.30 | N/A  | 312.39 | 312.52 | N/A  | N/A    | 5.9    | N/A    | 9.9    |
| #2       | CG-12/B    | N/A  | 311.96 | 311.88 | N/A  | 312.00 | 311.92 | N/A  | 312.22 | 312.07 | N/A  | N/A    | 5.9    | N/A    | 9.9    |

|                                   |                                    |
|-----------------------------------|------------------------------------|
| TOTAL AREA                        | 26.1520 AC                         |
| TOTAL SITE AREA                   | 15.9992 AC.                        |
| R/W TO BE DEDICATED TO PUBLIC USE | 1.8271 AC.                         |
| TRAVELWAYS & PARKING              | 0.7953 AC.                         |
| OPEN SPACE (A)                    | 12.8433 AC.                        |
| OPEN SPACE (B)                    | 0.4593 AC.                         |
| TOTAL OPEN SPACE                  | 13.3026 AC.                        |
| REQUIRED OPEN SPACE               | 26.1520 AC. * 50% =<br>13.0760 AC. |

\* TOTAL SUM OF LOT AREA, DEDICATED ROW, OPEN SPACE AND TRAVELWAYS OUTSIDE ROW

## ZONING TABULATIONS

| ZONING: PLANNED<br>RESIDENTIAL DEVELOPMENT                                                                                       | REQUIRED                                                                                    | PROVIDED                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| MINIMUM LOT SIZE: (R-1)                                                                                                          | 25,000 SF                                                                                   | > 25,000 SF                                                                                 |
| MINIMUM LOT WIDTH                                                                                                                | 90'                                                                                         | VARIES *                                                                                    |
| MINIMUM YARD* <ul style="list-style-type: none"> <li>• LOCAL COLLECTOR</li> <li>• MAJOR COLLECTOR</li> <li>• ARTERIAL</li> </ul> | <ul style="list-style-type: none"> <li>• 50 FT</li> <li>• 65 FT</li> <li>• 80 FT</li> </ul> | <ul style="list-style-type: none"> <li>• 50 FT</li> <li>• 65 FT</li> <li>• 80 FT</li> </ul> |
| MAXIMUM BUILDING HEIGHT                                                                                                          | ≤35'                                                                                        | ≤35'                                                                                        |
| MINIMUM OPEN SPACE                                                                                                               | 50%<br>13.0760 AC                                                                           | 50.87%<br>13.3026 AC                                                                        |
| MINIMUM LANDSCAPED GREEN                                                                                                         | N/A                                                                                         | N/A                                                                                         |
| MINIMUM DISTRICT SIZE                                                                                                            | N/A                                                                                         | N/A                                                                                         |
| MINIMUM DEVELOPMENT SIZE                                                                                                         | N/A                                                                                         | N/A                                                                                         |
| MAXIMUM DENSITY (DU/A)                                                                                                           | 0.9 DU/A                                                                                    | 0.9 DU/A                                                                                    |

\* SEE LOT REQUIREMENT TABLE PROVIDED

## DENSITY TABULATIONS

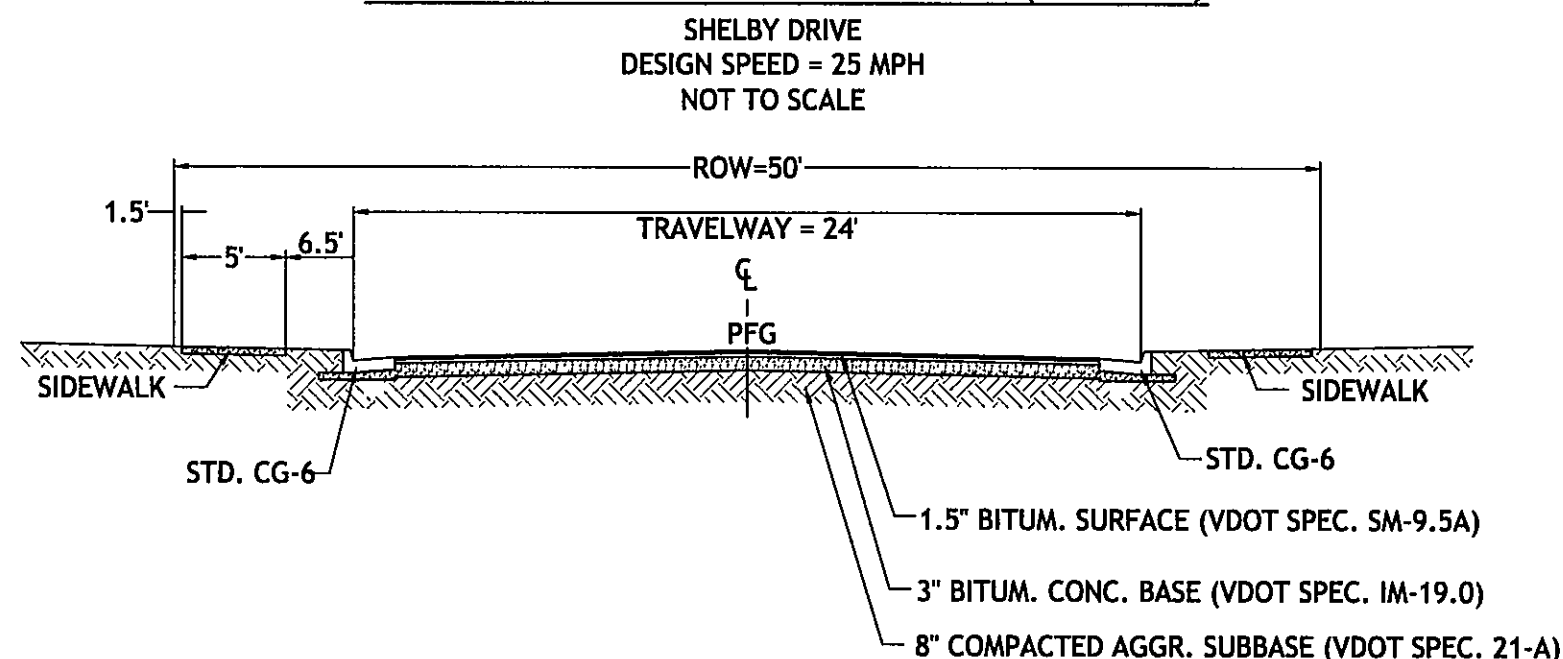
|                       |                                 |
|-----------------------|---------------------------------|
| TOTAL SITE AREA       | 26.1520 AC                      |
| FLOODPLAIN AREA       | 5.7199 ACRES                    |
|                       | 26.1520 ACRES<br>- 5.7199 ACRES |
| TOTAL DENSITY AREA    | = 20.4321 ACRES                 |
| TOTAL PHASE DWELLINGS | 19 LOTS                         |
| TOTAL DENSITY         | 19 DU/20.4321 AC=<br>0.9 DU/A   |

| <u>RESIDENTIAL</u>                  |                                                           |                                                               |
|-------------------------------------|-----------------------------------------------------------|---------------------------------------------------------------|
| PROPOSED NUMBER OF UNITS = 19 UNITS |                                                           |                                                               |
|                                     | REQUIRED                                                  | PROVIDED                                                      |
| SINGLE FAMILY DETACHED<br>19 UNITS  | 2 SPACES/DWELLING UNIT<br><u>19 UNITS * 2 = 38 SPACES</u> | DRIVEWAY SPACES =38 SPACES<br><u>GARAGE SPACES =19 SPACES</u> |
| TOTAL PARKING                       | 38 SPACES                                                 | 57 SPACES                                                     |

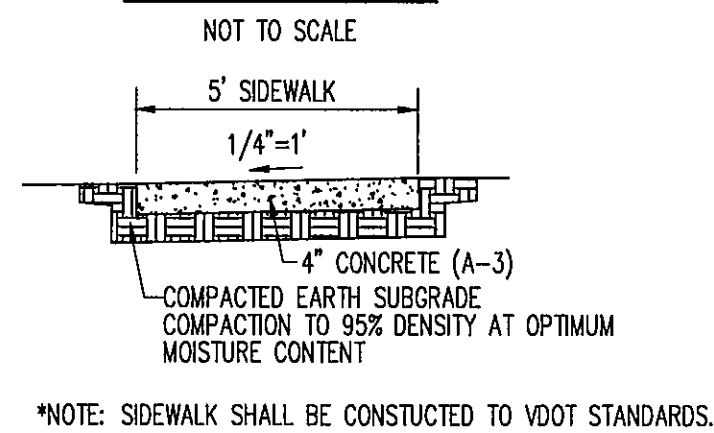
## LOT REQUIREMENT TABLE

| LOT NUMBER | LOT SIZE   |              | LOT WIDTH |           | LOT SETBACKS |      |      |
|------------|------------|--------------|-----------|-----------|--------------|------|------|
|            | REQUIRED   | PROPOSED     | REQUIRED  | PROPOSED  | FRONT        | SIDE | REAR |
| 1          | 25,000 SF  | 25,025.00 SF | 90'       | 143'      | 50'          | 15'  | 15'  |
| 2          | 25,000 SF  | 25,025.00 SF | 90'       | 143'      | 50'          | 15'  | 15'  |
| 3          | 25,000 SF  | 25,047.87 SF | 90'       | 134.46'   | 50'          | 15'  | 15'  |
| 4          | 25,000 SF  | 25,006.75 SF | 90'       | 96.91'    | 50'          | 15'  | 15'  |
| 5          | 25,000 SF  | 32,871.72 SF | 90'       | 90'       | 50'          | 15'  | 15'  |
| 6          | 25,000 SF  | 25,723.10 SF | 90'       | 90'       | 50'          | 15'  | 15'  |
| 7          | 25,000 SF  | 25,070.16 SF | 90'       | 237.82' * | 50'          | 15'  | 15'  |
| 8          | 25,000 SF  | 25,066.57 SF | 90'       | 213.80' * | 50'          | 15'  | 15'  |
| 9          | 25,000 SF  | 26,469.55 SF | 90'       | 90'       | 50'          | 15'  | 15'  |
| 10         | 25,000 SF  | 25,119.03 SF | 90'       | 99.04'    | 50'          | 15'  | 15'  |
| 11         | 25,000 SF  | 25,585.93 SF | 90'       | 119.50'   | 50'          | 15'  | 15'  |
| 12         | 25,000 SF  | 25,077.53 SF | 90'       | 117.17'   | 50'          | 15'  | 15'  |
| 13         | 25,000 SF  | 25,321.61 SF | 90'       | 92.37'    | 50'          | 15'  | 15'  |
| 14         | 25,000 SF  | 25,085.40 SF | 90'       | 139.36'   | 50'          | 15'  | 15'  |
| 15         | 25,000 SF  | 25,028.72 SF | 90'       | 180.27'   | 50'          | 15'  | 15'  |
| 16         | 25,000 SF  | 25,004.13 SF | 90'       | 180.27'   | 50'          | 15'  | 15'  |
| 17         | 25,000 SF  | 25,004.70 SF | 90'       | 139.08'   | 50'          | 15'  | 15'  |
| 18         | 25,0820 SF | 25,003.99 SF | 90'       | 133'      | 50'          | 15'  | 15'  |
| 19         | 25,000 SF  | 25,138.60 SF | 90'       | 133'      | 50'          | 15'  | 15'  |

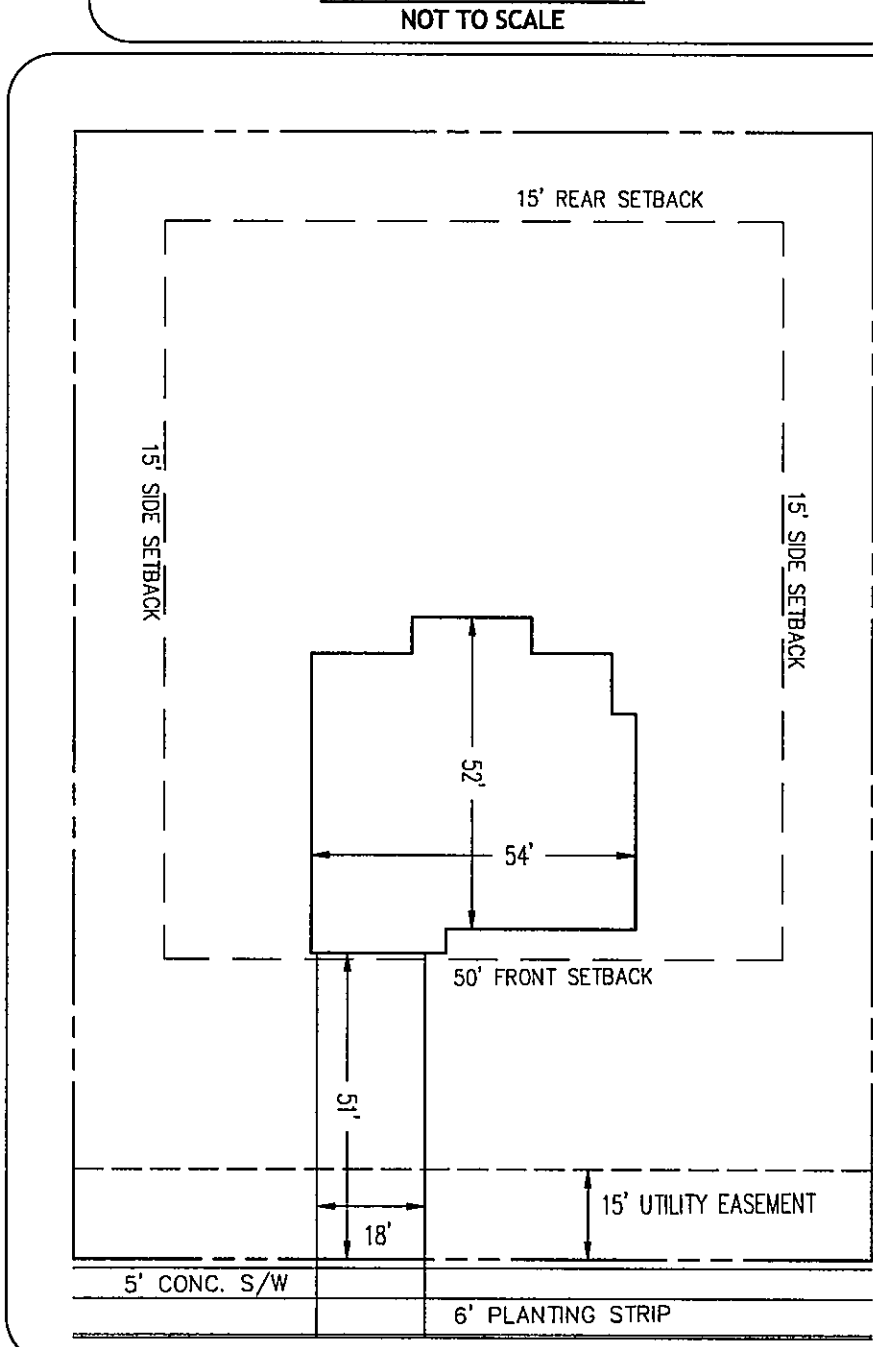
### TYPICAL SECTION FOR ROADS (PUBLIC)



### SIDEWALK DETAIL



### TYPICAL LOT DETAIL

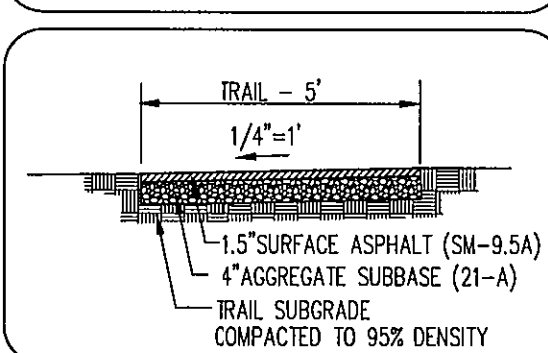


## VDOT OPEN-CUT PAVEMENT RESTORATION REQUIREMENTS

1. THE PERMITTEE SHALL BE RESPONSIBLE FOR THE RESTORATION OF PAVEMENT ON STATE MAINTAINED HIGHWAYS IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS, VDOT ROAD AND BRIDGE STANDARDS AND THIS DOCUMENT.
2. WHENEVER EXISTING PAVEMENT IS PERMITTED TO BE CUT, NOT OVER ONE-HALF OF THE ROADWAY WIDTH SHALL BE DISTURBED AT ONE TIME AND THE FIRST OPEN CUT TRENCH SECTION SHALL BE SATISFACTORILY RESTORED TO ALLOW FOR THE PASSAGE OF TRAFFIC PRIOR TO THE SECOND HALF OF THE ROADWAY SURFACE CAN BE DISTURBED.
3. ALL TRENCH BACKFILL MATERIAL SHALL BE SELECT MATERIAL TYPE I HAVING A MINIMUM CBR OF 30 AND FREE FROM ANY WOOD, DECAYING MATERIAL, ASPHALT, CONCRETE, ICE, FROST, LARGE LOGS, STONE OR DEBRIS.
4. TRENCH BACKFILL WHEN SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE THEORETICAL MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, AS DETERMINE BY VDOT TESTING PROCEDURES (VTM), USING MECHANICAL TAMPING THROUGHOUT THE DEPTH OF THE TRENCH IN 6-INCH LIFTS TO ENSURE THAT ADEQUATE SUPPORT IS PROVIDED FOR THE AGGREGATE SUB-BASE LAYER IS ADEQUATELY SUPPORTED.
5. FOR ROADWAYS WITH A BITUMINOUS CONCRETE ASPHALT PAVEMENT SECTION THE COMPACTED TRENCH BACKFILL SHALL BE CAPPED WITH 10 INCHES (10") OF TYPE I, SIZE 21-A OR 21-B AGGREGATE COMPACTED TO 100% OF THE THEORETICAL MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT COVERING THE ENTIRE TRENCH WIDTH AND A MINIMUM SIX INCH (6") BENCH ON EACH SIDE OF THE EXCAVATED TRENCH OR AS DETERMINED BY THE DISTRICT ADMINISTRATOR'S DESIGNEE.
6. A BITUMINOUS CONCRETE ASPHALT BASE COURSE (BM-25) HAVING A MINIMUM THICKNESS OF SIX INCHES (6"), OR MATCHING THE EXISTING BASE COURSE THICKNESS, SHALL BE PLACED OVER THE BENCHED AGGREGATE SUB-BASE TO THE BOTTOM ELEVATION OF THE EXISTING ASPHALT CONCRETE SURFACE COURSE.
7. ALL SIDES OF THE EXCAVATED TRENCH SHALL BE SAW-CUT TRIMMED TO NEAT STRAIGHT LINES AND A TACK COAT OF RC-250 LIQUID ASPHALT APPLIED AT A RATE OF 0.1 GALLON PER SQUARE YARD (OR AS DETERMINED BY THE DISTRICT ADMINISTRATOR'S DESIGNEE) PRIOR TO PLACING THE BITUMINOUS CONCRETE ASPHALT BASE COURSE (BM-25.0) AND/OR REPLACEMENT OF THE BITUMINOUS CONCRETE ASPHALT SURFACE COURSE (SM-9.5A OR SM-9.5D).
8. THE EXISTING PAVEMENT SURFACE COURSE ADJACENT TO THE EXCAVATED TRENCH SHALL BE MILLED AND REPAVED WITH BITUMINOUS CONCRETE ASPHALT (SM-9.5A OR SM-9.5D) HAVING OF A MINIMUM THICKNESS OF 1-1/2 INCHES (1.5"). THIS OPERATION SHALL COVER THE ENTIRE TRENCH WIDTH AND EXTEND 12 INCHES (12") BEYOND THE EDGE OF THE TRENCH ON LONGITUDINAL OPEN CUTS AND 25 FEET (25') BEYOND THE TRENCH CENTERLINE ON PERPENDICULAR OPEN CUTS, OR AS DETERMINED BY THE DISTRICT ADMINISTRATOR'S DESIGNEE.
9. OPEN CUTS IN SURFACE TREATED ROADWAY SECTIONS WITH AN AGGREGATE SUB-BASE COURSE SHALL BE REPLACED WITH THE SAME LAYER(S) AS ROADWAY SECTIONS WITH A BITUMINOUS CONCRETE ASPHALT PAVEMENT STRUCTURE EXCEPT THE SUB-BASE LAYER (TYPE I, SIZE 21-A OR 21-B) MAY BE REDUCED TO SIX INCHES (6") AND THE BITUMINOUS CONCRETE ASPHALT BASE COURSE (BM-25.0) MAY BE REDUCED TO FOUR INCHES (4") WHILE MAINTAINING THE REQUIRED SIX INCH (6") BENCH ON BOTH SIDES OF THE EXCAVATED TRENCH. THE SURFACE COURSE RESTORATION MATERIAL AND THICKNESS SHALL MATCH THE EXISTING SURFACE COURSE.
10. REPLACEMENT OF ALL BITUMINOUS CONCRETE ASPHALT SURFACE TREATED COURSES SHALL BE ROLLED WITH EQUIPMENT HAVING A MANUFACTURER'S RATING OF TEN (10) TONS UNTIL THE AGGREGATE IS KEIED INTO THE BITUMEN, WHERE ROLLING IS NOT POSSIBLE, A MECHANICAL TAMPER SHALL BE UTILIZED.
11. FULL DEPTH AGGREGATE STONE MAY BE PLACED IN THE TRENCH DAILY UP TO MAXIMUM LENGTH OF 500 FEET, AT WHICH TIME EITHER TEMPORARY OR PERMANENT PAVEMENT RESTORATION PROCEDURES MUST BE IMPLEMENTED.
12. SHOULD THE APPLICATION OF THE BITUMINOUS CONCRETE ASPHALT SURFACE COURSE BE DELAYED DUE TO ADVERSE WEATHER CONDITIONS, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN A TEMPORARY PAVEMENT SECTION THAT IS ACCEPTABLE TO THE DISTRICT ADMINISTRATOR'S DESIGNEE UNTIL SUCH TIME AS THE APPROPRIATE PERMANENT PAVEMENT RESTORATION CAN BE ACHIEVED.
13. THE PERMITTEE SHALL BE RESPONSIBLE FOR ANY SETTLEMENT IN THE BACKFILL OR PAVEMENT FOR A PERIOD OF TWO (2) YEARS AFTER THE COMPLETION DATE OF PERMIT AND FOR THE CONTINUING MAINTENANCE OF THE FACILITIES PLACED WITHIN THE HIGHWAY RIGHT-OF-WAY.
14. A ONE-YEAR RESTORATION WARRANTY PERIOD MAY BE CONSIDERED, PROVIDED THE PERMITTEE ADHERES TO THE FOLLOWING CRITERIA:
  - 14.1. THE PERMITTEE RETAINS THE SERVICES OF A PROFESSIONAL ENGINEER (OR CERTIFIED TECHNICIAN UNDER THE DIRECTION OF THE PROFESSIONAL ENGINEER) TO OBSERVE THE PLACEMENT OF ALL FILL ENHANCEMENTS, PAVEMENT, AND STORM SEWER AND UTILITY TRENCH BACKFILL.
  - 14.2. THE PROFESSIONAL ENGINEER (OR CERTIFIED TECHNICIAN UNDER THE DIRECTION OF THE PROFESSIONAL ENGINEER) PERFORMS ANY REQUIRED INSPECTION AND TESTING IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF VDOT'S ROAD AND BRIDGE SPECIFICATIONS.
  - 14.3. THE PROFESSIONAL ENGINEER SUBMITS ALL TESTING REPORTS FOR REVIEW AND APPROVAL, AND PROVIDES WRITTEN CERTIFICATION THAT ALL RESTORATION PROCEDURES HAVE BEEN COMPLETED IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF VDOT'S ROAD AND BRIDGE SPECIFICATIONS PRIOR TO COMPLETION OF THE WORK AUTHORIZED BY THE PERMIT.
15. THE DISTRICT ADMINISTRATOR'S DESIGNEE MAY REQUEST AND REVIEW THE BACKFILL COMPACTION TEST RESULTS AND/OR AUTHORIZE AN INSPECTOR TO MONITOR THE TRENCH BACKFILL AND COMPACTION OPERATIONS.
16. THE USE OF STEEL PLATES TO PROVIDE A TEMPORARY RIDING SURFACE WILL NOT BE ALLOWED BETWEEN NOVEMBER 1 AND APRIL 1. THE USE OF STEEL PLATES BETWEEN APRIL 2 AND OCTOBER 31 SHALL BE IN ACCORDANCE WITH VDOT STANDARDS AND SPECIFICATIONS.
17. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES IN ACCORDANCE WITH THE VIRGINIA WORK AREA PROTECTION MANUAL AND A VDOT APPROVED MAINTENANCE OF TRAFFIC (MOT) PLAN.
18. THE PERMITTEE SHALL NOTIFY THE DISTRICT ADMINISTRATOR'S DESIGNEE A MINIMUM OF 72 HOURS PRIOR TO INITIATING ANY PAVEMENT OPEN CUTTING OPERATIONS.
19. ANY TRENCH TO BE BACKFILLED SHALL BE MADE AS DRY AS PRACTICABLE AT THE TIME OF BACKFILLING BY PUMPING, BAILING, DRAINING, OR OTHER APPROVED DEWATERING METHOD.
20. ALL ASPHALT PAVEMENT RESTORATION ACTIVITIES SHALL BE IN ACCORDANCE WITH THE ASPHALT PAVEMENT RESTORATION DETAIL FOR OPEN CUT UTILITY INSTALLATIONS CONTAINED HEREIN.

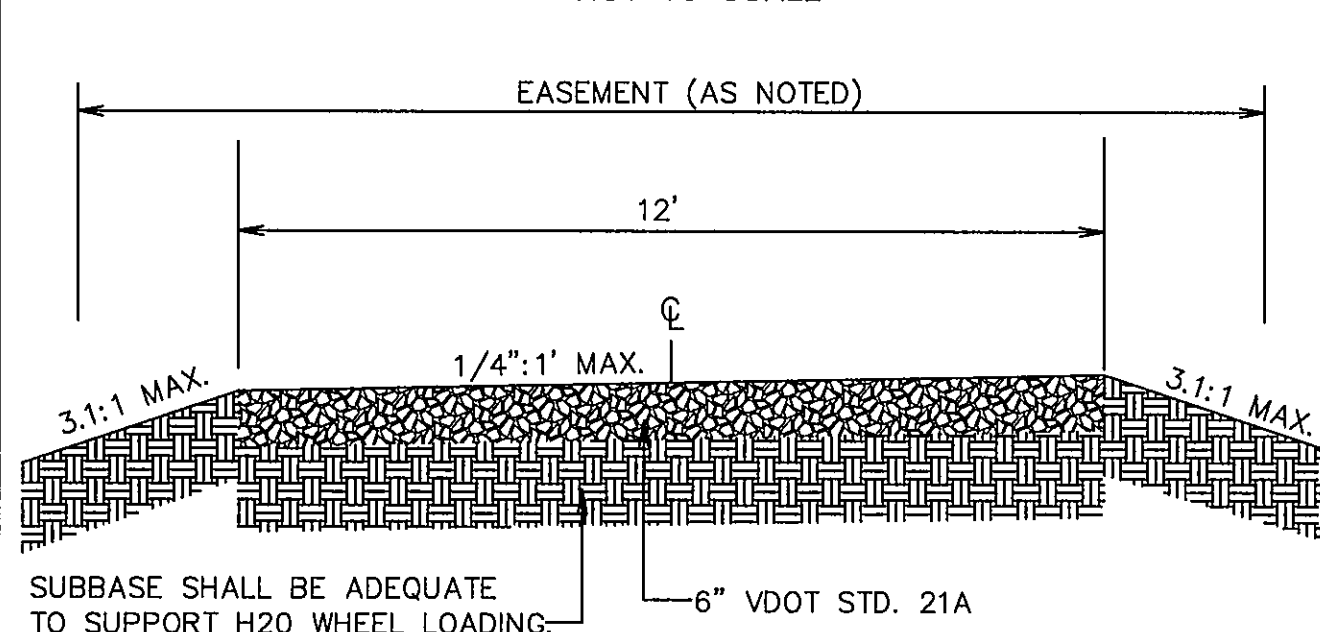
ASPHALT TRAIL

NOT TO SCALE



TYPICAL SECTION GRAVEL ACCESS ROAD

NOT TO SCALE



SUBBASE SHALL BE ADEQUATE TO SUPPORT H20 WHEEL LOADING. 6" VDOT STD. 21A



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT.= N/A  
SCALE: N/A

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

NOTES & DETAILS

CONSTRUCTION PLAN

ONE CATLETT ROAD

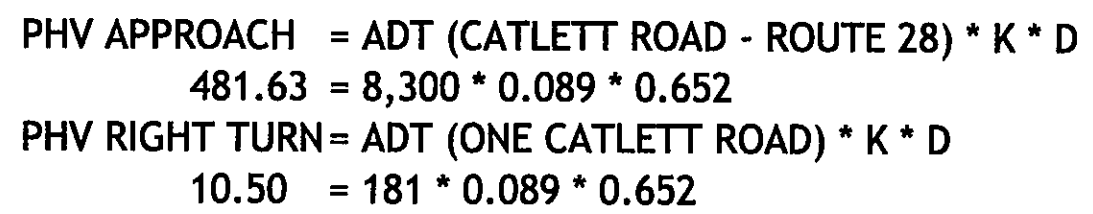
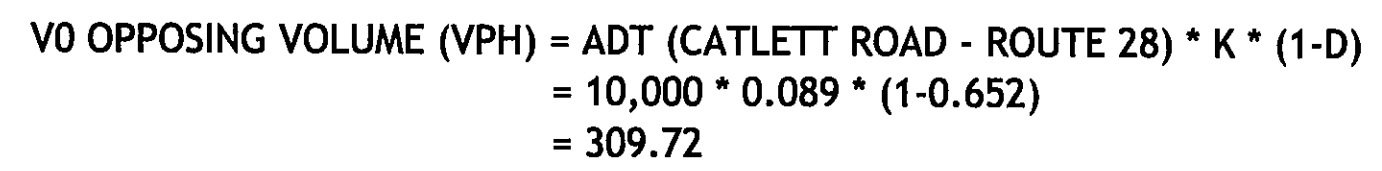
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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**SHEET**

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119

ACCORDING TO PHV RIGHT TURNS, PHV APPROACH TOTAL (VPH), A RIGHT TURN LANE IS NOT WARRANTED FOR THIS SITE.



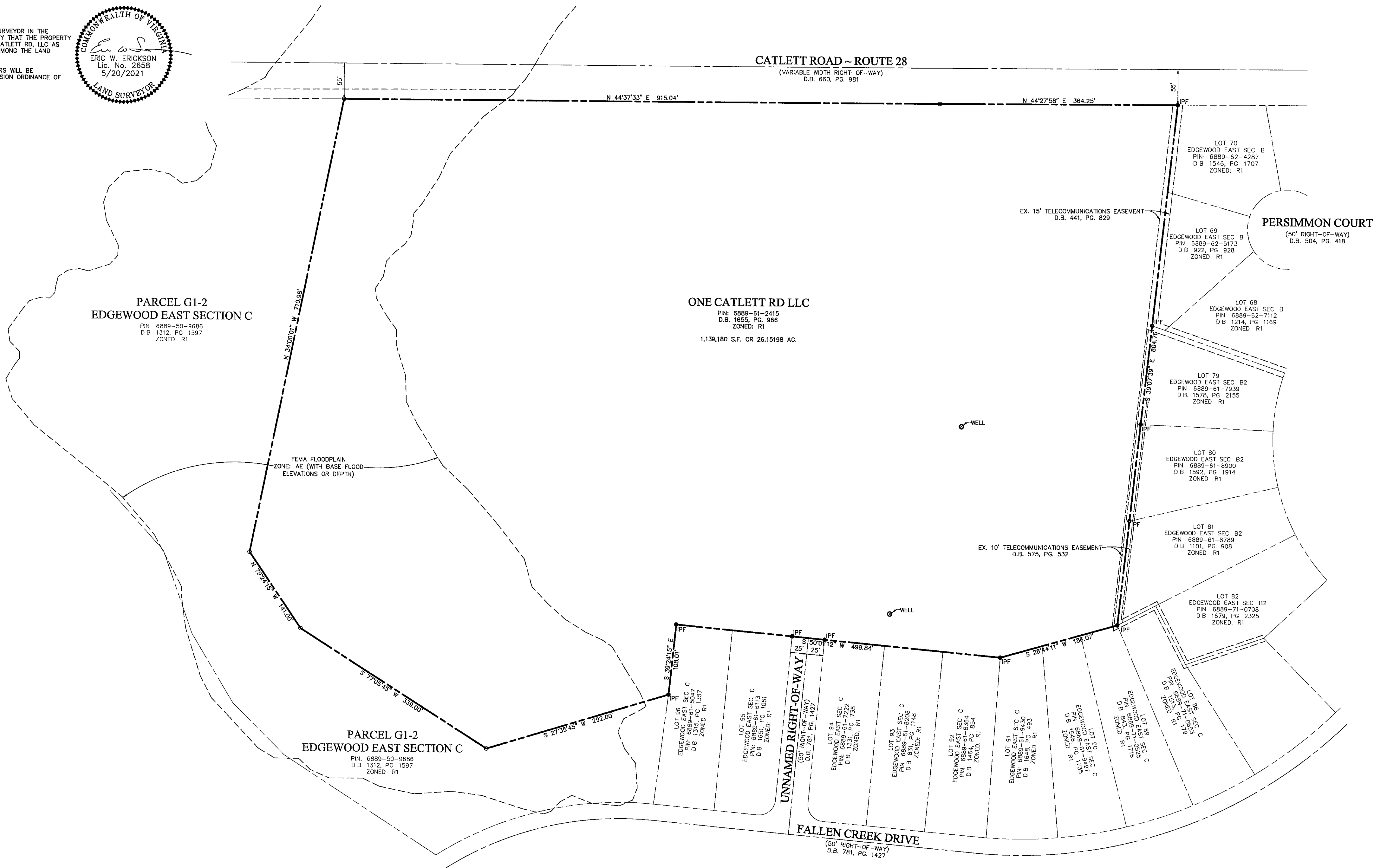
NOTES

1. THE PROPERTY DELINEATED HEREON IS LOCATED ON FAUQUIER COUNTY TAX ASSESSMENT PIN 6889-61-2415 AND IS ZONED R2 UNDER THE FAUQUIER COUNTY ZONING ORDINANCE.
2. THE PROPERTY SHOWN HEREON IS NOW IN THE NAME OF ONE CATLETT RD, LLC AS RECORDED IN DEED BOOK 1655 AT PAGE 966, AMONG THE LAND RECORDS OF FAUQUIER COUNTY, VA.
3. BOUNDARY INFORMATION SHOWN HEREON WAS TAKEN FROM EXISTING FAUQUIER COUNTY LAND RECORDS AND FIELD VERIFIED BY A BOUNDARY SURVEY PERFORMED BY J2 ENGINEERS IN JANUARY 2021. THE NORTH MERIDIAN IS REFERENCED TO NAD 83 VIRGINIA STATE PLANE NORTH ZONE.
4. THIS PLAT HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CERTIFIED TITLE REPORT AND DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES ON THE PROPERTY.
5. THE PROPERTY SHOWN HEREON LIES WITHIN ZONE AE, WITH BASE FLOOD ELEVATIONS OR DEPTH AND ZONE X (UNSHADED) AREAS OF MINIMAL FLOODING AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP FOR FAUQUIER COUNTY, VA, COMMUNITY PANEL NO. 51061C0410C, EFFECTIVE DATE FEBRUARY 6, 2008.

SURVEYOR'S CERTIFICATE

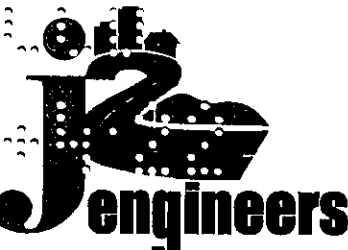
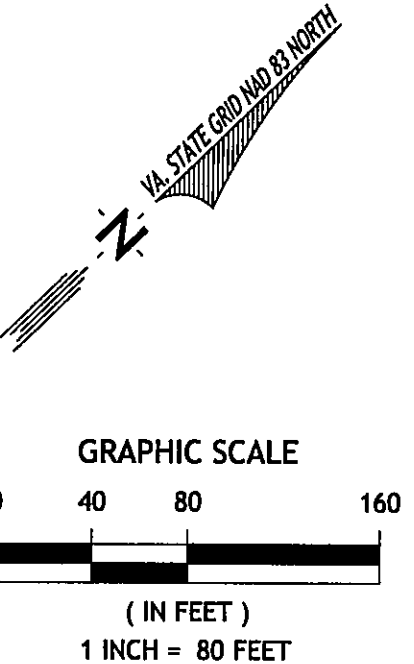
I, ERIC W. ERICKSON, A DULY LICENSED LAND SURVEYOR IN THE COMMONWEALTH OF VIRGINIA, DO HEREBY CERTIFY THAT THE PROPERTY SHOWN HEREON IS NOW IN THE NAME OF ONE CATLETT RD, LLC AS RECORDED IN DEED BOOK 1655 AT PAGE 966, AMONG THE LAND RECORDS OF FAUQUIER COUNTY, VIRGINIA.

I FURTHER CERTIFY THAT THE PROPERTY CORNERS WILL BE MONUMENTED IN ACCORDANCE WITH THE SUBDIVISION ORDINANCE OF FAUQUIER COUNTY, VIRGINIA

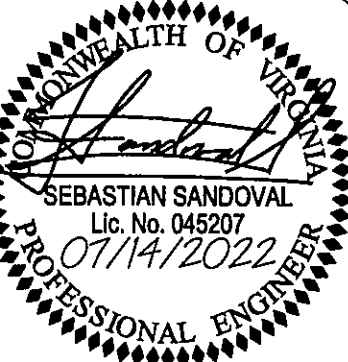


LEGEND

- COMPUTED BOUNDARY CORNER
- IPF ● IRON PIPE FOUND



**J2 Engineers, Inc.**  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# 002001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: AS NOTED

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/02/2021 |
| 05/02/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/03/2022 |
| 07/14/2022 |

CERTIFIED BOUNDARY SURVEY  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |             |
|-----------|-------------|
| No.       | DESCRIPTION |
|           |             |
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J2 Engineers - X:\DRAWINGS\ACTIVE\One Catlett Road\DEMOLITION PLAN\J2-DEMOLITION PLAN\J2-DEMOLITION PLAN.dwg (J2-DEMOLITION PLAN) July 14, 2022 - 9:22am mabdamand

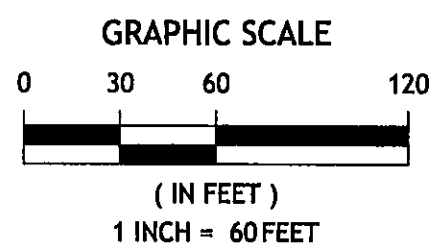


#### NOTES

- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITY CROSSINGS WITH PROPOSED UTILITIES ON THIS PLAN.
- THE ABANDONMENT OF THE EXISTING SEPTIC TANK AND DRAINFIELD WILL COMPLY WITH VDH PROCEDURES AND THAT ANY IMPACTED SOIL WITHIN 10 FEET OF THE PROPOSED WATERLINE WILL BE REMOVED AND REPLACED WITH SUITABLE FILL.
- PROVIDE A COPY OF GW-5 WELL ABANDONMENT FORM TO FCWSA.

#### LEGEND

- REMOVE EXISTING ASPHALT
- REMOVE EXISTING STRUCTURE/FENCE
- REMOVE EXISTING GRAVEL
- REMOVE EXISTING TREE
- LOC
- TREE PRESERVATION AREA



**J2 Engineers**  
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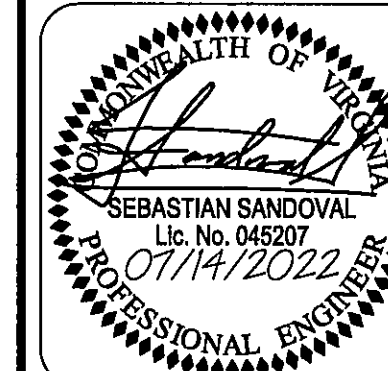
COMMONWEALTH OF VIRGINIA  
SEBASTIAN SANDOVAL  
Lic. No. 045207  
07/14/2022  
PROFESSIONAL ENGINEER

PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1"=60'

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 09/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/09/2022 |
| 07/14/2022 |

DEMOLITION PLAN  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |      |
|-----------|------|
| NO.       | DATE |
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PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT.= N/A  
SCALE: 1"=60'

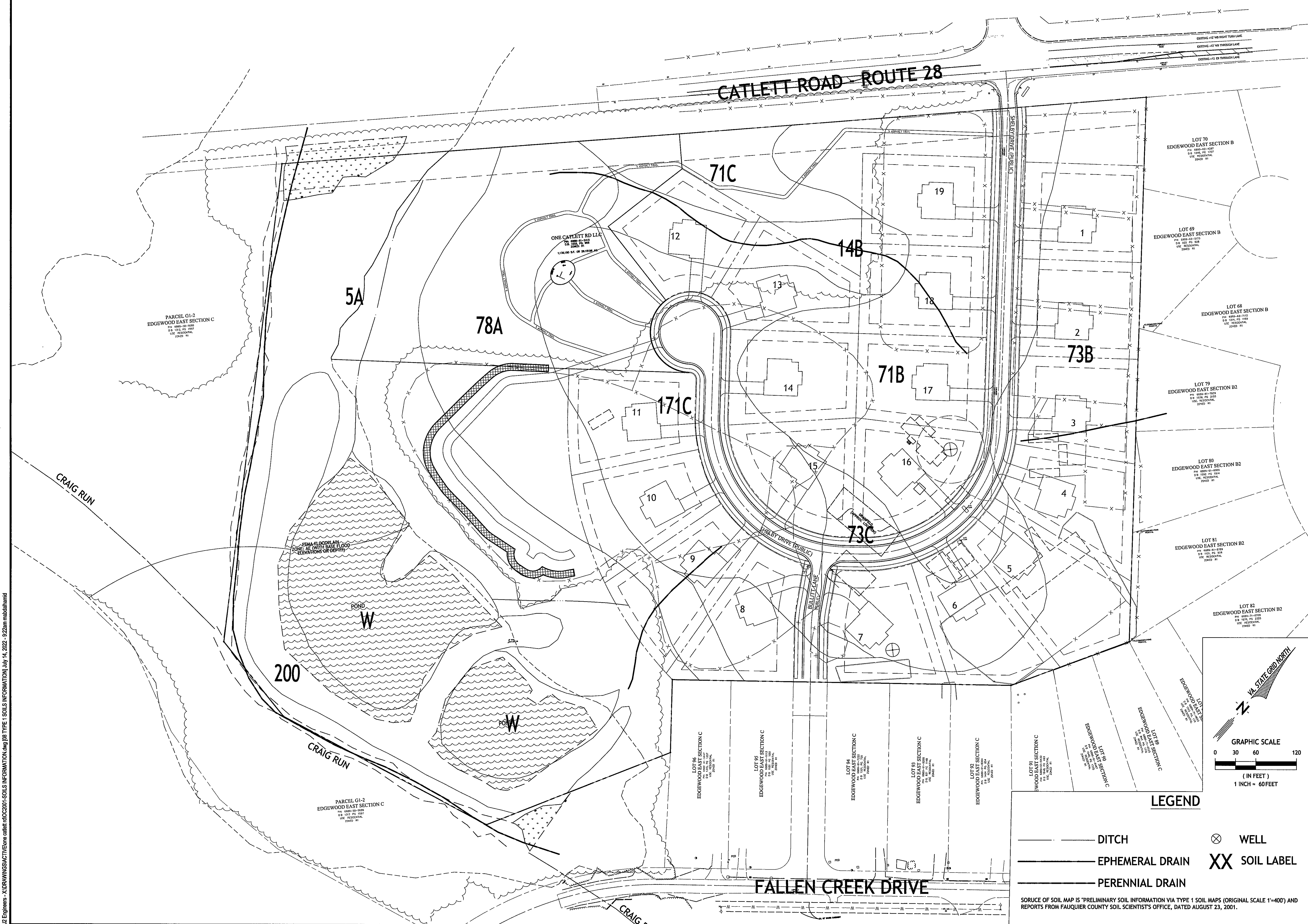
| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

TYPE 1 SOILS INFORMATION  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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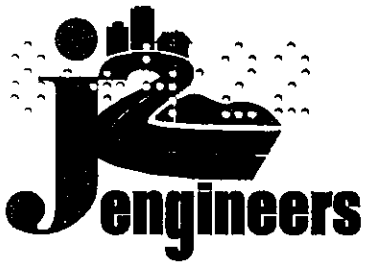
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| MAP. UNIT<br>SYMBOL<br>SOIL NAME<br>SLOPE |                                                      | SOIL DESCRIPTION                                                                                                                                                                                                                                                                                  | General Characteristics    |        |                                |        |                                |                                              | LAND<br>POTENTIALS                                                                                                                                                                                                                             | DEVELOPMENT POTENTIAL<br>AND PROBLEMS USING             |                                                  |
|-------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------|--------------------------------|--------|--------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------|
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | SOIL FEATURES              |        |                                |        | K <sub>Sat</sub>               |                                              |                                                                                                                                                                                                                                                | CENTRAL WATER<br>AND CENTRAL<br>SEWER                   | CONVENTIONAL<br>SEPTIC TANK<br>AND<br>DRAINFIELD |
| 5A                                        | Rowland<br>silt loam;<br>frequently<br>flooded       | Very deep, moderately well drained,<br>mottled yellowish-brown and weak red<br>silty soils with high water tables on<br>floodplains; developed in alluvium from<br>Triassic uplands                                                                                                               | Slope (%)                  | 0 - 2  | Erosional Hazard<br>Potential: | Slight | Surface: Moderate              | AGRICULTURE                                  | VERY POOR<br>Within 100-year<br>floodplain;<br>frequent flooding;<br>occasional<br>ponding;<br>intermittent high<br>water table                                                                                                                | NOT SUITED<br>Flooding<br>potential                     |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Bedrock Depth<br>(in.):    | > 60   | K Factor (surface):            | 0.43   | Subsoil: Moderate              | SECONDARY<br>CROPLAND                        |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (subsoil):            | 0.43   | Substratum: Moderate           |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Shrink-Swell<br>Potential: | low    | Hydrologic Group:              | C      |                                | FORESTRY<br>(HARDWOOD)<br>MODERATELY<br>HIGH |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 14B                                       | Sowego<br>loam                                       | Deep, well to moderately well drained dark<br>reddish-brown loamy soils with intermittent<br>high water tables in concave upland<br>landscapes (swales) and drainageways;<br>developed in local colluvium and residuum of<br>materials derived from Triassic siltstone,<br>shale and conglomerate | Slope (%)                  | 2 - 7  | Erosional Hazard<br>Potential: | Mod.   | Surface: Moderate              | AGRICULTURE                                  | POOR<br>Frequent flooding;<br>concentrated<br>run off from<br>higher areas;<br>intermittent high<br>water table; low<br>bearing capacity                                                                                                       | NOT SUITED<br>High water table<br>Landscape<br>position |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (surface):            | 0.37   | Subsoil: Moderate              | PRIME<br>CROPLAND                            |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (subsoil):            | 0.24   | Substratum: Moderate           |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Shrink-Swell<br>Potential: | low    | Hydrologic Group:              | B      | Weathered Bedrock:<br>Moderate | FORESTRY<br>(HARDWOOD)<br>MODERATELY<br>HIGH |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 71B                                       | Panorama<br>silt loam                                | Deep, well drained, reddish-brown silty<br>soils on undulating summits and gently<br>sloping backslopes; developed in<br>residuum from red Triassic shale,<br>siltstone and fine-grained sandstone                                                                                                | Slope (%)                  | 2 - 7  | Erosional Hazard<br>Potential: | Mod.   | Surface: Moderate              | AGRICULTURE                                  | GOOD<br>Low bearing<br>capacity when<br>wet due to high<br>silt content                                                                                                                                                                        | MARGINAL<br>Slow percolation                            |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (surface):            | 0.37   | Subsoil: Moderate              | PRIME<br>CROPLAND                            |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Watertable Depth<br>(in.): | > 40   | K Factor (subsoil):            | 0.32   | Substratum: Moderate           |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Shrink-Swell<br>Potential: | low    | Hydrologic Group:              | B      | Weathered Bedrock:<br>low      | FORESTRY<br>(HARDWOOD)<br>MODERATE           |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 71C                                       | Panorama<br>silt loam                                | Deep, well drained, dark reddish-brown<br>silty soils rolling summits and strongly<br>sloping backslopes; developed in<br>residuum from red Triassic shale and<br>sandstone                                                                                                                       | Slope (%)                  | 7 - 15 | Erosional Hazard<br>Potential: | Mod.   | Surface: Moderate              | AGRICULTURE                                  | GOOD<br>Low bearing<br>capacity when<br>wet due to high<br>silt content                                                                                                                                                                        | MARGINAL<br>Slow percolation                            |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (surface):            | 0.37   | Subsoil: Moderate              | SECONDARY<br>CROPLAND                        |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Watertable Depth<br>(in.): | > 40   | K Factor (subsoil):            | 0.32   | Substratum: Moderate           |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Shrink-Swell<br>Potential: | low    | Hydrologic Group:              | B      | Weathered Bedrock:<br>low      | FORESTRY<br>(HARDWOOD)<br>MODERATE           |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 73B                                       | Penn loam                                            | Moderately deep, well drained, red silty<br>soils on undulating summits and gently<br>sloping backslopes; developed in<br>residuum from Triassic shale, siltstone<br>and fine-grained sandstone                                                                                                   | Slope (%)                  | 2 - 7  | Erosional Hazard<br>Potential: | Mod.   | Surface: Moderate              | AGRICULTURE                                  | GOOD<br>Shallow to rock                                                                                                                                                                                                                        | POOR<br>Shallow to rock                                 |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (surface):            | 0.32   | Subsoil: Moderate              | SECONDARY<br>CROPLAND                        |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Watertable Depth<br>(in.): | > 40   | K Factor (subsoil):            | 0.24   | Substratum: Moderate           |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Shrink-Swell<br>Potential: | low    | Hydrologic Group:              | C      | Weathered Bedrock:<br>low      | FORESTRY<br>(HARDWOOD)                       |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 73C                                       | Penn loam                                            | Moderately deep, well drained, red silty<br>soils on strongly sloping backslopes;<br>developed in residuum from Triassic<br>shale, siltstone and fine-grained<br>sandstone                                                                                                                        | Slope (%)                  | 7 - 15 |                                |        | Surface: Moderate              | AGRICULTURE                                  | GOOD<br>Shallow to rock                                                                                                                                                                                                                        | POOR<br>Shallow to rock                                 |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (surface):            | 0.32   | Subsoil: Moderate              | SECONDARY<br>CROPLAND                        |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Watertable Depth<br>(in.): | > 40   | K Factor (subsoil):            | 0.24   | Substratum: Moderate           |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Shrink-Swell<br>Potential: | low    | Hydrologic Group:              | C      | Weathered Bedrock:<br>low      | FORESTRY<br>(HARDWOOD)                       |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 78A                                       | Dulles silt<br>loam                                  | Deep, moderately well and somewhat poorly<br>drained, light yellowish-brown clayey soils with<br>intermittent high water table water tables on<br>broad, nearly level interfluvies and concave<br>areas; developed in local colluvium and<br>residuum from red Triassic shale and<br>sandstone    | Slope (%)                  | 0 - 2  | Erosional Hazard<br>Potential: | Slight | Surface: Moderate              | AGRICULTURE                                  | VERY POOR<br>Maybe within 100-<br>year floodplain;<br>Frequent flooding;<br>Occasional ponding;<br>High water table;<br>Low relief; Low<br>bearing capacity<br>when wet due to high<br>silt content and<br>shrink-swell clay in<br>the subsoil | NOT SUITED<br>High water table<br>Landscape<br>position |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (surface):            | 0.43   | Subsoil: low                   | PRIME PASTURE                                |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | K Factor (subsoil):            | 0.43   | Substratum: low                |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   |                            |        | Hydrologic Group:              | D      | Weathered Bedrock:<br>low      | FORESTRY<br>(HARDWOOD)<br>MODERATELY<br>LOW  |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 171C                                      | Panorama<br>Variant<br>very<br>gravelly silt<br>loam | Very deep, well drained, dark reddish-<br>brown silty soils on rolling summits and<br>strongly sloping backslopes; developed<br>in residuum from red Triassic shale and<br>sandstone                                                                                                              | Slope (%)                  | 7 - 15 | Erosional Hazard<br>Potential: | Mod.   | Surface: Moderate              | AGRICULTURE                                  | FAIR<br>Low bearing<br>capacity when wet<br>due to high silt<br>content; Very<br>gravelly surface                                                                                                                                              | MARGINAL<br>Slow percolation                            |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Bedrock Depth<br>(in.):    | > 60   | K Factor (surface):            | 0.37   | Subsoil: Moderate              | SECONDARY<br>CROPLAND                        |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Watertable Depth<br>(in.): | > 40   | K Factor (subsoil):            | 0.32   | Substratum: Moderate           |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
|                                           |                                                      |                                                                                                                                                                                                                                                                                                   | Shrink-Swell<br>Potential: | low    | Hydrologic Group:              | B      |                                | FORESTRY<br>(HARDWOOD)<br>MODERATE           |                                                                                                                                                                                                                                                |                                                         |                                                  |
| 200                                       | Cut and/or<br>Fill                                   | Disturbed areas of cutting and/ or filling                                                                                                                                                                                                                                                        |                            |        |                                |        |                                |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |
| W                                         | Water                                                |                                                                                                                                                                                                                                                                                                   |                            |        |                                |        |                                |                                              |                                                                                                                                                                                                                                                |                                                         |                                                  |



J2 Engineers, Inc.  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: N/A

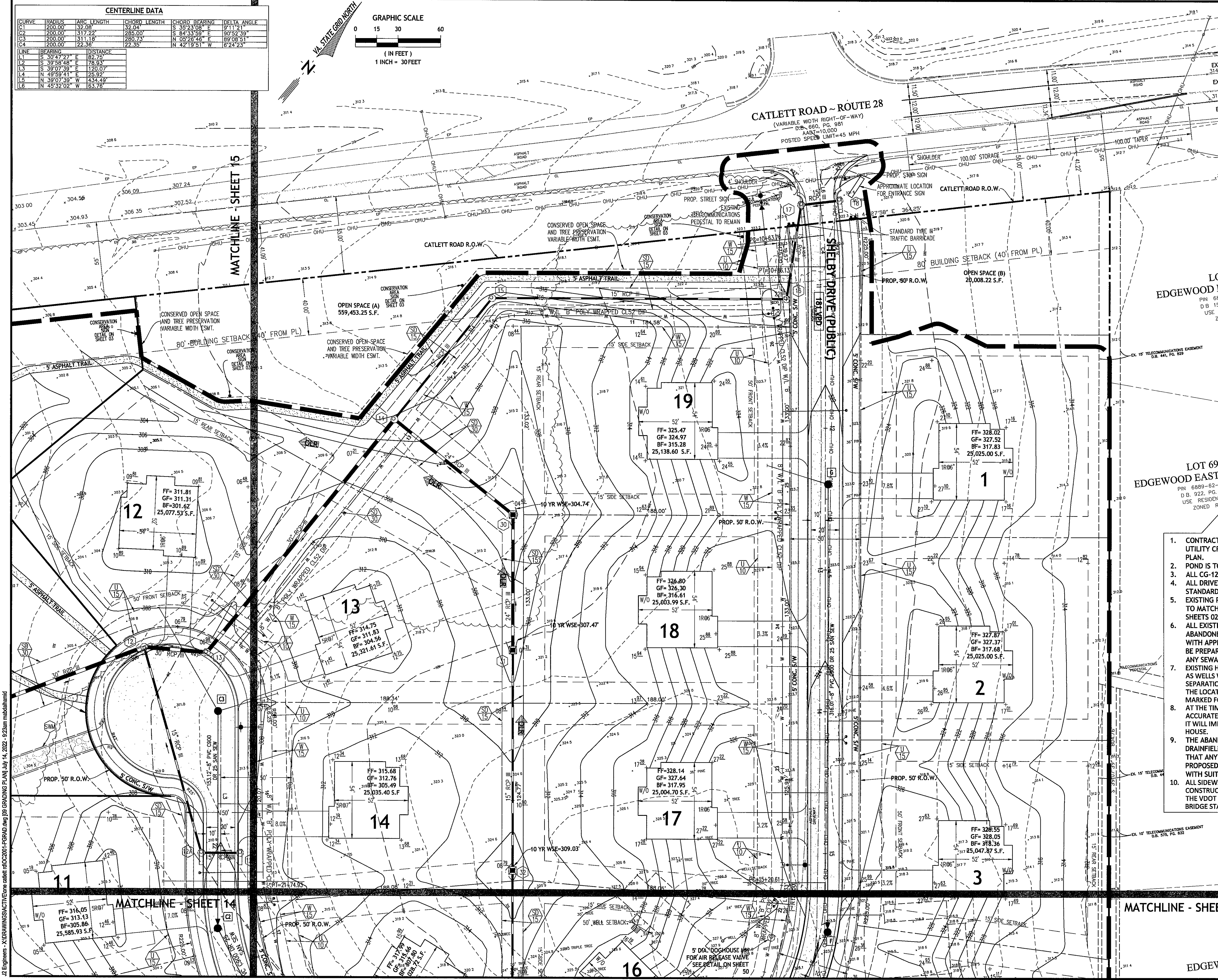
| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 08/17/2021 |
| 11/29/2021 |
| 04/02/2022 |
| 07/14/2022 |

TYPE 1 SOILS INFORMATION  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS   |      |
|-------------|------|
| DESCRIPTION |      |
|             |      |
|             |      |
|             |      |
|             |      |
|             |      |
|             |      |
|             |      |
|             |      |
| No.         | DATE |



| CENTERLINE DATA |               |            |              |               |             |
|-----------------|---------------|------------|--------------|---------------|-------------|
| CURVE           | RADIUS        | ARC LENGTH | CHORD LENGTH | CHORD BEARING | DELTA ANGLE |
| C1              | 200.00'       | 32.08'     | 32.04'       | S 35°23'08" E | 9°11'21"    |
| C2              | 200.00'       | 317.22'    | 285.00'      | S 84°33'59" E | 90°52'39"   |
| C3              | 200.00'       | 311.18'    | 280.73'      | N 05°28'46" E | 89°08'51"   |
| C4              | 200.00'       | 22.35'     | 22.35'       | N 42°18'51" W | 6°24'23"    |
| LINE            | BEARING       | DISTANCE   |              |               |             |
| L1              | S 30°47'27" E | 82.75'     |              |               |             |
| L2              | S 39°58'48" E | 76.93'     |              |               |             |
| L3              | S 39°07'58" E | 120.07'    |              |               |             |
| L4              | N 49°59'41" E | 25.92'     |              |               |             |
| L5              | N 39°07'39" W | 434.49'    |              |               |             |
| L6              | N 45°32'02" W | 63.78'     |              |               |             |



GEOMETRY LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING WATER LINE
- PROPOSED WATER LINE
- 3/4" WATER METER CROCK
- PROPOSED FIRE HYDRANT
- 4" SANITARY LATERAL
- FENCE
- CG-12B CURB RAMP
- TEST PIT LOCATION
- RIPRAP
- PROPOSED STOP SIGN
- PROPOSED STREET NAME SIGN
- ESMT WIDTH PROP. SAN. SEW. ESMT LABEL
- ESMT WIDTH PROP. WATER ESMT LABEL
- ESMT WIDTH PROP. STORM WATER MANAGEMENT ESMT LABEL
- ESMT WIDTH PROP. STORM DRAIN ESMT LABEL
- ESMT WIDTH PROP. UTILITY ESMT LABEL

GRADING LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- EXISTING TREE LINE

PAVEMENT HATCH LEGEND

- PROPOSED ROADWAY
- EXISTING ROADWAY
- PROPOSED 5' CONCRETE SIDEWALK
- PROPOSED 12' GRAVEL SWM ACCESS ROAD
- PROPOSED 5' ASPHALT TRAIL

NOTES

- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITY CROSSINGS WITH PROPOSED UTILITIES ON THIS PLAN.
- POND IS TO BE AERATED.
- ALL CG-12 CURB RAMP ARE TO BE CG-12 TYPE B
- ALL DRIVEWAYS MUST BE CONSTRUCTED PER THE CG-9D STANDARD SHOWN ON SHEET 3.
- EXISTING PAVEMENT THAT IS REMOVED AND REPLACED IS TO MATCH EXISTING PAVEMENT SECTION. PLEASE SEE SHEETS 02 & 03 FOR NOTES AND DETAILS.
- ALL EXISTING DRAINFIELDS AND WELLS MUST BE ABANDONED IN ACCORD WITH VDH PROCEDURES AND WITH APPROPRIATE VDH PERMITS. CONTRACTOR MUST BE PREPARED TO PROPERLY HANDLE AND DISPOSE OF ANY SEWAGE RELEASED DURING EXCAVATION.
- EXISTING HAND-DUG OR BORED WELLS SHALL BE TREATED AS WELLS WITH RESPECT TO DETERMINING THE MINIMUM SEPARATION DISTANCE TO SOURCES OF CONTAMINATION. THE LOCATION OF THESE WELLS SHALL BE PERMANENTLY MARKED FOR FUTURE LOCATION.
- AT THE TIME OF CONSTRUCTION, SEPTIC TANK SHOULD BE ACCURATELY LOCATED AND EVALUATED TO DETERMINE IF IT WILL IMPACT FOUNDATION DESIGN FOR THE PROPOSED HOUSE.
- THE ABANDONMENT OF THE EXISTING SEPTIC TANK AND DRAINFIELD WILL COMPLY WITH VDH PROCEDURES AND THAT ANY IMPACTED SOIL WITHIN 10 FEET OF THE PROPOSED WATERLINE WILL BE REMOVED AND REPLACED WITH SUITABLE FILL.
- ALL SIDEWALK WITHIN THE VDOT ROW SHALL BE CONSTRUCTED WITH HYDRAULIC CEMENT CONCRETE PER THE VDOT RDM APPENDIX B1 AND THE VDOT ROAD AND BRIDGE STANDARDS.

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SEBASTIAN SANDOVAL  
Lic. No. 045207  
PROFESSIONAL ENGINEER  
07/14/2022

PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1"=30'

PLAN DATE  
03/1/2021  
04/2/2021  
05/2/2021  
09/1/2021  
11/2/2021  
04/02/2022  
07/14/2022

GRADING PLAN  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

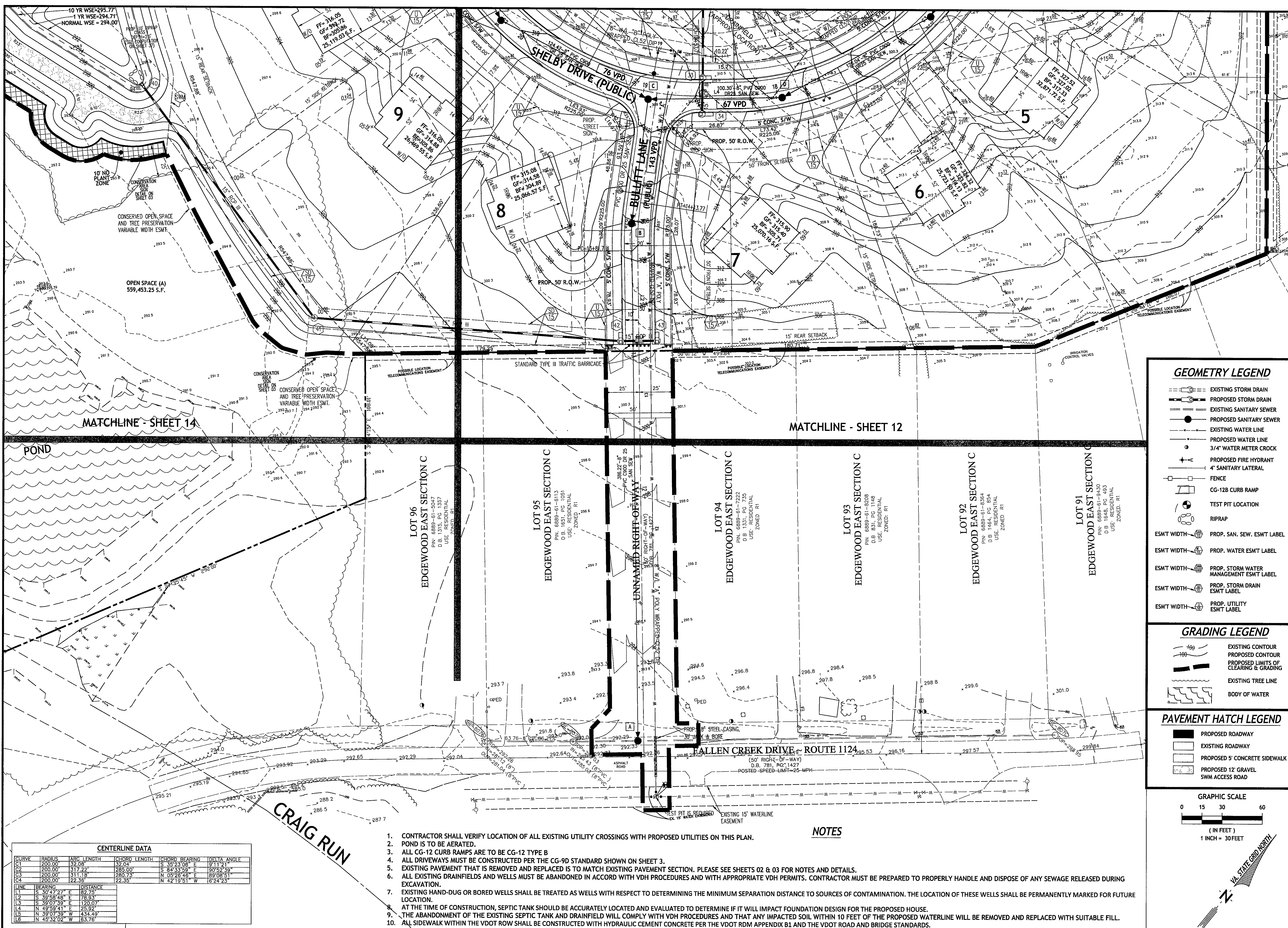
| REVISIONS |             |
|-----------|-------------|
| NO.       | DESCRIPTION |
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SHEET  
**11**  
OF  
**63**

J2 Engineers - X:\DRAWINGS\ACTIVE\one catlett rd\OC2001-1\PGRAD.dwg [9 GRADING PLAN] July 14, 2022 - 8:28am mabalahand



J2 Engineers - X:\DRAWINGS\ACTIVE\One Catlett Road\02001-PRAD.dwg [11 GRADING PLAN] July 14, 2022 - 9:24am mabdalhand



| CENTERLINE DATA |         |            |              |               |             |
|-----------------|---------|------------|--------------|---------------|-------------|
| CURVE           | RADIUS  | ARC LENGTH | CHORD LENGTH | CHORD BEARING | DELTA ANGLE |
| C1              | 200.00' | 32.08'     | 32.04'       | S 35°23'08" E | 9°11'21"    |
| C2              | 200.00' | 317.22'    | 285.00'      | S 84°33'59" E | 90°52'39"   |
| C3              | 200.00' | 311.18'    | 280.73'      | N 05°26'48" E | 89°08'51"   |
| C4              | 200.00' | 22.36'     | 22.35'       | N 42°19'51" W | 6°24'23"    |

| LINE | BEARING       | DISTANCE |
|------|---------------|----------|
| 1    | S 30°47'27" E | 82.75'   |
| 2    | S 39°58'48" E | 78.93'   |
| 3    | S 39°07'39" E | 120.07'  |
| 4    | N 49°59'41" E | 23.52'   |
| 5    | N 39°07'39" W | 43.44'   |
| 6    | N 49°32'02" W | 63.76'   |

- NOTES
- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITY CROSSINGS WITH PROPOSED UTILITIES ON THIS PLAN.
  - POND IS TO BE AERATED.
  - ALL CG-12 CURB RAMP ARE TO BE CG-12 TYPE B
  - ALL DRIVEWAYS MUST BE CONSTRUCTED PER THE CG-9D STANDARD SHOWN ON SHEET 3.
  - EXISTING PAVEMENT THAT IS REMOVED AND REPLACED IS TO MATCH EXISTING PAVEMENT SECTION. PLEASE SEE SHEETS 02 & 03 FOR NOTES AND DETAILS.
  - ALL EXISTING DRAINFIELDS AND WELLS MUST BE ABANDONED IN ACCORD WITH VDH PROCEDURES AND WITH APPROPRIATE VDH PERMITS. CONTRACTOR MUST BE PREPARED TO PROPERLY HANDLE AND DISPOSE OF ANY SEWAGE RELEASED DURING EXCAVATION.
  - EXISTING HAND-DUG OR BORED WELLS SHALL BE TREATED AS WELLS WITH RESPECT TO DETERMINING THE MINIMUM SEPARATION DISTANCE TO SOURCES OF CONTAMINATION. THE LOCATION OF THESE WELLS SHALL BE PERMANENTLY MARKED FOR FUTURE LOCATION.
  - AT THE TIME OF CONSTRUCTION, SEPTIC TANK SHOULD BE ACCURATELY LOCATED AND EVALUATED TO DETERMINE IF IT WILL IMPACT FOUNDATION DESIGN FOR THE PROPOSED HOUSE.
  - THE ABANDONMENT OF THE EXISTING SEPTIC TANK AND DRAINFIELD WILL COMPLY WITH VDH PROCEDURES AND THAT ANY IMPACTED SOIL WITHIN 10 FEET OF THE PROPOSED WATERLINE WILL BE REMOVED AND REPLACED WITH SUITABLE FILL.
  - ALL SIDEWALK WITHIN THE VDOT ROW SHALL BE CONSTRUCTED WITH HYDRAULIC CEMENT CONCRETE PER THE VDOT RDM APPENDIX B1 AND THE VDOT ROAD AND BRIDGE STANDARDS.

