

**GENERAL NOTES**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE EXISTING TOPOGRAPHY SHOWN IS FIELD SURVEYED BY BENCHMARK ENGINEERING, INC. IN APRIL, 2003.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NOS. 17EA AND 17EB WERE USED FOR THIS PROJECT.
- EXISTING UTILITIES WERE LOCATED BY RECORD DRAWINGS AND FIELD LOCATIONS. CONTRACTOR SHALL VERIFY LOCATION OF UTILITIES PRIOR TO CONSTRUCTION.
- WATER IS PUBLIC, CONTRACT NO. 24-4453-D.
- SEWER IS PUBLIC, CONTRACT NO. 24-4453-D.
- THE SUBJECT PROPERTY IS ZONED R-20 PER THE 2-2-2004 COMPREHENSIVE ZONING PLAN AND THE 7-28-2006 COMP LITE ZONING REGULATION AMENDMENTS.
- WETLAND DELINEATION COMPILED BY ECO-SCIENCE PROFESSIONALS, INC. DATED JANUARY, 2003 AND APPROVED AS A PART OF P-07-013. THERE ARE NO WETLANDS OR WETLAND BUFFERS LOCATED ON THIS SITE.
- THERE IS NO 100-YEAR FLOODPLAIN, STEEP SLOPES, STREAMS OR STREAM BUFFERS LOCATED ON THIS SITE.
- A TRAFFIC AND SPEED STUDY WAS PREPARED BY MARS IN JUNE, 2003 AND REVISED IN AUGUST, 2003 AND APPROVED UNDER S-03-20.
- THE EXISTING HOUSE (CIRCA 1950) LOCATED ON PROPOSED LOT 7 IS TO BE REMOVED.
- STORMWATER MANAGEMENT QUALITY TREATMENT SHALL BE PROVIDED BY DRY SWALES LOCATED IN HOMEOWNERS ASSOCIATION OPEN SPACE LOTS 10 AND 11 AND ON-SITE RAIN GARDENS. RAIN GARDEN LOCATIONS ARE PRELIMINARY. RAIN GARDENS MAY NOT BE LOCATED CLOSER THAN 10' FROM BUILDINGS. LOCATIONS WILL BE DETERMINED WHEN HOUSE CONFIGURATIONS ARE DETERMINED AT THE SDP PLAN STAGE. ALL FACILITIES SHALL BE PRIVATELY MAINTAINED.
- THIS SITE CONTAINS NOISE LEVELS GREATER THAN 65DBA. NOISE REDUCTION WILL BE ACCOMPLISHED THROUGH THE USE OF ALTERNATIVE COMPLIANCE METHODS. THESE METHODS ARE EXPLAINED IN GENERAL NOTE #31.
- THIS SUBDIVISION IS SUBJECT TO THE FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AS GRANDFATHERED BY APPROVED WP-04-46. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- THERE ARE NO BURIAL GROUNDS, CEMETARY SITES OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- WP-04-46 A REQUEST TO WAIVE SECTION 16.102(h)(1) WHICH ALLOWS PLANS THAT HAVE REACHED THE PRELIMINARY PLAN OR PRELIMINARY-EQUALENT SKETCH PLAN ORIGINAL SIGNATURE APPROVAL STAGE TO BE GRANDFATHERED FOR CONTINUED PROCESSING IN ACCORDANCE WITH THE REGULATIONS WHICH WERE IN EFFECT AT THE TIME OF PLAN APPROVAL WAS APPROVED ON 10-5-2003 TO ALLOW THIS SUBDIVISION TO BE GRANDFATHERED IN ACCORDANCE WITH THE REGULATIONS THAT WERE IN EFFECT AT THE TIME OF SKETCH PLAN APPROVAL.
- FOREST STAND DELINEATION COMPILED BY ECO-SCIENCE PROFESSIONALS, INC. DATED JANUARY, 2003. THERE IS NO FOREST LOCATED ON THIS SITE.
- THIS SUBDIVISION COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL BY THE PLACEMENT OF 0.7 ACRES OF WITH ON-SITE REFORESTATION INTO AN EASTMENT AREA (F-08-087). SURETY FOR 0.7 ACRES OF AFFORESTATION IN THE AMOUNT OF \$15,246.00 (30,492 S.F. X \$0.50) SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS FINAL PLAN.
- 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 CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKING AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUMUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- WP-07-88, A REQUEST TO WAIVE SECTION 16.120(b)(5)(i) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS WAS APPROVED ON MARCH 23, 2007. THIS WAIVER WAS SUPERCEDED BY A NEW WAIVER REQUEST, WP-08-80. SEE NOTE #32 BELOW.
- DRIVWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY 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 COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN).
  - GEOMETRY - MAXIMUM 14% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
  - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
  - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
  - STRUCTURE CLEARANCES - MINIMUM 12 FEET.
  - MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
- PUBLIC WATER AND SEWAGE ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- A PRIVATE ROAD STREET NAME SIGN (SNS), THAT NEEDS TO BE INSTALLED AT THE INTERSECTION OF THE PRIVATE ROAD WITH A PUBLIC ROAD, SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER/OWNER'S EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- LANDSCAPING FOR THIS SUBDIVISION IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THE ROAD CONSTRUCTION PLAN SET IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH A DPW DEVELOPER'S AGREEMENT FOR 26 SHADE TREES, 29 EVERGREEN TREES, 21 PRIVATE ACCESS PLACE TREES, 6 SHRUBS FOR TRASH SCREENING AND 418' OF WALL WITH SURETY IN THE AMOUNT OF \$26,990.00.
- 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-GAUGE) - 3' LONG. A GALVANIZED POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- AN ALTERNATE COMPLIANCE REQUEST TO HOWARD COUNTY DESIGN MANUAL VOLUME III, SECTION 5.2(F) WHICH REQUIRES NOISE LEVELS IN THE REAR YARD OF RESIDENTIAL LOTS NOT TO EXCEED A 65 DECIBEL NOISE STANDARD ESTABLISHED WAS APPROVED ON AUGUST 18, 2008 SUBJECT TO THE FOLLOWING CONDITIONS:
  - ALL NOISE WALLS SHALL BE LOCATED WITHIN HOA OWNED OPEN SPACE AND MAINTAINED BY THE HOA.
  - THE DWELLINGS ON LOTS 1 & 4 SHALL NOT TOUCH OR OVERLAP ANY PORTIONS OF THE 65 DBA NOISE CONTOUR.
- A WAIVER PETITION (WP-08-80) REQUEST FROM SECTION 16.120(b)(5)(i) WHICH REQUIRES THAT RESIDENTIAL SUBDIVISIONS OR SITE DEVELOPMENT PLANS MITIGATE NOISE LEVELS TO ENSURE THAT THE STANDARD 65 DBA NOISE LEVEL AS ESTABLISHED BY THE DESIGN MANUAL IS NOT EXCEEDED IN THE REAR YARD OF RESIDENTIAL LOTS, AND FROM SECTION 16.120(b)(5)(ii) WHICH REQUIRES THAT IF RESIDENTIAL LOTS ARE IMPACTED BY EXCESSIVE NOISE LEVELS THAT A WALL OR FENCE BE REQUIRED FOR NOISE MITIGATION AND THAT IT SHALL BE LOCATED IN OPEN SPACE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION. THE WAIVER PETITION WAS APPROVED SEPTEMBER 2, 2008 SUBJECT TO THE FOLLOWING CONDITIONS:
  - SUBJECT TO COMPLIANCE WITH SRC COMMENTS ISSUED FOR F-08-87.
  - SUBJECT TO COMPLIANCE WITH DED COMMENTS DATED AUGUST 18, 2008.
  - THE DEVELOPER SHALL PROVIDE THE 8' HIGH MINIMUM NOISE WALL ATOP OF THE PROPOSED BERM WITHIN OPEN SPACE LOT 10 ALONG THE 1-70 RIGHT-OF-WAY FOR THIS PROJECT AS SHOWN ON REVISED PLANS FOR F-08-87 ROAD CONSTRUCTION DRAWINGS DATED JULY 2008.
  - SUBJECT TO PROVIDING A LANDSCAPE TYPE "C" HEAVY BUFFER (1 SHADE TREE PER 40 FEET AND 1 EVERGREEN PER 20 FEET) FOR THE SITE PERIMETER ALONG THE OLD FREDERICK ROAD (MD. RT. 99) RIGHT-OF-WAY BETWEEN COORDINATE POINTS 100 AND 102.
  - THE MARYLAND STATE HIGHWAY ADMINISTRATION WILL NOT BE RESPONSIBLE FOR NOISE MITIGATION NOW OR IN THE FUTURE.
  - THE DEVELOPER SHALL MAINTAIN A USABLE REAR YARD AREA FOR LOTS 1, 4 AND 5 THROUGH 9 OUTSIDE OF THE 65 DECIBEL NOISE LINE ON ALL FUTURE PLAN SUBMISSIONS INCLUDING THE SITE DEVELOPMENT PLAN FOR NEW HOUSE CONSTRUCTION ON THOSE LOTS. THE PROPOSED HOUSES ON THOSE LOTS MUST BE LOCATED AS FAR AS FEASIBLE FROM THE 1-70 R/W AND THE OLD FREDERICK ROAD R/W.
  - THE PROPOSED HOUSES TO BE LOCATED ON ALL OF THE LOTS WITHIN THIS SUBDIVISION SHALL BE CONSTRUCTED WITH SPECIAL CONSIDERATION GIVEN TO ACOUSTICAL INSULATION AND OTHER NOISE ATTENUATION MATERIALS FOR THE SIDING, ROOFING, WINDOWS AND DOORS, ETC. TO LESSEN EXCESSIVE NOISE LEVELS.

