SITE DEVELOPMENT PLAN
LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY
9531 FREDERICK ROAD ELLICOTT CITY, MD 21042
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" FOR WORK IN THE COUNTY RIGHT-OF-WAY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK. THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF HIGHWAYS AT (410) 313-2450 AT LEAST FIVE (5) WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER AND SEWER MAINS.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MdMUTCD).
5. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE PER HOWARD COUNTY RECORDS.
6. PUBLIC WATER TO THE PROPOSED BUILDING WILL BE PROVIDED IN ACCORDANCE WITH SECTION 18.122B OF THE HOWARD COUNTY CODE. SEWER ALLOCATIONS WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
7. THIS SITE IS LOCATED IN THE LITTLE PATUXENT RIVER WATERSHED (2131105A).
8. ALL FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED AND VERIFIED IN ACCORDANCE WITH AASHTO T-180--STANDARD.
9. CONTRACTOR SHALL MAINTAIN ALL SEDIMENT CONTROL DEVICES WITHIN THE LIMITS OF THE SITE DURING CONSTRUCTION OF THE SITE IMPROVEMENTS. CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES AS MAY BE NECESSARY DURING CONSTRUCTION AND/OR BY GOVERNING AGENCIES.
10. ONSITE FLOODPLAIN STUDY PREPARED BY PHRA AND APPROVED PER SDP SDP-09-058 ON 3.15.2010.
11. THERE ARE EXISTING WETLANDS ON SITE AS DETERMINED BY christopher consultants, ltd. IN A REPORT DATED SEPTEMBER 2005 AND UPDATED IN FEBRUARY 2009.
12. THERE ARE SLOPES OF 25% OR GREATER OVER 10 VERTICAL FEET PRESENT ON THE SITE, HOWEVER SINCE THE SLOPES (ON-SITE AND OFF-SITE) ARE LESS THAN 20,000 SQUARE FEET IN CONTIGUOUS AREA, THEY ARE NOT SUBJECT TO THE RESTRICTIONS AS OUTLINED IN SECTION 16.116(b)(1) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
13. THERE ARE NO KNOWN CEMETERIES OR BURIAL GROUNDS ON THIS SITE. HOWEVER, UPON DISCOVERY OF ANY EVIDENCE OF BURIAL OR GRAVES, THE DEVELOPER WILL BE SUBJECT TO SECTION 16.1305 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
14. THE SUBJECT PROPERTY IS ZONED PSC (PLANNED SENIOR COMMUNITY) PER THE COMPREHENSIVE ZONING PLAN (02/02/2004) AND THE COMP LITE ZONING REGULATION AMENDMENTS EFFECTIVE JULY 28, 2006. ALL ADJACENT PROPERTIES ARE ZONED R-20. THIS SITE IS SURROUNDED BY RESIDENTIAL HOMES. THERE IS A PUBLIC LIBRARY (MILLER BRANCH) AND A SENIOR CENTER (ELLICOT SENIOR) ON THE EASTERN SIDE OF THE SITE.
15. THE TOPOGRAPHY AND SITE BOUNDARY WERE PREPARED BY christopher consultants, ON APPROXIMATELY MAY, 2007. THE EXISTING TOPOGRAPHY IS BASED ON A FIELD RUN SURVEY WITH TWO FOOT CONTOURS AND WAS PREPARED BY christopher consultants MAY, 2007.
16. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. MONUMENT NUMBERS 24CA, 24AB, AND 24GC WERE USED FOR THIS PROJECT (NAD 83/91.)
17. ALL EXISTING UNDERGROUND UTILITIES TO BE FIELD VERIFIED. UTILITIES CONTRACTOR SHALL VERIFY THE SIZE AND LOCATIONS OF ALL UNDERGROUND UTILITIES AND TEST PIT ALL UTILITIES, INCLUDING PROPOSED TIE IN LOCATIONS, AT LEAST 5 DAYS PRIOR TO STARTING ANY WORK ON THESE DRAWINGS. DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IN ADVANCE OF CONSTRUCTION START.
18. WATER SERVICE WILL BE PUBLIC AROUND THE MAIN ACCESS (THE PORTIONS WITH THE FIRE HYDRANTS). THE HOUSE CONNECTIONS WILL BE PRIVATE.
19. SEWER IS PRIVATE.
20. THE CONTRACTOR SHALL INSURE THAT CURRENT AS-BUILT RECORDS ARE MAINTAINED DURING CONSTRUCTION. UPON COMPLETION OF CONSTRUCTION, CERTIFIED (i.e. P.E. STAMPED) AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE OWNER.
21. TRASH AND RECYCLING COLLECTIONS WILL BE PROVIDED PRIVATELY BY THE OWNER.
22. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY THE PROVISION OF 4.11 ACRES OF PRESERVATION AND 7.11 ACRES OF REFORESTATION PLANTING IN A FOREST EASEMENT. THE REQUIRED SURETY IS BASED ON 7.11 ACRES OF PLANTING (0.543 ACRES OF LANDSCAPING TO BE USED AS CREDIT TOWARDS REQUIRED FOREST CONSERVATION-LEAVING 6.567 ACRES OF PLANTING TO BE BONDED AT 0.50 PER SQUARE FOOT) FOR A TOTAL REQUIRED SURETY OF $143,030.00.
23. THE SURETY FOR THE PUBLIC STREET TREES ALONG FREDERICK ROAD SHALL BE INCLUDED IN THE COST ESTIMATE GENERATED BY THE HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION, AND NOT TO BE INCLUDED IN THE GENERAL LANDSCAPE SURETY, WITH 12 REQUIRED SHADE TREES. THE SURETY ASSOCIATED WITH THE PUBLIC STREET TREES IS $3,600.00 (12 SHADE TREES X $300.00).
24. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH 441 SHADE TREES AND 183 EVERGREEN TREES PROVIDED WITH LANDSCAPE SURETY IN THE AMOUNT OF $159,750.00 WITH THE DPW DEVELOPER'S AGREEMENT. LANDSCAPE SURETY IS BASED ON THE NUMBER OF REQUIRED PLANTS PER THE LANDSCAPE MANUAL (441 SHADE TREES x $300.00 EA. AND 183 EVERGREEN TREES x $150.00 EA.)
25. ASSOCIATED PLANS: PRELIMINARY DEVELOPMENT PLAN: ZB CASE 1056M. (APPROVED MAY 11, 2006), AND F-10-083
26. THE EXISTING SALES TRAILER ON-SITE WILL REMAIN UNTIL FULL OCCUPANCY. CONTRACTOR RESERVES THE RIGHT TO RELOCATE THE SALES TRAILOR AS NECESSARY TO FACILITATE CONSTRUCTION.
27. UNLESS OTHERWISE NOTED, DIMENSIONS FROM CURB ARE MEASURED AT FACE OF CURB.
28. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
29. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ON THESE PLANS:
    - -MISS UTILITY 1-800-257-7777
    - -HOWARD COUNTY DPWT, BUREAU OF UTILITIES (410) 313-4900
    - -BALTIMORE GAS AND ELECTRIC COMPANY CONTRACTOR SERVICES (410) 850-4620
    - -BALTIMORE GAS AND ELECTRIC COMPANY UNDERGROUND DAMAGE CONTROL (410) 787-9068
    - -VERIZON 1-800-446-5266
30. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS AS NECESSARY TO GRADE THE SITE AND COMPLETE ANY REQUIRED EXCAVATIONS.
31. christopher consultants, ltd. SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION, MEANS, METHODS, TECHNIQUES, OR PROCEDURES, UTILIZED BY THE CONTRACTOR , NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND STANDARD CONSTRUCTION PRACTICES.
32. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES WHICH ARE TO REMAIN FREE FROM DAMAGE AND MAINTAIN UNINTERRUPTED SERVICE TO ALL USERS. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OR SUBCONTRACTOR'S ACTIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
33. SCALING OF THESE PLANS IS DISCOURAGED UNLESS DIRECTED BY THE ENGINEER. IN THE EVENT OF A DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS, THE FIGURED DIMENSIONS SHALL BE HELD.
34. T.B.R. = TO BE REMOVED
35. PROVIDE SIGNAGE ON THE BUILDING AND AT THE STREET IDENTIFYING THE BUILDING ADDRESS; IDENTIFY EACH SEPARATE SUITE BY LETTER.
36. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, ("QUICK PUNCH" TYPE), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
37. PER HOWARD COUNTY BUILDING CODE SECTION 904.1.1 ALL BUILDINGS IN EXCESS OF 5,000 SF IN SIZE WILL HAVE A COMPLETE AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM DESIGNED IN ACCORDANCE WITH NFPA #13.
38. A KNOX BOX FOR FIRE DEPARTMENT ACCESS IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING AND AT EACH GATE. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE APPROXIMATELY 4-5' IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED.
39. TREES WITH MATURE HEIGHTS GREATER THAN 25' SHALL NOT BE PLANTED WITHIN 20' OF EITHER SIDE OF THE UTILITY POLE LINES. TREES WITH MATURE HEIGHTS GREATER THAN 40' SHALL NOT BE PLACED WITHIN 45' OF THE UTILITY POLE LINES. TREES PLANTED OR RETAINED TO COMPLY WITH THE FOREST CONSERVATION PLAN OR OTHER PERPETUAL EASEMENT REQUIREMENTS SHALL MEET THE ABOVE CONDITIONS. BGE SHALL HAVE THE PERPETUAL RIGHT TO TRIM OR REMOVE ANY PROTECTED TREES IF IN THE SOLE OPINION OF BGE, THE TREE OR TREES ARE ENDANGERING THE OVERHEAD ELECTRIC FACILITIES.
40. NO GRADING, REMOVAL OF VEGETATION COVER OR TREES, PAVING AND/OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE EXISTING WETLANDS, WETLAND BUFFERS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENTS AREAS AND 100 YEAR FLOODPLAIN, EXCEPT TO THE LIMITS APPROVED UNDER MDE PERMIT NUMBER 200860330 AND BY THE HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING, WAIVER NUMBER WP-08-118.
41. THIS SDP IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE AMENDED ZONING REGULATIONS PER COUNCIL BILL NO. 75-2003, DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING PERMIT APPLICATIONS.
42. A TRAFFIC IMPACT ANALYSIS WAS PREPARED BY THE *TRAFFIC GROUP, INC.* AND SUBMITTED AND APPROVED ON 12.10.2008, FOR THIS PROJECT.
43. ALL EXTERIOR LIGHT DEVICES SHALL BE ORIENTATED TO DIRECT LIGHT INWARDS AND DOWNWARDS ONSITE AWAY FROM ALL ADJOINING PUBLIC ROADS AND RESIDENTIAL PROPERTIES IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. LIGHT THAT TRESPASSES ONTO ADJACENT PROPERTIES SHALL BE ZONED R-20 SHALL BE LIMITED TO 0.1 FOOT CANDLES. STREET LIGHT PLACEMENT IN THE COUNTY RIGHT-OF-WAY AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A.
44. IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. PORCHES OR DECKS, OPEN OR ENCLOSED, MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK.
46. DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS.
    - WIDTH – 12' (16' SERVING MORE THAN ONE RESIDENCE)
    - SURFACE – 6" OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN).
    - GEOMETRY – MAX 15% GRADE, 10% GRADE CHANGE AND MIN. 45' TURNING RADIUS.
    - STRUCTURES (CULVERT, BRIDGES) – CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
    - MAINTENANCE – SUFFICIENT TO INSURE ALL WEATHER.
47. PER DECISION AND ORDER ZB CASE 1056M, WAS APPROVED ON MAY 17, 2006, AND SIGNED BY THE ZONING BOARD OF HOWARD COUNTY, MARYLAND ON JULY 31, 2006, CONSIDERED THE PETITION OF THE LUTHERAN VILLAGE AT MILLER'S GRANT TO AMEND THE ZONING MAP OF HOWARD COUNTY SD AS TO RE-CLASSIFY FROM THE R-20 (RESIDENTIAL- SINGLE) TO THE PSC (PLANNED SENIOR COMMUNITY) ZONING DISTRICT.
48. THE SITE IS SUBJECT TO DEVELOPMENT CRITERIA FOR STORMWATER MANAGEMENT. THE DEVELOPMENT INCLUDES WATER QUALITY MANAGEMENT WHICH WILL BE PROVIDED IN TWO EXTENDED DETENTION WET POND (P-3), BIORETENTION, THROUGH THE USE OF VARIOUS SWM CREDITS. RECHARGE WILL BE PROVIDED BY SWALES AND RECHARGE TRENCHES IN ACCORDANCE WITH THE 2000 MDE DESIGN REQUIREMENTS. CHANNEL PROTECTION WILL BE PROVIDED IN THE PONDS. ALL FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
49. ON DECEMBER 22, 2008, THE PLANNING DIRECTOR APPROVED THE REQUEST TO WAIVE SECTION 16.116(A)(1) WHICH PROHIBITS GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, PAVING AND NEW STRUCTURES WITHIN 25 FEET OF A WETLAND, A WAIVER TO SECTION 16.116(A)(1), WHICH PROHIBITS GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, PAVING AND NEW STRUCTURES WITHIN 50 FEET OF AN INTERMITTENT STREAM BANK AND A WAIVER TO SECTION 16.115(C)(2) WHICH PROHIBITS CLEARING EXCAVATING FILLING ALTERING DRAINAGE OR IMPERVIOUS PAVING WITHIN THE FLOODPLAIN UNLESS REQUIRED OR AUTHORIZED BY THE DEPARTMENT OF PLANNING AND ZONING (DPZ) UPON THE ADVICE OF DILP, DPW, DRP, HSCD, OR MDE.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — 8/26/16 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

THE APPROVAL OF WP-08-118 IS SUBJECT TO THE FOLLOWING CONDITIONS:

PROVIDED BELOW IS A DISCUSSION OF THE CONDITIONS OF THE WAIVER AND HOW THEY HAVE BEEN MET OR CHANGED. ALL EXHIBITS REFERENCED BELOW CAN FOUND ON SHEET 76 OF THIS SDP.

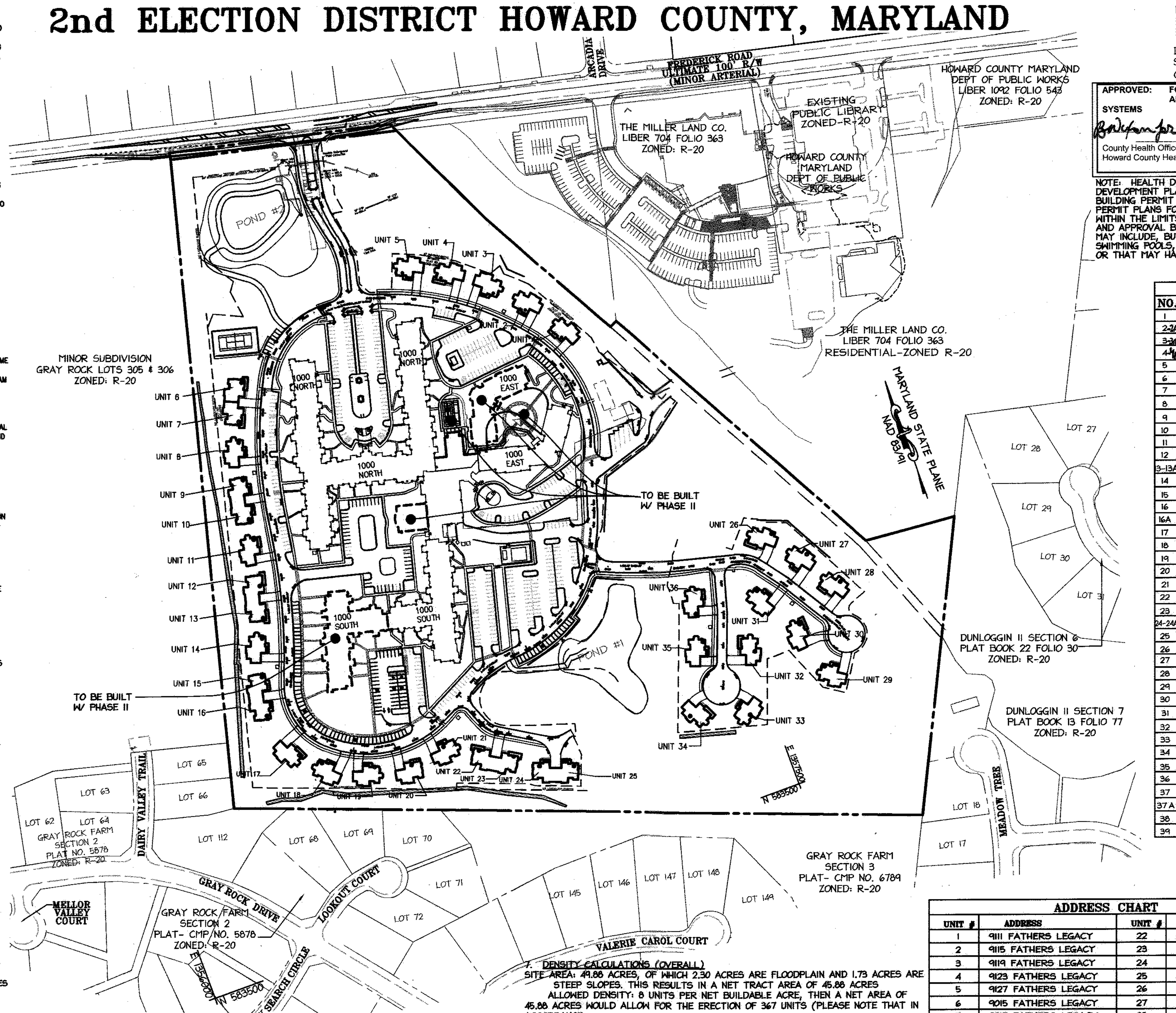
1. LIMITS OF DISTURBANCE FOR POND #2 (ADJACENT TO FREDERICK ROAD) SHALL BE THE MINIMUM NECESSARY TO INSTALL THE IMPROVEMENTS AND SHALL NOT EXCEED THE DISTURBANCE SHOWN ON THE WAIVER PETITION EXHIBITS ON NOVEMBER 13, 2008. DISTURBANCE IS LIMITED AS FOLLOWS:
   a. 108 SQUARE FEET OF PERMANENT WETLAND IMPACT AS SHOWN ON EXHIBIT 1 SUBMITTED ON NOVEMBER 13, 2008.
   RESPONSE: POND #2 IS STILL PLANNED FOR DISTURBANCE. WITH THE INCLUSION OF THE POND OUTFALL AN ADDITIONAL 17.85 FEET OF PERMANENT DISTURBANCE IS PROPOSED TO WETLAND B THEREFORE, THIS IMPACT IS INCREASED FROM 108 TO 125.85 SQUARE FEET. HOWEVER, A NEW TEMPORARY WETLAND IMPACT TOTALING 941 SQUARE FEET IS PROPOSED PER HSCD REQUEST TO REMOVE THE EXISTING 18" CONCRETE PIPE.
   b. 210 SQUARE FEET OF PERMANENT STREAM BUFFER IMPACT AS SHOWN ON EXHIBIT 1 SUBMITTED ON NOVEMBER 13, 2008.
   RESPONSE: THE STREAM BUFFER WAS A RESULT OF A STORMWATER OUTFALL; HOWEVER, THIS CONNECTION WAS ELIMINATED.
   c. 4,481 SQUARE FEET OF PERMANENT 25' WETLAND BUFFER IMPACT AS SHOWN ON EXHIBIT 1 SUBMITTED ON NOVEMBER 13, 2008.
   RESPONSE: THE LOCATION OF THE POND OUTFALL HAS CHANGED, AND AS A RESULT HAS CHANGED THE LOCATION AND AMOUNT OF WETLAND BUFFER IMPACT FOR THE NEW POND OUTFALL. ALSO, ADDITIONAL WETLAND BUFFER IMPACT IS PROPOSED PER HSCD REQUEST TO REMOVE THE EXISTING 18" CONCRETE PIPE. HOWEVER, MUCH OF THE IMPACT TO THE BUFFER WILL BE TEMPORARY IN NATURE. ADDITIONAL AREA OF WETLAND BUFFER AT WETLAND C IS PROPOSED FOR GRADING TO CREATE A BIORETENTION AREA THAT WILL PROVIDE ADDITIONAL WATER QUALITY TO THE SURROUNDING WETLANDS AND STREAMS. ALSO, IT WAS DESIGNED SO THAT THE BIORETENTION AREA WAS CLOSE TO THE WETLAND AREA TO APPEAR TO BE A CONTIGUOUS SYSTEM AND WOULD PROVIDE MOVEMENT OF WILDLIFE BETWEEN THE TWO AREAS. AGAIN THIS INCREASE OF IMPACT COULD BE CONSIDERED TEMPORARY SINCE THE WETLAND C WILL NOT BE IMPACTED AND THE SURROUNDING AREA WILL REMAIN NATURAL, THE WETLAND BUFFER WILL CONTINUE TO EXIST. AS A RESULT AN ADDITIONAL 5309.76 SQ. FT. IS PROPOSED, INCREASING THE WETLAND BUFFER IMPACTS SHOWN IN THIS AREA TO 9790.76 SQ FT.
   BOTH OF THESE INCREASES WERE THE RESULT OF PROVIDING AN ADEQUATE SPILLWAY FOR POND#2 AS REQUIRED BY COUNTY AND STATE REGULATIONS AS REQUIRED BY CONDITIONS 5 OF THE APPROVAL LETTER. IT SHOULD ALSO BE NOTED THAT IN 2010 CCL SHOWED A REDUCTION OF 210 SF OF IMPACTS IN THIS AREA. WITH THE INCLUSION OF THESE NEW IMPACTS THERE IS STILL A NET REDUCTION OF 122.67SF.
2. FOR POND #1, LONGITUDINAL AND NON-ESSENTIAL ENCROACHMENTS (AS CURRENTLY SHOWN ON EXHIBIT 3) ARE NOT PERMITTED. AMEND THE DESIGN SHIFT THE ROADWAY AND ADD RETAINING WALLS AS NECESSARY TO REMOVE THESE DISTURBANCES. PROPOSED IMPACT SHALL BE LESS THAN INDICATED IN EXHIBIT #3 SUBMITTED ON NOVEMBER 13, 2008. PROVIDE SUPPLEMENTAL INFORMATION EXHIBITS TO PROVE THE IMPACTS HAVE DECREASED.
   RESPONSE: THE LONGITUDINAL ENCROACHMENTS HAVE BEEN ELIMINATED FROM THE CURRENT PROPOSED DESIGN. ALSO, THE FLOODPLAIN AREAS HAVE BEEN RECALCULATED AND HAVE BEEN REDUCED SIGNIFICANTLY FROM THE PREVIOUS SUBMISSIONS. A SEWER LINE CONNECTION IS STILL PLANNED IN THE VICINITY WHICH WILL RESULT IN 756 SQ FT OF TEMPORARY IMPACTS TO THE FLOODPLAIN AND 588 SQUARE FEET OF IMPACTS TO THE STREAM BUFFER. HOWEVER, THIS IMPACT COULD BE CONSIDERED TEMPORARY IN NATURE. THE OUTFALL FROM POND #1 RESULTS IN AN ADDITIONAL 136.59 IMPACTS TO STREAM BUFFER 1.
   EXHIBIT 3 INCLUDES NEW IMPACTS TO THE STREAM AND THE FLOODPLAIN. A PEDESTRIAN CROSSING THAT WILL BE USED AS A SECONDARY FIRE ACCESS WILL BE CONSTRUCTED BY HOWARD PUBLIC WORKS. THIS BRIDGE IS BEING APPROVED UNDER A REDLINE REVISION TO THE CHARLES MILLER LIBRARY SITE DEVELOPMENT PLANS. WHILE THIS PROJECT HAS A SEPARATE OWNER (HOWARD COUNTY) ALL IMPACTS ARE BEING PROCESSED UNDER A SINGLE PERMIT. THIS DISTURBANCE IS ESSENTIAL BECAUSE THERE NEEDS TO BE A SECONDARY ACCESS TO THIS SITE AS REQUIRED BY FIRE AND RESCUE. BECAUSE THE STREAM BUFFER AND FLOODPLAIN OVERLAP THE TOTAL NEW DISTURBANCE TO THIS AREA IS 3,601.24 SF.
3. "CLOSE" THE BUFFER BETWEEN THE STREAM ABOVE AND THE POND BELOW (PER HSCD COMMENT #7 FOR SDP-08-075) AND RELOCATE THE LOD WITHIN 25 FEET OF THE EXISTING POND EDGE.
   RESPONSE: HSCD COMMENT #7 SAYS: PROVIDE REASONABLE ESTIMATE OF STREAMS THROUGH PONDS WITH BUFFERS ASSOCIATED WITH THE SAME OR MEASURE STREAM BUFFERS FROM THE POND EDGE." ENCLOSED ARE REVISED WETLAND IMPACTS MAP EXHIBIT THAT DEPICTS A STREAM THOUGH THE POND AND ASSOCIATED BUFFERS. WE HAVE ALSO ESTIMATED A 50 FOOT WIDTH BUFFER AROUND IT, SINCE AN INTERMITTENT STREAM FEEDS INTO THE POND. THIS INCREASED BUFFER IMPACT PROPOSED IS 3193 SQ. FT. ALSO, A STREAM BUFFER WAS EXTENDED AROUND THE UPSTREAM INTERMITTENT SYSTEM TO COMPLETELY ENCLOSE THE STREAM. THIS INCREASED THE STREAM BUFFER IMPACTS TO ANOTHER 4594 SQ FT. EFFORTS WERE MADE IN THE DESIGN OF THE POND TO MAINTAIN AN EXISTING FOREST EDGE AROUND THE POND AS MUCH AS POSSIBLE. HOWEVER, A FOREBAY IS NEEDED TO PROVIDE PRETREATMENT OF STORMWATER FOR THE ISOLATED LAND POD LOCATED ON THE OTHER SIDE OF POND #1. ANY AREAS AROUND THE POND WERE MAXIMIZED FOR PLANTING OF TREES TO MAINTAIN A WILDLIFE CORRIDOR AND PROVIDE ADDITIONAL WATER QUALITY BENEFITS. AS A RESULT OF CREATING THE FOREBAY, THE ENTIRE WETLAND FRINGE IS BEING IMPACTED WHICH INCREASES WETLAND IMPACTS BY 551 SQ FT OF WETLAND IMPACT AND 2837 SQ FT OF WETLAND BUFFER.
4. THE PROPOSED IMPACTS TO FLOODPLAIN AND STREAM BUFFER ADJACENT TO UNIT 105 SHALL NOT EXCEED 590 FEET OF PERMANENT STREAM BUFFER IMPACT AND 84 SQUARE FEET OF PERMANENT FLOODPLAIN IMPACT AS SHOWN ON EXHIBIT 4 SUBMITTED ON NOVEMBER 13, 2008.
   RESPONSE: WHILE THE LOCATION OF THIS SEWER LINE CONNECTION HAS NOT CHANGED, THE FLOODPLAIN IMPACT WAS ELIMINATED BUT THE STREAM BUFFER IMPACT OF 590 SQ FT. REMAINS AS SHOWN ON EXHIBIT 4.
5. IT MUST BE SHOWN THAT BOTH STORMWATER MANAGEMENT PONDS MET CURRENT DESIGN STANDARDS/REQUIREMENTS. ALL NECESSARY INFORMATION MUST BE PROVIDED TO THE DEVELOPMENT ENGINEERING DIVISION (DED) UNDER SDP-08-075.
   RESPONSE: DURING THE SDP REVIEW PROCESS, CURRENT DESIGN STANDARDS/REQUIREMENTS HAVE BEEN MET AND ANY COMMENTS RECEIVED FROM DED WILL BE ADDRESSED. POND#1 IS BEING REVIEWED BY MDE AS WELL.
6. AS THIS PROJECT'S DESIGN IS DEPENDENT ON THE ULTIMATE STORMWATER MANAGEMENT DESIGN, ALL REQUIRED APPROVALS AND PERMITS MUST BE OBTAINED FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) PRIOR TO ANY APPROVAL OF SDP-08-075. PROVIDE COPIES OF ALL CORRESPONDENCE AND PERMITS FOR THE FILE.
   RESPONSE: AS INDICATED IN THE GENERAL NOTES ALL REQUIRED APPROVALS AND PERMITS HAVE BEEN OBTAINED AND COPIES SUBMITTED TO DPZ- DLD AND DPZ-DED

50. WP-10-118, TO WAIVE SECTION 16.156(1) WAS APPROVED ON MARCH 24, 2010. IT REQUIRES THAT WITHIN 180 DAYS OF THE SDP APPROVAL, THE DEVELOPER SHALL PAY ALL REQUIRED FEES TO THE COUNTY AND IF SUBJECT TO A DEVELOPER AGREEMENT OR MAJOR FACILITY AGREEMENT THE DEVELOPER SHALL POST ALL MONIES AND/OR FILE APPROPRIATE SURETY COVERING THE DEVELOPER'S FINANCIAL OBLIGATIONS FOR THE REQUIRED IMPROVEMENTS.
    APPROVAL IS SUBJECT TO THE FOLLOWING CONDITION:
    ALL REQUIREMENTS OF SECTION 16.156(1) IN ASSOCIATION WITH SDP-08-075 MUST BE MET PRIOR TO THE ISSUANCE OF ANY BUILDING PERMIT.
    A. THE VARIABLE WIDTH PUBLIC ACCESS AND UTILITY EASEMENT WILL BE DEDICATED TO HOWARD COUNTY, MARYLAND FOR THE USE BY RECREATION AND PARKS FOR A PEDESTRIAN-ONLY PATHWAY.
    B. THE PATHWAY SHALL BE NO WIDER THAN 8' AND NO EXISTING TREES SHALL BE REMOVED IN THE CONSTRUCTION OF THE PATHWAY.
    C. PRIOR TO THE COMMENCEMENT OF WORK ON THE PATHWAY, IT WILL BE THE RESPONSIBILITY OF THE DEPARTMENT OF RECREATION AND PARKS TO:
    1. RED-LINE THE CORRESPONDING SDP TO DEPICT THE BOUNDARY OF THE PATHWAY AND ADDRESS ANY FOREST CONSERVATION ISSUES.
    2. REMOVE THE AREA OF IMPACTED FOREST CONSERVATION AREA BY AMENDING AND RE-RECORDING THE EASEMENT PLAT.
    3. ADDRESS ANY ADDITIONAL FOREST CONSERVATION PLANTING OBLIGATION OFF-SITE OR VIA FEE-IN-LIEU.
52. TEMPORARY USE PERMIT CASE NO 10-001 WAS APPROVED BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING ON 1/16/13. A TEMPORARY USE PERMIT FOR A MODULAR SALES TRAILER FOR PRE CONSTRUCTION SALES AND MARKETING WAS GRANTED ON FEB. 6, 2013 AND VALID THROUGH MAY. 6, 2013.
53. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME I & II. IT WAS DETERMINED THAT THIS PROJECT MET THE CRITERIA OUTLINED IN THE MDE STORMWATER MANAGEMENT REGULATIONS GUIDANCE FOR IMPLEMENTATION FOR ACCEPTANCE OF THE 2000 DESIGN CRITERIA AND GRANTED AN ADMINISTRATIVE WAIVER. EXPIRATION OF ADMINISTRATIVE WAIVERS FOR GRANDFATHERING SHALL BE MAY 4, 2013 IF THE DEVELOPER DOES NOT RECEIVE FINAL APPROVAL (SIGNED BY SCD) PRIOR TO THIS DATE SO THAT A GRADING PERMIT MAY BE OBTAINED AND THE PROJECT CONTINUES TO CONSTRUCTION COMPLETION. THIS PLAN IS ALSO SUBJECT TO THE EXPIRATION OF THIS WAIVER UNLESS ALL STORMWATER MANAGEMENT IS CONSTRUCTED BY MAY 4, 2017. STORMWATER MANAGEMENT FACILITIES FOR THIS PROJECT INCLUDE:
    - TWO WET PONDS
    - THREE BIORETENTION FACILITIES
    - FIVE GRASS SWALES
54. WP-11-113 ON FEB 3, 2011, THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING APPROVED THE REQUEST TO WAIVE SECTION 16.144(R)(1)(II) WHICH STATES THAT BARRING GOVERNMENTAL DELAY, A PROJECT THAT MISSES THE DEADLINE FOR FINAL PLAN SUBMITTAL SHALL BE VOIDED AND THE APPLICATION FOR PLAN APPROVAL SHALL BE CONSIDERED WITHDRAWN. APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
    1. THE DEVELOPER MUST SUBMIT REVISED PLANS IN ASSOCIATION WITH F-10-083 WITHIN 45 DAYS ON OR BEFORE DECEMBER 4, 2011.
    2. ALL CONDITIONS OUTLINED BY DED MUST BE MET.
55. ON MARCH 24, 2010, THE PLANNING DIRECTOR PER WAIVER WP-10-118 APPROVED WAIVER TO SECTION 16.156 (L) SUBJECT TO ALL REQUIREMENTS OF SECTION 16.156(L) IN ASSOCIATION WITH SDP-08-075 MUST BE MET PRIOR TO THE ISSUANCE OF ANY BUILDING PERMIT.

    ON APRIL 8, 2013, THE PLANNING DIRECTOR APPROVED THE REQUEST FOR RECONSIDERATION/CONSIDERATION FOR A WAIVER TO SECTION 16.156(L) WHICH REQUIRES THAT WITHIN 180 DAYS OF SITE DEVELOPMENT PLAN APPROVAL THE DEVELOPER SHALL PAY ALL REQUIRED FEES TO THE COUNTY AND IF SUBJECT TO A DEVELOPER AGREEMENT OR MAJOR FACILITY AGREEMENT THE DEVELOPER SHALL POST ALL MONIES AND/OR FILE APPROPRIATE SURETY COVERING THE DEVELOPER'S FINANCIAL OBLIGATIONS FOR THE REQUIRED IMPROVEMENTS; AND SECTION 16.144(P) WHICH REQUIRES THAT ALL REQUIRED FEES BE PAID TO THE COUNTY WITHIN 120 DAYS OF FINAL PLAN APPROVAL.

    APPROVAL OF THE RECONSIDERATION/CLARIFICATION OF WP-10-118 IS SUBJECT TO THE FOLLOWING CONDITIONS:

    1. ALL REQUIREMENTS OF SECTION 16.156(L) AND SECTION 16.144(P) IN ASSOCIATION WITH SDP-08-075 AND F-10-083, INCLUDING THE PAYMENT OF ALL REMAINING FEES, MONIES AND ALL OTHER APPROPRIATE SURETIES COVERING THE DEVELOPER'S FINANCIAL OBLIGATION SHALL BE PAID TO THE COUNTY PRIOR TO ANY ISSUANCE OF ANY GRADING OR BUILDING PERMIT(S). THE DEVELOPER'S AGREEMENT SHALL BE EXECUTED AND ALL FEES INCLUDING, BUT NOT LIMITED TO; FEE-IN-LIEU STORM DRAINAGE FEE, LANDSCAPE AND FOREST CONSERVATION INSPECTION FEES, DPW/DED ENGINEERING REVIEW FEE, WATER AND SEWER FEE, ALL MONIES AND ALL SURETIES, INCLUDING, BUT NOT LIMITED TO; LANDSCAPING, FOREST CONSERVATION, SWM AND WATER AND SEWER, SHALL BE DUE AND PAYABLE WITHIN 90 DAYS OF LUTHERAN VILLAGE AT MILLER'S GRANT ATTAINING THE DEPOSIT THRESHOLD (STATE PERMIT), BEING COGNIZANT OF THE MAY 4, 2017 DEADLINE TO COMPLETE CONSTRUCTION OF ALL SWM DEVICES.
    2. AN APPLICABLE NOTE SHALL BE ADDED TO BOTH THE PLAT (FINAL PLAN) AND SITE DEVELOPMENT PLAN MYLARS THAT OUTLINES THIS REQUEST FOR RECONSIDERATION/CLARIFICATION. THIS NOTE SHALL LIST OUT DATE OF APPROVAL, ALL SECTION NUMBERS AND SHALL LIST OUT ALL CONDITIONS.
    3. IN ORDER TO COMPLY WITH MDE'S STORMWATER MANAGEMENT GRANDFATHERING REQUIREMENTS, THE DEVELOPER MUST RECORD THE FINAL PLAT (F-10-083), EXECUTE OR DEFER THE DEVELOPER'S AGREEMENT AND OBTAIN FINAL SIGNATURES ON THE SITE DEVELOPMENT PLAN (SDP-08-075) PRIOR TO MAY 4, 2013. THEREFORE, THE DEVELOPER OR APPLICANT SHALL SUBMIT THE FINAL PLAT ORIGINALS (F-10-083) FOR SIGNATURE AND RECORDATION ON OR BEFORE APRIL 12, 2013 AND THE SITE DEVELOPMENT PLAN ORIGINALS (SDP-08-075) ON OR BEFORE APRIL 12, 2013. THE APPLICANT SHALL PAY ANY REQUIRED RECORDING FEES, PLAN PRINTING FEES AND ANY FEES ASSOCIATED WITH ADDITIONAL SHEETS ADDED TO THE PLAN AT THE TIME OF PLAT ORIGINAL SUBMISSION AND SITE DEVELOPMENT PLAN ORIGINAL SUBMISSION, THIS INCLUDES RECORDING FEES ASSOCIATED WITH THE MIHU DOCUMENTS.
    4. THE APPLICANT MUST OBTAIN ANY OUTSTANDING APPROVALS OR PERMITS FROM MDE REGARDING THE SWM POND DAM SAFETY REQUIREMENTS AND/OR ANY OTHER REQUIRED MDE PERMIT APPROVALS.
    5. ALL PROPOSED SWM PRACTICES SHOWN ON THE SITE DEVELOPMENT PLAN MUST BE CONSTRUCTED BY MAY 4, 2017. IF THIS DEADLINE DATE IS NOT REACHED, THE GRANDFATHERING SHALL EXPIRE AND A REDESIGN OF THE SWM ASSOCIATED WITH THE SITE DEVELOPMENT PLAN DRAWINGS WILL BE REQUIRED.
    6. ADVISORY: A SIGNATURE LINE WILL BE PROVIDED ON THE APPROVAL LETTER FOR THE APPLICANT'S ACKNOWLEDGMENT AND ACCEPTANCE OF ALL STATED WAIVER RECONSIDERATION/CLARIFICATION CONDITIONS.
    7. ADVISORY: A SIGNATURE LINE WILL BE PROVIDED ON THE APPROVAL LETTER FOR THE APPLICANT'S ACKNOWLEDGMENT AND ACCEPTANCE OF ALL STATED WAIVER RECONSIDERATION/CLARIFICATION CONDITIONS.



OVERALL VIEW OF PROPERTY
SCALE: 1" = 200'

55. IMPACTS TO WETLANDS FOR THE CONVERSION OF THE FARM PONDS TO MEET CURRENT (2000) MDE DAM CRITERIA. THESE DISTURBANCES WERE APPROVED UNDER MDE PERMIT 08-NT-3027-2008-60337, APPROVED JAN. 11, 2013. USE OF PERMIT #2008-00609-M-020 AND APPROVED ON 02/07/13

56. A REDLINE OF MILLER LIBRARY SDP-09-058 FOR THE SECONDARY FIRE ACCESS TO THIS SITE (LUTHERAN VILLAGE AT MILLERS GRANT) SHALL BE APPROVED AND THE SECONDARY FIRE ACCESS IN THE PLACE BEFORE THE FIRST RESIDENTIAL UNIT ON THE SITE OBTAINS IT'S USE AND OCCUPANCY PERMIT.

57. MDE DAM SAFETY TRACKING AND PERMIT NUMBER: #11-OB-0065

58. ALL ON-SITE PROPOSED CURB AND GUTTER SHALL BE TO CONSTRUCTED PER THE HOWARD COUNTY DETAIL R-3.01 SHOWN ON SHEET 13.

SITE ANALYSIS DATA CHART

1. GENERAL INFORMATION
   - -PRESENT ZONING: PSC (PLANNED SENIOR COMMUNITY)
   - -PROPOSED USE OF SITE: ASSISTED LIVING COMMUNITY FOR RESIDENTS 55 YEARS OR OLDER
   - -PROPOSED WATER AND SEWER SYSTEMS: PUBLIC WATER AND PRIVATE SEWER
2. USE: PERMITTED BY RIGHT
   - AGE RESTRICTED ADULT HOUSING
   - ASSISTING LIVING FACILITIES FOR RESIDENTS 55 YEARS OF AGE OR OLDER
   - NURSING HOMES

   ACCESSORY USES:
   - SERVICES AND BUSINESSES THAT SERVE RESIDENTS OF THE PSC DISTRICT INCLUDING RECREATIONAL, EDUCATIONAL, HEALTH, PERSONAL, PROFESSIONAL, BUSINESS SERVICES, AND RETAIL STORES
   - HOME OCCUPATIONS SUBJECT TO THE REQUIREMENT OF SECTION 128.C.1
3. SETBACKS: PER SECTION 127.IE OF THE HOWARD COUNTY ZONING REGULATIONS
   - -FROM ARTERIAL, COLLECTOR PUBLIC STREET FRONTAGE: 50'
   - -SIDE: 50' (75' IF STRUCTURE IS AN APARTMENT, ASSISTED LIVING FACILITY OR NURSING FACILITY)
   - -REAR: 50' (75' IF STRUCTURE IS AN APARTMENT OR ASSISTED LIVING FACILITY)
4. MINIMUM DISTANCE BETWEEN SFD AND/OR SFA DWELLINGS:
   - -FACE TO FACE: 25' — -SIDE TO SIDE: 15'
   - -FACE TO SIDE OR REAR TO SIDE: 30' — -REAR TO REAR: 25'
   - -FACE TO REAR: 80'
5. MINIMUM DISTANCE BETWEEN APARTMENT BUILDINGS OR SF DWELLINGS:
   - -FACE TO FACE: 30' — -SIDE TO SIDE: 15'
   - -FACE TO SIDE OR REAR TO SIDE: 30' — -REAR TO REAR: 60'
   - -FACE TO REAR: 80'
6. MAXIMUM BUILDING HEIGHT ALLOWED: PER SECTION 127.IE OF THE HOWARD COUNTY ZONING REGULATIONS
   - APARTMENTS: 60'
   - OTHER PRINCIPLE STRUCTURES: 34'
   - ACCESSORY STRUCTURES: 15'

   PROPOSED BUILDING HEIGHT:
   - APARTMENTS:
     - RESIDENTIAL LIVING: 53'-56'
   - OTHER PRINCIPAL STRUCTURES:
     - SINGLE FAMILY DETACHED: 24'
     - DUPLEX: 19'
     - COMMUNITY CENTER: 33'
     - HIGH CARE: 32'
   - ACCESSORY STRUCTURES
     - GATE HOUSE ±9'
     - COVERED PARKING ±11'
     - PAVILION: ±14'
7. DENSITY CALCULATIONS (OVERALL)
   SITE AREA: 49.88 ACRES, OF WHICH 2.30 ACRES ARE FLOODPLAIN AND 1.73 ACRES ARE STEEP SLOPES. THIS RESULTS IN A NET TRACT AREA OF 45.88 ACRES
   ALLOWED DENSITY: 8 UNITS PER NET BUILDABLE ACRE, THEN A NET AREA OF 45.88 ACRES WOULD ALLOW FOR THE ERECTION OF 367 UNITS (PLEASE NOTE THAT IN ACCORDANCE WITH SECTION 127.I.EC OF THE ZONING REGULATIONS, IN ASSISTED LIVING AND NURSING HOMES, BEDS SHALL BE INCLUDED IN DENSITY CALCULATIONS. ONE BED EQUALS 0.25 DWELLING UNITS.)
   PROPOSED DENSITY:
   - 36 RESIDENTIAL LIVING HOMES
   - 248 RESIDENTIAL LIVING APARTMENTS
   - 15 CARE UNITS (A TOTAL OF 60 BEDS @ 0.25 UNITS/BED)

   TOTAL PROPOSED UNITS: 299
8. COMMUNITY BUILDING - PER SECTION 127.I.B.8, AT LEAST ONE COMMUNITY BUILDING OR INTERIOR COMMUNITY SPACE SHALL BE PROVIDED THAT CONTAINS A MINIMUM OF:
   - 20 SF OF FLOOR AREA PER DWELLING UNIT FOR DEVELOPMENTS OF LESS THAN 100 DWELLING UNITS
   - 10 SF OF FLOOR AREA PER DWELLING UNIT ABOVE 99, THEN THE REQUIRED SQUARE FOOTAGE IS: 99' X 20' + 150 X 10 = 3480 (PHASE I)
     99' X 20' + 200 X 10 = 3980 (PHASE II/OVERALL)

   PROPOSED COMMUNITY SPACE:
   -THE PROPOSED COMMUNITY SPACE IS CENTRALLY LOCATED WITHIN THE RESIDENTIAL AND HIGH CARE BUILDINGS. THE VARIOUS SPACES SPAN TWO (2) FLOORS AND THEY CONSIST OF:

	PHASE I	PHASE II	OVERALL
COMMUNITY SOCIAL AREAS:	±31,000 SF	±7,700 SF	±38,700 SF
MULTI-PURPOSE ROOM:	0 SF	±4,600 SF	±4,600 SF
POOL AREA:	±4,500 SF	0 SF	±4,500 SF
TOTAL	±35,500 SF	±12,300 SF	±47,800 SF

9. MAXIMUM NUMBER OF EMPLOYEES: 120 (IN ACCORDANCE WITH SECTION 127.I.EC OF THE ZONING REGULATIONS 1 BED = 0.25 DWELLING UNITS)
10. AREA TABULATION (PHASE I & II)
    a. TOTAL PROJECT AREA: ±49.88 AC/±2,172,773 SQ.FT
    b. AREA OF THIS PLAN SUBMISSION: ±49.88 AC/±2,172,773 SQ.FT.
    c. LIMIT OF DISTURBED AREA: ±36.49 AC/±1,589,504.4 SQ.FT.
11. REQUIRED PARKING SPACE DATA:
    SINGLE FAMILY ATTACHED OR DETACHED UNIT (2 SPACES/UNIT):
    36 UNITS = 72 SPACES
    APARTMENT COMPLEX UNIT (1 SPACE/UNIT): 248 UNITS = 248 SPACES
    RESIDENTIAL CARE FACILITY (1 SPACE/2 BEDS): 60 BEDS = 30 SPACES

PARKING SPACE DATA:	PHASE I	PHASE II	OVERALL (PHASE I AND II)
SINGLE FAMILY:	72 SPACES	0 SPACES	72 SPACES
APARTMENTS:	205 SPACES	43 SPACES	248 SPACES
HIGH CARE BEDS:	16 SPACES	14 SPACES	30 SPACES
TOTAL REQUIRED:	293 SPACES	57 SPACES	355 SPACES

POOL: 30 BATHER LOAD
1 SPACE PER 7 BATHERS= 5 SPACES

12. PROVIDED PARKING SPACE DATA:

	PHASE I	PHASE II	OVERALL (PHASE I AND II)
SURFACE:	402 SPACES	142 SPACES	544 SPACES
CARPORT:	0 SPACES	41 SPACES	41 SPACES
TOTAL PROVIDED:	402 SPACES	183 SPACES	585 SPACES

	PHASE I	PHASE II	OVERALL
a. NUMBER OF HANDICAP PARKING SPACES PROVIDED: (INCLUDED IN SURFACE PARKING SPACES PROVIDED)	19 SPACES	5 SPACES	24 SPACES
b. NUMBER OF VAN ACCESSIBLE SPACES PROVIDED: (INCLUDED IN SURFACE PARKING SPACES PROVIDED)	7 SPACES	2 SPACES	9 SPACES
c. NUMBER OF RV SPACES PROVIDED: (INCLUDED IN SURFACE PARKING SPACES PROVIDED)	5 SPACES	0 SPACES	5 SPACES

    d. NO CHANGE IN THE REQUIRED PARKING USE(S) IS PERMITTED WITHOUT COMPLIANCE WITH THE PARKING REQUIREMENTS OF ZONING SECTION 133 AND APPROVAL BY DPZ.
13. OPEN SPACE: MINIMUM REQUIRED OPEN SPACE: 17.46 AC OR 35% OF GROSS AREA
    PROVIDED OPEN SPACE: ±20.51 ACRES AND ±41.18% OF GROSS AREA. (PHASE I)
    ±19.12 ACRES AND ±38.3% OF GROSS AREA. (PHASE II/OVERALL)
14. BUILDING COVERAGE OF SITE: 6.79 ACRES AND ±13.6% OF GROSS AREA (PHASE I)
    7.84 ACRES AND 15.71% OF GROSS AREA (PHASE II/OVERALL)
15. FLOODPLAIN COVERAGE: 2.30 ACRES AND 0.05% OF GROSS AREA.
16. REQUIRED MIHUs: 29 (10% MINIMUM)
    PROVIDED MIHUs: 29
    MINU DOCUMENTS RECORDED ON 4-22-13

DENSITY CALCULATIONS PHASE I
36 RESIDENTIAL LIVING HOMES
205 RESIDENTIAL LIVING APARTMENTS
8 CARE UNITS (32 BEDS @ 0.25 UNITS/BED)
TOTAL PROPOSED UNITS=249 UNITS

DENSITY CALCULATIONS PHASE II
0 RESIDENTIAL LIVING HOMES
43 RESIDENTIAL LIVING APARTMENTS
7 CARE UNITS (28 BEDS @ 0.25 UNITS/BED)
TOTAL PROPOSED UNITS=50 UNITS

DENSITY CALCULATIONS SUMMARY:

PHASE I	PHASE II	TOTAL
249 UNITS	50 UNITS	299 UNITS

BENCHMARK

HORIZONTAL: MARYLAND NAD83 (ADJ 1991)
VERTICAL: NAVD88

GEODETIC SURVEY CONTROL: 24AB
NORTHING: 178563.45
EASTING: 411890.9466
ELEVATION: 116.804

GEODETIC SURVEY CONTROL: 24CA
NORTHING: 178767.4413
EASTING: 415026.9617
ELEVATION: 121.413

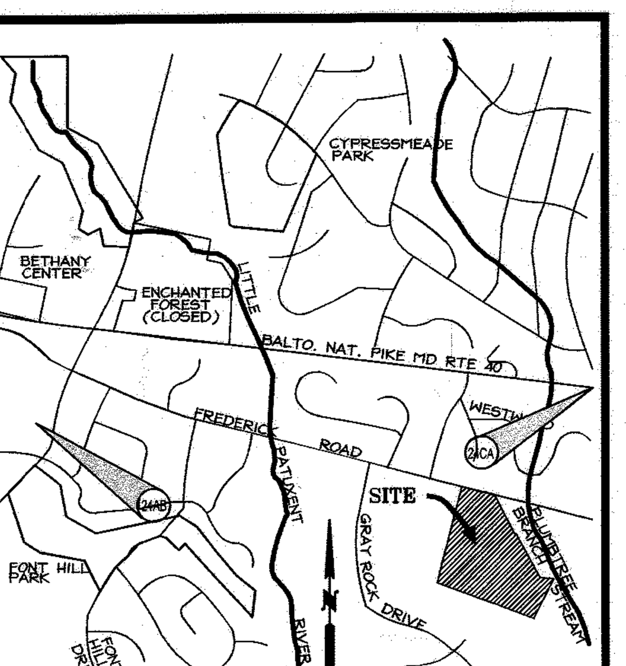
GEODETIC SURVEY CONTROL: 24GC
NORTHING: 176439.5793
EASTING: 412127.2117
ELEVATION: 133.780

DESCRIPTIONS:
STAMPED DISC SET ON 3' DEEP COLUMN OF CONCRETE

APPROVED: FOR PUBLIC OR PRIVATE [pick only one] WATER AND PUBLIC OR PRIVATE [pick only one] SEWERAGE SYSTEMS

[signature] 9/12/2016
County Health Officer — Date
Howard County Health Department

NOTE: HEALTH DEPARTMENT APPROVAL OF THIS SITE DEVELOPMENT PLAN (SDP) DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PERMIT PLANS FOR CERTAIN FACILITIES TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS SDP WILL REQUIRE REVIEW AND APPROVAL BY THE HEALTH DEPARTMENT. SUCH FACILITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, THOSE WHICH HAVE SWIMMING POOLS, OR THAT SELL PREPARED OR PACKAGED FOODS, OR THAT MAY HAVE EQUIPMENT THAT EMITS RADIATION.



ADC# 21007249
VICINITY MAP
SCALE 1"=2000'
HOWARD COUNTY MAP PAGE 20 GRID D-8

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39	LANDSCAPE PLAN		

GRAPHIC SCALE
200 0 100 200 400 800
(IN FEET)
1 inch = 200 ft.

ADDRESS CHART

UNIT #	ADDRESS	UNIT #	ADDRESS
1	9111 FATHERS LEGACY	22	8704 LEGACY LANE
2	9115 FATHERS LEGACY	23	8706 LEGACY LANE
3	9119 FATHERS LEGACY	24	8710 LEGACY LANE
4	9123 FATHERS LEGACY	25	8712 LEGACY LANE
5	9127 FATHERS LEGACY	26	8815 VALS LANE
6	9015 FATHERS LEGACY	27	8819 VALS LANE
7	9017 FATHERS LEGACY	28	8823 VALS LANE
8	9021 FATHERS LEGACY	29	8828 VALS LANE
9	9025 FATHERS LEGACY	30	8824 VALS LANE
10	9027 FATHERS LEGACY	31	8820 VALS LANE
11	9031 FATHERS LEGACY	32	2908 PAULS PROVISION
12	9035 FATHERS LEGACY	33	2912 PAULS PROVISION
13	9037 FATHERS LEGACY	34	2911 PAULS PROVISION
14	9041 FATHERS LEGACY	35	2907 PAULS PROVISION
15	9045 FATHERS LEGACY	36	2903 PAULS PROVISION
16	9047 FATHERS LEGACY	MAINTENANCE BUILDINGS	8911 GRACEFUL APPROACH
17	9051 FATHERS LEGACY	1000 north	9000 FATHERS LEGACY
18	9055 FATHERS LEGACY	1000 south	9050 FATHERS LEGACY
19	9059 FATHERS LEGACY	1000 east	9100 FATHERS LEGACY
20	9061 FATHERS LEGACY	GATEHOUSE, TENNIS COURT, ETC.	9531 FREDERICK ROAD
21	9065 FATHERS LEGACY		

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

7/25/2016
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER
8/26/16

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center
MEMBER ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE 1-800-257-7777

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] — Chief, Development Engineering Division — Date 9.26.16
[signature] — Chief, Division of Land Development — Date 10-5-16
[signature] — Director — Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART — PLAT NOS 22346-22363

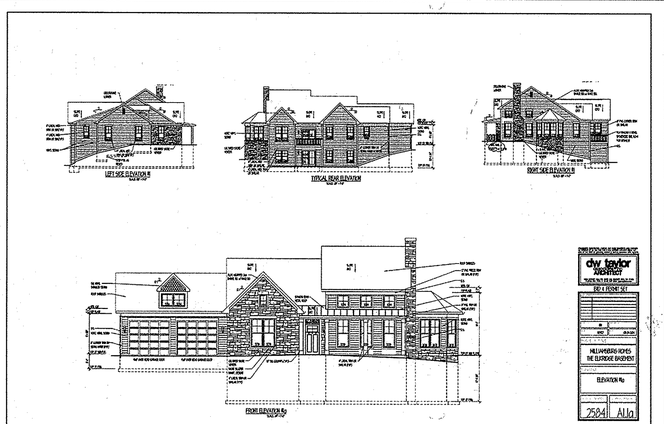
PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

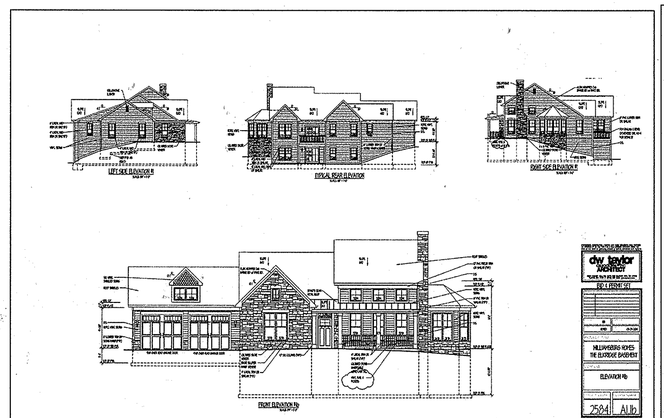
TITLE:
COVER SHEET

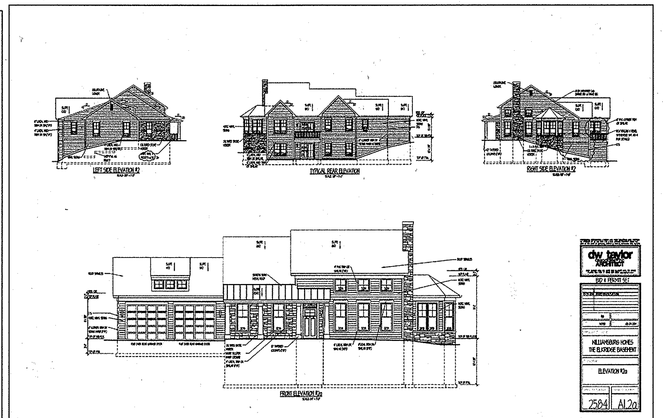
DESIGN: DAM	SCALE: 1" = 200'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	1 OF 77
CHECKED: ENJ	APPROVED: WRZ	

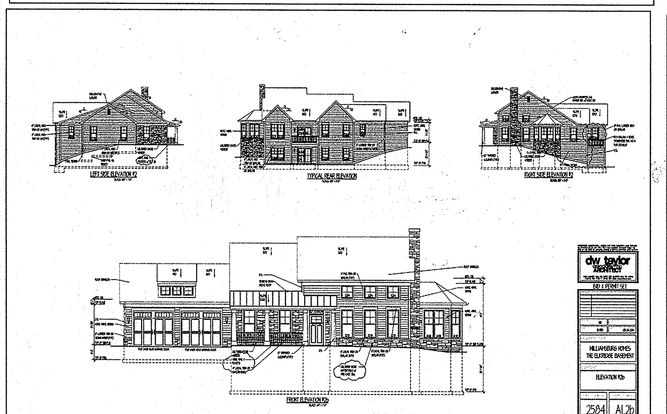
SDP-08-075

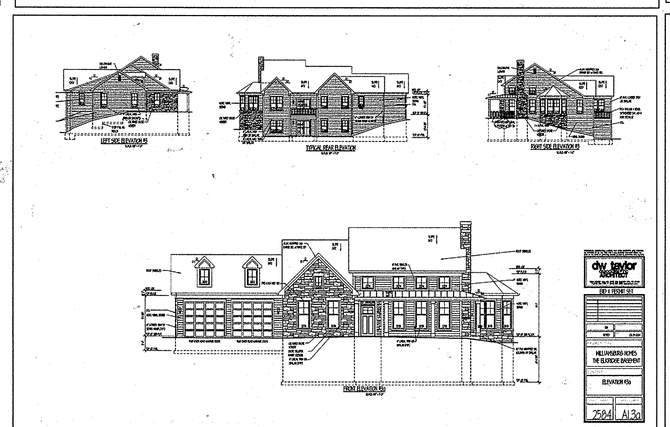
MDC-792 (SDP)

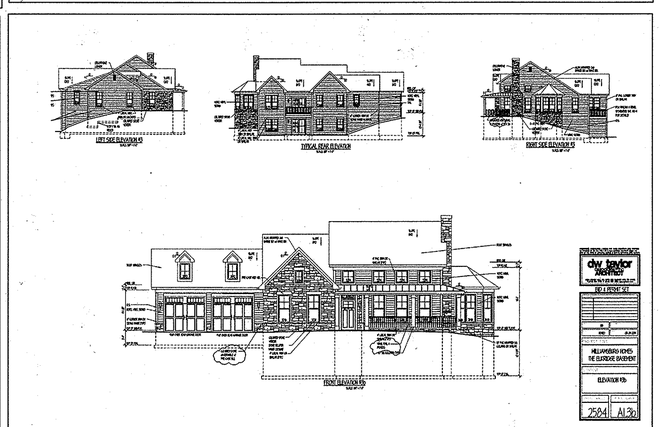


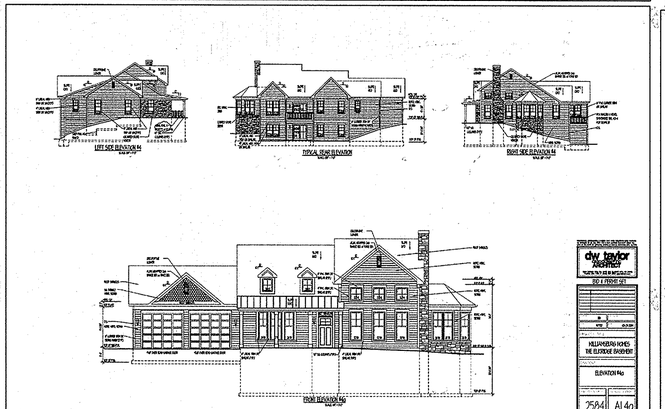


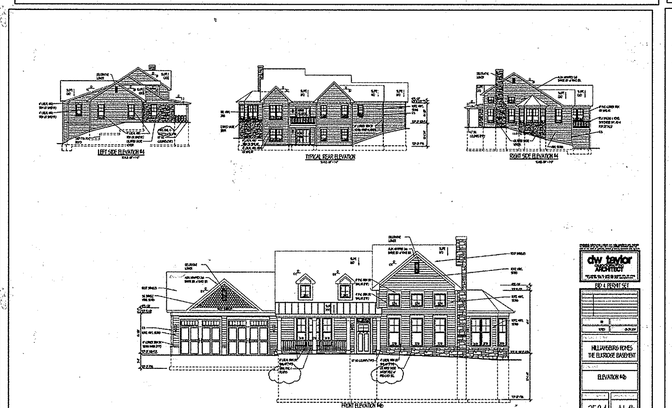


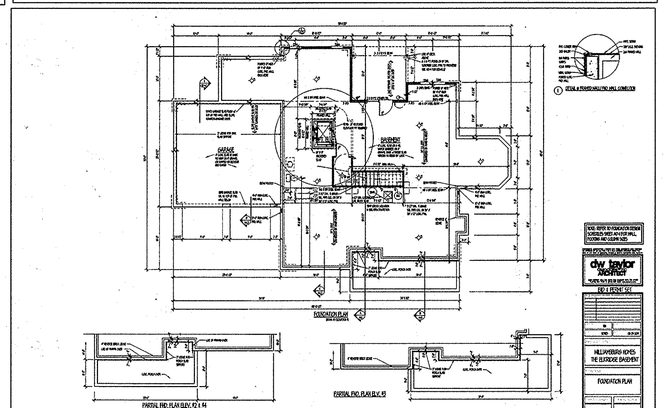












NOTES:

1.) HOUSE HEIGHT = 19'-10"

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APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 10-27-15

Chief, Division of Land Development — Date 10-30-15

Director — Date 10-30-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER, MD 21158
(410) 848-0090

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christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8660 · metro 301.621.0143 · fax 410.872.8668

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

10/09/2015
DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

STATE OF MARYLAND — WILLIAM RAYMOND ZIMMERMAN — 21084 — REGISTERED PROFESSIONAL ENGINEER

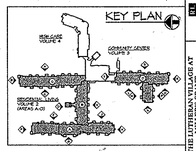
TITLE:
ARCHITECTURE ELEVATIONS & FOUNDATIONS "ELKRIDGE"

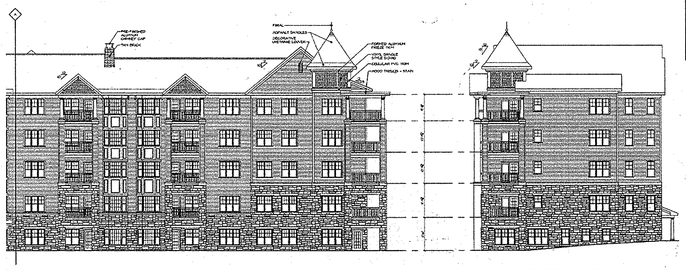
DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	2 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

MDC-792 (SDP)

1 ELEVATION 'A'
SCALE: 1/8"=1'-0"





2 ELEVATION 'A'
SCALE: 1/8"=1'-0"

3 ELEVATION 'B'
SCALE: 1/8"=1'-0"

THE LUTHERAN VILLAGE AT MILLER'S GRANT
CARROLL LUTHERAN VILLAGE
9401 PATUXENT WOODS DRIVE, COLUMBIA, MARYLAND 21046

REVISIONS

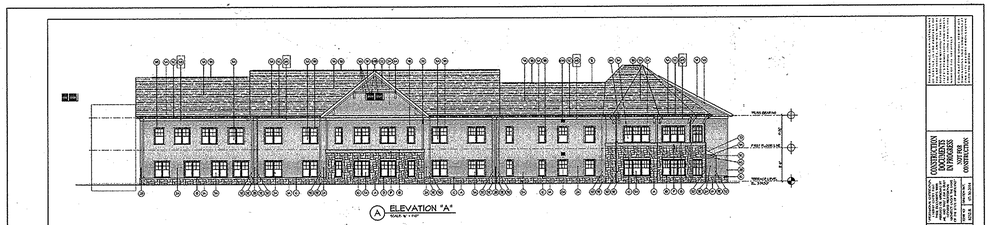
EXTERIOR ELEVATIONS

A201

CONSTRUCTION DOCUMENTS NOT FOR CONSTRUCTION

BRIDGE DEVELOPMENT DRAWINGS NOT FOR CONSTRUCTION

rtkl architects
RTKL ASSOCIATES INC. BALTIMORE, MARYLAND



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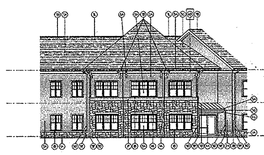

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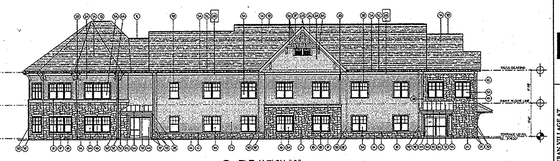

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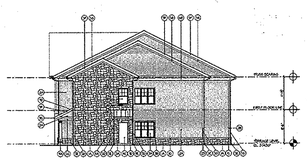
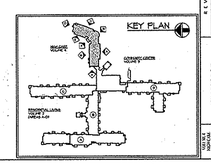


D ELEVATION "D"
SCALE: 1/8"=1'-0"

KEYED ELEVATION NOTES

1 MANUFACTURED STONE VENEER	16 ALUMINUM RAILING SYSTEM
2 MANUFACTURED STONE SILL	17 CELLULAR PVC 5" MOLDING
3 MANUFACTURED STONE WATER TABLE	18 PAINTED ALUM. FASCIA TRIM
4 MANUFACTURED STONE CAP	19 CELLULAR PVC TRIM
5 BRICK	20 NOT USED
6 MANUFACTURED STONE ACCENT BAND	21 ASPHALT SHINGLES
7 MANUFACTURED STONE LINTEL	22 SINGLE GLAZED FIXED TRANSOM
8 TWO-CAR GARAGE DOUBLE DOORS	23 TWO-CAR GARAGE CANOPY ROOFING
9 NOT USED	24 ONE-CAR GARAGE CANOPY ROOFING
10 NOT USED	25 STANDING SEAM METAL ROOF
11 VINYL SIDING STYLE 'DUTCH LAP'	26 NOT USED
12 VINYL SIDING STYLE 'SHAKE'	27 NOT USED
13 VINYL SOFFIT BOARD 8 SPACED	28 NOT USED
14 VINYL SOFFIT BOARD 12 SPACED	29 NOT USED
15 VINYL WINDOW UNIT	30 VINYL SHUTTER WITH CRESCENT CUT-OUT
31 VINYL SHUTTER WITH HEART CUT-OUT	46 ALUMINUM GUTTER AND DOWNSPOUT
32 ALUMINUM GUTTER AND DOWNSPOUT	47 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
33 ALUMINUM RAILING SYSTEM	48 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
34 ALUMINUM RAILING SYSTEM	49 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
35 NOT USED	50 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
36 NOT USED	51 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
37 NOT USED	52 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
38 NOT USED	53 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
39 NOT USED	54 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
40 NOT USED	55 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
41 NOT USED	56 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
42 NOT USED	57 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
43 NOT USED	58 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
44 NOT USED	59 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
45 NOT USED	60 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT



10/09/2015
DATE

PROFESSIONAL CERTIFICATION

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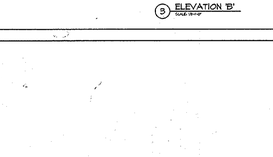
STATE OF MARYLAND
PHILLIP RAYMOND ENK
NO. 20567
REGISTERED
PROFESSIONAL ENGINEER

1 ELEVATION 'A'
SCALE: 1/8"=1'-0"

2 ELEVATION 'B'
SCALE: 1/8"=1'-0"

3 ELEVATION 'C'
SCALE: 1/8"=1'-0"



5 ELEVATION 'E'
SCALE: 1/8"=1'-0"

KEYED ELEVATION NOTES

1 MANUFACTURED STONE VENEER	16 ALUMINUM RAILING SYSTEM
2 MANUFACTURED STONE SILL	17 CELLULAR PVC 5" MOLDING
3 MANUFACTURED STONE WATER TABLE	18 PAINTED ALUM. FASCIA TRIM
4 MANUFACTURED STONE CAP	19 CELLULAR PVC TRIM
5 BRICK	20 NOT USED
6 MANUFACTURED STONE ACCENT BAND	21 ASPHALT SHINGLES
7 MANUFACTURED STONE LINTEL	22 SINGLE GLAZED FIXED TRANSOM
8 TWO-CAR GARAGE DOUBLE DOORS	23 TWO-CAR GARAGE CANOPY ROOFING
9 NOT USED	24 ONE-CAR GARAGE CANOPY ROOFING
10 NOT USED	25 STANDING SEAM METAL ROOF
11 VINYL SIDING STYLE 'DUTCH LAP'	26 NOT USED
12 VINYL SIDING STYLE 'SHAKE'	27 NOT USED
13 VINYL SOFFIT BOARD 8 SPACED	28 NOT USED
14 VINYL SOFFIT BOARD 12 SPACED	29 NOT USED
15 VINYL WINDOW UNIT	30 VINYL SHUTTER WITH CRESCENT CUT-OUT
31 VINYL SHUTTER WITH HEART CUT-OUT	46 ALUMINUM GUTTER AND DOWNSPOUT
32 ALUMINUM GUTTER AND DOWNSPOUT	47 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
33 ALUMINUM RAILING SYSTEM	48 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
34 ALUMINUM RAILING SYSTEM	49 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
35 NOT USED	50 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
36 NOT USED	51 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
37 NOT USED	52 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
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42 NOT USED	57 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
43 NOT USED	58 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
44 NOT USED	59 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT
45 NOT USED	60 ALUMINUM HEAVY DUTY GUTTER AND DOWNSPOUT

THE LUTHERAN VILLAGE AT MILLER'S GRANT
CARROLL LUTHERAN VILLAGE
9401 PATUXENT WOODS DRIVE, COLUMBIA, MARYLAND 21046

REVISIONS

EXTERIOR ELEVATIONS

A201

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APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 10.27.15

Chief, Division of Land Development — Date 10-30-15

Director — Date 10-30-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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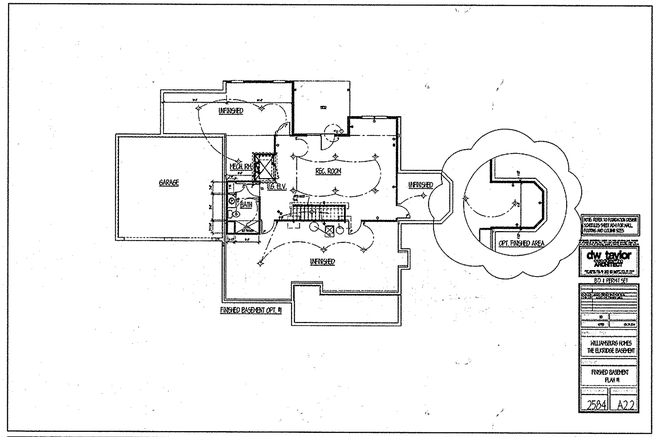
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.621.0148 · fax 410.872.8693

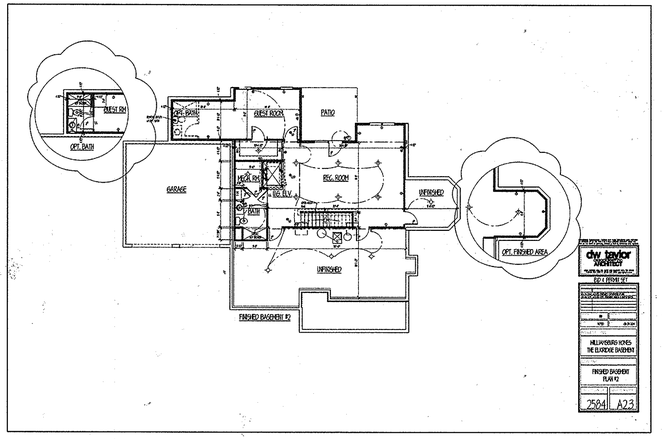
PERMIT INFORMATION CHART

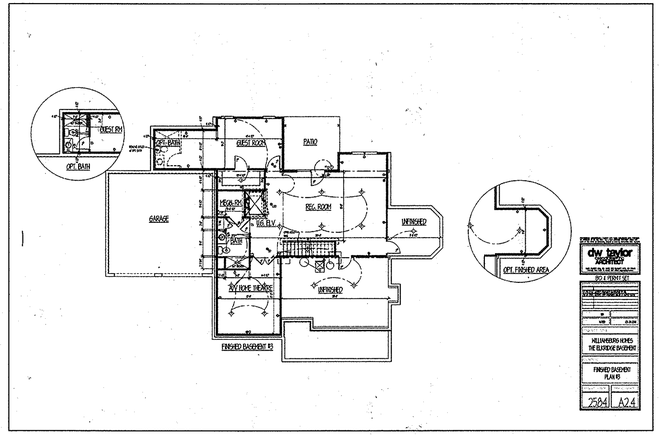
PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

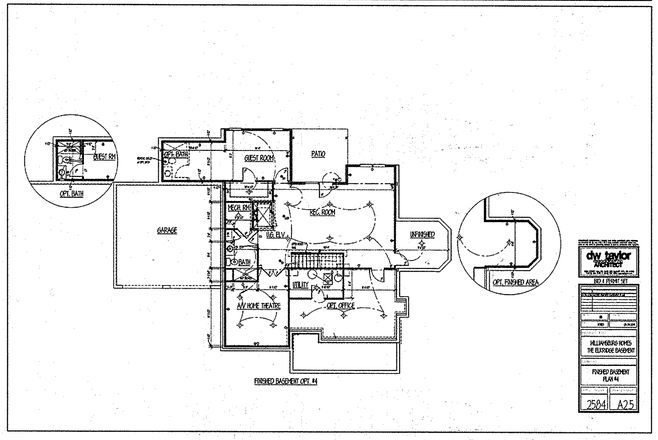
TITLE:
ARCHITECTURE FOOTPRINTS AND ELEVATIONS

DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	2A OF 77
CHECKED: ENJ	APPROVED: WRZ	









NOTES:

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APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division NY — Date 10-27-15

Chief, Division of Land Development — Date 10-30-15

Director — Date 10-30-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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410.872.8650 · metro 301.881.8148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
ARCHITECTURE ELEVATIONS & FOUNDATIONS "ELKRIDGE"

DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	3 OF 77
CHECKED: ENJ	APPROVED: WRZ	

10/09/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED
PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

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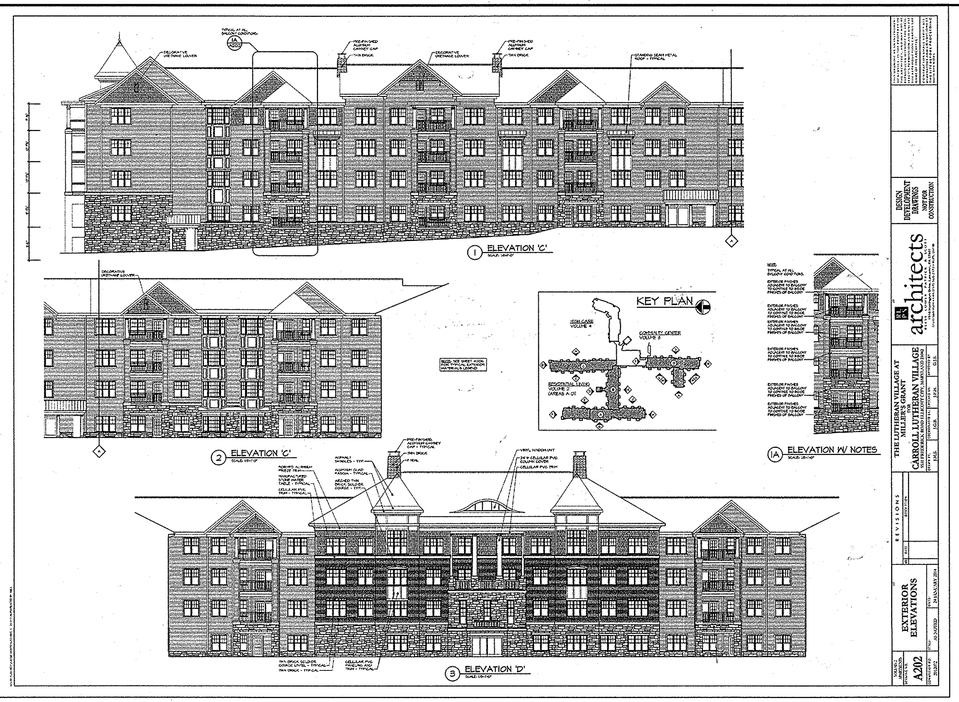
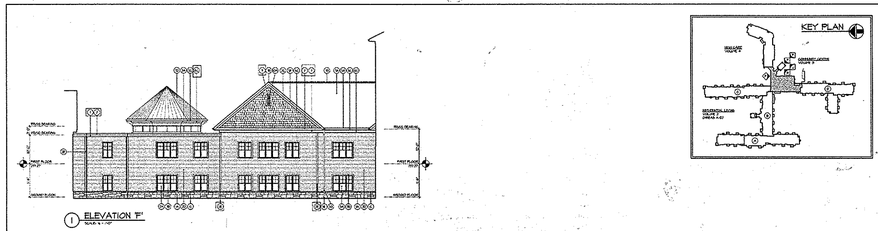
MDC-792 (SDP)

SDP-08-075





KEYED ELEVATION NOTES

1	MANUFACTURED STONE VENEER	1	ALUMINUM RAILING SYSTEM
2	MANUFACTURED STONE SILL	2	CEILING FAN, 52" MAPLE LEAF, TYP.
3	MANUFACTURED STONE WATER TABLE	3	THROUGH WALL FAUCET, TYP.
4	MANUFACTURED STONE CAP	4	CEILING FAN, 42", TYP.
5	TYP. OPEN	5	NOT USED
6	MANUFACTURED STONE ACCENT BAND	6	ASPHALT SHINGLES
7	MANUFACTURED STONE LATTIL	7	SINGLE LOUVERED STORM DOOR
8	1/2 BRICK SOLDIER COURSE LINTEL	8	FLAGSTONE 1 COURSE FLASHING
9	NOT USED	9	STANDING SEAM METAL ROOF
10	NOT USED	10	METAL RAILING PICKET PATTERN
11	VINYL SINGLE HUNG WINDOW	11	VINYL
12	VINYL SLIDING GLASS DOOR WITH (2) LITES	12	COPPER FLASHING
13	VINYL SQ. TUBE	13	CEILING LIGHT
14	VINYL SHUTTERS	14	CEILING LIGHT WITH MOTION SENSOR
15	VINYL CLAPBOARD SIDING	15	CEILING FAN, 52" MAPLE LEAF, BRUSHED NI
16	SOLDIER COURSE BRICK HEADER	16	NOT USED
17	ALUMINUM RAILING SYSTEM WITH GLASS INSERTS	17	DELUXE 6'-0" SLIDER
18	ALUMINUM RAILING SYSTEM WITH PICKETS	18	DELUXE 6'-0" BIFOLD DOUBLE DOOR
19	NOT USED	19	DELUXE 6'-0" BIFOLD DOUBLE DOOR
20	ALUMINUM RAILING	20	DELUXE 6'-0" BIFOLD DOUBLE DOOR
21	ALUMINUM RAILING	21	DELUXE 6'-0" BIFOLD DOUBLE DOOR
22	NOT USED	22	DELUXE 6'-0" BIFOLD DOUBLE DOOR
23	ALUMINUM 6'-0" GATE	23	DELUXE 6'-0" BIFOLD DOUBLE DOOR
24	ALUMINUM 5in DOWNSPOUT	24	DELUXE 6'-0" BIFOLD DOUBLE DOOR
25	FIELD DOWNSPOUT BOOT	25	DELUXE 6'-0" BIFOLD DOUBLE DOOR
26	ALUMINUM GUTTER	26	DELUXE 6'-0" BIFOLD DOUBLE DOOR
27	NOT USED	27	DELUXE 6'-0" BIFOLD DOUBLE DOOR
28	NOT USED	28	DELUXE 6'-0" BIFOLD DOUBLE DOOR
29	NOT USED	29	DELUXE 6'-0" BIFOLD DOUBLE DOOR
30	NOT USED	30	DELUXE 6'-0" BIFOLD DOUBLE DOOR
31	NOT USED	31	DELUXE 6'-0" BIFOLD DOUBLE DOOR
32	NOT USED	32	DELUXE 6'-0" BIFOLD DOUBLE DOOR
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66	NOT USED	66	DELUXE 6'-0" BIFOLD DOUBLE DOOR
67	NOT USED	67	DELUXE 6'-0" BIFOLD DOUBLE DOOR
68	NOT USED	68	DELUXE 6'-0" BIFOLD DOUBLE DOOR
69	NOT USED	69	DELUXE 6'-0" BIFOLD DOUBLE DOOR
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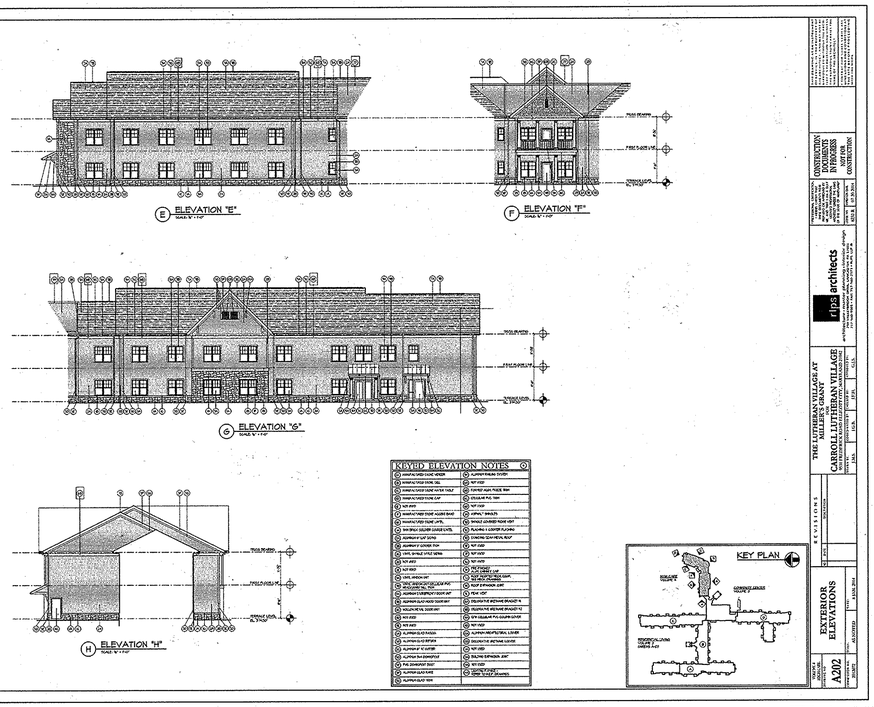
100	NOT USED	100	DELUXE 6'-0" BIFOLD DOUBLE DOOR



KEYED ELEVATION NOTES

1	MANUFACTURED STONE VENEER	1	ALUMINUM RAILING SYSTEM
2	MANUFACTURED STONE SILL	2	NOT USED
3	MANUFACTURED STONE WATER TABLE	3	THROUGH WALL FAUCET, TYP.
4	MANUFACTURED STONE CAP	4	CEILING FAN, 42", TYP.
5	TYP. OPEN	5	NOT USED
6	MANUFACTURED STONE ACCENT BAND	6	ASPHALT SHINGLES
7	MANUFACTURED STONE LATTIL	7	SINGLE LOUVERED STORM DOOR
8	1/2 BRICK SOLDIER COURSE LINTEL	8	FLAGSTONE 1 COURSE FLASHING
9	ASPHALT FLAT ROOF	9	STANDING SEAM METAL ROOF
10	ALUMINUM GUTTER TYP.	10	NOT USED
11	VINYL SINGLE HUNG WINDOW	11	NOT USED
12	NOT USED	12	NOT USED
13	NOT USED	13	NOT USED
14	NOT USED	14	CEILING LIGHT
15	VINYL WINDOW WITH (2) LITES	15	CEILING LIGHT WITH MOTION SENSOR
16	VINYL SINGLE HUNG WINDOW WITH (2) LITES	16	NOT USED
17	ALUMINUM RAILING SYSTEM WITH GLASS INSERTS	17	DELUXE 6'-0" SLIDER
18	ALUMINUM RAILING SYSTEM WITH PICKETS	18	DELUXE 6'-0" BIFOLD DOUBLE DOOR
19	NOT USED	19	DELUXE 6'-0" BIFOLD DOUBLE DOOR
20	ALUMINUM RAILING	20	DELUXE 6'-0" BIFOLD DOUBLE DOOR
21	ALUMINUM RAILING	21	DELUXE 6'-0" BIFOLD DOUBLE DOOR
22	NOT USED	22	DELUXE 6'-0" BIFOLD DOUBLE DOOR
23	ALUMINUM 6'-0" GATE	23	DELUXE 6'-0" BIFOLD DOUBLE DOOR
24	ALUMINUM 5in DOWNSPOUT	24	DELUXE 6'-0" BIFOLD DOUBLE DOOR
25	FIELD DOWNSPOUT BOOT	25	DELUXE 6'-0" BIFOLD DOUBLE DOOR
26	ALUMINUM GUTTER	26	DELUXE 6'-0" BIFOLD DOUBLE DOOR
27	NOT USED	27	DELUXE 6'-0" BIFOLD DOUBLE DOOR
28	NOT USED	28	DELUXE 6'-0" BIFOLD DOUBLE DOOR
29	NOT USED	29	DELUXE 6'-0" BIFOLD DOUBLE DOOR
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APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 10.27.15

Chief, Division of Land Development — Date 10-30-15

Director — Date 10-30-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
04/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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7172 columbia gateway drive (suite 100) - columbia, md. 21046-2990
410.872.8200 - fax 301.861.0140 - ltx 410.872.8803

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:
ARCHITECTURE ELEVATIONS -

DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	3A OF 77
CHECKED: ENJ	APPROVED: WRZ	

10/09/2015
DATE

STATE OF MARYLAND — ERIC N. JOHNSON — No. 20681 — REGISTERED PROFESSIONAL ENGINEER

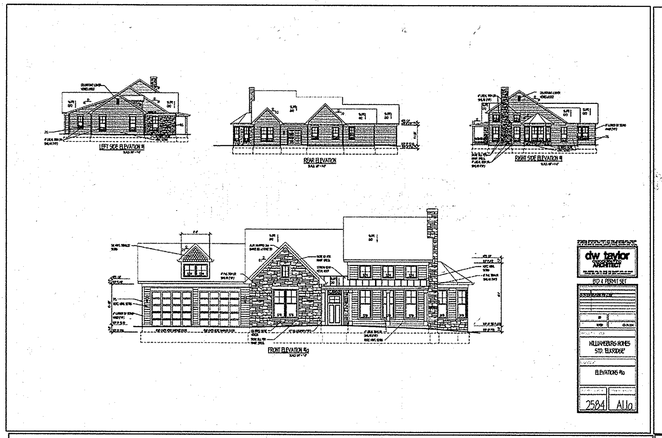
PROFESSIONAL CERTIFICATION

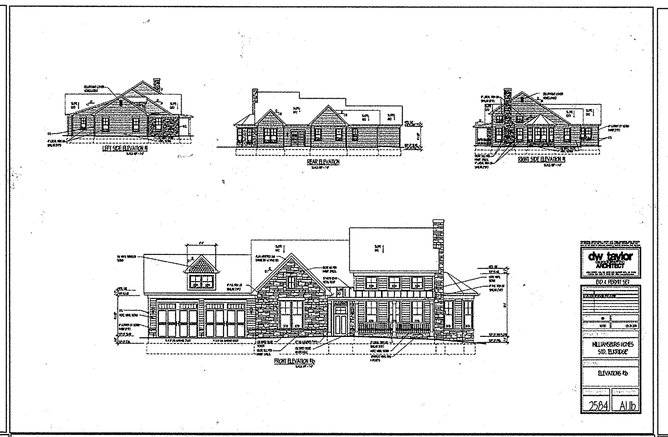
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

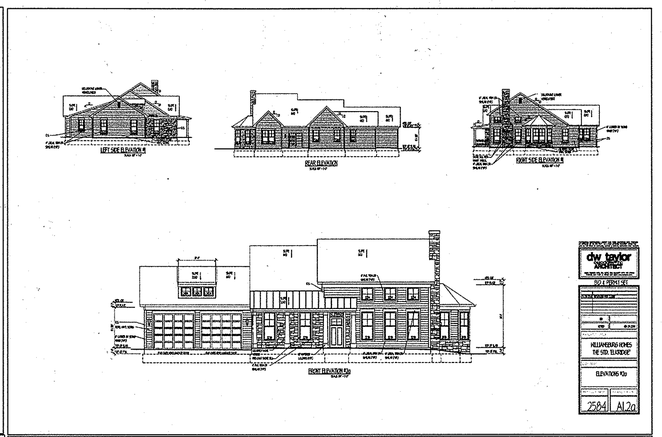
SDP-08-075

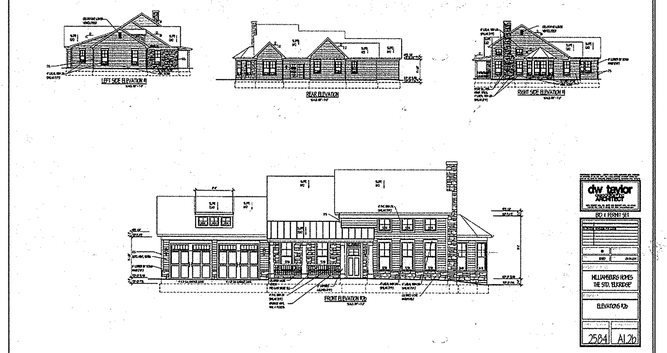
NOTES:

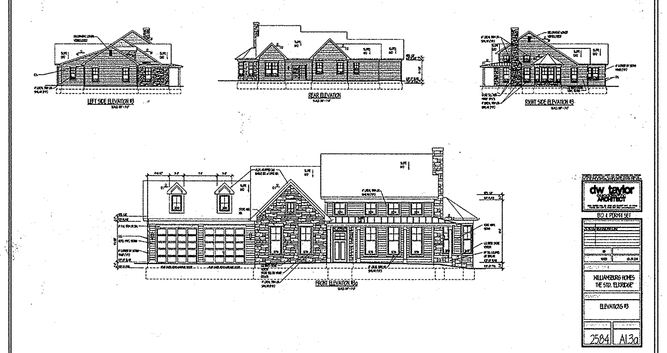
1.) HOUSE HEIGHT = 19'-10"

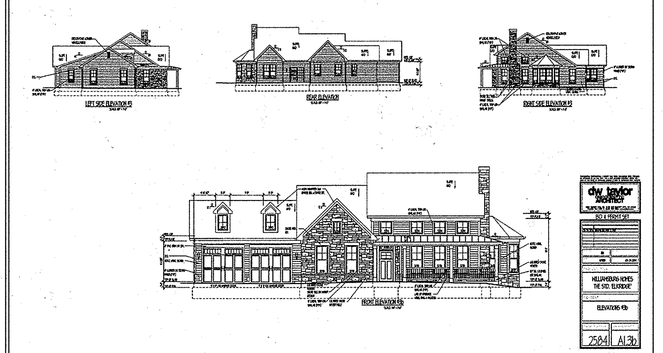


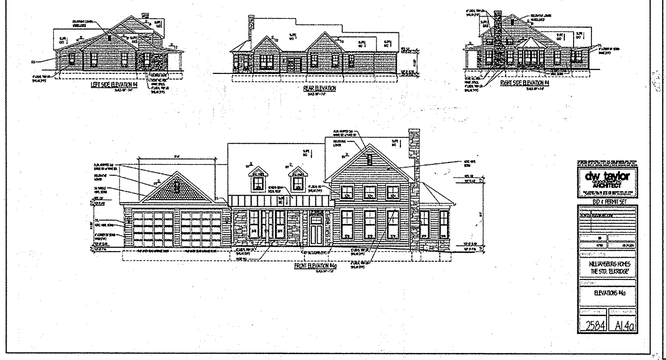


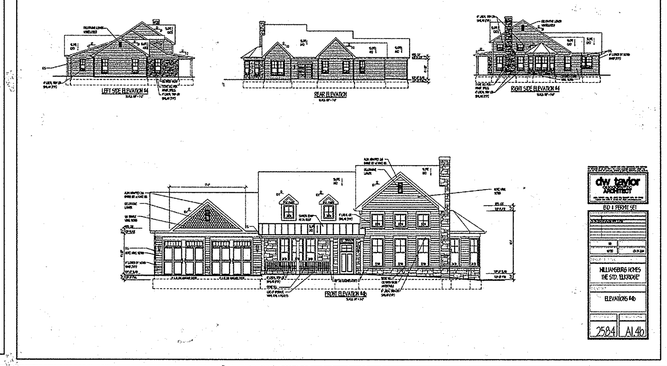


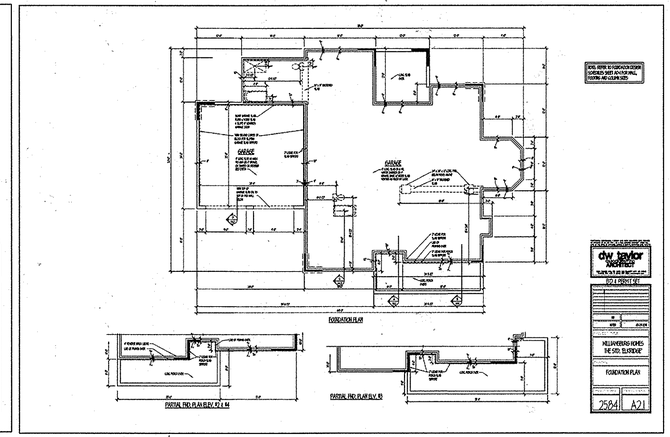












APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 10.27.15

Chief, Division of Land Development — Date 10.30.15

Director — Date 10-30-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
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410.872.8690 - metro 301.881.0148 - fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

10/09/2015
DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

STATE OF MARYLAND — BRUCE RAYMOND ZIRKLE — No. 21599 — REGISTERED PROFESSIONAL ENGINEER

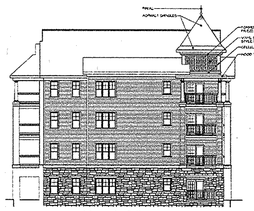
TITLE:
ARCHITECTURE ELEVATIONS & FOUNDATIONS "ELKRIDGE"

DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	4 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075

1 ELEVATION 'E'
SCALE: 1/8"=1'-0"



2 ELEVATION 'F'
SCALE: 1/8"=1'-0"

2 ELEVATION 'G'
SCALE: 1/8"=1'-0"

4 ELEVATION 'G'
SCALE: 1/8"=1'-0"

THESE DRAWINGS ARE THE PROPERTY OF ARCHITECTS AND ARE NOT TO BE USED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF THE ARCHITECTS.

DESIGN DEVELOPMENT DRAWINGS NOT FOR CONSTRUCTION

architects
ARCHITECTS, P.A.
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410-889-7700 FAX 410-889-7705

THE LUTHERAN VILLAGE AT MILLER'S GRANT
CARROLL LUTHERAN VILLAGE
SCALE: AS NOTED
DESIGNED: DAM
DRAWN: DAM
CHECKED: ENJ
DATE: APRIL 12, 2013
PROJECT: 05115.001.02
SHEET: 4A OF 77

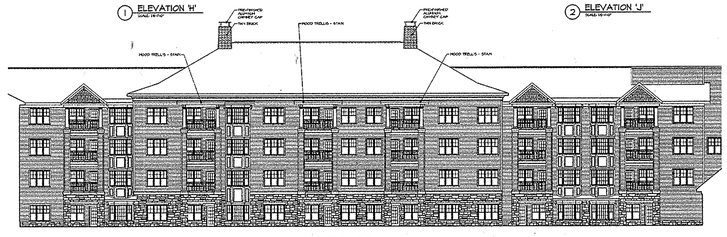
REVISIONS
NO. | DESCRIPTION | DATE

EXTERIOR ELEVATIONS

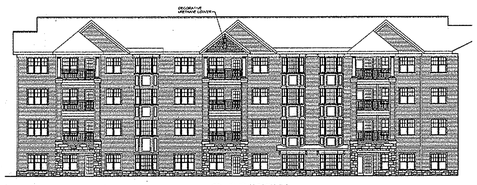
SCALE AS NOTED
DRAWING NUMBER A203
DESIGNED DAM
DRAWN DAM
CHECKED ENJ

1 ELEVATION 'H'
SCALE: 1/8"=1'-0"

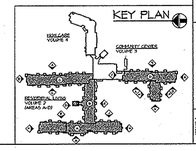
2 ELEVATION 'J'
SCALE: 1/8"=1'-0"



3 ELEVATION 'K'
SCALE: 1/8"=1'-0"



4 ELEVATION 'L'
SCALE: 1/8"=1'-0"



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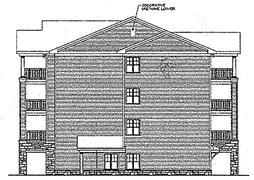
THE LUTHERAN VILLAGE AT MILLER'S GRANT
CARROLL LUTHERAN VILLAGE
SCALE: AS NOTED
DESIGNED: DAM
DRAWN: DAM
CHECKED: ENJ
DATE: APRIL 12, 2013
PROJECT: 05115.001.02
SHEET: 4A OF 77

REVISIONS
NO. | DESCRIPTION | DATE

EXTERIOR ELEVATIONS

SCALE AS NOTED
DRAWING NUMBER A204
DESIGNED DAM
DRAWN DAM
CHECKED ENJ

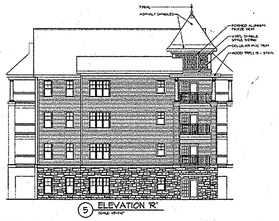
1 ELEVATION 'M'
SCALE: 1/8"=1'-0"



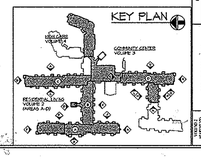
2 ELEVATION 'N'
SCALE: 1/8"=1'-0"

3 ELEVATION 'P'
SCALE: 1/8"=1'-0"

4 ELEVATION 'Q'
SCALE: 1/8"=1'-0"



5 ELEVATION 'R'
SCALE: 1/8"=1'-0"



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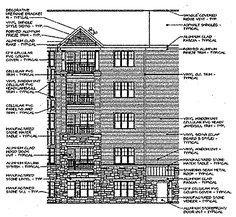
THE LUTHERAN VILLAGE AT MILLER'S GRANT
CARROLL LUTHERAN VILLAGE
SCALE: AS NOTED
DESIGNED: DAM
DRAWN: DAM
CHECKED: ENJ
DATE: APRIL 12, 2013
PROJECT: 05115.001.02
SHEET: 4A OF 77

REVISIONS
NO. | DESCRIPTION | DATE

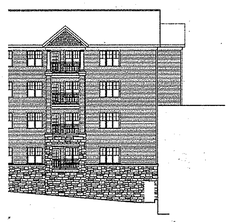
EXTERIOR ELEVATIONS

SCALE AS NOTED
DRAWING NUMBER A205
DESIGNED DAM
DRAWN DAM
CHECKED ENJ

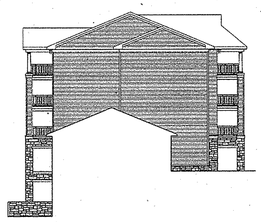
1 ELEVATION 'S'
SCALE: 1/8"=1'-0"



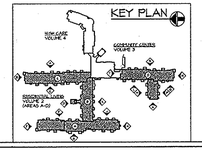
5 TYPICAL EXTERIOR MATERIALS LEGEND
SCALE: 1/8"=1'-0"



3 ELEVATION 'S'
SCALE: 1/8"=1'-0"



4 ELEVATION 'T'
SCALE: 1/8"=1'-0"



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DESIGN DEVELOPMENT DRAWINGS NOT FOR CONSTRUCTION

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ARCHITECTS, P.A.
1501 ROLAND AVENUE, BALTIMORE, MARYLAND 21211
410-889-7700 FAX 410-889-7705

THE LUTHERAN VILLAGE AT MILLER'S GRANT
CARROLL LUTHERAN VILLAGE
SCALE: AS NOTED
DESIGNED: DAM
DRAWN: DAM
CHECKED: ENJ
DATE: APRIL 12, 2013
PROJECT: 05115.001.02
SHEET: 4A OF 77

REVISIONS
NO. | DESCRIPTION | DATE

EXTERIOR ELEVATIONS

SCALE AS NOTED
DRAWING NUMBER A206
DESIGNED DAM
DRAWN DAM
CHECKED ENJ

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

10/09/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZIMMERMAN
NO. 21558
REGISTERED
PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 10-27-15

Chief, Division of Land Development — Date 10-30-15

Director — Date 10-30-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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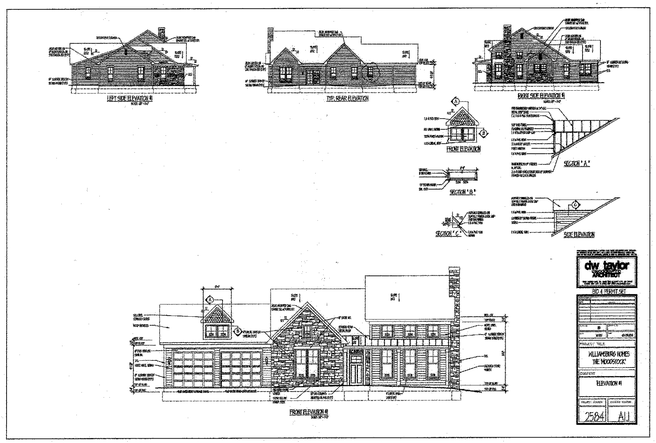
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.3699 · metro 301.621.0149 · fax 410.872.3693

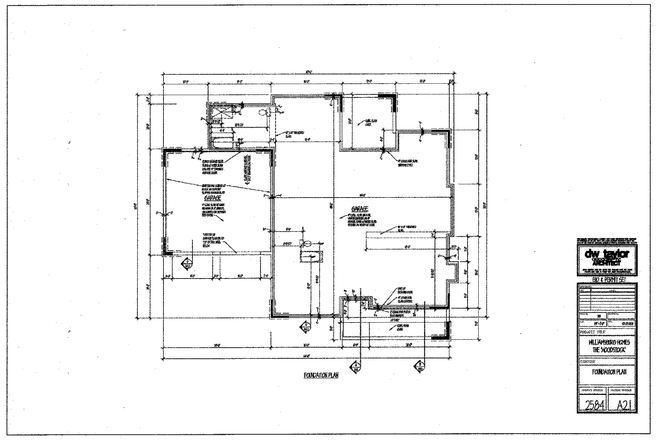
PERMIT INFORMATION CHART

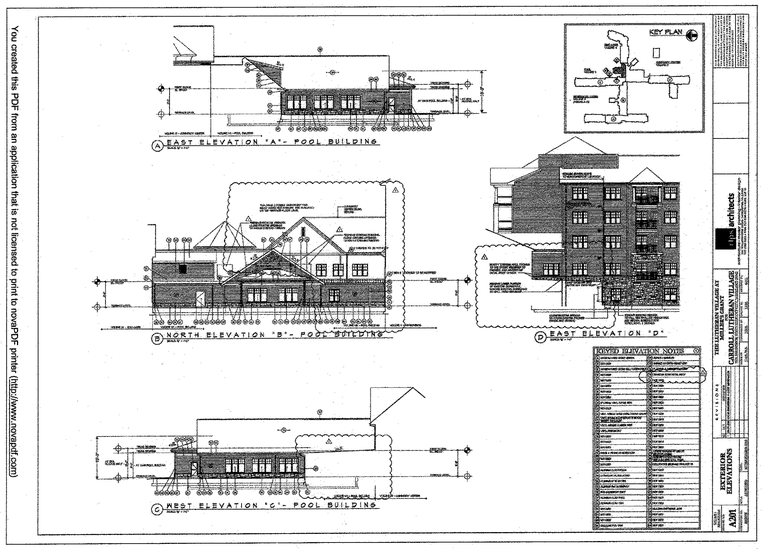
PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:
ARCHITECTURE ELEVATIONS -

DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	4A OF 77
CHECKED: ENJ	APPROVED: WRZ	







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NOTES:

1.) HOUSE HEIGHT = 19'-10"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	9-26-16 Date
Chief, Division of Land Development	10-5-16 Date
Director	10-5-16 Date

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED
		GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

7/25/2016
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20[illegible]
REGISTERED PROFESSIONAL ENGINEER

8/6/16

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

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7177 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8880 · metro 301.261.2146 · fax 410.872.8883

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

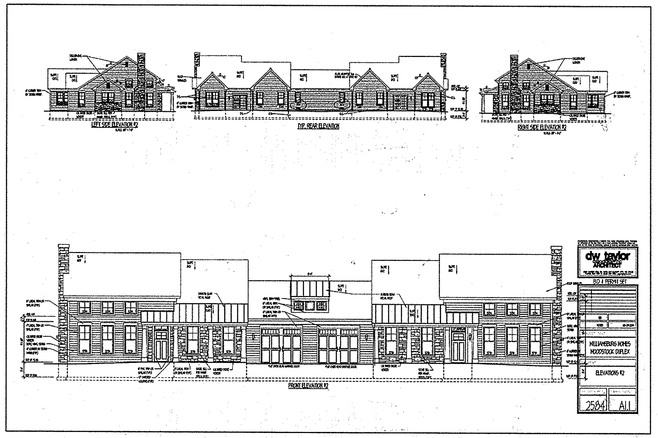
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

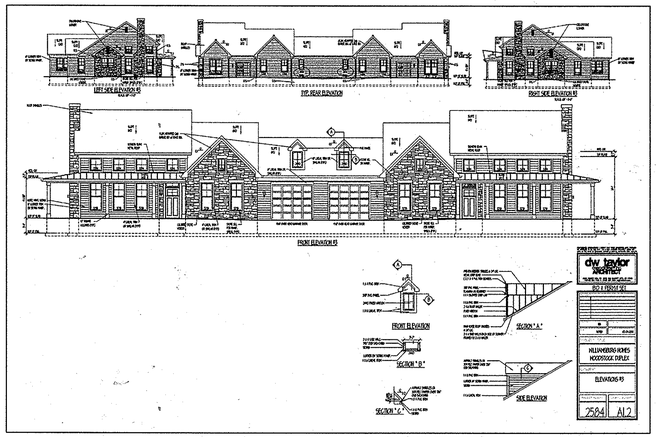
WATER CODE	SEWER CODE
550 (TG 700)	F07

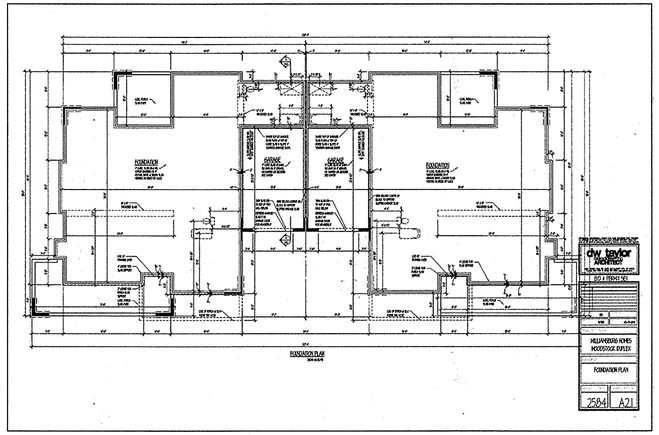
TITLE:
ARCHITECTURE ELEVATIONS & FOUNDATIONS "WOODSTOCK"

DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	5 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075







NOTES:

1.) HOUSE HEIGHT = 19'-10"

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 10-27-15

Chief, Division of Land Development — Date 10-30-15

Director — Date 10-30-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

PROFESSIONAL CERTIFICATION

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10/09/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20567 — REGISTERED PROFESSIONAL ENGINEER

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

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410.872.8690 · metro 301.621.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

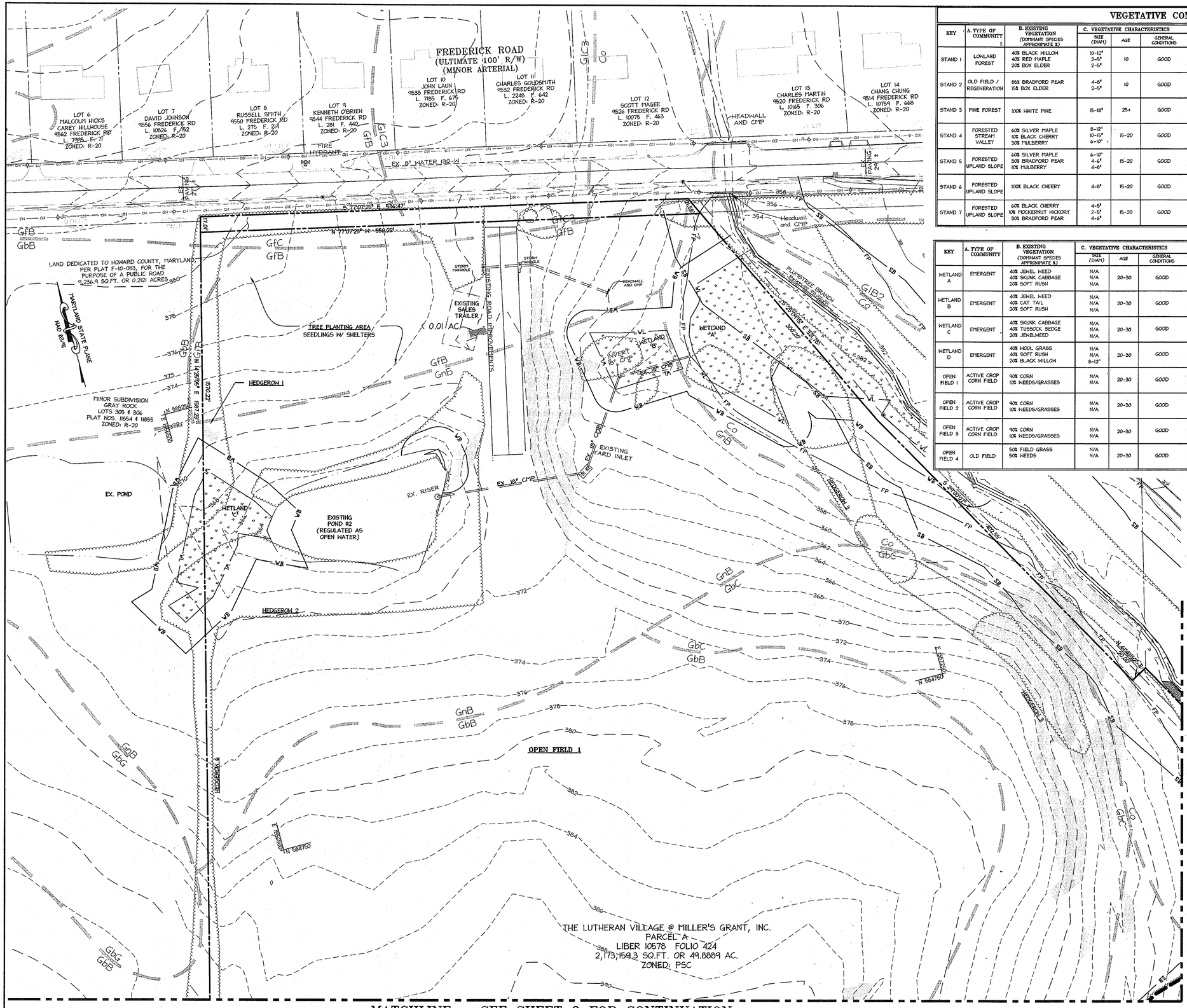
WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
ARCHITECTURE ELEVATIONS & FOUNDATIONS "WOODSTOCK"

DESIGN: DAM	SCALE: AS NOTED	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	6 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075



VEGETATIVE COMMUNITIES TABLE

KEY	A. TYPE OF COMMUNITY	B. EXISTING VEGETATION (DOMINANT SPECIES APPROXIMATE %)	C. VEGETATIVE CHARACTERISTICS: SIZE (DIAM)	AGE	GENERAL CONDITIONS	KEY	A. TYPE OF COMMUNITY	B. EXISTING VEGETATION (DOMINANT SPECIES APPROXIMATE %)	C. VEGETATIVE CHARACTERISTICS: SIZE (DIAM)	AGE	GENERAL CONDITIONS
STAND 1	LOWLAND FOREST	40% BLACK HILLOW 40% RED MAPLE 20% BOX ELDER	10-12" 2-5" 2-5"	10	GOOD	HEDGEROW 1	HEDGEROW	50% SILVER MAPLE 50% BLACK CHERRY	8-12" 4-8"	15-20	GOOD
STAND 2	OLD FIELD / REGENERATION	85% BRADFORD PEAR 15% BOX ELDER	4-8" 2-5"	10	GOOD	HEDGEROW 2	HEDGEROW	85% SILVER MAPLE 15% BLACK WILLOW	12-18" 12-15"	15-20	GOOD
STAND 3	PINE FOREST	100% WHITE PINE	15-18"	25+	GOOD	HEDGEROW 3	HEDGEROW	60% SILVER MAPLE 10% BLACK WALNUT 30% MULBERRY	8-12" 6-10" 4-8"	15-20	GOOD
STAND 4	FORESTED STREAM VALLEY	60% SILVER MAPLE 10% BLACK CHERRY 30% MULBERRY	8-12" 10-15" 6-10"	15-20	GOOD	HEDGEROW 4	HEDGEROW	70% BLACK CHERRY 30% MULBERRY	6-10" 4-8"	15-20	GOOD
STAND 5	FORESTED UPLAND SLOPE	60% SILVER MAPLE 30% BRADFORD PEAR 10% MULBERRY	6-10" 4-6" 4-8"	15-20	GOOD	HEDGEROW 5	HEDGEROW	70% BLACK CHERRY 30% MULBERRY	6-10" 4-8"	15-20	GOOD
STAND 6	FORESTED UPLAND SLOPE	100% BLACK CHEERY	4-8"	15-20	GOOD	HEDGEROW 6	HEDGEROW	60% BLACK CHERRY 10% MULBERRY 30% BRADFORD PEAR	4-8" 2-5" 4-6"	15-20	GOOD
STAND 7	FORESTED UPLAND SLOPE	60% BLACK CHERRY 10% MOCKERNUT HICKORY 30% BRADFORD PEAR	4-8" 2-5" 4-6"	15-20	GOOD	HEDGEROW 7	HEDGEROW	50% RED OAK 30% RED MAPLE 10% BLACK GUM 10% BLACK CHERRY	8-12" 4-6" 8-12" 4-6"	15-20	GOOD