**GEOMETRY LEGEND**

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING WATER LINE
- PROPOSED WATER LINE
- 3/4" WATER METER CROCK
- PROPOSED FIRE HYDRANT
- 4" SANITARY LATERAL
- FENCE
- CG-12B CURB RAMP
- TEST PIT LOCATION
- RIPRAP
- ESMT WIDTH PROP. SAN. SEW. ESMT LABEL
- ESMT WIDTH PROP. WATER ESMT LABEL
- ESMT WIDTH PROP. STORM WATER MANAGEMENT ESMT LABEL
- ESMT WIDTH PROP. STORM DRAIN ESMT LABEL
- ESMT WIDTH PROP. UTILITY ESMT LABEL

**GRADING LEGEND**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED LIMITS OF CLEARING & GRADING
- EXISTING TREE LINE
- BODY OF WATER

**PAVEMENT HATCH LEGEND**

- PROPOSED ROADWAY
- EXISTING ROADWAY
- PROPOSED 5' CONCRETE SIDEWALK
- PROPOSED 12' GRAVEL SWM ACCESS ROAD

**GRAPHIC SCALE**

0 15 30 60  
(IN FEET)  
1 INCH = 30 FEET

VA STATE GRID NORTH

**J2 Engineers**

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SEBASTIAN SANDOVAL  
Lic. No. 045207  
PROFESSIONAL ENGINEER

PLAN# 02001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1"=30'

PLAN DATE  
03/12/2021  
04/20/2021  
05/12/2021  
06/22/2021  
07/14/2022

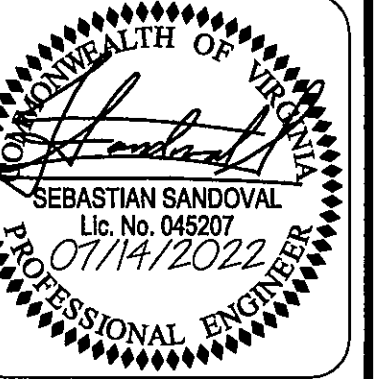
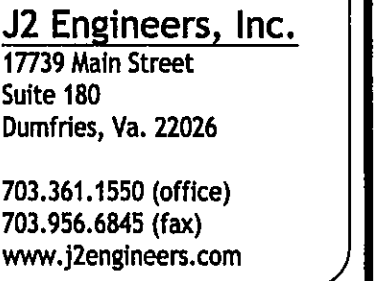
GRADING PLAN  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

REVISIONS

SHEET  
13  
OF  
63

1. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITY CROSSINGS WITH PROPOSED UTILITIES ON THIS PLAN.
2. POND IS TO BE AERATED.
3. ALL CG-12 CURB RAMPS ARE TO BE CG-12 TYPE B
4. ALL DRIVEWAYS MUST BE CONSTRUCTED PER THE CG-9D STANDARD SHOWN ON SHEET 3.
5. EXISTING PAVEMENT THAT IS REMOVED AND REPLACED IS TO MATCH EXISTING PAVEMENT SECTION. PLEASE SEE SHEETS 02 & 03 FOR NOTES AND DETAILS.
6. ALL EXISTING DRAINFIELDS AND WELLS MUST BE ABANDONED IN ACCORD WITH VDH PROCEDURES AND WITH APPROPRIATE VDH PERMITS. CONTRACTOR MUST BE PREPARED TO PROPERLY HANDLE AND DISPOSE OF ANY SEWAGE RELEASED DURING EXCAVATION.
7. EXISTING HAND-DUG OR BORED WELLS SHALL BE TREATED AS WELLS WITH RESPECT TO DETERMINING THE MINIMUM SEPARATION DISTANCE TO SOURCES OF CONTAMINATION. THE LOCATION OF THESE WELLS SHALL BE PERMANENTLY MARKED FOR FUTURE LOCATION.
8. AT THE TIME OF CONSTRUCTION, SEPTIC TANK SHOULD BE ACCURATELY LOCATED AND EVALUATED TO DETERMINE IF IT WILL IMPACT FOUNDATION DESIGN FOR THE PROPOSED HOUSE.
9. THE ABANDONMENT OF THE EXISTING SEPTIC TANK AND DRAINFIELD WILL COMPLY WITH VDH PROCEDURES AND THAT ANY IMPACTED SOIL WITHIN 10 FEET OF THE PROPOSED WATERLINE WILL BE REMOVED AND REPLACED WITH SUITABLE FILL.
10. ALL SIDEWALK WITHIN THE VDOT ROW SHALL BE CONSTRUCTED WITH HYDRAULIC CEMENT CONCRETE PER THE VDOT RDM APPENDIX B1 AND THE VDOT ROAD AND BRIDGE STANDARDS.

MATCHLINE - SHEET 11



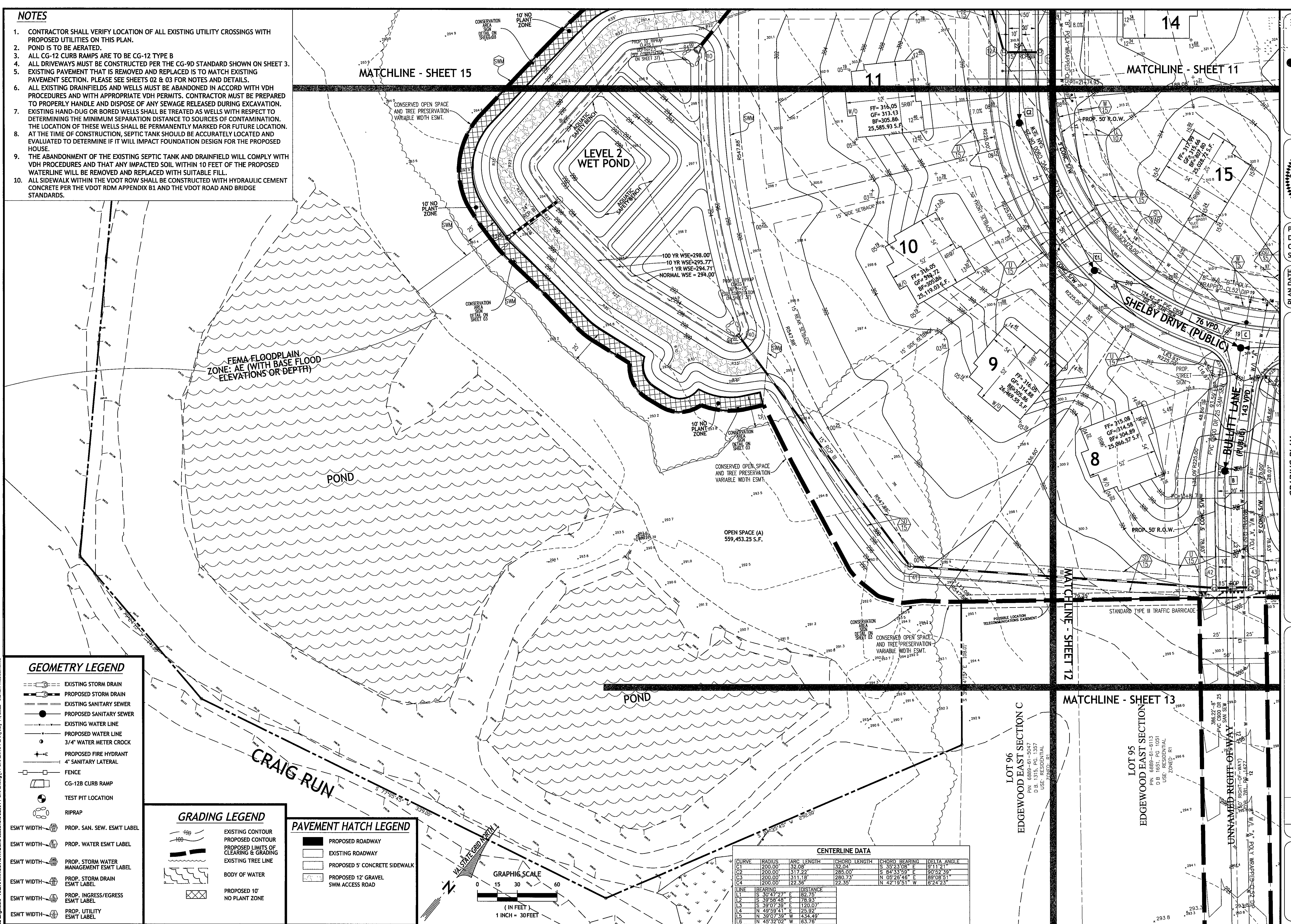
PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT.= 2'  
SCALE: 1"=30'

|            |
|------------|
| 03/11/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |
| -          |
| -          |
| -          |

**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

[illegible]

SHEET  
**14**  
OF  
**63**



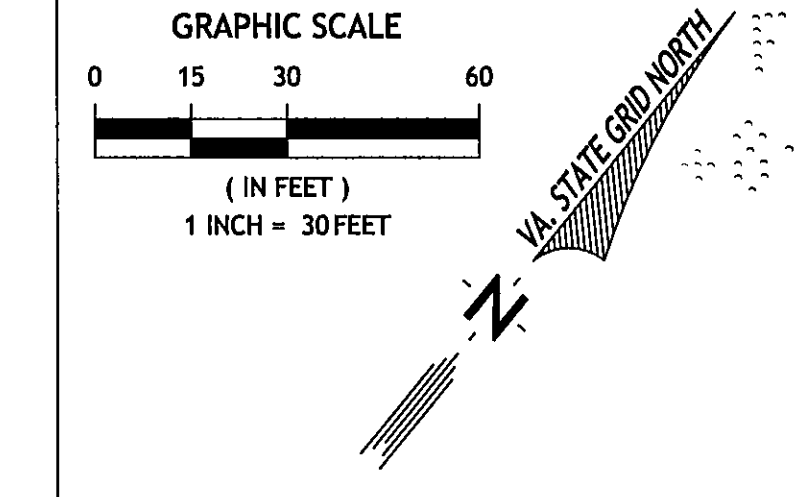
| CENTERLINE DATA |               |            |              |               |             |
|-----------------|---------------|------------|--------------|---------------|-------------|
| CURVE           | RADIUS        | ARC LENGTH | CHORD LENGTH | CHORD BEARING | DELTA ANGLE |
| C1              | 200.00'       | 32.08'     | 32.04'       | S 35°23'08" E | 9°11'21"    |
| C2              | 200.00'       | 317.22'    | 285.00'      | S 84°33'58" E | 80°52'39"   |
| C3              | 200.00'       | 311.18'    | 280.73'      | N 05°28'46" E | 89°08'51"   |
| C4              | 200.00'       | 22.38'     | 22.35'       | N 42°19'51" W | 8°24'23"    |
| LINE            | BEARING       | DISTANCE   |              |               |             |
| L1              | S 30°47'27" E | 82.75'     |              |               |             |
| L2              | S 39°58'48" E | 78.93'     |              |               |             |
| L3              | S 39°07'39" E | 120.07'    |              |               |             |
| L4              | N 49°59'41" E | 25.92'     |              |               |             |
| L5              | N 39°07'39" W | 434.49'    |              |               |             |
| L6              | N 49°32'02" W | 63.76'     |              |               |             |

- NOTES**
- CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITY CROSSINGS WITH PROPOSED UTILITIES ON THIS PLAN.
  - POND IS TO BE AERATED.
  - ALL CG-12 CURB RAMP ARE TO BE CG-12 TYPE B
  - ALL DRIVEWAYS MUST BE CONSTRUCTED PER THE CG-9D STANDARD SHOWN ON SHEET 3.
  - EXISTING PAVEMENT THAT IS REMOVED AND REPLACED IS TO MATCH EXISTING PAVEMENT SECTION. PLEASE SEE SHEETS 02 & 03 FOR NOTES AND DETAILS.
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  - AT THE TIME OF CONSTRUCTION, SEPTIC TANK SHOULD BE ACCURATELY LOCATED AND EVALUATED TO DETERMINE IF IT WILL IMPACT FOUNDATION DESIGN FOR THE PROPOSED HOUSE.
  - THE ABANDONMENT OF THE EXISTING SEPTIC TANK AND DRAINFIELD WILL COMPLY WITH VDH PROCEDURES AND THAT ANY IMPACTED SOIL WITHIN 10 FEET OF THE PROPOSED WATERLINE WILL BE REMOVED AND REPLACED WITH SUITABLE FILL.
  - ALL SIDEWALK WITHIN THE VDOT ROW SHALL BE CONSTRUCTED WITH HYDRAULIC CEMENT CONCRETE PER THE VDOT RDM APPENDIX B1 AND THE VDOT ROAD AND BRIDGE STANDARDS.

| GEOMETRY LEGEND |                                         |
|-----------------|-----------------------------------------|
|                 | EXISTING STORM DRAIN                    |
|                 | PROPOSED STORM DRAIN                    |
|                 | EXISTING SANITARY SEWER                 |
|                 | PROPOSED SANITARY SEWER                 |
|                 | EXISTING WATER LINE                     |
|                 | PROPOSED WATER LINE                     |
|                 | 3/4\"/>                                 |
|                 | PROPOSED FIRE HYDRANT                   |
|                 | 4\"/>                                   |
|                 | FENCE                                   |
|                 | CG-12B CURB RAMP                        |
|                 | TEST PIT LOCATION                       |
|                 | RIPRAP                                  |
|                 | PROP. SAN. SEW. ESMT LABEL              |
|                 | PROP. WATER ESMT LABEL                  |
|                 | PROP. STORM WATER MANAGEMENT ESMT LABEL |
|                 | PROP. STORM DRAIN ESMT LABEL            |
|                 | PROP. UTILITY ESMT LABEL                |

| GRADING LEGEND |                                       |
|----------------|---------------------------------------|
|                | EXISTING CONTOUR                      |
|                | PROPOSED CONTOUR                      |
|                | PROPOSED LIMITS OF CLEARING & GRADING |
|                | EXISTING TREE LINE                    |
|                | BODY OF WATER                         |

| PAVEMENT HATCH LEGEND |                  |
|-----------------------|------------------|
|                       | PROPOSED ROADWAY |
|                       | EXISTING ROADWAY |
|                       | PROPOSED 5\"/>   |
|                       | PROPOSED 12\"/>  |
|                       | PROPOSED 10\"/>  |
|                       | PROPOSED 5\"/>   |



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07/14/2022  
PROFESSIONAL ENGINEER

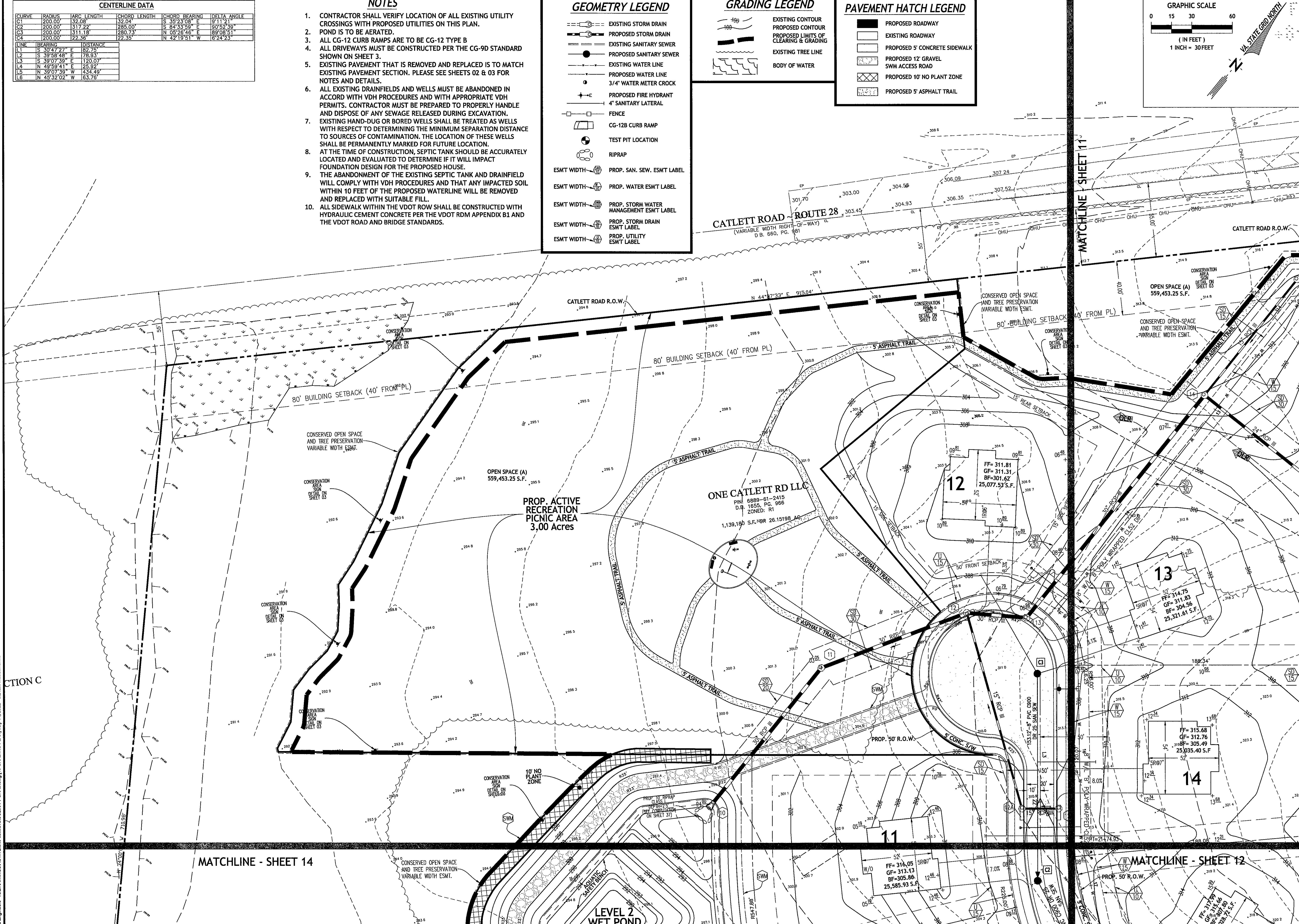
PLAN# 0C2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1"=30'

| PLAN DATE  |
|------------|
| 03/1/2021  |
| 04/20/2021 |
| 05/6/2021  |
| 09/1/2021  |
| 09/17/2021 |
| 11/29/2021 |
| 04/20/2022 |
| 07/14/2022 |

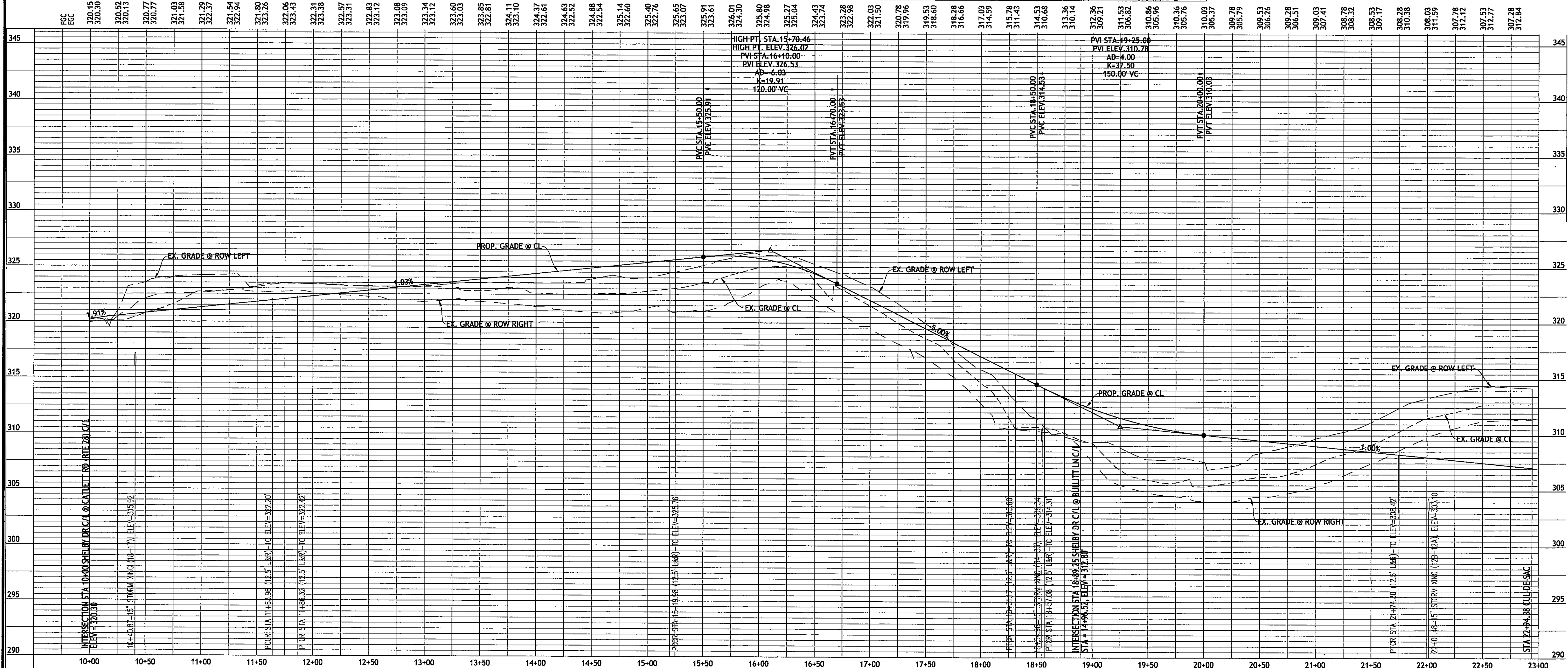
GRADING PLAN  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |             |
|-----------|-------------|
| NO.       | DESCRIPTION |
|           |             |
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SHEET  
**15**  
OF  
**63**



J2 Engineers - X:\DRAWINGS\ACTIVE\one catlett rd\0C2001-PCRAD.dwg 115 GRADING PLAN July 14, 2022 - 9:24am maballanand



**SHELBY DRIVE**  
Public Street (50' ROW TYP.), 181 VPD  
Design Speed = 30 MPH  
Posted Speed = 25 MPH

**LEGEND**

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER METER CROCK
- PROPOSED FIRE HYDRANT
- RIPRAP
- PROPOSED CG-12
- STREET SIGN
- STREET NAME SIGN
- VEHICLES PER DAY

**PAVEMENT HATCH LEGEND**

- PROPOSED PUBLIC ROADWAY
- PROPOSED SIDEWALK

**PROFILE LEGEND**

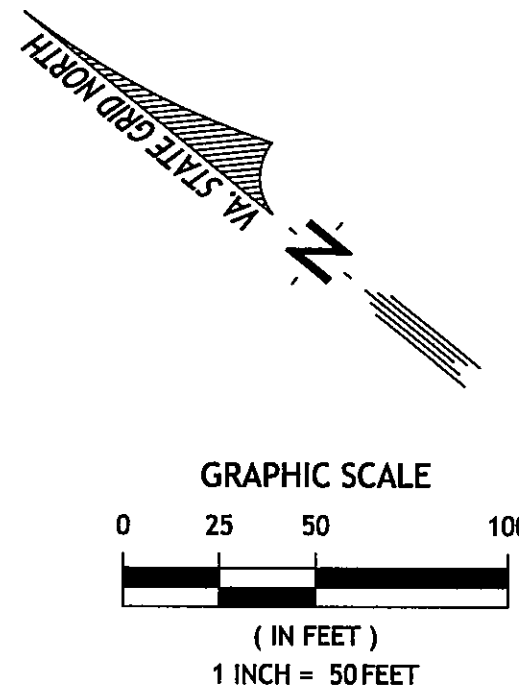
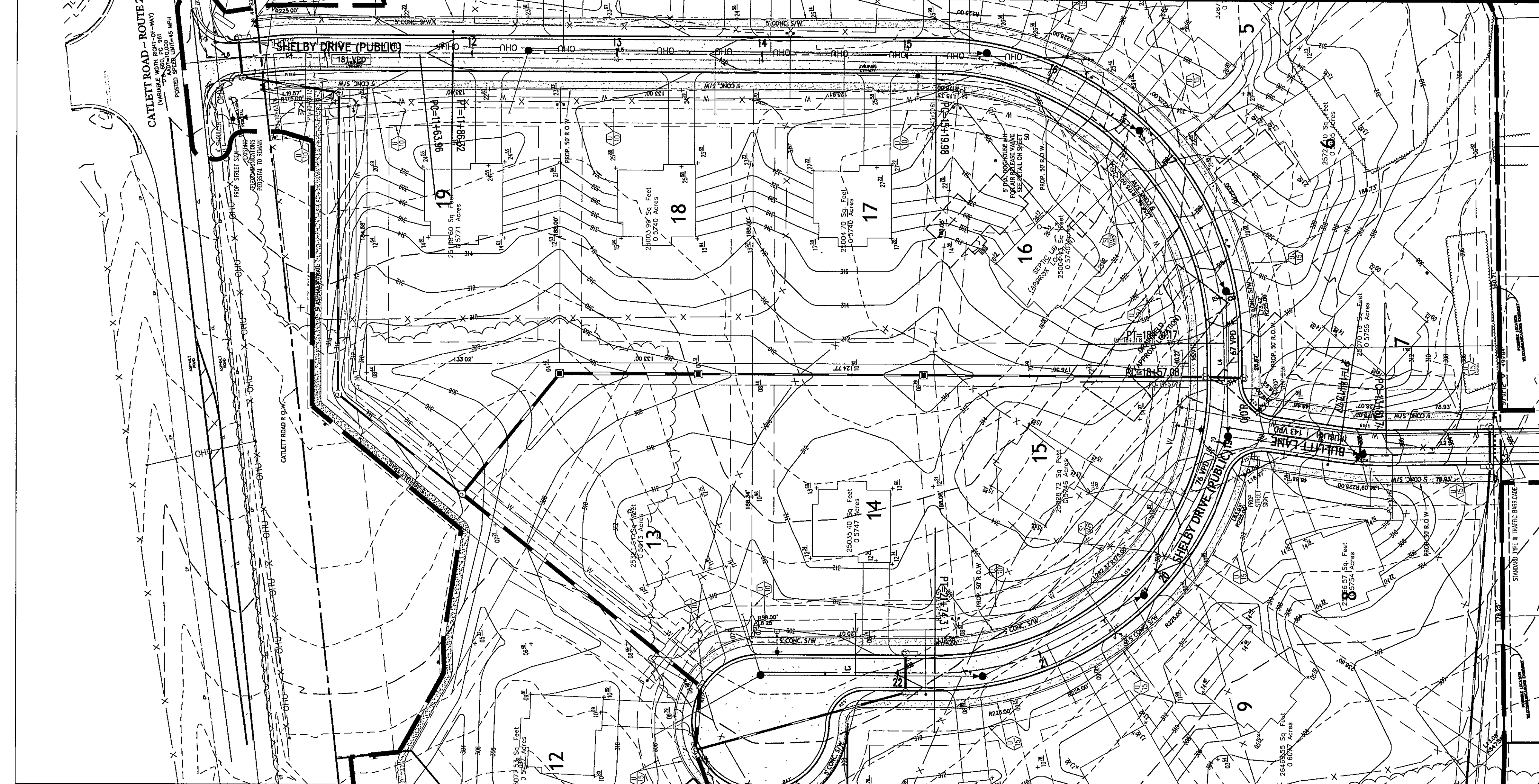
- EX. GRADE @ RIGHT ROW
- EX. GRADE @ CL
- EX. GRADE @ LEFT ROW
- PROPOSED GRADE @ CL

**GRAPHIC SCALE**

(IN FEET)  
1 INCH = 5 FEET VERTICAL

**GRAPHIC SCALE**

(IN FEET)  
1 INCH = 50 FEET HORIZONTAL



CENTERLINE REPORT

| Station        | Northing           | Easting                   | Bearing                    | Distance          |
|----------------|--------------------|---------------------------|----------------------------|-------------------|
| 10+00.000      | 6892145.874        | 11686207.112              |                            |                   |
| 11+23.873      | 6892059.103        | 11686295.515              | S 45°32'02" E 123.873'     |                   |
|                |                    |                           | Deflection: 00°00'00" Left |                   |
|                |                    |                           | S 45°32'02" E 40.087'      |                   |
| 11+63.960      | 6892031.023        | 11686324.124              | PC                         |                   |
| Radius:        | 6891888.290        | 11686184.026              | Radius Length: 200.000'    |                   |
| PI:            | 6892023.182        | 11686332.112              | 11+75.152                  | Tangent: 11.193'  |
| Arc Len:       | 22.362'            | Delta: 06°24'23" Right    | Degree: 28°38'52"          |                   |
| Chord Len:     | 22.351'            | Chord Brg: S 42°19'51" E  |                            |                   |
| Radial-In:     | S 44°27'58" W      | Radial-Out: S 50°52'21" W |                            |                   |
| Tangential-In: | Tangential-Out     |                           |                            |                   |
| 11+86.322      | 6892014.499        | 11686339.175              | PT                         |                   |
| 15+19.983      | 6891755.665        | 11686549.731              | PC                         |                   |
| Radius:        | 6891629.455        | 11686394.583              | Radius Length: 200.000'    |                   |
| PI:            | 6891602.808        | 11686674.077              | 17+17.029                  | Tangent: 197.046' |
| Arc Len:       | 311.183'           | Delta: 89°08'51" Right    | Degree: 28°38'52"          |                   |
| Chord Len:     | 280.731'           | Chord Brg: S 05°26'46" W  |                            |                   |
| Radial-In:     | S 50°52'21" W      | Radial-Out: N 39°58'48" W |                            |                   |
| Tangential-In: | Non Tangential-Out |                           |                            |                   |
| 18+31.166      | 6891476.201        | 11686523.087              | PT                         |                   |
| 18+57.081      | 6891459.541        | 11686503.237              | PC                         |                   |
| Radius:        | 6891612.739        | 11686374.685              | Radius Length: 200.000'    |                   |
| PI:            | 6891328.985        | 11686347.675              | 20+60.169                  | Tangent: 203.087' |
| Arc Len:       | 317.223'           | Delta: 90°52'39" Right    | Degree: 28°38'52"          |                   |
| Chord Len:     | 285.001'           | Chord Brg: N 84°33'59" W  |                            |                   |
| Radial-In:     | N 40°00'19" W      | Radial-Out: N 50°52'21" E |                            |                   |
| Tangential-In: | Tangential-Out     |                           |                            |                   |
| 21+74.304      | 6891486.529        | 11686219.517              | PT                         |                   |
|                |                    |                           | N 39°07'39" E 120.071'     |                   |
| 22+94.375      | 6891579.673        | 11686143.746              |                            |                   |
| Total Length:  | 1294.375'          |                           |                            |                   |

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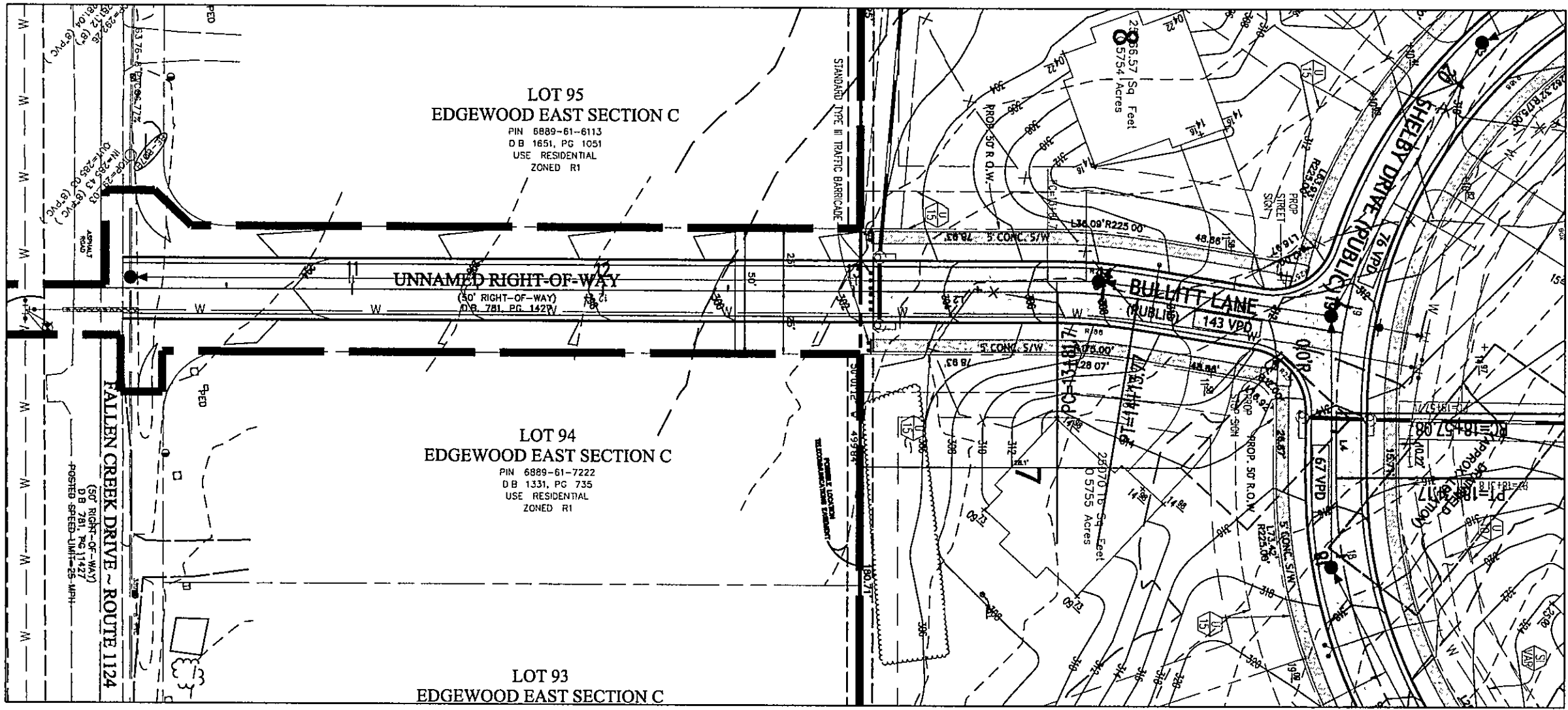
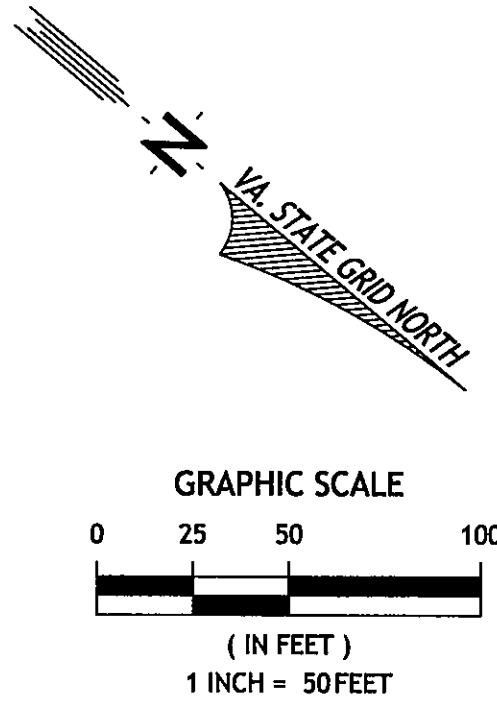
PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: AS NOTED

PLAN DATE  
03/1/2021  
04/20/2021  
05/21/2021  
09/11/2021  
11/29/2021  
04/08/2022  
07/14/2022

ROAD PROFILES - SHELBY DR  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

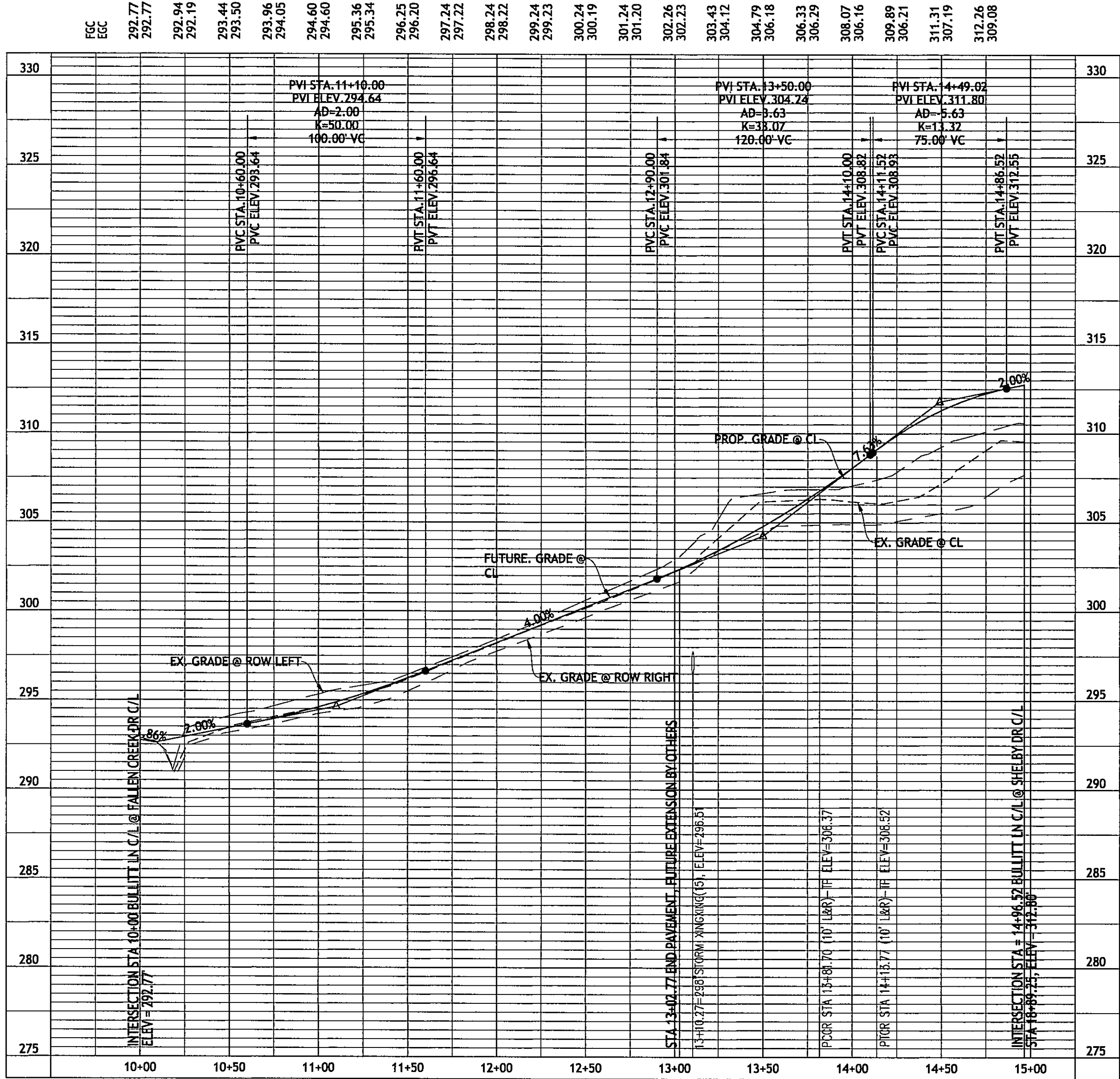
| REVISIONS |      |
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| No.       | DATE |
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|           |      |
|           |      |
|           |      |

SHEET  
**16**  
OF  
**63**



## BULLITT LANE

Public Street (50' ROW TYP.)  
Design Speed = 30 MPH  
Posted Speed = 25 MPH



**LEGEND**

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER METER CROCK
- PROPOSED FIRE HYDRANT
- RIPRAP
- PROPOSED CG-12
- STREET SIGN
- STREET NAME SIGN
- VEHICLES PER DAY

**PAVEMENT HATCH LEGEND**

- PROPOSED PUBLIC ROADWAY
- PROPOSED SIDEWALK

**PROFILE LEGEND**

- EX. GRADE @ RIGHT ROW
- EX. GRADE @ CL
- EX. GRADE @ LEFT ROW
- PROPOSED GRADE @ CL

**GRAPHIC SCALE**

0 2.5 5 10

( IN FEET )

1 INCH = 5 FEET VERTICAL

**GRAPHIC SCALE**

0 25 50 100

( IN FEET )

1 INCH = 50 FEET HORIZONTAL

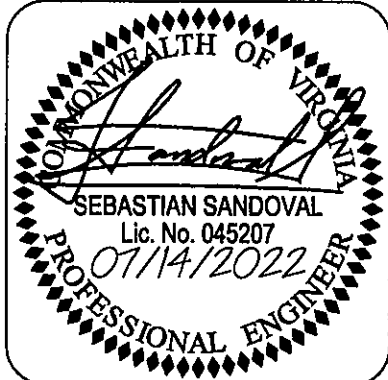
Centerline Report

| Station                | Northing    | Easting      | Bearing                                                   | Distance |
|------------------------|-------------|--------------|-----------------------------------------------------------|----------|
| 10+00.000              | 6891051.239 | 11686783.211 |                                                           |          |
| 13+02.770              | 6891283.241 | 11686588.675 | N 39°58'48" W 302.770'                                    |          |
|                        |             |              | Deflection: 00°00'00" Left                                |          |
|                        |             |              | N 39°58'48" W 78.927'                                     |          |
| 13+81.697              | 6891343.721 | 11686537.962 | PC                                                        |          |
|                        | 6891472.225 | 11686891.215 | Radius Length: 200.000'                                   |          |
|                        | 6891356.037 | 11686527.635 | 13+97.770 Tangent: 16.073'                                |          |
|                        |             |              | Pt                                                        |          |
|                        |             |              | Arc Len: 32.076' Delta: 09°11'21" Right Degree: 28°38'52" |          |
|                        |             |              | Chord Len: 32.042' Chord Brg: N 35°23'08" W               |          |
|                        |             |              | Radial-In: N 50°01'12" E Radial-Out: N 59°12'33" E        |          |
|                        |             |              | Tangential-In, Tangential-Out                             |          |
| 14+13.774              | 6891369.844 | 11686519.407 | PT                                                        |          |
| 14+96.525              | 6891440.930 | 11686477.046 | N 30°47'27" W 82.751'                                     |          |
| Total Length: 496.525' |             |              |                                                           |          |

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PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: AS NOTED

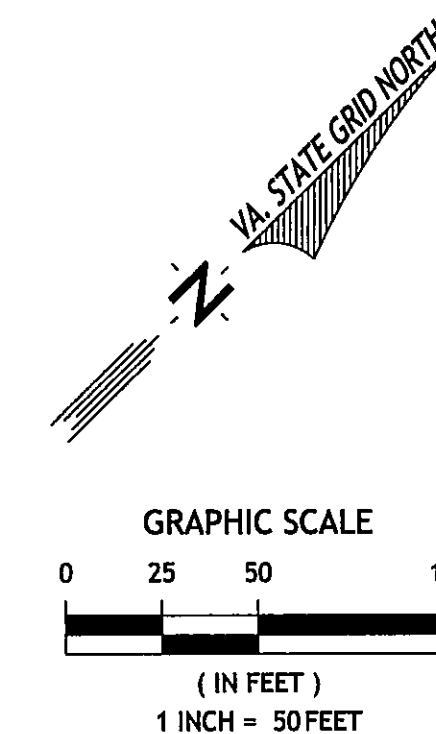
PLAN DATE

|            |            |            |            |            |            |            |
|------------|------------|------------|------------|------------|------------|------------|
| 03/12/2021 | 04/12/2021 | 05/11/2021 | 09/17/2021 | 11/29/2021 | 04/09/2022 | 07/14/2022 |
|------------|------------|------------|------------|------------|------------|------------|

ROAD PROFILES - BULLITT LN  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

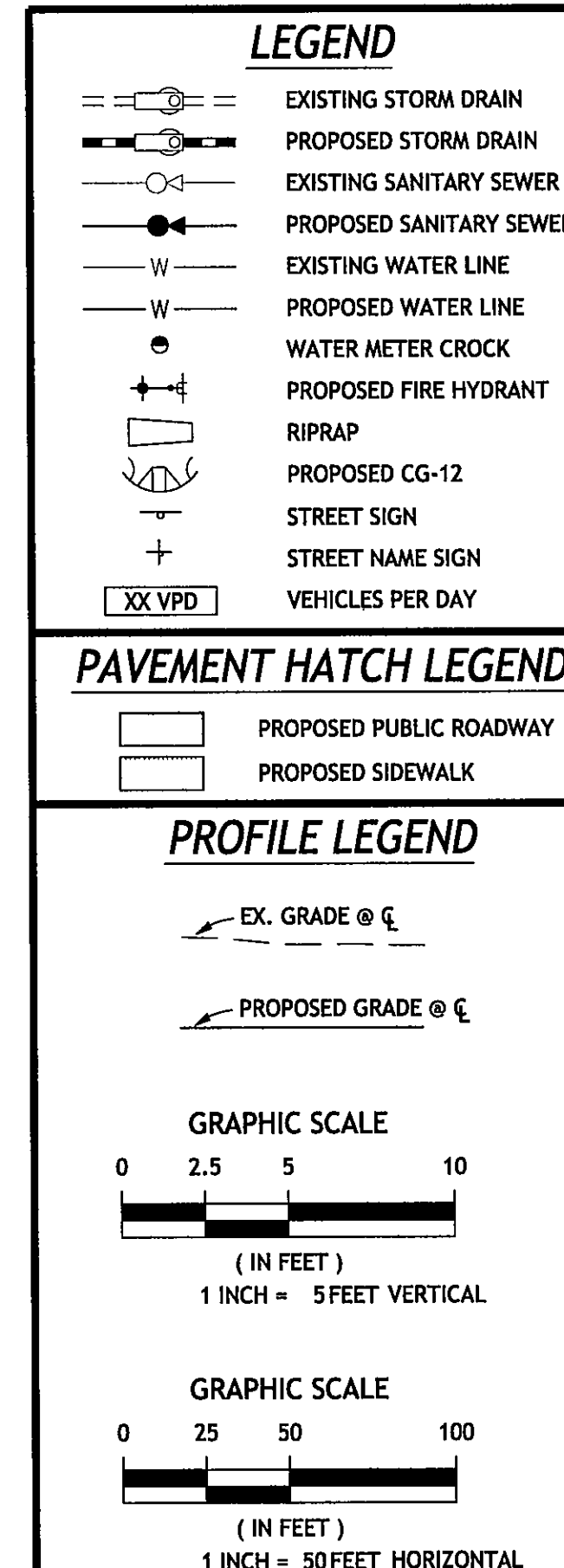
| REVISIONS |      | DESCRIPTION |
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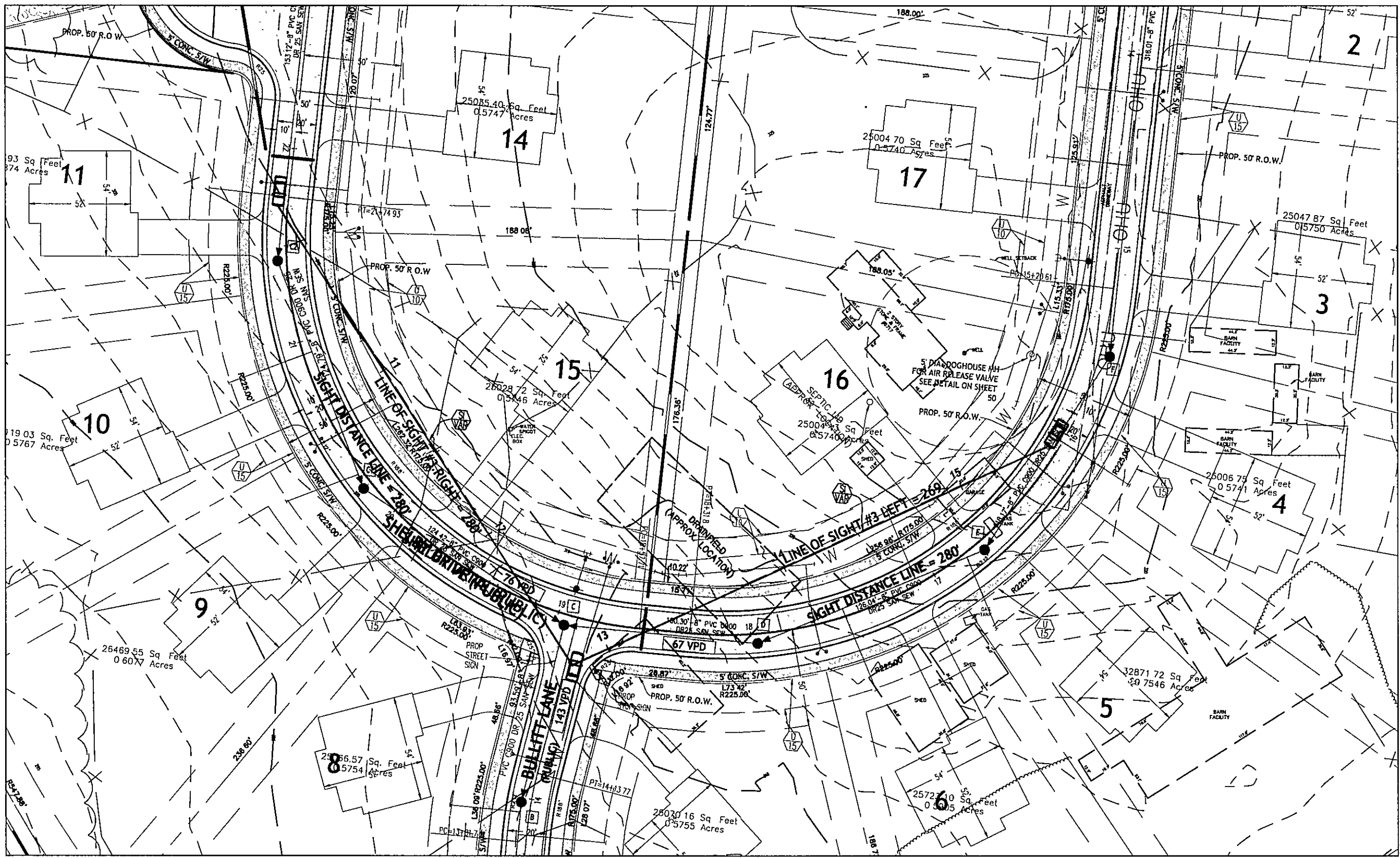
SHEET  
17  
OF  
63



DESIGN SPEED = 45 MPH

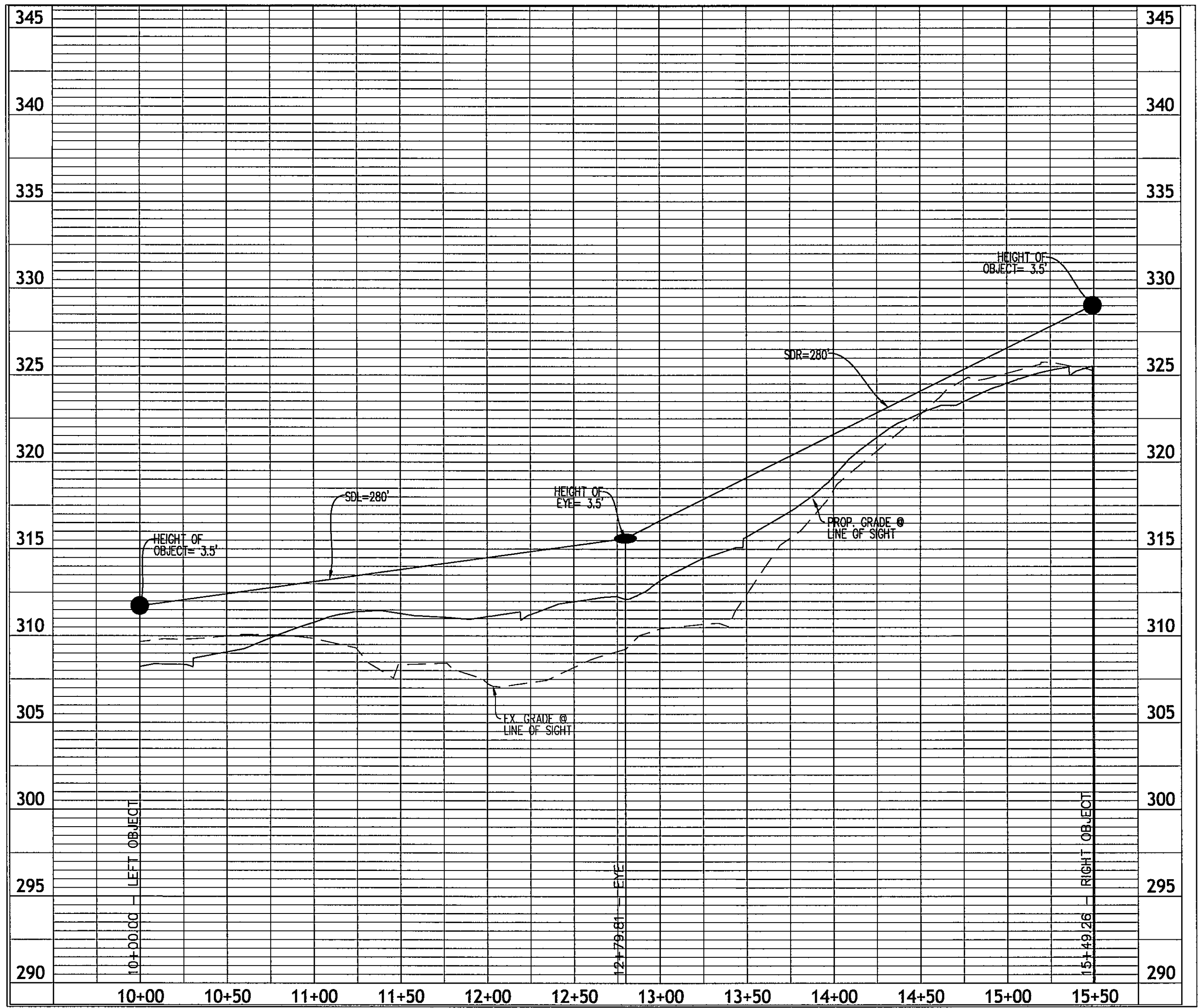
THE EXISTING POSTED SPEED LIMIT ON RTE. 28 (CATLETT ROAD) IS 45 MPH





**SHELBY DRIVE & BULITT LANE**

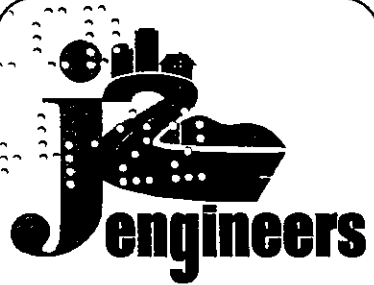
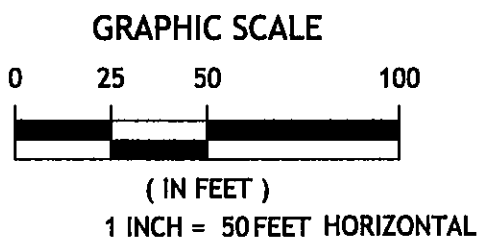
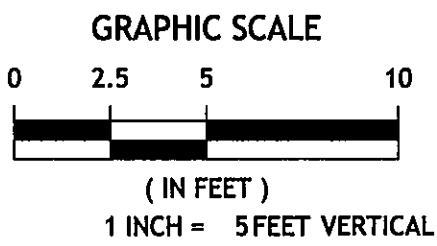
DESIGN SPEED - 25 MPH



- LEGEND**
- EXISTING STORM DRAIN
  - PROPOSED STORM DRAIN
  - EXISTING SANITARY SEWER
  - PROPOSED SANITARY SEWER
  - EXISTING WATER LINE
  - PROPOSED WATER LINE
  - WATER METER CROCK
  - PROPOSED FIRE HYDRANT
  - RIPRAP
  - PROPOSED CG-12
  - STREET SIGN
  - STREET NAME SIGN
  - XX VPD
  - VEHICLES PER DAY

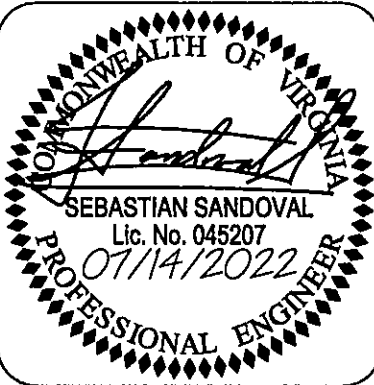
- PAVEMENT HATCH LEGEND**
- PROPOSED PUBLIC ROADWAY
  - PROPOSED SIDEWALK

- PROFILE LEGEND**
- EX. GRADE @ CL
  - PROPOSED GRADE @ CL



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PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: AS NOTED

PLAN DATE  
03/12/2021  
04/02/2021  
05/11/2021  
09/17/2021  
11/29/2021  
04/02/2022  
07/14/2022

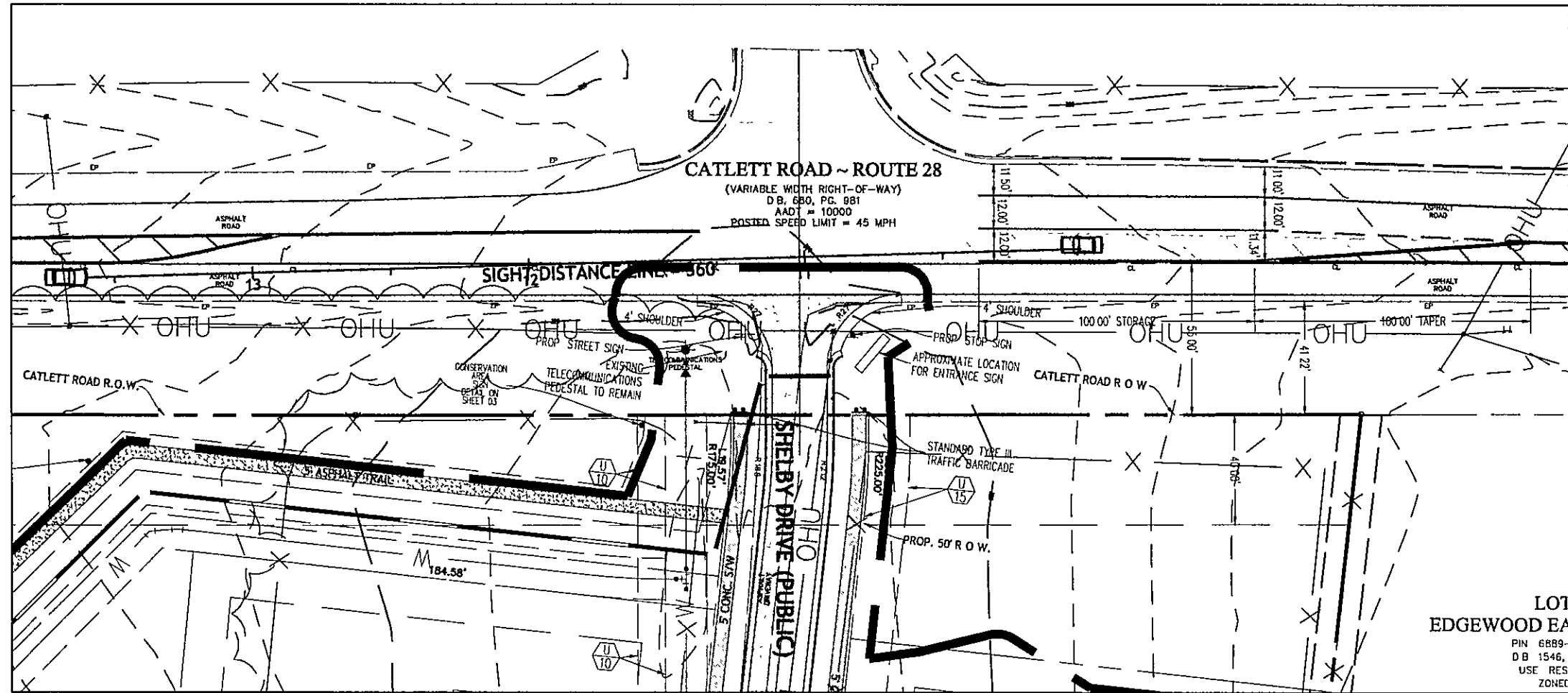
**SIGHT DISTANCE PROFILES**  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |      | DESCRIPTION |
|-----------|------|-------------|
| No.       | DATE |             |
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SHEET

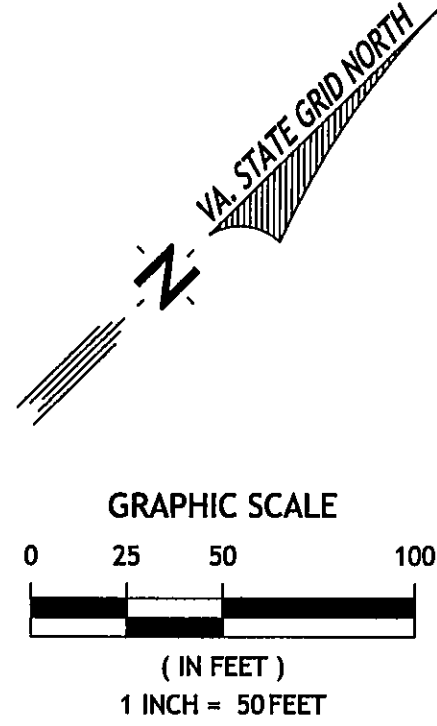
**19**  
OF  
**63**

J2 Engineers - X:\DRAWINGS\ACTIVE\One Catlett Road\2001-SIGHT DISTANCE.dwg [20:14:22] 07/14/2022 - 02:27 am mahdalahamid

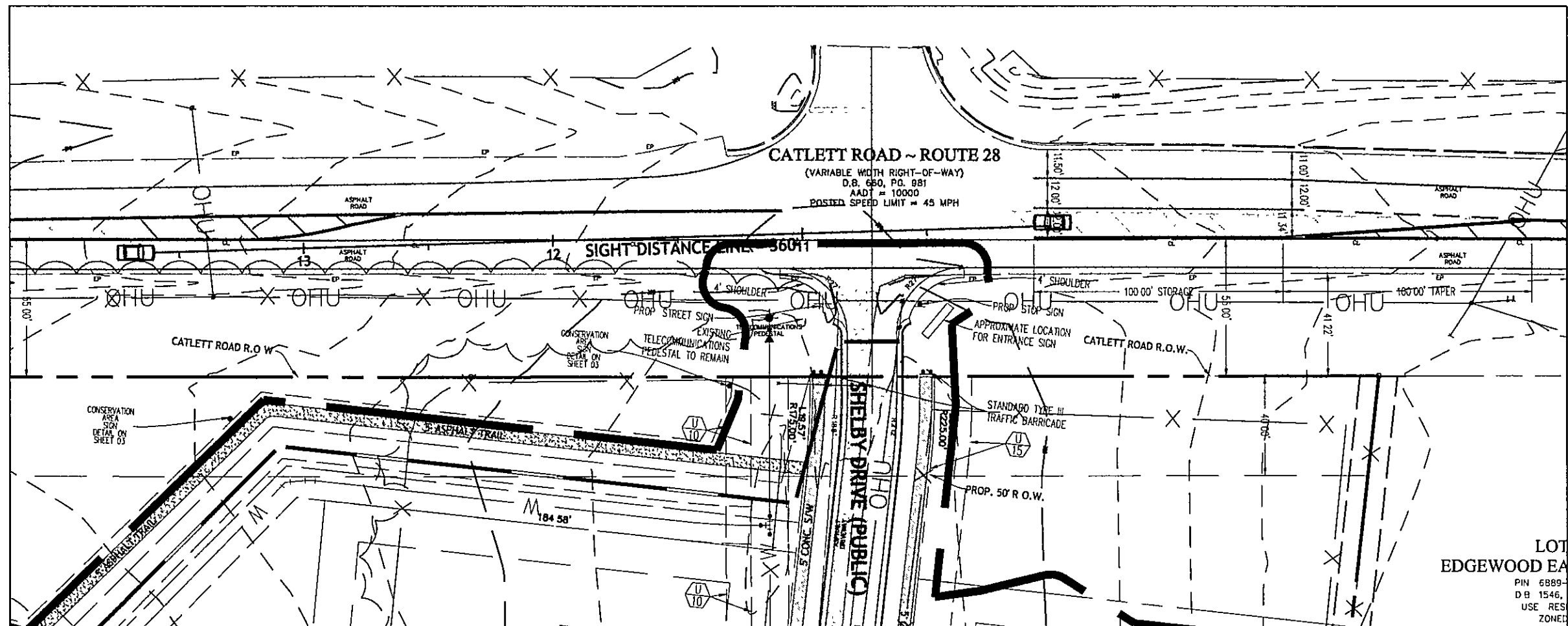


**CATLETT ROAD LEFT TURN  
50' PRIOR TO INTERSECTION**

DESIGN SPEED = 45 MPH

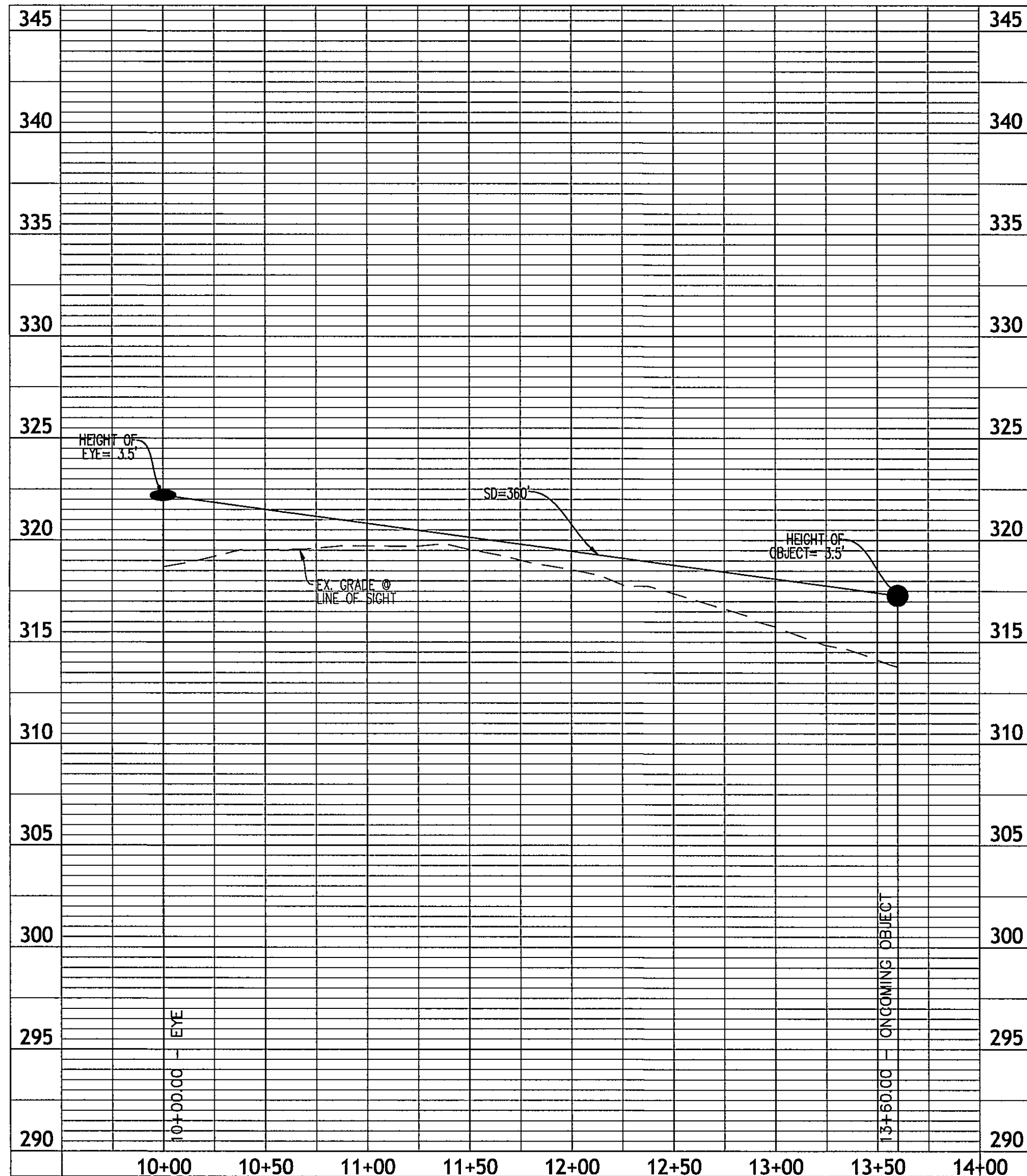


**NOTE:**  
THE EXISTING POSTED SPEED LIMIT ON RTE. 28 (CATLETT ROAD) IS 45 MPH.



**CATLETT ROAD LEFT TURN  
AT INTERSECTION**

DESIGN SPEED = 45 MPH



**LEGEND**

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING WATER LINE
- PROPOSED WATER LINE
- WATER METER CROCK
- PROPOSED FIRE HYDRANT
- RIPRAP
- PROPOSED CG-12
- STREET SIGN
- STREET NAME SIGN
- VEHICLES PER DAY

