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FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLAN WALNUT CREEK PHASE ONE

LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D' & BUILDABLE BULK PARCELS 'E' & 'F'

ZONING: RC-DEO & RR-DEO

TAX MAP NO. 28 GRID Nos. 4, 5, 10-12, 17 AND 18 PARCEL No. 49

FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter A. Bell
 CHIEF, BUREAU OF HIGHWAYS 1-14-08
 DATE

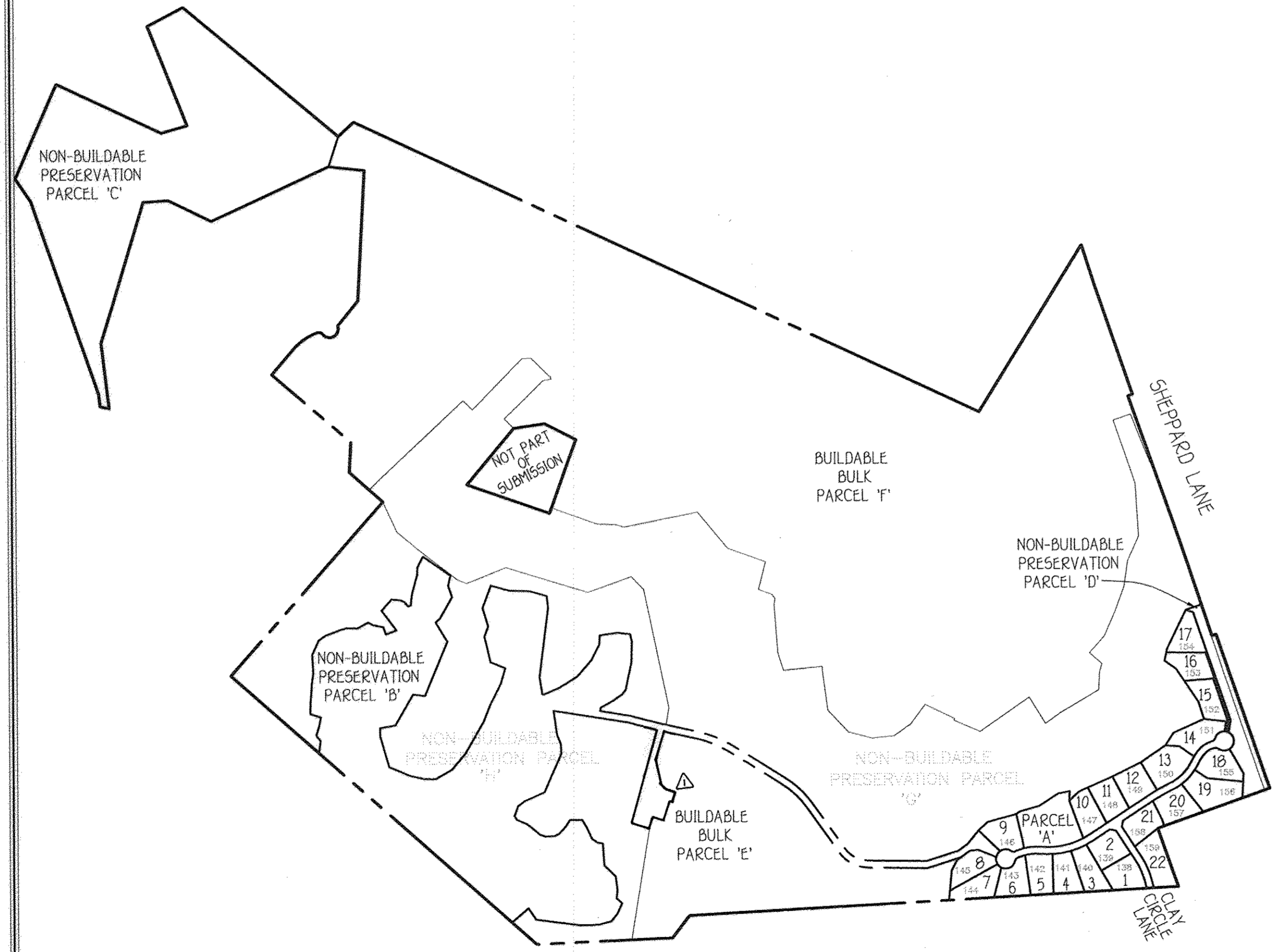
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Harvett
 CHIEF, DIVISION OF LAND DEVELOPMENT 1/22/08
 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature]
 DATE

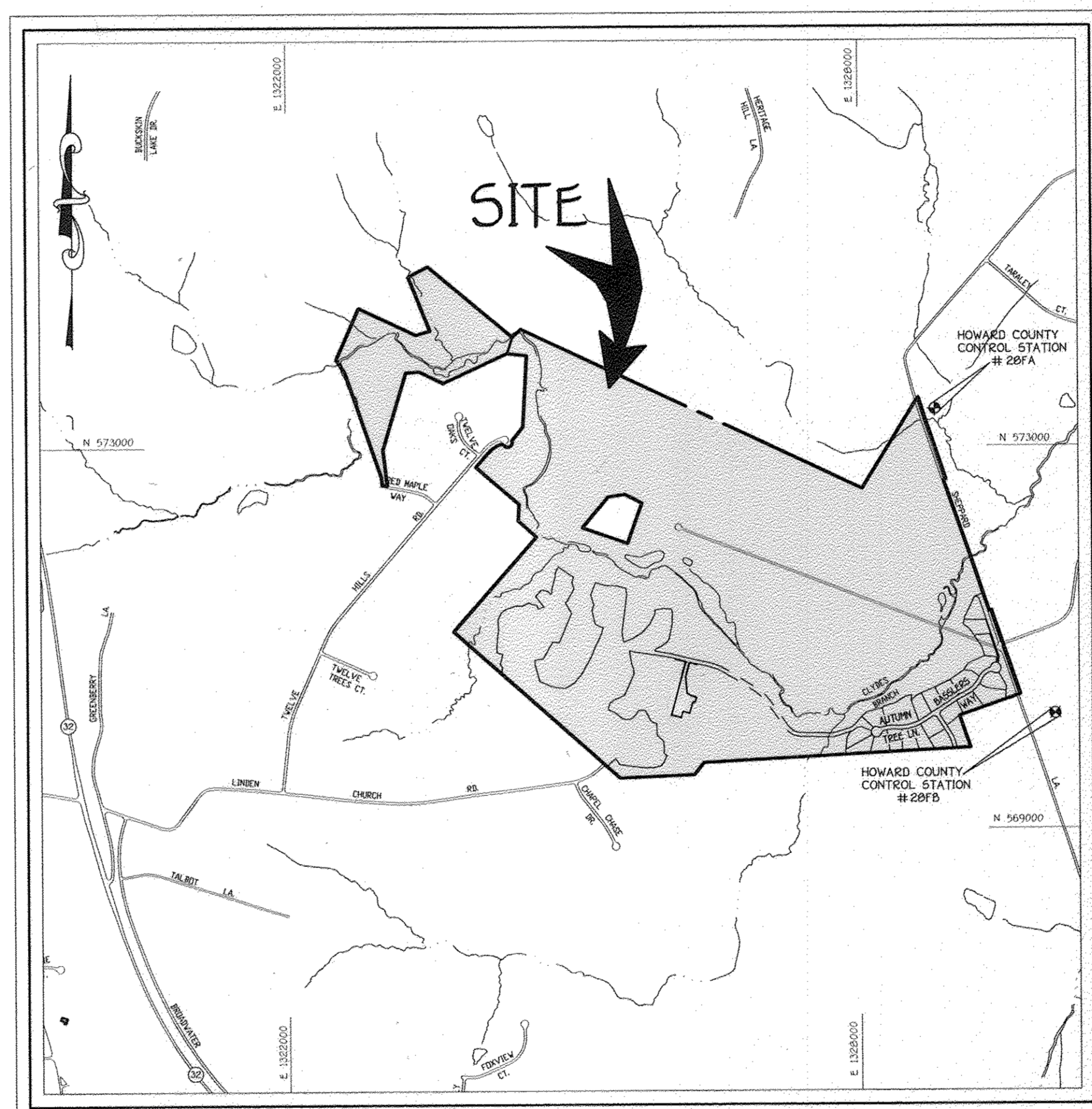
- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PUBLIC WORKS STANDARDS AND SPECIFICATIONS IF APPLICABLE.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT (410) 313-1800 AT LEAST 15 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, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PRACTICE. ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
 - COORDINATES BASED ON NAD83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS #29 FA AND #29 FB
 HOWARD COUNTY MONUMENT NO. 28FA N 572496.685 E 1328797.66 ELEV. = 348.200'
 HOWARD COUNTY MONUMENT NO. 28FB N 570708.839 E 1328798.44 ELEV. = 389.800'
 - THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED SEPTEMBER, 2005 AND WAS APPROVED BY THE BOARD OF PUBLIC WORKS ON MAY 31, 2006.
 - BACKGROUND INFORMATION:
 A. SUBDIVISION NAME: WALNUT CREEK
 B. TAX MAP NO.: 28
 C. PARCEL NO.: 49
 D. ZONING: RC-DEO & RR-DEO
 E. ELECTION DISTRICT: FIFTH
 F. TOTAL TRACT AREA: 43.485 AC.
 G. NO. OF BUILDABLE LOTS: 22
 H. NO. OF OPEN SPACE LOTS: 0
 I. NO. OF NON-BUILDABLE PRESERVATION PARCELS: 4
 J. NO. OF BUILDABLE BULK PARCELS: 2
 K. AREA OF BUILDABLE LOTS: 18.201 AC.
 L. AREA OF OPEN SPACE LOTS: 0.00 AC.
 M. AREA OF NON-BUILDABLE PRESERVATION PARCELS: 82.944 AC. Δ
 N. AREA OF BUILDABLE BULK PARCELS: 328.837 AC.
 O. TOTAL AREA OF ROADWAY TO BE DEICATED: 3.560 AC.
 P. PREVIOUS FILE NOS.: SP-06-007 APPROVAL DATE: 5/31/06, BA-05-02E, BA-98-33E, BA-93-49E & WP-08-007 (SEE NOTE 18 BELOW)
 - ONE CEMETERY EXISTS WITHIN THIS SUBDIVISION
 "CLARK FAMILY CEMETERY" - HD. CO. ID. 292-2. THE PLANNING BOARD APPROVED THE CEMETERY ACCOMMODATION AND BOUNDARY DOCUMENTATION PLAN ON MARCH 30, 2006 SUBJECT TO THE FOLLOWING CONDITIONS:
 1. THE DEVELOPER AND/OR THE WALNUT CREEK HOA SHALL UPGRADE THE EXISTING SPLIT RAIL FENCE TO FURTHER PROTECT THE EXISTING CEMETERY SITE.
 2. THE DEVELOPER AND/OR THE WALNUT CREEK HOA SHALL REGULARLY MAINTAIN THE CEMETERY AREA.
 3. THE DEVELOPER AND/OR THE WALNUT CREEK HOA MUST PLACE A CEMETERY MARKER AT THE ENTRANCE OF THE CEMETERY SITE.
 - ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF ASTM D 1585.
 - THE FOREST CONSERVATION PLAN PER SECTION 16.200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THE ENTIRE SUBDIVISION WILL BE FULFILLED BY PROVIDING 9557 ACRES OF ON-SITE FOREST RETENTION AND 3166 ACRES OF ON-SITE FOREST AFFORESTATION FOR A TOTAL OF 12,723 ACRES. A SURETY FOR ON-SITE FOREST RETENTION = \$2,094,997.50 + \$209,499.75 = \$2,304,497.25 AND ON-SITE AFFORESTATION = \$150.52/AF FOR 13,731.00 SF = \$409,555.00 IS REQUIRED. TOTAL SURETY AMOUNT FOR THE ENTIRE SUBDIVISION = \$2,714,052.25
 The Forest Conservation provided with Phase One are as follows:
 15,000 AC. OF FOREST CONSERVATION EASEMENT CREDITED AND NON-CREDITED
 Credited onsite retention of 819 acres of forest and 4.35 acres of onsite reforestation.
 CALCULATION USED FOR PHASE ONE FOREST REQUIREMENT:
 9557 TOTAL RETENTION ACRES/TOTAL UNITS = 0.3723 (22 UNITS x 0.3723 = 8.19 AC.)
 3166 TOTAL PLANTING ACRES/TOTAL UNITS = 0.1979 (22 UNITS x 0.1979 = 4.35 AC.)
 A SURETY FOR ON-SITE FOREST RETENTION = \$2,094,997.50 + \$209,499.75 = \$2,304,497.25 AND ON-SITE AFFORESTATION = \$150.52/AF FOR 13,731.00 SF = \$409,555.00 IS REQUIRED. TOTAL SURETY AMOUNT FOR THIS SUBMISSION = \$2,714,052.25
 THIS FOREST CONSERVATION PROPOSAL IS SUBJECT TO HP-08-007, APPROVED ON AUGUST 21, 2007 TO THE FOLLOWING CONDITIONS:
 1. THE WAIVER PETITION APPROVAL APPLIES ONLY TO THE TEMPORARY DEFERRAL FOR ESTABLISHING THE FOREST CONSERVATION EASEMENTS FOR THIS SUBDIVISION BASED ON THE FORESTING SCHEDULE FOR THIS PROJECT. EACH SUBSEQUENT PHASE OF DEVELOPMENT MUST ESTABLISH A PROPORTIONATE AREA OF FOREST CONSERVATION EASEMENTS AND PROVIDE THE NECESSARY AREA OF FOREST RETENTION AND AFFORESTATION AS REQUIRED BY THE FOREST CONSERVATION WORKSHEET FOR THIS PROJECT TO SATISFY ITS OBLIGATION. THE ENTIRE AREA OF FOREST CONSERVATION OBLIGATION MUST BE PROVIDED WITH THE PROCESSING AND RECORDING OF THE LAST PHASE OF DEVELOPMENT FOR THIS PROJECT.
 2. THE APPLICANT/DEVELOPER MUST CONTINUE PROCESSING THE SUBDIVISION PLANS FOR WALNUT CREEK AND MEET ALL APPLICABLE PROCESSING DEADLINE DATES IN ACCORDANCE WITH THE APPROVED AFFO PHASING SCHEDULE.
 - STORMWATER MANAGEMENT FACILITIES: BMP# NO. 1
 PRIVATELY OWNED BY THE HOMEOWNERS' ASSOCIATION AND MAINTAINED BY THE HOMEOWNERS' ASSOCIATION AND HOWARD COUNTY, MARYLAND
 NET EXTENDED DETENTION FACILITY (E-3)
 FOR W-4 & C-4
 STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MARYLAND SWS SPECIFICATIONS. RECYCLING VOLUME WILL BE PROVIDED THROUGH THE USE OF GRASS CHANNELS ALONG THE PROPOSED ROADWAYS. WATER QUALITY AND FOREST RESTORATION VOLUME WILL BE PROVIDED BY A 100% POOL EXTENDED DETENTION POND, ONE 100% RETENTION FACILITY AND LEVEL SPREADERS.
 OVERSIZING FLOOD PROTECTION VOLUME AND EXTENSIVE FLOOD VOLUME ARE NOT REQUIRED FOR THIS SITE.
 - THE PROPOSED WATER AND SEWER SYSTEMS SHALL BE PRIVATE. SEE CONTRACT NO. 50-4440-D FOR LOW PRESSURE SYSTEM. HOWARD COUNTY, MARYLAND, JULY 1999 ISSUE.
 - THE SUBJECT PROPERTY IS LOCATED OUTSIDE OF THE METROPOLITAN DISTRICT.
 - TOPOGRAPHIC CONTOURS BASED ON HAYFORD ALGEBRA SURVEYS, INC. DATED FEBRUARY, 2004.
 - FOR FLAG OR PRESTEN LOTS, REFUSE COLLECTION, SNOW REMOVAL, AND ROAD MAINTENANCE IS TO BE PROVIDED AT THE JUNCTION OF THE FLAG OR PRESTEN AND THE ROAD RIGHT-OF-WAY AND NOT ONTO THE FLAG OR PRESTEN DRIVEWAY.
 - THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HERBERT BENSON & ASSOCIATES, INC., DATED SEPTEMBER, 2005 AND APPROVED ON MAY 31, 2006.
 - THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED SEPTEMBER, 2005 AND APPROVED ON MAY 31, 2006.
 - THE NON-CRITICAL FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY FISHER, COLLINS & CARTER, INC. DATED JULY, 2005, AND SUPPLEMENTED WITH INFORMATION OBTAINED FROM HD. CO. CAPITAL PROJECT 02-1028A.
 - SOILS INFORMATION TAKEN FROM SOIL MAP NO. 18, SOIL SURVEY, HOWARD COUNTY, MARYLAND, JULY 1969 ISSUE.
 - THERE ARE STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY "SLOPES THAT AVERAGE 20% OR GREATER OVER 10 VERTICAL FEET". PER SECTION 16.200(B)(5) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, TOTAL AREA OF 20% OR GREATER SLOPES = 8.9 AC.
 - AS PER SECTION 16A(1) OF THE ZONING REGULATIONS, ONLY ONE EASEMENT HOLDER IS REQUIRED FOR PRESERVATION PARCELS DESIGNED SOLELY FOR SWM FACILITIES OR COMMUNITY SEWERAGE DISPOSAL SYSTEMS.
 A. NON-BUILDABLE PRESERVATION PARCEL 'A'
 OWNED: HOMEOWNERS' ASSOCIATION
 EASEMENT HOLDER: HOWARD COUNTY, MARYLAND
 USE: SWM
 B. NON-BUILDABLE PRESERVATION PARCEL 'B'
 OWNED: HOWARD COUNTY, MARYLAND
 EASEMENT HOLDER: HOMEOWNERS' ASSOCIATION
 USE: SHARED SEPTIC
 C. NON-BUILDABLE PRESERVATION PARCEL 'C'
 OWNED: HOMEOWNERS' ASSOCIATION
 EASEMENT HOLDERS: HOWARD COUNTY, MARYLAND & HOMEOWNERS' ASSOCIATION
 USE: ENVIRONMENTAL CONSERVATION
 D. NON-BUILDABLE PRESERVATION PARCEL 'D'
 OWNED: HOMEOWNERS' ASSOCIATION
 EASEMENT HOLDERS: HOWARD COUNTY, MARYLAND & PATUENT CONSERVATION CORP.
 USE: ENVIRONMENTAL CONSERVATION
 - NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM OR THEIR REQUIRED BUFFERS.
 - THE LANDSCAPE SURETY IN THE AMOUNT OF \$ 43,350.00 FOR PERIMETER LANDSCAPE REQUIREMENTS OF SECTION 16.21 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS SUBDIVISION. FINANCIAL SURETY FOR THE REQUIRED STREET TREES WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$30,000.00.
 - BUILDABLE BULK PARCELS 'E' & 'F' RETAIN THE RIGHT TO BE FURTHER SUBDIVIDED IN ACCORDANCE WITH THE RES CLUSTER REGULATIONS IN SECTION 16.2 OF THE HOWARD COUNTY ZONING REGULATIONS. THE REBUDING OF THIS BULK PARCEL INTO RESIDENTIAL LOTS WILL REQUIRE A REBUIDING FROM AN OFF-SITE LOCATION WITHIN THE SECOND DISTRICT.
 - THIS SUBDIVISION IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 2004 ZONING REGULATIONS PER COUNCIL BILL NO. 40-2003 AND THE ZONING REGULATIONS AS AMENDED BY COUNCIL BILL NO. 79-2003 AND THE COMP LITE ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/05. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS OR PARCELS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.
 - WELLS SHALL BE DRILLED ON LOTS PRIOR TO RECORDED OF THE FINAL RECORD PLAN.
 - LOTS 1 THRU 22 ARE TO BE SERVED BY A PUBLIC SHARED SEPTIC FACILITY LOCATED ON NON-BUILDABLE PRESERVATION PARCEL 'E'.
 - THE 80% RAIN OUTFALL SHOWN FOR BMP# NO. 1 ON LOT 10 IS PART OF THE STORM DRAIN SYSTEM BEING CONSTRUCTED UNDER F-06-31. MAINTENANCE SHALL BE PROVIDED BY THE HOA. THIS OUTFALL WAS APPROVED AS AN ESSENTIAL NECESSARY DISTURBANCE BY THE HOWARD COUNTY CONSERVATION DISTRICT. SHOULD THE PROPOSED F-06-31 DESIGN BE CHANGED AND/OR RELOCATED, THIS PLAN WILL BE RE-DESIGNED ACCORDINGLY.
 - SIGN POSTS: ALL SIGN POST USED FOR TRAFFIC CONTROL, SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED SQUARE TUBE POST (4" GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED SQUARE TUBE SLEEVE (2" GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
 - THE EXISTING STRUCTURES ON BUILDABLE BULK PARCEL 'E' WILL BE REMOVED UPON THE COMPLETION OF THE FOREST RECYCLING PROGRAM.

| TRAFFIC CONTROL SIGNS | | | | |
|-----------------------|-----------------|--------|----------------|-----------|
| ROAD NAME | CENTERLINE STA. | OFFSET | POSTED SIGN | SIGN CODE |
| CLAY CIRCLE LANE | 0+28 | 19' L | STOP | R1-1 |
| CLAY CIRCLE LANE | 1+0 | 14' R | SPEED LIMIT 25 | R2-1 |
| CLAY CIRCLE LANE | 5+39 | 19' R | STOP | R1-1 |

| ROADWAY INFORMATION CHART | | | |
|---------------------------|----------------------|--------------|-----------|
| ROAD NAME | CLASSIFICATION | DESIGN SPEED | R/W WIDTH |
| CLAY CIRCLE LANE | PUBLIC ACCESS STREET | 25 MPH | 40' |
| BASSLERS WAY | PUBLIC ACCESS PLACE | 25 MPH | 40' |
| AUTUMN TREE LANE | PUBLIC ACCESS PLACE | 25 MPH | 40' |



PLAN VIEW
NO SCALE

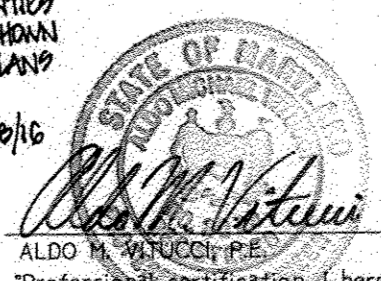


ADC MAP No. 14, E2

GENERAL NOTES CONTINUED:

- THIS PROJECT WILL UTILIZE "INCIDENTAL DRILLING" FOR THE INSTALLATION OF PROPOSED SEWER MAINS BENEATH THE EXISTING ENVIRONMENTAL FEATURES AND ASSOCIATED BUFFERS. THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE DPZ POLICY MEMO DATED APRIL 5, 2006 WHICH INCLUDES THE FOLLOWING CRITERIA:
 1. THE APPLICANT MUST PROVIDE WRITTEN JUSTIFICATION FOR NEEDING TO TRAVERSE ENVIRONMENTALLY PROTECTED FEATURES.
 2. THE APPLICANT MUST DEMONSTRATE THAT ALL DRILLING ACTIVITY WILL BEGIN AND END BEYOND ANY ENVIRONMENTALLY SENSITIVE AREAS AND THEIR BUFFERS. THERE CAN BE NO SURFACE DISTURBANCE WITHIN THE BUFFERS ASSOCIATED WITH THE DRILLING.
 3. THE APPLICANT MUST INSTALL THE UTILITY A MINIMUM OF 3 FEET BELOW THE STREAM INVERT.
 4. THE CORRESPONDING DEVELOPMENT PLAN (E, SF, P, F, OR SFP) AS APPLICABLE MUST SHOW ALL RELEVANT DETAILS FOR THE PROPOSED UTILITY INSTALLATION. THESE DETAILS MUST INCLUDE, BUT NOT BE LIMITED TO: THE LOCATION AND LOD FOR ALL STAKING AREAS AND DRILLING EQUIPMENT DURING INSTALLATION, A PLAN PROFILE GIVING THE DEPTH OF THE UTILITY LINES RELATIVE TO THE GROUND SURFACE AND STREAM INVERT, AND INFORMATION ON THE PIPE SIZES TO BE USED.
 5. THE APPLICANT MUST OBTAIN ANY NECESSARY DE PERMITS.
 6. THE APPLICANT SHALL ADD A NOTE TO THE PLANS EXPLAINING THAT THE HORIZONTAL DRILLING WAS DETERMINED BY DPZ TO NOT CONSTITUTE AN ENVIRONMENTAL DISTURBANCE.
- THIS PROJECT IS SUBJECT TO WASTEWATER DISCHARGE PERMIT NUMBER 05-09-3038 AND IS EFFECTIVE FROM AUGUST 1, 2006 UNTIL AUGUST 1, 2010 WHEN IT EXPIRES.
- LOTS 1-22 WILL BE SERVED BY A LOW PRESSURE SEWER SYSTEM WITH A LIMIT OF FIVE (5) BEDROOMS AT 150 GALLONS PER BEDROOM FOR A TOTAL DESIGN FLOW OF 18,000 GALLONS PER DAY.
- THE EXISTING LANDFILL AREA KNOWN AS A FOREST RECYCLING PRODUCT (FRP) SITE DESIGNATED ON THIS PLAN WITHIN NON-BUILDABLE PRESERVATION PARCEL 'E' CONTAINS LAND CLEARING, DEBRIS, NO OPERATION CONSTRUCTION OR EXCAVATION MAY BEGON ON THIS SITE WITHOUT FIRST OBTAINING THE WRITTEN AUTHORIZATION OF THE HOA, WASTE MANAGEMENT ADMINISTRATION OR ITS SUCCESSOR AGENCY. A PHASING PLAN FOR THE CLOSING OF THIS 'FRP' SITE HAS BEEN FILED WITH HDE IN REGARDS TO EXISTING COMPOSTING AREAS TO REMAIN ON-SITE AND APPROVED SOIL CAPPING PROCEDURES.
- THE EXISTING STRUCTURES ON BUILDABLE BULK PARCEL 'E' WILL BE REMOVED UPON THE COMPLETION OF THE FOREST RECYCLING PROGRAM.