KEY	A. TYPE OF COMMUNITY	B. EXISTING VEGETATION (DOMINANT SPECIES APPROXIMATE %)	C. VEGETATIVE CHARACTERISTICS: SIZE (DIAM)	AGE	GENERAL CONDITIONS
WETLAND A	EMERGENT	40% JEWEL WEED 40% SKUNK CABBAGE 20% SOFT RUSH	N/A N/A N/A	20-30	GOOD
WETLAND B	EMERGENT	40% JEWEL WEED 40% CAT TAIL 20% SOFT RUSH	N/A N/A N/A	20-30	GOOD
WETLAND C	EMERGENT	40% SKUNK CABBAGE 40% TUSSOCK SEDGE 20% JEWELWEED	N/A N/A N/A	20-30	GOOD
WETLAND D	EMERGENT	40% WOOL GRASS 40% SOFT RUSH 20% BLACK WILLOW	N/A N/A 8-12"	20-30	GOOD
OPEN FIELD 1	ACTIVE CROP CORN FIELD	90% CORN 10% WEEDS/GRASSES	N/A N/A	20-30	GOOD
OPEN FIELD 2	ACTIVE CROP CORN FIELD	90% CORN 10% WEEDS/GRASSES	N/A N/A	20-30	GOOD
OPEN FIELD 3	ACTIVE CROP CORN FIELD	90% CORN 10% WEEDS/GRASSES	N/A N/A	20-30	GOOD
OPEN FIELD 4	OLD FIELD	50% FIELD GRASS 50% WEEDS	N/A N/A	20-30	GOOD

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING WATER
- EXISTING SANITARY SEWER
- EX. 24" RCP EXISTING STORMDRAIN
- FENCE
- STREAM CENTERLINE
- EXISTING TREELINE
- GfB2 Co SOILS LINE
- FP FLOODPLAIN
- FOREST STAND BOUNDARY
- SB STREAM BUFFER
- WB WETLAND BUFFER
- WETLANDS
- STEEP SLOPES 25% AND GREATER
- STEEP SLOPES 15% TO 25%

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 4/24/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
EXISTING CONDITIONS & SOILS MAP PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	7 OF 77
CHECKED: ENJ	APPROVED: WRZ	

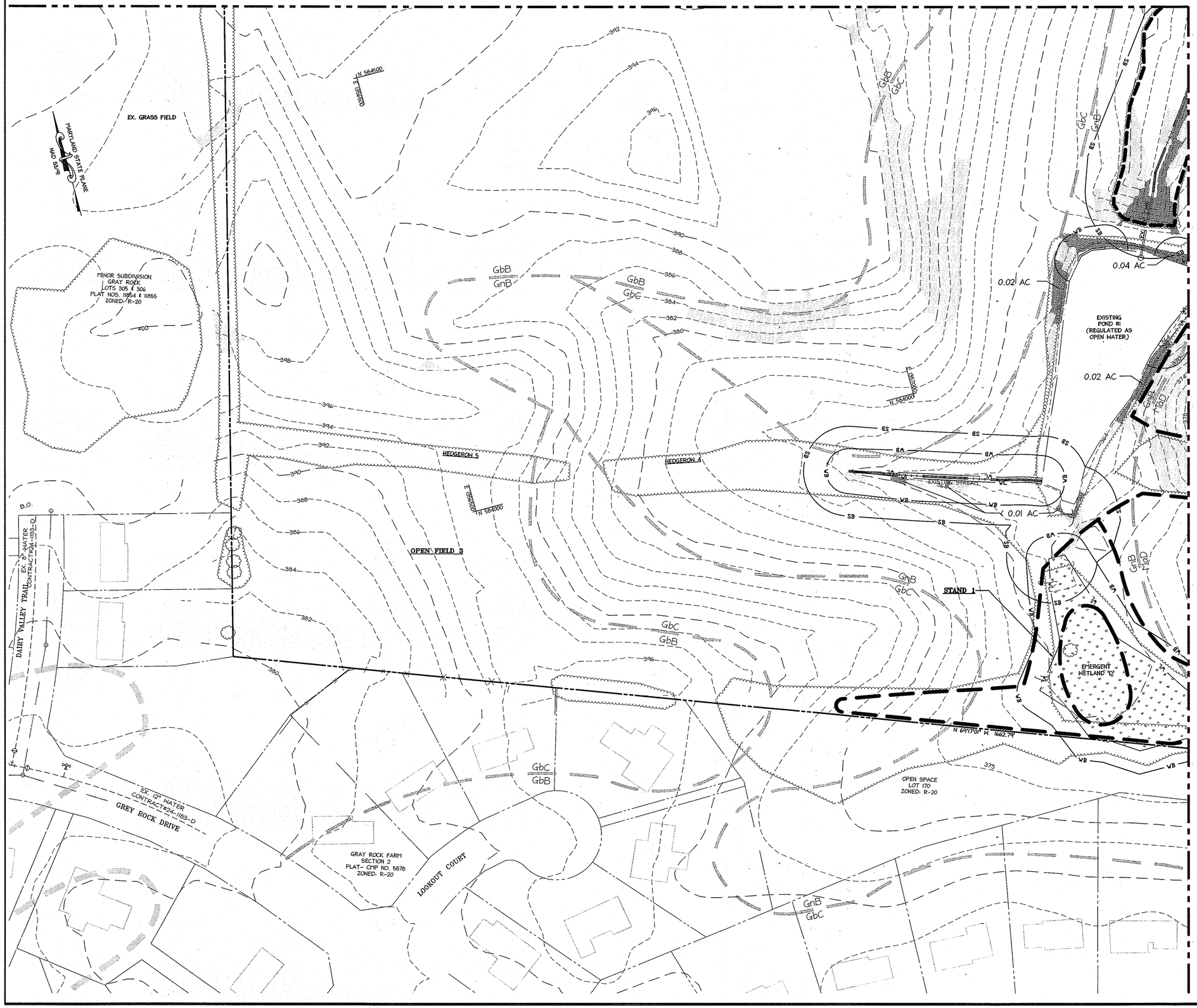
02/25/2013 DATE

STATE OF MARYLAND — WILLIAM TAYLOR ZINK — No. 20587 — REGISTERED PROFESSIONAL ENGINEER

MDC-792 (SDP)

SDP-08-075

MATCHLINE - SEE SHEET 7 FOR CONTINUATION



MATCHLINE - SEE SHEET 9 FOR CONTINUATION

LEGEND

- EXISTING INTER CONTOUR
- EXISTING INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING WATER
- EXISTING SANITARY SEWER
- EX. 24" RCP — EXISTING STORMDRAIN
- FENCE
- STREAM CENTERLINE
- EXISTING TREELINE
- GIB2 Co — SOILS LINE
- FP — FLOODPLAIN
- FOREST STAND BOUNDARY
- SB — STREAM BUFFER
- WB — WETLAND BUFFER
- WL — WETLANDS
- STEEP SLOPES 25% AND GREATER
- STEEP SLOPES 15% TO 25%

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE 4/12/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/26/13

Chief, Division of Land Development — Date 4/26/13

Director — Date 4/26/13

Date	No.	Revision Description

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Service Protection Center
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1-800-257-7777

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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410.872.6880 · mdsa 301.881.8145 · fax 410.872.6883

02/25/2013
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
EXISTING CONDITIONS & SOILS MAP PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	8 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

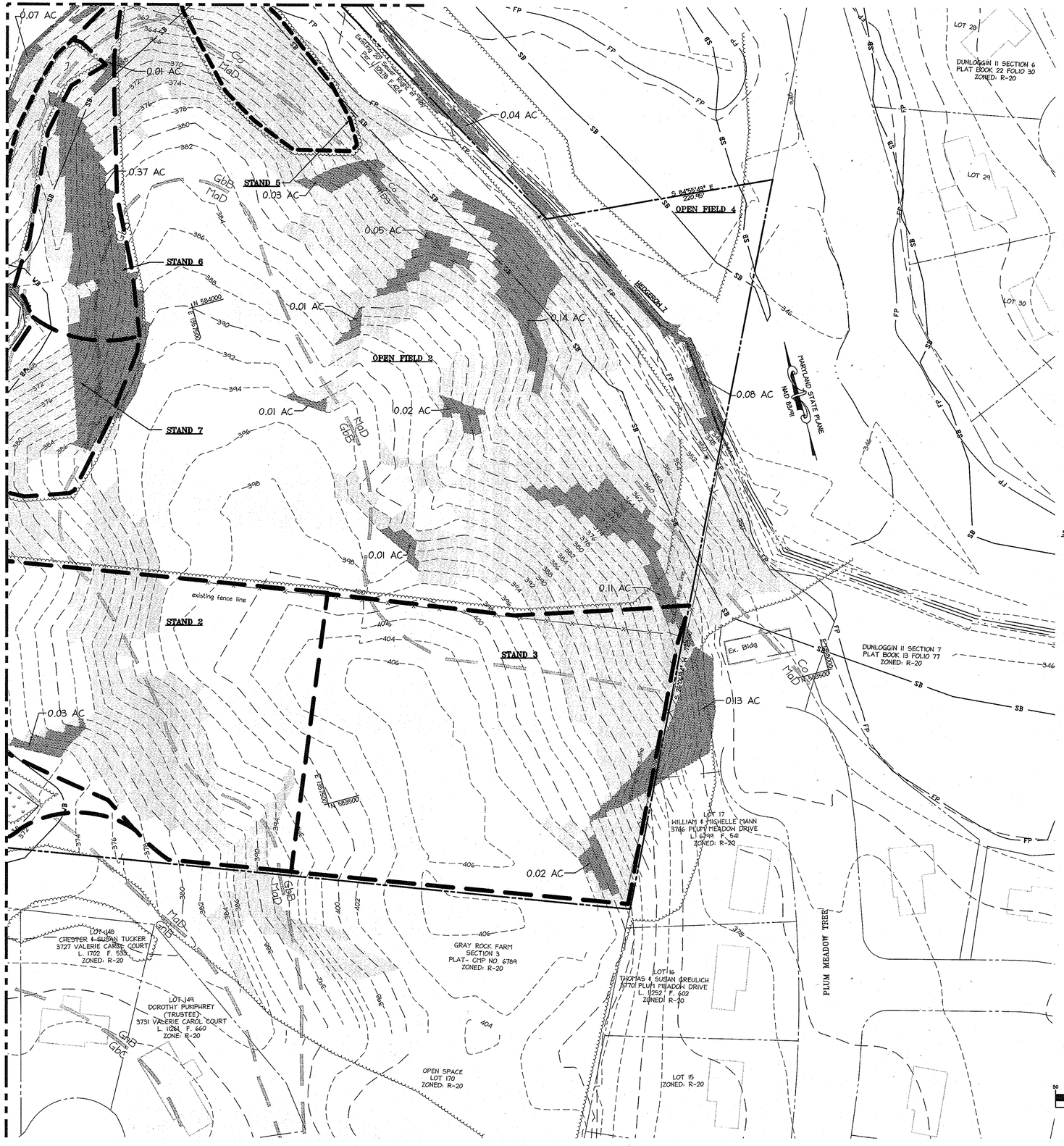
SDP-08-075

MATCHLINE – SEE THIS SHEET FOR CONTINUATION

MATCHLINE – SEE SHEET 8 FOR CONTINUATION

MATCHLINE – SEE SHEET 7 FOR CONTINUATION

MATCHLINE
SEE THIS SHEET FOR CONTINUATION



APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

SOILS

Map Unit Symbol	Revised Unit Symbol	Name	Slope	K-factor	Hydric
Co	Co	Codorus Silt Loam	--	0.49	Yes
Cs	Cs	Cornus Silt Loam	--	-	No
GlB2	(GgB)	Glenelg Loam	3-8%, Mod-Eroded	0.20	No
GlC2	(GgC)	Glenelg Loam	8-15%, Mod-Eroded	0.20	No
GlC3	(GgC)	Glenelg Loam	8-15%, Severely-Eroded	0.20	No
GnB2	(GmB)	Glenville Silt Loam	3-8%, Mod-Eroded	0.37	No
MlB2	(MaB)	Manor Loam	3-8%, Mod-Eroded	0.24	No
MlC2	(MaC)	Manor Loam	8-15%, Mod-Eroded	0.24	No
MlC3	(MaC)	Manor Loam	8-15%, Severely-Eroded	0.24	No
MlD3	(MaD)	Manor Loam	15-25%, Severely-Eroded	0.24	No

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING WATER
- EXISTING SANITARY SEWER
- EX. 24" RCP EXISTING STORMDRAIN
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- FOREST STAND BOUNDARY
- SB STREAM BUFFER
- WB WETLAND BUFFER
- WL WETLANDS
- STEEP SLOPES 25% AND GREATER
- STEEP SLOPES 15% TO 25%

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center
MEMBER
ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE 1-800-257-7777

02/25/2013
DATE

STATE OF MARYLAND — WILLIAM R. ZINK — No. 20587 — REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE 4/12/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 4/29/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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410.872.0990 · fax 410.872.0991 · md 301.261.6148 · fax 410.872.0991

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

EXISTING CONDITIONS & SOILS MAP PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	9 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE: 8/6/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

LUMINAIRE SCHEDULE

Symbol	Qty	Arrangement	Label	Description	Lumens	Height
	9	BACK-BACK	SB	CLM-MM-400-MH-MT-AS-FG	36000	30'
	80	SINGLE	SA	CLM-MM-400-MH-MT-AS-FG	36000	30'
	4	BACK-BACK	SD	CLM-XX-400-MH-XX-3F-FG-XX-X	36000	30'
	8	SINGLE	SC	CLM-XX-400-MH-XX-4F-FG-XX-X	36000	30'

LIGHTING INFORMATION PROVIDED BY COOPER LIGHTING CFC

LEGEND

EXISTING CONTOURS — 372
EXISTING STORM DRAIN — EX. 12" RCP
EXISTING SANITARY SEWER — EX. 8" SAN
EXISTING WATER — EX. 8" WATER
EXISTING FENCE — X
WETLANDS — WL
WETLANDS BUFFER — WB
EXISTING FLOODPLAIN — FP
STREAM
STREAM BUFFER — SB
EXISTING TREELINE
EXISTING TREELINE
PROPOSED RIGHT OF WAY LINE
PROPOSED UTILITY EASEMENT
PROPERTY LINE
PROPOSED SETBACK LINES
PROPOSED WATER EASEMENT
PROPOSED STORM DRAIN MANHOLE
PROPOSED STORM DRAIN INLET
PROPOSED BENCH
PARKING COUNT — 17
PROPOSED STREET LIGHT — SA SC
PROPOSED STREET LIGHT — SB SD
PROPOSED 5' CONCRETE SIDEWALK
PROPOSED CROSSWALK
PROPOSED STOP SIGN — R1-1
PROPOSED NO PARKING SIGN — R7-1
PROPOSED TOW AWAY ZONE SIGN — R7-201
PROPOSED KEEP RIGHT SIGN — R4-7
PROPOSED APARTMENTS..... 1
PROPOSED COMMUNITY CENTER..... 2
ASSISTED LIVING (60 BED CARE FACILITY)..... 3
PROPOSED OPEN SPACE — FCE
PROPOSED GUARDRAIL
PROPOSED BUILDING ENTRANCE
HANDICAP RAMP — 24.0
PROPOSED NON-WOODY ZONE

NOTES:

1. PRIVATE ROADS WILL BE P-2 PAVING UNLESS OTHERWISE INDICATED.
2. ALL PROPOSED CURB ON-SITE TO BE 6" UNLESS OTHERWISE INDICATED.
3. ALL PROPOSED DRIVEWAY APRONS TO BE CONCRETE.
4. ALL PROPOSED HANDICAP RAMPS ARE HOWARD COUNTY STANDARD DETAIL R4.05, UNLESS OTHERWISE INDICATED.
5. ALL PROPOSED CURB RADII ARE 5', UNLESS OTHERWISE INDICATED.
6. KNOX BOX TO BE LOCATED AT THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4' - 5' TALL AND NO MORE THAN 6' FROM THE DOOR.
7. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY OWNER THAT IT IS BEING ACCESSED (INTERUPTED WITHIN ALARM SYSTEM).
8. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH POWER COMPANY FOR UTILITY POLE WORK.

CROSSWALK NOTES:

1. WHEN CROSSWALK LINES ARE USED, THEY SHALL CONSIST OF SOLID WHITE LINES THAT SHALL BE NO LESS THAN 6 INCHES, NOR GREATER THAN 24 INCHES IN WIDTH.
2. IF TRAVERSE LINES ARE USED TO MARK A CROSSWALK, THE GAP BETWEEN THE LINES SHOULD NOT BE LESS THAN 6FT. IF DIAGONAL OR LONGITUDINAL LINES ARE USED WITHOUT TRANSVERSE LINES TO MARK THE CROSSWALK, THE CROSSWALK SHOULD NOT BE LESS THAN 6' WIDE.
3. THE CROSSWALK SHALL BE MARKED WITH WHITE DIAGONAL LINES AT A 45 DEGREE ANGLE TO THE LINE OF THE CROSSWALK.
4. ALL CROSSWALKS IN THE COMMUNITY SHALL BE INSTALLED USING THE HOWARD COUNTY STANDARD CROSSWALK - HOWARD COUNTY DESIGN MANUAL, VOLUME IV, DETAIL 7.03.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 9.26.16
Chief, Division of Land Development — Date 10.5.16
Director — Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY OMWADI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0060

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) - columbia, md. 21046-2880
410.872.2880 - metro 301.621.0148 - fax 410.872.2882

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A	CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24 / ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)		SEWER CODE: F07	

TITLE:

SITE PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	10 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

7/25/2016
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER
8/6/16

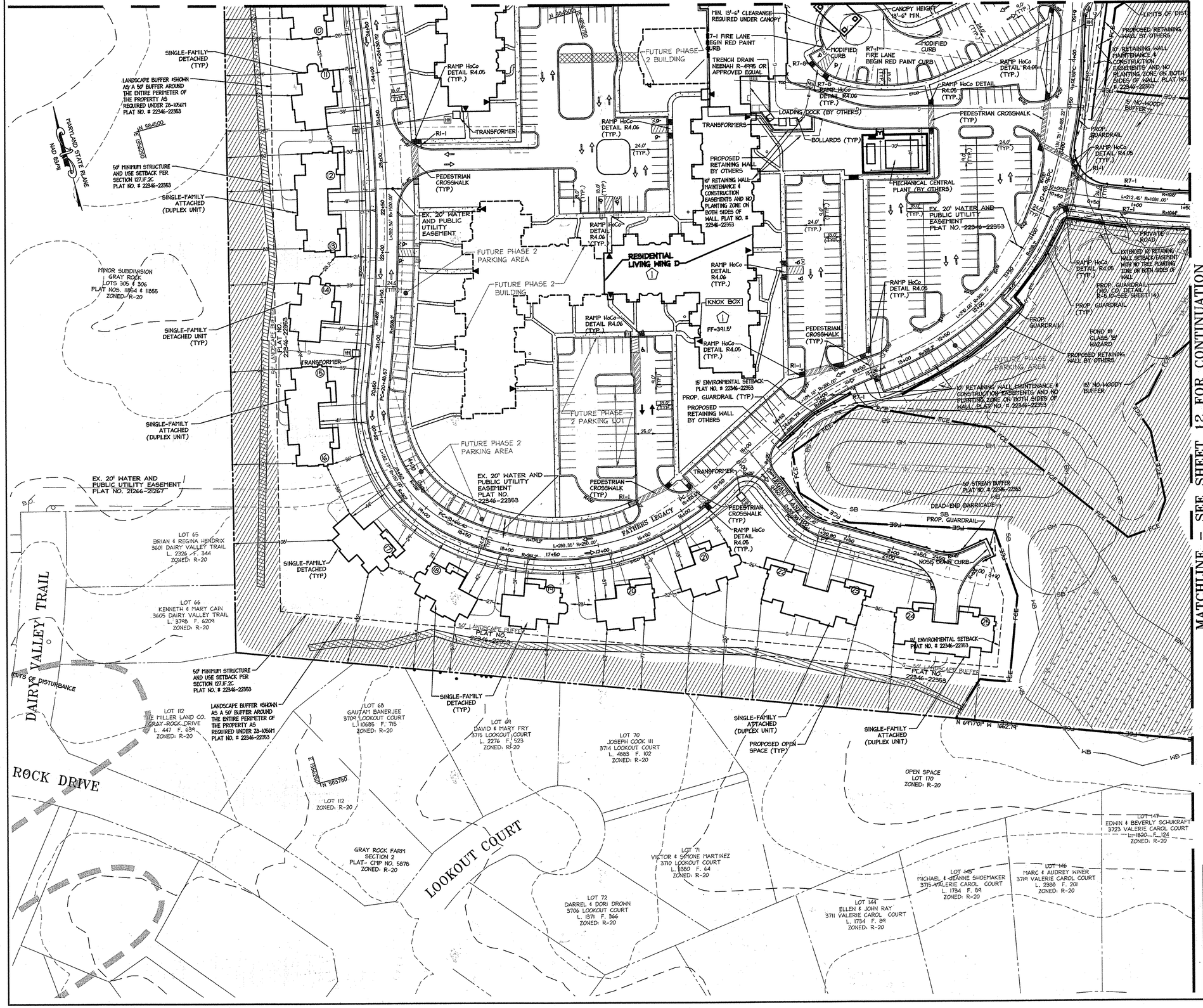
48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center — MEMBER — ONE CALL SYSTEMS INTERNATIONAL — CALL TOLL FREE 1-800-257-7777

MATCHLINE - SEE SHEET 12 FOR CONTINUATION

MATCHLINE - SEE SHEET 11 FOR CONTINUATION

MATCHLINE – SEE SHEET 10 FOR CONTINUATION

MATCHLINE – SEE SHEET 12 FOR CONTINUATION



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE: 1/27/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

CROSSWALK NOTES:

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3. THE CROSSWALK SHALL BE MARKED WITH WHITE DIAGONAL LINES AT A 45 DEGREE ANGLE TO THE LINE OF THE CROSSWALK.

LEGEND

- EXISTING CONTOURS — 372
- EXISTING STORM DRAIN — SD 12" RCP
- EXISTING SANITARY SEWER — SX 8" SAN
- EXISTING WATER — SX 4" WATER
- EXISTING FENCE — X
- WETLANDS
- WETLANDS BUFFER — WB
- EXISTING FLOODPLAIN — FP
- STREAM
- STREAM BUFFER — SB
- EXISTING TREELINE
- EXISTING TREELINE
- PROPOSED RIGHT OF WAY LINE
- PROPOSED UTILITY EASEMENT
- PROPERTY LINE
- PROPOSED SETBACK LINES
- PROPOSED WATER EASEMENT
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- PROPOSED BENCH
- PROPOSED PARKING COUNT — (17)
- PROPOSED STREET LIGHT — SA(1) SC(1)
- PROPOSED STREET LIGHT — SB(1)<-(1)SD(1)<
- PROPOSED 5' CONCRETE SIDEWALK
- PROPOSED CROSSWALK
- PROPOSED STOP SIGN — R1-1
- PROPOSED NO PARKING SIGN — R7-1
- PROPOSED TOW AWAY ZONE SIGN — R7-201
- PROPOSED KEEP RIGHT SIGN — R4-7
- PROPOSED APARTMENTS..... (1)
- PROPOSED COMMUNITY CENTER..... (2)
- ASSISTED LIVING (60 BED CARE FACILITY)..... (3)
- PROPOSED OPEN SPACE — FCE
- PROPOSED GUARDRAIL
- PROPOSED BUILDING ENTRANCE
- HANDICAP RAMP
- PROPOSED NON-WOODY ZONE

NOTES:

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4. ALL PROPOSED HANDICAP RAMPS ARE HOWARD COUNTY STANDARD DETAIL R4.05, UNLESS OTHERWISE INDICATED.
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APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4.4.16
Chief, Division of Land Development — Date 4-5-16
Director — Date 4-5-16

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
11/09/15	03	REVISED GRADING, STORM, SANITARY, RETAINING WALL

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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1/27/16 DATE

STATE OF MARYLAND — WILLIAM RAYBOULD ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A	CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24 — ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07

TITLE:

SITE PLAN

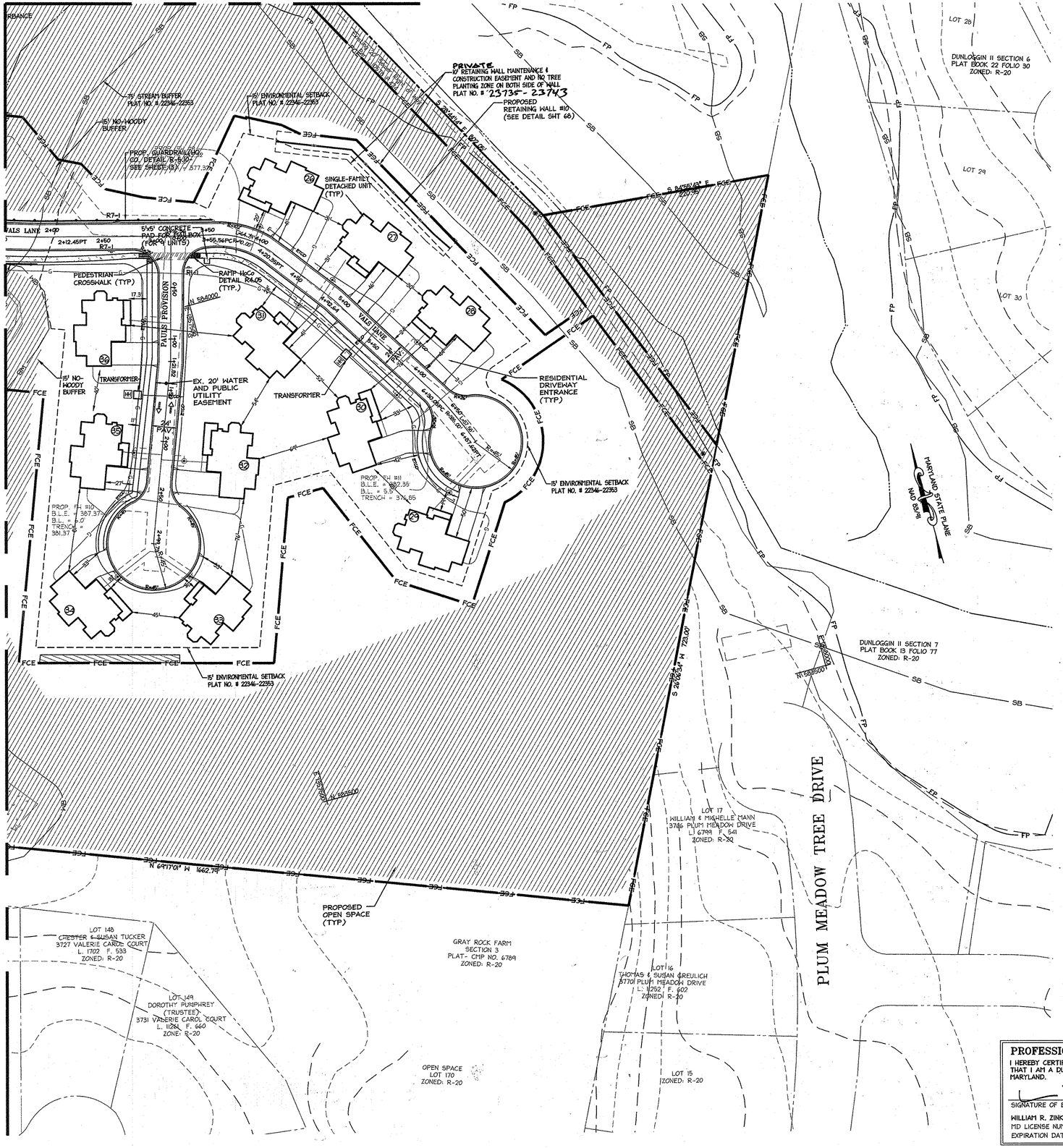
DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	11 OF 77
CHECKED: ENJ	APPROVED: WRZ	

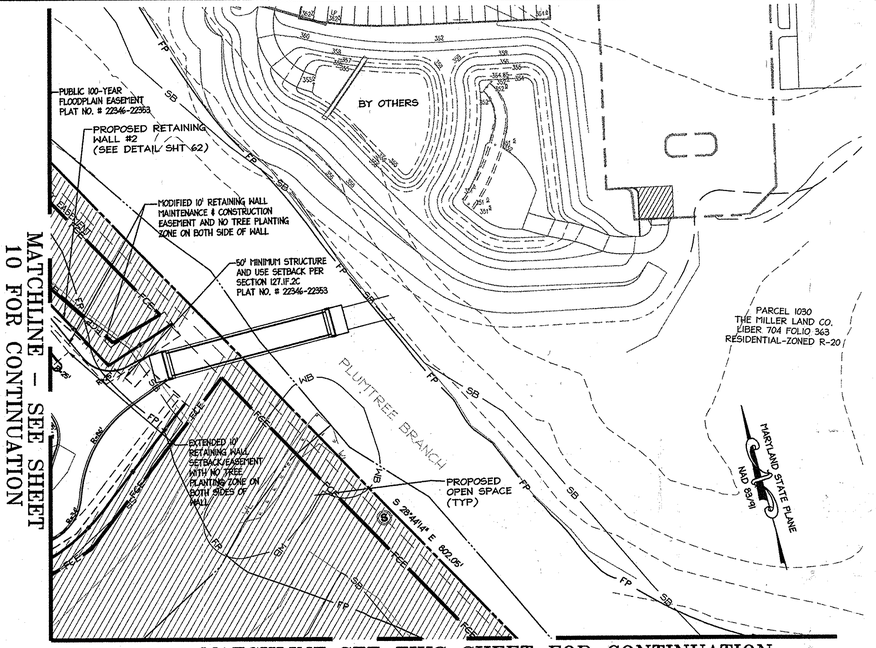
SDP-08-075

P:\Projects\05115\01-ARCH-XXX\-MDC-??? SDP\2014-01-22 Bid Set\2015-11-10 Phase III Redline Submission\Cleas set\10-12 SITE PLANS.dwg, 12/1/2016 10:19:59 AM, johnhelms, 1:1, christopher consultants, ltd.

MATCHLINE – SEE THIS SHEET FOR CONTINUATION

MATCHLINE – SEE SHEET 11 FOR CONTINUATION





MATCHLINE – SEE SHEET 10 FOR CONTINUATION

MATCHLINE SEE THIS SHEET FOR CONTINUATION

LEGEND

- EXISTING CONTOURS — 372 —
- EXISTING STORM DRAIN — EX. 12" RCP —
- EXISTING SANITARY SEWER — EX. 8" SAN —
- EXISTING WATER — EX. 8" WATER —
- EXISTING FENCE — X —
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- PARKING COUNT (n)
- PROPOSED STREET LIGHT SA[x] SC[x]
- PROPOSED STREET LIGHT SB[x]-[x] SD[x]-[x]
- PROPOSED 5' CONCRETE SIDEWALK
- PROPOSED CROSSWALK
- PROPOSED STOP SIGN — R1-1
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- PROPOSED APARTMENTS..... (1)
- PROPOSED COMMUNITY CENTER..... (2)
- ASSISTED LIVING (60 BED CARE FACILITY)..... (3)
- PROPOSED OPEN SPACE — FCE —
- PROPOSED GUARDRAIL
- PROPOSED BUILDING ENTRANCE
- HANDICAP RAMP
- PROPOSED NON-WOODY ZONE
- LIMITS OF DISTURBANCE

NOTES:

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APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/4/16

Chief, Division of Land Development — Date 4-5-16

Director — Date 4-5-16

Date	No.	Revision Description
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LUTHERAN VILLAGE AT MILLER'S GRANT
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PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE: SITE PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	12 OF 77
CHECKED: ENJ	APPROVED: WRZ	

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 1/27/16

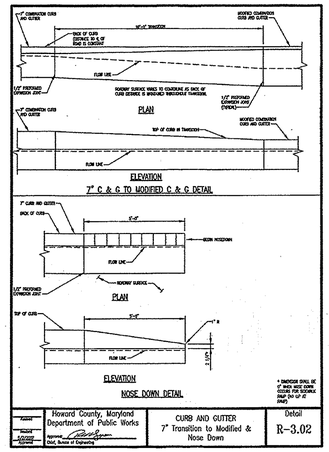
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

1/27/16 DATE

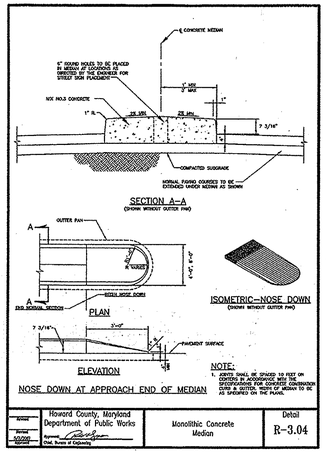
STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

SDP-08-075

P:\Projects\05115\01-MDC-XXXX-MDC-792 SDP-2014-01-23 Bid Set\2015-1-11-10 Plans III Redline Submission\Chsan set\10-12 SITE PLANS.dwg, 1/21/2016 10:20:23 AM, johnhelton, 1:1, christopher consultants, ltd.

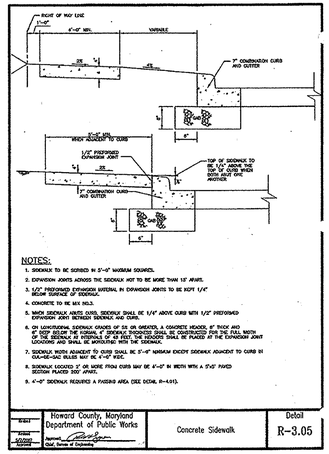


Howard County, Maryland Department of Public Works	CURB AND GUTTER 7" Transition to Modified & Nose Down	Detail R-3.02



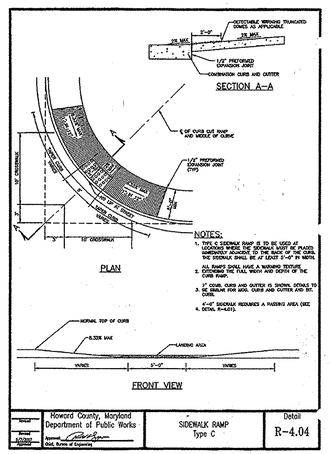
NOTE:
1. CURVES SHALL BE SPACED TO FIT ON PAVING IN ACCORDANCE WITH THE SPECIFICATIONS FOR CONCRETE CONSTRUCTION CURB & GUTTER. WIDTH OF MEDIAN TO BE AS SPECIFIED ON THE PLANS.

Howard County, Maryland Department of Public Works	Monolithic Concrete Median	Detail R-3.04



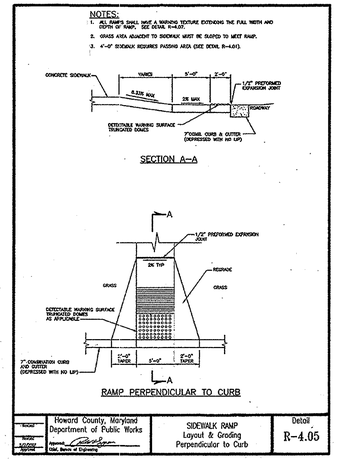
NOTES:
1. SIDEWALK TO BE SCORED IN 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK MAY TO BE MORE THAN 10' APART.
3. 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
4. CONCRETE TO BE MIX NO.3.
5. WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
6. ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 8" THICK AND 6" DEEP SHALL BE CONSTRUCTED ACROSS THE SIDEWALK AT 25' INTERVALS. THE CONTRACTOR SHALL PROVIDE FOR ADDITIONAL HEADERS AT LOCATIONS AS DIRECTED BY THE ENGINEER. SHALL BE PLACED IN THE EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.
7. TOOLED JOINTS ADJACENT TO CURB SHALL BE 3'-0" MAXIMUM EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0" WIDE.
8. SIDEWALK LOCATED 3' OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5'-0" PAVED SECTION PLACED EVERY 40'±FEET.
9. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

Howard County, Maryland Department of Public Works	Concrete Sidewalk	Detail R-3.05

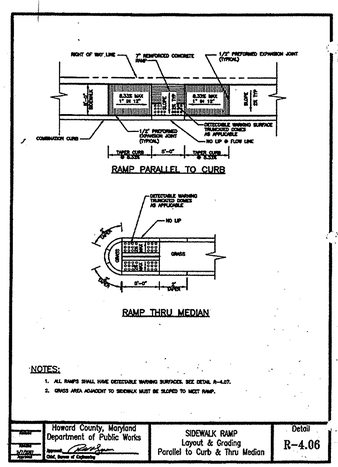


NOTES:
1. TYPE C SIDEWALK RAMP IS TO BE USED AT INTERSECTIONS WHERE THE SIDEWALK IS PLACED AT THE BACK OF CURB. WHERE SIDEWALK IS PLACED AT THE BACK OF THE CURB, THE SIDEWALK SHALL BE AT LEAST 5'-0" IN WIDTH.
2. ALL RAMPS SHALL HAVE A NONSKID TEXTURE. EXTENDING THE FULL WIDTH AND DEPTH OF THE CURB RAMP.
3. 7" CURB, CURB AND GUTTER OR SIGNAL DETAILS TO BE USED ADJACENT TO ROAD. CURB AND GUTTER ARE SHOWN.
4. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

Howard County, Maryland Department of Public Works	SIDEWALK RAMP Type C	Detail R-4.04

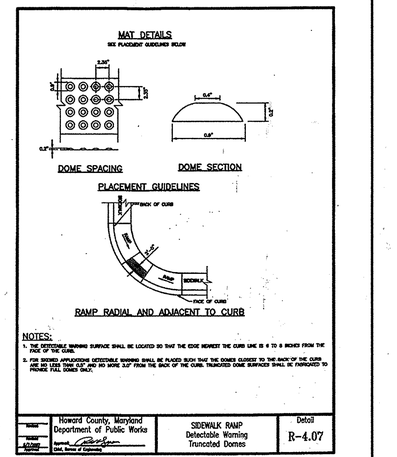


Howard County, Maryland Department of Public Works	SIDEWALK RAMP Layout & Grading Perpendicular to Curb	Detail R-4.05



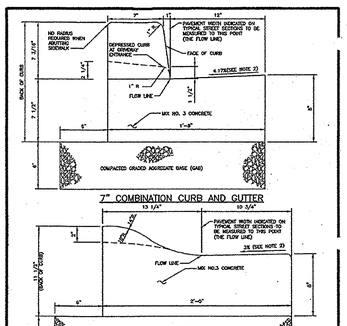
NOTES:
1. ALL RAMPS SHALL HAVE DETECTABLE WARNING SURFACES. SEE DETAIL R-4.07.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.

Howard County, Maryland Department of Public Works	SIDEWALK RAMP Layout & Grading Parallel to Curb & Thru Median	Detail R-4.06



NOTES:
1. THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
2. FOR SIGNED APPLICATIONS DETECTABLE WARNING SHALL BE PLACED SUCH THAT THE DOMES CLOSEST TO THE BACK OF THE CURB ARE NO LESS THAN 2.0" AND NO MORE 2.2" FROM THE BACK OF THE CURB. TRUNCATED DOME SURFACES SHALL BE PERPENDICULAR TO PRIMARY FLOW DOMES ONLY.

Howard County, Maryland Department of Public Works	SIDEWALK RAMP Detectable Warning Truncated Domes	Detail R-4.07



NOTE:
1. A SEPARATE OUTLET PIPE SHALL HAVE A GUTTER SLOPE OF 4.17% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS SEPARATE GRADIENT IS UNOBTAINABLE.
2. OUTLET PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. WHERE CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MOUNTED CURB & GUTTER.
3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.
4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

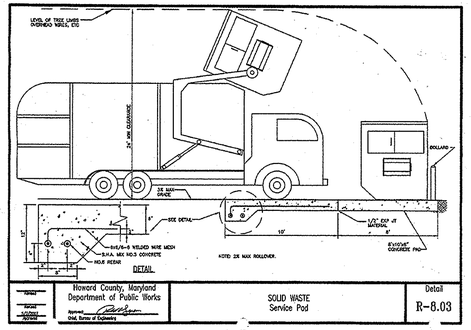
Howard County, Maryland Department of Public Works	CURB AND GUTTER 7" & Modified	Detail R-3.01

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥ 7	3 TO <5	5 TO <7	≥ 7
		PAVEMENT MATERIAL (INCHES)	NON HMA WITH CAB			HMA WITH CONSTRUCTED CAB		
P-1	PARKING BAYS; RESIDENTIAL AND NON-RESIDENTIAL, PARKING DRIVE AISLES; RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	HMA SUBSURFACE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (12A1)	1.0	1.5	1.5	1.5	1.5	1.5
		HMA SUBSURFACE INTERMEDIATE SURFACE (NL)	NL	NL	NL	NL	NL	NL
		HMA SUBSURFACE BASE 19.0 MM, PG 64-22, LEVEL 1 (12A1)	2.0	2.0	2.0	3.5	3.0	2.5
		GRADED AGGREGATE BASE (GAB)	8.0	7.0	6.0	4.0	4.0	4.0
P-2	PARKING DRIVE AISLES; RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY; LOCAL ROADS; ACCESS PLACE, ACCESS STREET; COLLECTOR; RESIDENTIAL	HMA SUBSURFACE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (12A1)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUBSURFACE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (12A1)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUBSURFACE BASE 19.0 MM, PG 64-22, LEVEL 1 (12A1)	2.0	2.0	2.0	3.5	3.0	2.5
		GRADED AGGREGATE BASE (GAB)	8.0	6.0	3.0	4.0	4.0	4.0
P-3	PARKING DRIVE AISLES; RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY; LOCAL ROADS; ACCESS PLACE, ACCESS STREET; COLLECTOR; RESIDENTIAL	HMA SUBSURFACE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (12A1)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUBSURFACE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (12A1)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUBSURFACE BASE 19.0 MM, PG 64-22, LEVEL 1 (12A1)	2.0	2.0	2.0	3.5	3.0	2.5
		GRADED AGGREGATE BASE (GAB)	8.0	6.0	3.0	4.0	4.0	4.0
P-4	MINOR COLLECTORS; MAJOR COLLECTORS	HMA SUBSURFACE FINAL SURFACE 12.5 MM, PG 64-22, LEVEL 2 (12A2)	2.0	2.0	2.0	2.0	2.0	2.0
		HMA SUBSURFACE INTERMEDIATE SURFACE 12.5 MM, PG 64-22, LEVEL 2 (12A2)	2.0	2.0	2.0	2.0	2.0	2.0
		HMA SUBSURFACE BASE 19.0 MM, PG 64-22, LEVEL 1 (12A1)	4.0	4.0	3.0	6.0	5.0	4.0
		GRADED AGGREGATE BASE (GAB)	7.0	7.0	6.0	6.0	5.0	5.0

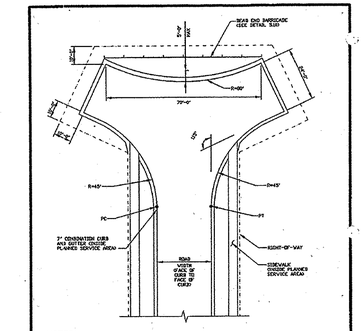
HMA SUBSURFACE FINAL SURFACE
HMA SUBSURFACE INTERMEDIATE SURFACE
HMA SUBSURFACE BASE
GRADED AGGREGATE BASE (GAB)

Notes:
1) HEAVY TRUCKS ARE DEFINED AS TRUCKS WITH SIX (6) WHEELS OR MORE INCLUDING GARBAGE TRUCKS.
2) HMA SUBSURFACE LAYERS SHALL BE PLACED IN APPROPRIATE COMPACTED 1/4" THICKNESS: 19.0 MM BASE (2.0" MIN TO 4.0" MAX), 12.5 MM SURFACE (1.0" MIN TO 2.0" MAX), AND 9.5 MM SURFACE (1.0" MIN TO 2.0" MAX).
3) ALL HMA SUBSURFACE LAYERS SHALL BE PLACED IN ONE LIFT WHERE THICKNESS ALLOWS.
4) THE INTERMEDIATE SURFACE COURSE LAYER MUST BE PLACED WITHIN 6 MONTHS OF PLACEMENT OF BASE COURSE, AND AS REQUIRED PRIOR TO SUBDIVISION, COMPLETION INSPECTION AND BOND REDUCTION.
5) IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR CONSTRUCTION/STAGING, ENTRANCE APPROVED WITHIN THE SUBDIVISION MAY BE CONSTRUCTED WITH ADDITIONAL BASE COURSE THICKNESS OF 1.0" MINIMUM. ADDITIONAL CURVES CAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE COURSE LAYER(S).
6) THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CBR VALUE FOR EACH ROADWAY.

Howard County, Maryland Department of Public Works	PAVING SECTIONS P-1 to P-4 SEE SHEET 51A FOR PAVING PLAN	Detail R-2.01

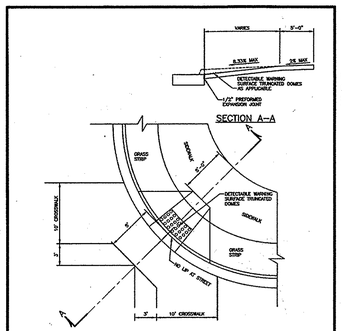


Howard County, Maryland Department of Public Works	SOLID WASTE Service Pod	Detail R-8.03



NOTES:
1. PERMANENT Y TURN-AROUND SHOULD ONLY BE INSTALLED ON RESIDENTIAL STREETS WITH LESS THAN 200 ADT.
2. THE LENGTH OF THE BARRICADE IS TO EQUAL THE WIDTH OF THE END OF THE ROADWAY PAVING.
3. INSTALL SIGNS R7-1(1) "NO PARKING", R7-4(1) "NO STOPPING" AS DIRECTED BY DPW.
4. INSTALL SIGNS OM1-120 "END OF ROAD MARKER" BEHIND BARRICADE. SIGNS TO BE INSTALLED 12' APART. MINIMUM 2 SIGNS PER Y TURN-AROUND.
5. DEAD END BARRICADE (TYP A OR B AS DIRECTED BY DPW) SEE DETAIL R-5.09 FOR PLACEMENT OF BARRICADE.
6. SEE DETAIL R-4.01 FOR SIDEWALK RAMP LAYOUT. 4' SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

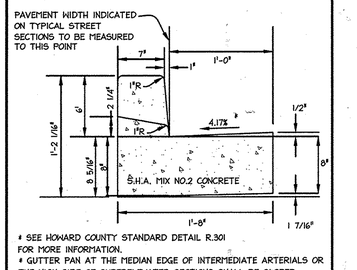
Howard County, Maryland Department of Public Works	Y TURN-AROUND Permanent (<200 ADT)	Detail R-5.07



NOTES:
1. ALL RAMPS SHALL HAVE DETECTABLE WARNING SURFACE. SEE DETAIL R-4.07.
2. GRASS AREA ADJACENT TO SIDEWALK SHALL BE SLOPED TO MEET RAMP.

Howard County, Maryland Department of Public Works	SIDEWALK RAMP Type B Single Ramp	Detail R-4.02

NOTE:
ANSI STANDARD DETAILS PROVIDED TO SUPPLEMENT HO.CO. AND SHA DETAILS AND ENSURE THAT ADA REGULATIONS ARE MET. WHERE CONFLICTS ARISE ANSI STANDARDS DICTATE.



SEE HOWARD COUNTY STANDARD DETAIL R.301 FOR MORE INFORMATION.
GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTIONS AS THE PAVEMENT.

STANDARD 6" COMBINATION C&B - PRIVATE
N.T.S.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

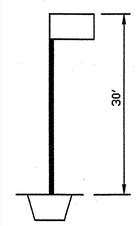
HANDICAP PARKING SIGN
R7-8
NOT TO SCALE

NO PARKING SIGN

STOP SIGN

VAN ACCESSIBLE HANDICAP PARKING SIGN
R7-8
NOT TO SCALE

TOW-AWAY ZONE SIGN

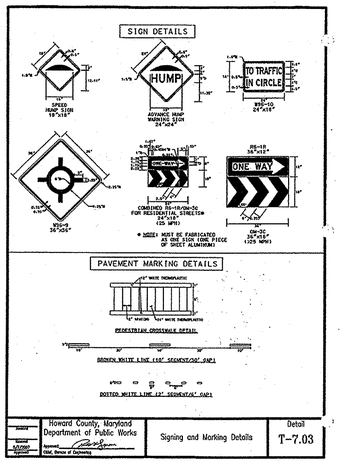


LIGHT POLE DETAIL
N.T.S.

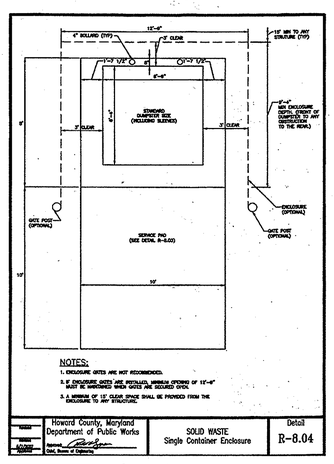
NOTES:
1. DISTANCE FROM GROUND TO BOTTOM OF SIGN SHALL BE 7'.
2. SEE HANDICAPPED PARKING SPACE DETAIL THIS SHEET FOR LOCATION OF HANDICAP SIGN.
3. SIGNS SHALL CONFORM TO CURRENT ADA CRITERIA.

SIGN COLORS:
LETTERS AND BORDER - GREEN
WHITE H.C. SYMBOLS ON BLUE BACKGROUND
BACKGROUND - WHITE

HANDICAP PARKING SPACE DETAIL
N.T.S.

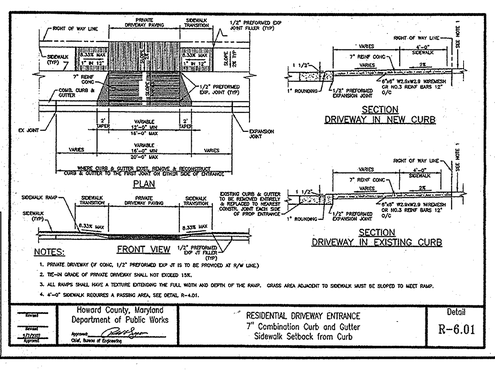


Howard County, Maryland Department of Public Works	Signing and Marking Details	Detail T-7.03



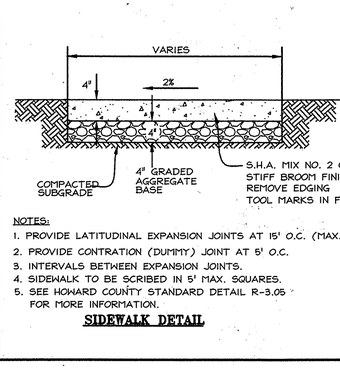
NOTES:
1. ENCLOSURE GATES ARE NOT RECOMMENDED.
2. IF ENCLOSURE GATES ARE INSTALLED, MINIMUM OPENING OF 12'-0" MUST BE MAINTAINED WHEN GATES ARE SECURED OPEN.
3. A MINIMUM OF 12' CLEAR SPACE SHALL BE PROVIDED FROM THE ENCLOSURE TO ANY STRUCTURE.

Howard County, Maryland Department of Public Works	SOLID WASTE Single Container Enclosure	Detail R-8.04



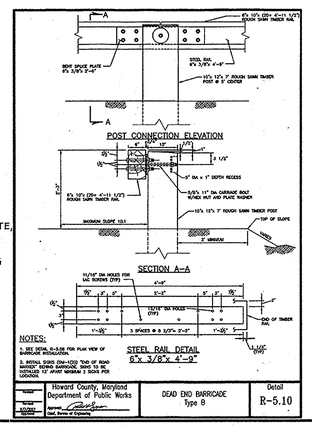
NOTES:
1. PRIVATE DRIVEWAY OF CONC. 1/2" PREFORMED EXP JT IS TO BE PROVIDED AT R/W LINE.)
2. TIE-IN GRADE OF PRIVATE DRIVEWAY SHALL NOT EXCEED 15%.
3. ALL RAMPS SHALL HAVE A TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.
4. 4'-0" SIDEWALK REQUIRES A PASSING AREA, SEE DETAIL R-4.01.

Howard County, Maryland Department of Public Works	RESIDENTIAL DRIVEWAY ENTRANCE 7" Combination Curb and Gutter Sidewalk Setback from Curb	Detail R-6.01



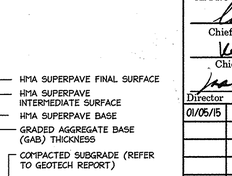
NOTES:
1. PROVIDE LATITUDINAL EXPANSION JOINTS AT 15' O.C. (MAX.)
2. PROVIDE CONTRATION (DUMMY) JOINT AT 5' O.C.
3. INTERVALS BETWEEN EXPANSION JOINTS.
4. SIDEWALK TO BE SCRIBED IN 5' MAX. SQUARES.
5. SEE HOWARD COUNTY STANDARD DETAIL R-3.05 FOR MORE INFORMATION.

SIDEWALK DETAIL

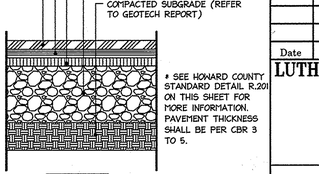


NOTES:
1. SEE DETAIL R-5.09 FOR PLAN VIEW OF BARRICADE INSTALLATION.
2. INSTALL SIGNS OM1-120 "END OF ROAD MARKER" BEHIND BARRICADE. SIGNS TO BE INSTALLED 12' APART MINIMUM 2 SIGNS PER LOCATION.

Howard County, Maryland Department of Public Works	DEAD END BARRICADE Type B	Detail R-5.10



STANDARD LIGHT DUTY PAVING SECTION
N.T.S.
SEE SHEET 51A FOR PAVING PLAN



SEE SHEET 51A FOR PAVING PLAN
STANDARD HEAVY DUTY PAVING SECTION
N.T.S.

01/05/2015
DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — 01-05-2015 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15
Chief, Division of Land Development — Date 2-26-15
Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
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christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8000 · metro 301.861.0145 · fax 410.872.8003

PERMIT INFORMATION CHART

PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02
WATER CODE		SEWER CODE		
550 (TG 700)		F07		

TITLE:

SITE DETAILS

DESIGN: DAM	SCALE: NOT TO SCALE	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	13 OF 77

SITE DETAILS

Surface Mounted Barriers, Parking Lot Bollard, Parking Space Barriers — Page 1 of 2

BOLLARD DETAIL
NOT TO SCALE

TRAFFICGUARD DIRECT manufactured in the USA

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Securing Facilities, Property & People from Unwanted Vehicle Intrusion

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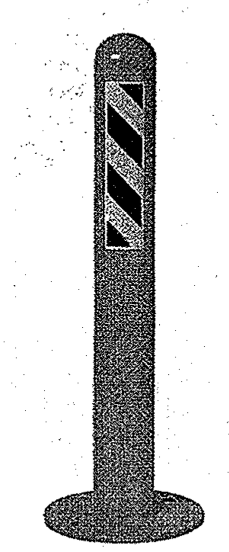
- SINGLE POST
- DOUBLE POST
- DOUBLE POST SCREW LOCK
- ROUND POST
- REMOVABLE
- LOCKING
- NON-LOCKING
- PARKING
- REMOVABLE
- COLLAPSIBLE
- FIXED
- EMBEDDED
- *SURFACE MOUNTED*

‹Back | Home — Home / Products / Surface mounted / Trafficguard® surface mounted (rfp4536rs)

TRAFFICGUARD® SURFACE MOUNTED [RFP4536RS] BOLLARDS



Benefits
Specifications
Read More
- All TrafficGuard products feature heavy duty USA steel construction.
- 36" tall, 4.5" OD
- .237" wall thickness
- 4 - 3/4" anchor holes allow for quick installation
- High visibility safety yellow
- 3M reflective labels
- All surfaces are primed with rust & corrosion resistant, zinc rich primer w/5,000 hour salt spray performance
- Standard finish, TGIC polyester outdoor finish RAL1028 yellow
- Easy to install

Your Name*
Your Email Address*
Your Phone Number
Company
Enter Verification Code*
REGISTER

Installed in the ground using secure concrete anchors of your choice in a finished grade, our surface-mounted fixed bollards provide solid protection for building structures and equipment from devastating vehicle damage. These traffic bollards are made of steel to provide heavy-duty security for any building or parking lot, while their glossy yellow finish will deter unauthorized vehicles from approaching them. At 36", these 4.5"-wide bollards are perfectly visible while remaining unobtrusive.

Benefits
- Permanent fixed bollards made with USA steel
- Easy installation
- High visibility to drivers
- Rust and corrosion resistant

http://www.trafficguard.net/fixed/surfacemounted/trafficguardsurfacemountedrfp4536rs/ 2/10/2014

Surface Mounted Barriers, Parking Lot Bollard, Parking Space Barriers — Page 2 of 2

- Anchor holes for faster, easier installation
- 36" tall fixed bollards each with an outer diameter of 4.5"
- Wall thickness of .237"
- 3M reflective tape
- Zinc rich rust & corrosion resistant primer with 5,000 hour salt spray performance
- TGIC yellow polyester finish
- 4 anchor holes measuring ¾"

Specifications
- 36" tall fixed bollards each with an outer diameter of 4.5"
- Wall thickness of .237"
- 3M reflective tape
- Zinc rich rust & corrosion resistant primer with 5,000 hour salt spray performance
- TGIC yellow polyester finish
- 4 7/8" anchor holes accept 3/4" anchor bolts

Accessories

INDUSTRY APPLICATIONS: Airport Bollards, Bike Path Bollards, Bus Bollards, Cemetery Bollards, Corporate Bollards, Dock Bollards, Driveway Barriers, Emergency Bollards, Financial Institutions, Golf Course Bollards, Government Buildings, Highway Bollards, Landscape Bollards, Marina Bollards, Marine Bollards, Park Bollards, Parking Lot Bollards, Pedestrian Bridges, Pier Bollards, Public Works Bollards, Ram Raiding Bollards, Residential Areas, Road & Street Bollards, School Bollards, Ship Bollards, Stadium Bollards, Store Front Bollards, Streetscape Bollards, University Bollards, Warehouse Bollards

PRODUCTS: Collapsible, Single post, Double post, Double post screw lock, Round post, Removable, Locking, Non-locking, Parking, Removable, Collapsible, Fixed, Embedded, Surface mounted

NEWS & RESOURCES: Articles, Blog, Bollard News, Links, Faq, Warranty, Buyers Guide, Installation Instructions

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13 Door Cluster Mailbox (Includes Pedestal) by Florence Manufacturing - Black — Page 1 of 2

MAILBOX DETAIL
NOT TO SCALE

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Item# 1570-13BLK
Regular Price $1,280.00
Sale Price & Free Shipping: **$1,054.50**
Decals or Engraving: -Select One-
Numbering: -Select One-
Custom Numbers/Letters (use comma to separate, max 6 chars.):
Availability: Usually ships the next business day
Quantity: 1
Add To Cart

(Click image above for an enlarged view)
- USPS Approved
- ISO 9001 Certified
- Allows postal carriers easy access to all mail slots
- Constructed of thick, welded, heavy-gauge no-rust aluminum and stainless steel.
- 4 hook latches on each master door provide unmatched protection against vandalism
- Pedestal included
- Service for up to 13 tenants and includes 1 shared parcel locker

Includes: Mailbox, Pedestal, Number Decals #1-13 & 1P, Cam Locks, and (3) Keys per Tenant Box

Dimensions:
(Overall):62" High x 30 1/2" Wide x 17 7/8" Deep, 167 lbs.
(13 Standard Compartments): 5" High x 12" Wide x 15" Deep
(1 Outgoing Mail Compartment): 3 1/4" High x 12 7/8" Wide x 15" Deep
(1 Parcel Compartment):
(1) 10 1/4" High x 12 7/8" Wide x 15" Deep

Warranty: 5 Year Manufacturers
USPS Approved: YES
Installation: Available for 6+ Units

Standard Features:
- Robotically welded cabinet and hood seams.
- Rugged, weather resistant powder coat finish resists scratching and vandalism.
- Constructed of 300 series stainless steel and aircraft aluminum, including aluminum pedestal.
- Master front loading door designed to prevent prying with interlocking overlap seams.
- Solid aluminum mail slot frame, similar to Florence exclusive HSCBU design, protects adjacent customer compartment and collection compartment.
- Silver adhesive metal placards with black numbers 1-13 & 1P.

Delivery: Freight - Leaves warehouse in 1-2 business days. Additional 1-2 weeks for custom engraving

Decorative Accessories View Here

Commercial - USPS Delivery | Commercial - Private Delivery | Residential Mailboxes | Florence Cluster Box Units | Salsbury Cluster Box Units | Vertical Mailboxes | 4B+ Horizontal Mailboxes | 4C Mailboxes | Large Locking Mailboxes | High Security Cluster Boxes | Mailbox Accessories | Americana Mailboxes | Brass Mailboxes | Outdoor Parcel Lockers | Single Post Mailboxes | Multi Unit Post Mailboxes | Multi-Unit Wall Mailboxes | Column Mailboxes | Florence Mailboxes

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http://www.mailboxemporium.com/black7.html 2/10/2014

12 Door Cluster Mailbox (Includes Pedestal) by Florence Manufacturing - Black — Page 1 of 2

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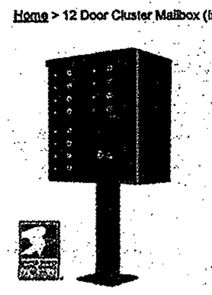

Item# 1570-12BLK
Regular Price $1,235.00
Sale Price & Free Shipping: **$1,036.00**
Decals or Engraving: -Select One-
Numbering: -Select One-
Custom Numbers/Letters (use comma to separate, max 6 chars.):
Availability: Usually ships the next business day
Quantity: 1
Add To Cart

(Click image above for an enlarged view)
- USPS Approved
- ISO 9001 Certified
- Allows postal carriers easy access to all mail slots
- Constructed of thick, welded, heavy-gauge no-rust aluminum and stainless steel.
- 4 hook latches on each master door provide unmatched protection against vandalism
- Pedestal included
- Service for up to 12 tenants and includes 1 shared parcel locker

Includes: Mailbox, Pedestal, Number Decals #1-12 & 1P, Cam Locks, and (3) Keys per Tenant Box

Dimensions:
(Overall:) 62" High x 30-1/2" Wide x 17-7/8" Deep, 144 lbs.
(12 Standard Compartments): 3" High x 12-7/8" Wide x 16-3/4" Deep
(1 Outgoing Mail Compartment): 3" High x 12 7/8" Wide x 16 3/4" Deep
(Parcel Compartment): 10 1/4" High x 12 7/8" Wide x 16 3/4" Deep

Warranty: 5 Year Manufacturers
USPS Approved: YES
Installation: Available for 6+ Units

Standard Features:
Robotically welded cabinet and hood seams.
Rugged, weather resistant powder coat finish resists scratching and vandalism.
Constructed of 300 series stainless steel and aircraft aluminum, including aluminum pedestal.
Master front loading door designed to prevent prying with interlocking overlap seams.
Solid aluminum mail slot frame, similar to Florence exclusive HSCBU design, protects adjacent customer compartment and collection compartment.
Silver adhesive metal placards with black numbers 1-12 & 1P.

Delivery: Freight - Leaves warehouse in 1-2 business days. Additional 1-2 weeks for custom engraving

Decorative Accessories View Here

Commercial - USPS Delivery | Commercial - Private Delivery | Residential Mailboxes | Florence Cluster Box Units | Salsbury Cluster Box Units | Vertical Mailboxes | 4B+ Horizontal Mailboxes | 4C Mailboxes | Large Locking Mailboxes | High Security Cluster Boxes | Mailbox Accessories | Americana Mailboxes | Brass Mailboxes | Outdoor Parcel Lockers | Single Post Mailboxes | Multi Unit Post Mailboxes | Multi-Unit Wall Mailboxes | Column Mailboxes | Florence Mailboxes

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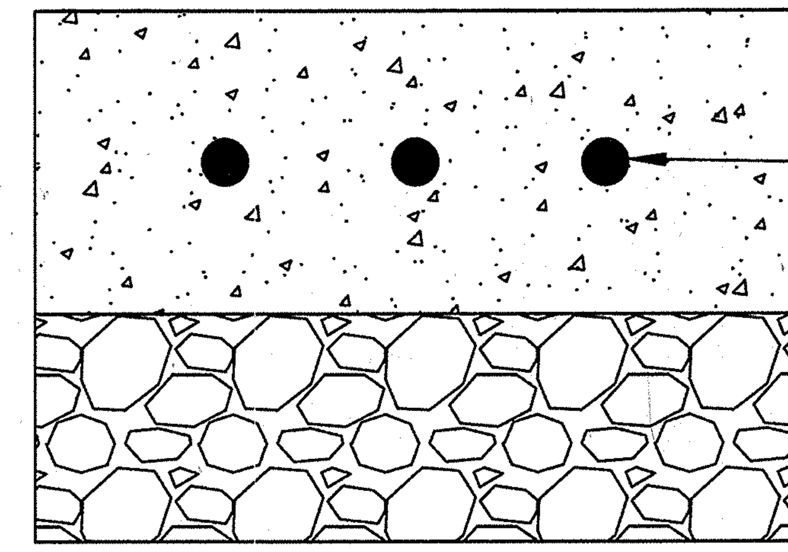
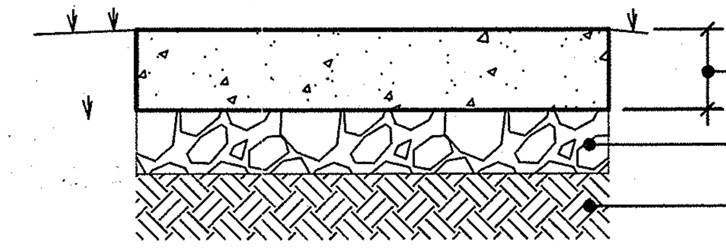
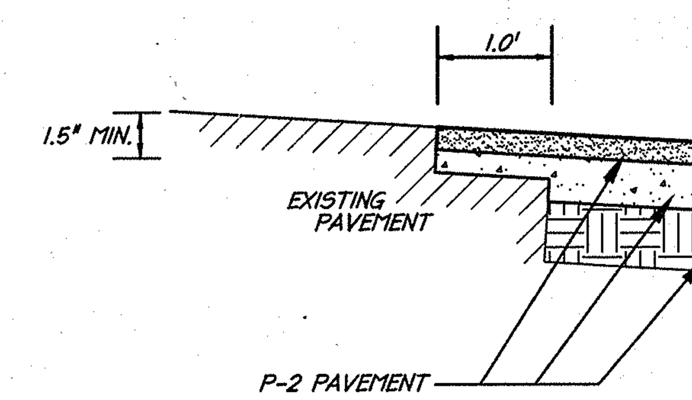


LOADING DOCK CONCRETE SECTION (NTS)



CONCRETE PAD DETAIL - TRANSFORMER/MAILBOX
NOT TO SCALE



TYPICAL PAVEMENT WEDGING DETAIL (WP-2)
(TO BE USED FOR PAVEMENT ADDITIONS)
NOT TO SCALE

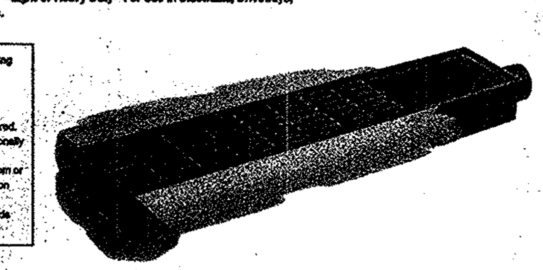
■ Note: The suggested forming procedures shown in this catalog are general suggestions to qualified professionals, and may not be appropriate for every installation.

R-4995 – R-4996 Type M Trench Frame with Solid or Grated Cover Flap and Flush Valve Frame, Lid (OR APPROVED EQUAL)

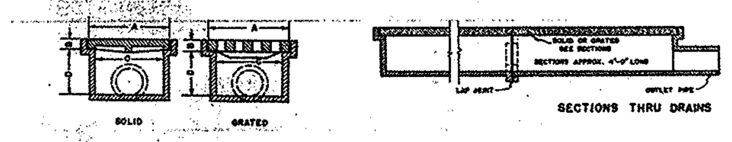
Heavy Duty

Cast Iron Trench Assemblies—Light or Heavy Duty—For Use in Sidewalks, Driveways, Garages, Loading Docks, etc.

Read Carefully Before Ordering
Specify:
1. Complete catalog number.
2. Light or heavy duty.
3. Overall length of cover required.
4. Lid solid, flat grated, or diagonally barred convex grate.
5. Location of outlet, side, bottom or end (give dimensional location and pipe size).
6. Whether one end or both ends are to be open or closed.



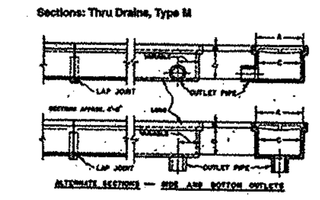
Illustrating Type M frame with grated cover. Standard with 4-inch outside caulk outlet. Can be equipped for inside caulk if specified.



Trench covers are used over areas requiring long drainage assemblies. Can be supplied in a variety of sizes and lengths to meet special needs. For trenches of irregular pattern, arrangements can be made to furnish cover to fit.

Standard 4-inch outlet at end of drain. Special size outlets are available on special order. Side and bottom outlets optional and furnished only when specified.

Sections: Thru Drains, Type M

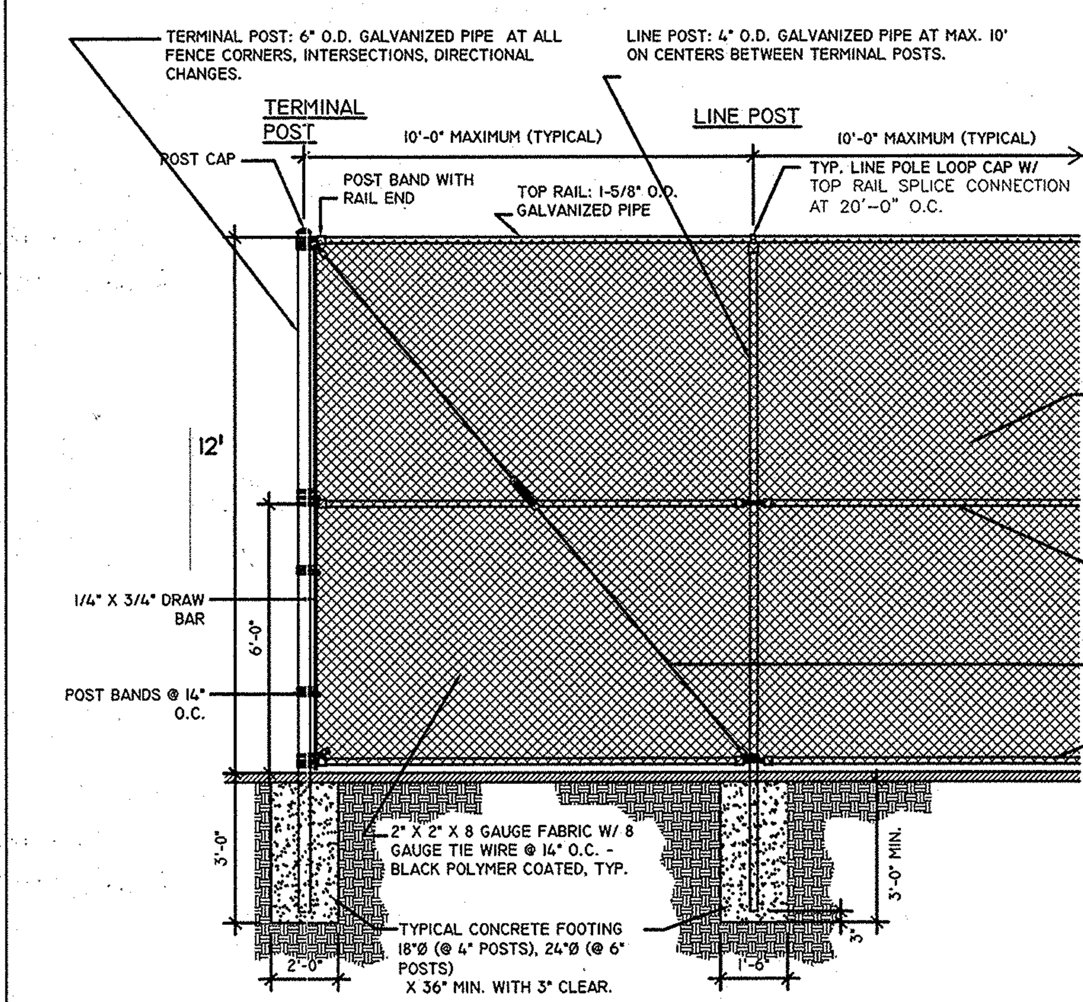


Catalog No.	Description	A	B	C	D	Length
Standard Sizes—Light Duty						
R-4995-A1**	with grated cover	11½	3/4	10	6½	as ordered
R-4995-A2*	with grated cover	7	3/4	5	4½	as ordered
R-4995-B1	with solid cover	11½	3/4	10	6½	as ordered
R-4995-B2	with solid cover	7	3/4	5	4½	as ordered
Standard Sizes—Heavy Duty						
R-4996-A1**	with grated cover	11½	1¼	10	6	as ordered
R-4996-A2*	with grated cover	7	1¼	5	4½	as ordered
R-4996-B1	with solid cover	11½	1¼	10	6	as ordered
R-4996-B2	with solid cover	7	1¼	5	4½	as ordered

Above Standard Frames made in 4 ft. sections, covers in 2 ft. lengths.
*Available with Type B grate only.
**Also available with type P grate.

TRENCH CASTINGS 9 — NEENAH FOUNDRY 271

CHAIN LINK FENCE DETAIL
NOT TO SCALE



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — No. 20587 — REGISTERED PROFESSIONAL ENGINEER

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 2.20.15
Chief, Division of Land Development	Date 2-26-15
Director	Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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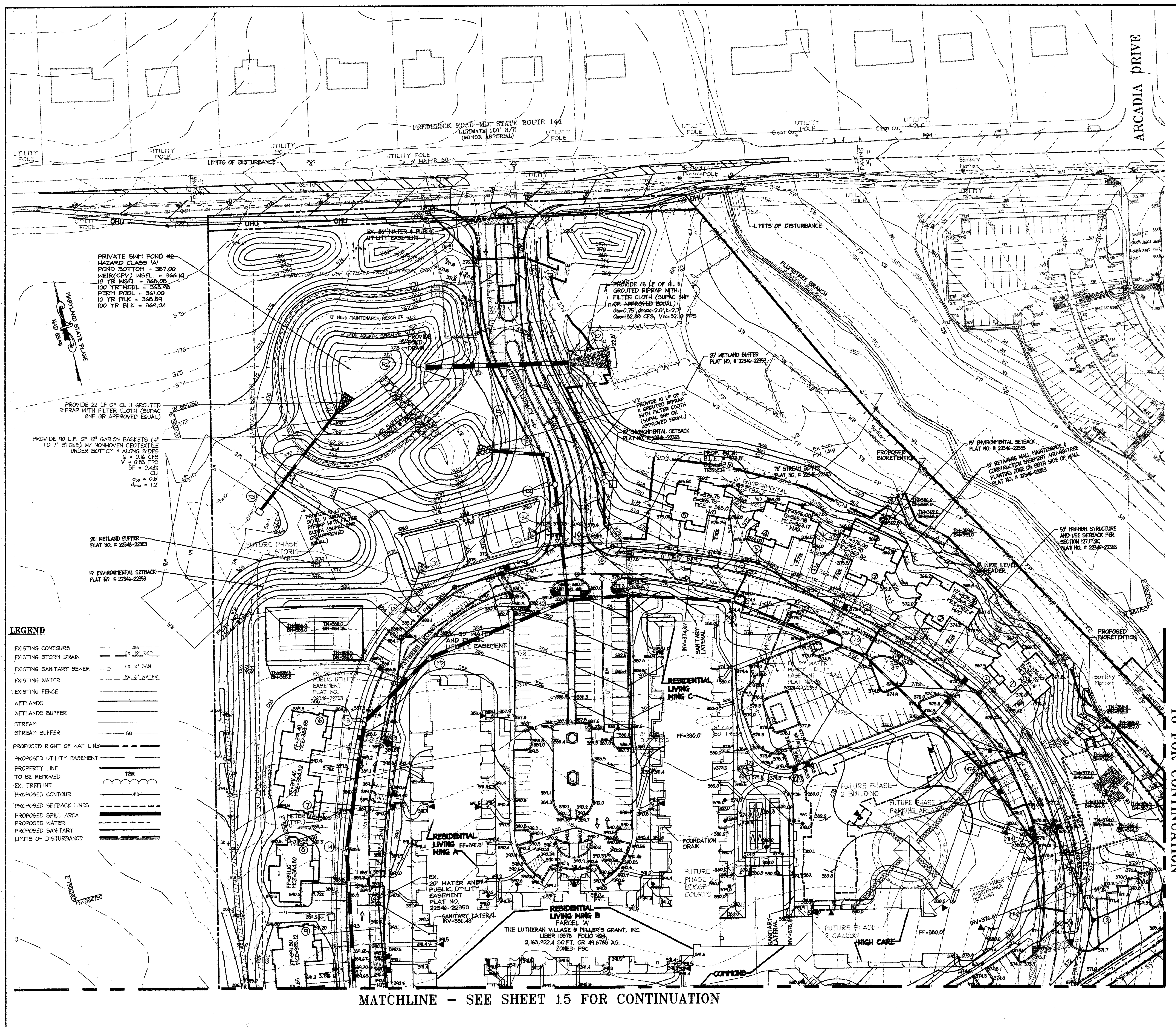
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.			CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A			602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE: **SITE DETAILS**

DESIGN: DAM	SCALE: NOT TO SCALE	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	**13A OF 77**
CHECKED: ENJ	APPROVED: WRZ	



MATCHLINE – SEE SHEET 15 FOR CONTINUATION

MATCHLINE – SEE SHEET 16 FOR CONTINUATION

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE 8/6/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

NOTES:

1. POND #1 IS CLASSIFICATION P-3 AND HAZARD CLASS 'B'
   POND #2 IS CLASSIFICATION P-3 AND HAZARD CLASS 'A'
2. TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT.
3. SWM FACILITY SHALL BE PRIVATELY OWNED BY THE PROPERTY OWNER. THE OWNER SHALL PERFORM MOWING/TRASH REMOVAL MAINTENANCE.
4. ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH / CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL, GL, CH, OR SC. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.
5. SHC'S SHALL BE 2" IN DIAMETER OR OTHERWISE INDICATED.
6. WHC'S SHALL BE 1.5" LATERALS WITH 1" METER VAULTS.
7. REFER TO SHEET 62 FOR WALL DETAILS AND GRADES.
8. ALL BUILDING CONNECTIONS FOR WATER AND STORM TO BE 36" BELOW THE FINISHED FLOOR ELEVATION.

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 8/24/16
PRINT NAME BELOW SIGNATURE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 8/6/16
PRINT NAME BELOW SIGNATURE

FOR THE HOWARD SOIL CONSERVATION DISTRICT:

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/20/16

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 9-26-16
Chief, Division of Land Development — Date 10-5-16
Director — Date 10-6-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN – REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN – REVISED GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN – POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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7/25/2016
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — PROFESSIONAL ENGINEER
8/6/16

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

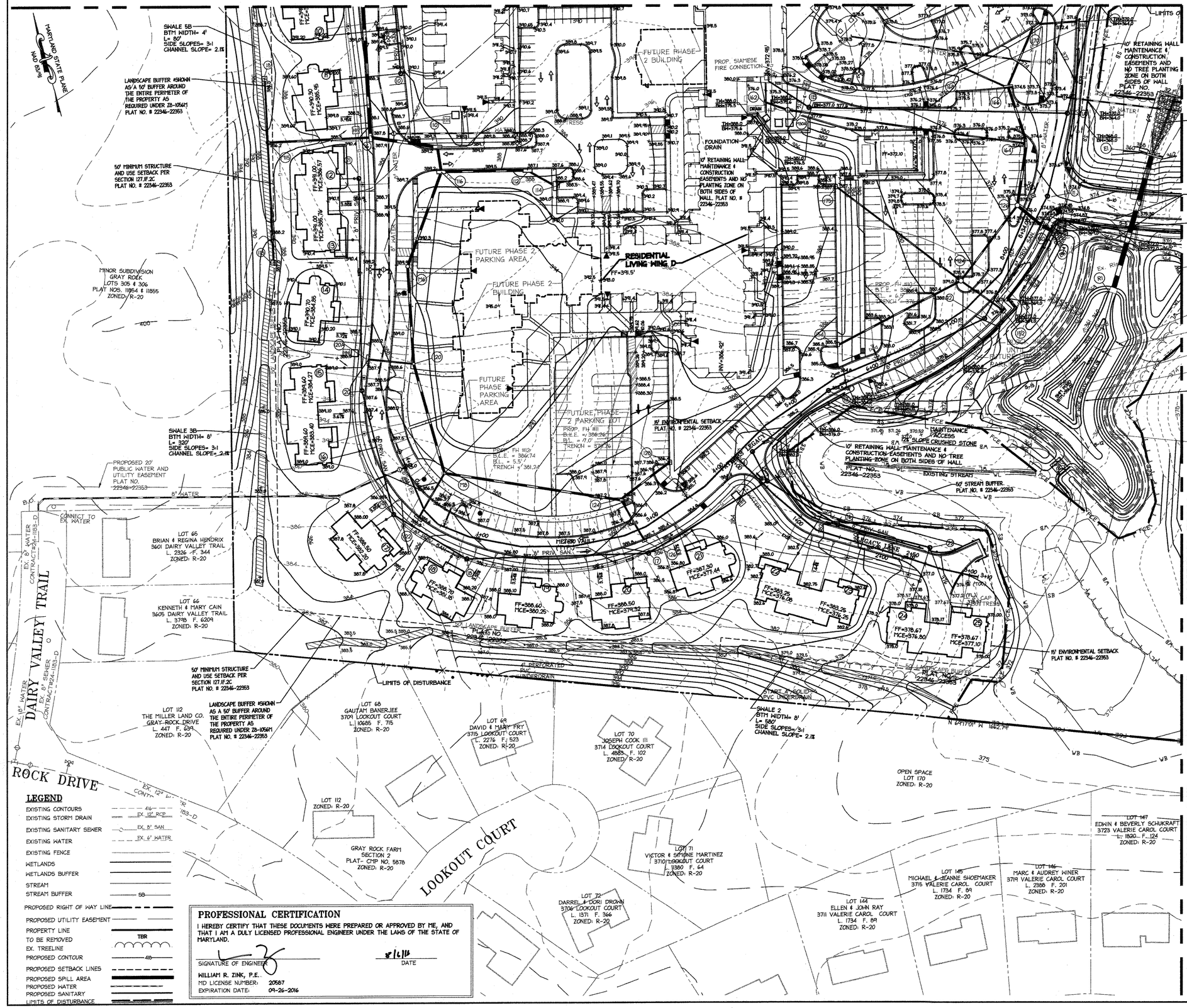
WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
GRADING AND UTILITY PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	14 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

MATCHLINE – SEE SHEET 14 FOR CONTINUATION



NOTES:

1. POND #1 IS CLASSIFICATION P-3 AND HAZARD CLASS 'B' POND #2 IS CLASSIFICATION P-3 AND HAZARD CLASS 'A'
2. TREES, SHRUBS AND OTHER WOODY VEGETATION NOT ALLOWED WITHIN TWENTY-FIVE (25) FEET OF THE RISER STRUCTURE AND NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT.
3. SWM FACILITY SHALL BE PRIVATELY OWNED BY THE PROPERTY OWNER. THE OWNER SHALL PERFORM MOWING/TRASH REMOVAL MAINTENANCE.
4. ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH / CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL, GL, CH, OR SC. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.
5. SHC'S SHALL BE 2" IN DIAMETER OR OTHERWISE INDICATED.
6. WHC'S SHALL BE 1.5" LATERALS WITH 1" METER VAULTS.
7. REFER TO SHEET 62-64 FOR WALL DETAILS AND GRADES.
8. ALL BUILDING CONNECTIONS FOR WATER AND STORM TO BE 36" BELOW THE FINISHED FLOOR ELEVATION.

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF OWNER — DATE 8/29/16
PRINT NAME BELOW SIGNATURE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 8/16/16
PRINT NAME BELOW SIGNATURE

FOR THE HOWARD SOIL CONSERVATION DISTRICT:

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/20/16

PLANS APPROVED BY Charles H. Wahl AUG 18 2016 Dept. of Public Works

Chief, Bureau of Highways

Charles H. Wahl

APPROVED PLANNING BOARD OF HOWARD COUNTY DATE MARCH 7, 2013

APPROVED MARYLAND DEPARTMENT OF ENVIRONMENT SMALL POND DAM SAFETY DATE

MDE DAM SAFETY TRACKING AND PERMIT NUMBER: 811-OB-0065R

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 9-21-16

Chief, Division of Land Development — Date 10-5-16

Director — Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED
		GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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7/25/2016 DATE

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410.872.8889 - metro 301.861.0146 - fax 410.872.8882

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

GRADING AND UTILITY PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	15 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

LEGEND

EXISTING CONTOURS 416
EXISTING STORM DRAIN EX. 12" RCP
EXISTING SANITARY SEWER EX. 8" SAN
EXISTING WATER EX. 6" WATER
EXISTING FENCE
WETLANDS
WETLANDS BUFFER
STREAM
STREAM BUFFER SB
PROPOSED RIGHT OF WAY LINE
PROPOSED UTILITY EASEMENT
PROPERTY LINE
TO BE REMOVED TBR
EX. TREELINE
PROPOSED CONTOUR 418
PROPOSED SETBACK LINES
PROPOSED SPILL AREA
PROPOSED WATER
PROPOSED SANITARY
LIMITS OF DISTURBANCE

PROFESSIONAL CERTIFICATION

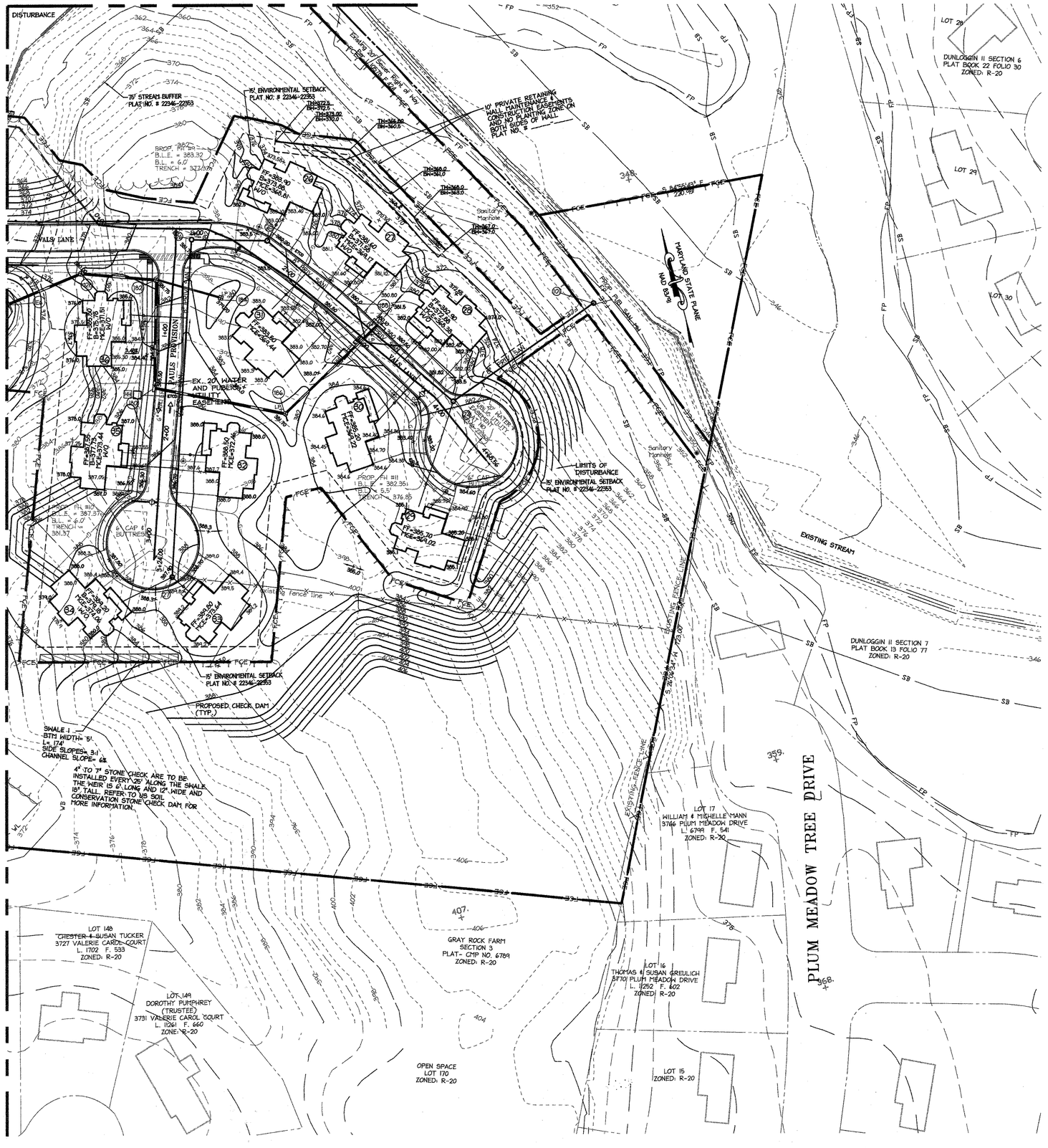
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 8/16/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

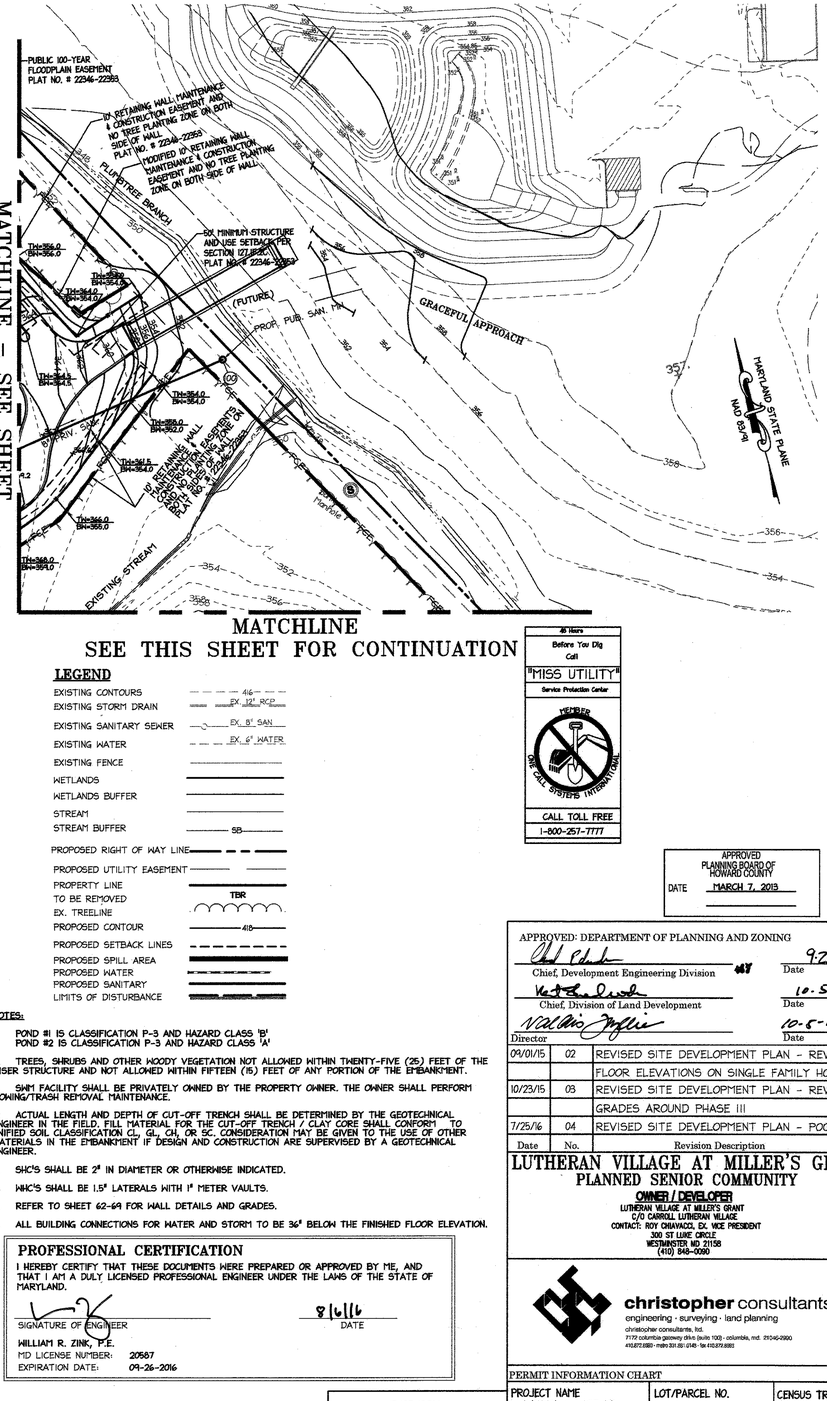
STATE OF MARYLAND WILLIAM RAYMOND ZINK 20587 PROFESSIONAL ENGINEER 8/16/16

MATCHLINE – SEE THIS SHEET FOR CONTINUATION



MATCHLINE – SEE SHEET 15 FOR CONTINUATION

MATCHLINE – SEE SHEET 14 FOR CONTINUATION



MATCHLINE
SEE THIS SHEET FOR CONTINUATION

LEGEND

EXISTING CONTOURS	416
EXISTING STORM DRAIN	EX 12" RCP
EXISTING SANITARY SEWER	EX. 8" SAN
EXISTING WATER	EX. 6" WATER
EXISTING FENCE	
WETLANDS	
WETLANDS BUFFER	
STREAM	
STREAM BUFFER	SB
PROPOSED RIGHT OF WAY LINE	
PROPOSED UTILITY EASEMENT	
PROPERTY LINE	
TO BE REMOVED EX. TREELINE	TBR
PROPOSED CONTOUR	416
PROPOSED SETBACK LINES	
PROPOSED SPILL AREA	
PROPOSED WATER	
PROPOSED SANITARY	
LIMITS OF DISTURBANCE	

NOTES:

1. POND #1 IS CLASSIFICATION P-3 AND HAZARD CLASS 'B' POND #2 IS CLASSIFICATION P-3 AND HAZARD CLASS 'A'
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5. SHC'S SHALL BE 2" IN DIAMETER OR OTHERWISE INDICATED.
6. WHC'S SHALL BE 1.5" LATERALS WITH 1" METER VAULTS.
7. REFER TO SHEET 62-69 FOR WALL DETAILS AND GRADES.
8. ALL BUILDING CONNECTIONS FOR WATER AND STORM TO BE 36" BELOW THE FINISHED FLOOR ELEVATION.

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE 8/16/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

7/25/2016
DATE

STATE OF MARYLAND — WILLIAM ROBERT ZINK — 20587 — REGISTERED PROFESSIONAL ENGINEER — 8/16/16

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APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 9-26-16

Chief, Division of Land Development — Date 10-5-16

Director — Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN – REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN – REVISED
		GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN – POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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410.872.6580 - metro 301.621.0748 - fax 410.872.6585

PERMIT INFORMATION CHART

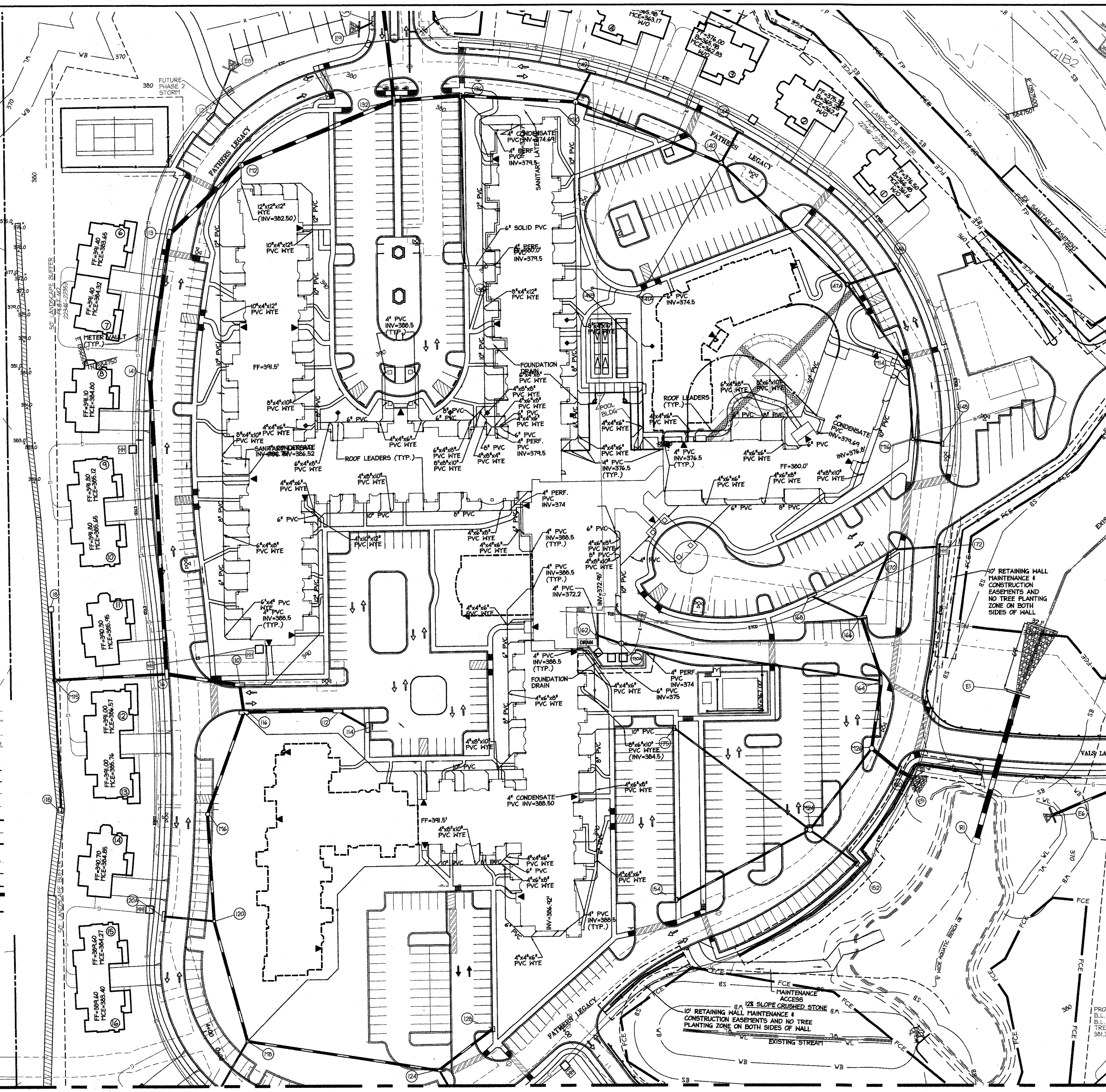
PROJECT NAME LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO. A		CENSUS TRACT 602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE:

GRADING AND UTILITY PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	16 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075



LEGEND

EXISTING CONTOURS	416
EXISTING STORM DRAIN	EX. 12" RCP
EXISTING SANITARY SEWER	EX. 8" SAN
EXISTING WATER	EX. 6" WATER
EXISTING FENCE	
WETLANDS	
WETLANDS BUFFER	
STREAM	
STREAM BUFFER	SB
PROPOSED RIGHT OF WAY LINE	
PROPOSED UTILITY EASEMENT	
PROPERTY LINE	
TO BE REMOVED	TBR
EX. TREELINE	
PROPOSED CONTOUR	418
PROPOSED SETBACK LINES	
PROPOSED SPILL AREA	
PROPOSED WATER	
PROPOSED SANITARY	

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SIGNATURE OF ENGINEER — DATE 8/6/16 ~~01-05-2015~~

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

NOTES:

1. ALL BUILDING CONNECTIONS FOR WATER AND STORM TO BE 36" BELOW THE FINISHED FLOOR ELEVATION.
2. ALL ROOF DRAINS TO BE 4" PVC UNLESS OTHERWISE NOTED.
3. ALL STORM HEADER PIPE INVERTS AT DISCHARGE POINTS SHOWN ON THE STORM UTILITY PROFILES.
4. A CONSTANT SLOPE SHALL BE HELD BETWEEN THE FURTHEST UPSTREAM BUILDING CONNECTION AND THE INVERT WHERE IT ENTERS THE TERMINAL MANHOLE.

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 8/24/16
PRINT NAME BELOW SIGNATURE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — DATE 8/6/16
PRINT NAME BELOW SIGNATURE

FOR THE HOWARD SOIL CONSERVATION DISTRICT:

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/20/16

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

[redacted]

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 9-26-16
Chief, Division of Land Development — Date 10-5-16
Director — Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

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CALL TOLL FREE 1-800-257-7777

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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christopher consultants, ltd.
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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

7/25/2016
DATE

STATE OF MARYLAND WILLIAM RAYMOND ZINK NO. 20587 REGISTERED PROFESSIONAL ENGINEER 8/6/16

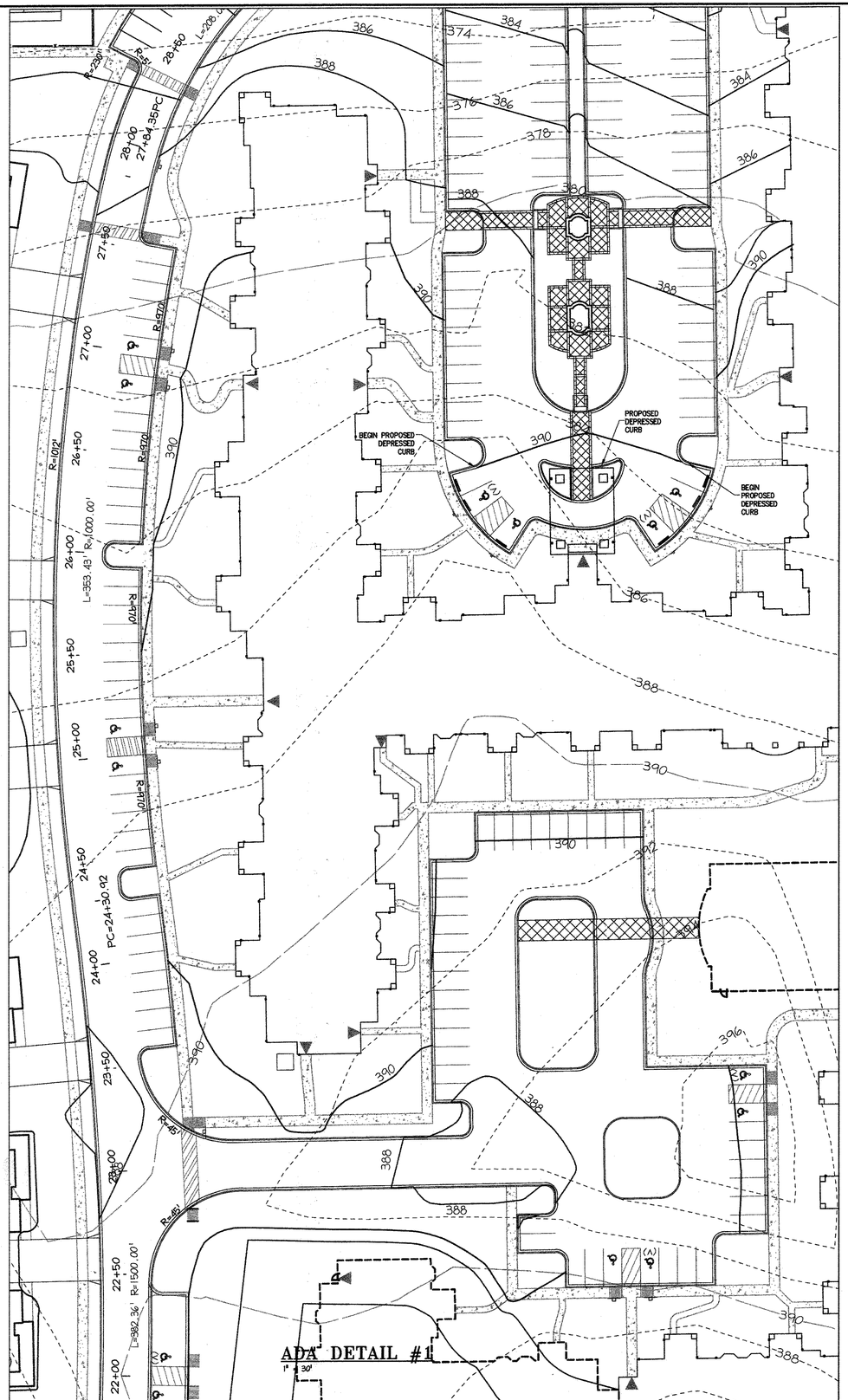
PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.			CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A			602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

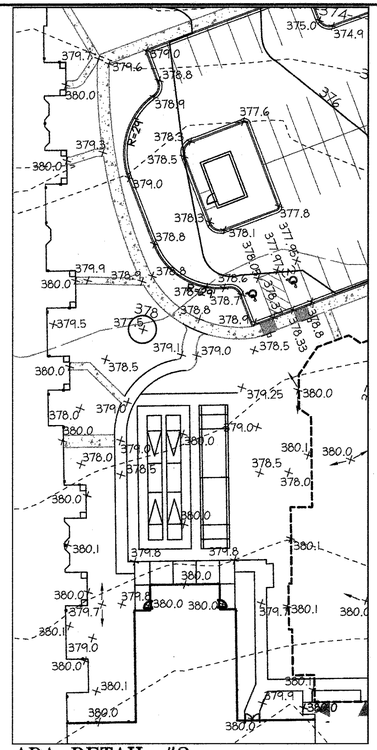
TITLE:
ROOF LEADER AND CONDENSATE PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	16A OF 77
CHECKED: ENJ	APPROVED: WRZ	

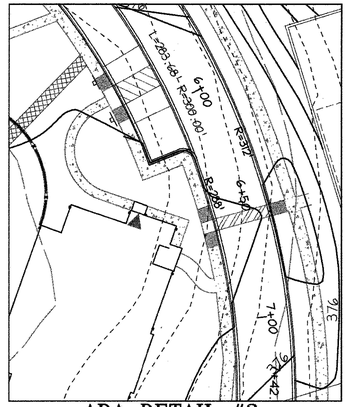
SDP-08-075



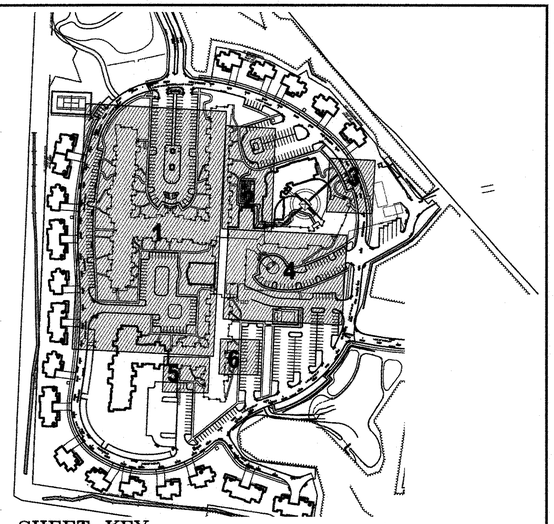
ADA DETAIL #1
1" = 30'



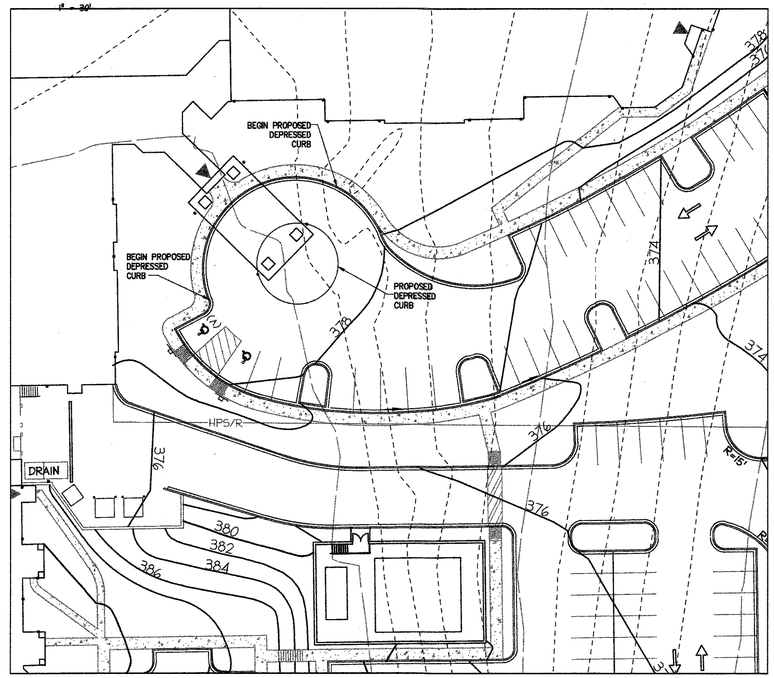
ADA DETAIL #2
1" = 30'



ADA DETAIL #3
1" = 30'



SHEET KEY
NOT TO SCALE



ADA DETAIL #4
1" = 30'

LEGEND

PROPERTY LINE	
PROPOSED CONTOUR	418
PROPOSED SPOT	x388.00
HANDICAP SPACE (VAN ACCESSIBLE)	
HANDICAP SPACE	
PROPOSED BUILDING ENTRANCE ON AN ACCESSIBLE ROUTE	

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division NY	Date 9-26-16
Chief, Division of Land Development	Date 10-5-16
Director	Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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ONE CALL SYSTEMS INTERNATIONAL
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7/25/2016
DATE

STATE OF MARYLAND
WILLIAM R. ZINK
NO. 20587
REGISTERED
PROFESSIONAL ENGINEER
8/6/16

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — 8/6/16 01-05-2015 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

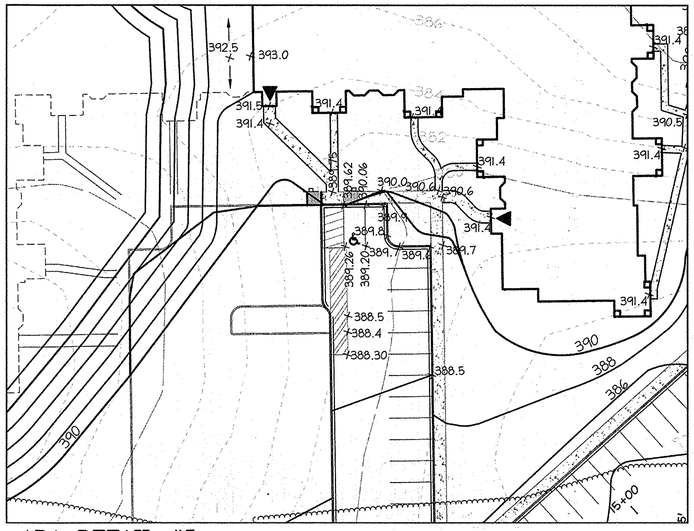
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

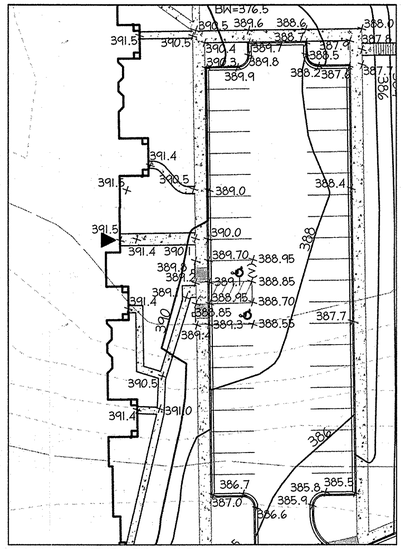
TITLE:
ACCESSIBLE ROUTE GRADING DETAIL

DESIGN: DAM	SCALE: 1" = 30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	17 OF 77
CHECKED: ENJ	APPROVED: WRZ	

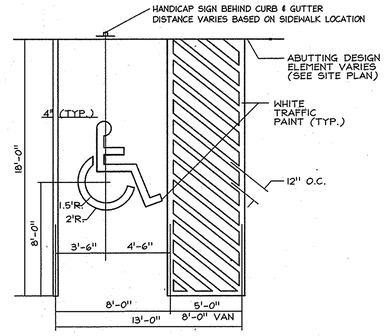
SDP-08-075



ADA DETAIL #5



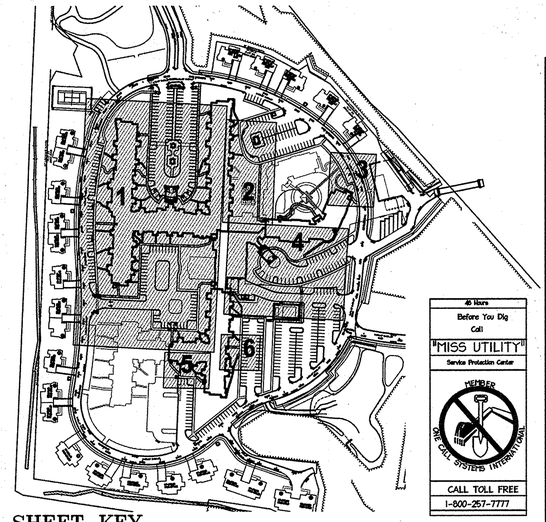
ADA DETAIL #6
1" = 30'



HANDICAP PARKING SPACE DETAIL
N.T.S.