**PAVEMENT HATCH LEGEND**

- PROPOSED PUBLIC ROADWAY
- PROPOSED SIDEWALK

**PROFILE LEGEND**

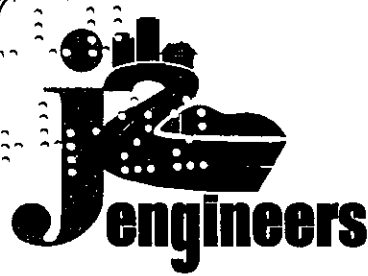
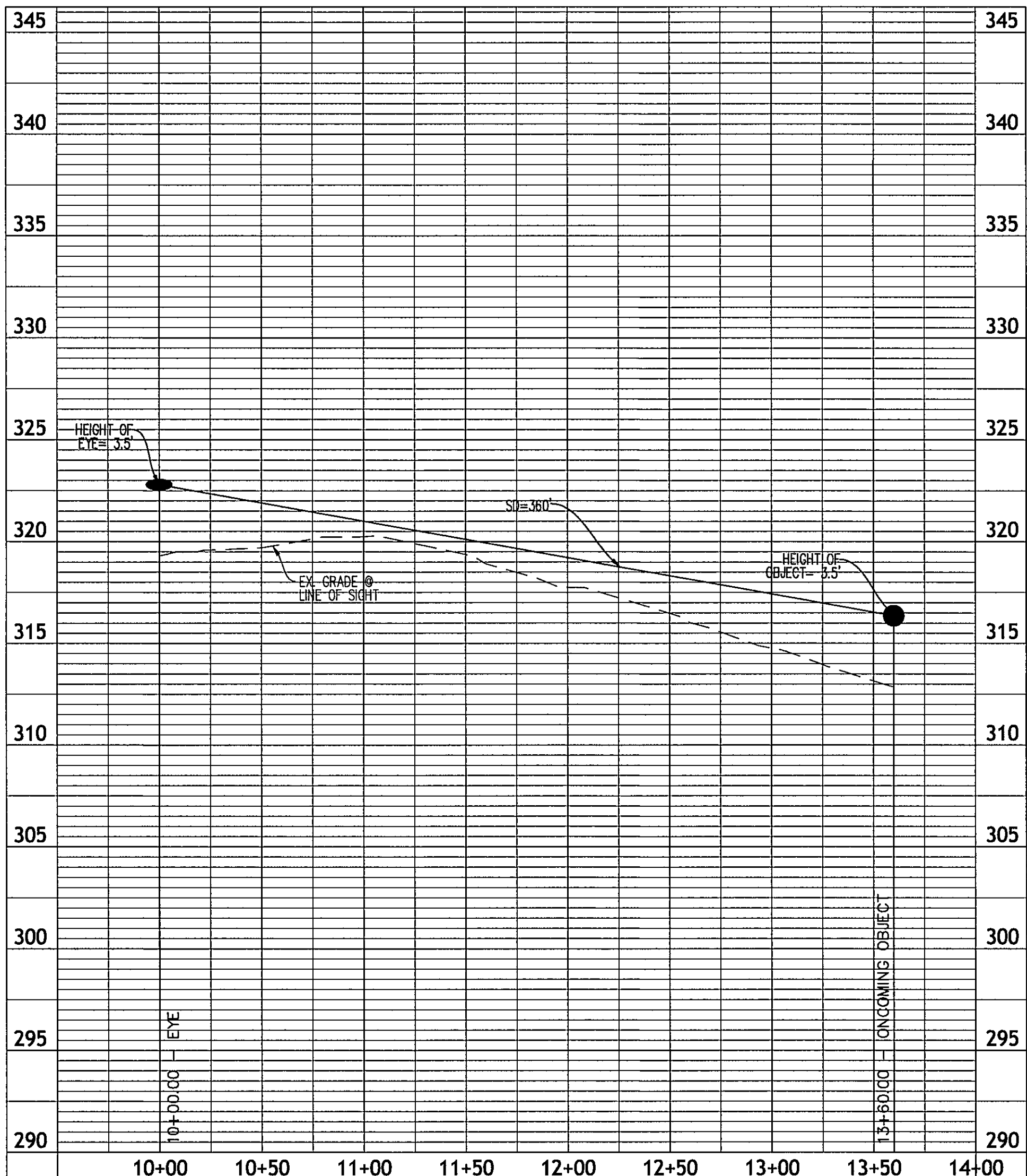
- EX. GRADE @ CL
- PROPOSED GRADE @ CL

**GRAPHIC SCALE**

( IN FEET )  
1 INCH = 5 FEET VERTICAL

**GRAPHIC SCALE**

( IN FEET )  
1 INCH = 50 FEET HORIZONTAL



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PLAN# 002001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: AS NOTED

PLAN DATE  
03/12/2021  
04/02/2021  
05/12/2021  
09/17/2021  
11/29/2021  
04/02/2022  
07/14/2022

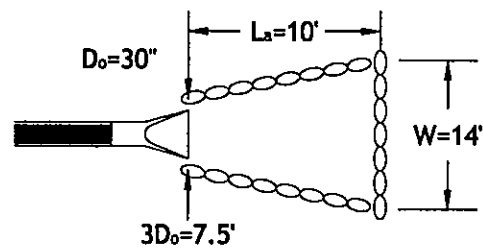
**SIGHT DISTANCE PROFILES  
CONSTRUCTION PLAN  
ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |             |
|-----------|-------------|
| No.       | DESCRIPTION |
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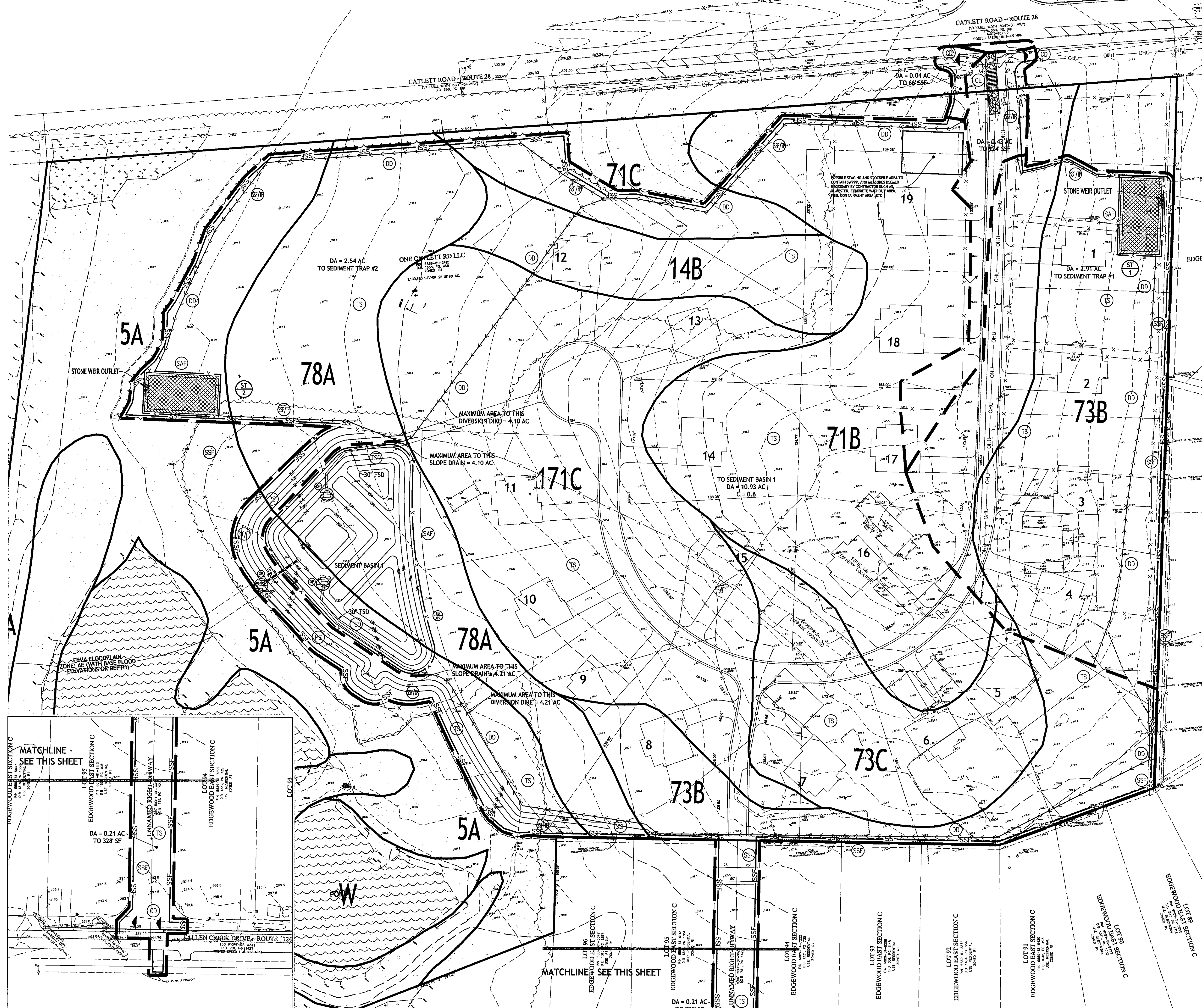
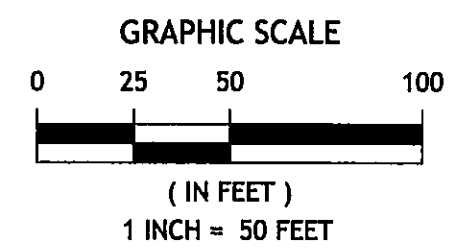
SHEET  
**20**  
OF  
**63**

|      |                                       |          |  |
|------|---------------------------------------|----------|--|
| 3.01 | SAFETY FENCE                          | (SAF)    |  |
| 3.02 | TEMPORARY STONE CONSTRUCTION ENTRANCE | (CE)     |  |
| 3.05 | SUPER SILT FENCE/TREE PROTECTION      | (SSF/TP) |  |
| 3.09 | TEMPORARY DIVERSION DIKE              | (DD)     |  |
| 3.13 | TEMPORARY SEDIMENT TRAP               | (ST)     |  |
| 3.14 | TEMPORARY SEDIMENT BASIN              | (SB)     |  |
| 3.15 | TEMPORARY SLOPE DRAIN                 | (TSD)    |  |
| 3.18 | OUTLET PROTECTION                     | (OP)     |  |
| 3.20 | ROCK CHECK DAMS                       | (CD)     |  |
| 3.31 | TEMPORARY SEEDING                     | (TS)     |  |
| 3.32 | PERMANENT SEEDING                     | (PS)     |  |
|      | SUPER SILT FENCE                      | (SSF)    |  |
|      | LIMITS OF CLEARING                    | (LOC)    |  |
|      | DRAINAGE DIVIDE                       |          |  |
|      | SOILS                                 |          |  |
|      | CONSERVE OPEN SPACE                   |          |  |

Pipe Diameter =  $D_o = 30"$  RCP  
 TW =  $2' > 0.5 D_o = 1.25'$   
 Max. Tailwater Condition  
 $L_s = 10'$   
 $d_{50} = 1.1' \text{ (Class I)}$   
 $d_{50} = 1.6' \text{ (Class II)}$   
 $d_{max} = d_{50} \times 1.5 = 1.65'$   
 Apron Thickness =  $d_{max} \times 1.5 = 2.47'$   
 Minimum Thickness =  $2.5' \text{ (Class I)}$   
 Minimum Thickness =  $3.6' \text{ (Class II)}$



1. THE SEDIMENT BASIN RISER SHALL BE MARKED IN SUCH A WAY TO INDICATE THE CLEANOUT ELEVATION.
2. AREAS WHERE THE LOC IS ADJACENT TO CONSERVATION EASEMENT, PROPER SIGNAGE SHALL BE PLACED TO PREVENT DISTURBANCE.
3. ADVISORY "KEEP OUT" SIGNS WILL BE PLACED AROUND ALL SEDIMENT BASINS.

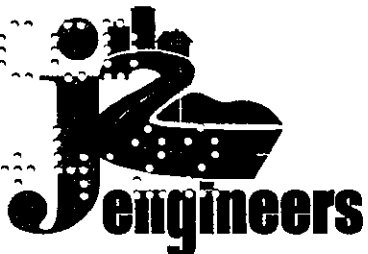


| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

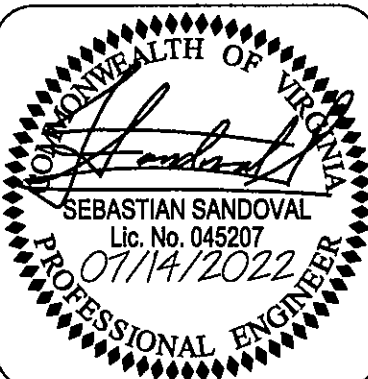
**EROSION & SEDIMENT CONTROL- PHASE I  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA**

[illegible]

SHEET  
21  
OF  
63



J2 Engineers, Inc.  
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703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1"=50'

| PLAN DATE  |
|------------|
| 03/1/2021  |
| 04/20/2021 |
| 05/01/2021 |
| 05/17/2021 |
| 11/29/2021 |
| 04/20/2022 |
| 07/14/2022 |

EROSION & SEDIMENT CONTROL - PHASE II  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| NO. | DATE | DESCRIPTION | REVISIONS |
|-----|------|-------------|-----------|
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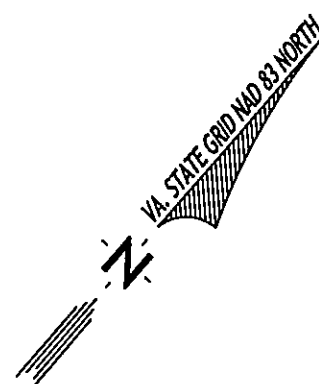
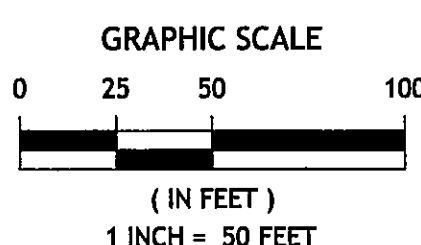
SHEET  
22  
OF  
63

EROSION AND SEDIMENT  
CONTROL LEGEND

|      |                                       |        |  |
|------|---------------------------------------|--------|--|
| 3.02 | TEMPORARY STONE CONSTRUCTION ENTRANCE | CE     |  |
| 3.03 | CONSTRUCTION ROAD STABILIZATION       | CRS    |  |
| 3.05 | SUPER SILT FENCE/TREE PROTECTION      | SSF/TP |  |
| 3.07 | STORM DRAIN INLET PROTECTION          | IP     |  |
| 3.08 | CULVERT INLET PROTECTION              | CIP    |  |
| 3.18 | OUTLET PROTECTION                     | OP     |  |
| 3.19 | RIPRAP                                | RR     |  |
| 3.20 | ROCK CHECK DAMS                       | CD     |  |
| 3.32 | PERMANENT SEEDING                     | PS     |  |
| 3.36 | SOIL STABILIZATION BLANKETS & MATTING | B/M    |  |
|      | SUPER SILT FENCE                      | SSF    |  |
|      | LIMITS OF CLEARING                    | LOC    |  |
|      | DRAINAGE DIVIDE                       |        |  |
|      | CONSERVE OPEN SPACE                   |        |  |

NOTES

1. CONTRACTOR TO KEEP ALL PHASE 1 E&S CONTROLS IN PLACE FOR AS LONG AS POSSIBLE.
2. CONSTRUCTION ROAD STABILIZATION (CRS) WILL CONSIST OF 8" OF 21-A STONE SUBBASE.
3. APPROPRIATE NOTES REGARDING CONVERSION OF THE SEDIMENT BASIN TO A WET POND ARE FOUND AT THE BOTTOM OF SHEET 23
4. AREAS WHERE THE LOC IS ADJACENT TO CONSERVATION EASEMENT, PROPER SIGNAGE SHALL BE PLACED TO PREVENT DISTURBANCE.



J2 Engineers - X:\DRAWINGS\ACTIVITY\Erosion & Sediment Control Narrative\July 14, 2022 - 9:28am\maddalamm2

## 9VAC25-840-40. Minimum Standards.

- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DISTURBED 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 DISTURBED 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.
- 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.
- A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DISTURBED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, NATURE ENOUGH TO SURVIVE, AND WILL INHIBIT EROSION.
- 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 UPLAND LAND DISTURBANCE TAKES PLACE.
- STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
- SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
  - 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.
- SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPOSED 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.
- 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.
  - CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
  - WHenever water seeps from a slope face, adequate drainage or other protection shall be provided.
  - ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LOADED WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
  - BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTFLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
- 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.
- WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STEW CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
- ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
- THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
- UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
  - NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
  - EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
  - EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
  - MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
  - RESTALLIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.
  - APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.
- WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PREVISIONS 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 IMMEDIATELY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SWEEPING 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.
- 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.
- 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.
  - 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.
  - ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
    - THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS 100 TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION;
    - (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 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
    - (C) 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.
  - IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
    - 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;
    - IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
    - 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
    - PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.
  - THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
  - ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.
  - 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.
  - 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 SITE TO THE RECEIVING CHANNEL.
  - ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
  - INCREASED VOLUMES OF SHEET FLOODS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTFLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
  - 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 HYDROLOGIC CALCULATIONS.
  - 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.
  - 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 PROVISIONS ARE DESIGNED TO (I) DETAIN THE WATER QUANTITY 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 MULCHIFICATION 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 SET FORTH IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15.54 OR 62.1-44.15.65 OF THE ACT.
  - 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 (I) ARE IN ACCORDANCE WITH PROVISIONS FOR THE LIMITS ON APPLICATION OF APPROVED DESIGN CRITERIA IN 9VAC25-840-47 OR GRADUATING IN 9VAC25-840-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION, IN WHICH CASE THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15.52 A OF THE ACT SHALL APPLY, OR (II) ARE EXEMPT PURSUANT TO § 62.1-44.15.34 C 7 OF THE ACT.
  - COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF THIS SUBSECTION 19.

### PROJECT DESCRIPTION:

THE SUBJECT SITE IS LOCATED ALONG CATLETT ROAD IN BEALETON, VA. THIS PROJECT PROPOSES TO DEVELOP A 26.15 ACRE AREA INTO 19 SINGLE FAMILY HOMES. THIS INVOLVES SEVERAL NEW ROADS THROUGH THE SITE. THE DISTURBED ACREAGE IS 18.50 ACRES WITH 13.30 ACRES OF PERMANENT SEEDING. ALL UNDERGROUND UTILITIES WILL BE PROPOSED WITH THIS SITE.

### EXISTING SITE CONDITIONS:

THE EXISTING SITE CONSISTS OF A FARM HOUSE WITH SEVERAL BARN FACILITIES, FENCING AND VARIOUS TREES GROWING THROUGHOUT. THE SITE GENERALLY SLOPES DOWNWARDS TO THE SOUTH, TOWARDS TWO EXISTING PONDS. WETLANDS EXIST ON THE SITE TOWARDS THE SOUTHERN CORNER AND ACT AS A NATURAL DRAINAGE LOCATION FOR THE SITE.

### ADJACENT AREAS:

TO THE EAST AND SOUTH OF THE SITE ARE RESIDENTIAL PARCELS AND TO THE WEST OF THE SITE IS CATLETT ROAD.

### OFF-SITE AREAS:

NO OFFSITE AREAS ARE PROPOSED TO BE IMPACTED WITH THIS PLAN. IF SOIL MATERIAL IS TO BE TRANSPORTED OFFSITE, IT SHALL BE INCLUDED AS PART OF THE CONSTRUCTION GENERAL PERMIT AND NOTED IN THE STORMWATER POLLUTION PREVENTION PLAN. IF SOIL MATERIAL IS TRANSPORTED OFFSITE WITHOUT UPDATING THE CONSTRUCTION GENERAL PERMIT, THE SITE WILL BE CONSIDERED IN VIOLATION AND A NOTICE TO COMPLY OR STOP WORK ORDER WILL BE ISSUED.

### SOILS:

ALL SOILS INFORMATION IS PROVIDED IN THE SOILS MAP ON SHEETS 08-09.

### CRITICAL AREAS:

THERE ARE TWO EXISTING WET PONDS LOCATED ON THE PARCEL BUT NOT WITHIN THE DISTURBED SITE. SLOPES UP TO 25% EXIST ON THE SITE.

### PROPOSED TREE SAVE AREA:

ANY TREE OUTSIDE THE LIMITS OF CLEARING AND GRADING SHALL REMAIN UNDISTURBED UNLESS DIRECTLY INSTRUCTED BY THE COUNTY INSPECTOR.

### STORMWATER:

STORMWATER MANAGEMENT FOR THIS PROJECT HAS BEEN PROVIDED WITH THIS PLAN IN THE FORM OF A (ONE) POND, SEE SHEETS 26 - 35.

### SEDIMENT AND EROSION CONTROL PROGRAM:

THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS TO MINIMIZE THE VOLUME OF SILT:

- CONTRACTOR SHALL EVALUATE THE SITE TO DETERMINE EXTENSIVE CUT AND FILL AREAS, AND SHALL WORK THESE AREAS TO MINIMIZE THE EXTENT OF HEAVY EQUIPMENT WORK. CONTRACTOR SHALL STRIVE TO BRING AREAS TO GRADE (ROUGH OR FINISH) AND TO STABILIZE, BY TEMPORARY OR PERMANENT VEGETATION, THESE DISTURBED AREAS PRIOR TO BEGINNING WORK IN ANOTHER AREA.
- FILL AREAS SHALL BE COMPACTED, COMPLETELY PRIOR TO THE END OF EACH WORK DAY. FILL SLOPE SURFACES SHALL BE LEFT ROUGHENED TO REDUCE SHEET EROSION OF THE SLOPES. CONTRACTOR SHALL RED-DIRECT CONCENTRATED RUNOFF, BY EARTH BERMS OR OTHER DEVICES, AROUND ACTIVELY DISTURBED AREAS TO STABILIZE OUTFLETS.
- CUT SLOPE AS NECESSARY, SHALL BE PROTECTED FROM CONCENTRATED FLOW BY BERMS ABOVE THE SLOPE AND DIRECTED AROUND THE DISTURBED AREA TO STABILIZED OUTFLETS.
- IN NEW PAVEMENT AREAS, PLACE THE AGGREGATE BASE STONE ON THE FINISH SUBGRADE AT THE EARLIEST POSSIBLE TIME.

### PHASE 1:

- INSTALL THE TEMPORARY CONSTRUCTION ENTRANCE WITH WASH RACKS AS SHOWN ON SHEET 21. WATER TRUCKS SHALL BE USED IF THERE IS NO ON-SITE WATER AVAILABLE. PROVIDE FILTER FABRIC UNDERLAIN. MUD AND DEBRIS SHALL BE WASHED FROM ALL CONSTRUCTION VEHICLES AND EQUIPMENT BEFORE LEAVING THE SITE. ANY MUD OR SILT CARRIED INTO THE STREET AFTER WASHING SHALL BE IMMEDIATELY REMOVED. CLEAR AND GRUB ALONG THE PERIMETER OF LIMITS OF CLEARING AND GRADING. INSTALL THE SEDIMENT BASINS AND PERIMETER CONTROLS IN THE FORM OF SILT FENCE, SUPER SILT FENCE, AND DIVERSION DIKES. INLET PROTECTION WILL BE PLACED AT NEARBY EXISTING INLETS AS SHOWN ON SHEET 21.
- IMMEDIATELY STABILIZE DIVERSION DIKES, SEDIMENT BASINS, AND SEDIMENT TRAPS.
- ONCE THE ABOVE STEPS HAVE BEEN COMPLETED, THE CONTRACTOR SHALL CONTACT THE COUNTY E&S INSPECTOR TO INSPECT THE SITE. NO FURTHER CONSTRUCTION ACTIVITY SHALL COMMENCE UNTIL THE COUNTY INSPECTOR HAS PERFORMED THE SITE INSPECTION.

### PHASE II:

- BEFORE REMOVAL OF EXISTING FEATURES IN ACCORDANCE WITH DEMOLITION PLAN ON SHEET 07.
- INLET PROTECTION FOR STORM INLETS SHALL BE PLACED AS SOON AS THE INLETS ARE INSTALLED.
- FILL SLOPE SURFACES SHALL BE LEFT IN A ROUGHENED CONDITION AND SEEDED AS SPECIFIED ON SHEETS 22 & 24.
- INSTALL THE PROPOSED STORM DRAINS CONCURRENTLY WITH NEW CURB AND GUTTER.
- INSTALL PAVEMENT SUBBASE AND AN INTERMEDIATE COURSE.
- INSTALL PAVEMENT TOP COURSE AND PROPOSED SIDEWALKS.
- THE CONSTRUCTION ENTRANCE SHALL BE REMOVED WHEN FINAL PAVING IS COMPLETED AND APPROVED BY THE COUNTY INSPECTOR.
- SILT FENCE AND CONSTRUCTION ENTRANCES ARE REQUIRED FOR EACH LOT DURING HOME CONSTRUCTIONS.
- COMPLETE FINAL MISCELLANEOUS SITE ITEMS INCLUDING PAVEMENT STRIPS, ETC.
- AFTER CONSTRUCTION OPERATIONS HAVE ENDED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED WITH VEGETATION, THE EROSION AND SEDIMENT CONTROL MEASURES MAY BE REMOVED UPON THE APPROVAL OF THE COUNTY E&S INSPECTOR.

### E&S MEASURES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE HANDBOOK. THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

### STRUCTURAL PRACTICES & MAINTENANCE:

#### SAFETY FENCE- 3.01

A FENCE INSTALLED TO PROTECT ACCESS TO EROSION CONTROL MEASURES.

#### MAINTENANCE:

- SAFETY FENCE SHALL BE CHECKED REGULARLY FOR WEATHER RELATED OR OTHER DAMAGE. ANY NECESSARY REPAIRS MUST BE MADE IMMEDIATELY.
- CARE SHOULD BE TAKEN TO SECURE ALL ACCESS POINTS (GATES) AT THE END OF EACH WORKING DAY. ALL LOCKING DEVICES MUST BE REPAIRED OR REPLACED AS NECESSARY.

#### TEMPORARY CONSTRUCTION ENTRANCE- 3.02

A GRAVEL PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE TO REDUCE THE MUD TRANSPORTED ONTO PUBLIC ROADS AND OTHER PAVED AREAS.

#### MAINTENANCE:

- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

#### SILT FENCE- 3.03

A TEMPORARY BARRIER CONSISTING OF A SYNTHETIC FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED.

#### MAINTENANCE:

- SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.
- SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH EXISTING GRADE, PREPARED AND SEEDED.

#### SUPER SILT FENCE:

A TEMPORARY BARRIER CONSISTING OF A SYNTHETIC FABRIC STRETCHED ACROSS AND ATTACHED TO METAL SUPPORTING POSTS, BACKED WITH CHAINLINK FENCING, AND ENTRENCHED.

#### MAINTENANCE:

- SUPER SILT FENCE SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SUPER SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING.
- SHOULD THE FABRIC ON A SUPER SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SUPER SILT FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH EXISTING GRADE, PREPARED AND SEEDED.

#### STORM DRAIN INLET PROTECTION- 3.07

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DRIP INLET OR CURB INLET.

#### MAINTENANCE:

- THE 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 THE IMPOUNDMENT RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS.
- TEMPORARY STRUCTURES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE , BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

#### DIVERSION DIKE- 3.08

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, OUTFLET OR SEDIMENT TRAPPING FACILITY, AS NECESSARY. ONCE EVERY TWO WEEKS, WHETHER A STORM EVENT 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.

#### SEDIMENT TRAP - 3.13

TEMPORARY PONDING AREAS WILL BE FORMED BY CONSTRUCTING AN EARTHEN EMBANKMENT WITH A STONE OUTFLET. SPECIFIC DETAILS OF THE SEDIMENT TRAPS ARE SHOWN ON THE PLAN SHEETS.

#### 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 REMOVAL 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 ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CLOGGED 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 OUTFLET SHOULD BE CHECKED TO ENSURE THAT ITS CENTER IS AT LEAST 1 FOOT BELOW THE TOP OF THE EMBANKMENT.

#### SEDIMENT BASIN - 3.14

A TEMPORARY BARRIER OR DAM WITH A CONTROLLED STORMWATER RELEASE STRUCTURE FORMED BY CONSTRUCTING AN EMBANKMENT OF COMPACTED SOIL ALONG A DRAINAGEWAY. SEDIMENT BASIN WILL USE A CONCRETE CRADLE AND DRAINAGE BLANKET AS SHOWN ON SHEET 30. CLEANOUT ELEVATION WILL BE MARKED ON RISER STRUCTURE.

#### MAINTENANCE:

- THE BASIN EMBANKMENT SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT.
- THE BASIN SHOULD BE CHECKED AFTER EACH RUNOFF-PRODUCING RAINFALL FOR SEDIMENT CLEANOUT. WHEN THE SEDIMENT REACHES THE CLEAN-OUT LEVEL, IT SHALL BE REMOVED AND PROPERLY DISPOSED OF.

#### TEMPORARY SLOPE DRAIN - 3.15

A FLEXIBLE TURNING OR CONDUIT EXTENDING TO BE PLACED FROM THE TOP TO THE BOTTOM OF A CUT OR FILL SLOPE, TO TEMPORARILY CONDUCT CONCENTRATED STORMWATER RUNOFF SAFELY DOWN THE FACE OF A CUT OR FILL SLOPE WITHOUT CAUSING EROSION ON OR BELOW THE SLOPE.

#### MAINTENANCE:

- THE SLOPE DRAIN STRUCTURE SHALL BE INSPECTED WEEKLY AFTER EVERY STORM, AND REPAIRS MADE IF NECESSARY. THE CONTRACTOR SHOULD AVOID THE PLACEMENT OF ANY MATERIAL ON AND PREVENT CONSTRUCTIONS TRAFFIC ACROSS THE SLOPE DRAIN.

#### OUTLET PROTECTION - 3.18

STRUCTURALLY LINED APPONS OR OTHER ACCEPTABLE ENERGY DISSIPATING DEVICES PLACED AT THE OUTFLETS OF PIPES OR PAVED CHANNEL SECTIONS.STRUCTURAL PRACTICES

## EROSION & SEDIMENT CONTROL NARRATIVE

### RRRAP - 3.19

A PERMANENT, EROSION-RESISTANT GROUND COVER OF LARGE LOOSE, ANGULAR STONE WITH FILTER FABRIC OR GRANULAR UNDERLAINING.

### MAINTENANCE:

- ONCE A RRRAP INSTALLATION HAS BEEN COMPLETED, IT SHOULD REQUIRE VERY LITTLE MAINTENANCE. IT SHOULD, HOWEVER, BE INSPECTED PERIODICALLY TO DETERMINE IF HIGH FLOWS HAVE CAUSED SCOUR BENEATH THE RRRAP OR FILTER FABRIC OR DISLODGED ANY OF THE STONE. CARE MUST BE TAKEN TO PROPERLY CONTROL SEDIMENT-LOADED CONSTRUCTION RUNOFF WHICH MAY DRAIN TO THE POINT OF THE NEW INSTALLATION. IF REPAIRS ARE NEEDED, THEY SHOULD BE ACCOMPLISHED IMMEDIATELY.

### ROCK CHECK DAMS - 3.20

SMALL TEMPORARY STONE DAMS CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH.

### MAINTENANCE:

- CHECK DAMS SHOULD BE CHECKED FOR SEDIMENT ACCUMULATION AFTER EACH RUNOFF-PRODUCING STORM EVENT. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES ONE HALF OF THE ORIGINAL HEIGHT OF THE MEASURE.
- REGULAR INSPECTIONS 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.

### VEGETATIVE PRACTICES:

#### TOPSOILING - 3.30

TOPSOIL WILL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. TOPSOIL OPERATIONS SHOULD NOT BE PERFORMED WHEN THE SOIL IS WET OR FROZEN. STRIPPING SHALL BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA. A 4-10 6-INCH STRIPPING DEPTH SHALL BE PROVIDED. ALL PERIMETER DIKES, BASINS, AND OTHER SEDIMENT CONTROLS SHALL BE IN PLACE PRIOR TO STRIPPING. TOPSOIL SHALL BE STOCKPILED IN SUCH A MANNER THAT NATURAL DRAINAGE IS NOT OBSTRUCTED AND NO OFF-SITE SEDIMENT DAMAGE SHALL RESULT. STABILIZE OR PROTECT STOCKPILES IN ACCORDANCE WITH MS #2. PERIMETER CONTROLS MUST BE PLACED AROUND THE STOCKPILE IMMEDIATELY. STOCKPILE LOCATIONS SHALL BE LOCATED ON-SITE AND ARE TO BE STABILIZED WITH TEMPORARY VEGETATION WITHIN 7 DAYS OF THE FORMATION OF THE STOCKPILE, IN ACCORDANCE WITH STD. & SPEC. 3.31, TEMPORARY SEEDING IF IT IS TO REMAIN DORMANT FOR LONGER THAN 14 DAYS (REFER TO MS #1 AND MS #2).

PRIOR TO LAND-DISTURBING ACTIVITIES, THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY E&S PLAN TO THE OWNER COVERING ANY OFF-SITES/STOCKPILE AREA WHICH WOULD HAVE TO BE APPROVED BY THE PLAN APPROVING AUTHORITY BEFORE ANY OFF-SITE ACTIVITY COMMENCES. ANY OFFSITE WORK MUST BE CONDUCTED AT A SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED E&S PLAN.

TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION, WHEN TOPSOIL OR SUBGRADE IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SODDING OR SEEDING. THE TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED TO A MINIMUM COMPACTED DEPTH OF 2 INCHES ON 3:1 OR STEEPER SLOPES AND 4 INCHES ON FLATTER SLOPES. (SEE TABLE 3.30-A TO DETERMINE VOLUME OF TOPSOIL REQUIRED FOR APPLICATION TO VARIOUS DEPTHS). ANY IRREGULARITIES IN THE SURFACE, RESULTING FROM TOPSOILING OR OTHER OPERATIONS, SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.

#### TEMPORARY SEEDING - 3.31

ALL DISTURBED AREAS, WHICH WILL BE LEFT DORMANT FOR EXTENDED PERIODS OF TIME, SHALL BE SEEDDED WITH FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING. SELECTION OF THE SEED MIXTURE WILL DEPEND ON THE TIME OF YEAR IT IS APPLIED. (SEE SHEET 24 FOR SEEDING SCHEDULES AND RATES)

#### PERMANENT SEEDING - 3.32

ESTABLISHMENT OF PERENNIAL VEGETATIVE COVER BY PLANTING SEED ON ROUGH GRADING AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE OR WHERE PERMANENT, LONG LIVED VEGETATIVE COVER IS NEEDED ON FINE GRADING AREAS. (SEE SHEET 24 FOR SEEDING SCHEDULES AND RATES)

#### EROSION CONTROL BLANKET - 3.36 OR MULCH - 3.35

EROSION CONTROL BLANKETS WILL BE INSTALLED OVER FILL SLOPES, WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDDED TO PROTECT THE SLOPES FROM RILL AND GULLY EROSION AND TO ALLOW SEED TO GERMINATE PROPERLY. MULCH (STRAW OR FIBER) WILL BE USED ON RELATIVELY FLAT AREAS AND WILL BE APPLIED AS A SECOND STEP IN THE SEEDING OPERATION. (SEE SHEET 24 FOR MULCHING RATES, TABLE 3.35-A )

#### SPECIAL CARE NOTES:

THE CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT THE EXISTING VEGETATION, WETLANDS AND STREAMS OUTSIDE OF THE DESIGNATED LIMITS OF WORK SHOWN ON THE PLANS. WHEN WORK IS PERFORMED IN/NEAR STREAMS AND WETLANDS, 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 MATERIALS. THE BED AND BANKS OF THE STREAM AND WETLANDS SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN/NEAR THESE LOCATIONS IS COMPLETED.

#### MANAGEMENT STRATEGIES:

- CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
- TEMPORARY SEEDING OR OTHER STABILIZATION WILL FOLLOW IMMEDIATELY AFTER GRADING.
- AREAS WHICH ARE NOT TO BE DISTURBED WILL BE CLEARLY MARKED BY FLAGS, SIGNS, ETC.
- THE JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
- AFTER ACHIEVING ADEQUATE STABILIZATION, THE TEMPORARY E&S CONTROLS WILL BE CLEANED UP AND REMOVED.
- IF ON-SITE WATER IS NOT AVAILABLE, WATER TRUCKS SHALL BE PRESENT ON-SITE.
- THE E&S INSPECTOR HAS THE AUTHORITY TO ADD OR DELETE E&S CONTROL AS NECESSARY IN THE FIELD AS SITE CONDITIONS CHANGE. IN ADDITION, NO SEDIMENT BASIN OR TRAP CAN BE REMOVED WITHOUT WRITTEN AUTHORIZATION.

#### PERMANENT STABILIZATION:

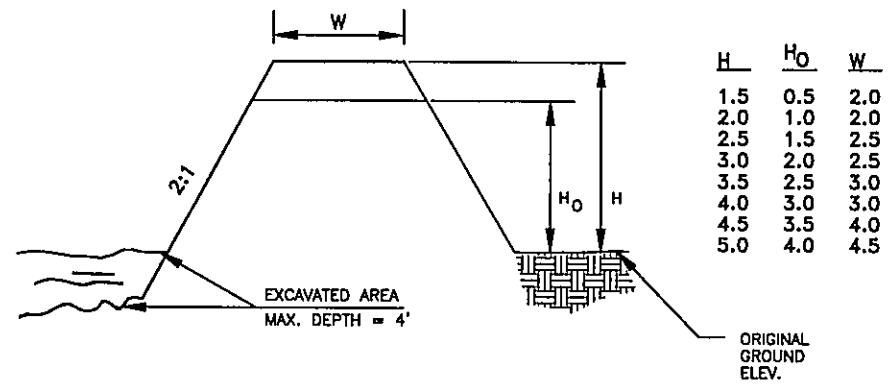
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISH GRADING. SEEDING SHALL BE DONE WITH A SITE SPECIFIC SEED, AS BASED ON TIME OF CONSTRUCTION AND AVAILABILITY, ACCORDING TO STD. & SPEC. 3.32. PERMANENT SEEDING OF THE HANDBOOK (SEE SHEET 24). EROSION CONTROL BLANKETS WILL BE INSTALLED OVER FULL STEEP SLOPES WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDDED TO PROTECT THE SLOPES FROM RILL AND GULLY EROSION AND TO ALLOW SEED TO GERMINATE PROPERLY. MULCH (STRAW OR FIBER) WILL BE USED ON RELATIVELY FLAT



SEDIMENT TRAP CALCULATIONS

|   |     |          |          | WET STORAGE |      |         |         | DRY STORAGE |     |      |         |         |         |     |        |        |        |        |   |                     |  |  |  |  |  |  |  |
|---|-----|----------|----------|-------------|------|---------|---------|-------------|-----|------|---------|---------|---------|-----|--------|--------|--------|--------|---|---------------------|--|--|--|--|--|--|--|
|   |     |          |          |             |      |         |         |             |     |      |         |         |         |     |        |        |        |        |   |                     |  |  |  |  |  |  |  |
| 1 | 291 | 10528.38 | 10807.00 | 2           | 3200 | 5440.00 | 5264.19 | 40 X 80     | 1.5 | 3966 | 5367.00 | 5264.19 | 46 x 86 | 3.5 | 311.00 | 313.00 | 314.50 | 316.00 | 2 | 17.46 GRAVEL OUTLET |  |  |  |  |  |  |  |
| 2 | 254 | 9189.72  | 9781.60  | 2           | 2888 | 4909.60 | 4594.86 | 38 X 76     | 1.5 | 3608 | 4872.00 | 4594.86 | 44 x 82 | 3.5 | 293.50 | 295.50 | 297.00 | 298.50 | 2 | 15.24 GRAVEL OUTLET |  |  |  |  |  |  |  |

MINIMUM TOP WIDTH (W)  
REQUIRED FOR SEDIMENT  
TRAP EMBANKMENTS  
ACCORDING TO HEIGHT OF  
EMBANKMENT (FEET)



SOURCE: VA. DSWC

PLATE 3.13-1

Project Name: ONE CATLETT ROAD  
Basin # 1  
Total Area Draining to Basin: 10.93 (Ac)

Basin Volume Design

WET STORAGE:

1. Minimum required volume = 67 Cu.Yds. \* Total Drainage Area = 732 cu.yds.
2. Available basin volume (Cu.Yds) = 892 @ elevation = 294.00 ft.
3. Minimum required volume before cleanout required = (34 Cu.Yds \* Area) = 372 cu.yds.
4. Available basin volume (Cu.Yds) = 410 @ elevation = 293.00 ft.
5. Distance from invert of the dewatering orifice to cleanout level = 1 ft.

DRY STORAGE:

1. Minimum required volume (Cu.Yds) = (67 Cu.Yds. \* Total Drainage Area) = 732 cu.yds.
2. Total available basin volume at crest of riser (Cu.Yds) = 1593 @ Elev = 295.50 ft.
3. Diameter of Dewatering Orifice:
  - Dry Storage in Cubic Feet = 19772 cf
  - Q = S / 21,600 sec. = 0.915
  - H = (Dry Elev. - Wet Elev.) = 2.5 ft.
  - A = Q / ((64.32/H<sup>2</sup>)\*0.6) = 0.170 sq. ft.
  - D = 2 \* (A / 3.14)<sup>0.5</sup> = 5.587 in.
4. Diameter of Flexible tubing = 8 in.

Use = 6 inch.

BASIN SHAPE:

1. Length of Flow, L = 170 ft.
2. Surface area of the normal pool, A = 10,817 sq. ft.
3. Effective Width, We = (A / L) = 63.629 ft.
4. Check if need of Baffles, (L / We) = 2.672 **BAFFLES NOT REQUIRED**
- With BAFFLE
1. Length of Flow, L = 170 ft.
2. Effective Width, We = (A / L) = 63.629 ft.
3. Check if Design works, (L / We) = 2.672

PRINCIPAL SPILLWAY DESIGN:

1. With Emergency spillway, Required spillway capacity, Q<sub>25</sub> = 32.83 cfs
2. Without Emergency spillway, Q<sub>25</sub> (riser and barrel req') = 48.89 cfs
3. Riser Diameter (in.) = 48 - Actual head (ft.) = 1 (from Plate 3.14-8) Note: Avoid orifice flow conditions.
4. Barrel Length = 49.32 ft.
- Head on barrel through embankment = 0.0089 ft. (from Plate 3.14-7)
5. Barrel Diameter = 24 in. RCP (from Plate 3.14-B)
6. Trash rack and Anti-vortex device. (from Table 3.14-D)
  - Diameter = 72 in.
  - Height = 21 in.

EMERGENCY SPILLWAY DESIGN:

1. Required spillway capacity = n/a cfs
2. Bottom width = n/a ft
3. Slope of the exit channel = n/a

ANTI-SLEEP COLLAR DESIGN:

1. Depth of water at principal spillway (Y) = 4.0 ft.
2. Slope of Upstream Embankment (Z) = 2
3. Slope of Barrel = 0.005 ft/ft
4. Length of Barrel in Saturated Zone = 25 ft.
5. Number of Collars Required = 1, Dimensions = 4' X 4' (from Plate 3.14-12)

FINAL DESIGN ELEVATIONS:

- Top of Embankment = 300.00 ft.
- Dam width = 12.00 ft.
- Embankment Slope (H:V) = 3:1
- Design high Water = 297.50 ft.
- Emergency Spillway = N/A ft.
- Principal Spillway Crest = 295.50 ft.
- Dewatering Orifice Invert = 294.00 ft.
- Cleanout Elevation = 293.00 ft.

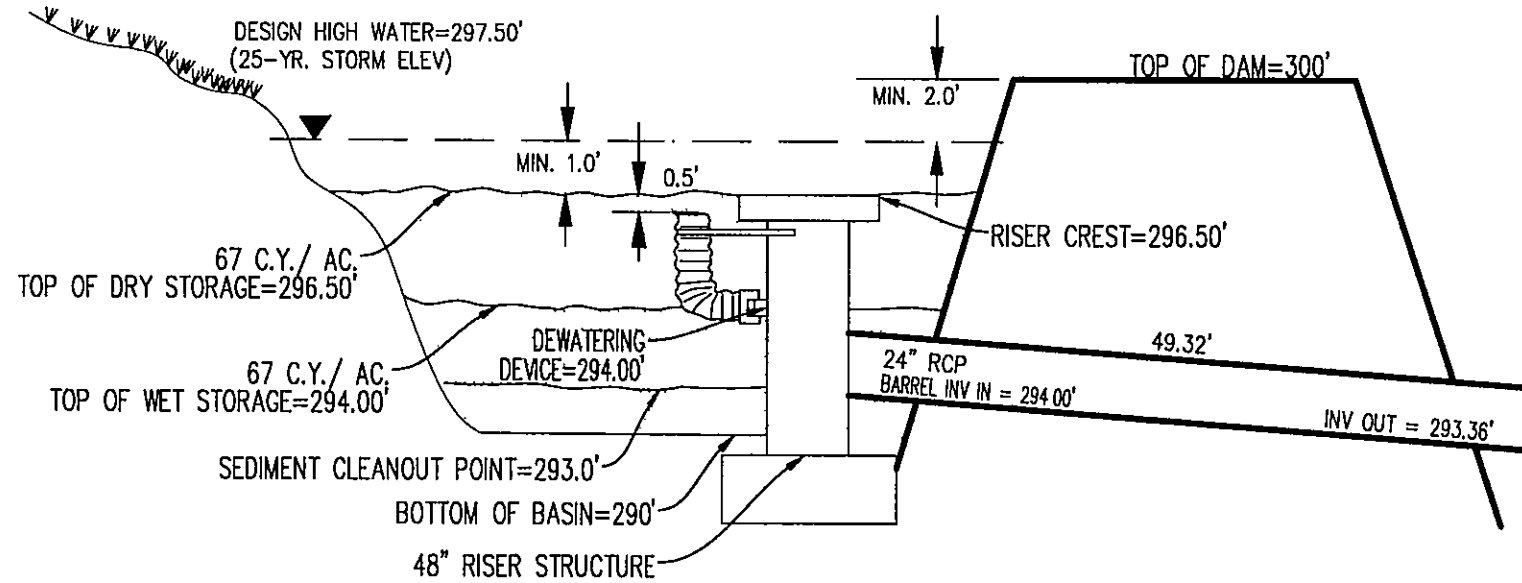
STAGE STORAGE COMPUTATIONS - SEDIMENT BASIN #1

| STAGE (ft.) | AREA (sq. ft.) | VOLUME (cu. ft.) | WET STORAGE (cu. yds.) | DRY STORAGE (cu. yds.) | TOTAL (cu. yds.) |
|-------------|----------------|------------------|------------------------|------------------------|------------------|
| 290.00      | 1,463.36       | 0.00             | 0.00                   | 0.00                   | 0                |
| 292.00      | 5,907.71       | 3,685.54         | 2.00                   | 7,371.07               | 273              |
| 294.00      | 10,816.85      | 8,362.28         | 2.00                   | 16,724.56              | 892              |
| 296.00      | 20,835.50      | 15,826.17        | 2.00                   | 31,652.35              | 2,065            |
| 298.00      | 24,646.82      | 22,741.16        | 2.00                   | 45,482.32              | 3,749            |
| 300.00      | 28,684.33      | 26,665.57        | 2.00                   | 53,331.15              | 5,724            |
|             |                | 14,342.16        |                        |                        |                  |

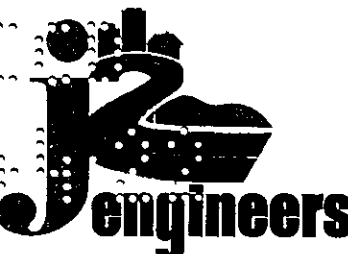
NOTES:

1. THE SEDIMENT BASIN RISER SHALL BE MARKED IN SUCH A WAY TO INDICATE THE CLEANOUT ELEVATION.
2. THE SEDIMENT FOREBAY WITHIN THE SEDIMENT BASIN WILL HAVE A CLEAN OUT STAKE INSTALLED SHOWING THE SEDIMENT ELEVATION.

SEDIMENT BASIN #1 SCHEMATIC



DESIGN ELEVATIONS WITHOUT  
AN EMERGENCY SPILLWAY



J2 Engineers, Inc.  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# OC2001

DATE: JANUARY, 2021

CONTOUR INT. = N/A

SCALE: N/A

| PLAN DATE | DATE       | BY         | CHKD       |
|-----------|------------|------------|------------|
| 03/1/2021 | 04/29/2021 | 05/11/2021 | 09/17/2021 |
| 03/1/2021 | 09/17/2021 | 11/29/2021 | 04/03/2022 |
| 03/1/2021 | 07/14/2022 |            |            |

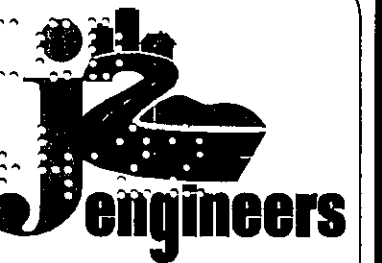
EROSION & SEDIMENT CONTROL COMPUTATIONS  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |      | DESCRIPTION |
|-----------|------|-------------|
| No.       | DATE |             |
|           |      |             |
|           |      |             |
|           |      |             |
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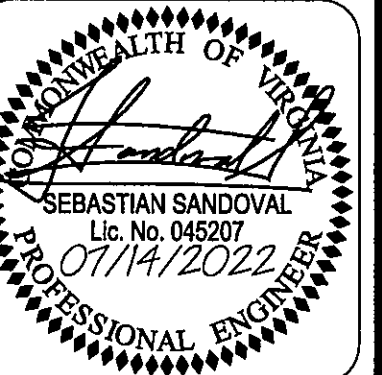
SHEET

25  
OF  
63

# BMP - PRE DEVELOPMENT - WATER QUALITY LAND COVER MAP



**J2 Engineers, Inc.**  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
  
703.361.1550 (office)  
703.956.6845 (fax)  
[www.j2engineers.com](http://www.j2engineers.com)



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: 1"=60'

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |
| -          |
| -          |
| -          |

**BMP PRE-DEVELOPMENT CONDITIONS**  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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SHEET

26  
OF  
63



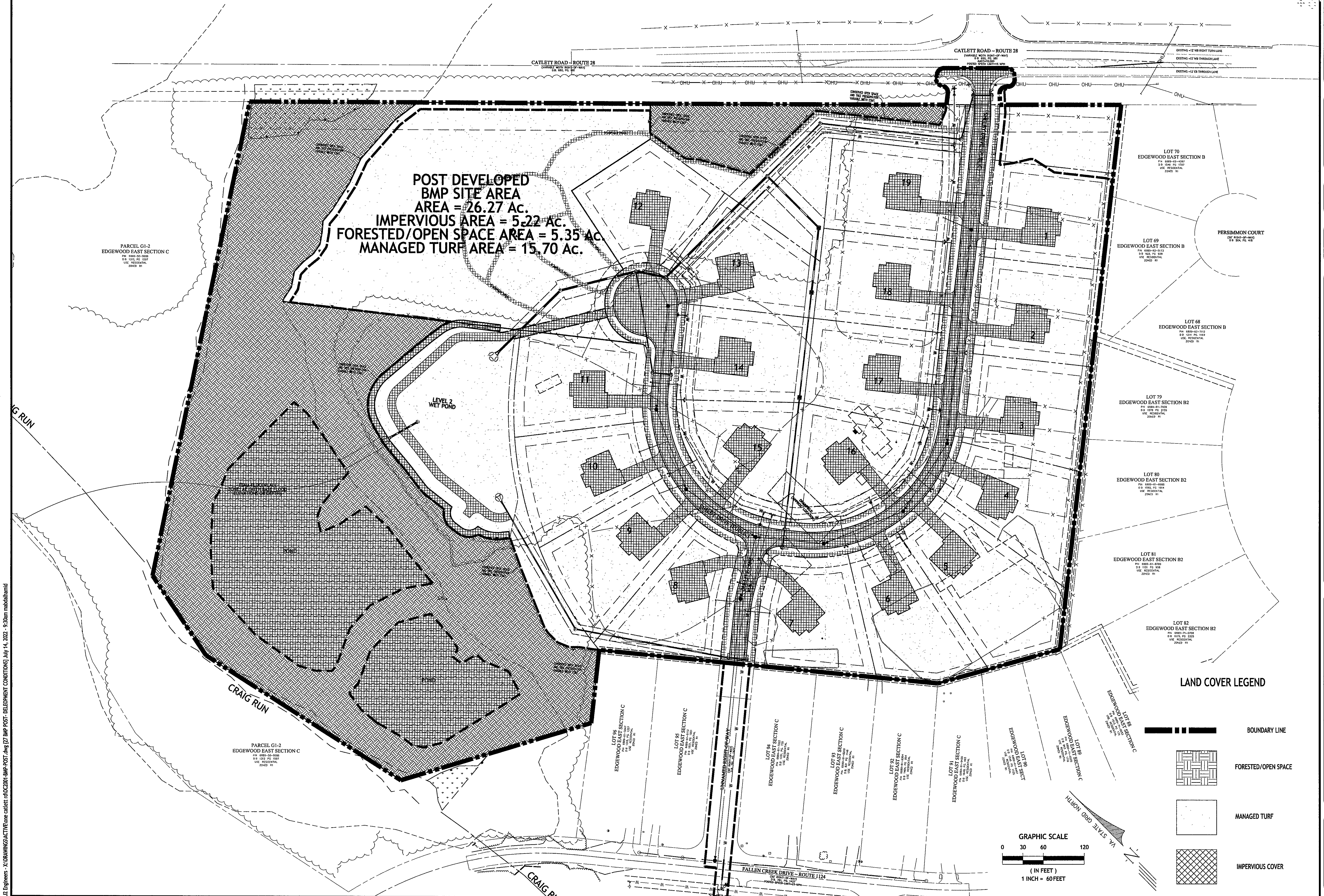
**JZ**  
**engineers**

COMMONWEALTH OF VIRGINIA  
 SEBASTIAN SANDOVAL  
 Lic. No. 045207  
 07/14/2022  
 PROFESSIONAL ENGINEER

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

[illegible]

SHEET  
**27**  
OF  
**63**



Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area (acres) → 18.50

|                                                         |      |
|---------------------------------------------------------|------|
| Maximum reduction required:                             | 20%  |
| The site's net increase in impervious cover (acres) is: | 2.52 |
| Post-Development TP Load Reduction for Site (lb/yr):    | 8.12 |

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

Pre-ReDevelopment Land Cover (acres)

|                                                                        | A Soils | B Soils | C Soils | D Soils | Totals |
|------------------------------------------------------------------------|---------|---------|---------|---------|--------|
| Forest/Open Space (acres) — undisturbed forest/open space              |         | 2.75    | 4.79    | 2.91    | 10.45  |
| Managed Turf (acres) — disturbed, graded for yards or other turf to be |         | 6.79    | 4.97    | 1.36    | 13.12  |
| Impervious Cover (acres)                                               |         | 0.33    | 0.21    | 2.16    | 2.70   |
|                                                                        |         |         |         |         | 26.27  |

Post-Development Land Cover (acres)

|                                                                                    | A Soils | B Soils | C Soils | D Soils | Totals |
|------------------------------------------------------------------------------------|---------|---------|---------|---------|--------|
| Forest/Open Space (acres) — undisturbed, protected forest/open space or reforested |         | 0.49    | 3.19    | 1.67    | 5.35   |
| Managed Turf (acres) — disturbed, graded for yards or other turf to be             |         | 7.31    | 5.84    | 2.55    | 15.70  |
| Impervious Cover (acres)                                                           |         | 2.07    | 0.94    | 2.21    | 5.22   |
| Area Check                                                                         | OK      | OK      | OK      | OK      | 26.27  |

\* Forest/Open Space areas must be protected in accordance with the Virginia Runoff Reduction Method

Constants

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

Runoff Coefficients (Rv)

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

LAND COVER SUMMARY — PRE-REDEVELOPMENT

| Land Cover Summary-Pre          |       |                       |
|---------------------------------|-------|-----------------------|
| Pre-ReDevelopment               | Used  | Adjusted <sup>1</sup> |
| Forest/Open Space Cover (acres) | 10.45 | 7.93                  |
| Weighted Rv(forest)             | 0.04  | 0.04                  |
| % Forest                        | 40%   | 33%                   |
| Managed Turf Cover (acres)      | 13.12 | 13.12                 |
| Weighted Rv(turf)               | 0.28  | 0.21                  |
| % Managed Turf                  | 50%   | 55%                   |
| Impervious Cover (acres)        | 2.70  | 2.70                  |
| Rv(impervious)                  | 0.95  | 0.95                  |
| % Impervious                    | 10%   | 11%                   |
| Total Site Area (acres)         | 26.27 | 23.75                 |
| Site Rv                         | 0.23  | 0.24                  |

Treatment Volume and Nutrient Load

|                                                                                                                                           |        |        |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|
| Pre-ReDevelopment Treatment Volume (acre-ft)                                                                                              | 0.4813 | 0.4748 |
| Pre-ReDevelopment Treatment Volume (cubic feet)                                                                                           | 20,967 | 20,662 |
| Pre-ReDevelopment TP Load (lb/yr)                                                                                                         | 13.17  | 12.96  |
| Pre-ReDevelopment TP Load per acre (lb/acre/yr)                                                                                           |        |        |
| Baseline TP Load (lb/yr)<br>(0.41 lb/acre/yr applied to pre-redevelopment area excluding previous land proposed for new impervious cover) |        | 9.74   |

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

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

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

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr) 8.12

Nitrogen Loads (Informational Purposes Only)

|                                   |       |                                                                              |        |
|-----------------------------------|-------|------------------------------------------------------------------------------|--------|
| Pre-ReDevelopment TN Load (lb/yr) | 94.24 | Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr) | 139.81 |
|-----------------------------------|-------|------------------------------------------------------------------------------|--------|

LAND COVER SUMMARY — POST DEVELOPMENT

| Land Cover Summary-Post (Final) |       |  |
|---------------------------------|-------|--|
| Post ReDev. & New Impervious    |       |  |
| Forest/Open Space Cover (acres) | 5.35  |  |
| Weighted Rv(forest)             | 0.04  |  |
| % Forest                        | 20%   |  |
| Managed Turf Cover (acres)      | 15.70 |  |
| Weighted Rv (turf)              | 0.22  |  |
| % Managed Turf                  | 60%   |  |
| Impervious Cover (acres)        | 5.22  |  |
| Rv(impervious)                  | 0.95  |  |
| % Impervious                    | 20%   |  |
| Final Site Area (acres)         | 26.27 |  |
| Final Post Dev Site Rv          | 0.33  |  |

| Land Cover Summary-Post         |       |  |
|---------------------------------|-------|--|
| Post-ReDevelopment              |       |  |
| Forest/Open Space Cover (acres) | 5.35  |  |
| Weighted Rv(forest)             | 0.04  |  |
| % Forest                        | 23%   |  |
| Managed Turf Cover (acres)      | 15.70 |  |
| Weighted Rv (turf)              | 0.22  |  |
| % Managed Turf                  | 66%   |  |
| ReDev. Impervious Cover (acres) | 2.70  |  |
| Rv(impervious)                  | 0.95  |  |
| % Impervious                    | 11%   |  |
| Total ReDev. Site Area (acres)  | 23.75 |  |
| ReDev Site Rv                   | 0.26  |  |

| Land Cover Summary-Post         |      |  |
|---------------------------------|------|--|
| Post-Development New Impervious |      |  |
| New Impervious Cover (acres)    | 2.52 |  |
| Rv(impervious)                  | 0.95 |  |

Treatment Volume and Nutrient Load

|                                                         |        |                                                  |                                                            |                                                |        |
|---------------------------------------------------------|--------|--------------------------------------------------|------------------------------------------------------------|------------------------------------------------|--------|
| Final Post-Development Treatment Volume (acre-ft)       | 0.7181 | Post-ReDevelopment Treatment Volume (acre-ft)    | 0.5146                                                     | Post-Development Treatment Volume (acre-ft)    | 0.1935 |
| Final Post-Development Treatment Volume (cubic feet)    | 31,106 | Post-ReDevelopment Treatment Volume (cubic feet) | 22,416                                                     | Post-Development Treatment Volume (cubic feet) | 8,690  |
| Final Post-Development TP Load (lb/yr)                  | 19.54  | Post-ReDevelopment Load (TP) (lb/yr)*            | 14.46                                                      | Post-Development TP Load (lb/yr)               | 5.46   |
| Final Post-Development TP Load per acre (lb/acre/yr)    |        | Post-ReDevelopment TP Load per acre (lb/acre/yr) |                                                            |                                                |        |
| Max. Reduction Required (Below Pre-ReDevelopment Load)  |        | 20%                                              |                                                            |                                                |        |
| TP Load Reduction Required for Redeveloped Area (lb/yr) |        | 3.70                                             | TP Load Reduction Required for New Impervious Area (lb/yr) |                                                | 4.43   |

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)          | 2.58   | 0.00   | 0.00   | 0.00   | 0.00   | OK         |
| IMPERVIOUS COVER TREATED (ac)  | 2.58   | 0.00   | 0.00   | 0.00   | 0.00   | OK         |
| MANAGED TURF AREA (ac)         | 7.31   | 0.00   | 0.00   | 0.00   | 0.00   | OK         |
| MANAGED TURF AREA TREATED (ac) | 7.31   | 0.00   | 0.00   | 0.00   | 0.00   | OK         |
| AREA CHECK                     | OK     | OK     | OK     | OK     | OK     |            |

Site Treatment Volume (ft<sup>3</sup>) 31,106

Runoff Reduction Volume and TP By Drainage Area

|                                                     | D.A. A | D.A. B | D.A. C | D.A. D | D.A. E | TOTAL |
|-----------------------------------------------------|--------|--------|--------|--------|--------|-------|
| RUNOFF REDUCTION VOLUME ACHIEVED (ft <sup>3</sup> ) | 0      | 0      | 0      | 0      | 0      | 0     |
| TP LOAD AVAILABLE FOR REMOVAL (lb/yr)               | 9.87   | 0.00   | 0.00   | 0.00   | 0.00   | 9.87  |
| TP LOAD REDUCTION ACHIEVED (lb/yr)                  | 6.80   | 0.00   | 0.00   | 0.00   | 0.00   | 6.80  |
| TP LOAD REMAINING (lb/yr)                           | 2.28   | 0.00   | 0.00   | 0.00   | 0.00   | 2.28  |
|                                                     |        |        |        |        |        |       |
| NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)            | 25.93  | 0.00   | 0.00   | 0.00   | 0.00   | 25.93 |

Total Phosphorus

|                                               |       |
|-----------------------------------------------|-------|
| FINAL POST-DEVELOPMENT TP LOAD (lb/yr)        | 19.54 |
| TP LOAD REDUCTION REQUIRED (lb/yr)            | 8.12  |
| TP LOAD REDUCTION ACHIEVED (lb/yr)            | 6.80  |
| TP LOAD REMAINING (lb/yr)                     | 12.75 |
| REMAINING TP LOAD REDUCTION REQUIRED (lb/yr): | 1.33  |

Total Nitrogen (For Informational Purposes)

|                                                  |        |
|--------------------------------------------------|--------|
| POST-DEVELOPMENT LOAD (lb/yr)                    | 139.81 |
| NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)         | 25.93  |
| REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr) | 113.88 |

\* THE REMAINDER 1.33 LB/YEAR OF THE TP LOAD REDUCTION REQUIRED WILL BE ACHIEVED BY PURCHASING BMP CREDITS

OUTFALL A - POND 1

|                           | A Soils | B Soils | C Soils | D Soils | Totals | Land Cover Rv |
|---------------------------|---------|---------|---------|---------|--------|---------------|
| Forest/Open Space (acres) |         |         |         |         | 0.00   | 0.00          |
| Managed Turf (acres)      |         | 5.37    | 1.07    | 0.87    | 7.31   | 0.21          |
| Impervious Cover (acres)  |         | 1.90    | 0.65    | 0.03    | 2.58   | 0.95          |
| Total                     |         |         |         |         | 9.89   |               |

Stormwater Best Management Practices (RR = Runoff Reduction)

| Practice                      | Runoff Reduction Credit (%) | Managed Turf Credit Area (acres) | Impervious Cover Credit Area (acres) | Volume from Upstream Practice (ft <sup>3</sup> ) | Runoff Reduction (ft <sup>3</sup> ) | Remaining Runoff Volume (ft <sup>3</sup> ) | Total BMP Treatment Volume (ft <sup>3</sup> ) | Phosphorus Removal Efficiency (%) | Phosphorus Load from Upstream Practices (lb) | Untreated Phosphorus Load to Practice (lb) | Phosphorus Removed By Practice (lb) | Remaining Phosphorus Load (lb) |
|-------------------------------|-----------------------------|----------------------------------|--------------------------------------|--------------------------------------------------|-------------------------------------|--------------------------------------------|-----------------------------------------------|-----------------------------------|----------------------------------------------|--------------------------------------------|-------------------------------------|--------------------------------|
| 13. Wet Ponds (no RR)         |                             |                                  |                                      |                                                  |                                     |                                            |                                               |                                   |                                              |                                            |                                     |                                |
| 13.c. Wet Pond #2 (Spec #14): | 0                           | 7.31                             | 2.58                                 | 10                                               | 10                                  | 14,440                                     | 14,440                                        | 75                                | 0.00                                         | 9.06                                       | 6.80                                | 2.27                           |

Riverbanks VA, LLC  
John H. Morris, IV, Manager  
VIRGINIA COMMONWEALTH BANK PROFESSIONAL BUILDING  
15048 KINGS HIGHWAY  
P. O. BOX 370  
MONTROSS, VIRGINIA 22520-0370

Telephone:  
Office (804) 493-0888  
Cell (804) 445-5337

Facsimile (804) 493-0999  
jhmorris@riverbanks.net

February 22, 2022

Avi M. Sareen, PWD, ISA-CA  
TNT Environmental, Inc.  
4455 Brookfield Corporate Drive, Suite 100  
Chantilly, VA 20151  
Sent via email: avi@tntenv.com

Re: Rappapeer Nutrient Bank - Credit Availability

Project Reference: Project located at 6717 Catlett Road, Bealeton, VA, 22712, within the Rappahannock Watershed and HUC 02080103

Attention: Avi Sareen

This letter is to confirm the current availability of Nutrient Credits sufficient to meet your project requirements at the Rappapeer Nutrient Bank located in Culpeper County, Virginia. The nutrient reductions resulting from this activity generated nonpoint source Nutrient "Credits" which are transferable to those entities requiring nutrient reductions in accordance with the Chesapeake Bay Watershed Nutrient Credit Exchange Program (VA Code § 62.1-44.19-14) and the Virginia Stormwater Credit Program (VA Code § 62.1-44.15-35).