I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
 GABRIEL J. DEARD, P.E. PE NO. 19204 AS-BUILT 8/10/12



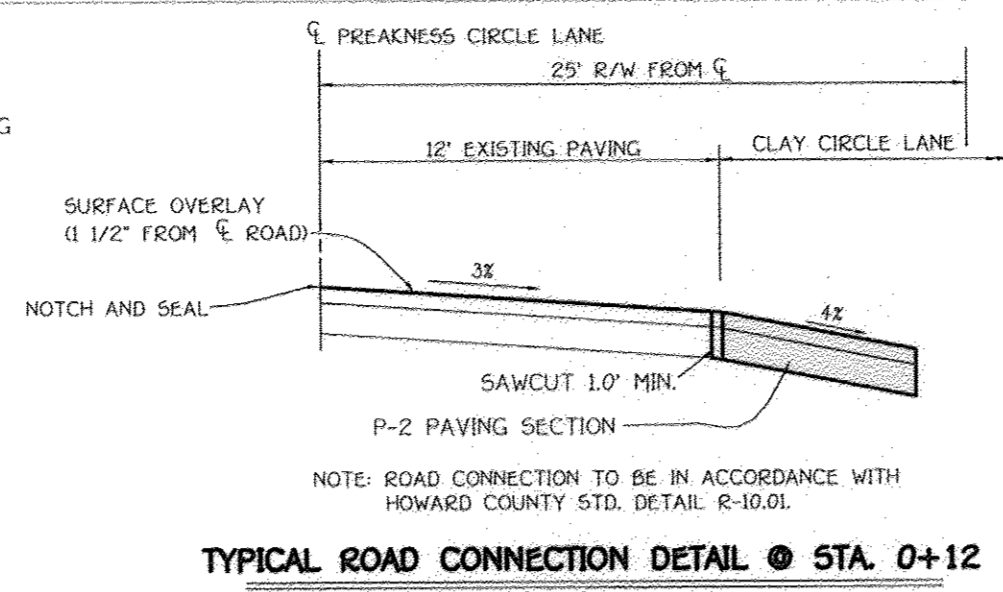
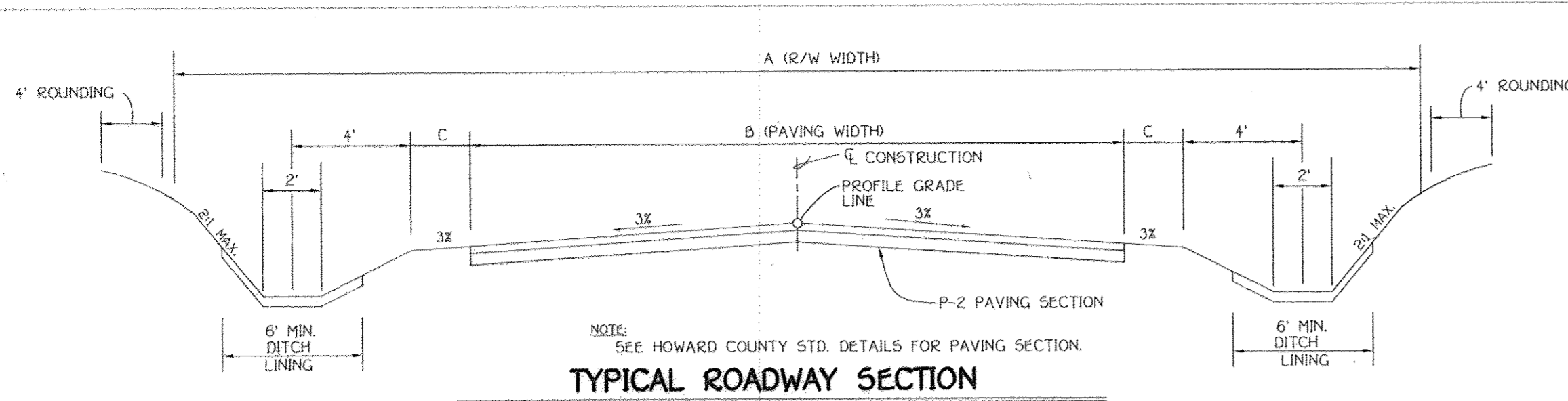
1-2-09
DATE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10072 BALTIMORE NATIONAL FRIE
 ELLICOTT CITY, MARYLAND 20842
 (410) 481-2200

| Q | NO-BUILT | OWNER | DEVELOPER |
|----|---------------------------------------|--|---|
| Q | Revised Non-Buildable Pres Parcel 'B' | BASSLERS, INCORPORATED c/o ALFRED S. BASSLER 4994 SHEPPARD LANE ELLICOTT CITY, MARYLAND 21042 (410) 531-2933 | HERITAGE LAND DEVELOPMENT 19590 NORTH AVE. LISBON, MARYLAND 21765 (410) 489-7900 |
| No | Description | | |
| | Revisions | | |

**WALNUT CREEK
PHASE ONE**
 LOTS 1 THRU 22,
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'
 ZONED: RC-DEO & RR-DEO
 TAX MAP NO. 28 GRID Nos. 4, 5, 10-12, 17 AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 1 OF 22

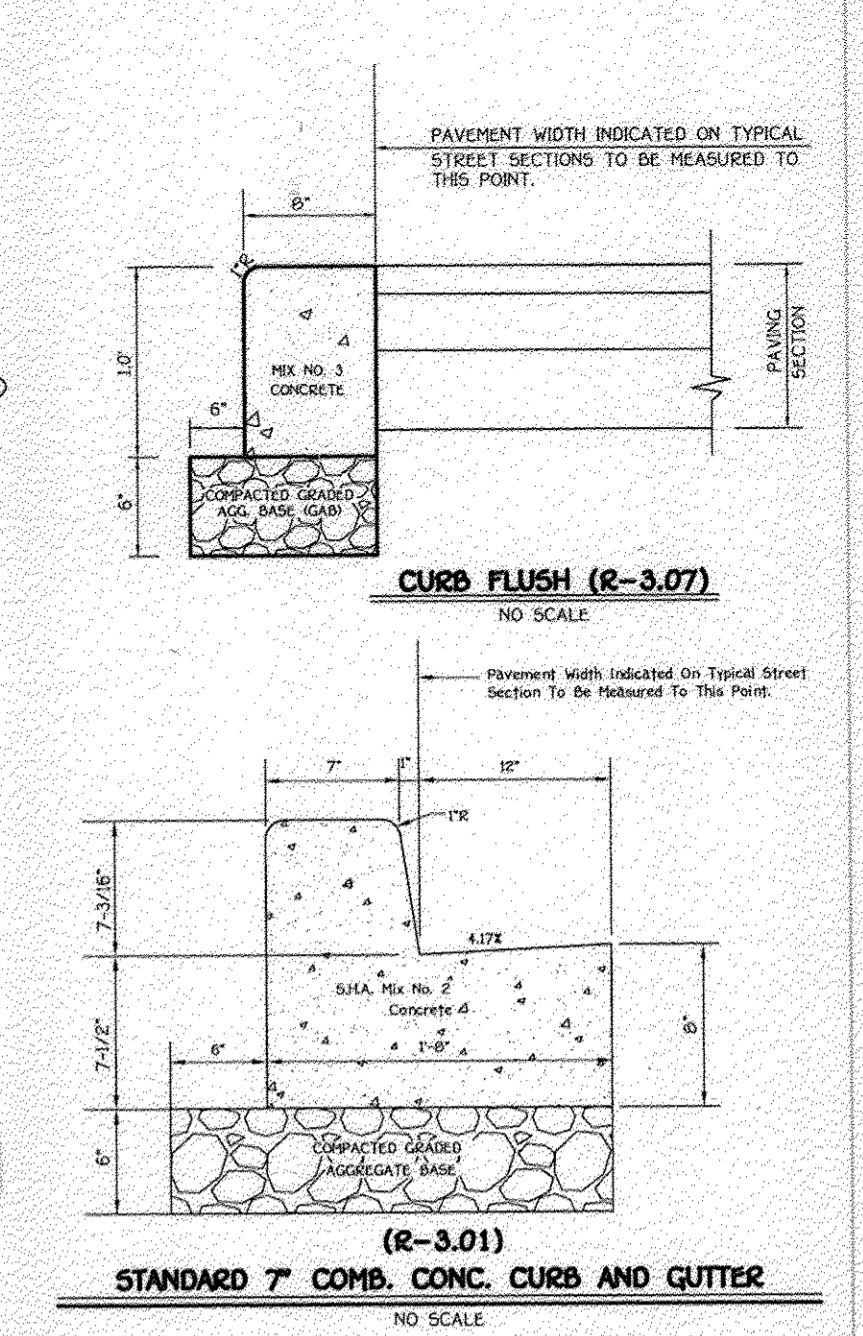
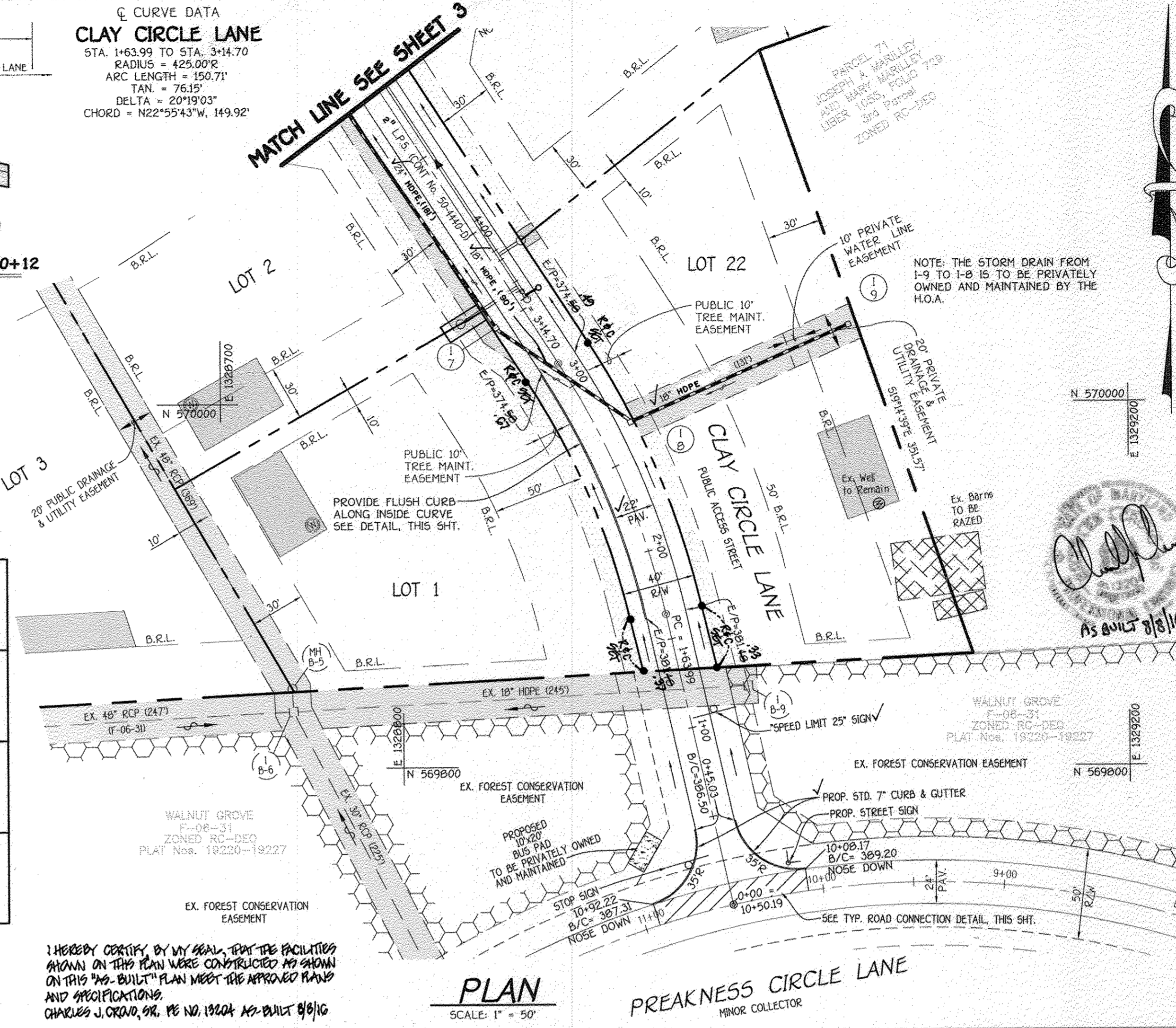
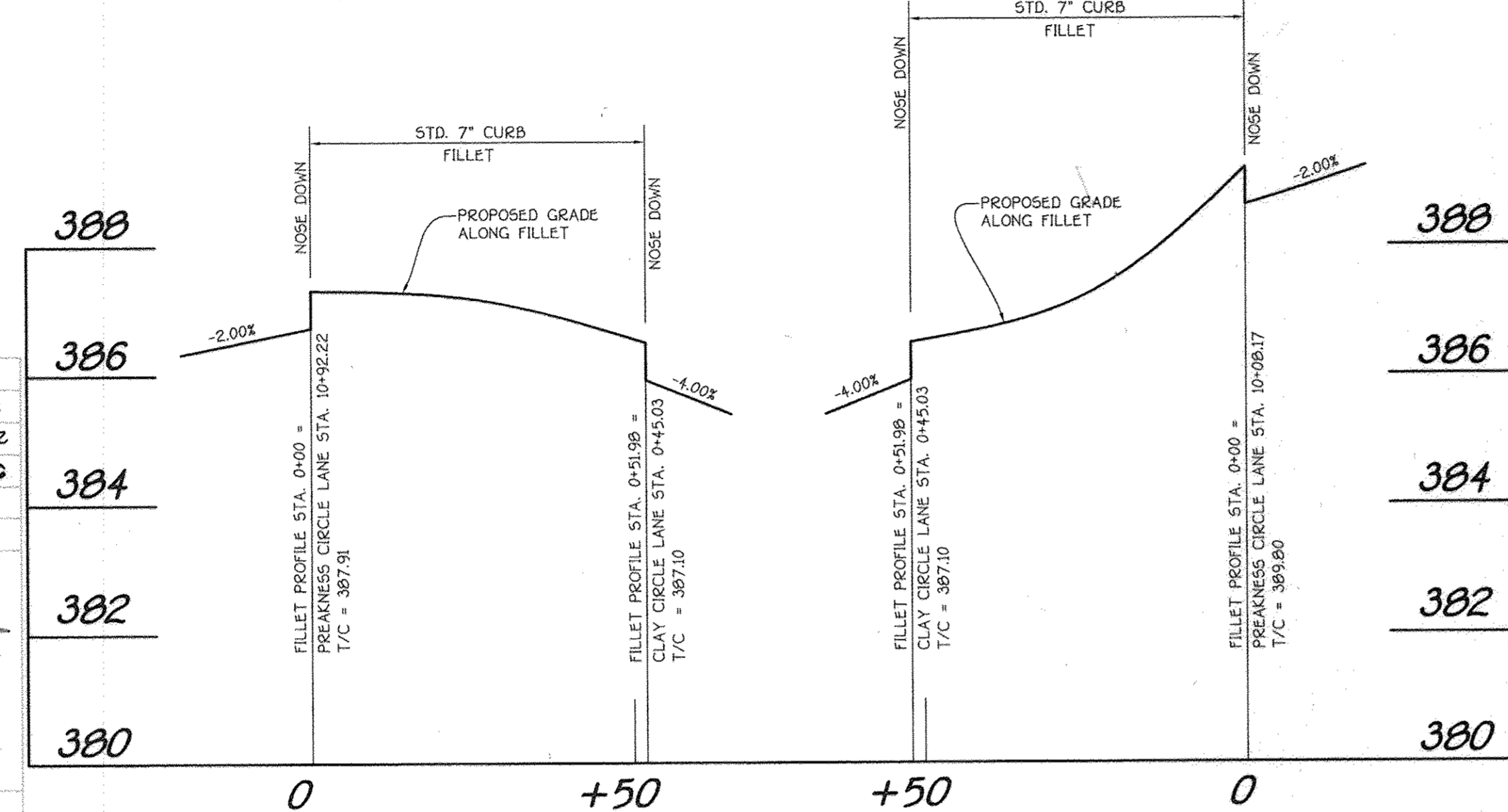
AS-BUILT F-07-076



CLAY CURVE DATA
 STA. 1+63.99 TO STA. 3+14.70
 RADIUS = 425.00'
 ARC LENGTH = 150.71'
 TAN = 76.15°
 DELTA = 20°19'03"
 CHORD = N22°55'43"W, 149.92'

ROADWAY INFORMATION CHART

| ROAD NAME | CLASSIFICATION | DESIGN SPEED | ZONING | A | B | C | STATION LIMITS | PAVING SECTION |
|------------------|----------------------|--------------|--------|-----|-----|----|-----------------|----------------|
| CLAY CIRCLE LANE | PUBLIC ACCESS STREET | 30 MPH | RC-DEO | 40' | 22' | 3' | 0+00 TO 5+62.87 | P-2 |
| BASSLESS WAY | PUBLIC ACCESS PLACE | 25 MPH | RC-DEO | 40' | 18' | 4' | 0+00 TO 7+97.67 | P-2 |
| AUTUMN TREE LANE | PUBLIC ACCESS PLACE | 25 MPH | RC-DEO | 40' | 18' | 4' | 0+00 TO 6+73.34 | P-2 |



WALNUT CREEK PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D' & BUILDABLE BULK PARCELS 'E' & 'F'

ZONED: RC-DEO & RR-DEO
 TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

CLAY CIRCLE LANE
 PLAN AND PROFILE

OWNER: BASSELESS, INCORPORATED
 400 ALFRED S. BASSLER
 4994 SHEPPARD LANE
 ELLICOTT CITY, MARYLAND 21042

DEVELOPER: HERITAGE LAND DEVELOPMENT
 3900 WASHINGTON ROAD, SUITE 220
 GLENWOOD, MARYLAND 21738

SCALE: AS SHOWN DATE: DECEMBER, 2007 DWG. NO. 2 OF 22
 DES. R.A.I. GEN. J.C.L. CHK. A.M.V.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 10000 WASHINGTON BLVD., SUITE 1000
 ELICOTT CITY, MARYLAND 21042
 MD 02 - 5892

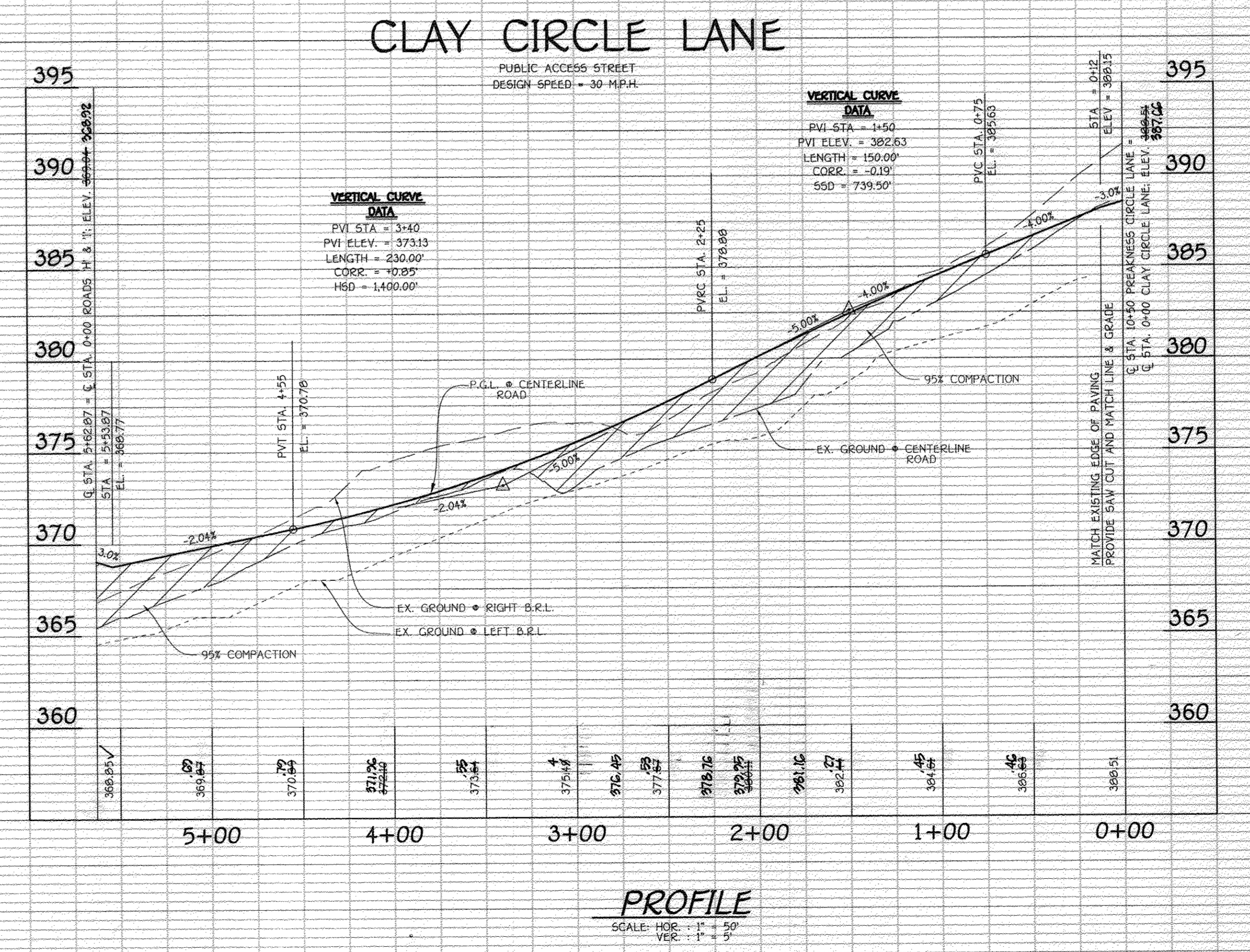
STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 1-2-08

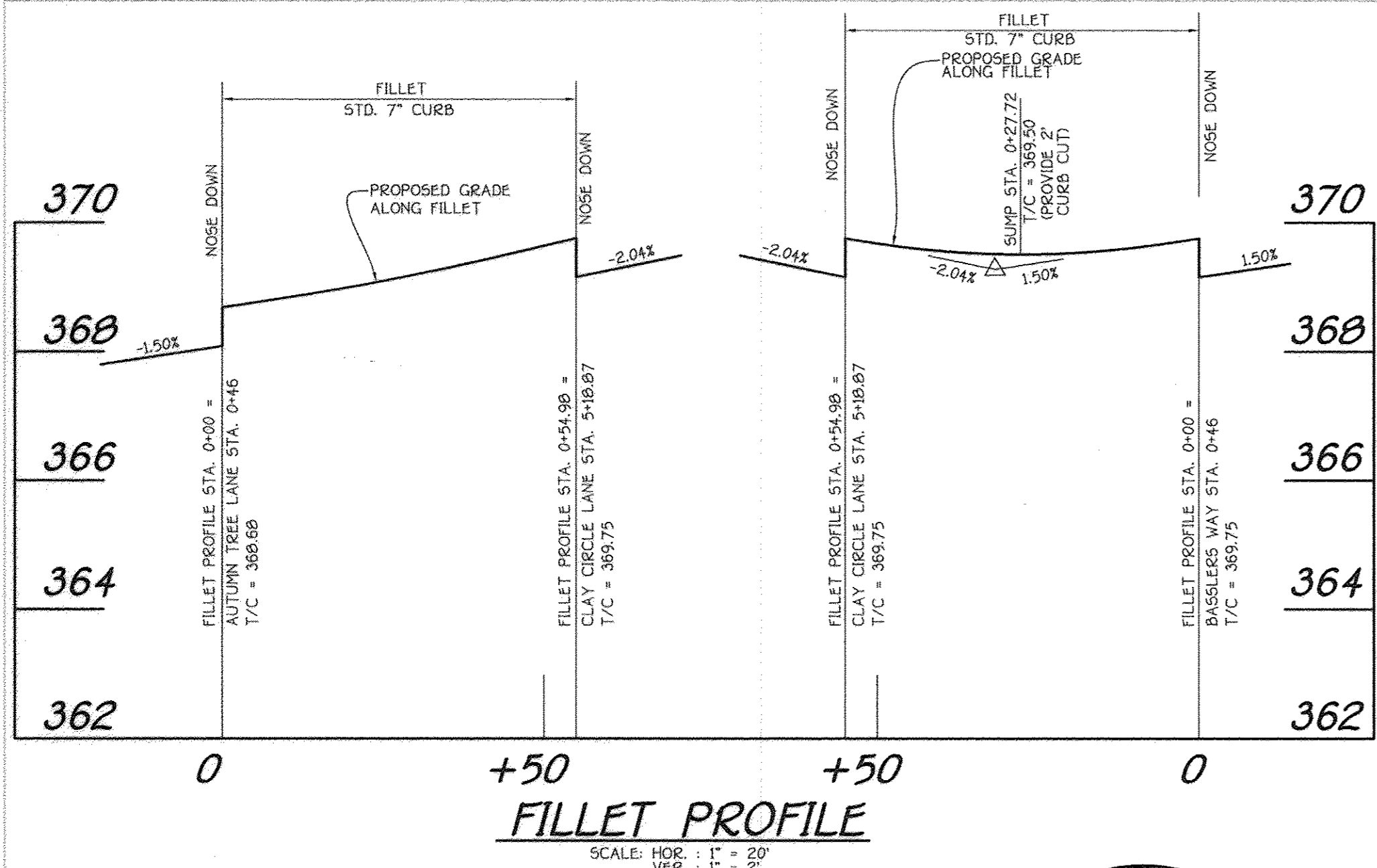
REVISIONS

| NO. | DESCRIPTION | DATE |
|-----|--|---------|
| 1 | Revised Low Measure Sewer Size & Storm Drain Pipe Material | 8/30/12 |
| 2 | AS-BUILT | 8/9/16 |

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Division of Land Development
 DATE: 1/22/15

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 DATE: 1-14-09

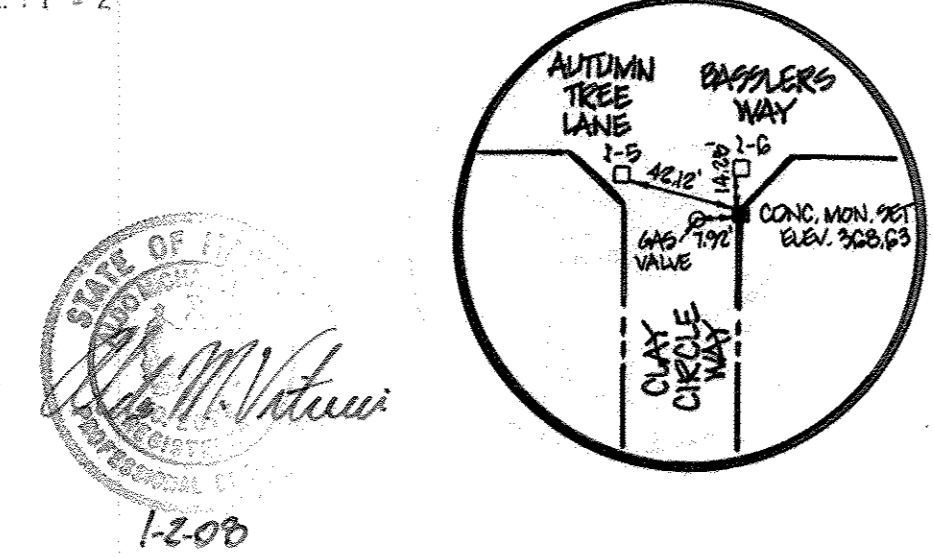




| NO. | REVISIONS | DATE |
|-----|--|---------|
| 1 | Revised L.P.P. & Storm Drain Pipe Material | 8/30/12 |
| 2 | AS-BUILT | 8/19/16 |