# FINAL ROAD CONSTRUCTION PLANS

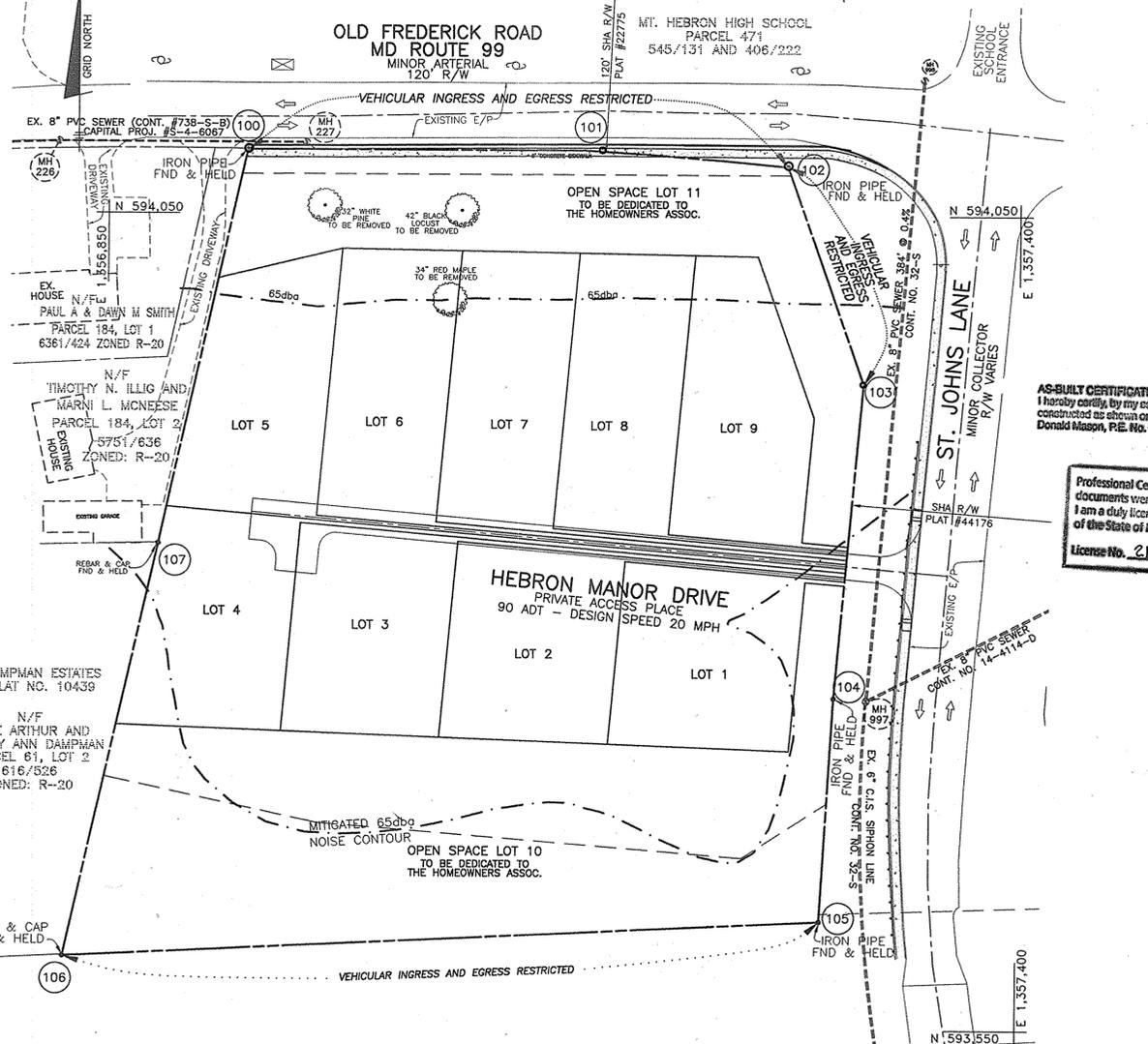
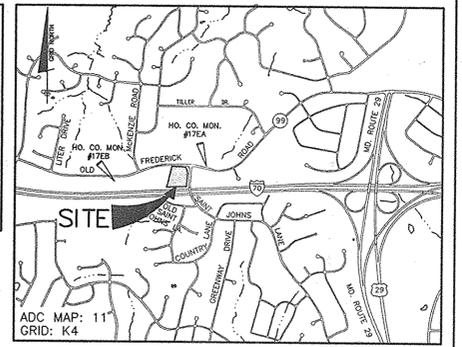
## HEBRON MANOR

### LOTS 1-9 AND OPEN SPACE LOTS 10 AND 11

#### 2ND ELECTION DISTRICT

#### HOWARD COUNTY, MARYLAND

**BENCH MARKS - NAD '83**  
 HO. CO. #17EA ELEV. 479.48  
 STAMPED BRASS DISK SET ON TOP OF CONC. (3" DEEP) COLUMN LOCATED IN THE ISLAND IN FRONT OF MOUNT HEBRON HIGH SCHOOL, 33.7' SOUTH OF THE FLAG POLE AND 21.3' NORTH OF THE CURB AND 49.7' WEST OF A 15' WHITE PINE.  
 N 594,357.7284' E 1,357,519.3741'  
 HO. CO. #17EB ELEV. 454.18  
 STAMPED BRASS DISK SET ON TOP OF CONC. (3" DEEP) CIRCULAR BASE LOCATED 224' WEST OF THE ENTRANCE TO BETHANY FIRE STATION, 19' SOUTH OF THE CL OF OLD FREDERICK ROAD AND 38.6' EAST OF G&E POLE #474631  
 N 593,814.0053' E 1,355,731.8846'



**AS-BUILT NOTES:**  
 1) HORIZONTAL DATUM FOR THIS AS-BUILT IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83/AD 791 AS PROJECTED FROM HO. CO. GEODETIC CONTROL STATIONS 17EA AND 17EB. VERTICAL DATUM FOR THIS AS-BUILT IS NORTH AMERICAN VERTICAL DATUM NVD 21AS PROJECTED FROM THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATIONS.  
 2) THE INSTRUMENTS USED IN PERFORMING THE AS-BUILT WERE A 5" TOTAL STATION AND PRISM AND RTK GPS.  
 3) THIS AS-BUILT WAS PERFORMED BY BENCHMARK ENGINEERING, INC.

**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.  
 Donald Mason, P.E. No. 21443 Date 12-17-15

**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.  
 License No. 21443 Expiration Date: 12-21-16



**SITE DATA TABULATION**

|   |  |
|---|--|
| 1) GENERAL SITE DATA  | 3) LOT TABULATION  |
| a. PRESENT ZONING: R-20   | a. TOTAL NUMBER OF RESIDENTIAL LOTS PROPOSED ON THIS SUBMISSION: 9 |
| b. APPLICABLE DPZ FILE REFERENCES: S-03-13 S-03-20 WP-04-46 WP-07-88 P-07-013 | b. TOTAL NUMBER OF OPEN SPACE LOTS PROPOSED: 2                     |
| c. DEED REFERENCES: 9280/674  | 4) OPEN SPACE DATA   |
| d. PROPOSED USE OF SITE: 9 SFD HOMES  | a. MINIMUM RESIDENTIAL LOT SIZE SELECTED: 12,000 S.F.              |
| e. PROPOSED WATER AND SEWER SYSTEMS: PUBLIC                                   | b. OPEN SPACE REQUIRED (40% OF 4.52 AC.): 1.81± AC                 |
| 2) AREA TABULATION  | c. OPEN SPACE PROVIDED (42.7% OF 4.52 AC.): 1.93± AC               |
| a. TOTAL AREA OF SITE: 4.52± AC.  | d. CREDITED (LESS THAN 35' IN WIDTH): 0.12± AC                     |
| b. AREA OF 100 YEAR FLOODPLAIN: 0.00± AC                                      | e. CREDITED (40.0% OF 4.52 AC.): 1.81± AC                          |
| c. AREA OF STEEP SLOPES ON SITE (25% OR GREATER): 0.00± AC                    | d. AREA OF RECREATION OPEN SPACE REQUIRED: N/A                     |
| d. NET AREA OF SITE: 4.52± AC   | e. AREA OF RECREATION OPEN SPACE PROVIDED: N/A                     |
| e. AREA OF THIS PLAN SUBMISSION: 4.52± AC                                     |  |
| f. AREA OF PROPOSED BUILDABLE LOTS: 2.59± AC                                  |  |
| g. AREA OF PROPOSED OPEN SPACE LOTS: 1.93± AC                                 |  |
| h. AREA OF PROPOSED PUBLIC ROAD R/W: N/A                                      |  |

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 With 7.1.11.11 1-22-09  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Cecily Klewin 1/29/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 Chad Edwards 1-27-9  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

**LEGEND**

|  |                                    |
|--|------------------------------------|
|  | EXISTING CONTOURS (FIELD SURVEYED) |
|  | EXISTING TREELINE                  |
|  | EXISTING FENCELINE                 |
|  | UTILITY EASEMENT                   |
|  | MITIGATED 65 DBA NOISE CONTOUR     |

**MINIMUM LOT SIZE CHART**

| LOT NO. | GROSS AREA | PIPESTEM AREA | MINIMUM LOT SIZE |
|---------|------------|---------------|------------------|
| 1       | 12,084 SF  | 64 SF         | 12,000 SF        |
| 2       | 12,355 SF  | 354 SF        | 12,001 SF        |
| 3       | 12,627 SF  | 626 SF        | 12,001 SF        |
| 4       | 12,881 SF  | 881 SF        | 12,000 SF        |
| 5       | 13,429 SF  | 856 SF        | 12,573 SF        |
| 6       | 12,749 SF  | 663 SF        | 12,086 SF        |
| 7       | 12,512 SF  | 474 SF        | 12,038 SF        |
| 8       | 12,291 SF  | 290 SF        | 12,001 SF        |
| 9       | 12,078 SF  | 74 SF         | 12,004 SF        |

**SHEET INDEX**

| NO. | DESCRIPTION  |
|-----|--|
| 1   | TITLE SHEET  |
| 2   | PRIVATE ROAD AND LANDSCAPE PLAN  |
| 3   | BIKE LANE WIDENING SECTIONS, ROAD PROFILE, ROAD DETAILS AND TYPICAL SECTIONS |
| 4   | STORM DRAIN PROFILES AND DRAINAGE AREA MAP                                   |
| 5   | MASS GRADING, SEDIMENT & EROSION CONTROL PLAN                                |
| 6   | STORM WATER MANAGEMENT PLAN AND DETAILS                                      |
| 7   | FOREST CONSERVATION PLAN AND DETAILS   |

**RIGHT OF WAY ELEVATION CHART NAD '83**

| R/W PT. NO. | DESCRIPTION    | ELEVATION |
|-------------|----------------|-----------|
| 100         | X-CUT IN CONC. | 471.11'   |
| 101         | X-CUT IN CONC. | 475.45'   |
| 102         | REBAR & CAP    | 475.29'   |
| 103         | REBAR & CAP    | 471.81'   |
| 104         | REBAR & CAP    | 472.27'   |
| 105         | REBAR & CAP    | 464.72'   |

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
 8480 BALTIMORE NATIONAL PIKE A SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 phone: 410-465-6105 A fax: 410-465-6644

**OWNER/DEVELOPER:** HEBRON MANOR LLC  
 11807 WOLLINGFORD COURT  
 CLARKSVILLE, MARYLAND 21029  
 410-792-2565

**PROJECT:** HEBRON MANOR  
 LOTS 1-9 AND OPEN SPACE LOTS 10 & 11

**LOCATION:** TAX MAP: 17 PARCEL: 518  
 GRID: 15 ZONED: R-20  
 2ND ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