On May 27, 2021, the Rappapeer Nutrient Bank was authorized to Transfer 83.00 pounds of phosphorus Credits. Currently the facility has 83 pounds of Credits available on RIBITS to meet your removal requirement of 1.33 Nutrient Credits.

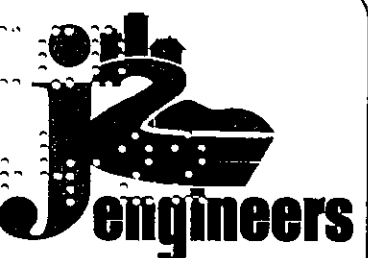
Upon searching DEQ's database of authorized nutrient banks (DEQ Nutrient Trading Data Viewer), there are no locally impaired waters that this site drains into. Therefore, Rappapeer is currently eligible to offset these stormwater impacts in the HUC adjacent.

Feel free to contact me if you require further assistance.

James Parker  
Clearwater Ventures LLC  
Authorized Agent for:  
Riverbanks VA, LLC

Garland Mooney  
Clearwater Ventures LLC  
Authorized Agent for:  
Riverbanks VA, LLC

Copy to: Jackie Morris



J2 Engineers, Inc.  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: N/A

| PLAN DATE | 03/1/2021 | 04/2/2021 | 05/2/2021 | 09/1/2021 | 11/29/2021 | 04/09/2022 | 07/14/2022 |
|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|
|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|

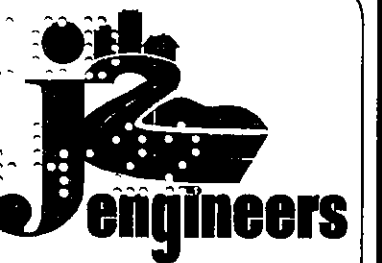
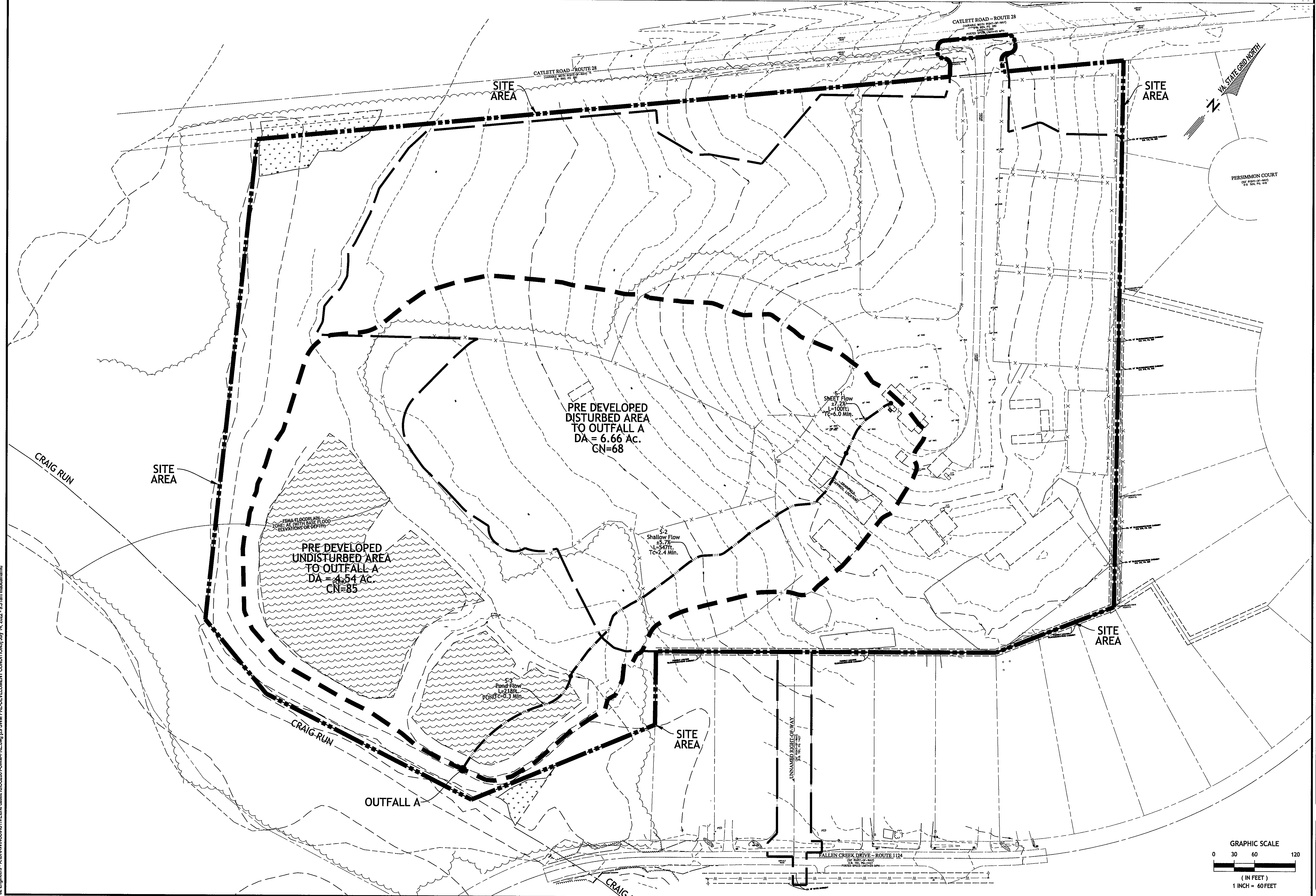
WATER QUALITY COMPLIANCE CALCULATIONS  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |      | DESCRIPTION |
|-----------|------|-------------|
| No.       | DATE |             |
|           |      |             |
|           |      |             |
|           |      |             |
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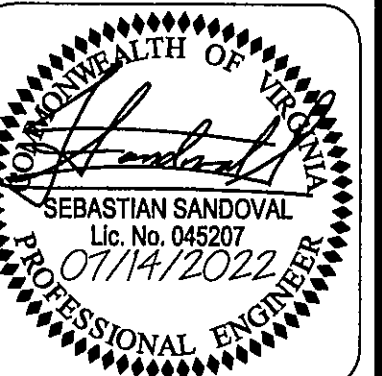
SHEET

28  
OF  
63

## SWM-PRE DEVELOPMENT CONDITIONS



**J2 Engineers, Inc.**  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
  
703.361.1550 (office)  
703.956.6845 (fax)  
[www.j2engineers.com](http://www.j2engineers.com)



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1" = 60'

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/03/2022 |
| 07/14/2022 |

**SWM PRE-DEVELOPMENT CONDITIONS**  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

[illegible]

SHEET

29  
OF  
63

**GRAPHIC SCALE**

0      30      60      120

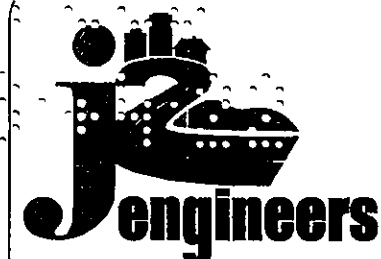


( IN FEET )

1 INCH = 60 FEET

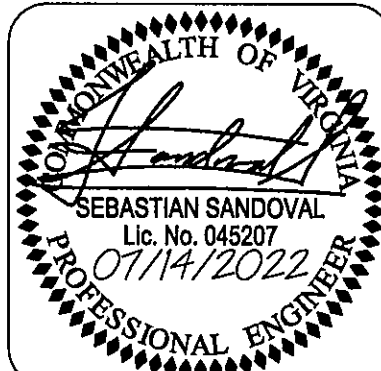


**REMINGTON QUADRANGLE**  
**VIRGINIA**  
**7.5-MINUTE SERIES**



**J2 Engineers, Inc.**  
17739 Main Street  
Suite 180  
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[www.j2engineers.com](http://www.j2engineers.com)



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: 1"=1500'

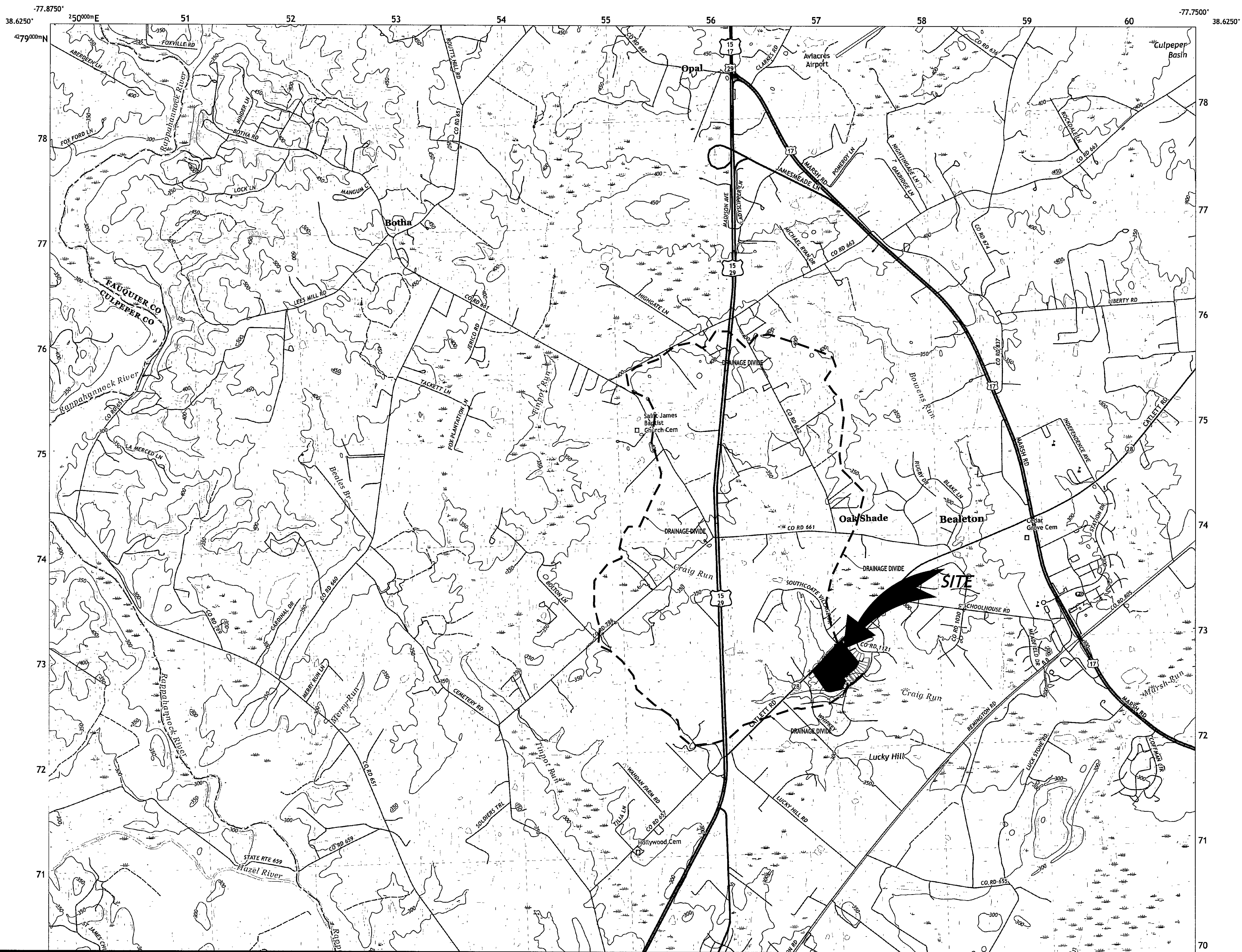
| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

**CONSTRUCTION PLAN**  
**OFFSITE DRAINAGE MAP**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

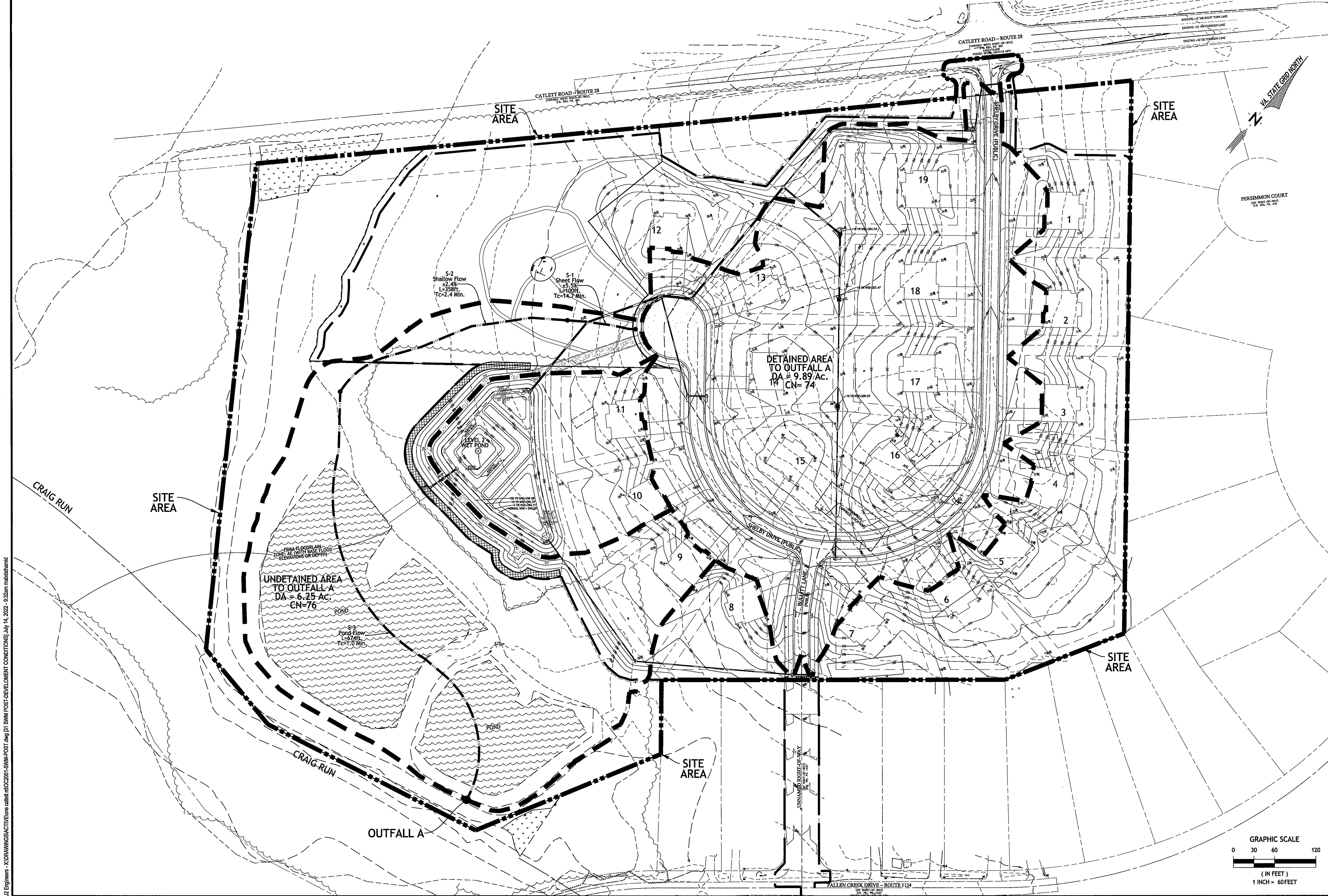
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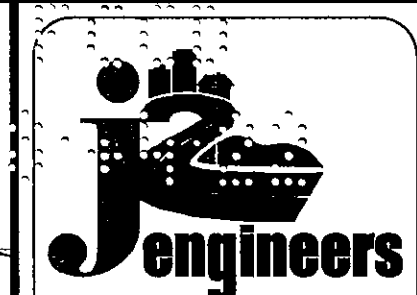
**SHEET**

30  
OF  
63

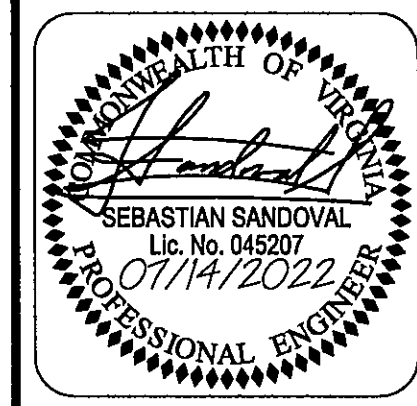


SWM-POST DEVELOPMENT CONDITIONS





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SEBASTIAN SANDOVAL  
No. 046007  
07/19/2022  
PROFESSIONAL ENGINEER

PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1" = 60'

PLAN DATE  
03/1/2021  
04/20/2021  
05/21/2021  
09/17/2021  
11/29/2021  
04/28/2022  
07/14/2022

SWM POST-DEVELOPMENT CONDITIONS  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |      |
|-----------|------|
| No.       | DATE |
|           |      |
|           |      |
|           |      |
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|           |      |

SHEET  
**31**  
OF  
**63**

J2 Engineers - X:\DRAWINGS\ACTIVE\One Catlett rd\CC2001-SWM-POST.dwg [22 SWM CALCULATIONS] July 14, 2022 - 9:32am maddalaind

## CHANNEL AND FLOOD PROTECTION EVALUATION

ONE CATLETT ROAD IS LOCATED ALONG CATLETT ROAD IN BEALETON, VIRGINIA. THIS PROJECT PROPOSES TO DEVELOP AN 26.15 AC SITE WITH 19 LOTS. OUTFALL A WAS CHOSEN AT A POINT OF CONCENTRATED OUTFALL DOWNSTREAM OF THE OUTFALL OF THE PROPOSED POND #1 WHERE IT ENTERS AN EXISTING STREAM. A TOTAL OF 11.60 AC OF DISTURBED AREA, AND A TOTAL OF 4.54 AC OF UNDISTURBED AREA FLOWS TO OUTFALL A (SEE SHEETS 25 - 26).

TO CONTROL THE FLOW FOR THE SITE THE RUNOFF REDUCTION METHOD WILL BE USED PROVIDED BY A LEVEL 2 WET POND. THE WET POND IS LOCATED ON THE SOUTH WEST PORTION OF THE SITE ADJACENT TO TWO EXISTING NATURAL PONDS. THE PROPOSED WET POND IS SIZED TO HANDLE THE MAJORITY OF FLOW TO OUTFALL A. SEE THIS SHEET FOR COMPUTATIONS. SEE SHEETS 29-30 FOR DETAIL.

A CN FACTOR OF 74, HAS BEEN USED IN THE REQUIRED ENERGY BALANCE FOR THE AREA DRAINING TO OUTFALL A. THIS IS THE AREA WITHIN THE DRAINAGE DIVIDE TO OUTFALL A WITHIN THE DISTURBED AREA LIMITS.

A CN FACTOR OF 74 HAS BEEN USED IN THE ROUTING CALCULATIONS FOR THE POND #1. THIS IS THE CN OF THE ENTIRE DRAINAGE AREA TO POND #1.

THE ENERGY BALANCE HAS BEEN MET BY ROUTING THE TREATED FLOWS THROUGH THE WET POND UTILIZING AN ORIFICE.

THE ALLOWABLE 1 YR PEAK DISCHARGE TO OUTFALL A IS 9.71 CFS, THIS WAS CALCULATED BY APPLYING ENERGY BALANCE TO THE EXISTING DISTURBED 1YR FLOW OF 3.39 RESULTING IN AN ALLOWABLE FLOW OF 1.00 CFS (SEE THIS SHEET FOR COMPUTATIONS) AND ADDING THAT VALUE TO THE EXISTING UNDISTURBED 1 YR FLOW, 8.71 CFS. THIS RESULTS IN A REQUIRED TOTAL FLOW OF 9.71 CFS. THE ACTUAL 1 YR RELEASE RATE FROM THE SITE TO OUTFALL A IS 7.58 CFS. SEE THIS SHEET FOR HYDROGRAPHIC ROUTING RESULTS.

THE 10 YEAR PRE DEVELOPMENT FLOW IS 38.13 CFS. THE 10 YEAR POST DEVELOPMENT IS 29.30 CFS. THE POST DEVELOPMENT 10 YEAR FLOW IS LESS THAN THE PRE DEVELOPMENT 10 YEAR FLOW THEREFORE FLOOD PROTECTION IS DEEMED ADEQUATE AS THE WATER LEAVING THE SITE WILL NOT HAVE ANY EROSION OR DOWNSTREAM IMPACTS ON THE EXISTING OUTFALL. SEE THIS SHEET FOR 10 YR HYDROGRAPHIC ROUTING RESULTS.

THE SITE CONTROLS THE 1 YEAR STORM EVENT BELOW ENERGY BALANCE LEVELS WITHOUT FLOODING OR CAUSING EROSION AT EACH POINT OF ANALYSIS BY ALSO REDUCING THE 10 YEAR POST DEVELOPMENT FLOW BELOW THE 10 YEAR PRE DEVELOPMENT FLOW, THEREFORE THE ANALYSIS IS COMPLETE.

## PRE DISTUBED OUTFALL A - 1 YEAR (FORESTED)

Summary for Subcatchment 83S: OUTFALL A - PRE - DISTURBED - FOREST

Runoff = 1.89 cfs @ 12.04 hrs, Volume= 0.155 af, Depth> 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 1-Year Rainfall=2.53"

| Area (ac) | CN            | Description   |                   |                |                                                                                                                                                             |
|-----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.660     | 64            |               |                   |                |                                                                                                                                                             |
| Tc (min)  | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                                                                 |
| 6.0       | 100           | 0.0720        | 0.28              |                | Sheet Flow, S-1:<br>Grass: Short n= 0.150 P2= 3.05"<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4       | 547           | 0.0570        | 3.84              |                |                                                                                                                                                             |
| 0.3       | 218           |               | 11.35             |                |                                                                                                                                                             |
| 8.7       | 865           | Total         |                   |                |                                                                                                                                                             |

## PRE DISTUBED OUTFALL A - 1 YEAR

Summary for Subcatchment 67S: OUTFALL A - PRE - DISTURBED

Runoff = 3.39 cfs @ 12.03 hrs, Volume= 0.222 af, Depth> 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 1-Year Rainfall=2.53"

| Area (ac) | CN            | Description   |                   |                |                                                                                                                                                             |
|-----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.660     | 68            |               |                   |                |                                                                                                                                                             |
| Tc (min)  | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                                                                 |
| 6.0       | 100           | 0.0720        | 0.28              |                | Sheet Flow, S-1:<br>Grass: Short n= 0.150 P2= 3.05"<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4       | 547           | 0.0570        | 3.84              |                |                                                                                                                                                             |
| 0.3       | 218           |               | 11.35             |                |                                                                                                                                                             |
| 8.7       | 865           | Total         |                   |                |                                                                                                                                                             |

## PRE UNDISTUBED OUTFALL A - 1 YEAR

Summary for Subcatchment 82S: OUTFALL A - PRE - UNDISTURBED

Runoff = 8.71 cfs @ 12.00 hrs, Volume= 0.454 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 1-Year Rainfall=2.53"

| Area (ac) | CN            | Description   |                   |                |                                                                                                                                                             |
|-----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.540     | 85            |               |                   |                |                                                                                                                                                             |
| Tc (min)  | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                                                                 |
| 6.0       | 100           | 0.0720        | 0.28              |                | Sheet Flow, S-1:<br>Grass: Short n= 0.150 P2= 3.05"<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4       | 547           | 0.0570        | 3.84              |                |                                                                                                                                                             |
| 0.3       | 218           |               | 11.35             |                |                                                                                                                                                             |
| 8.7       | 865           | Total         |                   |                |                                                                                                                                                             |

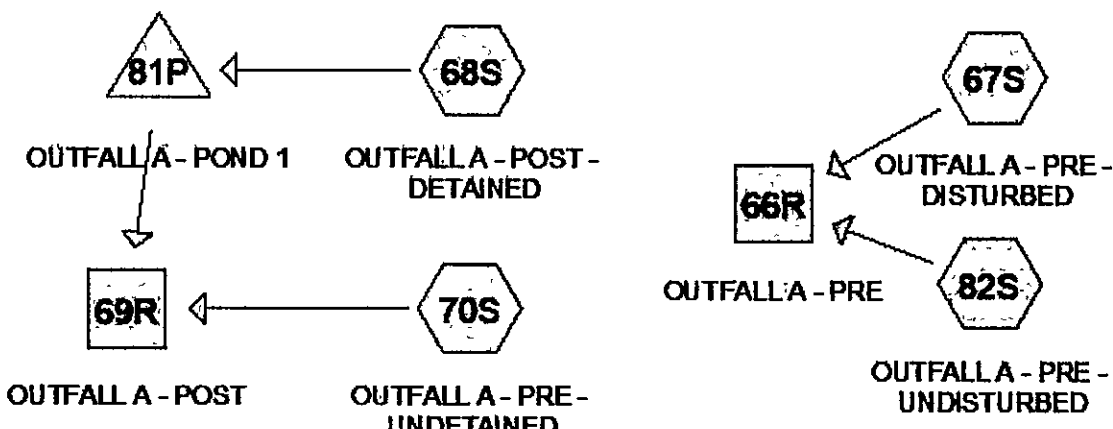
## PRE TOTAL OUTFALL A - 1 YEAR

Summary for Reach 66R: OUTFALL A - PRE

[40] Hint: Not Described (Outflow-Inflow)

Inflow Area = 11.200 ac, Inflow Depth > 0.72" for 1-Year event  
Inflow = 12.03 cfs @ 12.01 hrs, Volume= 0.676 af  
Outflow = 12.03 cfs @ 12.01 hrs, Volume= 0.676 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, d= 0.05 hrs



## PRE DISTUBED OUTFALL A - 10 YEAR

Summary for Subcatchment 67S: OUTFALL A - PRE - DISTURBED

Runoff = 16.84 cfs @ 12.01 hrs, Volume= 0.890 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 10-Year Rainfall=4.61"

| Area(ac)    | CN               | Description      |                      |                   |                                                                                                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.660       | 68               |                  |                      |                   |                                                                                                                                                             |
| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                                                                 |
| 6.0         | 100              | 0.0720           | 0.28                 |                   | Sheet Flow, S-1:<br>Grass: Short n= 0.150 P2= 3.05"<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4         | 547              | 0.0570           | 3.84                 |                   |                                                                                                                                                             |
| 0.3         | 218              |                  | 11.35                |                   |                                                                                                                                                             |
| 8.7         | 865              | Total            |                      |                   |                                                                                                                                                             |

## PRE UNDISTUBED OUTFALL A - 10 YEAR

Summary for Subcatchment 82S: OUTFALL A - PRE - UNDISTURBED

Runoff = 21.34 cfs @ 12.00 hrs, Volume= 1.137 af, Depth> 3.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 10-Year Rainfall=4.61"

| Area (ac) | CN            | Description   |                   |                |                                                                                                                                                              |
|-----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.540     | 85            |               |                   |                |                                                                                                                                                              |
| Tc (min)  | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                                                                  |
| 6.0       | 100           | 0.0720        | 0.28              |                | Sheet Flow, S-1<br>Grass: Short (n= 0.150 P2= 3.05")<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4       | 547           | 0.0570        | 3.84              |                |                                                                                                                                                              |
| 0.3       | 218           |               | 11.35             |                |                                                                                                                                                              |
| 8.7       | 865           | Total         |                   |                |                                                                                                                                                              |

## PRE TOTAL OUTFALL A - 10 YEAR

Summary for Reach 66R: OUTFALL A - PRE

[40] Hint: Not Described (Outflow-Inflow)

Inflow Area = 11.200 ac, Inflow Depth > 2.17" for 10-Year event  
Inflow = 38.13 cfs @ 12.00 hrs, Volume= 2.027 af  
Outflow = 38.13 cfs @ 12.00 hrs, Volume= 2.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, d= 0.05 hrs

# OUTFALL NARRATIVE

## POST OUTFALL A - 1 YEAR

Summary for Subcatchment 70S: OUTFALL A - POST - UNDETAINED

Runoff = 4.82 cfs @ 12.12 hrs, Volume= 0.369 af, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 1-Year Rainfall=2.53"

| Area (ac) | CN            | Description   |                   |                |                                                                                                                                                                       |
|-----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.250     | 76            |               |                   |                |                                                                                                                                                                       |
| Tc (min)  | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                                                                           |
| 14.7      | 100           | 0.0548        | 0.11              |                | Sheet Flow, S-1<br>Woods: Light underbrush n= 0.400 P2= 3.05"<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4       | 358           | 0.0241        | 2.50              |                |                                                                                                                                                                       |
| 1.0       | 674           |               | 11.35             |                |                                                                                                                                                                       |
| 18.1      | 1,132         | Total         |                   |                |                                                                                                                                                                       |

Summary for Subcatchment 68S: OUTFALL A - POST - DETAINED

Runoff = 9.84 cfs @ 12.00 hrs, Volume= 0.514 af, Depth> 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 1-Year Rainfall=2.53"

| Area (ac) | CN | Description |
|-----------|----|-------------|
| * 9.890   | 74 |             |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------|
| 7.3      |               |               |                   |                | Direct Entry, FROM STORM COMPS |

Summary for Pond 84P: OUTFALL A - POND 1

Inflow Area = 9.890 ac, Inflow Depth > 0.62" for 1-Year event  
Inflow = 9.84 cfs @ 12.00 hrs, Volume= 0.514 af  
Outflow = 2.83 cfs @ 12.16 hrs, Volume= 0.490 af, Atten= 71%, Lag= 10.0 min  
Primary = 2.83 cfs @ 12.16 hrs, Volume= 0.490 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Starting Elev= 294.00' Surf Area= 5,805 sf Storage= 11,324 cf  
Peak Elev= 294.71' @ 12.17 hrs Surf Area= 11,158 sf Storage= 17,364 cf (6,041 cf above start)

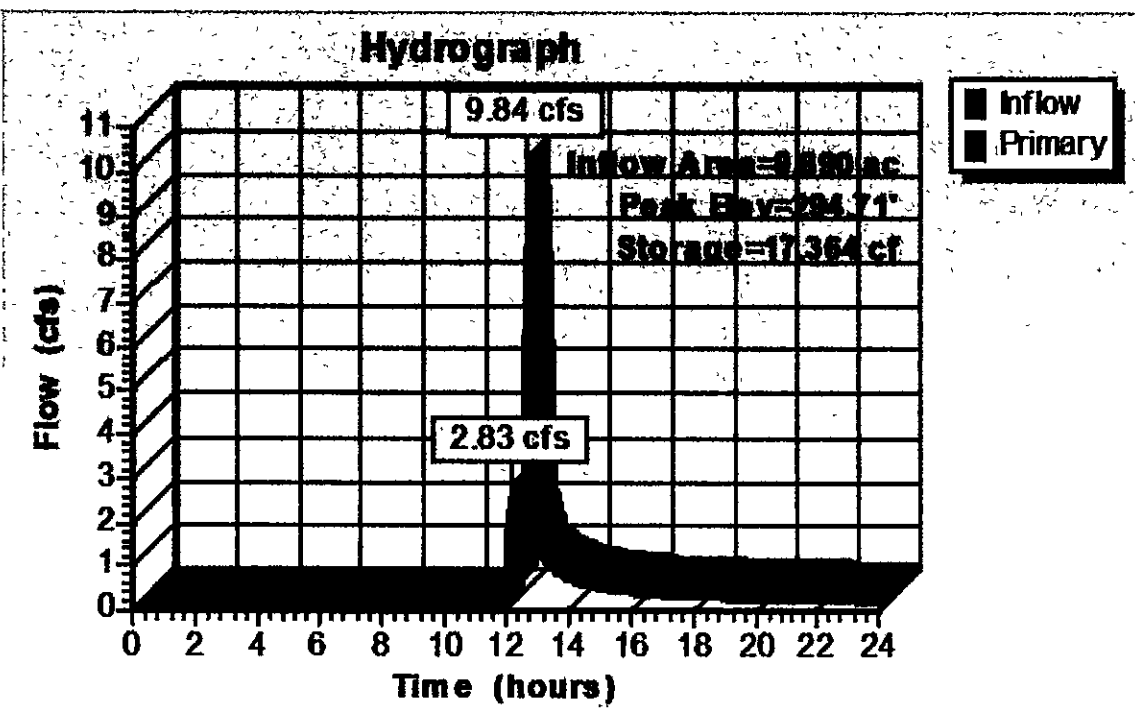
Plug-Flow detention time= 35.18 min calculated for 0.230 af (45% of inflow)  
Center-of-Mass det. time= 34.6 min (810.0 - 875.4)

| Volume #1        | Invert            | Avail. Storage          | Storage Description                                 |
|------------------|-------------------|-------------------------|-----------------------------------------------------|
| 290.00'          |                   | 136,777 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf Area (sq-ft) | Inc. Store (cubic-feet) | Cum. Store (cubic-feet)                             |
| 290.00'          | 1,463             | 0                       | 0                                                   |
| 292.00'          | 2,528             | 3,991                   | 3,991                                               |
| 293.00'          | 3,166             | 2,847                   | 6,838                                               |
| 294.00'          | 5,805             | 4,486                   | 11,324                                              |
| 296.00'          | 20,835            | 26,640                  | 37,964                                              |
| 298.00'          | 24,647            | 45,482                  | 83,446                                              |
| 300.00'          | 28,684            | 53,331                  | 136,777                                             |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                                                                                                                |
|--------|----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 294.00' | 24.0" Round Culvert<br>L= 49.3' RCP, rounded edge headwall, Ke= 0.100<br>Inlet / Outlet Invert= 294.00' / 293.56' S= 0.0089' / Cc= 0.900<br>n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf<br>24.0" Vert. Orifice/Grate C= 0.600<br>48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Device 1 | 294.00' |                                                                                                                                                                                                                                                                                                                               |
| #3     | Device 1 | 297.00' |                                                                                                                                                                                                                                                                                                                               |

Primary Outflow Max= 2.81 cfs @ 12.16 hrs HW= 294.71' (Free Discharge)

1- Culvert (Barrel Controls 2.81 cfs @ 4.19 fps)  
2- Orifice/Grate (Passes 2.81 cfs of 2.87 cfs potential flow)  
3- Orifice/Grate (Controls 0.00 cfs)



Summary for Reach 69R: OUTFALL A - POST

[40] Hint: Not Described (Outflow-Inflow)

Inflow Area = 16.140 ac, Inflow Depth > 0.64" for 1-Year event  
Inflow = 7.58 cfs @ 12.13 hrs, Volume= 0.859 af  
Outflow = 7.58 cfs @ 12.13 hrs, Volume= 0.859 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, d= 0.05 hrs

## POST OUTFALL A - 10 YEAR

Summary for Subcatchment 70S: OUTFALL A - POST - UNDETAINED

Runoff = 16.17 cfs @ 12.11 hrs, Volume= 1.150 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 10-Year Rainfall=4.61"

| Area (ac) | CN            | Description   |                   |                |                                                                                                                                                                       |
|-----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.250     | 76            |               |                   |                |                                                                                                                                                                       |
| Tc (min)  | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                                                                           |
| 14.7      | 100           | 0.0548        | 0.11              |                | Sheet Flow, S-1<br>Woods: Light underbrush n= 0.400 P2= 3.05"<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4       | 358           | 0.0241        | 2.50              |                |                                                                                                                                                                       |
| 1.0       | 674           |               | 11.35             |                |                                                                                                                                                                       |
| 18.1      | 1,132         | Total         |                   |                |                                                                                                                                                                       |

Summary for Subcatchment 68S: OUTFALL A - POST - DETAINED

Runoff = 34.16 cfs @ 11.99 hrs, Volume= 1.693 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 10-Year Rainfall=4.61"

| Area (ac) | CN            | Description   |                   |                |                                |
|-----------|---------------|---------------|-------------------|----------------|--------------------------------|
| * 9.890   | 74            |               |                   |                |                                |
| Tc (min)  | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                    |
| 7.3       |               |               |                   |                | Direct Entry, FROM STORM COMPS |

Summary for Pond 84P: OUTFALL A - POND 1

Inflow Area = 9.890 ac, Inflow Depth > 2.05" for 10-Year event  
Inflow = 34.16 cfs @ 11.99 hrs, Volume= 1.693 af  
Outflow = 13.13 cfs @ 12.12 hrs, Volume= 1.653 af, Atten= 62%, Lag= 7.8 min  
Primary = 13.13 cfs @ 12.12 hrs, Volume= 1.653 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Starting Elev= 294.00' Surf Area= 5,805 sf Storage= 11,324 cf  
Peak Elev= 295.77' @ 12.12 hrs Surf Area= 19,073 sf Storage= 33,286 cf (21,963 cf above start)

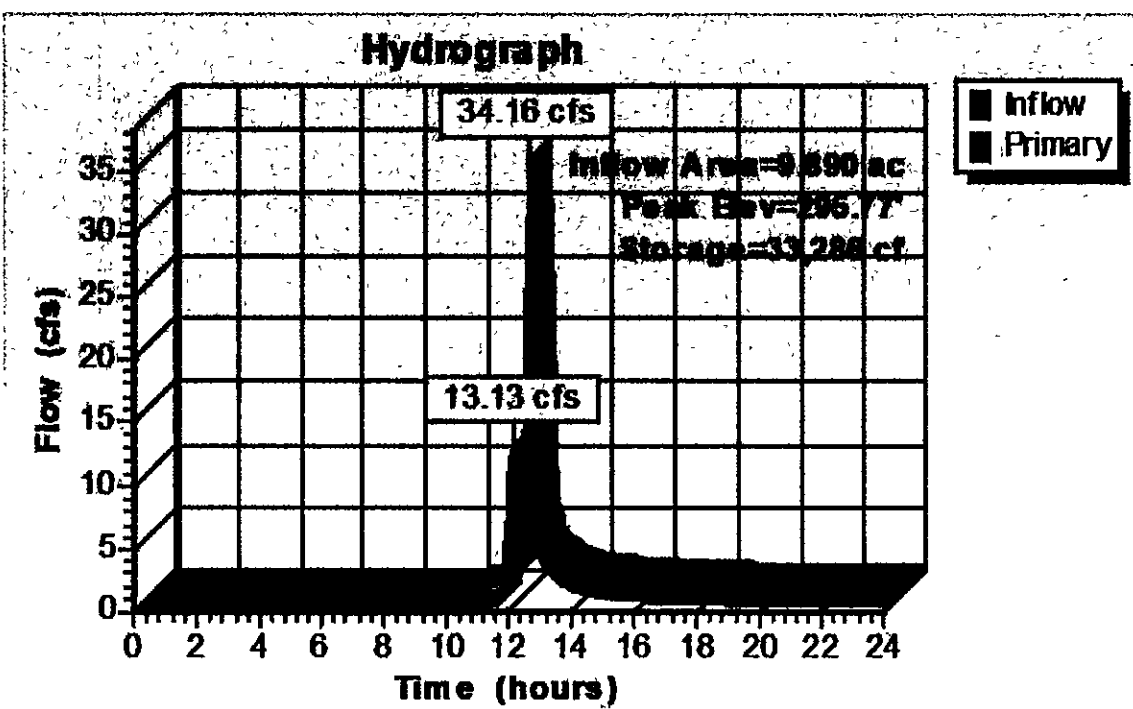
Plug-Flow detention time= 132.5 min calculated for 1.393 af (82% of inflow)  
Center-of-Mass det. time= 25.9 min (864.3 - 838.4)

| Volume #1        | Invert            | Avail. Storage          | Storage Description                                 |
|------------------|-------------------|-------------------------|-----------------------------------------------------|
| 290.00'          |                   | 136,777 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf Area (sq-ft) | Inc. Store (cubic-feet) | Cum. Store (cubic-feet)                             |
| 290.00'          | 1,463             | 0                       | 0                                                   |
| 292.00'          | 2,528             | 3,991                   | 3,991                                               |
| 293.00'          | 3,166             | 2,847                   | 6,838                                               |
| 294.00'          | 5,805             | 4,486                   | 11,324                                              |
| 296.00'          | 20,835            | 26,640                  | 37,964                                              |
| 298.00'          | 24,647            | 45,482                  | 83,446                                              |
| 300.00'          | 28,684            | 53,331                  | 136,777                                             |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                                                                                                                |
|--------|----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 294.00' | 24.0" Round Culvert<br>L= 49.3' RCP, rounded edge headwall, Ke= 0.100<br>Inlet / Outlet Invert= 294.00' / 293.56' S= 0.0089' / Cc= 0.900<br>n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf<br>24.0" Vert. Orifice/Grate C= 0.600<br>48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Device 1 | 294.00' |                                                                                                                                                                                                                                                                                                                               |
| #3     | Device 1 | 297.00' |                                                                                                                                                                                                                                                                                                                               |

Primary Outflow Max= 13.03 cfs @ 12.12 hrs HW= 295.77' (Free Discharge)

1- Culvert (Barrel Controls 13.03 cfs @ 5.94 fps)  
2- Orifice/Grate (Passes 13.03 cfs of 13.18 cfs potential flow)  
3- Orifice/Grate (Controls 0.00 cfs)



Summary for Reach 69R: OUTFALL A - POST

[40] Hint: Not Described (Outflow-Inflow)

Inflow Area = 16.140 ac, Inflow Depth > 2.08" for 10-Year event  
Inflow = 29.30 cfs @ 12.11 hrs, Volume= 2.802 af  
Outflow = 29.30 cfs @ 12.11 hrs, Volume= 2.802 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, d= 0.05 hrs

## POST OUTFALL A - 100 YEAR

Summary for Subcatchment 70S: OUTFALL A - POST - UNDETAINED

Runoff = 35.56 cfs @ 12.10 hrs, Volume= 2.534 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 100-Year Rainfall=7.70"

| Area (ac)   | CN               | Description      |                      |                   |                                                                                                                                                                       |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.250       | 76               |                  |                      |                   |                                                                                                                                                                       |
| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                                                                           |
| 14.7        | 100              | 0.0548           | 0.11                 |                   | Sheet Flow, S-1<br>Woods: Light underbrush n= 0.400 P2= 3.05"<br>Shallow Concentrated Flow, S-2<br>Unpaved K= 16.1 fps<br>Lake or Reservoir, S-3<br>Mean Depth= 4.00' |
| 2.4         | 358              | 0.0241           | 2.50                 |                   |                                                                                                                                                                       |
| 1.0         | 674              |                  | 11.35                |                   |                                                                                                                                                                       |
| 18.1        | 1,132            | Total            |                      |                   |                                                                                                                                                                       |

Summary for Subcatchment 68S: OUTFALL A - POST - DETAINED

Runoff = 76.07 cfs @ 11.99 hrs, Volume= 3.834 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, d= 0.05 hrs  
Type II 24-hr 100-Year Rainfall=7.70"

| Area (ac) | CN | Description |
|-----------|----|-------------|
| * 9.890   | 74 |             |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------|
| 7.3      |               |               |                   |                | Direct Entry, FROM STORM COMPS |

Summary for Pond 82P: OUTFALL A - POND 1 - CLOGGED

Inflow Area = 9.890 ac, Inflow Depth > 4.65" for 100-Year event  
Inflow = 76.07 cfs @ 11.99 hrs, Volume= 3.834 af  
Outflow = 30.08 cfs @ 12.11 hrs, Volume= 2.691 af, Atten= 60%, Lag= 7.6 min  
Primary = 30.08 cfs @ 12.11 hrs, Volume= 2.691 af

OUTFALL A CN CALCULATIONS

| OUTFALL A DISTURBED PRE DEVELOPMENT CN                                          |              |              |              |               | Total Area (acres): 6.66 |                                  |
|---------------------------------------------------------------------------------|--------------|--------------|--------------|---------------|--------------------------|----------------------------------|
| Forest/Open Space – undisturbed, protected forest/open space or reforested land | Area (acres) | A Soils      | B Soils      | C Soils       | D Soils                  | Runoff Reduction Volume (ft³): 0 |
|                                                                                 | CN           | 0.00         | 0.24         | 0.30          | 0.26                     |                                  |
| Managed Turf – disturbed, graded for yards or other turf to be mowed/managed    | Area (acres) | 0.00         | 3.20         | 1.30          | 1.27                     |                                  |
|                                                                                 | CN           | 39           | 61           | 74            | 80                       |                                  |
| Impervious Cover                                                                | Area (acres) | 0.00         | 0.04         | 0.05          | 0.00                     |                                  |
|                                                                                 | CN           | 98           | 98           | 98            | 98                       |                                  |
| CN (D.A. A)                                                                     |              |              |              |               | 68                       |                                  |
| RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*              |              | 1-year storm | 2-year storm | 10-year storm |                          |                                  |
| RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*                 |              | 0.43         | 0.70         | 1.73          |                          |                                  |
| Adjusted CN*                                                                    |              | 0.43         | 0.70         | 1.73          |                          |                                  |
|                                                                                 |              | 68           | 68           | 68            |                          |                                  |

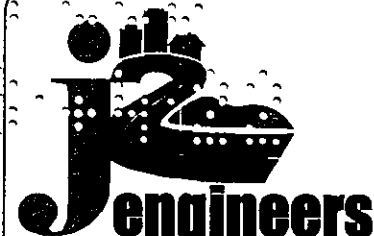
| OUTFALL A DISTURBED PRE DEVELOPMENT FORESTED CN                                 |              |              |              |               | Total Area (acres): 6.66 |                                  |
|---------------------------------------------------------------------------------|--------------|--------------|--------------|---------------|--------------------------|----------------------------------|
| Forest/Open Space – undisturbed, protected forest/open space or reforested land | Area (acres) | A Soils      | B Soils      | C Soils       | D Soils                  | Runoff Reduction Volume (ft³): 0 |
|                                                                                 | CN           | 0.00         | 3.48         | 1.65          | 1.53                     |                                  |
| 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)                                                                     |              |              |              |               | 64                       |                                  |
| RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*              |              | 1-year storm | 2-year storm | 10-year storm |                          |                                  |
| RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*                 |              | 0.30         | 0.53         | 1.45          |                          |                                  |
| Adjusted CN*                                                                    |              | 0.30         | 0.53         | 1.45          |                          |                                  |
|                                                                                 |              | 64           | 64           | 64            |                          |                                  |

| OUTFALL A UNDISTURBED PRE DEVELOPMENT CN                                        |              |              |              |               | Total Area (acres): 4.54 |                                  |
|---------------------------------------------------------------------------------|--------------|--------------|--------------|---------------|--------------------------|----------------------------------|
| Forest/Open Space – undisturbed, protected forest/open space or reforested land | Area (acres) | A Soils      | B Soils      | C Soils       | D Soils                  | Runoff Reduction Volume (ft³): 0 |
|                                                                                 | CN           | 0.00         | 0.00         | 1.06          | 1.13                     |                                  |
| Managed Turf – disturbed, graded for yards or other turf to be mowed/managed    | Area (acres) | 0.00         | 0.00         | 0.19          | 0.00                     |                                  |
|                                                                                 | CN           | 39           | 61           | 74            | 80                       |                                  |
| Impervious Cover                                                                | Area (acres) | 0.00         | 0.00         | 0.00          | 2.16                     |                                  |
|                                                                                 | CN           | 98           | 98           | 98            | 98                       |                                  |
| CN (D.A. B)                                                                     |              |              |              |               | 85                       |                                  |
| RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*              |              | 1-year storm | 2-year storm | 10-year storm |                          |                                  |
| RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*                 |              | 1.25         | 1.71         | 3.17          |                          |                                  |
| Adjusted CN*                                                                    |              | 1.25         | 1.71         | 3.17          |                          |                                  |
|                                                                                 |              | 85           | 85           | 85            |                          |                                  |

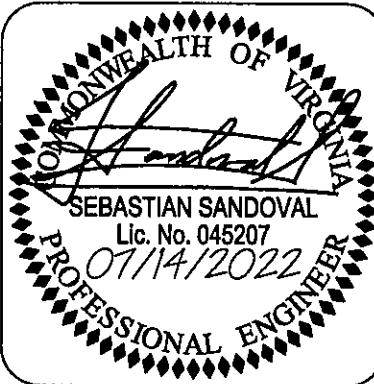
| OUTFALL A DETAINED POST DEVELOPMENT CN                                          |              |              |              |               | Total Area (acres): 9.89 |                                  |
|---------------------------------------------------------------------------------|--------------|--------------|--------------|---------------|--------------------------|----------------------------------|
| Forest/Open Space – undisturbed, protected forest/open space or reforested land | Area (acres) | A Soils      | B Soils      | C Soils       | D Soils                  | Runoff Reduction Volume (ft³): 0 |
|                                                                                 | CN           | 0.00         | 0.00         | 0.00          | 0.00                     |                                  |
| Managed Turf – disturbed, graded for yards or other turf to be mowed/managed    | Area (acres) | 0.00         | 5.37         | 1.07          | 0.87                     |                                  |
|                                                                                 | CN           | 39           | 61           | 74            | 80                       |                                  |
| Impervious Cover                                                                | Area (acres) | 0.00         | 1.90         | 0.65          | 0.03                     |                                  |
|                                                                                 | CN           | 98           | 98           | 98            | 98                       |                                  |
| CN (D.A. A)                                                                     |              |              |              |               | 74                       |                                  |
| RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*              |              | 1-year storm | 2-year storm | 10-year storm |                          |                                  |
| RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*                 |              | 0.66         | 1.00         | 2.20          |                          |                                  |
| Adjusted CN*                                                                    |              | 0.66         | 1.00         | 2.20          |                          |                                  |
|                                                                                 |              | 74           | 74           | 74            |                          |                                  |

| OUTFALL A UNDETAINED POST DEVELOPMENT CN                                        |              |              |              |               | Total Area (acres): 6.25 |                                  |
|---------------------------------------------------------------------------------|--------------|--------------|--------------|---------------|--------------------------|----------------------------------|
| Forest/Open Space – undisturbed, protected forest/open space or reforested land | Area (acres) | A Soils      | B Soils      | C Soils       | D Soils                  | Runoff Reduction Volume (ft³): 0 |
|                                                                                 | CN           | 0.00         | 0.00         | 1.25          | 1.13                     |                                  |
| Managed Turf – disturbed, graded for yards or other turf to be mowed/managed    | Area (acres) | 0.00         | 0.34         | 0.67          | 2.70                     |                                  |
|                                                                                 | CN           | 39           | 61           | 74            | 80                       |                                  |
| Impervious Cover                                                                | Area (acres) | 0.00         | 0.06         | 0.07          | 0.03                     |                                  |
|                                                                                 | CN           | 98           | 98           | 98            | 98                       |                                  |
| CN (D.A. B)                                                                     |              |              |              |               | 76                       |                                  |
| RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*              |              | 1-year storm | 2-year storm | 10-year storm |                          |                                  |
| RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*                 |              | 0.75         | 1.11         | 2.36          |                          |                                  |
| Adjusted CN*                                                                    |              | 0.75         | 1.11         | 2.36          |                          |                                  |
|                                                                                 |              | 76           | 76           | 76            |                          |                                  |

| OUTFALL A ONSITE POST DEVELOPMENT CN                                            |              |              |              |               | Total Area (acres): 11.60 |                                  |
|---------------------------------------------------------------------------------|--------------|--------------|--------------|---------------|---------------------------|----------------------------------|
| Forest/Open Space – undisturbed, protected forest/open space or reforested land | Area (acres) | A Soils      | B Soils      | C Soils       | D Soils                   | Runoff Reduction Volume (ft³): 0 |
|                                                                                 | CN           | 0.00         | 0.00         | 0.00          | 0.00                      |                                  |
| Managed Turf – disturbed, graded for yards or other turf to be mowed/managed    | Area (acres) | 0.00         | 5.71         | 1.74          | 1.41                      |                                  |
|                                                                                 | CN           | 39           | 61           | 74            | 80                        |                                  |
| Impervious Cover                                                                | Area (acres) | 0.00         | 1.96         | 0.72          | 0.06                      |                                  |
|                                                                                 | CN           | 98           | 98           | 98            | 98                        |                                  |
| CN (D.A. D)                                                                     |              |              |              |               | 74                        |                                  |
| RV <sub>Developed</sub> (watershed-inch) with no Runoff Reduction*              |              | 1-year storm | 2-year storm | 10-year storm |                           |                                  |
| RV <sub>Developed</sub> (watershed-inch) with Runoff Reduction*                 |              | 0.66         | 1.00         | 2.20          |                           |                                  |
| Adjusted CN*                                                                    |              | 0.66         | 1.00         | 2.20          |                           |                                  |
|                                                                                 |              | 74           | 74           | 74            |                           |                                  |



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SEBASTIAN SANDOVAL  
Lic. No. 045207  
07/14/2022  
PROFESSIONAL ENGINEER

PLAN# CC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: N/A

| PLAN DATE  |
|------------|
| 03/11/2021 |
| 04/02/2021 |
| 09/01/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

SWM CALCULATIONS

CONSTRUCTION PLAN

ONE CATLETT ROAD

LEE MAGISTERIAL DISTRICT

FAUQUIER COUNTY, VIRGINIA

| REVISIONS |             |
|-----------|-------------|
| No.       | DESCRIPTION |
|           |             |
|           |             |
|           |             |
|           |             |
|           |             |
|           |             |
|           |             |
|           |             |
|           |             |



# POND AND SEDIMENT FOREBAY COMPUTATIONS AND VOLUMES

## Summary for Pond 80P: STRUCTURE 10 FOREBAY

[43] Hint: Has no inflow (Outflow=Zero)

| Volume           | Invert             | Avail. Storage          | Storage Description                                 |
|------------------|--------------------|-------------------------|-----------------------------------------------------|
| #1               | 292.00'            | 2,488 cf                | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf. Area (sq-ft) | Inc. Store (cubic-feet) | Cum. Store (cubic-feet)                             |
| 292.00           | 743                | 0                       | 0                                                   |
| 294.00           | 1,745              | 2,488                   | 2,488                                               |

## Summary for Pond 79P: STRUCTURE 40 FOREBAY

[43] Hint: Has no inflow (Outflow=Zero)

| Volume           | Invert             | Avail. Storage          | Storage Description                                 |
|------------------|--------------------|-------------------------|-----------------------------------------------------|
| #1               | 292.00'            | 6,975 cf                | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf. Area (sq-ft) | Inc. Store (cubic-feet) | Cum. Store (cubic-feet)                             |
| 292.00           | 2,637              | 0                       | 0                                                   |
| 294.00           | 4,338              | 6,975                   | 6,975                                               |

## Summary for Pond 83P: WETLANDS

[43] Hint: Has no inflow (Outflow=Zero)

| Volume           | Invert             | Avail. Storage          | Storage Description                                 |
|------------------|--------------------|-------------------------|-----------------------------------------------------|
| #1               | 293.00'            | 2,688 cf                | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf. Area (sq-ft) | Inc. Store (cubic-feet) | Cum. Store (cubic-feet)                             |
| 293.00           | 2,121              | 0                       | 0                                                   |
| 294.00           | 3,255              | 2,688                   | 2,688                                               |

### SEDIMENT FOREBAY

TOTAL TREATMENT VOLUME FOR POND

$T_v = 1.5 \left[ \frac{R_v(A)}{12} \right]$  (from VRRM spreadsheet, sheet 24)

$T_v = 1.5 \left[ \frac{14,440}{12} \right] = 21,660 \text{ ft}^3$

VOLUME REQUIRED FOR SEDIMENT FOREBAYS = 15% x  $T_v$  = 3,249  $\text{ft}^3$

VOLUME PROVIDED = 2,488  $\text{ft}^3$  + 6,975  $\text{ft}^3$  = 9,463  $\text{ft}^3$

### POND STORAGE

TOTAL TREATMENT VOLUME FOR POND

$T_v = 1.5 \left[ \frac{R_v(A)}{12} \right]$  (from VRRM spreadsheet, sheet 24)

$T_v = 1.5 \left[ \frac{14,440}{12} \right] = 21,660 \text{ ft}^3$

VOLUME PROVIDED IN POND = 23,475  $\text{ft}^3$  > 21,660  $\text{ft}^3$

## Stage-Area-Storage for Pond 84P: OUTFALL

| Elevation (feet) | Surface (sq-ft) | Storage (cubic-feet) |
|------------------|-----------------|----------------------|
| 290.00           | 1,463           | 0                    |
| 290.20           | 1,569           | 303                  |
| 290.40           | 1,676           | 628                  |
| 290.60           | 1,783           | 974                  |
| 290.80           | 1,889           | 1,341                |
| 291.00           | 1,996           | 1,729                |
| 291.20           | 2,102           | 2,139                |
| 291.40           | 2,208           | 2,570                |
| 291.60           | 2,315           | 3,022                |
| 291.80           | 2,422           | 3,496                |
| 292.00           | 2,528           | 3,991                |
| 292.20           | 2,636           | 4,509                |
| 292.40           | 2,743           | 5,053                |
| 292.60           | 2,850           | 5,623                |
| 292.80           | 2,958           | 6,218                |
| 293.00           | 3,066           | 6,838                |
| 293.20           | 3,174           | 7,484                |
| 293.40           | 3,282           | 8,156                |
| 293.60           | 3,390           | 8,854                |
| 293.80           | 3,498           | 9,579                |
| 294.00           | 3,606           | 10,331               |
| 294.20           | 3,714           | 11,110               |
| 294.40           | 3,822           | 11,917               |
| 294.60           | 3,930           | 12,752               |
| 294.80           | 4,038           | 13,616               |
| 295.00           | 4,146           | 14,509               |
| 295.20           | 4,254           | 15,432               |
| 295.40           | 4,362           | 16,385               |
| 295.60           | 4,470           | 17,368               |
| 295.80           | 4,578           | 18,381               |
| 296.00           | 4,686           | 19,424               |
| 296.20           | 4,794           | 20,497               |
| 296.40           | 4,902           | 21,600               |
| 296.60           | 5,010           | 22,733               |
| 296.80           | 5,118           | 23,896               |
| 297.00           | 5,226           | 25,089               |
| 297.20           | 5,334           | 26,312               |
| 297.40           | 5,442           | 27,565               |
| 297.60           | 5,550           | 28,848               |
| 297.80           | 5,658           | 30,161               |
| 298.00           | 5,766           | 31,504               |
| 298.20           | 5,874           | 32,877               |
| 298.40           | 5,982           | 34,280               |
| 298.60           | 6,090           | 35,713               |
| 298.80           | 6,198           | 37,176               |
| 299.00           | 6,306           | 38,669               |
| 299.20           | 6,414           | 40,192               |
| 299.40           | 6,522           | 41,745               |
| 299.60           | 6,630           | 43,328               |
| 299.80           | 6,738           | 44,941               |
| 300.00           | 6,846           | 46,584               |

## Stage-Discharge for Po

| Elevation (feet) | Primary (cfs) |
|------------------|---------------|
| 290.00           | 0.00          |
| 290.20           | 0.00          |
| 290.40           | 0.00          |
| 290.60           | 0.00          |
| 290.80           | 0.00          |
| 291.00           | 0.00          |
| 291.20           | 0.00          |
| 291.40           | 0.00          |
| 291.60           | 0.00          |
| 291.80           | 0.00          |
| 292.00           | 0.00          |
| 292.20           | 0.00          |
| 292.40           | 0.00          |
| 292.60           | 0.00          |
| 292.80           | 0.00          |
| 293.00           | 0.00          |
| 293.20           | 0.00          |
| 293.40           | 0.00          |
| 293.60           | 0.00          |
| 293.80           | 0.00          |
| 294.00           | 0.00          |
| 294.20           | 0.23          |
| 294.40           | 0.95          |
| 294.60           | 2.06          |
| 294.80           | 3.50          |
| 295.00           | 5.20          |
| 295.20           | 7.11          |
| 295.40           | 9.17          |
| 295.60           | 11.32         |
| 295.80           | 13.51         |
| 296.00           | 15.13         |
| 296.20           | 16.57         |
| 296.40           | 17.90         |
| 296.60           | 19.13         |
| 296.80           | 20.29         |
| 297.00           | 21.39         |
| 297.20           | 22.46         |
| 297.40           | 23.50         |
| 297.60           | 24.50         |
| 297.80           | 25.46         |
| 298.00           | 26.39         |
| 298.20           | 27.29         |
| 298.40           | 28.16         |
| 298.60           | 29.00         |
| 298.80           | 29.81         |
| 299.00           | 30.59         |
| 299.20           | 31.34         |
| 299.40           | 32.06         |
| 299.60           | 32.75         |
| 299.80           | 33.41         |
| 300.00           | 34.05         |

## Pond Riser Buoyancy Calculations

Project Name: ONE CATLETT RD  
Jurisdiction: FAUQUIER COUNTY  
Project No.:

| Defined Parameters:       |         |           |
|---------------------------|---------|-----------|
| Riser Inside Diameter     | 4.00 ft |           |
| Riser Outside Diameter    | 5.00 ft |           |
| Wall Thickness            | 0.50 ft |           |
| Outlet Barrel Size        | 2.00 ft |           |
| BMP Orifice Size          | 2.00 ft | Number: 1 |
| Additional Orifice Size   | 0.00 ft | Number: 0 |
| Width Rectangular Weir #1 | 0.00 ft | Number: 0 |
| Width Rectangular Weir #2 | 0.00 ft | Number: 0 |

|                           |           |
|---------------------------|-----------|
| Spillway Elevation        | 297.00 ft |
| Top Weir #1 Elevation     | 0.00 ft   |
| Weir #1 Elevation         | 0.00 ft   |
| BMP Orifice Invert        | 294.00 ft |
| Additional Orifice Invert | 0.00 ft   |
| Barrel Invert             | 294.00 ft |
| Riser Invert              | 294.00 ft |
| Riser Base Invert         | 292.00 ft |

|                              |        |
|------------------------------|--------|
| 100-yr WSE                   | 297.37 |
| 10-yr WSE                    | 295.37 |
| 1-YR WSE                     | 294.46 |
| Permanent Pool Ext. Det. WSE | 294.00 |

|                       |      |
|-----------------------|------|
| Factor of Safety (Fs) | 1.25 |
|-----------------------|------|

### Downward / Resisting Force:

|                          |          |
|--------------------------|----------|
| Volume of Riser          | 21.20 cf |
| PLUS Volume Base         | 39.25 cf |
| MINUS Vol Weir #1        | 0.00 cf  |
| MINUS Vol Weir #2        | 0.00     |
| MINUS Volume Orifice     | 0.00 cf  |
| MINUS Volume BMP Orifice | 1.57 cf  |
| MINUS Vol Outlet Barrel  | 1.57 cf  |
| Total Volume Concrete    | 57.31 CF |

Downward Force = Vol Concrete (cf) \* Unit Weight (150 lb/cf)  
Downward Force = 8,596.75 lb

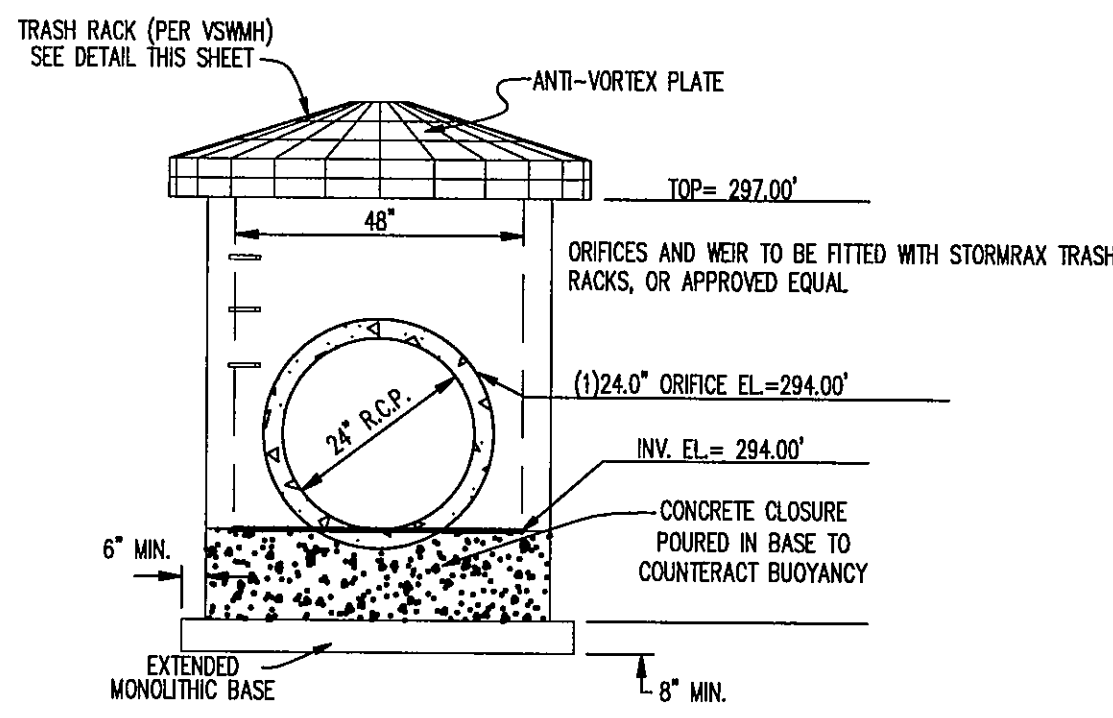
### Buoyant Force of Water:

|                           |          |
|---------------------------|----------|
| Volume displaced by Riser | 58.88 cf |
| Volume displaced by Base  | 39.25 ft |
| Total Volume of Water     | 98.13 ft |

Upward Force = Vol Water (cf) \* Unit Weight (62.4 lb/cf)  
Upward Force = 6,123.00

Upward Force \* Fs = 7,653.75 lb

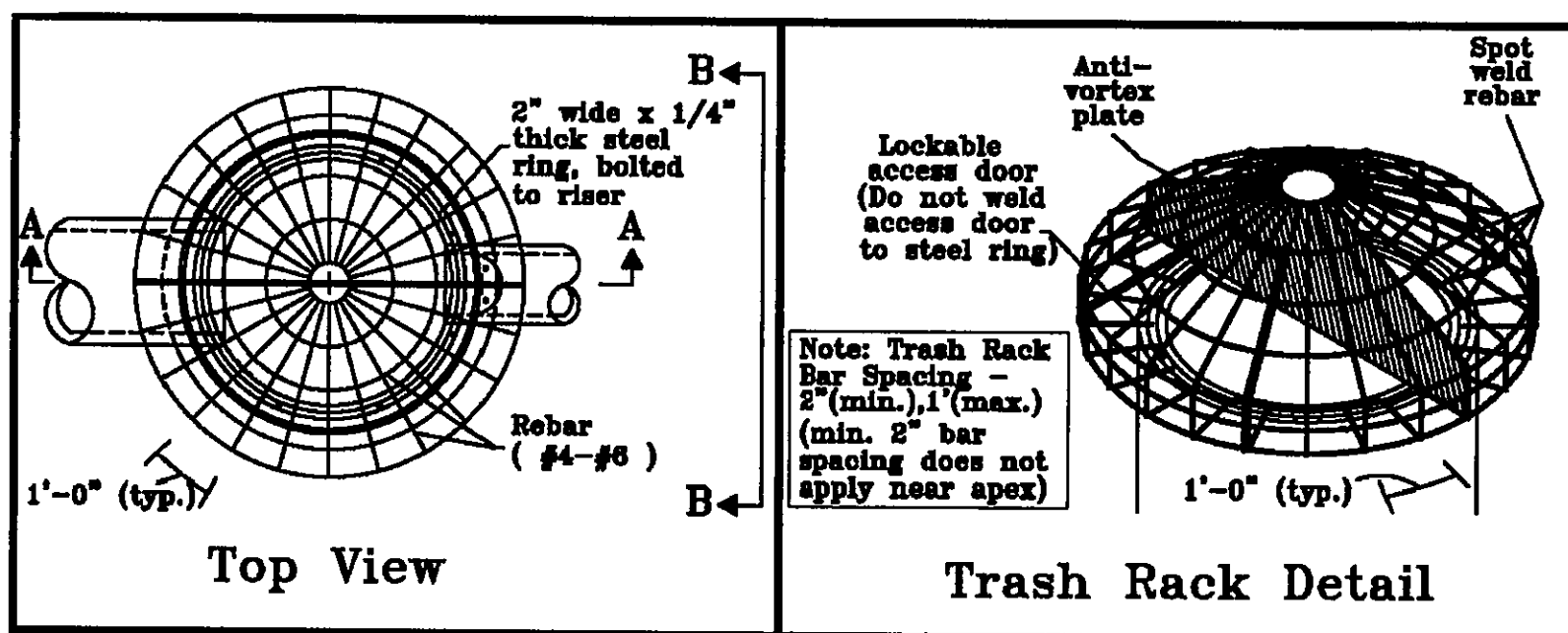
Downward Force > Upward Force



DETAIL FOR STORMWATER MANAGEMENT STRUCTURE

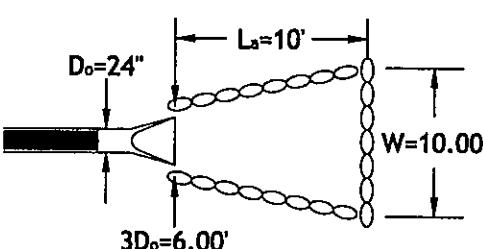
N.T.S.