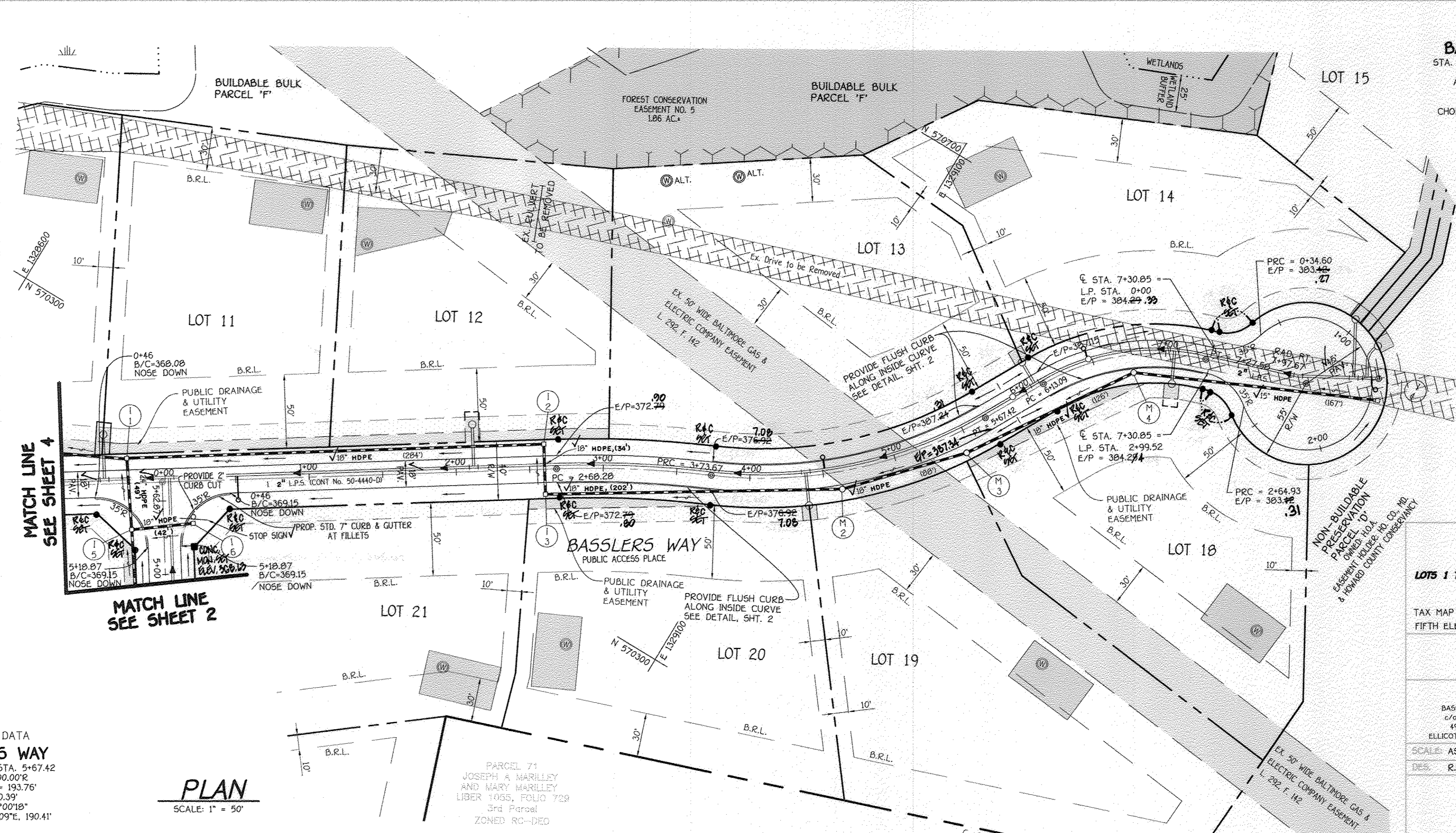
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Candy Kanner 1/24/08
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Walter Z. White 1-14-08
CHIEF, BUREAU OF HIGHWAYS



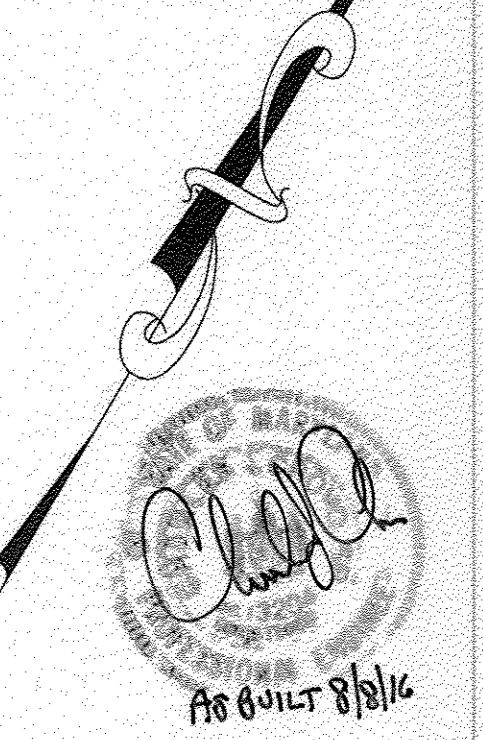
© CURVE DATA
BASSLERS WAY
STA. 2+68.28 TO STA. 3+73.57
RADIUS = 700.00'R
ARC LENGTH = 105.30'
TAN = 52.79°
DELTA = 08°37'33"
CHORD = N61°13'32"E, 105.28'

© CURVE DATA
BASSLERS WAY
STA. 3+73.57 TO STA. 5+67.42
RADIUS = 300.00'R
ARC LENGTH = 193.76'
TAN = 100.39°
DELTA = 37°00'18"
CHORD = N47°02'09"E, 190.41'



© CURVE DATA
BASSLERS WAY
STA. 6+13.09 TO STA. 7+27.98
RADIUS = 150.00'R
ARC LENGTH = 114.49'
TAN = 60.89°
DELTA = 43°13'50"
CHORD = N50°23'55"E, 111.73'

I HEREBY CERTIFY BY MY SEAL, THAT THE PLANETS SHOWN ON THIS PLAN WERE CONSIDERED AS SHOWN ON THE MAP-BUILT PLAN WITH THE APPROVED CURVE AND SPECIFICATIONS.
CHARLES J. ORLOFF, SR. PE NO. 18204 AS-BUILT 8/16/12



WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D' & BUILDABLE BULK PARCELS 'E' & 'F'

ZONED: RC-DEO & RR-DEO
TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

BASSLERS WAY
PLAN AND PROFILE

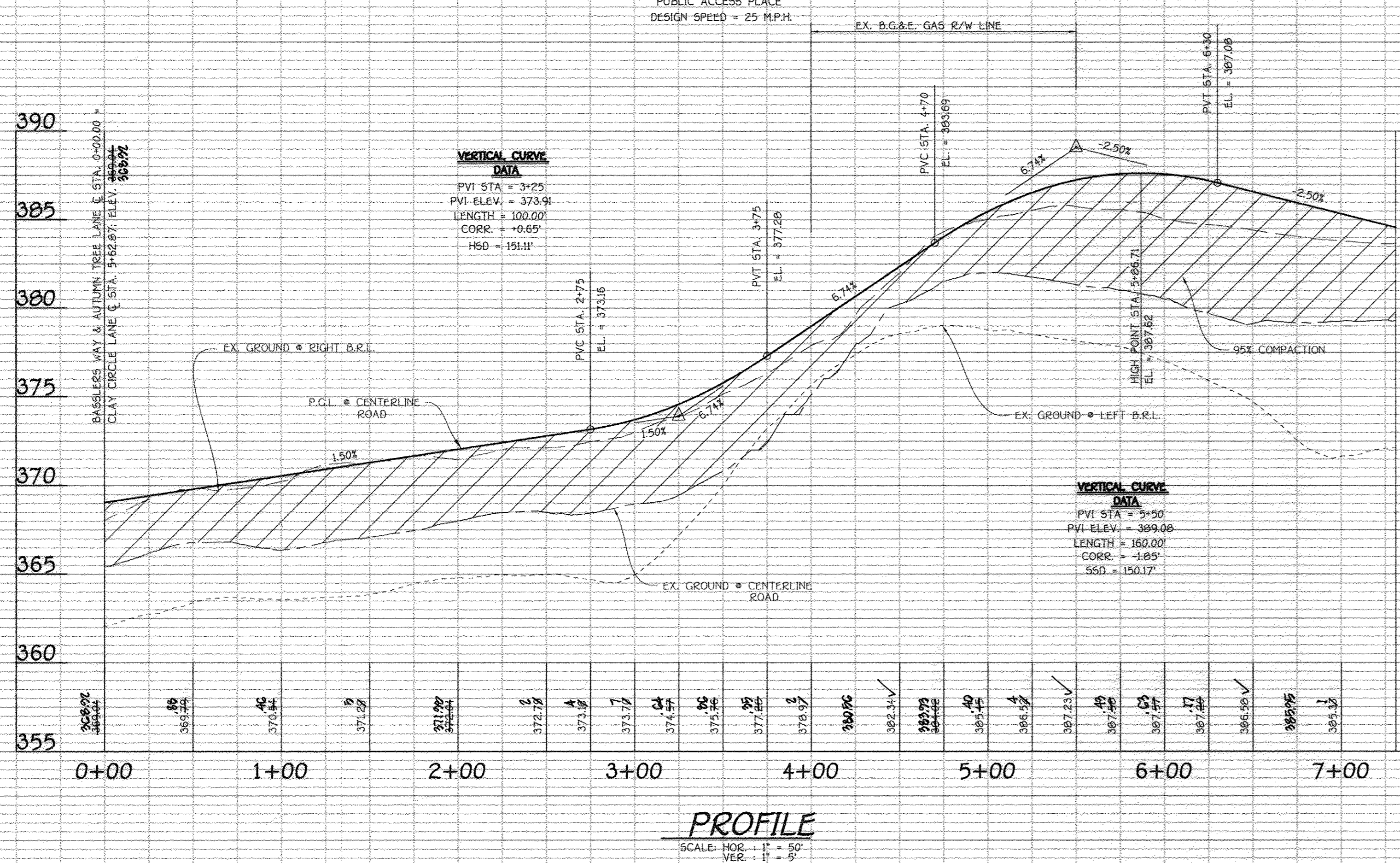
OWNER
BASSLERS, INCORPORATED
670 ALFRED S. BASSLER
499 SHEPARD LANE
ELLCOTT CITY, MARYLAND 21042

DEVELOPER
HERITAGE LAND DEVELOPMENT
3060 WASHINGTON ROAD, SUITE 220
GLENWOOD, MARYLAND 21738

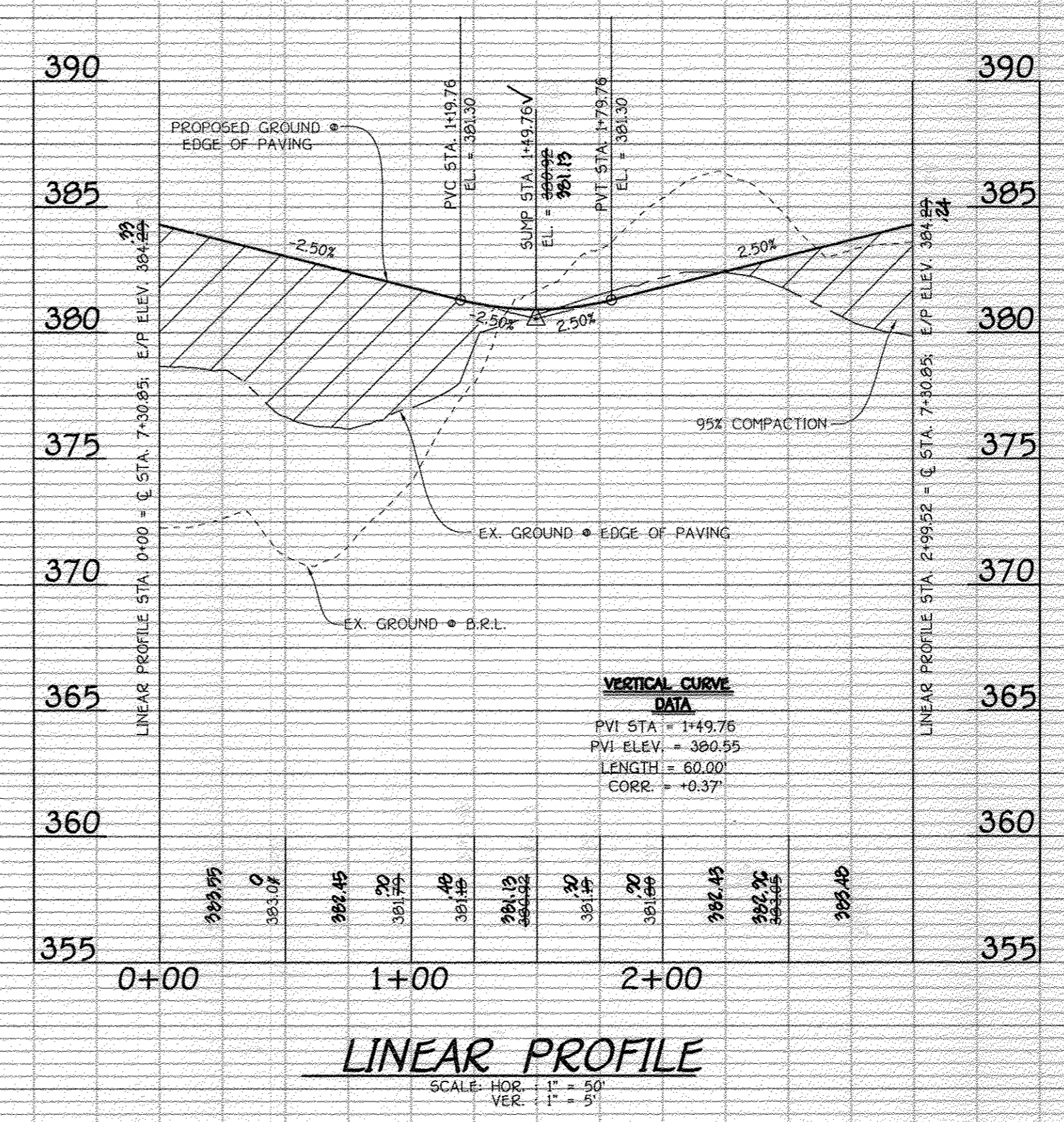
SCALE: AS SHOWN DATE: DECEMBER, 2007 DWG. NO. 3 OF 22
DES. R.A.L. GEN. J.C.L. CHK. A.M.V.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10275 BALTIMORE NATIONAL PIKE
ELLCOTT CITY, MARYLAND 21042
301.581.5222

BASSLERS WAY



BASSLERS WAY

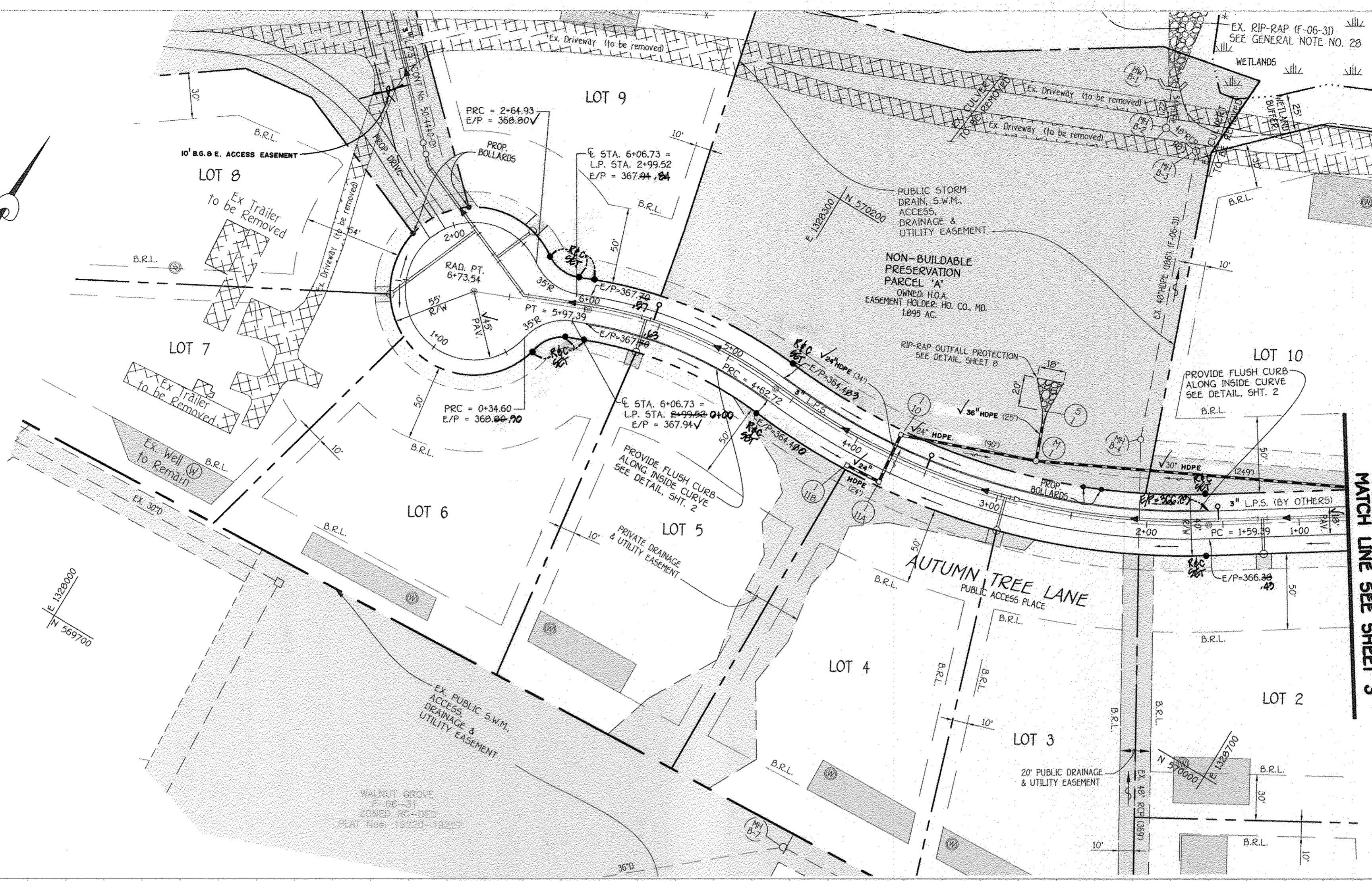


@ CURVE DATA
AUTUMN TREE LANE
 STA. 4+62.72 TO STA. 5+97.39
 RADIUS = 280.00'
 ARC LENGTH = 134.67'
 TAN. = 68.66'
 DELTA = 27°33'28"
 CHORD = 561'45"21"W, 133.36'

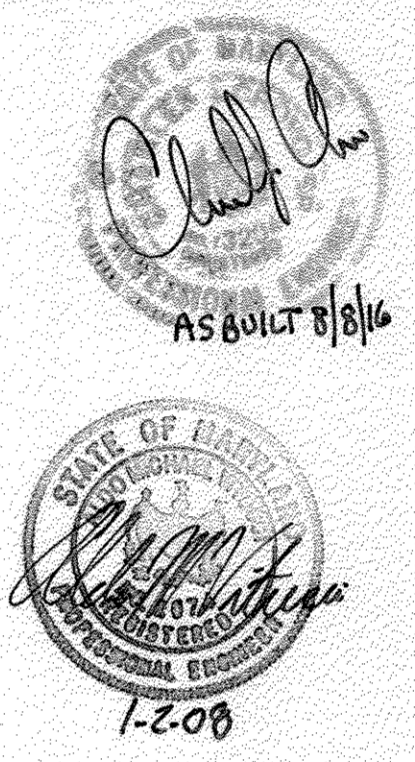
@ CURVE DATA
AUTUMN TREE LANE
 STA. 1+59.39 TO STA. 4+62.72
 RADIUS = 450.00'
 ARC LENGTH = 303.34'
 TAN. = 157.69'
 DELTA = 30°37'19"
 CHORD = 576'13"25"W, 297.63'

| REVISIONS | | |
|-----------|---|---------|
| NO. | DESCRIPTION | DATE |
| 1 | Revise Low Measure Sewer & Add B.G. & E. Easement | 8/30/12 |
| 1 | Revise Storm Drain Pipe Material | 8/30/12 |
| 2 | AS-BUILT | 8/9/13 |

| | |
|---|-----------------|
| APPROVED: DEPARTMENT OF PLANNING AND ZONING | |
| <i>Cindy Hanna</i> CHIEF, DIVISION OF LAND DEVELOPMENT | 1/23/12 DATE |
| <i>[Signature]</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION | 1/27/12 DATE |
| APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS | |
| <i>Walter R. Moll</i> CHIEF, BUREAU OF HIGHWAYS | 1-14-12 DATE |



I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
 CHARLES J. CARTER, P.E. NO. 19024 AS-BUILT 8/9/13



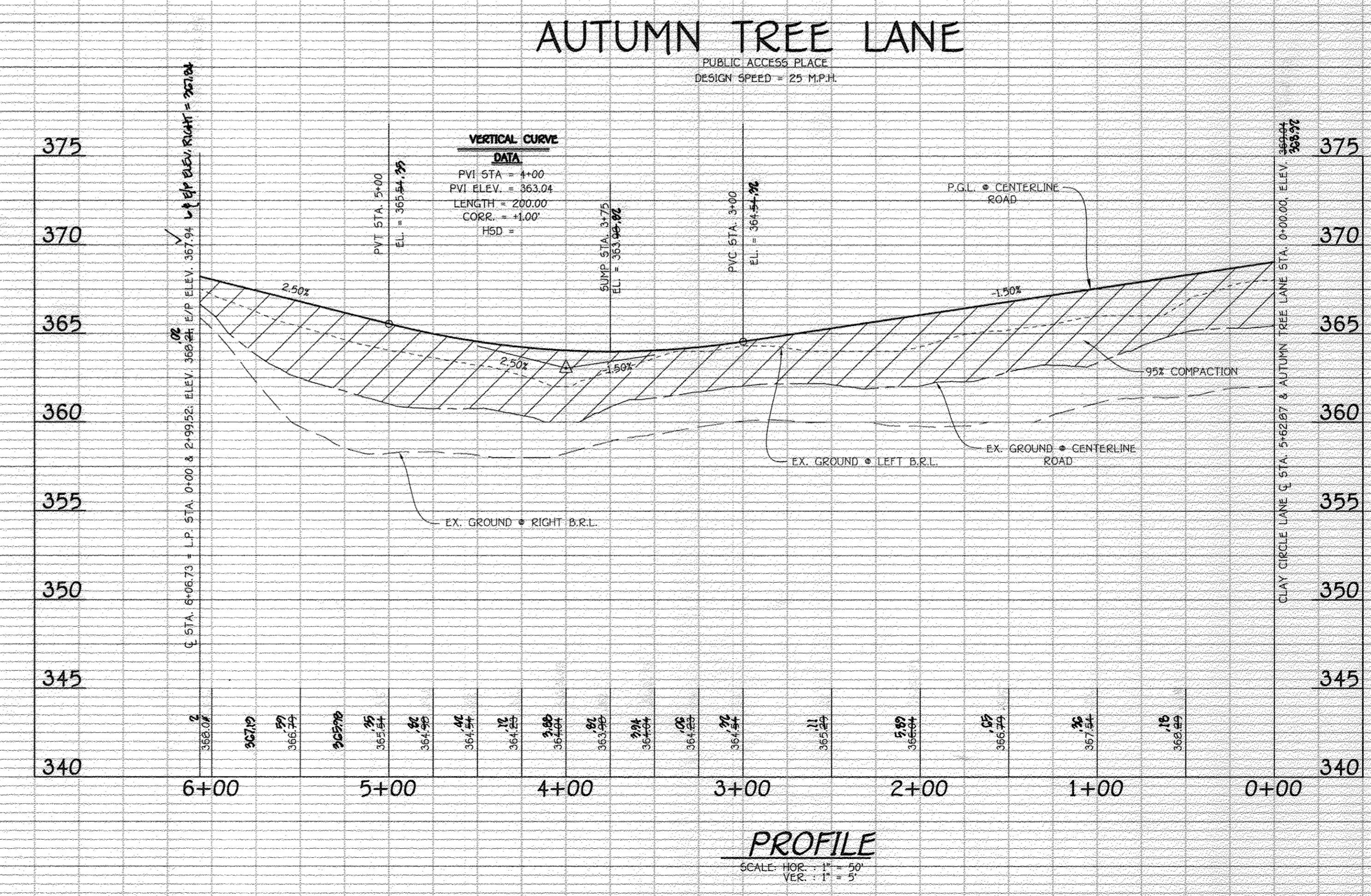
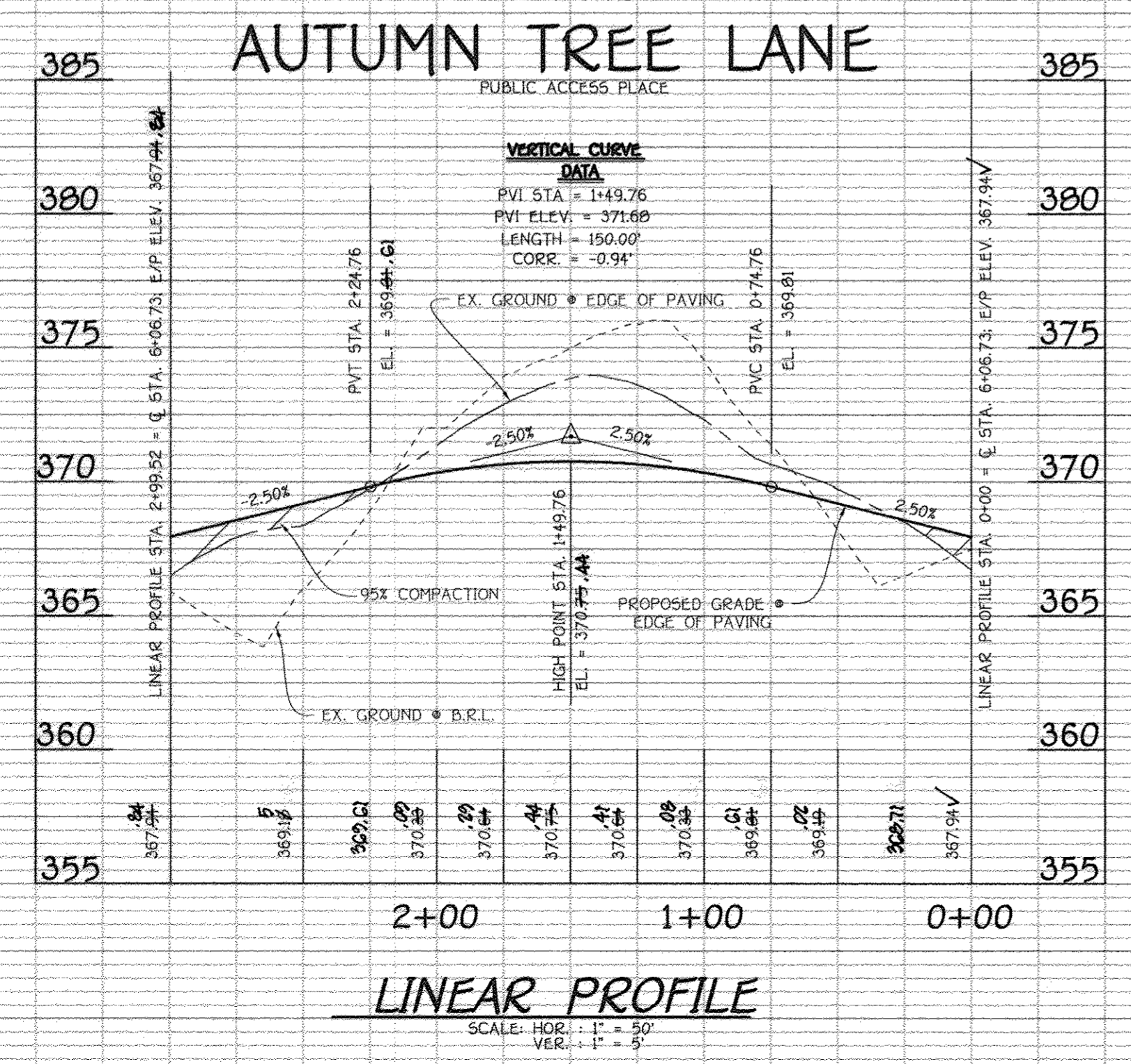
WALNUT CREEK
PHASE ONE
 LOTS 1 THRU 22, NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D' & BUILDABLE BULK PARCELS '1' & '2'
 ZONED: RC-DEO & RS-DEO
 TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

AUTUMN TREE LANE
 PLAN AND PROFILE

| OWNER | DEVELOPER |
|---|--|
| BASSLERS, INCORPORATED c/o ALFRED S. BASSLER 1994 SHEPARD LANE ELLICOTT CITY, MARYLAND 21042 | HERITAGE LAND DEVELOPMENT 3060 WASHINGTON ROAD, SUITE 220 GLENWOOD, MARYLAND 21736 |

SCALE: AS SHOWN DATE: DECEMBER, 2007 DWG. NO. 4 OF 22
 DES. R.A.I. DRN. J.C.L. CHK. A.M.V.