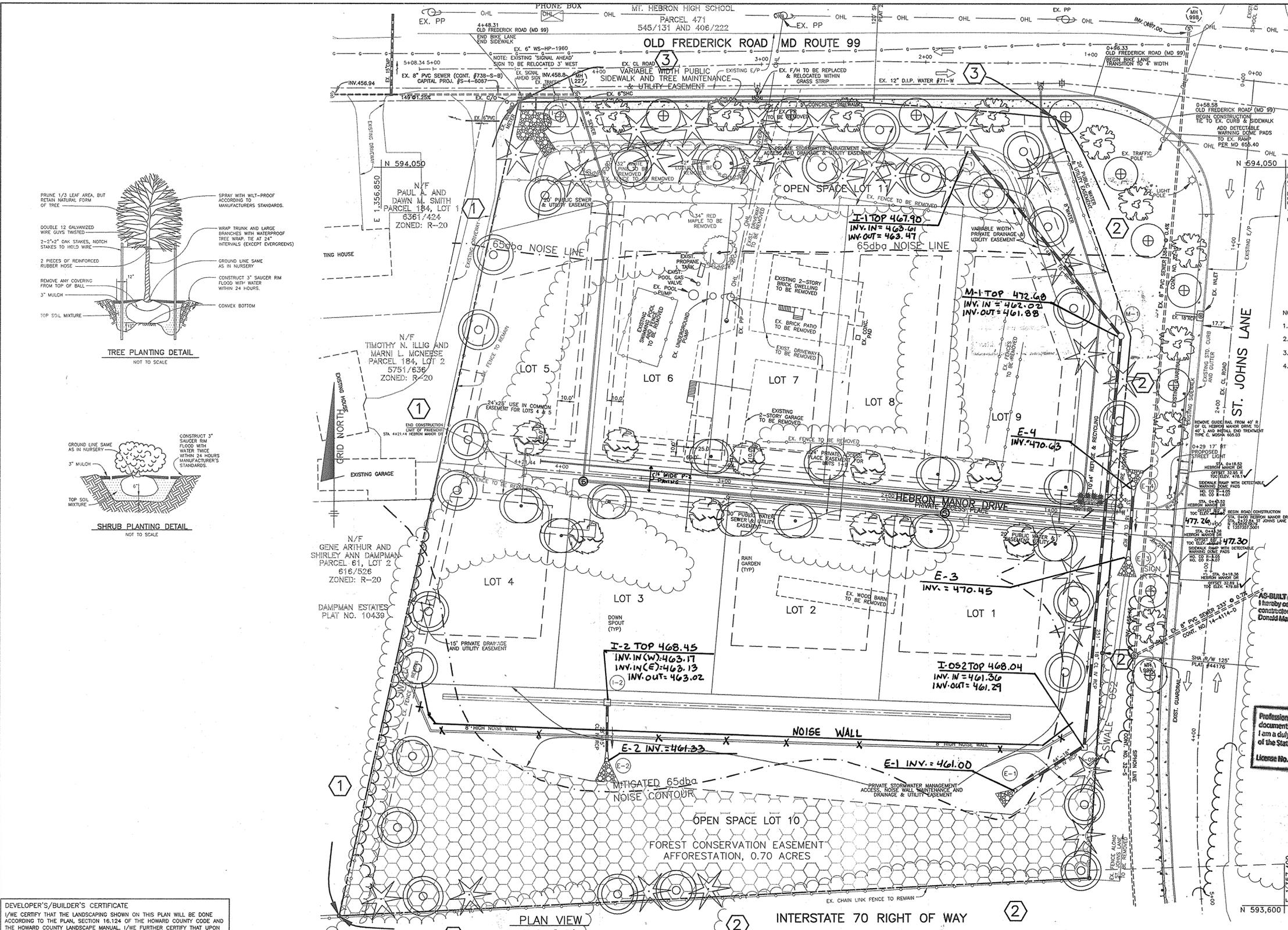
**TITLE:** TITLE SHEET  
 S-03-13 S-03-20 WP-04-46 P-07-013

**DATE:** NOVEMBER, 2007 PROJECT NO. 1596  
 JANUARY, 2009 SHEET 1 OF 7

**DESIGN:** AAM **DRAFT:** AAM **CHECK:** DAM **SCALE:** AS SHOWN

**AS-BUILT**

F-08-87



- ### LANDSCAPING NOTES
- THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS AS SHOWN ON THESE PLANS.
  - THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL INTERNAL PLANTINGS; THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION; AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BONDING FOR THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
  - TREES MUST BE A MINIMUM OF FIVE (5) FEET FROM ANY STORM DRAIN.
  - A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
  - TREE MUST BE PLANTED A MINIMUM OF FIVE (5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN (10) FEET FROM A DRIVEWAY.
  - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC.-16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
  - ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
  - THE OWNER, TENANTS 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.
  - LANDSCAPING FOR THIS SUBMISSION IS PROVIDED IN ACCORDANCE WITH A CERTIFIED LANDSCAPE PLAN INCLUDED WITH THE ROAD CONSTRUCTION PLAN SET IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH A DPW, DEVELOPER'S AGREEMENT FOR 26 SHADE TREES, 29 EVERGREEN TREES, 21 PRIVATE ACCESS PLUCE TREES, 6 SHRUBS FOR TRASH SCREENING AND 418' OF WALL WITH SURETY IN THE AMOUNT OF \$26,990.00.
- AT THE TIME OF INSTALLATION, ALL TREES, SHRUBS AND OTHER PLANTINGS HERETHW LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT, REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

- NOTE:
- ALL UTILITY WORK IN SHA RIGHT OF WAY MUST HAVE A DISTRICT 7 UTILITY PERMIT.
  - ANY TEST PITS WITHIN SHA RIGHT OF WAY MUST HAVE A DISTRICT OFFICE PERMIT.
  - OLD FREDERICK ROAD (MD 99) AND ST. JOHNS LANE ARE WITHIN SHA RIGHTS OF WAY.
  - A DESIGN REQUEST TO SHA DISTRICT 7 FOR RELOCATION OF THE TRAFFIC BOX NEAR THE WESTERN LIMIT OF THE ROAD WIDENING IS IN PROCESS.

| SYMBOL | QUANTITY | NAME                                      | REMARKS                   |
|--------|----------|---|---------------------------|
| ☼      | 6        | TAXUS MEDIA 'DENSIFORMIS' JENSIFORMIS YEW | 2.5"-3.0" MIN. CAL. B & B |

| SYMBOL | QUANTITY | NAME                         | REMARKS                             |
|--------|----------|------------------------------|-------------------------------------|
| ⊙      | 26       | ACER SACCHARUM 'SUGAR MAPLE' | 2.5"-3.0" MIN. CAL. B & B FULL HEAD |
| ★      | 29       | PICEA ABIES 'NORWAY SPRUCE'  | 6.0'-8.0' MIN. HT. UNSHEARED        |

| CATEGORY   | ADJ. TO PERIMETER PROPERTY |                  |         | ADJ. TO ROADWAY |                              |                              | NUMBER OF PLANTS REQUIRED ANY PROVIDED |
|--|----------------------------|------------------|---------|-----------------|------------------------------|------------------------------|--|
|  | 1                          | 2                | 3       | 1               | 2                            | 3                            |  |
| LANDSCAPE TYPE   | A                          | B                | C       | 1:60 shade      | 1:50 shade<br>1:40 overgreen | 1:40 shade<br>1:20 overgreen |  |
| LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER  | 508'                       | 929'             | 326'    |                 |                              |                              |  |
| CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | NO                         | NO               | NO      |                 |                              |                              |  |
| CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | NO                         | YES* 418' (511') | NO      |                 |                              |                              |  |
| NUMBER OF PLANTS REQUIRED<br>SHADE TREES<br>EVERGREEN TREES                      | 8                          | 10<br>13         | 8<br>16 | 26              |                              |                              |  |

\*WALL CREDIT FOR P2 IS FOR THE PROPOSED NOISE WALL

**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.  
 Donald Mason, P.E. No. 21443 Date 12-17-15

**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.  
 License No. 21443, Expiration Date: 12-21-16



**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 LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON 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.

*B D B* 1/6/09  
 OWNER: DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*W. J. Wall* 1-22-09  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hanna* 1/29/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Shed Edwards* 1-27-9  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

| ROAD NAME          | PERIMETER | TREES REQ. | SIZE   | SPACING |
|--------------------|-----------|------------|--------|---------|
| HEBRON MANOR DRIVE | 843'      | 21         | MEDIUM | 1:40    |
| MD ROUTE 99        | 327'      | 9          | LARGE  | 1:40    |
| ST. JOHNS LANE     | 472'      | 12         | LARGE  | 1:40    |

| SYMBOL | QUANTITY | NAME   | REMARKS                             |
|--------|----------|--|-------------------------------------|
| ⊙      | 11       | ACER RUBRUM 'AUTUMN FLAME' 'AUTUMN FLAME RED MAPLE'              | 1.5"-2.0" MIN. CAL. B & B FULL HEAD |
| ⊙      | 10       | PRUNUS SARGENTII 'SARGENT CHERRY'                                | 1.5"-2.0" MIN. CAL. B & B FULL HEAD |
| ⊙      | 11       | QUERCUS COCCINEA 'SCARLET OAK'                                   | 2.5"-3.0" MIN. CAL. B & B FULL HEAD |
| ⊙      | 10       | GLEDITSIA TRICHANTHOS INERMIS 'SHADMASTER' THORNLESS HONEYLOCUST | 2.5"-3.0" MIN. CAL. B & B FULL HEAD |

| STREET NAME        | STATION | OFFSET | FIXTURE/POLE TYPE   | COMMENTS |
|--------------------|---------|--------|---|----------|
| HEBRON MANOR DRIVE | 0+29    | 17R    | 150 WATT PIPE VAPOR 'THORNLESS' POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE |          |

|     |      |          |
|-----|------|----------|
| NO. | DATE | REVISION |
|     |      |          |

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 840 BALTIMORE NATIONAL PIKE • SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 phone: 410-465-6105 • fax: 410-465-6644