## RISER STRUCTURE TRASH RACK



### OUTFALL STRUCTURE 50

$Q_p = 13.13 \text{ CFS}$   
Pipe Diameter =  $D_o = 24"$   
 $TW = 1.6 > 0.5 D_o = 1.0'$   
Max. Tailwater Condition  
 $L_s = 10'$   
 $d_{50} = 1.1' \text{ (Class I)}$   
 $d_{90} = 1.6' \text{ (Class II)}$   
 $d_{max} = d_{50} \times 1.5 = 2.40'$   
Apron Thickness =  $d_{max} \times 1.5 = 3.6'$   
Minimum Thickness = 2.5' (Class I)  
Minimum Thickness = 3.6' (Class II)



### POND LANDSCAPE NOTES

PER SECTIONS 6.3 AND 6.7 IN VA DEQ STORMWATER DESIGN SPECIFICATION NO. 14.

- THE LANDSCAPING SHOULD PROVIDE ELEMENTS THAT PROMOTE DIVERSE WILDLIFE AND WATERFOWL USE WITHIN THE STORMWATER WETLAND AND BUFFERS. HOWEVER, TO THE EXTENT POSSIBLE, THE AQUATIC AND SAFETY BENCHES SHOULD BE PLANTED WITH DENSE SHORELINE VEGETATION TO HELP ESTABLISH A SAFETY BARRIER, AS WELL AS DISCOURAGE RESIDENT GESE.
- WOODY VEGETATION MAY NOT BE PLANTED OR ALLOWED TO GROW WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT NOR WITHIN 25 FEET FROM THE PRINCIPAL SPILLWAY STRUCTURE.
- A VEGETATED BUFFER OF NATIVE PLANTS THAT REQUIRES MINIMAL MAINTENANCE SHOULD BE PROVIDED THAT EXTENDS AT LEAST 25 FEET OUTWARD FROM THE MAXIMUM WATER SURFACE ELEVATION OF THE WET POND. PERMANENT STRUCTURES (E.G., BUILDINGS) SHOULD NOT BE CONSTRUCTED WITHIN THE BUFFER AREA. EXISTING TREES SHOULD BE PRESERVED IN THE BUFFER AREA DURING CONSTRUCTION. THE SOILS IN THE STORMWATER BUFFER AREA ARE OFTEN SEVERELY COMPACTED DURING THE CONSTRUCTION PROCESS, TO ENSURE STABILITY. THE DENSITY OF THESE COMPACTED SOILS CAN BE SO GREAT THAT IT EFFECTIVELY PREVENTS ROOT PENETRATION AND, THEREFORE, MAY LEAD TO PREMATURE MORTALITY OR LOSS OF VIGOR. AS A RULE OF THUMB, PLANTING HOLES SHOULD BE THREE TIMES DEEPER AND WIDER THAN THE DIAMETER OF THE ROOT BALL FOR BALL-AND-BURLAP STOCK, AND FIVE TIMES DEEPER AND WIDER FOR CONTAINER-GROWN STOCK.
- AVOID SPECIES THAT REQUIRE FULL SHADE, OR ARE PRONE TO WIND DAMAGE. EXTRA MULCHING AROUND THE BASE OF TREES AND SHRUBS IS STRONGLY RECOMMENDED AS A MEANS OF CONSERVING MOISTURE AND SUPPRESSING WEEDS.

### Water Balance Equation for Acceptable Water Depth in a Wet Pond

Equation 14.1.

$OP > ET + INF + RES - MB$

Where:

DP = Average design depth of the permanent pool (inches)  
ET = Summer evapo-transpiration rate (inches) (assume 8 inches)  
INF = Monthly infiltration loss (assume 7.2 @ 0.01 inch/hour)  
RES = Reservoir of water for a factor of safety (assume 24 inches)  
MB = Measured baseflow rate to the pond, if any (convert to inches)

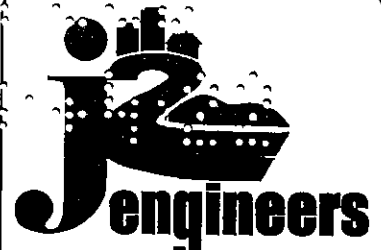
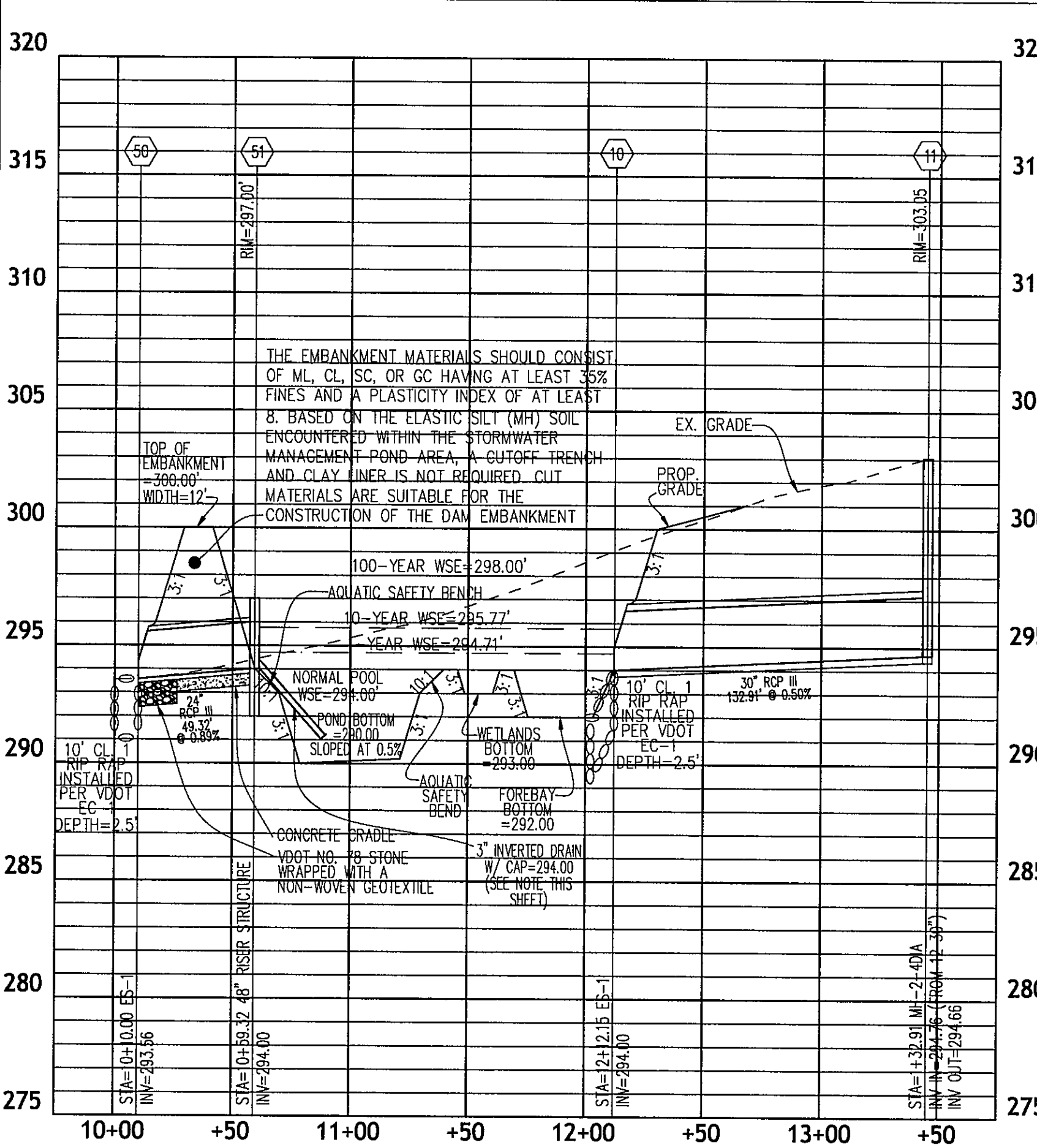
$OP > ET + INF + RES - MB$

$48" > 8" + 7.2" + 24" - 0$

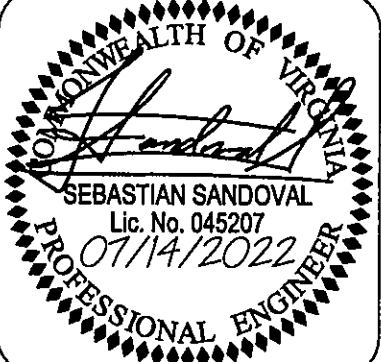
$48" > 39.2"$

## POND SECTION

SCALE: (H) 1"=50' (V) 1"=5'



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17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
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703.956.6845 (fax)  
www.j2engineers.com

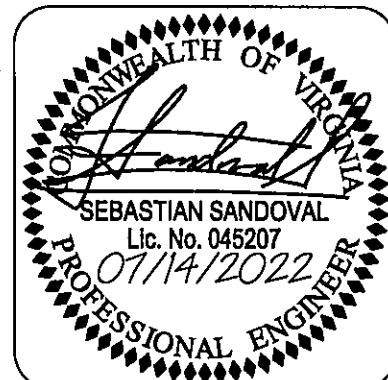


PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: AS NOTED

| PLAN DATE | 12/01/2021 | 12/02/2021 | 12/03/2021 | 12/04/2021 | 12/05/2021 | 12/06/2021 | 12/07/2021 | 12/08/2021 | 12/09/2021 | 12/10/2021 | 12/11/2021 | 12/12/2021 | 12/13/2021 | 12/14/2021 | 12/15/2021 | 12/16/2021 | 12/17/2021 | 12/18/2021 | 12/19/2021 | 12/20/2021 | 12/21/2021 | 12/22/2021 | 12/23/2021 | 12/24/2021 | 12/25/2021 | 12/26/2021 | 12/27/2021 | 12/28/2021 | 12/29/2021 | 12/30/2021 | 12/31/2021 | 1/01/2022 | 1/02/2022 | 1/03/2022 | 1/04/2022 | 1/05/2022 | 1/06/2022 | 1/07/2022 | 1/08/2022 | 1/09/2022 | 1/10/2022 | 1/11/2022 | 1/12/2022 | 1/13/2022 | 1/14/2022 | 1/15/2022 | 1/16/2022 | 1/17/2022 | 1/18/2022 | 1/19/2022 | 1/20/2022 | 1/21/2022 | 1/22/2022 | 1/23/2022 | 1/24/2022 | 1/25/2022 | 1/26/2022 | 1/27/2022 | 1/28/2022 | 1/29/2022 | 1/30/2022 | 1/31/2022 | 2/01/2022 | 2/02/2022 | 2/03/2022 | 2/04/2022 | 2/05/2022 | 2/06/2022 | 2/07/2022 | 2/08/2022 | 2/09/2022 | 2/10/2022 | 2/11/2022 | 2/12/2022 | 2/13/2022 | 2/14/2022 | 2/15/2022 | 2/16/2022 | 2/17/2022 | 2/18/2022 | 2/19/2022 | 2/20/2022 | 2/21/2022 | 2/22/2022 | 2/23/2022 | 2/24/2022 | 2/25/2022 | 2/26/2022 | 2/27/2022 | 2/28/2022 | 2/29/2022 | 3/01/2022 | 3/02/2022 | 3/03/2022 | 3/04/2022 | 3/05/2022 | 3/06/2022 | 3/07/2022 | 3/08/2022 | 3/09/2022 | 3/10/2022 | 3/11/2022 | 3/12/2022 | 3/13/2022 | 3/14/2022 | 3/15/2022 | 3/16/2022 | 3/17/2022 | 3/18/2022 | 3/19/2022 | 3/20/2022 | 3/21/2022 | 3/22/2022 | 3/23/2022 | 3/24/2022 | 3/25/2022 | 3/26/2022 | 3/27/2022 | 3/28/2022 | 3/29/2022 | 3/30/2022 | 3/31/2022 | 4/01/2022 | 4/02/2022 | 4/03/2022 | 4/04/2022 | 4/05/2022 | 4/06/2022 | 4/07/2022 | 4/08/2022 | 4/09/2022 | 4/10/2022 | 4/11/2022 | 4/12/2022 | 4/13/2022 | 4/14/2022 | 4/15/2022 | 4/16/2022 | 4/17/2022 | 4/18/2022 | 4/19/2022 | 4/20/2022 | 4/21/2022 | 4/22/2022 | 4/23/2022 | 4/24/2022 | 4/25/2022 | 4/26/2022 | 4/27/2022 | 4/28/2022 | 4/29/2022 | 4/30/2022 | 5/01/2022 | 5/02/2022 | 5/03/2022 | 5/04/2022 | 5/05/2022 | 5/06/2022 | 5/07/2022 | 5/08/2022 | 5/09/2022 | 5/10/2022 | 5/11/2022 | 5/12/2022 | 5/13/2022 | 5/14/2022 | 5/15/2022 | 5/16/2022 | 5/17/2022 | 5/18/2022 | 5/19/2022 | 5/20/2022 | 5/21/2022 | 5/22/2022 | 5/23/2022 | 5/24/2022 | 5/25/2022 | 5/26/2022 | 5/27/2022 | 5/28/2022 | 5/29/2022 | 5/30/2022 | 5/31/2022 | 6/01/2022 | 6/02/2022 | 6/03/2022 | 6/04/2022 | 6/05/2022 | 6/06/2022 | 6/07/2022 | 6/08/2022 | 6/09/2022 | 6/10/2022 | 6/11/2022 | 6/12/2022 | 6/13/2022 | 6/14/2022 | 6/15/2022 | 6/16/2022 | 6/17/2022 | 6/18/2022 | 6/19/2022 | 6/20/2022 | 6/21/2022 | 6/22/2022 | 6/23/2022 | 6 |
|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
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| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

**STORM COMPUTATIONS**  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

[illegible]

37  
OF  
63

**Project: One Catlett Road**

| From Point | To Point | Drainage Area | C Factor | C x A     |       | Inlet Time Min. | Rain Fall In/Hr | Runoff C C.F.S. | Invert Elev. |           | Length FT. | Slope % | Dia. IN. | Capacity Q C.F.S. | VEL. F.P.S. | Flow Time MIN. |
|------------|----------|---------------|----------|-----------|-------|-----------------|-----------------|-----------------|--------------|-----------|------------|---------|----------|-------------------|-------------|----------------|
|            |          |               |          | Increment | Cumm. |                 |                 |                 | Upper End    | Lower End |            |         |          |                   |             |                |
| 18         | 17       | 0.64          | 0.59     | 0.38      | 0.38  | 5.00            | 6.52            | 2.46            | 315.18       | 315.04    | 27.17      | 0.50%   | 15       | 4.58              | 3.80        | 0.12           |
| 17         | 16       | 0.68          | 0.59     | 0.40      | 0.78  | 5.12            | 6.49            | 5.05            | 314.94       | 314.21    | 67.18      | 1.09%   | 15       | 6.76              | 6.04        | 0.19           |
| 16         | 15       | 0.00          | 0        | 0.00      | 0.78  | 5.33            | 6.43            | 5.01            | 314.11       | 310.37    | 207.88     | 1.80%   | 15       | 8.69              | 7.33        | 0.47           |
| 15         | 14       | 0.00          | 0        | 0.00      | 0.78  | 5.74            | 6.33            | 4.93            | 310.27       | 305.32    | 109.87     | 4.50%   | 15       | 13.74             | 10.27       | 0.18           |
| 14         | 13       | 0.00          | 0        | 0.00      | 3.23  | 6.55            | 6.13            | 19.77           | 299.81       | 298.76    | 211.00     | 0.50%   | 30       | 29.08             | 6.37        | 0.55           |
| 13         | 12       | 0.49          | 0.66     | 0.32      | 3.56  | 6.98            | 6.02            | 21.38           | 298.66       | 298.37    | 44.30      | 0.65%   | 30       | 33.16             | 7.18        | 0.10           |
| 12B        | 12A      | 0.64          | 0.55     | 0.35      | 0.35  | 5.00            | 6.52            | 2.29            | 303.56       | 303.42    | 27.17      | 0.50%   | 15       | 4.58              | 3.73        | 0.12           |
| 12A        | 12       | 0.54          | 0.59     | 0.32      | 0.67  | 5.12            | 6.49            | 4.35            | 303.32       | 302.57    | 149.73     | 0.50%   | 15       | 4.58              | 4.25        | 0.59           |
| 12         | 11       | 0.41          | 0.69     | 0.28      | 4.50  | 7.04            | 6.01            | 27.05           | 298.27       | 296.37    | 115.05     | 1.66%   | 30       | 52.83             | 10.83       | 0.18           |
| 11         | 10       | 0             | 0        | 0.00      | 4.50  | 7.23            | 5.96            | 26.84           | 296.27       | 294.00    | 132.9      | 1.71%   | 30       | 53.78             | 10.95       | 0.20           |
| *          |          |               |          |           |       |                 |                 |                 |              |           |            |         |          |                   |             |                |
| 34         | 33       | 0.46          | 0.61     | 0.28      | 0.28  | 5.00            | 6.52            | 1.83            | 308.01       | 307.87    | 27.18      | 0.50%   | 15       | 4.58              | 3.52        | 0.13           |
| 33         | 32       | 0.30          | 0.62     | 0.19      | 0.47  | 5.13            | 6.48            | 3.03            | 307.77       | 304.89    | 194.75     | 1.48%   | 15       | 7.88              | 6.00        | 0.54           |
| 32         | 31       | 0.97          | 0.69     | 0.67      | 1.14  | 5.67            | 6.35            | 7.21            | 304.79       | 302.46    | 155.34     | 1.50%   | 15       | 7.93              | 7.32        | 0.35           |
| 31         | 30       | 0.61          | 0.37     | 0.22      | 1.36  | 6.02            | 6.26            | 8.52            | 301.71       | 300.55    | 95.57      | 1.22%   | 24       | 25.05             | 7.21        | 0.22           |
| 30         | 14       | 1.31          | 0.83     | 1.09      | 2.45  | 6.24            | 6.21            | 15.19           | 300.45       | 299.91    | 107.08     | 0.50%   | 24       | 16.04             | 5.81        | 0.31           |
| *          |          |               |          |           |       |                 |                 |                 |              |           |            |         |          |                   |             |                |
| 43         | 42       | 0.23          | 0.58     | 0.13      | 0.13  | 5.00            | 6.52            | 0.87            | 296.57       | 296.43    | 27.17      | 0.50%   | 15       | 4.58              | 2.87        | 0.16           |
| 42         | 41       | 0.19          | 0.67     | 0.13      | 0.26  | 5.16            | 6.48            | 1.69            | 296.33       | 295.19    | 229.22     | 0.50%   | 15       | 4.58              | 3.46        | 1.11           |
| 41         | 40       | 0             | 0        | 0.00      | 0.26  | 6.26            | 6.20            | 1.62            | 295.09       | 294.00    | 217.2      | 0.50%   | 15       | 4.58              | 3.41        | 1.06           |

**Project: One Catlett Road**

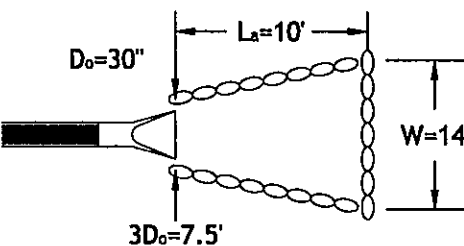
| INLET  |        |               |         |               |      |      |       |           | Q    | Q          | Q     | S       | Sx          | T      | W    | WT   | Sw     | SwSx | EO   | a    | Sw   | Se   | Lt               | P     | L/Lt | d    | E    | h    | Q          | d/H           | Qb      | T |
|--------|--------|---------------|---------|---------------|------|------|-------|-----------|------|------------|-------|---------|-------------|--------|------|------|--------|------|------|------|------|------|------------------|-------|------|------|------|------|------------|---------------|---------|---|
| NUMBER | TYPE   | THROAT LENGTH | STATION | DRAINAGE AREA | C    | CxA  | CxA W | INTENSITY | MC/R | CARRY OVER | TOTAL | GLITTER | CROSS SLOPE | SPREAD |      |      |        |      |      |      |      |      | EFFECTIVE LENGTH |       |      |      |      | INT  | CARRY OVER | SPREAD AT SAG | REMARKS |   |
|        |        |               |         |               |      |      |       |           |      |            |       |         |             |        |      |      |        |      |      |      |      |      |                  |       |      |      |      |      |            |               |         |   |
| 18     | DI-3B  | 10.0          |         | 0.64          | 0.59 | 0.38 | 0.38  | 6.52      | 2.46 |            | 2.46  | 0.0100  | 0.0208      | 8.46   | 2.00 | 0.24 | 0.0833 | 4.00 | 0.65 | 3.50 | 0.15 | 0.12 | 9.95             |       | 1.01 |      | 1.00 |      | 2.46       | 0.00          |         |   |
| 17     | DI-3B  | 10.0          |         | 0.68          | 0.59 | 0.40 | 0.40  | 6.52      | 2.62 |            | 2.62  | 0.0100  | 0.0208      | 8.71   | 2.00 | 0.23 | 0.0833 | 4.00 | 0.64 | 3.50 | 0.15 | 0.11 | 10.31            |       | 0.97 |      | 1.00 |      | 2.61       | 0.00          |         |   |
| 13     | DI-3BB | 10.0          |         | 0.49          | 0.66 | 0.32 | 0.32  | 6.52      | 2.11 |            | 2.11  | 0.0095  | 0.0208      | 7.94   | 2.00 | 0.25 | 0.0833 | 4.00 | 0.69 | 3.50 | 0.15 | 0.12 | 8.97             |       | 1.12 |      | 1.00 |      | 2.11       | 0.00          |         |   |
| 12B    | DI-3B  | 10.0          |         | 0.64          | 0.55 | 0.35 | 0.35  | 6.52      | 2.30 |            | 2.30  | 0.0080  | 0.0208      | 8.63   | 2.00 | 0.23 | 0.0833 | 4.00 | 0.64 | 3.50 | 0.15 | 0.11 | 9.10             |       | 1.10 |      | 1.00 |      | 2.30       | 0.00          |         |   |
| 12A    | DI-3B  | 10.0          |         | 0.54          | 0.59 | 0.32 | 0.32  | 6.52      | 2.08 |            | 2.08  | 0.0104  | 0.0208      | 7.70   | 2.00 | 0.26 | 0.0833 | 4.00 | 0.70 | 3.50 | 0.15 | 0.12 | 9.08             |       | 1.10 |      | 1.00 |      | 2.08       | 0.00          |         |   |
| 12     | DI-3CC | 12            |         | 0.21          | 0.69 | 0.14 | 0.14  | 6.52      | 0.94 |            | 0.94  | 0.0065  | 0.0208      | 5.68   | 2    |      | 0.083  | 3.99 |      |      |      |      |                  | 15.60 |      | 0.14 |      | 0.42 |            | 0.33          | 6.58    |   |
|        |        |               |         | 0.20          | 0.69 | 0.14 | 0.14  | 6.52      | 0.90 | 0.00       | 0.90  |         |             | 5.51   |      |      |        |      |      |      |      |      |                  |       |      |      |      |      |            |               |         |   |
| 34     | DI-3B  | 10.0          |         | 0.46          | 0.61 | 0.28 | 0.28  | 6.52      | 1.83 |            | 1.83  | 0.0250  | 0.0208      | 5.63   | 2.00 | 0.36 | 0.0833 | 4.00 | 0.84 | 3.50 | 0.15 | 0.14 | 10.18            |       | 0.98 |      | 1.00 |      | 1.83       | 0.00          |         |   |
| 33     | DI-3B  | 10.0          |         | 0.30          | 0.62 | 0.19 | 0.19  | 6.52      | 1.21 |            | 1.21  | 0.0400  | 0.0208      | 3.49   | 2.00 | 0.57 | 0.0833 | 4.00 | 0.97 | 3.50 | 0.15 | 0.16 | 9.16             |       | 1.09 |      | 1.00 |      | 1.21       | 0.00          |         |   |
| 32     | DI-7   |               |         | 0.97          | 0.69 | 0.67 | 0.67  | 6.52      | 4.36 | 0.00       | 4.36  |         |             |        |      |      |        |      |      |      |      |      | 6.4              |       | 0.37 |      |      |      |            |               |         |   |
| 31     | DI-7   |               |         | 0.61          | 0.37 | 0.22 | 0.22  | 6.52      | 1.47 | 0.00       | 1.47  |         |             |        |      |      |        |      |      |      |      |      | 6.4              |       | 0.18 |      |      |      |            |               |         |   |
| 30     | DI-7   |               |         | 1.31          | 0.83 | 1.09 | 1.09  | 6.52      | 7.09 | 0.00       | 7.09  |         |             |        |      |      |        |      |      |      |      |      | 6.4              |       | 0.51 |      |      |      |            |               |         |   |
| 43     | DI-3B  | 8.0           |         | 0.23          | 0.58 | 0.13 | 0.13  | 6.52      | 0.87 |            | 0.87  | 0.0490  | 0.0208      | 2.13   | 2.00 | 0.94 | 0.0833 | 4.00 | 1.00 | 3.50 | 0.15 | 0.17 | 8.34             |       | 0.96 |      | 1.00 |      | 0.87       | 0.00          |         |   |
| 42     | DI-3B  | 8.0           |         | 0.19          | 0.67 | 0.13 | 0.13  | 6.52      | 0.83 |            | 0.83  | 0.0490  | 0.0208      | 2.00   | 2.00 | 1.00 | 0.0833 | 4.00 | 1.00 | 3.50 | 0.15 | 0.17 | 8.18             |       | 0.98 |      | 1.00 |      | 0.83       | 0.00          |         |   |

**Project: One Catlett Road**

| INLET STATION | UPSTREAM INLET | Outlet Water Surface Elev. (2) | Do in (3) | Qp cfs (4) | Lo ft (5) | Slo % (6) | Hf ft (7) | JUNCTION LOSS |        |         |         |          |                |         |            |         |                    | Ht (16) | 1.3 Ht (17) | 0.5 Ht (18) | FINAL H (19) | Inlet Water Surface Elev. (20) | RIM ELEV. (21) |
|---------------|----------------|--------------------------------|-----------|------------|-----------|-----------|-----------|---------------|--------|---------|---------|----------|----------------|---------|------------|---------|--------------------|---------|-------------|-------------|--------------|--------------------------------|----------------|
|               |                |                                |           |            |           |           |           | Vo (8)        | Ho (9) | Qi (10) | Vi (11) | QVi (12) | 2 Vt / 2g (13) | Hi (14) | Angle (15) | Hd (15) |                    |         |             |             |              |                                |                |
| (1)           |                | (2)                            | (3)       | (4)        | (5)       | (6)       | (7)       | (8)           | (9)    | (10)    | (11)    | (12)     | (13)           | (14)    | (15)       | (16)    | (17)               | (18)    | (19)        | (20)        | (21)         |                                |                |
| 10            |                |                                |           |            |           |           |           |               |        |         |         |          |                |         |            |         | Starting Elevation |         | 295.77      |             |              |                                |                |
| 11            |                | 296.00                         | 30.00     | 26.84      | 132.91    | 0.43      | 0.57      | 10.95         | 0.47   |         |         |          | 0.64           |         | 0.55       | 1.65    | 0.00               | 0.82    | 1.39        | 297.39      | 303.05       |                                |                |
| 12            | 12             | 298.37                         | 30.00     | 27.05      | 115.05    | 0.43      | 0.50      | 10.83         | 0.45   | 27.05   | 10.83   | 292.79   | 1.82           | 32.00   | 0.20       | 0.93    | 0.00               | 0.47    | 0.96        | 299.34      | 306.35       |                                |                |
| 13            | 13             | 300.00                         | 30.00     |            |           |           |           |               |        | 21.38   | 7.18    | 153.47   | 0.80           | 0.28    | 19.00      | 0.12    |                    |         |             |             |              |                                |                |
| 12A           | 12A            | 299.34                         | 15.00     | 4.35       | 149.73    | 0.45      | 0.68      | 4.25          | 0.07   | 4.35    | 4.25    | 18.49    | 0.28           | 0.10    | 90.00      | 0.20    | 0.13               | 0.28    | 0.00        | 0.14        | 0.81         | 300.15                         | 308.23         |
| 12B           | 12B            | 304.42                         | 15.00     | 2.29       | 27.17     | 0.13      | 0.03      | 3.73          | 0.05   | 2.29    | 3.73    | 8.56     | 0.22           | 70.00   | 0.00       | 0.05    | 0.00               | 0.03    | 0.06        | 304.48      | 308.23       |                                |                |
| 13            | 13             | 299.34                         | 30.00     | 21.38      | 44.30     | 0.27      | 0.12      | 7.18          | 0.20   | 2.29    | 0.00    | 0.00     | 0.00           | 0.00    | 0.31       | 0.73    | 0.00               | 0.36    | 0.48        | 299.82      | 306.77       |                                |                |
| 14            | 14             | 300.76                         | 30.00     | 19.77      | 211.00    | 0.23      | 0.49      | 6.37          | 0.16   | 19.77   | 6.37    | 125.97   | 0.63           | 52.00   | 0.34       | 1.07    | 0.00               | 0.54    | 1.02        | 301.78      | 311.74       |                                |                |
|               | 15             | 24.00                          | 15.00     |            |           |           |           |               |        | 4.93    | 10.27   | 50.66    | 1.64           | 0.57    | 2.00       | 0.02    |                    |         |             |             |              |                                |                |
|               | 30             | 301.78                         | 24.00     | 15.19      | 107.08    | 0.45      | 0.48      | 5.81          | 0.13   | 15.19   | 5.81    | 88.23    | 0.52           | 0.18    | 78.00      | 0.34    | 0.46               | 0.87    | 0.00        | 0.44        | 0.92         | 302.70                         | 304.45         |
| 31            | 31             | 302.70                         | 24.00     | 8.52       | 95.57     | 0.14      | 0.13      | 7.21          | 0.20   | 8.52    | 7.21    | 61.44    | 0.81           | 63.00   | 0.00       | 0.49    | 0.00               | 0.25    | 0.38        | 303.08      | 307.31       |                                |                |
| 32            | 32             | 303.46                         | 15.00     | 7.21       | 155.34    | 1.24      | 1.93      | 7.32          | 0.21   | 7.21    | 7.32    | 52.82    | 0.83           | 0.00    | 0.00       | 0.40    | 0.00               | 0.20    | 2.13        | 305.59      | 308.79       |                                |                |
| 33            | 33             | 305.89                         | 15.00     | 3.03       | 194.75    | 0.22      | 0.42      | 6.00          | 0.14   | 3.03    | 6.00    | 18.16    | 0.56           | 0.00    | 0.00       | 0.21    | 0.00               | 0.10    | 0.53        | 306.42      | 314.43       |                                |                |
| 34            | 34             | 308.87                         | 15.00     | 1.83       | 27.18     | 0.08      | 0.02      | 3.52          | 0.05   | 1.83    | 3.52    | 6.44     | 0.19           | 1.00    | 0.00       | 0.05    | 0.00               | 0.02    | 0.05        | 308.92      | 314.38       |                                |                |
|               | 0              | 301.78                         | 15.00     | 4.93       | 109.87    | 0.58      | 0.64      | 10.27         | 0.41   | 1.83    | 0.00    | 0.00     | 0.00           | 0.29    | 0.39       | 1.09    | 0.00               | 0.55    | 1.18        | 302.97      | 315.26       |                                |                |
| 16            | 16             | 311.37                         | 15.00     | 5.01       | 207.88    | 0.60      | 1.24      | 7.33          | 0.21   | 5.01    | 7.33    | 36.74    | 0.83           | 50.00   | 0.35       | 0.76    | 0.00               | 0.38    | 1.63        | 312.99      | 322.59       |                                |                |
| 17            | 17             | 315.21                         | 15.00     | 5.05       | 67.18     | 0.61      | 0.41      | 6.04          | 0.14   | 5.05    | 6.04    | 30.53    | 0.57           | 73.00   | 0.08       | 0.13    | 0.35               | 0.00    | 0.18        | 0.59        | 315.80       | 320.83                         |                |
| 18            | 18             | 316.04                         | 15.00     | 2.46       | 27.17     | 0.14      | 0.04      | 3.80          | 0.08   | 2.46    | 3.80    | 9.35     | 0.22           | 67.00   | 0.00       | 0.06    | 0.00               | 0.03    | 0.07        | 316.11      | 320.83       |                                |                |
|               | 0              |                                |           |            |           |           |           |               |        | 2.46    | 0.00    | 0.00     | 0.00           | 0.00    |            |         |                    |         |             |             |              |                                |                |
| 40            |                |                                |           |            |           |           |           |               |        |         |         |          |                |         |            |         | Starting Elevation |         | 295.77      |             |              |                                |                |
| 41            |                | 295.77                         | 15.00     | 1.62       | 217.23    | 0.06      | 0.14      | 3.41          | 0.05   |         |         |          |                | 0.06    | 0.09       | 0.20    | 0.00               | 0.10    | 0.23        | 296.00      | 300.00       |                                |                |
| 42            | 42             | 296.19                         | 15.00     | 1.69       | 229.22    | 0.07      | 0.16      | 3.46          | 0.05   | 1.69    | 3.46    | 5.84     | 0.19           | 49.00   | 0.00       | 0.10    | 0.00               | 0.05    | 0.20        | 296.39      | 302.74       |                                |                |
| 43            | 43             | 297.43                         | 15.00     | 0.87       | 27.17     | 0.02      | 0.00      | 2.87          | 0.03   | 0.87    | 2.87    | 2.50     | 0.13           | 5.00    | 0.00       | 0.03    | 0.00               | 0.02    | 0.02        | 297.45      | 302.74       |                                |                |
|               | 0              |                                |           |            |           |           |           |               |        | 0.87    | 0.00    | 0.00     | 0.00           | 0.00    | 0.00       | 0.03    | 0.00               | 0.02    | 0.02        | 297.45      | 302.74       |                                |                |

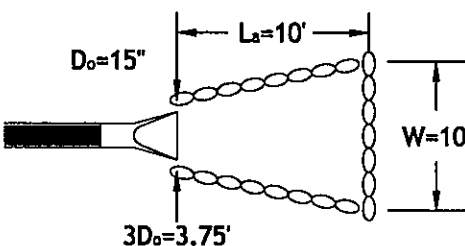
$Q_{10} = 26.84 \text{ CFS}$   
 $V = 10.95 \text{ FT/S}$   
 Pipe Diameter =  $D_o = 30'' \text{ RCP}$   
 $TW = 2' > 0.5 D_o = 1.25'$   
 Max. Tailwater Condition  
 $L_s = 10'$

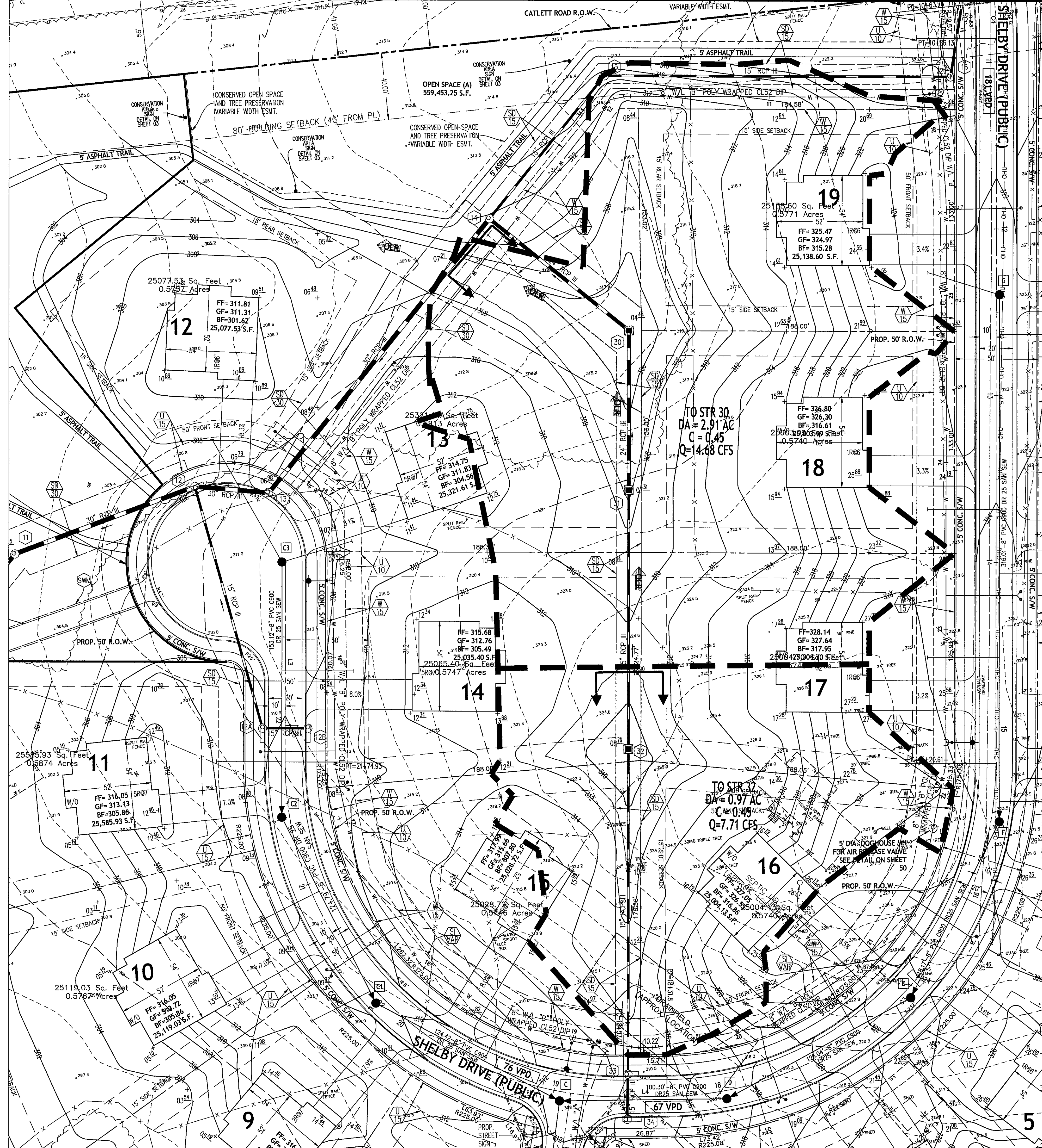
$d_{50} = 1.1'$  (Class I)  
 $d_{50} = 1.6'$  (Class II)  
 $d_{max} = d_{50} \times 1.5 = 1.65'$   
 Apron Thickness =  $d_{max} \times 1.5 = 2.47'$   
**Minimum Thickness = 2.5' (Class I)**  
**Minimum Thickness = 3.6' (Class II)**



$Q_{10} = 1.62 \text{ CFS}$   
 $V = 3.41 \text{ FT/S}$   
 Pipe Diameter =  $D_o = 15'' \text{ RCP}$   
 $TW = 1' > 0.5 D_o = 0.625'$   
 Max. Tailwater Condition  
 $L_t = 10'$

$d_{50} = 1.1'$  (Class I)  
 $d_{50} = 1.6'$  (Class II)  
 $d_{max} = d_{50} \times 1.5 = 1.65'$   
 Apron Thickness =  $d_{max} \times 1.5 = 2.47'$   
 Minimum Thickness =  $2.5'$  (Class I)  
 Minimum Thickness =  $3.6'$  (Class II)





## OVERLAND RELIEF COMPUTATIONS

Project: One Catlett Road

| OVERLAND LAND SECTION |  | Drainage Area | C Factor | C x A | Inlet Time Min. | Rain Fall In/Hr | Runoff 100-YR 'Q' C.F.S. | 100-YR DEPTH | 100-YR WSE |
|-----------------------|--|---------------|----------|-------|-----------------|-----------------|--------------------------|--------------|------------|
| 32                    |  | 0.97          | 0.45     | 0.44  | 5.00            | 8.84            | 7.71                     | 0.11         | 311.01     |
| 30                    |  | 2.91          | 0.45     | 1.31  | 5.00            | 8.84            | 14.68                    | 0.31         | 307.52     |

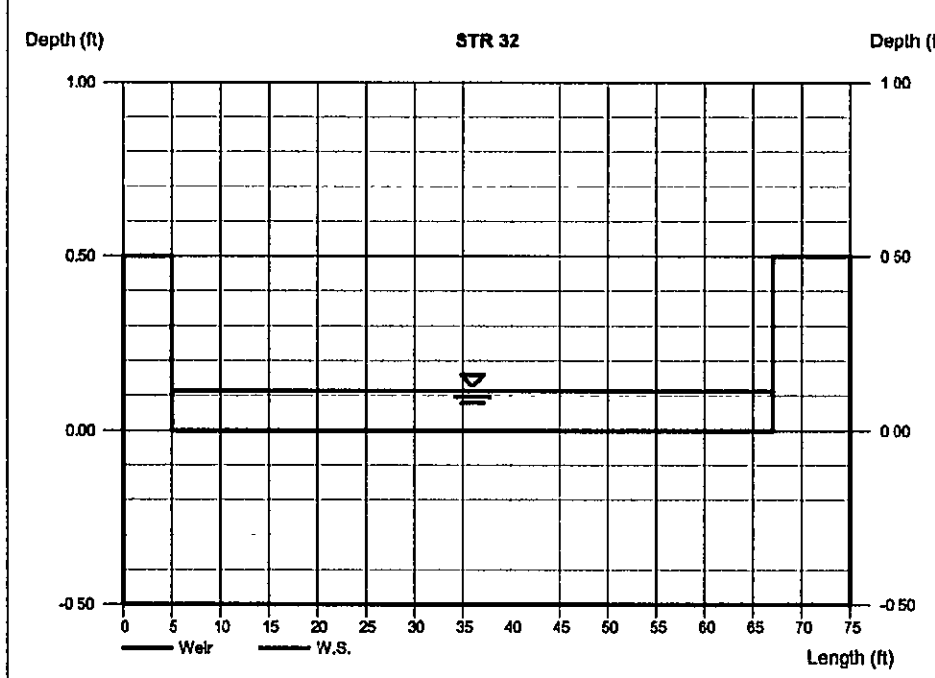
## Weir Report

Hydroware Express Extension for AutoCAD® Civil 3D® by Autodesk, Inc.

Friday, Mar 12 2004

## STR 32

|                            |         |                    |         |
|----------------------------|---------|--------------------|---------|
| <b>Rectangular Weir</b>    |         | <b>Highlighted</b> |         |
| Crest                      | = Sharp | Depth (ft)         | = 0.11  |
| Bottom Length (ft)         | = 62.00 | Q (cfs)            | = 7.710 |
| Total Depth (ft)           | = 0.50  | Area (sqft)        | = 6.92  |
|                            |         | Velocity (ft/s)    | = 1.11  |
| <b>Calculations</b>        |         | Top Width (ft)     | = 62.00 |
| Weir Coeff. C <sub>w</sub> | = 3.33  |                    |         |
| Compuite Q:                | Known Q |                    |         |
| Known Q (cfs)              | = 7.71  |                    |         |



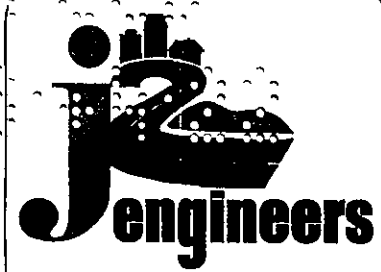
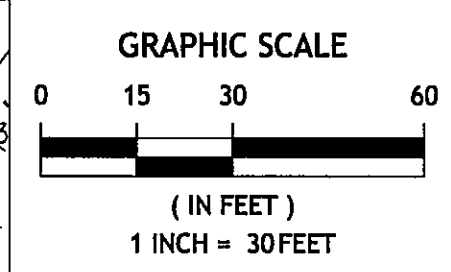
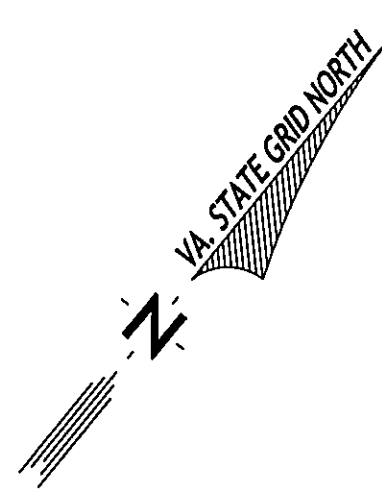
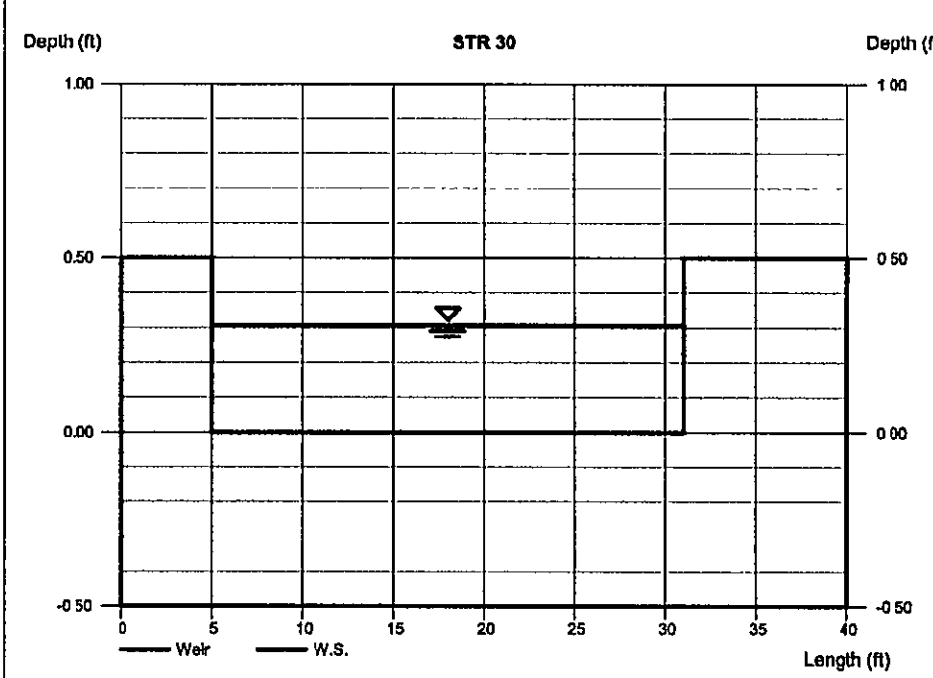
## Welr Report

Hydraflow Express Extension for AutoCAD® Civil 3D® by Autodesk, Inc.

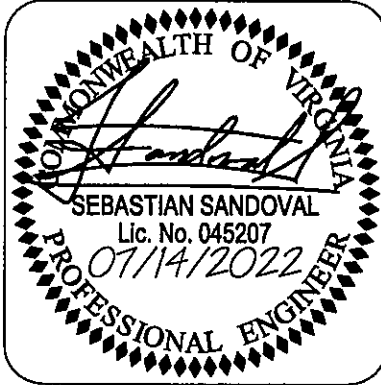
Friday, Mar 12 2021

## STR 30

|                            |         |                    |         |
|----------------------------|---------|--------------------|---------|
| <b>Rectangular Weir</b>    |         | <b>Highlighted</b> |         |
| Crest                      | = Sharp | Depth (ft)         | = 0.31  |
| Bottom Length (ft)         | = 26.00 | Q (cfs)            | = 14.68 |
| Total Depth (ft)           | = 0.50  | Area (sqft)        | = 7.96  |
|                            |         | Velocity (ft/s)    | = 1.84  |
| <b>Calculations</b>        |         | Top Width (ft)     | = 26.00 |
| Weir Coeff. C <sub>w</sub> | = 3.33  |                    |         |
| Compute by:                | Known Q |                    |         |
| Known Q (cfs)              | = 14.68 |                    |         |



**J2 Engineers, Inc.**  
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Dumfries, Va. 22026  
  
703.361.1550 (office)  
703.956.6845 (fax)  
[www.j2engineers.com](http://www.j2engineers.com)



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT.= 2'  
SCALE: 1"=30'

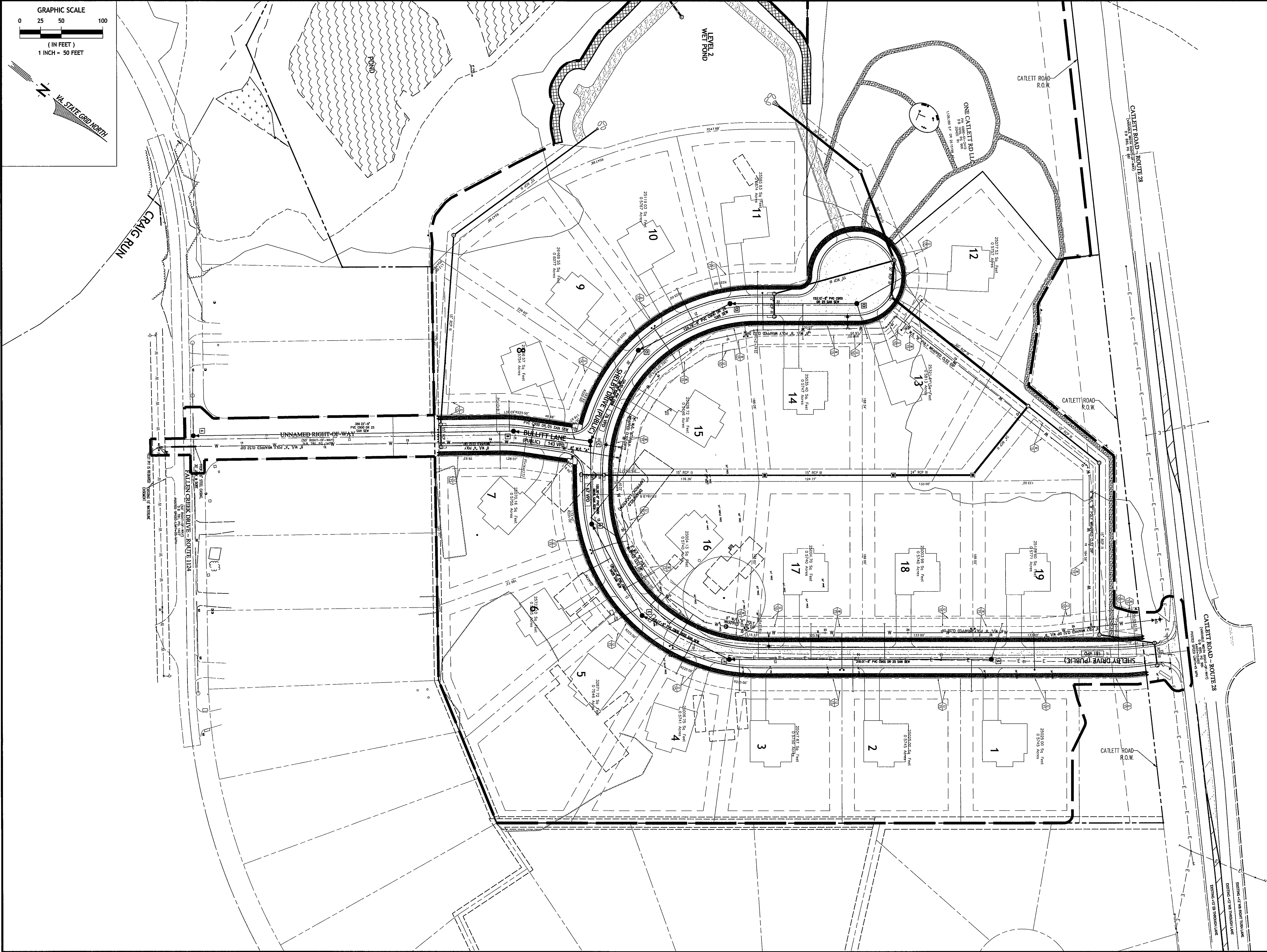
| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |
| -          |
| -          |
| -          |

100-YR OVERLAND RELIEF  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

[illegible]

SHEET  
38  
OF  
63

J2 Engineers - X:\DRAWINGS\ACTIVE\one catlett overall UTIL.dwg 039 OVERALL UTILITIES PLAN July 14, 2022 - 9:35am mabdelhamid



**J2engineers**  
J2 Engineers, Inc.  
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Suite 180  
Dumfries, Va. 22026  
703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com

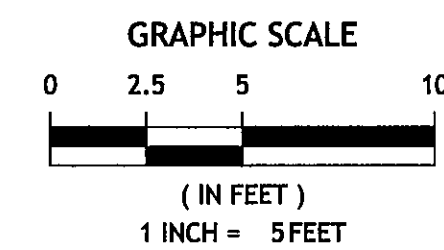
COMMONWEALTH OF VIRGINIA  
SEBASTIAN SANDOVAL  
Lic. No. 045207  
07/14/2022  
PROFESSIONAL ENGINEER

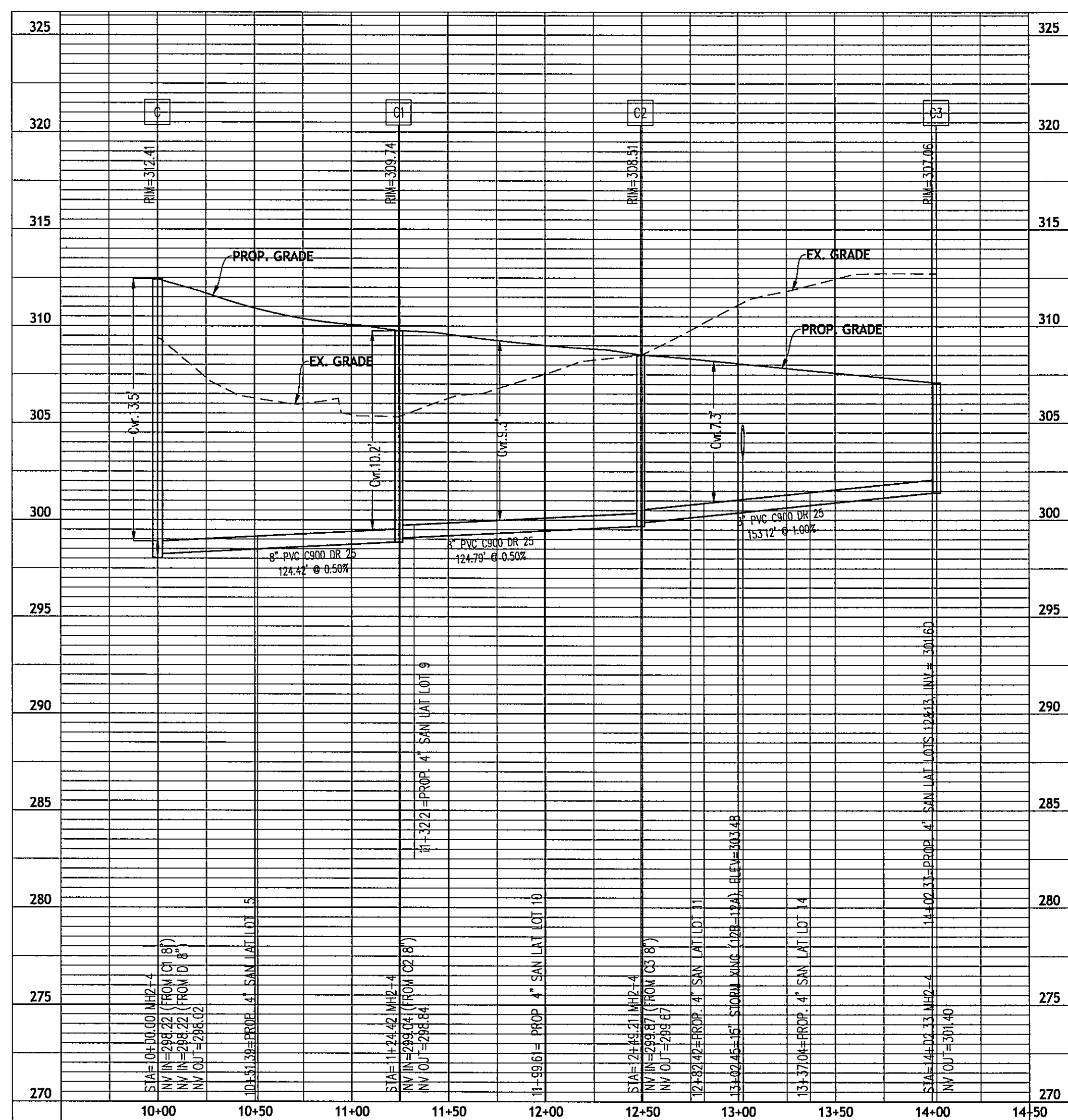
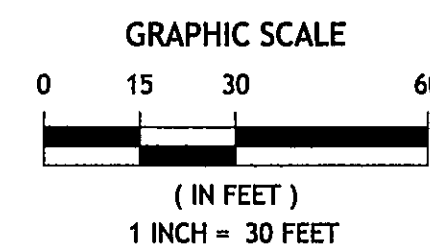
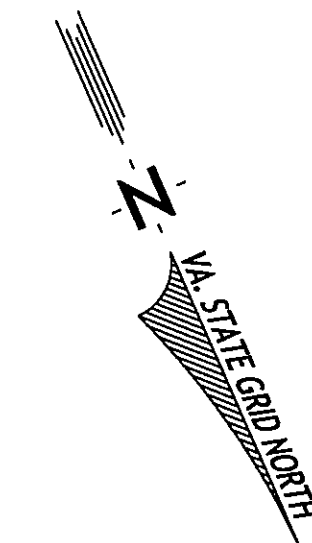
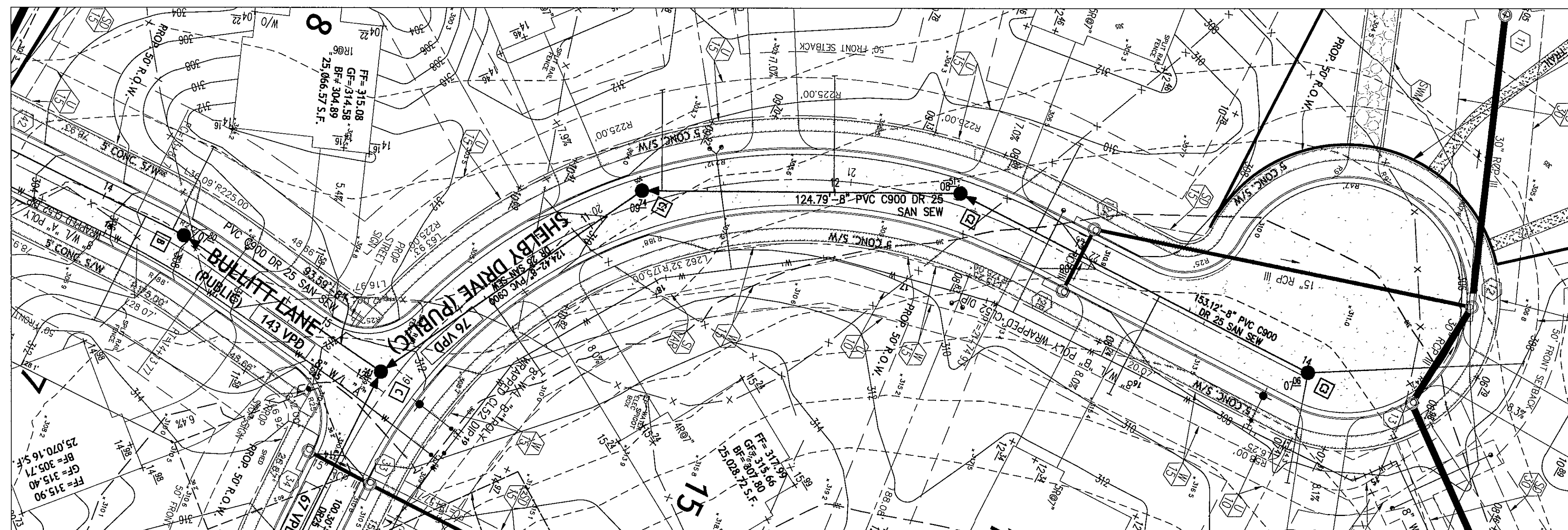
PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = NA  
SCALE: 1"=50'

| PLAN DATE  | DESCRIPTION |
|------------|-------------|
| 03/12/2021 | 1/2021      |
| 04/02/2021 | 1/2021      |
| 05/12/2021 | 1/2021      |
| 06/12/2021 | 1/2021      |
| 07/14/2022 | 07/14/2022  |

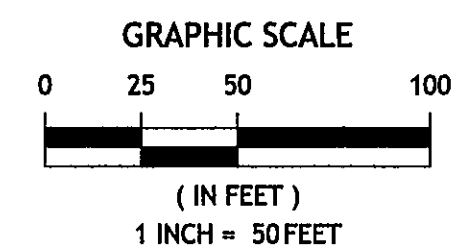
OVERALL UTILITIES PLAN  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |             |
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| No.       | DESCRIPTION |
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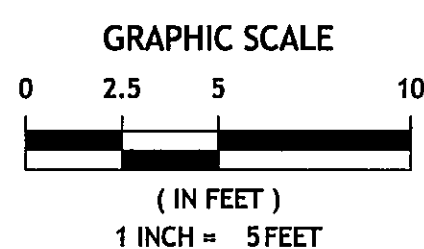


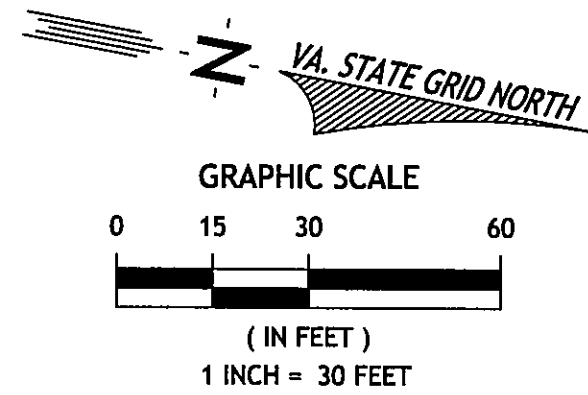
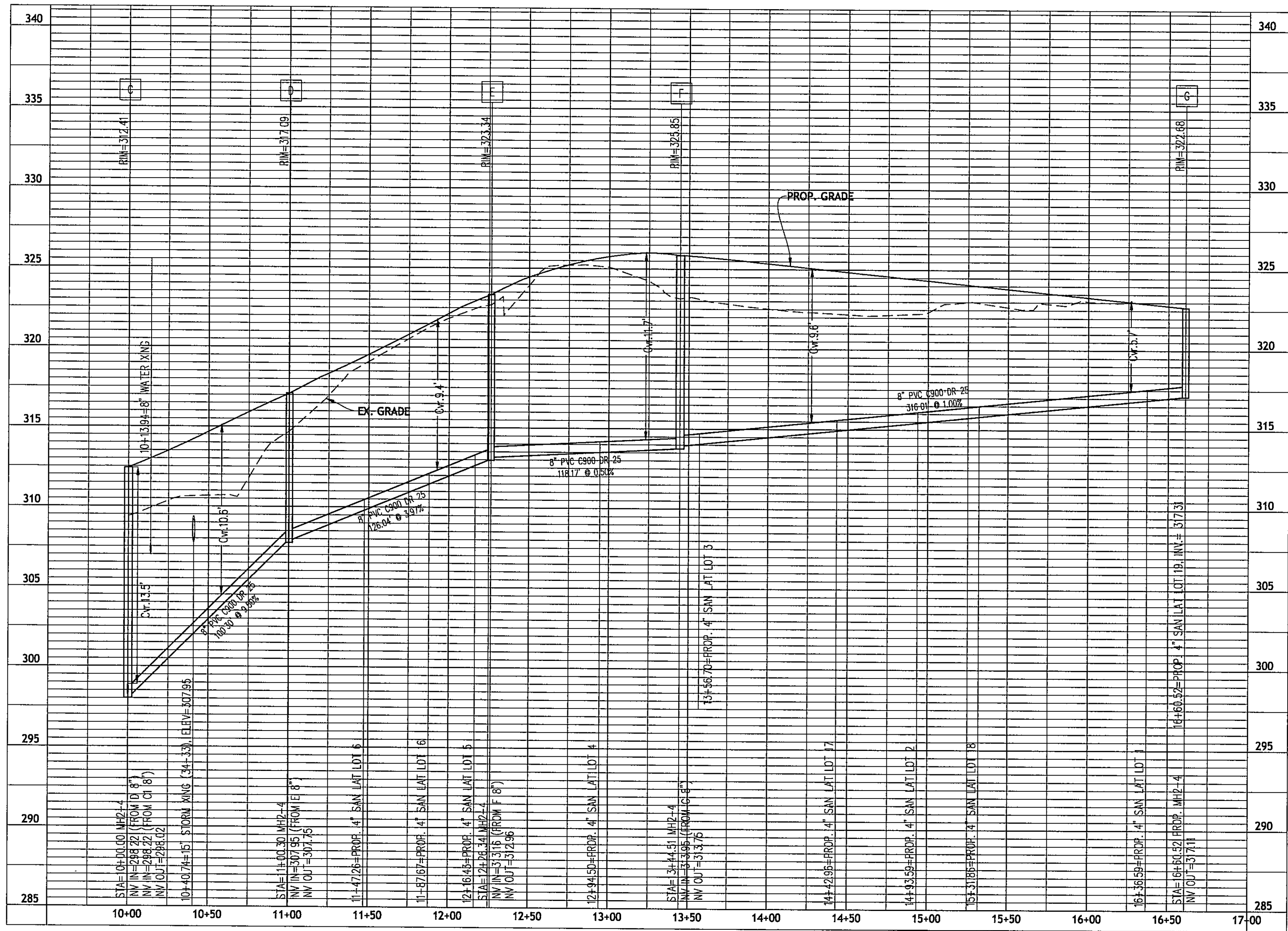
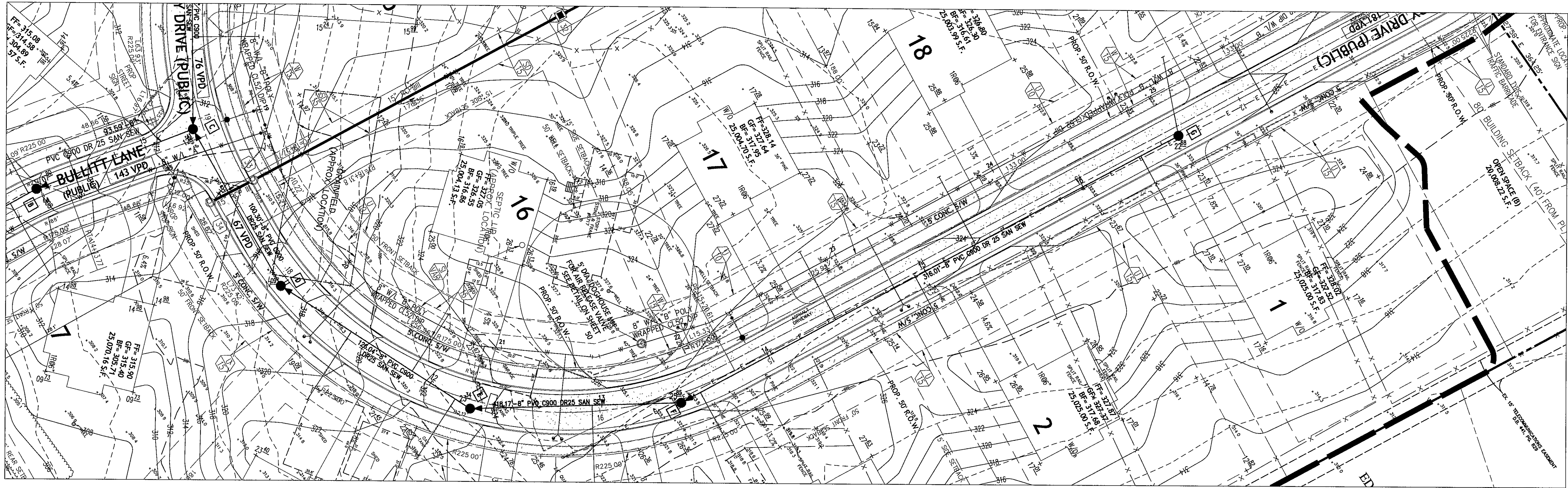