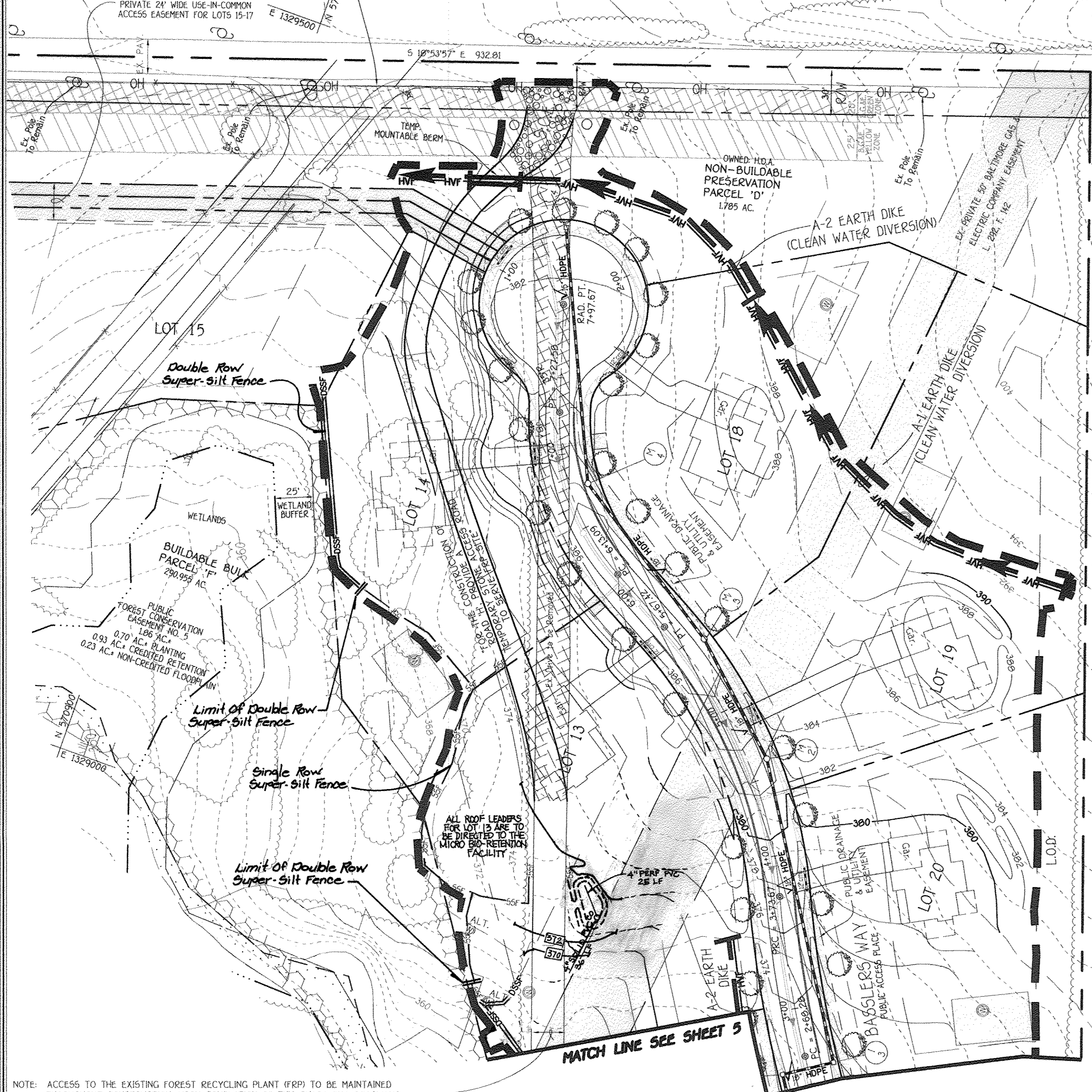
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 10000 WOODBURN ROAD, SUITE 200
 ELICOTT CITY, MARYLAND 21042
 (410) 261-3800



(SCENIC ROAD)
SHEPPARD LANE
MINOR COLLECTOR
(60' R/W)

EXISTING PRIVATE DRIVEWAY,
ENTRANCE GRAVED TO BASSELER
AIRPORT AND NURSERY OPERATIONS
TO REMAIN. HOUSE CONSTRUCTION
ON LOT 15 SHALL BE DEFERRED UNTIL
DRIVEWAY AND ACCESS IS RELOCATED IN FUTURE.

SHEPPARD HILLS
SECTION ONE
LTS 1, 2 & 3
PLAT NO. 88/26
(F-88-178)



STAGE 'A' GRADING PLAN
SCALE: 1" = 50'

NOTE: ACCESS TO THE EXISTING FOREST RECYCLING PLANT (FRP) TO BE MAINTAINED THROUGHOUT CONSTRUCTION. UPON COMPLETION OF THIS PHASE ONE ROADWAYS, THIS ACCESS ROAD WILL BE REMOVED FROM SHEPPARD'S LANE TO ADJACENT TO LOT 9 ON AUTUMN TREE LANE.

SUMMARY TABLE #1 (Phase One)
The following is a summary of the peak discharges from each of the drainage areas and study points.

| Design Point | One-Year Storm (cfs) | Ten-Year Storm (cfs) |
|--------------|----------------------|----------------------|
| 1 | 215.9 | 1490.2 |

Proposed Condition (Phase One Only)

| Drainage Area | One-Year Storm (cfs) | Ten-Year Storm (cfs) |
|--------------------------|----------------------|----------------------|
| A to 100' @ 10-year pool | 227.9 @ 157.84 | 1494.4 |
| A-1 Bypass Area | 1.2 | 29.8 |
| Total of Area "A" | 7.3 | 55.1 |

SUMMARY TABLE #2 (Phase One)
The following is a summary of the Re₁₀, WQ₂, and CP Requirements:

| Type of Requirement | Volume Required | Volume Provided & Notes |
|--|------------------|----------------------------------|
| Re ₁₀ (Recharge Vol. for Entire Site) | 10.04 acres | 12.38 acres w/ % Area Method |
| WQ ₂ for Phase One Only | | |
| Area A - BMP#1-DP#1 | 0.2871 acre-foot | 0.2871 ac. Ft. @ BMP Facility #1 |
| Bypass Area A-1 | 0.2239 acre-foot | 0.2239 ac. Ft. Via Crotch |
| CP ₁₀ | | |
| Area A - BMP#1-DP#1 | 0.4718 acre-foot | 0.4718 ac. Ft. @ BMP Facility #1 |
| Below is for Future Phases 2 and 3 | | |
| Area B - BMP#2-DP#1 | | |
| Area C - BMP#3-DP#1 | | |
| Area D - BMP#4-DP#2 | | |
| Area E - BMP#5-DP#1 | | |

Notes: Both Q₁₀ (overbank Flood Protection or 10-year storm) and Q₁₀₀ (Extreme Flood Volume or 100-year storm) are not required for this site since this watershed area is not classified as one of the sensitive watershed areas for Howard County.

Notes: All of the ponds for this subdivision will allow safe passage of the proposed condition 10-year and 100 year Q's. The ponds are adequately sized to do so and no emergency spillways are proposed.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALDOR NATIONAL FEE
ELICOTT CITY, MARYLAND 21042
100-461-2000



FOR REVISION # 2 ONLY
STATE OF MARYLAND
PROFESSIONAL ENGINEER
ROBERT M. VOGEL, P.E. #16193
7/19/14

| No. | Description | Date |
|-----|--|----------|
| 1 | AS-BUILT | 8/5/10 |
| 2 | REVISE THE LOCATION AND DESIGN OF THE BIO-RETENTION FACILITY LOCATED ON LOT 13 | 12/10/14 |
| 3 | REVISED Storm Drain Pipe From RCP To HDPE And Silt / Super-Silt Fence | 8/30/12 |
| No. | Description | Date |
| | Revision# | |

- LEGEND**
- HV-HV-HV HIGH VISIBILITY FENCING
 - SSF-SSF-SSF SUPER-SILT FENCE
 - SF-SF-SF SILT FENCE
 - TP-TP-TP TREE PROTECTION FENCE
 - S.C.E. STABILIZED CONSTRUCTION ENTRANCE
 - EARTH DIKE
 - DENOTES L.O.D. LIMITS OF DISTURBANCE
 - ECM DENOTES EROSION CONTROL MATTING
 - DENOTES 25% OR GREATER SLOPES
 - DENOTES 15% - 24.99% SLOPES
 - DENOTES LOW PRESSURE SEWER BY OTHERS W/ GRINDER PUMPS
 - G.I.P. GABION INFLOW PROTECTION
 - DSSSF DOUBLE ROW SUPER-SILT FENCE
 - DENOTES D.S.G.E. NO PLANTING ZONE

Approved Department of Public Works
W. Billie F. Whitt, Jr.
Chief, Bureau of Highways
Date: 1-14-09

Approved Department of Planning and Zoning
Cindy Hantz
Chief, Division of Land Development
Date: 1/20/08

Chief, Development Engineering Division
Date: 11/20/08

By The Developer:
"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 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature of Developer: [Signature]
Date: 11/10/08

Printed Name of Developer: [Name]

By The Engineer:
"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 Informed 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: [Signature]
Date: 1-20-09

Printed Name of Engineer: [Name]

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Technical Requirements For Small Pond Construction-Soil Erosion And Sediment Control.

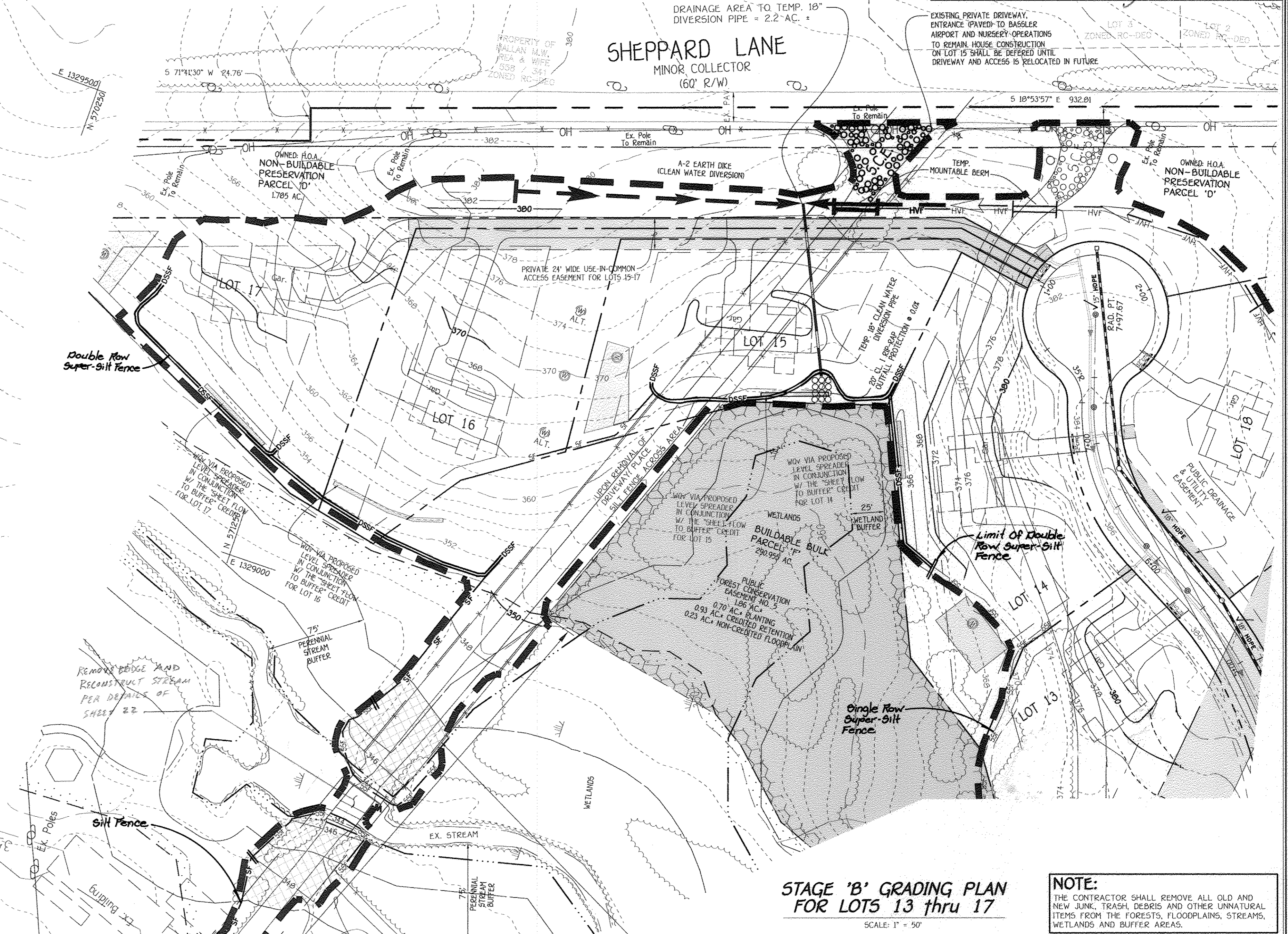
USDA-Natural Resources Conservation Service
Date: [Date]

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Signature of Reviewer: [Signature]
Date: 1/8/08

Howard Soil Conservation District

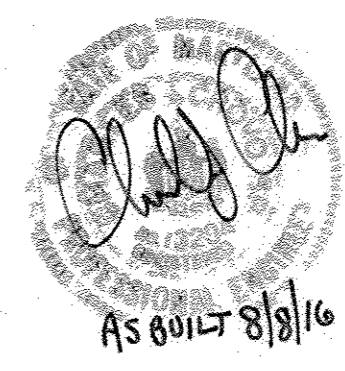
DRAINAGE AREA TO TEMP. 18"
DIVERSION PIPE = 2.2 AC.
SHEPPARD LANE
MINOR COLLECTOR
(60' R/W)



STAGE 'B' GRADING PLAN
FOR LOTS 13 thru 17
SCALE: 1" = 50'

NOTE: THE CONTRACTOR SHALL REMOVE ALL OLD AND NEW JUNK, TRASH, DEBRIS AND OTHER UNNATURAL ITEMS FROM THE FORESTS, FLOODPLAINS, STREAMS, WETLANDS AND BUFFER AREAS.

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22,
NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D',
& BUILDABLE BULK PARCELS 'E' & 'F'
ZONED: RC-DEO & SR-DEO
TAX MAP NO. 28 GRID NOS. 4, 5, 10-12, 17, AND 18 PARCEL NO. 49
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
DATE: DECEMBER 28, 2007
SHEET 6 OF 22



I HEREBY CERTIFY, BY MY SEAL, THAT THE PLANETS SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN WITH THE APPROVED PLANS AND SPECIFICATIONS.
CHARLES J. ORSINGER, P.E. NO. 10024 AS-BUILT 8/10/10

OWNER: BASSELER, INCORPORATED
420 ALFRED S. BASSELER
1990 NORTH AVE.
4994 SHEPPARD LANE
ELICOTT CITY, MARYLAND 21042

DEVELOPER: HERITAGE LAND DEVELOPMENT
1990 NORTH AVE.
LISBON, MARYLAND 21765

PLANTING SPECIFICATIONS

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein.

All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plant list and the American Association of Nurserymen (AAN) Standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, sun scald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no heated-in plants from cold storage will be accepted.

Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Areas" (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architect, latest edition, including all addenda.

Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

Contractor shall be responsible for notifying utility companies, utility contractors and "Miss Utility" a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot high snow fence or blaze orange safety fence at the drip line.

Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction.

Bid shall be based on actual site conditions. No extra payment shall be made for work arising from site conditions differing from those indicated on drawings and specifications.

Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence.

All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans.

Positive drainage shall be maintained in planting beds (2 percent slope).

Planting mix shall be as follows: Deciduous Plants - Two parts topsoil, one part well-rotted cow or horse manure. Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines.

Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its adaptability to the specific ground cover to be treated.

All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded.

This plan is intended for landscape use only. See other plan sheets for more information on grading, sediment control, layout, etc.

NOTES:

"At the time of plant installation, all 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 reductions of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviations 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 road drawing plans."

"The Owner, tenants and/or their agents shall be responsible for maintenance of the required perimeter landscaping. 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 the other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced."

NOTE: CONTRACTOR TO REGRADE, SOB OR HYDROSEED AND STRAW MULCH ALL AREAS DISTURBED AS A RESULT OF THEIR WORK.

SPRAY WITH WILT-PROOF ACCORDING TO MANUFACTURERS STANDARDS

PRUNE 1/3 LEAF AREA BUT RETAIN NATURAL FORM OF TREE

3 PIECES OF REINFORCED RUBBER HOSE

DOUBLE #12 GALVANIZED WIRE GUYS TWISTED

3-2"x 2" DAK STAKES, NOTCH STAKES TO HOLD WIRE

WRAP TRUNK TO SECOND TIER OF BRANCHES WITH WATERPROOF TREE WRAP, TIE AT 24" INTERVALS (EXCEPT EVERGREENS)

REMOVE ANY COVERING FROM TOP OF ROOT CROWN

3" MULCH

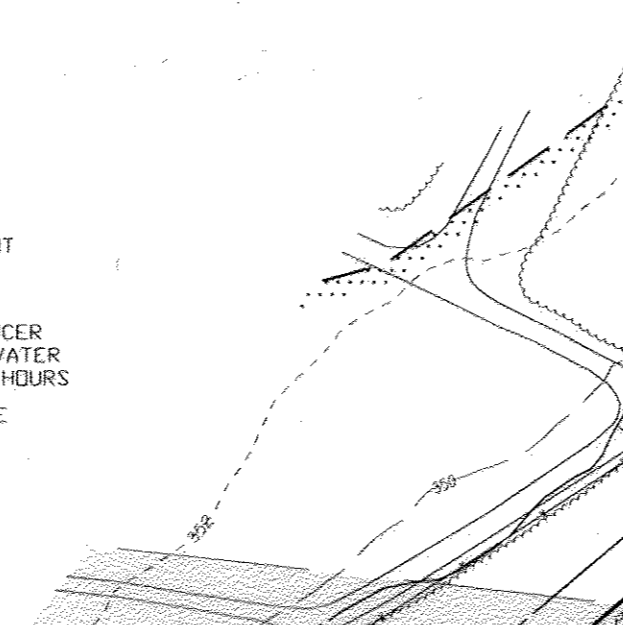
MAINTAIN GROUND LINE WITH TOP OF ROOT CROWN

CONSTRUCT 3" SAUCER RIM-FLOOD WITH WATER TWICE WITHIN 24 HOURS

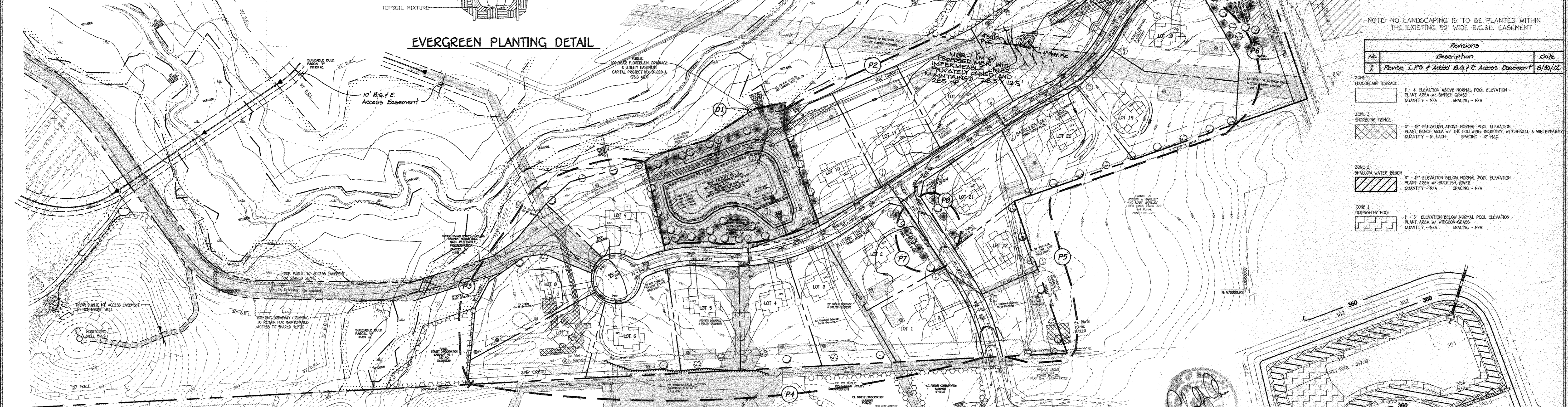
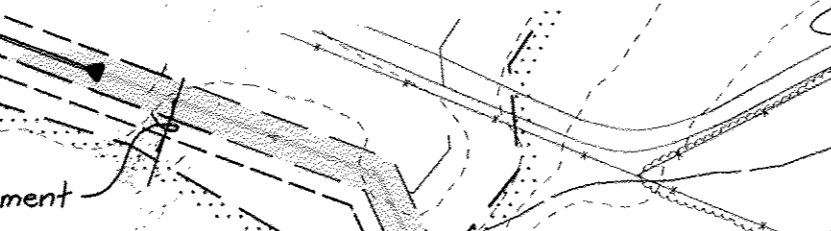
TOP SOIL MIXTURE

CONVEX BOTTOM 6" MIN. HT.

TREE PLANTING DETAIL



EVERGREEN PLANTING DETAIL



Approved: Department Of Public Works
Walt Z. Hall 1-14-09
 Chief, Bureau Of Highways Date

Approved: Department Of Planning And Zoning
Cindy Harter 1/22/09
 Chief, Division Of Land Development Date

[Signature] 1-17-09
 Chief, Development Engineering Division Date

| SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING | |
|---|-------------|
| LINEAR FEET OF PERIMETER | D-1 : 1150' |
| NUMBER OF TREES REQUIRED & PROVIDED: | |
| SHADE TREES | 23 |
| EVERGREEN TREES | 29 |
| CREDIT FOR EXISTING VEGETATION (NO, YES AND %) | NO |
| CREDIT FOR OTHER LANDSCAPING (NO, YES AND %) | NO |

| PLANT LIST | | | |
|------------|------|---------------------------------------|-----------------|
| SYMBOL | QTY. | BOTANICAL AND COMMON NAME | SIZE |
| | 26 | ACER RUBRUM 'OCTOBER GLORY' RED MAPLE | 2 1/2 - 3' CAL. |
| | 74 | QUERCUS ACUTISSIMA SAWTOOTH OAK | 2 1/2 - 3' CAL. |
| | 48 | PINUS STROBUS EASTERN WHITE PINE | 6' - 8' HT. |
| | 41 | ILEX OPACA AMERICAN HOLLY | 5' - 6' HT. |

"THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 100 SHADE & 99 EVERGREEN TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$43,350.00.