LEGEND

PROPERTY LINE
PROPOSED CONTOUR 418
PROPOSED SPOT x388.00
HANDICAP SPACE (VAN ACCESSIBLE)
HANDICAP SPACE
PROPOSED BUILDING ENTRANCE ON AN ACCESSIBLE ROUTE



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PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

01/05/2015
DATE

STATE OF MARYLAND · WILLIAM RAYMOND ZINK · NO. 20587 · REGISTERED · PROFESSIONAL ENGINEER

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15
Chief, Division of Land Development — Date 2-26-15
Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CIGNAVECCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
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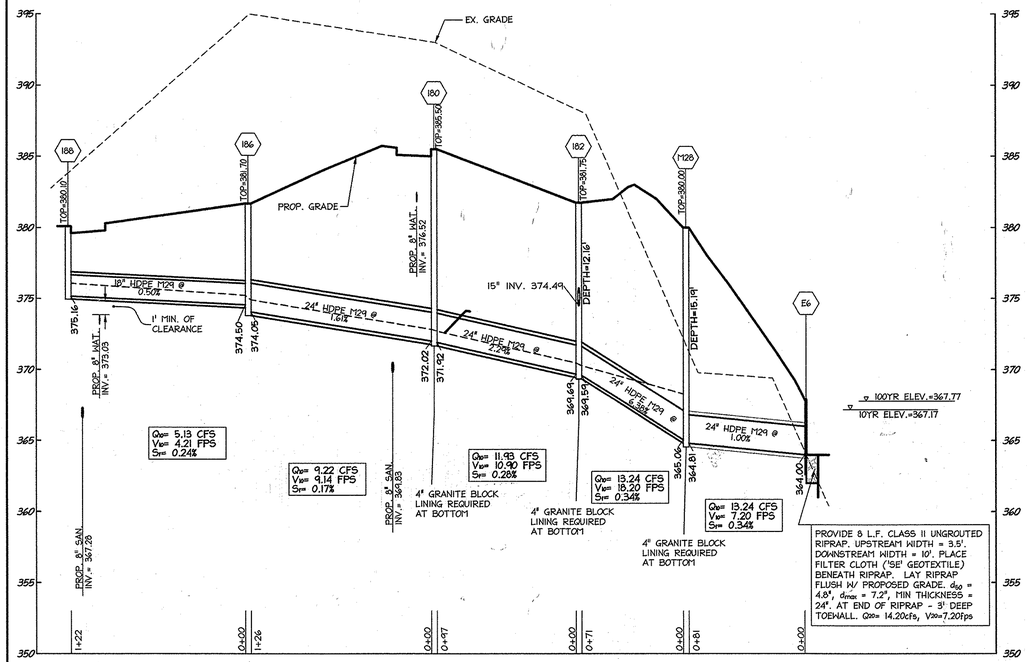
PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

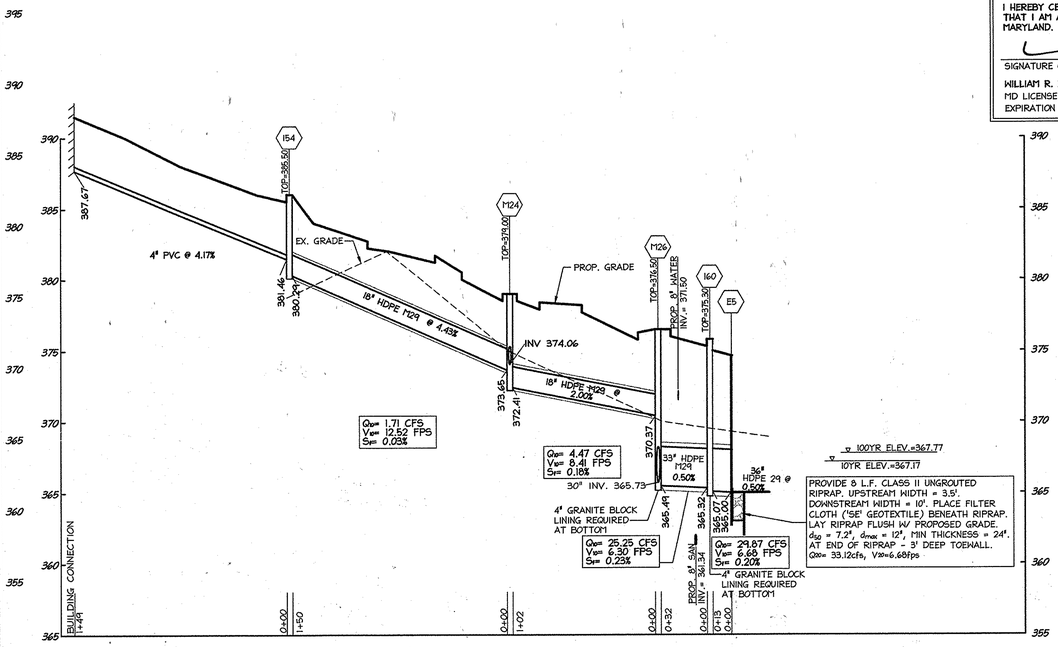
TITLE:
ACCESSIBLE ROUTE GRADING DETAIL

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	18 OF 77
CHECKED: ENJ	APPROVED: WRZ	



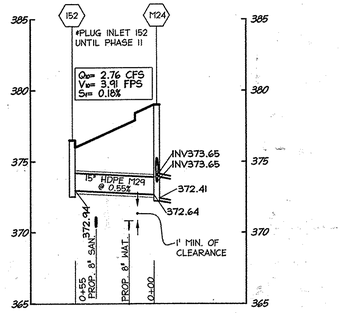
STORM DRAIN PROFILE – INLET I-88 TO ENDWALL E-6

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE – BUILDING TO ENDWALL E-5

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE – INLET I-52 TO MANHOLE M-24

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

HORIZONTAL

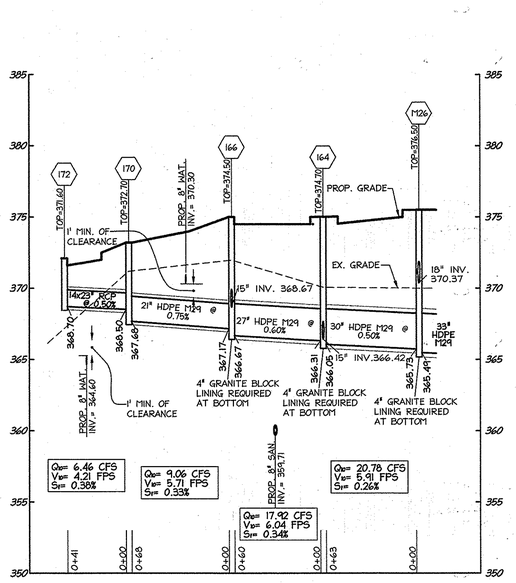
50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

VERTICAL

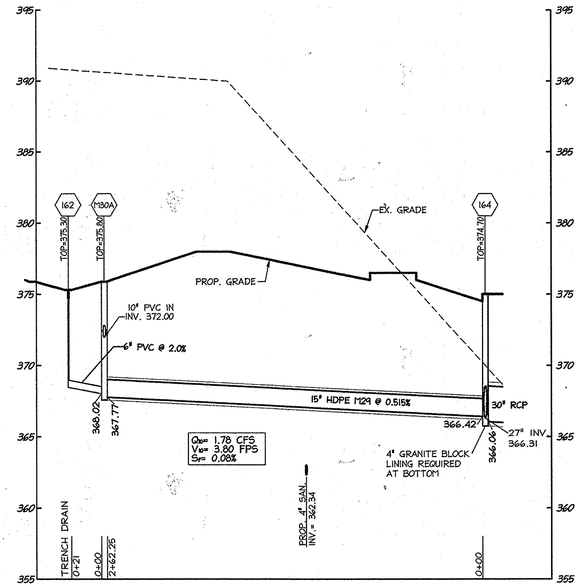
5 0 2.5 5 10

(IN FEET)
1 inch = 5 ft.



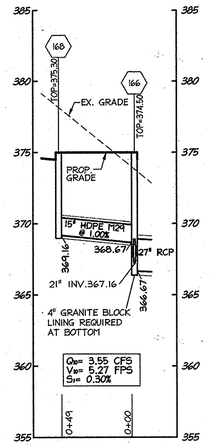
STORM DRAIN PROFILE – INLET I-72 TO MANHOLE M-26

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



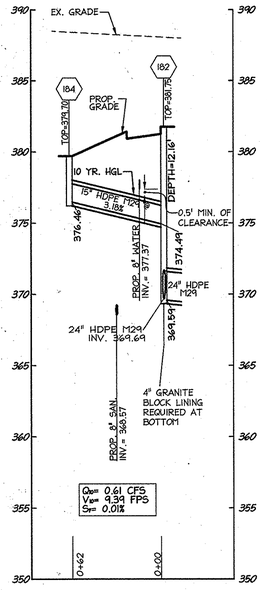
STORM DRAIN PROFILE – INLET I-62 TO INLET I-64

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



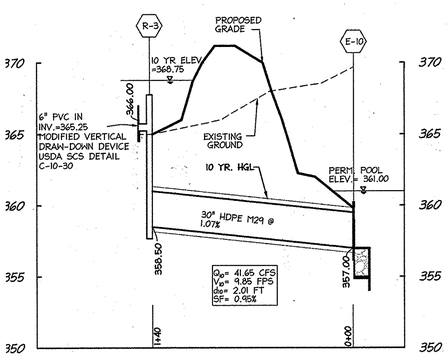
STORM DRAIN PROFILE INLET I-68 TO INLET I-66

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE INLET I-84 TO INLET I-82

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE INLET R-3 TO INLET E-10

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE: 1/27/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

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APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4.4.16
Chief, Division of Land Development — Date 4-5-16
Director — Date 4-5-16

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
11/09/15	03	REVISED GRADING, STORM, SANITARY, RETAINING WALL

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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410.872.8800 · FAX 301.812.0145 · fax 410.872.8855

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A	CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24 / ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)		SEWER CODE: F07	

TITLE:

UTILITY PROFILES

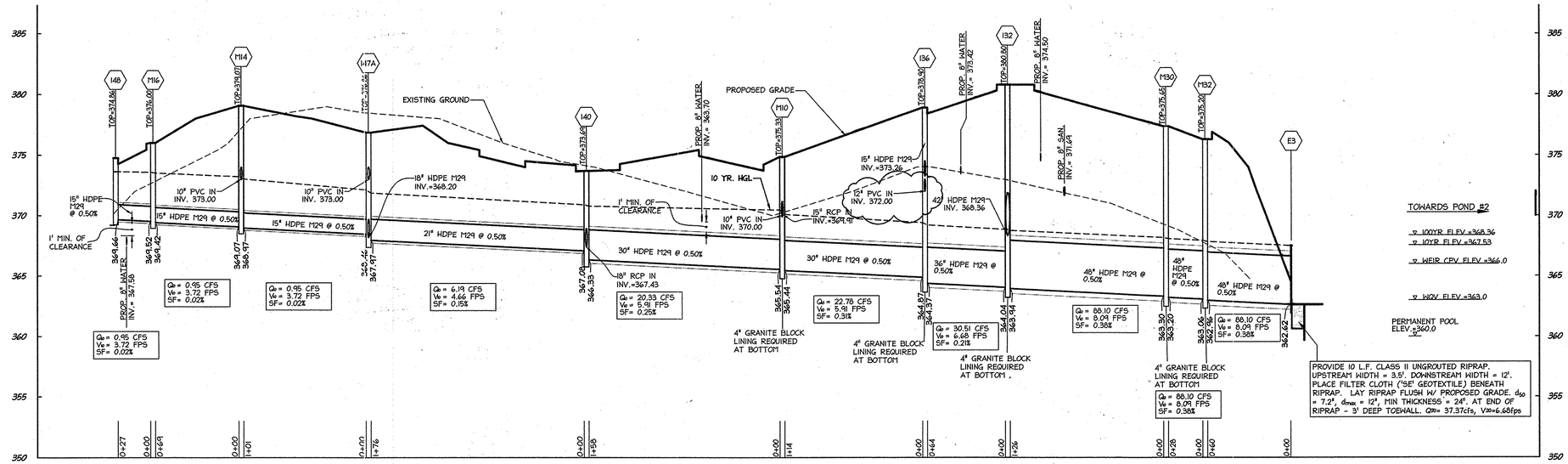
DESIGN: DAM	SCALE: 1" = 50' V / 1" = 5' H	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	19 OF 77
CHECKED: ENJ	APPROVED: WRZ	

1/27/16
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — 20587 — REGISTERED PROFESSIONAL ENGINEER

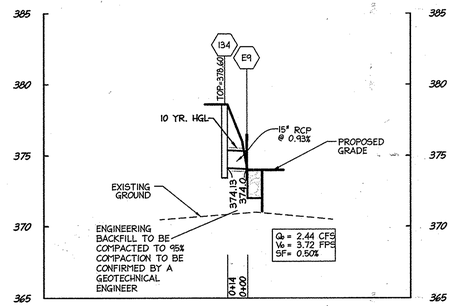
SDP-08-075

P:\Projects\05115501\~MDC-XXXX~MDC-798 SDP\2014-01-22 Bid Set\2015-11-10 Phase III Redline Submission\Clean set\19-21 UTILITY PROFILES.dwg, 1/21/2016 10:26:49 AM, johnkehm, 1:1, christopher consultants, ltd.



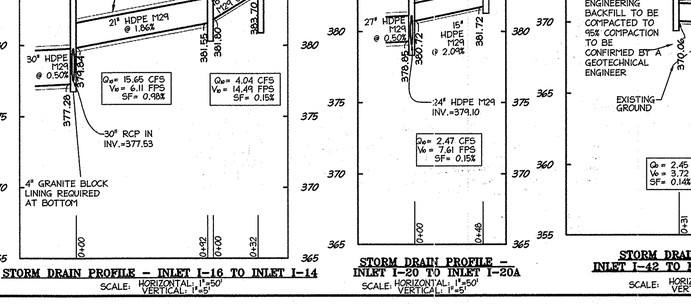
STORM DRAIN PROFILE - INLET I-48 TO ENDWALL E-3

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



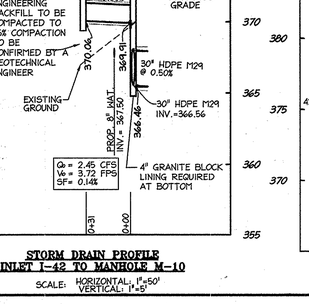
STORM DRAIN PROFILE INLET I-34 TO ENDWALL E-9

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE - INLET I-36 TO BUILDING

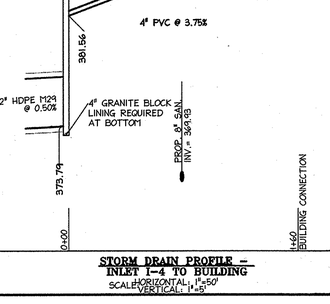
SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE INLET I-2 TO ENDWALL E-8

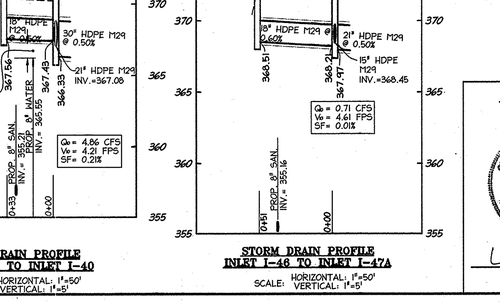
(TO BE CONSTRUCTED WITH PHASE 2)

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



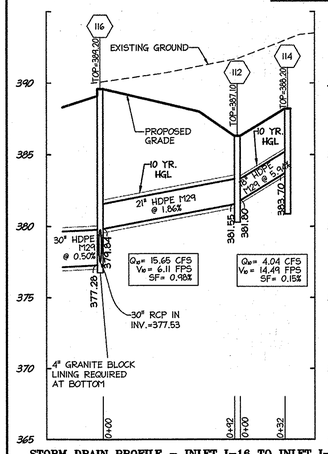
STORM DRAIN PROFILE - INLET I-26 TO INLET I-24

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



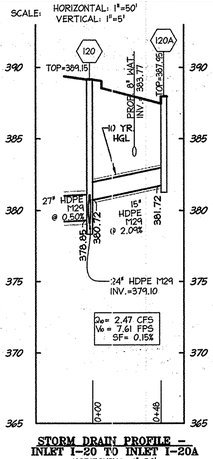
STORM DRAIN PROFILE - INLET I-99 TO ENDWALL E-7

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE - INLET I-16 TO INLET I-14

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE - INLET I-20 TO INLET I-20A

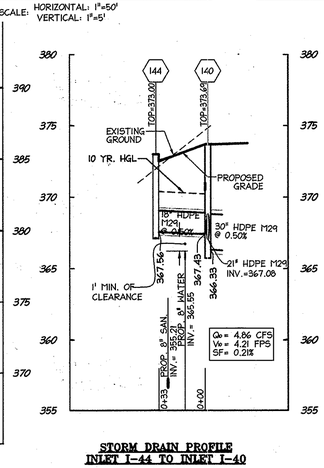
SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

STORM DRAIN PROFILE INLET I-42 TO MANHOLE M-10

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

STORM DRAIN PROFILE - INLET I-4 TO BUILDING

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE INLET I-44 TO INLET I-40

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

STORM DRAIN PROFILE INLET I-46 TO INLET I-47A

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — 01-05-2015 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20567
EXPIRATION DATE: 09-26-2016

HORIZONTAL
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

VERTICAL
5 0 2.5 5 10
(IN FEET)
1 inch = 5 ft.

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center
MEMBER
ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE 1-800-257-7777

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15
Chief, Division of Land Development — Date 2-26-15
Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CIANVACCA, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.6850 · metro 301.861.0148 · fax 410.872.6855

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

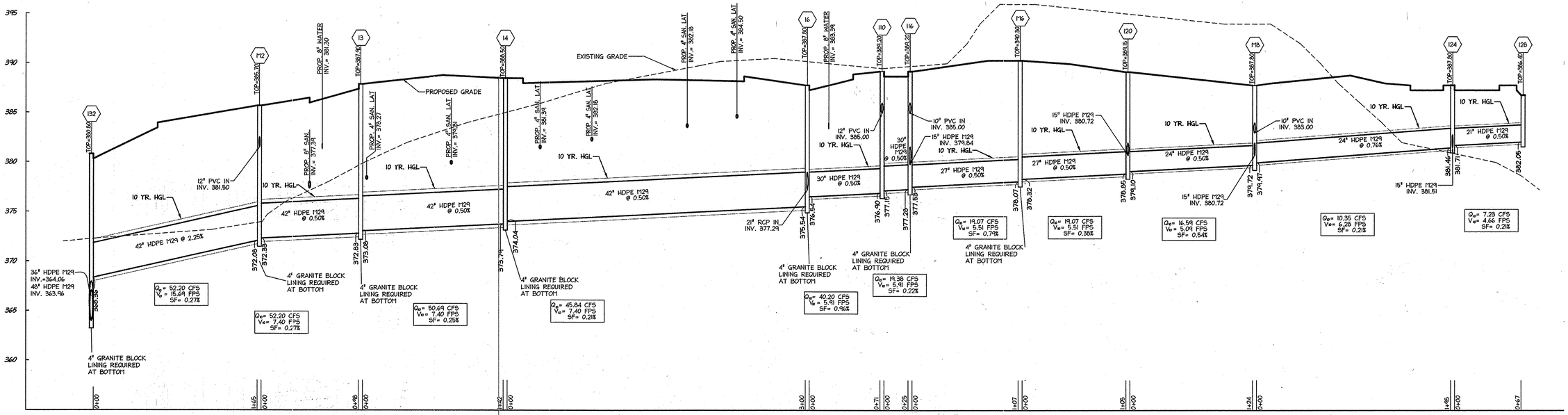
TITLE:

UTILITY PROFILES

DESIGN: DAM	SCALE: 1" = 50' V, 1" = 5' H	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	20 OF 77
CHECKED: ENJ	APPROVED: WRZ	

01/05/2015 DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20567 REGISTERED PROFESSIONAL ENGINEER



48 Hours
Before You Dig
Call
"MISS UTILITY"
Service Protection Center
MEMBER
MISS UTILITY OF DELMARVA
MISS UTILITY OF VIRGINIA
STATE ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE
1-800-257-7777

STORM DRAIN PROFILE – INLET I-28 TO INLET I-32

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

HORIZONTAL

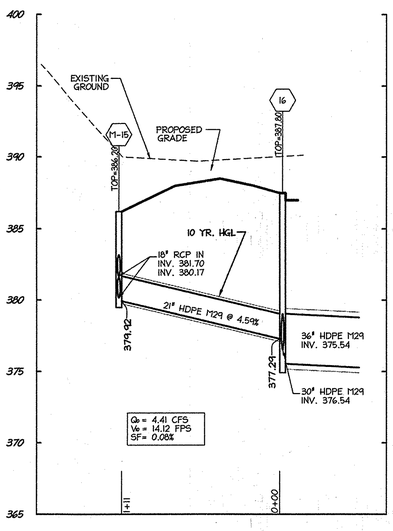
50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

VERTICAL

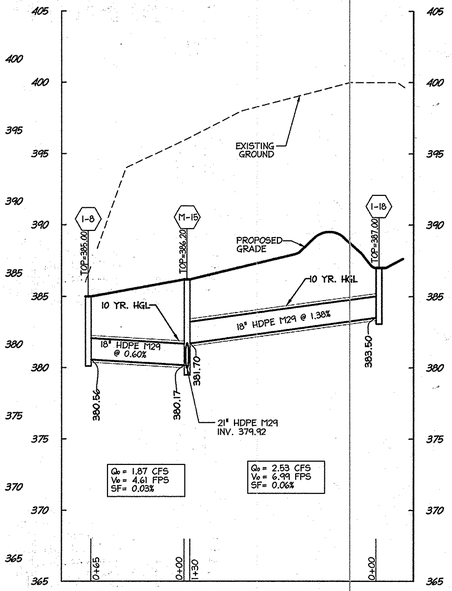
5 0 2.5 5 10

(IN FEET)
1 inch = 5 ft.



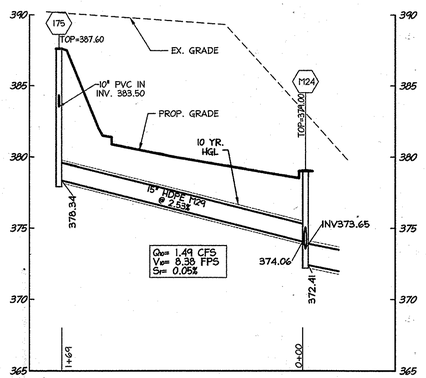
STORM DRAIN PROFILE INLET M-15 TO MANHOLE I-6

HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



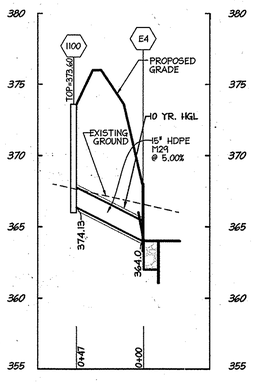
STORM DRAIN PROFILE INLET I-8 TO MANHOLE M-15

HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



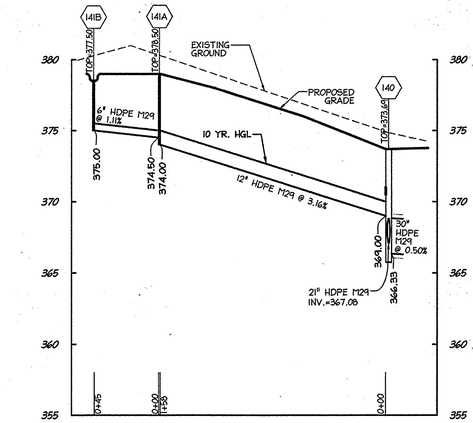
STORM DRAIN PROFILE MANHOLE M-24 TO INLET I-75

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



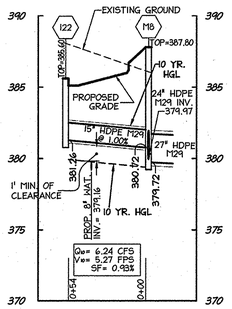
STORM DRAIN PROFILE INLET I-100 TO END WALL E-4

HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE INLET I-40 TO INLET I-41B

HORIZONTAL: 1"=50'
VERTICAL: 1"=5'



STORM DRAIN PROFILE INLET I-22 TO MANHOLE M-8

SCALE: HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 4/24/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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410.872.6800 · www.301.881.6148 · fax 410.872.6865

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A	CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24 / ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07

TITLE:

UTILITY PROFILES

DESIGN: DAM	SCALE: 1" = 50' V, 1" = 5' H	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	21 OF 77
CHECKED: ENJ	APPROVED: WRZ	

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED
PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

FROM	TO	SIZE (IN)	LENGTH (FT)	PIPE TYPE
I-88	I-86	18	122	HDPE
I-86	I-80	24	126	HDPE
I-80	I-82	24	97	HDPE
I-84	I-82	15	62	HDPE
I-82	M-28	24	71	HDPE
M-28	E-6	24	81	~~HDPE~~ RCP
I-72	I-70	14 x 23	41	HDPE
I-70	I-66	21	68	HDPE
I-68	I-66	15	49	HDPE
I-66	I-64	27	60	HDPE
I-62	M-30A	15	21	HDPE
M-30A	I-64	15	262	HDPE
I-64	M-26	30	63	HDPE
I-52	M-24	15	55	HDPE
I-75	M-24	15	169	HDPE
I-54	M-24	18	150	HDPE
M-24	M-26	18	102	HDPE
M-26	I-60	33	32	HDPE
I-60	E-5	36	13	RCP CL-IV
R-1	E-1	54	~~149~~ 152	RCP CL-IV

FROM	TO	SIZE (IN)	LENGTH (FT)	PIPE TYPE
I-48	M-16	15	27	HDPE
M-16	M-14	15	69	HDPE
M-14	I-47A	15	101	HDPE
I-46	I-47A	18	51	HDPE
I-47A	I-40	21	176	HDPE
I-44	I-40	18	33	HDPE
I-40	M-10	30	~~185~~ 158	HDPE
I-42	M-10	15	31	HDPE
M-10	I-36	30	114	HDPE
I-38	I-36	15	169	HDPE
I-36	I-32	36	64	HDPE
I-32	M-30	48	126	HDPE
M-30	M-32	48	28	HDPE
M-32	E-3	48	68	RCP CL-IV
I-28	I-24	21	67	HDPE
I-26	I-24	15	46	HDPE
I-24	M-8	24	195	HDPE
I-22	M-8	15	54	HDPE
M-8	I-20	24	124	HDPE
I-20A	I-20	15	48	HDPE
I-20	M-6	27	105	HDPE
I-18	M-15	18	~~119~~ 130	HDPE
M-6	I-16	27	107	HDPE
I-16	I-10	30	25	HDPE
I-14	I-12	18	32	HDPE
I-12	I-16	21	92	HDPE
I-8	M-15	18	~~76~~ 65	HDPE
M-15	I-6	21	111	HDPE
I-10	I-6	30	71	HDPE
I-6	I-4	42	300	HDPE
I-4	I-3	42	142	HDPE
I-3	M-2	42	98	HDPE
M-2	I-32	42	165	HDPE
I-99	I-98	15	78	HDPE
I-98	I-96	15	53	HDPE
I-96	E-7	15	35	HDPE
I-2	E-8	15	52	RCP CL-IV
I-34	E-9	15	~~26~~ 14	RCP CL-IV
R-2	E-2	54	160	RCP CL-IV
R-3	E-10	~~42~~ 30	~~108~~ 140	HDPE
I-100	E-4	15	47	RCP CL-IV

STRUCTURE SCHEDULE FOR DRAINAGE AREA 2 (POND #2)

STRUCTURE		WIDTH	INV. IN ELEV.	INV. OUT ELEV.	RIM ELEV.	AS-BUILT INV. IN ELEV.	AS-BUILT INV. OUT ELEV.	AS-BUILT RIM ELEV.	STANDARD DETAIL
~~I-2~~	~~A-10 INLET~~	~~10'~~	~~–~~	~~374.26~~	~~380.38~~				~~HO. CO. D-4.03 with 48" Dia. MH Base~~
I-3	A-10 INLET	10'	373.08	372.83	387.90				HO. CO. D-4.03 with 48" Dia. MH Base
I-4	A-10 INLET	10'	374.04	373.79	388.~~20~~ 50				HO. CO. D-4.03 with 48" Dia. MH Base
I-6	A-10 INLET	10'	377.29 / 376.54	375.54	387.~~50~~ 80				HO. CO. D-4.03 with 48" Dia. MH Base
I-8	YARD INLET	3'-2"	–	380.56	385.00				*
I-10	A-10 INLET	10'	377.15	376.90	389.~~60~~ 20				HO. CO. D-4.03 with 60" Dia. MH Base
I-12	A-10 INLET	10'	381.80	381.55	~~386.30~~	387.10			HO. CO. D-4.03 with 48" Dia. MH Base
I-14	A-10 INLET	10'	– 379.84	383.70	388.20				HO. CO. D-4.01
I-16	A-10 INLET	10'	~~378.07~~ / ~~376.36~~	377.28	389.~~60~~ 20				HO. CO. D-4.03 with 48" Dia. MH Base
I-18	YARD INLET	3'-2"	– 377.53	383.50	~~388.00~~	387.00			*
I-20	STD. MANHOLE	5'	379.10 / 380.72	378.85	389.15				HO. CO. G-5.13
I-20A	A-10 INLET	10'	–	381.72	387.95				HO. CO. D-4.03
I-22	A-10 INLET	10'	–	381.26	~~386.30~~	385.60			HO. CO. D-4.03
I-24	A-5 INLET	5'	381.71 / 381.51	381.46	387.80				HO. CO. D-4.01 with 48" Dia. MH Base
I-26	A-5 INLET	5'	–	381.76	~~386.20~~	385.70			MD SHA 374-62
I-28	A-5 INLET	5'	– 368.36	382.05	386.~~80~~ 40				HO. CO. D-4.01
I-32	A-10 INLET	10'	~~372.08~~ / 364.04	363.94	380.80				HO. CO. D-4.03 with 60" Dia. MH Base
I-34	A-10 INLET	10'	–	374.13	~~377.60~~	378.60			HO. CO. D-4.03 with 48" Dia. MH Base
I-36	A-5 INLET	5'	364.87 / 373.26	364.37	378.90				HO. CO. D-4.01 with 60" Dia. MH Base
I-38	A-5 INLET	5'	–	381.06	386.~~60~~ 90				HO. CO. D-4.01
I-40	~~A-5 INLET~~ GRATE INLET	~~5'~~	367.08 / 367.43	366.33	373.69				~~MD SHA 374-04~~ HO. CO. D-4.37
I-41A	YARD INLET	3'-2"	373.50	373.00	378.50				HO. CO. D-4.14
I-41B	YARD INLET	3'-2"	–	374.00	377.50				HO. CO. D-4.14
I-42	A-10 INLET	10'	–	370.06	373.~~50~~ 20				HO. CO. D-4.03
I-44	A-10 INLET	10'	–	367.56	373.00				HO. CO. D-4.03
I-46	A-10 INLET	10'	–	368.51	376.~~00~~ 20				HO. CO. D-4.03
I-47A	~~A-5 INLET~~ YARD INLET	~~5'~~ 3'-2"	368.46 / 368.21	367.97	376.86				~~MD SHA 374-04~~ HO. CO. D-4.14
I-48	A-5 INLET	5'	–	369.66	374.86				HO. CO. D-4.01
I-96	A-10 INLET	10'	366.73	366.53	~~371.63~~	369.65			HO. CO. D-4.03
I-98	A-10 INLET	10'	367.09	366.99	~~371.16~~	370.20			HO. CO. D-4.03
I-99	A-10 INLET	10'	–	367.48	371.59				HO. CO. D-4.03
I-100	YARD INLET	3'-2"		366.35	373.60				HO. CO. D-4.14
M-2	STD. MANHOLE	6'	372.33	372.08	385.70				MD SHA 384.05 with 72" Dia. MH Base
M-6	STD. MANHOLE	4'	378.32	378.07	390.30 ~~389.60~~				HO. CO. G-5.13 with 48" Dia. MH Base
M-8	STD. MANHOLE	5'	379.97 / 380.72	379.72	387.80				HO. CO. G-5.13
M-10	STD. MANHOLE	5'	365.54 / 369.91	365.44	375.33				HO. CO. G-5.13
M-14	STD. MANHOLE	4'	369.07	368.97	379.07				HO. CO. G-5.12
M-15	STD. MANHOLE	4'	380.17 / 381.70	379.92	386.20				HO. CO. G-5.12
M-16	STD. MANHOLE	4'	369.52	369.42	376.00				HO. CO. G-5.12
M-30	STD. MANHOLE	6'	363.30	363.20	~~377.76~~	375.65			
M-32	STD. MANHOLE	6'	363.06	362.96	~~376.29~~	375.20			
E-2	TYPE C ENDWALL	19'-2"	356.30	–	361.30				HO. CO. D-5.21
E-3	TYPE C ENDWALL	21'-8"	362.62	–	368.00				HO. CO. D-5.21
E-4	TYPE C ENDWALL	6'-6"	368.00	–	372.89				HO. CO. D-5.21
E-7	TYPE C ENDWALL	7'-9"	365.00	–	369.00				HO. CO. D-5.21
E-8	TYPE C ENDWALL	7'-9"	374.00	–	376.50				HO. CO. D-5.21
E-9	TYPE C ENDWALL	7'-9"	374.00	–	~~376.50~~	378.60			HO. CO. D-5.21
E-10	TYPE C ENDWALL	6'-6"	~~364.00~~ 357.00	–	~~366.00~~	358.50			HO. CO. D-5.21
R-2	RISER	5' x 4'	–	359.00	368.70				RISER MUST BE DEISGNED TO MEET ACI 350 CRITERIA. RISER SHALL BE CAST IN PLACE. SHOP DRAWINGS TO BE PREPARED AND SEALED BY A MD LICENSED ENGINEER. SHOP DRAWINGS TO BE REVIEWED AND APPROVED BY ccl BEFORE CONSTRUCTION.
R-3	RISER	5'x4"	~~365.25~~ 358.50	~~364.54~~ 357.00	367.76				MODIFIED HO. CO. STRUCTURE D-4.10

STRUCTURE SCHEDULE FOR DRAINAGE AREA 1 (POND #1)

STRUCTURE	TYPE	WIDTH	INV. IN ELEV.	INV. OUT ELEV.	RIM ELEV.	AS-BUILT INV. IN ELEV.	AS-BUILT INV. OUT ELEV.	AS-BUILT RIM ELEV.	HO. CO. STD. DETAIL
I-52	A-10 INLET	10'	–	372.94	376.50				MD SHA 374-04
I-54	A-5 INLET	5'	–	380.29	~~386.00~~	385.50			HO. CO. D-4.01
I-60	A-10 INLET	10'	365.32	365.07	375.~~80~~ 30				HO. CO. D-4.03
I-62	TRENCH DRAIN	30'	–	368.17	375.30				HO. CO. D-4.15
I-64	A-10 INLET	10'	366.31 / 366.42	366.05	374.70 ~~375.00~~				HO. CO. D-4.03 with 72" Dia. MH Base
I-66	A-10 INLET	10'	367.17 / 368.67	366.67	374.50 ~~375.00~~				HO. CO. D-4.03
I-68	A-10 INLET	10'	–	369.16	~~375.00~~	375.30			HO. CO. D-4.03
I-70	A-10 INLET	10'	368.50	367.68	~~373.20~~	372.70			HO. CO. D-4.03
I-72	A-10 INLET	10'	–	368.70	~~372.10~~	371.60			HO. CO. D-4.03
I-75	A-5 INLET	5'	– 372.02	378.34	387.60				HO. CO. D-4.01
I-80	A-10 INLET	10'	~~367.42~~	~~367.32~~ 371.92	~~380.90~~	385.50			HO. CO. D-4.03
I-82	A-5 INLET	5'	~~366.84~~ 369.69 / ~~374.64~~ 374.49	~~366.74~~ 369.59	~~379.00~~	381.75			HO. CO. D-4.01 with 60" Dia. MH Base
I-84	YARD INLET	3'-2"	–	~~372.26~~ 376.46	~~376.70~~	379.70			HO. CO. D-4.14
I-86	YARD INLET	3'-2"	~~368.56~~ 374.50	~~368.05~~ 374.05	~~375.70~~	381.70			HO. CO. D-4.14
I-88	A-15 INLET	15'	–	~~369.16~~ 375.16	~~374.10~~	380.10			HO. CO. D-4.01
M-24	STD. MANHOLE	5'	373.65 / 372.64 / 374.06	372.41	379.00				HO. CO. G-5.12
M-26	STD. MANHOLE	5'	370.37 / 365.73	365.49	376.50				MD SHA 384.03 with 60" Dia. MH Base
M-28	STD. MANHOLE	5'	~~366.03~~ 365.06	364.81	~~374.00~~	380.00			HO. CO. G-5.12
M-30A	STD. MANHOLE	4'	368.02	367.77	375.80				HO. CO. G-5.12
E-1	TYPE C ENDWALL	19'-2"	358.31	–	363.30				HO. CO. D-5.21
E-5	TYPE C ENDWALL	16'-8"	365.00	–	374.65				HO. CO. D-5.21
E-6	TYPE C ENDWALL	11'-6"	364.00	–	367.87				HO. CO. D-5.21
R-1	RISER	4' x 4'	–	357.00	368.50				RISER MUST BE DEISGNED TO MEET ACI 350 CRITERIA. RISER SHALL BE CAST IN PLACE. SHOP DRAWINGS TO BE PREPARED AND SEALED BY A MD LICENSED ENGINEER. SHOP DRAWINGS TO BE REVIEWED AND APPROVED BY ccl BEFORE CONSTRUCTION.

STR NO.	PIPE DIAMETER (INCHES)	DISCHARGE (CFS)	PIPE SLOPE (%)	10-YR PIPE VELOCITY (FT/S)	RIPRAP SLOPE (%)	10-YR RIPRAP VELOCITY (FT/S)	RIPRAP			DIMENSIONS	
							CLASS	d50	DEPTH	La	W
OUTFALL (E-3)	48	75.20	0.50	8.09	0.00	7.50	Class II	--	--	--	--
OUTFALL (E-4)	15	--	--	--	0.00	--	Class II	--	--	--	--
OUTFALL (E-5)	36	29.18	0.50	6.68	0.00	7.50	Class II	4.8"	24"	8'	11'
OUTFALL (E-6)	24	13.24	1.00	7.20	0.00	7.50	Class II	4.8"	24"	8'	10'
OUTFALL (E-7)	15	5.32	7.00	13.93	0.00	7.50	Class II	5"	24"	6'	7.25'
OUTFALL (E-8)	15	2.45	0.50	3.72	0.00	7.50	Class II	--	--	--	--
OUTFALL (E-9)	15	2.44	0.50	3.72	0.00	7.50	Class II	--	--	--	--
OUTFALL (E-10)	~~30~~ 12	41.65	~~1.07~~ 3.93	9.85	0.00	7.50	Class II	4.8"	24"	22'	12'
OUTFALL (E-11)	12	--	0.50	--	0.00		Class II	--	--	--	--

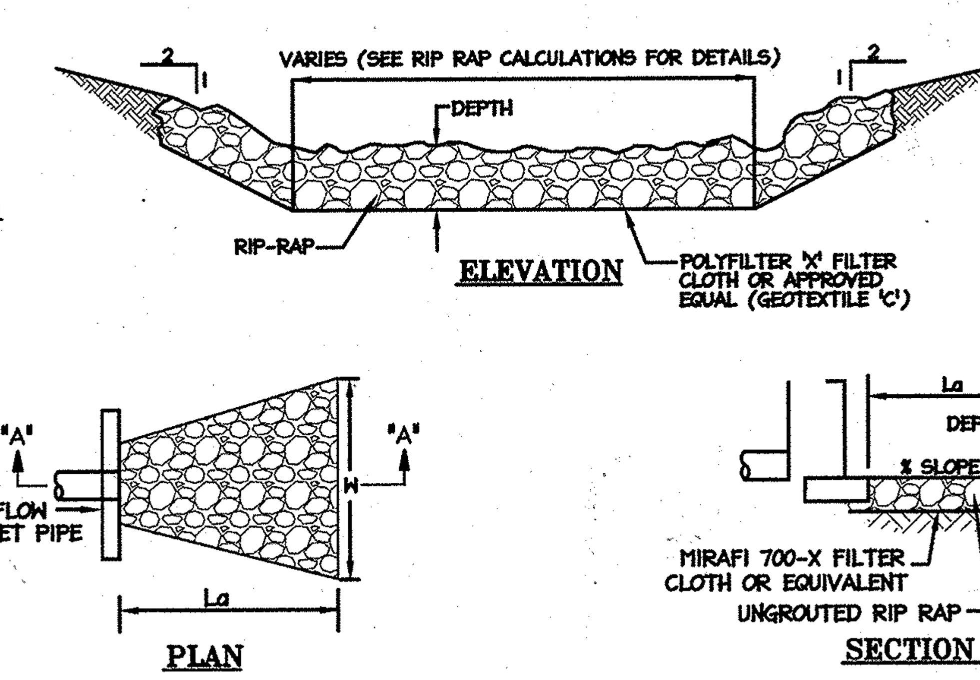
STR NO.	PIPE DIAMETER (INCHES)	100-YR PIPE DISCHARGE (CFS)	PIPE SLOPE (%)	100-YR PIPE VELOCITY (FT/S)	RIPRAP SLOPE (%)	100-YR RIPRAP VELOCITY (FT/S)	RIPRAP			DIMENSIONS	
							CLASS	d50	DEPTH	La	W
OUTFALL (E-1)	54	135.21	0.50	25.80	0.00	7.50	Class II	0.8'	24"	69'	32.1'
OUTFALL (E-2)	54	175.79	0.50	32.10	0.00	7.50	Class II	0.8'	24"	45'	22.5'

SIZE	TYPE	LENGTH (FT)
12"	HDPE	~~108~~ 140
15"	RCP CL-IV	~~125~~ 113
15"	HDPE	~~1329~~ 1274
18"	HDPE	685
21"	HDPE	514
24'	HDPE	~~319~~ 238
27"	HDPE	272
30"	HDPE	~~299~~ 272
33"	HDPE	32
36"	RCP CL-IV	13
36"	HDPE	64
42"	HDPE	705
48"	RCP CL-IV	68
48"	HDPE	154
54"	HDPE	~~300~~ 312
14" x 23"	HDPE	41
	TOTAL	~~5028~~ 4978
24"	RCP CL-IV	81

* ADS BRAND
15" DROP IN GRATE # 1501D1
15" RISER # 1504AN
15" N12/RCP ADAPTER # 1521AN
** HO. CO. G-5.13 WITH 12" CONNECTION TO ADS BRAND DRAIN BASIN 2812AG

OUTFALL CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PEICE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUSWITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.



RIP RAP DETAILS
(N.T.S.)

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 1/27/16
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

1/27/16
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/4/16
Chief, Division of Land Development — Date 4-5-16
Director — Date 4-5-16

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
11/09/15	03	REVISED GRADING, STORM, SANITARY, RETAINING WALL

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

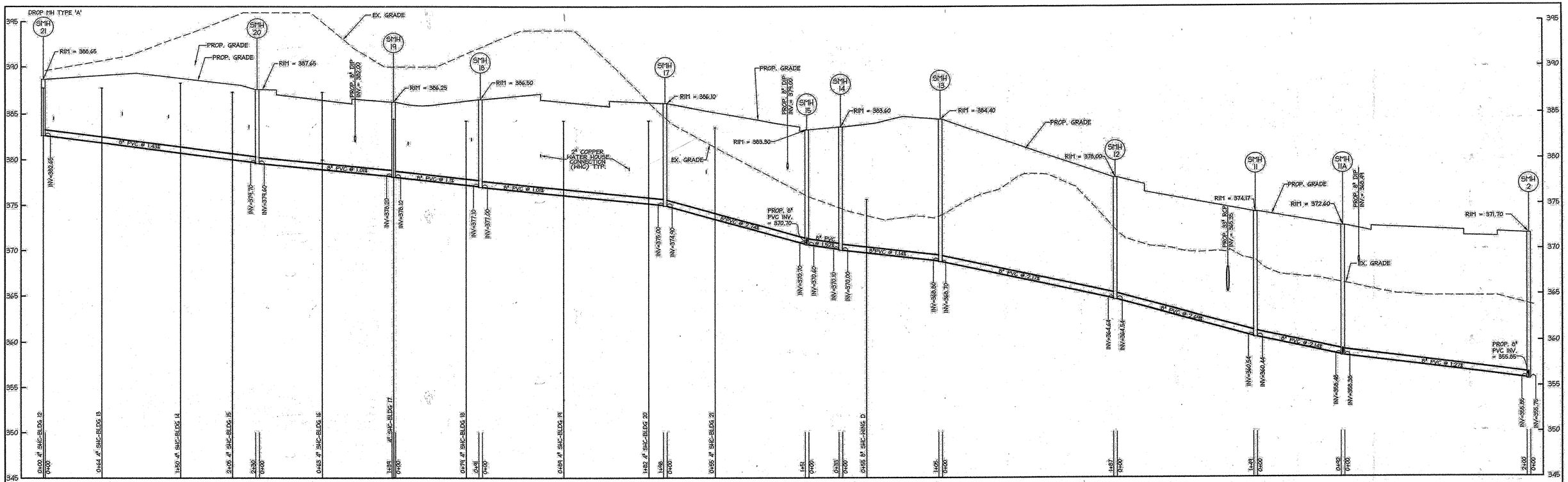
TITLE:

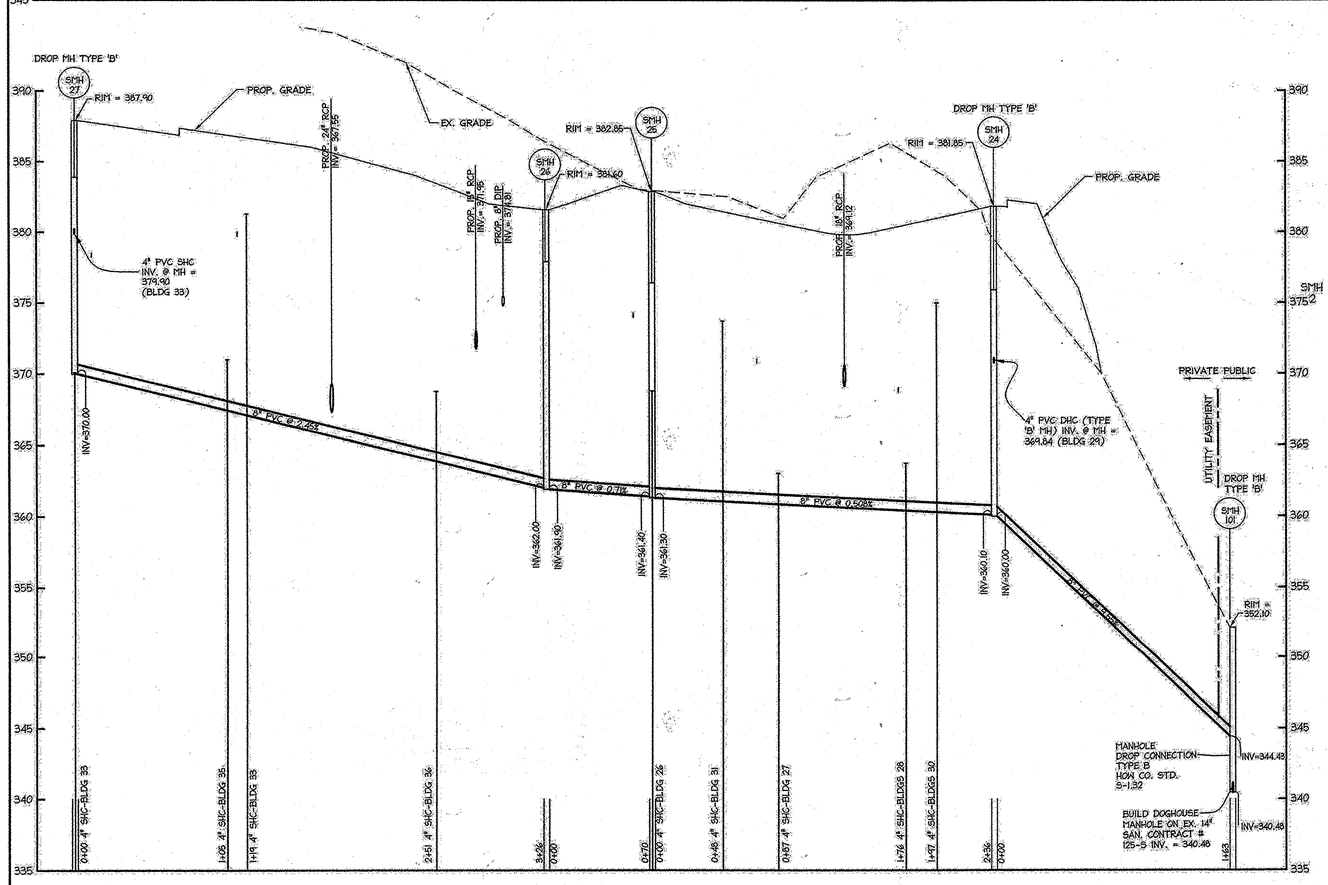
UTILITY NOTES AND DETAILS

DESIGN: DAM	SCALE: 1" = 50' V, 1" = 5' H	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	22 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

P:\Projects\05B501~MDC-XXXX~MDC-792 SDP\2014-01-22 Bid Set\2015-11-10 Phase III Redline Submission\Clean set\22-UTILITY PROFILES.dwg, 1/21/2016 10:28:04 AM, johnhelms, 1:1, christopher consultants, ltd.





STRUCTURE SCHEDULE				
STRUCTURE	TYPE	NORTHING	EASTING	REMARKS
SMH 1	4'-0" DIA. MANHOLE	N 584461	E 1357587	HO. CO. STD. MANHOLE DETAIL NO. G-5.14 (DOGHOUSE)
SMH 2	4'-0" DIA. MANHOLE	N 584426	E 1357348	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 3	4'-0" DIA. MANHOLE	N 584508	E 1357337	HO. CO. STD. MANHOLE DETAIL NO. S-1.32 TYPE 'B'
SMH 4	4'-0" DIA. MANHOLE	N 584705	E 1357291	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 5	4'-0" DIA. MANHOLE	N 584911	E 1357089	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 6	4'-0" DIA. MANHOLE	N 584972	E 1356935	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 7	4'-0" DIA. MANHOLE	N 584976	E 1356753	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 8	4'-0" DIA. MANHOLE	N 584937	E 1356681	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 9	4'-0" DIA. MANHOLE	N 584656	E 1356577	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 10	4'-0" DIA. MANHOLE	N 584478	E 1356544	HO. CO. STD. MANHOLE DETAIL NO. S-1.32 TYPE 'A'
SMH 11	4'-0" DIA. MANHOLE	N 584163	E 1357205	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 11A	4'-0" DIA. MANHOLE	N 584247	E 1357250	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 11B	4'-0" DIA. MANHOLE	N 584328	E 1357974	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 12	4'-0" DIA. MANHOLE	N 584051	E 1357101	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 13	4'-0" DIA. MANHOLE	N 584019	E 1356913	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 14	4'-0" DIA. MANHOLE	N 583975	E 1356813	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 15	4'-0" DIA. MANHOLE	N 583939	E 1356820	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 16	4'-0" DIA. MANHOLE	N 583872	E 1356884	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 17	4'-0" DIA. MANHOLE	N 583897	E 1356672	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 18	4'-0" DIA. MANHOLE	N 583944	E 1356475	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 19	4'-0" DIA. MANHOLE	N 584014	E 1356410	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 20	4'-0" DIA. MANHOLE	N 584156	E 1356412	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 21	4'-0" DIA. MANHOLE	N 584388	E 1356471	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 22	4'-0" DIA. MANHOLE	N 583820	E 1356975	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 23	4'-0" DIA. MANHOLE	N 583897	E 1357881	HO. CO. STD. MANHOLE DETAIL NO. G-5.14 (DOGHOUSE)
SMH 24	4'-0" DIA. MANHOLE	N 583841	E 1357724	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 25	4'-0" DIA. MANHOLE	N 584041	E 1357590	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 26	4'-0" DIA. MANHOLE	N 584062	E 1357519	HO. CO. STD. MANHOLE DETAIL NO. G-5.12
SMH 27	4'-0" DIA. MANHOLE	N 583749	E 1357415	HO. CO. STD. MANHOLE DETAIL NO. G-5.12

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — 3/16/16 — DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20567
EXPIRATION DATE: 04-26-2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — 4.4.16 Date

Chief, Division of Land Development — 4-5-16 Date

Director — 4-5-16 Date

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
11/09/15	03	REVISED GRADING, STORM, SANITARY, RETAINING WALL

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER, MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.3300 · fax 410.872.3310

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

3/16/16
DATE

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

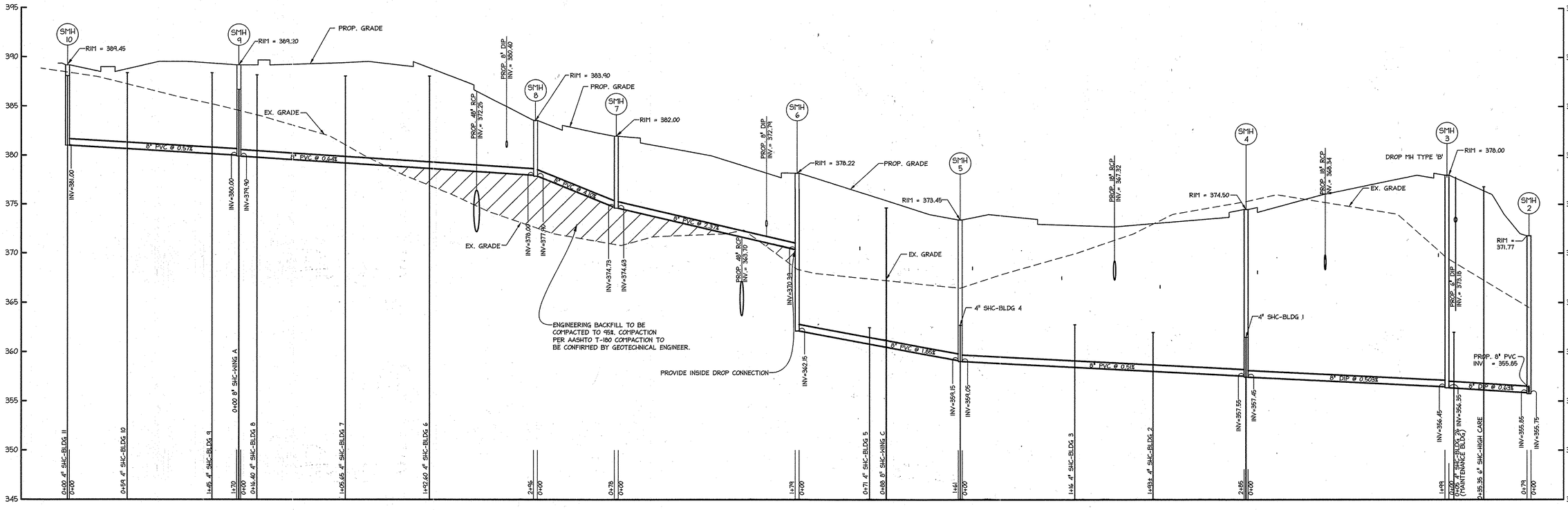
TITLE:

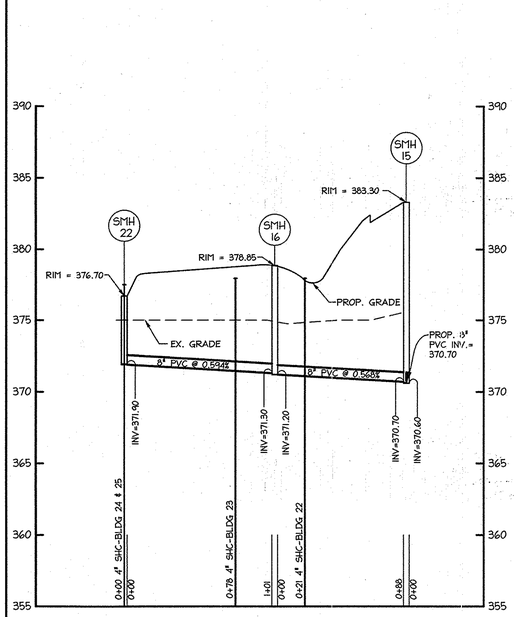
SANITARY PROFILES

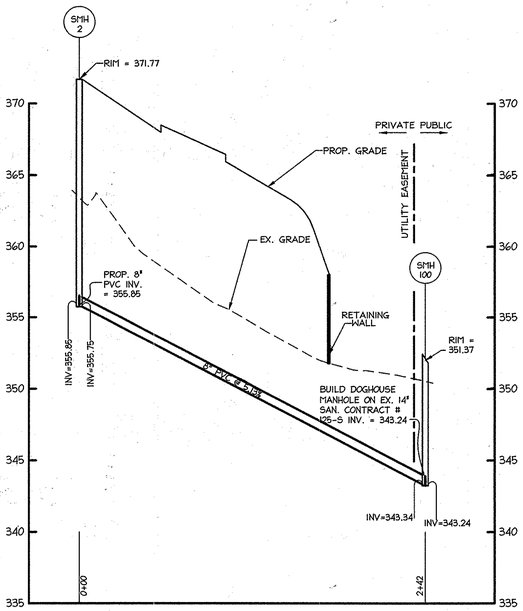
DESIGN: DAM	SCALE: 1" = 50' V, 1" = 5' H	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	23 OF 77
CHECKED: ENJ	APPROVED: WRZ	

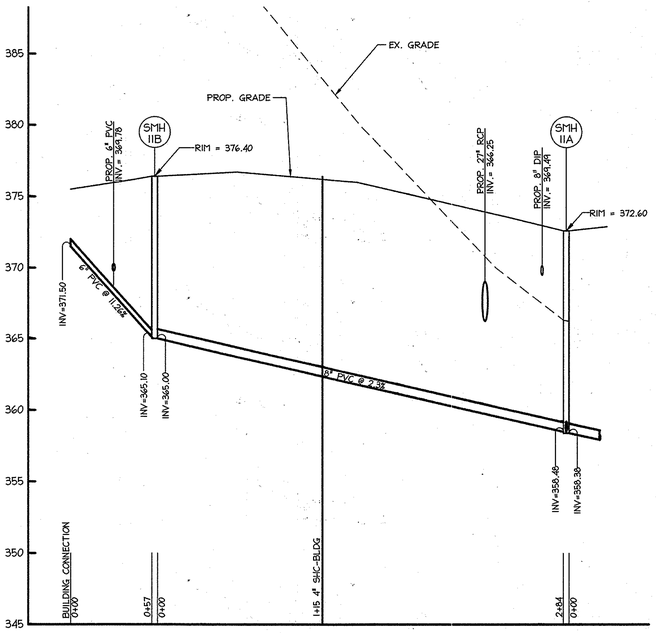
SDP. 08-075

P:\Projects\05115\01-MDC\XXXX-MDC\792 SDP\2016-01-22 Bid Set\2016-XX-XX\7 Plates (1)\ Profiles-Sitemaster\Cover sets\22-24 UTILITY PROFILES SAN.dwg, 12/15/2015 5:59:00 PM, dlgallman, 1:1, christopher consultants, ltd.









APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY DiNAVOLI, EX. VICE PRESIDENT
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WESTMINSTER MD 21158
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8000 · metro 301.621.0148 · fax 410.872.8855

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLER'S GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

SANITARY PROFILES

DESIGN: DAM	SCALE: 1" = 50' V, 1" = 5' H	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	24 OF 77
CHECKED: ENJ	APPROVED: WRZ	

PROFESSIONAL CERTIFICATION

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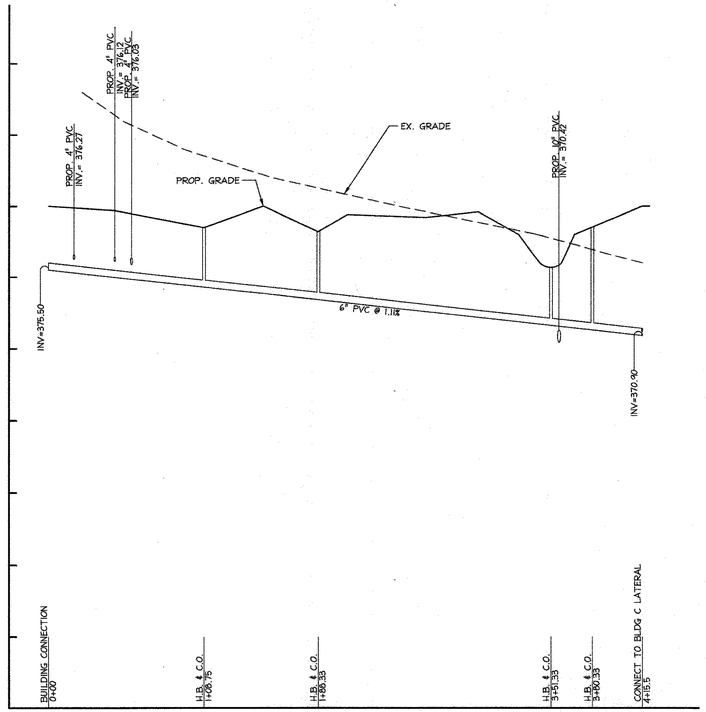
SIGNATURE OF ENGINEER — DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20567
EXPIRATION DATE: 09-26-2016

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20567 — REGISTERED PROFESSIONAL ENGINEER



POOL BUILDING SANITARY CONNECTION

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division NT — Date 9-26-16

Chief, Division of Land Development — Date 10-5-16

Director — Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED
		GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
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410.872.8980 · metro 301.831.0148 · fax 410.872.8983

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:

SANITARY PROFILES

DESIGN: DAM	SCALE: 1" = 50' V, 1" = 5' H	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	24A OF 77

7/25/2016
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
No. 20587
REGISTERED
PROFESSIONAL ENGINEER
8/6/16

PROFESSIONAL CERTIFICATION

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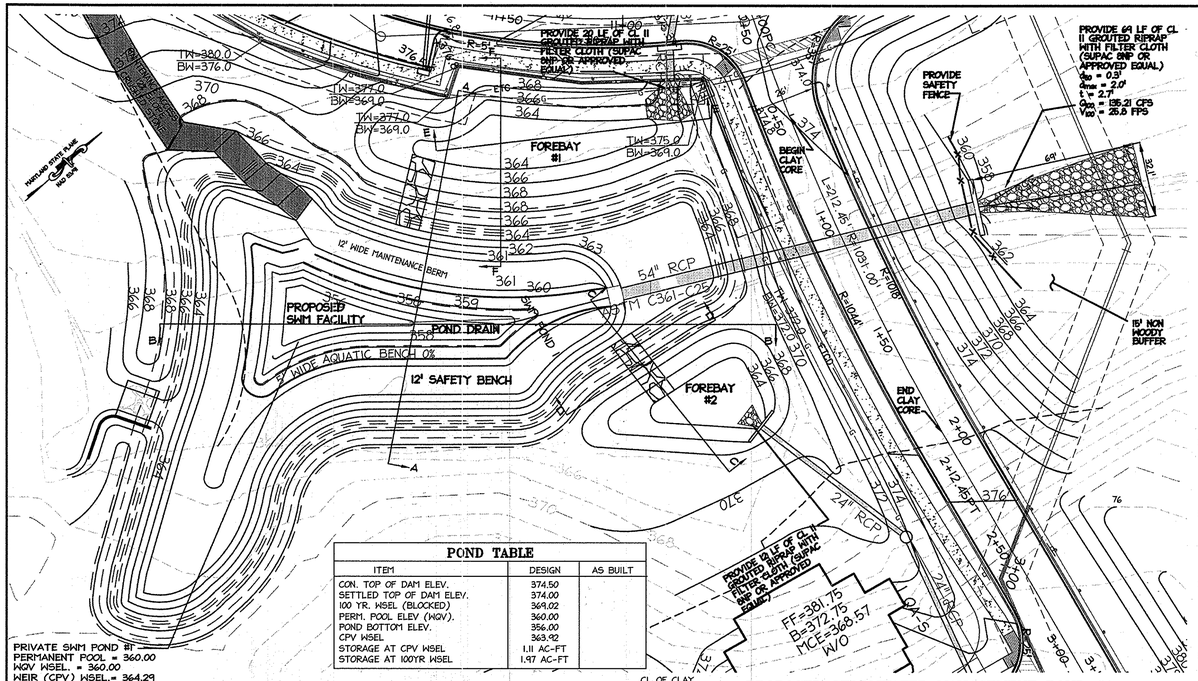
SIGNATURE OF ENGINEER — 8/6/16 01-05-2015 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

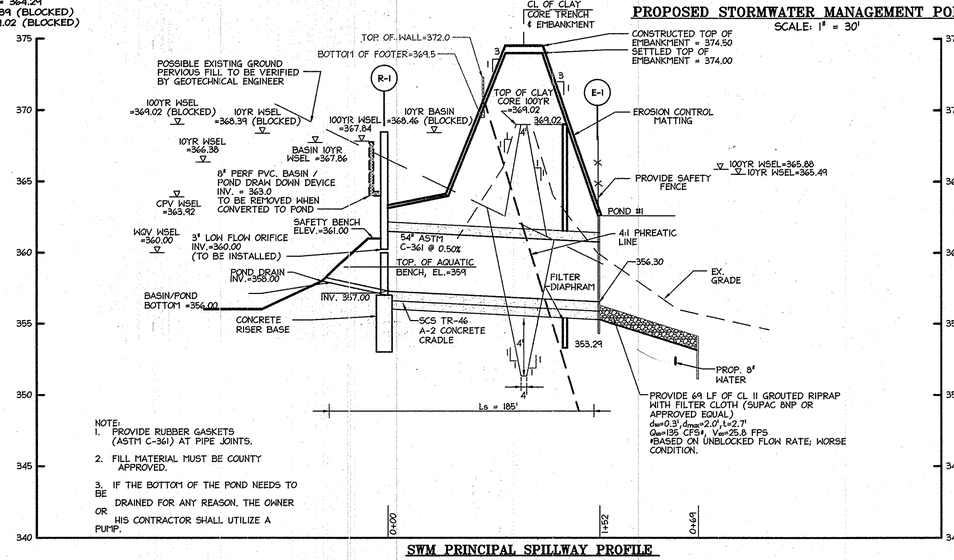
SDP-08-075



POND TABLE		
ITEM	DESIGN	AS BUILT
CON. TOP OF DAM ELEV.	374.50	
SETTLED TOP OF DAM ELEV.	374.00	
100 YR. WSEL (BLOCKED)	369.02	
PERM. POOL ELEV (WQV).	360.00	
POND BOTTOM ELEV.	356.00	
CPV WSEL	363.92	
STORAGE AT CPV WSEL	1.11 AC-FT	
STORAGE AT 100YR WSEL	1.97 AC-FT	

PRIVATE SWM POND #1
PERMANENT POOL = 360.00
WQV WSEL = 360.00
WEIR (CPV) WSEL.= 364.29
10 YR WSEL = 368.39 (BLOCKED)
100 YR WSEL = 369.02 (BLOCKED)
TYPE 'B' HAZARD

PROPOSED STORMWATER MANAGEMENT POND #1
SCALE: 1" = 30'

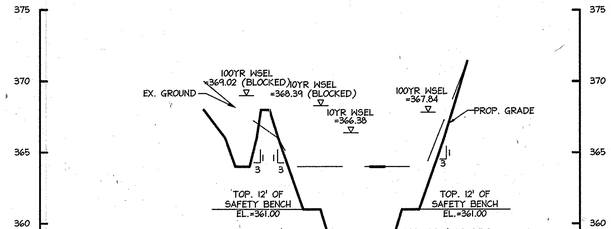


NOTE:
1. PROVIDE RUBBER GASKETS (ASTM C-361) AT PIPE JOINTS.
2. FILL MATERIAL MUST BE COUNTY APPROVED.
3. IF THE BOTTOM OF THE POND NEEDS TO BE DRAINED FOR ANY REASON, THE OWNER OR HIS CONTRACTOR SHALL UTILIZE A PUMP.

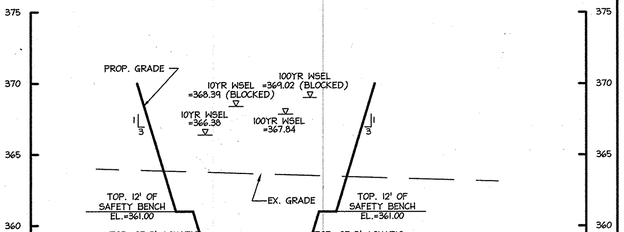
SWM PRINCIPAL SPILLWAY PROFILE
HOR 1"=50'
VER 1"= 5'

FOREBAY PROFILE SECTION E-E
HOR 1"=50'
VER 1"= 5'

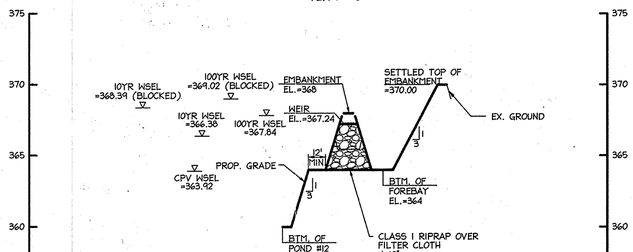
FOREBAY PROFILE SECTION F-F
HOR 1"=50'
VER 1"= 5'



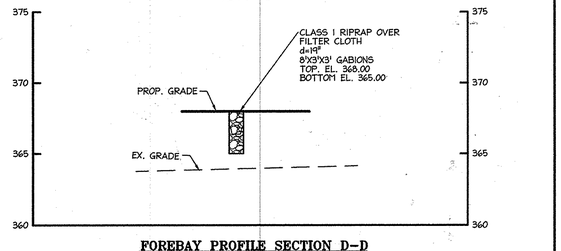
SWM POND #1 PROFILE SECTION A-A
HOR 1"=50'
VER 1"= 5'



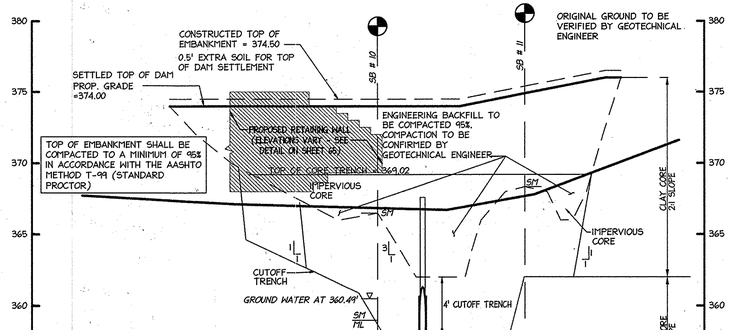
SWM POND #1 PROFILE SECTION B-B
HOR 1"=50'
VER 1"= 5'



FOREBAY PROFILE SECTION C-C
HOR 1"=50'
VER 1"= 5'



FOREBAY PROFILE SECTION D-D
HOR 1"=50'
VER 1"= 5'



EMBANKMENT PROFILE ALONG POND #1
HOR 1"=50'
VER 1"= 5'

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.
Pond #2
These plans for sediment and erosion control, soil erosion, and sediment control meet the requirements of the Howard County Conservation District.
Howard SCD — Date 1/20/15

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 2-20-15
Chief, Division of Land Development	Date 2-26-15
Director	Date 4/6/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CERAVOLO, EX. VICE PRESIDENT
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410.872.6900 · metro 301.861.6148 · fax 410.872.6903

PERMIT INFORMATION CHART				
PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:
STORMWATER MANAGEMENT PLAN – PD1

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02	
DRAWN: DAM	DATE: APRIL 12, 2013		
CHECKED: ENJ	APPROVED: WRZ	25 OF 77	

4b Hours
Before You Dig
Call
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Service Protection Center
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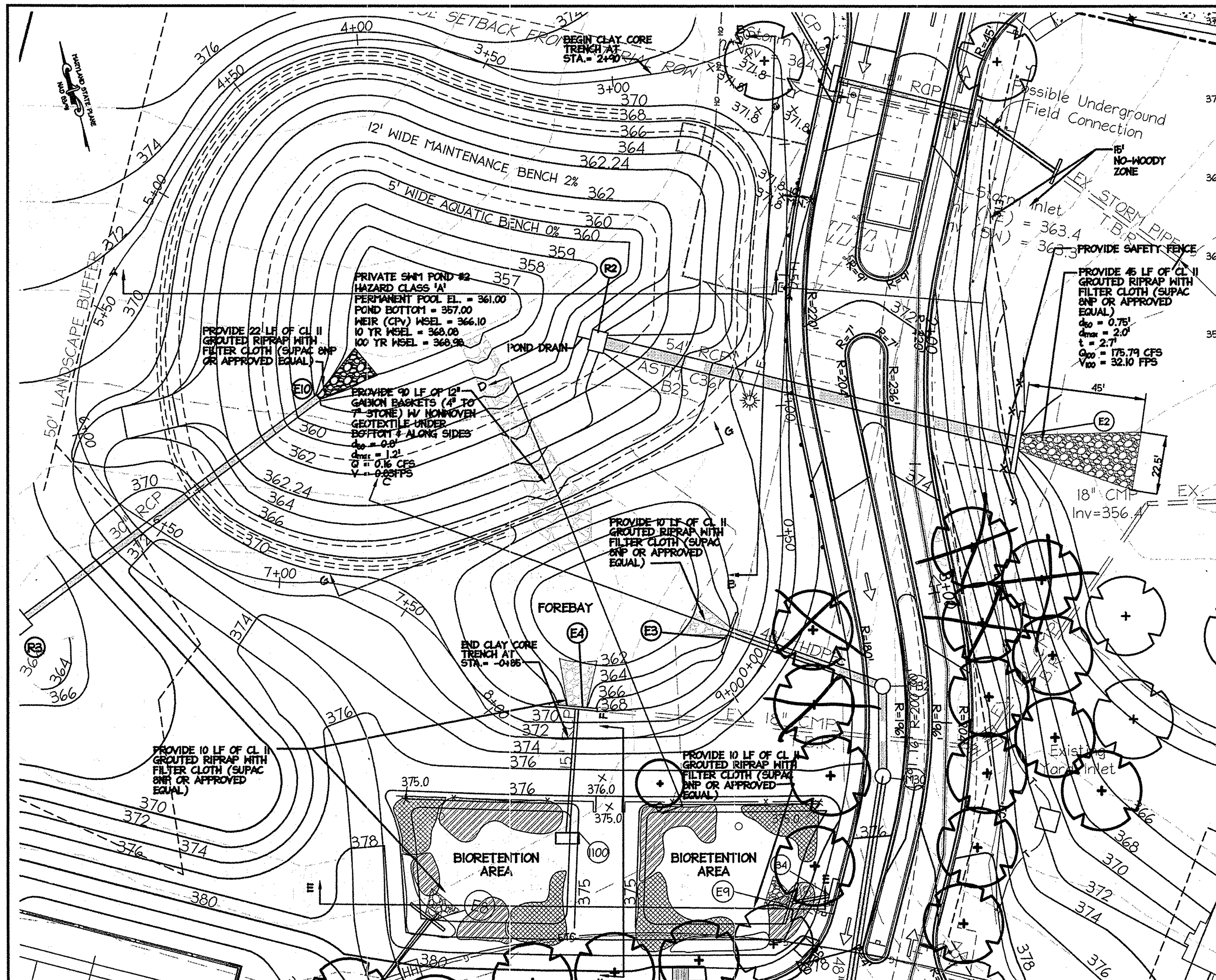
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 01-05-2015
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20567
EXPIRATION DATE: 09-26-2016

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — No. 20567 — REGISTERED PROFESSIONAL ENGINEER

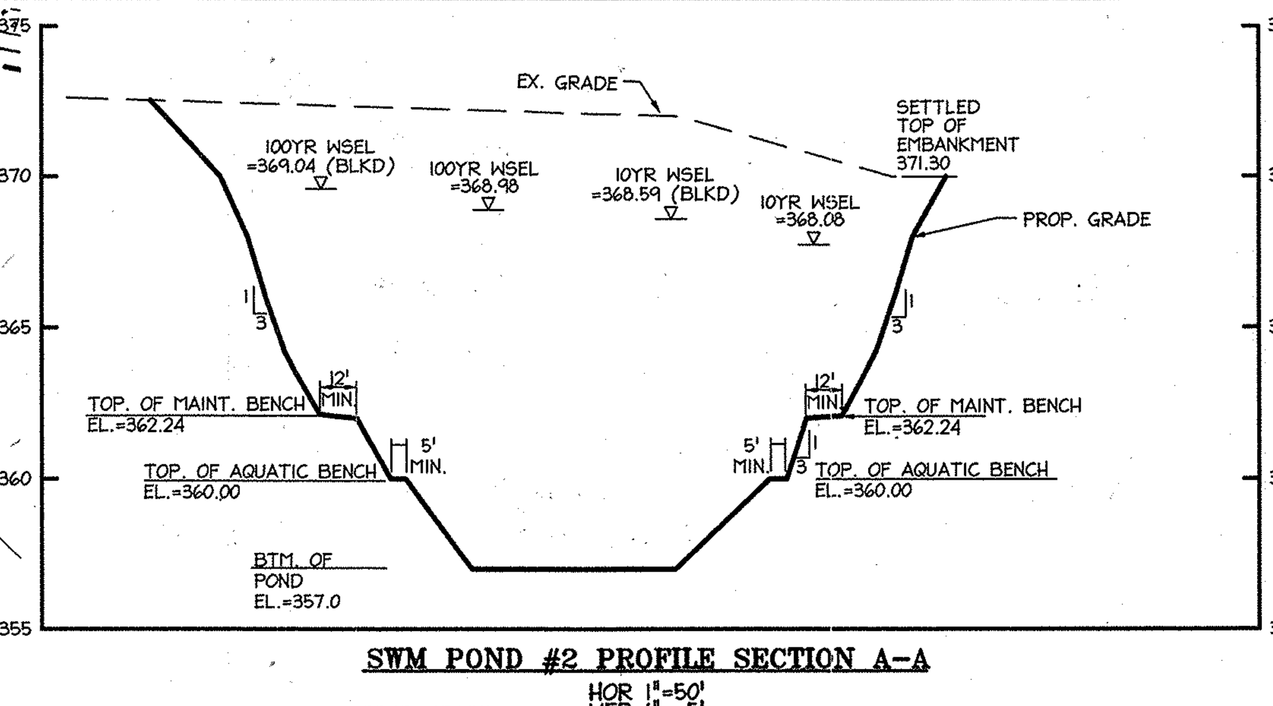


PROPOSED STORMWATER MANAGEMENT POND #2

SCALE: 1" = 30'

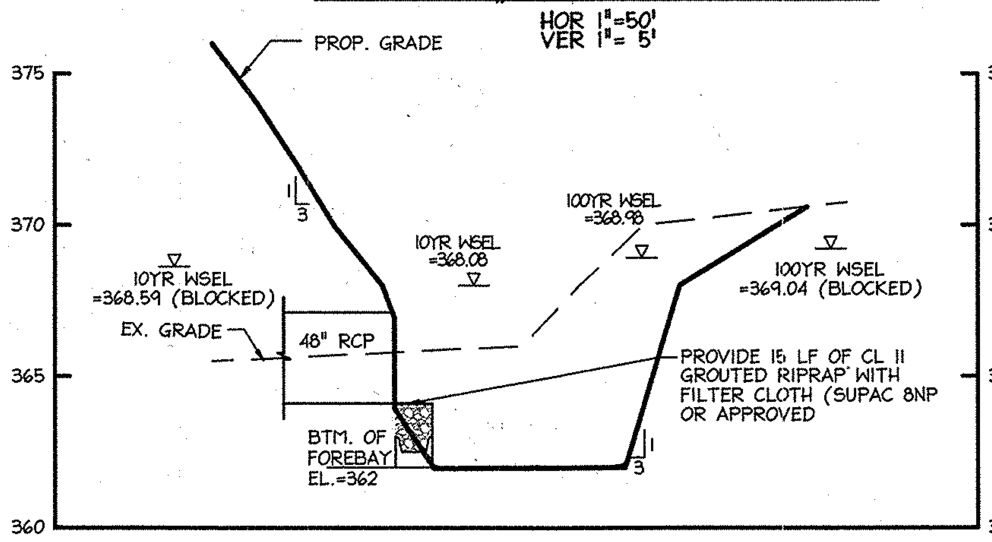
POND TABLE

ITEM	DESIGN	AS BUILT
CON. TOP OF DAM ELEV.	371.80	
SETTLED TOP OF DAM ELEV.	371.30	
10 YR. WSEL	368.08	
10 YR. WSEL (BLOCKED)	368.59	
100 YR. WSEL	368.98	
100 YR. WSEL (BLOCKED)	369.04	
PERM. POOL ELEV (WQV).	361.00	
POND BOTTOM ELEV.	357.00	
CPV WSEL	366.10	
STORAGE AT CPV WSEL	2.24 AC-FT	
STORAGE AT 100YR WSEL	4.94 AC-FT	



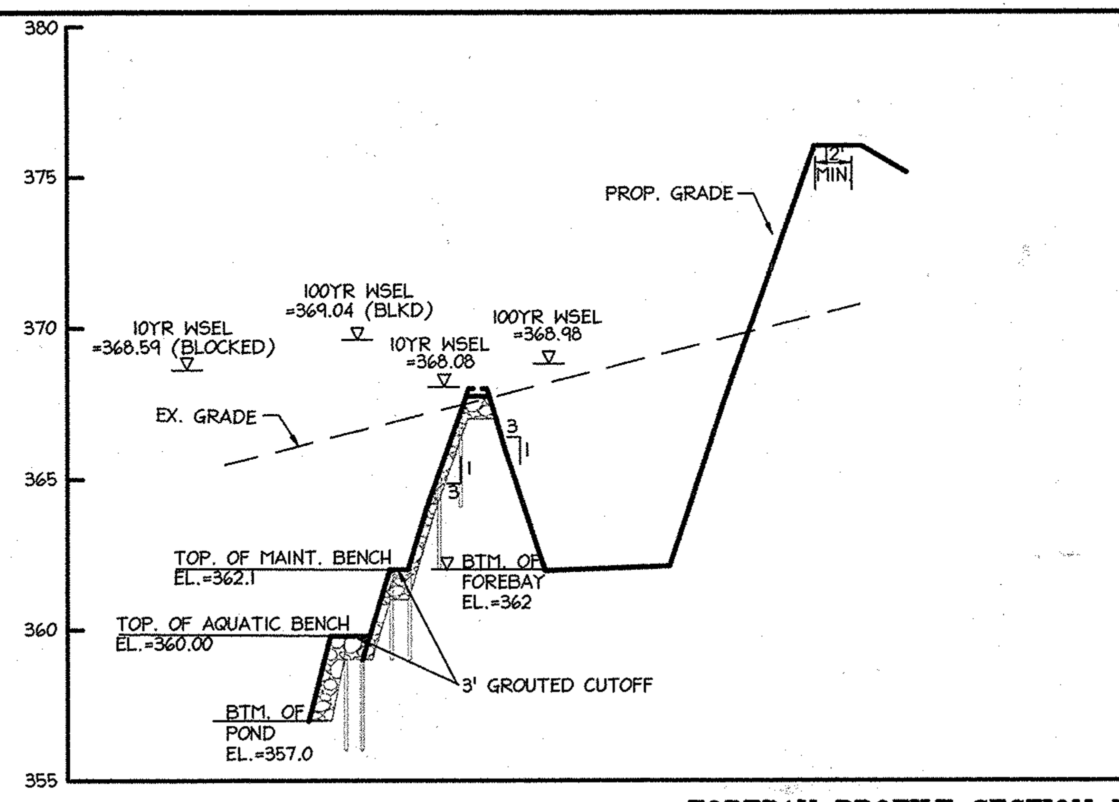
SWM POND #2 PROFILE SECTION A-A

HOR 1"=50'
VER 1"= 5'



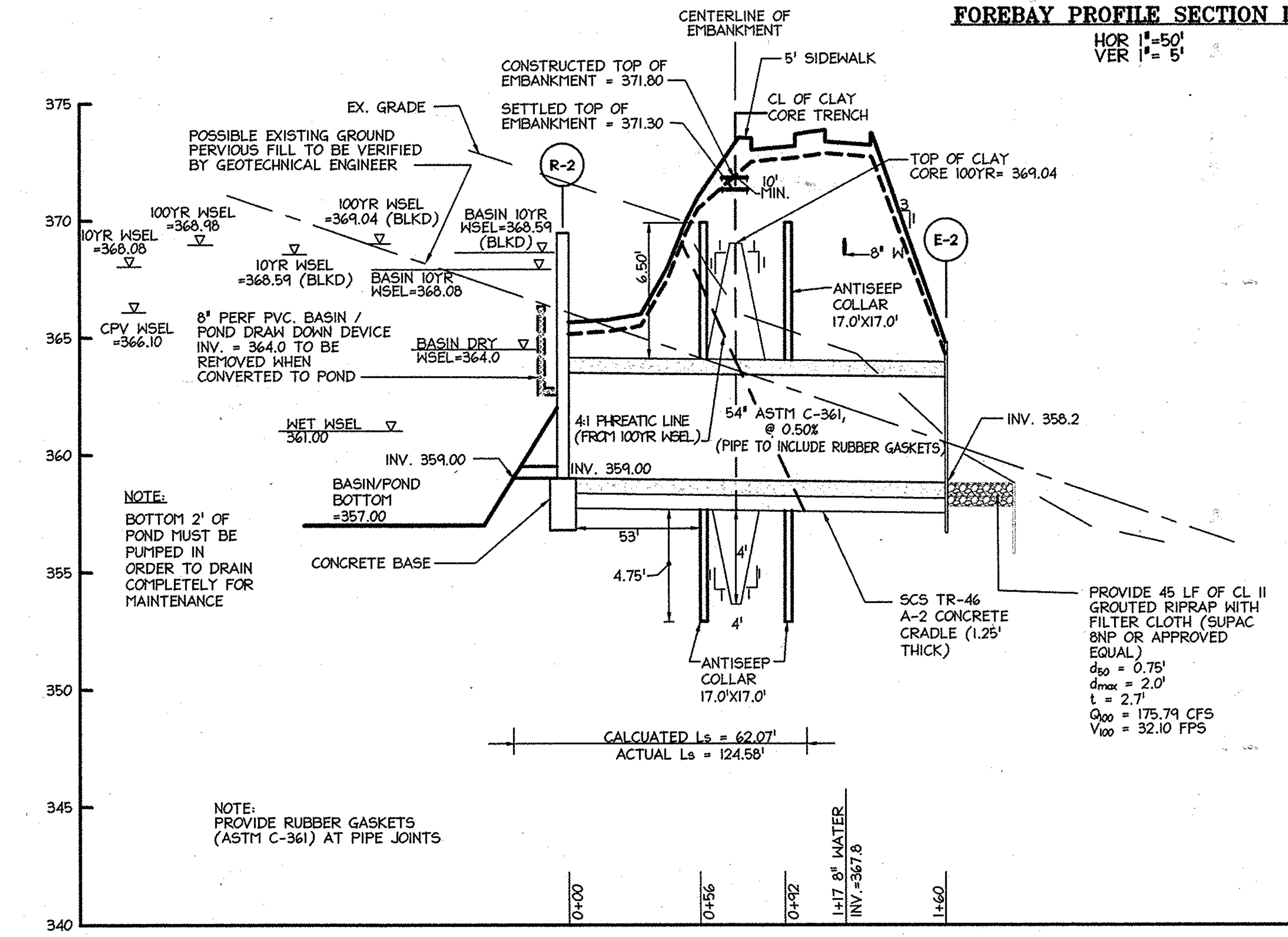
FOREBAY PROFILE SECTION C-C

HOR 1"=50'
VER 1"= 5'



FOREBAY PROFILE SECTION D-D

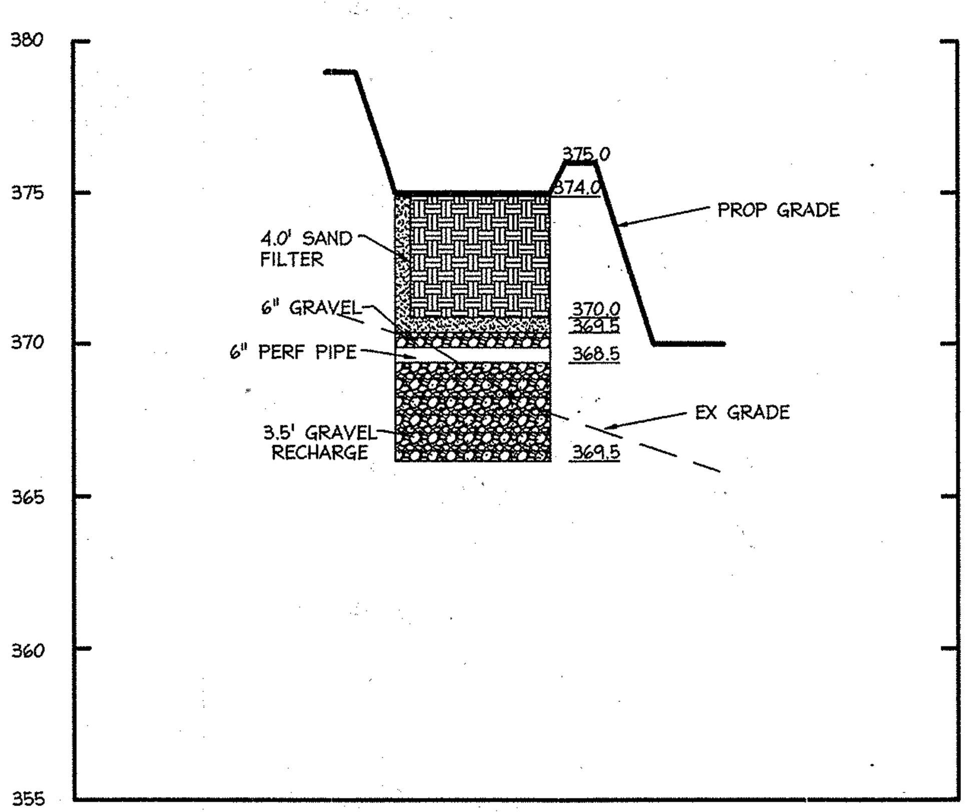
HOR 1"=50'
VER 1"= 5'



SWM PRINCIPAL SPILLWAY PROFILE

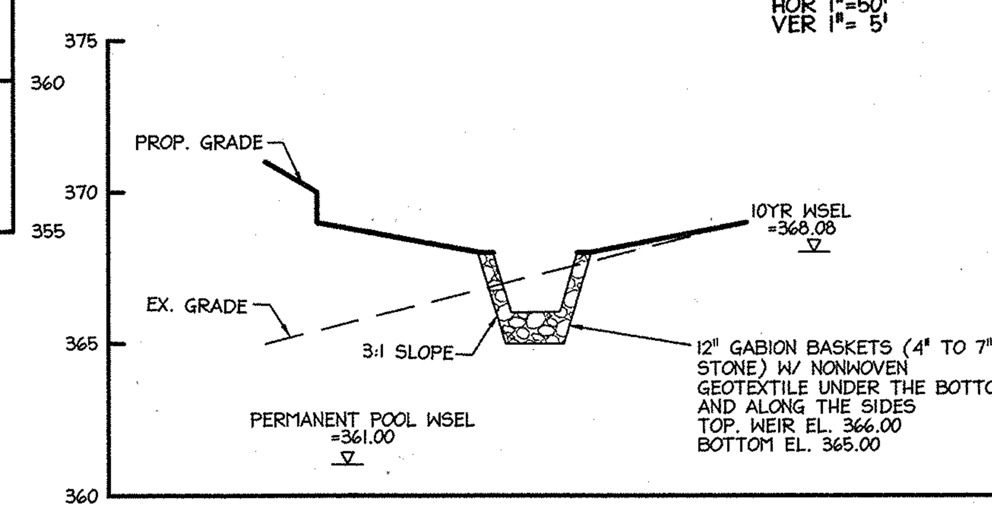
HOR 1"=50'
VER 1"= 5'

REFER TO SHEET 42A FOR BIORETENTION SPECIFICATIONS



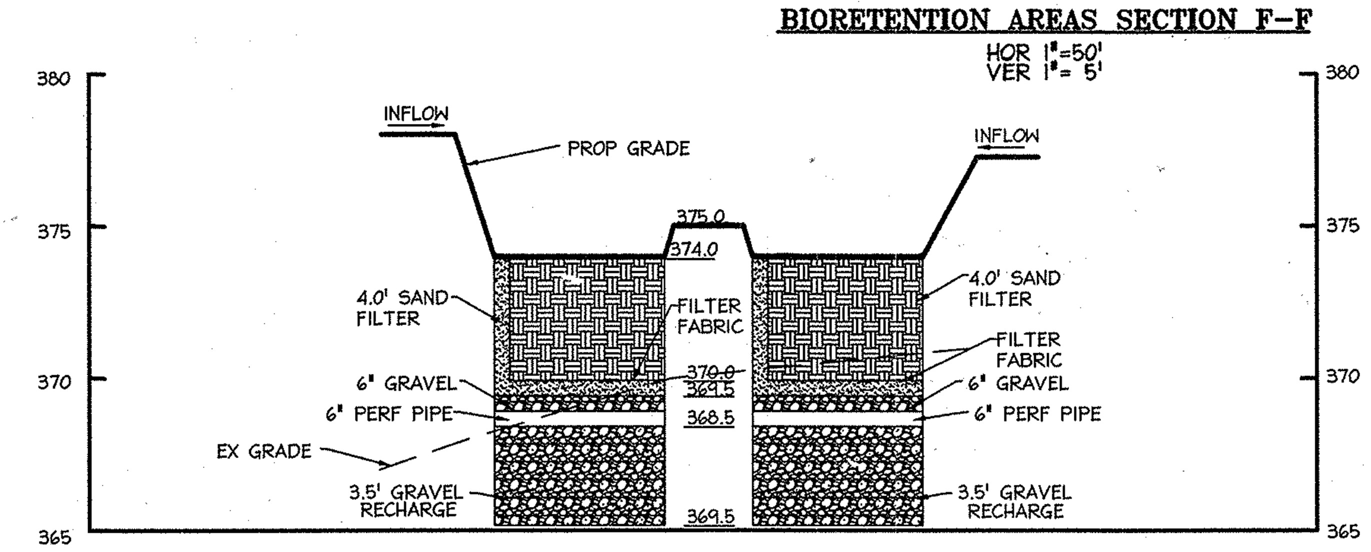
BIORETENTION AREAS SECTION F-F

HOR 1"=50'
VER 1"= 5'



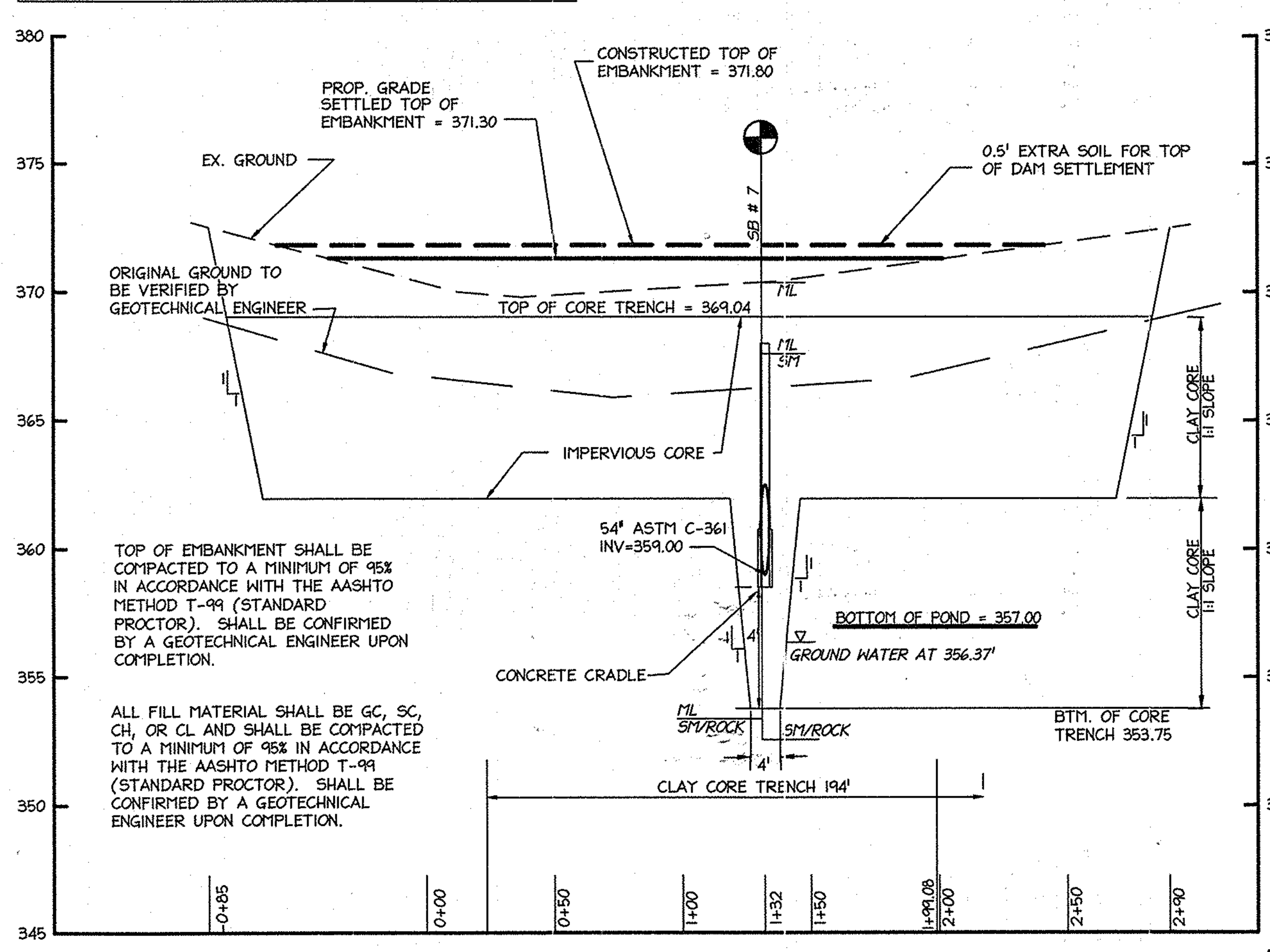
FOREBAY PROFILE SECTION G-G

HOR 1"=50'
VER 1"= 5'



BIORETENTION AREAS SECTION E-E

HOR 1"= 50'
VER 1"= 5'



TOP OF EMBANKMENT SHALL BE COMPACTED TO A MINIMUM OF 95% IN ACCORDANCE WITH THE AASHTO METHOD T-99 (STANDARD PROCTOR). SHALL BE CONFIRMED BY A GEOTECHNICAL ENGINEER UPON COMPLETION.

ALL FILL MATERIAL SHALL BE GC, SC, CH, OR CL AND SHALL BE COMPACTED TO A MINIMUM OF 95% IN ACCORDANCE WITH THE AASHTO METHOD T-99 (STANDARD PROCTOR). SHALL BE CONFIRMED BY A GEOTECHNICAL ENGINEER UPON COMPLETION.

EMBANKMENT PROFILE ALONG POND #2 SECTION B-B

HOR 1"=50'
VER 1"= 5'

PLANS APPROVED BY
Charles H. Wallis
FEB 04 2015
Dam Safety Division
Maryland Dept. of the Environment

MDE DAM SAFETY TRACKING AND PERMIT NUMBER: #11-OB-0065

APPROVED MARYLAND DEPARTMENT OF ENVIRONMENT SMALL POND DAM SAFETY	APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE ______	DATE MARCH 7, 2013

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER ______ DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

PRINT NAME BELOW SIGNATURE: ROY CHIAVACCI — DATE: 2/11/15

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

PRINT NAME BELOW SIGNATURE: WILLIAN R. ZINK, P.E. — DATE: 1/15/15

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Pond #2 — 1/20/15
HOWARD SOIL CONSERVATION DISTRICT — DATE

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — No. 20587 — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15
Chief, Division of Land Development — Date 2-26-15
Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.		CENSUS TRACT	
LUTHERAN VILLAGE AT MILLERS GRANT	A		602800	
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE:
STORMWATER MANAGEMENT PLAN - PD 2

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	26 of 77
CHECKED: ENJ	APPROVED: WRZ	

MD-378 CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARDS FOR PRACTICE MD-378. ALL REFERENCE TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED TO BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIALS SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED FOR ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIALS UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIALS SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR THE USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FORM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIALS FOR THE CENTER OF THE EMBANKMENT, AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNATED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER.

EMBANKMENT CORE - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE

EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10-YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TEMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8-INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE THREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95 % OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME ON CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT-OFF TRENCH - THE CUT-OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS OR HAND TEMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TEMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI; 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIALS SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING OF PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT THE EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TEMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED OF THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS - (POLYMER COATED STEEL PIPE) - STEEL PIPE WITH POLYMERIC COATING SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND IT APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATIONS M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-STEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FOR DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAINPIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER IF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE; AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF ? INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE.

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/ CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING / CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FORM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" - 24" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M294

2. JOINTS AND CONNECTIONS TO ANTI-STEEP COLLARS SHALL BE COMPLETELY WATERTIGHT

3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT SPONGY OR OTHER UNSTABLE SOIL IN ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

5. OTHER DETAILS (ANTI-STEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

POLYVINYL CHLORIDE (PVC) PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.
2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.
3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.
4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILLING."
5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

ROCK RIPRAP

ROCK RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THAT RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALL ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE PLACED UNDER RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.121.

DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIALS, SECTION 414, MIX NO. 3.

NOTES:

1. ANTI-SEEP COLLARS SHALL BE PLACED A MINIMUM OF 2.0 FT. FROM PIPE JOINTS.

2. THE FIRST JOINT WHILE LAYING MUST BE LOCATED WITH 4.0 FT. FROM THE RISER.

3. ALL ANTI-SEEP COLLARS AND PIPE CONNECTION WITH RISER STRUCTURE SHALL BE WATERTIGHT.

4. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFORM SOIL CLASSIFICATION GC, SC, CH OR CL.

5. OFF-SITE BORROW OR SPOIL AREAS MUST HAVE AN APPROVED AND ACTIVE SEDIMENT CONTROL PLAN.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCE CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

ROCK RIPRAP SHALL MEET THE REQUIREMENT OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR

CONSTRUCTION MATERIALS, SECTION 311.
GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIALS, SECTION 921.09, CLASS C

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER PARTS OF THE WORK FREE FROM WATER AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH ART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTED OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

OPERATION AND MAINTENANCE SCHEDULE FOR INFILTRATION TRENCHES

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
3. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
5. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE RECHARGE FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

INFILTRATION TRENCH GENERAL NOTES AND SPECIFICATIONS

A RECHARGE TRENCH MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE RECHARGE TRENCH HAS RECEIVED FINAL STABILIZATION.

1. HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE PROPOSED LOCATION OF THE RECHARGE TRENCH TO MINIMIZE COMPACTION OF THE SOIL.
2. EXCAVATE THE RECHARGE TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. THE SIDEWALLS OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.
3. A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0, MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, MDE, 1994) SHALL INTERFACE BETWEEN THE TRENCH SIDEWALLS AND EARTH AND ¼" GALVANIZED MESH CLOTH BETWEEN THE SAND AND GRAVEL LAYER. A PARTIAL LIST OF NON-WOVEN FILTER FABRICS THAT MEET THE CLASS "C" CRITERIA FOLLOWS. ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY

AMOCO 4552	CARTHAGE FX-80S
GEOLON N70	MIRAFI 180-N
WEBTEC N07	

THE WIDTH OF THE GEOTEXTILE MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER IRREGULARITIES AND FOR A 6" MINIMUM TOP OVERLAP AND 1' AT JOINT. STONES OR OTHER ANCHORING OBJECTS SHOULD BE PLACED ON THE FABRIC AT THE EDGE OF THE TRENCH TO KEEP THE TRENCH OPEN DURING WINDY PERIODS. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPHILL ROLL SHOULD LAP A MINIMUM OF 2 FEET OVER THE DOWNHILL ROLL IN ORDER TO PROVIDE A SHINGLED EFFECT.

4. IF A 6 INCH SAND FILTER LAYER IS PLACED ON THE BOTTOM OF THE RECHARGE TRENCH, THE SAND FOR THE RECHARGE TRENCH SHALL BE WASHED AND MEET AASHTO-M-43, SIZE NO. 9 OR NO. 10. ANY ALTERNATIVE SAND GRADATION MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.
5. THE STONE AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE GRAVEL (ROUNDED "BANK RUN" GRAVEL IS PREFERRED) FOR THE RECHARGE TRENCH SHALL BE WASHED AND MEET ONE OF THE FOLLOWING AASHTO-M-43, SIZE NO. 2 OR NO. 3.
6. FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 12-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FILL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT BACKFILLING.
7. CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERMIXING WITH THE STONE AGGREGATE. ALL CONTAMINATED STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE.
8. VOIDS MAY OCCUR BETWEEN THE FABRIC AND THE EXCAVATION SIDES SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, NATURAL SOILS SHOULD BE PLACED IN THESE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.
9. VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOFT COHESIVE OR COHESIVENESS SOILS ARE DOMINANT. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPES OR MECHANICAL SUPPORT OF EXCAVATION METHODS TO MAINTAIN STABILITY.
10. THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (M 278 OR F758, TYPE PS 28) WITH A CAP SET 6 INCHES ABOVE GROUND LEVEL AND IS TO BE LOCATED NEAR THE LONGITUDINAL CENTER OF THE RECHARGE TRENCH. THE PIPE SHALL HAVE A PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING THE CAP. THE SCREW TOP LID SHALL BE A CLEANOUT WITH A LOCKING MECHANISM OR SPECIAL BOLT TO DISCOURAGE VANDALISM. THE DEPTH TO THE INVERT SHALL BE MARKED WITH A LOCKING LID. THE PIPE SHALL BE PLACED VERTICALLY WITHIN THE GRAVEL PORTION OF THE RECHARGE TRENCH AND A CAP PROVIDED AT THE BOTTOM OF THE PIPE. THE BOTTOM OF THE CAP SHALL REST ON A PIECE OF MARINE PLYWOOD ON THE RECHARGE TRENCH BOTTOM.
11. CORRUGATED METAL DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, AND SHALL BE ALUMINIZED IN ACCORDANCE WITH AASHTO-M-274. ALUMINIZED PIPE IN CONTACT WITH CONCRETE SHALL BE COATED WITH AN INERT COMPOUND CAPABLE OF PREVENTING THE DELETERIOUS EFFECT OF THE ALUMINUM ON THE CONCRETE. PERFORATED DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, CLASS 2 AND SHALL BE PROVIDED ONLY WITHIN THE RECHARGE TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE RECHARGE TRENCH WALL. AN ALUMINIZED METAL PLATE SHALL BE WELDED TO THE END OF THE PIPE.
12. IF A DISTRIBUTION STRUCTURE WITH A WET WELL IS USED, A 4-INCH DRAIN PIPE SHALL BE PROVIDED AT OPPOSITE ENDS OF THE RECHARGE TRENCH DISTRIBUTION STRUCTURE. TWO (2) CUBIC FEET OF POROUS BACKFILL MEETING AASHTO-M-43, SIZE NO. 57 SHALL BE PROVIDED AT EACH DRAIN.
13. IF A DISTRIBUTION STRUCTURE IS USED, THE MANHOLE COVER SHALL BE BOLTED TO THE FRAME.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

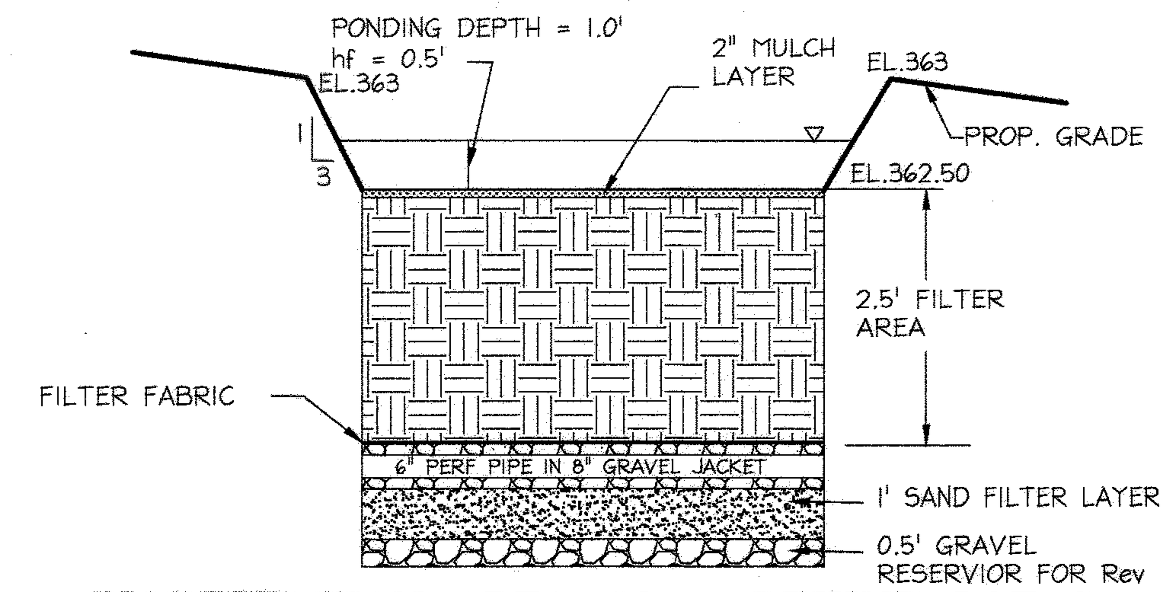
1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING, OR SLUMPING.

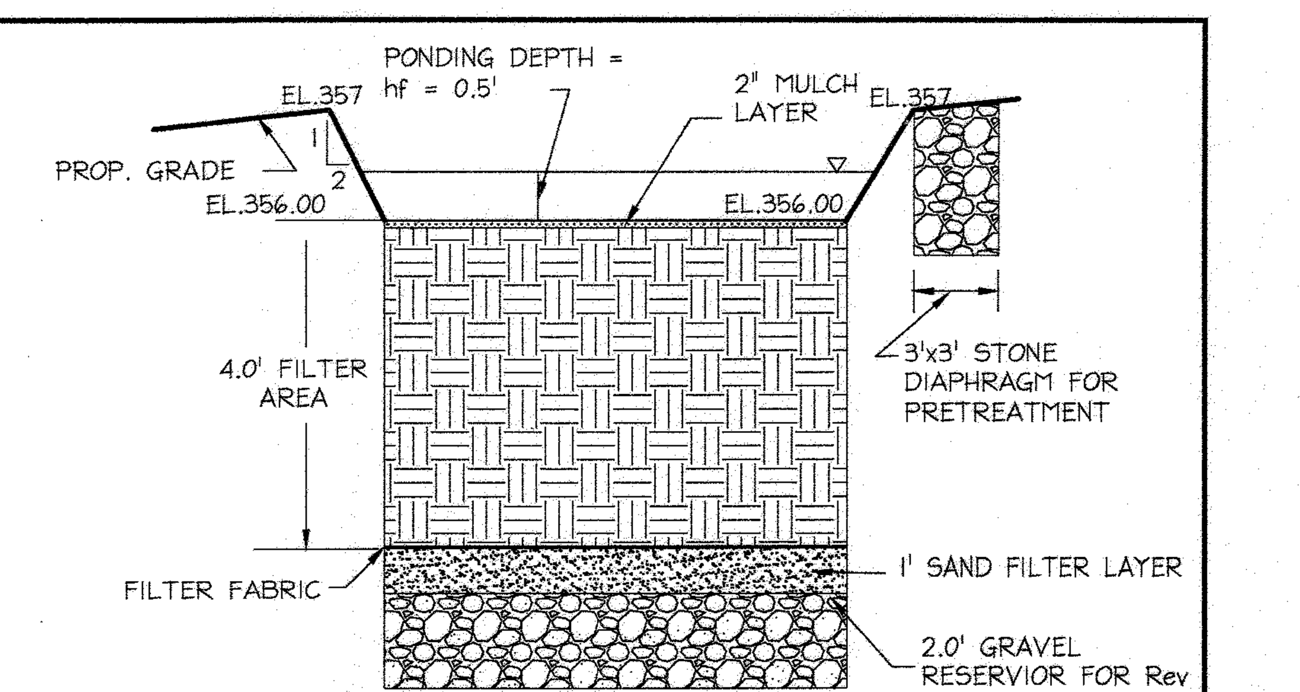
BIORETENTION PLANT LIST

QTY.	SYMBOL	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING/COMMENTS
SHADE TREES					
8	BN	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	10-12' HT.	B&B
EVERGREEN TREES					
10	PS	PINUS STROBUS	WHITE PINE	7' - 9'	B&B
SHRUBS					
21	IG	ILEX GLABRA	INKBERRY HOLLY	34-36" HT.	5' O.C.
61	GD	GAYLUSSACIA DUMOSA	DWARF HUCKLEBERRY	18-24" HT.	3' O.C.
PERENNIAL					
77	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	1 GAL.	24" O.C.
195	PL	PANICUM LONGIFOLIUM	PANIC GRASS	1 GAL.	36" O.C.
316	CP	CYPERUS PSEUDOVEGETUS	MARSH FLAT SEDGE	1 GAL.	15" O.C.