### HORIZONTAL SCALE

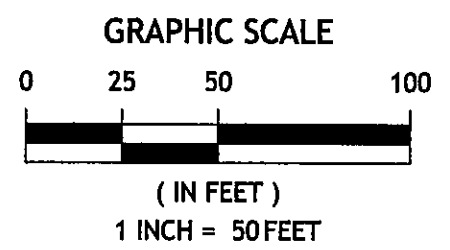


### VERTICAL SCALE

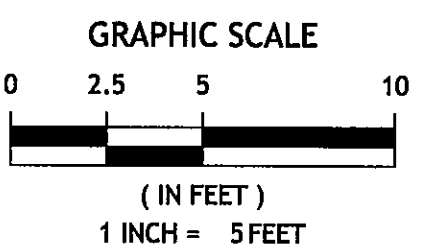
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HORIZONTAL SCALE



VERTICAL SCALE

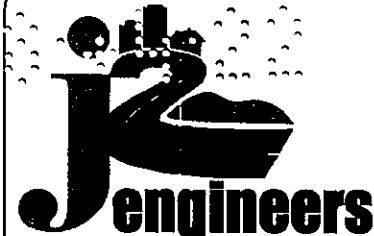


SANITARY PROFILES  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

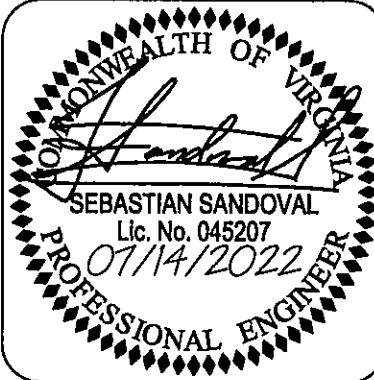
| REVISIONS |             |
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| SANITARY SEWER DESIGN TABLE |                |             |                    |       |              |                     |                |           |                       |                                 |              |           |                    |              |              |            |                    |              |                      |                       |                 |
|-----------------------------|----------------|-------------|--------------------|-------|--------------|---------------------|----------------|-----------|-----------------------|---------------------------------|--------------|-----------|--------------------|--------------|--------------|------------|--------------------|--------------|----------------------|-----------------------|-----------------|
| Description                 |                |             | Flow Determination |       |              |                     |                |           |                       | Sewer Design, Manning's n=0.013 |              |           |                    |              |              |            |                    |              |                      | Invert Elevation      |                 |
| Location                    | Manhole Number |             | Units              |       | GPD per Unit | Domestic Flow (mgd) |                |           | Industrial Flow (mgd) | Total Peak Flow (mgd)           | at d/D = 0.8 |           |                    |              | at Peak Flow |            | n=0.014 at d/D = 1 |              | Drop in manhole (ft) | Upper End / Lower End |                 |
|                             | From           | To          | Incr.              | Total |              | Average flow        | Peaking Factor | Peak Flow |                       |                                 | Length (ft)  | Slope (%) | Pipe Diameter (in) | Capacity MGD | Velocity FPS | Depth (in) | Velocity (fps)     | Capacity MGD | Velocity FPS         |                       |                 |
|                             | C3             | C2          | 4                  | 4     | 390          | 0.002               | 9.08           | 0.014     |                       | 0.014                           | 153          | 1.00      | 8                  | 0.625        | 4.0          | 0.75       | 1.33               | 0.78         | 3.22                 | 0.20                  | 301.40 / 299.87 |
|                             | C2             | C1          | 2                  | 6     | 390          | 0.002               | 8.79           | 0.021     |                       | 0.021                           | 125          | 0.50      | 8                  | 0.444        | 2.8          | 1.05       | 1.17               | 0.55         | 2.29                 | 0.20                  | 299.67 / 299.04 |
|                             | C1             | C           | 1                  | 7     | 390          | 0.003               | 8.67           | 0.024     |                       | 0.024                           | 124          | 0.50      | 8                  | 0.440        | 2.8          | 1.13       | 1.22               | 0.55         | 2.27                 | 0.20                  | 298.84 / 298.22 |
|                             | G              | F           | 6                  | 6     | 390          | 0.002               | 8.79           | 0.021     |                       | 0.021                           | 316          | 1.00      | 8                  | 0.625        | 4.0          | 0.89       | 1.49               | 0.78         | 3.22                 | 0.20                  | 317.11 / 313.95 |
|                             | F              | E           | 1                  | 7     | 390          | 0.003               | 8.67           | 0.024     |                       | 0.024                           | 118          | 0.50      | 8                  | 0.442        | 2.8          | 1.13       | 1.22               | 0.55         | 2.28                 | 0.20                  | 313.75 / 313.16 |
|                             | E              | D           | 3                  | 10    | 390          | 0.004               | 8.41           | 0.033     |                       | 0.033                           | 126          | 3.97      | 8                  | 1.245        | 7.9          | 0.80       | 2.78               | 1.56         | 6.42                 | 0.20                  | 312.96 / 307.95 |
|                             | D              | C           | 0                  | 10    | 390          | 0.004               | 8.41           | 0.033     |                       | 0.033                           | 100          | 9.50      | 8                  | 1.926        | 12.2         | 0.65       | 3.77               | 2.41         | 9.93                 | 0.20                  | 307.75 / 298.22 |
|                             | C              | B           | 0                  | 17    | 390          | 0.007               | 8.02           | 0.053     |                       | 0.053                           | 94           | 1.40      | 8                  | 0.740        | 4.7          | 1.30       | 2.23               | 0.92         | 3.82                 | 0.20                  | 298.02 / 296.71 |
|                             | B              | A           | 2                  | 19    | 390          | 0.007               | 7.94           | 0.059     |                       | 0.059                           | 386          | 2.62      | 8                  | 1.012        | 6.4          | 1.17       | 2.87               | 1.26         | 5.22                 | 0.20                  | 296.51 / 286.38 |
|                             | A              | EX. BE-807B | 0                  | 19    | 390          | 0.007               | 7.94           | 0.059     |                       | 0.059                           | 49           | 1.54      | 8                  | 0.775        | 4.9          | 1.34       | 2.38               | 0.97         | 4.00                 | 0.40                  | 286.18 / 285.43 |
|                             | EX. BE-807B    | EX. BE-807A | 15                 | 34    | 390          | 0.013               | 7.51           | 0.100     |                       | 0.100                           | 64           | 6.13      | 8                  | 1.547        | 9.8          | 1.23       | 4.52               | 1.93         | 7.98                 | 0.08                  | 285.03 / 281.12 |
|                             | EX. BE-807A    | EX. BE-807  | 0                  | 34    | 390          | 0.013               | 7.51           | 0.100     |                       | 0.100                           | 86           | 0.88      | 8                  | 0.586        | 3.7          | 1.99       | 2.28               | 0.73         | 3.02                 | 0.08                  | 281.04 / 280.28 |
|                             | EX. BE-807     | EX. BE-806  | 243                | 277   | 390          | 0.108               | 5.97           | 0.644     |                       | 0.644                           | 267          | 0.18      | 12                 | 0.782        | 2.2          | 7.11       | 2.06               | 0.98         | 1.79                 | 0.51                  | 280.20 / 279.74 |
|                             | EX. BE-806     | EX. BE-805  | 0                  | 277   | 390          | 0.108               | 5.97           | 0.644     |                       | 0.644                           | 269          | 0.54      | 12                 | 1.354        | 3.8          | 5.13       | 3.12               | 1.69         | 3.10                 | 0.07                  | 279.23 / 277.78 |
|                             | EX. BE-805     | EX. BE-804  | 0                  | 277   | 390          | 0.108               | 5.97           | 0.644     |                       | 0.644                           | 342          | 0.09      | 12                 | 0.553        | 1.6          | 9.18       | 1.55               | 0.69         | 1.27                 | 0.37                  | 277.71 / 277.40 |
|                             | EX. BE-804     | EX. BE-803  | 0                  | 277   | 390          | 0.108               | 5.97           | 0.644     |                       | 0.644                           | 351          | 0.25      | 12                 | 0.921        | 2.6          | 6.42       | 2.34               | 1.15         | 2.11                 | 0.08                  | 277.03 / 276.15 |
|                             | EX. BE-803     | EX. BE-802  | 14                 | 291   | 390          | 0.113               | 5.93           | 0.673     |                       | 0.673                           | 395          | 0.25      | 12                 | 0.921        | 2.6          | 6.59       | 2.36               | 1.15         | 2.11                 | 0.03                  | 276.07 / 275.08 |
|                             | EX. BE-802     | EX. BE-801  | 0                  | 291   | 390          | 0.113               | 5.93           | 0.673     |                       | 0.673                           | 360          | 0.29      | 12                 | 0.982        | 2.8          | 6.30       | 2.50               | 1.24         | 2.27                 | 0.07                  | 275.05 / 274.01 |
|                             | EX. BE-801     | EX. BE-800  | 0                  | 291   | 390          | 0.113               | 5.93           | 0.673     |                       | 0.673                           | 301          | 0.29      | 12                 | 0.992        | 2.8          | 6.30       | 2.50               | 1.24         | 2.27                 | 0.04                  | 273.94 / 273.07 |
|                             | EX. BE-800     | EX. MH      | 0                  | 291   | 390          | 0.113               | 5.93           | 0.673     |                       | 0.673                           | 301          | 0.27      | 12                 | 0.959        | 2.7          | 6.43       | 2.44               | 1.20         | 2.20                 | 0.20                  | 273.03 / 272.21 |

| SANITARY SEWER LATERAL COMPUTATIONS |         |          |          |                  |           |                      |                   |                          |                                 |       |                        |                             |                    |                         |                    |                           |                          |                       |
|-------------------------------------|---------|----------|----------|------------------|-----------|----------------------|-------------------|--------------------------|---------------------------------|-------|------------------------|-----------------------------|--------------------|-------------------------|--------------------|---------------------------|--------------------------|-----------------------|
| Lot                                 | Station | Lower MH | Upper MH | Lateral Dia (in) | Slope (%) | Overall Length (FT.) | Invert @ The Main | Invert of Lateral @ Main | Invert of Lateral @ Terminal MH | Cond. | Distance to Vert. Bend | Inv. @ Bottom of Vert. Bend | Stack Height (FT.) | Inv @ Top of Vert. Bend | Inv. @ Lateral End | Finished Grade @ End Lat. | Basement Elevation (FT.) | Ejector Pump Required |
| 1                                   | 2+92.08 | F /      | G        | 4                | 2.08%     | 39.0                 | 316.87            | 318.12                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 318.93             | 324.52                    | 317.83                   | Y                     |
| 2                                   | 1+49.08 | F /      | G        | 4                | 2.08%     | 39.0                 | 315.44            | 316.69                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 317.50             | 325.15                    | 317.68                   | Y                     |
| 3                                   | 0+12.19 | F /      | G        | 4                | 2.08%     | 38.0                 | 314.07            | 315.32                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 316.11             | 326.28                    | 318.36                   | Y                     |
| 4                                   | 0+68.16 | E /      | F        | 4                | 2.08%     | 45.0                 | 313.50            | 314.75                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 315.68             | 326.62                    | 318.67                   | Y                     |
| 5                                   | 1+16.13 | D /      | E        | 4                | 2.08%     | 40.0                 | 312.56            | 313.81                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 314.64             | 323.90                    | 317.33                   | Y                     |
| 6                                   | 0+46.96 | D /      | E        | 4                | 2.08%     | 45.0                 | 309.81            | 311.06                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 312.00             | 321.03                    | 314.13                   | Y                     |
| 7                                   | 3+69.53 | A /      | B        | 4                | 2.08%     | 45.0                 | 296.07            | 297.32                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 298.26             | 317.56                    | 305.71                   |                       |
| 8                                   | 3+81.22 | A /      | B        | 4                | 2.08%     | 36.0                 | 296.38            | 297.63                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 298.38             | 312.02                    | 304.89                   |                       |
| 9                                   | 0+07.79 | C1 /     | C2       | 4                | 2.08%     | 40.0                 | 299.08            | 300.33                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 301.16             | 311.33                    | 305.86                   |                       |
| 10                                  | 0+75.19 | C1 /     | C2       | 4                | 2.08%     | 46.0                 | 299.42            | 300.67                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 301.62             | 310.64                    | 305.86                   |                       |
| 11                                  | 0+33.21 | C2 /     | C3       | 4                | 2.08%     | 39.0                 | 300.20            | 301.45                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 302.26             | 309.71                    | 305.86                   |                       |
| 12                                  | 1+53.12 | @MH      | C3       | 4                | 2.08%     | 84.0                 | 301.40            |                          | 301.60                          | A     | N/A                    | N/A                         | 0.0                | N/A                     | 303.34             | 308.19                    | 301.62                   | Y                     |
| 13                                  | 1+53.12 | @MH      | C3       | 4                | 2.08%     | 44.0                 | 301.40            |                          | 301.60                          | A     | N/A                    | N/A                         | 0.0                | N/A                     | 302.51             | 308.67                    | 304.56                   | Y                     |
| 14                                  | 0+87.83 | C2 /     | C3       | 4                | 2.08%     | 43.0                 | 300.74            | 301.99                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 302.89             | 309.35                    | 305.49                   | Y                     |
| 15                                  | 0+51.39 | C /      | C1       | 4                | 2.08%     | 37.0                 | 298.47            | 299.72                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 300.49             | 311.79                    | 307.80                   |                       |
| 16                                  | 0+87.37 | D /      | E        | 4                | 2.08%     | 38.0                 | 311.42            | 312.67                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 313.46             | 323.24                    | 316.86                   | Y                     |
| 17                                  | 0+98.45 | F /      | G        | 4                | 2.08%     | 43.0                 | 314.93            | 316.18                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 317.08             | 325.87                    | 317.95                   | Y                     |
| 18                                  | 1+87.35 | F /      | G        | 4                | 2.08%     | 43.0                 | 315.82            | 317.07                   |                                 | A     | N/A                    | N/A                         | 0.0                | N/A                     | 317.97             | 324.57                    | 316.61                   | Y                     |
| 19                                  | 3+16.01 | @MH      | G        | 4                | 2.08%     | 45.0                 | 317.11            |                          | 317.31                          | A     | N/A                    | N/A                         | 0.0                | N/A                     | 318.24             | 323.55                    | 315.28                   | Y                     |



J2 Engineers, Inc.  
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www.j2engineers.com



SEBASTIAN SANDOVAL  
Lic. No. 045207  
07/14/2022  
PROFESSIONAL ENGINEER

PLAN# CC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: N/A

PLAN DATE  
03/1/2021  
04/20/2021  
05/21/2021  
09/17/2021  
11/29/2021  
04/09/2022  
07/14/2022

SANITARY COMPUTATIONS  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |      | DESCRIPTION |  |
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FAUQUIER COUNTY WATER AND SANITATION AUTHORITY



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- Sewer Leaks

Sewer Pump Stations

Sewer Manholes

Sewer Air Release Valves

Sewer Lateral

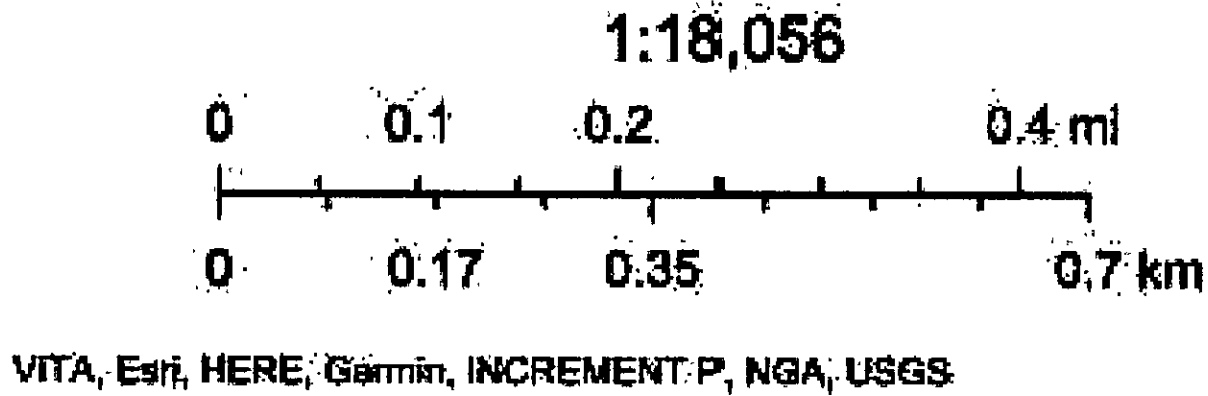
Sewer Lines

Force Mains

Gravity Mains

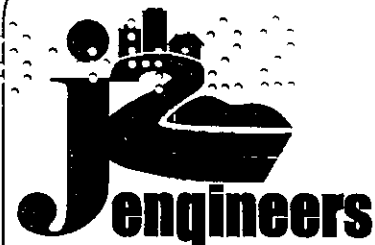
address\_points

Tax Parcel

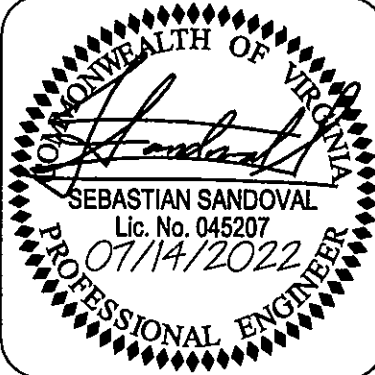


This map is a graphical representation and is not to be used for design or construction purposes.

NOTE: THE SANITARY SEWER AREA WITHIN THE ANALYSIS BOUNDARY ABOVE HAS BEEN ANALYZED WITH THE SANITARY SEWER DESIGN TABLE LOCATED ON SHEET 43.



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Lic. No. 045201  
07/14/2022  
PROFESSIONAL ENGINEER

PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: N/A

PLAN DATE

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| 03/12/2021 |
| 04/02/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/03/2022 |
| 07/14/2022 |

SANITARY SEWER ANALYSIS MAP  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |      | DESCRIPTION |
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SHEET  
44  
OF  
63

COMMONWEALTH OF VIRGINIA  
*Sebastian Sandoval*  
 SEBASTIAN SANDOVAL  
 Lic. No. 045207  
 07/14/2022  
 PROFESSIONAL ENGINEER

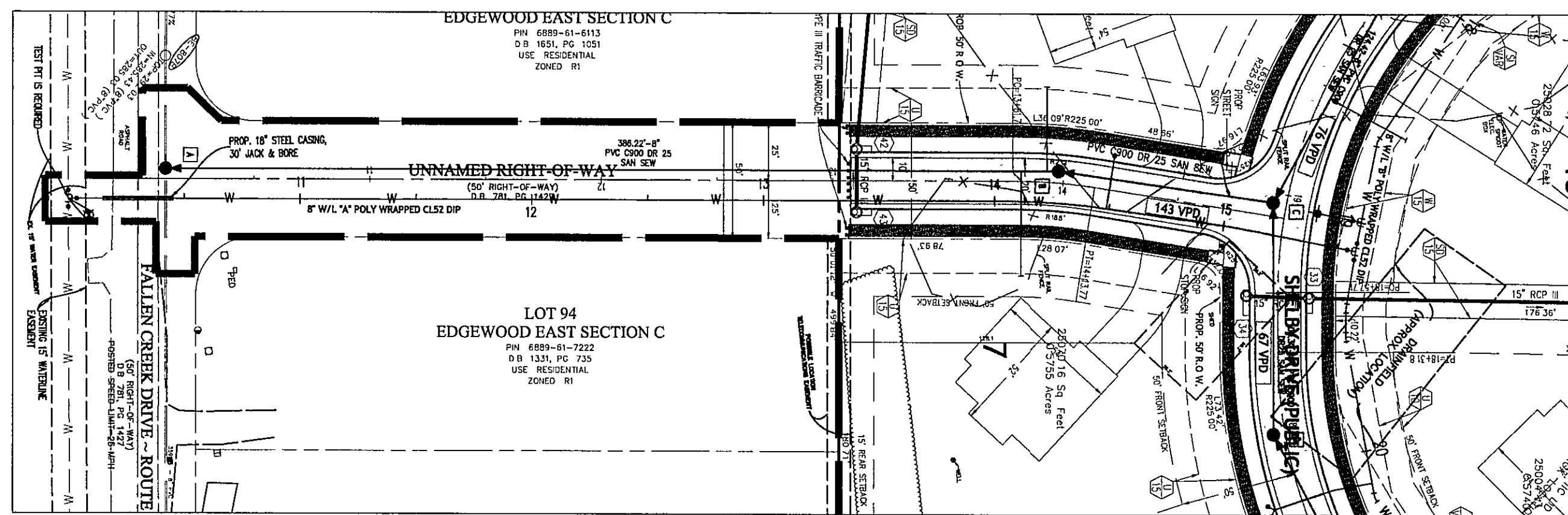
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| 04/20/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

WATER PROFILES  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

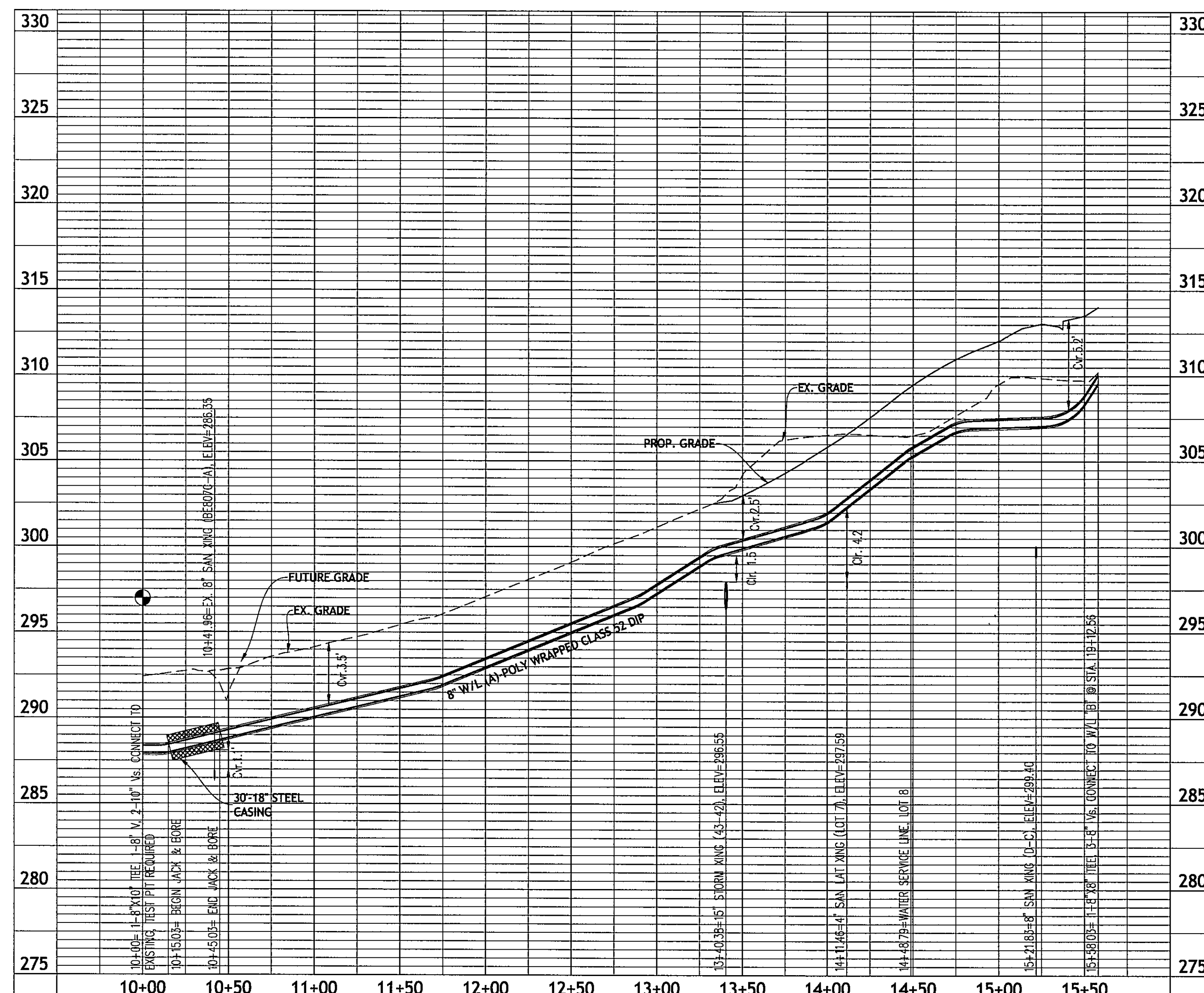
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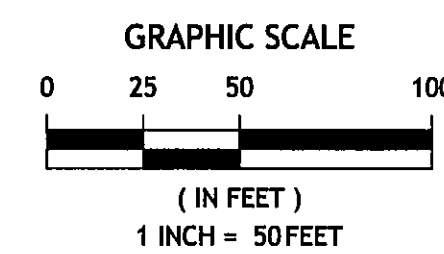
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63



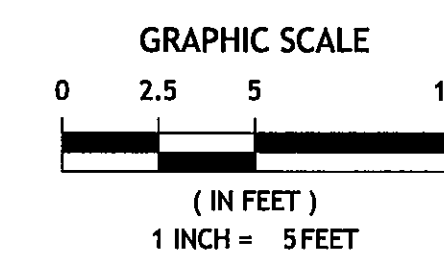
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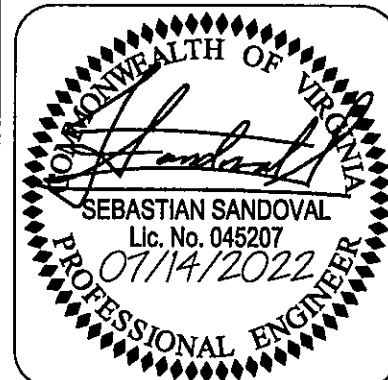


HORIZONTAL SCALE



VERTICAL SCALE





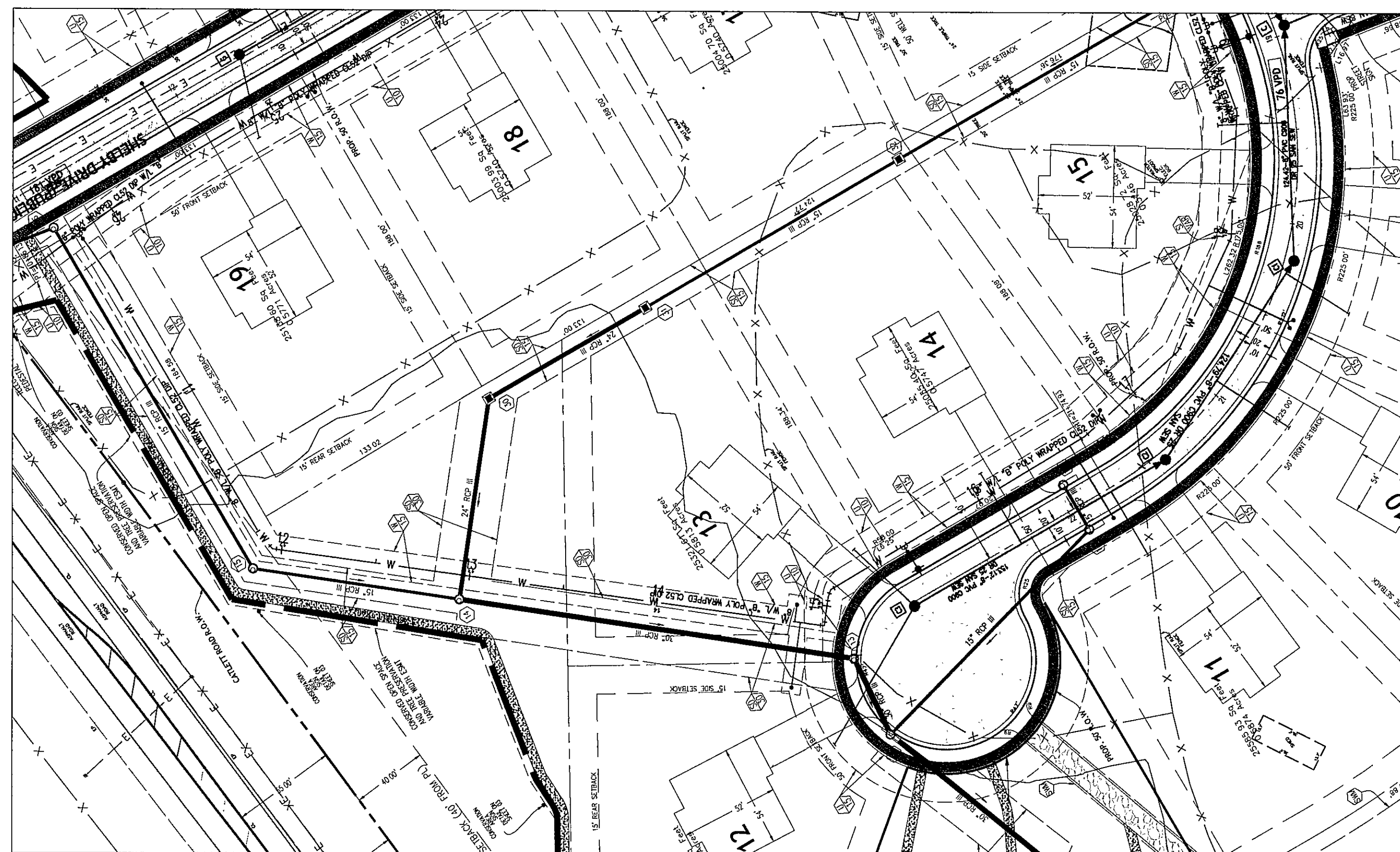
PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT.= N/A  
SCALE: AS NOTED

| PLAN DATE  |
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| 04/20/2021 |
| 05/12/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

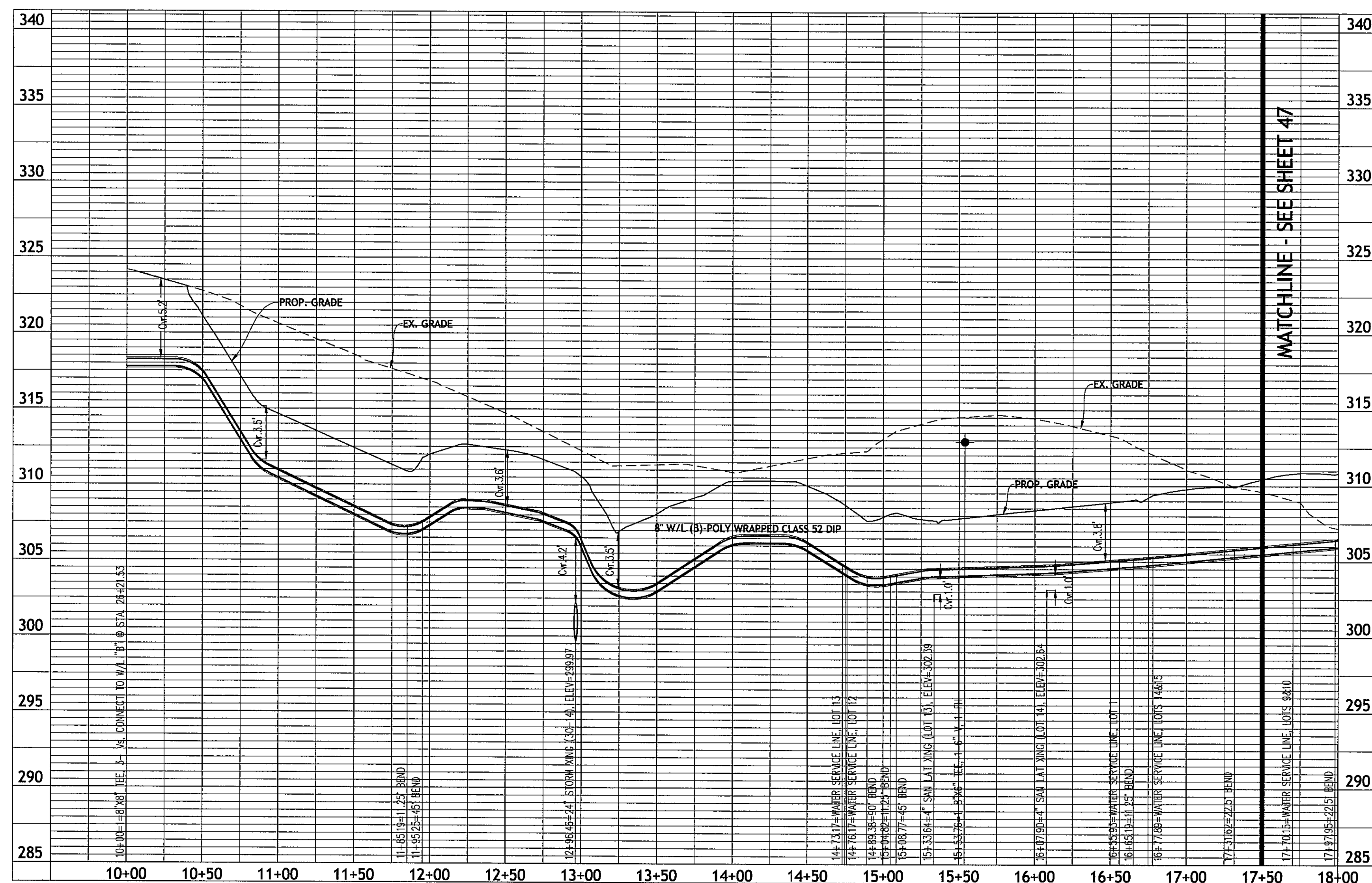
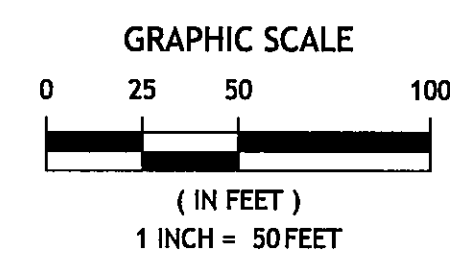
**WATER PROFILES**  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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SHEET  
46  
OF  
63



WATER LINE "B" 10+00-18+00

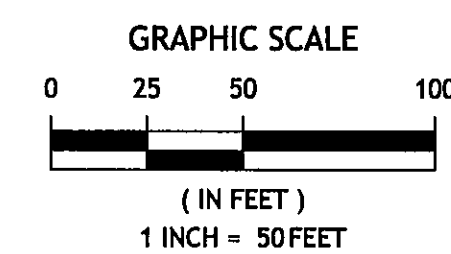


**NOTE:**

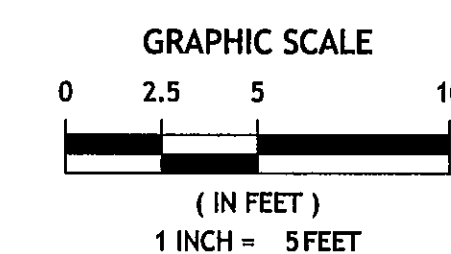
UNDER UNUSUAL SITUATIONS WHEN LOCAL CONDITIONS PREVENT A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE SANITARY SEWER, THE FOLLOWING CONSTRUCTION SHALL BE USED:

1. SANITARY SEWERS PASSING OVER OR UNDER WATER MAINS SHALL BE CONSTRUCTED OF WATER DISTRIBUTION PIPE AND PRESSURE TESTED IN PLACE IN ACCORDANCE WITH AWWA STANDARDS AND SHALL BE CONSTRUCTED TO A POINT 10 FEET BEYOND AND ON EACH SIDE OF THE CROSSING; AND
2. WATER MAINS PASSING UNDER SANITARY SEWERS SHALL, IN ADDITION, BE PROTECTED BY PROVIDING:
  - A. A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTTOM OF THE SANITARY SEWER AND THE TOP OF THE WATER MAIN;
  - B. ADEQUATE STRUCTURAL SUPPORT FOR THE SANITARY SEWERS TO PREVENT EXCESSIVE DEFLECTION OF THE JOINTS AND THE SETTLING ON AND BREAKING OF THE WATER MAIN; AND
  - C. THAT THE LENGTH OF THE WATER MAIN BE CENTERED AT THE POINT OF THE CROSSING SO THAT JOINTS SHALL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SANITARY SEWER.

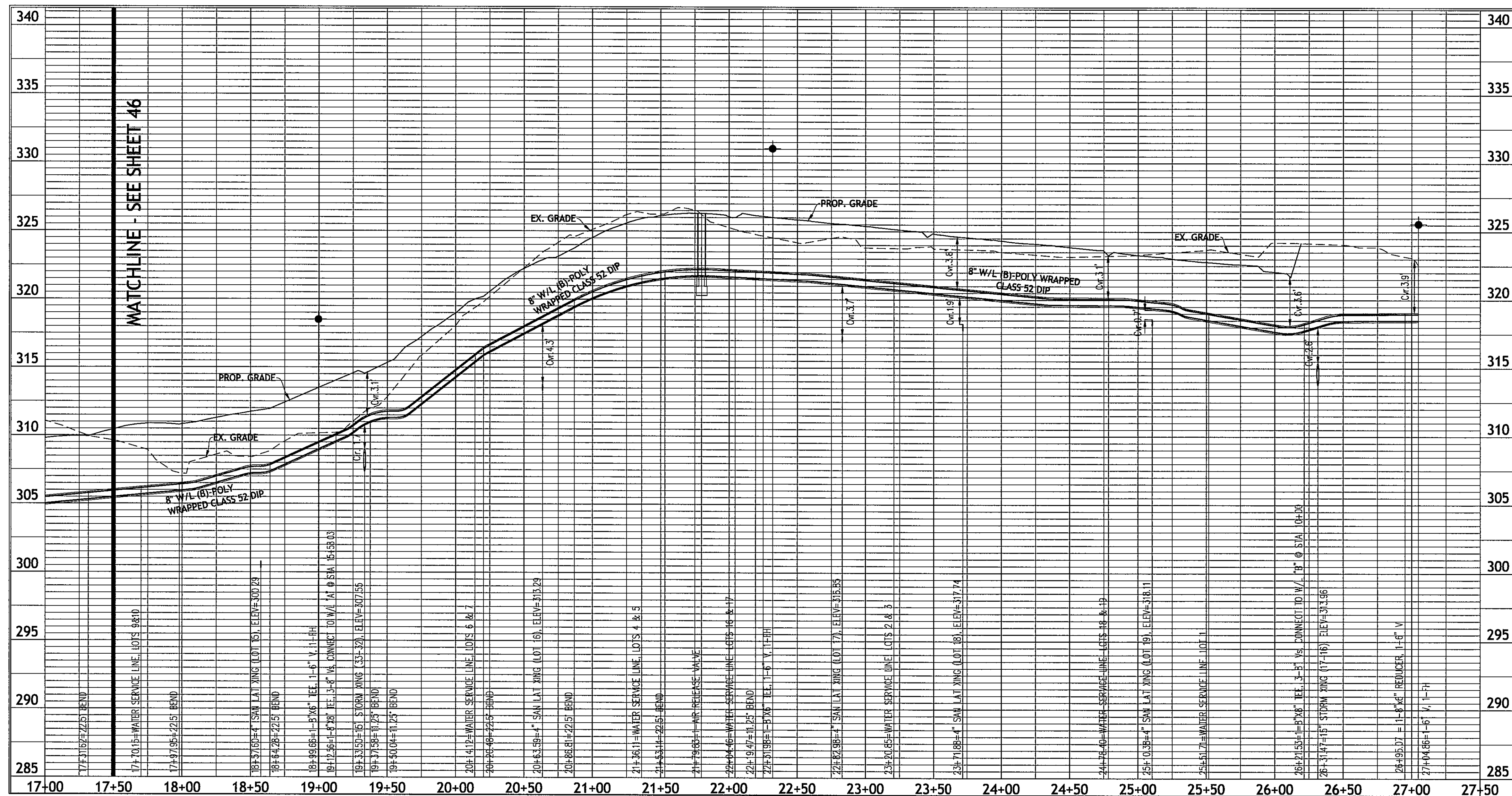
HORIZONTAL SCALE



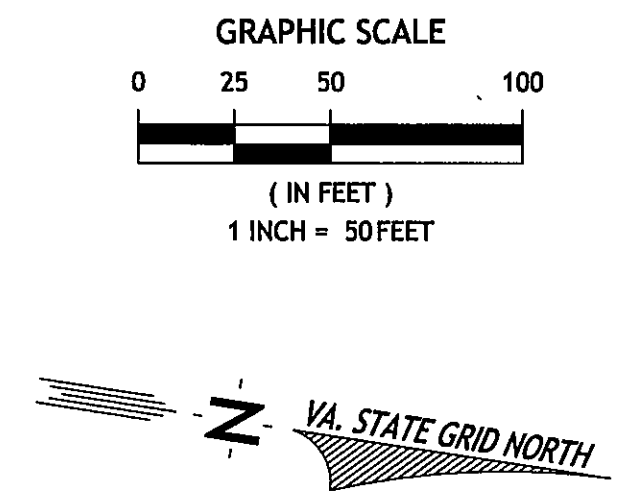
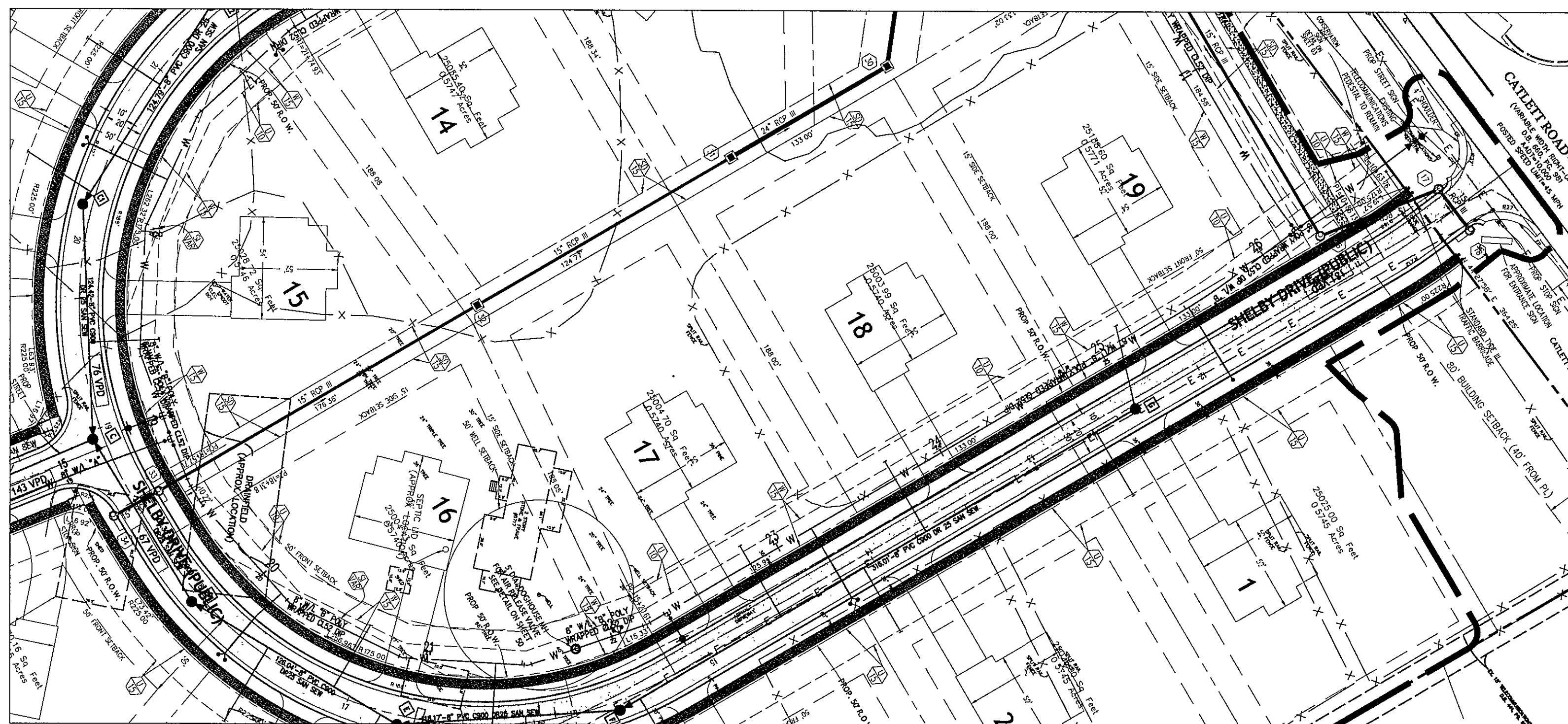
### VERTICAL SCALE



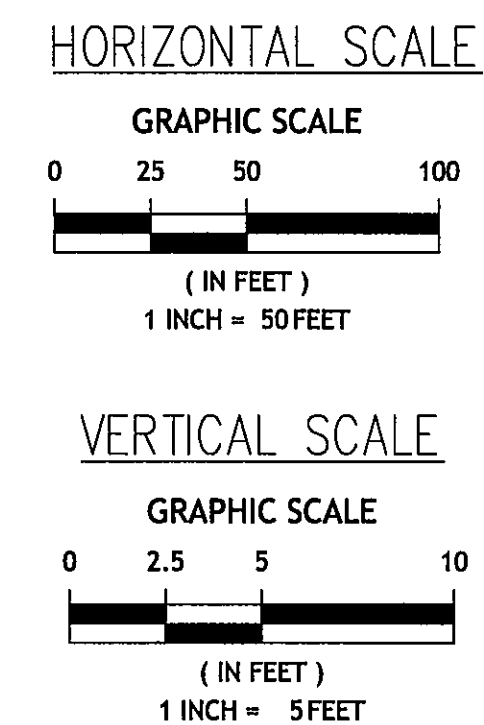
J2 Engineers - X:\DRAWINGS\ACTIVE\One Catlett Rd\OC2001-WATER 1.dwg [47 WATER PROFILES] July 14, 2022 - 5:37am makdallamdi



WATER LINE "B" 18+00-27+02.69



- NOTE:
- UNDER UNUSUAL SITUATIONS WHEN LOCAL CONDITIONS PREVENT A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE SANITARY SEWER, THE FOLLOWING CONSTRUCTION SHALL BE USED:
- SANITARY SEWERS PASSING OVER OR UNDER WATER MAINS SHALL BE CONSTRUCTED OF WATER DISTRIBUTION PIPE AND PRESSURE TESTED IN PLACE IN ACCORDANCE WITH AWWA STANDARDS AND SHALL BE CONSTRUCTED TO A POINT 10 FEET BEYOND AND ON EACH SIDE OF THE CROSSING; AND
  - WATER MAINS PASSING UNDER SANITARY SEWERS SHALL, IN ADDITION, BE PROTECTED BY PROVIDING:
    - A VERTICAL SEPARATION OF AT LEAST 18 INCHES BETWEEN THE BOTTOM OF THE SANITARY SEWER AND THE TOP OF THE WATER MAIN;
    - ADEQUATE STRUCTURAL SUPPORT FOR THE SANITARY SEWERS TO PREVENT EXCESSIVE DEFLECTION OF THE JOINTS AND THE SETTLING ON AND BREAKING OF THE WATER MAIN; AND
    - THAT THE LENGTH OF THE WATER MAIN BE CENTERED AT THE POINT OF THE CROSSING SO THAT JOINTS SHALL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SANITARY SEWER.



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www.j2engineers.com

PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: AS NOTED

PLAN DATE  
03/12/2021  
04/02/2021  
05/21/2021  
09/17/2021  
11/29/2021  
04/02/2022  
07/14/2022

WATER PROFILES  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS |             |
|-----------|-------------|
| No.       | DESCRIPTION |
|           |             |
|           |             |
|           |             |
|           |             |
|           |             |

SHEET  
**47**  
OF  
**63**

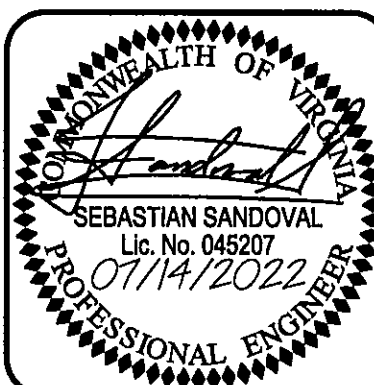
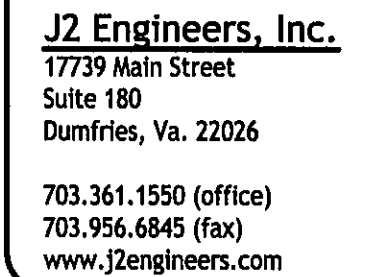
**GENERAL NOTES: SANITARY LATERAL CONSTRUCTION**

- gradually and evenly. The benches of the manhole shall be built with one to two-inch per foot fall from manhole wall to the middle point of the pipe. The invert channel depth shall be at least 0.8 times the diameter of the pipe. Unless otherwise approved by the Authority, a minimum drop of 0.2' shall be provided across the manhole.
12. All manholes shall have an exterior protective coating of 16 mils dry film thickness of Bitumastic 300M as manufactured by Carboline.
13. All manholes require internal or external chimney seals in accordance with FCWSA detail SC-03 and SC-04.
14. Backfill compaction:
  - A. Within street rights-of-way, backfill compaction shall be a minimum of 95% of maximum density in accordance with AASHTO Method T-180.
  - B. Grading within easement areas shall comply with the lines and grades indicated on the plans. In general, all trenches and subgrade of easements shall be compacted to a density equal to the surrounding ground.
15. Sanitary sewer laterals located outside of the public right-of-way or easement, are to be maintained by the landowner whom they serve.
16. All gravity sewer lines shall be C-900 PVC except as otherwise required by the USM.
17. All pressure sewer shall be minimum Class 52 DIP, with interior coating/lining as specified in the USM.
18. Gravity sanitary sewer service laterals:

- A. Within street right-of-way, backfill compaction shall be a minimum of 95% of maximum density in accordance with AASHTO Method T-180.
- B. Grading within easement areas shall comply with the lines and grades indicated on the plans. In general, all trenches and subgrade of easements shall be compacted to a density equal to the surrounding ground.
8. Sanitary sewer laterals located outside of the public right-of-way or easement, are to be maintained by the landowner whom they serve.
9. Gravity sanitary sewer service laterals:
  - A. All gravity sanitary sewer laterals shall be PVC C900 DR 25, unless otherwise indicated, and it shall meet Fauquier County, Health Department and the Virginia Uniform Statewide Building Code (USBC).

- GENERAL NOTES: WATERLINE CONSTRUCTION**

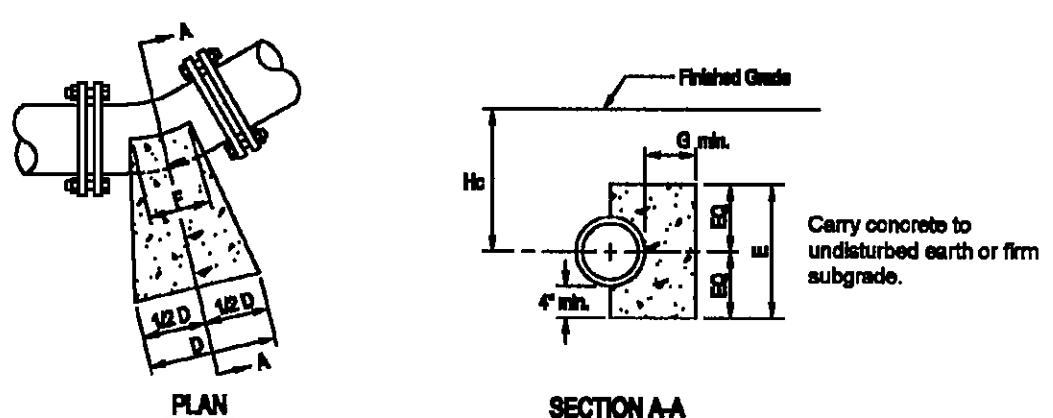
1. All waterline construction shall conform to the requirements and specifications in the Fauquier County Water and Sanitation Authority's (FCWSA) Utility Standards Manual (USM), latest revision.
2. All water construction materials shall be approved by FCWSA prior to installation and shall be in accordance with Appendix D of the USM.
3. The contractor performing water line construction must attend a mandatory pre construction meeting with FCWSA prior to the start of construction. The meeting must be scheduled beforehand with the FCWSA Inspector.
4. Waterline inspections and testing must be scheduled a minimum of 48 hours (two business days) in advance with the FCWSA Inspector.
5. All water lines shall be designed for 42 inches of cover. Water services shall be designed for 36 inches of cover.
6. Water service lines crossing underneath a public road and/or sidewalk must be installed in a HDPE or Schedule 40 PVC casing pipe in accordance with FCWSA Detail WS-01.
7. Water service lines are to be constructed of copper pipe or SDR-9, 200 PSI, cross-linked polyethylene pipe as specified in the USM.
8. The water meter box and accessories therein necessary for meter installation and as shown in the Details (Appendix B) of the USM shall be furnished and installed by the developer or owner. Meters 5/8" by 3/4" will be installed by the Authority upon construction approval and payment of appropriate fees.
9. Private water service connections from the outlet of the meter to the building are regulated by the Virginia Uniform Statewide Building Code (USBC) and will be maintained by the property owner.
10. Compaction requirements for waterline construction are to be the same as those required for sewer construction.
11. Valve boxes shall be set and adjusted such that covers shall be exposed 1" to 2" above finished grade with a concrete collar extended a minimum of 6" around the valve box. Where valve boxes are permitted to be placed in the pavement, the covers shall be flush with the pavement surface.
12. All new pipelines shall be disinfected by chlorination in accordance with the latest revision of AWWA Specification C651-92 and Section 4.11 of the USM.



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT.= N/A  
SCALE: N/A

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/21/2021 |
| 09/17/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

WSA NOTES & DETAILS  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

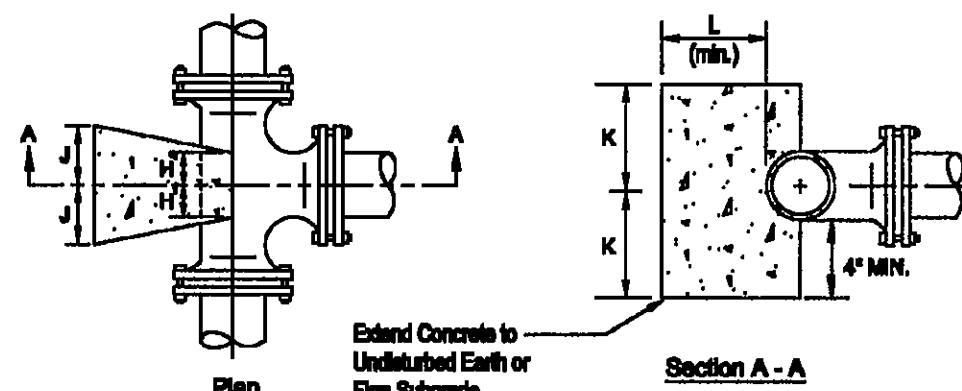


| SOL PROPERTIES                             | SIZE | Concrete Block Dimensions At 150 PSI Pressure |      |      |      |      | Amount to be added to dimension 'D' for each 50 psi (or portion thereof) design pressure above 150 psi (up to 300 psi).                                                                                                                                                                        | Adjustment to Concrete Area for Different Height, Hc, To the Measured Finished Grade to E of Pipe |           |            |            |
|--------------------------------------------|------|-----------------------------------------------|------|------|------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------|------------|------------|
|                                            |      | D                                             | E    | F    | G    | H    |                                                                                                                                                                                                                                                                                                | Up To 6" To 12"                                                                                   | 6" To 12" | 12" To 16" | 16" To 20" |
| CS - 1000 PSF<br>Soft Silty Clay & Siltier | 8"   | 8"                                            | 1-0" | 8"   | 7"   | 2"   | CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6 | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 12"  | 1-0"                                          | 1-0" | 8"   | 7"   | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 16"  | 1-0"                                          | 1-2" | 8"   | 8"   | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 8"   | 1-0"                                          | 1-4" | 8"   | 8"   | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 12"  | 1-2"                                          | 1-4" | 8"   | 10"  | 4"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 16"  | 1-4"                                          | 1-6" | 1-0" | 1-0" | 6"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 18"  | 2-0"                                          | 2-0" | 1-0" | 1-3" | 8"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 20"  | 2-4"                                          | 2-4" | 1-0" | 1-3" | 8"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 22"  | 3-0"                                          | 3-0" | 1-0" | 1-3" | 8"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 24"  | 3-6"                                          | 3-6" | 1-4" | 1-4" | 1-0" |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
| CS - 0 PSF<br>Loose Silty Sand             | 8"   | 1-0"                                          | 1-4" | 8"   | 8"   | 2"   | CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6<br>CONC. BLOCK AREA = 1X10X6 | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 12"  | 1-4"                                          | 2-0" | 8"   | 8"   | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 16"  | 2-0"                                          | 2-4" | 1-0" | 1-0" | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 18"  | 2-4"                                          | 2-4" | 1-0" | 1-0" | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 20"  | 3-0"                                          | 3-0" | 1-0" | 1-0" | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 22"  | 3-6"                                          | 3-6" | 1-4" | 1-4" | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 24"  | 4-0"                                          | 4-0" | 1-4" | 1-4" | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 26"  | 4-6"                                          | 4-6" | 1-8" | 1-8" | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 28"  | 5-0"                                          | 5-0" | 1-8" | 1-8" | 2"   |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |
|                                            | 30"  | 5-6"                                          | 5-6" | 2-0" | 2-0" | 1-0" |                                                                                                                                                                                                                                                                                                | 8"                                                                                                | 8"        | 12"        | 16"        |

|                                                                                                                         |                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Notes:</b>                                                                                                           | <b>Soil and Concrete Notes:</b>                                                 |
| 1) Dimensions D & E shall be adjusted based on required area for value of $H_c$ .                                       | 1) $FC = 3000$ psi at 28 days.                                                  |
| 2) Dimensions F & G are constant for a given pipe size.                                                                 | 2) $CS = 50$ ksi cohesion in psi                                                |
| 3) Dimension D shall be adjusted for required pressure in excess of 150 psi before making adjustment for $H_c$ (above). | 3) $\phi = \text{Angle of Internal Friction}$                                   |
|                                                                                                                         | 4) All bearing surfaces shall be carried to undisturbed earth or firm subgrade. |

**BB-01**

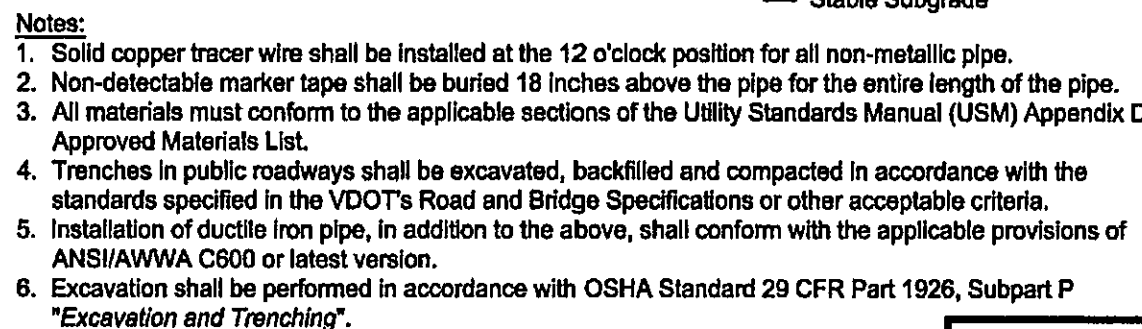
Revised 03/31/05



| Buttress Sizing for Tees |                                |    |     |      |      |      |      |      |      |      |
|--------------------------|--------------------------------|----|-----|------|------|------|------|------|------|------|
|                          | Size (Pipe Diameter) of Branch |    |     |      |      |      |      |      |      |      |
|                          | 3"                             | 4" | 6"  | 8"   | 10"  | 12"  | 16"  | 20"  | 24"  | 30"  |
| J                        | 6"                             | 6" | 6"  | 6"   | 1-1" | 1-3" | 1-8" | 2-0" | 2-6" | 3-4" |
| K                        | 8"                             | 8" | 10" | 1-3" | 1-6" | 1-9" | 2-4" | 3-0" | 3-4" | 4-0" |
| L                        | 8"                             | 8" | 8"  | 8"   | 10"  | 12"  | 1-2" | 1-6" | 1-8" | 2-0" |
| H                        | 4"                             | 4" | 6"  | 6"   | 8"   | 8"   | 8"   | 1-0" | 1-0" | 1-0" |

BT-01

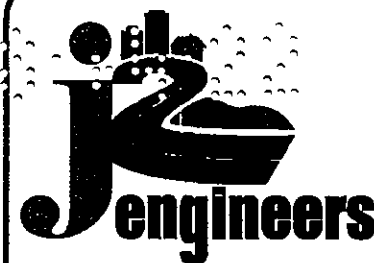
Product 0221



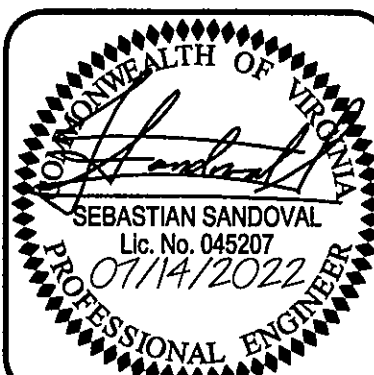
**G-01**

48  
OF  
63





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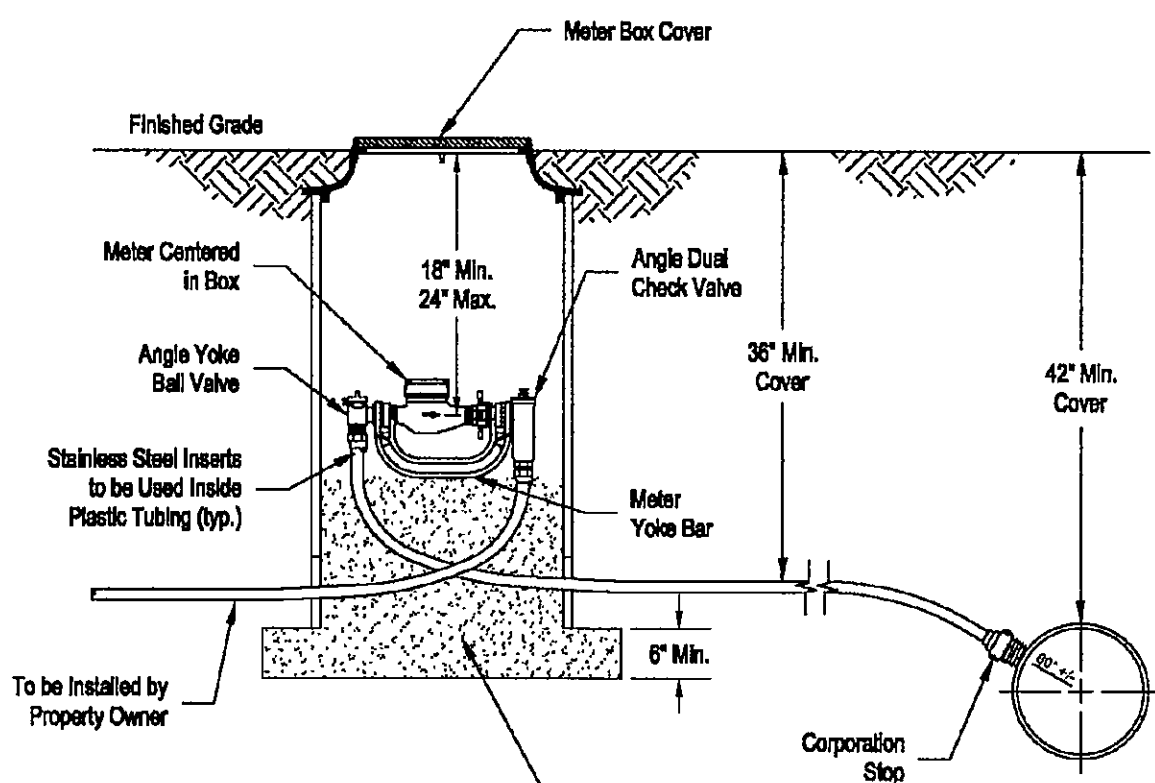
PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: N/A

PLAN DATE  
03/12/2021  
04/02/2021  
05/12/2021  
09/17/2021  
11/29/2021  
04/02/2022  
07/14/2022

WSA NOTES & DETAILS  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

#### Notes:

- Set meter box cover 1" above final grade.
- All compression fittings shall include peak joints.
- Meter box lid shall include a 1-3/4" hole for mounting a radio frequency meter interface unit.
- The service line between the main and the meter shall be one continuous piece of pipe. No joints will be permitted.
- Where service between the meter and water main is plastic tubing, a tracer wire shall follow the service/branch line to the meter box and shall be secured to the yoke bar.
- No structures, poles, sign posts, trees, or shrubs to be installed within four feet of meter box.
- Meter box shall be centered within a minimum 2' wide utility strip. Otherwise meter box shall be installed behind sidewalk. Meter box shall not be located within driveways, sidewalks or pedestrian walkways.
- All materials must conform to the applicable sections of the Fauquier County Water and Sanitation Authority's Approved Materials List. All fittings and meters shall be "lead free" in accordance with the Safe Drinking Water Act.
- Meters sized 3/4" x 3/4" and full 3/2" will be installed by the Authority upon construction approval and payment of appropriate fees.
- See Standard Detail WS-01 for service connection requirements.



| WATER METER SIZE | METER BOX SIZE |
|------------------|----------------|
| 3/4" x 3/4"      | 18" x 30"      |
| 3/4"             | 24" x 30"      |
| 1"               | 24" x 30"      |



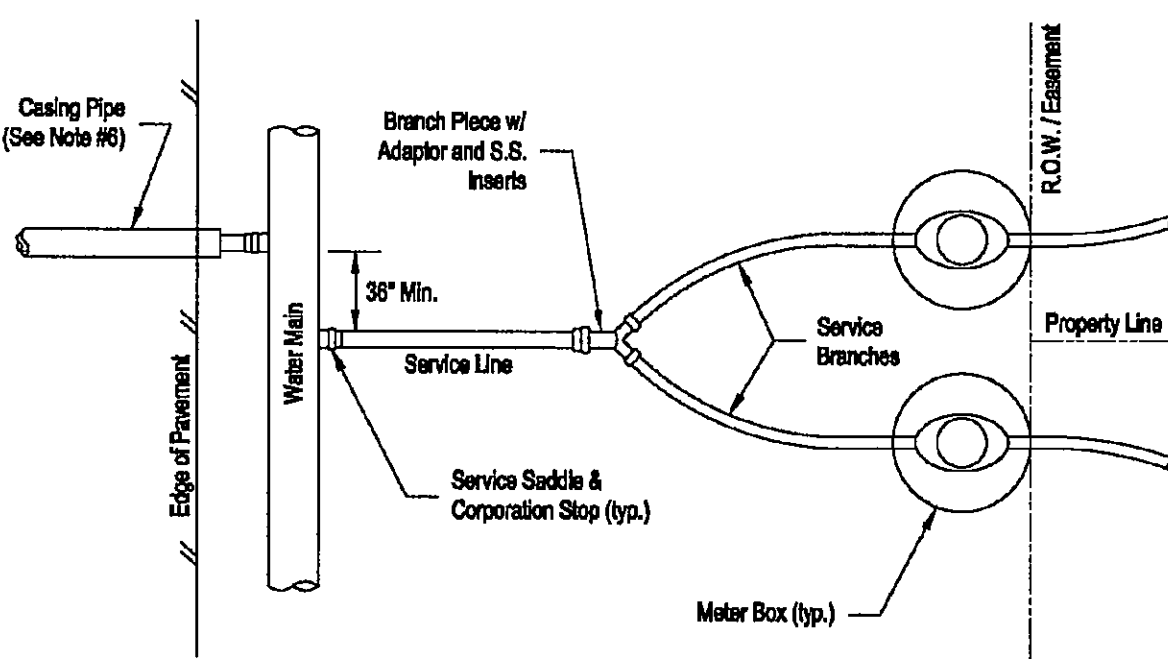
Fauquier County  
Water and Sanitation Authority

Standard Water Meter Box &  
Fittings Up to 1"

Not to Scale

Revised: 11/28/17

WM-01



Service & Branch Line Sizing Table

| Meter Size  | Service Line (min) | Service Branch (min) |
|-------------|--------------------|----------------------|
| 5/8" x 3/4" | 1"                 | 3/4"                 |
| Full 3/4"   | 1"                 | 3/4"                 |
| 1"          | 1-1/2"             | 1"                   |

Casing Size Table

| Water Line | Casing Size |
|------------|-------------|
| up to 1"   | 2"          |
| 1-1/2"     | 3"          |
| 2"         | 4"          |

Service Line Casing Pipes to be HDPE or SCH 40 PVC

#### Notes:

- This Detail shall be the design standard for all new water connections. Exceptions must be approved by the Authority.
- Provide a minimum 6 foot horizontal separation with sanitary laterals.
- Provide a minimum 5 foot separation with driveways.
- Taps shall be spaced a minimum of 36 inches.
- A full range marker disc shall be placed directly over the service connection location during backfill.
- An appropriately sized casing pipe shall be used whenever a service line crosses a road, sidewalk, and/or pedestrian walkway.
- See Casing Size Table for size and acceptable material.
- All materials must conform to the applicable sections of the Fauquier County Water and Sanitation Authority's Approved Materials List.
- It is advisable to increase tubing diameter for unusually long service lines and/or branch lines. This will necessitate the use of appropriate adaptors in the meter box. Consult the Authority Engineer or Inspector for details.