NOTE: NO LANDSCAPING IS TO BE PLANTED WITHIN THE EXISTING 50' WIDE B.G.E. EASEMENT

| Revisions | | |
|-----------|---|---------|
| No. | Description | Date |
| 1 | Revise L.P.O. # Added B.G. & E. Access Easement | 8/30/12 |

- ZONE 1 FLOODPLAIN TERRACE
 1' - 6" ELEVATION ABOVE NORMAL POOL ELEVATION - PLANT AREA w/ SWITCH GRASS QUANTITY - N/A SPACING - N/A
- ZONE 3 SHOULDER FORGE
 0' - 12" ELEVATION ABOVE NORMAL POOL ELEVATION - PLANT BENCH AREA w/ THE FOLLOWING INVENTORY, WITCHHAZEL & WINTERBERRY QUANTITY - 10 EACH SPACING - 12' MAX.
- ZONE 2 SHALLOW WATER BENCH
 0' - 12" ELEVATION BELOW NORMAL POOL ELEVATION - PLANT AREA w/ BULBUSH, RIVER QUANTITY - N/A SPACING - N/A
- ZONE 1 DEEP WATER POOL
 1' - 3' ELEVATION BELOW NORMAL POOL ELEVATION - PLANT AREA w/ WOODRUSH QUANTITY - N/A SPACING - N/A

| SCHEDULE A PERIMETER LANDSCAPE EDGE | | | | | | | | | | | |
|-------------------------------------|--------------------------------|----------------|---|--|--|---------------------------|-----------------|--------|---------------------------|-----------------|--------|
| PERIMETER | CATEGORY (PROPERTIES/ROADWAYS) | LANDSCAPE TYPE | LINEAR FEET OF ROADWAY FRONTAGE PERIMETER | CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | NUMBER OF PLANTS REQUIRED | | | NUMBER OF PLANTS PROVIDED | | |
| | | | | | | SHADE TREES | EVERGREEN TREES | SHRUBS | SHADE TREES | EVERGREEN TREES | SHRUBS |
| P-1 | ADJACENT TO ROADWAY | C | 769' | NO | NO | 19 | 38 | - | 19 | 38 | - |
| P-2 | ADJACENT TO PERIMETER | A | 1664' | YES (756') | NO | 15 | - | - | 15 | - | - |
| P-3 | ADJACENT TO PERIMETER | A | 691' | YES (310') | NO | 6 | - | - | 6 | - | - |
| P-4 | ADJACENT TO PERIMETER | A | 1122' | YES (380' OF EX. F.C.E.) YES (328' OF EX. TREE LINE) | NO | 7 | - | - | 7 | - | - |
| P-5 | ADJACENT TO PERIMETER | A | 1034' | NO | NO | 17 | - | - | 17 | - | - |
| P-6 | ADJACENT TO ROADWAY | C | 299' | NO | NO | 7 | 15 | - | 7 | 15 | - |
| P-7 | SIDE TO ROADWAY | B | 157' | NO | NO | 3 | 4 | - | 3 | 4 | - |
| P-8 | SIDE TO ROADWAY | B | 135' | NO | NO | 3 | 3 | - | 3 | 3 | - |
| TOTAL | | | | | | 77 | 60 | - | 77 | 60 | - |

REVISIONS

| | | |
|---|--|----------|
| 2 | REVISE THE LOCATION AND DESIGN OF THE BID-RETENTION FACILITY LOCATED ON LOT 15 | 12/10/14 |
|---|--|----------|

OWNER: BASILEAS, INCORPORATED
 420 ALFRED S. BASILEER
 499 SHEPPARD LANE
 ELICOTT CITY, MARYLAND 21042

DEVELOPER: HERITAGE LAND DEVELOPMENT
 15905 NORTH AVE.
 LISBON, MARYLAND 21765

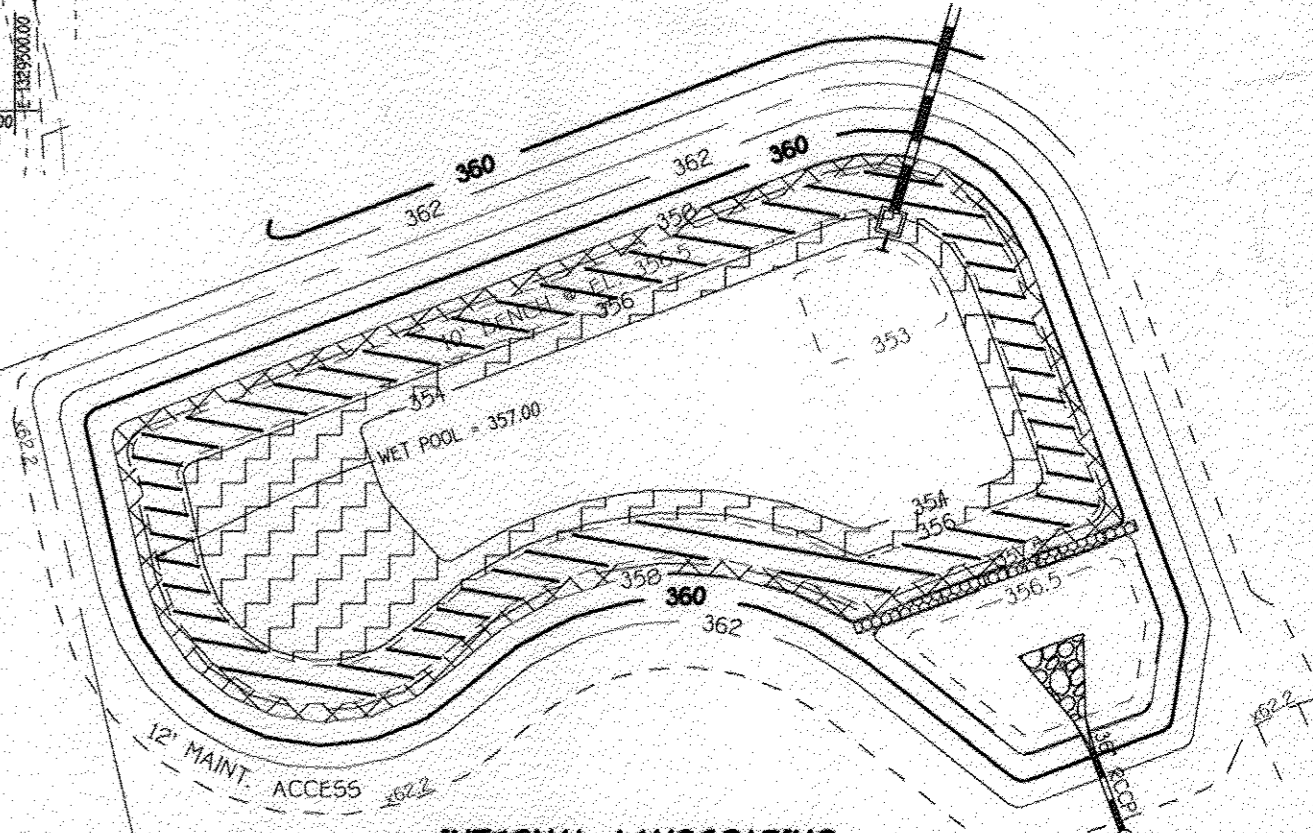
SCALE: 1" = 100'

Note: This Plan is For Landscaping Only.

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET. CHARLES J. ORDOZ, PE NO. 19204 AS-BUILT 8/9/16

LANDSCAPE DEVELOPER'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.

[Signature]
 Name Date 1/3/08



LANDSCAPE PLAN
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22
 & BUILDABLE BULK PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'
 ZONED RC-BD-1 & RC-DE-1
 TAX MAP NO. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 7 OF 22

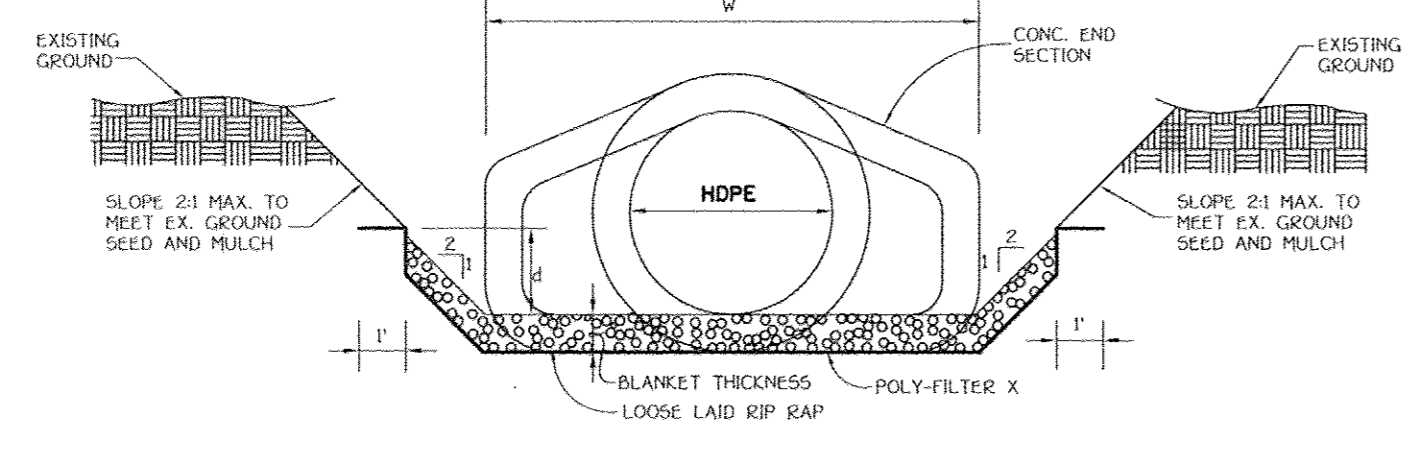
STRUCTURE SCHEDULE

| STRUCTURE NO. | TOP ELEVATION | INV. IN | INV. OUT | ROAD NAME | ROAD STA. | OFFSET | TYPE & NO. OF OPEN SIDES | REMARKS |
|---------------|---------------|---------|----------|------------------|--------------|--------|--------------------------|----------|
| I-1 | 367.49 | 362.22 | 367.49 | AUTUMN TREE LANE | 0+24.15 | 124R | √ D INLET (4) | D - 4.10 |
| I-2 | 371.50 | 366.74 | 366.74 | BASSLERS WAY | 2+60.99 | 171L | √ D INLET (4) | D - 4.10 |
| I-3 | 371.50 | 367.49 | 367.49 | BASSLERS WAY | 2+60.99 | 173R | √ D INLET (4) | D - 4.10 |
| I-4 | 379.49 | 374.73 | 374.73 | BASSLERS WAY | L.P. 1+49.76 | 58L | √ D INLET (4) | D - 4.10 |
| I-5 | 367.49 | 362.22 | 362.22 | CLAY CIRCLE LANE | 5+31.70 | 224L | √ D INLET (4) | D - 4.10 |
| I-6 | 367.49 | 362.22 | 362.22 | CLAY CIRCLE LANE | 5+31.70 | 207R | √ D INLET (4) | D - 4.10 |
| I-7 | 372.49 | 367.49 | 367.49 | CLAY CIRCLE LANE | 3+60.40 | 180L | √ D INLET (4) | D - 4.10 |
| I-8 | 375.49 | 371.22 | 371.22 | CLAY CIRCLE LANE | 2+60.99 | 173R | √ D INLET (4) | D - 4.10 |
| I-9 | 379.49 | 374.73 | 374.73 | CLAY CIRCLE LANE | 2+60.99 | 173R | √ YARD INLET | D - 4.14 |
| I-10 | 362.49 | 357.22 | 357.22 | AUTUMN TREE LANE | 3+74.20 | 147R | √ D INLET (4) | D - 4.10 |
| I-11A | 362.49 | 357.22 | 357.22 | AUTUMN TREE LANE | 3+74.20 | 174L | √ D INLET (4) | D - 4.10 |
| I-11B | 362.49 | 357.22 | 357.22 | AUTUMN TREE LANE | 3+74.20 | 174L | √ D INLET (4) | D - 4.10 |
| M-1 | 363.49 | 358.22 | 358.22 | AUTUMN TREE LANE | 2+81.40 | 162R | √ 4" STD. MANHOLE | G - 5.13 |
| M-2 | 362.49 | 357.22 | 357.22 | BASSLERS WAY | 4+61.99 | 126R | √ 4" STD. MANHOLE | G - 5.12 |
| M-3 | 366.49 | 361.22 | 361.22 | BASSLERS WAY | 5+17.45 | 150R | √ 4" STD. MANHOLE | G - 5.12 |
| M-4 | 365.49 | 360.22 | 360.22 | BASSLERS WAY | 6+77.09 | 102R | √ 4" STD. MANHOLE | G - 5.12 |
| S-1 | 359.49 | 354.22 | 354.22 | N 57014 | 0.75 | | FLARED END SECTION | *** |
| S-1 | 359.49 | 354.22 | 354.22 | E 1328 | 70.66 | | FLARED END SECTION | *** |
| S-1 | 359.49 | 354.22 | 354.22 | N 57014 | 19.39 | | FLARED END SECTION | *** |
| S-1 | 359.49 | 354.22 | 354.22 | E 1328 | 49.04 | | FLARED END SECTION | *** |

* - DENOTES THROAT OPENING ELEVATION
 ** - I-9 IS TO BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
 *** - ADS FLARED END SECTION OR EQUAL

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

- The subgrade for the filter, riprap 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 riprap or filter.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
- Stone for the riprap or gabion outlets may be placed by equipment. Both shall each 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 riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogeneous with the smaller stone and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Final placement will be required to the extent necessary to prevent damage to the permanent works.



RIP-RAP CHANNEL DETAIL

RIP-RAP CHANNEL DESIGN DATA

| STRUCTURE | AREA | WETTED PERIMETER | R | R ^{2/3} | S | S ^{1/2} | W | d | N | V | Q | SR-RAP SIZE | BLANKET THICKNESS | |
|-----------|-------|------------------|--------|------------------|--------|------------------|-----|-------|------|------|-------|-------------|-------------------|-----|
| S-1 | 17.11 | 17.32 | 0.9879 | 0.9919 | 0.0500 | 0.0707 | 12' | 1.19' | 0.04 | 2.61 | 44.20 | 9.5" | 15" | 19" |

Allowable Release Rates:
 @ Design Point #1 (BMP#1-3 and S):
 Due to the size of our drainage areas and the results of ADDHYD hydrograph model we show a decrease in runoff at our design point. Therefore, for each of our ponds we will provide a release rate adequate to meet the 12-hour lag time required for the CP₁₀ or 1-year storm.
 @ Design Point #2 (BMP#4):
 Due to the size of our drainage areas and the results of ADDHYD hydrograph model we show a decrease in runoff at our design point. Therefore, for each of our ponds we will provide a release rate adequate to meet the 12-hour lag time required for the CP₁₀ or 1-year storm.

SUMMARY TABLE #1 FOR ENTIRE PROJECT

The following is a summary of the peak discharges from each of the drainage areas and study points:

| Design Point | One-Year Storm (cfs) | Ten-Year Storm (cfs) |
|--------------|----------------------|----------------------|
| 1 | 223.9 | 1490.2 |
| 2 | 42.2 | 294.7 |

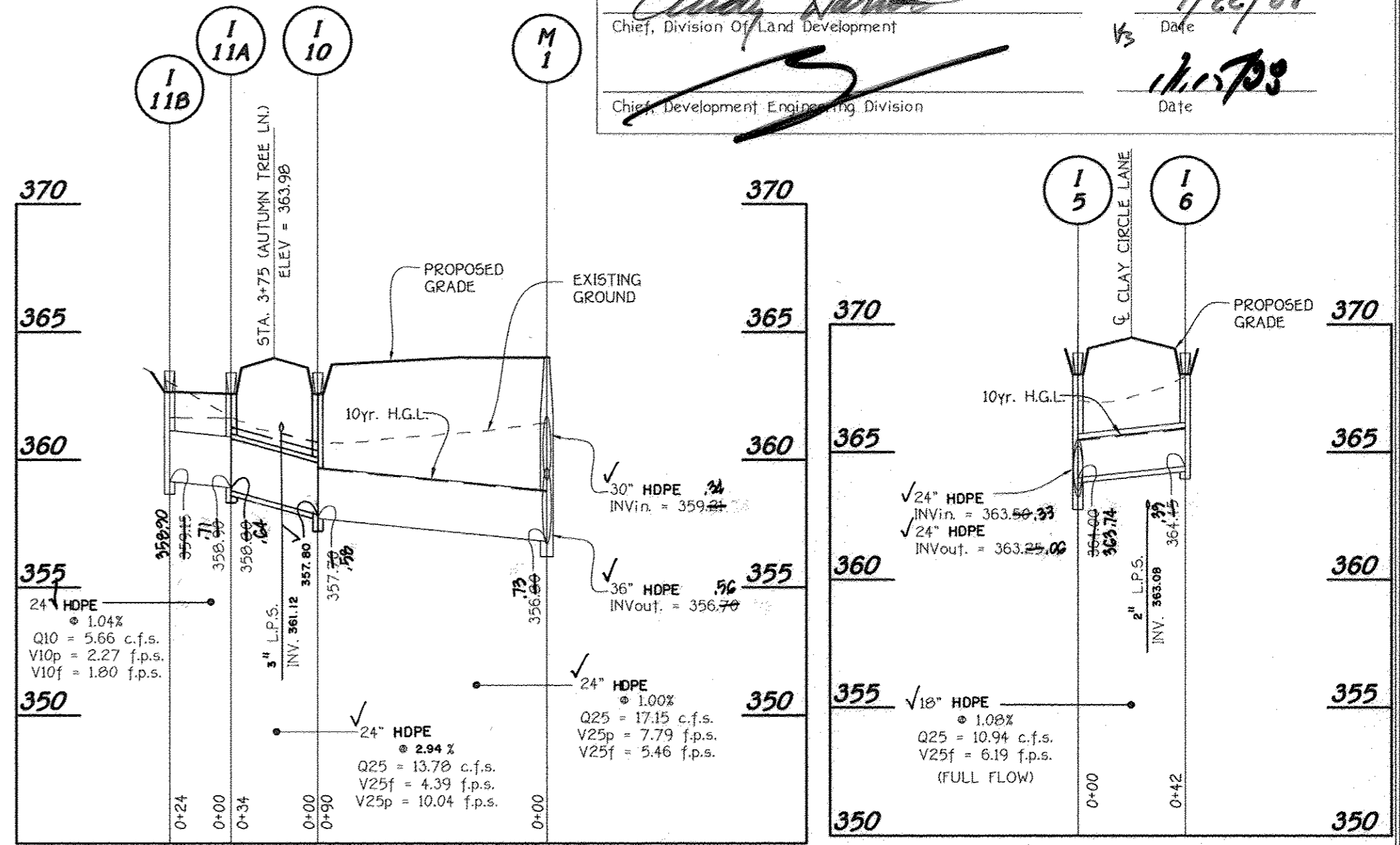
| Drainage Area | One-Year Storm (cfs) | Ten-Year Storm (cfs) |
|----------------------------|---------------------------|--------------------------------|
| A to BMP#1-Micro-pool-DP#1 | In: 7.4 0.27 @ 357.84 | In: 49.4 Out: 25.8 @ 358.76 |
| Total of Area "A" | 6.7 | 29.4 |
| B to BMP#2-Micro-pool-DP#1 | In: 8.3 0.19 @ 354.77 | In: 43.7 Out: 21.9 @ 354.77 |
| B-1 Bypass Area | 1.4 | 9.7 |
| B-2 Bypass Area | 1.4 | 9.7 |
| B-3 Bypass Area | 1.9 | 12.5 |
| Total of Area "B" | 4.7 | 32.2 |
| C to BMP#3-Micro-pool-DP#1 | In: 13.0 0.42 @ 368.80 | In: 76.9 Out: 39.0 @ 368.80 |
| C-1 Bypass Area | 0.7 | 5.2 |
| C-2 Bypass Area | 0.7 | 5.2 |
| C-3 Bypass Area | 0.7 | 5.2 |
| Total of Area "C" | 3.0 | 25.6 |
| D to BMP#4-Micro-pool-DP#1 | In: 16.0 0.27 @ 358.52 | In: 86.4 Out: 41.9 @ 358.52 |
| D-1 Bypass Area | 0.4 | 3.6 |
| D-2 Bypass Area | 1.8 | 11.8 |
| D-3 Bypass Area | 1.0 | 6.4 |
| D-4 Bypass Area | 1.2 | 6.1 |
| D-5 Bypass Area | 1.4 | 7.0 |
| D-6 Bypass Area | 0.3 | 2.4 |
| D-7 Bypass Area | 0.2 | 1.3 |
| Total of Area "D" | 6.3 | 37.2 |
| E to BMP#5-Micro-pool-DP#1 | In: 16.0 0.07 @ 404.48 | In: 16.4 Out: 8.0 @ 404.48 |
| E-1 Bypass Area | 1.5 | 7.7 |
| E-2 Bypass Area | 1.6 | 7.3 |
| E-3 Bypass Area | 2.6 | 14.1 |
| E-4 Bypass Area | 1.9 | 11.1 |
| Total of Design Point #1 | 199.8 (As of Phase One) | 1437.3 (As of Phase One) |
| By-Pass Area "G" | 36.6 | 253.3 |
| Total @ Design Point #2 | 38.8 | 274.9 |

SUMMARY TABLE #2 FOR ENTIRE PROJECT

The following is a summary of the Recharge Vol. and CP Requirements:

| Area | Recharge Vol. for Entire Site | 10yr. acres or 1.14 acre-feet | 12.38 acres w/ % Area Method |
|---------------------|-------------------------------|----------------------------------|------------------------------|
| Area A - BMP#1-DP#1 | 0.2871 acre-feet | 0.2871 ac. Fl. @ BMP Facility #1 | |
| Area A-1 | 0.2259 acre-feet | 0.2259 ac. Fl. Via Credits | |
| Area B - BMP#2-DP#1 | 0.35 acre-feet | 0.35 ac. Fl. @ BMP Facility #2 | |
| Bypass Area B-1 | 0.0818 acre-feet | 0.0818 ac. Fl. @ Level Spreader | |
| Bypass Area B-2 | 0.0834 acre-feet | 0.0834 ac. Fl. @ Level Spreader | |
| Bypass Area B-3 | 0.0971 acre-feet | 0.0971 ac. Fl. @ Level Spreader | |
| Area C - BMP#3-DP#1 | 0.74 acre-feet | 0.74 ac. Fl. @ BMP Facility #3 | |
| Bypass Area C-1 | 0.051 acre-feet | 0.051 ac. Fl. @ Level Spreader | |
| Bypass Area C-2 | 0.098 acre-feet | 0.098 ac. Fl. @ Level Spreader | |
| Bypass Area C-3 | 0.049 acre-feet | 0.049 ac. Fl. @ Level Spreader | |
| Area D - BMP#4-DP#1 | 0.832 acre-feet | 0.832 ac. Fl. @ BMP Facility #4 | |
| Bypass Area D-1 | 0.032 acre-feet | 0.032 ac. Fl. @ Level Spreader | |
| Bypass Area D-2 | 0.091 acre-feet | 0.091 ac. Fl. @ Level Spreader | |
| Bypass Area D-3 | 0.028 acre-feet | 0.028 ac. Fl. @ Level Spreader | |
| Bypass Area D-4 | 0.042 acre-feet | 0.042 ac. Fl. @ Level Spreader | |
| Bypass Area D-5 | 0.049 acre-feet | 0.049 ac. Fl. @ Level Spreader | |
| Bypass Area D-6 | 0.026 acre-feet | 0.026 ac. Fl. @ Level Spreader | |
| Bypass Area D-7 | 0.009 acre-feet | 0.009 ac. Fl. @ Level Spreader | |
| Area E - BMP#5-DP#1 | 0.18 acre-feet | 0.18 ac. Fl. @ BMP Facility #5 | |
| Bypass Area E-1 | 0.048 acre-feet | 0.048 ac. Fl. @ Level Spreader | |
| Bypass Area E-2 | 0.12 acre-feet | 0.12 ac. Fl. @ Level Spreader | |
| Area A - BMP#1-DP#1 | 0.4718 acre-feet | 0.4718 ac. Fl. @ BMP Facility #1 | |
| Area B - BMP#2-DP#1 | 0.4093 acre-feet | 0.4093 ac. Fl. @ BMP Facility #2 | |
| Area C - BMP#3-DP#1 | 0.8013 acre-feet | 0.8013 ac. Fl. @ BMP Facility #3 | |
| Area D - BMP#4-DP#1 | 0.964 acre-feet | 0.964 ac. Fl. @ BMP Facility #4 | |
| Area E - BMP#5-DP#1 | 0.164 acre-feet | 0.164 ac. Fl. @ BMP Facility #5 | |

Notes: Both Q₁₀ (Overbank Flood Protection or 10-year storm) and Q₁₀₀ (Extreme Flood Volume or 100-year storm) are not required for this site since this watershed area is not classified as one of the sensitive watershed areas for Howard County.
 All of the ponds for this subdivision will allow safe passage of the proposed condition 10-year and 100 year Q's. The ponds are adequately sized to do so and no emergency spillways are proposed.



PROFILE

SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'

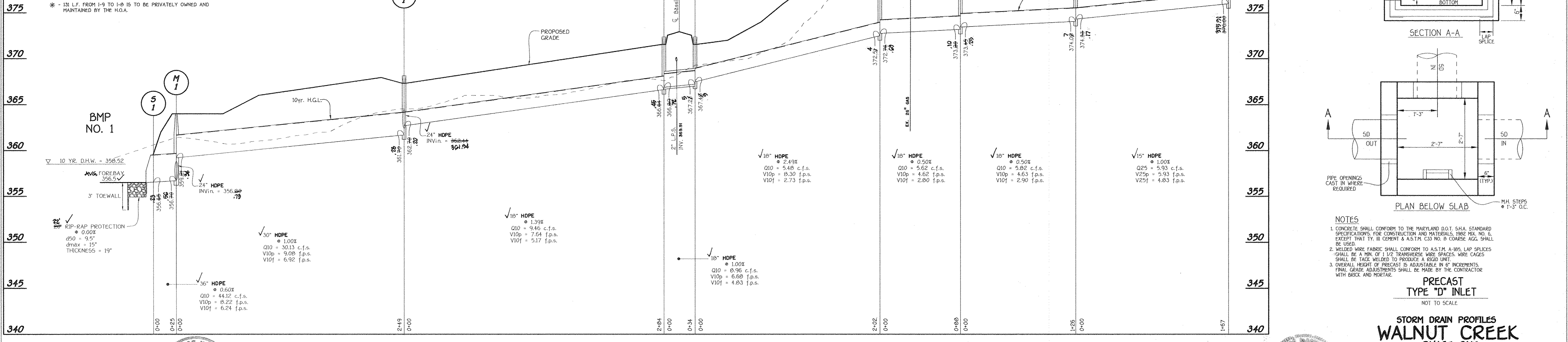
PROFILE

SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'

PIPE SCHEDULE

| SIZE | CLASS | LENGTH |
|------|-------|------------|
| 15" | HDPE | 167 L.F. |
| 18" | HDPE | 997 L.F. * |
| 24" | HDPE | 379 L.F. |
| 30" | HDPE | 249 L.F. |
| 36" | HDPE | 25 L.F. |

* - 131 L.F. FROM I-9 TO I-8 IS TO BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.