**OWNER/DEVELOPER:** HEBRON MANOR LLC  
 11807 WOLLINGFORD COURT  
 CLARKSVILLE, MARYLAND 21029  
 410-792-2565

**PROJECT:** HEBRON MANOR  
 LOTS 1-9 AND OPEN SPACE LOTS 10 & 11

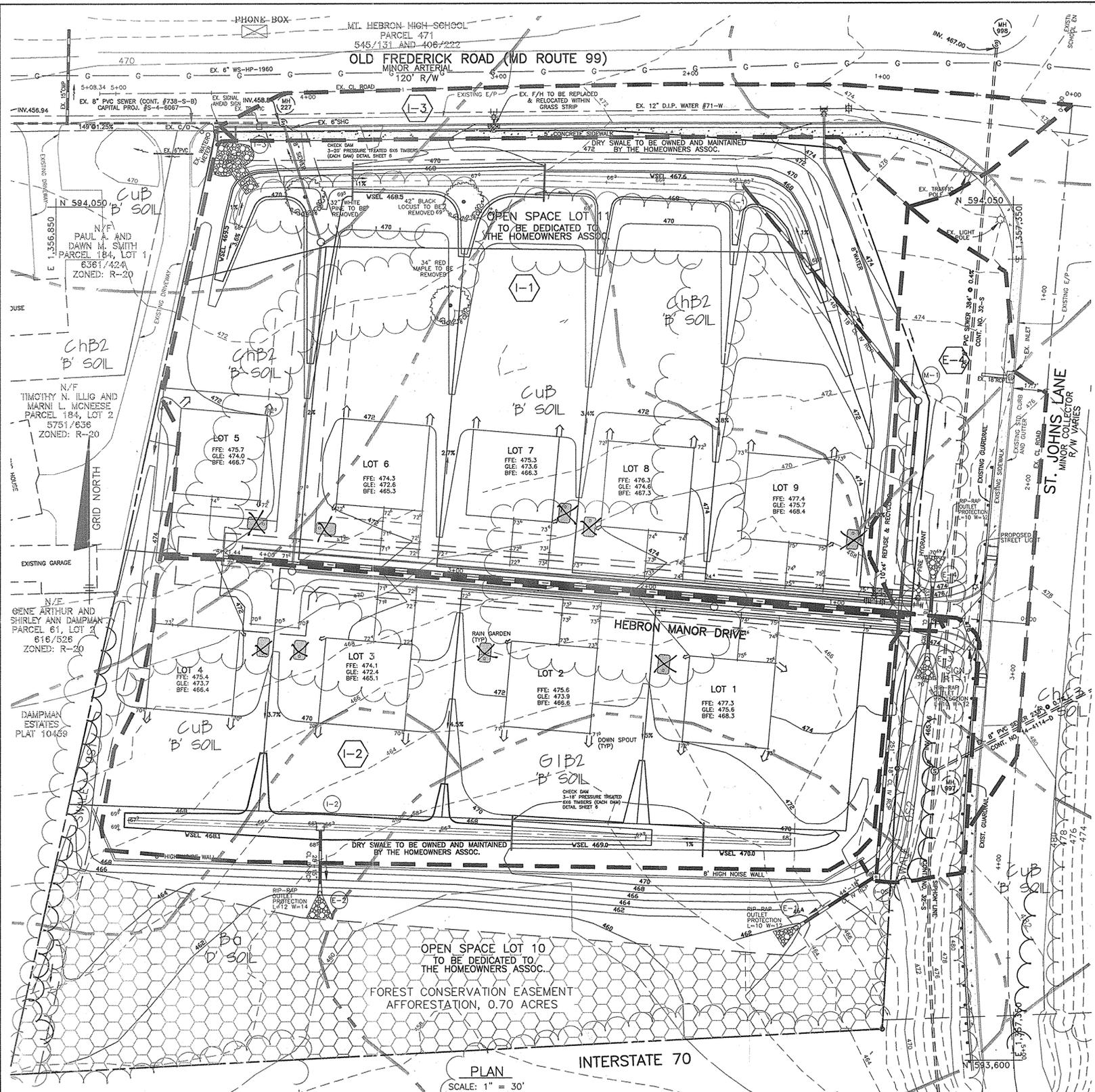
**LOCATION:** TAX MAP: 17 PARCEL: 518  
 GRID: 15 ZONED: R-20  
 2nd ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**TITLE:** PRIVATE ROAD AND LANDSCAPE PLAN

**DATE:** NOVEMBER, 2007 PROJECT NO. 1596  
 JANUARY, 2009

**DESIGN:** AAM **DRAFT:** AAM **CHECK:** DAM **SCALE:** AS SHOWN **SHEET:** 2 OF 7





PLAN  
SCALE: 1" = 30'

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Willie J. Whitt* 1-22-09  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hunt* 1/29/09  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*Chad Edwards* 1-27-9  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

**LEGEND**

--- EXISTING CONTOURS (FIELD SURVEYED)

--- PROPOSED CONTOURS

--- DRAINAGE DIVIDE

--- SOIL DELINEATION

CHB2 B' SOIL  
 SOIL TYPE AND HYDROLOGIC DESIGNATION

**STORM DRAIN DATA**

| INLET NO. | ZONING | AREA (AC) | 'C' FACTOR | % IMPERVIOUS |
|-----------|--------|-----------|------------|--------------|
| I-1       | R-20   | 1.98      | 0.29       | 30           |
| I-2       | R-20   | 1.34      | 0.30       | 30           |
| I-3       | R-20   | 0.30      | 0.86       | 90           |
| E-4       | R-20   | 0.37      | 0.86       | 90           |

NOTE: ON LOT RAIN GARDENS WERE NOT CONSTRUCTED AS PART OF THIS F-PLAN. SEE SITE DEVELOPMENT PLAN SDP-11-048 FOR THESE DESIGN.

**STRUCTURE SCHEDULE**

| NO.   | TYPE                | LOCATION                              | INV. IN     | INV. OUT | TOP ELEV. | HO. CO. STD.     | OWNERSHIP    |
|-------|---------------------|---------------------------------------|-------------|----------|-----------|------------------|--------------|
| E-1   | 18" CONC. END SECT. | N 593669.42 E 1357235.52              | ---         | 461.0    | ---       | D - 5.51         | PRIVATE      |
| E-2   | 15" CONC. END SECT. | N 593687.82 E 1356987.88              | ---         | 466.4    | ---       | D - 5.51         | PRIVATE      |
| E-3   | 18" CONC. END SECT. | ST JOHNS LN STA 2+97.34, OS 50.73' RT | ---         | 470.46   | ---       | D - 5.51         | PUBLIC       |
| E-4   | 18" CONC. END SECT. | ST JOHNS LN STA 2+51.91, OS 51.19' RT | 470.69      | ---      | ---       | D - 5.51         | PUBLIC       |
| I-1   | 'D' INLET           | N 594060.32 E 1357207.07              | 463.7/463.7 | 463.7    | 468.03    | D - 4.10 OR 4.11 | OPEN 4 SIDES |
| I-2   | 'D' INLET           | N 593720.97 E 1356988.10              | 463.3/463.3 | 463.3    | 468.34    | D - 4.10 OR 4.11 | OPEN 4 SIDES |
| I-3   | 'D' COG             | MD 99 STA 4+42.25, OS 17.34' LT       | ---         | ---      | 470.79    | MD 374.68        | PUBLIC       |
| I-OS2 | 'S' INLET           | N 593696.38 E 1357278.25              | 461.48      | 461.28   | 468.10    | D - 4.22         | PRIVATE      |
| M-1   | 4'-0" MANHOLE       | N 593946.94 E 1357300.16              | 462.04      | 461.38   | 472.60    | G - 5.12         | PRIVATE      |

1) STRUCTURE ELEVATION AND LOCATION FOR MANHOLE IS AT THE TOP AND CENTER OF RIM.  
 2) STRUCTURE ELEVATION AND LOCATION FOR INLETS IS AT CENTER OF SLAB (FACE OF CURB FOR COG).  
 3) STRUCTURE ELEVATION AND LOCATION FOR ENDECTIONS IS AT CENTERLINE OF THE END OF THE END SECTION.

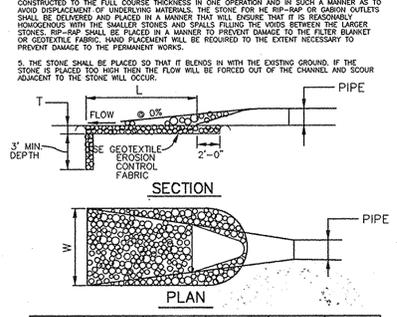
**AS-BUILT CERTIFICATION**  
 I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.  
 Date 12-17-15  
 David Mason, P.E. No. 21443

**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.  
 License No. 21443, Expiration Date: 12-2-16



**CONSTRUCTION SPECIFICATIONS**

- 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.
- THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
- GEOTEXTILE CLASS C26 OR BETTER SHALL BE PROTECTED FROM PUNCTURING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED AREA 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.
- 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 DISPARAGEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH 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.
- 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.

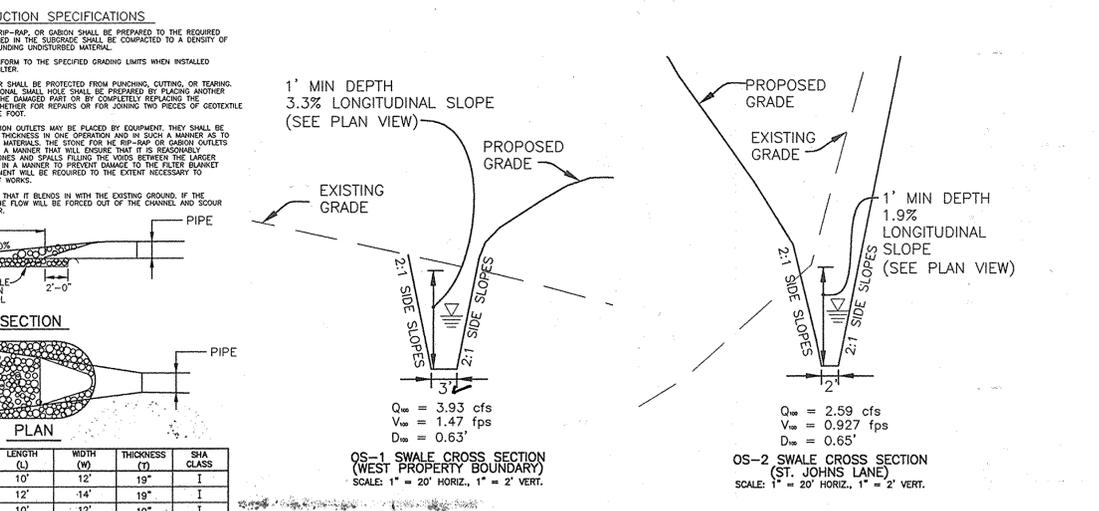


**OUTLET PROTECTION DETAIL**  
 NOT TO SCALE

| STRUCTURE | D-50 | LENGTH (L) | WIDTH (W) | THICKNESS (T) | SMA CLASS |
|-----------|------|------------|-----------|---------------|-----------|
| E-1       | 9.5' | 10'        | 12'       | 19"           | I         |
| E-2       | 9.5' | 12'        | 14'       | 19"           | I         |
| E-3       | 9.5' | 10'        | 12'       | 19"           | I         |
| E-4       | 9.5' | 10'        | 12'       | 19"           | I         |