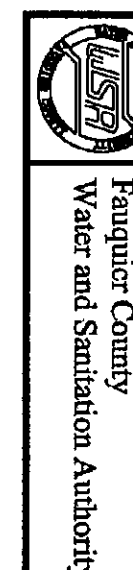
Fauquier County  
Water and Sanitation Authority

Standard Water Service Connection  
For Water Meter Sizes Up to 1"

Not to Scale

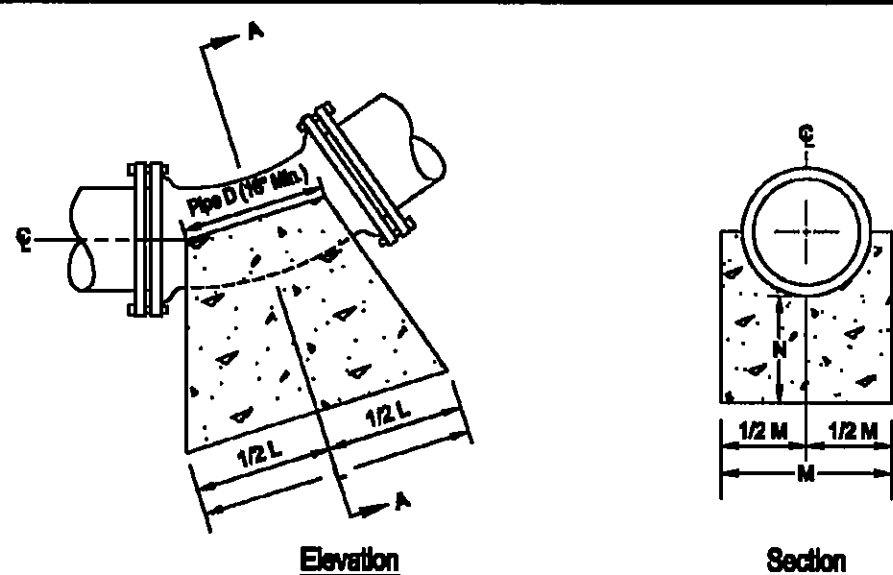
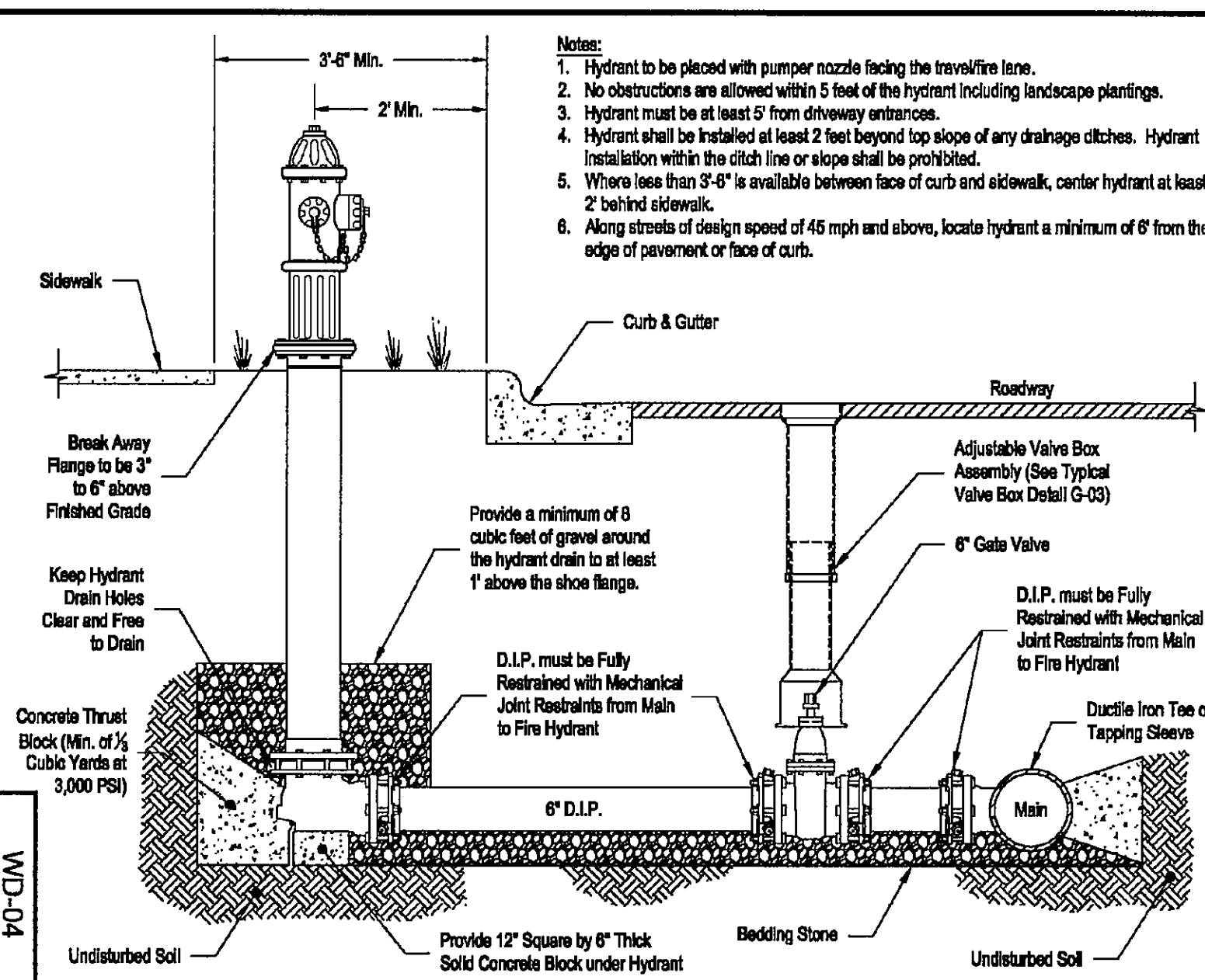
Revised: 11/28/17

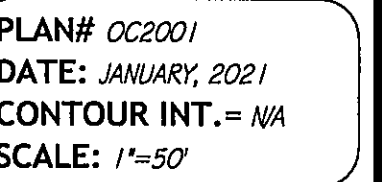
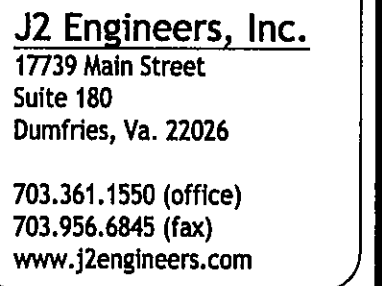
WS-01



Water Distribution System  
Typical Fire Hydrant

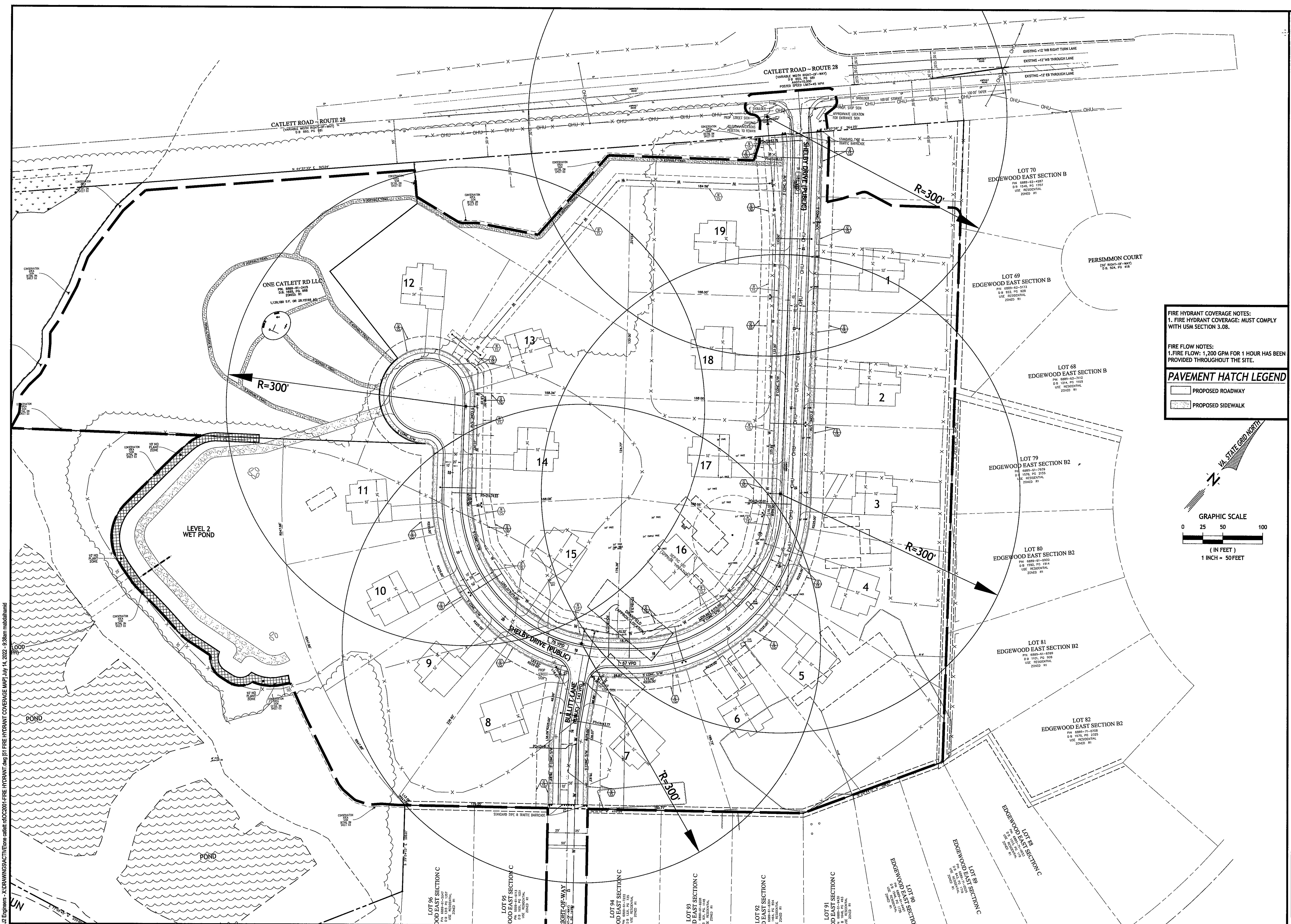
WD-04



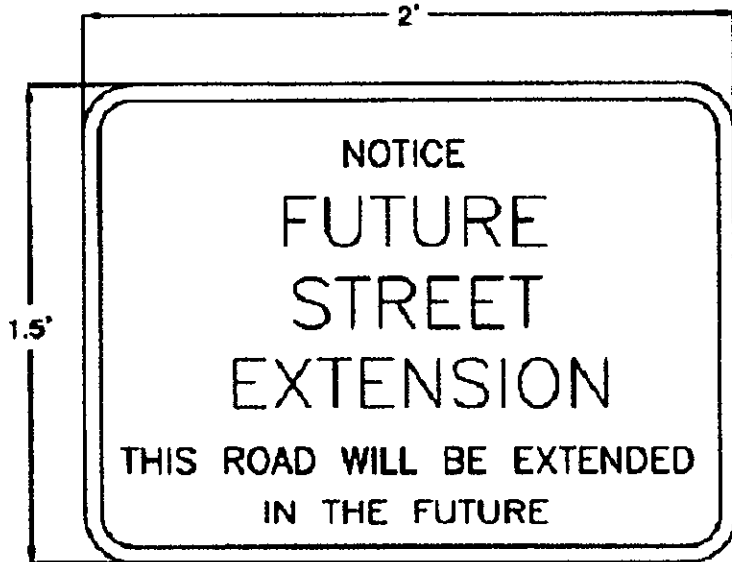


**FIRE HYDRANT COVERAGE MAP**  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

SHEET  
51  
OF  
63



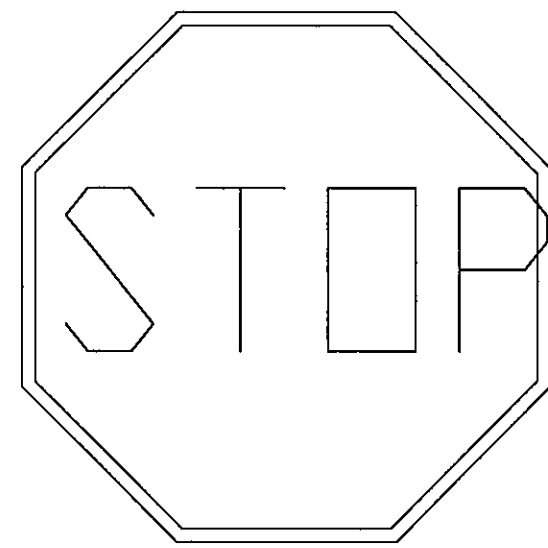
A308.1 FUTURE STREET EXTENSION SIGN



GENERAL NOTES:  
1. MOUNT ON NINE (9) FEET METAL POLE WITH MINIMUM OF THREE (3) FEET IN GROUND.

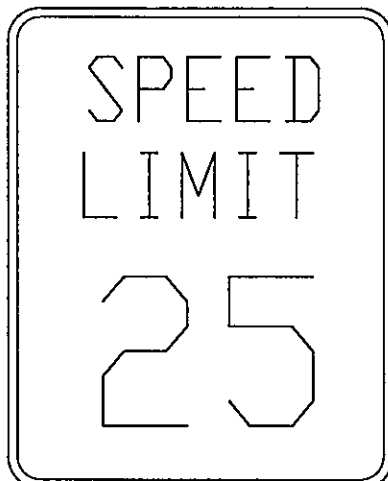
Fauquier County Design Standards Manual  
STREET EXTENSION NOTIFICATION SIGN  
PLATE NO.

SIGN DETAILS:



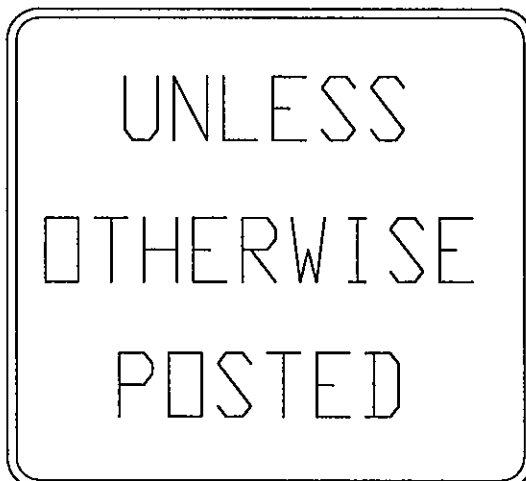
R1-1

30" x 30"



R2-1

24" x 30"



R2-5P

18" x 24"

LEGEND:

- (D) STOP SIGN
- (E) STREET NAME SIGN
- (F) FUTURE STREET EXTENSION SIGN
- (H) SPEED LIMIT SIGN
- SIGN
- STREET NAME SIGN
- FIRE LANE

PAVEMENT MARKING LEGEND

- (G) TYPE B, CLASS I, WHITE, 24" WIDTH.

NOTES:  
1. FAUQUIER COUNTY SHALL BE PERMITEE, AND THE HOA WILL ULTIMATELY BE RESPONSIBLE FOR MAINTAINING "NO PARKING" SIGNS.

"NO PARKING" SIGN LEGEND



STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE RIGHT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR THE PAVEMENT EDGE AT END OF PAINTED AREA.

STANDARD WORDING WITH NO ARROW. TWO SIGNS, BACK TO BACK, MOUNTED PERPENDICULAR TO LINE OF CURBING OR PAVEMENT EDGE.

STANDARD WORDING WITH AN ARROW AT BOTTOM POINTING TO THE LEFT. ONE SIGN MOUNTED PARALLEL TO THE LINE OF CURBING OR THE PAVEMENT EDGE AT END OF PAINTED AREA.

REQUIREMENTS – FIRE LANE MARKINGS AND SIGNS

APPROVED SIGN SPECIFICATIONS

- A. METAL CONSTRUCTION, "12x18".
- B. RED LETTERS ON REFLECTIVE WHITE BACKGROUND WITH 3/8" RED TRIM STRIP AROUND ENTIRE OUTER EDGE OF SIGN.
- C. LETTERING ON SIGN TO BE: "NO PARKING OR STANDING FIRE LANE".
- D. LETTERING SIZE TO BE AS FOLLOWS: "NO PARKING" AND "STANDING" – 2", "OR" – 1", "FIRE LANE" – 2 1/2", ARROWS 1"x6" SOLID SHAFT WITH A SOLID HEAD 1 1/2" WIDE AND 2" DEEP.
- E. SIGNS ARE TO BE MOUNTED 7' FROM THE GROUND TO THE BOTTOM OF THE SIGN.
- F. POSTS FOR SIGNS, WHEN REQUIRED, SHALL BE METAL AND SECURELY MOUNTED, UNLESS WRITTEN PERMISSION FOR ALTERNATIVES IS OBTAINED PRIOR TO INSTALLATION.
- G. OTHER SPECIAL SIGNS AS APPROVED BY THE FIRE PREVENTION DIVISION.
- H. NORMAL SPACING BETWEEN SIGNS FOR LONG RUNS OF CURB OR PAVEMENT WITH NO BREAK IN CURB OR PAVEMENT IS 70'. THIS DISTANCE MAY VARY AS NEEDED. WRITTEN PERMISSION FROM THE FIRE PREVENTION DIVISION IS REQUIRED PRIOR TO PLACING SIGNS FURTHER THAN 70' APART. SIGN POST TO BE PAINTED.

CURB DESIGNATION

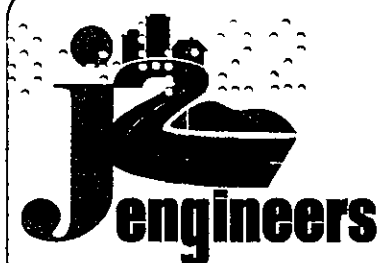
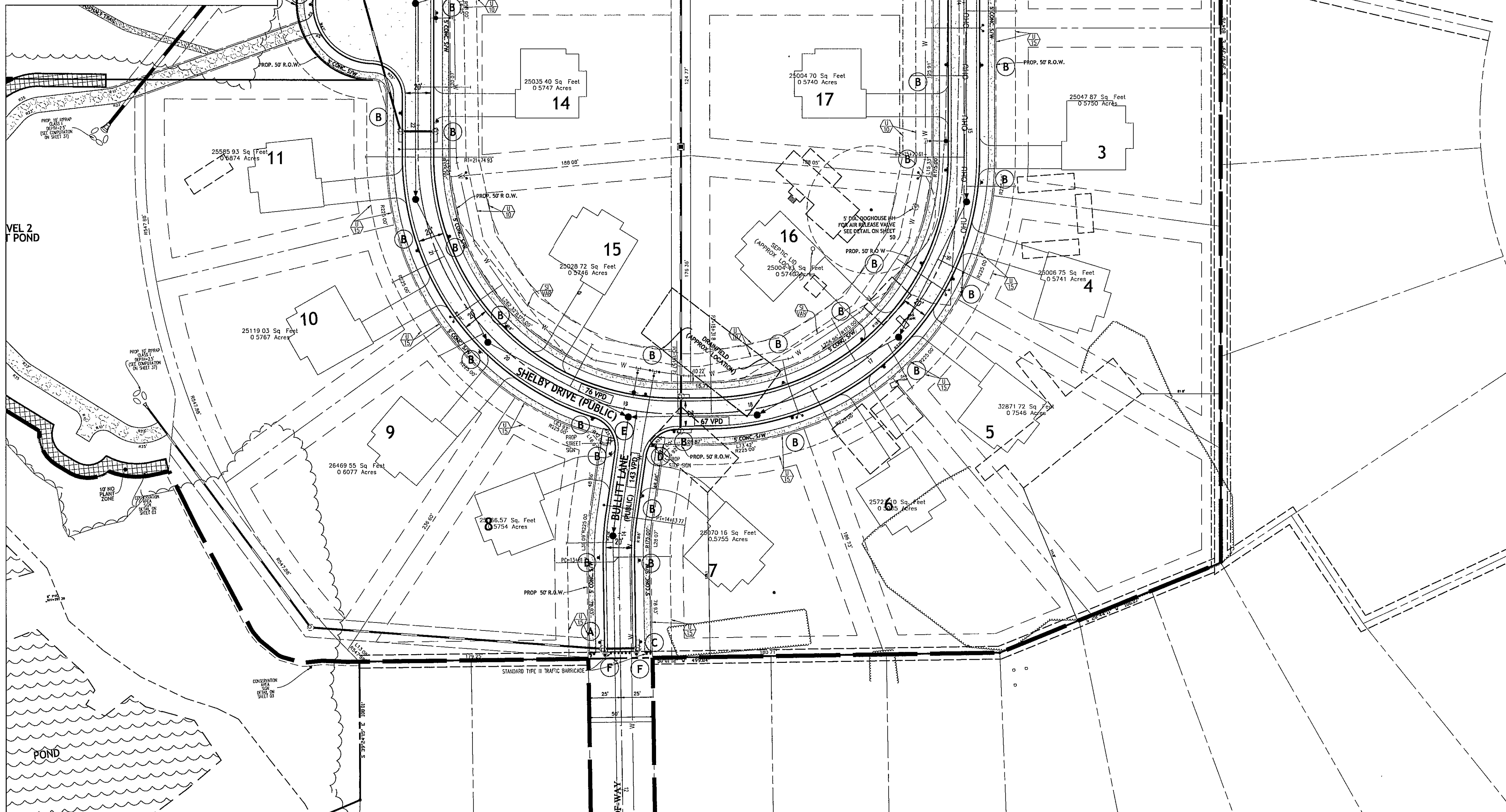
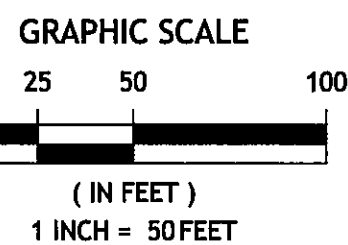
ALL CURBS OR PAVED SPACES DESIGNATED AS FIRE LANES SHALL BE INDICATED BY YELLOW PAINT AS APPROVED BY THE FIRE PREVENTION DIVISION. IN AREAS WITHOUT CURBING, A 6" WIDE YELLOW STRIPE SHOULD BE APPLIED TO THE EDGE OF THE PAVEMENT. PAINT SHALL BE HIGHWAY TRAFFIC GRADE AND OF A SHADE ACCEPTABLE TO THE FIRE PREVENTION DIVISION.

INSPECTION NOTICE

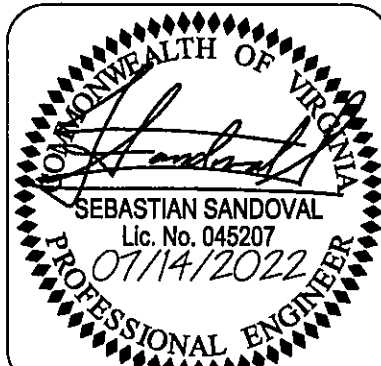
THE FOLLOWING NOTICE MUST APPEAR ON THE SITE PLANS:  
FIRE MARSHAL FIELD INSPECTION NECESSARY FOR FINAL APPROVAL OF FIRE LANES.  
FIRE LANES MUST HAVE FINAL APPROVAL PRIOR TO REQUEST FOR OCCUPANCY PERMIT.

NOTES:

- A. PROPOSED "FIRE LANE" SIGNS AND FIRE LANE MARKINGS WILL BE ALLOWED IN THE STATE MAINTAINED RIGHT-OF-WAY UNDER A PERMIT WITH THE COUNTY AS THE PERMITEE.
- B. ADD R2-5P SIGN "UNLESS OTHERWISE POSTED" TO THE SPEED LIMIT SIGN NEAR CLOSEST TO THE INTERSECTION OF RTE. 28.



J2 Engineers, Inc.  
17739 Main Street  
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703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# 020001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: 1"=50'

PLAN DATE  
03/12/2021  
04/02/2021  
05/16/2021  
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07/14/2022

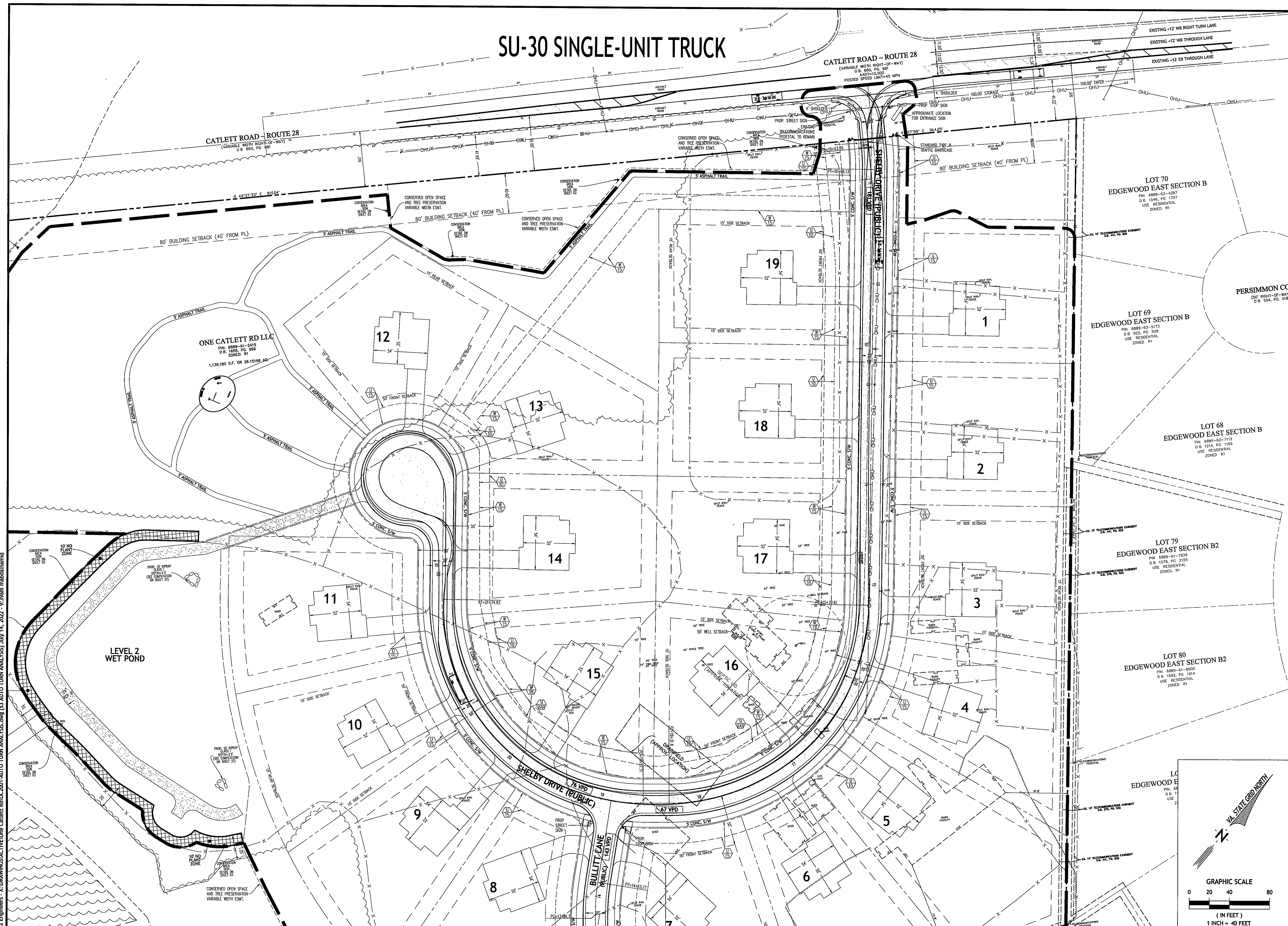
FIRE LANE & SIGNAGE PLAN  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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J2 Engineers - X:\DRAWINGS\ACTIVE\One Catlett Rd\2001-AUTO TURN ANALYSIS.dwg [53 AUTO TURN ANALYSIS] July 14, 2022 - 9:39am mabodahamid



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Suite 180  
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703.956.6845 (fax)  
www.j2engineers.com

SEBASTIAN SANDOVAL  
Lic. No. 045207  
PROFESSIONAL ENGINEER  
07/14/2022

PLAN# 022001  
DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: 1"=40'

| PLAN DATE  | DESCRIPTION |
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AUTO TURN ANALYSIS  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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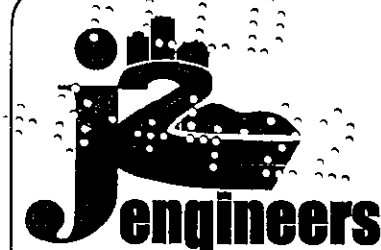
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S-BUS-36 SCHOOL BUS

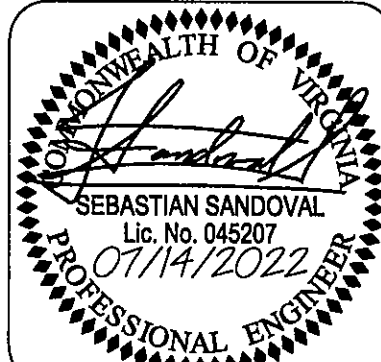
GRAB BAR

WHEEL END

CA



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703.956.6845 (fax)  
[www.j2engineers.com](http://www.j2engineers.com)



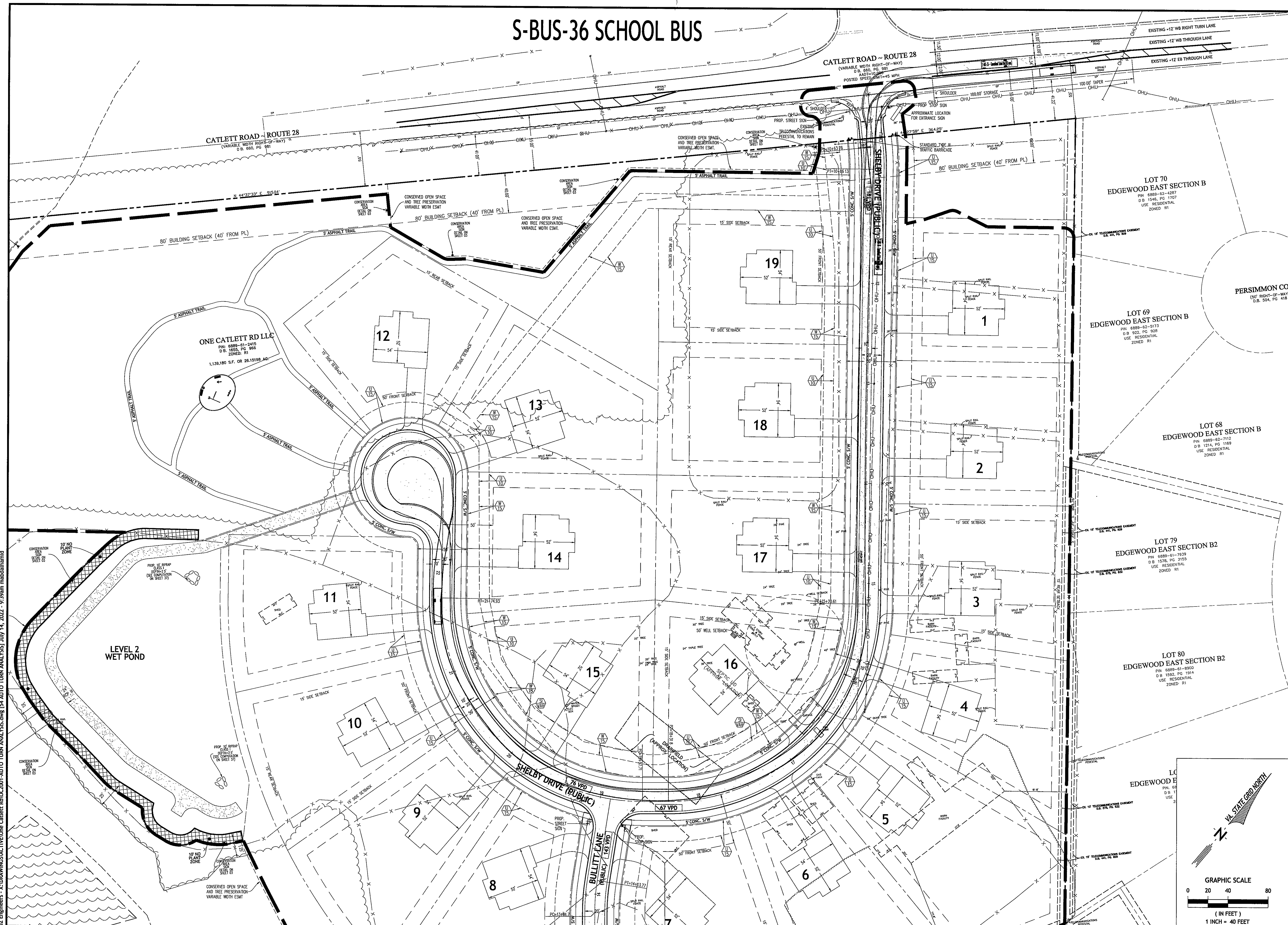
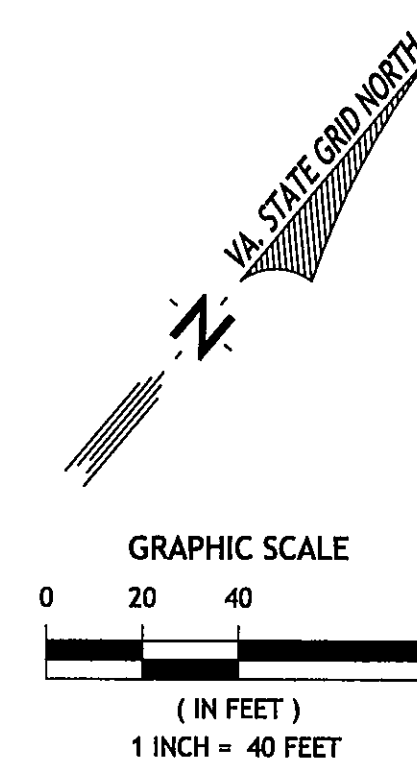
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DATE: JANUARY, 2021  
CONTOUR INT. = N/A  
SCALE: 1"=40'

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| 04/08/2022 |
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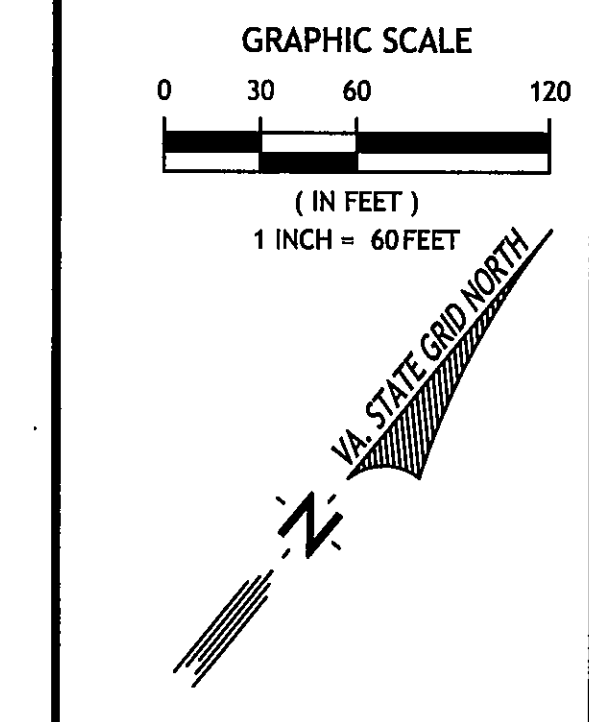
**AUTO TURN ANALYSIS**  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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J2 Engineers - X:\DRAWINGS\ACTIVE\One Catlett\60C2001-LANDSCAPE PLAN\60 SHEET 60.dwg [60 SHEET 60.dwg] July 14, 2022 - 4:10pm matdai.hard



LEGEND

- TREE PRESERVATION AREA
- CANOPY TREE
- SHRUB
- WET FOREST-SHRUBS
- HERBACEOUS LAYER

SHEET 60

SHEET 56

SHEET 57

SHEET 59

SHEET 58

GENERAL NOTES

1. ALL TREES TO BE PLANTED SHALL MEET THE SPECIFICATIONS OF THE AMERICAN LANDSCAPE AND NURSERY ASSOCIATION.
2. THE PLANTING TREES SHALL BE DONE IN ACCORDANCE WITH EITHER THE STANDARDIZED LANDSCAPE SPECIFICATIONS JOINTLY ADOPTED BY THE VIRGINIA NURSERYMEN'S ASSOCIATION, THE VIRGINIA SOCIETY OF LANDSCAPE ARCHITECTS, AND THE VIRGINIA CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, OR THE ROAD AND BRIDGE SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION. THE COUNTY SHALL MAINTAIN CURRENT COPIES OF THESE SPECIFICATIONS AVAILABLE TO THE PUBLIC.
3. THE MINIMUM CALIPER OF ALL DECIDUOUS TREES PLANTED SHALL BE 2 1/4 INCH.
4. FAUQUIER COUNTY SHALL BE PERMITTEE, AND THE HOA WILL ULTIMATELY BE RESPONSIBLE FOR MAINTAINING ALL LANDSCAPING.
5. TREE CANOPY COVERAGE CREDIT FOR INDIVIDUAL SPECIES IS BASED ON LOUDOUN COUNTY FSM "TREES AND SHRUBS" 7.305-TABLE 3 20-YEAR CANOPY COVERAGE.
6. ENOUGH ROCK SHALL BE REMOVED TO PROVIDED SUFFICIENT SOIL DEPTH TO SUPPORT PROPOSED PLANTINGS.
7. NO WOODY VEGETATION MAYBE REMOVED WITHIN THE LIMITS OF THE TREE PRESERVATION AREAS, EXCEPT FOR THE REMOVAL OF DEAD, DYING OR DISEASED TREES, REMOVAL OF INVASIVE SPECIES, AND REPLACEMENT OF LIKE KIND AS NECESSARY TO MAINTAIN THE WOODED PRESERVE CHARACTER OF THE TREE PRESERVATION AREA.
8. TREES SHALL NOT BE PLANTED WITHIN FOWSA EASEMENTS.
9. NO PLANTINGS WITHIN 5 FEET OF ANY FIRE HYDRANT.

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COMMONWEALTH OF VIRGINIA

SEBASTIAN SANDOVAL  
Lic. No. 045207  
07/14/2022  
PROFESSIONAL ENGINEER

PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1"=60'

PLAN DATE

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| 11/29/2021 |
| 04/09/2022 |
| 07/14/2022 |

OVERALL LANDSCAPE PLAN  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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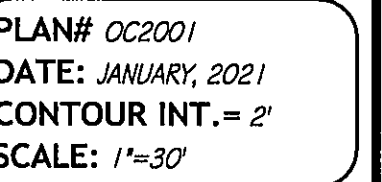
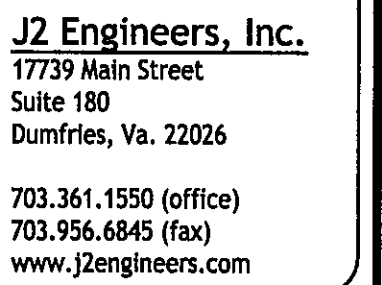
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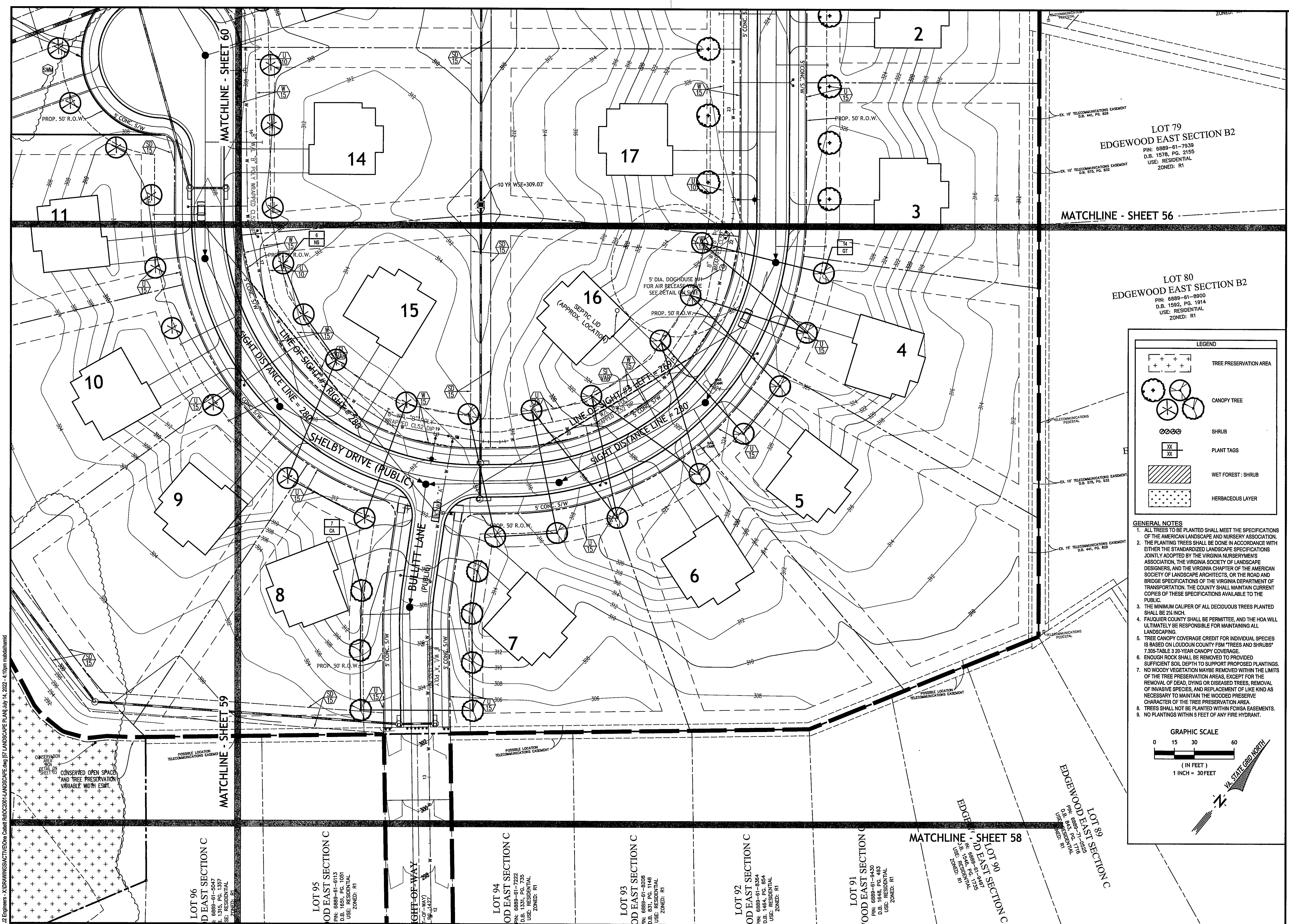


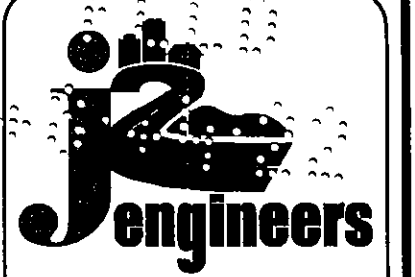
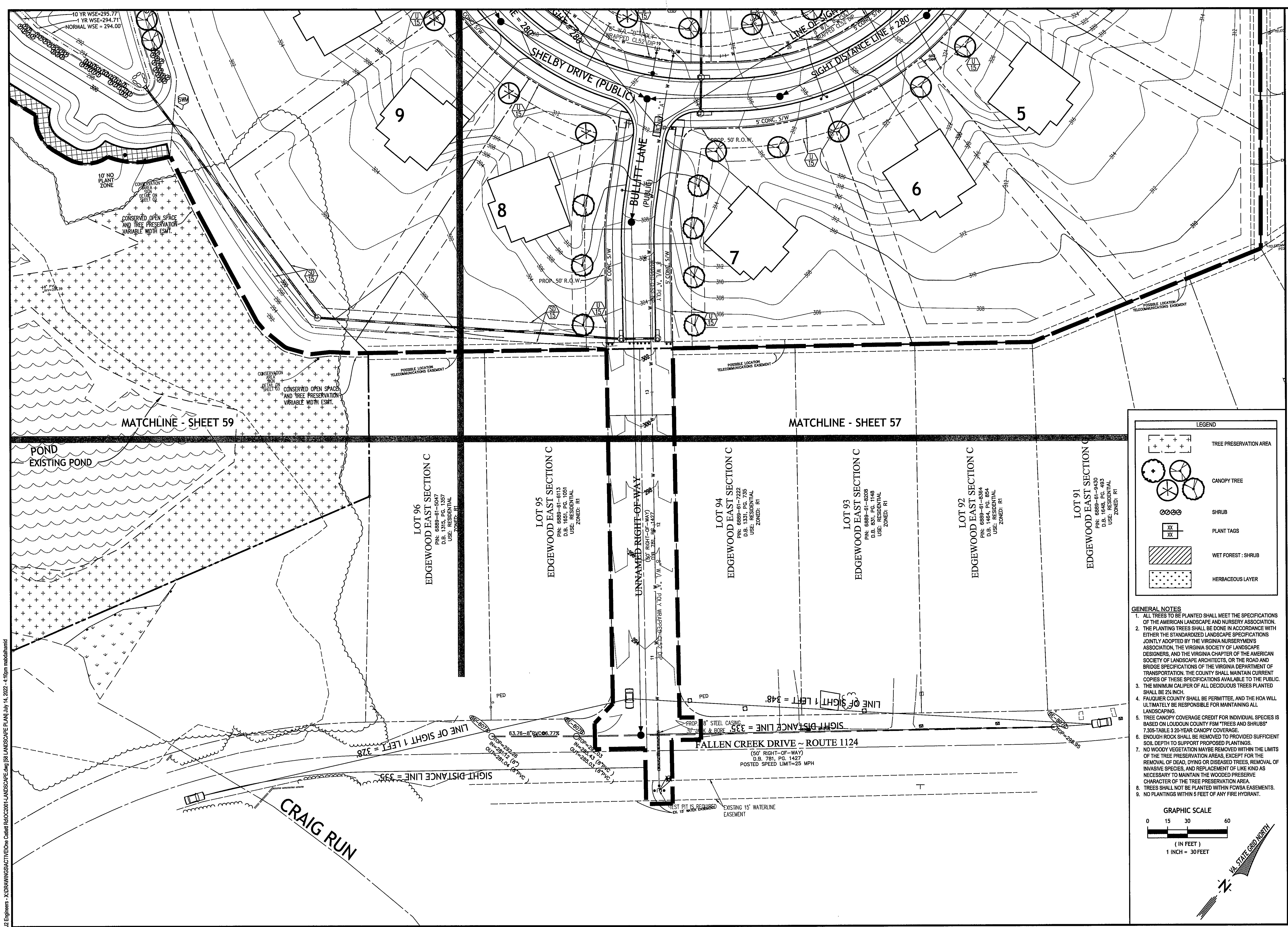
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CONSTRUCTION PLAN  
LANDSCAPE PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

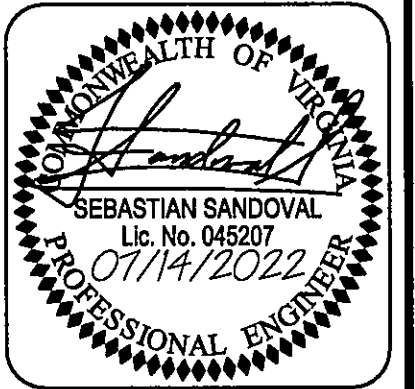
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**J2 Engineers, Inc.**  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = 2'  
SCALE: 1"=30'

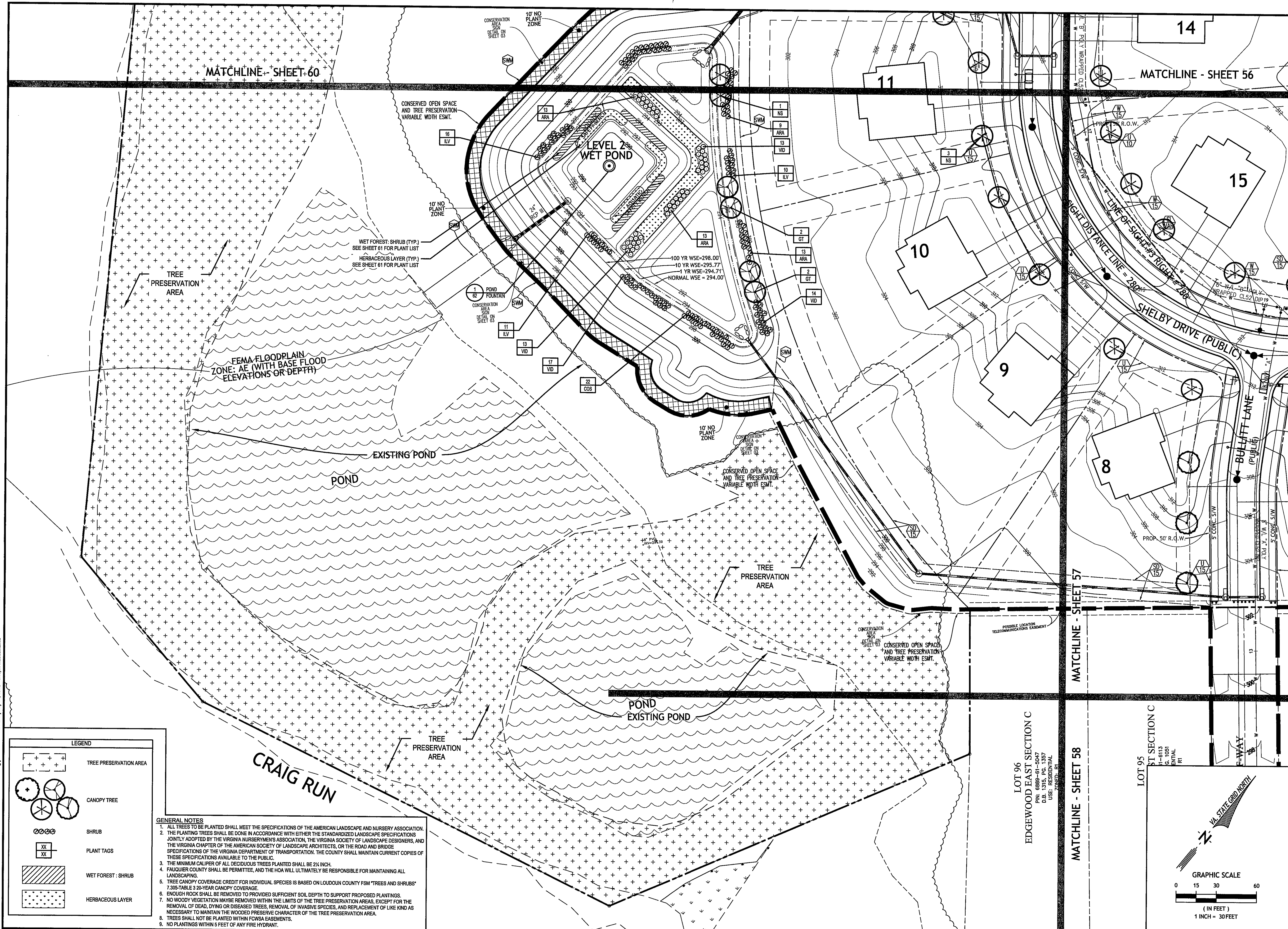
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LANDSCAPE PLAN  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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J2 Engineers - X:\DRAWINGS\ACT\VE\One Catlett Road\2021-LANDSCAPE\159 LANDSCAPE PLAN\July 14, 2022 - 4:10pm maddahamid



**LEGEND**

+ + + + TREE PRESERVATION AREA

○ ○ ○ ○ CANOPY TREE

○ ○ ○ ○ SHRUB

XX PLANT TAGS

WET FOREST : SHRUB

HERBACEOUS LAYER

- GENERAL NOTES**
1. ALL TREES TO BE PLANTED SHALL MEET THE SPECIFICATIONS OF THE AMERICAN LANDSCAPE AND NURSERY ASSOCIATION.
  2. THE PLANTING TREES SHALL BE DONE IN ACCORDANCE WITH EITHER THE STANDARDIZED LANDSCAPE SPECIFICATIONS JOINTLY ADOPTED BY THE VIRGINIA NURSERYMEN'S ASSOCIATION, THE VIRGINIA SOCIETY OF LANDSCAPE DESIGNERS, AND THE VIRGINIA CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, OR THE ROAD AND BRIDGE SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION. THE COUNTY SHALL MAINTAIN CURRENT COPIES OF THESE SPECIFICATIONS AVAILABLE TO THE PUBLIC.
  3. THE MINIMUM CALIPER OF ALL DECIDUOUS TREES PLANTED SHALL BE 2 1/4 INCH.
  4. FAUQUIER COUNTY SHALL BE PERMITTEE, AND THE HOA WILL ULTIMATELY BE RESPONSIBLE FOR MAINTAINING ALL LANDSCAPING.
  5. TREE CANOPY COVERAGE CREDIT FOR INDIVIDUAL SPECIES IS BASED ON LOUDOUN COUNTY FSM "TREES AND SHRUBS" 7.305-TABLE 3 20-YEAR CANOPY COVERAGE.
  6. ENOUGH ROCK SHALL BE REMOVED TO PROVIDED SUFFICIENT SOIL DEPTH TO SUPPORT PROPOSED PLANTINGS.
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  8. TREES SHALL NOT BE PLANTED WITHIN FCWSA EASEMENTS.
  9. NO PLANTINGS WITHIN 5 FEET OF ANY FIRE HYDRANT.

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SEBASTIAN SANDOVAL  
Lic. No. 045201  
07/14/2022  
PROFESSIONAL ENGINEER

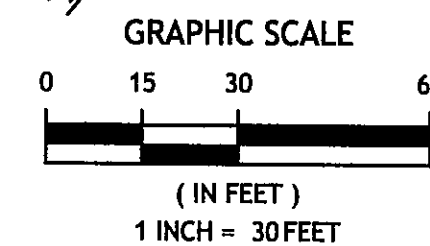
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DATE: JANUARY, 2021  
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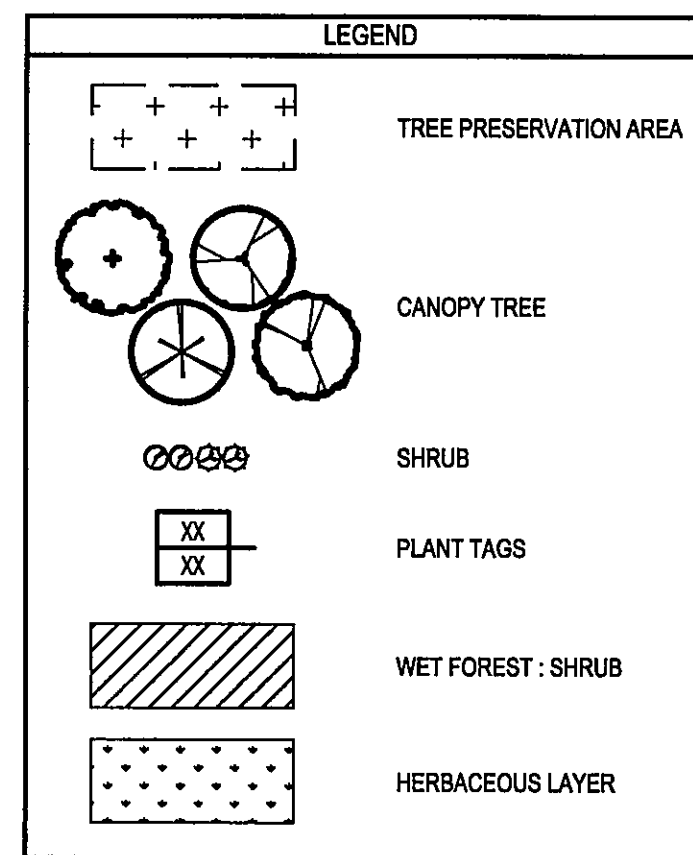
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LANDSCAPE PLAN  
**CONSTRUCTION PLAN**  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

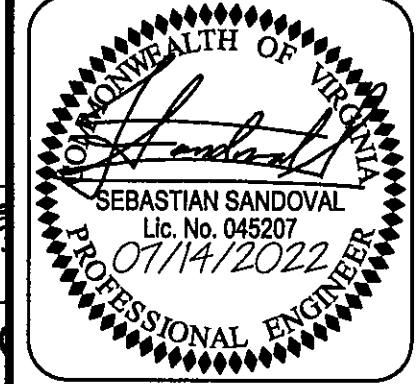
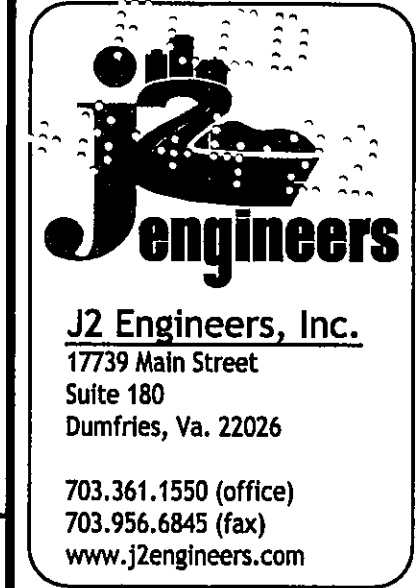
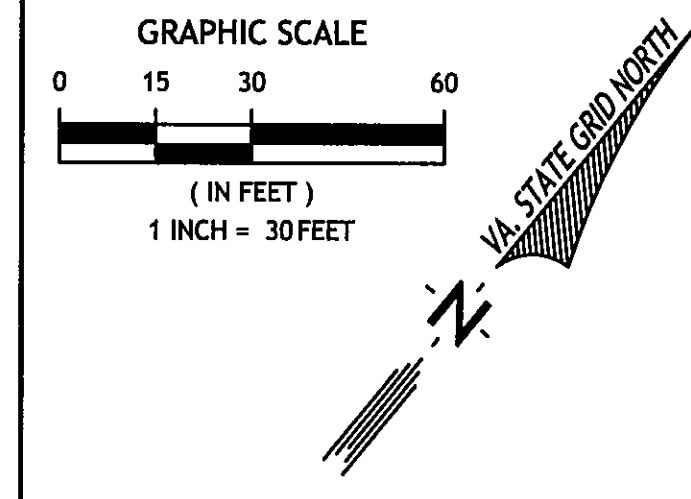
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- ### **GENERAL NOTES**
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  - 2. THE PLANTING TREES SHALL BE DONE IN ACCORDANCE WITH EITHER THE STANDARDIZED LANDSCAPE SPECIFICATIONS JOINTLY ADOPTED BY THE VIRGINIA LANDSCAPESMENS ASSOCIATION, THE VIRGINIA SOCIETY OF LANDSCAPE DESIGNERS, AND THE VIRGINIA CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS, OR THE ROAD AND BRIDGE SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION. THE COUNTY SHALL MAINTAIN CURRENT COPIES OF THESE SPECIFICATIONS AVAILABLE TO THE PUBLIC.**
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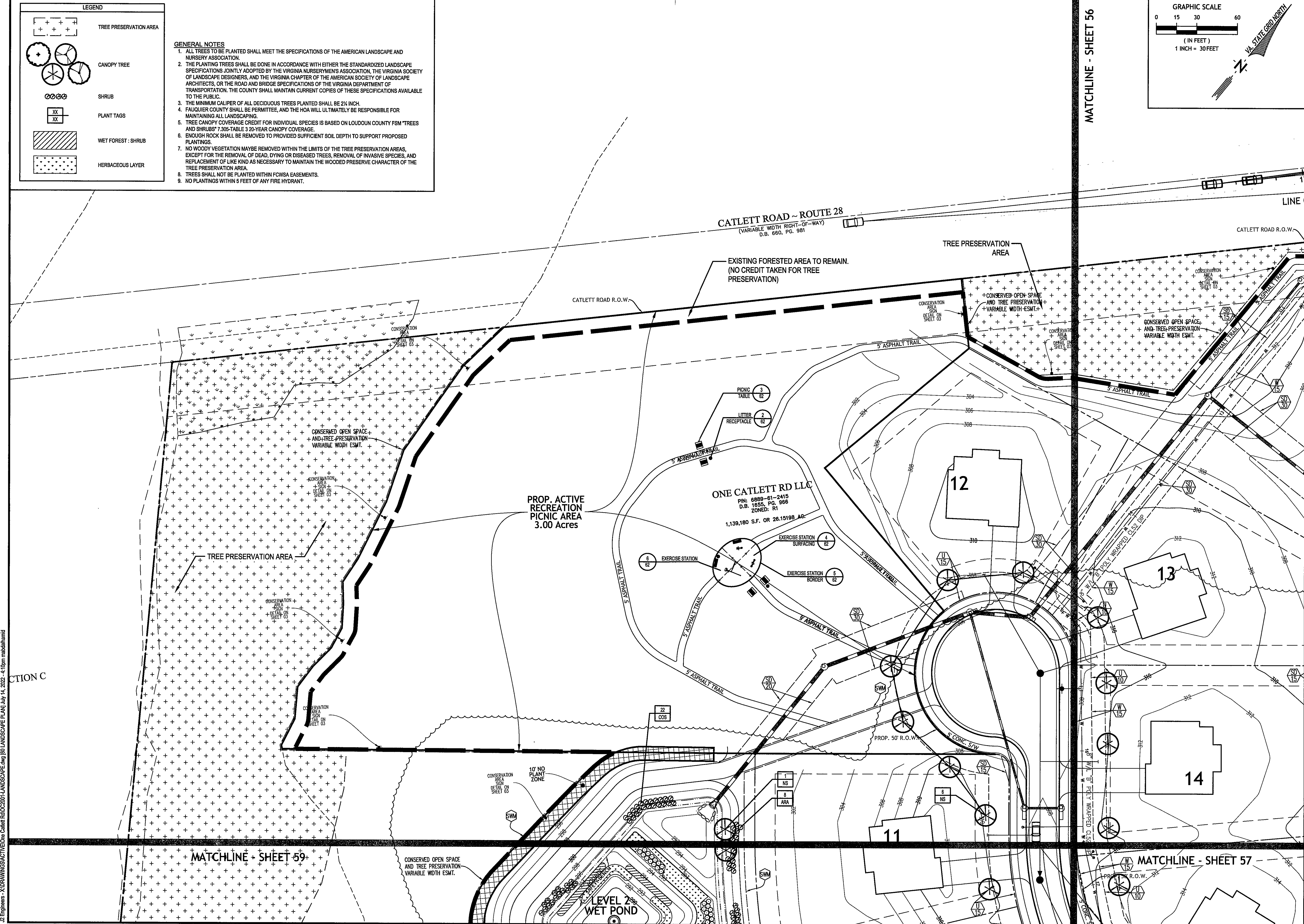
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LANDSCAPE PLAN  
CONSTRUCTION PLAN  
**ONE CATLETT ROAD**  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

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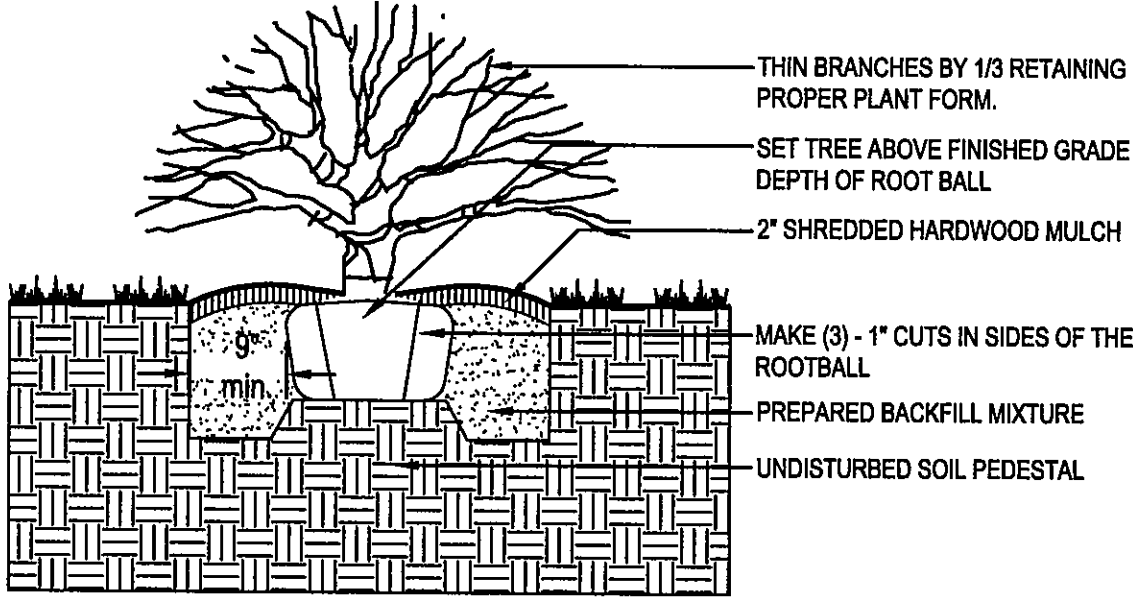


PLANTING SPECIFICATIONS

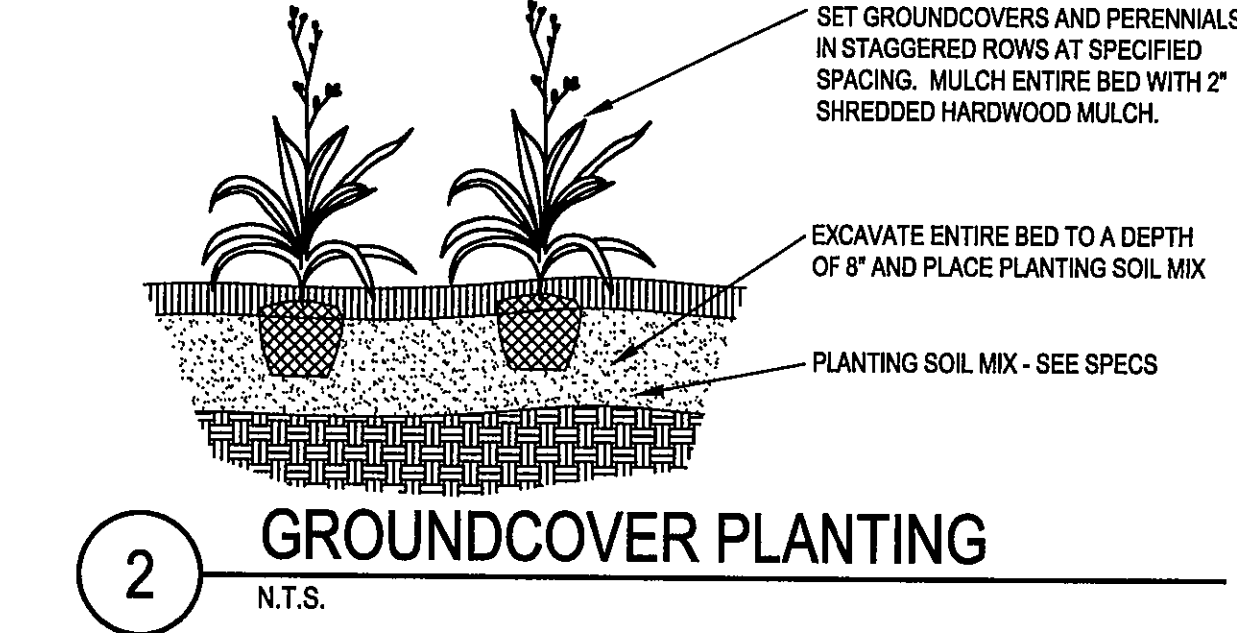
1. **QUALITY ASSURANCE:**
- A. Landscape planting and related work shall be performed by a firm with a minimum of five years experience specializing in this type and scale of work.
- B. Applicable Specifications and Standards:
- Fauquier County Zoning Ordinance,  
American Joint Committee on Horticultural Nomenclature  
American Standard for Nursery Stock, latest edition  
American Association of Nurserymen Landscape Specification Guidelines for Baltimore Washington Metropolitan Areas, latest edition, Landscape Contractors Association.
2. **SUBMITTALS:** Submit the following to the Owner's Representative prior to beginning work:
- A. Copies of manufacturer's data for all materials required.
- B. Samples of required mulch material.
- C. Chemical and mechanical analysis and samples of all existing soil, topsoil, organic matter and soil mix to be used.
- D. Planting schedule showing the dates (earliest and latest) proposed for each type of plant specified, schedule each type of planting within the normal planting seasons for such work. Include requests for any proposed changes in the approved planting season and a list of proposed sources for all plant materials.
- E. List of proposed sources for all plant material.
3. **DELIVERY, HANDLING, AND STORAGE:**
- A. Deliver packaged materials in manufacturer's unopened containers or bundles, fully identified with name, brand, type, weight, and analysis. Store packaged materials in such a manner as to prevent damage or intrusion of foreign matter.
- B. Dig balled and burlapped (B&B) plants with firm, natural balls of earth, of a diameter not less than that shown on the plant list nor less than recommended by the American Standard for Nursery Stock, and of sufficient depth to include the fibrous and feeding roots. B&B plants will not be accepted if the ball is cracked or broken before or during planting operation.
- C. Deliver trees and shrubs after preparations for planting have been completed. Do not bend, bind, or tie trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by heeling-in bare root stock and covering plant balls with soil, peat moss or other acceptable material for balled stock. Plants shall be kept well watered and shall not remain unplanted for longer than ten (10) days after delivery.
- D. Plants shall be lifted and handled from the bottom of the ball only.
- E. Do not remove container-grown stock from containers until planting time.
4. **DRAINAGE:** Before planting, determine that areas to receive plant material have adequate subsurface drainage.
- A. The landscape contractor is responsible for drainage tests as necessary to identify any problems prior to beginning planting operations. Upon commencement of planting operations the landscape contractor assumes responsibility for soil conditions.
- B. Dig planting pits to full depth and dimensions indicated on drawings.
- C. At bottom of planting pit, excavate rectangular pit 12 inches by 12 inches by 18 inches deep. Quickly pour water into pit to a depth of 6 inches (approximately 3-3 3/4 gallon). Note time required for water to be completely absorbed. Divide time noted by 6 to achieve average rate of absorption for 1 inch of water. Where rate of absorption exceeds 60 minutes per inch, notify owner immediately for directions on how to proceed.
5. **PLANTING DATES:** Planting shall be done only within the following dates except as approved by Owner.
- A. Deciduous Trees and Shrubs: March 1 to May 31 and October 15 to December 15.
- B. Evergreen Trees, Shrubs and Vines: March 1 to May 31 and September 1 to November 15.
- C. All plant material shall be guaranteed by the Contractor for a period of 1 year from the date final acceptance to be in good, healthy and flourishing condition.
6. **MATERIALS FOR PLANTING:**
- A. Topsoil shall be a fertile, friable natural loam, uniform in composition, free of stones, lumps, plants and their roots, debris and other extraneous matter over 1 inch in diameter, capable of sustaining vigorous plant growth. Soil shall be harvested at a single source from the O and/or A horizons of the soil profile.
- 1) Topsoil shall have a pH range of 5.5 to 7.5.
- 2) Topsoil shall contain 1.5-5% organic matter by dry weight.
- 3) Soil Texture: sandy loam, sandy clay loam with the following particle size distribution:
- Gravel Less than 10%  
Silt 15-30%  
Clay 20-35%  
Chemical Levels shall be:  
Magnesium Mg 100+ units  
Phosphorus P205 150+ units  
Potassium - K2O 120+ units
- 4) Soluble Salts/ Conductivity - Not to exceed 900 ppm/0.9 mmhos/cm (in soil); not to exceed 3000 ppm/2.5 mmhos/cm (in high organic mix)
- 5) Cation exchange capacity shall be a minimum of 8 meq/100g.
- B. Clay Loam to Sandy Clay Loam Soil: shall be a fertile, friable natural loam, uniform in composition, free of stones, lumps, plants and their roots, debris and other extraneous matter over 1 inch in diameter, capable of sustaining vigorous plant growth.
- 1) Soil shall have a pH range of 5.5 to 6.5.
- 2) Soil shall contain 2-5% organic content by volume.
- 3) Soil Texture: Clay loam to sandy clay loam with the following particle size distribution:
- Gravel Less than 10%  
Sand 20-50%  
Silt <35%  
Clay 20-40%  
Chemical Levels shall be:  
Magnesium Mg 100+ units  
Phosphorus P205 150+ units  
Potassium - K2O 120+ units
- 5) Soluble Salts/ Conductivity - Not to exceed 900 ppm/0.9 mmhos/cm (in soil); not to exceed 3000 ppm/2.5 mmhos/cm (in high organic mix)
- 6) Cation exchange capacity shall be 20-35 meq/100g.
- C. Compost: Compost shall be mature, stable, weed free, and produced by aerobic decomposition of organic matter. Compost feedstock shall be plant matter, such as high lignin forestry products or yard waste (leaves, brush and yard trimmings).
- 1) The product must not contain any visible refuse or other physical contaminants, substances toxic to plants, or over 5% sand, silt, clay or rock material by dry weight.
- 2) Compost shall be sampled and tested as required by the Seal of Testing Assurance Program of the United States Composting Council (USCC) and shall meet the physical requirements for compost as determined by USCC.
- 3) The product shall possess no objectionable odors. The product must meet all applicable USEPA CFR, Title 40, Part 503 Standards for Class A biosolids.
- 4) The moisture level shall be such that no visible water or dust is produced when handling the material.
- D. Composted Pine Bark Fines: Shall be approved composted, ground pine bark having no particle with a dimension greater than 3/4 inch. No more than 10% shall be wood.
- E. Sand: Shall be quartz based sharp concrete sand, ASTM C-33 Fine Aggregate, with a Fines Modulus Index between 2.8 and 3.2.
- F. Trace Elements: Shall be commercially available slow release materials containing zinc (Zn), Molybdenum (Mo), Copper (Cu), Boron (B), and Magnesium (Mn).
- G. Fertilizer: A commercial fertilizer for ornamental trees, shrubs and ground cover with an analysis of 10% Nitrogen, 6% Phosphorus and 4% Potassium shall be used. This fertilizer shall be granular with a minimum of 50% of the total Nitrogen in organic form. 14-14-14 Osmocote (or approved equal) shall be applied at a rate of 10 lbs. per square foot, filled to a depth of 8 inch, shall be used for perennials.
- H. Soil Separator: Shall be not resistant non-woven polypropylene filter fabric, water permeable, and unaffected by freezing and thawing. Acceptable products include: Mirafi 140N, Mirafi Civil Engineering Co., or Stablentek Type T-80, American Enka Co., Enka, N.C.
- I. Planter Drainage Fabric: Shall be prefabricated planter drainage fabric Miradrain 9000, a composite system consisting of a Mirafi drainage fabric bonded to a three-dimensional highly impact-resistant plastic core. The core shall have the following attributes:
- 1) Compressive Strength: (ASTM D-1621), 15,000 + PSF.
- 2) Overlaps: Shall be capable of mechanically interlocking so as to prevent separation of the overlaps during backfill.
7. **PLANT MATERIALS:** (Refer to the PLANT LIST on the drawings for specific types and quantities of plants):
- A. Plants shall be nursery grown in accordance with good horticultural practices. Plants shall either be obtained from local nurseries and/or others, which have soil (heavy clay) and climatic conditions similar to those in the locality of the project.
- B. Plant material grown in sandy, well-drained soil will not be approved for this project. Plants shall be true to species and variety and unless specifically noted otherwise, all plants shall be of specimen quality, exceptionally heavy, symmetrical, tightly-knit plants, so trained or favored in their development and appearance as to be superior in form, number of branches, compactness and symmetry.
- C. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf, free of disease, insect pests, eggs or larvae and shall have healthy, well-developed root systems. They shall be free from physical damage or any conditions that would prevent thriving health and the desired appearance.
- D. Trees, which have a damaged or crooked leader, or multiple leaders, unless specified in the plant list, will be rejected. Trees with abrasion of the bark, sun scald, disfiguring knots, or pruning cuts more than 1 1/4 inch diameter which have not completely callused, will be rejected.