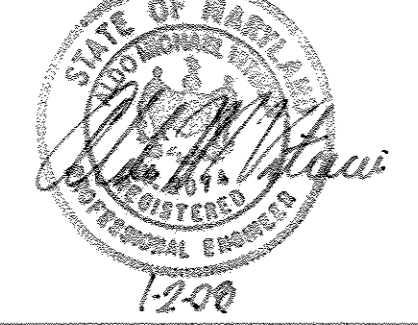


PROFILE

SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'

NOTE: PIPE THICKNESS IS SHOWN ON PROFILE ONLY AT LOW PRESSURE SEWER CROSSINGS.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 3072 BALTIMORE NATIONAL PARK
 ELLICOTT CITY, MARYLAND 21042
 410-461-2200



| No. | Description | Date |
|-----|--|---------|
| 1 | AS-BUILT | 8/9/10 |
| 2 | Revise Storm Drain Pipe From Rect. To HDPE | 8/30/12 |

OWNER: BASSLERS, INCORPORATED
 c/o ALFRED S. BASSLER
 4994 SHEPPARD LANE
 ELLICOTT CITY, MARYLAND 21042

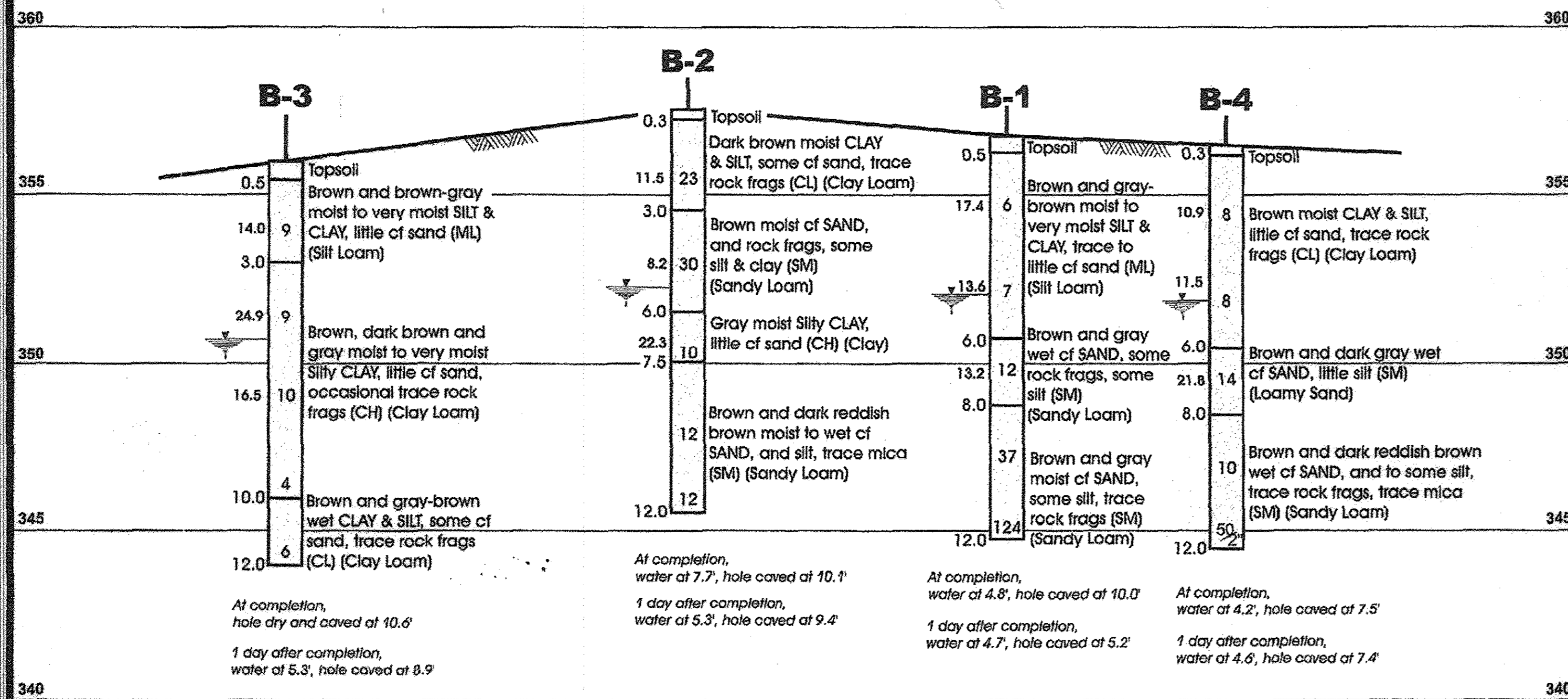
DEVELOPER: HERITAGE LAND DEVELOPMENT
 1990 NORTH AVE.
 LISSON, MARYLAND 21765

I HEREBY CERTIFY BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEETING THE APPROVED PLAN AND SPECIFICATIONS.
 CHARLES J. ORSINI, P.E. #E NO. 13024 AS-BUILT 8/30/12

PRECAST TYPE "D" INLET
 NOT TO SCALE

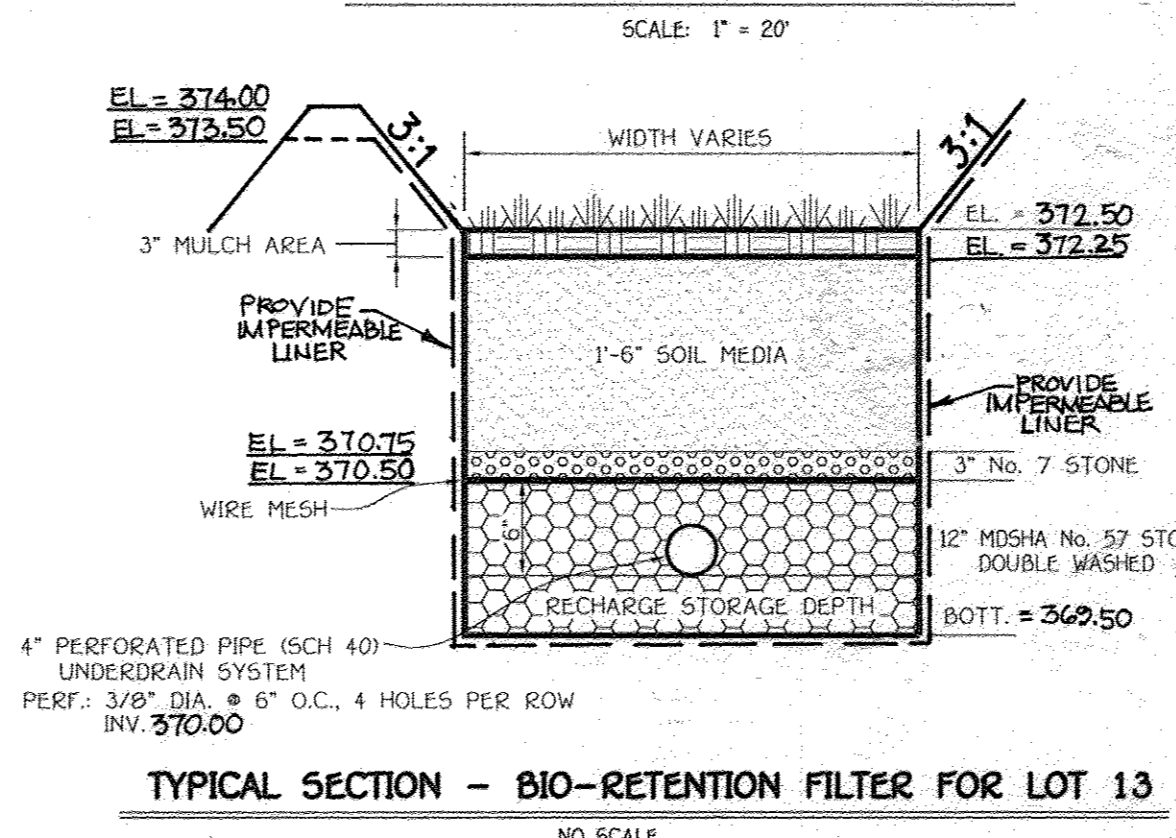
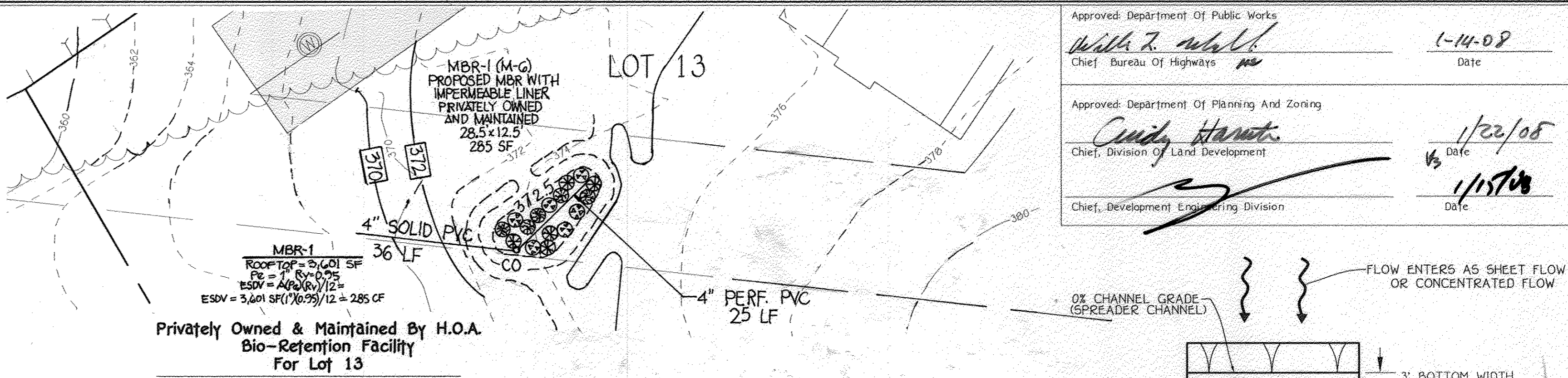
STORM DRAIN PROFILES
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE PARCELS 'E' & 'F'

TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET # OF 22



SECTION A-A

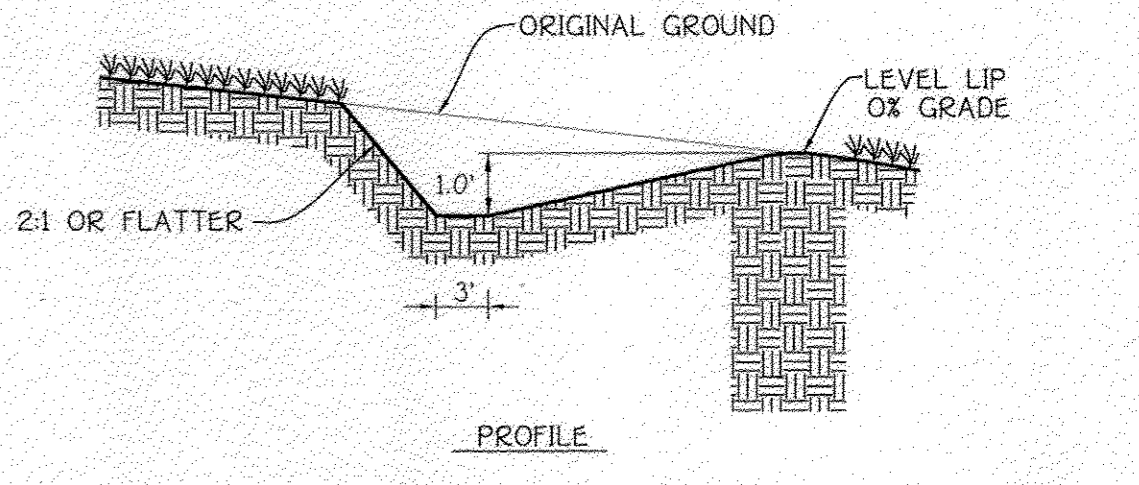
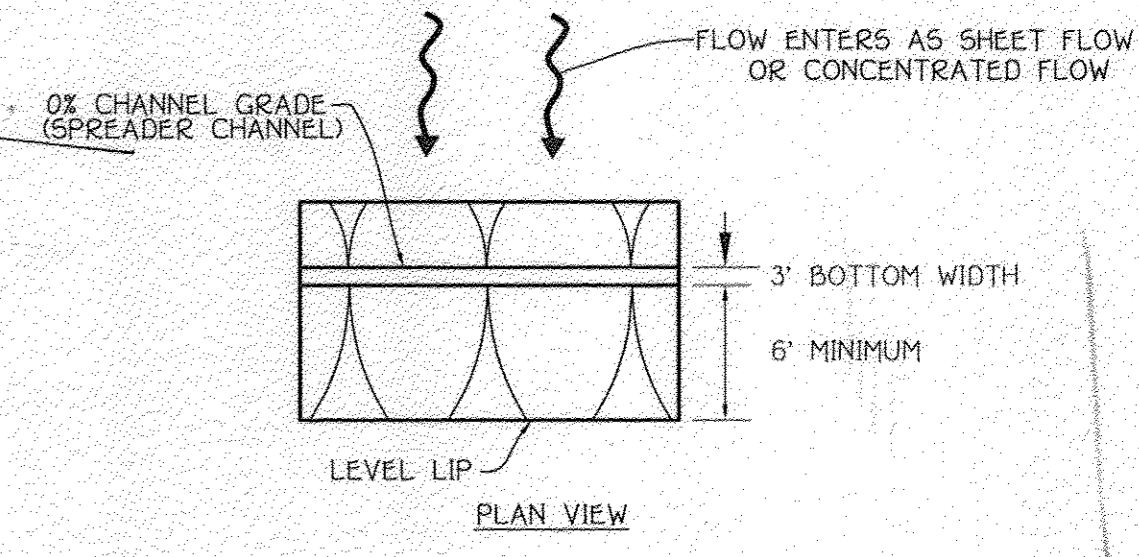
| | | | | | |
|---|--|-----------|-----------------------|---------------------|-------|
| STORM WATER MANAGEMENT STUDY WALNUT CREEK HOWARD COUNTY, MARYLAND | | 05138MD | BORING PROFILES | | PLATE |
| xx = % Moisture | | OCT, 2005 | HORIZ SCALE 0-30 FEET | VERT SCALE 0-3 FEET | 2 |



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED & MAINTAINED BIO-RETENTION AREA

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE 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.

| QTY | BOTANICAL NAME/COMMON NAME | SIZE | REMARKS |
|-----|--|----------|---------|
| 6 | VIBURNUM TRILOBUM AMERICAN HONEYSUCKLE | 5 GALLON | CONT |
| 5 | ILEX GLABRA INKBERNERY | 3 GALLON | CONT |
| 5 | SPICEBUSH LINDERA BENZON | 3 GALLON | CONT |



LEVEL SPREADER CRITERIA

For impervious surface runoff applications. The capacity for the level spreader is determined in the design of the filter strip to which it discharges.

The spreader shall run linearly along the entire width of the filter strip to which it discharges. In most cases, the spreader will be the same width as the contributing impervious surface. The area of the spreader shall be tied into higher ground to prevent flow around the spreader. The minimum depth shall be 6 inches and the minimum width shall be 6 feet for the lower side slope. Side slopes shall be 2:1 horizontal to vertical or flatter.

The grade of the spreader shall be 0%.

The outlet discharge area must be generally smooth and well vegetated with a maximum slope of 10%.

For all applications: The spreader lip shall be constructed to a uniform height and zero grade over the length of the spreader. For design flows of 4 cfs or greater, a rigid lip of non-erodible material such as pressure-treated timbers or concrete curbing, shall be used. For flows less than 4 cfs, a vegetated lip may be used. The spreader lip shall be constructed on undisturbed soil.

When using a vegetated lip it shall be protected with an erosion control blanket to prevent erosion and allow the vegetation to become established. The blanket shall be a minimum of 4 feet wide extending a minimum of 1 foot downstream over the level lip. The blanket shall be secured with heavy-duty staples and the downstream and upstream edges shall be buried at least 6 inches deep in a vertical trench.

When using a rigid lip it shall be entrenched at least 4 inches below existing ground and securely anchored to prevent displacement. An apron of Class I rip-rap shall be placed to the top of the rigid lip and extend down slope at least 3 feet. A filter fabric shall be placed under the coarse aggregate.

Immediately after level spreader construction, seed and mulch the entire disturbed area of the spreader in accordance with the Standards and Specifications for Vegetative Stabilization.

CONSIDERATIONS

The level spreader is a relatively low-cost structure to:

- Disperse impervious surface runoff uniformly to a filter strip or
- Release small volumes of concentrated flow from diversions when conditions are suitable.

To accomplish these purposes, particular care must be taken to construct the spreader lip completely level. Any depressions in the lip will concentrate the flow, resulting in a loss of pollutant filtering effectiveness and/or erosion. Evaluate the outlet system to be sure that flow does not concentrate below the outlet.

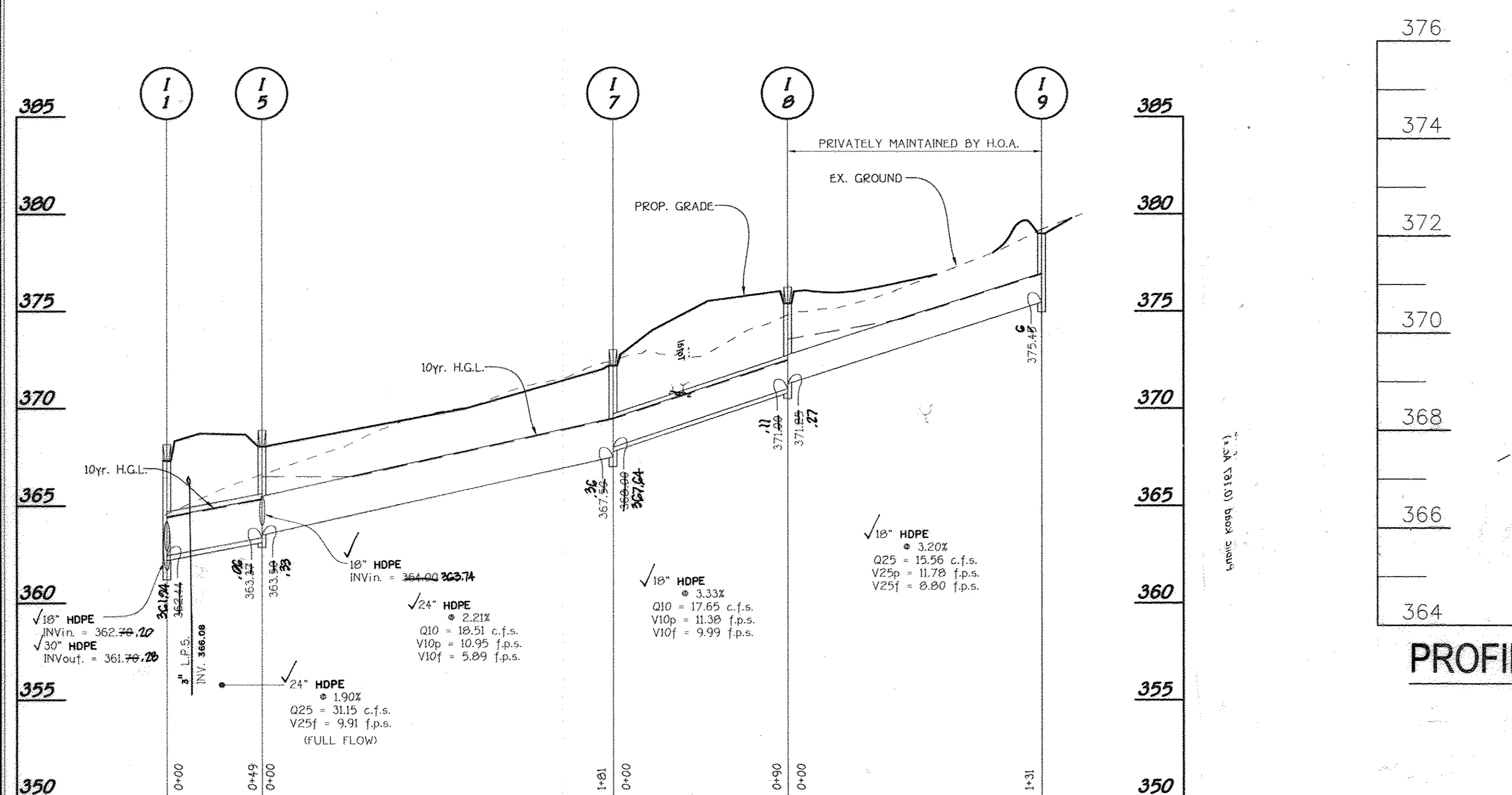
For filter strip applications, the determination of whether a level spreader is needed should be based on how the runoff is entering the filter strip. If the runoff is concentrated by curb cuts, and particularly if a large area of impervious surface drains to one point, a level spreader is essential to achieve effective pollutant removal in the filter strip. A level spreader also is important if the filter strip is relatively steep in order to avoid erosion from concentrated runoff discharge. If the runoff is evenly distributed over the width of the impervious surface (e.g., a curbside, even-sloped road or parking lot), a level spreader may not be necessary.

When the level spreader is used as an outlet for temporary or permanent diversions and diversion dikes, runoff containing high sediment loads must be treated in an approved sediment trapping device.

OPERATION AND MAINTENANCE

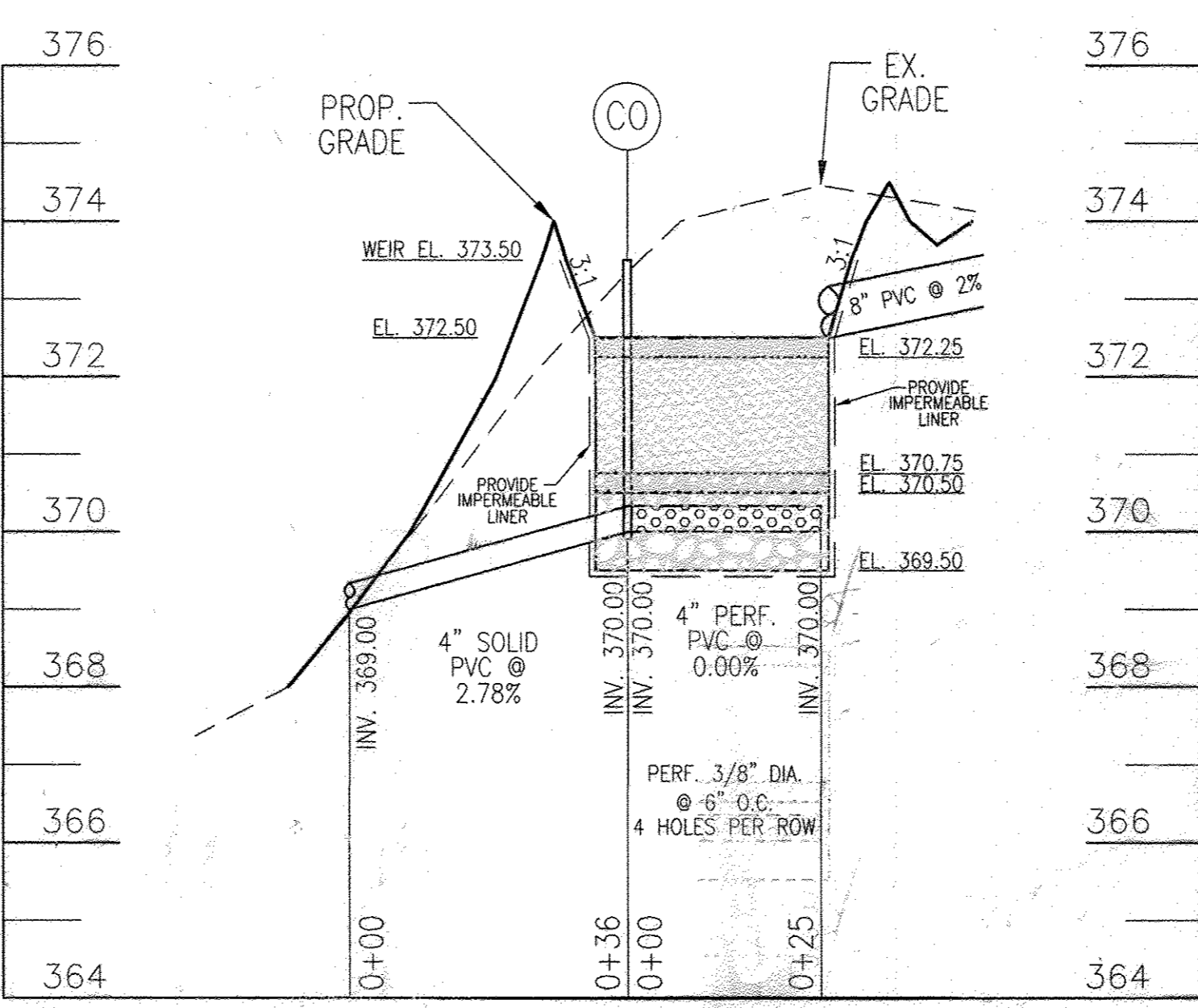
Inspect level spreaders after every rainfall until vegetation is established, and promptly make needed repairs. After the area has been stabilized, make periodic inspections and maintain vegetation in a healthy, vigorous condition.

Verify that the level spreader is distributing flow evenly. If problems are noted, make appropriate modifications to ensure even flow distribution.



PROFILE SCALE: HORIZ. 1" = 50' VERT. 1" = 5'

NOTE: PIPE THICKNESS IS SHOWN ON PROFILE ONLY AT LOW PRESSURE SEWER CROSSINGS.