BIORETENTION AREA #2 - BEHIND LOT 3
TYPICAL SECTION

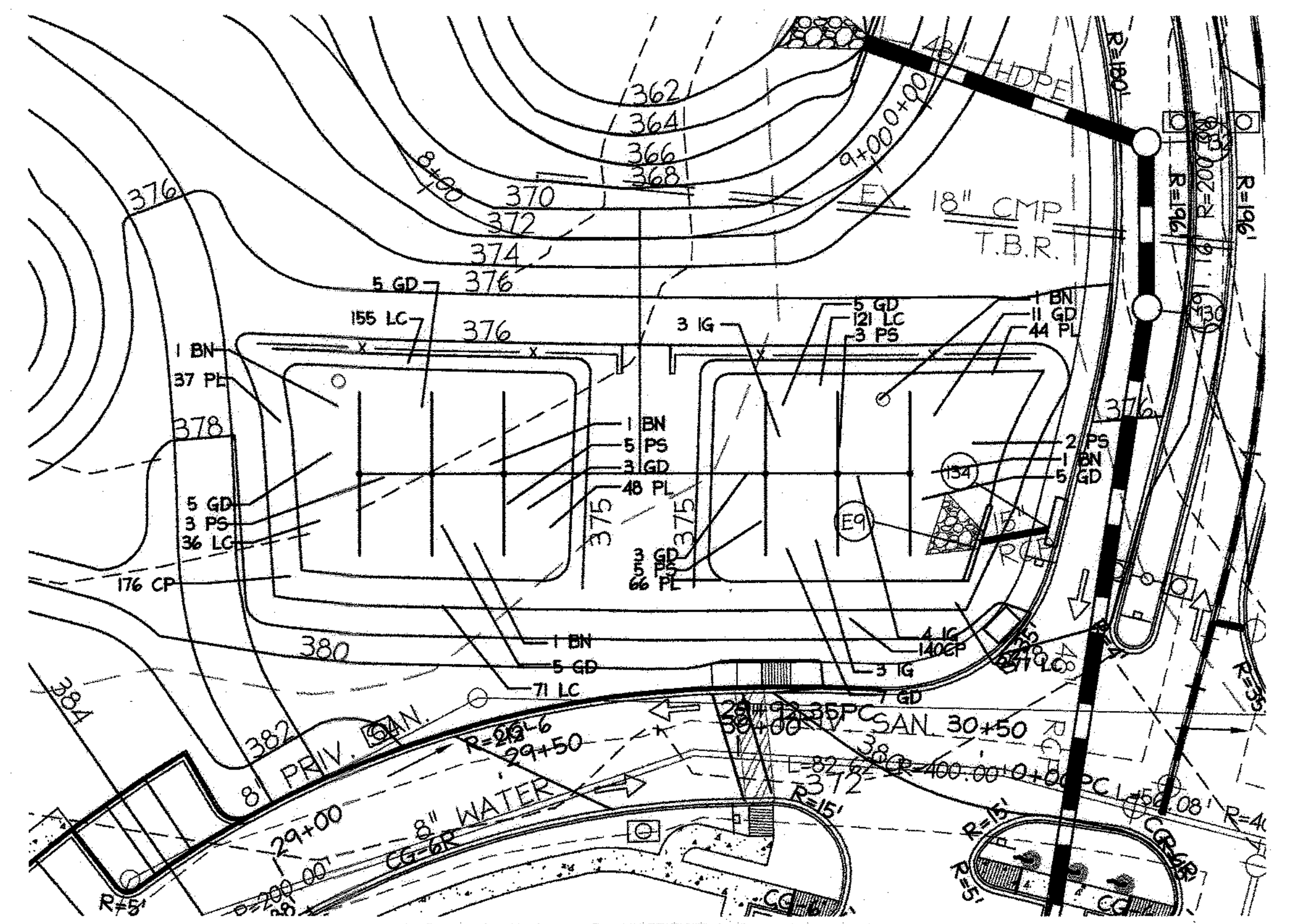
NTS



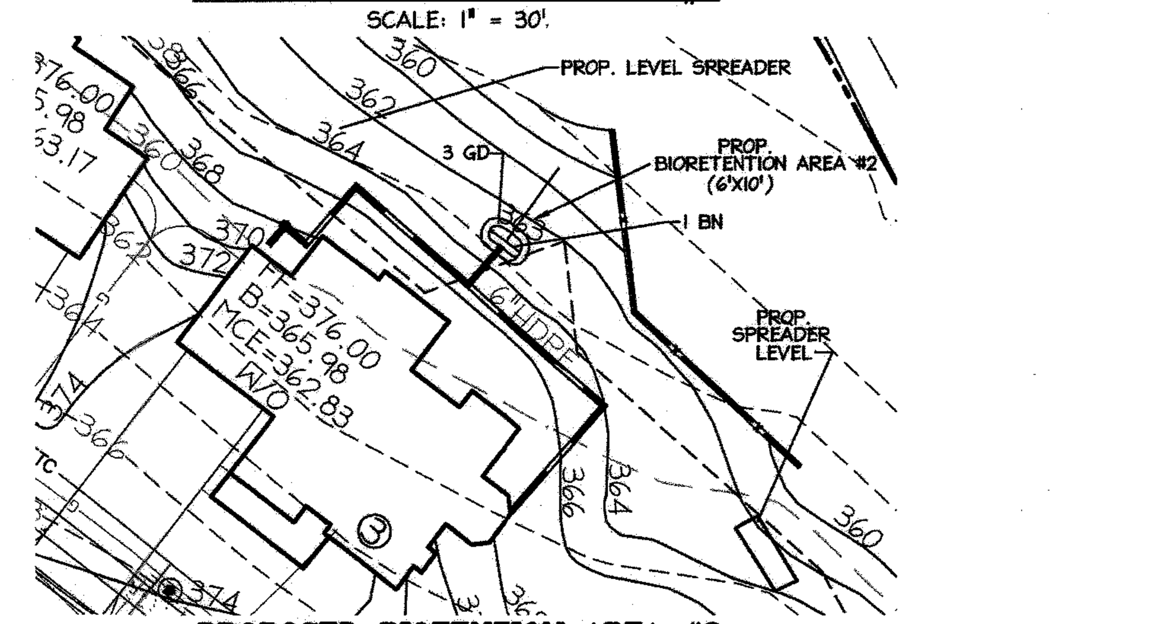
BIORETENTION AREA #3
TYPICAL SECTION

NTS

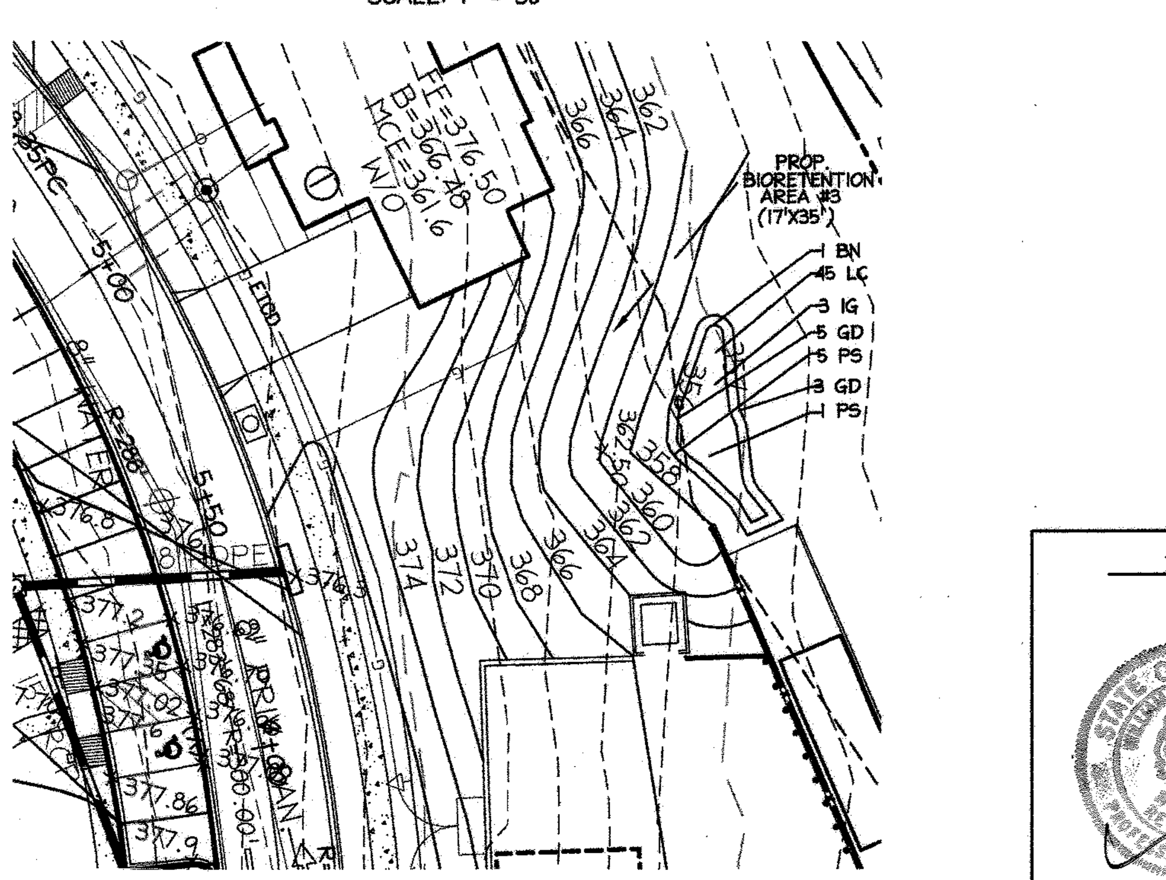
REFER TO SHEET 42A FOR BIORETENTION SPECIFICATIONS



PROPOSED BIOTENTION AREA #1
SCALE: 1" = 30'



PROPOSED BIOTENTION AREA #2
SCALE: 1" = 30'



PROPOSED BIOTENTION AREA #3
SCALE: 1" = 30'

MDE DAM SAFETY
TRACKING AND PERMIT
NUMBER: #11-OB-0065

APPROVED MARYLAND DEPARTMENT OF ENVIRONMENT SMALL POND DAM SAFETY	APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE ________	DATE MARCH 7, 2013

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 8/6/16 05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 9-26-16
Chief, Division of Land Development — Date 10-5-16
Director — Date 10-5-16

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center
CALL TOLL FREE 1-800-257-7777

7/25/2016
DATE

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A		602800

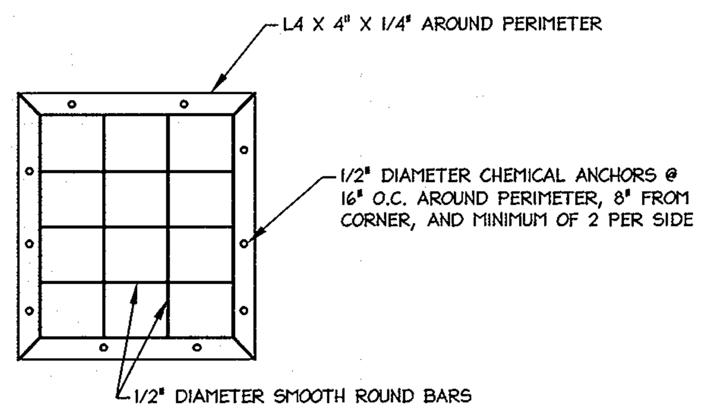
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
STORMWATER MANAGEMENT NOTES AND DETAILS

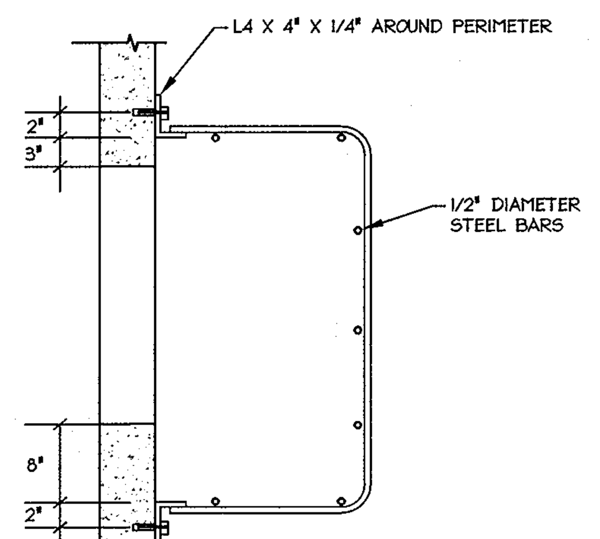
DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	27 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08.075

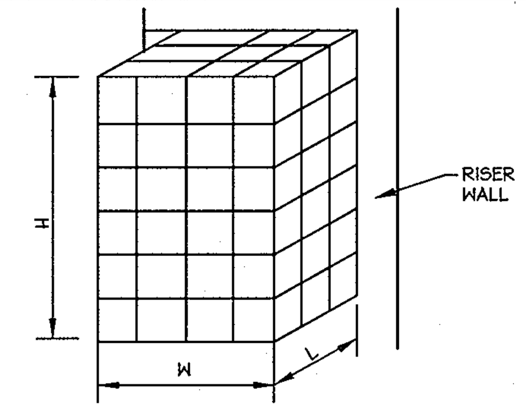


1. ASSEMBLY SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. STEEL ANGLES SHALL CONFORM TO ASTM A36.
3. BARS TO CONFORM TO ASTM A108.
4. CHEMICAL ANCHORS SHALL BE 1/2" DIAMETER GAVLANIZED THREADED RODS WITH HILTI HY200 ADHESIVE SYSTEM (4.5" EMBEDDMENT).

TRASH RACK DETAIL
N.T.S



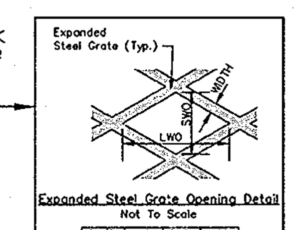
TRASH RACK SECTION
N.T.S



TRASH RACK DIMENSIONS

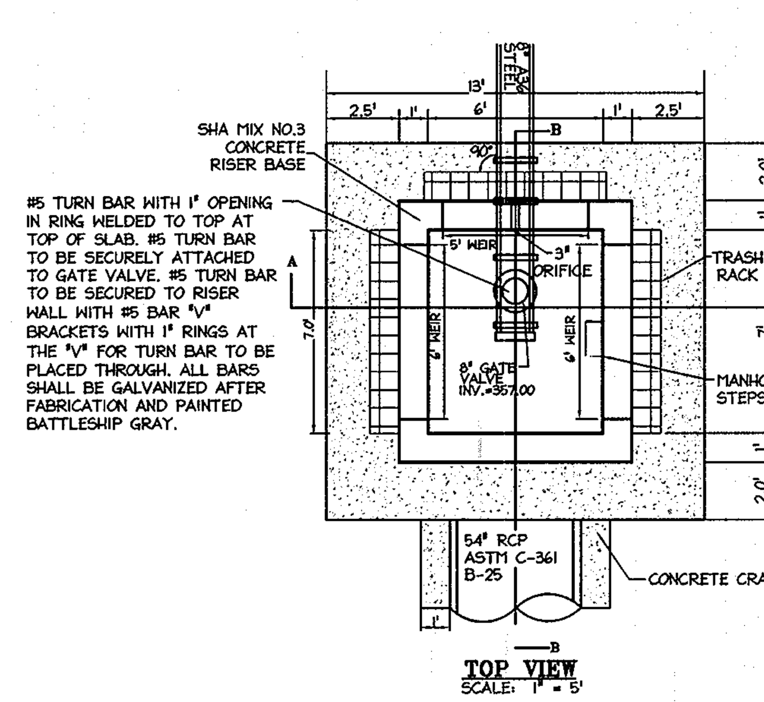
TYPE	L(FT)	W(FT)	H(FT)
LOW WEIR	1	6	6.62
HIGH WEIR	1	7	3.92
LOW FLOW ORIFICE *	1	2	3

* LOW FLOW ORIFICE TRASH RACK SHALL CONTAIN A 2.5-3 LB/FT² EXPANDED STEEL GRATE
SEE DETAIL

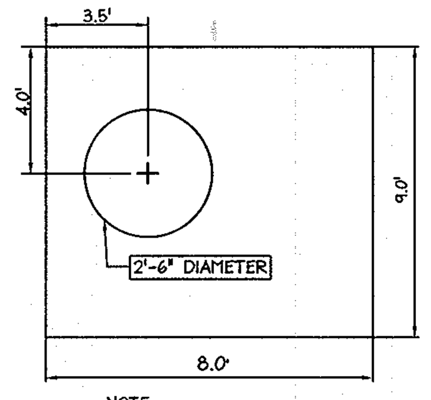


Expanded Steel Grate Opening Detail
Not To Scale

LBS/SF	LWO	SWO	WIDTH
2.5	2.28"	1.03"	.203"
3.0	3.44"	.940"	.264"

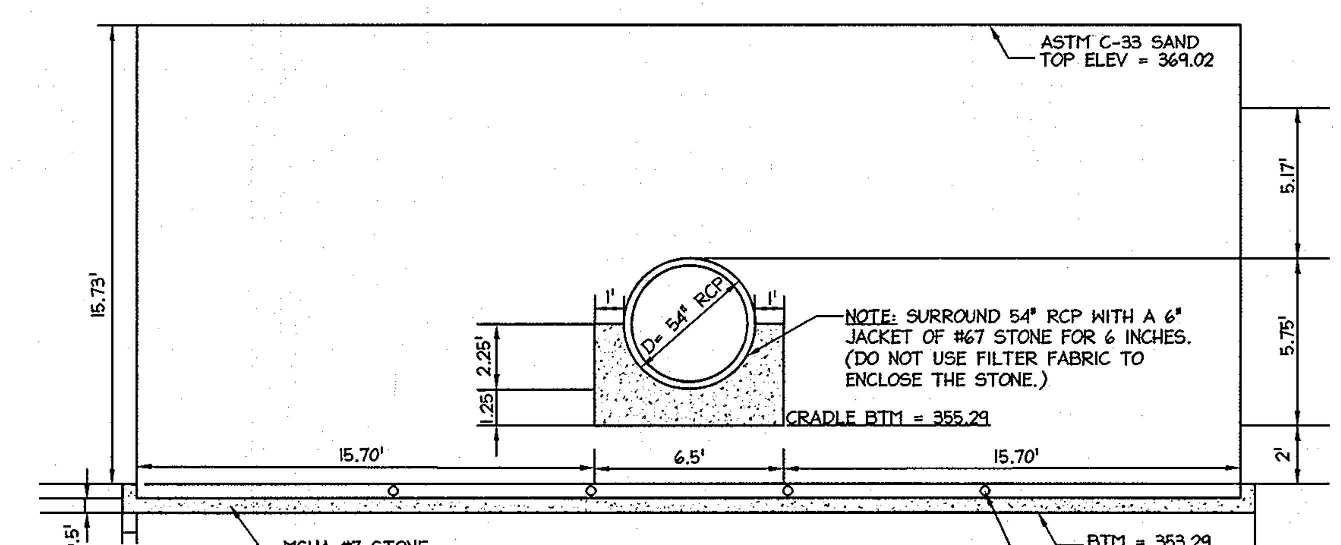


TOP VIEW
SCALE: 1" = 5'

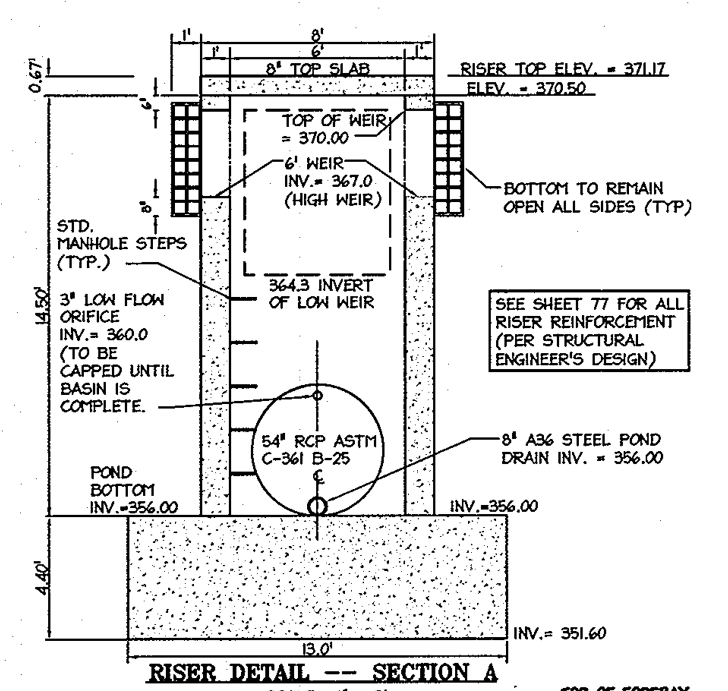


NOTE:
THE SIDE OF THE SLAB CLOSEST TO THE FRAME AND COVER WILL LINE UP WITH THE SIDE OF THE RISER WITH STANDARD MANHOLE STEPS.

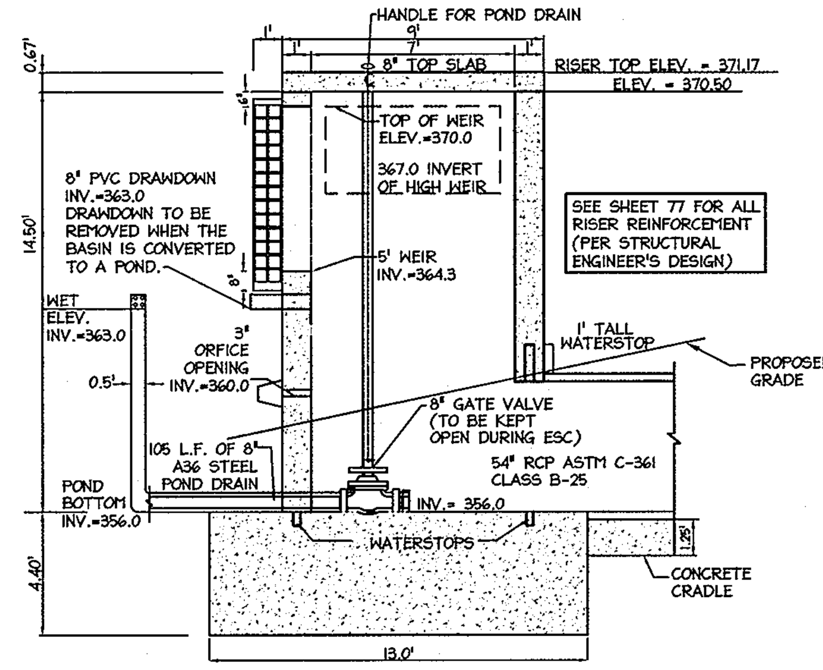
TOP SLAB
N.T.S.
CAST IN PLACE



FILTER DIAPHRAGM
1"=5'



RISER DETAIL — SECTION A
SCALE: 1" = 5'



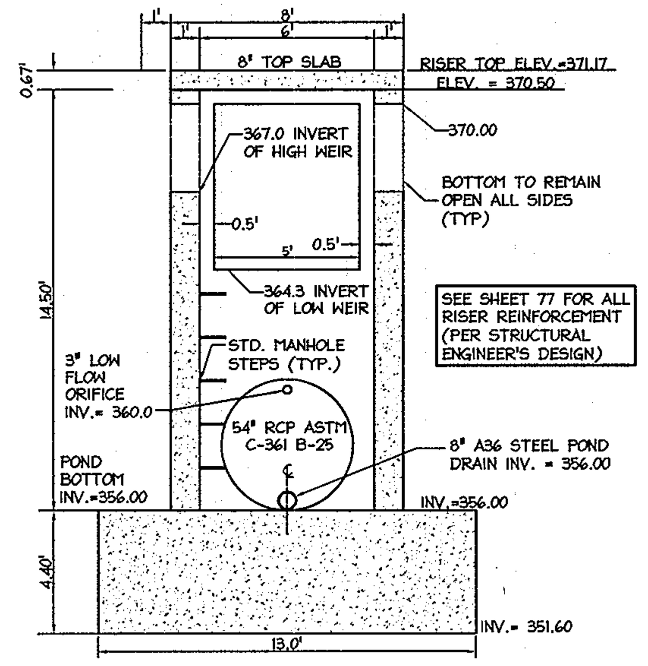
RISER DETAIL — SECTION B
SCALE: 1" = 5'

NOTE:
PROVIDE RESEATING GATE VALVE ON POND DRAIN. VALVE SHALL BE LOCATED INSIDE RISER SUCH THAT IT CAN BE ACCESSED FROM MANHOLE.

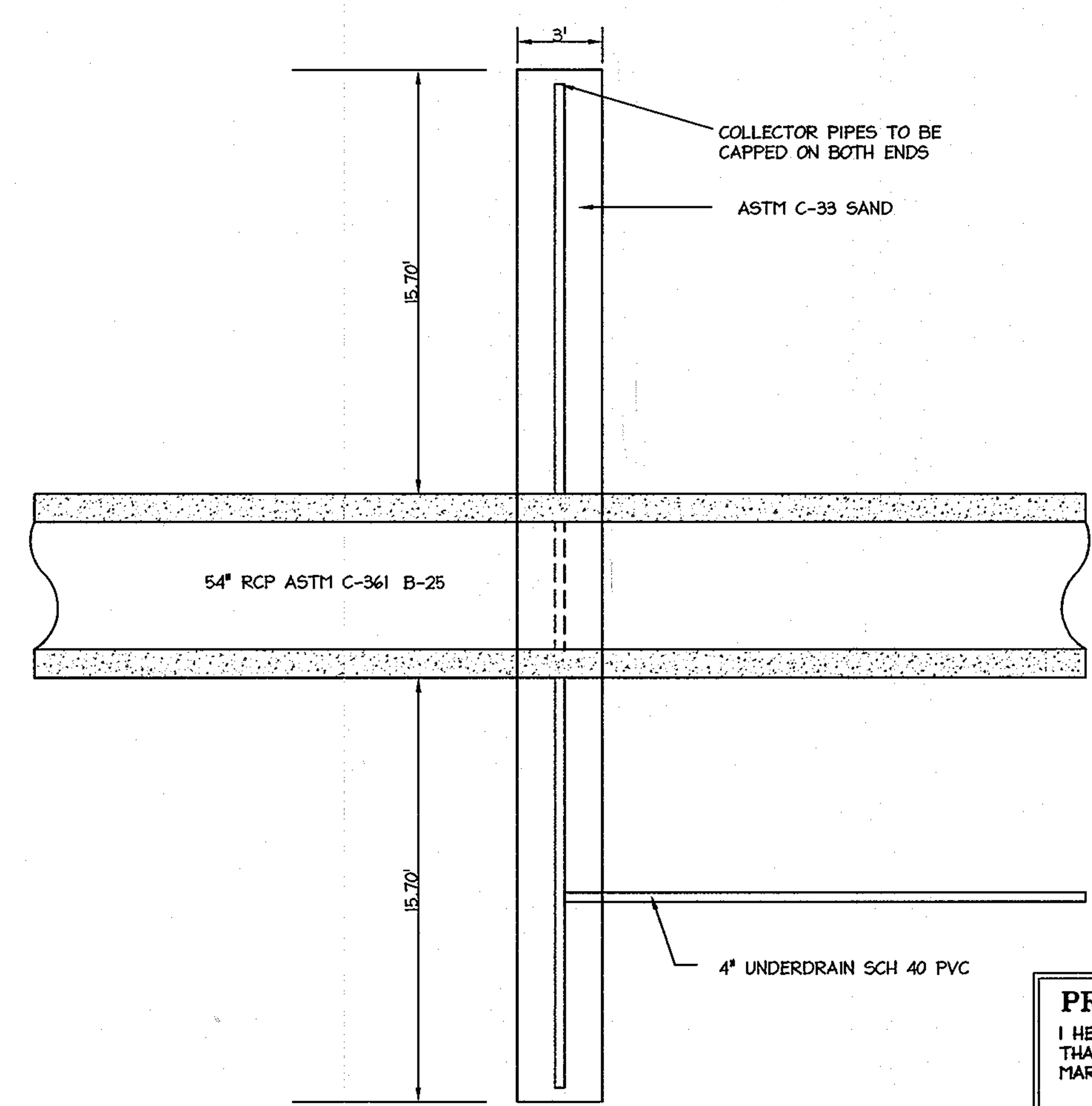
CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ENGINEERS APPROVAL SHOWING REBAR REINFORCEMENT. SHOP DRAWINGS TO BE PROVIDED FOR EITHER PRE-CAST OR CAST IN PLACE CONSTRUCTION.

TRASH RACK TO BE GALVANIZED AFTER FABRICATION AND PAINTED BATTLESHIP GRAY.

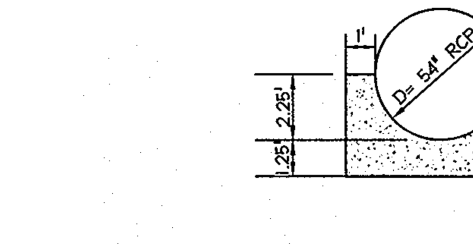
TRASH RACK TO BE REMOVABLE



WEIR DETAIL
SCALE: 1" = 5'



FILTER DIAPHRAGM—PLAN VIEW
(37.92' WIDE)
1"=5'



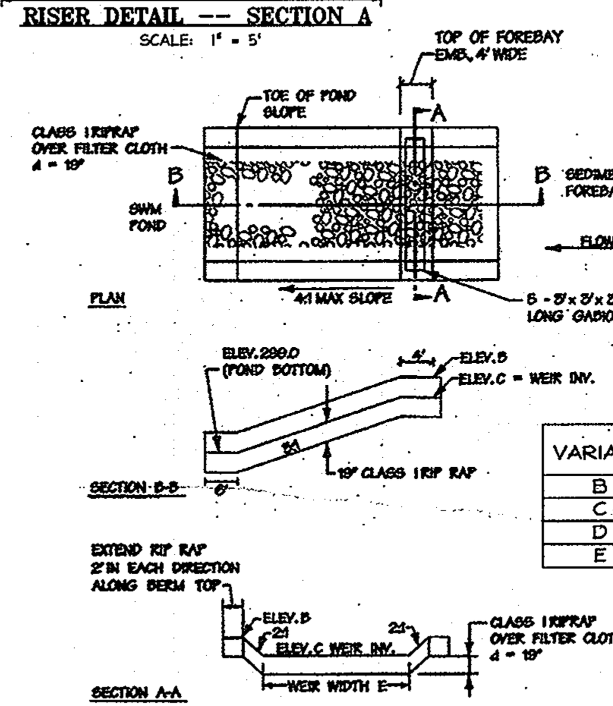
CONCRETE CRADLE
1"=5'

ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE=4,00PSI
DESIGN STRENGTH OF CONCRETE=1,600PSI IF THIS PIPE IS LAID IN AN EXCAVTED TRENCH, THEN THE SIDE WALLS MAY CONFORM TO TRENCH SHAPE (I.E. THE TRENCH MAY BECOME THE CRADLE FORM.)
DESIGN TO SCS TR-46 A-2 CONCRETE CRADLE
CONCRETE SHALL BE SHA MIX #3

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

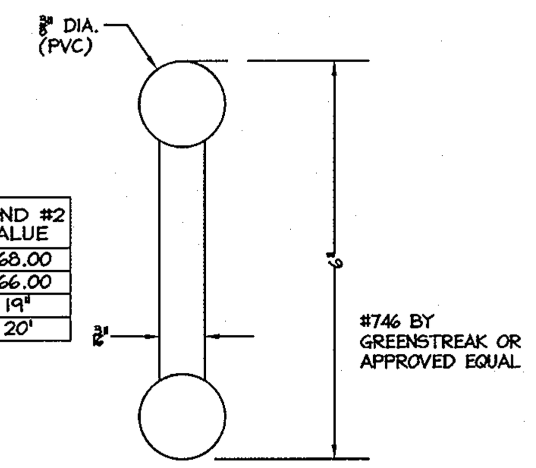
These plans for small pond construction, soil erosion, and sediment control meet the requirements of the Howard Soil Conservation District.
Howard SCD — Date 4/11/13

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
SIGNATURE OF ENGINEER — DATE 4/12/13
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

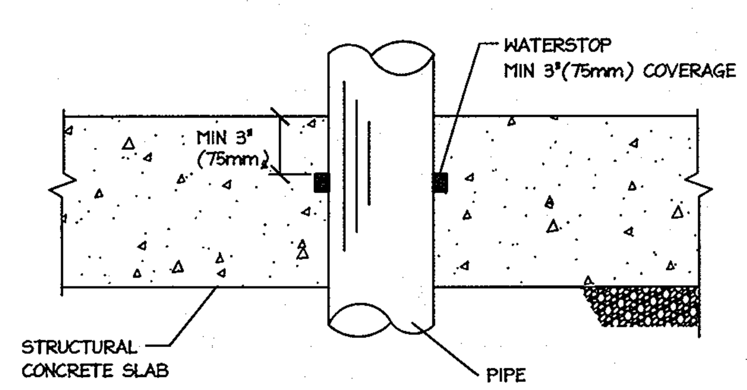


VARIABLE	POND #1 VALUE	POND #2 VALUE
B	368.00	368.00
C	366.50	366.00
D	19"	19"
E	20'	20'

SWM FOREBAY EMBANKMENT ARMORING DETAIL
N.T.S.



6" WATERSTOP
N.T.S.



PIPE WATERSTOP DETAIL
N.T.S.

LUTHERAN VILLAGE AT MILLER'S GRANT SWM — Page 5

5.0 EVALUATIONS AND RECOMMENDATIONS

The following evaluations have been developed on the basis of the previously described project characteristics and subsurface conditions. If there are any changes to the project characteristics or if different subsurface conditions are encountered during construction, HCEA should be consulted so that the recommendations of this report can be reviewed.

5.1 Embankment Construction

All fill materials must be placed and compacted in accordance with Code 378 specifications. The following procedures should be utilized to prepare the subgrades for embankment support and to construct the proposed embankments.

1. All trees, topsoil, organic materials, frozen, wet, soft or loose soils and other deleterious materials should be removed from the areas of proposed new embankments and wasted prior to the placement of fill. These stripping operations should be performed in a manner consistent with good erosion and sediment control practices. It should be noted that greater depths of undercutting should be expected in order to establish subgrades suitable for the support of new embankment fill.

2. Groundwater levels encountered in the borings during our field exploration indicated that groundwater and/or perched water may be encountered during construction, particularly in areas of deeper cuts.

   Any water infiltration resulting from a shallow interception of the groundwater table, surface run-off, or perched water, if not too extensive, should be able to be controlled by means of sump pit and pump, or by gravity ditching procedures provided that the groundwater level must only be lowered by a depth of 1± ft to 2± ft. If the groundwater must be lowered by more than 1± ft to 2± ft, or if lesser amounts of water cannot be suitablity lowered by pumping, then the use of a more extensive dewatering system such as deep wells or well points will be required. It would be desirable to establish a contingency fund to cover the costs associated with any required dewatering.

3. Any soft or loose surficial soils encountered in the embankment subgrade areas should be undercut. Any materials containing significant amounts of organic or deleterious materials should also be undercut. Localized areas requiring additional undercutting should be anticipated. It should be anticipated that any areas requiring undercutting may be wet and soft or

LUTHERAN VILLAGE AT MILLER'S GRANT SWM — Page 6

loose; therefore, construction operations should be planned such that the disturbance to the area is minimized during undercutting.

4. All fill materials should be compacted to a minimum of 95 percent of the Standard Proctor maximum dry density.

5.2 Fill Material Suitability

All materials to be used as fill in the embankments should be inspected, tested and approved by the Geotechnical Engineer. On-site soils that are free from organics and other deleterious materials can be used for construction of the embankments. Moisture conditioning (that is, wetting or drying) of the materials may be required in order to achieve proper compaction depending on the season of the year. The moisture contents of the soils should be properly controlled to avoid extensive construction delays. Additional laboratory tests should be performed on the borrow materials prior to their use in the compacted fill.

Imported fill materials should be of equal or greater quality than the on-site materials and should be approved for use by the Geotechnical Engineer.

5.3 Construction Monitoring

We recommend that a full-time Soils Inspector, under the direction of a registered Geotechnical Engineer, be present to monitor the placement and compaction of the embankment fill and other geotechnical aspects of the construction. Sufficient testing during fill placement should be performed to verify that adequate compaction is being achieved. If subsurface conditions which differ from those reported herein are encountered, this Office should be notified so that the analyses and recommendations can be reviewed.

5.4 Core and Core Trench Considerations

In accordance with NRCS-Maryland Code 378 (January, 2000), materials for the centers of the embankments and cut off trenches should consist of relatively impermeable GC, SC, CH, or CL materials having at least 30 percent passing the #200 sieve. Cut-off and core materials may need to be imported to the site if they are not available elsewhere on-site. Additional laboratory testing should be performed prior to using these materials to determine their conformance with the required material types.

Excavation for the core trench may require dewatering. It may be necessary to provide a "mud mat" to plug the water flow into the excavation. An uncompacted bridge lift is not recommended since this will not provide sufficient foundation support for the embankment and would also provide a path of water flow.

LUTHERAN VILLAGE AT MILLER'S GRANT SWM — Page 7

6.0 REMARKS

This report has been prepared to aid in the evaluation of the site for the construction of the proposed SWM facilities. It is considered that adequate recommendations have been provided to serve as a basis for design and preparation of plans and specifications. Additional recommendations can be provided as needed.

These analyses and recommendations are, of necessity, based on the information made available to us at the time of the actual writing of the report and the on-site conditions, surface and subsurface, that existed at the time the exploratory borings were drilled. Further assumption has had to be made that the limited exploratory borings, in relation both to the areal extent of the site and to depth, are representative of conditions across the site. Subsurface conditions may be encountered which differ from those reported herein. If this occurs, this Office should be notified immediately so that the analyses and recommendations can be reviewed and/or revised as necessary.

It is also recommended that:

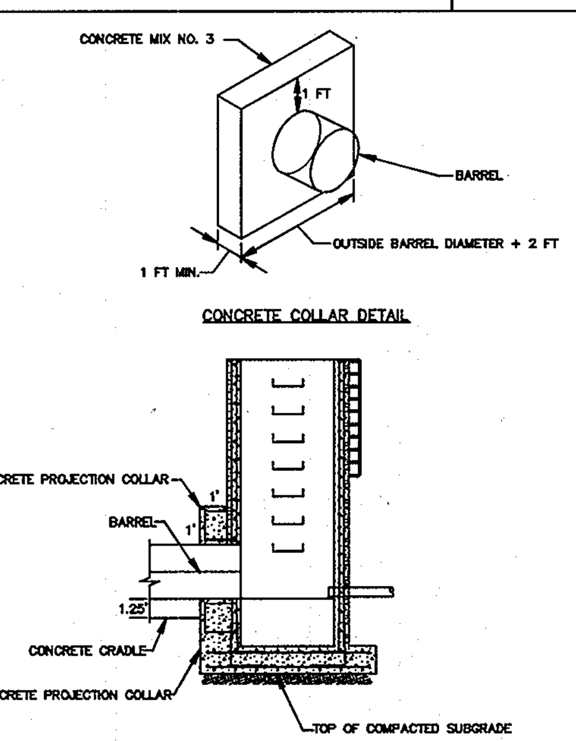
1. We be given the opportunity to review any plans and specifications in order to comment on the interaction of the soil conditions as described herein and the design requirements.

2. A Geotechnical Engineer or experienced Soils Inspector be present at the site during the construction phase to verify installation according to the approved plans and specifications. This is particularly important during excavation, placement, and compaction of fill material.

Please note that successful completion of the project is dependent on your compliance with all of the recommendations provided in this report. While represented separately, the recommendations represent work that is intertwined. The successful completion of the project is specifically conditioned on your complying with all recommendations.

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either implied or expressed. Hillis-Carnes Engineering Associates, Inc. assumes no responsibility for interpretations made by others based on subsurface exploration work performed by HCEA.

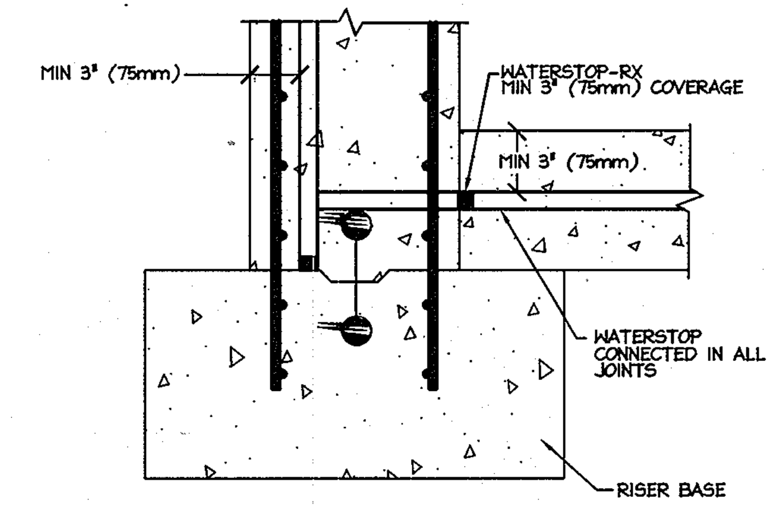
DETAIL G-2-9 PROJECTION COLLAR — STANDARD SYMBOL

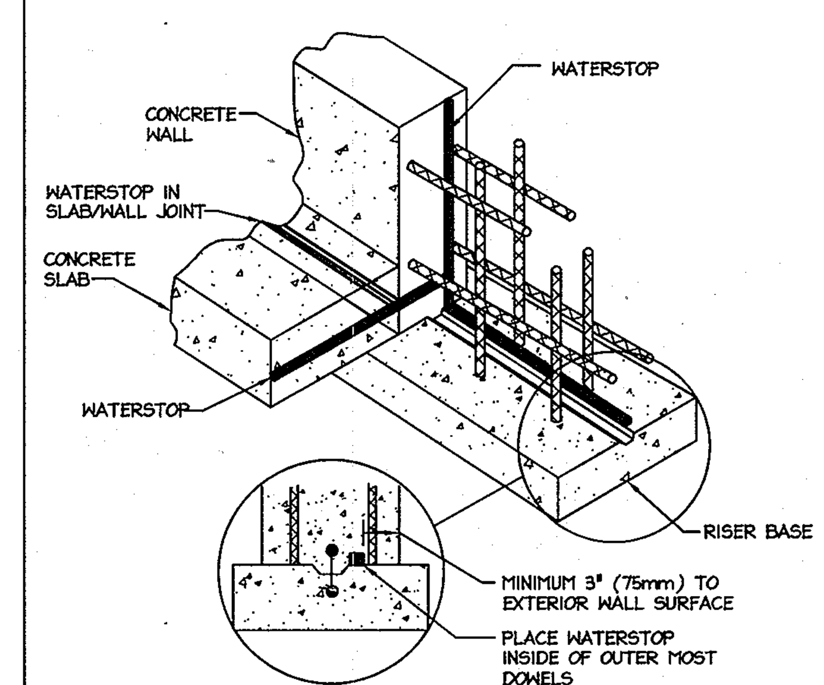


CONSTRUCTION SPECIFICATIONS
1. CAST 1 FOOT THICK CONCRETE COLLAR TO OUTLET STRUCTURE WITH FOUR #4 U-SHAPED REBARS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION





WATER STOP DETAIL
N.T.S.

Maryland Department of the Environment
Water Resources Administration
Dam Safety Division
MDE
V.P. Dalal — 5/12/10
Vijay P. Dalal — Date
Senior Regulatory & Compliance Engineer

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

02/25/2013
DATE
STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/30/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 5/20/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

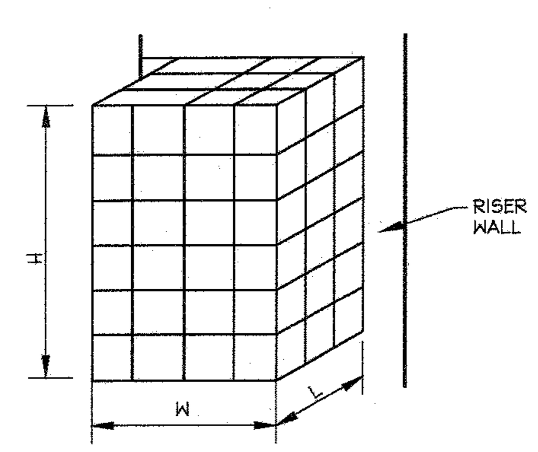
PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

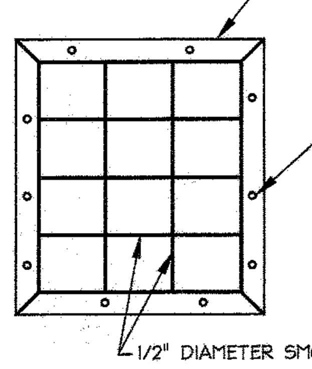
TITLE: **POND #1 STORMWATER MANAGEMENT NOTES AND DETAILS—RISER #1**

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	28 OF 77

SDP-08-075

MDC-792 (SDP)



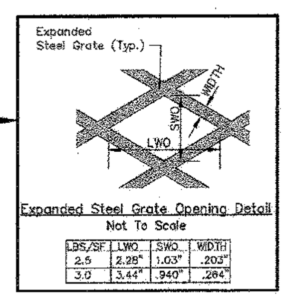


1. ASSEMBLY SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
2. STEEL ANGLES SHALL CONFORM TO ASTM A36.
3. BARS TO CONFORM TO ASTM A108.
4. CHEMICAL ANCHORS SHALL BE 1/2" DIAMETER GAVLANIZED THREADED RODS WITH HILTI HY200 ADHESIVE SYSTEM (4.5" EMBEDDMENT).

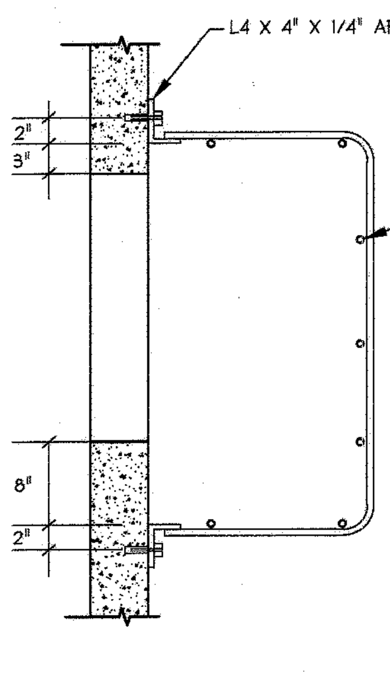
TRASH RACK DIMENSIONS

TYPE	L(FT)	W(FT)	H(FT)
LOW WEIR & HIGH WEIR	1	7.66	3.62
HIGH WEIR ONLY	1	6.67	2.72
LOW FLOW ORIFICE *	1	2	3

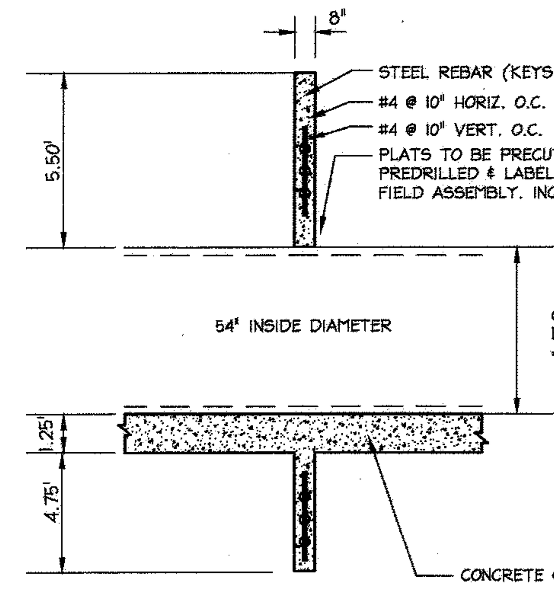
* LOW FLOW ORIFICE TRASH RACK SHALL CONTAIN A 2.5-3 LB/FT² EXPANDED STEEL GRATE SEE DETAIL



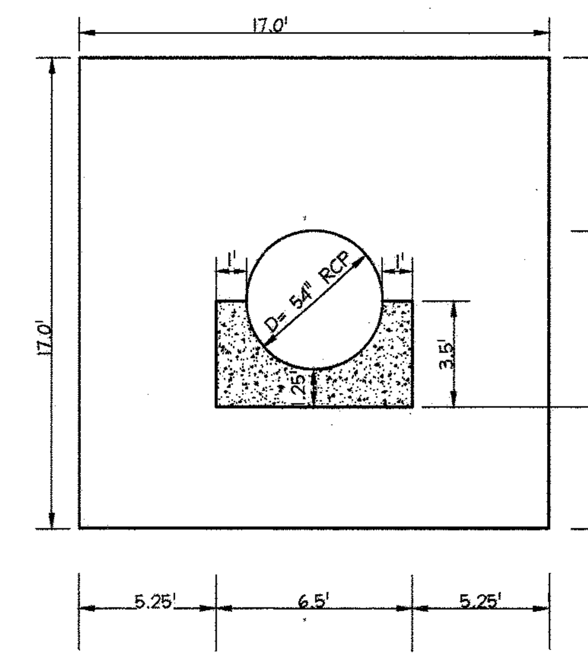
TRASH RACK DETAIL
N.T.S



TRASH RACK SECTION
N.T.S

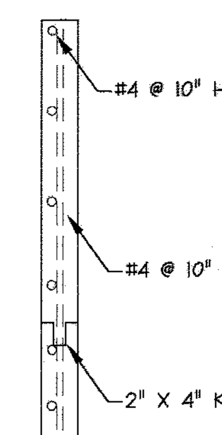


ANTI-SEEP COLLAR SECTION
1"=5'

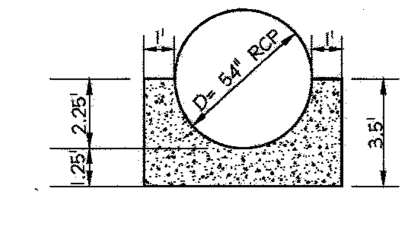


ANTI-SEEP COLLAR
1"=5'

ANTI-SEEP COLLAR NOTES:
1. FINISH COLLAR SURFACE TRUE AND SMOOTH. ONE LAYER OF HEAVY SMOOTH SURFACE ASPHALT TREATED ROOF SURFACE.
2. DETAIL SHOWN FOR EARTH FOUNDATION. FOR ROCK FOUNDATION FORM BOTTON OF CRADLE ON ROCK LINE AND KEY COLLAR 6" INTO ROCK.



ANTI-SEEP COLLAR DETAIL
(SHOWING STEEL) N.T.S.



CONCRETE CRADLE
1"=5'

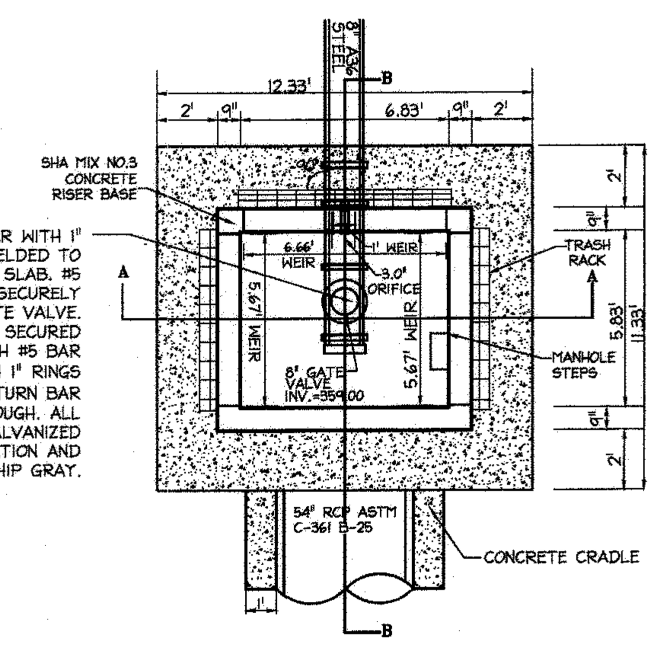
ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE=4,00PSI
DESIGN STRENGTH OF CONCRETE=1,600PSI IF THIS PIPE IS LAID IN AN EXCAVTED TRENCH, THEN THE SIDE WALLS MAY CONFORM TO TRENCH SHAPE (I.E. THE TRENCH MAY BECOME THE CRADLE FORM.)
DESIGN TO SCS TR-46 A-2 CONCRETE CRADLE
CONCRETE SHALL BE SHA MIX #3

NOTE:
PROVIDE RESEATING GATE VALVE ON POND DRAIN. VALVE SHALL BE LOCATED INSIDE RISER SUCH THAT IT CAN BE ACCESSED FROM MANHOLE.

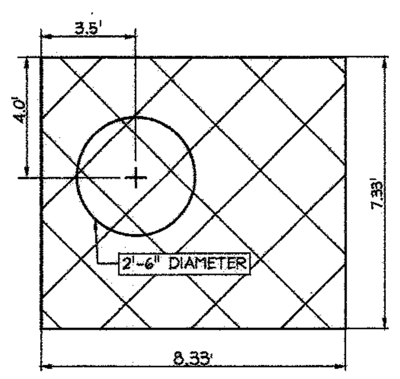
CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ENGINEERS APPROVAL SHOWING REBAR REINFORCEMENT. SHOP DRAWINGS TO BE PROVIDED FOR EITHER PRE-CAST OR CAST IN PLACE CONSTRUCTION.

TRASH RACK TO BE GALVANIZED AFTER FABRICATION AND PAINTED BATTLESHIP GRAY.

TRASH RACK TO BE REMOVEABLE

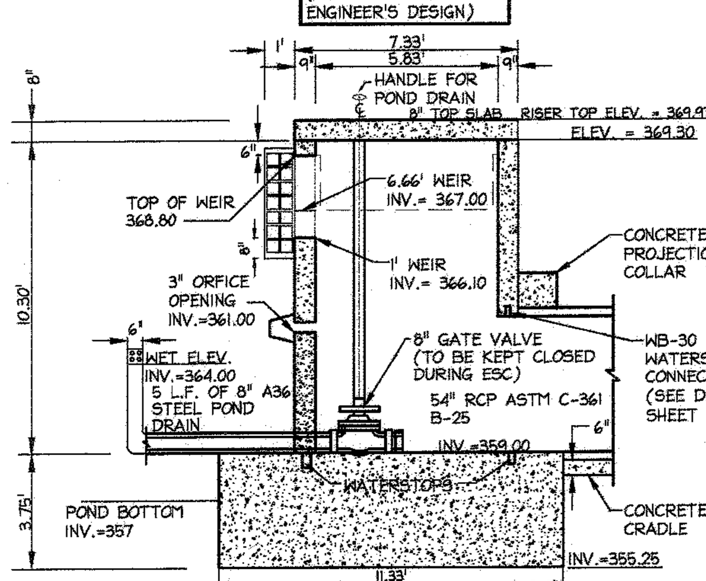


TOP VIEW
SCALE: 1" = 5'

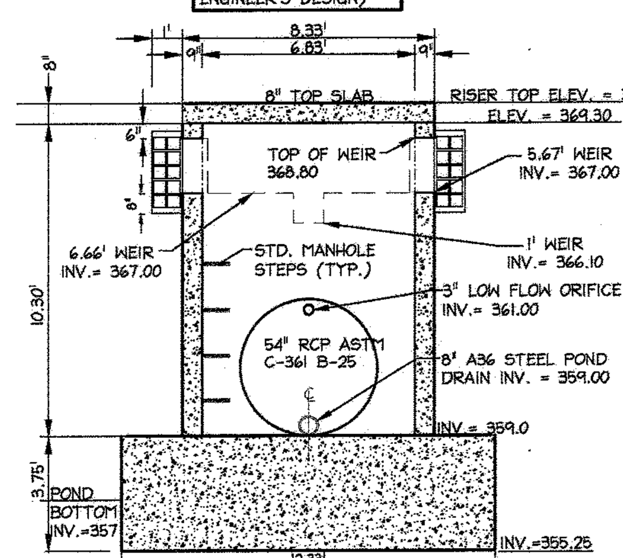


NOTE:
THE SIDE OF THE SLAB CLOSEST TO THE FRAME AND COVER WILL LINE UP WITH THE SIDE OF THE RISER WITH STANDARD MANHOLE STEPS.

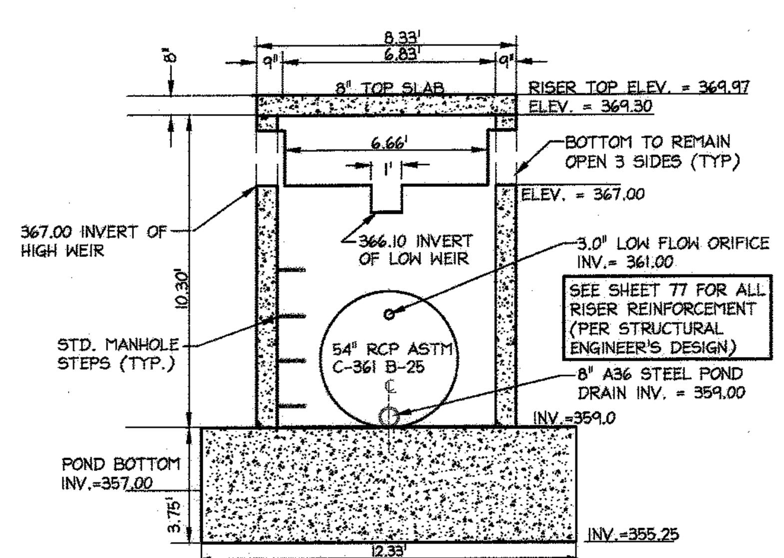
TOP SLAB
N.T.S.
CAST IN PLACE



RISER DETAIL -- SECTION B
SCALE: 1" = 5'



RISER DETAIL -- SECTION A
SCALE: 1" = 5'



WEIR DETAIL
SCALE: 1" = 5'

Table B.3.3 Open Channel Systems and Filter Strip Materials Specifications

Material	Specification	Size	Notes
dry swale soil	USCS; ML, SM, SC	n/a	soil with a higher percent organic content is preferred
dry swale sand	ASTM C-33 fine aggregate concrete sand	0.02" to 0.04"	
check dam (pressure treated)	AWPA Standard C6	6" by 6" or 8" by 8"	do not coat with creosote; embed at least 3' into side slopes
check dam (natural wood)	Black Locust, Red Mulberry, Cedars, Catalpa, White Oak, Chestnut Oak, Black Walnut	6" to 12" diameter; notch as necessary	do not use the following, as these species have a predisposition towards rot: Ash, Beech, Birch, Elm, Hackberry, hemlock, Hickories, Maples, Red and Black Oak, Pines, Poplar, Spruce, Sweetgum, Willow
filter strip sand/gravel pervious berm	sand: per dry swale sand gravel; AASHTO M-43	sand: 0.02" to 0.04" gravel: ¾ " to 1"	mix with approximately 25% loam soil to support grass cover crop; sand (35-60%), silt (30-55%), and gravel (10-25%) see Bioretention planting soil notes for more detail.
pea gravel diaphragm and curtain drain	ASTM D 448	varies (No. 6) or (1/8" to 3/8")	use clean bank-run gravel
underdrain gravel	AASHTO M-43	0.25" to 0.75"	
underdrain	F 758 Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)	n/a	
rip rap	per county criteria; if none given, use MSHA Standards and Specs Section 905	size per county DOT requirements based on 10-year design flows	

Table A.7 Common Grass Species for Open Channels

Common Name	Scientific Name	Notes
Big Bluestem	*Andropogon gerardii*	Warm, not for Wet Swale
Creeping Bentgrass	*Agrostis palustris*	Cool,
Red Fescue	*Festuca rubra*	Cool, not for Wet Swale
Reed Canary grass	*Phalaris arundinacea*	Cool, Wet Swale
Redtop	*Agrostis alba*	Cool,
Smooth Brome	*Bromus inermis*	Cool, not for Wet Swale
Switch grass	*Panicum virgatum*	Warm

Note 1: These grasses are sod-forming and can withstand frequent inundation, and are thus ideal for the swale or grass channel environment. Most are salt-tolerant, as well. Cool refers to cool season grasses that do well in the western part of the State, Warm refers to warm season grasses that work well in the eastern part of the State (see Table A.8).

Note 2: Where possible, one or more of these grasses should be in the seed mixes. For a more thorough listing of seed mixes, consult the 1994 Maryland Standard and Specifications for Soil Erosion and Sediment Control (MDE, 1994) or the MD NRCS Code 391 Riparian Forest Buffer Standard, Table 2 (Zone 3).

B.3.C Specifications for Open Channels and Filter Strips

1. Material Specifications

The recommended construction materials for open channels and filter strips are detailed in Table B.3.3.

2. Dry Swales

Permeable soil mixture (20" to 30" deep) should meet the bioretention specifications.

Check dams, if required, shall be placed as specified.

System to have 6" of freeboard, minimum above 2 year water surface elevation.

Side slopes to be 3:1 maximum; (4:1 or flatter is preferred).

No gravel or perforated pipe is to be placed under driveways.

Bottom of facility to be above the seasonally high water table per Table 2 of Appendix D.1.

Seed with flood/drought resistant grasses; see Appendix A, Section 2.4.

Longitudinal slope to be 4%, maximum.

Bottom width to be 8' maximum to avoid braiding; larger widths may be used if proper berming is supplied. Width to be 2' minimum.

3. Wet Swales

Follow above information for dry swales, with the following exceptions: the seasonally high water table may inundate the swale; but not above the design bottom of the channel [NOTE: if the water table is stable within the channel, the WQ_v storage may start at this point – see Figure 3.19]

Excavate into undisturbed soils; do not use an underdrain system.

4. Filter Strips

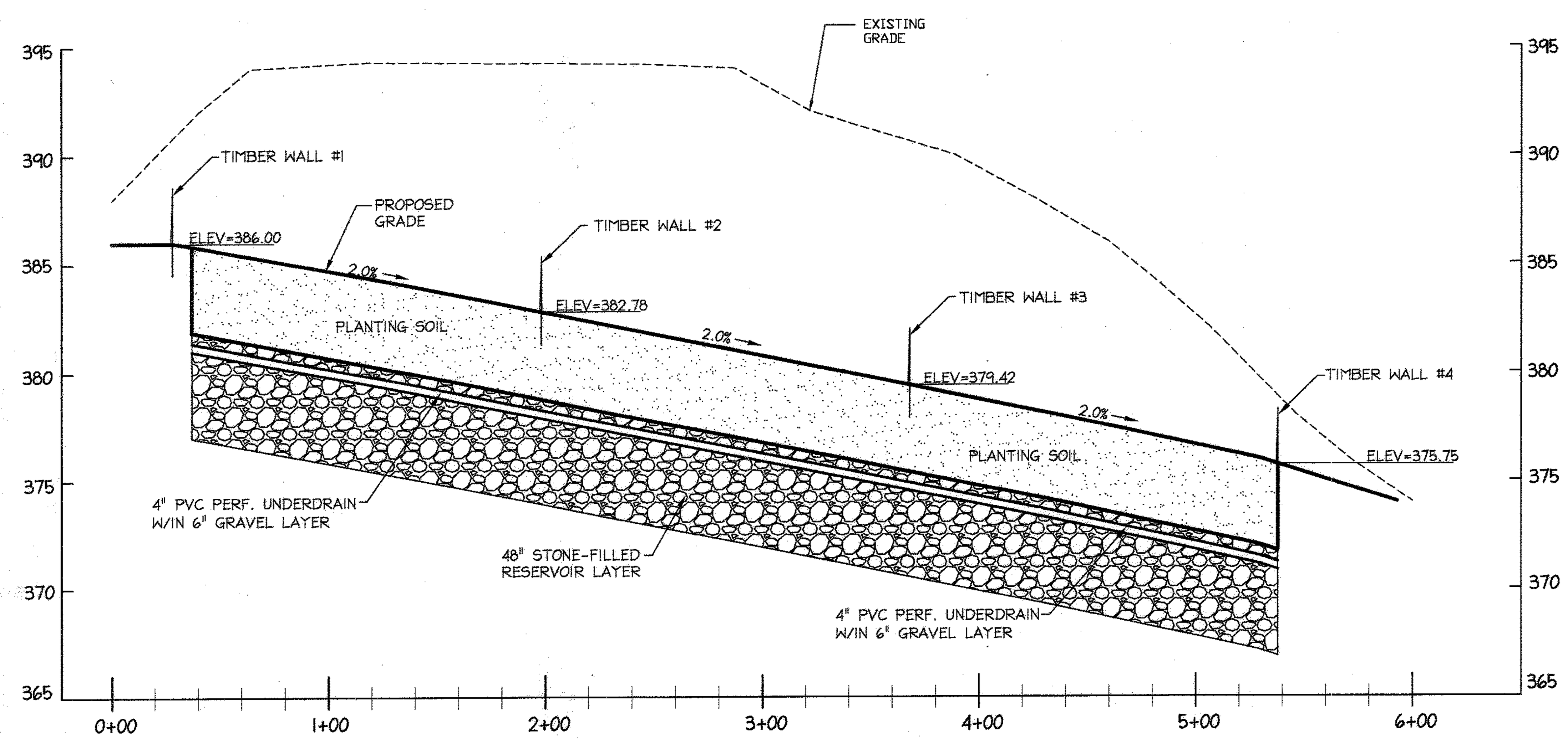
Construct pea gravel diaphragms 12" wide, minimum, and 24" deep minimum.

Pervious berms to be a sand/gravel mix [sand (35-60%), silt (30-55%), and gravel (10-25%)]. Berms to have overflow weirs with 6 inch minimum head.

Slope range to be 2% minimum to 6% maximum.

5. Plant Selection

Recommended grass species for use in establishing permanent ground cover are provided in Section 2.4 of Appendix A.

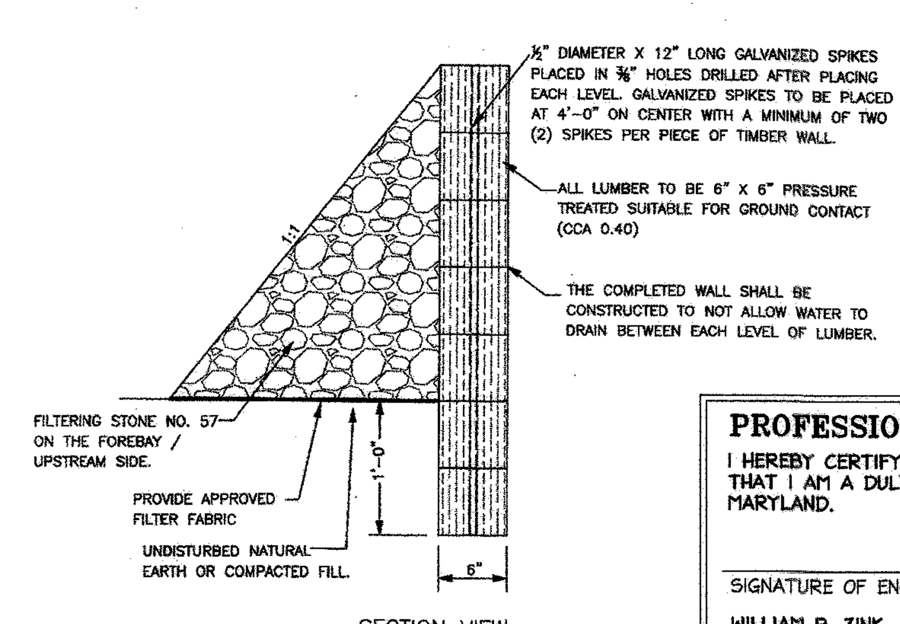


GRASS CHANNEL PROFILE-ONLY FOR THE PORTION SWALE 2 THAT DRAINS TO THE EAST (BEHIND LOTS 18-25)
SCALE : HOR. 1"=50'
VERT. 1"=5'

SPECIFICATION FOR TYPICAL DRY SWALE TIMBER WALL

TIMBER: SHALL BE 6" X 6" PRESSURE TREATED, SUITABLE FOR GROUND CONTACT, FREE OF ROT, DECAY, SPLITS, CHECKS, INDENTATIONS OR OTHER NATURAL OR MAN MADE CONDITION WHICH WOULD IMPAIR THE STRENGTH OF THE MEMBER. THE STANDARD OF ACCEPTANCE SHALL BE VISUAL INSPECTION.

WORKMANSHIP:
A. FIRST STRETCHER FOR ANCHORED WALLS AND ALL LOWEST LEVEL TIMBERS FOR CRIB WALL SHALL BEAR ON NATURAL GROUND.
B. CUT OR TRIMMED TIMBERS SHALL BE BRUSH COATED WITH PRESERVATIVES.
C. ALL FILL OR BACKFILL SHALL BE COMPACTED TO REDUCE SETTLEMENT TO A MINIMUM. COMPACTION WITHIN THE LIMITS OF A 45 DEGREES LINE UP FROM THE BASE STRETCHER SHALL BE BY USE OF MECHANICAL HAND TAMPERS. MINIMUM COMPACTION SHALL BE IN ACCORDANCE WITH ASRM-D1557.
D. FILL OR BACKFILL SHALL BE CLEAN SANDY GRAVEL MATERIAL HAVING A MINIMUM OF CLAY, FREE OF DEBRIS AND DELETERIOUS MATERIAL.



SECTION VIEW

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

This development plan is approved for soil erosion and sediment control by The HOWARD SOIL CONSERVATION DISTRICT.

Howard SCD   Date

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER   09-15-2014 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

7/25/2016
DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER   8/24/16 DATE
ROY CHIAVACCI

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER   8/6/16 DATE
WILLIAM R. ZINK, P.E.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT   9/20/16 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division   9.26.16 Date
Chief, Division of Land Development   10-5-16 Date
Director   10-5-16 Date

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED
		FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED
		GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.			CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A			602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE:
STORMWATER MANAGEMENT NOTES AND PROFILES-PD #2

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	29 OF 77
CHECKED: ENJ	APPROVED: WRZ	

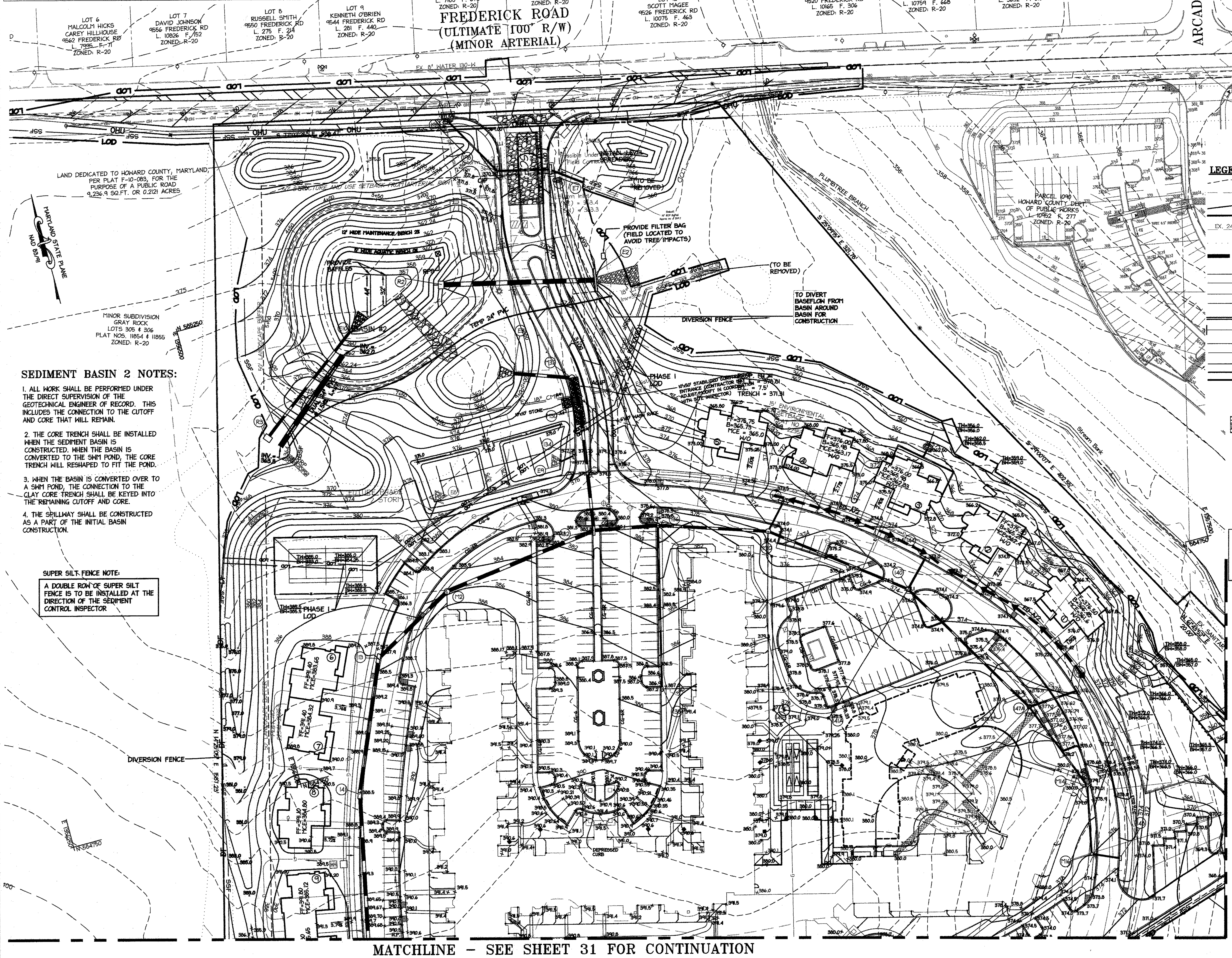
SDP-08-075

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER ______ DATE ______

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016



SEDIMENT BASIN 2 NOTES:

1. ALL WORK SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF THE GEOTECHNICAL ENGINEER OF RECORD. THIS INCLUDES THE CONNECTION TO THE CUTOFF AND CORE THAT WILL REMAIN.
2. THE CORE TRENCH SHALL BE INSTALLED WHEN THE SEDIMENT BASIN IS CONSTRUCTED. WHEN THE BASIN IS CONVERTED TO THE SWM POND, THE CORE TRENCH WILL RESHAPED TO FIT THE POND.
3. WHEN THE BASIN IS CONVERTED OVER TO A SWM POND, THE CONNECTION TO THE CLAY CORE TRENCH SHALL BE KEYED INTO THE REMAINING CUTOFF AND CORE.
4. THE SPILLWAY SHALL BE CONSTRUCTED AS A PART OF THE INITIAL BASIN CONSTRUCTION.

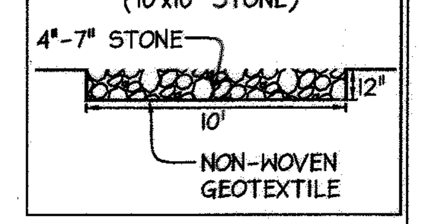
SUPER SILT FENCE NOTE:

A DOUBLE ROW OF SUPER SILT FENCE IS TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR

MATCHLINE - SEE SHEET 31 FOR CONTINUATION

MATCHLINE - SEE SHEET 32 FOR CONTINUATION

SECTION A-A
(10'x10' STONE)



"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — 8/24/16 DATE
ROY CHIAVACCI

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER — 8/6/16 DATE
WILLIAM R. ZINK, P.E.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 9/20/16 DATE

LEGEND

- EXISTING INTER CONTOUR
- EXISTING INDEX CONTOUR (250)
- PROPOSED INTER CONTOUR (248)
- PROPERTY LINE
- EXISTING STORMDRAIN (EX. 24" RCP)
- EXISTING TREELINE
- SOILS LINE (BIA / SgE)
- FLOODPLAIN BUFFER (FB)
- WETLAND BUFFER (WB)
- 100 YEAR FLOODPLAIN (FP)
- WETLANDS (WL)
- PROPOSED STORM DRAIN (PROP. 27" RCP)
- PROPOSED WATERLINE
- PROPOSED SANITARY LINE
- SILT FENCE (SF)
- SUPER SILT FENCE (SSF)
- TREE PROTECTION FENCE (TPF)
- LIMITS OF DISTURBANCE (LOD)
- EARTH DIKE
- PHASE I LOD BOUNDARY
- TEMPORARY DIVERSION PIPE
- DIVERSION FENCE (DF)
- STABILIZED CONSTRUCTION ENTRANCE (SCE)
- 15 TO 25% STEEP SLOPES
- 25% AND GREATER STEEP SLOPES
- EROSION CONTROL MATTING

NOTE:
THE PHASE I LIMIT OF DISTURBANCE IS FOR THE CONSTRUCTION OF THE BASINS ONLY

BASIN #2

Existing Drainage Area (acres)		21.86
Proposed Drainage areas		82.48
Storage Required (cubic feet)	Cleanout	39323
	Wet	38646
	Total	116928
Storage Provided (cubic feet)	Cleanout	32286.5
	Wet	59855
	Total	270439.8
Basin Depth (feet)	Cleanout	2.35
	Wet	3.6
	Total	11
Ex Ground Elevation		369
Top of Embankment Elevation		371.3
Riser Crest Elevation		366.1
Cleanout elevation		362.5
Bottom Elevation		359
High-water		368.51
Freeboard Provided		2.79
Barrel Diameter		54
Riser Size		8.33X7.33
Bottom Dim		120' x150'
10 Year		368.43
10 Year Blocked		368.51
Q10 Blocked Proposed		134.16
TSWM Q1 EX		13.39 CFS
TSWM Q1 PR		2.76 CFS

NOTE:
RISER R2 WILL BE TEMPORARILY BRICKED UP TO THE WEIR ELEVATION REQUIRED FOR ESC PURPOSES

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — 9.26.16 Date
Chief, Division of Land Development — 10-5-16 Date
Director — 10-5-16 Date

Date	No.	Revision Description
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
10/23/15	03	REVISED SITE DEVELOPMENT PLAN - REVISED GRADES AROUND PHASE III
7/25/16	04	REVISED SITE DEVELOPMENT PLAN - POOL REV.

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

7/25/2016
DATE

STATE OF MARYLAND WILLIAM RAYMOND ZINK NO. 20587 REGISTERED PROFESSIONAL ENGINEER — 8/18/16

PERMIT INFORMATION CHART

PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02
WATER CODE			SEWER CODE	
550 (TG 700)			F07	

TITLE:
EROSION & SEDIMENT CONTROL PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	30 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

MATCHLINE – SEE SHEET 30 FOR CONTINUATION

MATCHLINE – SEE SHEET 32 FOR CONTINUATION

DIVERSION FENCE

REPP STOCKPILE
AREA: 10,000 SF
MAX HEIGHT: 35 FT
MAX SLOPE: 3:1

MARYLAND STATE PLANE NAD 83/91

MINOR SUBDIVISION
GRAY ROCK
LOTS 363 & 364
PLAT NOS. 11854 & 11855
ZONED: R-20

SUPER SILT FENCE NOTE:
A DOUBLE ROW OF SUPER SILT FENCE IS TO BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR

DIVERSION FENCE

PROPOSED 20' PUBLIC WATER AND UTILITY EASEMENT PLAT NO. 22346-22353

EX. 8" WATER CONTRACT#24-1183-D

EX. 8" SEWER CONTRACT#24-1183-D

DAIRY VALLEY TRAIL

LOT 65
BRIAN & REGINA HENDRIX
3601 DAIRY VALLEY TRAIL
L. 2326 F. 344
ZONED: R-20

LOT 66
KENNETH & MARY CAIN
3605 DAIRY VALLEY TRAIL
L. 3788 F. 6209
ZONED: R-20

SUPER SILT FENCE TRAP #1
SEE DETAIL ON SHEET 34

BEGIN J HOOKS

SSF TRAP #1 SUMMARY TABLE

EXISTING DRAINAGE AREA		2.17 AC
ROUGH DRAINAGE AREA		2.17 AC
POST DRAINAGE AREA		1.16 AC
STORAGE REQUIRED (CUBIC FEET)	WET	3906
	DRY	1953
	TOTAL	7812
STORAGE PROVIDED (CUBIC FEET)	WET	6008.5
	DRY	8010.9
	TOTAL	14019
BOTTOM OF TRAP		380
TOP OF EMBANKMENT		382
SLOPE		3:1
EMBANKMENT WIDTH		5.0'

LOT 112
THE MILLER LAND C
GRAY ROCK DRIVE
L. 447 F. 659
ZONED: R-20

LOT 68
GAUTAM BANERJEE
709 LOOKOUT COURT
L. 19685 F. 715
ZONED: R-20

LOT 69
DAVID & MARY DRY
3715 LOOKOUT COURT
L. 2276 F. 523
ZONED: R-20

LOT 70
JOSEPH COOK III
3714 LOOKOUT COURT
L. 4880 F. 102
ZONED: R-20

ROCK DRIVE

8" WATER CONTRACT#24-1183-C

LOOKOUT COURT

GRAY ROCK FARM
SECTION 2
PLAT- CMP NO. 5878
ZONED: R-20

LOT 71
VICTOR & SYLVINE MARTINEZ
3710 LOOKOUT COURT
L. 6380 F. 64
ZONED: R-20

LOT 72
DARREL & TORI DROWN
3706 LOOKOUT COURT
L. 1371 F. 366
ZONED: R-20

PROP. FH #11
B.I.E. = 386.26
B.I. = 7.0'
TRENCH = 379.26

PROP. FH #12
B.I.E. = 386.74
B.I. = 5.5'
TRENCH = 381.24

24" RCP

REFER TO SHEET 30 FOR MGMC 2.1 FOR RIPRAP DETAILS

EXISTING WETLAND

PROVIDE FILTER BAG (FIELD LOCATED TO AVOID TREE IMPACTS)

MMGG 4.2 UTILITY CROSSING SEE DETAILS SHEET 31

15' NON-WOODY BUFFER

PHASE I LOD

BASIN #1

EX. 24" RCP

BIA

PROP. 27" RCP

PRIVATE SWM POND MAINTENANCE AGREEMENT LIBER 19600 FOLIO 0001

NEW ANNEX (GPU) HIGH WATER = 368.46
100 YR WSEL = 369.46
10 YR WSEL = 369.46
TYPE 'B' HAZARD

BED-A/B

OPEN SPACE LOT 170
ZONED: R-20

LOT 147
EDWIN & BEVERLY SCHUKRAFT
3723 VALERIE CAROL COURT
L. 18620 F. 124
ZONED: R-20

LOT 146
MARC & AUDREY WINER
3719 VALERIE CAROL COURT
L. 2368 F. 201
ZONED: R-20

LOT 145
MICHAEL & JEANNE SHOEMAKER
3715 VALERIE CAROL COURT
L. 1734 F. 84
ZONED: R-20

LOT 144
ELLEN & JOHN RAY
3711 VALERIE CAROL COURT
L. 1734 F. 89
ZONED: R-20

SUPER SILT FENCE TRAP #2
SEE DETAIL ON SHEET 34

BEGIN J HOOKS

SSF TRAP #2 SUMMARY TABLE

EXISTING DRAINAGE AREA		2.15 AC
ROUGH DRAINAGE AREA		3.19 AC
POST DRAINAGE AREA		3.19 AC
STORAGE REQUIRED (CUBIC FEET)	WET	3870
	DRY	2871
	TOTAL	11464
STORAGE PROVIDED (CUBIC FEET)	WET	3870
	DRY	3873.5
	TOTAL	7443.5
BOTTOM OF TRAP		368
TOP OF EMBANKMENT		372
SLOPE		3:1
EMBANKMENT WIDTH		5.0'

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.'

SIGNATURE OF DEVELOPER
ROY CHIAVACCI — DATE 1/26/16

'I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN 'AS-BUILT' PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.'

SIGNATURE OF ENGINEER
WILLIAM R. ZINK, P.E. — DATE 1/27/16

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/4/16

LEGEND

EXISTING INTER CONTOUR	EARTH DIKE
EXISTING INDEX CONTOUR	PHASE I LOD BOUNDARY
PROPOSED INTER CONTOUR	DIVERSION FENCE
PROPERTY LINE	
EXISTING STORMDRAIN	
EXISTING TREELINE	
SOILS LINE	
FLOODPLAIN BUFFER	
WETLAND BUFFER	
100 YEAR FLOODPLAIN	
WETLANDS	
PROPOSED STORM DRAIN	
PROPOSED WATERLINE	
PROPOSED SANITARY LINE	
SILT FENCE	
SUPER SILT FENCE	
TREE PROTECTION FENCE	
LIMITS OF DISTURBANCE	

STABILIZED CONSTRUCTION ENTRANCE

15 TO 25% STEEP SLOPES

25% AND GREATER STEEP SLOPES

EROSION CONTROL MATTING

NOTES:
1. THE PHASE I LIMIT OF DISTURBANCE IS FOR THE CONSTRUCTION OF THE BASINS ONLY.
2. RISER RI WILL BE TEMPORARILY BRICKED UP TO THE WEIR ELEVATION REQUIRED FOR ESC PURPOSES.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/4/16

Chief, Division of Land Development — Date 4-5-16

Director — Date 4-5-16

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN
09/01/15	02	REVISED SITE DEVELOPMENT PLAN - REVISED FLOOR ELEVATIONS ON SINGLE FAMILY HOMES
11/09/15	03	REVISED GRADING, STORM, SANITARY, RETAINING WALL

Before You Dig Call "MISS UTILITY" Service Protection Center — MEMBER — ONE CALL SYSTEMS INTERNATIONAL — CALL TOLL FREE 1-800-257-7777

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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7172 columbia gateway drive (suite 100) · columbia, md 21046-2990
410.872.2880 · metro 301.621.2145 · fax 410.872.2893

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:
EROSION & SEDIMENT CONTROL PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	31 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

BASIN #1

Storage Required (cubic feet)	Cleanout	49,590
	Wet	24,795
	Total	99,180
Storage Provided (cubic feet)	Cleanout	24,795
	Wet	49,500
	Total	296,101.54
Basin Depth (feet)	Cleanout	363
	Wet	361.4
	Total	363.5
Ex Ground Elevation		361
Top of Embankment Elevation		370
Riser Crest Elevation		365.3
Cleanout elevation		361.4
Bottom Elevation		359
High-water		368.46
Freeboard Provided		1.54
Barrel Diameter		54
Riser Size		12X13
Bottom Dim		120x159
10 Year		367.86
10 Year Blocked		368.46
Q10 Blocked Proposed		73.42

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 1/27/16

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

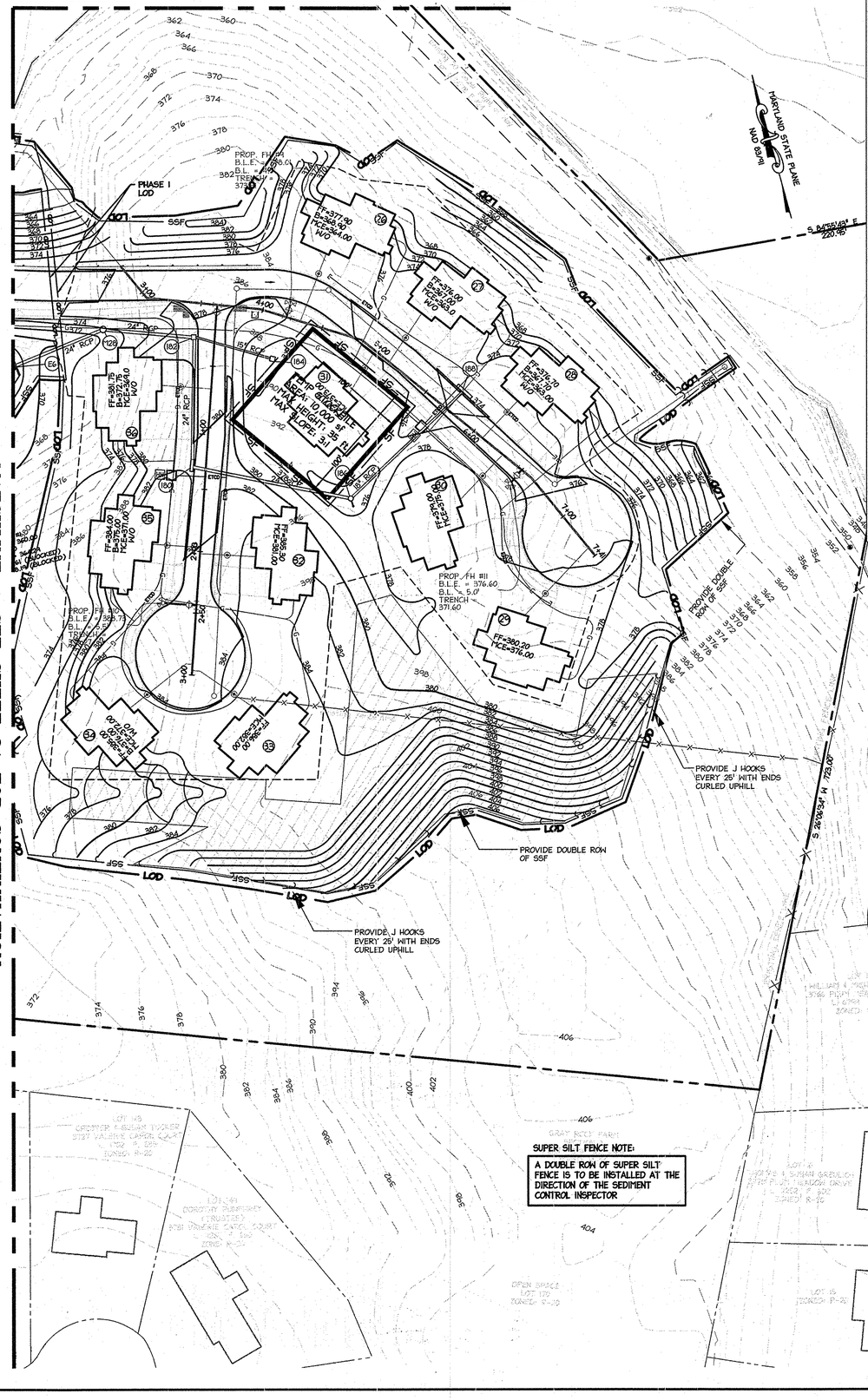
4/27/16 DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

P:\Projects\05115\01-MDC-XXXX-MDC-792 SDP\2014-01-22 Bid Set\2015-11-10 Phase III Roadline Submission\Cleas set\30-32 ESC PLAN.dwg, 1/21/2016 10:39:05 AM, jshadrina, 1:1, christopher consultants, ltd.

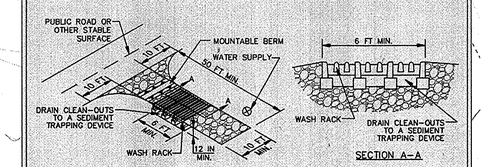
MATCHLINE – SEE THIS SHEET FOR CONTINUATION

MATCHLINE – SEE SHEET 31 FOR CONTINUATION

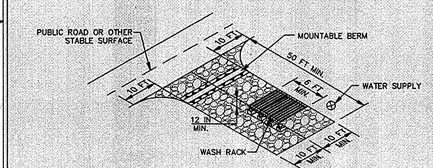


DETAIL B-2 WASH RACK OPTION

STANDARD SYMBOL: WR



ISOMETRIC VIEW – WASH RACK IN SCE



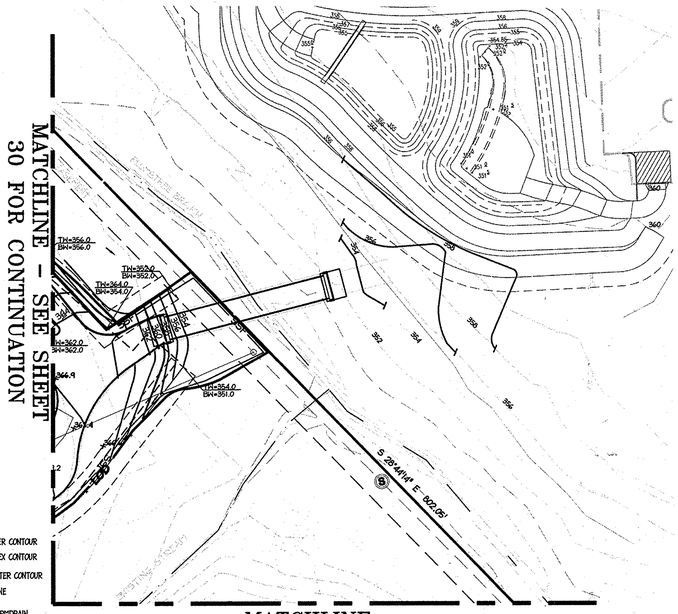
ISOMETRIC VIEW– WASH RACK ALONG SCE

CONSTRUCTION SPECIFICATIONS

1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CATTLE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET x 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL.
2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE SCE.
3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE.
4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



MATCHLINE
SEE THIS SHEET FOR CONTINUATION

LEGEND

- EXISTING WATER CONTOUR
- EXISTING INDEX CONTOUR
- PROPOSED INTER CONTOUR
- PROPERTY LINE
- EXISTING STORMDRAIN
- EXISTING TREELINE
- SOILS LINE
- FLOODPLAIN BUFFER
- WETLAND BUFFER
- 100 YEAR FLOODPLAIN
- WETLANDS
- PROPOSED STORM DRAIN
- PROPOSED WATERLINE
- PROPOSED SANITARY LINE
- SF — SILT FENCE
- SSF — SUPER SILT FENCE
- TPF — TREE PROTECTION FENCE
- LOD — LIMITS OF DISTURBANCE
- PHASE I LOD BOUNDARY
- STABILIZED CONSTRUCTION ENTRANCE
- 15 TO 25% STEEP SLOPES
- 25% AND GREATER STEEP SLOPES
- EROSION CONTROL MATTING

NOTE:
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"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Roy Chiavacci — 1/7/15
SIGNATURE OF DEVELOPER — DATE
ROY CHIAVACCI

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

11/5/15
SIGNATURE OF ENGINEER — DATE
WILLIAM R. ZINK, P.E.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. Pond #2

1/20/15
HOWARD SOIL CONSERVATION DISTRICT — DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

01-05-2015
SIGNATURE OF ENGINEER — DATE
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

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APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15
Chief, Division of Land Development — Date 2.24.15
Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
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PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

EROSION & SEDIMENT CONTROL PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	32 OF 77

SEQUENCE OF CONSTRUCTION

1. An on-site pre-construction meeting shall be conducted with the Contractor and the Howard County inspector at least 48 hours prior to the start of construction. Contact the Howard County Department of Inspections, Licenses and Permits at 410-313-1880 to schedule. Obtain grading permit, MDE permit #200860330, and MDE permit for storm water associated with construction activity. (1 Day) No in-stream construction dates for class I streams: March 1 - June 15.
2. The limits of disturbance must be field marked prior to clearing of the trees, installation of sediment control measures, construction or other land disturbing activities. (2 Days)
3. Perform necessary clearing & grubbing for installation of perimeter controls and Sediment Basin #2 only. Do not clear any other areas at this time. (10 Days)
4. Construct stabilized construction entrance, Sediment Basin #2, super silt fence, tree protection, and diversion fence. For Sediment Basin #2, install temporary piping to divert base flow around Sediment Basin #2 construction area. Once Sediment Basin #2 is complete remove temporary piping and stabilize disturbed areas around Sediment Basin #2 perimeter w/ temporary seeding. (45 Days)
5. Upon receiving permission from inspector, proceed with of Phase 1 site grading. Refer to MDE dust control specification during construction. (60 Days)
6. Begin installation of underground utilities including storm drain, sanitary sewer, and waterline as roads and lots are graded. Storm drains will be constructed from downstream to upstream. (45 Days) As portions of Phase 1 site grading become available commencement of building foundation & construction may begin for both the individual lots and large building structures inside the loop road.
7. Once construction of the inlet I-46 through E-3 portion of storm drain has been completed, install A-1 earth dikes to I-42, I-44, and I-46. (2 Days)
8. Fine grade roads, and complete base paving, install sidewalk, curb and gutter and stabilize open areas. Begin residential driveway and building and house construction.
9. Concurrently with Item #6, once the perimeter controls have been installed and stabilized, proceed with clearing and grubbing the remainder of the site within the limits of disturbance. Contractor shall phase this remaining clearing to ensure that there are no more than 20 acres open" at any one time. The acreage only pursing past 20 acres for a short window while placing Phase 1 site on grade. This is necessary due to the nature of the cut and fill locations of the existing topography. (60 Days)
10. It is understood a borrow location will be necessary from Phase 2 to place the appropriate fills for Phase 1. This may commence after Super Silt Fence installation west of the borrow location has been installed. This location is projected to be on future housing lots 26-34.
11. Commence construction of Sediment Basin #1 and two super silt fence traps. (30 Days)
12. Upon receiving permission from inspector, proceed with of Phase 2 site grading. Refer to MDE dust control specification during construction. (35 Days)
13. Contractor shall continue to phase the work to ensure that there is no more than 20 acres of grading open at any one time. If more than 20 acres is disturbed, all Howard County stabilization measures shall be adhered to.
14. Complete all other site improvements.
15. Stabilize any remaining disturbed areas. If all the houses are not complete, the contractor, with permission from the inspector, may wrap an area 15' outside of the house foundation with silt fence as needed to construct the individual homes. This will allow the contractor to stabilize areas inside the homes while home construction is completed. (5 Days)
16. Once the upstream drainage areas are stabilized and permission has been obtained from the sediment control inspector, convert sediment basins to SWM facilities per SWM plans.
A. Remove basin water using a sump pit and pump. (2 Days)
B. Remove sediment and dispose onsite or at an offsite location having an approved and active sediment control plan. (5 Days)
C. Re-grade the pond to conform to grading shown on storm water management plans. (15 Days)
D. Remove dewatering device. (1 Days)
E. Remove temporary blocking from riser and complete the riser structure per the details in the storm water management plans. (2 Days)
F. Stabilize all remaining disturbed areas. (2 Days)
17. Upon receiving written permission from inspector, remove stabilized construction entrance and all remaining perimeter controls. (10 Days)
18. Upon receiving written permission from inspector, remove sediment from riprap below outfall to pond. Repair or replace rip-rap as necessary. (5 Days)
19. Provide inspector a copy of as-built approval Letters for ponds, from both MDE (Pond #1) and HSCD (Pond #2)
20. Total Construction Duration: Approximately 22 month.

NOTES:
1. A geotechnical engineer shall be on site during excavation and placement of structural fill.
2. Core material for the basin shall come from an approved location and meet the guidelines established by the geotechnical engineer.
3. The Contractor is responsible for obtaining all required permits prior to commencing any land disturbance activities.
4. Any sequence involving a stream crossing or riser/barrel construction need to have explicit 5 day clear weather forecast from NWS.
5. Review the Typical Sequence of Construction Requirements for Pond Construction" for additional guidelines for completing work in the pond/basin areas.

TYPICAL SEQUENCE OF CONSTRUCTION REQUIREMENTS FOR POND CONSTRUCTION

Hydraulic dredging of the ponds is not a feasible option for this project and the type of work involved to refurbish the ponds. Water will be temporarily drained in order to alleviate pressure on the dam embankment structure, so the embankment structure can be modified to meet current (MDE) dam safety standards. While the water is drained the excavation around the pond, modifications to the pond bottoms will occur. In order to create the forebays, create aquatic benches, and expand Pond #2 it is necessary to be able to visually monitor the work. Therefore, the entire ponds will be temporarily impacted in some way at minimum by the dewatering during the embankment reconstruction.

A letter from the Maryland Department of Natural Resources (DNR) documented that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated.
Provided below is a typical sequence of construction requirements for ponds:

1. Site Preparation: Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process. Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed, and stripped of topsoil. All trees, vegetation, roots, and other objectionable material shall be removed. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment. All cleared and grubbed material shall be disposed outside the limits of the dam. A sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

2. Care of Water during Construction: At the onset of construction "in the wet", clear water stream diversions shall be install to conduct flow through the construction zone. Stream diversions shall be installed according to the plan set and applicable standards. All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled, and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works, and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

3. The Cutoff trench: The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be one to one or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

4. Embankment Core: The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be minimum of four feet. The height shall extend up to at least the 10-year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

5. Laying of Pipe: Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6-inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the ©Structure Backfill, section of this standard. Gravel bedding is not permitted. Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within four feet from the riser.

6. Backfill: The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, and stones greater than 4 inches, frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Materials used in the outer shell of the embankment must have the ability to support vegetation of the quality required to prevent erosion of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment. Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material must fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24 inches or greater over the structure or pipe. At no time during the back filling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24 inches or greater over the structure or pipe. Backfill material outside the structural backfill zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

7. Stabilization: All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Dam Safety Sequence of Construction

A. Reconstruct the dam embankment to include a clay core, anti-seep collar, and a concrete riser structure. According to the Natural Resource Conservation Service (NRCS) Maryland Conservation Code No. 378, Practice Standard for Ponds, the seepage along pipe conduit spillways extending through the embankment shall be controlled by use of anti-seep collars. Sufficient collars shall be placed to increase the seepage length along the pipe conduit by a minimum of 15 percent of the pipe length located within the saturation zone. The assumed normal saturation zone shall be determined by projecting a line at a slope (4) horizontal to (1) vertical from the point where the normal water elevation meets the upstream slope to a point where this line intersects the invert of the pipe conduit or bottom of the cradle, whichever is lower. This phreatic line starting elevation shall be the 10-year water elevation. Maximum collar spacing shall be 14 times the required projection above the pipe. The minimum collar spacing shall be 5 times the required minimum projection. Anti-seep collars should be placed within the saturated zone. All anti-seep collars and their connections to the conduit shall be watertight and made of material compatible with the conduit. Collar dimensions shall extend a minimum of 2 feet in all directions around the pipe and will be measured from the concrete cradle.
B. Excavated ponds that include a pipe or weir outlet control system for urban stormwater management shall be designed using the principal and emergency spillway hydrologic criteria for Embankment Ponds.
C. Some side slopes of the impoundment will be modified to create an aquatic bench, access road, and safe pedestrian conditions around the pond. A maintenance bench shall be provided 1 foot above the normal pool elevation suitable for access for maintenance and emergency vehicles to serve as a safety feature. The bench shall have a minimum slope of 2% toward the normal pool. The bench shall be a 12' minimum width. A safety bench of 5 foot wide shall be placed 1-1.5 feet below the design at the channel protection volume (Cpv) control evaluation.
D. Cuts in an existing fill or in natural ground will require the slope of the bonding surfaces between the existing material in place and the fill to be placed shall not be steeper than a ratio of two horizontal to one vertical (2:1). The combined upstream and downstream side slopes of the settled embankment shall not be less than five horizontal to one vertical (5:1) with neither slope steeper than 2:1. Slopes must be designed to be stable in all cases, even if flatter side slopes are required. Side slopes of excavated ponds shall be such that they will be stable and shall not be steeper than 1 horizontal to 1 vertical.

Create an access road easement for emergency access and maintenance access to the pond.

HOWARD COUNTY SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (410-313-1855).

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.

4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol I, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.

5. All disturbed areas must be stabilized within the time period specific above in accordance with the current MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Section 52). Temporary stabilization with mulch along can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained by the Howard County Sediment Control Inspector.

7. Site Analysis:
Total Area of Site 50± Acres
Area Disturbed 26.56 Acres
Area to be roofed or paved 16.74 Acres
Area to be vegetatively stabilized 8.82 Acres
Total Cut 196,306 Cu. Yds.
Total Fill 95,589 Cu. Yds.
Offsite waste/borrow area location: TO SITE WITH ACTIVE GRADING PERMIT

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

10. On all site with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

11. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized any construction as shown on these plans by the end of each work day, whichever is shorter.

Construction and Material Specifications

Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrast in textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials large than 1½" in diameter.

ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or other as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread to the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

For sites having disturbed areas under 5 acres:

Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

For sites having disturbed areas over 5 acres:

On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following.

a. pH for topsoil shall be between 6.0 and 7.5. If tested soil demonstrates a pH of less the 6.0, sufficient lime shall be prescribed to raise pH to 6.5 or higher.

b. Organic content of topsoil shall be not less then 1.5 percent by weight.

c. Topsoil having soluble salt content greater then 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 day min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments as recommended by a qualified agronomist or soil scientist approved by the appropriate approval authority, may be used in lieu of natural topsoil.

Place topsoil (if required) and apply soil amendments as specified on 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

Topsoil Application

When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fences and Sediment Traps and Basins.

Grades in the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. 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.

Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

Alternative for Permanent Seeding - Instead of applying the full amounts of like and commercial fertilizer, composted sludge and amendments may be applied as specified below:

Composted Sludge Materials for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originated from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub #1, Cooperative Extention Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

2. Vegetative Cover - See standards for temporary vegetative cover.

3. Tillage - To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.

4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.

5. Barriers - Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar materials can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.
6. Calcium Chloride - Apply at rates that will keep surface moist. May need retreatment.

Permanent Methods

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.

2. Topsoil - Covering with less erosive materials. See Standards for topsoiling.

3. Stone - Cover surface with crushed stone or coarse gravel.

References

1. Agriculture Handbook 346. Wind Erosion Forces in the United States and Their Use in Predicting Soil Loss.

2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA - ARS.

B-3 Standards and Specifications For Land Grading

Definition:
Reshaping the existing land surface to provide suitable topography for building facilities and other site improvements.
Purpose:
To provide erosion control and vegetative establishment for extreme changes in grade.
Conditions Where Practice Applies
Earth disturbances or extreme grade modifications on steep or long slopes.
Design Criteria
The grading plan should be based on the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, adjacent properties, drainage patterns, measures for water removal, and vegetative treatment, etc.
Many jurisdictions have regulations and design procedures already established for land grading that must be followed. The plan must show existing and proposed contours for the area(s) to be graded including practices for erosion control, slope stabilization, and safe conveyance of runoff (e.g., waterways, lined channels, reverse benches, grade stabilization structures). The grading/construction plans are to include the phasing of these practices and consideration of the following:
1. Provisions to safely convey surface runoff to storm drains, protected outlets or stable water courses to ensure that surface runoff will not damage slopes or other graded areas.
2. Cut and fill slopes, stabilized with grasses, no steeper than 2:1. (Where the slope is to be mowed, the slope should be no steeper than 3:1, but 4:1 is preferred because of safety factors related to mowing steep slopes.) Slopes steeper than 2:1 require special design and stabilization considerations to be shown on the plans.
3. Benching per Detail B-3-1 whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slopes, when it exceeds 30 feet; and for 4:1 slopes, when it exceeds 40 feet. Locate benches to divide the slope face as equally as possible and to convey the water to a stable outlet. Soils, seeps, rock outcrops, etc. are to be taken into consideration when designing benches.
a. Provide benches with a minimum width of six feet for ease of maintenance.
b. Design benches with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Grade the longitudinal slope of the bench between 2 percent and 3 percent, unless accompanied by appropriate design and computations.
B.6
c. The maximum allowable flow length within a bench is 800 feet unless accompanied by appropriate design and computations.
4. Diversion of surface water from the face of all cut and fill slopes using earth dikes or swales. Convey surface water down slope using a designed structure, and:
a. Protect the face of all graded slopes from surface runoff until they are stabilized.
b. Do not subject the slope's face to any concentrated flow of surface water such as from natural drainage ways, graded swales, downspouts, etc.
c. Protect the face of the slope by special erosion control materials to include, but not be limited to, approved vegetative stabilization practices, riprap or other approved stabilization methods.
5. Serrated slope as shown in Detail B-3-2. The steepest allowable slope for ripable rock is 1.5:1. For non rock surfaces, the slopes are to be 2:1 or flatter. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization.
6. Subsurface drainage provisions. Provide subsurface drainage where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.
7. Proximity to adjacent property. Slopes must not be created close to property lines without adequate protection against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.
8. Quality of fill material. Fill material must be free of brush, rubbish, logs, stumps, building debris, and other objectionable material. Do not place frozen materials in the fill nor place the fill material on a frozen foundation.
9. Stabilization. Stabilize all disturbed areas structurally or vegetatively in compliance with Section B-4 Standards and Specifications for Stabilization Practices.
Maintenance
The line, grade, and cross section of benching and serrated slopes must be maintained. Benches and serrated slopes must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization.

Standard Stabilization Note

Following initial soil disturbance or re-disturbance, permanent or temporary stabilization must be completed within:

a.) Three (3) calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes steeper than 3 horizontal to 1 vertical (3:1), and

b.) Seven (7) calendar days as to all other disturbed or graded areas on the project not under active grading.

B-4-1 Standards and Specifications For Incremental Stabilization

Definition
Establishment of vegetative cover on cut and fill slopes.
Purpose
To provide timely vegetative cover on cut and fill slopes as work progresses.
Conditions Where Practice Applies
Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.
Criteria
A. Incremental Stabilization - Cut Slopes
1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B.1):
a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.
Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

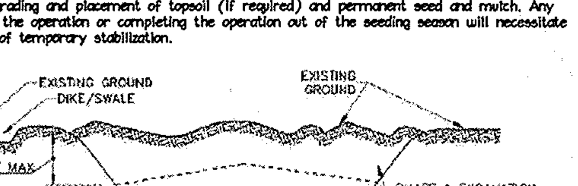


Figure B.1: Incremental Stabilization – Cut

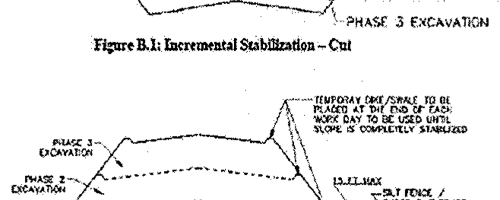


Figure B.2: Incremental Stabilization – Fill

B. Incremental Stabilization - Fill Slopes
1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B.2):
a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
c. Place Phase 1 fill, prepare seedbed, and stabilize.
d. Place Phase 2 fill, prepare seedbed, and stabilize.
e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.
Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.
Figure B.2: Incremental Stabilization -Fill

B-4-2 Standards and Specifications For Soil Preparation, Top Soiling, and Soil Amendments

Definition
The process of preparing the soils to sustain adequate vegetative stabilization.
Purpose
To provide a suitable soil medium for vegetative growth.
Conditions Where Practice Applies
Where vegetative stabilization is to be established.
Criteria
A. Soil Preparation
1. Temporary Stabilization
a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
b. Apply fertilizer and lime as prescribed on the plans.
c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
i. Soil pH between 6.0 and 7.0.
ii. Soluble salts less than 500 parts per million (ppm).
iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
iv. Soil contains 1.5 percent minimum organic matter by weight.
v. Soil contains sufficient pore space to permit adequate root penetration.
b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
B.13
d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.
B. Topsoiling
1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
6. Topsoil Application
a. Erosion and sediment control practices must be maintained when applying topsoil.
b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading B.14 and seedbed preparation.
C. Soil Amendments (Fertilizer and Lime Specifications)
1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

Permanent Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	P_2O_5	K_2O	Lime Rate
Hardiness Zone (from Figure B.3): 6B; Seed Mixture (from Table B.3): ___								
				¼-½ in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
				¼-½ in				
				¼-½ in				

Temporary Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)	Lime Rate
Hardiness Zone (from Figure B.3): 6B; Seed Mixture (from Table B.1): ___						
					436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

B-4-3 Standards and Specifications For Seeding and Mulching

Definition
The application of seed and mulch to establish vegetative cover.
Purpose
To protect disturbed soils from erosion during and at the end of construction.
Conditions Where Practice Applies
To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.
Criteria
A. Seeding
1. Specifications
a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
2. Application
a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
B.16
b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
iii. Mix seed and fertilizer on site and seed immediately and without interruption.
iv. When hydroseeding do not incorporate seed into the soil.
B. Mulching
1. Mulch Materials (in order of preference)
a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.
B.17
2. Application
a. Apply mulch to all seeded areas immediately after seeding.
b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
3. Anchoring
a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 Standards and Specifications For Temporary Stabilization

Definition
To stabilize disturbed soils with vegetation for up to 6 months.
Purpose
To use fast growing vegetation that provides cover on disturbed soils.
Conditions Where Practice Applies
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.
Criteria
1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)	Lime Rate
Hardiness Zone (from Figure B.3): ___; Seed Mixture (from Table B.1): ___						
					436 lb/ac (10 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/ lb/ac	Seeding Rate 1/ lb/1000 ft²	Seeding Depth 2/ (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/: 5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (*Lolium perenne ssp. multiflorum*)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (*Hordeum vulgare*)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (*Avena sativa*)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (*Triticum aestivum*)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (*Secale cereale*)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (*Pennisetum glaucum*)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:
1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.
Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings.
Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.
Oats are the recommended nurse crop for warm-season grasses.
2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/ lb/ac	Seeding Rate 1/ lb/1000 ft²	Seeding Depth 2/ (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/: 5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (*Lolium perenne ssp. multiflorum*)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (*Hordeum vulgare*)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (*Avena sativa*)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (*Triticum aestivum*)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (*Secale cereale*)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (*Pennisetum glaucum*)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:
1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.
Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.
Oats are the recommended nurse crop for warm-season grasses.
2/ For sandy soils, plant seeds at twice the depth listed above.
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

21.0 Standard and Specifications For Topsoil

Definitions

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soil of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material in not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains materials toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

30.0 Dust Control

Definition

Controlling dust blowing and movement on construction sites and roads.

Purpose

To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

Conditions Where Practice Applies

This practice is applicable to areas subject to dust blowing and movement where in and off-site damage is likely without treatment.

Specifications

Temporary Methods

1. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or tacked to prevent blowing.

For the purpose of these Standards and Specification, areas having slopes steeper that 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper that 2:1 shall have the appropriate stabilization shown on the plans.

B-4-5 Standards and Specifications For Permanent Stabilization

Definition
To stabilize disturbed soils with permanent vegetation.
Purpose
To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.
Conditions Where Practice Applies
Exposed soils where ground cover is needed for 6 months or more.
Criteria
A. Seed Mixtures
1. General Use
a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
2. Turfgrass Mixtures
a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where B.22 rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.
Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"
Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line
c. Ideal Times of Seeding for Turf Grass Mixtures
Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)
d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	P_2O_5	K_2O	Lime Rate
Hardiness Zone (from Figure B.3): ___; Seed Mixture (from Table B.3): ___								
				¼-½ in	45 pounds per acre (1.0 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	90 lb/ac (2 lb/1000 sf)	2 tons/ac (90 lb/1000 sf)
				¼-½ in				
				¼-½ in				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
1. General Specifications
a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
2. Sod Installation
a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
B.24
3. Sod Maintenance
a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 1/7/15
SIGNATURE OF DEVELOPER — DATE
ROY CHIAVACCI

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

[signature] 1/5/15
SIGNATURE OF ENGINEER — DATE
WILLIAM R. ZINK, P.E.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. Pond #2

[signature] 1/20/15
HOWARD SOIL CONSERVATION DISTRICT — DATE

B-4-8 STANDARDS AND SPECIFICATIONS
FOR
STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

B.43

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

[signature] 01-05-2015
SIGNATURE OF ENGINEER — DATE
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] Chief, Development Engineering Division NY — Date 2-20-15
[signature] Chief, Division of Land Development — Date 2-26-15
[signature] Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center
MEMBER ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE 1-800-257-7777

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

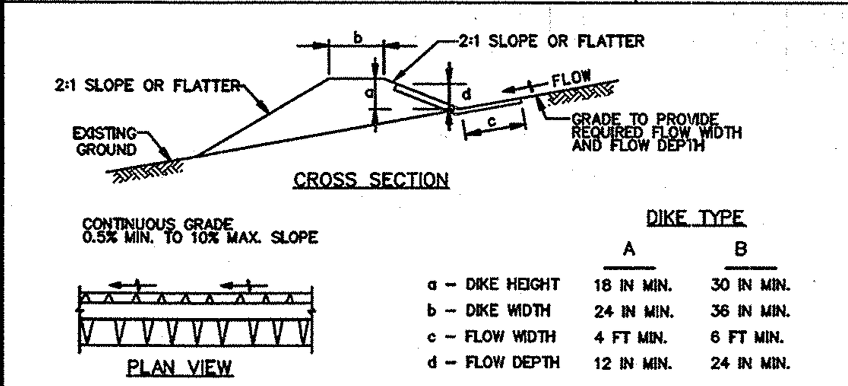
WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	33 OF 77
CHECKED: ENJ	APPROVED: WRZ	

DETAIL C-1 EARTH DIKE

STANDARD SYMBOL A-1 — PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.