**MATERIAL SCHEDULE**

| DIAMETER | MATERIAL  | LENGTH | OWNERSHIP |
|----------|-----------|--------|-----------|
| 15"      | RCP CL-IV | 28'    | PRIVATE   |
| 18"      | RCP CL-IV | 446'   | PRIVATE   |
| 18"      | RCP CL-IV | 33'    | PUBLIC    |



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 LOTS 1-9 AND OPEN SPACE LOTS 10 & 11

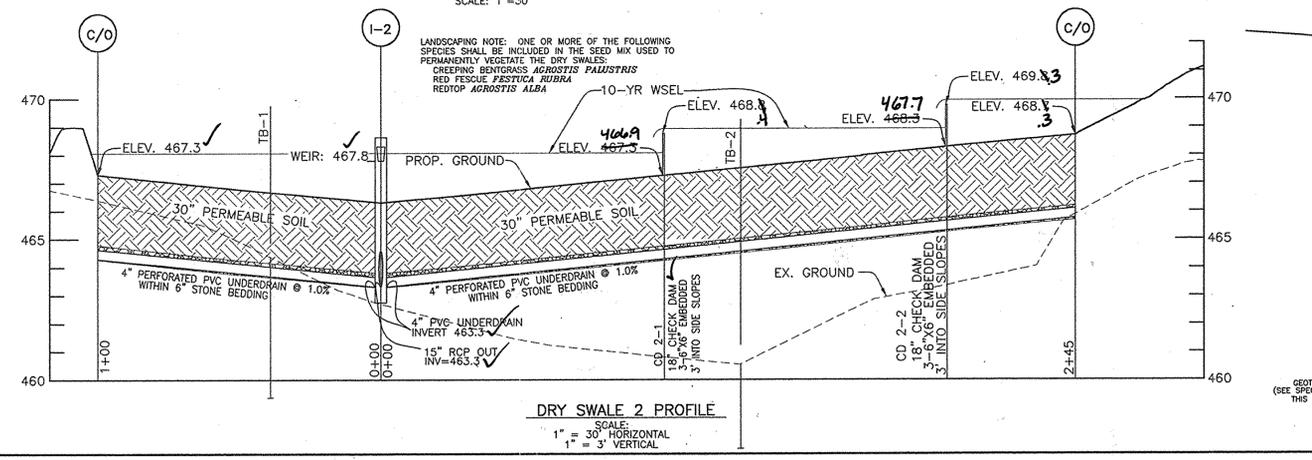
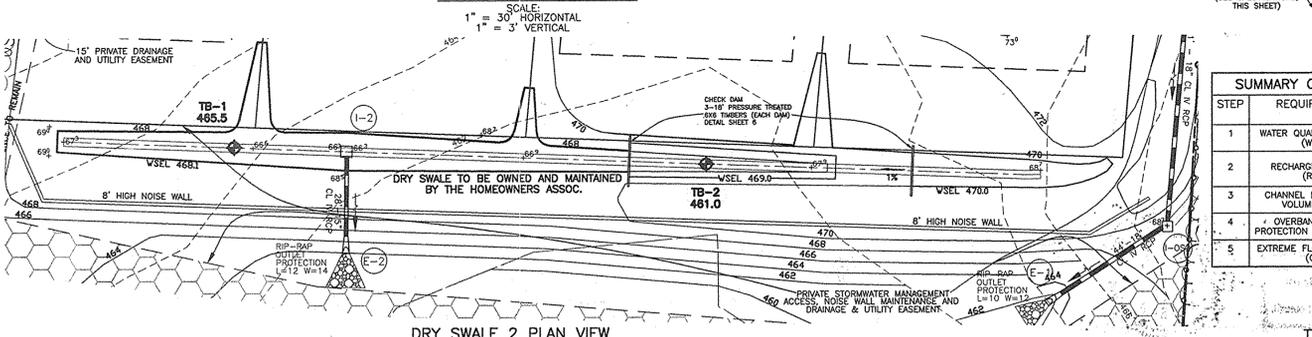
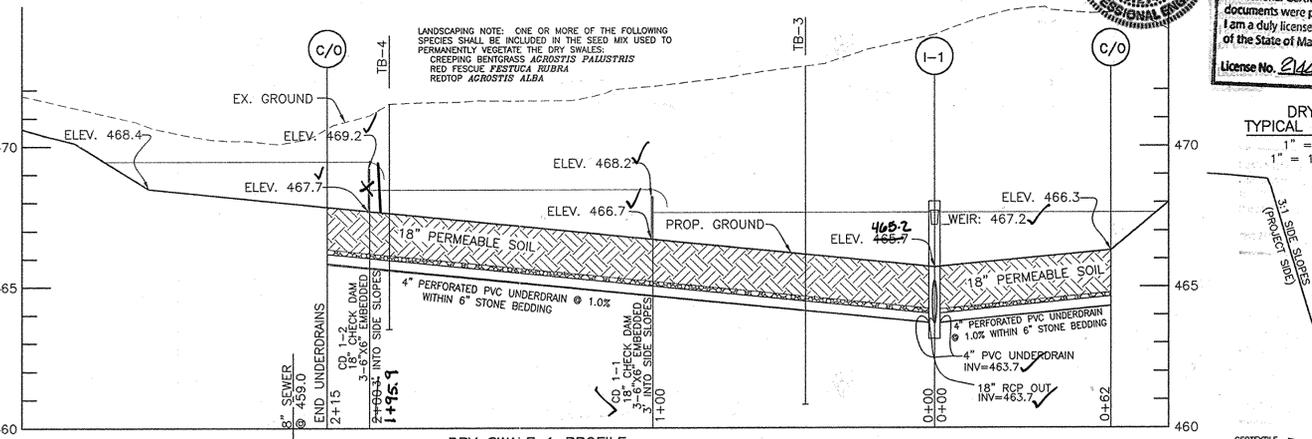
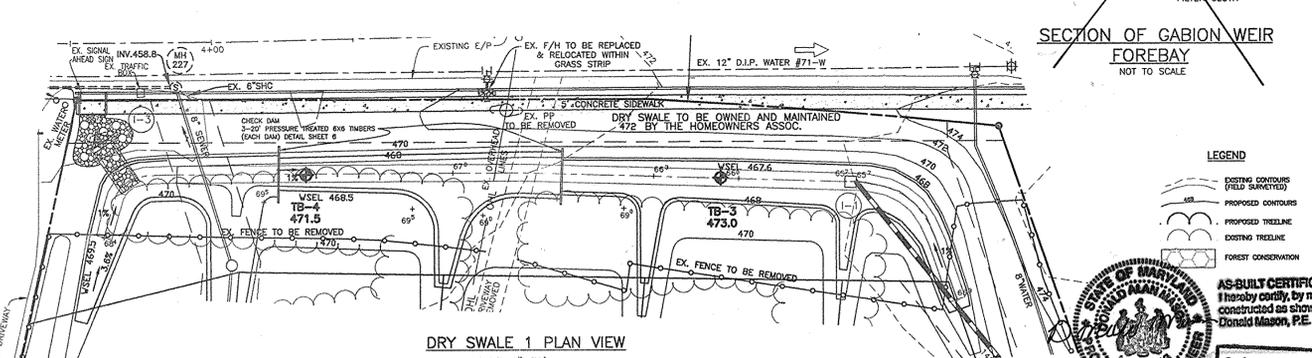
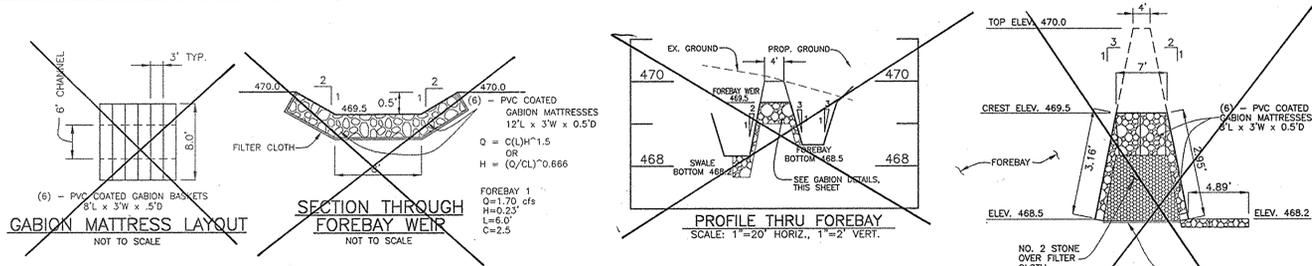
**LOCATION:** TAX MAP: 17 PARCEL: 518  
 GRID: 15 ZONED: R-20  
 2ND ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**TITLE:** STORM DRAIN PROFILES AND STORM DRAIN DRAINAGE AREA MAP

**DATE:** NOVEMBER 2007 PROJECT NO. 1596  
 JANUARY 2009

**DESIGN:** AAM **DRAFT:** AAM **CHECK:** DAM **SCALE:** AS SHOWN **SHEET:** 4 OF 7





**BORING LOG** GEOLAB, INC.

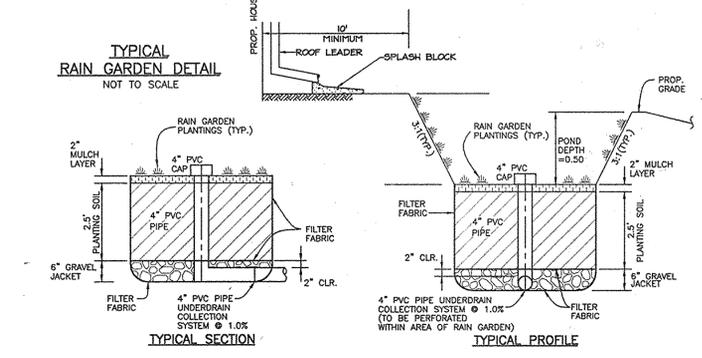
Client: Cornerstone Homes, Laurel, Maryland  
 Project: Hebron Manor, Howard County, Maryland  
 Location: TB-3 (1 of 11) 12 Inv. 473.0  
 Date: 8/19/2008

| Elevation (feet) | Description of Materials  | Remarks                                       |
|------------------|---|---|
| 473.0            | Forest floor with root (organic) matter and organic soil  | Boring dry during drilling and at completion. |
| 472.0            | Light brown silty clay with fine sand, damp (CL)  |   |
| 471.0            | Orange-brown slightly micaceous silty clay with fine sand and trace to little rock fragments, damp (CL) |   |
| 470.0            | Orange-brown micaceous silty clayey fine sand, moist (SC)   |   |
| 469.0            | Light brown micaceous silty fine to medium sand, moist (SM)   |   |
| 468.0            | Tan micaceous fine to medium sand with some silt, moist (SM)  |   |
| 467.0            | Dark brown highly micaceous silty fine to medium sand, moist (SM)                                       |   |
| 466.0            | Light brown micaceous silty fine to medium sand, moist (SM)   |   |
| 465.0            | End of Boring   |   |