- E. Plants shall conform to measurements specified in the plant schedules except that plants larger than specified may be used if acceptable to the Landscape Architect or owner. Use of such plants shall not increase the contract price. If larger plants are accepted, the root ball shall be sized for the larger plant.
- F. Caliper Measurement: Shall be taken at a point on the trunk 6 inches above natural ground line for trees up to 4 inches diameter, and at a point 12 inches above the natural ground line for trees over 4 inches diameter.
- G. Plants shall be measured when branches are in the normal position. Height and spread dimensions specified refer to the main body of the plant and not from branch tip to tip.
8. **SOIL MIXING PROCEDURES:**
- A. Topsoil used in sand/soil mixes shall be screened or shredded prior to mixing in sands. Maximum clod inclusion for soil mixes shall not exceed:
- | Clod size (largest dimension) | % of the soil mix volume |
|-------------------------------|--------------------------|
| Less than 1"                  | Unlimited                |
| 1 to 3 inches                 | 20%                      |
| 3 to 6 inches                 | 5%                       |
| >6 inches                     | Less than 2%             |
- B. Source material and soil mix stockpiles shall be protected from rain by covering with filter cloth.
9. **INSPECTION:**
- A. Examine the areas and conditions where soil mix is to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.
- B. Cooperate with other Contractors and trades working in and adjacent to other work areas. Examine drawings which show development of entire project and become familiar with scope of other work required.
10. **SOIL INSTALLATION - GENERAL PROCEDURES:**
- A. If subgrade soil compaction exceeds 80%, existing soil shall be ripped to a depth of 12 inch to alleviate compaction which has taken place during construction. Prior to loosening of soil, Contractor must locate existing utilities and coordinate with Owner any underground electric lines, drainage pipes, conduits, etc.
- B. Prepare the subgrade by roughening the top 3" of the subsoil by dragging the teeth of a backhoe bucket across the surface.
- C. Begin soil installation as soon as subsoil is prepared. Use low impact equipment with track bells, large tires, or low tire pressure to lower compaction and soil damage during installation.
- D. Monitor compaction during installation and loosen soils as needed if compaction exceeds 80%.
- E. Install specified soil in 12"-18" thick lifts. Compact each lift sufficiently to reduce settling but not enough to prevent the movement of water and feeder roots through the soil. The soils in each lift should feel firm to the foot in all areas and make only slight heel prints.
11. **INSTALLATION OF SOIL MIX FOR LAWN AREAS ON GRADE:**
- A. Soil Mix for Lawns on Grade: shall consist of 10% compost and 90% topsoil, by volume. These materials must meet specifications described in Section 2.00.
- B. Loosen subgrade lawn areas to a minimum of 3". Remove stones more than 1-1/2" in any dimension and sticks, roots, rubbish, and other extraneous matter. Limit preparation to areas which will be planted promptly after preparation.
- C. Spread soil mix for lawn areas on grade to a minimum depth of 8" as required to meet grade and elevations shown on drawings, after lightly rolling and natural settlement. Allow for sod thickness in areas to be sodded.
12. **INSTALLATION OF SOIL MIX FOR TREE PITS ON GRADE:**
- A. Confirm that native subsoil drains at a rate of at least 1/2" per hour. If drainage is less than 1/2" per hour, provide subsurface drainage lines.
- B. Install 30-38" of Soil Mix for Tree Pit Backfill on Grade:
- 1) Shall consist of clay loam to sandy clay loam soil, sand, and composted pine bark fines at a rate of 5:5:1 to 10:5:1.5 to achieve the following:
- (a) Clay content of Soil Mix shall be 10-20% of the soil mix, by volume.
- (b) Minimum amount of coarse to medium sand in the mix shall be 55%.
- (c) Minimum infiltration rate at 80-85% compaction shall be 1-3 inches per hour.
- A. Composted pine bark fines shall not exceed 10% of the total soil mix by volume.
- B. Till 4" of compost into the top 6" of the installed Soil Mix for Tree Pit Backfill on Grade.
13. **INSTALLATION OF SOIL MIX FOR MULCHED SHRUB AND PERENNIAL BEDS:**
- A. Confirm that native subsoil drains at a rate of at least 1/2" per hour. If drainage is less than 1/2" per hour, provide subsurface drainage lines.
- B. Install 14" of Soil Mix for Mulched Shrub and Perennial Beds on Grade:
- 1) Shall consist of clay loam to sandy clay loam soil, sand, and composted pine bark fines at a rate of 5:5:1 to 10:5:1.5 to achieve the following:
- (a) Clay content of Soil Mix shall be 10-20% of the soil mix, by volume.
- (b) Minimum amount of coarse to medium sand in the mix shall be 55%.
- (c) Minimum infiltration rate at 80-85% compaction shall be 1-3 inches per hour.
- 2) Composted pine bark fines shall not exceed 10% of the total soil mix by volume.
- C. Till 4" of compost into the top 6" of the installed Soil Mix for Tree Pit Backfill on Grade.
14. **INSTALLATION OF SILVA CELL PLANTING SOIL MIX:**
- A. Soil Mix shall be installed per Manufacturer's recommendations.
- B. Planting Soil Mix shall consist of Topsoil, Compost, and coarse sand mixed to the following proportion:
- | Material    | % by volume |
|-------------|-------------|
| Compost     | 12-17%      |
| Coarse Sand | 35-50%      |
| Topsoil     | 35-50%      |
- 1) Ratio shall be adjusted to achieve a water permeability between 0.75 and 1.75 inches per hour when compacted to 80-85% of maximum dry density. The permeability of the allowable topsoil materials will vary the overall permeability of the final mix. Submit multiple mix ratios for permeability to establish the correct mix ratio for the available topsoil.
- 2) Final Mix shall have a pH between 5.5 and 6.5.
- 3) Final mix shall have an organic matter content of between 3 and 5%.
15. **GENERAL PLANT INSTALLATION:**
- A. Excavation: Excavate all tree pits and planting areas to the width and depth shown in the planting details. Soil has been tamped firmly around root ball.
- C. Mulch: Within 48 hours after planting and after applying the pre-emergent herbicide, except ground cover areas (which shall have organic material placed before planting) with a 2" layer of mulch immediately after planting. All bed lines shall be cut with a smooth consistent edge to a minimum depth of 3 inches. Keep mulch out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.
- D. All planting areas to conform to specified grades after full settlement has occurred and mulch has been applied. Provide saucers around tree pits as shown on planting details. Remove all tags, labels, strings, etc. from all plants.
16. **PERMANENT SEEDING OR SODDING FOR GRASS AREAS:**
- A. Lawn Seed or Sod varieties shall be an improved variety turf-type tall fescue blend. The landscape contractor shall select from varieties approved by the Maryland or Virginia Department of Agriculture.
- B. Refer to the Virginia Erosion and Sediment Control Handbook, for guidelines, specifications and installation techniques of seed and sod.
- C. Maintenance shall begin immediately after each plant and lawn area is installed and shall continue until 90 days after final acceptance of the last section.

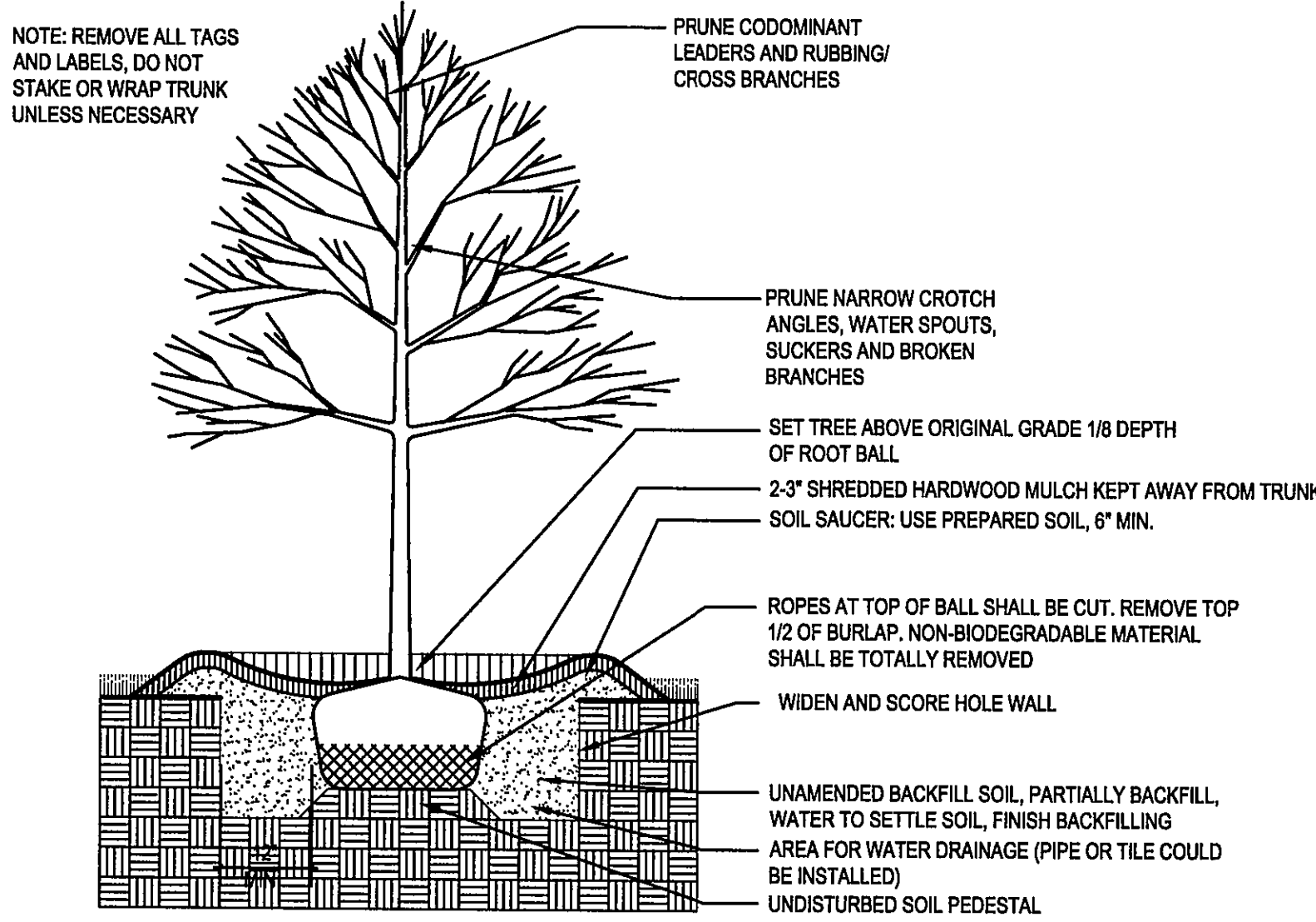
NOTE: REMOVE ALL TAGS AND LABELS



1 TYP. B&B SHRUB PLANTING  
N.T.S.



2 GROUNDCOVER PLANTING  
N.T.S.

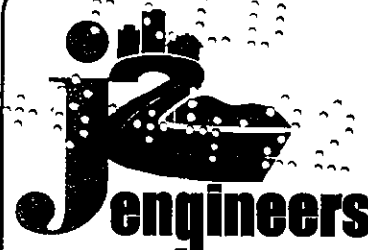


3 DECIDUOUS TREE PLANTING  
N.T.S.

POND VEGETATION - PLANT SCHEDULE

| Qty.                                 | Key | Scientific Name    | Common Name        | Size    | Root Type |
|--------------------------------------|-----|--------------------|--------------------|---------|-----------|
| <b>SHRUBS</b>                        |     |                    |                    |         |           |
| <i>(0' - 0.5' above normal pool)</i> |     |                    |                    |         |           |
| 56                                   | ARA | Aronia arbutifolia | Red Chokeberry     | 24" ht. | Cont.     |
| 44                                   | COS | Cornus sericea     | Redosier Dogwood   | 24" ht. | Cont.     |
| 37                                   | ILV | Ilex verticillata  | Common Winterberry | 24" ht. | Cont.     |
| 57                                   | VID | Viburnum dentatum  | Arrowwood Viburnum | 24" ht. | Cont.     |

| ZONE                                                                   | SPECIES                                                    | INDICATOR STATUS                     | MAX DEPTH | SIZE | SPACING            | PLANT   | Area per Plant (SF) | PLANTING SCHEDULE |                                                                                                  |
|------------------------------------------------------------------------|------------------------------------------------------------|--------------------------------------|-----------|------|--------------------|---------|---------------------|-------------------|--------------------------------------------------------------------------------------------------|
| <b>Wet Forest: Scrub/Shrub</b><br><i>(0' - 0.5' below normal pool)</i> | Shrub/herbaceous Layer (Shallow Emergent)                  | Andropogon virginianus (Broomsedge)  | OBL       | 3"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Shrub/herbaceous Layer (Shallow Emergent)                  | Carex lurida (Shallow Sedge)         | OBL       | 6"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Shrub/herbaceous Layer (Shallow Emergent)                  | Chelone glabra (Turtlehead)          | OBL       | 6"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Shrub/herbaceous Layer (Shallow Emergent)                  | Panicum virgatum (Switchgrass)       | OBL       | 3"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Shrub/herbaceous Layer (Shallow Emergent)                  | Saururus cernuus (Lizard Tail)       | OBL       | 6"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Herbaceous Layer<br><i>(0.5' - 1.5' below normal pool)</i> |                                      |           |      |                    |         |                     |                   |                                                                                                  |
|                                                                        | Herbaceous Layer (Deep Emergent)                           | Acorus calamus (Sweetflag)           | OBL       | 8"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Herbaceous Layer (Deep Emergent)                           | Hibiscus moscheutos (Marsh Hibiscus) | OBL       | 8"   | SPRGS (4 stem min) | 3' O.C. | Container           | 9                 |                                                                                                  |
|                                                                        | Herbaceous Layer (Deep Emergent)                           | Iris pseudacorus (Yellow Iris)       | OBL       | 8"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Herbaceous Layer (Deep Emergent)                           | Iris versicolor (Blue Iris)          | OBL       | 8"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Herbaceous Layer (Deep Emergent)                           | Lobelia cardinalis (Cardinal Flower) | OBL       | 8"   | SPRGS (4 stem min) | 3' O.C. | Container           | 9                 |                                                                                                  |
|                                                                        | Herbaceous Layer (Deep Emergent)                           | Pontederia cordata (Pickerel Weed)   | OBL       | 8"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        | Herbaceous Layer (Deep Emergent)                           | Sagittaria latifolia (Duck Potato)   | OBL       | 8"   | SPRGS (4 stem min) | 3' O.C. | Bare Root           | 9                 |                                                                                                  |
|                                                                        |                                                            |                                      |           |      |                    |         |                     |                   |                                                                                                  |
|                                                                        |                                                            |                                      |           |      |                    |         |                     |                   |                                                                                                  |
|                                                                        |                                                            |                                      |           |      |                    |         |                     |                   |                                                                                                  |
| <b>Notes:</b>                                                          |                                                            |                                      |           |      |                    |         |                     |                   | 1. Within emergent zones, planter should adjust plant materials based on maximum planting depth. |



J2 Engineers, Inc.  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026  
703.361.1550 (office)  
703.956.6845 (fax)  
www.j2engineers.com



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT. = NA  
SCALE: AS SHOWN

| PLAN DATE | 03/11/2021 | 12/02/2021 | 04/02/2022 | 05/12/2022 | 09/17/2022 | 11/29/2022 | 04/03/2023 | 07/14/2022 |
|-----------|------------|------------|------------|------------|------------|------------|------------|------------|
|-----------|------------|------------|------------|------------|------------|------------|------------|------------|

LANDSCAPE DETAILS & COMPUTATIONS  
CONSTRUCTION PLAN  
ONE CATLETT ROAD  
LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

| REVISIONS | DESCRIPTION | No. | DATE |
|-----------|-------------|-----|------|
|           |             |     |      |
|           |             |     |      |
|           |             |     |      |
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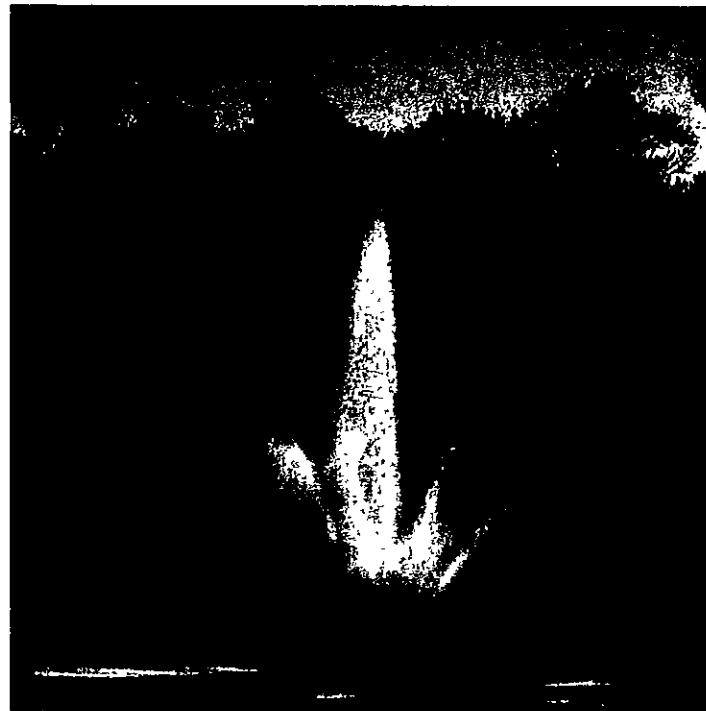
SHEET

61  
OF  
63

**SUPPLIER:**  
**EAGLE FOUNTAIN WORKS**  
**TEL: 1.800.293.3937**  
**[www.eaglefountains.com](http://www.eaglefountains.com)**

NOTES:

1. CONTRACTOR TO PROVIDE MANUFACTURER'S SPECIFICATIONS AND MATERIAL SAMPLES FOR OWNER APPROVAL PRIOR TO PURCHASE.



1 POND FOUNTAIN  
N.T.S.

MODEL: S-42  
COLOR: BLACK

INSTALL PER MANUFACTURER'S  
INSTRUCTIONS

Victor Stanley, Inc.  
PO Drawer 330  
Dunkirk, MD 20754  
Tel: 800.368.2573

(OR APPROVED EQUAL



**NOTES:**  
1. CONTRACTOR TO PROVIDE MANUFACTURER'S SPECIFICATIONS AND MATERIAL SAMPLES FOR OWNER APPROVAL PRIOR TO PURCHASE.

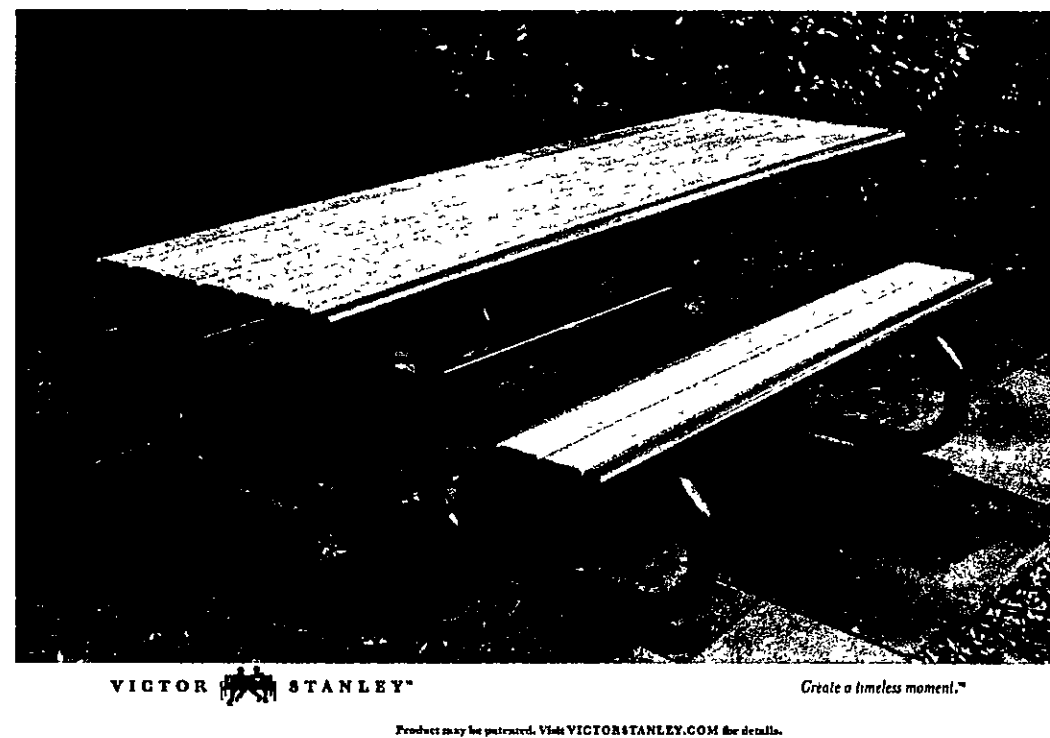
2 LITTER RECEPTACLE  
N.T.S.

MODEL: CM-565  
COLOR: BLACK

INSTALL PER MANUFACTURER'S INSTRUCTIONS

Victor Stanley, Inc.  
PO Drawer 330  
Dunkirk, MD 20754  
Tel: 800.368.2573

(OR APPROVED EQUAL



**NOTES:**

1. CONTRACTOR TO PROVIDE MANUFACTURER'S SPECIFICATIONS AND MATERIAL SAMPLES FOR OWNER APPROVAL PRIOR TO PURCHASE.

3 PICNIC TABLE  
N.T.S.

PRODUCT:  
GT IMPAX ENGINEERED WOOD FIBER  
(OR APPROVED EQUAL)

1. CONTRACTOR TO PROVIDE MANUFACTURER'S SPECIFICATIONS AND MATERIAL SAMPLES FOR OWNER APPROVAL PRIOR TO PURCHASE.
2. CONTRACTOR TO SUBMIT SHOP DRAWINGS OF SURFACE MATERIAL DEPTHS FOR APPROVAL PRIOR TO INSTALLATION.
3. EXERCISE STATION SAFETY SURFACE TO COMPLY WITH ASTM F1932 BASED TO THE FULL HEIGHT FROM THE SPECIFIED EXERCISE STATION EQUIPMENT.
4. CONTRACTOR TO INSURE GOOD DRAINAGE WITHIN THE PLAYGROUND AREA.
5. CONTRACTOR SHALL PROVIDE SIGNAGE WITHIN THE EXERCISE STATION AREA TO PROVIDE GUIDANCE TO SUPERVISORS AT TO THE AGE APPROPRIATENESS OF THE EQUIPMENT.



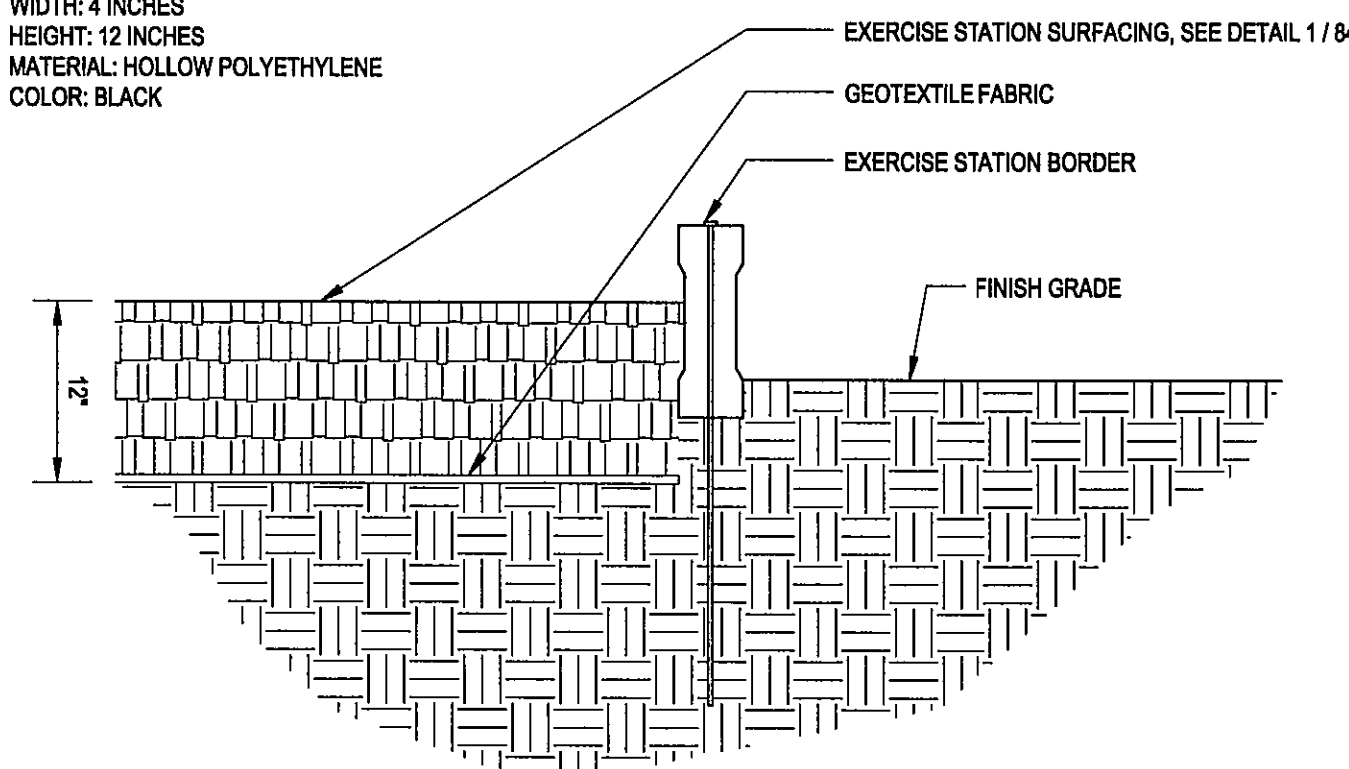
## 4 EXERCISE STATION: SURFACING

**SUPPLIER:**  
PLAYWORLD  
PLAYGROUND SPECIALISTS, INC.  
TEL: 800.385.0075  
[www.playspec.com](http://www.playspec.com)

**SPECIFICATIONS**  
**LENGTH: 4 FEET**  
**WIDTH: 4 INCHES**  
**HEIGHT: 12 INCHES**  
**MATERIAL: HOLLOW POLYETHYLENE**  
**COLOR: BLACK**

**NOTES**

1. SECURE W/ 30" LONG GALV. STAKES
2. INSTALL ADA ACCESS WEDGE AT ACCESS POINT TO TRANSITION FROM PLAY AREA TO ADJACENT WALK.
3. ALL EQUIPMENT SHALL COMPLY W/ ASTM 1487 & USCPSC FOR PUBLIC PLAYGROUND SAFETY.



5 EXERCISE STATION: BORDER  
SCALE: 1"=1'-0"

STATION 3 - SURF MNT

RECLINANT BIKE

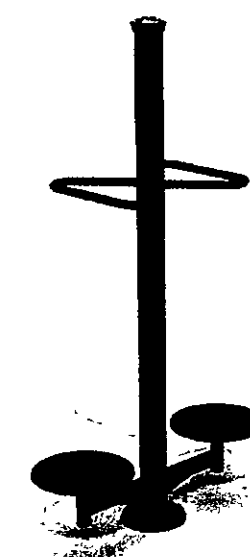
THE TWISTER

**6 EXERCISE STATION: DETAIL PLAN**  
Scale: 1"=10'-0"



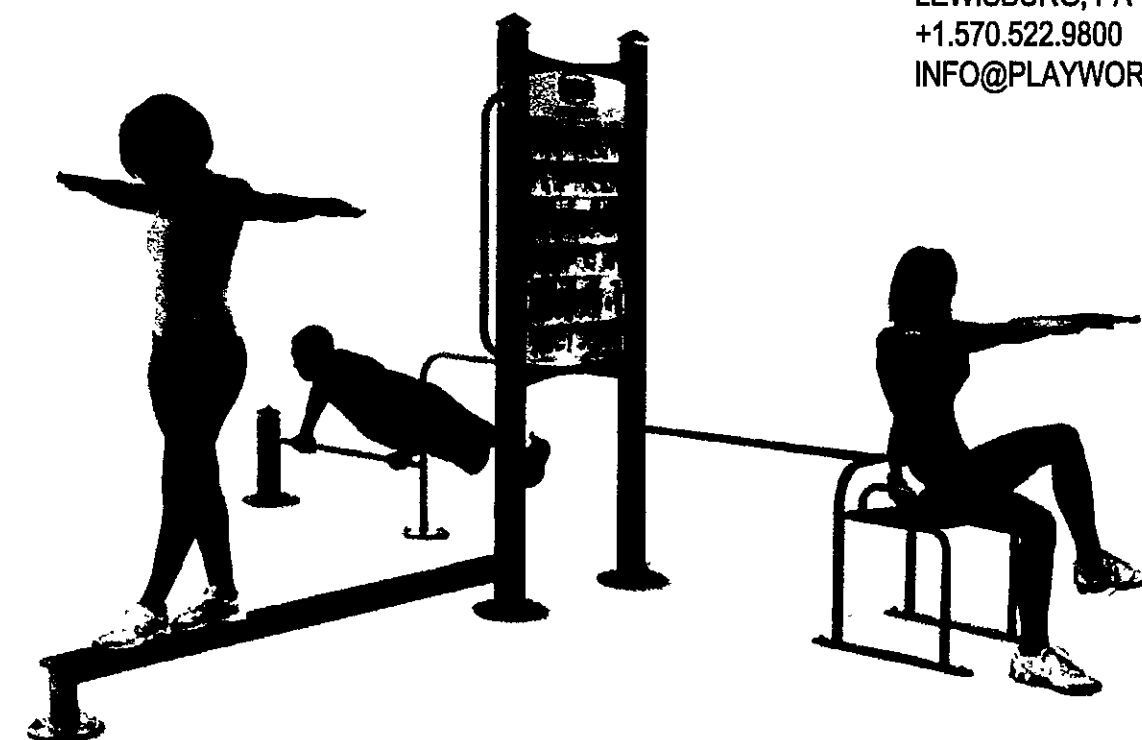
RECUMBENT BIKE  
PRODUCT: ZZXX0488

**SUPPLIER:**  
PLAYWORLD  
1000 BUFFALO ROAD  
LEWISBURG, PA 17837  
+1.570.522.9800  
INFO@PLAYWORLD.COM



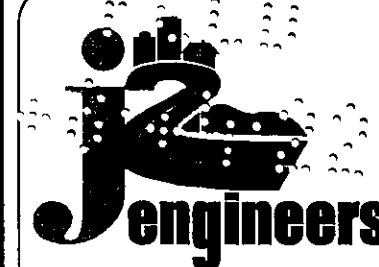
THE TWISTER  
PRODUCT: ZZXX0487

**SUPPLIER:**  
PLAYWORLD  
1000 BUFFALO ROAD  
LEWISBURG, PA 17837  
+1.570.522.9800  
INFO@PLAYWORLD.COM



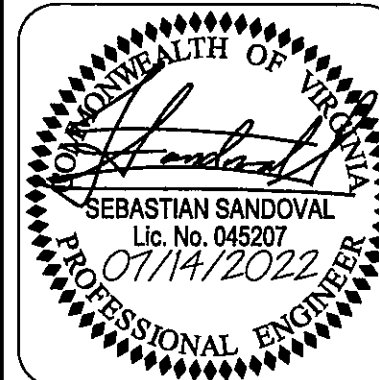
STATION 3 - SURF MNT  
(SQUAT, DIP, PUSH-UP & BALANCE EXERCISES)  
PRODUCT: ZZXX0091S

**SUPPLIER:**  
**PLAYWORLD**  
**1000 BUFFALO ROAD**  
**LEWISBURG, PA 17837**  
**+1.570.522.9800**  
**INFO@PLAYWORLD.COM**



**J2 Engineers, Inc.**  
17739 Main Street  
Suite 180  
Dumfries, Va. 22026

703.361.1550 (office)  
703.956.6845 (fax)  
[www.j2engineers.com](http://www.j2engineers.com)



PLAN# OC2001  
DATE: JANUARY, 2021  
CONTOUR INT.= N/A  
SCALE: AS SHOWN

| PLAN DATE  |
|------------|
| 03/12/2021 |
| 04/20/2021 |
| 05/12/2021 |
| 09/11/2021 |
| 11/29/2021 |
| 04/08/2022 |
| 07/14/2022 |

AMENITY DETAILS

CONSTRUCTION PLAN

ONE CATLETT ROAD

LEE MAGISTERIAL DISTRICT  
FAUQUIER COUNTY, VIRGINIA

[illegible]

SHEET

62  
OF  
63

FAUQUIER COUNTY BOND ESTIMATE REVIEW  
One Catlett Road - CONP-21-014798

| Site Works                                                                                                                                                                                                                                                                                                                                                   | Co. Quantity          | Co. Unit Price | Co. Total                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------|-----------------------------------|
| Mobilization                                                                                                                                                                                                                                                                                                                                                 | 1.00 EA               | \$10,000.00    | \$10,000.00                       |
| <b>Clearing and Grubbing</b>                                                                                                                                                                                                                                                                                                                                 |                       |                |                                   |
| Heavy                                                                                                                                                                                                                                                                                                                                                        | AC                    | \$15,000       | \$0.00                            |
| Moderate                                                                                                                                                                                                                                                                                                                                                     | 18.50 AC              | \$11,700       | \$216,450.00                      |
| Light                                                                                                                                                                                                                                                                                                                                                        | AC                    | \$7,800        | \$0.00                            |
| HEAVY: Anything exceeding the Light and Moderate categories.<br>MODERATE: In addition to Light category, grading up to 4 feet depth, removal of trees under 24 inch diameter, removal of medium size shrubs.<br>LIGHT: Grading less than 2 feet in depth. Removal of vegetation, grass areas, and small shrubs, small trees less than 12 inches in diameter. |                       |                |                                   |
| <b>Earthwork</b>                                                                                                                                                                                                                                                                                                                                             |                       |                |                                   |
| Site Grading: to include rough and fine grading                                                                                                                                                                                                                                                                                                              | 88347 SY              | \$1            | \$88,347.00                       |
|                                                                                                                                                                                                                                                                                                                                                              |                       |                | Subtotal \$314,797.00             |
| <b>Erosion and Sediment Controls</b>                                                                                                                                                                                                                                                                                                                         |                       |                |                                   |
| Construction Entrance                                                                                                                                                                                                                                                                                                                                        | 1.00 EA               | \$2,500        | \$2,500.00                        |
| Silt Fence                                                                                                                                                                                                                                                                                                                                                   | LF                    | \$5            | \$0.00                            |
| Super Silt Fence                                                                                                                                                                                                                                                                                                                                             | 5009.00 LF            | \$12           | \$60,108.00                       |
| Safety Fence (Orange Plastic)                                                                                                                                                                                                                                                                                                                                | 1423.00 LF            | \$3            | \$4,269.00                        |
| Tree Protection                                                                                                                                                                                                                                                                                                                                              | EA                    | \$50           | \$0.00                            |
| Diversion Dike                                                                                                                                                                                                                                                                                                                                               | 3325.00 LF            | \$4            | \$13,300.00                       |
| Sediment Trap                                                                                                                                                                                                                                                                                                                                                | 2.00 EA               | \$2,000        | \$4,000.00                        |
| Sediment Basin                                                                                                                                                                                                                                                                                                                                               | Provide Itemized Cost |                | \$0.00                            |
| Stream Diversion                                                                                                                                                                                                                                                                                                                                             | Provide Itemized Cost |                | \$0.00                            |
| Utility Stream Crossing                                                                                                                                                                                                                                                                                                                                      | Provide Itemized Cost |                | \$0.00                            |
| Paved Flume                                                                                                                                                                                                                                                                                                                                                  | SY                    | \$70           | \$0.00                            |
| Outlet Protection - Concrete                                                                                                                                                                                                                                                                                                                                 | EA                    | \$300          | \$0.00                            |
| Outlet Protection - Grouted rip rap                                                                                                                                                                                                                                                                                                                          | EA                    | \$550          | \$0.00                            |
| Outlet Protection - Non-grouted rip rap                                                                                                                                                                                                                                                                                                                      | 3.00 EA               | \$200          | \$600.00                          |
| Storm Drain Inlet Protection                                                                                                                                                                                                                                                                                                                                 | 13.00 EA              | \$180          | \$2,340.00                        |
| Culvert Inlet Protection                                                                                                                                                                                                                                                                                                                                     | EA                    | \$300          | \$0.00                            |
| Rip Rap                                                                                                                                                                                                                                                                                                                                                      | 28.00 SY              | \$50           | \$1,400.00                        |
| Grouted rip rap                                                                                                                                                                                                                                                                                                                                              | SY                    | \$70           | \$0.00                            |
| Check dams                                                                                                                                                                                                                                                                                                                                                   | EA                    | \$200          | \$0.00                            |
| Temp. Level Spreader                                                                                                                                                                                                                                                                                                                                         | EA                    | \$1,500        | \$0.00                            |
| Permanent Seeding                                                                                                                                                                                                                                                                                                                                            | 75988.00 SY           | \$2            | \$151,976.00                      |
| Jute mesh                                                                                                                                                                                                                                                                                                                                                    | SY                    | \$2            | \$0.00                            |
| EC-1                                                                                                                                                                                                                                                                                                                                                         | SY                    | \$8            | \$0.00                            |
| EC-2 (non-perm. ditch lining, egg-jute mesh)                                                                                                                                                                                                                                                                                                                 | SY                    | \$8            | \$0.00                            |
| EC-3 (permanent ditch lining)                                                                                                                                                                                                                                                                                                                                | SY                    | \$7            | \$0.00                            |
| Sodding                                                                                                                                                                                                                                                                                                                                                      | SY                    | \$9            | \$0.00                            |
| Gabion Revetment                                                                                                                                                                                                                                                                                                                                             | CY                    | \$170          | \$0.00                            |
| Other                                                                                                                                                                                                                                                                                                                                                        |                       |                | \$0.00                            |
| <b>Rip Rap</b>                                                                                                                                                                                                                                                                                                                                               |                       |                |                                   |
| Dry, Class I, 15"                                                                                                                                                                                                                                                                                                                                            | SY                    | \$60           | \$0.00                            |
| Dry, Class II, 15"                                                                                                                                                                                                                                                                                                                                           | SY                    | \$50           | \$0.00                            |
| Grouted, Class I, 15"                                                                                                                                                                                                                                                                                                                                        | SY                    | \$70           | \$0.00                            |
| <b>Sodded Ditch</b>                                                                                                                                                                                                                                                                                                                                          |                       |                |                                   |
| Sodded Ditch (Includes lining)                                                                                                                                                                                                                                                                                                                               | SY                    | \$10           | \$0.00                            |
|                                                                                                                                                                                                                                                                                                                                                              |                       |                | Subtotal \$240,493.00             |
|                                                                                                                                                                                                                                                                                                                                                              |                       |                | E&S Maintenance (35%) \$84,172.55 |

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|                                                        | Co. Quantity  | Co. Unit Price                  | Co. Total    |
|--------------------------------------------------------|---------------|---------------------------------|--------------|
|                                                        |               | E&S Total                       | \$639,482.55 |
| <b>SWM/BMP</b>                                         |               |                                 |              |
| Non-Proprietary BMP (Engineer Estimate for all SWM)    | 1.00          | Provide Itemized Cost           | \$102,896.98 |
| Plus Construction Cost (Engineer Estimate for all SWM) |               | Provide Itemized Cost           | \$0.00       |
| Level Spreader                                         | EA            | \$1,500                         | \$0.00       |
| PO-S Paved Ditch                                       | SY            | \$60                            | \$0.00       |
| Grass Swale                                            |               | Provide Itemized Cost           | \$0.00       |
| Impermeable Pond Lining (Earthen, 12" Depth)           | SY            | \$10                            | \$0.00       |
| Embankment Fill                                        |               |                                 |              |
| Select off-site w/ compaction                          | CY            | \$30                            | \$0.00       |
| On-Site/Borrow w/ compaction                           | CY            | \$30                            | \$0.00       |
| Excavation                                             | 21357.70      | CY                              | \$20         |
| Cut & Work In-Place                                    |               | \$427,154.00                    |              |
| Cut & Spoil Onsite                                     | CY            | \$30                            | \$0.00       |
| Access Road                                            | 5058.00       | SY/Inch Depth                   | \$12         |
| Plantings                                              |               | \$80,696.00                     |              |
| Welland Plantings                                      |               | Refer to Landscaping Price List | \$0.00       |
| FEMA Processing LOMR/CLOMR                             | 194.00        | Provide Itemized Cost           | \$80.00      |
| Other                                                  | EA            | \$7,600                         | \$11,840.00  |
|                                                        |               | Provide Itemized Cost           | \$0.00       |
| As-Built Certification                                 | 1.00          | EA                              | \$9,500      |
|                                                        |               |                                 | \$9,500.00   |
|                                                        |               | Subtotal                        | \$611,886.98 |
| <b>Roadway/Parking Lot/Alleysways</b>                  |               |                                 |              |
| Shoulders Type I - Aggregate (SY"IN Depth)             | SY/Inch Depth | \$3                             | \$0.00       |
| Subbase - Aggregate (21A/21B) (SY"IN Depth)            | 34624.00      | SY/Inch Depth                   | \$6          |
| Base Asphalt - BM-25.0 Base Course (SY"IN Depth)       | 12450.00      | SY/Inch Depth                   | \$7          |
| Surface Asphalt - SMA-9.5A (SY"IN Depth)               | 5971.50       | SY/Inch Depth                   | \$20         |
| Road Stabilization (Stone)                             |               | Provide Itemized Cost           | \$0.00       |
| Road Stabilization (Fabric)                            |               | Provide Itemized Cost           | \$0.00       |
| Concrete Curb & Gutter (CG-6/CG-7)                     | 3014.00       | LF                              | \$25         |
| Head Curb (CG-2/CG-3)                                  |               | LF                              | \$20         |
| Curb Ramp CG-12                                        | 2.00          | EA                              | \$650        |
| Sidewalk (Concrete)                                    | 1649.00       | SY                              | \$50         |
| Driveway Culvert (15" Min. Size)                       |               | EA                              | \$500        |
| Driveway Apron                                         | 18.00         | EA                              | \$1,500      |
| Guardrail                                              |               | LF                              | \$40         |
| Street Name Sign                                       | 2.00          | EA                              | \$500        |
| Traffic Control Sign (Stop, HC, Speed, Etc.)           | 43.00         | EA                              | \$200        |
| Striping 4" width (VDOT Type B)                        |               | LF                              | \$2          |
| Concrete Wheel Stops                                   |               | EA                              | \$70         |
| Street Lighting                                        |               | EA                              | \$5,000      |
| Traffic Barricade                                      |               | EA                              | \$1,500      |
|                                                        |               |                                 | \$0.00       |
| <b>Underdrains</b>                                     |               |                                 |              |
| UD-1                                                   | LF            | \$16                            | \$0.00       |
| UD-2                                                   | LF            | \$18                            | \$0.00       |
| UD-3                                                   | LF            | \$19                            | \$0.00       |
| UD-4                                                   | LF            | \$21                            | \$0.00       |
| Complete Street Acceptance Package                     | 1.00          | EA                              | \$8,000      |
| Video Inspection ROW Storm                             |               | LF                              | \$10         |
| Other                                                  |               | Provide Itemized Cost           | \$0.00       |
|                                                        |               |                                 | \$0.00       |
|                                                        |               | Subtotal                        | \$610,524.00 |
| <b>Surveying</b>                                       |               |                                 |              |

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|                               | Co. Quantity | Co. Unit Price | Co. Total           |
|-------------------------------|--------------|----------------|---------------------|
| Steel Pipe Property Corner    | 43.00        | EA             | \$180               |
| Marker Included in Survey     |              |                | \$7,740.00          |
|                               |              |                | Subtotal \$7,740.00 |
| <b>Storm Drain Structures</b> |              |                |                     |
| <b>Drop Inlets</b>            |              |                |                     |
| Cast In Place - 48"           |              |                |                     |
| DI-1 12"-24" Pipe             | EA           | \$3,700        | \$0.00              |
| DI-1A 12"-24" Pipe            | EA           | \$5,600        | \$0.00              |
| DI-2 12"-24" Pipe             | EA           | \$7,000        | \$0.00              |
| DI-2A 12"-24" Pipe            | EA           | \$8,800        | \$0.00              |
| <b>Curb Drop Inlets</b>       |              |                |                     |
| DI-3A 12"-30" Pipe            | EA           | \$4,800        | \$0.00              |
| DI-3AA 12"-30" Pipe           | EA           | \$5,400        | \$0.00              |
| 2'-6" Length                  |              |                |                     |
| DI-3B & DI-12 12"-30" Pipe    |              |                |                     |
| Inlet Length                  |              |                |                     |
| 4"                            | EA           | \$5,300        | \$0.00              |
| 6"                            | EA           | \$5,600        | \$0.00              |
| 8"                            | EA           | \$4,900        | \$0.00              |
| 10"                           | EA           | \$5,100        | \$30,600.00         |
| 12"                           | EA           | \$4,300        | \$0.00              |
| 16"                           | EA           | \$5,500        | \$0.00              |
| 20"                           | EA           | \$5,800        | \$0.00              |
| DI-3BB 12"-30" Pipe           |              |                |                     |
| Inlet Length                  |              |                |                     |
| 4"                            | EA           | \$4,200        | \$0.00              |
| 6"                            | EA           | \$4,900        | \$0.00              |
| 8"                            | EA           | \$5,500        | \$0.00              |
| 10"                           | EA           | \$5,800        | \$5,800.00          |
| 12"                           | EA           | \$6,000        | \$0.00              |
| 16"                           | EA           | \$6,300        | \$0.00              |
| 20"                           | EA           | \$6,600        | \$0.00              |
| DI-3C 12"-30" Pipe            |              |                |                     |
| Inlet Length                  |              |                |                     |
| 4"                            | EA           | \$4,000        | \$0.00              |
| 6"                            | EA           | \$4,600        | \$0.00              |
| 8"                            | EA           | \$4,900        | \$0.00              |
| 10"                           | EA           | \$5,200        | \$0.00              |
| 12"                           | EA           | \$5,600        | \$0.00              |
| 16"                           | EA           | \$5,400        | \$0.00              |
| 20"                           | EA           | \$5,400        | \$0.00              |
| DI-3CC 12"-30" Pipe           |              |                |                     |
| Inlet Length                  |              |                |                     |
| 4"                            | EA           | \$4,800        | \$0.00              |
| 6"                            | EA           | \$5,300        | \$0.00              |
| 8"                            | EA           | \$5,700        | \$0.00              |
| 10"                           | EA           | \$6,000        | \$0.00              |
| 12"                           | EA           | \$6,800        | \$0.00              |
| 16"                           | EA           | \$7,500        | \$0.00              |
| 20"                           | EA           | \$7,500        | \$0.00              |
| DI-3D 12"-30" Pipe            |              |                |                     |
| Inlet Length                  |              |                |                     |
| 2'-6" Length                  | EA           | \$3,700        | \$0.00              |
| DI-3DD 12"-30" Pipe           |              |                |                     |
| Inlet Length                  |              |                |                     |
| 2'-6"                         | EA           | \$4,400        | \$0.00              |
| DI-3E 12"-30" Pipe            |              |                |                     |

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|                     | Co. Quantity | Co. Unit Price | Co. Total |
|---------------------|--------------|----------------|-----------|
| Inlet Length        |              |                |           |
| 4"                  | EA           | \$4,100        | \$0.00    |
| 6"                  | EA           | \$4,800        | \$0.00    |
| 8"                  | EA           | \$4,800        | \$0.00    |
| 10"                 | EA           | \$4,900        | \$0.00    |
| 12"                 | EA           | \$5,100        | \$0.00    |
| 16"                 | EA           | \$5,100        | \$0.00    |
| 20"                 | EA           | \$5,700        | \$0.00    |
| DI-3EE 12"-30" Pipe |              |                |           |
| Inlet Length        |              |                |           |
| 6"                  | EA           | \$7,600        | \$0.00    |
| 8"                  | EA           | \$7,900        | \$0.00    |
| 10"                 | EA           | \$8,000        | \$0.00    |
| 12"                 | EA           | \$8,200        | \$0.00    |
| 16"                 | EA           | \$8,500        | \$0.00    |
| 20"                 | EA           | \$8,800        | \$0.00    |
| DI-3F 12"-30" Pipe  |              |                |           |
| Inlet Length        |              |                |           |
| 6"                  | EA           | \$3,800        | \$0.00    |
| 8"                  | EA           | \$4,500        | \$0.00    |
| 10"                 | EA           | \$4,800        | \$0.00    |
| 12"                 | EA           | \$5,100        | \$0.00    |
| 16"                 | EA           | \$5,800        | \$0.00    |
| 20"                 | EA           | \$6,400        | \$0.00    |
| DI-3FF 12"-30" Pipe |              |                |           |
| Inlet Length        |              |                |           |
| 6"                  | EA           | \$8,100        | \$0.00    |
| 8"                  | EA           | \$8,300        | \$0.00    |
| 10"                 | EA           | \$8,500        | \$0.00    |
| 12"                 | EA           | \$8,700        | \$0.00    |
| 16"                 | EA           | \$9,100        | \$0.00    |
| 20"                 | EA           | \$9,500        | \$0.00    |
| DI-4A 36"-48" Pipe  |              |                |           |
| Inlet Length        |              |                |           |
| 4"                  | EA           | \$4,900        | \$0.00    |
| DI-4B 36"-48" Pipe  |              |                |           |
| Inlet Length        |              |                |           |
| 6"                  | EA           | \$6,800        | \$0.00    |
| 8"                  | EA           | \$6,900        | \$0.00    |
| 10"                 | EA           | \$6,700        | \$0.00    |
| 12"                 | EA           | \$6,900        | \$0.00    |
| 16"                 | EA           | \$8,300        | \$0.00    |
| 20"                 | EA           | \$8,800        | \$0.00    |
| DI-4B 36"-48" Pipe  |              |                |           |
| Inlet Length        |              |                |           |
| 6"                  | EA           | \$10,300       | \$0.00    |
| 8"                  | EA           | \$10,700       | \$0.00    |
| 10"                 | EA           | \$10,800       | \$0.00    |
| 12"                 | EA           | \$11,000       | \$0.00    |
| 16"                 | EA           | \$11,400       | \$0.00    |
| 20"                 | EA           | \$11,700       | \$0.00    |
| DI-4C 36"-48" Pipe  |              |                |           |
| Inlet Length        |              |                |           |
| 6"                  | EA           | \$5,700        | \$0.00    |
| 8"                  | EA           | \$5,800        | \$0.00    |
| 10"                 | EA           | \$6,000        | \$0.00    |
| 12"                 | EA           | \$6,400        | \$0.00    |
| 16"                 | EA           | \$6,400        | \$0.00    |
| 20"                 | EA           | \$6,700        | \$0.00    |
| DI-4CC 36"-48" Pipe |              |                |           |
| Inlet Length        |              |                |           |
| 8"                  | EA           | \$13,400       | \$0.00    |
| 10"                 | EA           | \$13,700       | \$0.00    |

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|                                    | Co. Quantity | Co. Unit Price | Co. Total |
|------------------------------------|--------------|----------------|-----------|
| 12"                                | EA           | \$14,100       | \$0.00    |
| 16"                                | EA           | \$14,800       | \$0.00    |
| 20"                                | EA           | \$15,400       | \$0.00    |
| DI-4D 36"-48" Pipe                 |              |                |           |
| Inlet Length                       |              |                |           |
| 4"                                 | EA           | \$5,000        | \$0.00    |
| DI-4DD 36"-48" Pipe                |              |                |           |
| Inlet Length                       |              |                |           |
| 4"                                 | EA           | \$9,500        | \$0.00    |
| DI-4E 36"-48" Pipe                 |              |                |           |
| Inlet Length                       |              |                |           |
| 4"                                 | EA           | \$5,300        | \$0.00    |
| 6"                                 | EA           | \$5,700        | \$0.00    |
| 8"                                 | EA           | \$5,800        | \$0.00    |
| 10"                                | EA           | \$6,300        | \$0.00    |
| 12"                                | EA           | \$7,000        | \$0.00    |
| 16"                                | EA           | \$7,700        | \$0.00    |
| 20"                                | EA           | \$7,700        | \$0.00    |
| DI-4EE 36"-48" Pipe                |              |                |           |
| Inlet Length                       |              |                |           |
| 4"                                 | EA           | \$9,200        | \$0.00    |
| 6"                                 | EA           | \$9,600        | \$0.00    |
| 8"                                 | EA           | \$9,900        | \$0.00    |
| 10"                                | EA           | \$10,200       | \$0.00    |
| 12"                                | EA           | \$10,500       | \$0.00    |
| 16"                                | EA           | \$11,900       | \$0.00    |
| 20"                                | EA           | \$11,500       | \$0.00    |
| DI-4F 36"-48" Pipe                 |              |                |           |
| Inlet Length                       |              |                |           |
| 4"                                 | EA           | \$5,900        | \$0.00    |
| 6"                                 | EA           | \$6,300        | \$0.00    |
| 8"                                 | EA           | \$6,600        | \$0.00    |
| 10"                                | EA           | \$7,300        | \$0.00    |
| 12"                                | EA           | \$8,000        | \$0.00    |
| DI-4FF 36"-48" Pipe                |              |                |           |
| Inlet Length                       |              |                |           |
| 4"                                 | EA           | \$8,900        | \$0.00    |
| 6"                                 | EA           | \$9,200        | \$0.00    |
| 8"                                 | EA           | \$9,500        | \$0.00    |
| 10"                                | EA           | \$10,000       | \$0.00    |
| 12"                                | EA           | \$10,600       | \$0.00    |
| 16"                                | EA           | \$10,600       | \$0.00    |
| 20"                                | EA           | \$10,600       | \$0.00    |
| DI-5                               |              |                |           |
| DI-7                               | 3.00         | EA             | \$5,300   |
|                                    |              | EA             | \$5,800   |
| YI-1                               |              | EA             | \$4,800   |
| YI-2                               |              | EA             | \$4,800   |
| YI-3                               |              | EA             | \$4,900   |
|                                    |              | EA             | \$5,200   |
| Manhole (Up to 6' Depth)           | 5.00         | EA             | \$3,000   |
| JB-1 (Concrete)                    |              | EA             | \$5,900   |
|                                    |              |                | \$0.00    |
| <b>Culverts</b>                    |              |                |           |
| <b>Simple Box Culverts</b>         |              |                |           |
| 4' x 4'                            | LF           | \$340          | \$0.00    |
| 5' x 5'                            | LF           | \$410          | \$0.00    |
| 6' x 6'                            | LF           | \$500          | \$0.00    |
| 8' x 8'                            | LF           | \$700          | \$0.00    |
| 10' x 10'                          | LF           | \$800          | \$0.00    |
| <b>Double Box Culverts</b>         |              |                |           |
| 4' x 4'                            | LF           | \$600          | \$0.00    |
| 5' x 5'                            | LF           | \$700          | \$0.00    |
| 6' x 6'                            | LF           | \$800          | \$0.00    |
| 8' x 8'                            | LF           | \$1,200        | \$0.00    |
| 10' x 10'                          | LF           | \$1,500        | \$0.00    |
| <b>Overlaid Simple Box Culvert</b> |              |                |           |

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|                                         | Co. Quantity | Co. Unit Price | Co. Total   |
|-----------------------------------------|--------------|----------------|-------------|
| 12' x 6'                                | LF           | \$1,100        | \$0.00      |
| 12' x 8'                                | LF           | \$1,200        | \$0.00      |
| 12' x 10'                               | LF           | \$1,300        | \$0.00      |
| 12' x 12'                               | LF           | \$1,400        | \$0.00      |
| <b>Triple Box Culvert</b>               |              |                |             |
| 4' x 4'                                 | LF           | \$900          | \$0.00      |
| 5' x 5'                                 | LF           | \$1,000        | \$0.00      |
| 6' x 6'                                 | LF           | \$1,300        | \$0.00      |
| 8' x 8'                                 | LF           | \$1,700        | \$0.00      |
| 10' x 10'                               | LF           | \$2,500        | \$0.00      |
| <b>Pipes</b>                            |              |                |             |
| <b>Concrete Pipe (RCP)</b>              |              |                |             |
| 12"                                     | LF           | \$50           | \$0.00      |
| 15"                                     | 1534.00 LF   | \$60           | \$92,040.00 |
| 18"                                     | LF           | \$70           | \$0.00      |
| 21"                                     | LF           | \$80           | \$0.00      |
| 24"                                     | 362.00 LF    | \$60           | \$21,720.00 |
| 27"                                     | LF           | \$100          | \$0.00      |
| 30"                                     | 248.00 LF    | \$110          | \$27,280.00 |
| 33"                                     | LF           | \$120          | \$0.00      |
| 36"                                     | LF           | \$130          | \$0.00      |
| 42"                                     | LF           | \$140          | \$0.00      |
| 48"                                     | LF           | \$160          | \$0.00      |
| 54"                                     | LF           | \$170          | \$0.00      |
| 60"                                     | LF           | \$230          | \$0.00      |
| 66"                                     | LF           | \$260          | \$0.00      |
| 72"                                     | LF           | \$300          | \$0.00      |
| <b>Corrugated Metal Pipe (CMP)</b>      |              |                |             |
| 12"                                     | LF           | \$30           | \$0.00      |
| 15"                                     | LF           | \$40           | \$0.00      |
| 18"                                     | LF           | \$50           | \$0.00      |
| 24"                                     | LF           | \$60           | \$0.00      |
| 30"                                     | LF           | \$70           | \$0.00      |
| 36"                                     | LF           | \$90           | \$0.00      |
| 42"                                     | LF           | \$100          | \$0.00      |
| 48"                                     | LF           | \$120          | \$0.00      |
| 54"                                     | LF           | \$130          | \$0.00      |
| 60"                                     | LF           | \$150          | \$0.00      |
| <b>High Density Polyethylene (HDPE)</b> |              |                |             |
| 12"                                     | LF           | \$30           | \$0.00      |
| 15"                                     | LF           | \$40           | \$0.00      |
| 18"                                     | LF           | \$60           | \$0.00      |
| 24"                                     | LF           | \$70           | \$0.00      |
| 30"                                     | LF           | \$80           | \$0.00      |
| 36"                                     | LF           | \$90           | \$0.00      |
| 42"                                     | LF           | \$100          | \$0.00      |
| 48"                                     | LF           | \$120          | \$0.00      |
| 60"                                     | LF           | \$150          | \$0.00      |
| <b>End Wall</b>                         |              |                |             |
| 12"                                     | EA           | \$900          | \$0.00      |
| 15"                                     | EA           | \$1,100        | \$0.00      |
| 18"                                     | EA           | \$1,300        | \$0.00      |
| 21"                                     | EA           | \$1,500        | \$0.00      |
| 24"                                     | EA           | \$1,700        | \$0.00      |
| 27"                                     | EA           | \$1,800        | \$0.00      |
| 30"                                     | EA           | \$2,100        | \$0.00      |
| 33"                                     | EA           | \$2,300        | \$0.00      |
| 37"                                     | EA           | \$2,500        | \$0.00      |
| 42"                                     | EA           | \$2,700        | \$0.00      |