DIKE TYPE	A	B
a – DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b – DIKE WIDTH	24 IN MIN.	36 IN MIN.
c – FLOW WIDTH	4 FT MIN.	6 FT MIN.
d – FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

A–1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)

A–2/B–2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.

A–3/B–3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

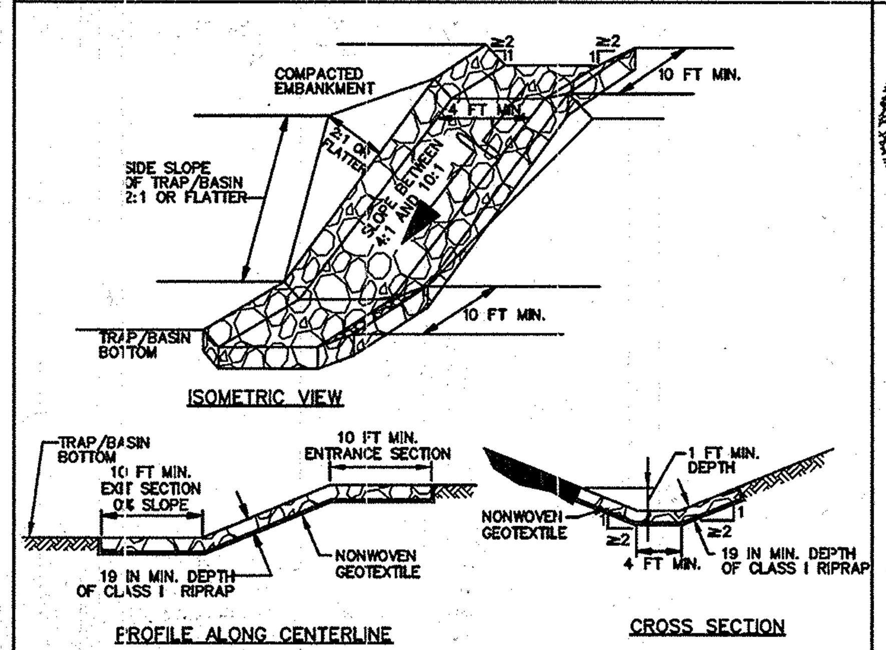
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-3-1 RIPRAP INFLOW PROTECTION

STANDARD SYMBOL RRP



CONSTRUCTION SPECIFICATIONS

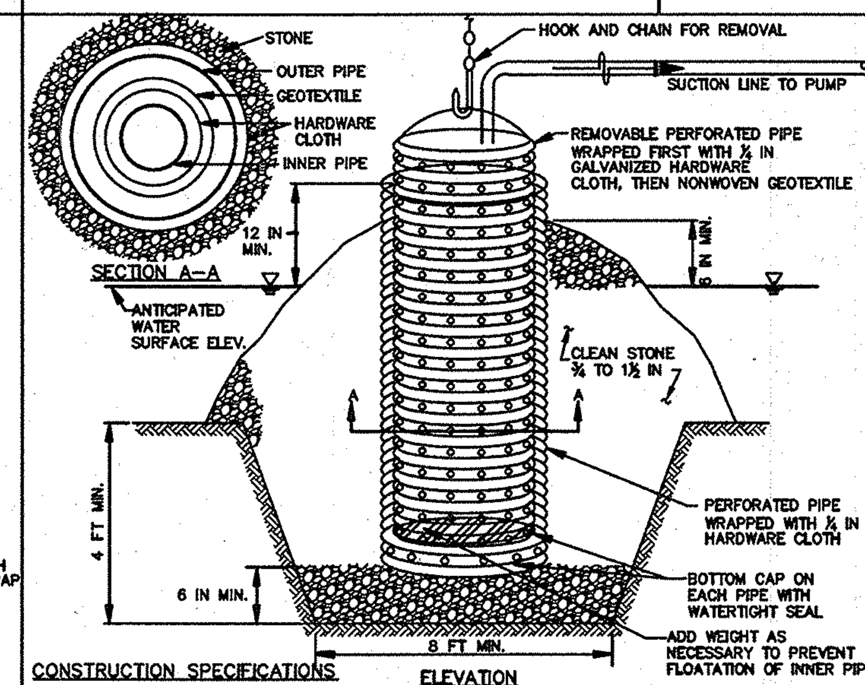
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. CONSTRUCT INFLOW CHANNEL WITH CLASS I RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 19 INCHES (2 x D_{50}) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
3. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
4. BLEND RIPRAP INTO EXISTING GROUND.
5. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL RPS



CONSTRUCTION SPECIFICATIONS

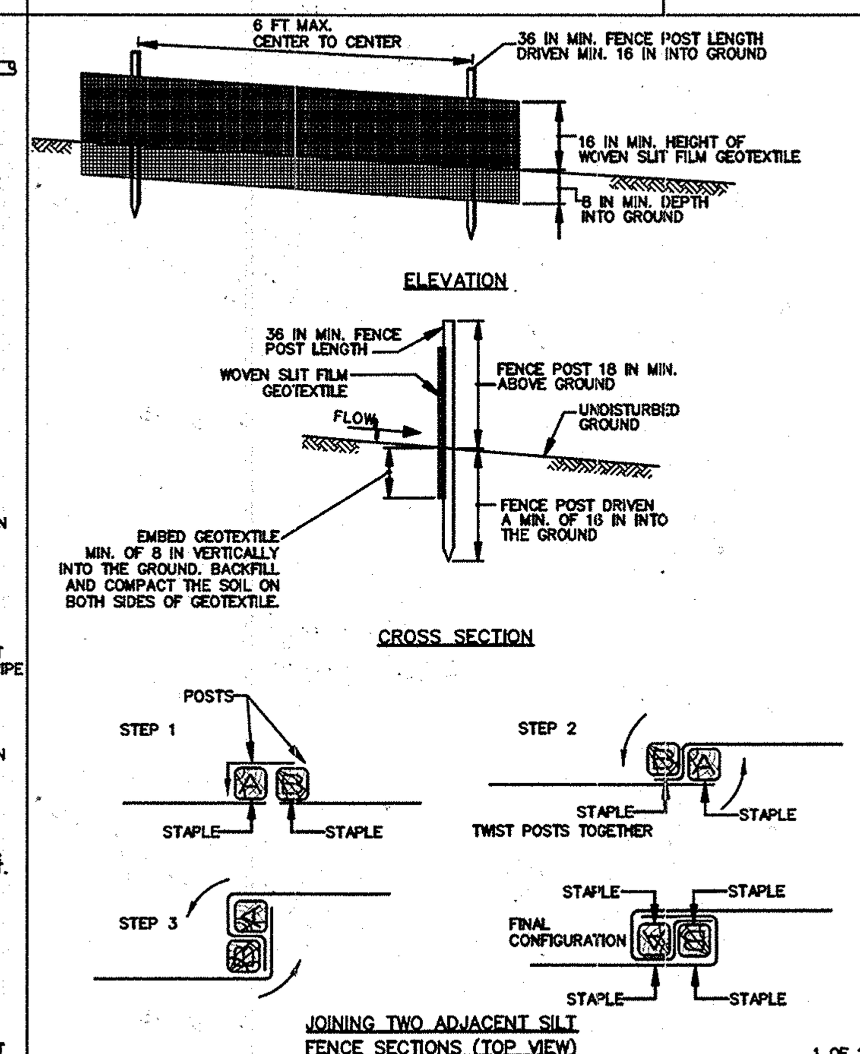
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 6 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ½ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL SF



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅙ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

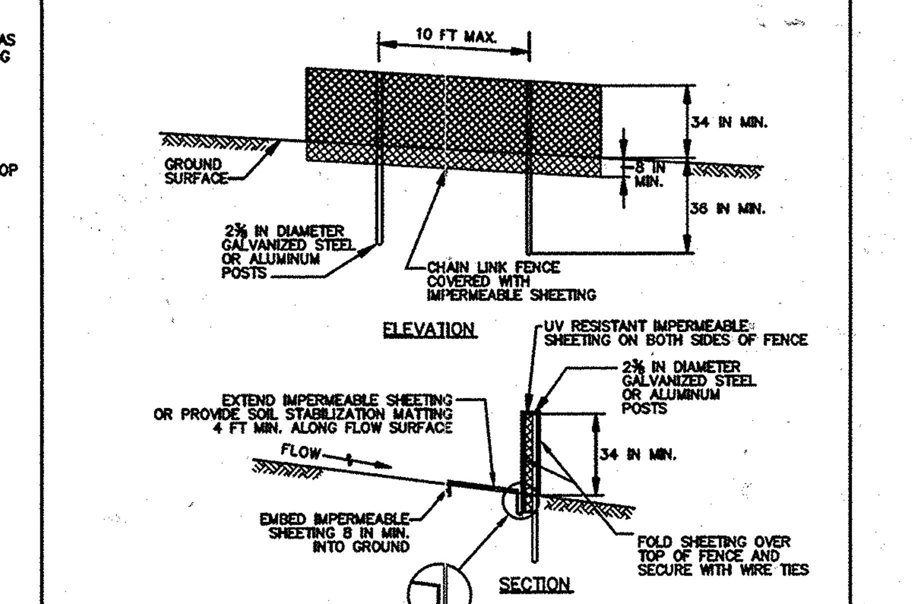
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL DF

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

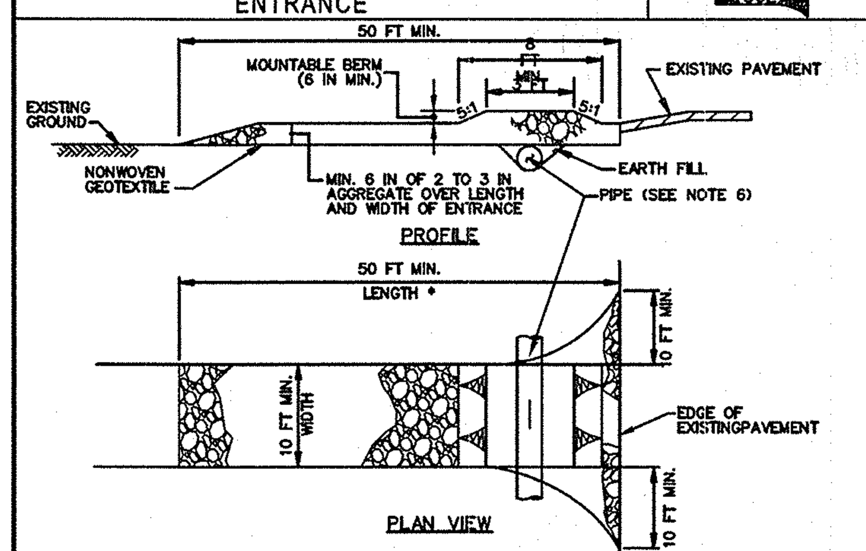
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL SCE



CONSTRUCTION SPECIFICATIONS

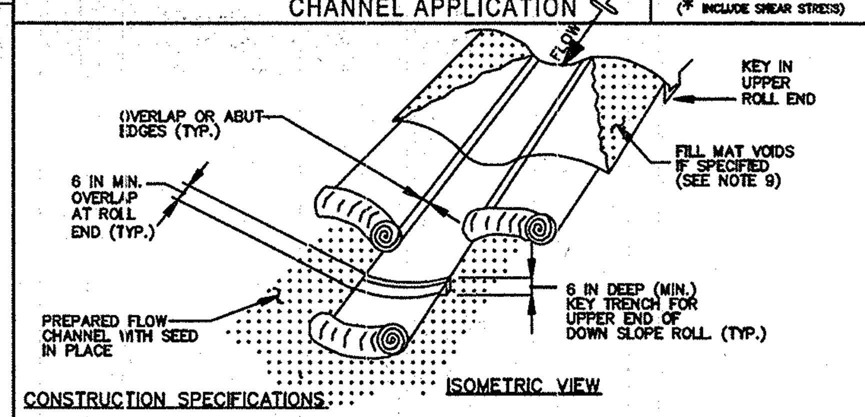
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL PSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

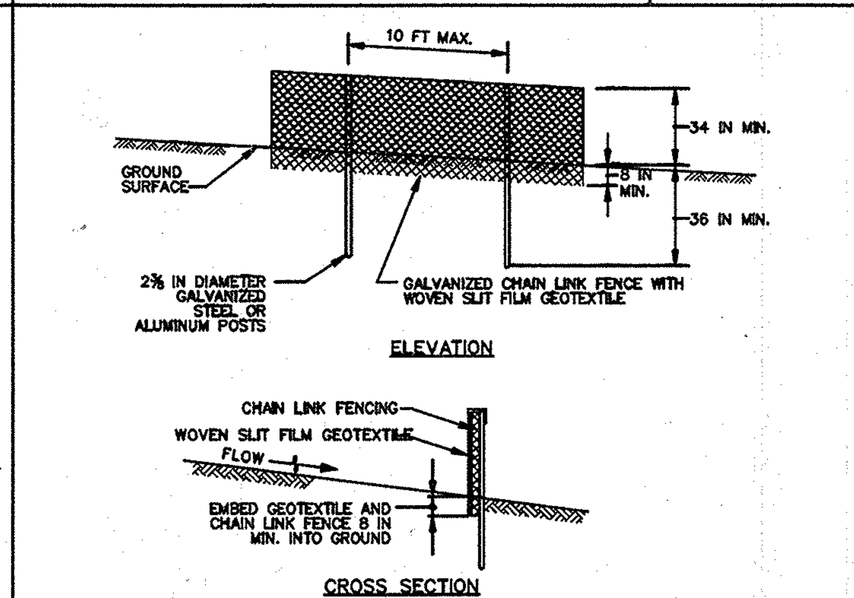
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL SSF



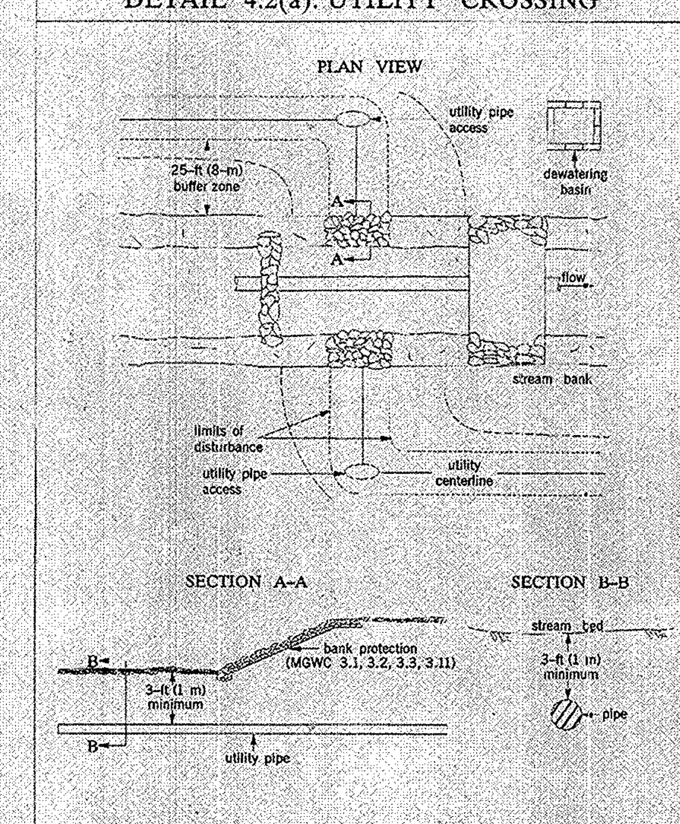
CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

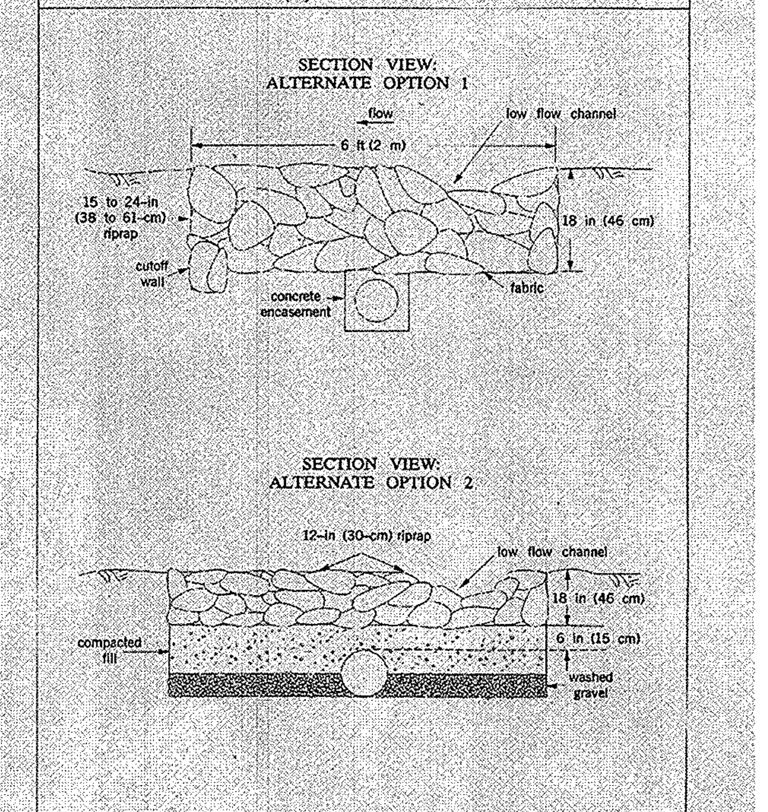
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction
DETAIL 4.2(a): UTILITY CROSSING



STREAM CROSSINGS	PAGE 4.2 - 3	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction
DETAIL 4.2(b): UTILITY CROSSING



STREAM CROSSINGS	REVISED NOVEMBER 2000 PAGE 4.2 - 5	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 1/7/15
ROY CHIAVACCI

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

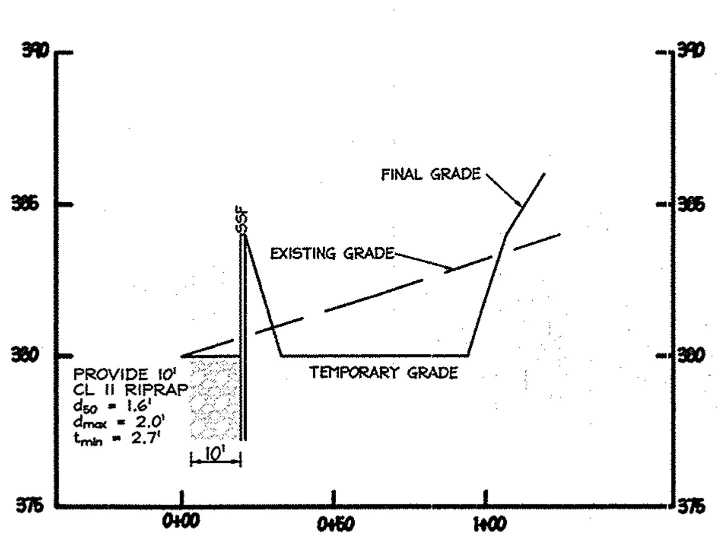
SIGNATURE OF ENGINEER — DATE 1/5/15
WILLIAM R. ZINK, P.E.

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. Pond #2

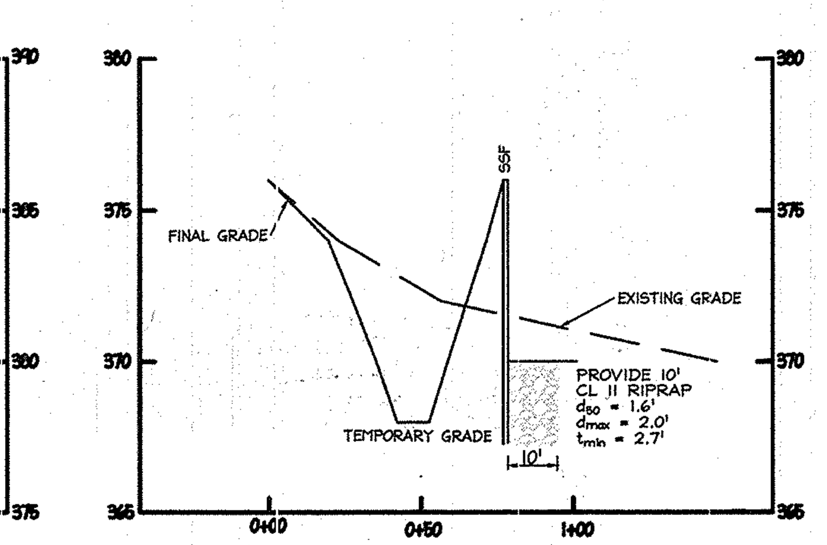
HOWARD SOIL CONSERVATION DISTRICT — DATE 1/20/15

EROSION CONTROL MATTING NOTE:

SWALES ARE TO BE PROTECTED WITH EROSION CONTROL MATTING AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR



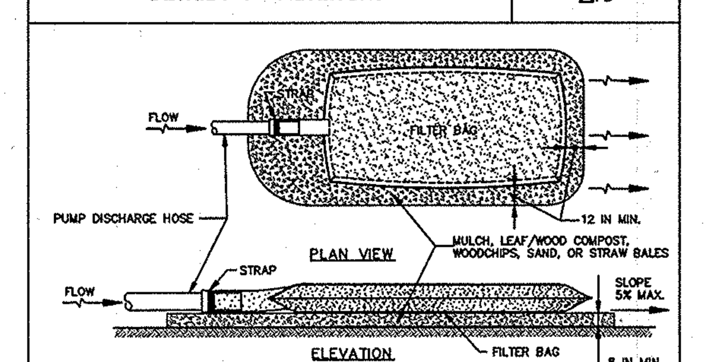
SSF–TRAP #1 DETAIL
N.T.S



SSF–TRAP #2 DETAIL
N.T.S

DETAIL F-4 FILTER BAG

STANDARD SYMBOL FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15–0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

F.9

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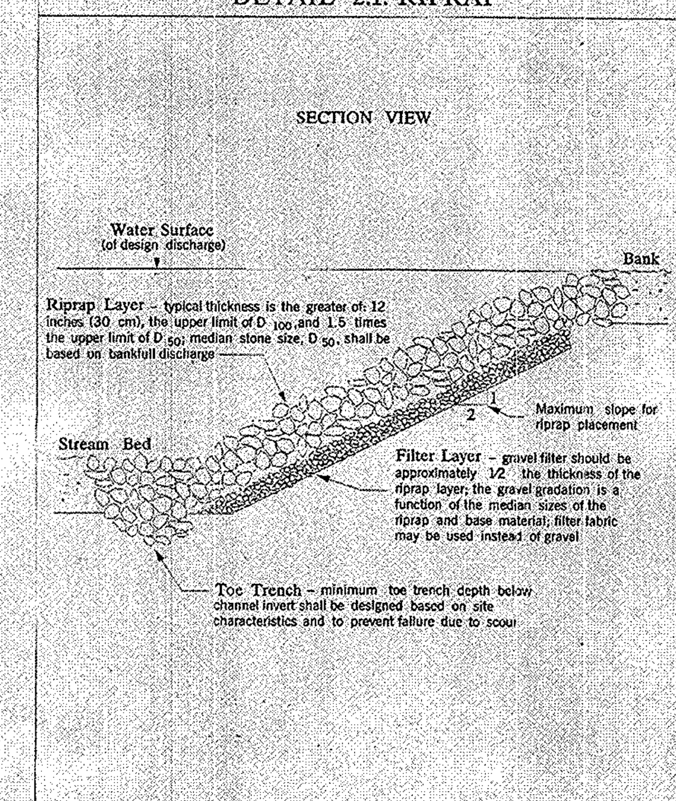
Maryland's Guidelines To Waterway Construction
DETAIL 2.1: RIPRAP



SLOPE PROTECTION AND STABILIZATION TECHNIQUES	REVISED NOVEMBER 2000 PAGE 2.1 - 4	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15
Chief, Division of Land Development — Date 2-26-15
Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE:

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	34 OF 77
CHECKED: ENJ	APPROVED: WRZ	

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. S-1
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 370.71 Ft. Hammer Drop 30 in. Rock Core Diameter — Inspector —
Date Started 3/01/07 Pipe Size 2 in. Boring Method HSA Date Completed 3/01/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, soft, micaceous sandy silt (ML; FILL)	Topsoil-7"	20"	1-2-2-4	4
Brown, damp, very loose to loose, micaceous silty sand (SM; FILL)		20"	3-2-2-3	4
		20"	2-3-3-4	6
Gray, moist, medium stiff, micaceous sandy silt (ML; FILL)		18"	2-4-6-6	10
Gray to brown, moist, medium stiff, micaceous sandy silt, trace clay (ML)		12"	2-4-5-5	9
Brown, wet to moist, loose to medium dense, micaceous silty sand (SM)	Groundwater encountered @ 10.0' while drilling	18"	1-4-4-6	8
	Sample 7 contains some rock fragments	18"	7-9-8-11	17
		18"	4-6-7	13
Bottom of boring @ 15.5'				

Ground Water: At completion 7.5 ft. Cave in Depth: 11.5 ft.

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. S-2
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 385.86 Ft. Hammer Drop 30 in.
Date Started 3/01/07 Pipe Size 2 in. Boring Method HSA Date Completed 3/01/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, very loose to loose, micaceous silty sand (SM; FILL)	Topsoil-4"	12"	2-1-2-3	3
		18"	3-3-3-4	6
		18"	2-3-3-5	6
		18"	3-3-3-4	6
Brown to gray, moist to damp, medium stiff, micaceous sandy silt, trace clay and roots (ML)		18"	1-3-3-6	6
		18"	2-3-5-6	8
Brown to reddish brown, damp, very loose to loose, micaceous silty sand (SM)		18"	2-3-3-4	6
		8"	1-2-2-3	4
		20"	3-3-4-7	7
Bottom of boring @ 18.0'				

Ground Water: At completion 15.0 ft. Cave in Depth: 15.0 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. S-3
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 369.45 Ft. Hammer Drop 30 in.
Date Started 3/01/07 Pipe Size 2 in. Boring Method HSA Date Completed 3/01/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, medium stiff, micaceous sandy silt, trace rock fragments, concrete fragments and organics (ML; FILL)	Topsoil-5"	10"	2-2-4-3	6
		20"	2-3-3-4	6
		18"	2-3-4-7	7
		20"	3-4-4-6	8
Gray, moist, soft to medium stiff, micaceous sandy silt, with organics (ML)		18"	2-3-3-4	6
		18"	1-2-3-3	5
Gray to brown, moist, loose, micaceous silty sand (SM)	Groundwater encountered @ 13.0' while drilling	20"	1-2-3-4	5
		15"	3-3-4-7	7
Bottom of boring @ 16.0'				

Ground Water: At completion 13.5 ft. Cave in Depth: 13.5 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. S-4
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 365.38 Ft. Hammer Drop 30 in.
Date Started 2/28/07 Pipe Size 2 in. Boring Method HSA Date Completed 2/28/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, loose to medium dense, micaceous silty sand, trace organics (SM; FILL)	Topsoil-6"	16"	8-7-8-7	13
		20"	5-5-5-6	10
		20"	5-5-5-6	10
		20"	4-4-5-5	9
Brown, moist to damp, soft, micaceous sandy silty clay (CL-ML)		18"	2-2-3-4	5
Brown and orange, moist, medium dense to dense, micaceous silty sand (SM)	Groundwater encountered @ 10.0' while drilling	16"	2-4-7-11	11
		16"	13-16-15-18	31
		18"	5-8-13	21
Bottom of boring @ 15.0'				

Ground Water: At completion 10.5 ft; After 24 hrs. 9.5 ft. Cave in Depth: 12.0 ft; 11.5 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. S-5
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 368.62 Ft. Hammer Drop 30 in.
Date Started 2/28/07 Pipe Size 2 in. Boring Method HSA Date Completed 2/28/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, loose, micaceous silty sand, trace roots (SM; FILL)	Topsoil-7"	16"	1-2-3-3	5
		18"	3-3-4-8	7
		18"	4-3-4-5	7
Gray, damp, very soft to medium stiff, micaceous sandy silt, trace clay and roots (ML; FILL)		18"	3-4-3-5	7
		18"	2-1-2-3	3
Gray, damp, very loose, micaceous silty sand (SM; FILL)	Groundwater encountered @ 11.0' while drilling	16"	1-1-2-2	3
		18"	1-1-1-2	2
		20"	1-1-2-3	3
Brown to gray, moist to damp, medium dense to dense, micaceous silty sand, trace rock fragments (SM)		18"	4-5-7-11	12
		16"	14-17-17-19	34
Bottom of boring @ 20.0'				

Ground Water: At completion 11.0 ft; After 24 hrs. 10.0 ft. Cave in Depth: 15.0 ft; 12.0 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. B-1
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 372.92 Ft. Hammer Drop 30 in.
Date Started 2/19/07 Pipe Size 2 in. Boring Method HSA Date Completed 2/19/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, medium stiff, micaceous sandy silt, trace roots (ML; Possible FILL)	Topsoil-7"	10"	5-4-3	7
Brown, moist, loose, micaceous silty sand (SM; Possible FILL)		13"	4-3-3	6
		10"	3-2-3	5
Reddish brown to light brown, moist to wet, soft to medium stiff, micaceous sandy silt, trace to no clay and rock fragments (ML)		10"	3-4-4	8
		15"	3-5-5	10
	Groundwater encountered @ 15.0' while drilling	15"	1-2-2	4
Gray, moist, loose to medium dense, micaceous silty sand (SM)		18"	2-3-4	7
		15"	4-6-10	16
		18"	7-11-17	28

Ground Water: At completion 9.0 ft; After 24 hrs. 12.0 ft. Cave in Depth: 24.0 ft; 16.0 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. [illegible]
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. [illegible] Ft. Hammer Drop 30 in.
Date Started [illegible] Pipe Size 2 in. Boring Method HSA Date Completed [illegible]

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, damp, very dense, micaceous silty sand (SM; Decomposed ROCK)		[illegible]	[illegible]	50
Bottom of boring @ 33.0'				

Ground Water: At completion [illegible] ft; After 24 hrs. [illegible] ft. Cave in Depth: 24.0 ft; 18.5 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. B-14
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 365.06 Ft. Hammer Drop 30 in.
Date Started 2/28/07 Pipe Size 2 in. Boring Method HSA Date Completed 2/28/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, damp, medium stiff, sandy silt, trace clay and organics (ML)	Topsoil-5"	12"	5-4-3	7
Tan to brown, moist, loose to medium dense, micaceous silty sand (SM)		12"	4-3-4	7
		15"	3-4-6	10
		12"	7-7-10	17
	Groundwater encountered @ 11.0' while drilling	10"	7-11-11	22
Brown, moist, very dense, micaceous silty sand (SM; Decomposed ROCK)		17"	11-25-39	64
Bottom of boring @ 20.8'		10"	32-51/4"	100+

Ground Water: At completion 12.6 ft; After 24 hrs. 15.0 ft. Cave in Depth: 16.0 ft; 15.0 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No. B-3
Location: Howard County, Maryland — Job # 07066A

SAMPLER: Hammer Wt. 140 lbs. Hole Diameter 6" Foreman L. Smith
Surf. Elev. 371.13 Ft. Hammer Drop 30 in.
Date Started 2/19/07 Pipe Size 2 in. Boring Method HSA Date Completed 2/19/07

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown to tan, moist, medium dense to dense, micaceous silty sand (SM)		14"	9-10-8	18
		15"	5-10-8	18
		15"	9-11-12	23
		13"	10-15-17	32
		12"	9-13-21	34
Gray, dry, very dense, micaceous silty sand (SM; Decomposed ROCK)		0"	51/6"	100+
		2"	51/2"	100+
Auger refusal @ 25.0' Bottom of boring @ 25.0'		0"	51/0"	100+

Ground Water: After 24 hrs. Dry. Cave in Depth: 11.3 ft.

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center — MEMBER ONE CALL SYSTEMS INTERNATIONAL — CALL TOLL FREE 1-800-257-7777

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/20/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE 550 (TG 700) — SEWER CODE F07

TITLE: **SOIL BORING LOGS**

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	35 OF 77
CHECKED: ENJ	APPROVED: WRZ	

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
SIGNATURE OF ENGINEER — DATE 4/12/13
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

02/25/2013 DATE
STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 REGISTERED PROFESSIONAL ENGINEER

SDP-08-075

MDC-792 (SDP)

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-6
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: L. Smith
Surf. Elev.: 368.63 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 2/28/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 2/28/07

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown to gray, moist to damp, very loose to medium dense, micaceous silty sand, trace roots (SM; FILL)	Topsoil-7"	18"		1-2-3-4	6	
5			18"		4-6-5-7	11	
			18"		3-3-4-7	7	
			14"		2-2-2-2	4	
10	Gray, moist, medium stiff to stiff, micaceous sandy silt (ML)	Groundwater encountered @ 10.0' while drilling	18"		2-4-5-6	9	
			17"		2-5-8-11	13	
			20"		3-4-5-6	9	
15	Bottom of boring @ 16.0'		15"		2-4-10-16	14	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 10.0 ft.; AFTER 24 HRS. 6.0 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 13.0 ft.; AFTER 24 HRS. 9.0 ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-7
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: J. Parnell
Surf. Elev.: 373.23 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 4/27/10 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 4/27/10

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown, damp, medium stiff, micaceous sandy SILT (ML)	Topsoil-6"	15"		2-2-4	6	
			18"		2-4-7	11	
5	Brown to tan, damp to moist, loose to dense, micaceous silty SAND (SM)		18"		2-4-6	10	
			18"		5-7-7	14	
10		Groundwater encountered at 14.0' while drilling.	15"		11-15-16	31	
15	Tan, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK)		13"		25-38-50/5"	100+	
	Bottom of Boring at 19.9'						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 7.3 ft.; AFTER 24 HRS. 6.6 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 10.3 ft.; AFTER 24 HRS. 7.0 ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 2" INTERVALS

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-8
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: J. Parnell
Surf. Elev.: 362.98 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 4/8/10 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 4/8/10

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown, moist, loose to medium dense, micaceous silty SAND (SM)	Topsoil-4"	14"		2-2-3	5	
		No groundwater encountered while drilling.	15"		5-5-6	12	
5			17"		3-4-4	8	
	Brown, moist to damp, medium stiff, micaceous sandy SILT (ML)		15"		2-2-4	6	
10			13"		2-2-4	6	
	Tan, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK)		13"		5-7-10	17	
15			12"		22-30-50	80	
	Bottom of Boring at 29.9'		11"		22-48-50/5"	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 11.0 ft.; AFTER 24 HRS. 10.0 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 18.0 ft.; AFTER 24 HRS. 11.0 ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-9
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: J. Parnell
Surf. Elev.: 371.18 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 4/28/10 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 4/28/10

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown, moist, loose, micaceous silty SAND (SM)	No groundwater encountered while drilling.	12"		2-3-3	6	
			11"		3-4-4	8	
5			12"		3-4-3	7	
	Brown to gray, moist to damp, medium stiff, micaceous sandy SILT (ML)		18"		2-3-3	6	
10			18"		3-4-5	9	
	Brown, moist, medium dense to very dense, micaceous silty SAND (SM)		15"		5-8-12	21	
15			18"		12-21-30	51	
	Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK)		11"		14-25-38	63	
	Bottom of Boring at 30.0'						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. 5.6 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 8.0 ft.; AFTER 24 HRS. 8.0 ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-10
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Bryan
Surf. Elev.: 360.40 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 5/5/10 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 5/5/10

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown, moist to damp, very loose, micaceous silty SAND (SM)	Topsoil-2"	9"		2-2-2	4	
			15"		2-1-2	3	
5		Groundwater encountered at 6.0' while drilling.	16"		1-1-1	2	
	Gray, moist, soft, micaceous SILT (ML)		13"		1-2-3	5	
10	Bottom of Boring at 10.0'						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 3.0 ft.; AFTER 24 HRS. 4.0 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 10.0 ft.; AFTER 24 HRS. 5.2 ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-11
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M Bryan
Surf. Elev.: 368.35 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 5/5/10 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 5/5/10

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown, moist, loose to very dense, micaceous silty SAND (SM)	Topsoil-3"	11"		2-3-3	6	
			18"		2-3-4	7	
5			16"		5-5-7	12	
			18"		4-5-6	11	
10		Groundwater encountered at 13.0' while drilling.	18"		9-16-20	36	
			12"		11-28-23	51	
15	Bottom of Boring at 20.0'						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 7.0 ft.; AFTER 24 HRS. 4.7 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 9.0 ft.; AFTER 24 HRS. 7.8 ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-12
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M Bryan
Surf. Elev.: 364.98 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 5/5/10 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 5/5/10

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown, moist, loose to medium dense, micaceous silty SAND (SM)	Topsoil-2"	16"		1-2-4	6	
		No groundwater encountered while drilling.	18"		4-6-7	13	
5			16"		11-10-13	23	
	Brown, moist to damp, very dense, micaceous silty SAND (SM; Decomposed ROCK)		12"		22-50/6"	100+	
10			9"		32-50/3"	100+	
	Bottom of Boring at 14.3'						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 3.0 ft.; AFTER 24 HRS. 2.0 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 10.0 ft.; AFTER 24 HRS. 3.7 ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Lutheran Village at Miller's Grant — Boring No.: S-13
Location: Howard County, Maryland — Job #: 07066A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M Bryan
Surf. Elev.: 365.87 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 5/6/10 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 5/6/10

Elevation/ Depth	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve
0	Brown, moist, very loose, micaceous silty SAND (SM)	Topsoil-3"	14"		WOH/6"-1-1	2	
	Gray, moist, medium stiff, micaceous sandy SILT (ML)		15"		3-4-4	8	
5			18"		2-3-5	8	
			18"		2-2-5	7	
10	Brown, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK)	Groundwater encountered at 13.0' while drilling.	18"		13-31-50	81	
	Bottom of Boring at 15.0'						

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 3.5 ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: AT COMPLETION 10.1 ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

48 Hours
Before You Dig
Call
"MISS UTILITY"
Service Protection Center
MEMBER
ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE
1-800-257-7777

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.0880 · metro 301.261.6143 · fax 410.872.0883

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

SOIL BORING LOGS

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	36 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075

PROFESSIONAL CERTIFICATION

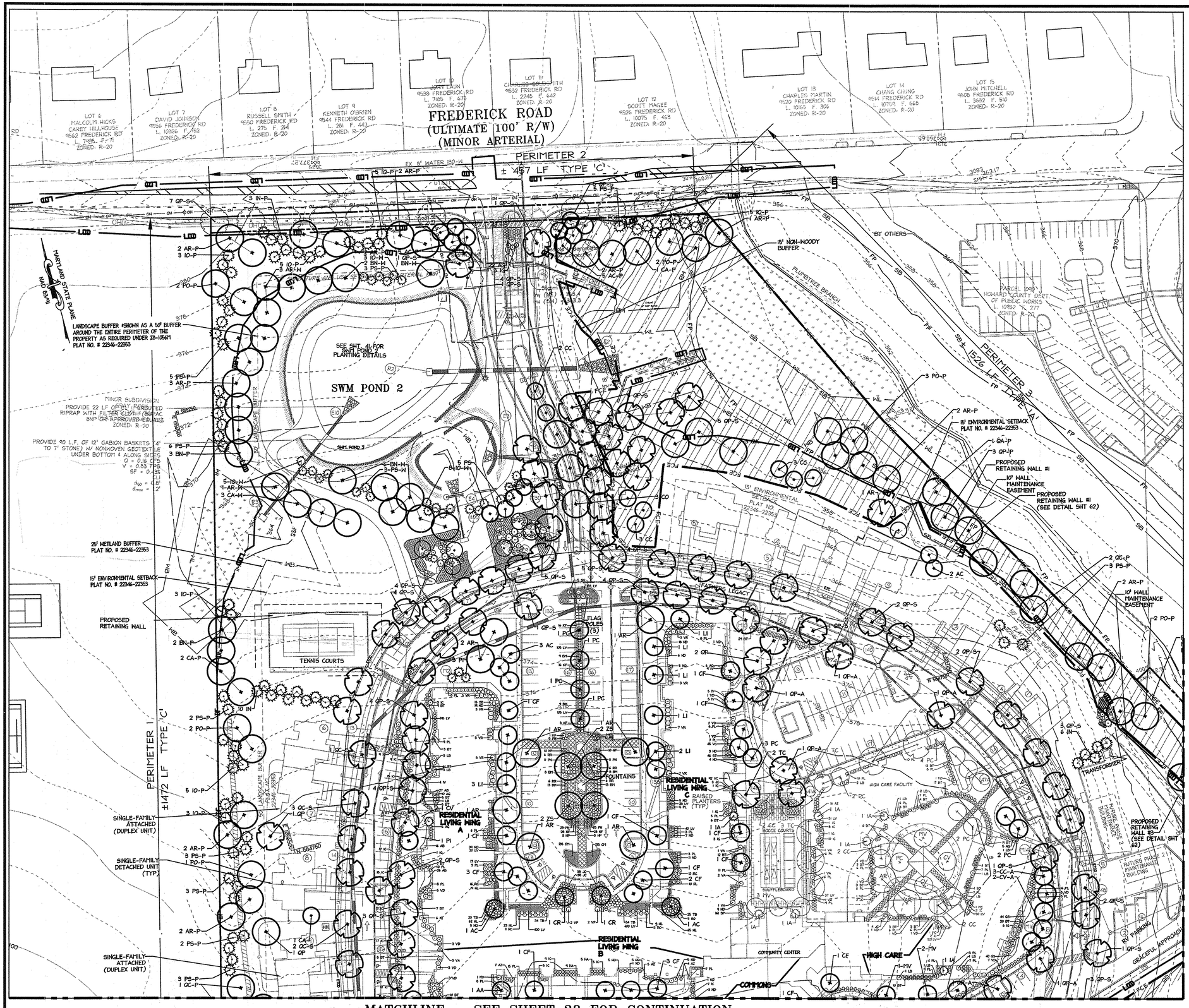
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 4/26/13

WILLIAM R. ZINN, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

02/25/2013
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINN — REG. NO. 20587 — PROFESSIONAL ENGINEER



NOTE: SEE SHEET 37A FOR EXPANDED VIEW OF INTERIOR COURTYARD LANDSCAPE

MATCHLINE - SEE SHEET 39 FOR CONTINUATION

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- STREAM CENTERLINE
- EXISTING TREELINE
- PROPOSED TREELINE
- FP FLOODPLAIN
- FB FLOODPLAIN BUFFER
- SB STREAM BUFFER
- WB WETLAND BUFFER
- FOREST CONSERVATION EASEMENT
- LOD LIMITS OF DISTURBANCE (LOD)
- RETENTION FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- NO-WOODY BUFFER
- WL TM WETLANDS
- PROPOSED SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED EVERGREEN TREE
- PROPOSED LARGE STREET TREE FREDERICK ROAD (11 WILLOW OAK)
- 1 APARTMENTS
- 2 COMMUNITY CENTER
- 3 ASSISTED LIVING (60 BED CARE FACILITY)
- PROPOSED ENTRANCE/EXIT (ACCESSIBLE ROUTE TO PUBLIC WAY)
- SA SC PROPOSED STREET LIGHT
- SB SD
- XX XX PROPOSED PHASE II PLANTINGS

NOTES:

1. ALL PHASE II LANDSCAPING SHALL BE INSTALLED IN PHASE II.
2. SEE SHEET 41 FOR A COMPLETE LIST OF PHASE II PLANTINGS.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15
Chief, Division of Land Development — Date 2-26-15
Director — Date 3/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center — CALL TOLL FREE 1-800-257-7777

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CSANADI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0080

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8650 · metro 301.261.2112 · fax 410.872.8653

01/05/2015 DATE

STATE OF MARYLAND — WILLIAM CHRISTOPHER — 21420 — PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO. A		CENSUS TRACT 602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

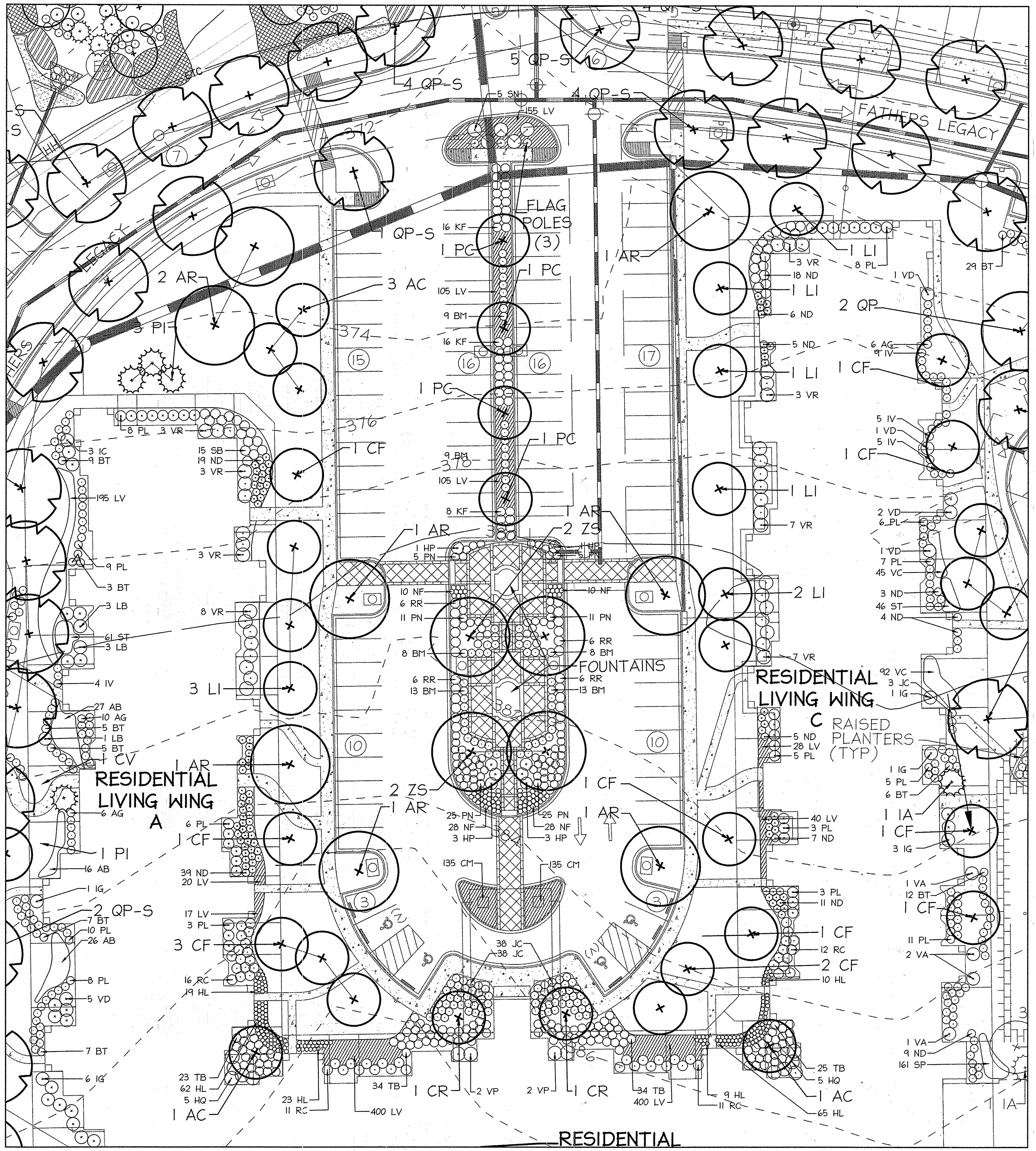
TITLE:

LANDSCAPE PLAN

DESIGN: DAWRH	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAWRH	DATE: APRIL 12, 2013	37 OF 77
CHECKED: WMG	APPROVED: WMG	

MDC-792 (SDP)

SDP-08-075



LEGEND

- EXISTING INTER CONTOUR
- EXISTING INDEX CONTOUR (250)
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- STREAM CENTERLINE
- EXISTING TREELINE
- PROPOSED TREELINE
- FP — FLOODPLAIN
- FB — FLOODPLAIN BUFFER
- SB — STREAM BUFFER
- WB — WETLAND BUFFER
- FCE — FOREST CONSERVATION EASEMENT
- LOD — LIMITS OF DISTURBANCE (LOD)
- RETENTION FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- NO-WOODY BUFFER
- WL / TM — WETLANDS
- PROPOSED SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED EVERGREEN TREE
- PROPOSED LARGE STREET TREE FREDERICK ROAD (11 WILLOW OAK)
- 1 — APARTMENTS
- 2 — COMMUNITY CENTER
- 3 — ASSISTED LIVING (60 BED CARE FACILITY)
- PROPOSED ENTRANCE/EXIT (ACCESSIBLE ROUTE TO PUBLIC WAY)
- SA SC SB SD — PROPOSED STREET LIGHT
- XX XX — PROPOSED PHASE II PLANTINGS

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 2.20.15
Chief, Division of Land Development	Date 2-26-15
Director	Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center
MEMBER ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE 1-800-257-7777

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

01/05/2015
DATE

STATE OF MARYLAND WILLIAM RAYMOND ... NO. 20587 REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 20'	PROJECT: 05115.001.02
DRAWN: CRH	DATE: APRIL 12, 2013	37A OF 77
CHECKED: LNG	APPROVED: LNG	

SDP-08-075

MDC-792 (SDP)

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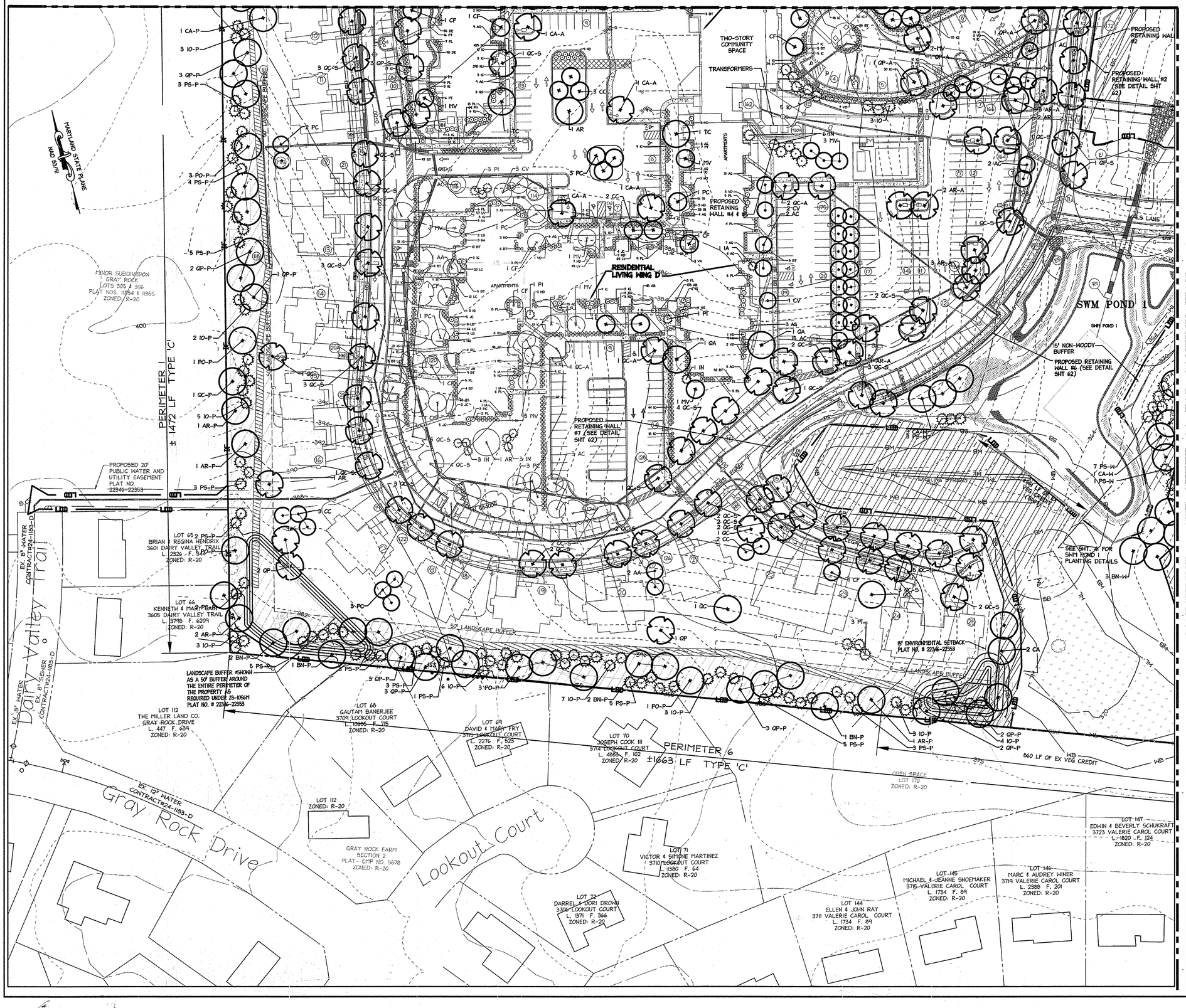
MATCHLINE – SEE SHEET 37 FOR CONTINUATION



MATCHLINE – SEE SHEET 39 FOR CONTINUATION

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- STREAM CENTERLINE
- EXISTING TREELINE
- PROPOSED TREELINE
- FP FLOODPLAIN
- FB FLOODPLAIN BUFFER
- SB STREAM BUFFER
- WB WETLAND BUFFER
- FCE FOREST CONSERVATION EASEMENT
- LOD LIMITS OF DISTURBANCE (LOD)
- RETENTION FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- NO-WOODY BUFFER
- WL / TM WETLANDS
- PROPOSED SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED EVERGREEN TREE
- PROPOSED LARGE STREET TREE FREDERICK ROAD (11 WILLOW OAK)
- 1 APARTMENTS
- 2 COMMUNITY CENTER
- 3 ASSISTED LIVING (60 BED CARE FACILITY)
- PROPOSED ENTRANCE/EXIT (ACCESSIBLE ROUTE TO PUBLIC WAY)
- SA SC / SB SD PROPOSED STREET LIGHT
- XX XX PROPOSED PHASE II PLANTINGS

NOTES:

1. ALL PHASE II LANDSCAPING SHALL BE INSTALLED IN PHASE II.
2. SEE SHEET 41 FOR A COMPLETE LIST OF PHASE II PLANTINGS.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center — MEMBER — ONE CALL SYSTEMS INTERNATIONAL — CALL TOLL FREE 1-800-257-7777

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER

LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.6800 · metro 301.861.0148 · fax 410.872.6830

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND KING — NO. 20507 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A	CENSUS TRACT: 602800
DEED REF: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24
ELECTION DISTRICT: 02			
WATER CODE: 550 (TG 700)		SEWER CODE: F07	

TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	38 OF 77
CHECKED: LNG	APPROVED: LNG	

P:\Projects\05115\01-ARDC-XXX-MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\37-39 LANDSCAPE PLAN.dwg, 12/29/2014 3:39:07 PM, dgustman, 1:1, christopher consultants, ltd.

MATCHLINE – SEE THIS SHEET FOR CONTINUATION

MATCHLINE – SEE SHEET 38 FOR CONTINUATION

MATCHLINE – SEE SHEET 37 FOR CONTINUATION

MATCHLINE
SEE THIS SHEET FOR CONTINUATION

LEGEND

- EXISTING INTER CONTOUR
- EXISTING INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- STREAM CENTERLINE
- EXISTING TREELINE
- PROPOSED TREELINE
- FP — FLOODPLAIN
- FB — FLOODPLAIN BUFFER
- SB — STREAM BUFFER
- WB — WETLAND BUFFER
- FOREST CONSERVATION EASEMENT
- LOD — LIMITS OF DISTURBANCE (LOD)
- RETENTION FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- NO-WOODY BUFFER
- WETLANDS
- PROPOSED SHADE TREE
- PROPOSED ORNAMENTAL TREE
- PROPOSED EVERGREEN TREE
- PROPOSED LARGE STREET TREE FREDERICK ROAD (11 WILLOW OAK)
- 1 APARTMENTS
- 2 COMMUNITY CENTER
- 3 ASSISTED LIVING (60 BED CARE FACILITY)
- PROPOSED ENTRANCE/EXIT (ACCESSIBLE ROUTE TO PUBLIC WAY)
- SA SC — PROPOSED STREET LIGHT
- SB SD

XX XX — PROPOSED PHASE II PLANTINGS

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

01/05/2015
DATE

STATE OF MARYLAND · WILLIAM RAYMOND BROWN · NO. 21557 · REGISTERED PROFESSIONAL ENGINEER

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY OSHAVACOL, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.6800 · metro 301.861.6140 · fax 410.872.6801

PERMIT INFORMATION CHART

PROJECT NAME LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO. A		CENSUS TRACT 602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: LNG	APPROVED: 1 LNG	39 OF 77

P:\Projects\05115\01-MDC-XXXX-MDC-792 EDP\2014-01-22 Bid Set\2014-09-05 Redline Set\37-39 LANDSCAPE PLAN.dwg, 12/29/2014 3:39:17 PM, elightman, 1:1, christopher consultants, ltd.

GENERAL PLANTING NOTES

1. ALL PLANT MATERIAL TO MEET A.A.N. STANDARDS.
2. LANDSCAPING CONTRACTOR TO FOLLOW LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE WASHINGTON METRO AREA APPROVED BY LCAMW.
3. NO SUBSTITUTIONS TO BE MADE WITHOUT CONSENT OF LANDSCAPE ARCHITECT OR OWNER.
4. IN THE EVENT OF VARIATION BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND THE PLANS, THE PLANS SHALL CONTROL. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES PRIOR TO THE COMMENCEMENT OF WORK. SOD QUANTITY TAKE-OFFS ARE THE RESPONSIBILITY OF THE CONTRACTOR. ALL DISCREPANCIES SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING. THE CONTRACTOR SHALL FURNISH PLANT MATERIAL IN SIZES AS SPECIFIED IN THE PLANT LIST.
5. ALL BEDS TO BE TOPPED WITH THREE INCHES OF HARDWOOD MULCH.
6. LANDSCAPE CONTRACTOR TO VERIFY LOCATION OF UTILITIES WITH OWNERS BEFORE PLANTING.
7. LANDSCAPE ARCHITECT/OWNER SHALL SELECT, VERIFY AND/OR APPROVE ALL PLANT MATERIAL. AT OWNER'S DISCRETION, SPECIMEN AND OTHER PLANT MATERIAL WILL BE SELECTED.
8. LANDSCAPE CONTRACTOR SHALL COORDINATE PLANT BED FILLING OPERATIONS AND PLANT MATERIAL INSTALLATION WITH GENERAL CONTRACTOR AND UTILITIES CONTRACTOR. AT THE TIME OF FINAL INSPECTION WITH ACCEPTANCE, ALL ELECTRIC, WATER, DRAINAGE, AND FOUNTAIN UTILITIES,AS WELL AS ALL PLANT MATERIALS, SHALL REMAIN UNDAMAGED. LIKEWISE, LANDSCAPE CONTRACTOR AND UTILITIES CONTRACTOR SHALL COORDINATE EFFORTS TO ENSURE THAT SURFACE UTILITIES ARE AT THE PROPER ELEVATION RELATIVE TO FINAL GRADES.
9. CONTRACTOR SHALL NOTIFY MISS UTILITY 72 HOURS PRIOR TO CONSTRUCTION.
10. THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
11. TOPSOIL MIX
    A. PLANTING MIX SHALL BE PREPARED AT APPROVED ON-SITE STAGING AREA USING APPROVED ON-SITE EXISTING SOIL. MIX MINIMUM QUANTITIES OF 20 CUBIC YARDS OR SUFFICIENT MIX FOR ENTIRE JOB IF LESS THAN 20 CUBIC YARDS IS REQUIRED.
    B. THOROUGHLY MIXED IN THE FOLLOWING PROPORTIONS FOR TREE AND SHRUB PLANTING MIX: .5 CY EXISTING SOIL .2 CY SHARP SAND .3 CY WOOD RESIDUALS 4.5 LBS TREBLE SUPERPHOSPHATE 5 LBS DOLMONITE LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
    C. FOR BED PLANTING, SHRUBS AND GROUNDCOVER SPACES 24 INCHES OR CLOSER, INCORPORATE THE FOLLOWING INGREDIENTS PER 20 SF AND INCORPORATE INTO TOP 8 INCHES OF EXISTING SOILS BY ROTOTILLING OR SIMILAR METHOD OF INCORPORATION. .2 CY SHARP SAND .3 CY ORGANIC MATERIAL 4.5 LBS TREBLE SUPERPHOSPHATE 5 LBS DOLMONITE LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
12. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH 441 SHADE TREES AND 183 EVERGREEN TREES PROVIDED WITH LANDSCAPE SURETY IN THE AMOUNT OF $159,750.00 WITH THE DPW DEVELOPER'S AGREEMENT. LANDSCAPE SURETY IS BASED ON THE NUMBER OF REQUIRED PLANTS PER THE LANDSCAPE MANUAL (441 SHADE TREES x $300.00 EA. AND 183 EVERGREEN TREES x $150.00 EA.)
13. THE SURETY FOR THE PUBLIC STREET TREES ALONG FREDERICK ROAD SHALL BE INCLUDED IN THE COST ESTIMATE GENERATED BY THE HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION, AND NOT TO BE INCLUDED IN THE GENERAL LANDSCAPE SURETY, WITH 12 REQUIRED SHADE TREES. THE SURETY ASSOCIATED WITH THE PUBLIC STREET TREES IS $3,600.00 (12 SHADE TREES X $300.00). BECAUSE OF SPACE CONSTRAINTS, ONLY 11 OF THE REQUIRED SHADE TREES WERE PLANTED ALONG FREDERICK RD, 1 SHADE TREE WAS RELOCATED TO P2 PERIMETER PLANTING.
14. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
15. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3" IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPING MANUAL. I/WE FURTHER CERTIFY THAT UPON TREES COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

[signature] President/CEO — 2-26-15

NAME — DATE

PRIVATE STREET TREE SCHEDULE

ROAD NAME	LENGTH OF ROAD (BOTH SIDES)	REQ. NO. OF TREES (1 TREE/40 L.F.)	NO. OF TREES PROVIDED — PHASE I	PHASE II (IF APPLICABLE)
FATHERS LEGACY	850 L.F.	22	22	
FATHERS LEGACY	4380 L.F.	110	88	22
VALS LANE	840 L.F.	21	21	
PAULS PROVISION	600 L.F.	15	15	
LEGACY LANE	558 L.F.	14	14	

*STREET TREES ARE LABELED #-SYMBOL-S (OR 2-AR-S FOR EXAMPLE)
**PUBLIC STREET TREES NOT INCLUDED IN LANDSCAPE SURETY--SEE NOTE #13 (THIS SHEET)
***THREE TREES ALONG FATHERS LEGACY HAVE BEEN RELOCATED, DUE TO BEING REMOVED FROM POND EMBANKMENT
****ALL PHASE II LANDSCAPING SHALL BE INSTALLED IN PHASE II

PUBLIC STREET TREE SCHEDULE

ROAD NAME	LENGTH OF ROAD (BOTH SIDES)	REQ. NO. OF TREES (1 TREE/40 L.F.)	NO. OF TREES PROVIDED
**FREDERICK ROAD (ONE SIDE)	477 L.F.	12	12

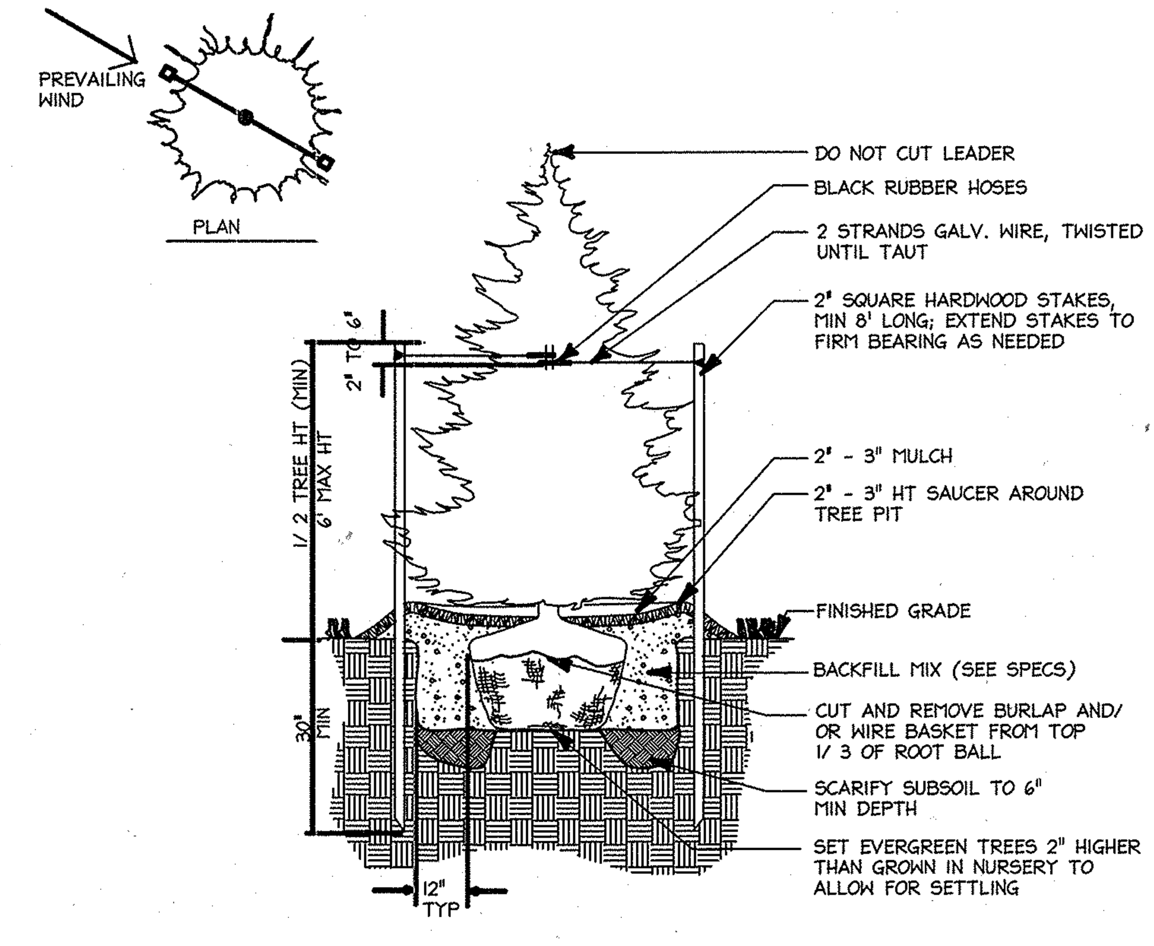
**THE SURETY FOR THE PUBLIC STREET TREES ALONG FREDERICK ROAD SHALL BE INCLUDED IN THE COST ESTIMATE GENERATED BY THE HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION, AND NOT TO BE INCLUDED IN THE GENERAL LANDSCAPE SURETY.

SCHEDULE A
PERIMETER LANDSCAPE EDGE

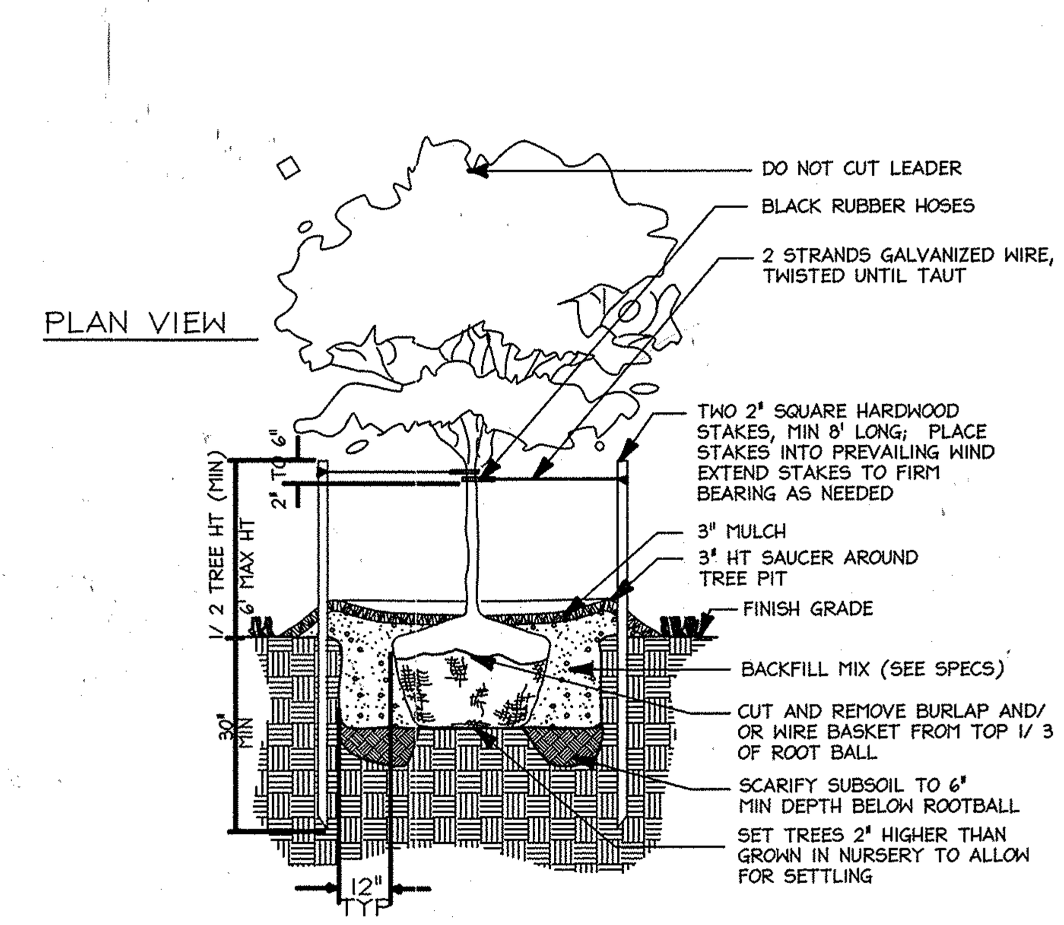
A 50-FOOT LANDSCAPE BUFFER IS TO BE ESTABLISHED AROUND THE PERIMETER OF THE PROPERTY AS REQUIRED UNDER ZB-1056M

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES					
PERIMETER	2	1	3	4	5	6	
LANDSCAPE TYPE "A" 1 SHADE TREE PER 60 L.F.			±1546 LF	±221 LF	±726 LF		
LANDSCAPE TYPE "B" 1 SHADE TREE PER 50 L.F. 1 EVERGREEN TREE PER 40 L.F.							
LANDSCAPE TYPE "C" L.F. 1 SHADE TREE PER 40 L.F. AND 1 EVERGREEN PER 20 L.F.	±457 LF	±1472 LF				±1663 LF	
CREDIT FOR EX. VEG. BELOW IF NEEDED	NO	NO	NO	YES ±85 LF	YES ±726 LF	YES ±720 LF	
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	Plant Totals
NO. OF PLANTS REQ. SHADE TREES / EVG. TREES / SHRUBS	12 / 23 / 0	37 / 74 / 0	26 / 0 / 0	4 / 0 / 0	0 / 0 / 0	24 / 48 / 0	103 SHADE TREES / 145 EVG. TREES / 0 SHRUBS
NO. OF PLANTS PROV. SHADE TREES / EVG. TREES / OTHER TREES / SHRUBS	12 / 23 / 10 / 0	37 / 74 / 0 / 0	27 / 0 / 0 / 0	4 / 0 / 0 / 0	0 / 0 / 0 / 0	24 / 48 / 0 / 0	104 SHADE TREES / 145 EVG. TREES / 10 OTHER TREES / 0 SHRUBS

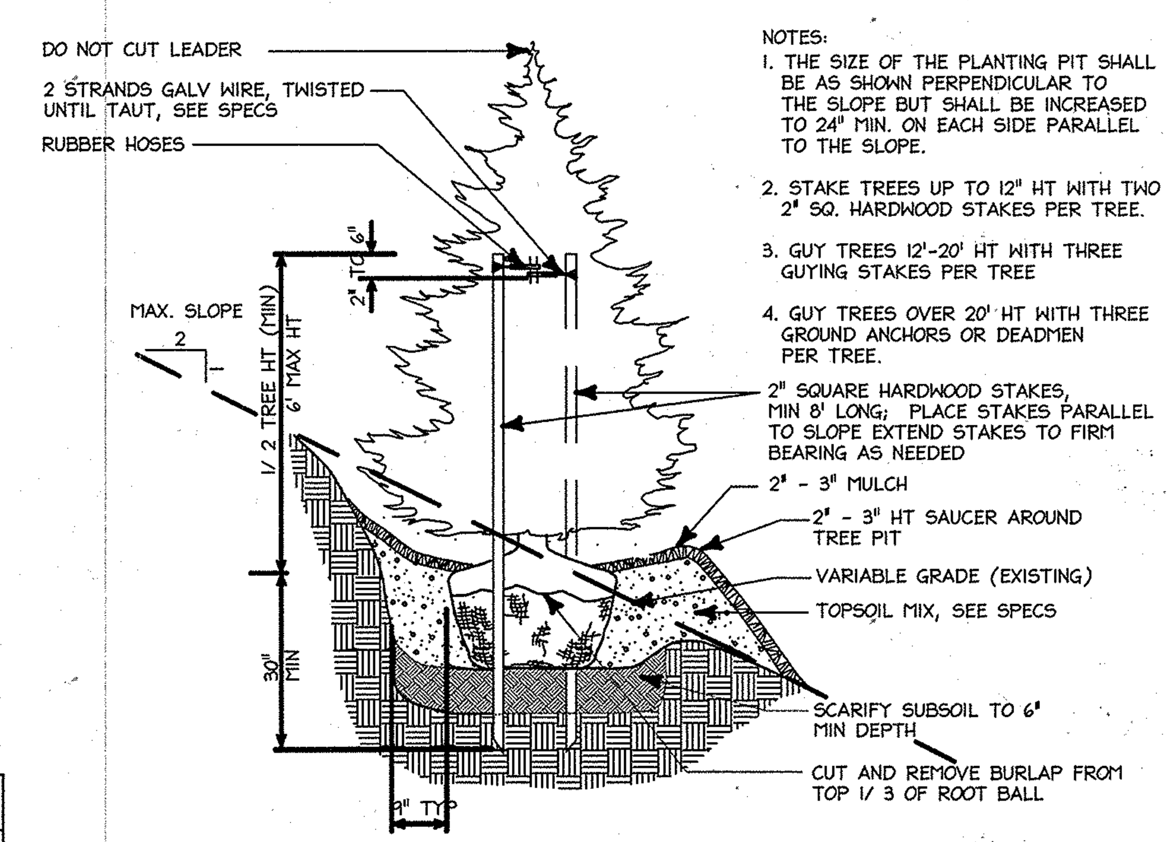
**PERIMETER TREES ARE LABELED #-SYMBOL-P (OR 2-AR-P FOR EXAMPLE)



(A) **Evergreen Tree Planting Detail**
Not To Scale

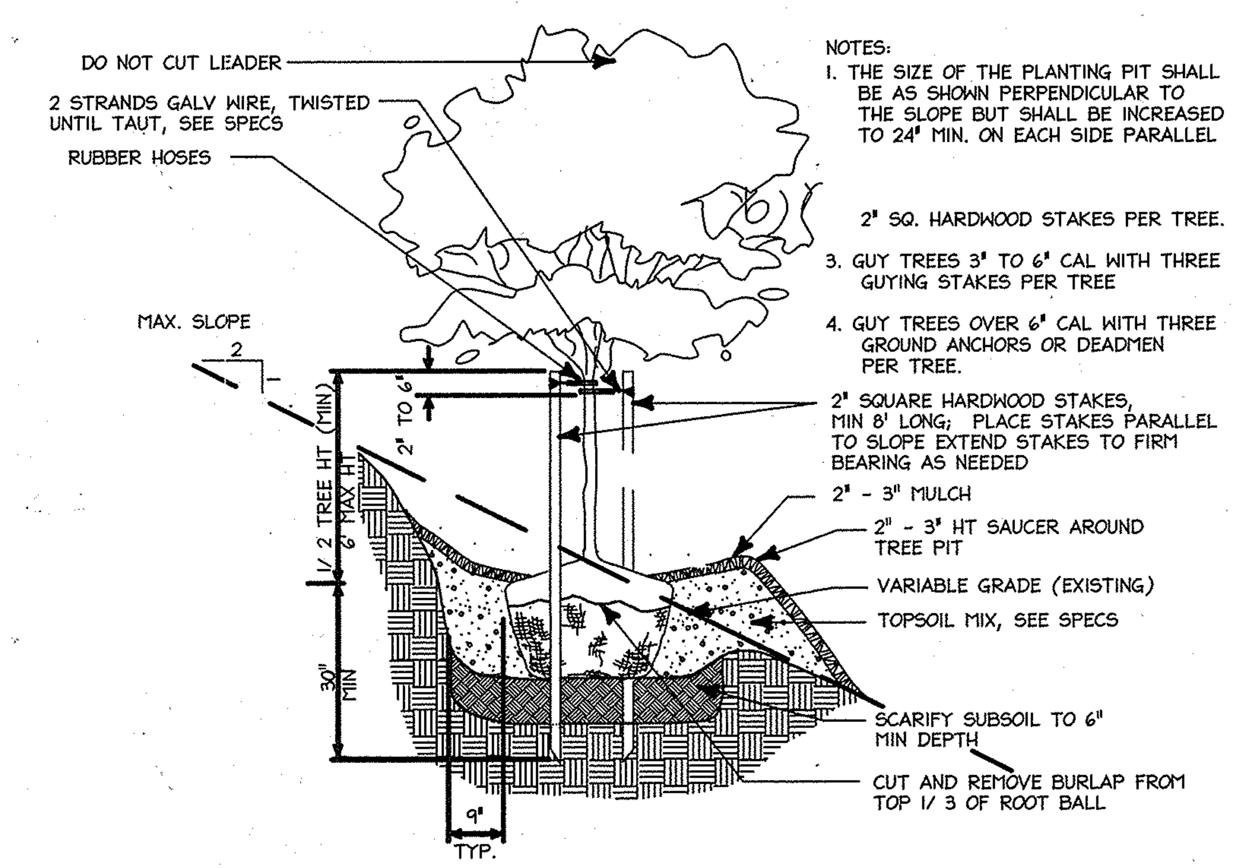


(B) **Tree Planting Detail**
Not To Scale



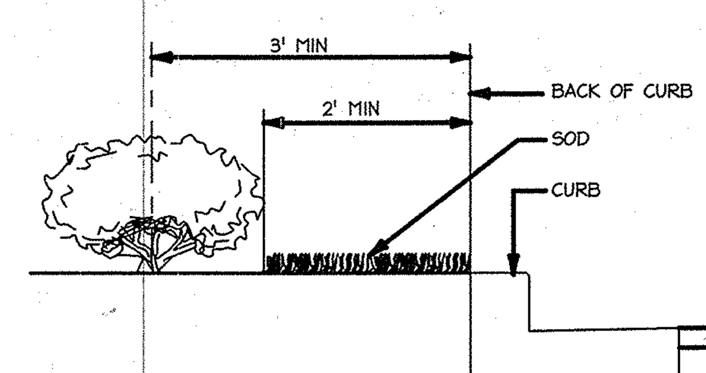
NOTES:
1. THE SIZE OF THE PLANTING PIT SHALL BE AS SHOWN PERPENDICULAR TO THE SLOPE BUT SHALL BE INCREASED TO 24" MIN. ON EACH SIDE PARALLEL TO THE SLOPE.
2. STAKE TREES UP TO 12" HT WITH TWO 2" SQ. HARDWOOD STAKES PER TREE.
3. GUY TREES 12'-20' HT WITH THREE GUYING STAKES PER TREE
4. GUY TREES OVER 20' HT WITH THREE GROUND ANCHORS OR DEADMEN PER TREE.

(C) **Evergreen Tree Planting on Slope**
Not To Scale



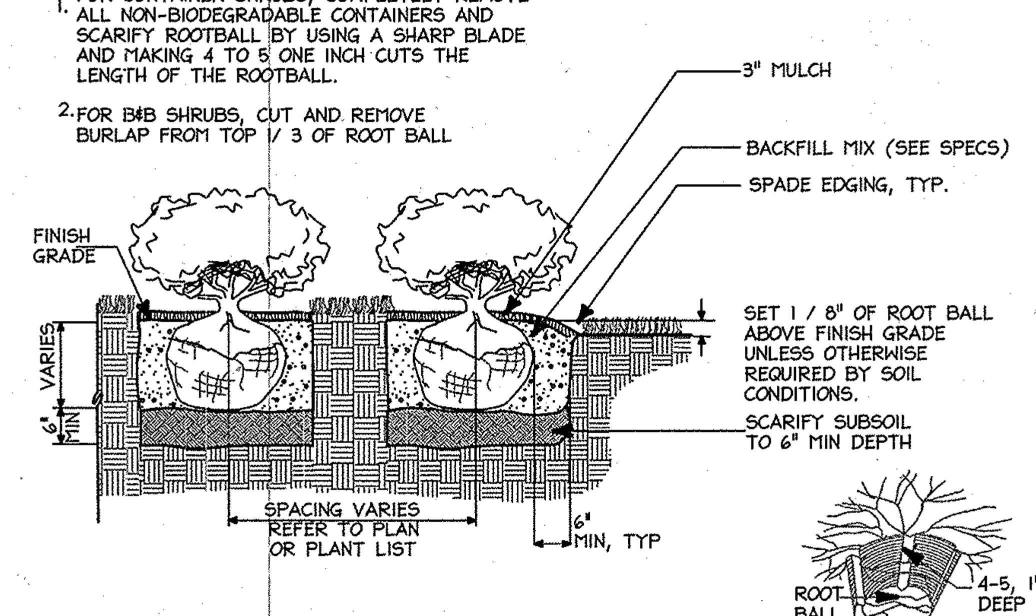
NOTES:
1. THE SIZE OF THE PLANTING PIT SHALL BE AS SHOWN PERPENDICULAR TO THE SLOPE BUT SHALL BE INCREASED TO 24" MIN. ON EACH SIDE PARALLEL
2" SQ. HARDWOOD STAKES PER TREE.
3. GUY TREES 3" TO 6" CAL WITH THREE GUYING STAKES PER TREE
4. GUY TREES OVER 6" CAL WITH THREE GROUND ANCHORS OR DEADMEN PER TREE.

(D) **Tree Planting on Slope**
Not To Scale

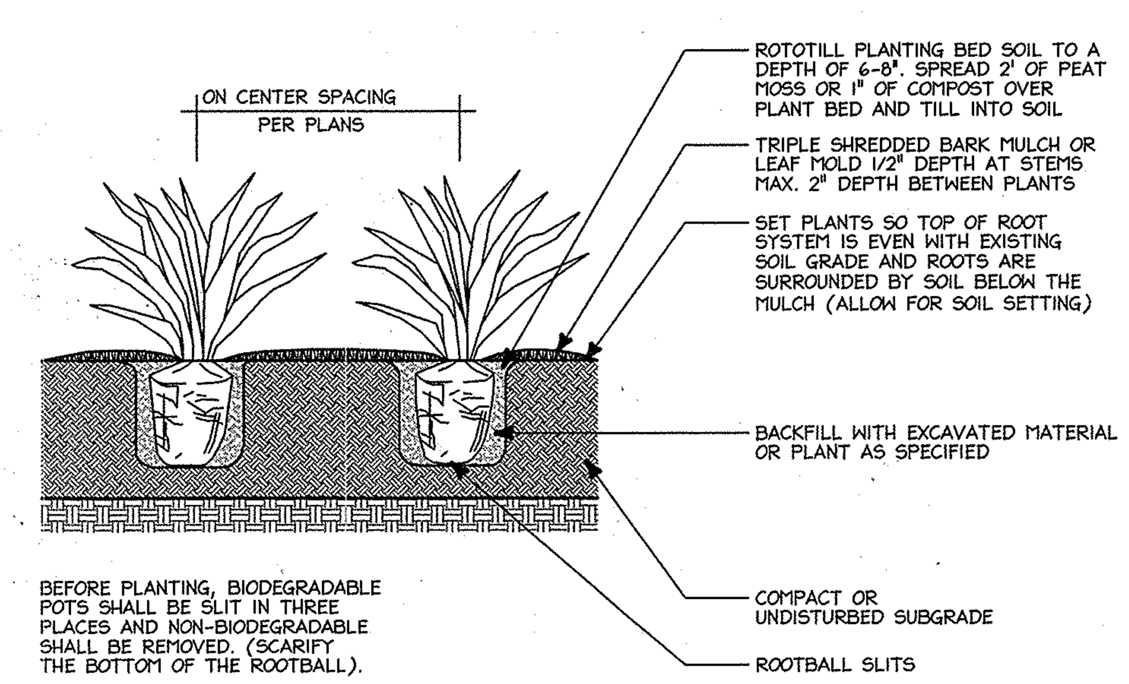


(E) **Typ. Shrub Spacing Along Curb**
Not To Scale

NOTES:
1. FOR CONTAINER SHRUBS, COMPLETELY REMOVE ALL NON-BIODEGRADABLE CONTAINERS AND SCARIFY ROOTBALL BY USING A SHARP BLADE AND MAKING 4 TO 5 ONE INCH CUTS THE LENGTH OF THE ROOTBALL.
2. FOR B&B SHRUBS, CUT AND REMOVE BURLAP FROM TOP 1/ 3 OF ROOT BALL



(F) **Shrub Bed Planting**
Not To Scale



BEFORE PLANTING, BIODEGRADABLE POTS SHALL BE SLIT IN THREE PLACES AND NON-BIODEGRADABLE SHALL BE REMOVED. (SCARIFY THE BOTTOM OF THE ROOTBALL).

(G) **PERENNIAL PLANTING**
Not To Scale

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

	PHASE I	PHASE II (CUMULATIVE)
NUMBER OF PROPOSED PARKING SPACES	402 PARKING SPACES	585 PARKING SPACES
NUMBER OF TREES REQUIRED (1 SHADE TREE PER 20 PARKING SPACES)	21 SHADE TREES	30 SHADE TREES
TOTAL NUMBER OF TREES PROVIDED SHADE TREES / OTHER TREES (2:1 SUBSTITUTION)	30 SHADE TREES / 0	31 SHADE TREES / 0

*PARKING LOT TREES ARE LABELED #-SYMBOL-A (OR 2 AR-A FOR EXAMPLE)
**ALL PHASE II LANDSCAPING SHALL BE INSTALLED IN PHASE II

SCHEDULE C
RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING

	PHASE I	PHASE II (CUMULATIVE)
TOTAL NUMBER OF DWELLING UNITS*	249 TOTAL UNITS	299 TOTAL UNITS
SINGLE FAMILY ATTACHED DUPLEX UNITS	12 DUPLEX UNITS	12 DUPLEX UNITS
SINGLE FAMILY DETACHED UNITS	24 SFD UNITS	24 SFD UNITS
APARTMENT UNITS	205 APT. UNITS	248 APT. UNITS
HIGH CARE UNIT	32 BEDS (8 UNITS)	60 BEDS (15 UNITS)
NUMBER OF TREES REQUIRED 1:DU SFA / 1:3 DU APTS	12 TREES FOR SFA / 68 TREES FOR APTS	12 TREES FOR SFA / 83 TREES FOR APTS
TOTAL NUMBER OF TREES PROVIDED SHADE TREES / OTHER TREES (2:1 SUBSTITUTION)	39 SHADE TREES / 160 TREES	47 SHADE TREES / 232 TREES

*HIGH CARE UNITS/BEDS DO NOT REQUIRE UNIT TREES
**UNIT (RESIDENTIAL) TREES ARE LABELED #-SYMBOL (OR 2 AR FOR EXAMPLE)
***ALL PHASE II LANDSCAPING SHALL BE INSTALLED IN PHASE II

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

	POND 1	POND 2
LINEAR FEET OF PERIMETER	±805 L.F.	±818 L.F.
LANDSCAPE TYPE "B" 1 SHADE TREE PER 50 L.F. / 1 EVERGREEN TREE PER 40 L.F.	17 / 21	17 / 21
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES, ±144 LF (16%)	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO
NUMBER OF TREES REQUIRED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTION)	14 / 17 / 0	17 / 21 / 0
NUMBER OF TREES PROVIDED: SHADE TREES / EVERGREEN TREES / OTHER TREES (2:1 SUBSTITUTION)	14 / 21 / 0	17 / 22 / 0

*STORMWATER MANAGEMENT AREA TREES ARE LABELED #-SYMBOL-W (OR 2 AR-W FOR EXAMPLE)

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] Chief, Development Engineering Division — Date 2.20.15
[signature] Chief, Division of Land Development — Date 2-26-15
[signature] Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

48 Hours Before You Dig Call "MISS UTILITY" Service Protection Center — MEMBER ONE CALL SYSTEMS INTERNATIONAL — CALL TOLL FREE 1-800-257-7777

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
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C/O CARROLL LUTHERAN VILLAGE
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300 ST LUKE CIRCLE
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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A		602800
DEED REF. L. 10578 F. 424 / GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)		SEWER CODE F07	

TITLE:
LANDSCAPE DETAILS

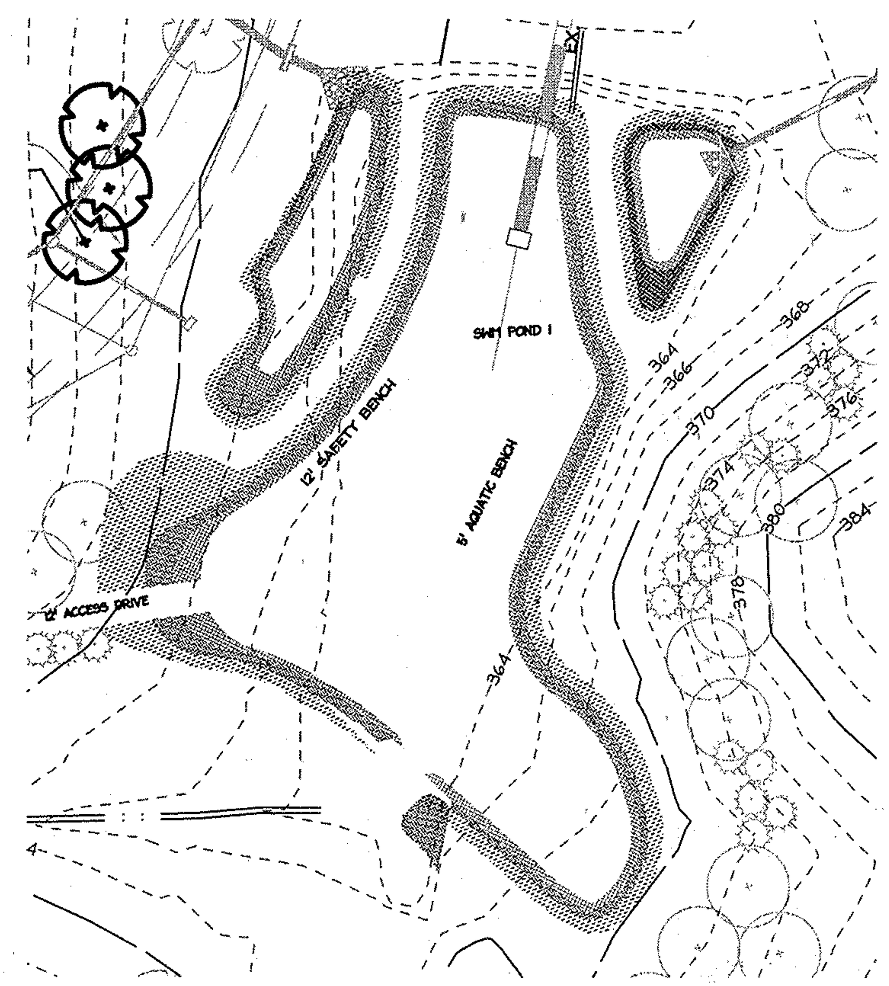
DESIGN: CRH	SCALE: NOT TO SCALE	PROJECT: 05115.001.02
DRAWN: CRH	DATE: APRIL 12, 2013	40 OF 77
CHECKED: LNG	APPROVED: LNG	

P:\Projects\05B501\~MDC-XXX\~MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\40-LANDSCAPE DETAILS.dwg, 12/29/2014 3:42:19 PM, eligoldman, 1:1, christopher consultants, ltd.

PLANT LIST

PHASE 1 QTY	PHASE 2 QTY	KEY	BOTANICAL NAME	COMMON NAME	CALIPER	STOCK HEIGHT	STOCK	NOTES
LARGE SHADE TREES:								
7	2	QP	QUERCUS PHELLOS	WILLOW OAK	2-2.5" CAL	12-14'	B & B	
25	-	QP-P	QUERCUS PHELLOS	WILLOW OAK	2-2.5" CAL	12-14'	B & B	PERIMETER LANDSCAPING
83	-	QP-S	QUERCUS PHELLOS	WILLOW OAK	2-2.5" CAL	12-14'	B & B	STREET TREES
12	1	QP-A	QUERCUS PHELLOS	WILLOW OAK	2-2.5" CAL	12-14'	B & B	PARKING LOT LANDSCAPING
16	3	AR	QUERCUS RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2.25" CAL	12-14'	B & B	
27	-	AR-P	QUERCUS RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2.25" CAL	12-14'	B & B	PERIMETER LANDSCAPING
12	-	AR-A	QUERCUS RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2.25" CAL	12-14'	B & B	PARKING LOT LANDSCAPING
4	-	AR-W	QUERCUS RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2.25" CAL	12-14'	B & B	SWM AREA LANDSCAPING
5	-	QA	QUERCUS PALUSTRIS	PIN OAK	2.25" CAL	12-14'	B & B	
3	-	QA-P	QUERCUS PALUSTRIS	PIN OAK	2.25" CAL	12-14'	B & B	PERIMETER LANDSCAPING
38	-	QA-S	QUERCUS PALUSTRIS	PIN OAK	2.25" CAL	12-14'	B & B	STREET TREES
4	-	CA	CARYA ALBA	MOCKERNUT HICKORY	2-2.5" CAL	12-14'	B & B	
4	1	CA-A	CARYA ALBA	MOCKERNUT HICKORY	2-2.5" CAL	12-14'	B & B	PARKING LOT LANDSCAPING
8	-	CA-P	CARYA ALBA	MOCKERNUT HICKORY	2-2.5" CAL	12-14'	B & B	PERIMETER LANDSCAPING
14	-	CA-W	CARYA ALBA	MOCKERNUT HICKORY	2-2.5" CAL	12-14'	B & B	SWM AREA LANDSCAPING
0	-	PO	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2-2.5" CAL	12-14'	B & B	
23	-	PO-P	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2-2.5" CAL	12-14'	B & B	PERIMETER LANDSCAPING
0	-	PO-W	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2-2.5" CAL	12-14'	B & B	SWM AREA LANDSCAPING
*4	3	TC	TILIA CORDATA	LITTLELEAF LINDEN	2-2.5" CAL	12-14'	B & B	
4	-	QC	QUERCUS COCCINEA	SCARLET OAK	2-2.5" CAL	12-14'	B & B	
7	-	QC-P	QUERCUS COCCINEA	SCARLET OAK	2-2.5" CAL	12-14'	B & B	PERIMETER LANDSCAPING
58	17	QC-S	QUERCUS COCCINEA	SCARLET OAK	2-2.5" CAL	12-14'	B & B	STREET TREES
5	1	QC-A	QUERCUS COCCINEA	SCARLET OAK	2-2.5" CAL	12-14'	B & B	PARKING LOT LANDSCAPING
MEDIUM SHADE TREES:								
11	-	BN-P	BETULA NIGRA	RIVER BIRCH	2-2.5" CAL	12-14'	B & B	PERIMETER LANDSCAPING
14	-	BN-W	BETULA NIGRA	RIVER BIRCH	2-2.5" CAL	12-14'	B & B	SWM AREA LANDSCAPING
SMALL ORNAMENTAL TREES:								
27	4	AC	AMELANCHIER CANADENSIS	SERVICEBERRY	2-2.5" CAL	6-8'	B & B	
10	-	AC-P	AMELANCHIER CANADENSIS	SERVICEBERRY	2-2.5" CAL	6-8'	B & B	PERIMETER LANDSCAPING
19	10	MV	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	2-2.5" CAL	6-8'	B & B	
3	1	AA	ARONIA ARBUTIFOLIA	RED CHOKEBERRY	2-2.5" CAL	6-8'	B & B	
24	5	CF	CORNUS FLORIDA	FLOWERING DOGWOOD	2-2.5" CAL	6-8'	B & B	
*17	15	PC	PRUNUS CERASIFERA	PURPLELEAF PLUM	2-2.5" CAL	6-8'	B & B	
4	5	CV	CHIONANTHUS VIRGINICUS	FRINGE TREE	2-2.5" CAL	6-8'	B & B	
2	-	CV-A	CHIONANTHUS VIRGINICUS	FRINGE TREE	2-2.5" CAL	6-8'	B & B	PARKING LOT LANDSCAPING
*3	-	CO	COTINUS COGGYGRIA 'REDSMOKE'	REDSMOKE SMOKETREE	2-2.5" CAL	6-8'	B & B	
*0	-	CO-W	COTINUS COGGYGRIA 'REDSMOKE'	REDSMOKE SMOKETREE	2-2.5" CAL	6-8'	B & B	SWM AREA LANDSCAPING
25	6	CC	CERCIS CANADENSIS	FOREST PANSY' REDBUD	2-2.5" CAL	6-8'	B & B	
3	-	CC-A	CERCIS CANADENSIS	FOREST PANSY' REDBUD	2-2.5" CAL	6-8'	B & B	PARKING LOT LANDSCAPING
EVERGREEN TREES:								
*23	6	IN	ILEX X NELLIE STEVENS	NELLIE STEVENS HOLLY	2-2.5" CAL	6-8'	B & B	
*3	-	IN-P	ILEX X NELLIE STEVENS	NELLIE STEVENS HOLLY	2-2.5" CAL	6-8'	B & B	PERIMETER LANDSCAPING
*8	4	PI	PICEA ORMORIKA	SERBIAN SPRUCE	2-2.5" CAL	6-8'	B & B	
11	-	IO	ILEX OPACA	AMERICAN HOLLY	2-2.5" CAL	6-8'	B & B	SWM AREA LANDSCAPING
65	-	IO-P	ILEX OPACA	AMERICAN HOLLY	2-2.5" CAL	6-8'	B & B	PERIMETER LANDSCAPING
22	-	IO-W	ILEX OPACA	AMERICAN HOLLY	2-2.5" CAL	6-8'	B & B	SWM AREA LANDSCAPING
14	-	PS	PINUS STROBUS	WHITE PINE	2-2.5" CAL	6-8'	B & B	
79	-	PS-P	PINUS STROBUS	WHITE PINE	2-2.5" CAL	6-8'	B & B	PERIMETER LANDSCAPING
18	-	PS-W	PINUS STROBUS	WHITE PINE	2-2.5" CAL	6-8'	B & B	SWM AREA LANDSCAPING
SHRUBS/ GROUNDCOVERS/PHASE II PLANTINGS:								
10	3	VA	VIBURNUM ACERIFOLIUM	MAPLELEAF VIBURNUM	N/A	24 - 30"	CONTAINER	
11	17	LB	LIDERA BENZOIN	SPICEBUSH	N/A	24 - 30"	CONTAINER	
53	20	IG	ILEX GLABRA	INKBERRY	N/A	24 - 30"	CONTAINER	
58	9	VD	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	N/A	24 - 30"	CONTAINER	
3	5	MC	MYRICA CERIFERA	SOUTHERN BAYBERRY	N/A	24 - 30"	CONTAINER	
123	39	AG	ABELIA X GRANDIFLORA 'EDWARD GOUCHER'	EDWARD GOUCHER ABELIA	N/A	24 - 30"	CONTAINER	
164	28	ND	NANDINA DOMESTICA 'GULF STREAM'	GULF STREAM NANDINA	N/A	24 - 30"	CONTAINER	
93	20	JC	JUNIPERUS COMMUNIS 'COMPRESSA'	JUNIPER	N/A	24 - 30"	CONTAINER	
23	-	IV	ILEX VOMITORIA 'NANA'	DWARF YAUPON HOLLY	N/A	24 - 30"	CONTAINER	
598	292	IC	ILEX CRENATA 'GREEN LUSTER'	GREEN LUSTER JAPANESE HOLLY	N/A	24 - 30"	CONTAINER	
3	13	IA	ILEX X ATTENTUATA 'FOSTERI'	FOSTER HOLLY	N/A	24 - 30"	CONTAINER	
229	157	PL	PRUNUS LAUROCERASUS 'ZABELIANA'	ZABEL'S CHERRY LAUREL	N/A	24 - 30"	CONTAINER	
14	6	HA	HYDRANGEA ARBORESCENS	HYDRANGEA	N/A	24 - 30"	CONTAINER	
35	20	HQ	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	N/A	24 - 30"	CONTAINER	
PERENNIALS:								SPACING
176	-	PM	PHLOX SUBULATA	MOSS PHLOX	N/A		CONTAINER	15" OC
175	-	DE	DICENTRA EXIMIA 'LUXURIANT'	LUXURIANT FRINGED BLEEDING HEART	N/A		FLAT	15" OC
43	-	PT	PACHYSANDRA TERMINALIS 'GREEN SHEEN'	GREEN SHEEN JAPANESE PACHYSANDRA	N/A		FLAT	15" OC
715	-	NJ	NARCISSUS JONQUILLA	JONQUIL	N/A		FLAT	6" OC
0	98	AP	ADIANTUM PEDATUM	FIVE-FINGER FERN	N/A		FLAT	18" OC
225	78	AB	ARTEMSIA ABROTANUM	SOUTHERNWOOD	N/A		FLAT	30" OC
-	77	AN	ASTER NOVAE-ANGLIAE	MICHAELMAS DAISY	N/A		FLAT	18" OC
270	-	CM	COREOPSIS VERTICILLATA 'MOONBEAM'	MOONBEAM COREOPSIS	N/A		FLAT	15" OC
84	-	GS	GERANIUM SANGUINEUM	BLOODY CRANESBILL	N/A		FLAT	18" OC
-	100	LC	LOBELIA CARDINALIS	CARDINAL FLOWER	N/A		FLAT	24" OC
112	-	IR	IRIS GERMANICA	BEARDED IRIS	N/A		FLAT	18" OC
43	65	HS	HEMEROCALIS SP. 'STELLA D'ORO'	STELLA D'ORO DAYLILLY	N/A		FLAT	18" OC
204	-	ST	SEDUM TELEPHIUM	'AUTUMN JOY' SEDUM	N/A		FLAT	15" OC
161	-	SP	SETCREASEA PALLIDA 'PURPLE HEART'	PURPLE HEART	N/A		FLAT	10" OC
137	-	VC	VERBENA CANADENSIS	ROSE VERBENA	N/A		FLAT	15" OC
		WM	WILDFLOWER MIX	WILDFLOWER MIX	N/A		SEED	

*NON-NATIVE PLANTS ARE NOT USED IN FOREST CONSERVATION AREAS--SHRUBS, GROUNDCOVERS AND PERENNIALS NOT PLANTED IN FOREST CON AREAS.



(A) EDGE PLANTING DETAIL -- SWM POND #1
Not To Scale

PLANT LIST-STORMWATER MANAGEMENT POND #1

ZONE 1 (12"-36" DEPTH BELOW NORMAL POOL ELEVATION)

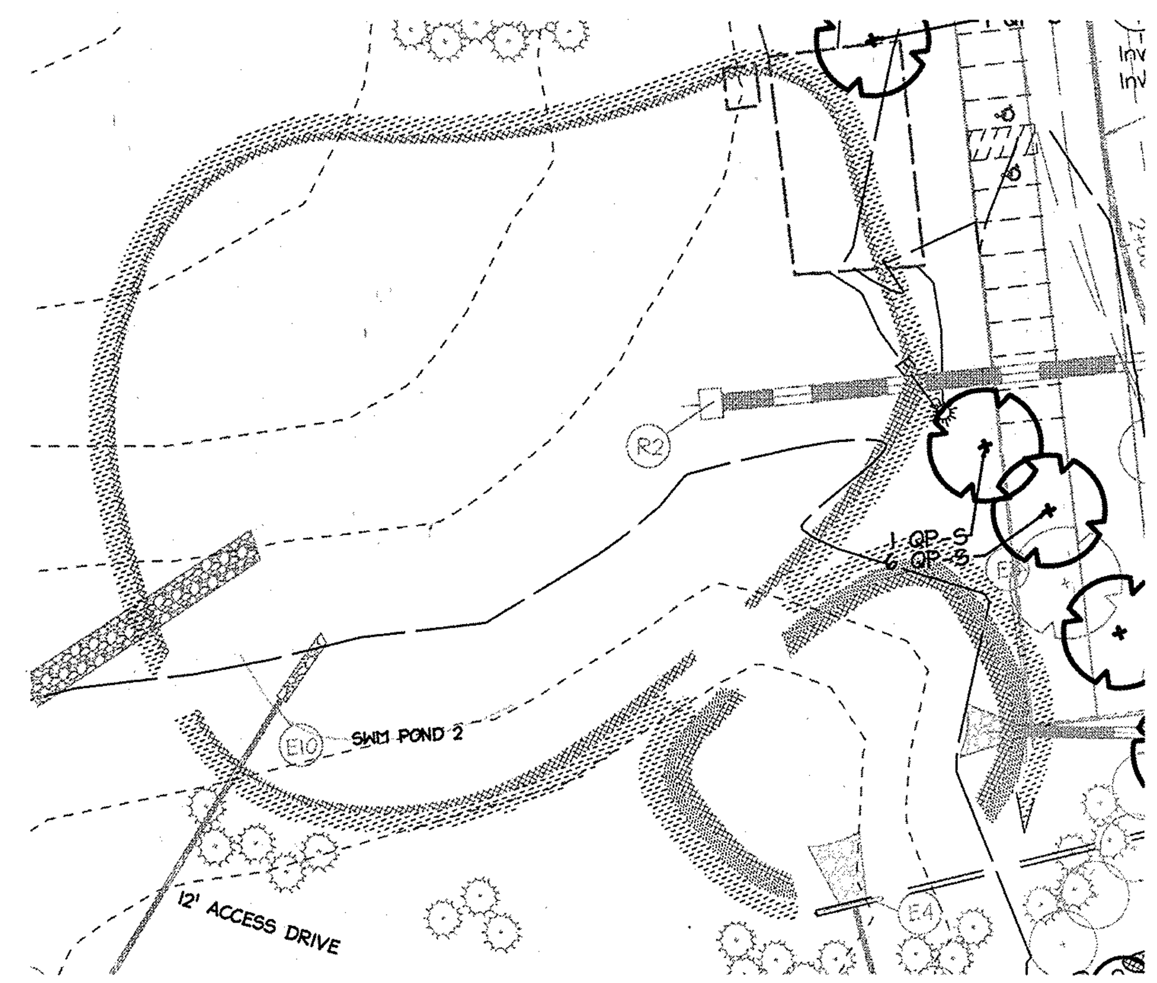
QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
505	NYMPHAE ODORATA	WHITE WATER LILY	12" O.C.	OBL
505	SAGITTARIA FALCATA	DEEPWATER DUCK POTATO	12" O.C.	OBL
505	VALLISNERIA AMERICANA	WILD CELERY	12" O.C.	OBL
505	NELUMBO LUTEA	AMERICAN LOTUS	24" O.C.	OBL
505	POTAMOGETON PERFOLIATUS	REDHEAD GRASS	24" O.C.	OBL

ZONE 2 (0"-12" DEPTH BELOW NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
1386	LOBELIA CARDINALIS	CARDINAL FLOWER	36" O.C.	FACW
1386	SAGITTARIA LATIFOLIA	DUCK POTATO	12" O.C.	OBL
1386	IRIS VIRGINICA SHREVEI	BLUE FLAG IRIS	36" O.C.	FACW
1386	PELTANDRA VIRGINICA	ARROW ARUM	24" O.C.	FACW

ZONE 3 (0"-12" ELEVATION ABOVE NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
1819	RUDBECKIA HIRTA	BLACK EYED SUSAN	48" O.C.	OBL
1819	ASTER NOVAR-ANGLIAE	NEW ENGLAND ASTER	36" O.C.	FACW+
1819	ECHINACEA PURPUREA	PURPLE CONEFLOWER	36" O.C.	OBL
1819	PANICUM LONGIFOLIUM	PANIC GRASS	36" O.C.	OBL



(B) EDGE PLANTING DETAIL -- SWM POND #2
Not To Scale

PLANT LIST-STORMWATER MANAGEMENT POND #2

ZONE 1 (12"-36" DEPTH BELOW NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
515	NYMPHAE ODORATA	WHITE WATER LILY	12" O.C.	OBL
515	SAGITTARIA FALCATA	DEEPWATER DUCK POTATO	12" O.C.	OBL
515	VALLISNERIA AMERICANA	WILD CELERY	12" O.C.	OBL
515	NELUMBO LUTEA	AMERICAN LOTUS	24" O.C.	OBL

ZONE 2 (0"-12" DEPTH BELOW NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
286	LOBELIA CARDINALIS	CARDINAL FLOWER	36" O.C.	FACW
286	SAGITTARIA LATIFOLIA	DUCK POTATO	12" O.C.	OBL
286	IRIS VIRGINICA SHREVEI	BLUE FLAG IRIS	36" O.C.	FACW

ZONE 3 (0"-12" ELEVATION ABOVE NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
248	RUDBECKIA HIRTA	BLACK EYED SUSAN	36" O.C.	OBL
248	ASTER NOVAR-ANGLIAE	NEW ENGLAND ASTER	36" O.C.	FACW+
248	ECHINACEA PURPUREA	PURPLE CONEFLOWER	36" O.C.	OBL

PLANT LIST ADDITIONS:

PHASE 1 QTY	PHASE 2 QTY	KEY	BOTANICAL NAME	COMMON NAME	CALIPER	STOCK HEIGHT	STOCK	NOTES
SMALL ORNAMENTAL TREES:								
2	-	CR	CORNUS FLORIDA RUBRA	PINK FLOWERING DOGWOOD	2-2.5" CAL	6-8'	B & B	
9	-	LI	LAGERSTROEMIA INDICA	CRAPE MYRTLE	2-2.5" CAL	6-8'	B & B	
SHRUBS/ GROUNDCOVERS/PHASE II PLANTINGS:								
16	16	AZ	RHODODENDRON 'MOTHERS DAY'	MOTHERS DAY AZALEA	N/A			
213	142	BT	ITEA VIRGINICA 'LITTLE HENRY'	LITTLE HENRY DWARF VIRGINIA SWEETSPIRE	N/A			
37	-	VR	VIBURNUM X RHYTIDOPHYLLOIDES 'ALLEGHANY'	ALLEGHANY VIBURNUM	N/A			
116	-	TB	TAXUS BACCATA 'REPANDENS'	REPANDENS YEW	N/A			
60	-	BM	BUXUS MICROPHYLLA 'WINTER GEM'	WINTER GEM BOXWOOD	N/A			
8	-	HP	HYDRANGEA PANICULATA 'LIMELIGHT'	LIMELIGHT HYDRANGEA	N/A			
24	-	RR	ROSA 'RADRAZZ'	KNOCK OUT ROSE	N/A			
4	-	VP	VIBURNUM PLICATUM 'SUMMER SNOWFLAKE'	SUMMER SNOWFLAKE VIBURNUM	N/A			
15	-	SB	SPIRAEA X BUMALDA 'ANTHONY WATERER'	ANTHONEY WATERER SPIREA	N/A			
5	-	SN	PHYSOCARPUS OPULIFOLIUS 'SEAWARD'	SUMMERWINE NINEBARK	N/A			
50	-	RC	RHODODENDRON 'CORAL BELLS'	CORAL BELLS AZALEA	N/A			
PERENNIALS:								
188	-	HL	HEUCHERA 'LIME RICKEY'	LIME RICKEY CORAL BELLS	N/A		FLAT	15" OC
40	-	KF	CALAMAGROSTIS X ACUTIFLORA STRICTA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	N/A		FLAT	30" OC
1354	274	LV	LIRIOPE MUSCARI 'VARIEGATA'	VARIEGATED LIRIOPE	N/A		FLAT	10" OC
76	-	NF	NEPETA FAASSENII	CATMINT	N/A		FLAT	18" OC
82	-	PN	PENNISETUM ORIENTALE	ORIENTAL FOUNTAIN GRASS	N/A		FLAT	30" OC

LAWN SPECIFICATIONS:

SEED:

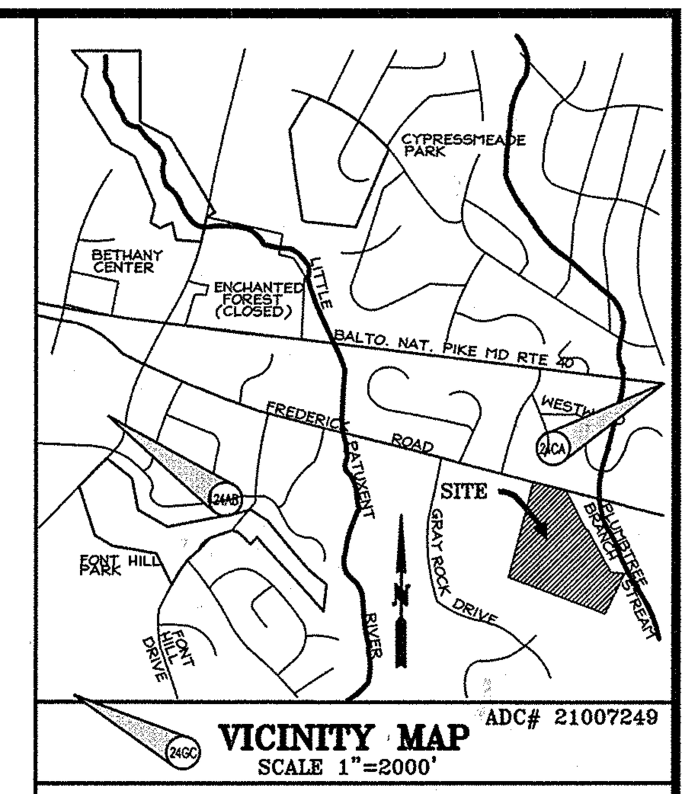
SEED BLEND TO BE COMPRISED OF REGIONALLY 'PROVEN' VARIETIES OF GRASSES FOUND IN THE "RECOMMENDED TURFGRASS CULTIVARS -TT77 - 2012" DOCUMENT PRODUCED BY THE MARYLAND TURFGRASS COUNCIL IN THE FOLLOWING PERCENTAGES:

85% TALL FESCUE - THREE SEPARATE VARIETIES
10% KENTUCKY BLUEGRASS - THREE SEPARATE VARIETIES
5% PERENNIAL RYEGRASS
SEEDING RATE: 6 LBS. / 1000 SF

SOD:

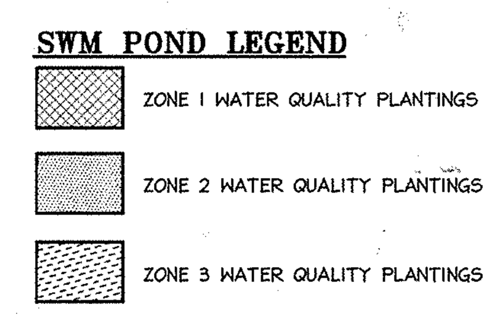
SOD SHALL BE GENUINE RTF SOD (U.S. PATENT NO. 6,677,507) AS PRODUCED BY A REGIONAL GROWER/MEMBER OF THE RTF TURF PRODUCERS ASSOCIATION. AN RTF SOD CERTIFICATE SHALL BE PROVIDED WITH EACH DELIVERY.