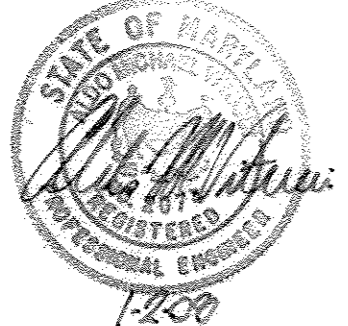
PROFILE ALONG BIO-RETENTION FACILITY

HORIZONTAL - 1" = 20'
VERTICAL - 1" = 2'

MBR NOTES

- THE SIDES AND BOTTOM OF THE MBR ARE TO BE WRAPPED IN AN IMPERMEABLE LINER.
- THE PERFORATED UNDERDRAIN PIPE OF THE MBR SHOULD BE WRAPPED WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH.
- ALL ROOF LEADERS FOR LOT 13 ARE TO BE DIRECTED TO THE MICRO BIO-RETENTION FACILITY.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK • 10272 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
M.B. No. 1-2005



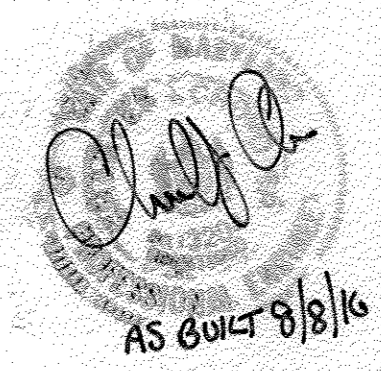
| No. | Description | Date |
|-----|--|----------|
| 1 | AS-BUILT | 9/10/16 |
| 2 | REVISE THE LOCATION AND DESIGN OF THE BIO-RETENTION FACILITY LOCATED ON LOT 13 | 12/10/14 |
| 3 | REVISE Storm Drain Pipe From Ramps To Hdpe | 8/30/12 |

FOR REVISION # 2 ONLY
ROBERT H. VOGEL, P.E. #H01973

OWNER
BASSLESS, INCORPORATED
C/O ALFRED S. BASSLES
4991 SHEPPARD LANE
ELICOTT CITY, MARYLAND 21042

DEVELOPER
HERITAGE LAND DEVELOPMENT
1250 NORTH AVE.
LISBON, MARYLAND 21765

I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED IN ACCORDANCE WITH THE PLAN HEREIN SUBMITTED AND APPROVED BY ME AS SHOWN ON THIS PLAN. I PLAN HEREIN MEET THE APPROVED PLANS AND SPECIFICATIONS.
CHRISTOPHER J. ORR, P.E. NO. 1920A AS-BUILT 9/16/16



STORM DRAIN PROFILES, SOIL BORINGS & PRIVATE S.W.M. DEVICES
WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22
NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
& BUILDABLE BULK PARCELS 'E' & 'F'
ZONED: RC-DEO & RR-DEO
TAX MAP NO. 20 ZONED Nos. 4, 5, 10-12, 17, AND 18 PARCEL NO. 49
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
DATE: DECEMBER 28, 2007
SHEET 9 OF 22

ENGINEER'S CERTIFICATE
 I hereby certify that this Plan for Erosion and Sediment Control is in accordance with the approved Erosion and Sediment Control Plan Based On My Personal Knowledge of the Site Conditions and That It Was Prepared in Accordance with the Requirements of the Howard Soil Conservation District.
 Signature of Engineer: [Signature] Date: 1-20-09

DEVELOPER'S CERTIFICATE
 I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Are Deemed Necessary.
 Signature of Developer: [Signature] Date: 1/2/09

Reviewed For Howard County Soil Conservation District And Meets Technical Requirements.
 U.S.D.A. Natural Resources Conservation Service Date: [Signature] Date: 1/9/09

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.
 District Howard Soil Conservation Dist. Date: 1/9/09

Approved: Department of Planning And Zoning
 Chief, Division of Land Development Date: 1/22/09

Approved: Howard County Department Of Public Works
 Chief, Bureau of Highways Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

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Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

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Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

Approved: [Signature] Date: 1-14-09

20.0 STANDARDS AND SPECIFICATIONS
VEGETATIVE STABILIZATION
DEFINITION
 Using vegetation as cover for barren soil to protect it from forces that cause erosion.
PURPOSE
 Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.
CONDITIONS WHERE PRACTICE APPLIES
 This practice shall be used on denuded areas on the site and may be used on highly erodible or critically eroding areas. This specification is divided into temporary seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary soil stockpiles, cleared areas left between construction phases, earth cuts, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY
 Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seeded preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - VEGETATIVE STABILIZATION METHODS AND MATERIALS
 A. Site Preparation
 1. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
 2. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
 3. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
 B. 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 over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
 2. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 3. Lime materials shall be ground limestone hydrated or burnt lime may be substituted which contains at least 90% total oxide calcium content. Limestone shall be ground to such fineness that at least 90% will pass through a #100 mesh sieve and 98-100% will pass through a #20 mesh sieve.
 4. Incorporate lime and fertilizer into the top 3-5" of soil by disking or other suitable means.
 C. Seeded Preparation
 1. Seeded preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable tillage construction equipment such as as a ripper, roller, or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seeded preparation, the surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1.5" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

SECTION 2 - TEMPORARY SEEDING
 Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.
 A. Seed mixtures - Temporary Seeding
 1. Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardness Zone (from Figure 9) and enter them in the Temporary Seeding Summary below, along with application rates and seeding depths. Seeding depths can be estimated using Table 26. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.
 2. For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

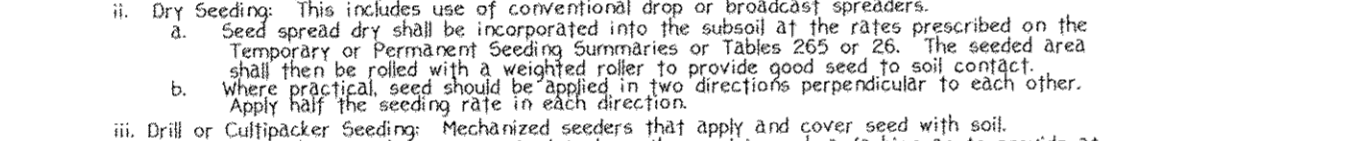
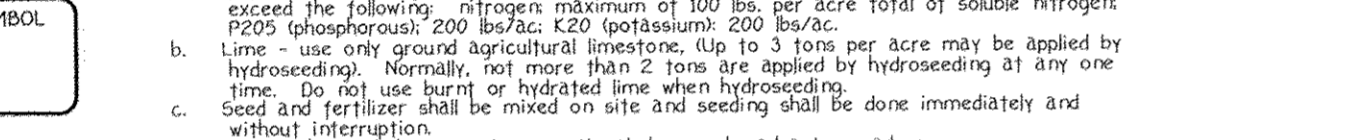
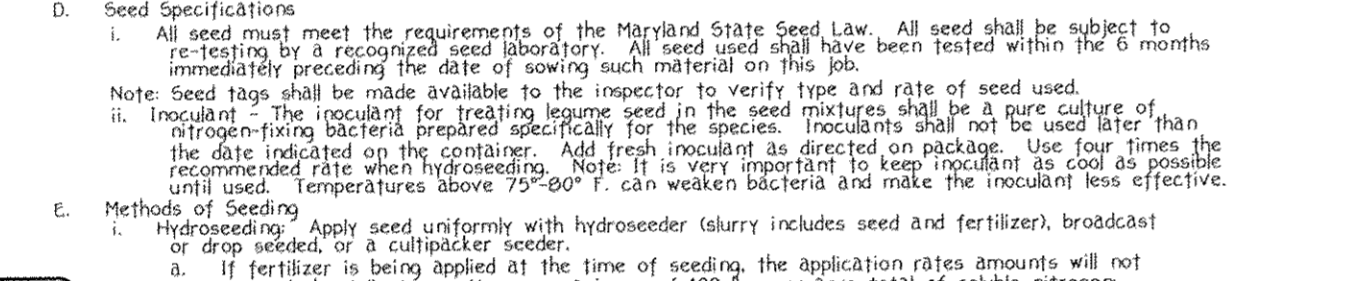
| Seed Mixture Hardness Zone _____ 6b _____ | | Application Rate (lb/acre) | | Seeding Dates | | Seeding Depths | | Fertilizer Rate (lb/1000sq ft) | | Lime Rate (lb/1000sq ft) | |
|---|---------|----------------------------|---------------|----------------|--|----------------|--|--------------------------------|-------------|--------------------------|--|
| No. | Species | Application Rate (lb/acre) | Seeding Dates | Seeding Depths | | | | | | | |
| 1 | BARLEY | 122 | 3/1 - 5/15 | 1" - 2" | | | | 600 lb/acre | 2 tons/acre | | |
| | OATS | 96 | 8/15 - 10/15 | 1" - 2" | | | | 600 lb/acre | 2 tons/acre | | |
| | RYE | 140 | | 1" - 2" | | | | 600 lb/acre | 2 tons/acre | | |

SECTION 3 - PERMANENT SEEDING
 Seeding grass and legumes to establish ground cover for a minimum of one year on disturbed areas generally receiving low maintenance.
 A. Seed mixtures - Permanent Seeding
 1. Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardness Zone (from Figure 9) and enter them in the Permanent Seeding Summary below, along with application rates and seeding depths. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Section 342 - Critical Area Planting. For special lawn maintenance areas, see sections IV Sod and V Turfgrass.
 2. For sites having disturbed areas over 5 acres, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
 3. For areas receiving low maintenance, apply urea-form fertilizer (46-0-0) at 1/2 lb/1000 sq. ft. (500 lb/acre), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

| Seed Mixture Hardness Zone _____ 6b _____ | | Application Rate (lb/acre) | | Seeding Dates | | Seeding Depths | | Fertilizer Rate (lb/1000sq ft) | | Lime Rate (lb/1000sq ft) | |
|---|---------------------------|----------------------------|---------------|----------------|--|----------------|--|--------------------------------|-------------|--------------------------|--|
| No. | Species | Application Rate (lb/acre) | Seeding Dates | Seeding Depths | | | | | | | |
| 1 | TALL FESCUE (90%) | 165 | 3/1 - 5/15 | 1" - 2" | | | | 90 lb/acre | 175 lb/acre | 2 tons/acre | |
| 3 | PERENNIAL RYE GRASS (95%) | 15 | 8/15 - 10/15 | 1" - 2" | | | | 90 lb/acre | 175 lb/acre | 2 tons/acre | |
| 10 | TALL FESCUE (60%) | 120 | 3/1 - 5/15 | 1" - 2" | | | | 90 lb/acre | 175 lb/acre | 2 tons/acre | |
| | HARD FESCUE (20%) | 30 | 8/15 - 10/15 | 1" - 2" | | | | 90 lb/acre | 175 lb/acre | 2 tons/acre | |

TOPSOIL NOTES
 Definition
 Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.
 Purpose
 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.
 Conditions Where Practice Applies
 1. This practice 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.
 2. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special engineering design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.
 Construction and Material Specifications
 I. 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 determined from the representative soil profile section in the soil survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.
 II. Topsoil Specifications - Soil to be used as specified must the following:
 1. Topsoil shall be a loam, sandy loam, clay loam, silty loam, silty clay loam, loamy sand. Other soils may be used if approved by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 2% by volume of concrete, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/2" in diameter.
 2. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutgrass, poison ivy, thistle, or others as specified.
 3. Where the subsoil is either highly acidic or composed of heavy clay, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1000 square feet) prior to the placement of topsoil. The limestone shall be applied in a uniform layer and incorporated into the soil in conjunction with tillage operations as described in the following procedures.
 II. For sites having disturbed areas under 5 acres:
 1. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 III. For sites having disturbed areas over 5 acres:
 1. 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 the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be provided to raise the pH to 6.5 or higher.
 b. Organic content of topsoil shall be not less than 1.5 percent by weight.
 c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
 d. No soil or seed shall be placed on soil which has been treated with soil sterilants or chemical used for weed control until sufficient time has elapsed (180 days min) to permit dissipation of phytotoxic materials.
 Note: 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.
 2. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section 1 - Vegetative Stabilization Methods and Materials.
 Topsoil Application
 I. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Soil Fence and Sediment Traps and Basins.
 II. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, added 4" - 8" higher in elevation.
 III. 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 seeding or sodding 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.
 IV. Topsoil shall not be placed where 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 and seeded preparation.
 Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge shall be applied as specified below:
 I. Composted sludge Material 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 originate from, a person or persons that are permitted (at the time of application) by the Maryland Department of the Environment and General Services (D&EGS) under the following requirements:
 b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 10 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/1000 square feet.
 IV. Composted sludge shall be amended with a potassium fertilizer at the rate of 4 lb/1000 square feet.
 V. The normal lime application rate.
 References: Guideline Specifications, Soil Preparation/Seeding, MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institute, Revised 1973.

GABION INFLOW PROTECTION
 NOT TO SCALE
 1. Gabion inflow protection shall be constructed of 9" x 3" x 9" gabion baskets forming a trapezoidal section 1' deep, with 2:1 side slopes, and a 3' bottom width.
 2. Geotextile Class C shall be installed under all gabion baskets.
 3. The stone used to fill the gabion baskets shall be 4" - 7".
 4. Gabions shall be installed in accordance with manufacturer's recommendations.
 5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.



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Incremental Stabilization - Cut Slopes
 I. All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.
 II. Construction sequence (Refer to Figure 3 below):
 a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 b. Perform Phase 1 excavation, dress, and stabilize.
 c. Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
 d. Perform final phase excavation, dress 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 interruption in the operation of completing the operation of the seeding season will necessitate the application of temporary stabilization.
 III. Incremental Stabilization of Embankments:
 1. Embankments shall be constructed in lifts as prescribed on the plans.
 II. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15' or when the grading operation ceases as prescribed on the plans.
 III. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erodible manner to a sediment trapping device.
 IV. Construction Sequence - Cut Slopes:
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Incremental Stabilization - Fill Slopes
 I. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15' or when the grading operation ceases as prescribed on the plans.
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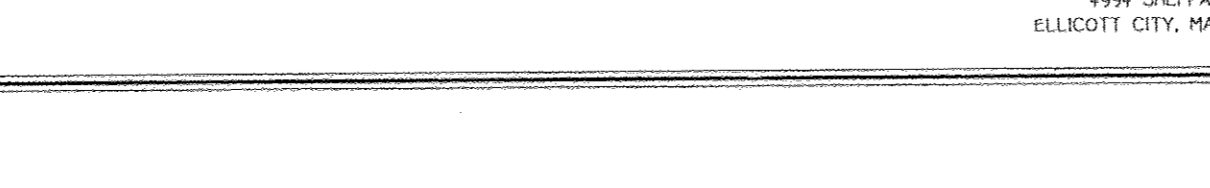
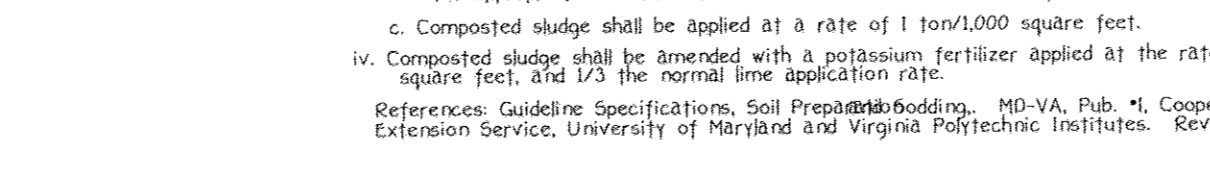
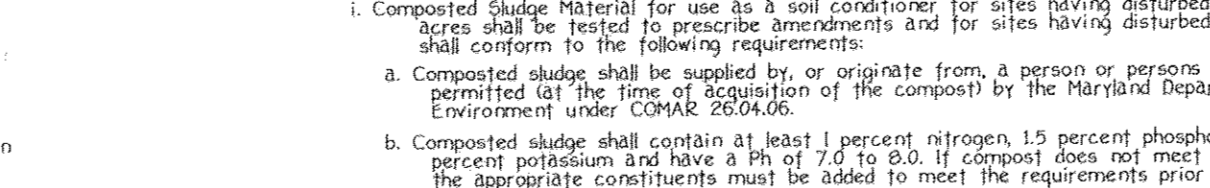
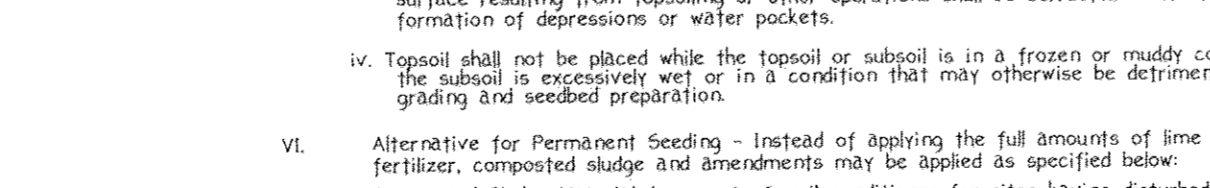
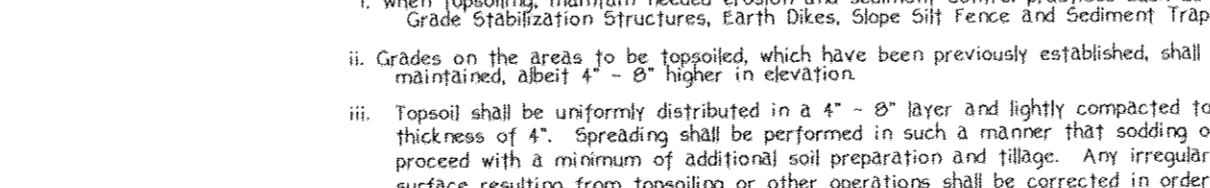
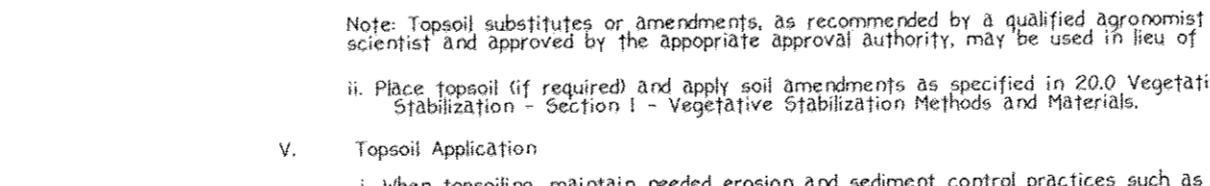
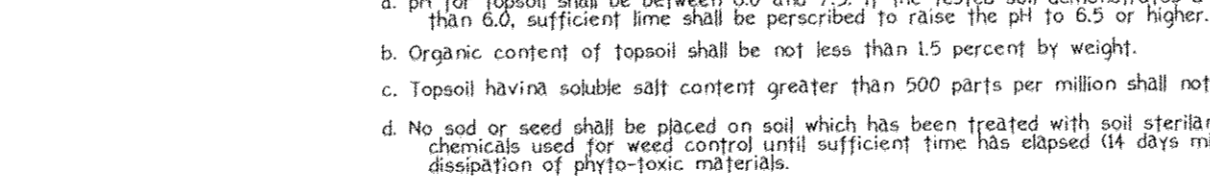
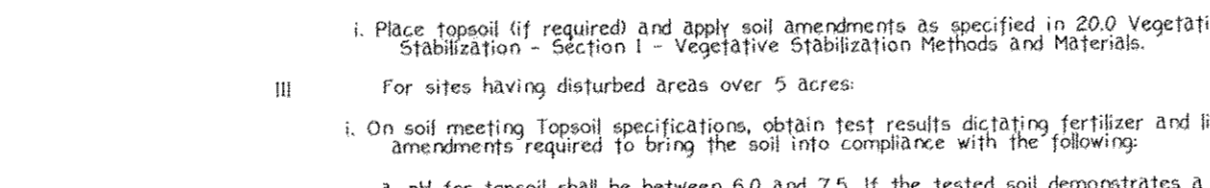
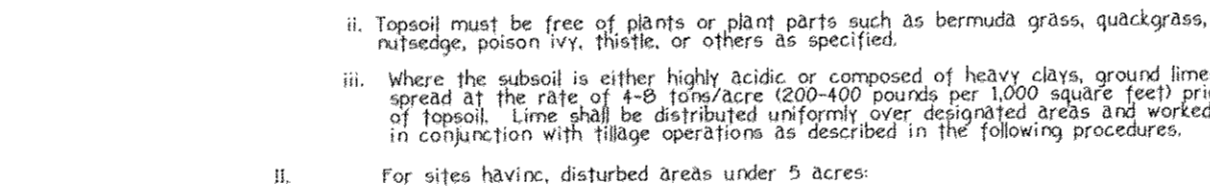
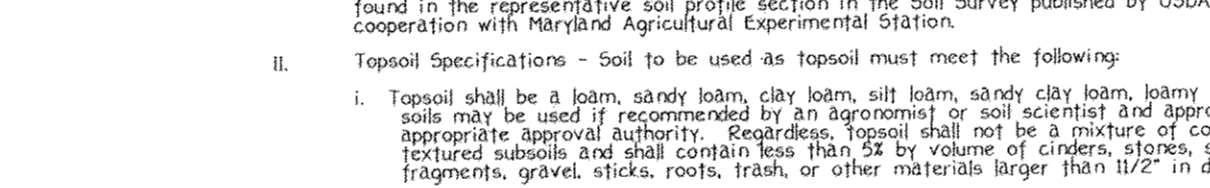
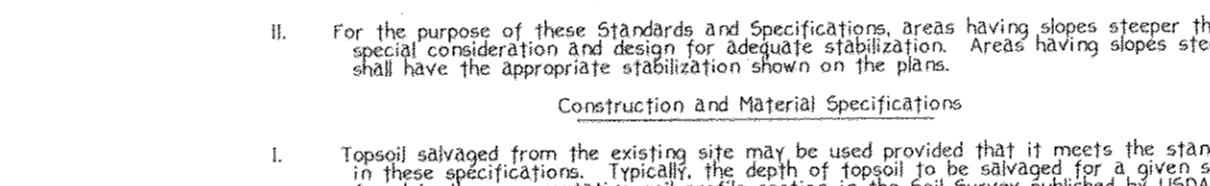
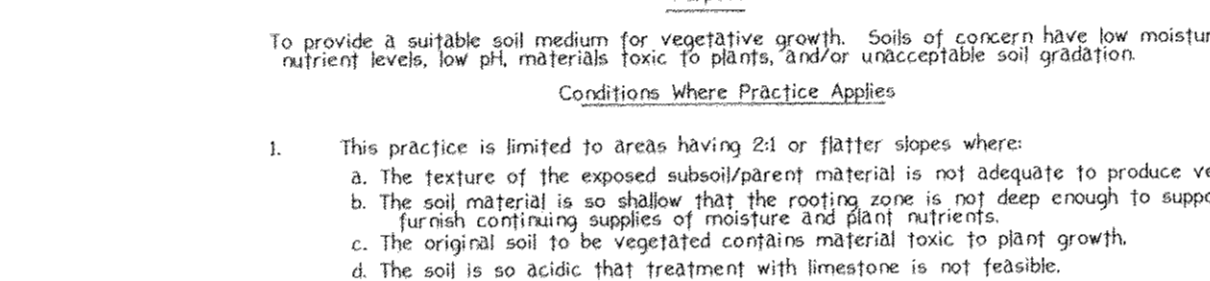
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IMPORTANT:
 THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES 104-XX-XX - 104-XX-XX AND STANDARD DETAILS 104-XX-XX-104-XX-XX.
NOTE:
 FLAGGERS SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.
NOTE:
 SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY A PHYSICAL BARRIER REFER TO STANDARD NO. MD 104-06-14 WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF REFER TO STANDARD NOS. MD 104-06-10 TO MD 104-06-15.



KEY:
 CHANNELIZING DEVICES
 SIGN SUPPORT FACE OF SIGN
 DIRECTION OF TRAFFIC
 WORK SITE
 FLAGGER
 END ROAD WORK
 OPTIONAL FOR 15 MIN-12 HRS. OR DAY TIME APPLICATIONS

KEY:
 CHANNELIZING DEVICES
 SIGN SUPPORT FACE OF SIGN
 DIRECTION OF TRAFFIC
 WORK SITE
 FLAGGER
 END ROAD WORK
 OPTIONAL FOR 15 MIN-12 HRS. OR DAY TIME APPLICATIONS

KEY:
 CHANNELIZING DEVICES
 SIGN SUPPORT FACE OF SIGN
 DIRECTION OF TRAFFIC
 WORK SITE
 FLAGGER
 END ROAD WORK
 OPTIONAL FOR 15 MIN-12 HRS. OR DAY TIME APPLICATIONS

KEY:
 CHANNELIZING DEVICES
 SIGN SUPPORT FACE OF SIGN
 DIRECTION OF TRAFFIC
 WORK

STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for Practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

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. Channel banks and gully 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 of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry streamer management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

All cleared and grubbed material 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 use on the embankment and other designated areas.

EMBRANKMENT

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification SC, CL or CI and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. 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 track tread of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot roller, rubber tire roller 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 of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off 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 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

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 10 to 1 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.

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 tampers 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 or pipe.

Flowable Fill - 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. Material 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 9" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil 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 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 the specified for 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 pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appendages shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

2. Materials - (Aluminum Coated Steel Pipe) - This pipe and its appendages shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer and two coats of asphalt.

3. Materials - (Aluminum Pipe) - This pipe and its appendages 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 for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer and two coats of asphalt. The pH of the surrounding soils shall be between 4 and 9.

4. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

5. Connections - All connections with pipes must be completely watertight. The drain pipe 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 of corrugations to accommodate the gasket. 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, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lip type band with 1/2-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hanger type band with o-ring gaskets having a minimum diameter of 1/2-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.

Historically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene bed.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable 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 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.

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 from 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.

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 and Materials, Section 414, Mix No. 3.

Rock Riprap - Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and 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 and Materials, Section 923.09, 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 foundations 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 foundations shall be 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 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 sumps from which the water shall be pumped.

Stabilization - All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, pool and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MVD-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.

OPERATION AND MAINTENANCE - An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.