**BORING LOG** GEOLAB, INC.

Client: Cornerstone Homes, Laurel, Maryland  
 Project: Hebron Manor, Howard County, Maryland  
 Location: TB-4 (1 of 11) 8 Inv. 471.5  
 Date: 8/19/2008

| Elevation (feet) | Description of Materials  | Remarks                                       |
|------------------|---|---|
| 471.5            | Forest floor with root (organic) matter and organic soil  | Boring dry during drilling and at completion. |
| 470.5            | Light brown silty clay with fine sand, damp (CL)  |   |
| 469.5            | Orange-brown slightly micaceous silty clay with fine sand and trace to little rock fragments, damp (CL) |   |
| 468.5            | Orange-brown micaceous silty clayey fine sand, moist (SC)   |   |
| 467.5            | Light brown micaceous silty fine to medium sand, moist (SM)   |   |
| 466.5            | Tan micaceous fine to medium sand with some silt, moist (SM)  |   |
| 465.5            | Dark brown highly micaceous silty fine to medium sand, moist (SM)                                       |   |
| 464.5            | Light brown micaceous silty fine to medium sand, moist (SM)   |   |
| 463.5            | End of Boring   |   |



**OPERATION & MAINTENANCE SCHEDULE FOR RAIN GARDENS**

- ANNUAL MAINTENANCE OF PLANT MATERIAL AND MULCH LAYER IS REQUIRED. MAINTENANCE OF MULCH IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH-OUT. ANY REPLACEMENT OF MULCH SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE & INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL & PRUNING.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN THE SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD & DISEASED VEGETATION BEYOND TREATMENT; TREATMENT OF ALL DISEASED TREES & SHRUBS; AND REPLACEMENT OF ALL DECIDENT STAKES & WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE THE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS-NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.
- SITE SPECIFIC DETAILS AND PLANTING SCHEDULES TO BE PROVIDED WITH SDP PLAN.

**NOTE: FOR MICRO-BIORETENTION FACILITY DESIGNS SEE SITE DEVELOPMENT PLAN SDP 11-048. THESE FACILITIES ARE NOT CONSTRUCTED AS PART OF THIS F-PLAN**

**BORING LOG** GEOLAB, INC.

Client: Cornerstone Homes, Laurel, Maryland  
 Project: Hebron Manor, Howard County, Maryland  
 Location: TB-2 (1 of 11) 5 Inv. 464.5  
 Date: 8/19/2008

| Elevation (feet) | Description of Materials   | Remarks                                       |
|------------------|--|---|
| 464.5            | Soil with root (organic) matter and organic soil   | Boring dry during drilling and at completion. |
| 463.5            | Light orange-brown slightly micaceous silty clay with fine sand, moist (CL)                              |   |
| 462.5            | Orange-brown slightly micaceous silty clay with fine sand and trace to little rock fragments, moist (CL) |   |
| 461.5            | Light brown micaceous silty fine to medium sand, moist (SM)  |   |
| 460.5            | Tan to light tan micaceous silty fine sand, moist (SM)   |   |
| 459.5            | End of Boring  |   |

**BORING LOG** GEOLAB, INC.

Client: Cornerstone Homes, Laurel, Maryland  
 Project: Hebron Manor, Howard County, Maryland  
 Location: TB-2 (1 of 11) 3 Inv. 461.8  
 Date: 8/19/2008

| Elevation (feet) | Description of Materials   | Remarks                                       |
|------------------|--|---|
| 461.8            | Soil with root (organic) matter and organic soil   | Boring dry during drilling and at completion. |
| 460.8            | Brown slightly micaceous silty clay with fine sand, moist (CL)   |   |
| 459.8            | Orange-brown slightly micaceous silty clay with fine sand and trace to little rock fragments, moist (CL) |   |
| 458.8            | Light brown micaceous silty fine to medium sand, moist (SM)  |   |
| 457.8            | Tan to light tan micaceous silty fine sand, moist (SM)   |   |
| 456.8            | End of Boring  |   |

**SUMMARY OF GENERAL STORAGE REQUIREMENTS - D.A. 1**

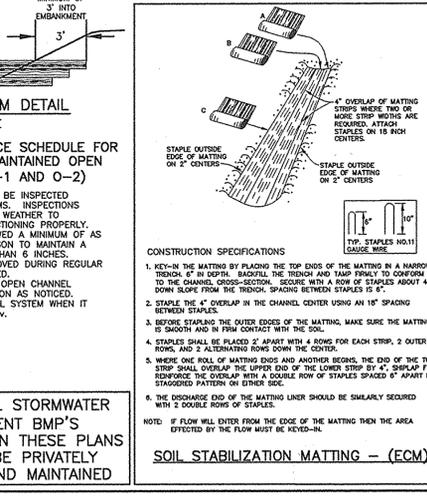
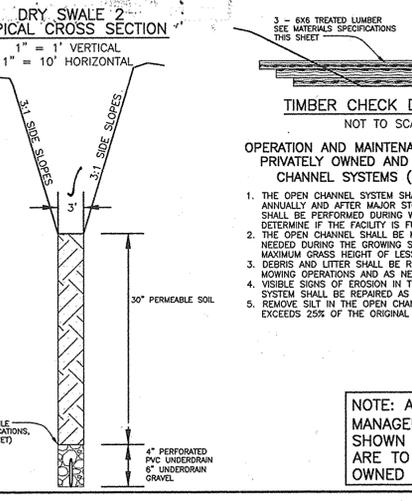
| STEP | REQUIREMENT                            | VOLUME REQUIRED (AC.-FT.)        | NOTES  |
|------|--|----------------------------------|--|
| 1    | WATER QUALITY VOLUME (WQV)             | DA 1A: 2507 CF<br>DA 1B: 1602 CF | TREATED IN DRY SWALES  |
| 2    | RECHARGE VOLUME (REV)                  | 0.33 AC.<br>(1271 CF)            | PROVIDED BY % AREA TREATMENT (0.534 ACRES TREATED BY ROOF-TOP AND NON-ROOF-TOP DISCONNECT) |
| 3    | CHANNEL PROTECTION VOLUME (CPV)        | N/A                              | DO NOT COME WITH CRESTGATE, EMBED AT LEAST 3\"/>   |
| 4    | OVERBANK FLOOD PROTECTION VOLUME (OPV) | N/A                              |  |
| 5    | EXTREME FLOOD VOLUME (EFV)             | N/A                              |  |

**DRY SWALE MATERIALS SPECIFICATIONS**  
FROM MDE 2000, TABLE B.3.3, AS APPLICABLE

| MATERIAL                 | SPECIFICATION                           | SIZE      | NOTES:  |
|--------------------------|---|-----------|---|
| DRY SWALE SOIL           | USCS: ML, SM, SC                        | N/A       | SOIL WITH A HIGHER PERCENT ORGANIC CONTENT IS PREFERRED |
| PEA GRAVEL, DIAPHRAGM    | ASTM D-443                              | NO.8      | USE CLEAN BANK-RUN GRAVEL                               |
| CRACK DAM (TREATED WOOD) | APPROXIMATE OPENING SIZE: (ASTM D-4751) | 6\"/>     |   |
| CRACK DAM (GEOTEXTILE)   | APPROXIMATE OPENING SIZE: (ASTM D-4433) | 6\"/>     |   |
| UNDERDRAIN GRAVEL        | ASTM M-43                               | 0.375\"/> |   |
| UNDERDRAIN PIPING        | FF58, TYPE P528 OR AASHTO M-278         | 4\"/>     | 3\"/>   |

**CHECK DAM SUMMARY TABLE**

| CHECK DAM | HEIGHT/WIDTH (INCHES) | TOP ELEVATION | BOTTOM ELEVATION |
|-----------|-----------------------|---------------|------------------|
| CD 1-1    | 18/6                  | 468.2         | 466.7            |
| CD 1-2    | 18/6                  | 469.2         | 467.7            |
| CD 2-1    | 18/6                  | 468.8         | 467.3            |
| CD 2-2    | 18/6                  | 469.8         | 468.3            |



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 410-792-2565

**PROJECT:** HEBRON MANOR  
 LOTS 1-9 AND OPEN SPACE LOTS 10 & 11

**LOCATION:** TAX MAP: 17 PARCEL: 518  
 GRID: 15 ZONED: R-20  
 2nd ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**TITLE:** STORMWATER MANAGEMENT PLAN AND DETAILS

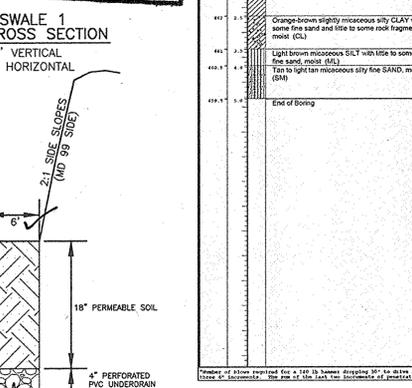
**DATE:** NOVEMBER, 2007 PROJECT NO. 1596  
 JANUARY, 2009 SHEET 6 OF 7

**DESIGN:AAM DRAFT:AAM CHECK:DAM SCALE: AS SHOWN**

**AS-BUILT F-08-87**

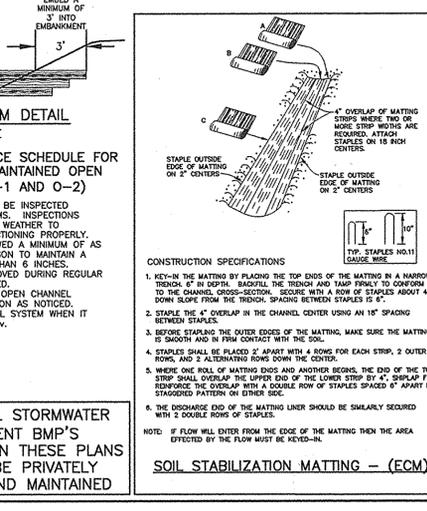
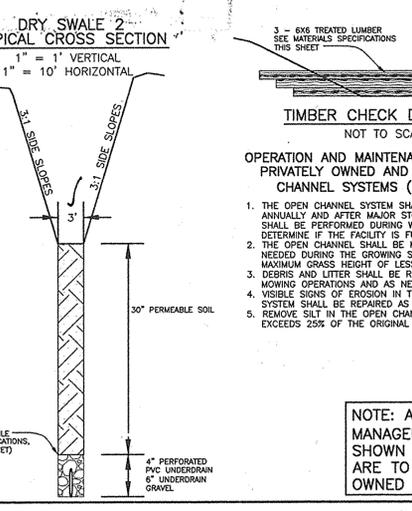
**AS-BUILT CERTIFICATION**  
 I hereby certify by my seal, that the location shown on this plan was constructed as shown on this AS-BUILT plan.  
 Donald Mason, P.E. No. 21443 Date: 12-17-15  
 License No. 21443 Expiration Date: 12-17-15