(C) LAWN SPECIFICATION
Not To Scale



VICINITY MAP
SCALE 1"=2000'
ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8



APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15
Chief, Division of Land Development — Date 2-26-15
Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

01/05/2015
DATE

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE 550 (TG 700) — SEWER CODE F07

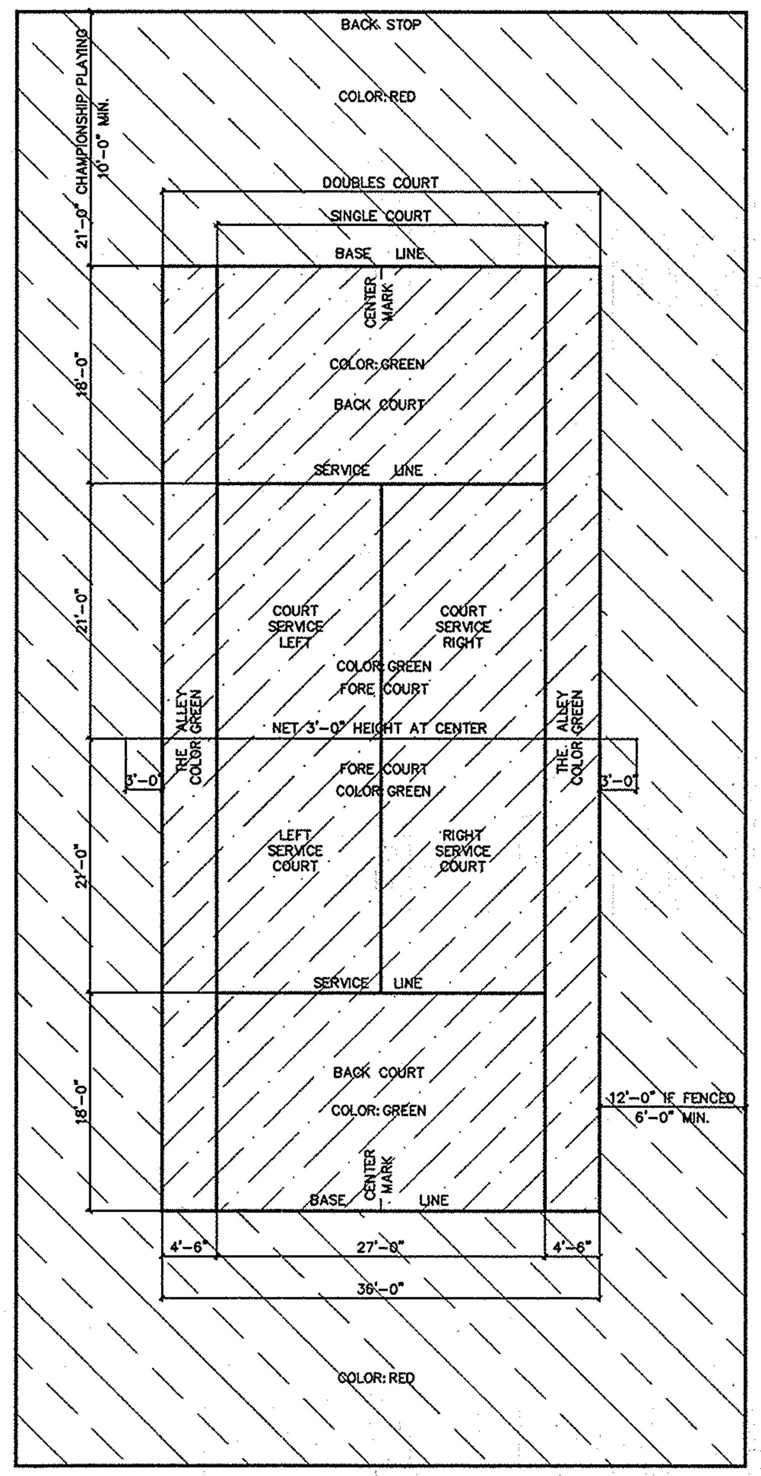
TITLE: **LANDSCAPE DETAILS**

DESIGN: CRH	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	41 OF 77
CHECKED: LNG	APPROVED: LNG	

MDC-792 (SDP)

SDP-08-075

P:\Projects\05B501\~MDC-XXX\~MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\41-LANDSCAPE DETAILS.dwg, 12/29/2014 3:42:48 PM, eligoldman, 1:1, christopher consultants, ltd.



Surface:
Hot Mix Asphalt constructed in accordance with A.S.B.A. Guidelines for Tennis Court Construction - Section 2.1

Colors:
Inner Court = Light Green
Outer Court = Red
Lines = White
Acrylic Resurfacer = Neutral

(A) **Tennis Court Layout**
Not To Scale

SportMaster SPORT SURFACES

CMT - 37

Ready-Mix Color

Revised: 7/09

1. PRODUCT NAME:
Ready-Mix Color

2. MANUFACTURER:
ThorWorks Industries, Inc.
2520 S. Campbell St.
Sandusky, OH 44870
Phone: 800-326-1994
Fax: 419-626-5477
www.thorworks.com

Additional Plant Locations:
SealMaster has a nationwide network of manufacturing and distribution facilities.

Phone 1-800-395-7325 or visit www.sealmaster.net to find the location near you.

3. PRODUCT DESCRIPTION & BENEFITS:
SportMaster Ready-Mix Color is a 100% acrylic emulsion coating designed for tennis courts and other sport and recreational pavement surfaces.

Color: Available in Forest Green, *Light Green, Dark Green, Beige, Brown, *Red, Maroon, Gray, and Blue.

LEED: SS Credit 7.1:
Heat Island Effect: Non-Roof
*Specific colors may contribute toward LEED credits.

Uses: Tennis courts, basketball courts, and other asphalt or concrete multi-purpose surfaces.

4. SURFACE PREPARATION:
Pavement surface must be cleaned entirely of dust, dirt, debris and all loose materials. Repair of pavement surface defects, depressions and cracks must be completed prior to application. All repairs must be flush and smooth to adjoining surfaces.

New asphalt surfaces must cure 14 to 28 days prior to application. It is recommended that any uncoated asphalt surface receive one or more coats of Acrylic Resurfacer (Technical Bulletin CMT-3) as required by surface roughness and porosity to provide a smooth, dense underlayment for application of color texture and finish coats.

New concrete surfaces must cure 28 days prior to application. Concrete surfaces should have a medium broom finish or similar roughened texture. They must never be steel trowelled. Etch surface with Muriatic or Phosphoric Acid and apply SportMaster Acrylic SportMaster Adhesion Promoter prior to color coating.

5. MIXING PROCEDURES:
Ready-Mix Color is ready to use. Do not add water. Stir thoroughly prior to application.

6. APPLICATION:
Apply Ready-Mix Color with a soft rubber squeegee. Allow each coat to thoroughly dry before applying the next coat. Two coats are recommended.

7. IMPORTANT:
Stir material thoroughly before using. Temperature must be a minimum of 50° F. and rising before application. Do not apply when raining is imminent or forecast. Keep from freezing. Close container when not in use.

8. COVERAGE:
Approximately .12 to .15 gallon per square yard per coat.

9. DRYING TIME:
Ready-Mix Color dries in 30 to 60 minutes under optimum drying conditions. Allow 48 hours before allowing foot traffic or play.

10. CAUTIONS:
KEEP OUT OF REACH OF CHILDREN. Do not take internally. If swallowed, call a physician immediately. In case of contact with eyes, flush immediately with water for 15 minutes and call a physician. When not in use, keep containers tightly closed and upright to prevent leakage.

11. WARRANTY:
The statements made on this technical bulletin are believed to be true and accurate, and are intended to provide a guide for approved construction practices. Manufacturer does not make, nor does it authorize any agent or representative to make any warranty, express or implied, concerning this material as workmanship, weather, construction, equipment utilized and other variables affecting results are all beyond our control. Manufacturer warrants only that the material conforms to product specifications and any liability to the buyer or user of this product is limited to the replacement value of the product only. In no event shall Manufacturer be liable for any injury, loss or damage, either direct or incidental, special or consequential, however arising, in connection with material or equipment furnished or work performed. Manufacturer shall not, in any manner, be liable for any defects, variations or change in condition in the substructure over which its products are installed.

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ThorWorks Industries, Inc.
P.O. Box 2277
Sandusky, OH 44870

Phone: 1-800-326-1994
FAX: 1-419-626-5477

www.sportmaster.net

Product Data:

Type	Acrylic
Odor	Slight Ammonia
Flammability	Non Flammable
Flash Point	None
Colors	Several Available

Ready-Mix Color CMT-37

SealMaster July 2009 (Supersedes CMT-37 (4/01), CMT-37 (7/04))

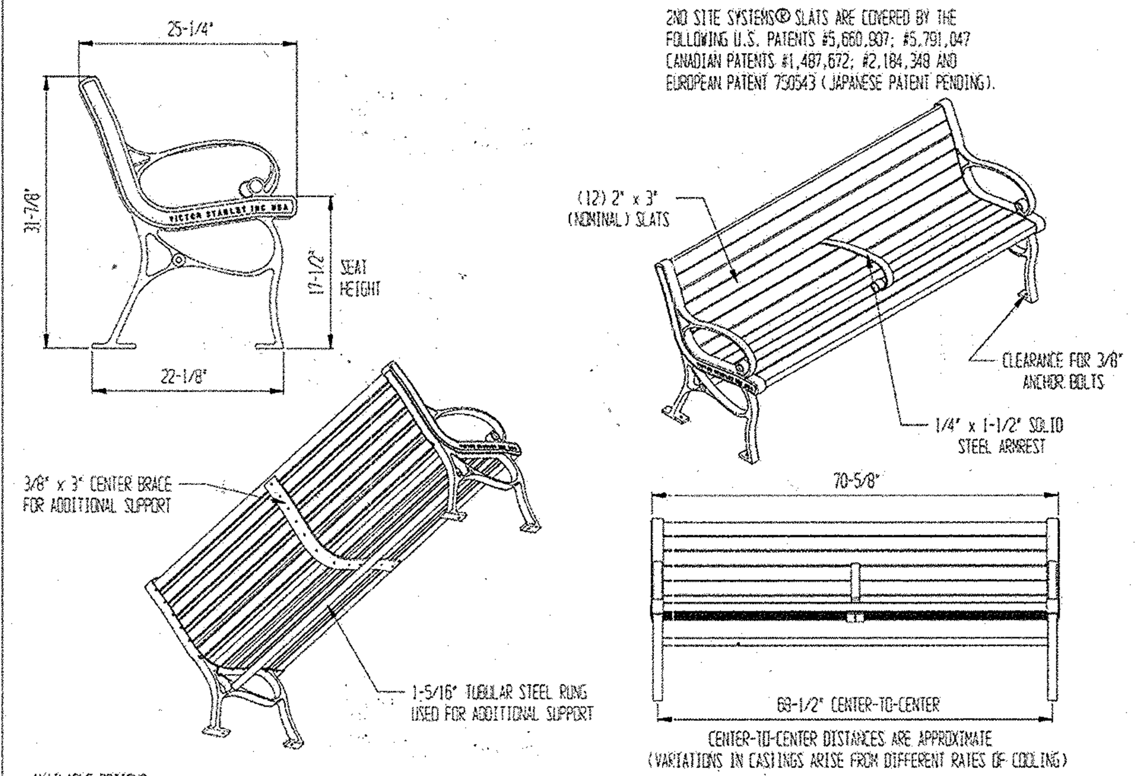
SPORT SURFACING

(B) **Tennis Court Surfacing**
Not To Scale

VICTOR STANLEY, INC.
-Manufacturers of Quality Site Furnishings since 1962-

P.O. DRAWER 330 - DUNKIRK, MD 20754 USA
TOLL FREE: (800) 368-2573 (USA & CANADA)
TEL (301) 855-8300 - FAX (410) 257-7579
WEB SITE: HTTP://WWW.VICTORSTANLEY.COM

2ND SITE SYSTEMS® SLATS ARE COVERED BY THE FOLLOWING U.S. PATENTS #5,660,907; #5,791,047 CANADIAN PATENTS #1,487,672; #2,184,349 AND EUROPEAN PATENT 750543 (JAPANESE PATENT PENDING).



AVAILABLE OPTIONS:
POWDER COATING
10 STANDARD COLORS, CUSTOM COLORS (INCLUDING THE RAL RANGE)
SLAT TYPES
WOODS: PHILIPPINE MAHOGANY AND IPE
2nd SITE SYSTEMS® REINFORCED RECYCLED PLASTIC SLATS - COLORS: GRAY, MAPLE, CHERRY, AND WALNUT (8' LENGTH WITH FULL CENTER LEG)

INTERMEDIATE & CENTER ARMRESTS
4', 6', & 8' AVAILABLE WITH OPTIONAL ARMRESTS
8' AVAILABLE WITH FULL CENTER LEG WITH OR WITHOUT ARM
LENGTHS
STANDARD 4'
STANDARD 6' LENGTH SHOWN
STANDARD 8'

NOTES:
1. DUCTILE IRON CASTINGS COME WITH A TEN YEAR WARRANTY AGAINST BREAKAGE.
2. DRAWING NOT TO SCALE. DO NOT SCALE DRAWINGS.
3. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING FILM. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH COAT AVERAGES 8-10 MILS (200-250 MICRONS).
4. IT IS NOT RECOMMENDED TO LOCATE ANCHOR BOLTS UNTIL BENCH IS IN PLACE. THIS VICTOR STANLEY INC. PRODUCT MUST BE PERMANENTLY AFFIXED TO THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
5. ANCHOR BOLTS NOT PROVIDED BY VICTOR STANLEY, INC.
6. FOR HIGH SALT ABUSIVE CLIMATES, HOT DIP GALVANIZING BEFORE POWDER COATING IS AVAILABLE. SEE WRITTEN SPECIFICATIONS FOR DETAILS.
7. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
8. THIS PRODUCT IS SHIPPED PARTIALLY UNASSEMBLED.

Colors:
Frame = Tavern Square Green
Seat Slats = Maple 2nd Site Systems
*No Optional Center Arm Rest

C-138
CLASSIC SERIES
STANDARD BENCH WITH DUCTILE IRON END FRAMES
SHOWN: STANDARD 6-FOOT LENGTH
OPTIONAL 2nd SITE SYSTEMS® REINFORCED RECYCLED PLASTIC SLATS
OPTIONAL CENTER ARMREST

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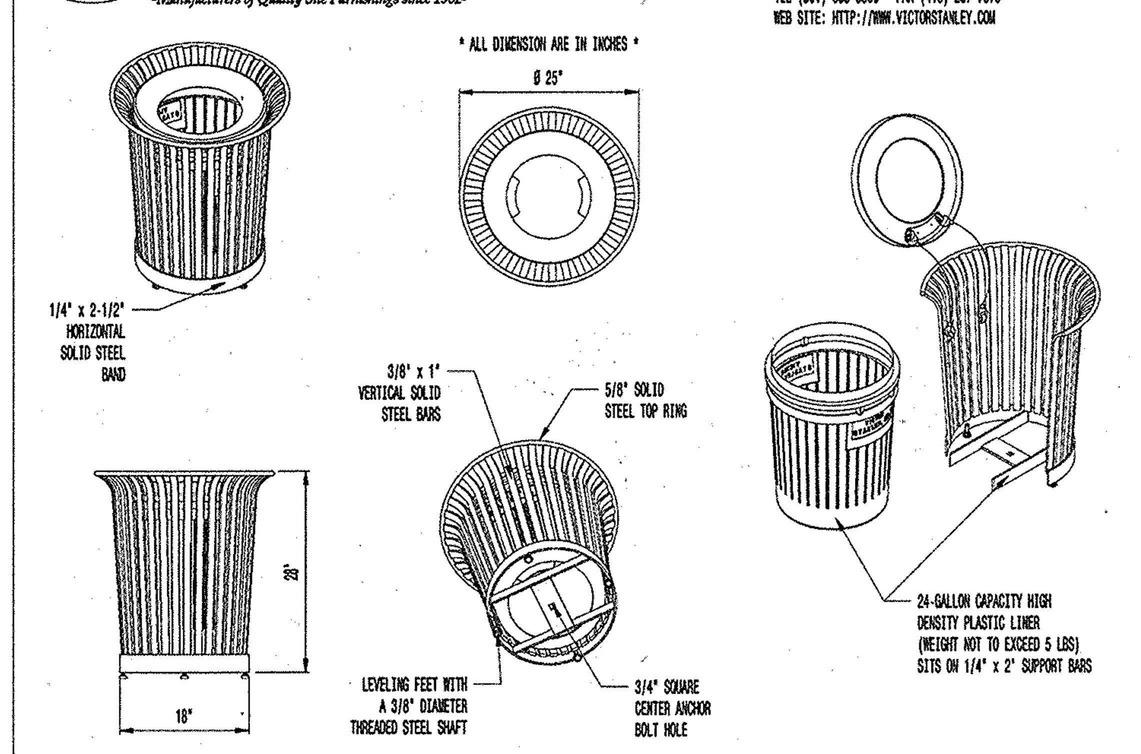
REV. 9/19/05 DRAWN C.D.B. 2005-135

(C) **Bench Specification (Typ.)**
Not To Scale

VICTOR STANLEY, INC.®
-Manufacturers of Quality Site Furnishings since 1962-

P.O. DRAWER 330 - DUNKIRK, MD 20754 USA
TOLL FREE: (800) 368-2573 (USA & CANADA)
TEL (301) 855-8300 - FAX (410) 257-7579
WEB SITE: HTTP://WWW.VICTORSTANLEY.COM



AVAILABLE OPTIONS
POWDER COATING
10 STANDARD COLORS, 2 OPTIONAL METALLIC COLORS, CUSTOM COLORS (INCLUDING THE RAL RANGE)
CUSTOM PLAQUES & DECALS
AVAILABLE WITH STEEL PLAQUES IN VARIOUS SIZES AND PRESSURE SENSITIVE VINYL OUTDOOR DECALS.

LIDS
SHOWN WITH STANDARD TAPERED FORMED LID. AVAILABLE WITH OPTIONAL DOME LID, DOME LID WITH STAINLESS STEEL ASHTRAY, CONVEX LID, CONVEX LID WITH SELF-CLOSING DOOR, RAIN BONNET LID (AS SHOWN), RAIN BONNET LID WITH STAINLESS STEEL ASHTRAY, AND RECYCLE LIDS. ASHTRAYS AVAILABLE WITH OPTIONAL ASHTRAY COVER.
SECURITY
LID IS SECURED WITH VINYL COATED GALVANIZED STEEL AIRCRAFT CABLE. CABLE IS LOOPED AROUND ATTACHMENT BRACKETS AND CRIMPED IN PLACE

NOTES:
1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD FILM COATING. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. THIS VICTOR STANLEY, INC. PRODUCT MUST BE PERMANENTLY AFFIXED TO THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
4. VICTOR STANLEY, INC., PLASTIC INNER LINERS ARE MOLDED ON TOOLING DESIGNED FOR AND OWNED BY VICTOR STANLEY, INC. THEY OFFER MAXIMUM CAPACITY AND STRENGTH WITH LIGHTWEIGHT CONSTRUCTION USING CRITICAL MOLDED RIBS, INTEGRAL HANDHOLDS, AND HIGH-STRENGTH MATERIALS. THIS MINIMIZES HANDLING DIFFICULTY AND FACILITATES EASY EMPTYING AND STORAGE WHILE AFFORDING LONG SERVICE LIFE.
5. ANCHOR BOLT(S) NOT PROVIDED BY VICTOR STANLEY, INC.
6. FOR HIGH SALT ABUSIVE CLIMATES, HOT DIP GALVANIZING BEFORE POWDER COATING IS AVAILABLE. SEE WRITTEN SPECIFICATIONS FOR DETAILS.
7. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
8. THIS PRODUCT IS SHIPPED FULLY ASSEMBLED.

PRS-24
PRODUCTION SERIES™
24-GALLON LITTER RECEPTACLE
SHOWN: STANDARD TAPERED FORMED LID

Color:
Frame = Tavern Square Green
Lid = Owner's Specification

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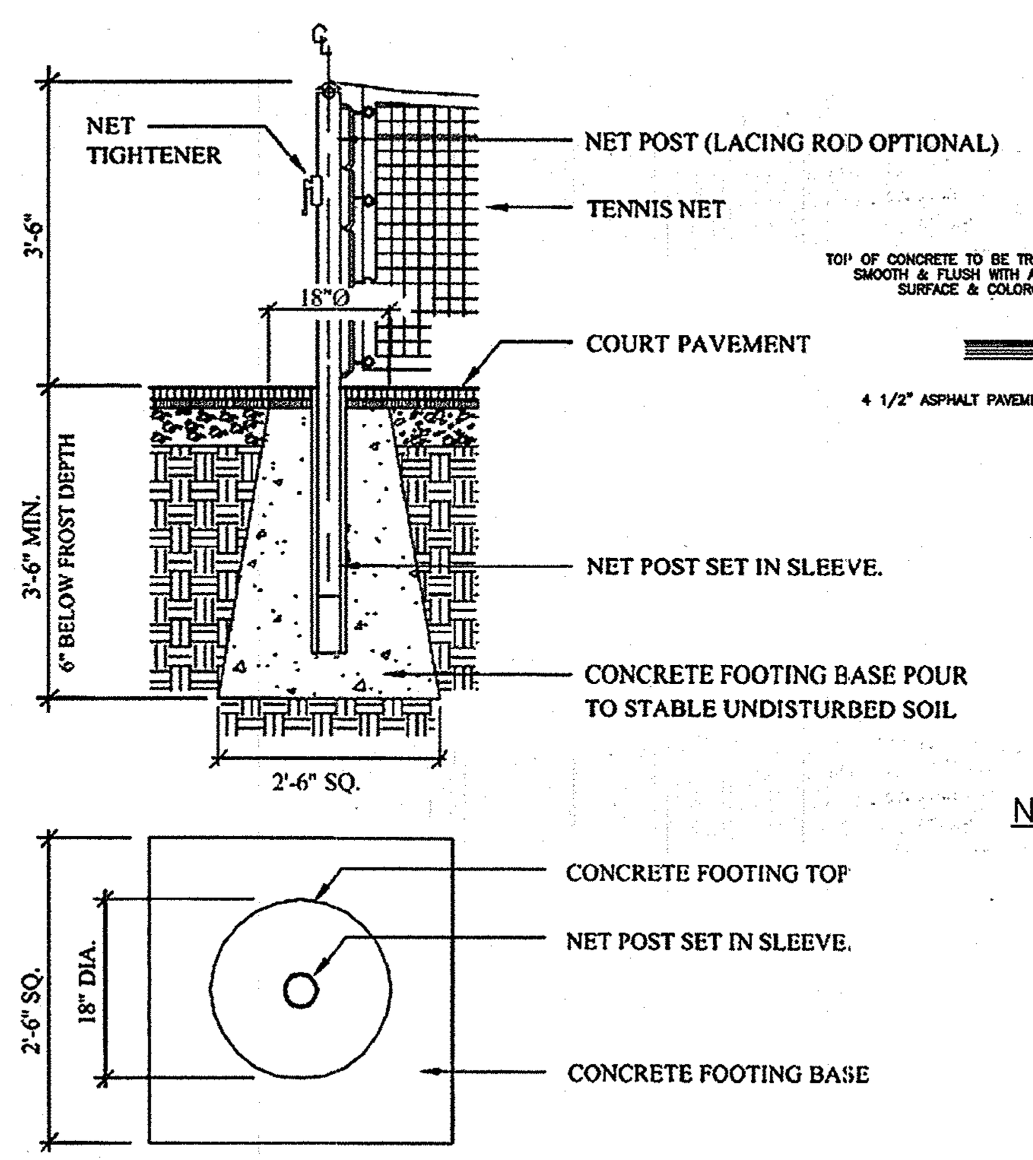
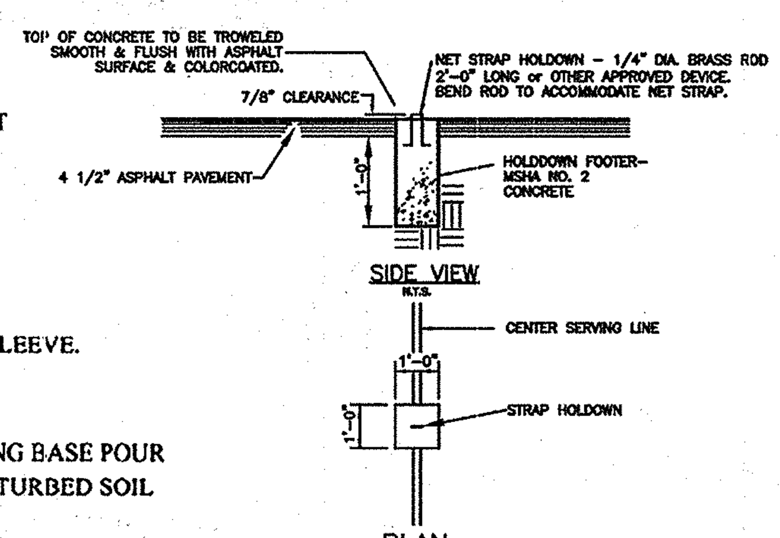
REV. 9/3/13 DRAWN L.D.L. 2013-1074

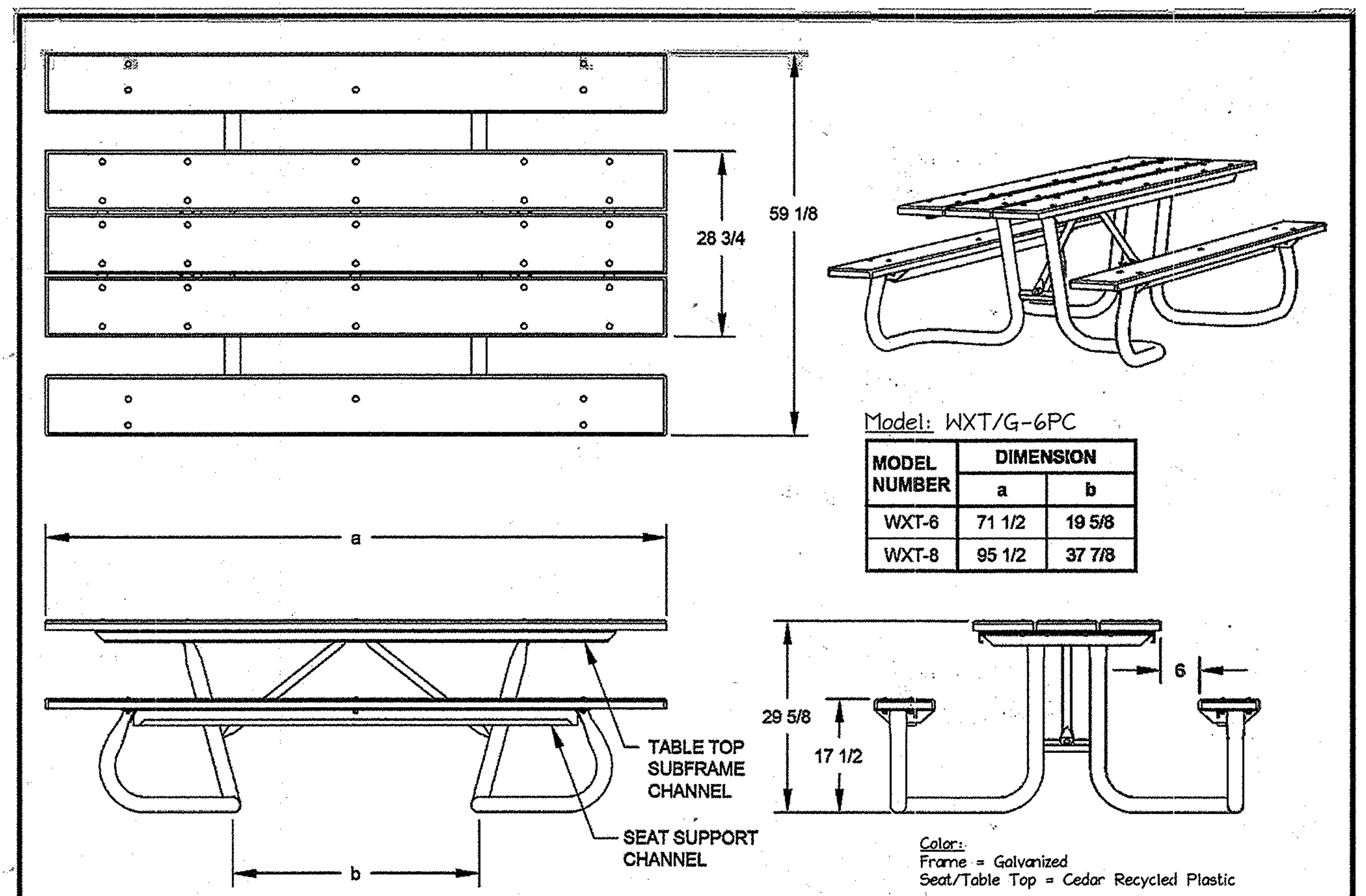
(D) **Waste Receptacle Specification (Typ.)**
Not To Scale





NET HOLDOWN FOOTER

(E) **Net Post Details**
Not To Scale



Model: WXT/G-6PC

MODEL NUMBER	DIMENSION a	DIMENSION b
WXT-6	71 1/2	19 5/8
WXT-8	95 1/2	37 7/8

Color:
Frame = Galvanized
Seat/Table Top = Cedar Recycled Plastic

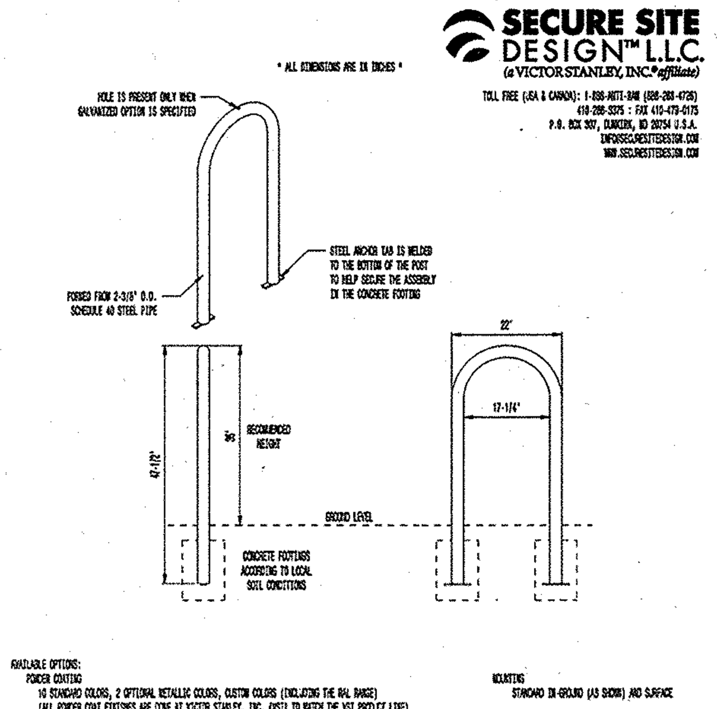
ALL DIMENSIONS IN INCHES

RJThomas Mfg. Co., Inc. P.O. Box 946 • Cherokee, IA 51012-0946	DRAWN BY WWM	TITLE WXT SERIES 6 AND 8 FOOT UNIVERSAL ACCESS TABLES WITH 2" X 10" RECYCLED PLASTIC TOP AND SEAT PLANKS	DATE 11-20-08 / DWG. NO. AI-1616

Specification Bulletin SPC- TB-019

(F) **ADA Picnic Table**
Not To Scale

SECURE SITE DESIGN™ L.L.C.
(a VICTOR STANLEY, INC.® affiliate)
TOLL FREE (USA & CANADA): 1-888-ANTI-BAM (888-268-4726)
410-286-3375 : FAX 410-479-0175
P.O. BOX 307, DUNKIRK, MD 20754 U.S.A.
INFO@SECURESITEDESIGN.COM
WWW.SECURESITEDESIGN.COM



AVAILABLE OPTIONS:
POWDER COATING
10 STANDARD COLORS, 2 OPTIONAL METALLIC COLORS, CUSTOM COLORS (INCLUDING THE RAL RANGE)
(ALL POWDER COAT FINISHES ARE DONE AT VICTOR STANLEY, INC. (VSI) TO MATCH THE VSI PRODUCT LINE)
OTHER FINISHES: GALVANIZED, STAINLESS STEEL (SPECIAL QUOTE NEEDED)

MOUNTING
STANDARD IN-GROUND (AS SHOWN) AND SURFACE

NOTES:
1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING FILM. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. THIS SECURE SITE DESIGN, LLC. PRODUCT MUST BE PERMANENTLY AFFIXED IN THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
4. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
5. THIS PRODUCT IS SHIPPED FULLY ASSEMBLED.

BRWS-101
CYCLE SENTRY™ SERIES
BIKE RACK
SHOWN: STANDARD IN-GROUND MOUNT

Color:
Frame = Tavern Square Green

COPYRIGHT 2013 SECURE SITE DESIGN,™ L.L.C. ALL RIGHTS RESERVED
REV. 8/9/13 DRAWN C.R.K 2013-878

(G) **Bike Rack Detail (Typ.)**
Not To Scale

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 2-20-15
Chief, Division of Land Development	Date 2-26-15
Director	Date 2/26/15

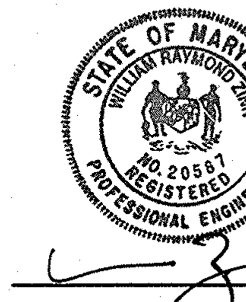
Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

01/05/2015
DATE



PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A		602800

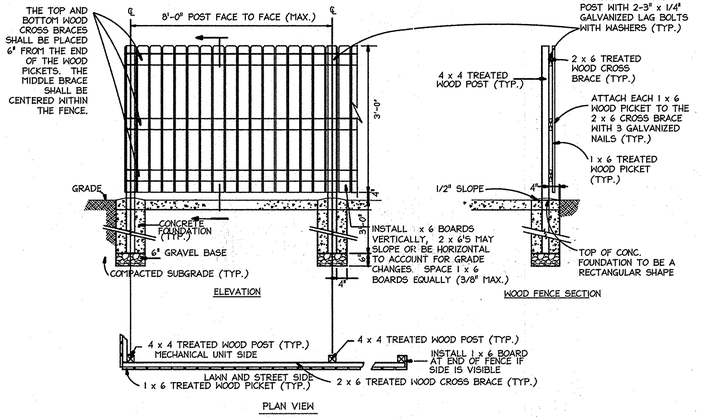
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

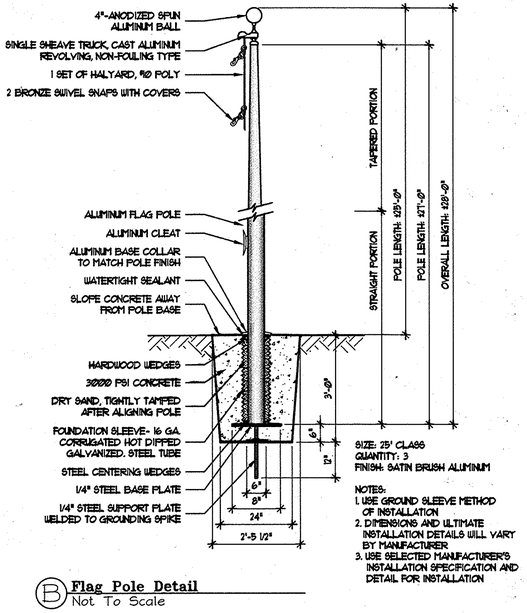
TITLE:
LANDSCAPE DETAILS

DESIGN: CRH	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: LNG/JJ	APPROVED: LNG/RZ	

P:\Projects\05B501\~MDC-XXX\~MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\42-42A LANDSCAPE DETAILS.dwg, 12/29/2014 3:43:29 PM, eligoldman, 1:1, christopher consultants, ltd.



A Wood Fence Detail
Not To Scale



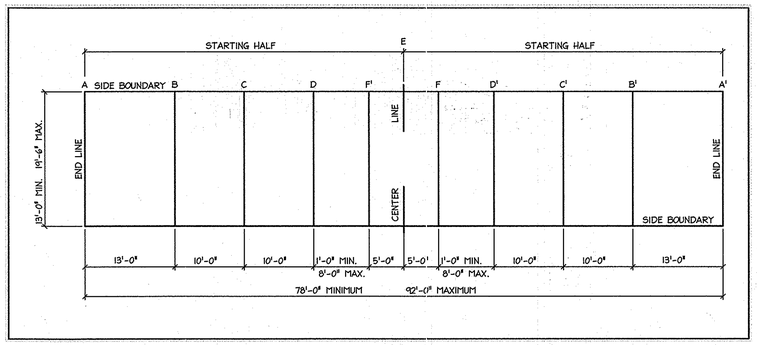
B Flag Pole Detail
Not To Scale

Appendix B.3 Construction Specifications for Sand Filters, Bioretention and Open Channels

B.3.7

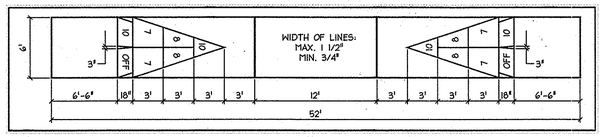
Table B.3.2 Materials Specifications for Bioretention

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
planting soil [2.5' to 4' deep]	sand 35 - 60% silt 30 - 55% clay 10 - 25%	n/a	USDA soil types loamy sand, sandy loam or loam
mulch	shredded hardwood		aged 6 months, minimum
pea gravel diaphragm and curtain drain	pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
poured in place concrete (if required)	MSHA Mix No. 3; f'_c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
sand [1' deep]	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substiutions are acceptable. No "rock dust" can be used for sand.



C Bocce Court Detail
Not To Scale

*TO BE INSTALLED IN PHASE II



D Shuffle Board Court Detail
Not To Scale

*TO BE INSTALLED IN PHASE II

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8800 · metro 301.831.8148 · fax 410.872.8803

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

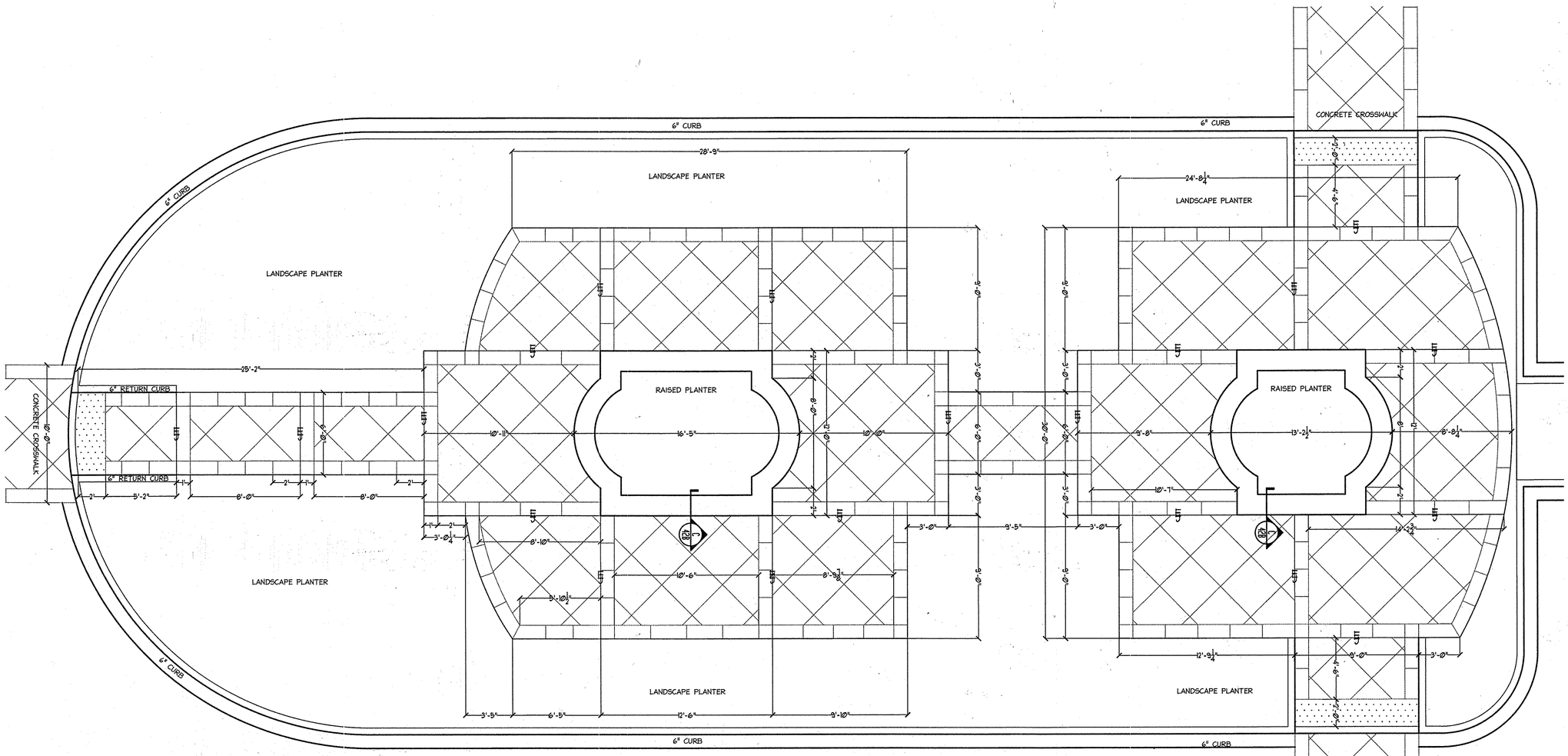
LANDSCAPE DETAILS

DESIC: CRH	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECK: LNGNJ	APPROVE: LNGIRZ	42A OF 77

01/05/2015
DATE

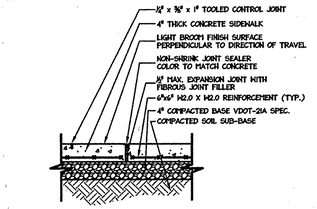
STATE OF MARYLAND
WILSON RAYMOND LENK
NO. 20509
REGISTERED
PROFESSIONAL ENGINEER

P:\Projects\05115\01-MDC-XXXX-MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\42-42A LANDSCAPE DETAILS.dwg, 12/29/2014 3:43:39 PM, dlgoldman, 1:1, christopher consultants, ltd.

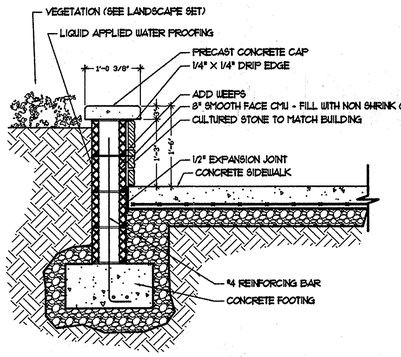


A INTERIOR COURTYARD -- PAVING PATTERN DIMENSIONS
1/4" = 1'

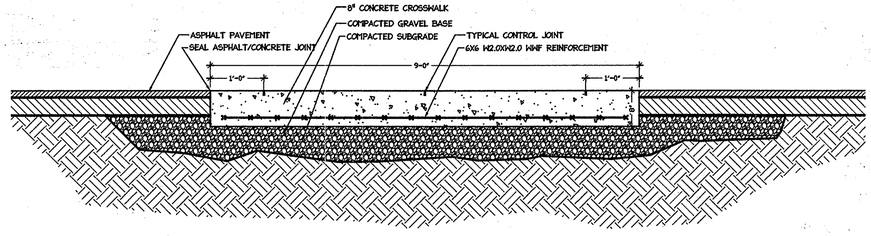
NOTES:
1. BORDER PATTERN IS 1' WIDE AT ALL POINTS, BUT LENGTH OF SCORED BORDER PATTERN VARIES FROM 2-3' (LENGTHS ARE TO BE EQUAL BASED ON SIZE OF LARGER ADJACENT PANELS)
2. 45 DEGREE DIAGONAL PATTERN PANELS ARE 3' X 3'.
3. INSTALL EXPANSION JOINT AT ALL LOCATIONS WHERE CONCRETE MEETS CONCRETE OR ARCHITECTURAL PLANTER.



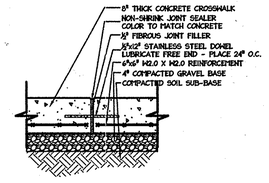
B CONCRETE SIDEWALK JOINTS (TYP.)
3/4" = 1'



C RAISED PLANTER WALL SECTION DETAIL
3/4" = 1'



D CONCRETE CROSSWALK SECTION
3/4" = 1'



E CROSSWALK EXPANSION JOINT -- SECTION
3/4" = 1'

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CIBIAVICCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (ste/rte 100) · columbia, md. 21046-2990
410.872.6000 · mdsv 301.261.6140 · fax 410.872.6800

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

LANDSCAPE DETAILS

DESIGN: CRH	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: LNG	APPROVED: LNG	42B OF 77

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
No. 21081
REGISTERED
PROFESSIONAL ENGINEER

P:\Projects\05115\01-MDC-XXCX-MDC-793 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\42B LANDSCAPE PLAZA DETAILS.dwg, 12/29/2014 3:44:56 PM, chgoldman, 1:1, christopher consultants, ltd.

SHEET 44

SHEET 45

SHEET 46

FREDERICK ROAD
(ULTIMATE 100' R/W)
(MINOR ARTERIAL)

N 77°07'25" W 550.22'

LAND DEDICATED TO HOWARD COUNTY, MARYLAND PER PLAT #14585, FOR THE PURPOSE OF A PUBLIC ROAD 1,064± SQ.FT. OR 0.025 ACRES

POND #2

N 58°52'00" E 1,000.00'

FOREST CONSERVATION
EASEMENT #1 – 2.39 ACRES
EMERGENT WETLANDS – 0.46 ACRES
REFORESTATION – 1.93 ACRES

MARYLAND STATE PLANE NAD 83/91

N 30°49'52" E 20.00'

FOREST CONSERVATION
EASEMENT #2 – 2.41 ACRES
RETENTION – .90 ACRES
REFORESTATION – 1.39 ACRES FORESTED
FORESTED FLOODPLAIN – 0.12 ACRES

FOREST CONSERVATION
EASEMENT #3 – 0.63 ACRES
REFORESTATION – 0.63 ACRES

CLEARING #1
0.04 ACRES

CLEARING #2
0.22 ACRES

CLEARING #3
0.69 ACRES

CLEARING #4
1.53 ACRES

CLEARING #5
0.28 ACRES

POND #1

N 64°17'08" W 662.74'

FOREST CONSERVATION
EASEMENT #4 – 6.80 ACRES
REFORESTATION – 3.16 ACRES
RETENTION – 3.51 ACRES
EMERGENT WETLANDS – 0.43 ACRES

N 47°35'45" E 1,501.22'

S 30°49'52" W 1,000.00'

FLOOR SUBDIVISION
GRAY ROCK
LOTS 105 & 106
PLAT NOS. 1964 & 1965
Zoned R-20

MANOR SUBDIVISION
GRAY ROCK
LOTS 305 & 306
PLAT NOS. 1964 & 1966
Zoned R-20

GRAY ROCK FARM
SECTION 3
PLAT NO. 6574
Zoned R-20

GRAY ROCK FARM
SECTION 3
PLAT NO. 5224
ZONED R-20

T.M. 24 P. 1099
Howard County Dept. of Public Works
L. 1962 F. 377
Deed Book

T.M. 24 P. 1070
Thomas New Land Co.
L. 524 F. 365

T.M. 24 Parcel 106
N. Plum Meadow Inc.
Richard J. Auad Revocable Trust
L. 10414 F. 199

DUNLOGGIN II
SECTION 1
PLAT 20,197

Lot 15
Jack Abbotmarsh Adair
3712 Plum Meadow Dr.
L. 1940 F. ?

Lot 16
William T.
Schaefer Marr
3716 Plum Meadow Dr.
L. 6798 F. 541

Lot 17
Thomas E.
Susan Gresham
3720 Plum Meadow Dr.
L. 5552 F. 602

Lot 18
Gerald Thompson
(Trustee)
3722 Plum Meadow Dr.
L. 1261 F. 600

Lot 19
Dom Spaventi 109
Valerie Carol Court
Howard County Dept.
of Public Works
L. 1962 F. 377

Lot 20
Michael P. Joanne
Shumskas
3695 Valerie Lanyon
L. 1733 F. 95

Lot 21
Mark A. Audrey
Nave
3693 Valerie Carol Ct.
L. 2294 F. 60

Lot 22
Edwin & Beverly
Schelhorn
3691 Valerie Carol Ct.
L. 1509 F. 181

Lot 23
Joseph Cook II
3714 Lookout Ct.
L. 4863 F. 150

Lot 24
Diane E. Dan Brown
3706 Lookout Ct.
L. 1911 F. 561

Lot 25
Vivian S. Simone Portner
3702 Lookout Ct.
L. 1382 F. 64

Lot 26
Michael & Mary Fry
3696 Lookout Ct.
L. 5215
F. 530

Lot 27
Steven Shaneyfelt
3694 Lookout Ct.
L. 2660
F. 736

Lot 28
The Miller Land Company
9579 E. Frederick Road
L. 1207 F. 698

Lot 29
Brian & Regina Hendrix
3665 Dairy Valley Trail
L. 2086 F. 544

Lot 30
Kenneth & Mary Cain
3665 Dairy Valley Trail
L. 3793 F. 9209

Lot 67

Lot 68
Kenneth Smith
9566 Frederick Rd.
L. 579 F. 304

Lot 69
Kenneth Johnson
9566 Frederick Rd.
L. 281 F. 465

Lot 70
Ann Linn
9570 Frederick Rd
L. 7651 F. 975

Lot 71
Charles Goldfinch
9572 Frederick Rd
L. 2269 F. 142

Lot 72
Scott Stiegel
9626 Frederick Rd
L. 10979 F. 484

Lot 73
Charles Martin
9620 Frederick Rd
L. 1969 F. 305

Lot 74
Chang Chen
9604 Frederick Rd
L. 3652 F. 561

Lot 75
(Jim Mitchell)
9601 Frederick Rd
L. 3652 F. 561

Lot 76
Edward Johnson
9606 Frederick Rd
L. 7409 F. 123

Lot 77
Gary Hitchens
9612 Frederick Rd
L. 7996 F. ?

SITE VICINITY MAP

SCALE 1"=1000'

ADC# 21007249

HOWARD CO. ADC MAP PAGE 20 GRID D-8

BALTIMORE NATIONAL PIKE

GLENBROOK (RESIDENTIAL)

FREDERICK ROAD

KNOB HILL (RESIDENTIAL)

ARABIAN DRIVE

FONT HILL MANOR (RESIDENTIAL)

SITE

ROLLING ACRES (RESIDENTIAL)

GRAY ROCK FARM (RESIDENTIAL)

GRAY ROCK DRIVE

DUNMOOR WOODS (RESIDENTIAL)

DUNLOGGIN II (RESIDENTIAL)

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- STREAM BANK / STREAM CENTERLINE / STREAM BANK
- EXISTING TREELINE
- PROPOSED TREELINE
- FP FLOODPLAIN EASEMENT
- SS SUPER SILT FENCE*
- SB STREAM BUFFER
- WB WETLAND BUFFER
- WL / 1A WETLANDS
- PROPOSED FOREST CONSERVATION EASEMENT
- MATCHLINES
- LOD LIMITS OF DISTURBANCE
- RETENTION FOREST CONSERVATION EASEMENT
- FOREST CLEARING AREA (NONE ON THIS SHEET)
- REFORESTATION AREA
- PROPOSED VARIABLE WIDTH PUBLIC ACCESS, FIRE ACCESS AND UTILITY EASEMENT
- PERMANENT TREE PROTECTION SIGNAGE
- TEMPORARY TREE PROTECTION SIGNAGE

*SUPER SILT FENCE ALSO DOUBLES AS TREE PROTECTION FENCE ALONG RETENTION AREAS

NOTE:
BEARINGS AND DISTANCES FOR THE FOREST CONSERVATION EASEMENT CAN BE FOUND PLAT #F-10-083.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

Miss Utility — 48 Hours Before You Dig Call — Service Protection Center — CALL TOLL FREE 1-800-257-7777

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND STARK — No. 20587 — REGISTERED PROFESSIONAL ENGINEER

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CRAVACOS, EX. VICE PRESIDENT
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christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.1870 · metro 301.604.0140 · fax 410.872.1883

PERMIT INFORMATION CHART

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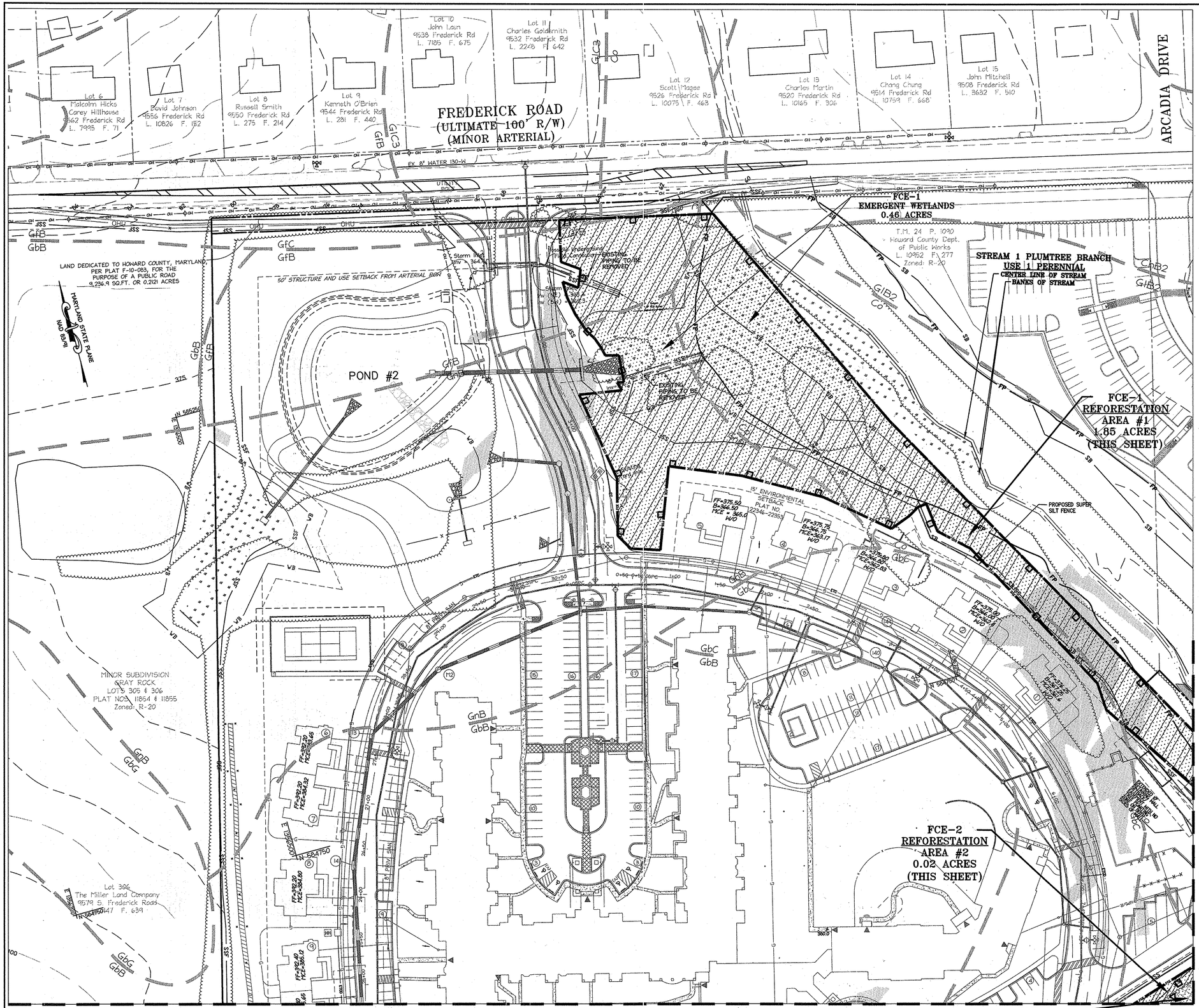
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

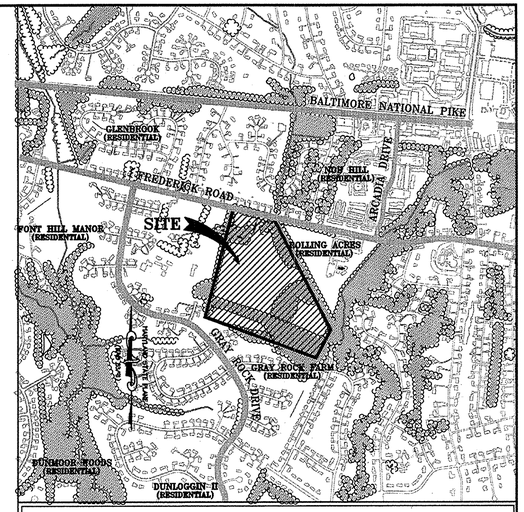
TITLE:

OVERALL FOREST CONSERVATION PLAN

DESIGN: DAM	SCALE: 1" = 100'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	43 OF 77
CHECKED: ENJ	APPROVED: WRZ	

P:\Projects\05115\01-MDC-XXXX-MDC-792 SDP\2014-04-22 Bid Set\2014-09-05 Redline Set\43-46 FOREST CONSERVATION.dwg, 12/29/2014 3:41:24 PM, elgoldman, I:1, christopher consultants, ltd.





SITE VICINITY MAP
SCALE 1"=1000'
ADC# 21007249
HOWARD CO. STREET MAP 20 GRID D-8

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- STREAM BANK / STREAM CENTERLINE / STREAM BANK
- EXISTING TREELINE
- PROPOSED TREELINE
- GIB2 / Co SOILS LINE
- FP FLOODPLAIN EASEMENT
- SSF SUPER SILT FENCE*
- SB STREAM BUFFER
- WB WETLAND BUFFER
- WL / 7A WETLANDS
- FCE FCE PROPOSED FOREST CONSERVATION EASEMENT
- LOD LIMITS OF DISTURBANCE
- RETENTION FOREST CONSERVATION EASEMENT
- FOREST CLEARING AREA
- REFORESTATION AREA
- 15 TO 25% STEEP SLOPES
- 25% AND GREATER STEEP SLOPES
- PROPOSED VARIABLE WIDTH PUBLIC ACCESS, FIRE ACCESS AND UTILITY EASEMENT
- PERMANENT TREE PROTECTION SIGNAGE
- TEMPORARY TREE PROTECTION SIGNAGE

*SUPER SILT FENCE ALSO DOUBLES AS TREE PROTECTION FENCE ALONG RETENTION AREAS

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CRAWFORD, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER, MD. 21158
(410) 848-0060

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410.872.8800 · metro 301.861.0148 · fax 410.872.8893

PERMIT INFORMATION CHART

PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02
WATER CODE		SEWER CODE		
550 (TG 700)		F07		

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZORC — NO. 20591 — REGISTERED PROFESSIONAL ENGINEER

TITLE:

FOREST CONSERVATION PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	44 OF 77
CHECKED: ENJ	APPROVED: WRZ	

P:\Projects\05115\01-MDC-XXXX-MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\13-46 FOREST CONSERVATION.dwg, 12/29/2014 3:41:34 PM, dlgridfamos, 1:1, christopher consultants, ltd.

MATCHLINE – SEE SHEET 44 OF 75 FOR CONTINUATION

MATCHLINE – SEE SHEET 46 OF 75 FOR CONTINUATION

MARYLAND STATE PLANE
NAD 83/91

MINOR SUBDIVISION
GRAY ROCK
LOTS 305 & 306
PLAT NOS. 11854 & 11855
Zoned: R-20

PROPOSED 20' PUBLIC WATER AND UTILITY EASEMENT PLAT NO. 22346 & 22353

Lot 65
Brian & Regina Hendrix
3601 Dairy Valley Trail
L. 2326 F. 344

Lot 66
Kenneth & Mary Cain
3605 Dairy Valley Trail
L. 3798 F. 6209

Lot 112
The Miller Land Co.
Gray Rock Drive
L. 447 F. 639

Lot 68
Gautam Banerjee
3709 Lookout Ct
L. 10885
F. 715

Lot 69
David & Mary Fry
3715 Lookout Ct
L. 2216
F. 523

Lot 70
Joseph Cook III
3714 Lookout Ct
L. 4693 F. 102

Lot 67

Lot 71
Victor & Simone Martinez
3710 Lookout Ct.
L. 1380 F. 64

Lot 72
Darrel & Dori Brown
3706 Lookout Ct
L. 1371 F. 366

GRAY ROCK FARM
SECTION 2
PLAT NO. 5879
Zoned: R-20

GRAY ROCK FARM
SECTION 3
PLAT NO. 6789
ZONED: R-20

Lot 145
Michael & Jeanne Shoemaker
3715 Valerie Carol Ct.
L. 1734 F. 89

Lot 146
Marc & Audrey Winer
3719 Valerie Carol Ct.
L. 2339 F. 201

Lot 147
Edwin & Beverly Schukraft
3723 Valerie Carol Ct.
L. 1828 F. 124

GRAY ROCK FARM
SECTION 3
PLAT NO. 6789

POND #1

TRIBUTARY 1
INTERMITTENT
CENTER LINE OF STREAM
BANKS OF STREAM

TRIBUTARY 3
INTERMITTENT
CENTERLINE OF STREAM

TEMP STOCKPILE
AREA: 10,000 SF
MAX HEIGHT: 35 FT
MAX SLOPES: 3:1

EXTENDED 10' RETAINING WALL SETBACK/EASEMENT WITH NO TREE PLANTING ZONE ON BOTH SIDES OF WALL

PROPOSED SUPER SILT FENCE

FCE-2
REFORESTATION
AREA #2
0.08 ACRES (THIS SHEET)

FCE-2
RETENTION
AREA #1
0.13 ACRES (THIS SHEET)

CLEARING AREA #2 0.22 ACRES (THIS SHEET)

FCE-4
RETENTION
AREA #4
0.08 ACRES
(THIS SHEET)

FCE-4
REFORESTATION
AREA #6
.92 ACRES

FCE-4
REFORESTATION
AREA #5
0.07 ACRES
(THIS SHEET)

CLEARING AREA #4
0.06 ACRES
(THIS SHEET)

FCE-4
RETENTION
AREA #3
0.48 ACRES
(THIS SHEET)

CLEARING AREA #5
0.28 ACRES

FCE-4
EMERGENT WETLANDS
0.43 ACRES

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- STREAM BANK / STREAM CENTERLINE / STREAM BANK
- EXISTING TREELINE
- PROPOSED TREELINE
- GIB2 SOILS LINE
- Co FP FLOODPLAIN EASEMENT
- SUPER SILT FENCE*
- SB STREAM BUFFER
- WB WETLAND BUFFER
- WL WETLANDS
- PROPOSED FOREST CONSERVATION EASEMENT
- LOD LIMITS OF DISTURBANCE
- RETENTION FOREST CONSERVATION EASEMENT
- FOREST CLEARING AREA
- REFORESTATION AREA
- 15 TO 25% STEEP SLOPES
- 25% AND GREATER STEEP SLOPES
- PROPOSED VARIABLE WIDTH PUBLIC ACCESS, FIRE ACCESS AND UTILITY EASEMENT
- PERMANENT TREE PROTECTION SIGNAGE
- TEMPORARY TREE PROTECTION SIGNAGE

*SUPER SILT FENCE ALSO DOUBLES AS TREE PROTECTION FENCE ALONG RETENTION AREAS

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER, MD 21158
(410) 848-0090

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01/05/2015
DATE

STATE OF MARYLAND · WILLIAM RAYMOND ZOLL · NO. 20567 · REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A	CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24
ELECTION DISTRICT: 02			
WATER CODE: 550 (TG 700)			SEWER CODE: F07

TITLE:

FOREST CONSERVATION PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	45 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075

MATCHLINE – SEE THIS SHEET FOR CONTINUATION

MATCHLINE – SEE SHEET 45 OF 75 FOR CONTINUATION

FCE-2 RETENTION AREA #2 0.30 ACRES (THIS SHEET)

FCE-2 RETENTION AREA #2 0.29 ACRES (THIS SHEET)

FCE-2 REFORESTATION AREA #3 .95 ACRES (THIS SHEET)

STREAM 1
PLUMTREE BRANCH
USE 1 PERENNIAL
CENTER LINE OF STREAM
BANKS OF STREAM

CLEARING AREA #1 0.04 ACRES

CLEARING AREA #3 0.69 ACRES

FCE-4 RETENTION AREA #4 0.04 ACRES

FCE-4 REFORESTATION AREA #5 2.16 ACRES (THIS SHEET)

FCE-3 REFORESTATION AREA #4 0.63 ACRES

PROPOSED SUPER SILT FENCE

CLEARING AREA #4 1.47 ACRES (THIS SHEET)

FCE-4 RETENTION AREA #3 2.61 ACRES (THIS SHEET)

VARIABLE WIDTH PUBLIC ACCESS, FIRE ACCESS AND UTILITY EASEMENT

PROPOSED PUBLIC PEDESTRIAN ACCESS EASEMENT

T.M. 24 Parcel 408
N. Plum Meadow Drive
Richard J. Awalt Revocable Trust
L. 10474 F. 191

DUNLOGGIN II
SECTION 7
PLAT 25767

Lot 148
Chester & Susan Tucker
3727 Valerie Carol Ct.
L. 4702 F. 533

Lot 149
Dorothy Pumphrey (Trustee)
3731 Valerie Carol Ct.
L. 11261 F. 660

Lot 18
Carl Habelmann Adair
3772 Plum Meadow Dr.
L. 1943 F. 6

Lot 17
William & Michele Mann
3766 Plum Meadow Dr.
L. 6793 F. 54

Lot 16
Thomas & Susan Greulich
3770 Plum Meadow Dr.
L. 11252 F. 602

Space/Lot 170 - Valerie Carol Court
Howard County Dept. of Parks & Recreation
L. 1493 F. 263

HARTLAND STATE PLANE NAD 83/91

MATCHLINE – SEE SHEET 45 OF 75 FOR CONTINUATION

FCE-1 REFORESTATION AREA #1 0.08 ACRES (THIS SHEET)

MODIFIED 10' RETAINING WALL MAINTENANCE & CONSTRUCTION EASEMENT AND NO TREE PLANTING ZONE ON BOTH SIDE OF WALL

LANDSCAPE BUFFER #SHOWN AS A 50' BUFFER AROUND THE ENTIRE PERIMETER OF THE PROPERTY AS REQUIRED UNDER ZB-1056M

PROPOSED SUPER SILT FENCE

FCE-2 REFORESTATION AREA #2 0.16 ACRES (THIS SHEET)

TRIBUTARY 2
USE 1 PERENNIAL
CENTER LINE OF STREAM
BANKS OF STREAM

FCE-2 FOREST FLOODPLAIN 0.12 ACRES

FCE-2 REFORESTATION AREA #3 0.18 ACRES (THIS SHEET)

FCE-2 RETENTION AREA #2 0.04 ACRES (THIS SHEET)

FCE-2 RETENTION AREA #1 0.14 ACRES (THIS SHEET)

MATCHLINE SEE THIS SHEET FOR CONTINUATION

T.M. 24 P. 108
The Miller Land
L. 7041 F. 562

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- PROPERTY LINE
- STREAM BANK / STREAM CENTERLINE / STREAM BANK
- EXISTING TREELINE
- PROPOSED TREELINE
- GIB2 SOILS LINE
- Co FP FLOODPLAIN EASEMENT
- SUPER SILT FENCE#
- SB STREAM BUFFER
- WB WETLAND BUFFER
- VL 7A WETLANDS
- PROPOSED FOREST CONSERVATION EASEMENT
- LOD LIMITS OF DISTURBANCE

RETENTION FOREST CONSERVATION EASEMENT
FOREST CLEARING AREA
REFORESTATION AREA
15 TO 25% STEEP SLOPES
25% AND GREATER STEEP SLOPES
PROPOSED VARIABLE WIDTH PUBLIC ACCESS, FIRE ACCESS AND UTILITY EASEMENT
PERMANENT TREE PROTECTION SIGNAGE
TEMPORARY TREE PROTECTION SIGNAGE

#SUPER SILT FENCE ALSO DOUBLES AS TREE PROTECTION FENCE ALONG RETENTION AREAS

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

01/05/2015
DATE

STATE OF MARYLAND · WILLIAM RAYMOND STINE · 20587 · REGISTERED PROFESSIONAL ENGINEER

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APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-20-15

Director — Date 2/24/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY OBAVACOL EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0080

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.6660 · voice 301.861.0161 · fax 410.872.6663

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

FOREST CONSERVATION PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	46 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

MDC-792 (SDP)

REMOVAL OF HAZARDOUS TREES OR LIMBS by developers or builders

1. THE DEVELOPER AND/OR BUILDER IS RESPONSIBLE FOR THE COMPLETE PRESERVATION OF ALL FORESTED AREAS SHOWN ON THE APPROVED PLAN TO REMAIN UNDISTURBED. ONLY TREES OR PARTS THEREOF DESIGNATED BY THE DEPARTMENT OF PLANNING AND ZONING AS DEAD, DYING, OR HAZARDOUS MAY BE REMOVED.
2. CORRECTIVE MEASURES REQUIRING THE REMOVAL OF THE HAZARDOUS TREE OR PORTIONS THEREOF SHALL REQUIRE AUTHORIZATION BY THE BUILDING OR GRADING INSPECTOR IF THERE IS A VALID GRADING OR BUILDING PERMIT FOR THE SUBJECT LOTS OR PARCELS ON WHICH THE TREES ARE LOCATED. ONLY AFTER APPROVAL OF THE APPROPRIATE INSPECTOR MAY THE TREE BE CUT BY CHAINSAW TO NEAR THE EXISTING GROUND LEVEL. THE STUMP MAY NOT BE REMOVED OR COVERED WITH SOIL, MULCH OR OTHER MATERIALS THAT WOULD INHIBIT SPROUTING.

WOODCHIP MULCH SPECIFICATIONS

WOODHCIP MULCH SHALL BE COMPOSTED A MINIMUM OF 2-3 MONTHS TO MINIMIZE AND CONTROL INVASIVE SEED SPROUTING. MULCH SHALL BE PLACED IN A 3 INCH LAYER IN AN AREA 2.5 TIMES THE ROOTBALL DIAMETER OF EACH PLANTED TREE (APPROXIMATELY 2.5 FEET FROM THE TRUNK).

TEMPORARY TREE PROTECTION DEVICE

THE TPD SHALL BE PLACED AS INDICATED AT THE BEGINNING OF THE SITE DEVELOPMENT PROCESS. SIGNAGE SHALL BE PLACED ON THE FENCE POSTS TO INDICATE A FOREST RETENTION AREA. THESE FENCES AND SIGNS SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF GRADING WITHIN 50 FEET OF THE RETENTION AREA, UNLESS THE COUNTY INSPECTOR APPROVES THEIR REMOVAL, OR AS NECESSARY TO GAIN ENTRY TO AND REMOVE INVASIVE VEGETATION FROM THE RETENTION AREA.

FINAL TREE PROTECTION DEVICE

UPON COMPLETION OF ALL GRADING, PLANTING AND INVASIVE SPECIES REMOVAL ACTIVITIES NEAR AND WITHIN THE FOREST RETENTION AND AFFORESTATION AREA, THE FINAL TPD AND SIGNAGE SHALL BE PLACED AS INDICATED ON THE PLAN. THE FINAL TPD AND SIGNS SHALL REMAIN IN PLACE IN ACCORDANCE WITH THE MANAGEMENT PLAN INCLUDED ON THIS PLAN OR UNTIL APPROVAL IS GIVEN BY THE HOWARD COUNTY INSPECTOR TO REMOVE THEM.

FOREST RETENTION

WOODLAND CONSERVATION AREAS WILL BE DELINEATED WITH HIGH VISIBILITY FENCING AND TEMPORARY SIGNAGE AS SPECIFIED (SEE TREE PROTECTION FENCE AND TEMPORARY SIGNAGE DETAILS) PRIOR TO THE BEGINNING OF ANY CONSTRUCTION ACTIVITIES OCCURRING ADJACENT TO THESE AREAS. FENCING SHALL NOT BE CONSIDERED INSTALLED CORRECTLY UNTIL REVIEWED BY A LANDSCAPE ARCHITECT OR QUALIFIED NATURAL RESOURCE PROFESSIONAL FAMILIAR WITH THE PLAN. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

PRECONSTRUCTION MEETING/CONSTRUCTION PERIOD PRACTICES

1. THE HOWARD COUNTY INSPECTOR MUST BE CONTACTED PRIOR TO THE START OF ANY WORK ON THE SITE TO ADDRESS IMPLEMENTATION OF TREE CONSERVATION MEASURES SHOWN ON THIS PLAN.

2. ALL APPROPRIATE BONDS WILL BE POSTED WITH THE BUILDING OFFICIAL PRIOR TO THE ISSUANCE OF ANY PERMITS. THESE BONDS WILL BE RETAINED AS SURETY BY THE BUILDING OFFICIAL UNTIL ALL REQUIRED ACTIVITIES HAVE BEEN SATISFIED.

3. THE LOCATION OF ALL TREE PROTECTION DEVICES (TPD) SHOWN ON THIS PLAN SHALL BE FLAGGED OR STAKED IN THE FIELD PRIOR TO THE PRE-CONSTRUCTION MEETING WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR FROM HOWARD COUNTY. UPON APPROVAL OF THE FLAGGED OR STAKED TPD LOCATIONS BY THE INSPECTOR, INSTALLATION OF THE TPDS MAY BEGIN. TPD INSTALLATION SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF THE INITIAL SEDIMENT CONTROLS. NO CUTTING OR CLEARING OF TREES MAY BEGIN BEFORE FINAL APPROVAL OF TPD INSTALLATION.

4. WOODLAND CONSERVATION-TREE SAVE AREAS SHALL BE POSTED AS SHOWN AT THE SAME TIME AS THE TREE PROTECTIVE DEVICE INSTALLATION. THESE SIGNS SHALL REMAIN IN PLACE.

5. NO GRADING, EXCAVATION, UTILITY PLACEMENT, SEDIMENT AND EROSION CONTROL DEVICES, OR VEHICULAR TRAFFIC WILL OCCUR WITHIN WOODLAND CONSERVATION AREAS.

6. STORAGE OF EQUIPMENT AND MATERIALS SHALL NOT BE PERMITTED IN THE WOODLAND CONSERVATION AREAS.

7. THERE WILL BE NO BURIAL OR DISPOSAL OF DISCARDED MATERIAL ON SITE WITHIN THE WOODLAND CONSERVATION AREAS.

8. THERE WILL BE NO OPEN BURNING WITHIN 100 FEET OF WOODLAND CONSERVATION AREAS.

9. TEMPORARY STRUCTURES, INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION TRAILERS, SANITARY FACILITIES, ETC. SHALL NOT BE PLACED WITHIN THE WOODLAND CONSERVATION AREAS.

10. EMPLOYEE PARKING SHALL NOT BE PERMITTED IN THE WOODLAND CONSERVATION AREAS

REFORESTATION PLANTING NOTES

1. ALL PLANTING STOCK SHALL BE A SEED SOURCE SUITED TO THIS GEOGRAPHIC REGION.
2. ROOT PRUNING OF THE PLANTING STOCK SHALL BE DONE AT THE NURSERY.
3. PLANTING WILL BE DONE BETWEEN FEBRUARY 15 AND MAY 1, AS LONG AS THE GROUND IS NOT FROZEN.
4. DISTURBED SOILS WITHIN THE REFORESTATION AREA SHOULD HAVE ORGANIC MULCH INCORPORATED WITHIN THE TOP 12 INCHES AND HAVE ADDITIONAL SOIL AMENDMENTS AS DETERMINED BY A SOILS ANALYSIS.
5. SITE PREPARATION FOR TREE PLANTING SHALL MINIMIZE ADVERSE COMPETITION FROM HERBACEOUS GROWTH IN THE REFORESTATION AREAS BY USING THE FOLLOWING METHODS:
   A. MOW REFORESTATION AREA CLOSE TO GROUND ONE WEEK (OR LESS) PRIOR TO PLANTING DATE.
   B. USE CHEMICAL HERBACEOUS VEGETATION CONTROL PRODUCT AFTER MOWING TO ENSURE REMOVAL OF ALL HERBACEOUS VEGETATION.
   C. MULCH THE PLANTED TREE IN AN AREA 2.5 TIMES THE DIAMETER OF THE ROOTBALL WITH COMPOSTED WOOD CHIPS IN A 3 INCH LAYER.
   D. CONTROL PLANTS AND WEEDS AROUND TREE PLANTINGS BY HAND AS NEEDED TO ENSURE SURVIVAL (NO MECHANICAL MOWING IN REFORESTATION AREA)
6. THE TREE SPECIES PLANTED SHALL MIMIC NATURAL SPECIES COMPOSITION AND DISTRIBUTION PATTERNS. AS INDICATED ON THE PLANTING DESIGN DETAIL ON THIS SHEET.
7. THE MANAGEMENT PLAN FOR THIS SITE INCLUDES THE FOLLOWING SCHEDULE OF ACTIVITIES:

YEAR 1	FEB-APRIL	SITE PREPARATION AND TREE PLANTING
	JUNE	VEGETATION CONTROL IF NEEDED
	SEPTEMBER	VEGETATION CONTROL IF NEEDED
	DECEMBER	SURVIVAL CHECK (75% MINIMUM)
YEAR 2	FEB-APRIL	REPLACEMENT TREE PLANTING IF NEEDED
	JUNE	VEGETATION CONTROL IF NEEDED
	SEPTEMBER	VEGETATION CONTROL IF NEEDED
	DECEMBER	SURVIVAL CHECK (75% MINIMUM)

FOREST CONSERVATION MAINTENANCE NOTE

IT IS THE DEVELOPER'S RESPONSIBILTY TO MAKE SURE THE PROPOSED EASEMENT MUST BE DEVOID OF TRASH, DEBRIS, STRUCTURES, FENCING, ETC. IT WILL CONTINUE TO BE THE DEVELOPER'S RESPONSIBIITY FOR THE ENTIRE 2-YEAR MAINTENANCE PERIOD.

FOREST CONSERVATION SURETY NOTE

A TOTAL OF 4.11 ACRES OF FOREST RETENTION AND 7.11 ACRES OF PLANTING (0.543 ACRES OF LANDSCAPING TO BE USED AS CREDIT TOWARDS REQUIRED FOREST CONSERVATION - LEAVING 6.567 ACRES OF PLANTING TO BE BONDED AT $0.50 PER SQUARE FOOT) ARE PROPOSED UNDER THIS PLAN. THE REQUIRED SURETY AMOUNT FOR THE RETENTION ACREAGE IS $35,806.00 ($0.20 PER SQUARE FOOT). AND THE REQUIRED SURETY AMOUNT FOR THE PLANTING (AFFORESTATION) IS $143,030.00 THE TOTAL AMOUNT OF THE REQUIRED FOREST CONSERVATION SURETY IS $178,836.00.

NOTE

ALL FOREST RETENTION, REFORESTATION AND AFFORESTATION AREAS SHOWN ON THIS PLAN SHALL BE PLACED IN A FOREST CONSERVATION EASEMENT.

POST CONSTRUCTION MANAGEMENT/MAINTENANCE BY CONTRACTOR

A 2-year Contractor's Maintenance and Monitoring Period shall begin at mobilization. Seventy five percent survivorship must be guaranteed for this period. The site shall be inspected at the end of the two-year period to ascertain survivorship and provide for replacement if necessary.

The Contractor's maintenance of new planting shall consist of watering, cultivating, weeding, and mulching as necessary to insure survival.

Contractor shall protect planting areas and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treat or replace as directed by Landscape Architect at no additional cost to Owner.

STANDARDS AND SPECIFICATIONS FOR PLANTING

1. PLANT MATERIAL SELECTION
A. Nursery grown plant materials greater than 1" caliper should meet or exceed the requirements of the International Society of Arboriculture and American Nurseryman Specifications, i.e. should be typical of the species and variety, have a normal habit of growth, be first quality, sound, vigorous, well-branched, have healthy, well furnished root systems, and be free of disease, insect pests and mechanical injuries. Planting stock seed source shall be from within Geographic Region suitable to the site.

B. Planting stock less than 1" caliper should meet the following standards
Seedling/whips:
Hardwoods -- 1/4" to 1/2" caliper with roots not less than 8" long
Shrubs - 1/8" or larger caliper with 8" root system.
Conifers -- 1/8" to 1/4" caliper with roots not less than 8" long and top height of 6" or more.

C. There shall be no root running on the site.

2. PLANTING SITE PREPARATION
Soils shall not be disturbed outside the area necessary for planting individual specimens and the removal of exotic invasive plant material.

3. PLANTING PERIOD
All material shall be planted between September 15 and May 31. Material shall not be installed when ground is frozen. Seedling Planting only between December and April.

4. PLANT MATERIAL STORAGE
Plants should be planted within 24 hours of delivery if possible. Plant material, which is left unplanted for more than 24 hours, shall be protected from direct sun and weather and kept moist. Nursery stock should not be left unplanted for more than two weeks.

5. ON-SITE INSPECTION
Prior to planting, planting stock shall be inspected by the landscape architect or other qualified professional familiar with this plan. Plant material not conforming to standard nurseryman specifications for size, form, vigor, roots, trunk wounds, insects, and disease should be replaced.

6. TOPSOIL FOR PLANTING
A. On-site material or imported from same source as topsoil used on site for finish grading.
1) Uniform composition, free of subsoil, clay lumps, stones, stumps, roots or similar objects larger than 1 inch.
2) Topsoil must be free of plants or plant parts of bermudagrass, quackgrase, Johnsongrass, nutsedge, poison ivy, Canada thistle, or others as specified. Soil must also be free of contaminants (ie: oil products, concentrated soluble salts,soluble aluminum/manganese, and herbicides, etc.)
3) All topsoil shall be tested by a recognized laboratory for pH and soluble salts. A pH of 4.5 to 7.5 is required. Soluble salts shall not be higher than 500 parts per million.

7. ADDITIVE FOR BACKFILL MIX
A. Wood Residuals:
1) Source shall be well composted, not chemically treated.
2) Physical properties - grading:

U.S. Sieve	Dry Weight Percent Passing
3/8"	100
1/4"	90-100
No. 8	70-100
No. 35	0-30

B. Organic content by ash analysis: 90 - 100 percent dry weight
1) Chemistry Range:
a. Saturation Extract Conductivity (EC) ---------- Nil - 3.5
b. Reaction (pH) ----------------------------------3.0 - 5.5
2) Salinity: Maximum saturation extract conductivity 1.0 millimhos per cm at 25 degrees centigrade.

C. Sand
1) Physical Properties - Grading:

U.S. Sieve	Dry Weight Percent Passing
No. 4	100
No. 10	90-100
No. 18	90-100
No. 35	65-100
No. 60	0-50
No. 140	0-20
No. 270	0-7

2) Chemistry:
a. Saturation Extract Conductivity (EC) ---------- Nil - 3.0
Sodium Absorption Ratio (SAR) ----------------Nil - 6.0
Boron - ppm in saturation extract solution ----Nil - 1.0
Reaction (pH) ----------------------------------6.0 - 7.5
Available calcium - sodium acetate extractable - ppm -Nil - 2000 dry weight
b. Treble Superphosphate: Commercial product containing 19 to 20 percent available phosphoric acid.

8. MULCH
A. Shredded long fiber hardwood

B. Mulch shall have been shredded within the last six (6) months.

9. PLANTING MIX
A. Planting mix shall be prepared at approved on-site staging area using approved on-site existing soil. Mix minimum Quantities of 20 cubic yards or sufficient mix for entire job if less than 20 cubic yards is required.

B. Thoroughly mixed in the following proportions for tree and shrub planting mix:
.5 cy Existing soil
.2 cy Sharp sand
.3 cy Wood residuals
4.5 lbs. Treble superphosphate
5 lbs. Dolomite limestone (eliminate for acid loving plants)

10. LAYOUT AND EXCAVATION OF PLANTING AREAS
A. Plants shall be placed in each zone at random locations shown at spacing as indicated on the plan.

B. The Landscape Architect or qualified professional will check location of plants in the field and shall adjust to exact position before planting begins.

C. Subsoil shall not be worked when moisture content is so great that excessive compaction will occur, nor when it is so dry that clods will not readily break. Water shall be applied, if necessary, to bring soil to an optimum moisture content before tilling and planting.

D. Tree pits shall not be excavated more than 24 hours in advance of planting operation.
Tree pits shall be excavated to the following dimensions:

Excavation for	Width	Depth
Canned Tree	Can + 12 in.	Can + 4 in.
B&B Trees	Ball + 12 in.	Ball + 4 in.

E. Excavate shrub pits to the following depths:

Excavation for	Width	Depth
Shrub	Ball or Can + 8 in.	Can + 4 in., not less than 12 in.

11. PREPARING PLANT MATERIALS FOR PLANTING
A. Container stock shall be removed carefully after cans have been cut on two sides with approved cutter. Do not use spade to cut cans. Do not lift or handle container plants by tops, stems or trunks at any time.

B. Do not bind or handle any plant with wire or rope at any time so as to damage bark or break branches. Lift and handle plants only from bottom of ball.

C. Balled and burlapped (B&B) plants shall have firm balls of earth. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations. B&B material shall be dug only when dormant. Pre-dug stored B&B material shall be inspected and approved at the storage site.

D. Do not force roots for bare rooted trees into excavated pits - custom dig pits to receive roots without deformation.

12. MIXING
A. Mix soil base, amendments and chemical additives by mechanical means.

B. Soil and sand bases shall be completely pulverized and free of lumps or aggregated material. Moisture content of base materials shall not be such that chemical granular or palletized additives become dissolved during the mixing process.

C. Mix media in quantities of not less than 20 cubic yards of mix total quantity required if less than 50 cubic yards. The contractor shall be responsible for continuity between batches.

D. Contaminated backfill mix with unmixed soil in backfill mixing lots shall be avoided.

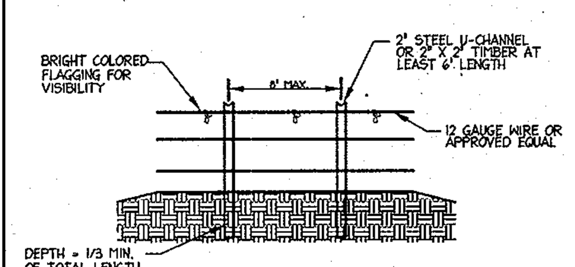
13. INSTALLATION OF PLANT MATERIAL
A. Scarify the walls and bottom of all plant pits immediately prior to the placement of plant and backfill mix. The contractor shall remove all glazing of soil caused by an auger or mechanical hole digger.

B. Wells around trees and shrubs: after planting is complete, form a soil well 3 inches high around each plant, extending to the outer limit of the plant pit in accordance with planting details shown on the drawings.

C. Smooth planted areas to conform to specified grades after full settlement has occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.

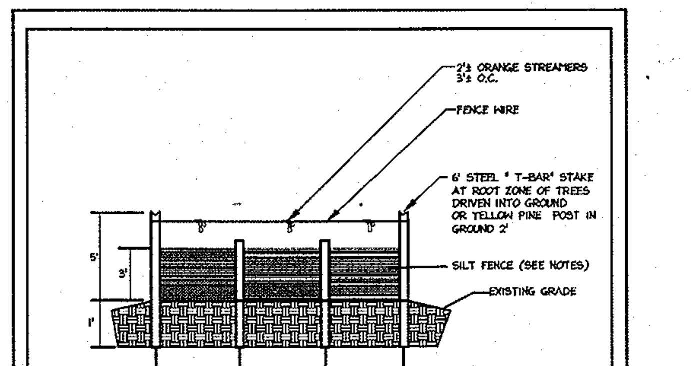
D. Water all plants immediately again after planting.

E. Spread mulch in required areas to the compacted depth of 2 inches.



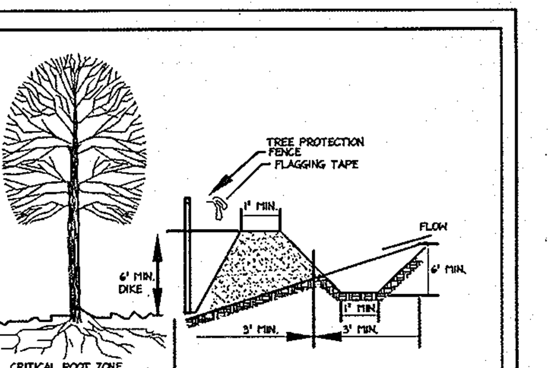
NOTES:
1. PLACE TREE PROTECTION DEVICES AS NOTED ON APPROVED TREE CONSERVATION PLAN, STAKED LIMIT OF DISTURBANCE, OR AS NOTED.
2. TREE PROTECTION DEVICES SHALL BE IN PLACE PRIOR TO PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTORS.
3. FENCE POST SHALL BE PLACED TO AVOID SEVERING OR DAMAGING LARGE TREE ROOTS (SEE ROOT PRUNING DETAIL)
4. FENCING MATERIAL SHALL BE SECURELY FASTNED TO FENCE POSTS.
5. FOREST CONSERVATION SIGNS MAY BE PLACED ON FENCE POST AS INDICATED ON APPROVED TREE CONSERVATION PLAN.
6. DEVICE TO BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DEVICE TYPE I (THREE STRAND WIRE FENCING)



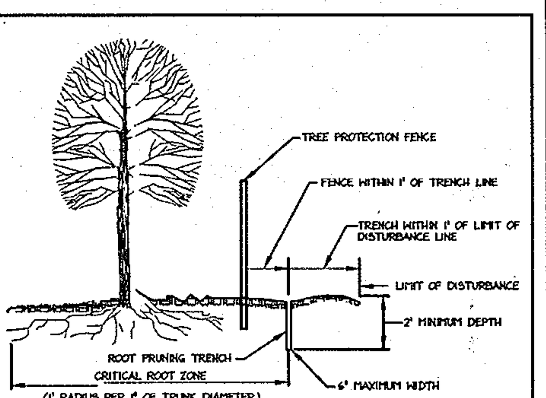
NOTES:
1. SILT FENCE TO BE INSTALLED PER SCS DETAIL.
2. WIRE, SNOW FENCE, ETC. FOR TREE PROTECTION ONLY.
3. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
4. LIMITS OF DISTURBANCE SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
5. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS. (SEE ROOT PRUNING DETAIL)
6. DEVICE SHOULD BE PROPERLY MAINTAINED THROUGHOUT CONSTRUCTION.
7. PROTECTION SIGNS MAY BE PLACED ON FENCE AS NOTED ON PLAN.
8. LOCATE FENCE OUTSIDE THE CRITICAL ROOT ZONE.

COMBINATION SILT FENCE AND TREE PROTECTION DEVICE- TYPE II



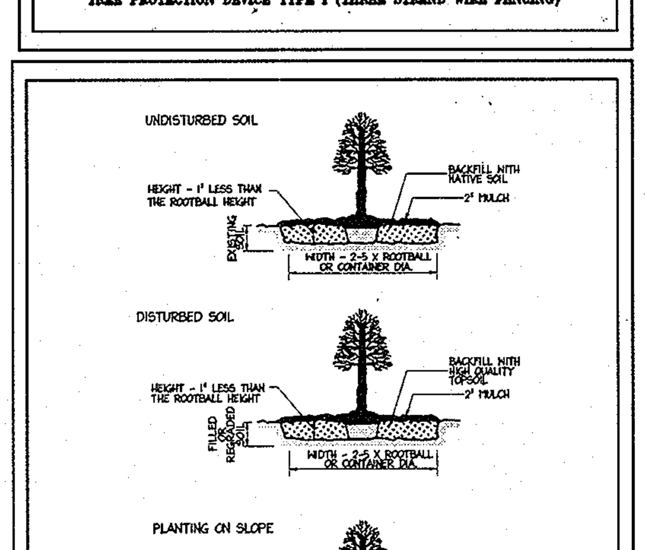
NOTES:
1. COMBINE SEDIMENT CONTROL AND FOREST PROTECTION DEVICE.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED PRIOR TO INSTALLING PROTECTION DEVICES.
4. ROOT DAMAGE SHOULD BE AVOIDED. (SEE ROOT PRUNING DETAIL)
5. TOE OF SLOPE SHOULD BE OUTSIDE THE CRITICAL ROOT ZONE.
6. EQUIPMENT IS PROHIBITED WITHIN CRITICAL ROOT ZONE OF RETENTION AREA; PLACE DIKE ACCORDINGLY.
7. ALL STANDARD MAINTENANCE OF EARTH DIKES AND SWALES APPLY TO THESE DETAILS.
8. ALL STANDARD RECLAMATION PRACTICE FOR EARTH DIKES AND SWALES SHALL APPLY TO THESE DETAILS.
9. SIGNAGE MAY BE PLACED ON POSTS AS INDICATED ON PLAN.

COMBINATION EARTH DIKE AND TREE PROTECTION DEVICE- TYPE III



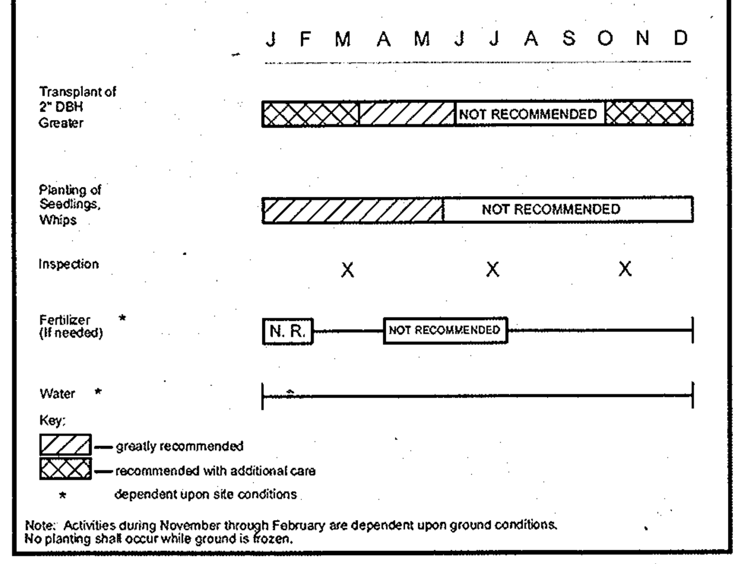
NOTES:
1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
2. BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TO TRENCHING.
3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL.
5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

ROOT PRUNING



NOTE:
TREE PIT TO BE FIVE TIMES THE ROOTBALL IS PREFERRED, PARTICULARLY IN POOR SOIL.

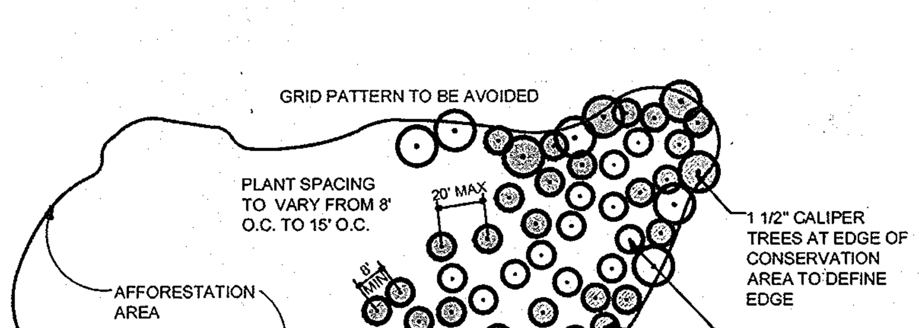
CONTAINER GROWN AND B&B PLANTING TECHNIQUES



The planting and care of trees is most successful when coordinated with the local climatic conditions. This calendar summarizes some of the recommended time frames for basic reforestation and stress reduction activities.

Tree Planting and Maintenance Calendar

General Guidelines



Planting Design Schematic

Not To Scale

PROTECTION OF REFORESTATION/AFFORESTATION AREAS BY DEVELOPERS AND BUILDERS

1. REFORESTATION AND AFFORESTATION AREAS SHALL BE PLANTED WITHIN ONE GROWING SEASON AFTER THE ROUGH STABILIZATION OF THE ROUGH GRADED SITE. IF PLANTING CANNOT OCCUR DUE TO PLANTING CONDITIONS, THE DEVELOPER OR PROPERTY OWNER SHALL INSTALL THE FENCING AND SIGNAGE IN ACCORDANCE WITH THE APPROVED FOREST CONSERVATION PLAN. PLANTING SHALL THEN BE ACCOMPLISHED DURING THE NEXT PLANTING SEASON. IF PLANTING IS DELAYED BEYOND THE TRANSFER OF THE PROPERTY TITLE TO ANOTHER PURCHASER, THE DEVELOPER SHALL OBTAIN A SIGNED STATEMENT FROM THE PURCHASER INDICATING THAT THEY UNDERSTAND THAT THE REFORESTATION AREA IS LOCATED ON THEIR PROPERTY AND THAT REFORESTATION WILL OCCUR DURING THE NEXT PLANTING SEAON. A COPY OF THAT DOCUMENT SHALL BE PRESENTED TO THE GRADING INSPECTOR AND THE DEPARTMENT OF PLANNING AND ZONING.

2. REFORESTATION AREAS ARE NOT TO BE MOWED, HOWEVER, THE MANAGEMENT OF COMPETING VEGETATION AROUND INDIVIDUAL TREES IS ACCEPTABLE.

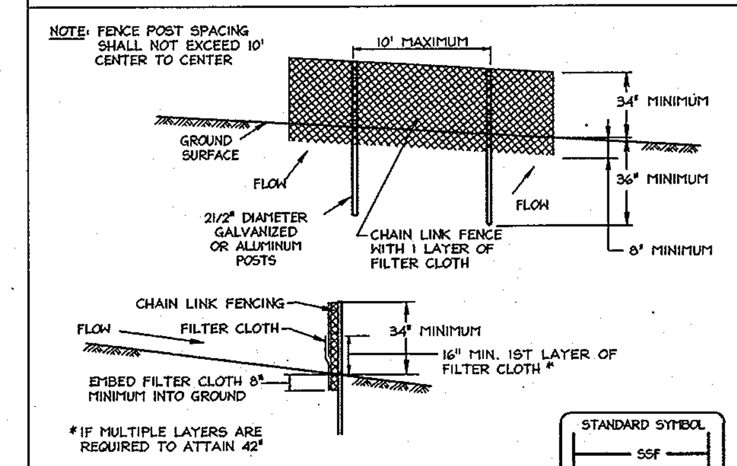
VARIABLE WIDTH PUBLIC ACCESS, FIRE ACCESS AND UTILITY EASEMENT NOTES

A. THE VARIABLE WIDTH PUBLIC ACCESS, FIRE ACCESS AND UTILITY EASEMENT NOTES WILL BE DEDICATED TO HOWARD COUNTY, MARYLAND FOR THE USE BY RECREATION AND PARKS FOR A PEDESTRIAN-ONLY PATHWAY.

B. THE PATHWAY SHALL BE NO WIDER THAN 8' AND NO EXISTING TREES SHALL BE REMOVED IN THE CONSTRUCTION OF THE PATHWAY.

C. PRIOR TO THE COMMENCEMENT OF WORK ON THE PATHWAY, IT WILL BE THE RESPONSIBILITY OF THE DEPARTMENT OF RECREATION AND PARKS TO:
1. RED-LINE THE CORRESPONDING SDP TO DEPICT THE BOUNDARY OF THE PATHWAY AND ADDRESS ANY FOREST CONSERVATION ISSUES.
2. REMOVE THE AREA OF IMPACTED FOREST CONSERVATION AREA BY AMENDING AND RE-RECORDING THE EASEMENT PLAT.
3. ADDRESS ANY ADDITIONAL FOREST CONSERVATION PLANTING OBLIGATION OFF-SITE OR VIA FEE-IN-LIEU.

DETAIL 33 - SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

Lutheran Village Reforestation Plant Calcs

Proposed reforestation plant size = 1.5-2" cal. with plant density of 100 per acre

RA #	Area Before Reduction (square feet)	Area Before Reduction (acres)	# of trees 2-2.5" caliper = 400 sq. ft.	# of trees 1-1.5" caliper = 225 sq. ft.	Total credits to be counted toward reforestation (sq. ft.)	Area After Reduction (square feet)	Area After Reduction (acres)	Original # Trees Required	New # Trees Required	
1	84,175	1.93	23	14	12350	71,825	1.649	193	174	164.9
2	11,279	0.26	8	0	3200	8,079	0.185	26	18	18.5
3	49,185	1.13	3	0	1200	47,985	1.102	113	88	110.2
4	27,578	0.63	0	0	0	27,578	0.633	63	63	63.3
5	96,965	2.23	0	0	0	96,965	2.226	223	223	222.6
6	40,336	0.93	8	17	7025	33,311	0.765	93	112	76.5
TOTAL	309518.00	7.11	42	31	23775	285743	6.560	711	678	656.0

ALL LANDSCAPE PLANT MATERIAL USED FOR FOREST CONSERVATION REFORESTATION CREDIT WILL BE NATIVE MATERIAL.

REFORESTATION PLANT SCHEDULE

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	SIZE	RFA-1 QTY	RFA-2 QTY	RFA-3 QTY	RFA-4 QTY	RFA-5 QTY	RFA-6 QTY	TOTAL
RED MAPLE	ACER RUBRUM	1.5-2" CAL	44	4	22	16	56	28	170
SYCAMORE	PLATANUS OCCIDENTALIS	1.5-2" CAL	44	4	22	16	56	28	170
SWEET GUM	LIQUIDAMBAR STYRACIFLUA	1.5-2" CAL	43	5	22	15	56	28	169
TULIP POPULAR	LIRIODENDRON TULIPIFERA	1.5-2" CAL	43	5	22	16	55	28	169
	TOTAL PER RA		174	18	88	63	223	112	678

*100 TREES PER ACRE OF REFORESTATION

4.12.2013
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC / TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)		SEWER CODE F07	

TITLE:
FOREST CONSERVATION PLAN DETAILS

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	47 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

MDC-792 (SDP)

FOREST STAND NARRATIVE

STAND 1

THIS STAND LIES ALMOST ENTIRELY WITHIN WETLAND D AND CONSISTS OF 6-12" DIAMETER BLACK WILLOW AND 5-8" RED MAPLE TREES WITH BOX ELDER AND SCATTERED BRADFORD PEAR TREES ALONG ITS OUTER EDGES. THE UNDERSTORY CONSISTS OF WETLAND GRASSES AND MULTIFLORA ROSE. THE SOILS WITHIN THIS STAND ARE MAPPED AS THE GLENVILLE AND MANOR SERIES SOILS. THE NATIVE VEGETATION IN GLENVILLE SERIES SOILS ARE WATER TOLERANT HARDWOODS AND THIS SERIES HAS A WOODLAND SUITABILITY INDEX OF 12. THE SOIL SURVEY INDICATES THAT UPLAND AREAS OF SOIL GROUP 12 ARE SUITABLE FOR PLANTING WITH LOBLOLLY PINE, VIRGINIA PINE AND LARGER STANDS OF OAKS AND POPLAR MAY BE SUCCESSFUL IF MANAGED PROPERLY. THE NATIVE VEGETATION OF THE MANOR SOILS ARE UPLAND HARDWOODS (MAINLY OAKS) WITH SOME VIRGINIA PINE PRESENT IN PLACES AND THE SERIES HAS A WOODLAND SUITABILITY INDEX OF 44. UPLAND SOILS OF GROUP 44 ARE SUITABLE FOR PLANTINGS OF WHITE PINE, VIRGINIA PINE AND OTHER CHRISTMAS TREE TYPE PINES. HOWEVER, THE WET AND SATURATED CONDITIONS OF BOTH SOIL TYPES IN WETLAND AREAS WOULD NOT BE APPROPRIATE FOR PLANTING WITH THESE SPECIES. MORE WETLAND TYPE PLANTINGS SHOULD BE PROPOSED IF THIS AREA IS TO BE PLANTED. THE RETENTION PRIORITY IS HIGH SINCE IT SURROUNDS AN EMERGENT WETLAND..

STAND 2

THIS WOODED AREA IS IN THE SOUTHEASTERN PORTION OF THE SITE IN AN OLD FIELD REGENERATION AREA. THE REGENERATION CONSISTS OF 6-10"DIAMETER BRADFORD PEAR TREES, WITH SOME SCATTERED BOX ELDER TREES THAT ARE 15-20 FEET TALL IN PLACES. THERE IS LITTLE HERBACEOUS UNDERSTORY IN THE STAND INTERIOR, BUT THERE ARE A FEW GRASSES AND WEEDS COMING INTO THE STAND PERIMETERS FROM THE WETLAND AND OPEN FIELD AREAS ADJACENT TO THE STAND. THE SOILS WITHIN THIS STAND ARE MAPPED AS MANOR SERIES SOILS. THE NATIVE VEGETATION OF THE MANOR SOILS ARE UPLAND HARDWOODS (MAINLY OAKS) WITH SOME VIRGINIA PINE PRESENT IN PLACES AND THE SERIES HAS A WOODLAND SUITABILITY INDEX OF 44. UPLAND SOILS OF GROUP 44 ARE SUITABLE FOR PLANTINGS OF OAKS AND POPLAR, BUT CAN BE PLANTED WITH WHITE PINE, VIRGINIA PINE AND OTHER CHRISTMAS TREE TYPE PINES IF MANAGED PROPERLY. THE RETENTION PRIORITY OF THIS STAND IS LOW DUE TO THE DOMINANCE OF ONE SINGULAR SPECIES (BRADFORD PEAR).

STAND 3

THIS STAND IS LOCATED IN THE EXTREME SOUTHEAST CORNER OF THE PROPERTY AND EXTENDS OFF THE SITE TO THE SOUTH. THE PRIMARY VEGETATION IS WHITE PINE (15-18"DIAMETER AND 50-60 FEET TALL). THE UNDERSTORY INCLUDES POISON IVY, WILD GARLIC AND MUSTARD PLANTS. THE SOILS WITHIN THIS STAND ARE MAPPED AS MANOR SERIES SOILS. THE NATIVE VEGETATION OF THE MANOR SOILS ARE UPLAND HARDWOODS (MAINLY OAKS) WITH SOME VIRGINIA PINE PRESENT IN PLACES AND THE SERIES HAS A WOODLAND SUITABILITY INDEX OF 44. UPLAND SOILS OF GROUP 44 ARE SUITABLE FOR PLANTINGS OF OAKS AND POPLAR, BUT CAN BE PLANTED WITH WHITE PINE, VIRGINIA PINE AND OTHER CHRISTMAS TREE TYPE PINES IF MANAGED PROPERLY. THE RETENTION PRIORITY OF THIS STAND IS LOW TO MODERATE DUE TO THE DOMINANCE OF ONE SINGULAR SPECIES (WHITE PINE) AND THE POSSIBILITY OF SCREENING DUE TO THE STAND'S PROXIMITY TO ADJOINING PROPERTIES.

STAND 4

THIS STAND IS LOCATED ALONG THE EXISTING STREAM THAT RUNS THROUGH THE CENTRAL PORTION OF THE SITE AND CONSISTS OF 8-12" SILVER MAPLE, 6-10" RED MULBERRY AND 10-15" BLACK CHERRY TREES. THE UNDERSTORY CONSISTS OF FAIRLY DENSE MULTIFLORA ROSE, JAPANESE HONEYSUCKLE AND FOX GRAPE. A MODERATE AMOUNT OF HERBACEOUS COVER IN THE FORM OF FIELD GRASSES AND WEEDS IS PRESENT IN THE OUTER PORTIONS OF THE STAND. THE SOILS WITHIN THIS STAND ARE MAPPED AS CODORUS, GLENELG AND MANOR SERIES SOILS. TYPICAL VEGETATION ON THE CODORUS SOILS CONSISTS OF MIXED HARDWOODS THAT ARE MOSTLY WATER TOLERANT OAKS. CODORUS SERIES SOILS HAVE A WOODLAND SUITABILITY INDEX OF 4, WHICH INDICATES THAT THESE SOILS ARE WELL SUITED TO HARDWOODS AND THAT LOBLOLLY AND VIRGINIA PINES SHOULD HAVE THE FIRST PRIORITY FOR PLANTING IF STANDS OF DESIRABLE HARDWOODS ARE LACKING. GLENELG SERIES SOILS ARE TYPICALLY COVERED WITH UPLAND HARDWOODS (MAINLY OAKS) AND HAVE A WOODLAND SUITABILITY INDEX OF 30. GROUP 30 SOILS ARE SUITABLE FOR OAKS, POPLAR, WHITE PINE AND VIRGINIA PINE. THE NATIVE VEGETATION OF THE MANOR SOILS ARE UPLAND HARDWOODS (MAINLY OAKS) WITH SOME VIRGINIA PINE PRESENT IN PLACES AND THE SERIES HAS A WOODLAND SUITABILITY INDEX OF 44. UPLAND SOILS OF GROUP 44 ARE SUITABLE FOR PLANTINGS OF OAKS AND POPLAR, BUT CAN BE PLANTED WITH WHITE PINE, VIRGINIA PINE AND OTHER CHRISTMAS TREE TYPE PINES IF MANAGED PROPERLY. THE RETENTION PRIORITY IS HIGH FOR THIS STAND DUE TO ITS PRESENCE ENTIRELY WITHIN A PERENNIAL STREAM BUFFER.

STAND 5

STAND 5 IS LOCATED BETWEEN STAND 4 AND PLUM TREE BRANCH AND ACTS AS A BUFFER BETWEEN FIELDS ON A NORTHEAST FACING SLOPE (15-25%). THE DOMINANT TREE SPECIES ARE 6-10" SILVER MAPLE, 4-6" BRADFORD PEAR AND 4-8" RED MULBERRY TREES. THERE IS A SPARSE UNDERSTORY OF MULTIFLORA ROSE AND JAPANESE HONEYSUCKLE WITH A SMALL AMOUNT OF HERBACEOUS GRASSES AND FIELD WEEDS IN THE OUTER PORTIONS. THE SOILS WITHIN THIS STAND ARE MAPPED AS CODORUS AND MANOR SERIES SOILS. TYPICAL VEGETATION ON THE CODORUS SOILS CONSISTS OF MIXED HARDWOODS THAT ARE MOSTLY WATER TOLERANT OAKS. CODORUS SERIES SOILS HAVE A WOODLAND SUITABILITY INDEX OF 4, WHICH INDICATES THAT THESE SOILS ARE WELL SUITED TO HARDWOODS AND THAT LOBLOLLY AND VIRGINIA PINES SHOULD HAVE THE FIRST PRIORITY FOR PLANTING IF STANDS OF DESIRABLE HARDWOODS ARE LACKING. THE NATIVE VEGETATION OF THE MANOR SOILS ARE UPLAND HARDWOODS (MAINLY OAKS) WITH SOME VIRGINIA PINE PRESENT IN PLACES AND THE SERIES HAS A WOODLAND SUITABILITY INDEX OF 44. UPLAND SOILS OF GROUP 44 ARE SUITABLE FOR PLANTINGS OF OAKS AND POPLAR, BUT CAN BE PLANTED WITH WHITE PINE, VIRGINIA PINE AND OTHER CHRISTMAS TREE TYPE PINES IF MANAGED PROPERLY. THE RETENTION PRIORITY FOR THIS STAND IS MODERATE AS IT IS ON A SLOPED AREA.