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.  
 License No. 21443 Expiration Date: 12-17-15



**SUMMARY OF GENERAL STORAGE REQUIREMENTS - D.A. 1**

| STEP | REQUIREMENT                            | VOLUME REQUIRED (AC.-FT.)        | NOTES  |
|------|--|----------------------------------|--|
| 1    | WATER QUALITY VOLUME (WQV)             | DA 1A: 2507 CF<br>DA 1B: 1602 CF | TREATED IN DRY SWALES  |
| 2    | RECHARGE VOLUME (REV)                  | 0.33 AC.<br>(1271 CF)            | PROVIDED BY % AREA TREATMENT (0.534 ACRES TREATED BY ROOF-TOP AND NON-ROOF-TOP DISCONNECT) |
| 3    | CHANNEL PROTECTION VOLUME (CPV)        | N/A                              | DO NOT COME WITH CRESTGATE, EMBED AT LEAST 3\"/>   |
| 4    | OVERBANK FLOOD PROTECTION VOLUME (OPV) | N/A                              |  |
| 5    | EXTREME FLOOD VOLUME (EFV)             | N/A                              |  |



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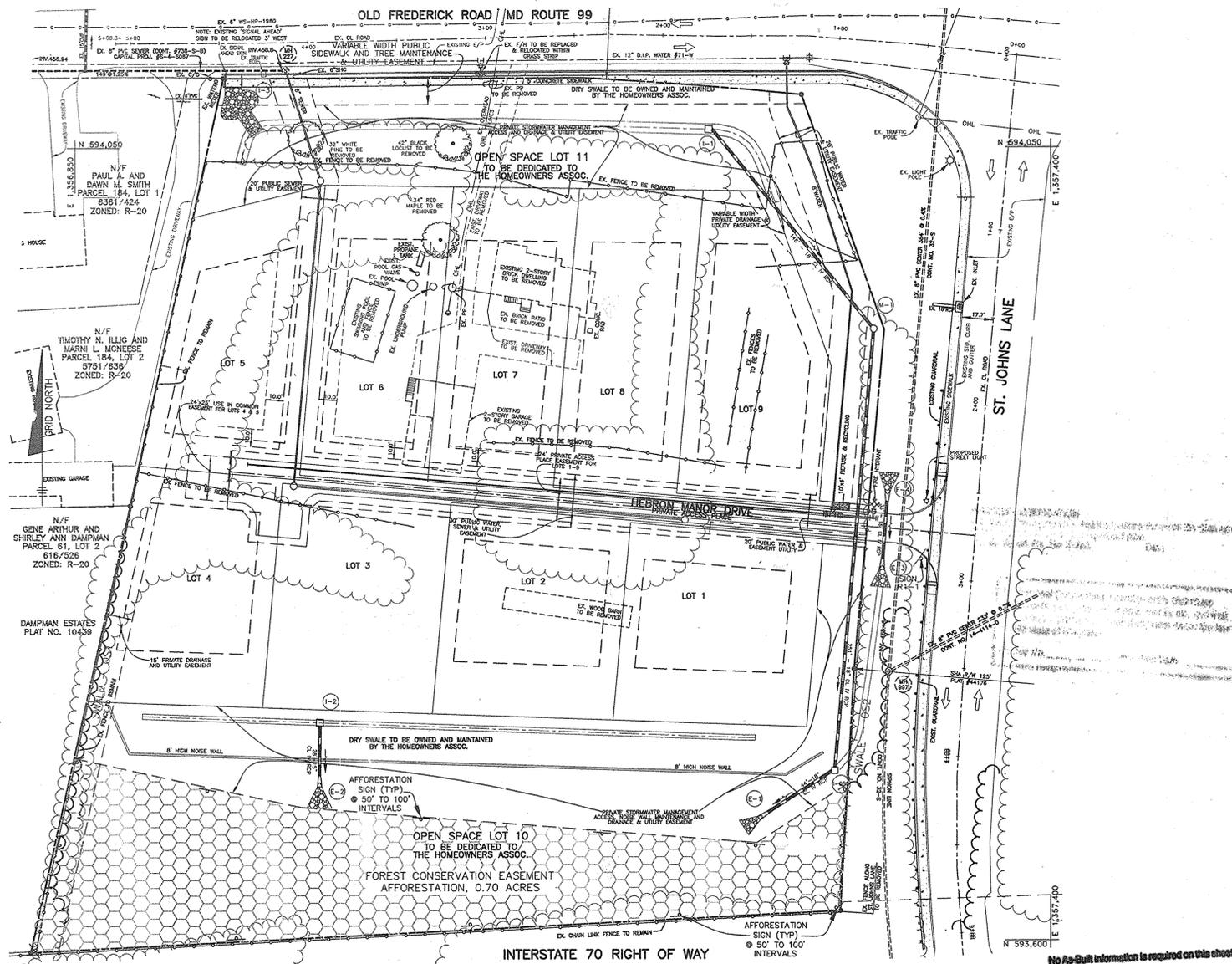
**LOCATION:** TAX MAP: 17 PARCEL: 518  
 GRID: 15 ZONED: R-20  
 2nd ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**TITLE:** STORMWATER MANAGEMENT PLAN AND DETAILS

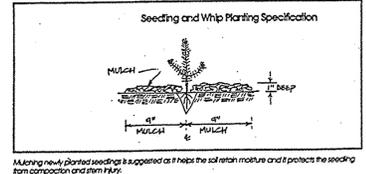
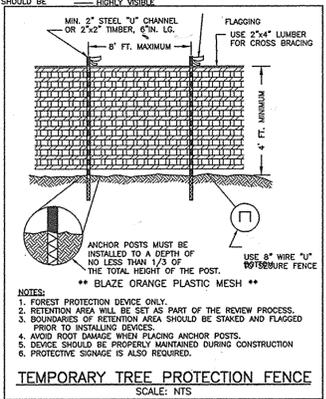
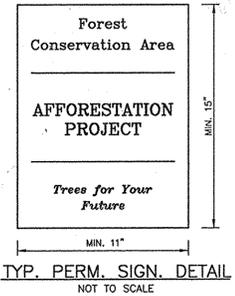
**DATE:** NOVEMBER, 2007 PROJECT NO. 1596  
 JANUARY, 2009 SHEET 6 OF 7

**DESIGN:AAM DRAFT:AAM CHECK:DAM SCALE: AS SHOWN**

**AS-BUILT F-08-87**



PLAN VIEW  
SCALE: 1" = 40'



- FCP NOTES:**
- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
  - FORESTED AREAS OCCURRING OUTSIDE OF THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
  - LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
  - THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
  - NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEARING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
  - PERMANENT SIGNAGE SHALL BE PLACED 50-100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS. SIGNS SHALL BE MOUNTED ON A PERMANENT WOOD POST OR METAL STAKE. FCE SIGNS SHALL NOT BE ATTACHED TO TREES.
  - FOREST CONSERVATION OBLIGATION IN ACCORDANCE WITH SECTION 16.1202 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION MANUAL SHALL BE PROVIDED BY THE PLACEMENT OF 0.7 ACRES OF ON-SITE AFFORESTATION INTO AN EASEMENT AREA (7-08-87 HEBRON MANOR) SURETY FOR 0.7 ACRES OF AFFORESTATION IN THE AMOUNT OF \$15,246.00 (\$22,492 SQ. FT. X \$0.60) SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN, F-08-87.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Walter R. ...* 1-22-09  
 CHEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Candy ...* 1/29/09  
 CHEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Paul ...* 1-27-9  
 CHEF, DEVELOPMENT ENGINEERING DIVISION

THIS PLAN IS FOR AFFORESTATION ONLY



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.  
 License No. 21443, Expiration Date: 12-21-16

**REFORESTATION PLAN**

The reforestation area will be placed into a Forest Conservation Easement.

**A. Planting Plan and Methods**

Plant species selection was based on our knowledge regarding plant communities in Maryland's Piedmont Plateau and information provided in the soil survey on typical vegetation for the soil type on the planting site. Species selection was also based on our knowledge of plant availability in the nursery industry.

Reforestation will be accomplished through a mixed planting of whips and branched transplants. Container grown stock is recommended but bareroot stock may be used to help control afforestation costs. If bareroot stock is used the root systems of all plants will be dipped in an anti-desiccant gel prior to planting to improve moisture retention in the root systems.

Prior to planting the proposed Forest Conservation Easement all multiflora rose in the planting area shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following a periodic herbicide treatment of stump sprouts is recommended. Native tree and shrub species occurring within the rose thickets should be retained wherever possible. Herbicide treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicide use shall be made specifically to address woody plant material and shall be applied as per manufacturers specifications. Care should be taken not to spray planted trees or naturally occurring native tree/shrub seedlings. It is recommended that initiation of rose removal begin at least six months prior to planting.

**B. Planting and Soil Specifications**

Plant material will be installed in accordance with the Planting Detail and Planting Specifications shown on the Forest Conservation Plan.

Amendments to existing soil will be in accordance with the Planting Specifications shown on the Forest Conservation Plan. Soil disturbance will be limited to individual planting locations.

**C. Maintenance of Plantings**

For information regarding maintenance of the reforestation plantings, see Section VIII B.

**D. Guarantee Requirements**

A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be replaced at the beginning of the second growing season. At the end of the second growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

**E. Security for Reforestation**

Section 16-1209 of the Howard County Forest Conservation Act requires that a developer shall post a security (bond, letter of credit, etc) with the County to insure that all work is done in accordance with the FCP.

**CONSTRUCTION PERIOD PROTECTION PROGRAM**

**A. Forest Protection Techniques**

**1. Soil Protection Area (Critical Root Zone)**

The soil protection area, or critical root zone, of a tree is that portion of the soil column where root of a tree roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.

**2. Fencing and Signage**

Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the afforestation area prior to plant installation, as shown on the plan.

**B. Pre-Construction Meeting**

Upon staking of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.

**C. Storage Facilities/Equipment Clearing**

All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Clearing of equipment will be limited to area within the LOD of the proposed homesites. Wastewater resulting from equipment cleaning will be contained to prevent runoff into environmentally sensitive areas.