STAND 6

STAND 6 IS LOCATED ON A STEEPLY SLOPED AREA THAT LIES BETWEEN STAND 4 AND THE EXISTING CORN FIELD IN THE CENTRAL AREA OF THE SITE. THE STAND IS ESSENTIALLY A MONO-CULTURE IN THE CANOPY LAYER WITH 4-8" BLACK CHERRY TREES PRESENT. THE STAND CONTAINS THE REMNANTS OF AN OLD FARM ACCESS ROAD AND THERE IS A SCATTERED UNDERSTORY OF MULTIFLORA ROSE AND JAPANESE HONEYSUCKLE PRESENT IN THIS RECENTLY GROWN FOREST. THE SOILS WITHIN THIS STAND ARE MAPPED AS THE GLENVILLE AND MANOR SERIES SOILS. THE NATIVE VEGETATION IN GLENVILLE SERIES SOILS ARE WATER TOLERANT HARDWOODS AND THIS SERIES HAS A WOODLAND SUITABILITY INDEX OF 12. THE SOIL SURVEY INDICATES THAT UPLAND AREAS OF SOIL GROUP 12 ARE SUITABLE FOR PLANTING WITH LOBLOLLY PINE, VIRGINIA PINE AND LARGER STANDS OF OAKS AND POPLAR MAY BE SUCCESSFUL IF MANAGED PROPERLY. THE NATIVE VEGETATION OF THE MANOR SOILS ARE UPLAND HARDWOODS (MAINLY OAKS) WITH SOME VIRGINIA PINE PRESENT IN PLACES AND THE SERIES HAS A WOODLAND SUITABILITY INDEX OF 44. UPLAND SOILS OF GROUP 44 ARE SUITABLE FOR PLANTINGS OF WHITE PINE, VIRGINIA PINE AND OTHER CHRISTMAS TREE TYPE PINES. THE RETENTION PRIORITY IS MODERATE FOR THIS STAND DUE TO ITS LOCATION ON A SLOPED AREA.

STAND 7

STAND 7 IS LOCATED ADJACENT TO STAND 6 AND LIES BETWEEN THE EXISTING POND (#3) AND THE CORN FIELD ON MODERATE TO STEEPLY SLOPED AREAS. THE STAND IS DOMINATED BY 4-8" BLACK CHERRY, 2-5" MOCKERNUT HICKORY AND 4-6" BRADFORD PEAR TREES. THERE IS A MODERATELY DENSE UNDERSTORY CONSISTING OF FLOWERING DOGWOOD, AND MULTIFLORA ROSE. THERE ARE SOME HERBACEOUS PLANTS (GRASSES AND WEEDS) IN THE OUTER AREAS OF THE STAND. THE SOILS WITHIN THIS STAND ARE MAPPED AS THE GLENVILLE AND MANOR SERIES SOILS. THE NATIVE VEGETATION IN GLENVILLE SERIES SOILS ARE WATER TOLERANT HARDWOODS AND THIS SERIES HAS A WOODLAND SUITABILITY INDEX OF 12. THE SOIL SURVEY INDICATES THAT UPLAND AREAS OF SOIL GROUP 12 ARE SUITABLE FOR PLANTING WITH LOBLOLLY PINE, VIRGINIA PINE AND LARGER STANDS OF OAKS AND POPLAR MAY BE SUCCESSFUL IF MANAGED PROPERLY. THE NATIVE VEGETATION OF THE MANOR SOILS ARE UPLAND HARDWOODS (MAINLY OAKS) WITH SOME VIRGINIA PINE PRESENT IN PLACES AND THE SERIES HAS A WOODLAND SUITABILITY INDEX OF 44. UPLAND SOILS OF GROUP 44 ARE SUITABLE FOR PLANTINGS OF WHITE PINE, VIRGINIA PINE AND OTHER CHRISTMAS TREE TYPE PINES. THE RETENTION PRIORITY FOR THIS STAND IS HIGH GIVEN IT'S LOCATION WITHIN A STEEP SLOPE AND PROXIMITY TO THE OPEN WATER POND.

NOTES FROM FOREST STAND DELINEATION

1. GROSS TRACT AREA: 49.88 ACRES
2. 100 YEAR FLOODPLAIN AREA: 2.30 ACRES
3. FORESTED FLOODPLAIN AREA: 0.12 ACRES
4. EXISTING FORESTED AREA (NON-FLOODPLAIN): 6.87 ACRES
5. THERE ARE NO AREAS OF 25% OR GREATER SLOPES MORE THAN 20,000 S.F. EXISTING ON THE SITE.

SOILS

Map Unit Symbol	Revised Unit Symbol	Name	Slope	K-factor	Hydric
Co	Co	Codorus Silt Loam	--	0.49	Yes
Cs	Cs	Comus Silt Loam	--	-	No
GIB2	(GgB)	Glenelg Loam	3-8%, Mod-Eroded	0.20	No
GIC2	(GgC)	Glenelg Loam	8-15%, Mod-Eroded	0.20	No
GIC3	(GgC)	Glenelg Loam	8-15%, Severely-Eroded	0.20	No
GnB2	(GmB)	Glenville Silt Loam	3-8%, Mod-Eroded	0.37	No
MIB2	(MaB)	Manor Loam	3-8%, Mod-Eroded	0.24	No
MIC2	(MaC)	Manor Loam	8-15%, Mod-Eroded	0.24	No
MIC3	(MaC)	Manor Loam	8-15%, Severely-Eroded	0.24	No
MID3	(MaD)	Manor Loam	15-25%, Severely-Eroded	0.24	No

HEDGEROW 1

THIS HEDGEROW BUFFERS THE NORTHEAST EDGE OF THE PROPERTY FROM THE ADJACENT FARM TO THE EAST. IT CONSISTS MAINLY OF SILVER MAPLE AND BLACK CHERRY WITH AN UNDERSTORY OF HONEYSUCKLE. RETENTION PRIORITY FOR THIS HEDGEROW IS MODERATE SINCE IT OFFERS SCREENING FROM THE ADJACENT PROPERTY AND FREDERICK ROAD.

HEDGEROW 2

THIS HEDGEROW SURROUNDS THE EXISTING FARM POND IN THE NORTHEAST CORNER OF THE PROPERTY. PRIMARY VEGETATION IS SILVER MAPLE (12-18") AND BLACK WILLOW (12-15"). RETENTION PRIORITY FOR THIS HEDGEROW IS HIGH DUE TO IT'S PROXIMITY TO THE POND AND WETLANDS.

HEDGEROW 3

THIS HEDGEROW RUNS ALONG PLUMTREE BRANCH ON THE WEST SIDE OF THE PROPERTY AND ALSO SERVES AS A BUFFER TO ADJACENT PROPERTY. IT IS SEPARATED FROM THE STREAM BY A CLEARED SEWER RIGHT OF WAY. IT CONTAINS THREE DIFFERENT PODS OF TREES CONNECTED WITH SHRUB AND BRUSHY AREAS ALONG ITS ALIGNMENT. PRIMARY VEGETATION CONSISTS OF SILVER MAPLE (8-12"), MULBERRY (6"), BLACK WALNUT (6-10") WITH AN UNDERSTORY OF MULTIFLORA ROSE AND BLACKBERRY. THE HERBACEOUS LAYER INCLUDES GARLIC MUSTARD, GRASSES AND JEWELWEED. DUE TO A PORTION OF THE HEDGEROW BEING LOCATED IN THE STREAM BUFFER AND WETLANDS THIS AREA IS CONSIDERED TO HAVE A MODERATE PRIORITY.

HEDGEROW 4

THIS HEDGEROW IS LOCATED ALONG THE TRIBUTARY OF THE FARM POND AND EXTENDS AROUND THE POND TO STAND 4. PRIMARY VEGETATION IS BLACK CHERRY (6-10") AND MULBERRY WITH AN UNDERSTORY OF MULTIFLORA ROSE AND HONEYSUCKLE. DUE TO ITS LOCATION IN THE STREAM BUFFER, THE RETENTION PRIORITY FOR THIS HEDGEROW IS MODERATE. THE PRESENCE OF INVASIVES KEEPS THIS HEDGEROW FROM BEING DESIGNATED AS HIGH PRIORITY.

HEDGEROW 5

THIS HEDGEROW IS LOCATED PERPENDICULAR TO HEDGEROW 6, AND BETWEEN HEDGEROWS 4 & 6. PRIMARY VEGETATION IS BLACK CHERRY (6-10") AND MULBERRY WITH AN UNDERSTORY OF MULTIFLORA ROSE AND HONEYSUCKLE. DUE TO THE LOCATION AND INVASIVE SPECIES RETENTION PRIORITY FOR THIS HEDGEROW IS LOW.

HEDGEROW 6

THIS HEDGEROW IS SITUATED ALONG THE WESTERN PROPERTY BOUNDARY AND COULD SERVE AS A BUFFER BETWEEN THE PROPOSED DEVELOPMENT AND THE ADJACENT PROPERTY. PRIMARY VEGETATION IS BLACK CHERRY, COMMON PEAR, AND MULBERRY WITH AN UNDERSTORY OF MULTIFLORA ROSE. THE HERBACEOUS LAYER INCLUDES GARLIC, MUSTARD AND HONEYSUCKLE. RETENTION PRIORITY FOR THIS HEDGEROW IS MODERATE DUE TO ITS ABILITY TO PROVIDE A BUFFER TO ADJACENT PROPERTIES.

HEDGEROW 7

THIS HEDGEROW IS SITUATED ALONG THE EASTERN PROPERTY BOUNDARY AND COULD SERVE AS A BUFFER BETWEEN THE PROPOSED DEVELOPMENT AND THE ADJACENT PROPERTY. PRIMARY VEGETATION IS RED OAK, RED MAPLE, BLACK GUM, AND BLACK CHERRY. THERE ARE ALSO SEVERAL INDIVIDUAL SYCAMORES AND BLACK WALNUT TREES. THE AVERAGE DIAMETER RANGES BETWEEN 7-12", WITH AN UNDERSTORY OF GREENBRIER AND MULTIFLORA ROSE. RETENTION PRIORITY FOR THIS HEDGEROW IS HIGH DUE TO ITS LOCATION WITHIN THE BUFFER TO PLUMTREE BRANCH (A PERENNIAL STREAM) AND THE POTENTIAL TO PROVIDE A BUFFER TO ADJACENT PROPERTIES.

PLANTED TREE AREA

THIS AREA WAS PLANTED IN 2005 BY MR. MILLER AND IS NOT PART OF ANY FOREST CONSERVATION PLAN OR PROJECT. IT CONSISTS OF WHITE OAK, PIN OAK, AND CHESTNUT OAK SEEDLINGS PROTECTED BY PLASTIC TREE SHELTERS. IT HAS BEEN MAINTAINED (MOWING BETWEEN ROWS) BY THE OWNER. NO PLANTING PLAN WAS PREPARED FOR THE AREA, BUT THERE ARE 26 ROWS OF 30 TREES WITH AN APPROXIMATE NUMBER OF TREES PLANTED IS 750, GIVEN AN 8' ON CENTER SPACING. CURRENTLY, THE AREA DOES NOT MEET THE DEFINITION OF A FOREST.

FOREST CONSERVATION CALCULATIONS

BASIC SITE DATA	ACRES
A. GROSS SITE AREA	49.88
B. AREA WITHIN 100 YEAR FLOODPLAIN	2.30
C. MISC. AREA	0.00
D. NET TRACT AREA	47.58
LAND USE CATEGORY	HDR
E. AFFORESTATION THRESHOLD (15% X A)	7.14
F. CONSERVATION THRESHOLD (20% X A)	9.52
EXISTING FOREST COVER	
G. EXISTING FOREST ON NET TRACT AREA (EXCLUDING FORESTED FLOODPLAIN)	6.87
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	0.00
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	0.00
BREAK EVEN POINT	
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	6.87
K. CLEARING PERMITTED WITHOUT MITIGATION	0.00
PROPOSED FOREST CLEARING	
L. TOTAL AREA OF FOREST TO BE CLEARED	2.76
M. TOTAL AREA OF FOREST TO BE RETAINED	4.11
PLANTING REQUIREMENTS	
N. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD	0.00
P. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	5.52
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD	0.00
R. TOTAL REFORESTATION REQUIRED	5.52
S. TOTAL AFFORESTATION REQUIRED	0.27
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED	5.79

NOTE:

LIMIT OF DISTURBANCE SHOWN GRAPHICALLY FOR CLARITY. ACTUAL LIMIT OF DISTURBANCE SHALL BE JUST OUTSIDE OF SEDIMENT CONTROLS AND SHALL BE LOCATED ON THE PROPERTY IN QUESTION.

11" MINIMUM | 15" MINIMUM

FOREST CONSERVATION AREA

REFORESTATION PROJECT

Trees for Your Future

Permanent Signage

Not To Scale

PLAN SYMBOL = ■

(TO REMAIN IN PERPETUITY)

11" MINIMUM | 15" MINIMUM

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS PROHIBITED

VIOLATORS ARE SUBJECT TO FINES IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

Signs May Not be Attached to Trees.

Temporary Signage

Not To Scale

PLAN SYMBOL = ▼

TEMPORARY SIGNAGE IS USED IN AREAS WHERE CONSTRUCTION AND GRADING WILL OCCUR PRIOR TO REFORESTATION. PERMANENT SIGNAGE WILL BE PLACED AROUND THE REFORESTATION ONCE IT IS IN PLACE.

WOODLAND CLEARING AREAS

AREA# (CA)	TOTAL AREA	
CA-1	1,742 SQ.FT.	0.04 AC.
CA-2	9,400 SQ.FT.	0.22 AC.
CA-3	30,056 SQ.FT.	0.69 AC.
CA-4	66,818 SQ.FT.	1.53 AC.
CA-5	12,405 SQ.FT.	0.28 AC.
SITE TOTAL WOODLAND CLEARING	120,421 SQ.FT.	2.76 AC.

FOREST CONSERVATION EASEMENT RETENTION AREAS

RFCE #	TOTAL AREA	
RTA-1	12,380 SQ.FT.	0.28 AC
RTA-2	27,134 SQ.FT.	0.62 AC
RTA-3	134,599 SQ.FT.	3.09 AC
RTA-4	5,331 SQ.FT.	0.12 AC
SITE TOTAL FOREST RETENTION	179,444 SQ.FT.	4.11 AC

REFORESTATION AREAS

AREA#	TOTAL AREA		REASON FOR PRIORITY
RFA-1	84,175 SQ.FT.	1.93 AC	FP, WB, SB
RFA-2	11,279 SQ.FT.	0.26 AC.	SB, FP, WB
RFA-3	49,185 SQ.FT.	1.13 AC.	FP, SB, WB
RFA-4	27,578 SQ.FT.	0.63 AC.	FP, ST, SB
RFA-5	96,965 SQ.FT.	2.23 AC.	FP, SB
RFA-6	40,336 SQ.FT.	0.93 AC.	WL, WB, ST, SB
SITE TOTAL REFORESTATION	309,518 SQ.FT.	7.11 AC.	

ENVIROMENTAL PRIORITY AREAS KEY:
FP = FLOODPLAIN
WL = WETLAND
WB = WETLAND BUFFER
ST = STREAM
SB = STREAM BUFFER

STREAM BUFFERS IN FOREST CONSERVATION

AREA# (CA)	TOTAL STREAM BUFFER AREA		WIDTH OF BUFFER
FCE-1	37,143 SQ.FT.	0.85 AC	75 FEET
FCE-2	66,388 SQ.FT.	1.52 AC.	75 FEET
FCE-3	23,175 SQ.FT.	0.53 AC.	75 FEET
FCE-4	46,796 SQ.FT.	1.08 AC.	75 AND 50 FEET
SITE TOTAL REFORESTATION	173,503 SQ.FT.	3.98 AC.	

FOREST CONSERVATION EASEMENT 1

SHEET	TOTAL AREA	
REFORESTATION AREA 1		
44	80,900 SQ.FT.	1.85 AC.
46	3,275 SQ.FT.	0.08 AC.
TOTAL	84,175 SQ.FT.	1.93 AC.
WETLAND AREA*		
	20,003 SQ.FT.	0.46 AC.
FCE-1 SITE TOTAL	105,688 SQ.FT	2.39 AC.

* WETLAND AREA ADDED TO FOREST CONSERVATION EASEMENT FOR CLARITY PURPOSES. THIS AREA WAS NOT COUNTED TOWARD RETENTION AND IS NOT TO BE REFORESTED.

FOREST CONSERVATION EASEMENT 3

SHEET	TOTAL AREA	
REFORESTATION AREA 4		
46-TOTAL	27,578 SQ.FT.	0.63 AC.
FCE-3 SITE TOTAL	27,578 SQ.FT.	0.63 AC.

FOREST CONSERVATION EASEMENT 4

SHEET	TOTAL AREA	
REFORESTATION AREA 5		
45	3,006 SQ.FT.	0.07 AC.
46	93,959 SQ.FT.	2.16 AC.
TOTAL	96,965 SQ.FT.	2.23 AC.
REFORESTATION AREA 6		
45-TOTAL	40,336 SQ.FT.	0.93 AC.
RETENTION AREA 3		
45	20,790 SQ.FT.	0.48 AC.
46	113,809 SQ.FT.	2.61 AC.
TOTAL	134,599 SQ.FT.	3.09 AC.
RETENTION AREA 4		
45	3,486 SQ.FT.	0.08 AC.
46	1,845 SQ.FT.	0.04 AC.
TOTAL	5,331 SQ.FT.	0.12 AC.
WETLAND AREA*		
	18,823 SQ.FT.	0.43 AC.
FCE-4 SITE TOTAL	296,054 SQ.FT.	6.80 AC.

* WETLAND AREA ADDED TO FOREST CONSERVATION EASEMENT FOR CLARITY PURPOSES. THIS AREA WAS NOT COUNTED TOWARD RETENTION AND IS NOT TO BE REFORESTED.

FOREST CONSERVATION EASEMENT 2

REFORESTATION AREAS FOR FCE-2

SHEET	TOTAL AREA	
REFORESTATION AREA 2		
44	898 SQ.FT.	0.02 AC.
45	3,521 SQ.FT.	0.08 AC.
46	6,860 SQ.FT.	0.16 AC.
TOTAL	11,279 SQ.FT.	0.26 AC.
REFORESTATION AREA 3		
46	41,425 SQ.FT.	0.95 AC.
46	7,760 SQ.FT.	0.18 AC.
TOTAL	49,185 SQ.FT.	1.13 AC.
TOTAL REFORESTATION FOR FCE-2	60,464 SQ.FT.	1.39 AC.

RETENTION AREAS FOR FCE-2

SHEET	TOTAL AREA	
RETENTION AREA 1		
44	442 SQ.FT.	0.01 AC.
45	5,760 SQ.FT.	0.13 AC.
46	6,178 SQ.FT.	0.14 AC.
TOTAL	12,380 SQ.FT.	0.28 AC.
RETENTION AREA 2		
46	12,620 SQ.FT.	0.29 AC.
46	1,272 SQ.FT.	0.03 AC.
46	13,242 SQ.FT.	0.30 AC.
TOTAL	27,134 SQ.FT.	0.62 AC.
TOTAL RETENTION FOR FCE-2	40,068 SQ.FT.	0.90 AC.

FORESTED FLOODPLAIN AREA*

	5334 SQ.FT.	0.12 AC.
FCE-2 SITE TOTAL	105,142 SQ.FT.	2.41 AC.

* FORESTED FLOOD PLAIN AREA IS INCLUDED IN THE FOREST CONSERVATION EASEMENT HOWEVER IT DOES NOT COUNT TOWARD RETENTION CALCULATIONS. THESE AREAS WERE ADDED PURELY FOR CLARITY AND SIMPLIFICATION OF THE FOREST CONSERVATION EASEMENT LINE.

FOREST STAND ANALYSIS TABLE

KEY	A. TYPE OF COMMUNITY	B. AREA	C. SOIL INFORMATION: SOIL TYPES	TYPICAL FOREST COVER FOR SOIL TYPE	WOODLAND SUITABILITY INDEX	D. EXISTING VEGETATION (DOMINANT SPECIES APPROXIMATE %)	E. STAND CHARACTERISTICS: SIZE (DIAM)	AGE	GENERAL CONDITIONS	F. FOREST AREA IN SENSITIVE ENVIRONMENTS (ACRES)	F. HABITAT VALUE (ACRES)
STAND 1	F	0.62 AC	GnB2 MIC2	WATER TOLERANT HARDWOODS	GnB2 - 12 MIC2 - 44	40% BLACK WILLOW 40% RED MAPLE 20% BOX ELDER	12" 4" 3"	10	GOOD	0.55	2 1
STAND 2	F	1.93 AC	MID3 MIC3	MIXED UPLAND HARDWOOD MAINLY OAKS	MID3/C3 - 44	85% BRADFORD PEAR 15% BOX ELDER	6" 4"	10	GOOD	0.02	2
STAND 3	F	2.17 AC	MIB2 MIC3	MIXED UPLAND HARDWOOD MAINLY OAKS	MIC3/B2 - 44	100% WHITE PINE	18"	25+	GOOD	0.00	2
STAND 4	F	0.71 AC	Co MID3 GIC2	MIXED HARDWOODS WATER TOLERANT OAKS MIXED UPLAND HARDWOOD MAINLY OAKS	CO - 4 MID3 - 44 GIC2 - 30	60% SILVER MAPLE 10% BLACK CHERRY 30% MULBERRY	8-12" 10-15" 6-10"	15-20	GOOD	0.68	1 2 1
STAND 5	F	0.41 AC	Co MID3	MIXED HARDWOODS WATER TOLERANT OAKS MIXED UPLAND HARDWOOD MAINLY OAKS	CO - 56 MID3 - 44	60% SILVER MAPLE 30% BRADFORD PEAR 10% MULBERRY	6-10" 4-6" 4-8"	15-20	GOOD	0.03	1 2
STAND 6	F	0.55 AC	GnB2 MID2	MIXED UPLAND HARDWOOD MAINLY OAKS WATER TOLERANT OAKS	GnB2 - 12 MID3 - 44	100% BLACK CHERRY	4-8"	15-20	GOOD	0.02	2 1
STAND 7	F	0.48 AC	GnB2 MID2	MIXED UPLAND HARDWOOD MAINLY OAKS WATER TOLERANT OAKS	GnB2 - 12 MID3 - 44	60% BLACK CHERRY 10% MOCKERNUT HICKORY 30% BRADFORD PEAR	4-8" 2-5" 4-6"	15-20	GOOD	0.04	2 1

GENERAL NOTES:

1. NO RARE, THREATENED OR ENDANGERED SPECIES OR HABITATS WERE OBSERVED DURING ANY SITE VISIT.
2. NO SPECIMEN TREES WERE OBSERVED ON SITE.
3. THE TOPOGRAPHY AND SITE BOUNDARY WERE PREPARED BY christopher consultants, ON APPROXIMATELY MAY, 2007. THE EXISTING TOPOGRAPHY IS BASED ON A FIELD RUN SURVEY WITH TWO FOOT CONTOURS.
4. WETLANDS DELINEATION AS SHOWN WAS PREPARED BY christopher consultants, ltd. IN SEPTEMBER, 2005 AND APPROVED BY THE US ARMY CORPS OF ENGINEERS AS OF SEPTEMBER 29, 2005 (#05-66-022-11) AND UPDATED FEBRUARY 2009.
5. THERE ARE NO CEMETERIES, HISTORIC STRUCTURES, OR RESOURCES ON THE SITE.
6. A 100-YEAR FLOODPLAIN EASEMENT WAS PREPARED BY christopher consultants, ltd. USING A STUDY COMPLETED BY PATTON HARRIS RUST AND ASSOCIATES (WHICH WAS COMPLETED IN AUGUST OF 2009 ON SDP-09-058). THE SIZE OF THE EASEMENT ON THE PROPERTY IS 2.30 AC.
7. THE TREE PLANTING AREA ADJACENT TO FREDERICK ROAD IS NOT RELATED TO ANY FOREST CONSERVATION PLAN FOR DEVELOPMENT IN THE COUNTY. IT WAS A PROJECT OF THE PREVIOUS LANDOWNER, "MR. MILLER" AND MAY BE USED TO MEET REQUIREMENTS OF THIS PROJECT IF POSSIBLE.
8. THIS SITE IS LOCATED IN THE LITTLE PATUXENT RIVER WATERSHED (2131105A).
9. BEARINGS AND DISTANCES FOR THE FOREST CONSERVATION EASEMENT CAN BE FOUND ON PLAT #F-10-083., PLAT NOS. 22346 - 22353.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division NY — Date 4/26/13

Chief, Division of Land Development — Date 4/26/13

Director — Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

4.12.2013
DATE
LANDSCAPE ARCHITECT LICENSE No. 3444 LESHANDA N. GIBBS STATE OF MARYLAND

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

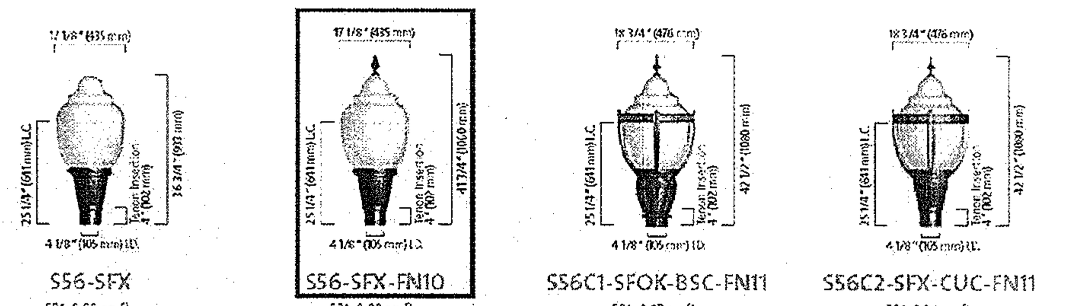
TITLE: FOREST CONSERVATION PLAN DETAILS

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	48 OF 77
CHECKED: ENJ	APPROVED: WRZ	

SDP-08-075

MDC-792 (SDP)

> Luminaires



S56-SFX — EPA: 2.02 sq. ft. Weight: 67 lbs (30.39 kg)
S56-SFX-FN10 — EPA: 2.02 sq. ft. Weight: 67 lbs (30.39 kg)
S56C1-SFOK-BSC-FN11 — EPA: 2.37 sq. ft. Weight: 71 lbs (32.21 kg)
S56C2-SFX-CUC-FN11 — EPA: 2.34 sq. ft. Weight: 71 lbs (32.21 kg)

> Luminaire options

HS	House shield
BC	Block connector
TN3	Adaptor to fit over a 3" (76 mm) O.D. by 4" (102 mm) long tenon
TN3.5	Adaptor to fit over a 3 1/2" (89 mm) O.D. by 4" (102 mm) long tenon
FNC	Copper-colored painted finial
FS	Fusing (consult factory)
PH8	Photoelectric cell
S55C1/S55C2/S56C1/S56C2	
BS	Brass decorative band
BSC	Brass decorative band, protected by a polyester clear coat
CU	Copper decorative bands, located on the ring gard
CUC	Copper decorative band, protected by a polyester clear coat
S55/S55C1/S55C2	
CPT	Copper cupola
CPTC	Copper cupola, protected by a polyester clear coat
BST	Brass decorative cupola
BSTC	Brass decorative cupola, protected by a polyester clear coat
S55	
CR55	Decorative crown

FINIALS: FN1 FN2 FN3 FN4 FN8 FN9 FN10 FN11

> Mountings
(Consult the Pole Guide for details and the complete line of mountings)

CRA CRC CRD CRE CRF

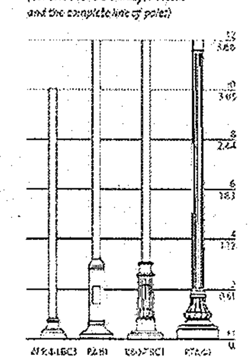
> Configurations

1A 2 2A 3A 3B 4 4A 5 M

> Finishes

The specially formulated Lumital powder coat finish is available in a range of many standard colors. *(Consult Lumec's Color Chart for complete specifications)*

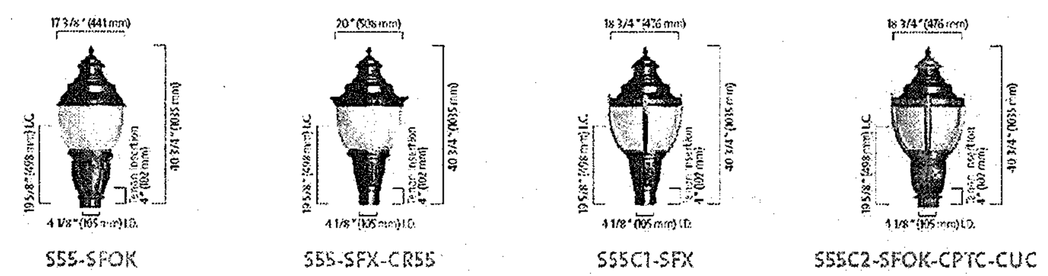
> Poles and Pole options
(Consult the Pole Guide for details and the complete line of poles)



REESE ENGINEERING

Type: SD
Manufacturer: GARDCO
Catalog No: #EH14-2-3-150-XX

> Luminaires *(Luminaires are UL and CSA approved)*



S55-SFOK — EPA: 2.25 sq. ft. Weight: 58 lbs (26.31 kg)
S55-SFX-CR55 — EPA: 2.50 sq. ft. Weight: 63 lbs (28.58 kg)
S55C1-SFX — EPA: 2.60 sq. ft. Weight: 62 lbs (28.12 kg)
S55C2-SFOK-CPTC-CUC — EPA: 2.57 sq. ft. Weight: 62 lbs (28.12 kg)

> These globes are available with the following materials / GL: Glass / PC: Clear polycarbonate / ACDR: Acrylic UC

> HID Lamps *(High Intensity Discharge)*

Wattage	GL DSX3	GL DSX5	GL DSH3	GL DSH5	ACDR/PC DSX3	ACDR/PC DSX5	ACDR/PC DSH3	ACDR/PC DSH5
50 MH, medium	✓	✓	✓	✓	✓	✓	✓	✓
70 MH, medium	✓	✓	✓	✓	✓	✓	✓	✓
100 MH, medium	✓	✓	✓	✓	✓	✓	✓	✓
150 MH, medium	✓	✓	✓	✓	✓	✓	✓	✓
175 MH, mogul	✓	✓	✓	✓	✓	✓	✓	✓
200 MH, mogul	✓	✓	✓	✓	N/A	N/A	N/A	N/A
250 MH, mogul	✓	✓	✓	✓	N/A	N/A	N/A	N/A
35 HPS, medium	✓	✓	✓	✓	✓	✓	✓	✓
50 HPS, mogul	✓	✓	✓	✓	✓	✓	✓	✓
70 HPS, mogul	✓	✓	✓	✓	✓	✓	✓	✓
100 HPS, mogul	✓	✓	✓	✓	✓	✓	✓	✓
150 HPS, mogul	✓	✓	✓	✓	✓	✓	✓	✓
200 HPS, mogul	✓	✓	✓	✓	N/A	N/A	N/A	N/A
250 HPS, mogul	✓	✓	✓	✓	N/A	N/A	N/A	N/A

✓: Available N/A: Not available

> QL Lamps

Wattage	DSX5
55QL	✓
85QL	✓

High frequency generator for induction lamp (4000K). Instant start. Operating range 50-60 Hz or DC. Lamp starting capacity of -40F (-40 °C). *(Lamps included)*

> Voltages

120 / 208 / 240 / 277 / 347* / 480*
*not available for QL lamp

> Optical system *(Lamps not included)*

DSX Optics — Optical system made of a hydroformed reflector sealed on a prismatic globe. | DSX3 / Asymmetrical Cutoff; DSX5 / Symmetrical Cutoff; > House shield available in option (HS)

DSH Optics — Optical system made of a hydroformed reflector sealed on a prismatic globe. | DSH3 / Asymmetrical - Extensive Non-Cutoff; DSH5 / Symmetrical - Extensive Non-Cutoff; > House shield available in option (HS)

* Photometry available on Lumec web site www.lumec.com

> Optical systems lamps QL *(Lamps included)*

DSX Optics — Optical system made of a hydroformed reflector sealed on a prismatic globe. | DSX5 / Symmetrical Cutoff; > House shield available in option (HS)

* Photometry available on Lumec web site www.lumec.com

> Adaptors

SFX SFOK

Type:

FORM 10 SQUARE
EH/H/HT ARM MOUNT

GARDCO LIGHTING

GENERAL DESCRIPTION: The Gardco arm mounted Square Form 10 products are cutoff luminaires for high intensity discharge lamps up to 1000 watts. The EH units are manufactured from mitered extruded aluminum and finished in an Architectural Class 1 anodizing. The H and HT style luminaires are dieformed aluminum with a thermoset polyester finish. Both products can accept one of six (6) interchangeable and rotatable precision segmented optical systems.

CUTOFF PERFORMANCE: Flat glass lens luminaires provide full cutoff performance. Sag Lens luminaires provide cutoff performance.

ORDERING

PREFIX – MOUNTING – DISTRIBUTION – WATTAGE – VOLTAGE – FINISH – OPTIONS

Enter the order code into the appropriate box above. Note: Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

PREFIX
- EH14 14" Square Extruded Luminaire
- EH19 19" Square Extruded Luminaire
- H14 14" Square Fabricated Luminaire
- H19 19" Square Fabricated Luminaire
- HT19 19" Tall Square Fabricated Luminaire
- H26 26" Square Fabricated Luminaire

MOUNTING
- 1 Single Assembly
- 2 Twin Assembly
- 2@90 Twin Assembly at 90°
- 3 Triple at 90°
- 3@120 Triple at 120°
- 4 Quad Assembly

DISTRIBUTION
- 1 Type I
- 2 Type II
- 3 Type III
- 4X Type IV
- FM Type IV
- Q Type V
- VS Type V (Vertical Lamp)

WATTAGE

	EH/H 14"	EH/H 19"		HT 19"	H 26"
Pulse Start MH Magnetic Ballast	100MH, 150MH, 175PSMH, 200MH	250PSMH, 320PSMH, 350PSMH	400PSMH, 450PSMH	750PSMH, 775PSMH, 875PSMH	750PSMH, 775PSMH, 875PSMH, 1000PSMH
CosmoPolis™ Electronic System	60CMPE, 140CMPE				
MasterColor® Elite Electronic System		210MCE	315MCE		
Pulse Start MH Electronic Ballast		250PSE	320PSE	350PSE, 400PSE	
Standard MH Magnetic Ballast*	175MH*, 250MH*	250MH*	400MH*	400MH*	1000MH
High Pressure Sodium Magnetic Ballast	70HPS, 100HPS, 150HPS	200HPS, 250HPS, 400HPS		400HPS, 600HPS, 750HPS	750HPS, 1000HPS

* 175MH, 250MH and 400MH not available for sale in the United States.

VOLTAGE
120 208 QUAD
240 277
347 480 200-277

FINISH
EH14, EH19 and H26
- BLA Black Anodized
- BRA Bronze Anodized
- NA Natural Aluminum Anodized
- OC Optional Color Paint
- SC Special Color Paint

H14, H19, HT19 and H26
- BRP Bronze Paint
- BLP Black Paint
- OC Optional Color Paint
- SC Special Color Paint

OPTIONS
- F Fusing
- LF In-Line/In-Pole Fusing
- PC Photocontrol and Receptacle
- PCR Photocontrol Receptacle only
- POLY Polycarbonate Sag Lens
- HS Internal Houseside Shield
- QS Quartz Standby
- QST Quartz Standby - Timed Delay
- XF Extended Flat Glass Lens
- SG Sag Glass Lens
- CD Clear Drop Diffuser
- MF Mast Arm Fitter
- MU 10° Uptilt Bracket
- UB Quick Disconnect for Ballast Tray
- AP Adjustable Knuckle - Pole Mount
- AT Adjustable Knuckle - Tenon Mount
- PTF2 Pole Top Fitter - 2 3/8" - 3" Dia. Tenon
- PTF3 Pole Top Fitter - 3" - 3 1/2" Dia. Tenon
- PTF4 Pole Top Fitter - 3 1/2" - 4" Dia. Tenon
- GDR Provision for Gardco Demand Response

Gardco Lighting 1611 Clovis Barker Road San Marcos, TX 78666 (800) 227-0758 (512) 753-1000 FAX: (512) 753-7855 www.sitelighting.com

Gardco is a Philips group brand

PHILIPS

REESE

Type: SB
Manufacturer: LUMEC
Catalog No: #S56-FN10-DSX3-HS2
TWIN HEAD

McGRAW-EDISON®

Catalog #	CLM-AM-400-MH-MT-FG-BK	Type
Project		
Comments		Date
Prepared by		06/10/2008

DESCRIPTION
McGraw-Edison's CLM combines classic form and versatility to make it an excellent choice for architects, specifiers and contractors in today's energy- and design- conscious environment. The CLM is offered in a variety of mounting options, optical distributions and lamp wattages to provide maximum flexibility in application. The AIR/AIS mounting option provides contractor friendly, single shipment of fixture with the arm-in-box.

The CLM achieves superior light distribution by utilizing a seamless reflector system, making it the optimum choice for almost any small, medium or large area lighting application.

SPECIFICATION FEATURES

A ... Housing Formed aluminum housing has interior-welded seams for structural integrity and is finished in premium TGIC polyester powder coat paint. U.L. listed and CSA certified for wet locations. IP55 rated.

B ... Ballast Tray Ballast tray is securely mounted and inter locked to housing interior for cooler operation. Tray features toolless removal capability for ease of maintenance and replacement.

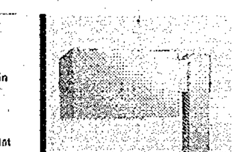
C ... Ballast Long-life core and coil ballast.

D ... Reflector Standard rotatable and interchangeable optics allow for an easy field retrofit with respective sag and flat glass doors for areas with restrictive lighting ordinances such as 'Dark Sky'.

E ... Door Formed aluminum door has heavy duty hinges, captive retaining screws and is finished in premium TGIC polyester powder coat paint.

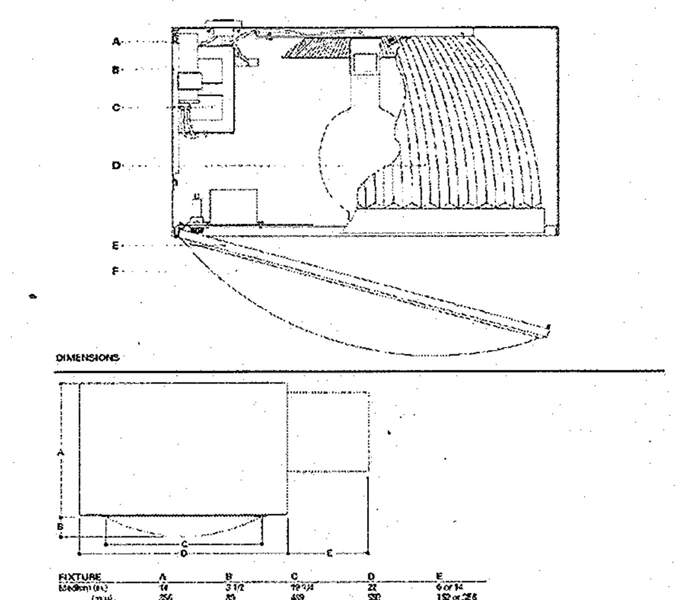
F ... Lens Convex tempered glass lens or flat glass.

G ... Gasket Standard one-piece extruded EPDM gasket ensures a bug proof installation and is backed by IP55 certification.



CLM SQUARE
250 - 1000W
Metal Halide
Pulse Start Metal Halide
High Pressure Sodium
ARCHITECTURAL AREA LUMINAIRE

DARK SKY COMPLIANT FCO



DIMENSIONS

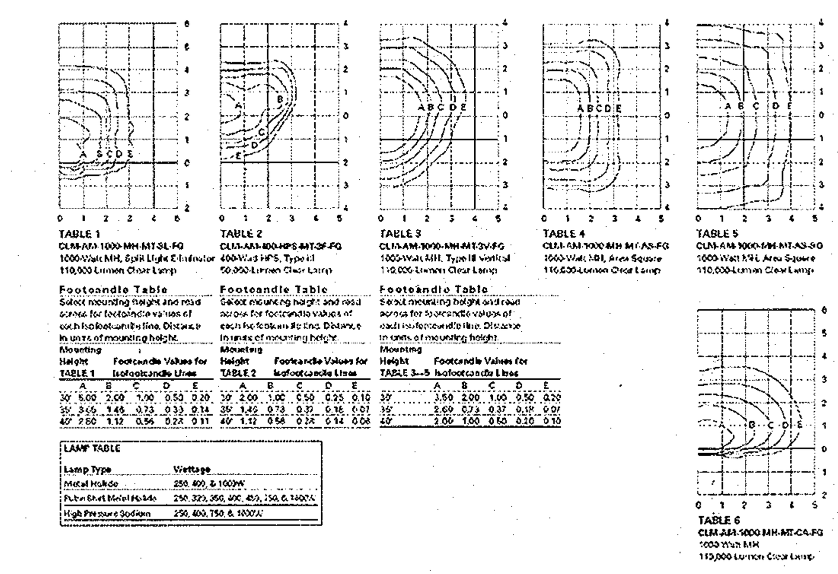
ENERGY DATA
CWA Ballast Input Watts
250W MH HPF (295 Watts)
250W HPS HPF (300 Watts)
400W MH HPF (455 Watts)
400W HPS HPF (465 Watts)
1000W MH HPF (1080 Watts)
1000W HPS HPF (1100 Watts)

EPA
Effective Projected Area (Sq. Ft.)
(Without Arm) CLM: 2.6
(With Arm) CLM: 3.1

SHIPPING DATA
Approximate Net Weight: 79 lbs. (35 kgs.)

COOPER Lighting
Specifications and Dimensions subject to change without notice.

PHOTOMETRICS



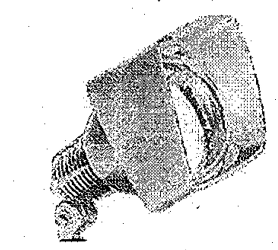
LAMP TABLE

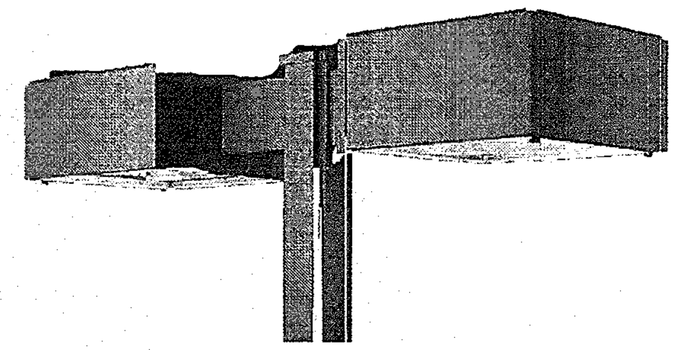
Lamp Type	Wattage
Metal Halide	250, 400, & 1000W
Pulse Start Metal Halide	250, 320, 350, 400, 450, 750, & 1000W
High Pressure Sodium	250, 400, 750, & 1000W

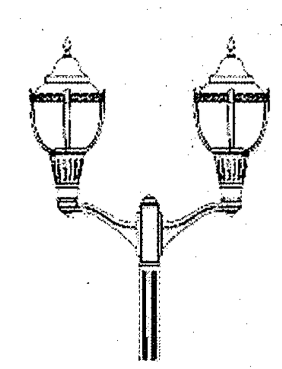
COOPER Lighting
Specifications and Dimensions subject to change without notice.

REESE

Type: SE
Manufacturer: BRONZELIGHT
Catalog No: #FL-5100HPS

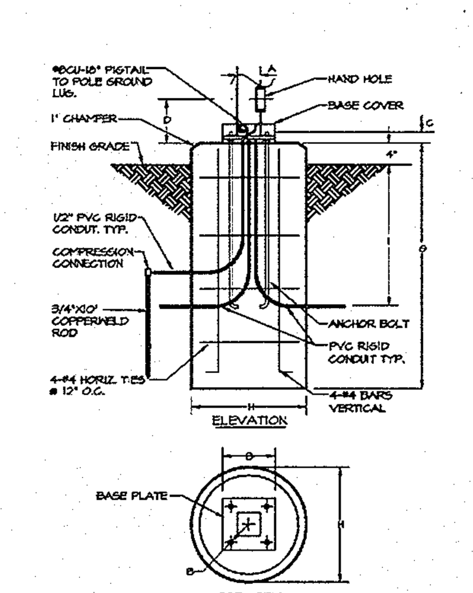




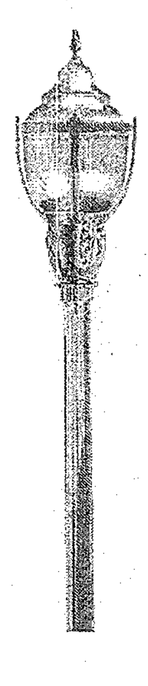


REESE ENGINEERING

Type: SA
Manufacturer: LUMEC
Catalog No: #S56-FN10-DSX3-HS
SINGLE HEAD



POLE KEY	POLE HEIGHT	A	ANCHOR BOLT DATA B	SIZE	C	D	E	F	G	H	I
SA	16'-0"	ROUND	BY MANUFACTURER			12"	NA	NA	60"	24"	24"
SB	20'-0"	ROUND	BY MANUFACTURER			12"	NA	NA	60"	24"	24"
SC	20'-0"	ROUND	BY MANUFACTURER			12"	NA	NA	60"	24"	24"
SD	20'-0"	ROUND	BY MANUFACTURER			12"	NA	NA	60"	24"	24"



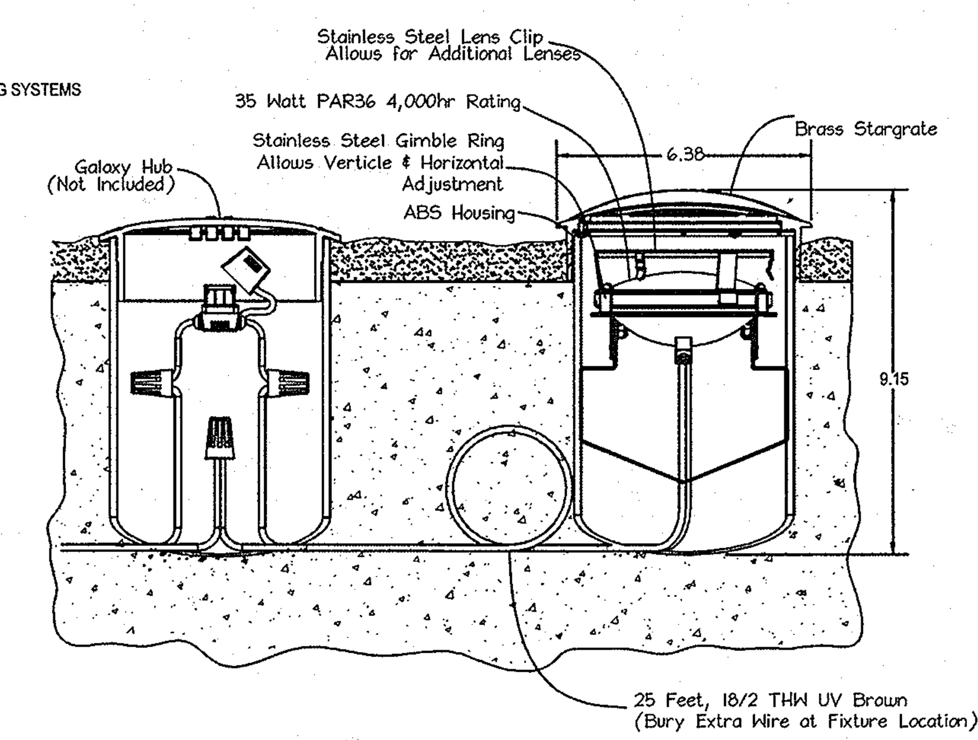
LIGHT FIXTURE SCHEDULE

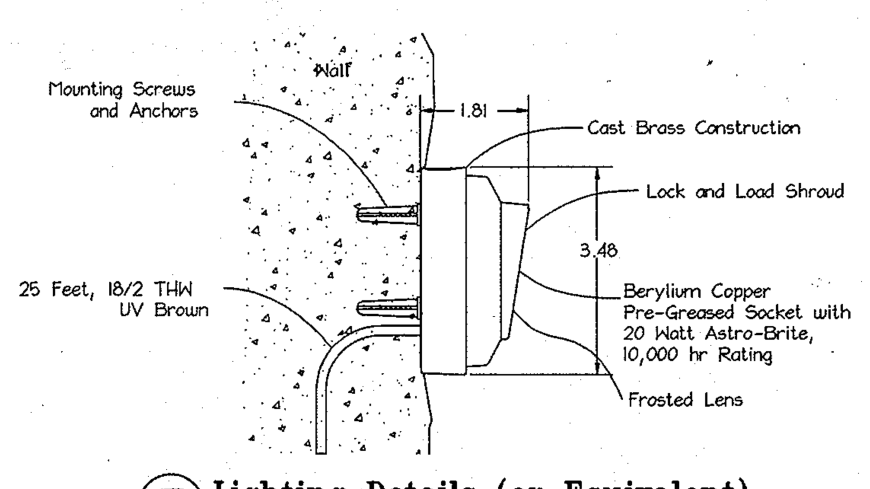
KEY	DESCRIPTION	LAMPS	WATTS	MANUFACTURER & CATALOG NO.	VOLTAGE	KEY NOTES	MOUNTING	RECESS DEPTH
SA	SINGLE HEAD DECORATIVE POST TOP LUMINAIRE WITH 16'-0" MOUNTING HEIGHT	(1) - 100W HIGH PRESSURE SODIUM	120	LUMEC #S56-FN10-DSX3-HS SINGLE HEAD	XX	1	CONCRETE BASE	NOTE 3
SB	TWIN HEAD DECORATIVE POST TOP LUMINAIRE WITH 18'-0" MOUNTING HEIGHT	(2) - 100W HIGH PRESSURE SODIUM	240	LUMEC #S56-FN10-DSX3-HS2 TWIN HEAD	XX	2	CONCRETE BASE	NOTE 3
SC	SINGLE HEAD, SHOE BOX STYLE CUT-OFF AREA LUMINAIRE ON 20'-0" POLE	(1) - 150W HIGH PRESSURE SODIUM	175	GARDCO #EH14-1-3-150-XX	XX		CONCRETE BASE	NOTE 3
SD	TWIN HEAD, SHOE BOX STYLE CUT-OFF AREA LUMINAIRE ON 20'-0" POLE	(2) - 150W HIGH PRESSURE SODIUM	350	GARDCO #EH14-2-3-150-XX	XX		CONCRETE BASE	NOTE 3
SE	ABOVE GRADE LANDSCAPE UPLIGHT	(1) - 100W HIGH PRESSURE SODIUM	125	BRONZELIGHT #FL-5100 HPS	XX		GRADE	N/A
SF	LOW LEVEL LANDSCAPE WALKWAY LUMINAIRE	(1) - 50W HPS	70	ALLON $300.00 (MATERIAL COST)	XX		GRADE	N/A

KEY NOTES:
1. PROVIDE BANNER MAST ARMS FOR TWENTY OF THE TYPE SA LUMINAIRES
2. PROVIDE BANNER MAST ARMS FOR FIVE OF THE TYPE SB LUMINAIRES
3. REFER TO THE POLE BASE DETAIL DETAIL FOR ADDITIONAL INFORMATION

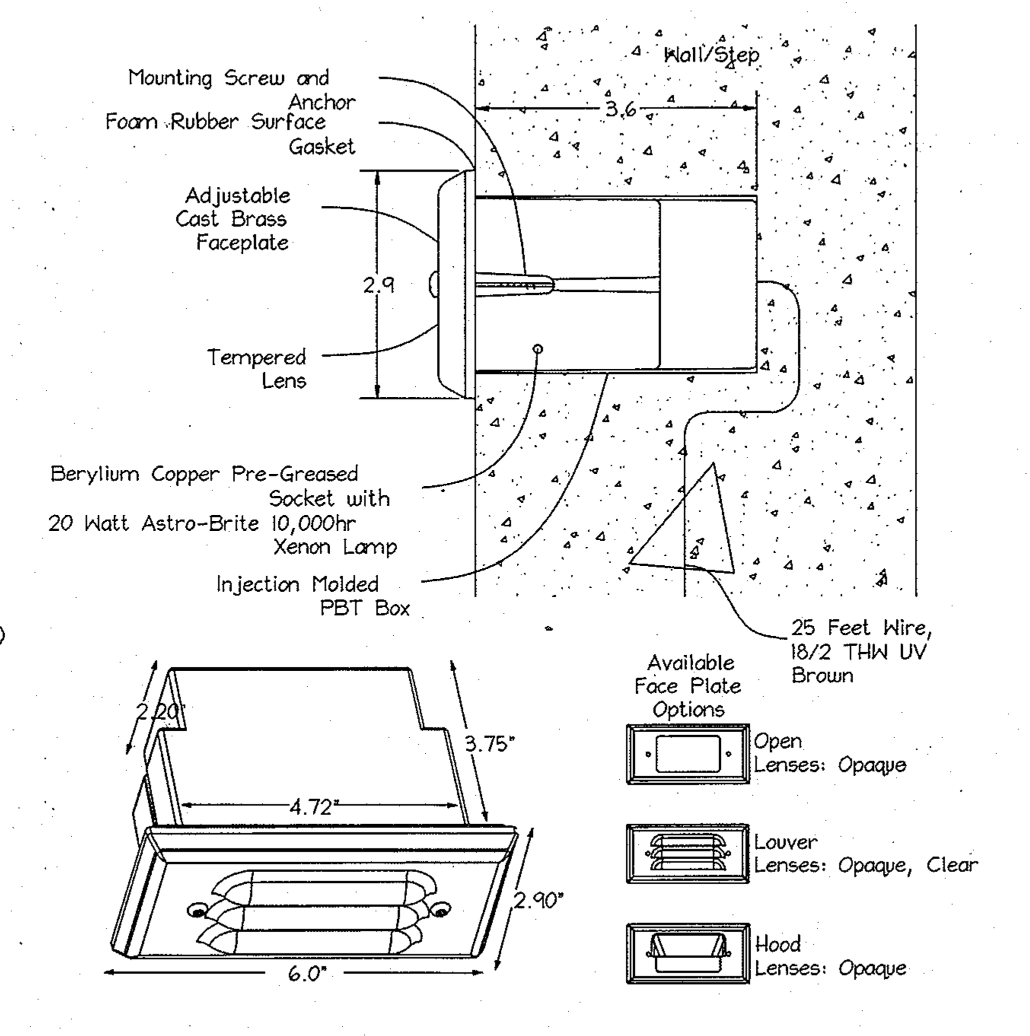
(A) **Lighting Details (or Equivalent)**
Not To Scale

UNIQUE LIGHTING SYSTEMS





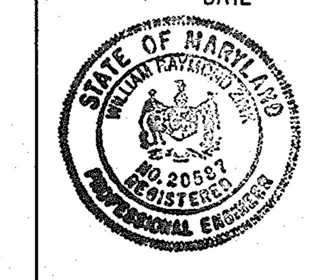
(B) **Lighting Details (or Equivalent)**
Not To Scale



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 4/12/13
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

02/25/2013
DATE



APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 4/24/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

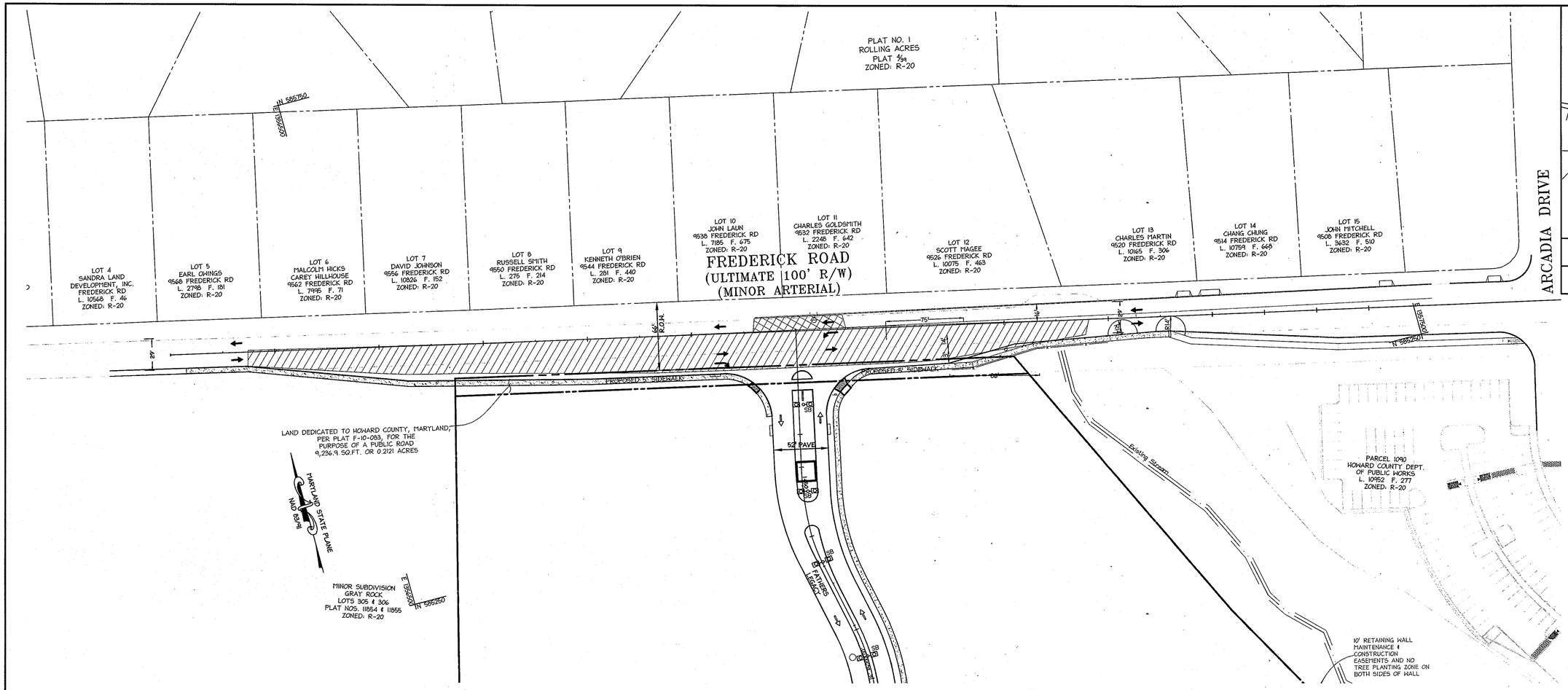
PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE: **LIGHTING DETAILS**

DESIGN: CRH	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	49 OF 77
CHECKED: LNG	APPROVED: LNG	

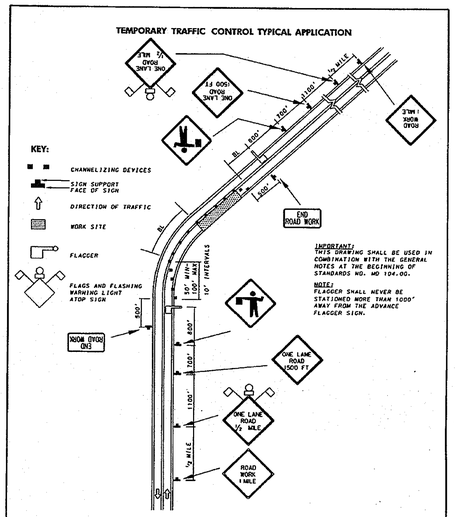
SDP-08-075

MDC-792 (SDP)



APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

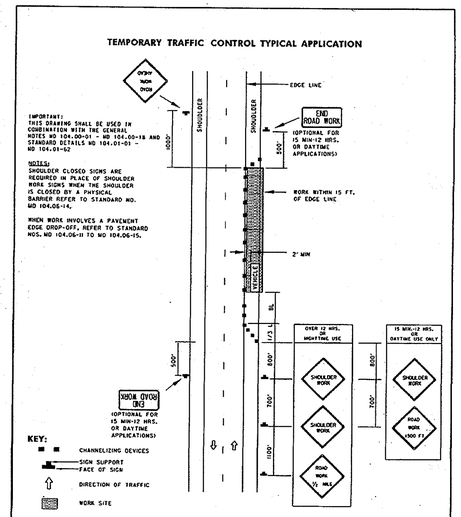


SPECIFICATION 104	CATEGORY CODE ITEMS
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 5-18-04	APPROVAL 9-27-01
	REVISED 10-1-01	REVISED
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION / 2-LANE,2-WAY GREATER THAN 40 MPH /OVER 12 HRS. OR NIGHTTIME USE
STANDARD NO. MD 104.02-01

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



SPECIFICATION 104	CATEGORY CODE ITEMS
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

SHA	APPROVAL + SHA REVISIONS	APPROVAL + FEDERAL HIGHWAY ADMINISTRATION
	APPROVAL 8-30-09	APPROVAL 9-23-03
	REVISED	REVISED
	REVISED	REVISED
	REVISED	REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK /2-LANE, 2-WAY GREATER THAN 40 MPH
STANDARD NO. MD 104.02-01

GENERAL NOTES:

1) ALL PHASING ON THIS PLAN IS SUGGESTED AND SHALL BE CONFIRMED WITH HOWARD COUNTY DPW-TRAFFIC DIVSION.
2) ALL TEMPORARY TRAFFIC CONTROL DEVICES AND METHODS SHALL BE IN ACCORDANCE WITH THE 2003 MUTCD STANDARDS, MD. S.H.A. STANDARDS, AND HOWARD COUNTY DPW STANDARDS.
3) IF STEEL PLATES ARE UTILIZED TO TEMPORARILY RESTORE THE ROAD, THEN STEEL PLATE WARNING SIGNS SHALL BE INSTALLED ON ALL APPROACHES.
4) FLAGGING OPERATION CAN ONLY BE DONE DURING OFF-PEAK HOURS OF 9 AM TO 3 PM. ROADWAY SHALL BE FULLY RESTORED AT THE END OF EACH WORK DAY.

PHASE I– LANE CLOSURE WORK

-WESTBOUND FREDERICK ROAD
CONNECT PROPOSED 8" WATER TO MAINLINE
-EXTENSION TO CENTERLINE OF FREDERICK ROAD

PHASE II– LANE CLOSURE WORK

-EASTBOUND FREDERICK ROAD-EXTEND PROPOSED 8" WATER PAST RIGHT OF WAY.
-FRONTAGE IMPROVEMENTS

LEGEND

PHASE I

PHASE II

48 Hours
Before You Dig
Call
"MISS UTILITY"
Service Protection Center
MEMBER
ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE
1-800-257-7777

02/25/2013
DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 4/22/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

STATE OF MARYLAND — WILLIAM RICHARD ZINK — 20587 — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Dated 4/26/13
Chief, Division of Land Development — Date 4/26/13
Director — Date 4/24/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY
OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER, MD 21158
(410) 848-0090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (rt 108) · columbia, md. 21046-2990
410.872.0280 · metro 301.261.0145 · fax 410.872.0283

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

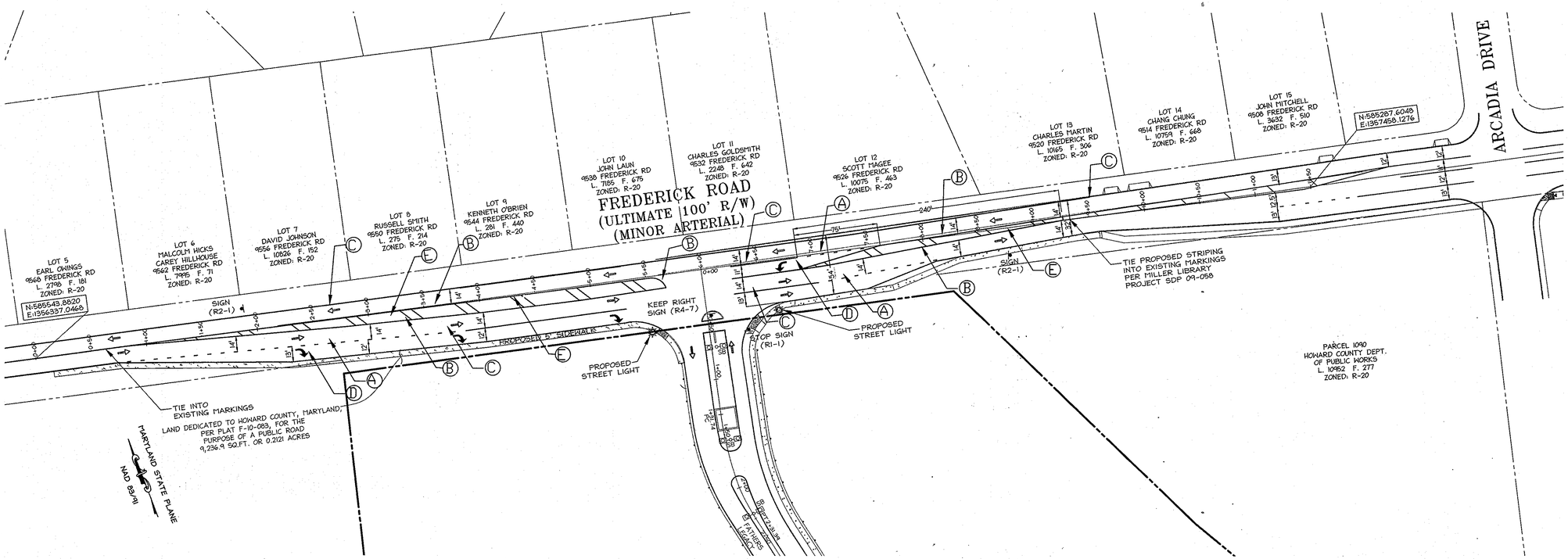
WATER CODE	SEWER CODE
550 (TG 700)	F07

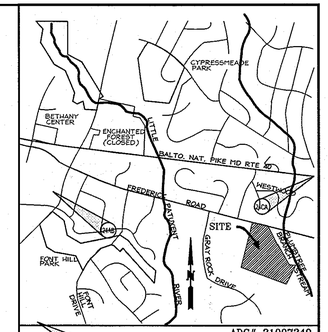
TITLE:
MAINTENANCE OF TRAFFIC PLAN

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	50 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075





VICINITY MAP ADC# 21007249
SCALE 1"=2000'

HOWARD COUNTY MAP PAGE 20 GRID D-8

48 Hours
Before You Dig
Call
"MISS UTILITY"
Service Protection Center
MEMBER
ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE
1-800-257-7777

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

SIGNING NOTES:
1. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GUAGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUTED ON TOP OF EACH POST
2. ALL SIGN LOCATIONS AND PAVEMENT MARKINGS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION PRIOR TO ANY INSTALLATIONS. (410-313-5752)

PAVEMENT MARKING NOTE
ANY EXISTING PAVEMENT MARKINGS IN CONFLICT WITH THE NEW PAVEMENT MARKINGS SHALL BE REMOVED BY GRINDING ONLY. HOWARD COUNTY TRAFFIC WILLL DETERMINE IF ANY GRINDING IS NECESSARY (410-313-5752).

WE HAVE ACHIEVED A TAPER LENGTH FOR THE EASTBOUND LANE OF 260'. BOTH THE EAST AND WEST BOUND THROUGH LANES WILL BE 14' WIDE ACROSS THE FRONT OF THE LUTHERAN VILLAGE PROPERTY, ALLOWING ROOM FOR BIKERS. THE 13' ACCELERATION LANE FOR THE LUTHERAN VILLAGE SITE IS 75' LONG WITH AN 86' TAPER AFTER. THE NEW HAND TURN LANE IS 60' LONG WITH A 75' TAPER. A NEW SIDEWALK HAS BEEN LAID OUT THAT PARALLELS THE STREET, AND AVOIDS CONTACT WITH THE EXISTING RETAINING WALL BY 2'. THIS REQUIRED SOME NEW GRADING, BUT NONE OF THE WORK WILL IMPACT THE EXISTING WETLANDS OR FLOODPLAIN OF THE PLUMTREE BRANCH. PEDESTRIANS WILL BE PROTECTED FROM FALLING OVER THE RETAINING WALL BY A PROPOSED FENCE THAT WILL RUN THE LENGTH OF THE SIDEWALK WHERE GRADES ARE GREATER THAN 3:1. AN EXISTING UTILITY POLE WILL HAVE TO BE RELOCATED TO ALLOW FOR THE SIDEWALK TO BE LAID, A GRASS STRIP BETWEEN THE SIDEWALK AND THE CURB HAS BEEN PROVIDED FOR ITS NEW LOCATION.

LEGEND

- PROPOSED STREET SIGN
- PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- 150 WATT HPS VAPOR MAPLE LAWN ACORN FIXTURES ON A 14' BLACK FIBERGLASS POLE.

STRIPING LEGEND

- (A) PAVEMENT LINES 5" BROKEN WHITE LINE — 3' 9' 3' 9' 3'
- (B) PAVEMENT LINES 5" DOUBLE YELLOW SOLID
- (C) WHITE SOLID LINE
- (D) TURN LANE USE ARROWS — MUTCD FIG. 3B-21.B OR
- (E) 10" YELLOW HATCHED LINES AT 45° ANGLE AND SPACED 40' APART

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 4/12/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

02/25/2013
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
No. 20587
PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director — Date 4/26/13

Chief, Development Engineering Division — Date 4/26/13

Chief, Division of Land Development — Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY OSAVACOL, EX. VICE PRESIDENT
200 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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410.872.8850 - www.3d.80.0-46 - fx 410.872.8851

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:
SIGNING, PAVEMENT MARKINGS AND STREET LIGHTING PLAN

DESIGN: DAM	SCALE: 1"=50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	51 OF 77

FREDERICK ROAD
(ULTIMATE 100' R/W)
(MINOR ARTERIAL)

LIMITS OF DISTURBANCE

LOT 4
SA LAND
RIGHT, INC.
2904 RD
6B, MD
ED: R-20

LOT 5
KARL DUNGO
9648 FREDERICK RD
L. 2798 F. 151
ZONED: R-20

LOT 6
PAULETTE HICKS
CASEY HILLHOUSE
9642 FREDERICK RD
L. 7985 F. 71
ZONED: R-20

LOT 7
DAVID JOHNSON
9634 FREDERICK RD
L. 6826
ZONED: R-20

LOT 8
RUSSELL SMITH
9626 FREDERICK RD
L. 274 F. 204
ZONED: R-20

LOT 9
KENNETH O'BRIEN
9548 FREDERICK RD
L. 20 F. 440
ZONED: R-20

L. 3518 F. ??
ZONED: R-20

L. 6826
ZONED: R-20

LAND DEDICATED TO HOWARD COUNTY, MARYLAND
PER PLAT 21-N-265, FOR THE
PURPOSE OF A PUBLIC ROAD
9,274.9 SQ.FT. OR 0.2212 ACRES

MARYLAND STATE PLANE
NAD 83/91

MINOR SUBDIVISION
GRAY ROCK
LOTS 305 & 306
PLAT NOS. 11954 & 11955
ZONED: R-20

MINOR SUBDIVISION
GREY ROCK LOTS 305 & 306
ZONED: R-20

PARCEL 1090
HOWARD COUNTY DEPT.
OF PUBLIC WORKS
L. 1982 F. 277
ZONED: R-20

EXISTING
PUBLIC LIBRARY
ZONED-R-20

EXISTING
MILLER BRANCH PUBLIC LIBRARY
ZONED-R-20

HOWARD COUNTY MARYLAND
DEPT OF PUBLIC WORKS

HOWARD COUNTY MARYLAND
DEPT OF PUBLIC WORKS

PARCEL 1090
THE MILLER LAND CO.
LIBER 704 FOLIO 363
RESIDENTIAL-ZONED R-20

THE MILLER LAND CO.
LIBER 704 FOLIO 363
ZONED: R-20

THE MILLER LAND CO.
LIBER 704 FOLIO 363
RESIDENTIAL-ZONED R-20

Existing 20' Sewer
Right of Way
Per L.10578 F.424

20'

Existing 20' Sewer Right of Way Per L.10578 F.424

Existing Fence

Existing Tree Line

Possible Underground Field Connection

Storm Inlet
EL. = 363.4
INV. = 363.3

15" CPP
INV=358.1

15" CPP
INV=358.1

15" ENVIRONMENTAL SETBACK
PLAT NO. 11954-11955

50' LANDSCAPE BUFFER
PLAT NO. 11954-11955

50' LANDSCAPE BUFFER

50' LANDSCAPE BUFFER

50' LANDSCAPE BUFFER

50' LANDSCAPE BUFFER

50' STRUCTURE AND USE SETBACK FROM ARTERIAL ROAD

25' STRUCTURE AND USE SETBACK FROM ARTERIAL ROAD

25' STRUCTURE AND USE SETBACK FROM ARTERIAL ROAD

GIB?

GREY ROCK FARM
SECTION 2
PLAT- CMP NO. 5878
ZONED: R-20

LOT 45
BRIAN & REGINA HENDRIX
3605 DAIRY VALLEY TRAIL
L. 2006 F. 344
ZONED: R-20

LOT 63
HENRY & JANE HELMICK
3590 DAIRY VALLEY TRAIL
L. 1470 F. 312
ZONED: R-20

LOT 66
KENNETH & MARY CAIN
3605 DAIRY VALLEY TRAIL
L. 3578 F. 0299
ZONED: R-20

LOT 62
GARY & MARY ANN HARDESTY
3660 GRAY ROCK DRIVE
L. 1 F. 15
ZONED: R-20

DAIRY VALLEY TRAIL

MINOR SUBDIVISION
GRAY ROCK
LOTS 305 & 306
PLAT NOS. 11954 & 11955
ZONED: R-20

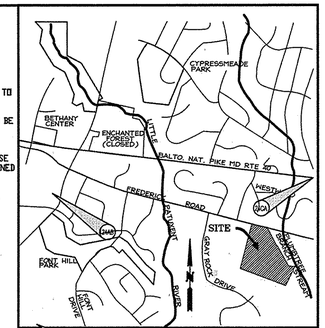
MINOR SUBDIVISION
GREY ROCK LOTS 305 & 306
ZONED: R-20

NOTES:

1. PRIVATE ROADS WILL BE P-2 PAVING UNLESS OTHERWISE INDICATED.
2. ALL PROPOSED SIDEWALKS AND DRIVEWAY APRONS TO BE CONCRETE.
3. PAVING BETWEEN DRIVEWAY APRON AND HOUSE TO BE P-1.
4. PAVING SECTION BASED ON A CBR OF 3 PER GEOTECHNICAL REPORT. THE CONTRACTOR WILL REVISE THE PAVEMENT DESIGN BASED ON THE FIELD DETERMINED CBR.
5. SEE SHEET 13 FOR PAVEMENT THICKNESS DETAILS.

LEGEND

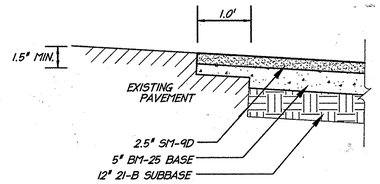
- PAVING P-1
- PAVING P-2
- CONCRETE - SEE DETAIL ON SHEET 13
- HEAVY DUTY CONCRETE - SEE DETAIL ON SHEET 13A



VICINITY MAP
SCALE 1"=2000'

ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8



BOTTOM AND ALL SIDES OF CUT TO BE PREPPED WITH ASPHALT PRIOR TO PLACING ASPHALT MIX.

TYPICAL PAVEMENT WEDGING DETAIL (WP-2)

(TO BE USED FOR PAVEMENT ADDITIONS)
NOT TO SCALE

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SIGNATURE OF ENGINEER — DATE: 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director

Chief, Development Engineering Division — Date: 2.20.15

Chief, Division of Land Development — Date: 2-26-15

Date: 2/26/15

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

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1-800-257-7777

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED
PROFESSIONAL ENGINEER

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CIBAVICCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER, MD 21158
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410.872.8800 - metro 301.621.0145 - fax 410.872.8810

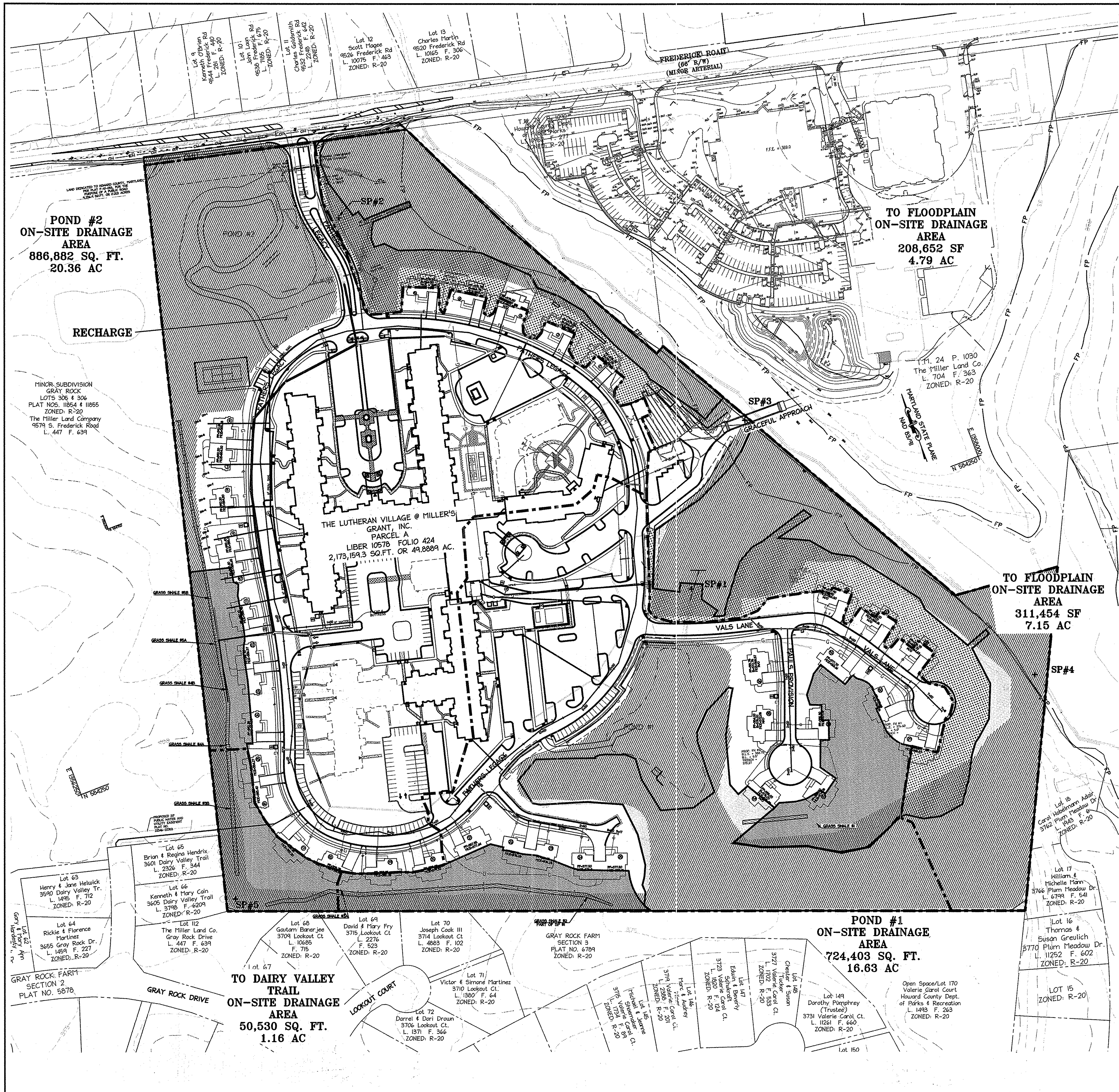
PERMIT INFORMATION CHART

PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02
WATER CODE			SEWER CODE	
550 (TG 700)			F07	

TITLE:

PAVEMENT PLAN

DESIGN: DAM	SCALE: 1"=50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	51A OF 77



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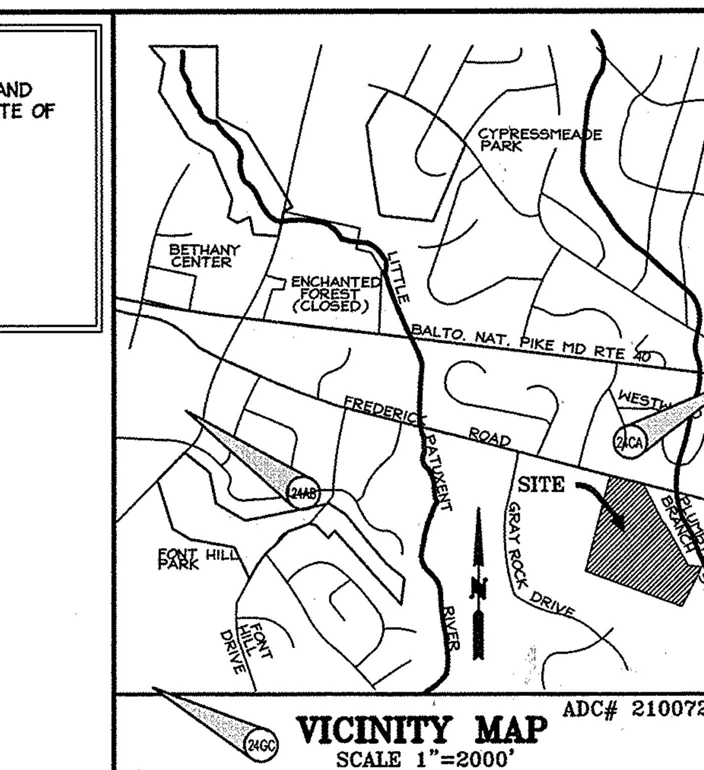

VICINITY MAP SCALE 1"=2000' ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8

Study Point 1	Pond #1
Area (acres)	16.63
Impervious Cover	7.95
RCN	78
Time of Conc.	0.12
Credited Area	1.36
RCN after credits	76
WQv (acft)	0.49
Rev (acft)	0.14
Cpv (acft)	1.11
Credits:	Conservation Area, Grass Swale
Device: Pond #1 will provide Cpv and remainder of Wqv	
A stone resevoire has been provided under the grass swale for Rev	

Study Point 2	Pond #2
Area (acres)	20.36
Impervious Cover	12.30
RCN	81
Time of Conc.	0.10
Credited Area	1.52
RCN	81
WQv (acft)	1.01
Rev (acft)	0.23
Cpv (acft)	1.79
Credits:	Rooftop Disconnect, Grass Swales
Device: Pond #2 will provide Cpv and Wqv.	
A Bioretention area will provide the Rev	

Study Point 3	Eastern Side of the site
Area (acres)	4.79
Impervious Cover	1.68
RCN	80
Time of Conc.	0.10
Credited Area	4.54
RCN after credits	65
WQv (acft) pre Credits	0.15
Rev (acft)	0.03
CPv (cfs)	2.0
Credits	Conservation Area, Sheetflow to Buffer
95% of the drainage area is treated by Credits	
*No CPv provided because 1 Yr Cpv < 2.0 cfs	

Study Point 4	South Eastern Side of Site
Area (acres)	7.15
Impervious Cover	2.50
RCN	79
Time of Conc.	0.12
Credited Area	7.15
RCN after Credits	63
WQv (acft) pre Credits	0.22
Rev (acft)	0.04
Cpv (cfs)	1.9
Credits	Conservation Area, Sheetflow to Buffer
100% of the drainage area is treated by Credits	
*No CPv provided because 1 Yr Cpv < 2.0 cfs	

Study Point 5	South Western Corner of Site
Area (acres)	1.16
Impervious Cover	0.41
RCN	75
Time of Conc.	0.10
Credited Area	1.16
RCN after Credits	75
WQv (acft) pre Credits	0.04
Rev (acft)	0.01
Cpv (cfs)	1.3
credits:	Grass Channels
100% of the drainage area is treated by Credits	
*No CPv provided because 1 Yr Cpv < 2.0 cfs	

NOTE

RECHARGE FOR SP #1 IS PROVIDED UNDER GRASS SWALES. RECHARGE FOR SP #2 IS THE INFILTRATION TRENCH AREA NEXT TO POND #2

WATER QUALITY PROVIDED VIA STORMWATER MANAGEMENT CREDITS, FOREBAYS, AND PONDS.

GRASS CHANNELS MUST BE 15' AWAY FROM STRUCTURE AND SLOPE IS < 4%

REFER TO F-10-083 FOR PRIVATE SWM CREDIT EASEMENTS

LEGEND

- ON-SITE DRAINAGE DIVIDE
- CONSERVATION CREDITS
- SHEETFLOW TO BUFFER CREDIT
- GRASS CHANNEL CREDIT
- CISTERN

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 2-20-15
Chief, Division of Land Development	Date 2-26-15
Director	Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

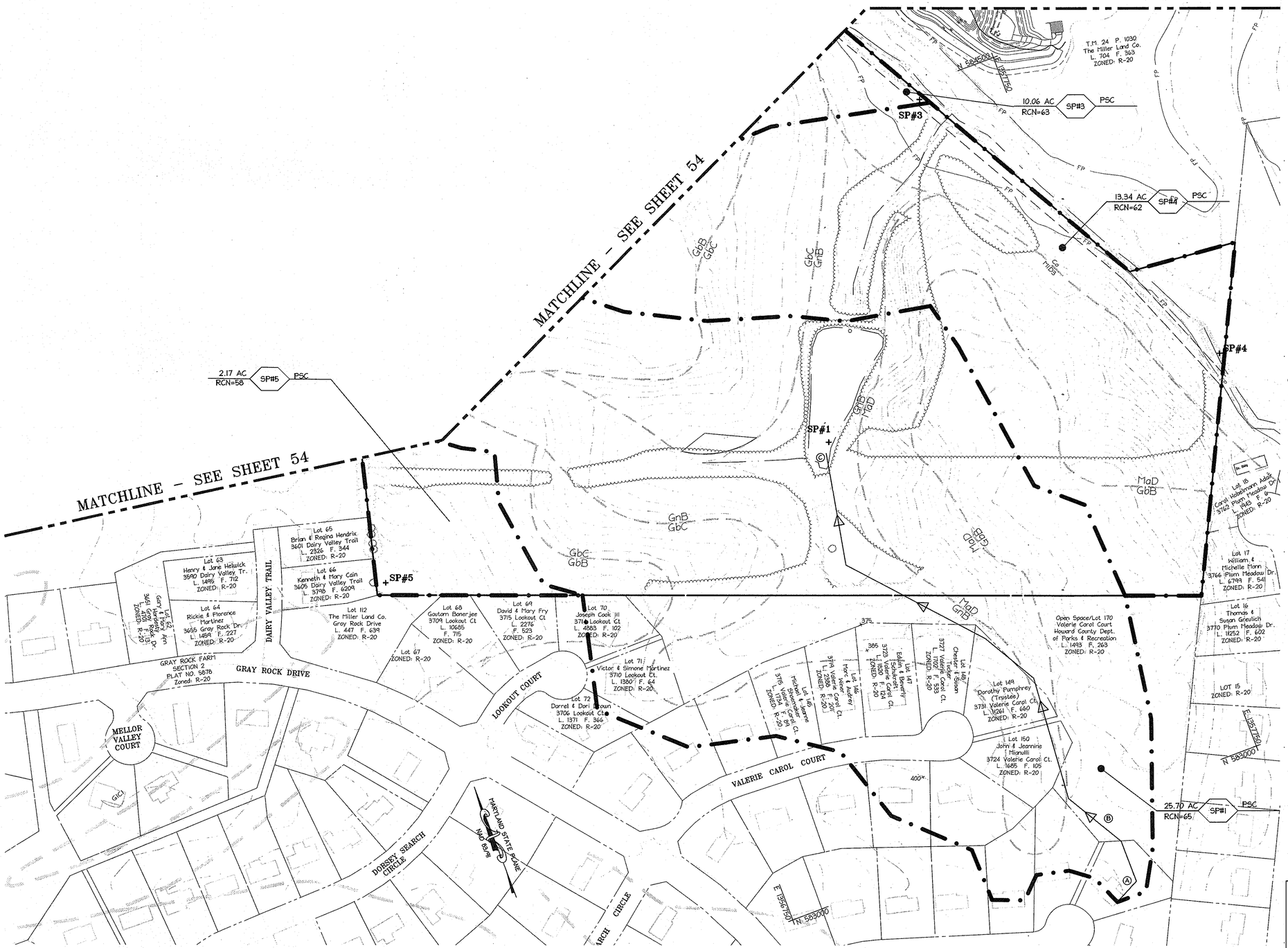
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:
ONSITE ONLY WQV/REV AREA MAP

DESIGN: DAM	SCALE: 1"=100'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	52 OF 77
CHECKED: ENJ	APPROVED: WRZ	

POND #1		
EXISTING DRAINAGE AREA=27.55		
EXISTING Tc		
A TO B	SHEET FLOW	L=50' S=3%
B TO C	SHALLOW CONCENTRATION	L=1020' S=4%



LEGEND

EXISTING DRAINAGE AREA

EXISTING Tc PATH

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE: 4/12/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/26/13

Chief, Division of Land Development — Date 4/26/13

Director — Date 4/24/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
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C/O CARROLL LUTHERAN VILLAGE
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02/25/2013
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
No. 20587
REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

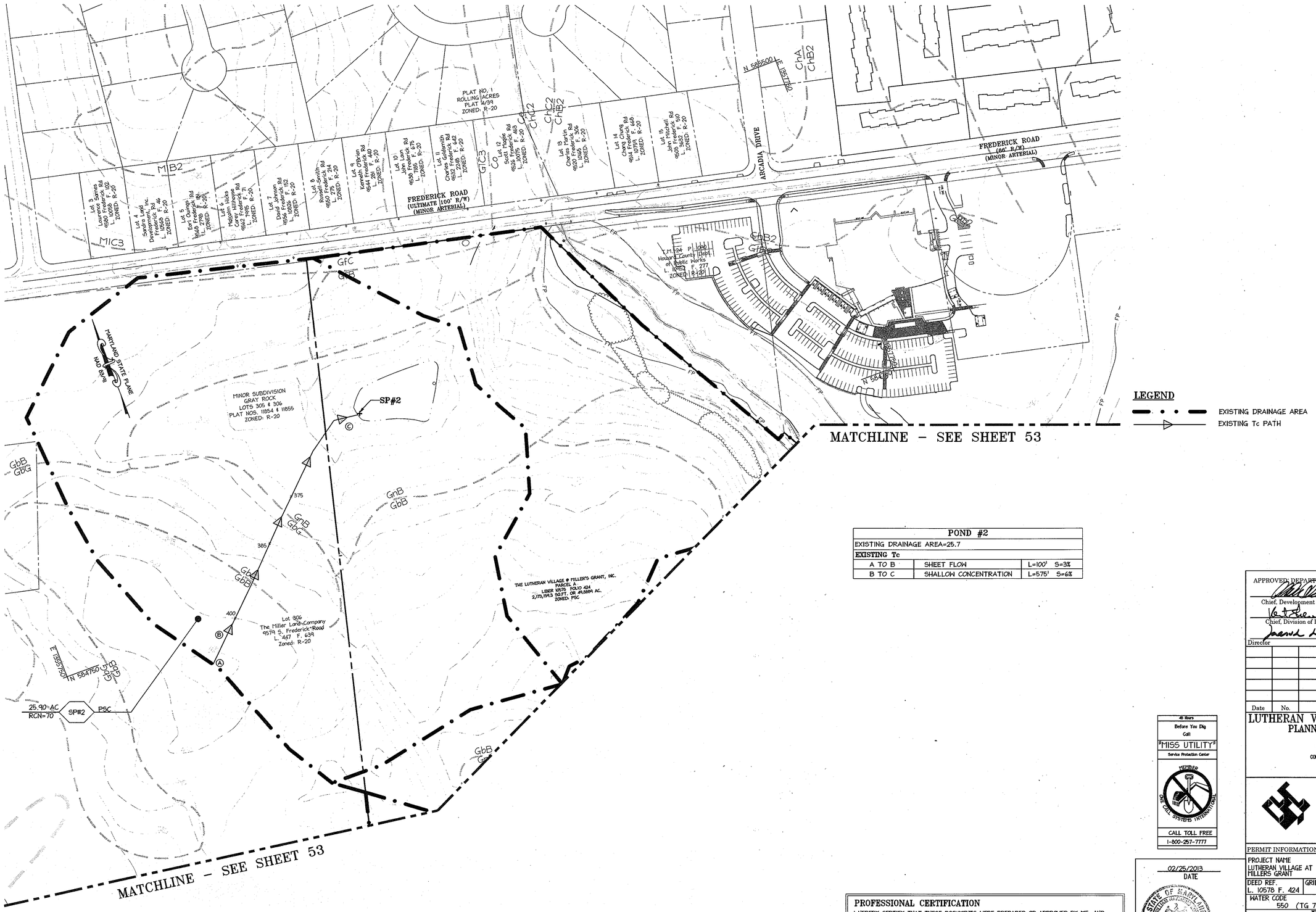
PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02
WATER CODE			SEWER CODE	
550 (TG 700)			F07	

TITLE:
EXISTING SWM DRAINAGE AREA MAP

DESIGN: DAM	SCALE: 1" = 100'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	53 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075



LEGEND

EXISTING DRAINAGE AREA

EXISTING Tc PATH

POND #2		
EXISTING DRAINAGE AREA=25.7		
EXISTING Tc		
A TO B	SHEET FLOW	L=100' S=3%
B TO C	SHALLON CONCENTRATION	L=575' S=6%

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/26/13

Chief, Division of Land Development — Date 4/26/13

Director — Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
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300 ST LUKE CIRCLE
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410.872.6550 - metro 301.861.0148 - fax 410.872.6520

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE: EXISTING SWM DRAINAGE AREA MAP FOR CPv

DESIGN: DAM	SCALE: 1" = 100'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	54 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075

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SIGNATURE OF ENGINEER — DATE 4/12/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

02/25/2013
DATE

STATE OF MARYLAND
WILLIAM RICHARD ZINK
20587
REGISTERED
PROFESSIONAL ENGINEER

MATCHLINE - SEE SHEET 56

PROPOSED DRAINAGE AREA MAP
SCALE: 1" = 100'

SWM SUMMARY						
STRUCTURE	DRAINAGE AREA	ON-SITE DA	OFF-SITE DA	Tc	RCN	RCN W/ CREDITS
SP#1	27.55	16.63	10.92	0.12	78	76
SP#2	32.48	20.36	12.12	0.1	81	81
SP#3	4.79	4.79	Q <= 2 CFS		80	65
SP#4	7.15	7.15	Q <= 2 CFS		79	63
SP#5	1.16	1.16	Q <= 2 CFS		75	75

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 3/6/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- 248 PROPOSED INTER CONTOUR
- 250 PROPOSED INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- BIA SOILS LINE
- 5gE
- PROPOSED DRAINAGE DIVIDE
- EXISTING DRAINAGE DIVIDE
- EXISTING Tc PATH

01/05/2015
DATE

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EXPIRATION DATE: 09-26-2016

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NO. 20587
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PROFESSIONAL ENGINEER

LUTHERAN VILLAGE AT MILLER'S GRANT
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410.872.6800 · metro 301.621.0143 · fax 410.872.6830

PERMIT INFORMATION CHART

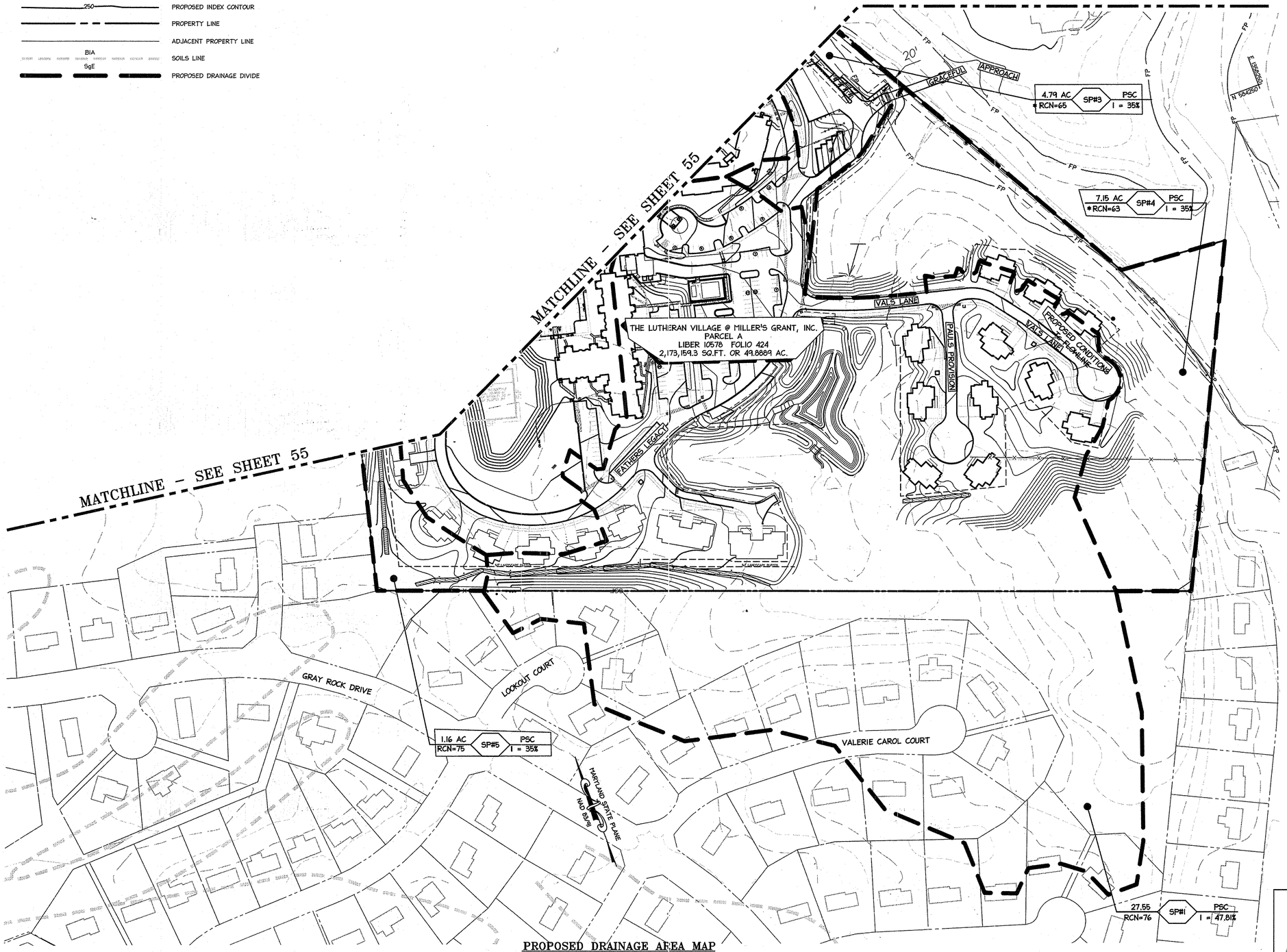
PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:
PROPOSED SWM DRAINAGE AREA MAP FOR CPv

DESIGN: DAM	SCALE: AS SHOWN	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	55 OF 77

LEGEND

- EXISTING INTER CONTOUR
- 250 EXISTING INDEX CONTOUR
- 248 PROPOSED INTER CONTOUR
- 250 PROPOSED INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- BIA SOILS LINE
- SgE PROPOSED DRAINAGE DIVIDE



PROPOSED DRAINAGE AREA MAP
SCALE: 1" = 100'

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — 01-05-2015 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

SWM SUMMARY

STRUCTURE	DRAINAGE AREA	ON-SITE DA	OFF-SITE DA	Tc	RCN	RCN W/ CREDITS
SP#1	27.55	16.63	10.92	0.12	78	76
SP#2	32.48	20.36	12.12	0.1	81	81
SP#3	4.79	4.79	Q <= 2 CFS		80	65
SP#4	7.15	7.15	Q <= 2 CFS		79	63
SP#5	1.16	1.16	Q <= 2 CFS		75	75

* RCN IS THE RUNOFF CURVE NUMBER THAT HAS BEEN ADJUSTED

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

TITLE: PROPOSED SWM DRAINAGE AREA MAP FOR CPv

DESIGN: DAM	SCALE:	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	56 OF 77
CHECKED: ENJ	APPROVED: WRZ	

BASIN #1		
EXISTING DRAINAGE AREA=25.75		
PROPOSED DRAINAGE AREA=27.55		
EXISTING Tc		
A TO B	SHEET FLOW	L=50' S=4%
B TO C	SHALLOW CONCENTRATION	L=1163' S=2.7%
PROPOSED Tc		
A TO B	SHEET FLOW	L=100' S=3%
B TO C	SHALLOW CONCENTRATION	L=145' S=3.1%
C TO D	CHANNEL FLOW	L=517' V=5 F/S

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE: 01-05-2015

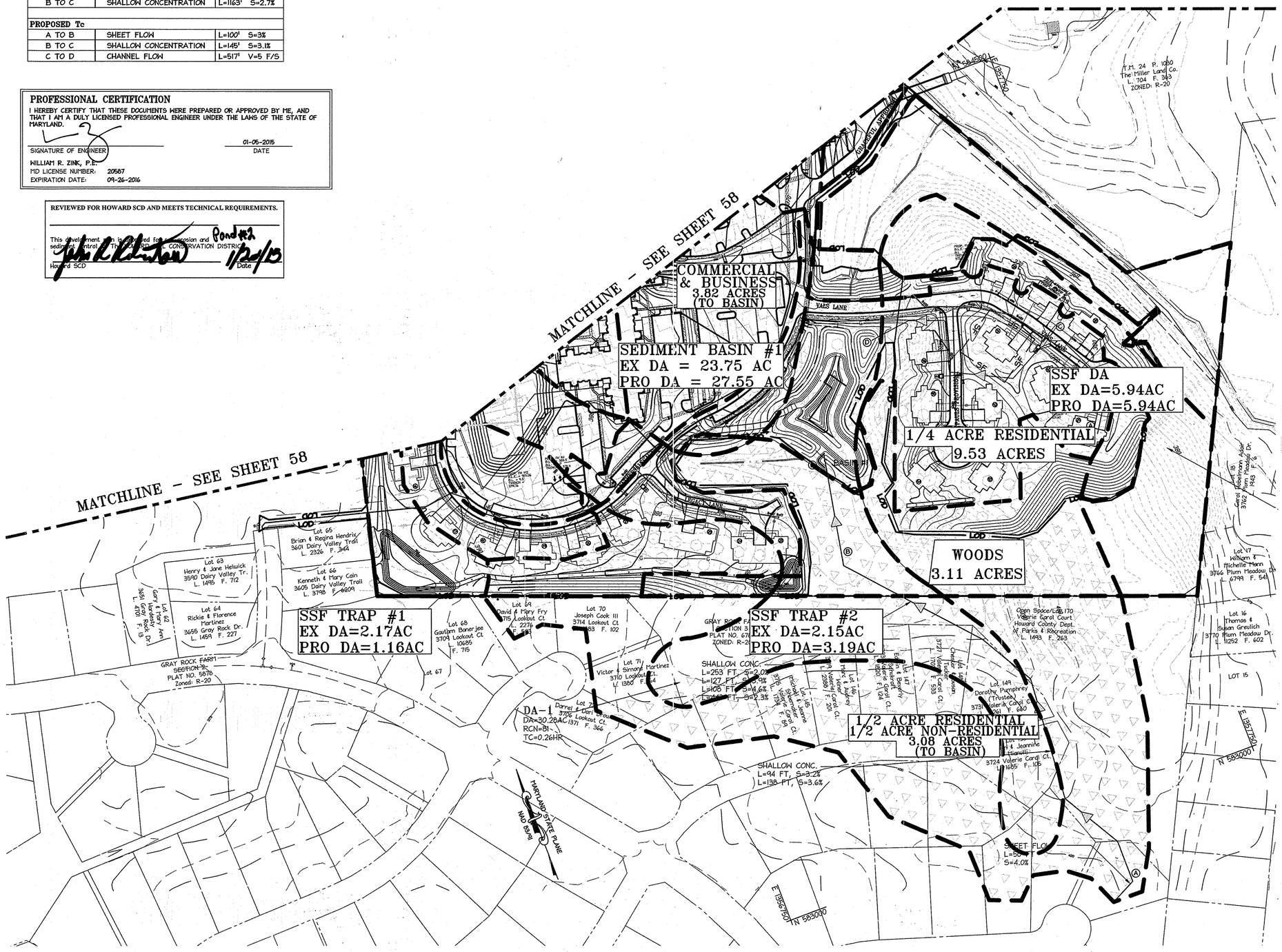
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

This development plan is approved for erosion and sediment control. The Howard Soil CONSERVATION DISTRICT

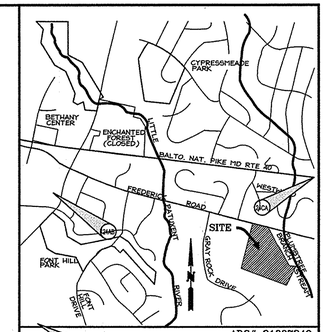
Howard SCD — Date 11/20/13

Pond #2



MATCHLINE - SEE SHEET 58

DRAINAGE AREA MAP
SCALE: 1" = 100'



VICINITY MAP
SCALE 1"=2000'
ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8

LEGEND

- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- LOD — LIMIT OF DISTURBANCE
- EXISTING Tc PATH
- PROPOSED Tc PATH
- 1/2 ACRE RESIDENTIAL LAND USE AREA
- 1/4 ACRE RESIDENTIAL LAND USE AREA
- COMMERCIAL & BUSINESS LAND USE AREA
- WOODS LAND USE AREA

NOTE:
BASIN #1
WOODS = 3.11 AC
OFFSITE RESIDENTIAL = 3.08 AC
NEWLY GRADED INCLUDES COMMERCIAL
1/2 AND 1/4 ONSITE = 21.36 AC.
TOTAL = 27.55 AC.

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY OSHAKOOL EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD. 21158
(410) 848-0080

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410.872.6800 · metro 301.621.6140 · fax 410.872.6855

01/05/2015
DATE

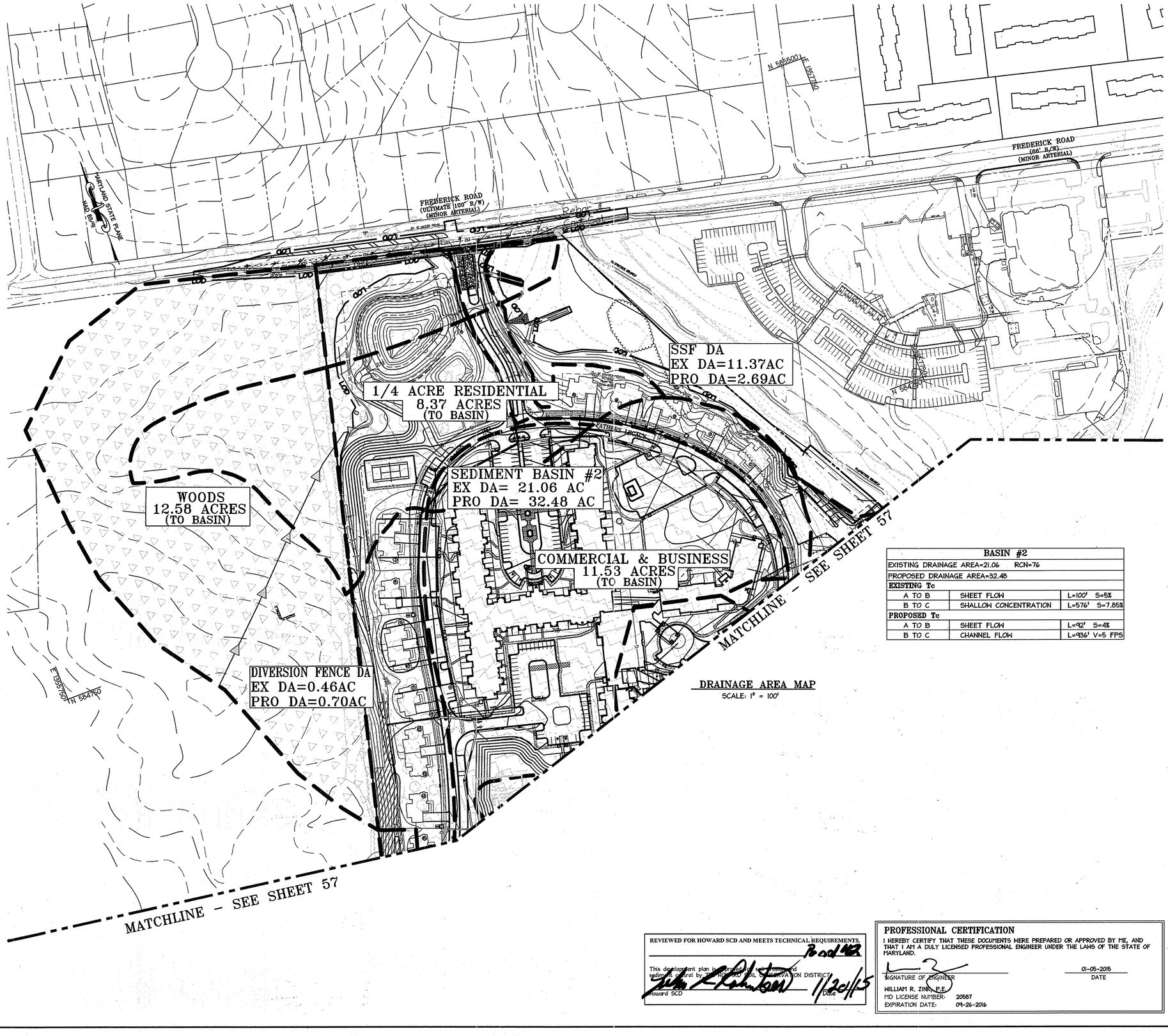
STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

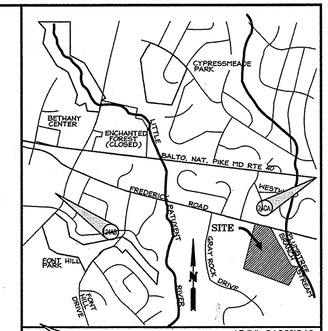
TITLE: **EXISTING AND PROPOSED DRAINAGE AREA MAP FOR SEDIMENT CONTROL**

DESIGN: DAM	SCALE: 1" = 100'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	57 OF 77
CHECKED: ENJ	APPROVED: WRZ	



DRAINAGE AREA MAP
SCALE: 1" = 100'

BASIN #2		
EXISTING DRAINAGE AREA=21.06 RCN=76		
PROPOSED DRAINAGE AREA=32.48		
EXISTING Tc		
A TO B	SHEET FLOW	L=100' S=5%
B TO C	SHALLOW CONCENTRATION	L=576' S=7.85%
PROPOSED Tc		
A TO B	SHEET FLOW	L=92' S=4%
B TO C	CHANNEL FLOW	L=936' V=5 FPS



VICINITY MAP
SCALE 1"=2000'
ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8

LEGEND

- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- EXISTING / PROPOSED Tc PATH
- PROPOSED Tc PATH
- 1/2 ACRE RESIDENTIAL LAND USE AREA
- 1/4 ACRE RESIDENTIAL LAND USE AREA
- COMMERCIAL & BUSINESS LAND USE AREA
- WOODS LAND USE AREA

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE: EXISTING AND PROPOSED DRAINAGE AREA MAP FOR SEDIMENT CONTROL

DESIGN: DAM	SCALE: 1" = 100'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED
PROFESSIONAL ENGINEER

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

This development plan is approved for soil erosion and sediment control by THE HOWARD SOIL CONSERVATION DISTRICT.