**D. Sequence of Construction**

The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

- Below find a proposed sequence of construction.
- Install all signage and sediment control devices.
  - Hold pre-construction meeting between developer, contractor and County inspector.
  - Build access roads, install well and septic systems, and construct houses. Stabilize all disturbed areas accordingly.
  - Begin multiflora rose removal. Install permanent protective signage for Easements and initiate plantings in accordance with Forest Conservation Plan. Plantings will be completed within two (2) years of subdivision approval.
  - Remove sediment control.
  - Hold post-construction meeting with County inspectors to assure compliance with FCP. Submit Certification of Installation.
  - Monitor and maintain plantings for 2 years.

**E. Construction Monitoring**

Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan.

**F. Post-Construction Meeting**

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that afforestation plantings have been installed.

**POST-CONSTRUCTION MANAGEMENT PLAN**

Howard County requires a two year post-construction management plan be prepared as part of the forest conservation plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.

The following items will be incorporated into the plan:

- A. Fencing and Signage**
- Permanent signage indicating the limits of the retention/reforestation area shall be maintained.
- B. General Site Inspections/Maintenance of Plantings**
- Site inspections will be performed a minimum of three times during the growing season. The purpose of the inspections will be to assess the health of the afforestation plantings. Appropriate measures will be taken to rectify any problems which may arise.

- In addition, maintenance of the afforestation plantings will involve the following steps:
- Watering - All plant material shall be watered twice a month during the 1st growing season, more or less frequently depending on weather conditions. During the second growing season, once a month during May-September, if needed.
  - Removal of invasive exotics and noxious weeds. Old field successional species will be retained.
  - Identification of serious plant pests and diseases, and treatment with appropriate agents.
  - Pruning of dead branches.
  - After 12 and 24 months, replacement of plants, if required, in accordance with the Guarantee Requirements shown on the FCP.

**C. Education**

The developer will provide appropriate materials to property owners informing them of the location and purpose of the afforestation area. Materials may include site plans and information explaining the intent of the forest conservation law.

**D. Final Inspection**

At the end of the two year post-construction management period, Eco-Science Professionals, or another qualified professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/reforestation requirements have been met. Upon acceptance of this certification, the County will release the developer from all future obligations and release the developer's bond.

**PLANTING SCHEDULE**

FOREST CONSERVATION EASEMENT #1 (0.7 AC ±)  
 WHIP PLANTINGS REQUIRED: 245  
 WHIP PLANTINGS PROPOSED: 245

| SIZE | SPECIES                            | SIZE      | SPACING  |
|------|------------------------------------|-----------|----------|
| 40   | Acer rubrum - RED MAPLE            | 2-3" WHIP | 11' O.C. |
| 20   | Cornus Florida - FLOWERING DOGWOOD | 2-3" WHIP | 11' O.C. |
| 20   | Jurubonus virginiana - RED CEDAR   | 2-3" WHIP | 11' O.C. |
| 50   | Liriodendron tulipifera - POPLAR   | 2-3" WHIP | 11' O.C. |
| 35   | Prunus serotina - BLACK CHERRY     | 2-3" WHIP | 11' O.C. |
| 20   | Quercus alba - WHITE OAK           | 2-3" WHIP | 11' O.C. |
| 40   | Rubus perovskianus - BLACK LOCUST  | 2-3" WHIP | 11' O.C. |
| 20   | Viburnum prunifolium - BLACKHAWK   | 2-3" WHIP | 11' O.C. |

TOTAL WHIP PLANTINGS: 245

**ADDITIONAL PLANTINGS**

PLANTINGS SHOULD BE INSTALLED IN ROWS TO FACILITATE FUTURE MAINTENANCE. WHERE POSSIBLE, ROWS SHOULD BE MADE ALONG CONTOUR. PER COUNTY REQUIREMENTS, TREE SPACERS SHALL BE USED.

**PLANTING/SOIL SPECIFICATIONS**

- PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH. CONTAINER STOCK MAY BE PLANTED BETWEEN SEPTEMBER 1ST AND OCTOBER 30TH.
- A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL REFORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDING AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT.
- AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED. ALL BASECOURSE PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICCANT GEL PRIOR TO PLANTING.
- PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART FINE SAND OR EQUIVALENT.
- FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
- A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
- PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
- ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

**SEQUENCE OF CONSTRUCTION**

- PLANTING SHALL BE ACCOMPLISHED AFTER SITE GRADING AND UPON REMOVAL OF THE TEMPORARY STORMWATER MANAGEMENT FACILITY.
- PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
- UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST RETENTION AREA PROTECTION DEVICES SHOWN ON THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

**MAINTENANCE OF PLANTINGS**

- MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
- ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
- INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM REFORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
- PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
- DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

**GUARANTEE REQUIREMENTS**

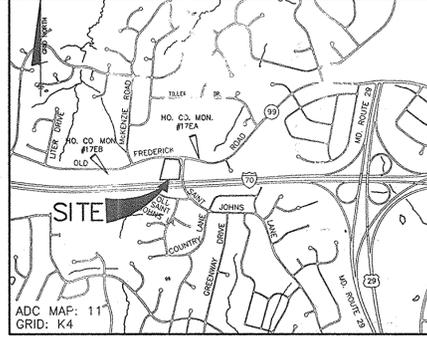
- AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD. A 75 PERCENT SURVIVAL RATE OF REFORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO THEFT OR VANDALISM.

**SURETY FOR REFORESTATION**

- THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

**FLOODPLAIN NOTE:**

THERE IS NO FLOODPLAIN ON THIS SITE.



VICINITY MAP  
SCALE: 1" = 2000'

**APPENDIX G  
FOREST CONSERVATION WORKSHEET**

I. BASIC SITE DATA

| ACRES   | (1/10 acre) |
|---|-------------|
| GROSS SITE AREA   | 4.5         |
| AREA WITHIN 100 YEAR FLOODPLAIN                                     | 0.0         |
| AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE) | NA          |
| NET TRACT AREA  | 4.5         |
| LAND USE CATEGORY (R-RD, R-RND, R-S, C/V, O, etc.)                  | R-3         |
| RESIDENTIAL - SUBSIDIARY COMMERCIAL/INDUSTRIAL/AGRICULTURAL         | NA          |

II. INFORMATION FOR CALCULATIONS

| ACRES                                | (1/10 acre) |
|--------------------------------------|-------------|
| A. NET TRACT AREA                    | 4.5         |
| B. REFORESTATION THRESHOLD (50% x A) | 0.9         |
| C. AFFORESTATION MINIMUM (15% x A)   | 0.7         |
| D. EXISTING FOREST ON NET TRACT AREA | 0.0         |
| E. FOREST AREAS TO BE CLEARED        | 0.0         |
| F. FOREST AREAS TO BE RETAINED       | 0.0         |

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. Reforestation  
 If existing forest area equal or exceed the afforestation minimum (if D equals or is more than C), and clearing of forest areas is proposed, reforestation requirements may apply.

2. Afforestation  
 If existing forest area less than the afforestation minimum (if D is less than C), and no clearing of existing forest resources is proposed, no reforestation is required. No further calculations are needed.

V. AFFORESTATION CALCULATIONS

| ACRES                                | (1/10 acre) |
|--------------------------------------|-------------|
| A. NET TRACT AREA                    | 4.5         |
| B. AFFORESTATION MINIMUM (15% x A)   | 0.7         |
| C. EXISTING FOREST ON NET TRACT AREA | 0.0         |
| D. FOREST AREAS TO BE CLEARED        | 0.0         |
| E. FOREST AREAS TO BE RETAINED       | 0.0         |

SELECT THE ALTERNATE THAT APPLIES:

1. Afforestation below the minimum  
 If existing forest area less than the afforestation minimum (if C is less than B) and NO clearing is proposed, the following calculations apply:

|                              |     |
|------------------------------|-----|
| TOTAL AFFORESTATION REQUIRED | 0.7 |
| B - C                        | 0.7 |

Afforestation must make total forest area equal the minimum required. Clearing below the minimum.

2. Reforestation below the minimum  
 If existing forest area less than the afforestation minimum (if C is less than B) and clearing is proposed, the following calculations apply:

|  |     |
|--|-----|
| AFFORESTATION FOR UNFORESTED AREAS BELOW MINIMUM | NA  |
| B - C  | 0.7 |
| AFFORESTATION FOR CLEARING BELOW MINIMUM         | NA  |
| (E - D) x 2                                      | 0.0 |
| TOTAL AFFORESTATION + REFORESTATION REQUIRED     | NA  |
| (B - C) + (D x 2)                                | 0.7 |

Afforestation requires the total forest area to be equal to the minimum and it requires compensation for clearing.

**Eco-Science Professionals, Inc.**  
 CONSULTING ECOLOGISTS  
 P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752  
 John P. Canoles  
 MD DNR Qualified Professional  
 USACE Wetland Delineator  
 Certification # WDCFP3MD06100442

| NO. | DATE | REVISION |
|-----|------|----------|
|     |      |          |
|     |      |          |
|     |      |          |

**BENCHMARK ENGINEERS, LAND SURVEYORS & PLANNERS, INC.**  
 8480 BALTIMORE NATIONAL PIKE A SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 phone: 410-465-6105 A fax: 410-465-6644

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. License No. 22370, Expiration Date: 6-30-09

|  |  |
|--|--|
| OWNER/DEVELOPER:   | PROJECT:   |
| HEBRON MANOR LLC<br>11807 WOLLINGFORD COURT<br>CLARKSVILLE, MARYLAND 21029<br>410-792-2565 | HEBRON MANOR<br>LOTS 1-9 AND OPEN SPACE LOTS 10 & 11 |
| LOCATION: TAX MAP: 17<br>GRID: 15<br>2nd ELECTION DISTRICT<br>HOWARD COUNTY, MARYLAND      | PARCEL: 518<br>ZONED: R-20                           |
| TITLE:   | PROJECT NO. 1596                                     |
| DATE: NOVEMBER, 2007<br>JANUARY, 2009  | SHEET 7 OF 7   |
| DESIGN:AAM DRAFT:AAM CHECK:DAM   | SCALE: AS SHOWN                                      |

**SOILS LEGEND**

| MAP SYMBOL | SOIL GROUP | SOIL TYPE   |
|------------|------------|---|
| Ba         | D*         | BAILE SILT LOAM   |
| ChB2       | B          | CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED |
| ChC3       | B          | CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED  |
| CoB        | B          | COMUS SILT LOAM, LOCAL ALLUVIUM, 3 TO 8 PERCENT SLOPES      |
| GlB2       | B          | GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED      |
| MlB2       | B          | MANOR LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED        |

\* INDICATES HYDRIC SOILS  
 TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND (ISSUED JULY 1968) MAP NO. 9 AND 15