Howard SCD — Date 1/20/15

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

MATCHLINE – SEE SHEET 60 FOR CONTINUATION

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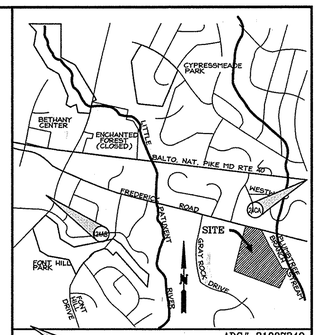

VICINITY MAP
SCALE 1"=2000'
ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8

LEGEND

	EXISTING INTER CONTOUR
250	EXISTING INDEX CONTOUR
248	PROPOSED INTER CONTOUR
250	PROPOSED INDEX CONTOUR
	PROPERTY LINE
	ADJACENT PROPERTY LINE
EX. 24" RCP	EXISTING STORMDRAIN
	EXISTING CURBLINE
	EXISTING TREELINE
PROP. 15" RCP	PROPOSED STORM DRAIN
	PROPOSED WATERLINE
	PROPOSED SANITARY LINE
	PROPOSED DRAINAGE DIVIDE
DA#30	DRAINAGE AREA DESIGNATION

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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410.872.6800 · metro 301.881.6148 · fax 410.872.6830

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:

DRAINAGE AREA MAP FOR STORMDRAIN

DESIGN: DAM	SCALE: 1"=50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

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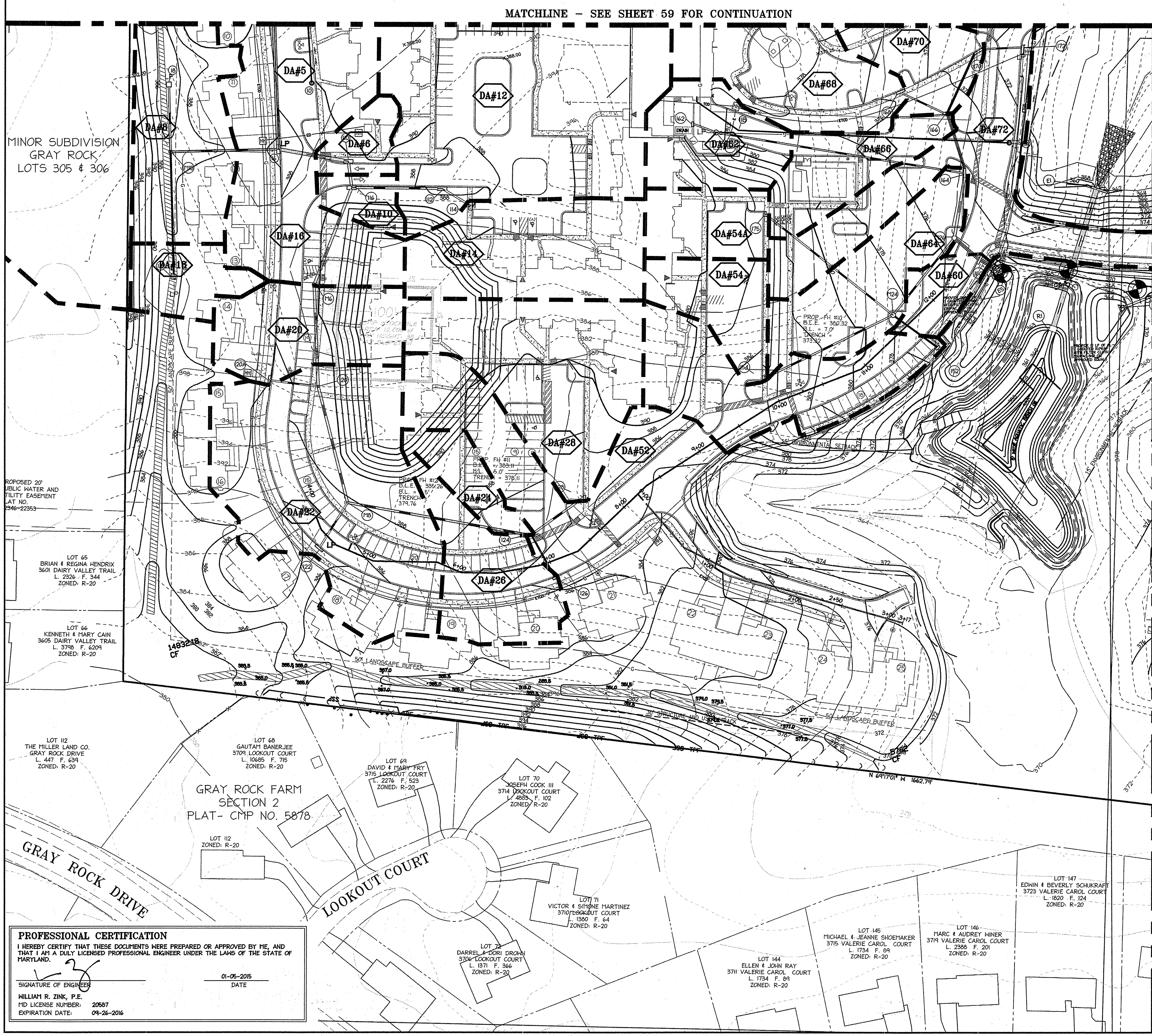
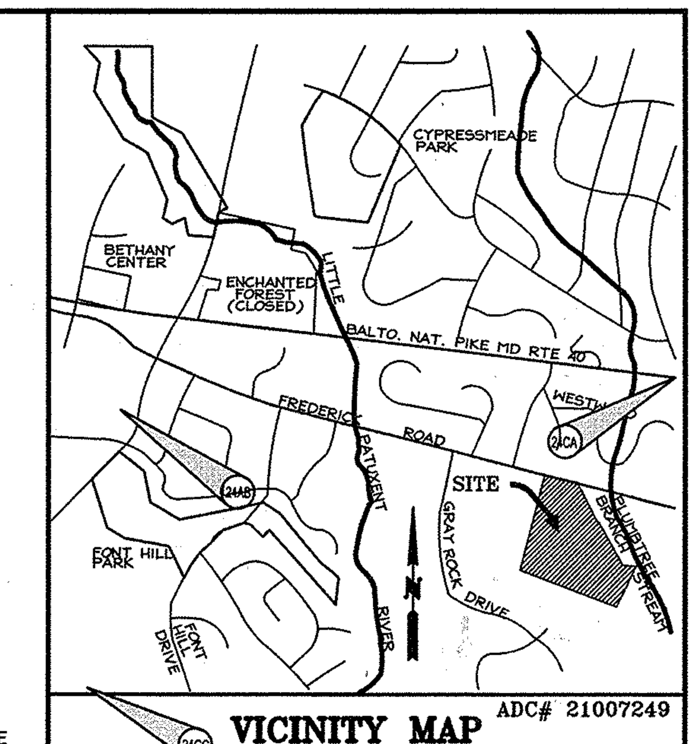
SIGNATURE OF ENGINEER — 01-05-2015 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016



LEGEND

- EXISTING INTER CONTOUR
- EXISTING INDEX CONTOUR (250)
- PROPOSED INTER CONTOUR (248)
- PROPOSED INDEX CONTOUR (250)
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING STORMDRAIN (EX. 24" RCP, MH)
- EXISTING CURBLINE
- EXISTING TREELINE
- PROPOSED STORM DRAIN (PROP. 15" RCP)
- PROPOSED WATERLINE
- PROPOSED SANITARY LINE
- PROPOSED DRAINAGE DIVIDE
- DA#64 — DRAINAGE AREA DESIGNATION



VICINITY MAP
SCALE 1"=2000'
ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] Chief, Development Engineering Division	2-20-15 Date
[signature] Chief, Division of Land Development	2-26-15 Date
[signature] Director	2/26/15 Date

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC / TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)		SEWER CODE F07	

TITLE:
DRAINAGE AREA MAP FOR STORMDRAIN

DESIGN: DAM	SCALE: 1"=50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	60 OF 77
CHECKED: ENJ	APPROVED: WRZ	

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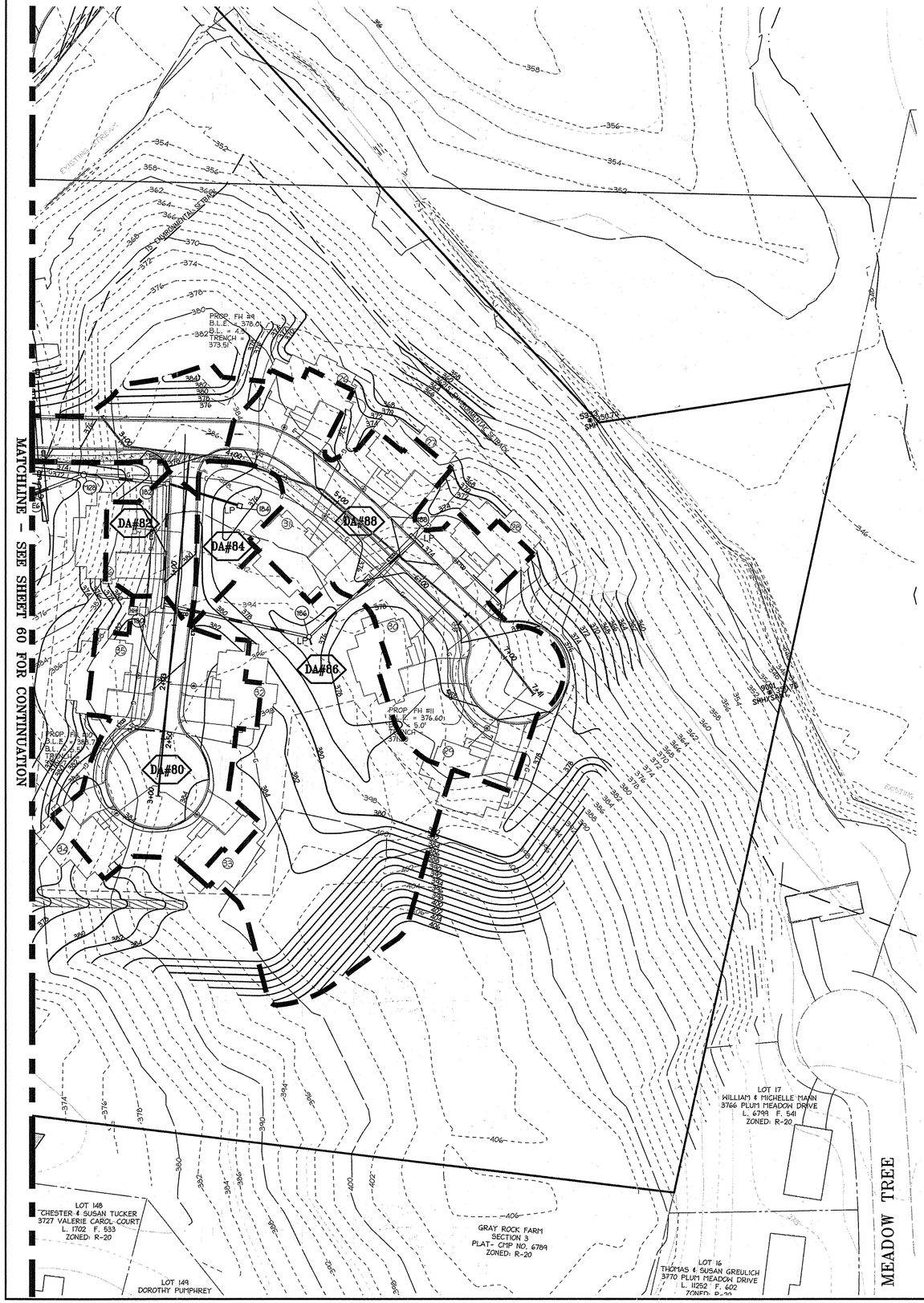
01/05/2015
DATE
STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — 01-05-2015 DATE

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016



LEGEND

- EXISTING INTER CONTOUR
- EXISTING INDEX CONTOUR
- PROPOSED INTER CONTOUR
- PROPOSED INDEX CONTOUR
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING STORMDRAIN
- EXISTING CURBLINE
- EXISTING TREELINE
- PROPOSED STORM DRAIN
- PROPOSED WATERLINE
- PROPOSED SANITARY LINE
- PROPOSED DRAINAGE DIVIDE
- DRAINAGE AREA DESIGNATION

DRAINAGE AREA SCHEDULE

Label	INLET	SF	Acres	Impv Area	% Imp.	Composite "C"
DA-2	I-34	35015.35	0.80	12251.13	42.12	0.52
DA-3	I-3	11107.80	0.26	7609.20	68.50	0.70
DA-4	I-4	40597.00	0.93	22658.36	55.81	0.61
DA-5	I-6	44431.20	1.02	27513.23	61.92	0.65
DA-6	I-10	5270.76	0.12	3983.65	75.58	0.74
DA-8	I-8	25961.76	0.60	4669.68	17.99	0.37
DA-10	I-16	4399.56	0.10	821.54	18.67	0.37
DA-12	I-12	75794.40	1.74	62369.23	82.29	0.78
DA-14	I-14	25264.80	0.58	22263.47	88.12	0.82
DA-18	I-18	8407.08	0.19	1976.71	23.51	0.40
DA-20	I-20A	17859.60	0.41	11234.20	70.00	0.71
DA-22	I-22	50790.96	1.17	29686.12	58.45	0.63
DA-24	I-24	6319.00	0.15	5371.15	85.00	0.80
DA-26	I-26	33028.00	0.76	19813.71	59.99	0.64
DA-28	I-28	46133.00	1.06	39213.05	85.00	0.80
DA-32	I-32	34412.40	0.79	29250.54	85.00	0.80
DA-34	I-34	16261.00	0.37	13008.80	80.00	0.77
DA-36	I-36	26963.64	0.62	22919.09	85.00	0.80
DA-38	I-38	22433.40	0.52	19068.39	85.00	0.80
DA-40	I-40	60785.00	1.40	51667.25	85.00	0.80
DA-42	I-42	19707.00	0.45	11824.20	60.00	0.64
DA-44	I-44	37026.00	0.85	24066.90	65.00	0.67
DA-46	I-46	4530.24	0.10	3869.23	85.41	0.81
DA-48	I-48	7065.00	0.16	4945.50	70.00	0.71
DA-52	I-52	21502.00	0.49	13615.96	63.32	0.66
DA-54	I-54	10933.56	0.25	9293.53	85.00	0.80
DA-54A	I-75	9801.00	0.23	8436.21	82.00	0.78
DA-60	I-60	29847.00	0.69	24668.63	82.65	0.79
DA-62	I-62	11325.60	0.26	9626.76	85.00	0.80
DA-64	I-64	8409.00	0.19	5465.85	65.00	0.67
DA-66	I-66	33938.00	0.78	28847.30	85.00	0.80
DA-68	I-68	22589.00	0.52	19200.65	85.00	0.80
DA-70	I-70	16539.00	0.38	14058.15	85.00	0.80
DA-72	I-72	43103.00	0.99	34357.49	79.71	0.77
DA-80	I-80	29171.00	0.67	10209.85	35.00	0.48
DA-82	I-82	7438.00	0.17	2603.30	35.00	0.48
DA-84	I-84	6551.00	0.15	2292.85	35.00	0.48
DA-86	I-86	51002.00	1.17	17850.70	35.00	0.48
DA-88	I-88	47940.00	1.10	16779.00	35.00	0.48
DA-96	I-96	8692.00	0.20	8692.00	100.00	0.90
DA-98	I-98	7507.00	0.17	7507.00	100.00	0.90
DA-99	I-99	15805.00	0.36	15805.00	100.00	0.90

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE: 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20507
EXPIRATION DATE: 09-26-2016

01/05/2015
DATE

STATE OF MARYLAND · WILLIAM RAYMOND ZINK · NO. 20507 · REGISTERED PROFESSIONAL ENGINEER

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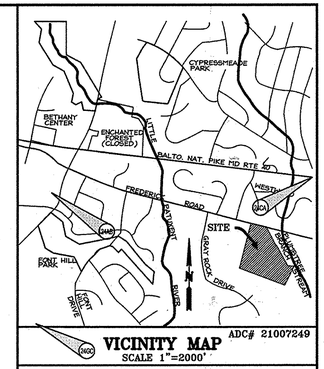


VICINITY MAP
SCALE 1"=2000'
ADC# 21007249

HOWARD COUNTY MAP PAGE 20 GRID D-8

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Director of Planning and Zoning — Date 2-20-15
Chief, Development Engineering Division — Date 2-26-15
Chief, Division of Land Development — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

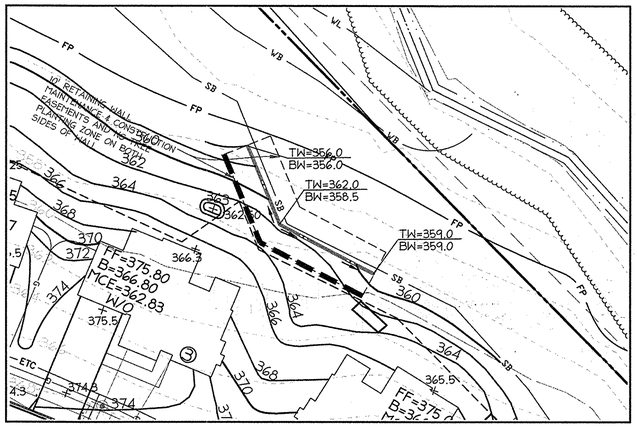
christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8000 · metro 301.621.0140 · fax 410.872.8003

PERMIT INFORMATION CHART

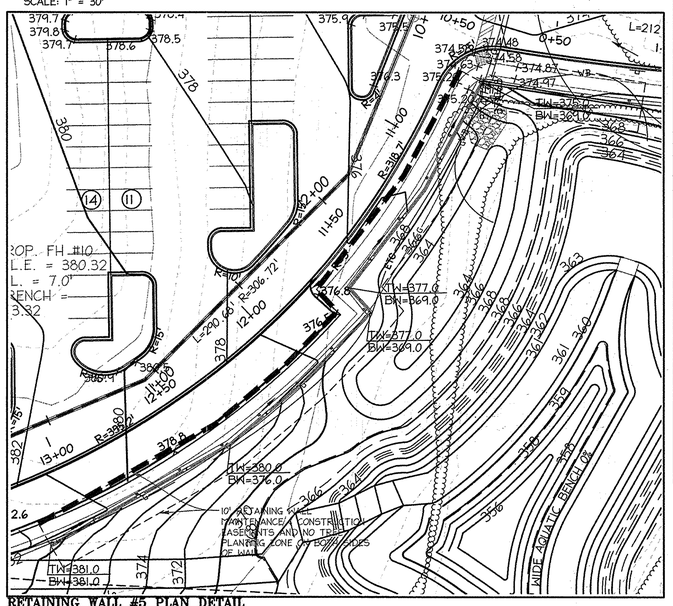
PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:
DRAINAGE AREA MAP FOR STORMDRAIN

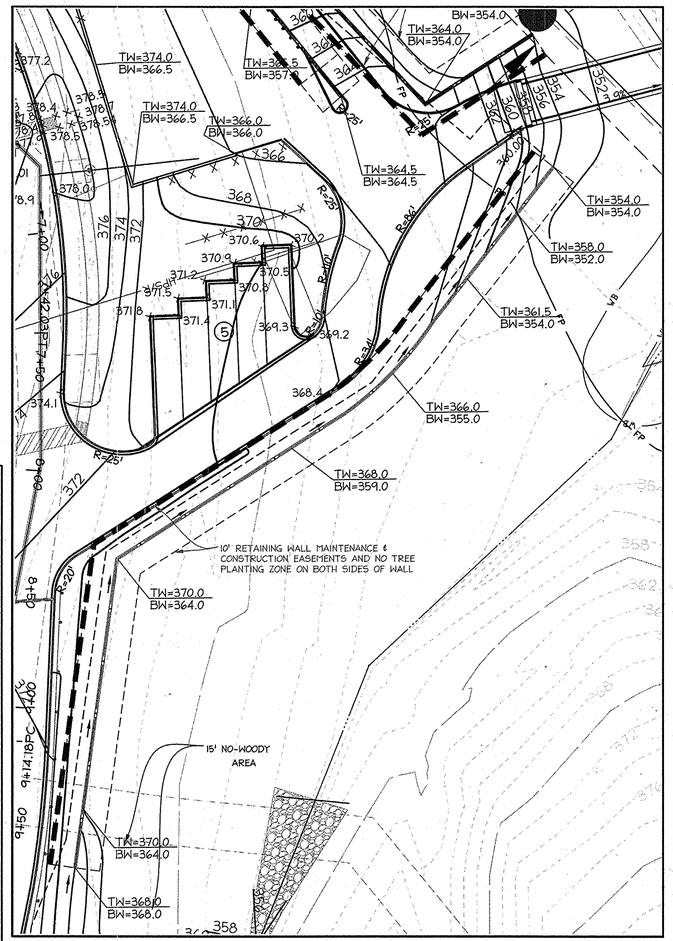
DESIGN: DAM	SCALE: 1"=50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	
CHECKED: ENJ	APPROVED: WRZ	61 OF 77



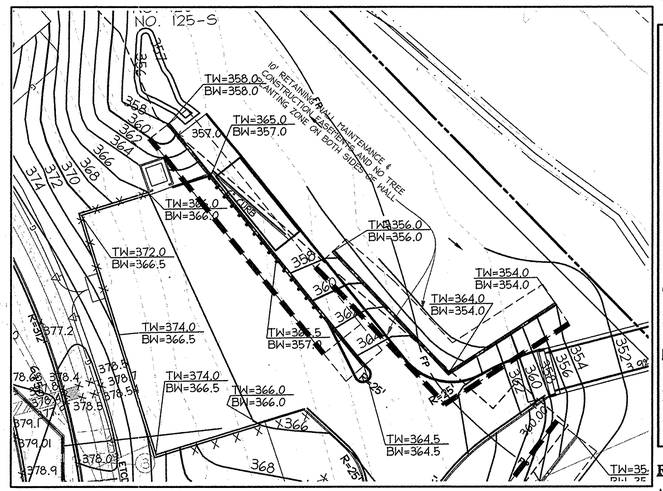
RETAINING WALL #1 PLAN DETAIL
SCALE: 1" = 30'



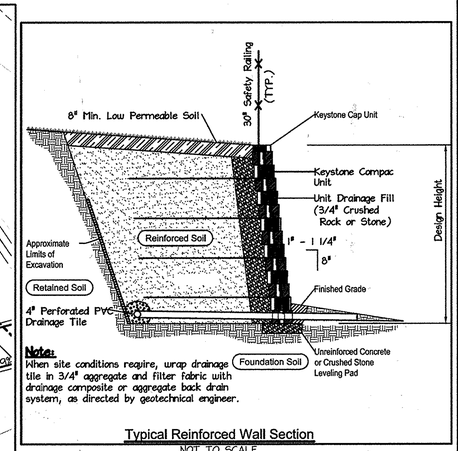
RETAINING WALL #5 PLAN DETAIL
SCALE: 1" = 30'



RETAINING WALL #4 PLAN DETAIL
SCALE: 1" = 30'

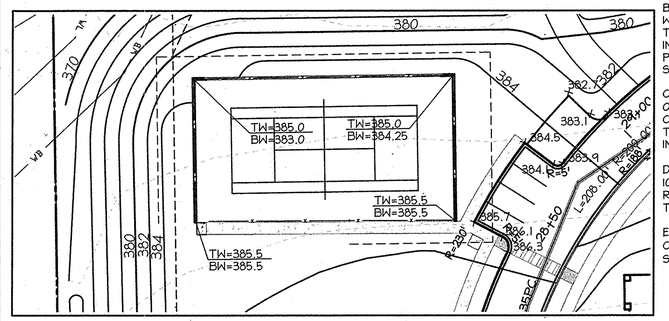


RETAINING WALL #2, #3 PLAN DETAIL
SCALE: 1" = 30'



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

Typical Reinforced Wall Section
NOT TO SCALE



RETAINING WALL #8 PLAN DETAIL
SCALE: 1" = 30'

RETAINING WALL NOTES

A. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.

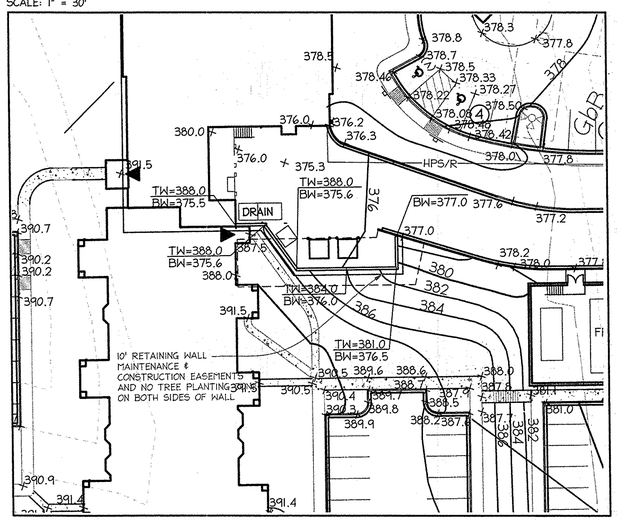
B. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.

C. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ONSITE SOILS TECHNICIAN. EACH EIGHT (8) INCH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTER DENSITY AND THE TESTING REPROT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.

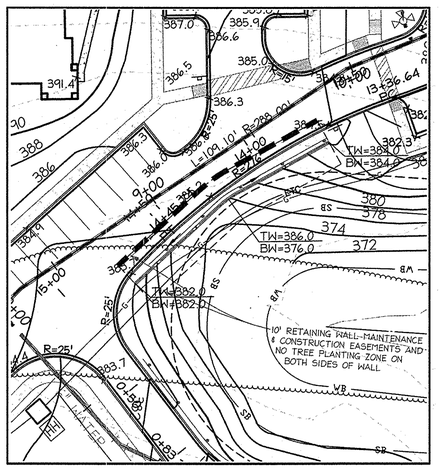
D. FOR "CRITICAL" WALLS, ONE SOIL BORING SHALL BE REQUIRED EVERY 100' ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.

E. IF NO SURCHARGE LOADS ARE CONSIDERED ADD A NOTE TO THE CROSS SECTION DETAILS STATING, "THIS WALL NOT DESIGNED FOR SURCHARGE LOADS."

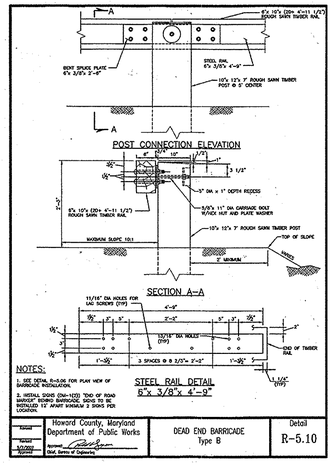
APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

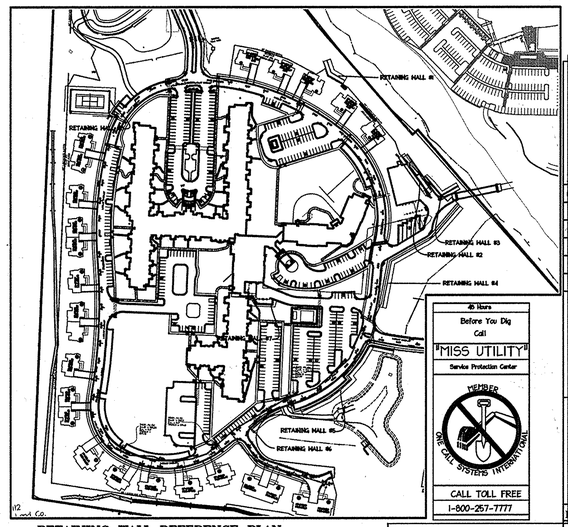


RETAINING WALL #7 PLAN DETAIL
SCALE: 1" = 30'



RETAINING WALL #6 PLAN DETAIL
SCALE: 1" = 30'





RETAINING WALL REFERENCE PLAN
SCALE: 1" = 200'

LEGEND

PROPERTY LINE
PROPOSED CONTOUR 49
PROPOSED SPOT ×388.00
PROPOSED RETAINING WALL
PROPOSED RETAINING WALL BUILDING SETBACK LINE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 01-05-2015

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2016

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED
PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15
Chief, Division of Land Development — Date 2-26-15
Director — Date 3/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
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7172 columbia gateway drive (zip 21046) · columbia, md. 21046-2990
410.872.6800 · metro 301.881.6148 · fax 410.872.6805

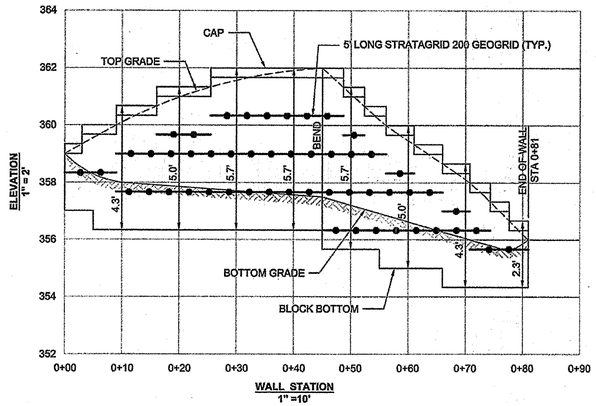
PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A	CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24 — ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07

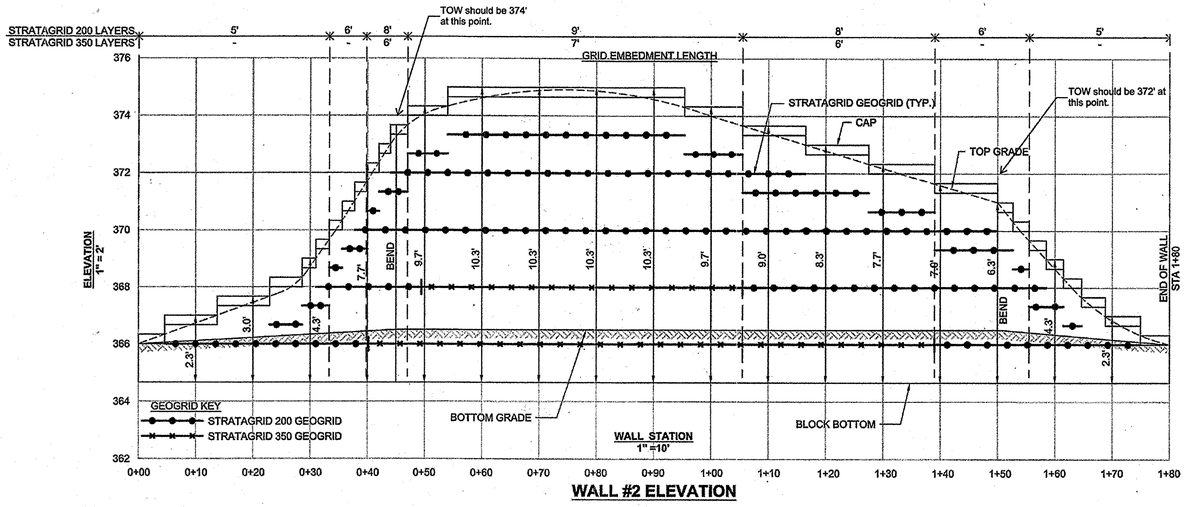
TITLE:

RETAINING WALL PLAN

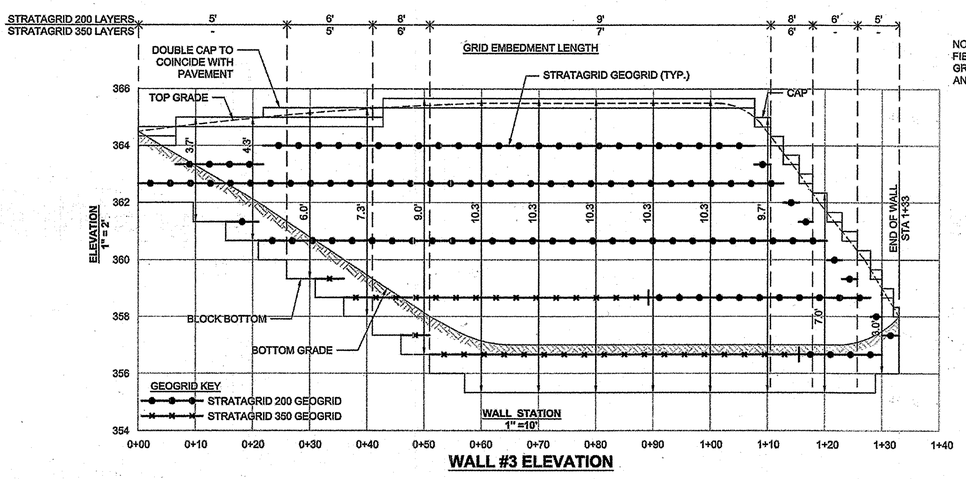
DESIGN: DAM	SCALE: 1" = 30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	62 OF 77
CHECKED: ENJ	APPROVED: WRZ	



WALL #1 ELEVATION



WALL #2 ELEVATION



WALL #3 ELEVATION

NOTE:
FIELD CONFIRM REQUIRED TW/BW FINAL GRADES AND ADJUST BLOCK LOCATION AND ELEVATION ACCORDINGLY.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/15.

STATE OF MARYLAND · PROFESSIONAL ENGINEER · 14434

HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RETAINING WALL #1, #2, & #3 ELEVATIONS
LUTHERAN VILLAGE AT MILLER'S GRANT
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE

JOB NUMBER:	14013-Z	DESIGNED BY:	HM
SCALE:	AS SHOWN	DRAWN BY:	HM
DATE:	9/30/14	APPROVED BY:	RWS

2 OF 5
SHEET

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2-26-15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8680 · metro 301.681.0149 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

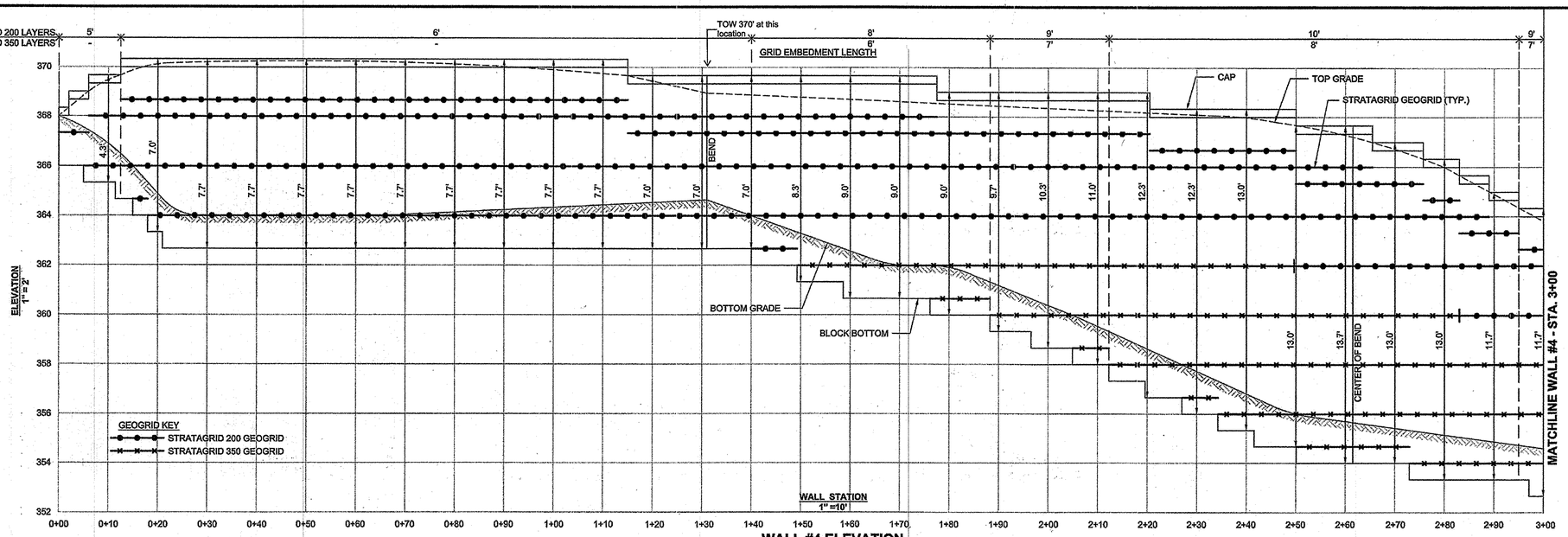
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

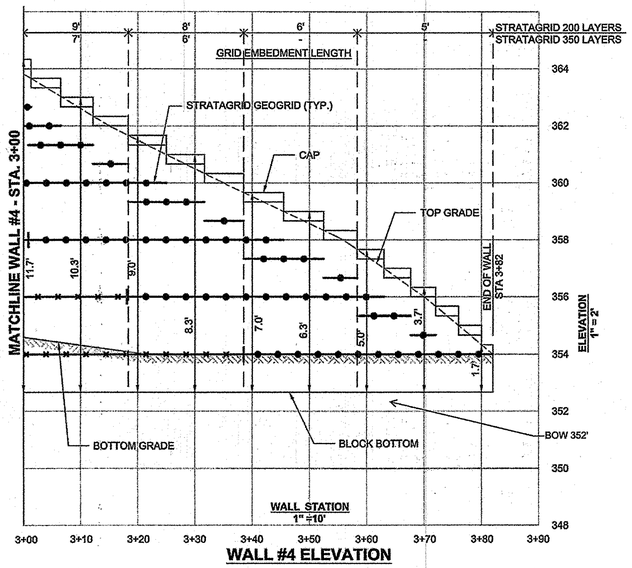
TITLE:
RETAINING WALL DESIGN

DESIGN: DAM	SCALE: N/A	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	63 OF 77
CHECKED: ENJ	APPROVED: WRZ	

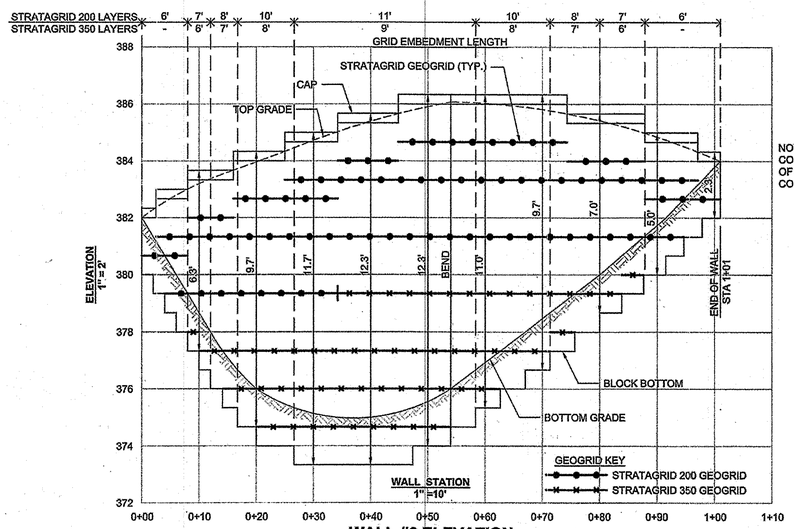
P:\Projects\05B5011-MDC-XXXX-MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\63-69 KEYSTONE.dwg, 12/29/2014 4:21:00 PM, eligoldman, 1:1, christopher consultants, ltd.



WALL #4 ELEVATION



WALL #4 ELEVATION



WALL #6 ELEVATION

NOTE:
COORDINATE INSTALLATION OF SEWER LINE WITH WALL CONSTRUCTION.

PROFESSIONAL CERTIFICATION

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STATE OF MARYLAND · REGISTERED PROFESSIONAL ENGINEER · 14434

HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 850-4788 WWW.HCEA.COM Fax: (410) 850-4098

RETAINING WALL #4 & #6 ELEVATION
LUTHERAN VILLAGE AT MILLER'S GRANT
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE

JOB NUMBER:	14013-Z	DESIGNED BY:	HM
SCALE:	AS SHOWN	DRAWN BY:	HM
DATE:	9/30/14	APPROVED BY:	RWS

3 OF 5 SHEET

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

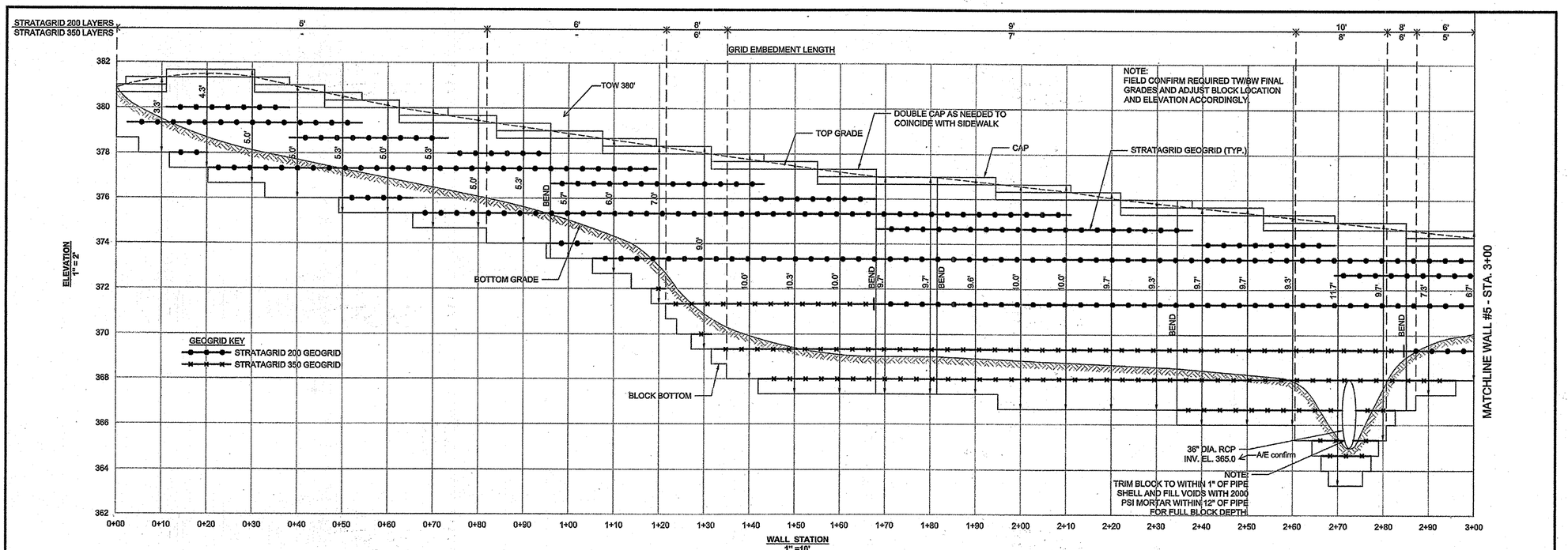
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

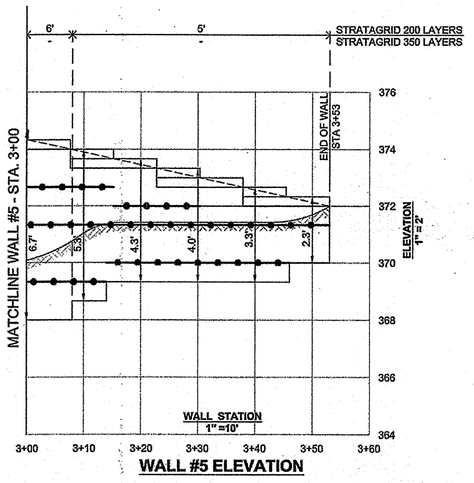
TITLE:
RETAINING WALL DESIGN

DESIGN: DAM	SCALE: N/A	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	64 OF 77
CHECKED: ENJ	APPROVED: WRZ	

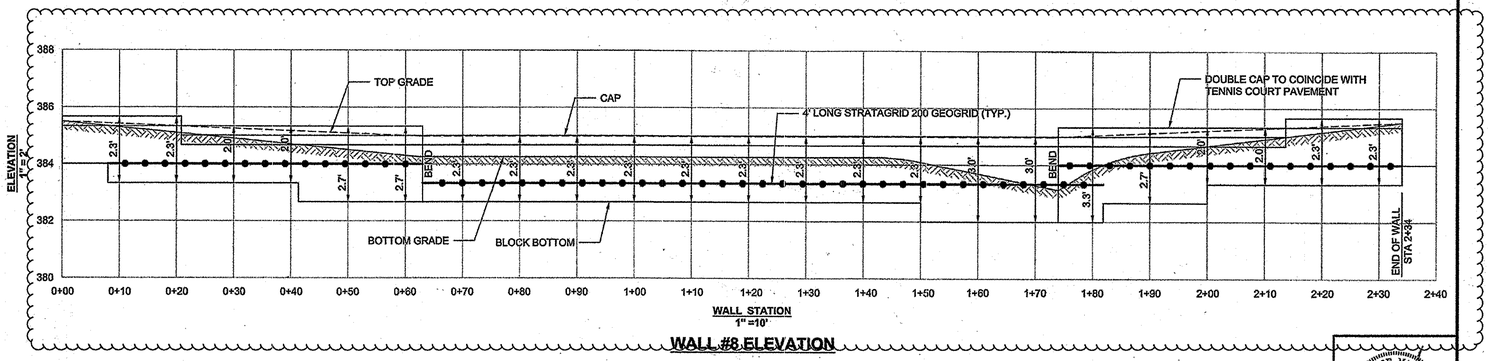
P:\Projects\05115\01\-MDC-XXXX-MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\63-69 KEYSTONE.dwg, 12/29/2014 4:21:05 PM, eligoldman, 1:1, christopher consultants, ltd.



WALL #5 ELEVATION



WALL #5 ELEVATION



WALL #8 ELEVATION

Wall #8 has been changed to concrete

PROFESSIONAL CERTIFICATION

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STATE OF MARYLAND — HENRY MEYER — REG. NO. 14434 — PROFESSIONAL ENGINEER

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RETAINING WALL #5 & #8 ELEVATIONS
LUTHERAN VILLAGE AT MILLER'S GRANT
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE

JOB NUMBER:	14013-Z	DESIGNED BY:	HM
SCALE:	AS SHOWN	DRAWN BY:	HM
DATE:	9/30/14	APPROVED BY:	RWS

4 OF 5 SHEET

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-24-15

Director — Date 2/24/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
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410.872.8800 · metro 301.881.8148 · fax 410.872.8803

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLER'S GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF.: L. 10579 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

RETAINING WALL DESIGN

DESIGN: DAM	SCALE: N/A	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	65 OF 77
CHECKED: ENJ	APPROVED: WRZ	

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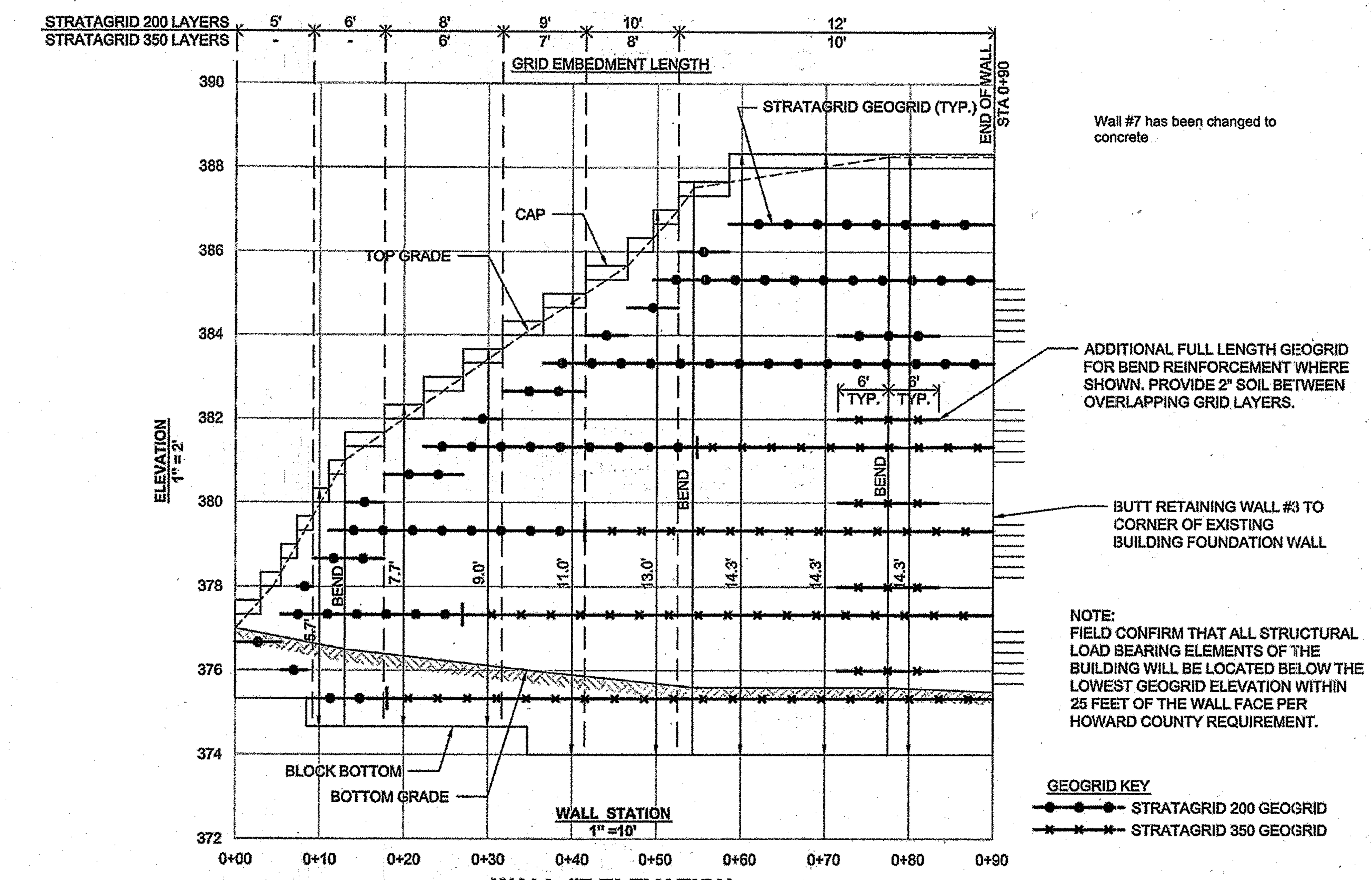
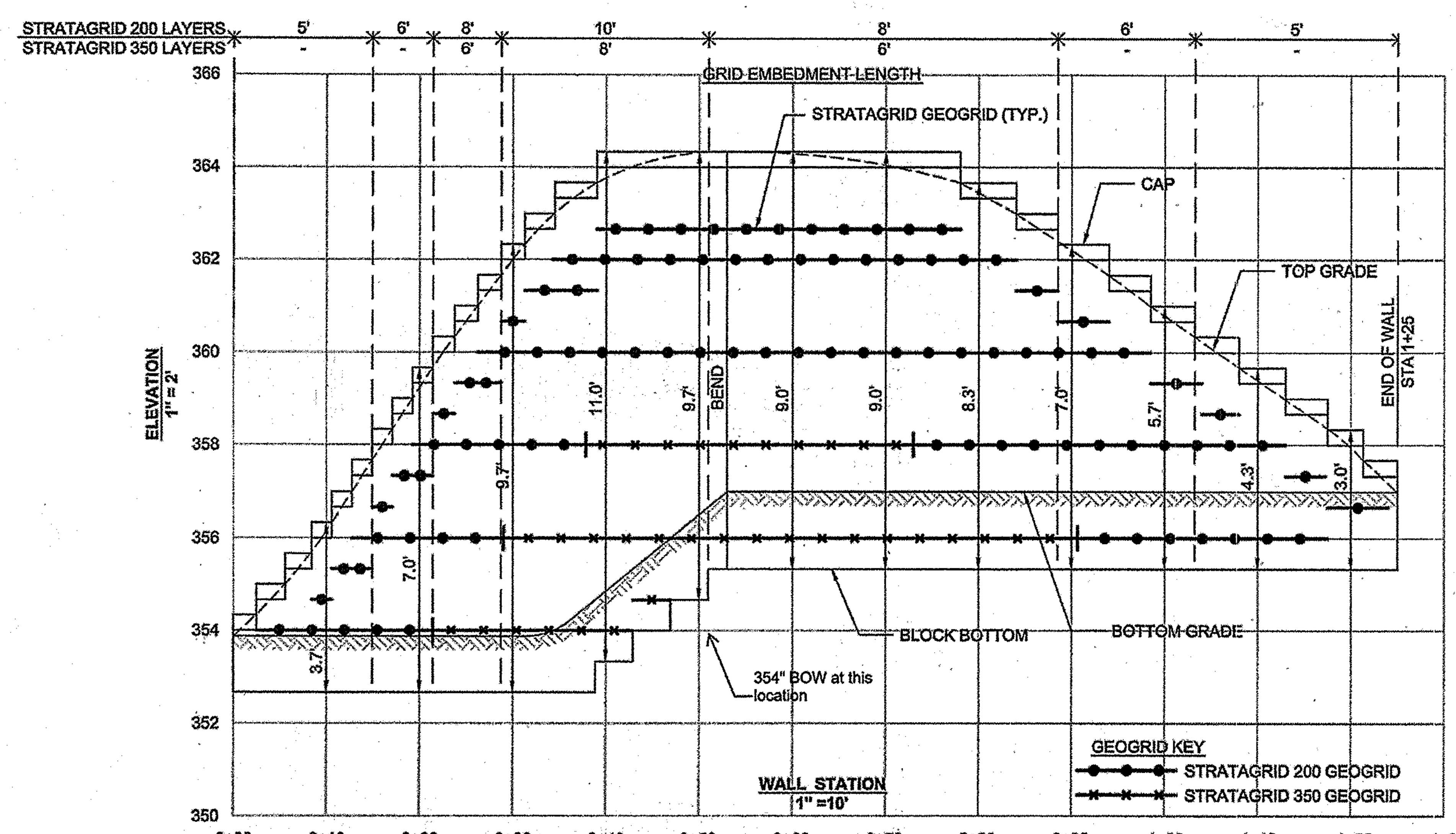


WALL #7 ELEVATION



WALL #9 ELEVATION

SPECIFICATIONS

MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 DESCRIPTION

A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.

B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.

C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 DELIVERY, STORAGE AND HANDLING

A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.

B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 MODULAR CONCRETE RETAINING WALL UNITS

A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:

FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.

FACE FINISH - SCULPTURED ROCK FACE IN ANGULAR TRI-PLANER OR FLAT CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.

EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING.

B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH APPROPRIATE REFERENCES:

COMPRESSIVE STRENGTH = 3000 PSI MINIMUM;
ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES;

DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16"

UNIT HEIGHT - TOP AND BOTTOM PLANES; UNIT SIZE - 8" (H) X 18" (W) X 12 (D) MINIMUM;

UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD WEIGHT AGGREGATES;

INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.

GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM

D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS: (IF APPLICABLE)

VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) OR 1"+ PER COURSE PER THE DESIGN; ALIGNMENT AND GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM;

MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH.

2.02 SHEAR CONNECTORS (IF APPLICABLE)

A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN-PROTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO + 100 DEGREES F. B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

2.03 BASE LEVELING PAD MATERIAL

A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.04 UNIT DRAINAGE FILL

A. UNIT DRAINAGE FILL SHALL CONSIST OF #57CRUSHED STONE

2.05 REINFORCED BACKFILL

A. REINFORCED BACKFILL SHALL TYPE SM, BE FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIEVE SIZE	PERCENT PASSING
2 INCH	100-75
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM D-4318.

B. MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

2.06 GEOGRID SOIL REINFORCEMENT

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER YARN.

2.07 DRAINAGE PIPE

A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-1248.

PART 3 EXECUTION

3.01 EXCAVATION

A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE EXCAVATION PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

3.02 BASE LEVELING PAD

A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE MODULAR WALL UNIT.

B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 MODULAR UNIT INSTALLATION

A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH STRUCTURE BACKFILL.

E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED THREE COURSES.

3.04 STRUCTURAL GEOGRID INSTALLATION

A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE MODULAR WALL UNITS. PLACE THE NEXT COURSE OF MODULAR CONCRETE UNITS OVER THE GEOGRID. THE GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.05 REINFORCED BACKFILL PLACEMENT

A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE.

B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND COMPACTION IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.

D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.

E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

F. RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

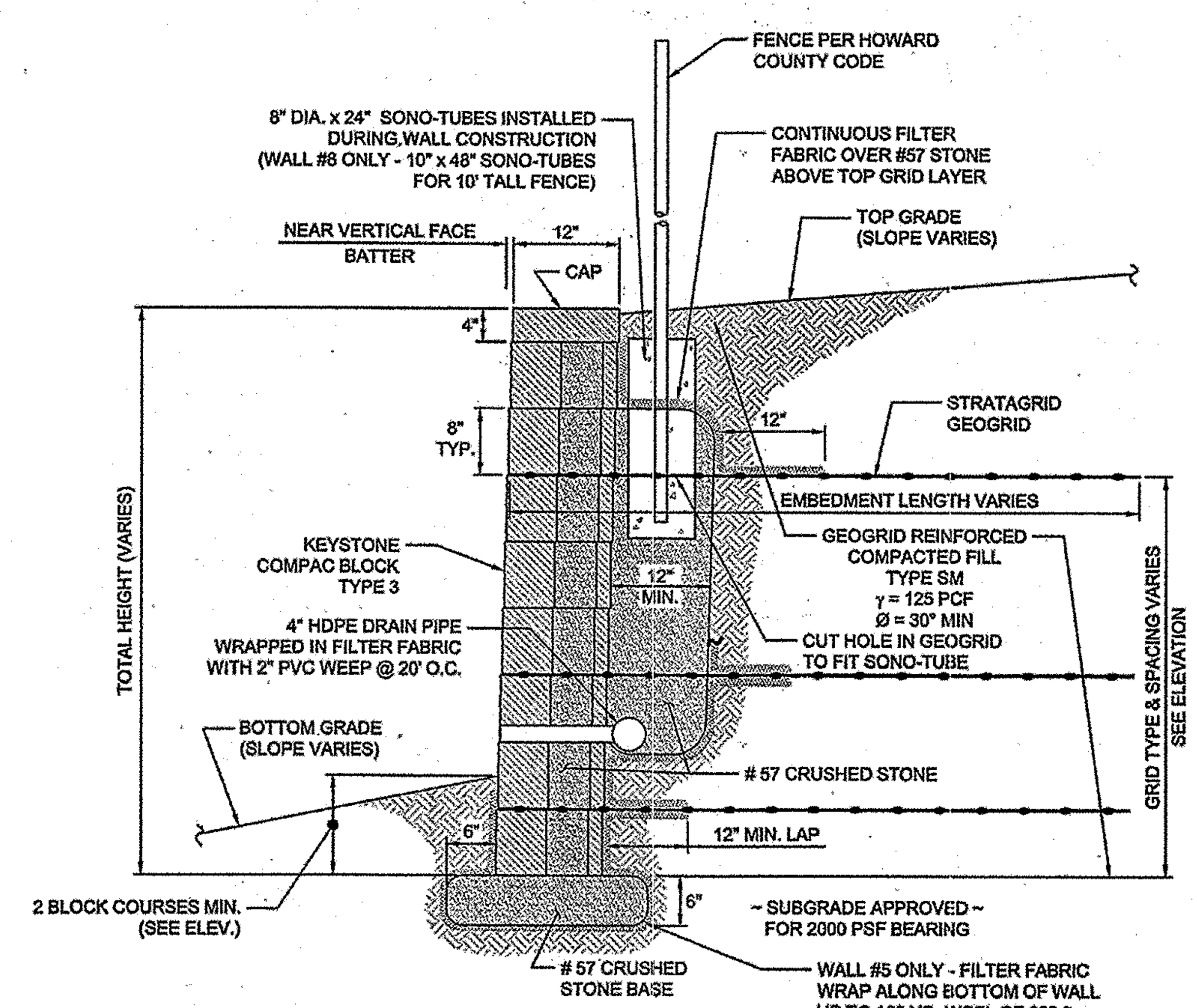
3.06 CAP INSTALLATION

A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL

A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.

B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.



TYPICAL WALL SECTION
N.T.S.

NOTES:

1. NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
2. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIV.) CERTIFIED SOILS TECHNICIAN.
3. ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
4. THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
5. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
6. WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
7. WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD CO. RIGHT-OF-WAY OR EASEMENT.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/15.

STATE OF MARYLAND · RICHARD WARREN STURTEVANT · No. 14434 · REGISTERED · PROFESSIONAL ENGINEER

HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax (410) 880-4098

RETAINING WALL #7, #8 ELEVATIONS AND CONSTRUCTION DETAILS
LUTHERAN VILLAGE AT MILLER'S GRANT
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE

JOB NUMBER: 14013-Z	DESIGNED BY: HM	5 OF 5 SHEET
SCALE: AS SHOWN	DRAWN BY: HM	
DATE: 9/30/14	APPROVED BY: RWS	

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 2.20.15
Chief, Development Engineering Division NY Date

[signature] 2-26-15
Chief, Division of Land Development Date

[signature] 2/26/15
Director Date

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

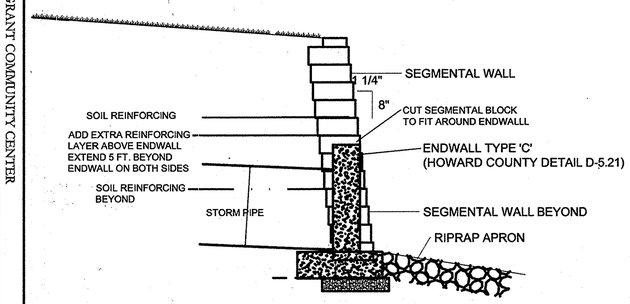
WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:

RETAINING WALL DESIGN

DESIGN: DAM	SCALE: N/A	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	66 OF 77
CHECKED: ENJ	APPROVED: WRZ	

P:\Projects\05B501\~MDC-XXX\~MDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redline Set\63-69 KEYSTONE.dwg, 12/29/2014 4:21:16 PM, eligoldman, 1:1, christopher consultants, ltd.



SEGMENTAL WALL AT PIPE ENDWALL

REFERENCE: S201

MILLERS GRANT COMMUNITY CENTER

COMMISSION NO. 2012072

DRAWING NO. SKS-8

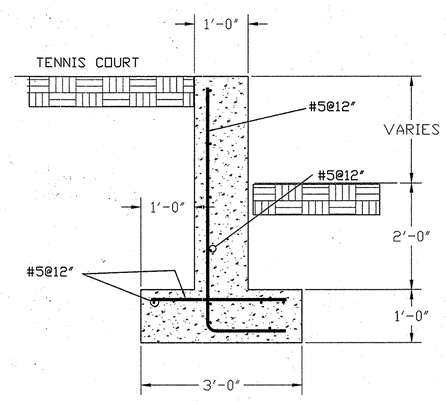
rlps architects

ZUG & ASSOC. LTD.

SCALE: AS NOTED

DRAWN BY: TLZ

DATE: 10-21-14



7 / S205 TENNIS COURT RETAINING WALL

N.T.S.

REFERENCE: S205

MILLERS GRANT COMMUNITY CENTER

COMMISSION NO. 2012072

rlps architects

ZUG & ASSOC. LTD.

SCALE: AS NOTED

DRAWN BY: TLZ

DATE: 10-21-14

DRAWING NO. SKS-9

APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-0090

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410.872.8890 · metro 301.881.0148 · fax 410.872.8890

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:

RETAINING WALL DESIGN

DESIGN: DAM	SCALE: N/A	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	67 OF 77
CHECKED: ENJ	APPROVED: WRZ	

STATE OF MARYLAND · THOMAS L. ZUG · REGISTERED PROFESSIONAL ENGINEER

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APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

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LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

TITLE:

N/A

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	68 OF 77
CHECKED: ENJ	APPROVED: WRZ	

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APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division NY — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

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PERMIT INFORMATION CHART

PROJECT NAME		LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT		A		602800
DEED REF. L. 10578 F. 424	GRID NO. 9	ZONE PSC	TAX MAP 24	ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07	

TITLE: N/A

DESIGN: DAM	SCALE: 1" = 50'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	69 OF 77
CHECKED: ENJ	APPROVED: WRZ	

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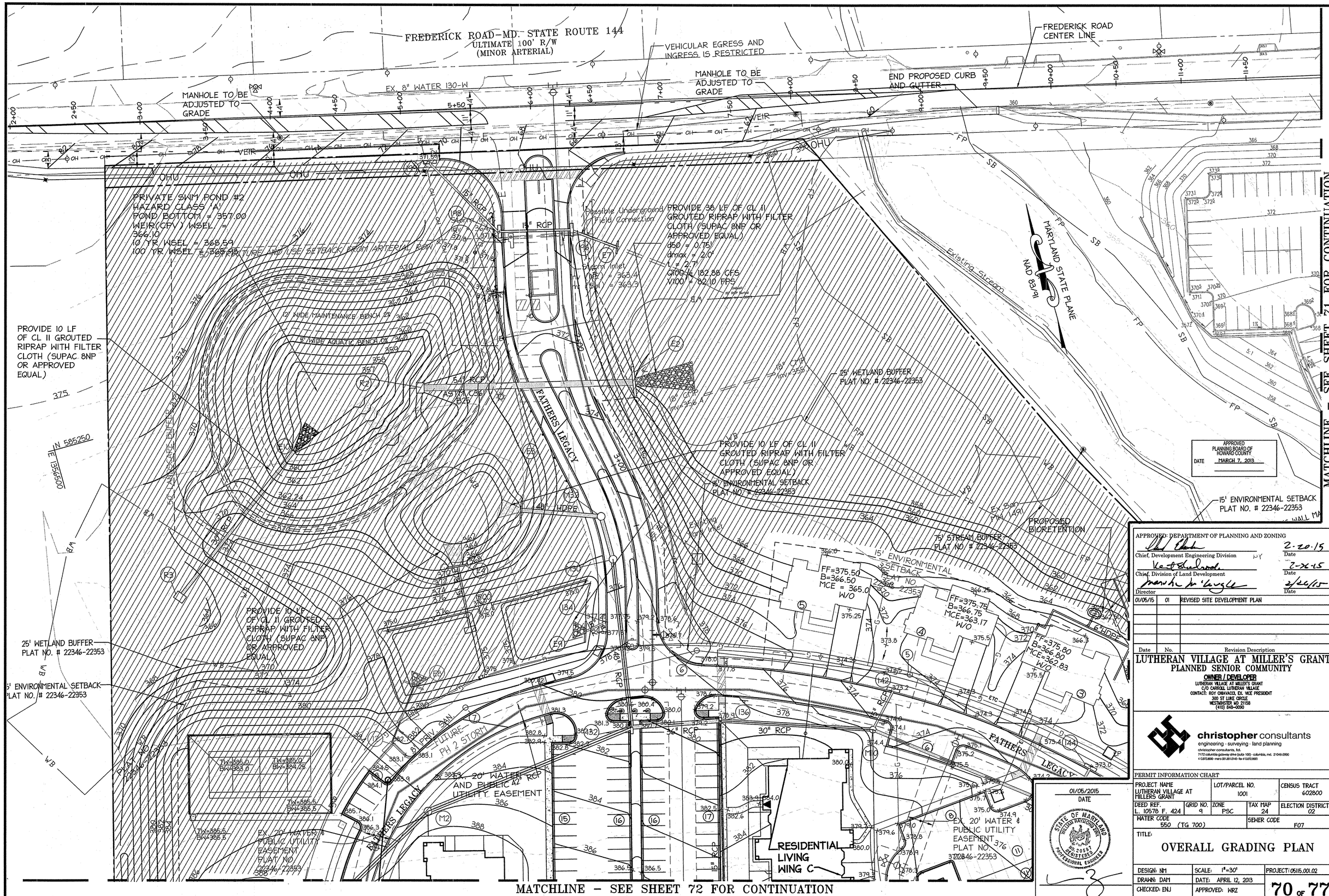

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	1001	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20587 — REGISTERED PROFESSIONAL ENGINEER

TITLE:
OVERALL GRADING PLAN

DESIGN: NM	SCALE: 1"=30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	70 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075

MATCHLINE – SEE SHEET 70 FOR CONTINUATION

ARCADIA ROAD

MARYLAND STATE PLANE
NAD 83/91

F.F.E. = 369.0

ROOF LINE

ROOF LINE

ONE WAY

ONE WAY

THREE 6.5" RISERS

SIX 6" STEPS

TWO 5" STEPS

PLAT NO. # 22346-22353

10' RETAINING WALL MAINTENANCE & CONSTRUCTION EASEMENT AND NO TREE PLANTING ZONE ON BOTH SIDE OF WALL PLAT NO. # 22346-22353

50' MINIMUM STRUCTURE AND USE SETBACK PER SECTION 127.1F.2C PLAT NO. # 22346-22353

5' WIDE LEVEL SPREADER

TW=356.0
BW=356.0

TW=362.0
BW=358.5

TW=354.0
BW=353.0

FF=375.00
B=366.00
MCE=362.4
W/O

FF=376.25
B=367.25
MCE=361.6
W/O

E 1357500
N 564750

PUBLIC 100-YEAR FLOODPLAIN EASEMENT PLAT NO. # 22346-22353

LEGACY

RCP

MATCHLINE – SEE SHEET 73 FOR CONTINUATION

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-24-15

Director — Date 2/24/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
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410.872.8660 · metro 301.861.0148 · fax 410.872.8665

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZIMMERMAN
No. 20567
REGISTERED
PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: 1001		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

OVERALL GRADING PLAN

DESIGN: NM	SCALE: 1"=30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	71 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDX-799 (SDP)

SDP-08-075

MATCHLINE - SEE SHEET 70 FOR CONTINUATION

RESIDENTIAL LIVING WING A

RESIDENTIAL LIVING WING B

EX. 20' WATER AND PUBLIC UTILITY EASEMENT PLAT NO. 22346-22353

FUTURE PHASE 2 BUILDING

FUTURE PHASE 2 PARKING AREA

FUTURE PHASE 2 BOCCE COURTS

OBSERVATION/WELL (TYP)

FUTURE PHASE 2 GAZEBO

HIGH CARE

COMMONS

RESIDENTIAL LIVING WING D

10' RETAINING WALL MAINTENANCE & CONSTRUCTION EASEMENTS AND NO PLANTING ZONE ON BOTH SIDES OF WALL. PLAT NO. # 22346-22353

EX. 20' WATER & PUBLIC UTILITY EASEMENT PLAT NO. 22346-22353

MARYLAND STATE PLANE NAD 83/91

LANDSCAPE BUFFER *SHOWN AS A 50' BUFFER AROUND THE ENTIRE PERIMETER OF THE PROPERTY AS REQUIRED UNDER Z8-1056M PLAT NO. # 22346-22353

50' MINIMUM STRUCTURE AND USE SETBACK PER SECTION 127.1F.2C PLAT NO. # 22346-22353

MATCHLINE - SEE SHEET 74 FOR CONTINUATION

MATCHLINE - SEE SHEET 73 FOR CONTINUATION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
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APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2015

01/05/2015
DATE

STATE OF MARYLAND · WILLIAM RAYMOND MIK · NO. 20507 · REGISTERED · PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: 1001		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

OVERALL GRADING PLAN

DESIGN: NM	SCALE: 1"=30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	72 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-790 (SDP)

SDP-08-075

MATCHLINE – SEE SHEET 71 FOR CONTINUATION

MATCHLINE – SEE SHEET 72 FOR CONTINUATION

MATCHLINE – SEE SHEET 75 FOR CONTINUATION

10' RETAINING WALL MAINTENANCE & CONSTRUCTION EASEMENT AND NO TREE PLANTING ZONE ON BOTH SIDE OF WALL PLAT NO. # 22346-22353

MODIFIED 10' RETAINING WALL MAINTENANCE & CONSTRUCTION EASEMENT AND NO TREE PLANTING ZONE ON BOTH SIDE OF WALL

GRACEFUL APPROACH

50' MINIMUM STRUCTURE AND USE SETBACK PER SECTION 127.1F.2C PLAT NO. # 22346-22353

MARYLAND STATE PLANE NAD 83/91

Existing 20' Sewer Right of Way Per L.465 F.388

Existing Forrest Rd. (MD 32) Variable Width Public Right of Way

75' STREAM BUFFER PLAT NO. # 22346-22353

25' ENVIRONMENTAL SETBACK PLAT NO. # 22346-22353

PROP. FH #9
B.L.E. = 378.01
B.L. = 4.5'
TRENCH = 373.51

FF=377.90
B=368.90
MCE=365.50
W/O

FF=376.00
B=367.00
MCE=365.16
W/O

FF=381.75
B=372.75
MCE=368.57
W/O

FF=377.70
MCE=365.61

VALS LANE

EXTENDED 10' RETAINING WALL SETBACK/EASEMENT WITH NO TREE PLANTING ZONE ON BOTH SIDES OF WALL

VALS PROVISION

EX. 20' WATER & PUBLIC UTIL. EASEMENT PLAT NO. 22346-22353

PROP. FH #10
B.L.E. = 380.8
B.L. = 7.0'
TRENCH = 373.32

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY ONAVIAOG, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
WESTMINSTER MD 21158
(410) 848-4090

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8600 - metro 301.261.6143 - fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: 1001		CENSUS TRACT: 602800
DEED REF.: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

OVERALL GRADING PLAN

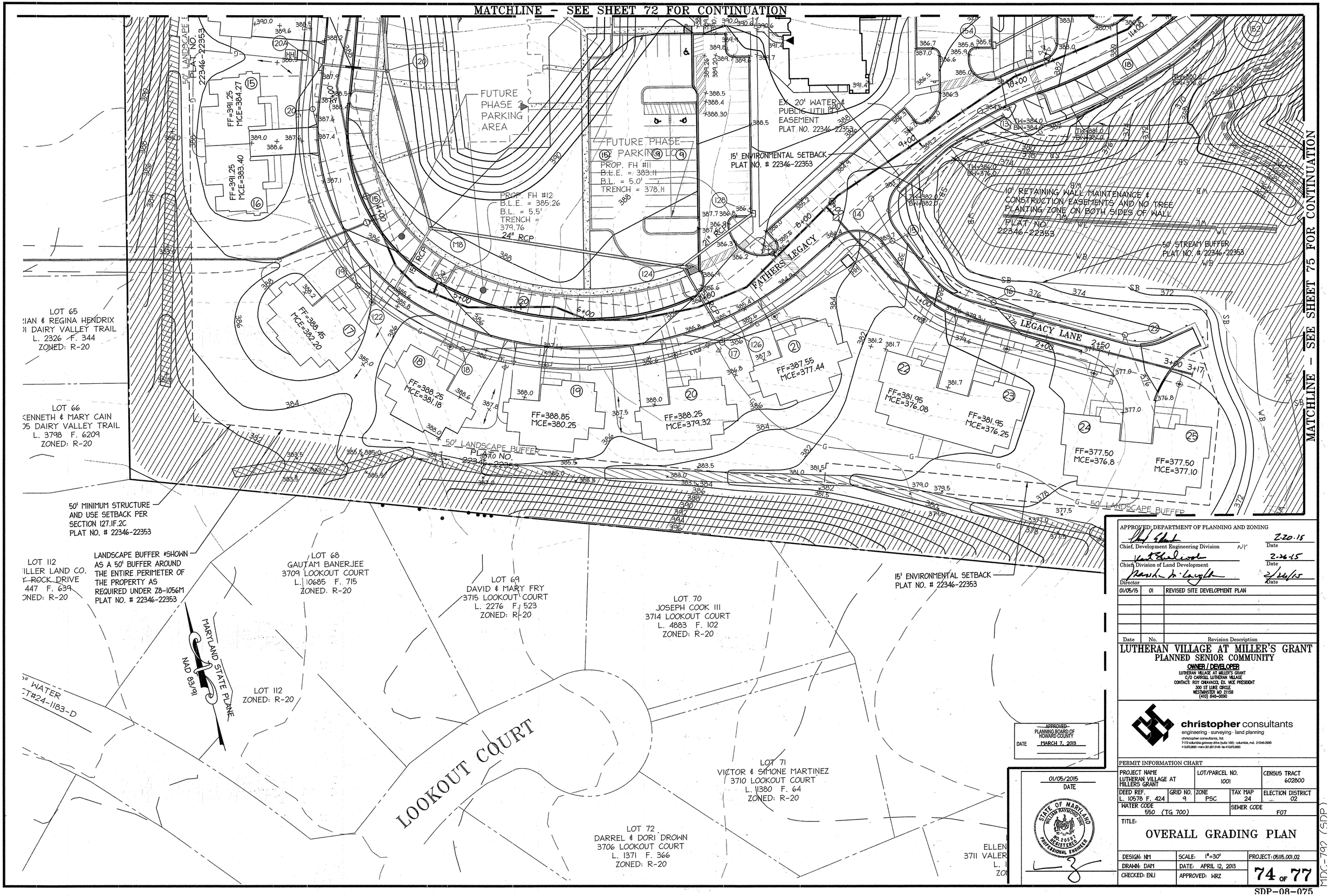
DESIGN: NM	SCALE: 1"=30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	73 OF 77
CHECKED: ENJ	APPROVED: WRZ	

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZOLL
NO. 21057
REGISTERED
PROFESSIONAL ENGINEER

MDX-799 (SDP)

SDP-08-075



APPROVED: DEPARTMENT OF PLANNING AND ZONING

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Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
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LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2500
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	1001	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

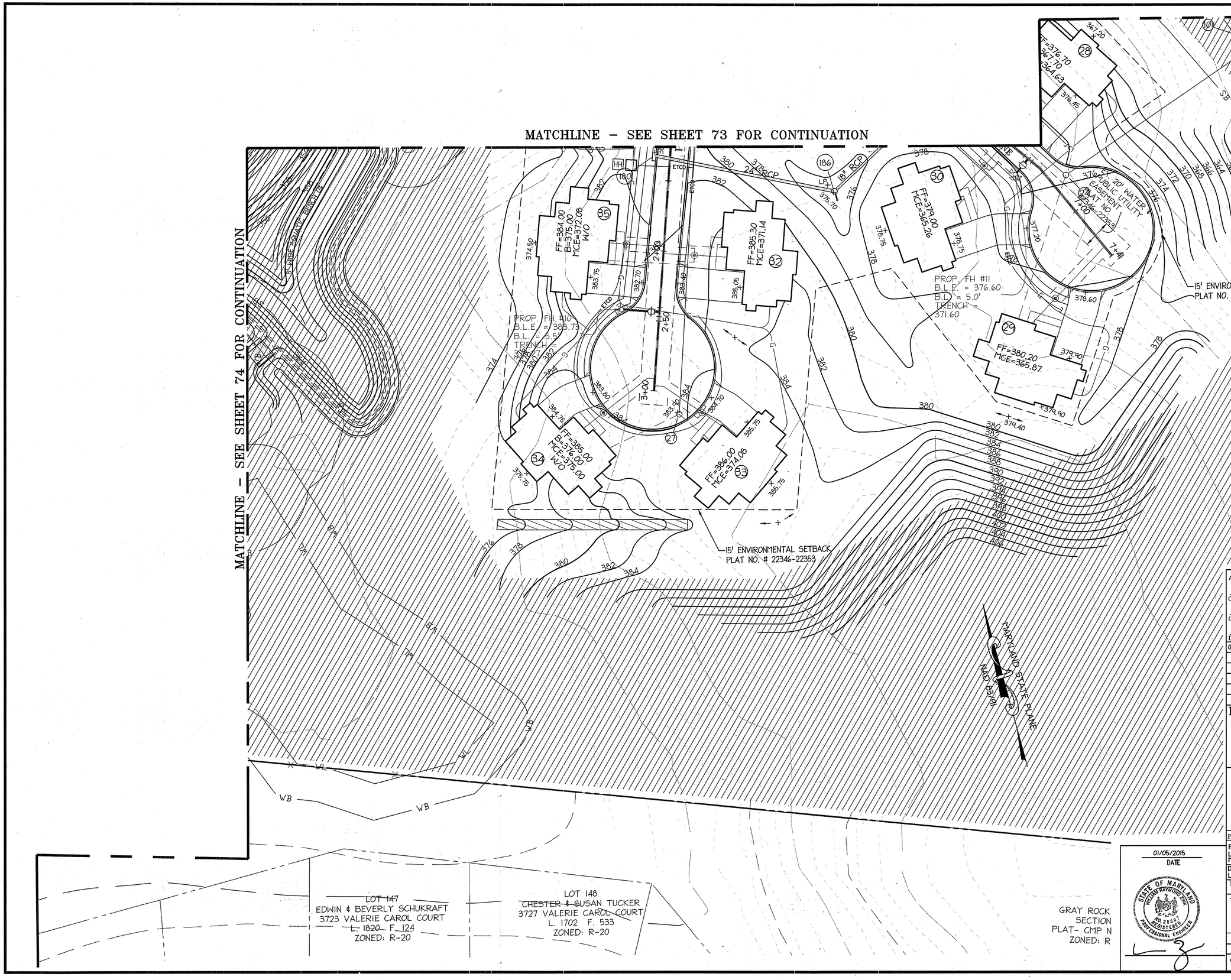
TITLE:

OVERALL GRADING PLAN

DESIGN: NM	SCALE: 1"=30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	74 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075



APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2-20-15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.	CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	1001	602800

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L. 10578 F. 424	9	PSC	24	02

WATER CODE	SEWER CODE
550 (TG 700)	F07

01/05/2015
DATE

STATE OF MARYLAND
WILLIAM RAYMOND ZINK
NO. 20587
REGISTERED
PROFESSIONAL ENGINEER

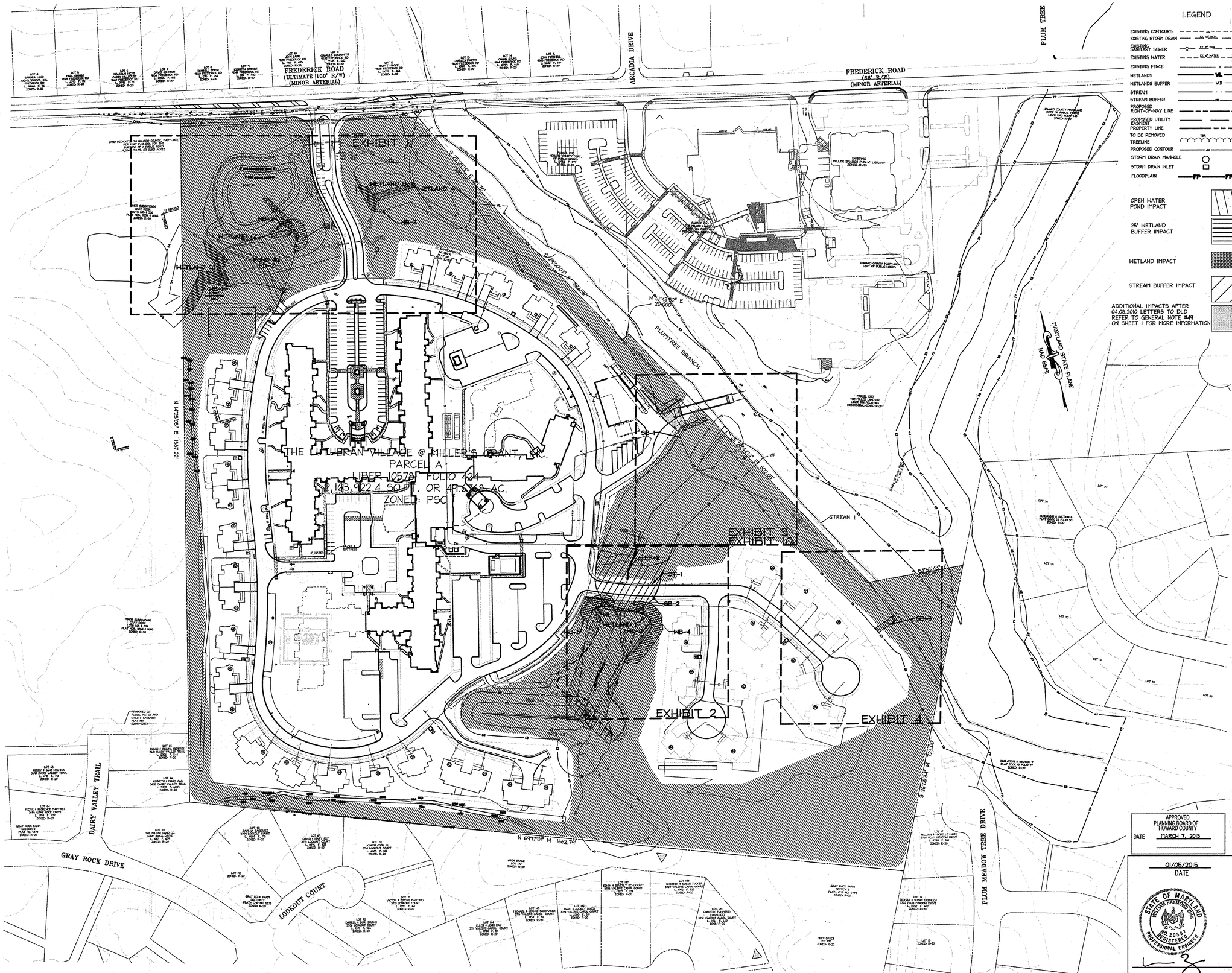
TITLE:

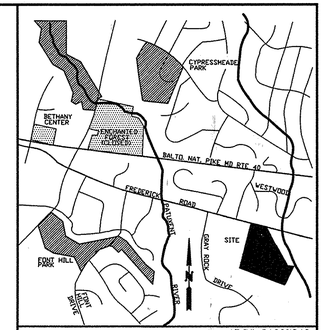
OVERALL GRADING PLAN

DESIGN: NM	SCALE: 1"=30'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	75 OF 77
CHECKED: ENJ	APPROVED: WRZ	

MDC-792 (SDP)

SDP-08-075





VICINITY MAP ADC# 21007249
SCALE 1"=2000'

HOWARD COUNTY MAP 20 GRID D-8

OPEN WATER		
POND 2	PD-1	24,809 SQ.FT.
POND 1	PD-2	18,861 SQ.FT.
TOTAL	-	43,670 SQ.FT.
WETLAND IMPACTS		
WETLAND CC 1	WL-1	108 SQ.FT.
WETLAND F 2	WL-2	739 SQ.FT.
WETLAND F 2	WL-3	71 SQ.FT.
WETLAND B* 1	WL-4	958.85 SQ.FT.
TOTAL	-	1,859 SQ.FT.
WETLAND BUFFER IMPACTS		
WETLAND C 1	WB-1	5,596.43 SQ.FT.
WETLAND CC 1	WB-2	2,463 SQ.FT.
WETLAND B 1	WB-3	1,528.33 SQ.FT.
WETLAND F 2	WB-4	5,043 SQ.FT.
WETLAND F 2	WB-5	2,334 SQ.FT.
WETLAND A 1	WB-6	203 SQ.FT.
TOTAL	-	17,167.76 SQ.FT.
FLOODPLAIN IMPACTS		
-	FP-1	756 SQ.FT.
TOTAL	-	756 SQ.FT.
STREAM IMPACTS		
TRIBUTARY 2	ST-1	148 SQ.FT.
STREAM BUFFER IMPACTS		
TRIBUTARY 3	SB-1	724.59 SQ.FT.
TRIBUTARY 2	SB-2	22,915 SQ.FT.
STREAM 2	SB-3	590 SQ.FT.
TRIBUTARY 2	SB-4	7,787 SQ.FT.
TRIBUTARY 1	SB-5	3,601.24 SQ.FT.
TOTAL	-	35,617.83 SQ.FT.

* TEMPORARTY WETLAND IMPACT (941 SQ.FT.)

TYPE OF IMPACT	SQ.FT.	ACRES	L.F.
OPEN WATER	43,670	1.00	-
WETLAND IMPACTS	1,859	0.04	-
WETLAND BUFFER IMPACTS	17,090	0.39	-
FLOODPLAIN IMPACTS	756	0.02	-
STREAM IMPACTS	112	LESS THAN 0.01	74
STREAM BUFFER IMPACTS	23,285	0.53	-

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 2.20.15

Chief, Division of Land Development — Date 2-26-15

Director — Date 2/26/15

Date	No.	Revision Description
01/05/15	01	REVISED SITE DEVELOPMENT PLAN

APPROVED
PLANNING BOARD OF
HOWARD COUNTY
DATE MARCH 7, 2013

01/05/2015
DATE

STATE OF MARYLAND — WILLIAM RAYMOND RILEY — NO. 20557 — REGISTERED PROFESSIONAL ENGINEER

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
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PERMIT INFORMATION CHART

PROJECT NAME: LUTHERAN VILLAGE AT MILLERS GRANT		LOT/PARCEL NO.: A		CENSUS TRACT: 602800
DEED REF: L. 10578 F. 424	GRID NO.: 9	ZONE: PSC	TAX MAP: 24	ELECTION DISTRICT: 02
WATER CODE: 550 (TG 700)			SEWER CODE: F07	

TITLE:

Wetland Impact Map Index

DESIGN: DAM	SCALE: 1"=100'	PROJECT: 05115.001.02
DRAWN: DAM	DATE: APRIL 12, 2013	76 OF 77
CHECKED: ENJ	APPROVED: WRZ	

P:\Projects\05115\01-ARDC-XXXX-ARDC-792 SDP\2014-01-22 Bid Set\2014-09-05 Redlines Set\06-Wetland Impacts Exhibit.dwg, 12/29/2014 4:21:59 PM, dkgoldman, 1:1, christopher consultants, ltd.

DESIGN CRITERIA

BUILDING CODE

INTERNATIONAL BUILDING CODE (IBC) 2009
VIRGINIA CONSTRUCTION CODE (VCC) 2009 **
LOCAL CODE AMENDMENTS: FAIRFAX COUNTY, VA

LIVE LOADS:
ACI 350
SECTION 1607 IBC
CHAPTER 4 ASCE 7

GENERAL

1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCES TO ENSURE STABILITY AND SAFETY DURING CONSTRUCTION. THIS INCLUDES BUT IS NOT LIMITED TO, THE ADDITION OF SHEETING, SHORING, TEMPORARY BRACING, GUYS, AND TIEDOWNS. THE CONTRACTOR SHALL PROVIDE SHORING AND BRACING NECESSARY TO PROTECT EXISTING AND ADJACENT STRUCTURES.

2. STRUCTURAL DOCUMENTS SHALL BE USED WITH OTHER CONSTRUCTION DOCUMENTS, INCLUDING ARCHITECTURAL, M/E/P, AND SITE DOCUMENTS. COORDINATE WITH THESE DOCUMENTS, ALL FLOOR AND ROOF OPENINGS, DEPRESSIONS, DIMENSIONS, AND SLOPES, ETC. ANY DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LIMITING CONSTRUCTION LOADS SUCH THAT THESE LOADS DO NOT EXCEED THE DESIGN LIVE LOADS NOTED ABOVE. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AS REQUIRED DURING CONSTRUCTION TO SUPPORT CONSTRUCTION LOADS UNTIL SUCH TIME THAT THE STRUCTURE IS ABLE TO SUPPORT THE DESIGN LIVE LOADS NOTED.

4. SECTIONS AND DETAILS SHOWN ON THE STRUCTURAL DOCUMENTS SHALL BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS THAT DO NOT HAVE A SPECIFIC SECTION INDICATED.

5. TYPICAL DETAILS APPLY AT ALL APPROPRIATE LOCATIONS AND ARE NOT GENERALLY CUT ON PLANS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL TYPICAL DETAIL APPLICATIONS.

6. FOR INCONSISTENCIES BETWEEN GENERAL NOTES, SPECIFICATIONS AND CONSTRUCTION DOCUMENTS, THE STRICTER REQUIREMENT SHALL APPLY, AND ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

7. PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND MISCELLANEOUS ITEMS INCLUDING BUT NOT LIMITED TO CLIPS, INSERTS, TIES, ANCHOR STRAPS, HANGERS, BOLTS, AND OTHER FASTENERS REQUIRED TO COMPLETE THE WORK.

EXISTING CONDITIONS

1. THE DRAWINGS MAY REFLECT INFORMATION PROVIDED BY OTHERS AND/OR EXISTING CONDITIONS THAT HAVE BEEN SURVEYED AND/OR DOCUMENTED TO THE GREATEST POSSIBLE EXTENT BUT NOT VERIFIED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FULLY COORDINATE THE WORK, INCLUDING, BUT NOT NECESSARILY LIMITED TO, THE VERIFICATION OF ALL EXISTING CONDITIONS SHOWN IN THE DRAWINGS, COORDINATION OF ALL NECESSARY BUILDING TRADES, ETC. ANY AND ALL CONDITIONS THAT ARE MIS-REPRESENTED IN THESE DOCUMENTS, OR ANY CONDITIONS THAT ARE NOT SHOWN BUT WARRANT THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER, SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER.

2. MEANS AND METHODS OF CONSTRUCTION AND TEMPORARY SHORING AND BRACING OF THE EXISTING STRUCTURE(S) ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER MAY INCLUDE PHASING, SEQUENCING, SHORING REQUIREMENTS, ETC. IN THE CONSTRUCTION DOCUMENTS TO ALERT, ASSIST, OR OTHERWISE DICTATE PROCEDURAL REQUIREMENTS THAT MAY BE NECESSARY TO PROPERLY IMPLEMENT THE STRUCTURAL PORTION OF THE WORK OR THAT MAY BE REQUIRED TO ENSURE BUILDING STABILITY; HOWEVER, THE CONTRACTOR SHALL PROPERLY COORDINATE THESE REQUIREMENTS AND SHALL REMAIN COMPLETELY AND SOLELY RESPONSIBLE FOR ERECTING THE BUILDING STRUCTURE IN A SAFE AND TIMELY MANNER.

3. UNLESS OTHERWISE INDICATED, IT HAS BEEN ASSUMED THAT THE EXISTING STRUCTURE(S) ARE IN SERVICEABLE CONDITION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY AND ALL AREAS OF STRUCTURAL DISTRESS (INCLUDING, BUT NOT LIMITED TO, CRACKS, SPALLING, ETC.) NOT INDICATED IN THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL NOT PROCEED WITH WORK IN SUCH AREAS WITHOUT DIRECTION FROM THE ENGINEER.

CONCRETE

1. ALL CONCRETE CONSTRUCTION INCLUDING DETAILING, FABRICATION, PLACEMENT OF REINFORCING, MIXING, HANDLING, PLACING, FINISHING, AND CURING SHALL CONFORM TO ACI 'STRUCTURAL CONCRETE FOR BUILDINGS' (ACI 301), ACI 'MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES' (ACI-315), AND 'ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE' (ACI-318).

2. ALL CONCRETE SHALL CONFORM TO ASTM C94. MINIMUM COMPRESSIVE STRENGTH AND MAXIMUM WATER/CEMENT RATIO SHALL BE AS FOLLOWS:

CONCRETE PROPERTIES

STRUCTURE TYPE	F'c: 28 DAY MINIMUM COMPRESSIVE STRENGTH, PSI	WATER/CEMENT RATIO (AIR ENTRAINED)	AIR CONTENT (PERCENT)	WATER/CEMENT RATIO (NON-AIR ENTRAINED)
FOUNDATIONS	3,000	0.59	6% ± 1%	-
WALLS & SLABS	4,500	0.40	6% ± 1%	0.48

NOTES:

A. CONCRETE TO RECEIVE A SMOOTH, DENSE, HARD-TROWEL FINISH SHALL NOT BE AIR ENTRAINED

3. CONTRACTOR SHALL PROVIDE CONCRETE MIX DESIGN DATA CONFORMING TO CHAPTER 5 OF ACI 318 FOR EACH TYPE AND STRENGTH OF CONCRETE SPECIFIED. MIX DESIGN DATA SHALL INCLUDE CONCRETE STRENGTH, SLUMP, AIR ENTRAINMENT, PROPOSED AGGREGATES, ADMIXTURES, POZZOLANS AND LABORATORY TEST DATA.

4. MATERIALS USED IN CONCRETE MIXES SHALL CONFORM TO THE FOLLOWING STANDARDS:
   - PORTLAND CEMENT CONFORMING TO ASTM C150
   - FLY ASH CLASS C & F CONFORMING TO ASTM C618. FLY ASH SHALL BE LIMITED TO A MAXIMUM OF 20% OF TOTAL CEMENTITIOUS MATERIALS BY WEIGHT AND SHALL NOT BE USED IN COLD WEATHER AND EXTERIOR APPLICATIONS.
   - GROUND GRANULATED BLAST-FURNACE SLAG GRADE 100 & 120 CONFORMING TO ASTM C989. SLAG SHALL BE LIMITED TO A MAXIMUM OF 50% OF TOTAL CEMENTITIOUS MATERIALS BY WEIGHT IN TYPICAL APPLICATIONS AND 25% IN COLD WEATHER AND EXTERIOR APPLICATIONS.
   - AIR-ENTRAINED ADMIXTURES CONFORMING TO ASTM C260
   - ADDITIONAL ADMIXTURES SHALL CONFORM TO ASTM C494 AND ASTM C1017

5. CONCRETE AGGREGATES SHALL CONFORM TO THE FOLLOWING:
   - AGGREGATES SHALL CONFORM TO ASTM C33
   - AGGREGATES USED IN LIGHT WEIGHT CONCRETE SHALL CONFORM TO ASTM C330
   - MAXIMUM AGGREGATE SIZE FOR CONCRETE 1 IN.
   - MAXIMUM AGGREGATE SIZE FOR PEA-GRAVEL CONCRETE ⅜ IN.

6. PROPORTION AND DESIGN MIXES TO RESULT IN CONCRETE SLUMP OF 3½ IN. ± 1 IN. AT THE POINT OF PLACEMENT. CONCRETE CONTAINING HIGH-RANGE WATER REDUCERS (HRWR) SHALL HAVE A SLUMP OF 4 IN. TO 8 IN.

7. OWNER SHALL RETAIN THE SERVICES OF A QUALIFIED TESTING AGENCY TO PROVIDE TESTING OF CONCRETE TO INCLUDE COMPRESSIVE STRENGTH, TEMPERATURE, SLUMP AND AIR ENTRAINMENT. SAMPLES FOR STRENGTH TESTS OF EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 CUBIC. YARDS OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5000 SQ. FT OF SURFACE AREA OF SLABS OR WALLS. EACH SAMPLE SHALL INCLUDE THE FOLLOWING:
   - (2) 7 DAY LAB CURED CYLINDER BREAKS
   - (2) 28 DAY LAB CURED CYLINDER BREAKS
   - (2) 28 DAY FIELD CURED CYLINDER BREAKS
   - (1) 56 DAY LAB CURED CYLINDER BREAK (HELD IN RESERVE)
   - CONTRACTOR SHALL OBTAIN ADDITIONAL FIELD CURED CYLINDERS AS NECESSARY TO MEET FORMWORK AND SHORING REMOVAL REQUIREMENTS.

9. ALL STRUCTURAL MEMBERS SHALL BE POURED TO THEIR FULL DEPTHS IN ONE OPERATION. CONTRACTOR SHALL PROVIDE LOCATIONS OF CONSTRUCTION JOINT LOCATIONS FOR REVIEW.

REINFORCEMENT STEEL

1. CONCRETE REINFORCING SHALL CONFORM TO THE FOLLOWING DESIGNATIONS:
   - DEFORMED BARS ASTM A615, GRADE 60
   - DEFORMED BARS (WELDABLE) ASTM A706
   - DEFORMED BARS (EPOXY-COATED) ASTM A775 & A615, GR. 60
   - WELDED WIRE MESH ASTM A185

2. FABRICATE AND PROVIDE STANDARD SUPPORTING ACCESSORIES IN ACCORDANCE WITH THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, ACI 315.

3. UNLESS NOTED OTHERWISE, REINFORCING SHALL BE CONTINUOUS WITH CLASS B LAP SPLICES, HOOKS SHALL BE STANDARD HOOKS, AND WALL INTERSECTIONS SHALL HAVE CORNER/L-BARS. LAP WELD WIRE MESH SUCH THAT THE OVERLAP OF THE OUTERMOST CROSS-WIRES OF EACH ADJOINING SHEET IS NOT LESS THAN THE SPACING OF THE CROSS-WIRES PLUS 2 IN., UNO. REFER TO TYPICAL DETAILS FOR ADDITIONAL DETAILING REQUIREMENTS.

4. ALL TOP REINFORCING STEEL AND BEAM STIRRUPS IN BALCONIES, PARKING SLABS AND WEATHER-EXPOSED LOCATIONS SHALL BE EPOXY COATED. ALL REINFORCEMENT IN BELOW GRADE TANKS AND STRUCTURES SHALL BE EPOXY COATED.

5. CONCRETE PROTECTION FOR REINFORCEMENT:
   - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3 IN.
   - CONCRETE EXPOSED TO EARTH OR WEATHER
     - NO. 6 AND LARGER, 2 IN.
     - NO. 5 AND SMALLER 1½ IN..
   - FRAMED SLABS, PARKING SLAB TOP BARS W/ EPOXY COATING, AND JOISTS ¾ IN.
   - INTERIOR FACES OF WALLS 1 IN

POST INSTALLED MECHANICAL AND CHEMICAL ANCHORS

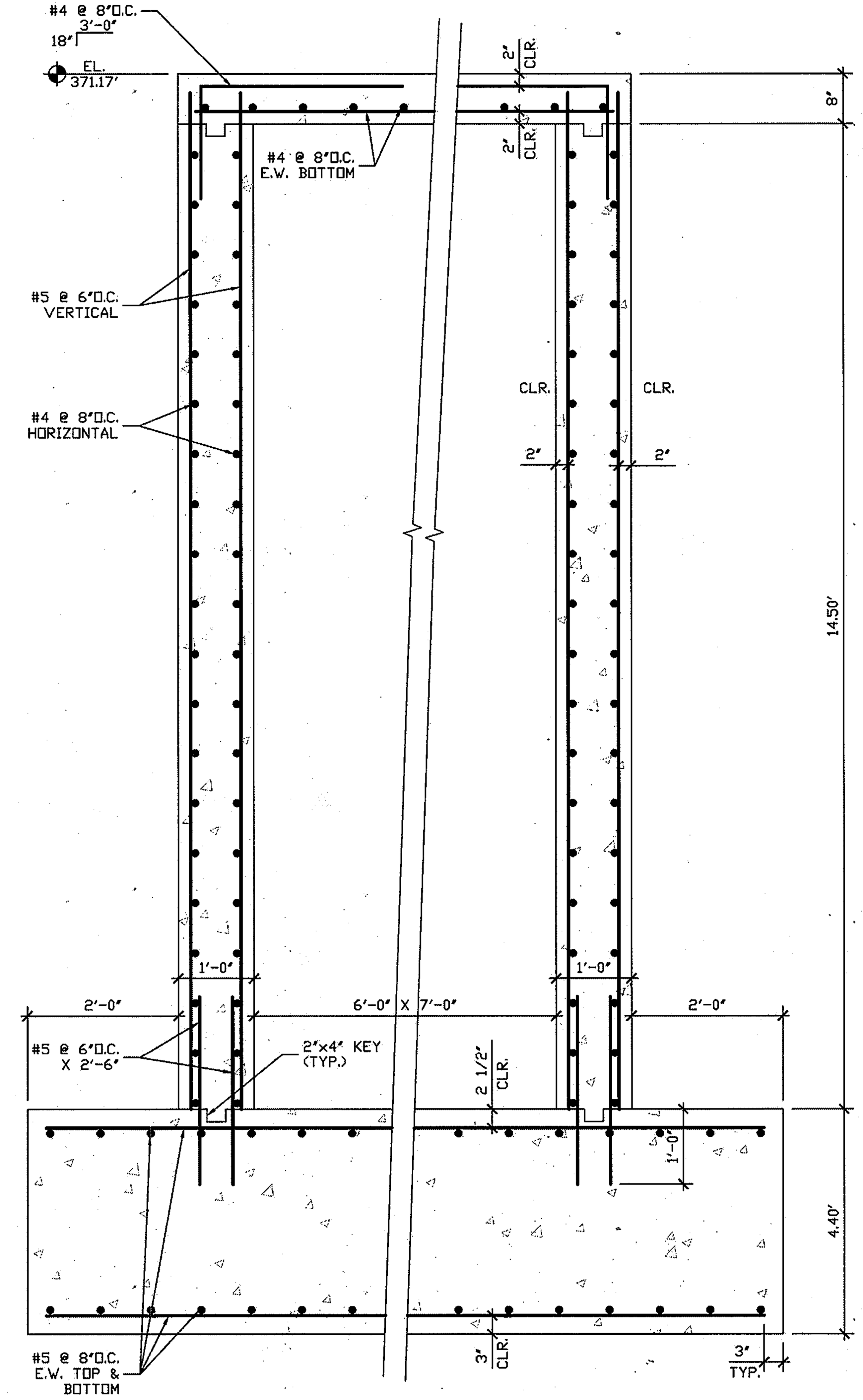
1. ALL MECHANICAL AND CHEMICAL ANCHORS INDICATED WITHIN THESE DOCUMENTS SHALL BE PROVIDED BY HILTI, POWERS, OR AN STRUCTURA-APPROVED EQUIVALENT. ALTERNATE ANCHORS SHALL SUBMITTED TO STRUCTURA FOR APPROVAL-SUBMITTAL MUST INCLUDE ALL RELEVANT TECHNICAL INFORMATION INCLUDING ALLOWABLE LOAD VALUES. THE FOLLOWING ANCHORS WERE ASSUMED DURING DESIGN UNLESS SPECIFICALLY NOTED OTHERWISE:

   A. CHEMICAL ANCHORS: HILTI HAS-E RODS (STANDARD) w/ HILTI HY150 ADHESIVE SYSTEM.
      - 6⅝ INCH MINIMUM EMBEDMENT
      - 6 INCH MINIMUM EDGE DISTANCE FROM FREE EDGE (IN DIRECTION OF LOAD)

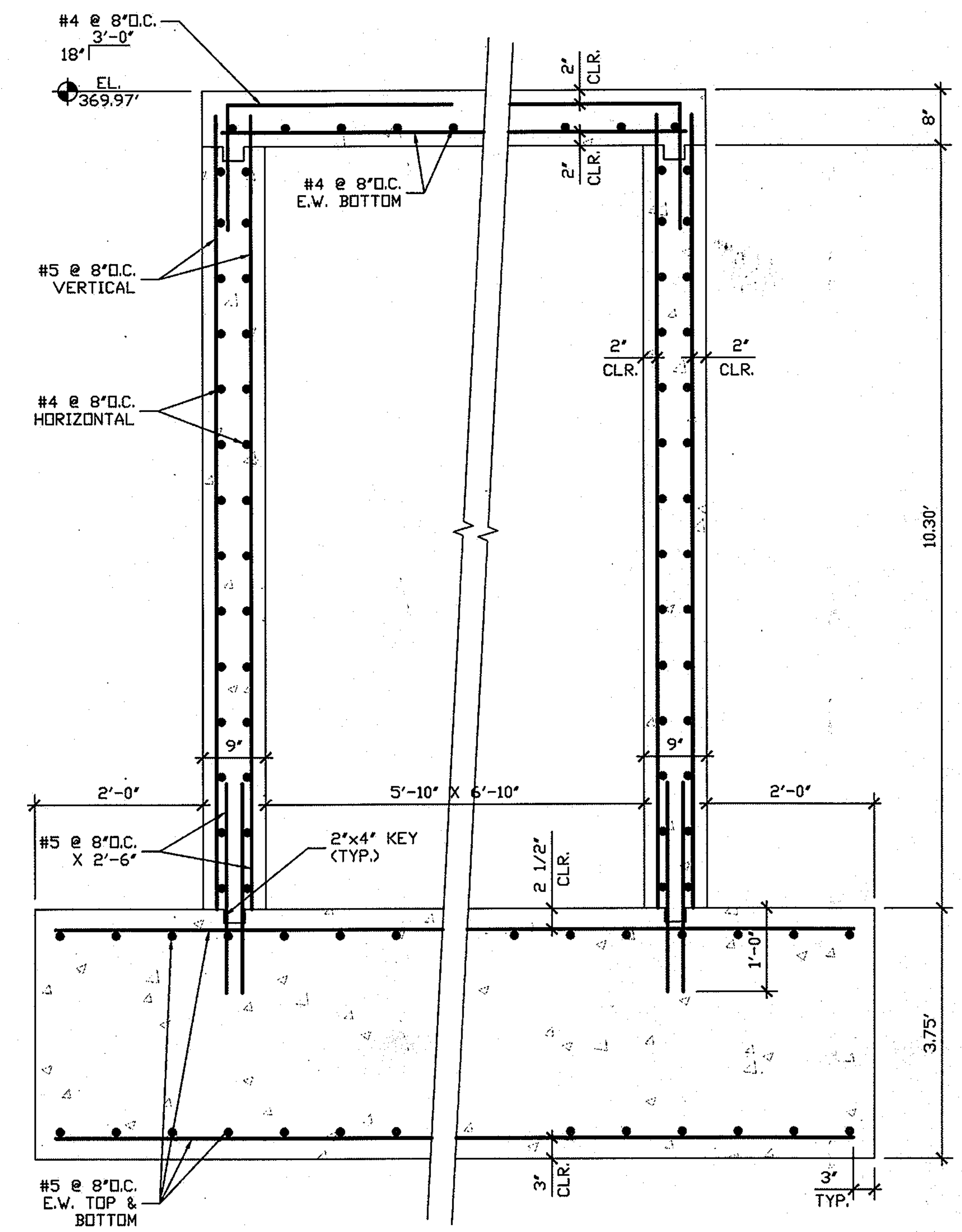
   B. EXPANSION ANCHORS: HILTI KWIK BOLT III
      - 6 INCH MINIMUM EMBEDMENT
      - 6 INCH MINIMUM EDGE DISTANCE FROM FREE EDGE (IN DIRECTION OF LOAD)

2. ALL ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE ANCHOR MANUFACTURER'S SPECIFICATIONS.

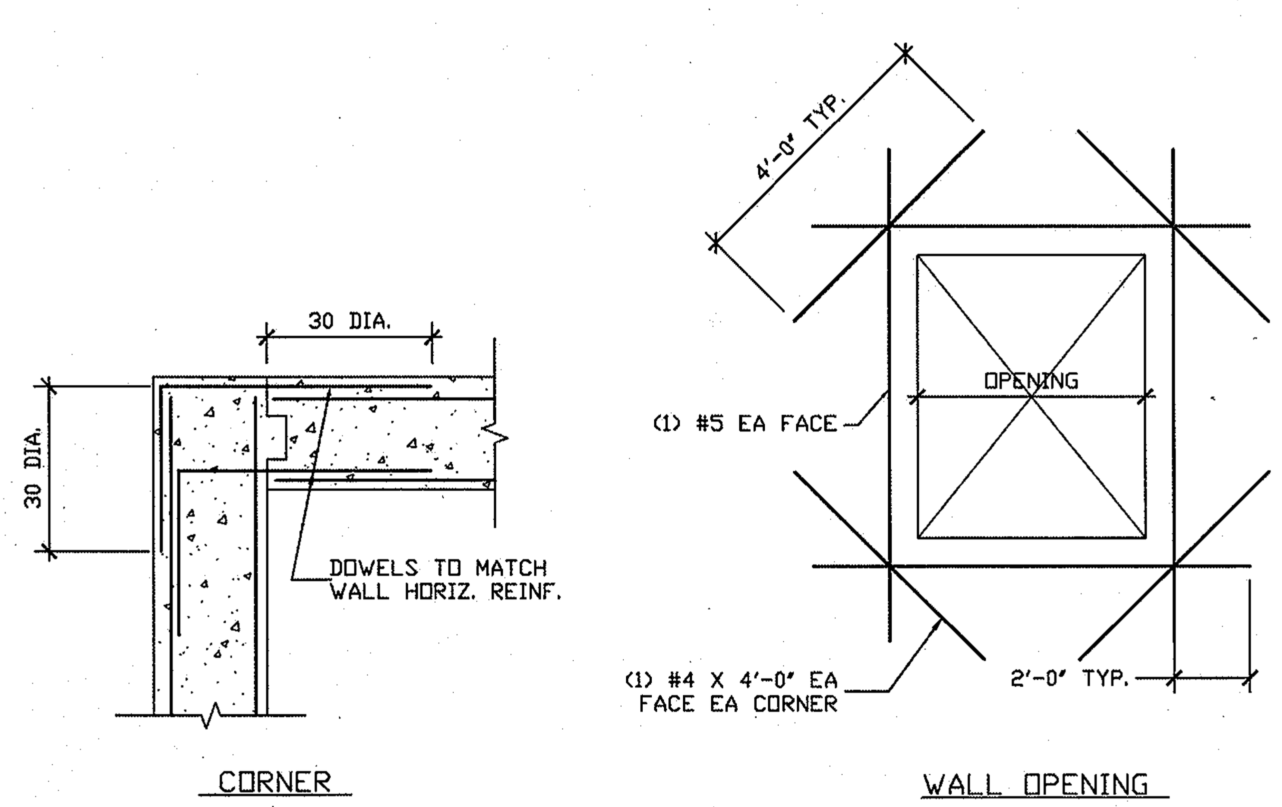
3. UON, ALL ANCHORS SHALL HAVE STANDARD EMBEDMENT DEPTH AS DEFINED BY THE ANCHOR MANUFACTURER.



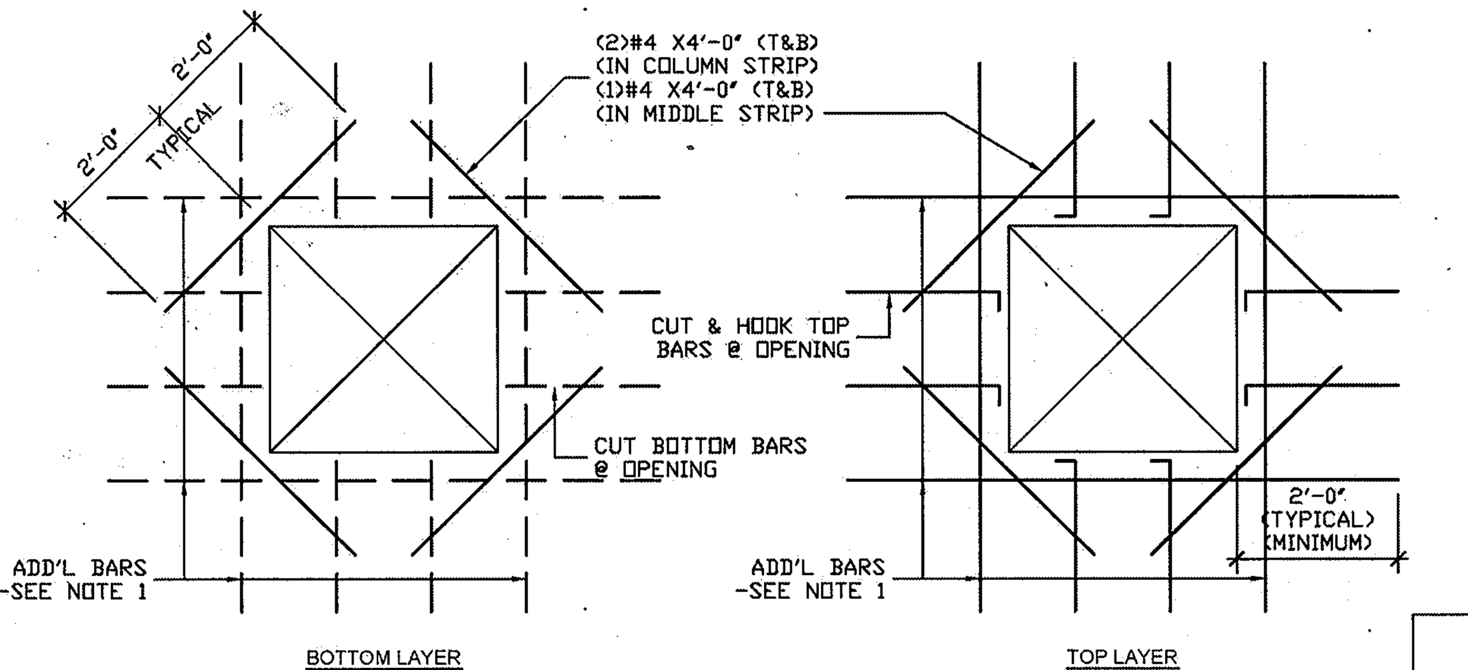
1 S-1 SECTION - RISER # 1
Scale: 3/4" = 1'-0"



2 S-1 SECTION - RISER # 2
Scale: 3/4" = 1'-0"



3 S-1 TYPICAL CONCRETE WALL DETAILS
Scale: N.T.S



4 S-1 TYPICAL SLAB OPENING
Scale: N.T.S

NOTES:

1. PROVIDE ADDITIONAL BARS EQUAL IN AREA TO REINFORCEMENT CUT @ OPENING. PLACE HALF OF THE REINFORCEMENT EACH SIDE MINIMUM OF (2)#4 EACH SIDE IN COLUMN STRIP & (1)#4 EACH SIDE IN MIDDLE STRIP.
2. ADDITIONAL BARS SHALL BE THE SAME LENGTH AS INTERRUPTED BARS WERE ORIGINALLY.

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 16743, Expiration Date: 12/18/2013

structura
an engineering collaborative

03/28/13
DATE

STATE OF MARYLAND JEFFREY N. OVERMILLER No. 16743 PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 4/26/13
Chief, Division of Land Development	Date 4/26/13
Director	Date 4/26/13

Date	No.	Revision Description

LUTHERAN VILLAGE AT MILLER'S GRANT
PLANNED SENIOR COMMUNITY

OWNER / DEVELOPER
LUTHERAN VILLAGE AT MILLER'S GRANT
C/O CARROLL LUTHERAN VILLAGE
CONTACT: ROY CHIAVACCI, EX. VICE PRESIDENT
300 ST LUKE CIRCLE
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(410) 848-0090

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PERMIT INFORMATION CHART

PROJECT NAME	LOT/PARCEL NO.		CENSUS TRACT
LUTHERAN VILLAGE AT MILLERS GRANT	A		602800
DEED REF/PLAT: L. 10578 F. 424 / 22346-22353	GRID NO. 9	ZONE PSC	TAX MAP 24 / ELECTION DISTRICT 02
WATER CODE 550 (TG 700)			SEWER CODE F07

TITLE:
STRUCTURAL DETAILS
RISERS #1 & #2

DESIGN: ENJ	SCALE:	PROJECT: 05115.001.02
DRAWN: DAM	DATE: --	77 OF 77
CHECKED: ENJ	APPROVED: --	

MDC-792 (SDP)