LONGITUDINAL REINFORCEMENT - BELL RING - REINFORCEMENT CAGE

CONCRETE PIPE JOINT DETAIL - RIBBON JOINT SEALER

CONCRETE PIPE JOINT DETAIL - RIBBON JOINT SEALER

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CONCRETE PIPE JOINT DETAIL - RIBBON JOINT SEALER

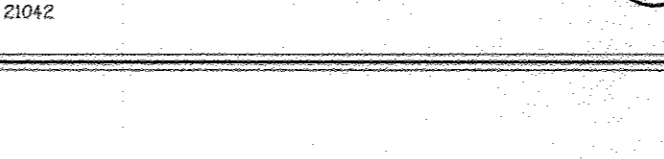
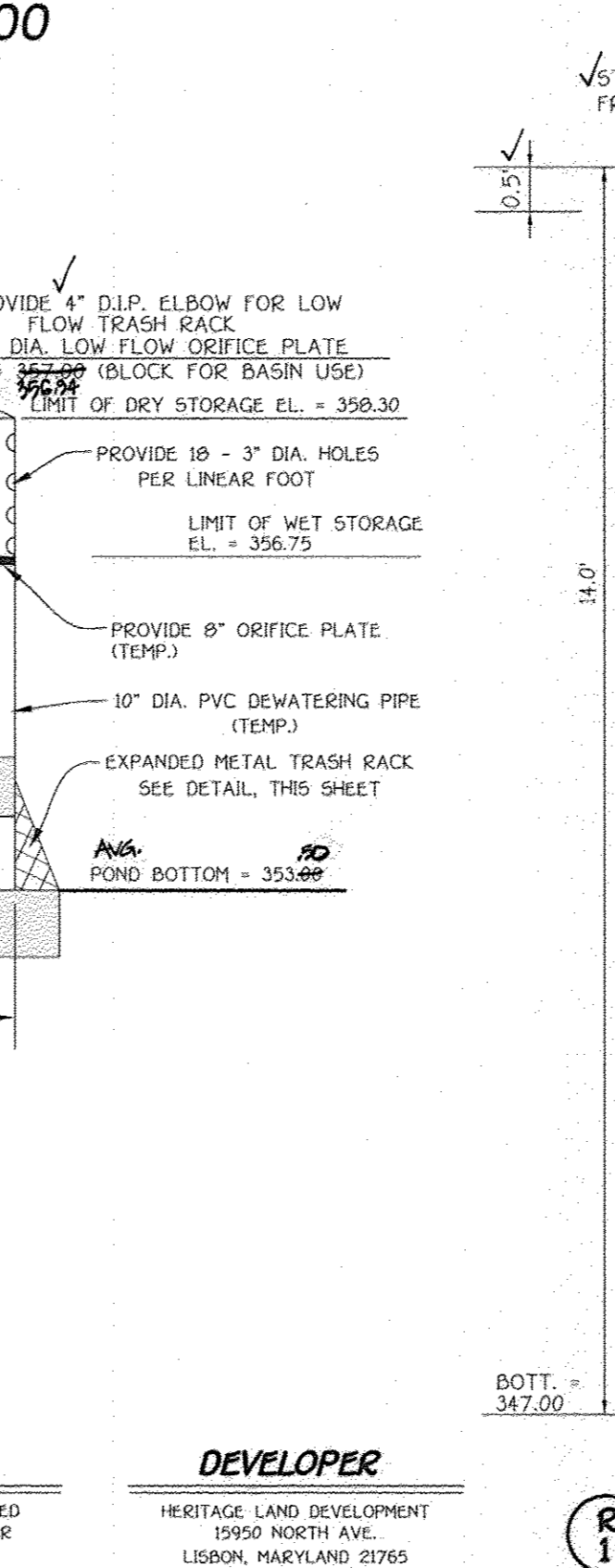
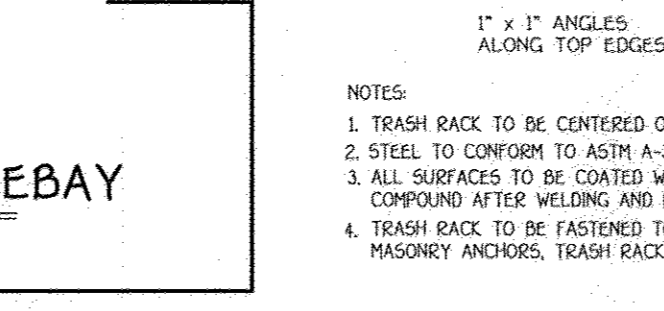
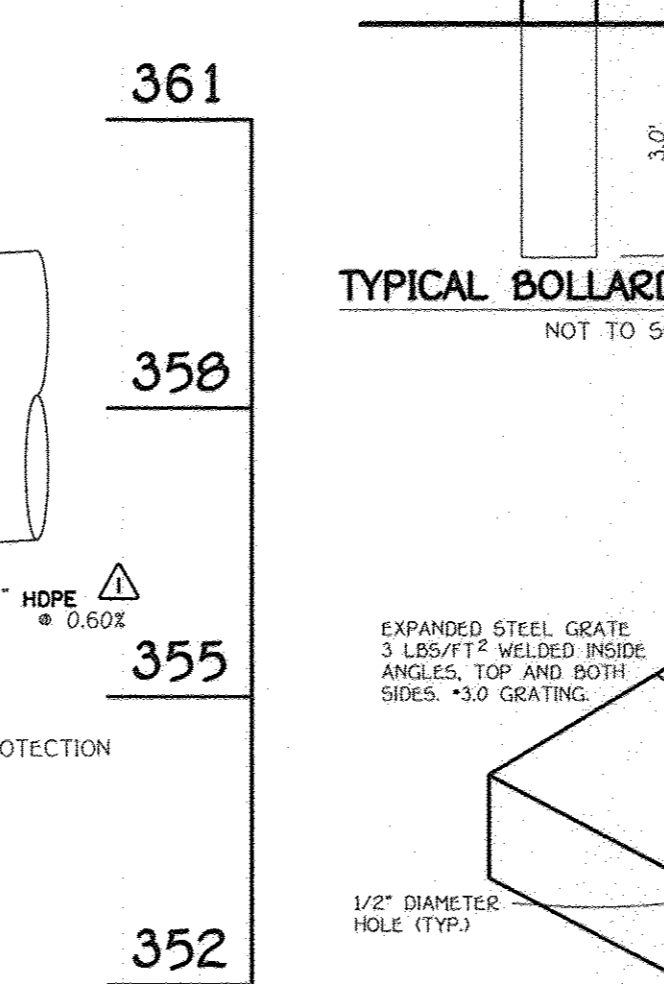
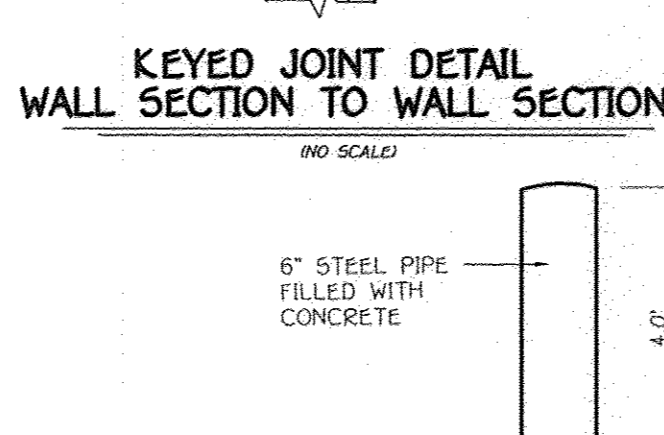
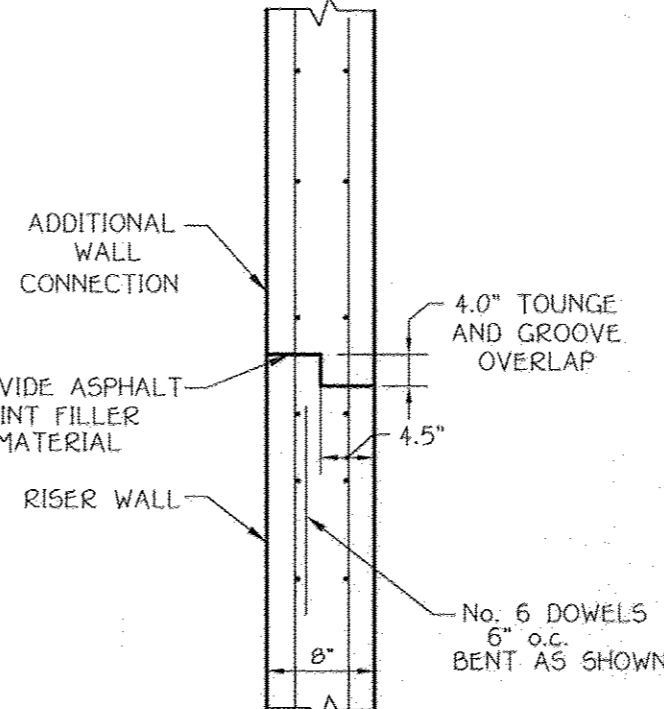
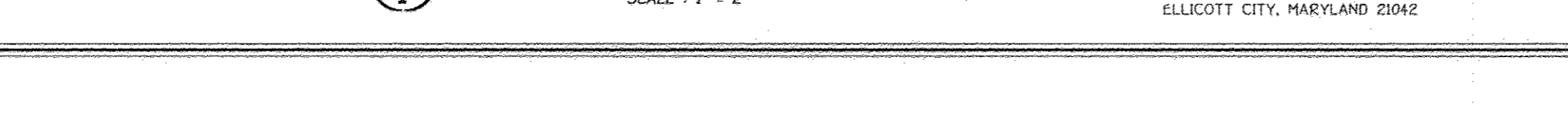
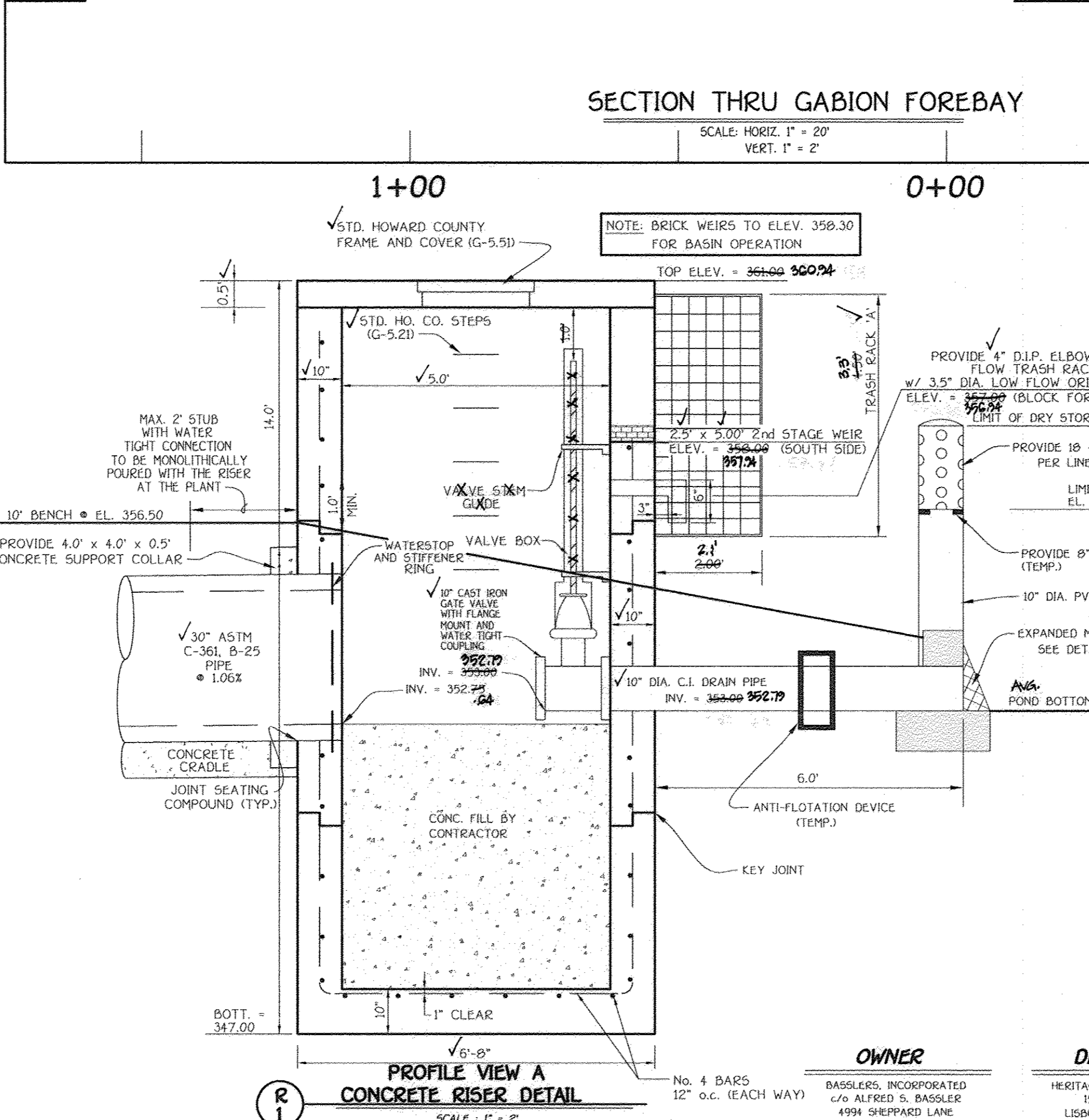
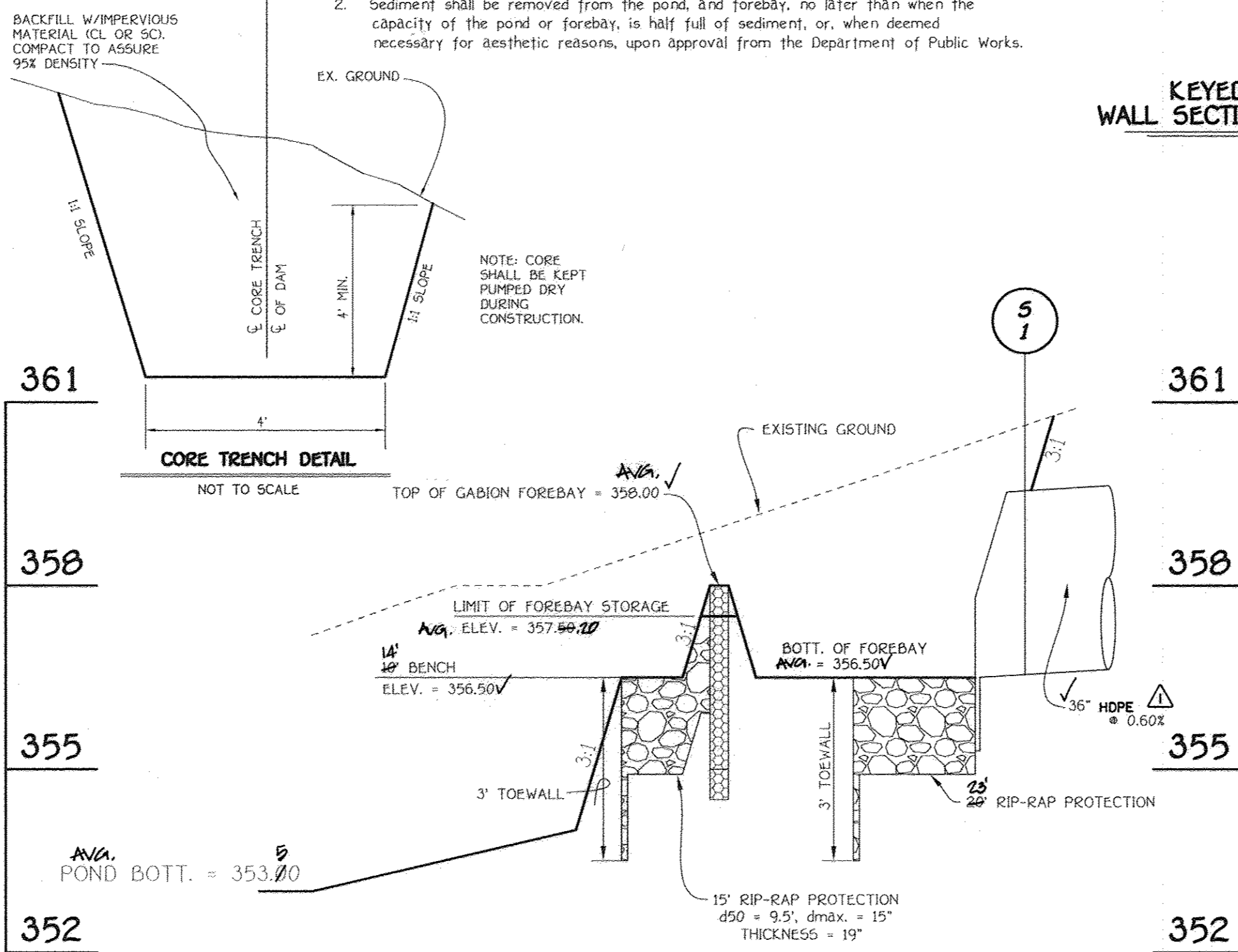
OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND JOINTLY MAINTAINED STORMWATER MANAGEMENT FACILITIES

ROUTINE MAINTENANCE

- Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the pond is functioning properly.
- Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.
- Debris and litter shall be removed during regular mowing operations and as needed.
- Visible signs of erosion in the pond as well as the rip-rap or gabion outlet area shall be repaired as soon as it is noticed.

NON-ROUTINE MAINTENANCE

- 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.
- 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.



SWM Pond Construction Recommendations

A. General Design Recommendations

It is recommended that the geotechnical aspects of the SWM pond design and construction be in accordance with MD 378/2000 specifications.

B. Principal Spillway

Variable soil conditions are present and, consequently, the bearing conditions at various elevations vary widely. It appears that the majority of the underlying native soils will be accessible to support design bearing pressures of 2 KSF. Open footings excavated below the natural water table will be subject to disturbance by the upward flow of water and will require pumping and stabilization for acceptability.

C. Embankment Stability

Given the variable and generally highly clayey nature of the residual soils encountered in the proposed storm water management areas, it is recommended that the cut slopes be no steeper than 4H:1V and embankment slopes be no steeper than 3H:1V for slope stability. Embankment fill slopes outside the dam core area should be constructed of soils containing a substantial percentage of sand for stability purposes. The typical soil types are highly susceptible to loss of strength when saturated, and the slopes may require periodic maintenance and uniformly thick mature grass cover can be established. Also, ground water seepage into excavations below the natural water table may result in slope instability requiring the installation of drains and undercutting and replacing failed materials with more suitable soils or aggregate. The locations of the drains and undercut areas can best be determined at the time of construction.

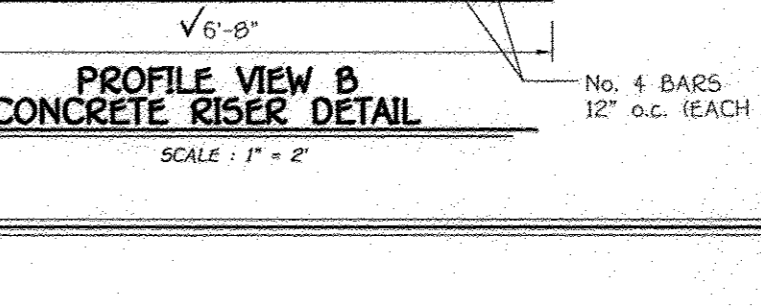
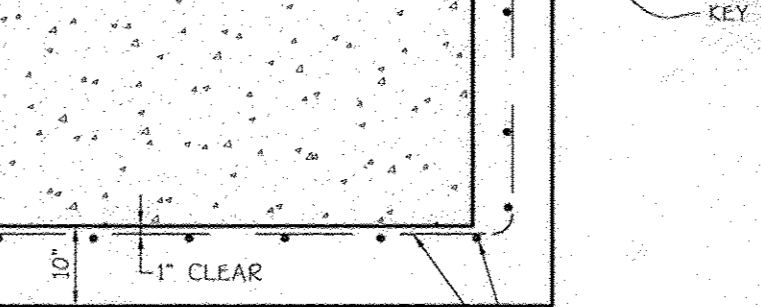
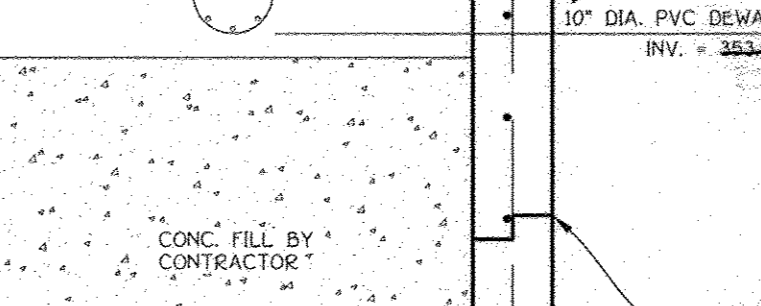
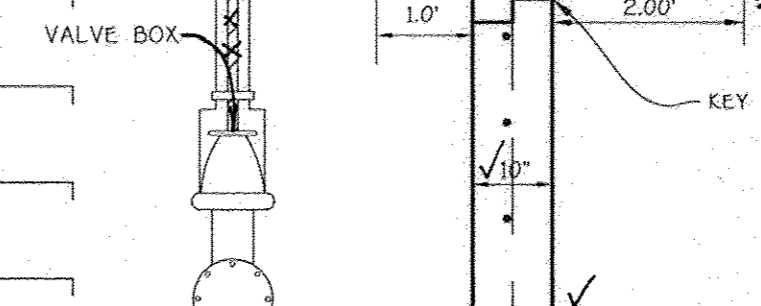
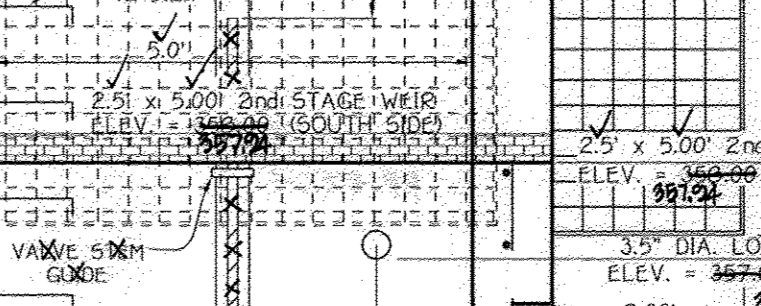
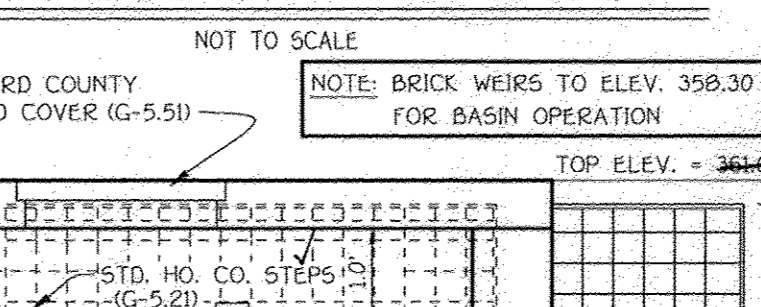
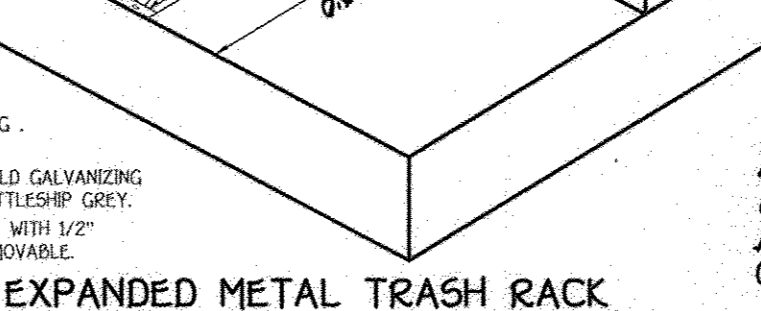
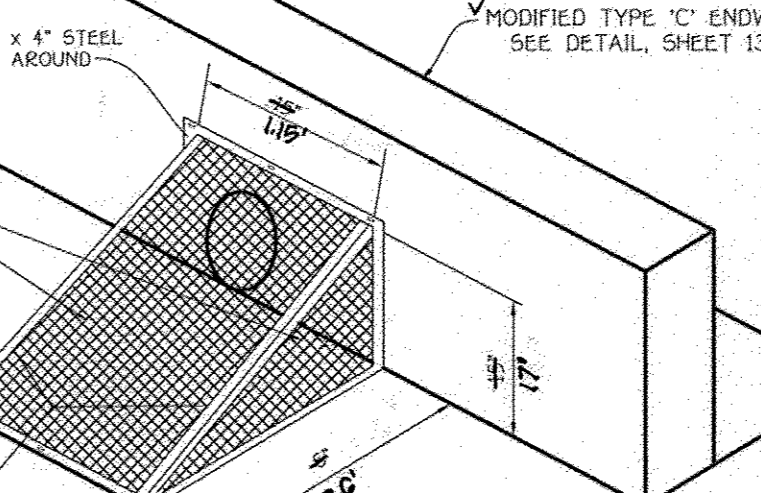
D. Core Trench

Core trenches shall be excavated to the typical MD 378/2000 specified dimensions below stippled existing grade or at least 2 feet into original soils below any undercut bench, whichever depth is greater. Depending upon the design elevations, excavations below the water table may result in instabilities of the core trench walls and bearing requiring pumping and stabilization for acceptable settlement of the core trench backfill.

E. Permanent Ground Water Control

Ground water should be anticipated in excavations carried below the water levels indicated by the borings. Also, since the boring program was performed in extended dry weather, it is likely that ground water levels will rise in the wetter seasons requiring additional ground water control. In addition to slope drains for cut soils, it may be necessary to construct drains in the basins to direct seepage into low flow canals to prevent shallow accumulation of water.

Ground water should be anticipated in excavations carried below the water levels indicated by the borings. Also, since the boring program was performed in extended dry weather, it is likely that ground water levels will rise in the wetter seasons requiring additional ground water control. In addition to slope drains for cut soils, it may be necessary to construct drains in the basins to direct seepage into low flow canals to prevent shallow accumulation of water.



By The Developer:

"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 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer: *[Signature]* Date: 1/2/08

Printed Name Of Developer: Timothy W. Fanga, Heritage Land Development

By The Engineer:

"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 Noted The Designer And Have/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: *[Signature]* Date: 1-2-08

Printed Name Of Engineer: ALYON VITALE

These Plans Have Been Reviewed For The Howard Soil Conservation District And Meet The Requirements For Small Pond Construction: Soil Erosion And Sediment Control.

USDA-Natural Resources Conservation Service Date: 1/9/08

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District. Date: 1-14-09

Approved: Department Of Public Works Date: 1-14-09

Chief, Bureau Of Highways

Approved: Department Of Planning And Zoning Date: 1/23/08

Chief, Division Of Land Development

Approved: Department Of Planning And Zoning Date: 1/17/08

Chief, Development Engineering Division

AS-BUILT CERTIFICATION

I hereby certify that the facilities shown on this plan were constructed as shown on the "As-Built" Plans And Meets The Approved Plans And Specifications.

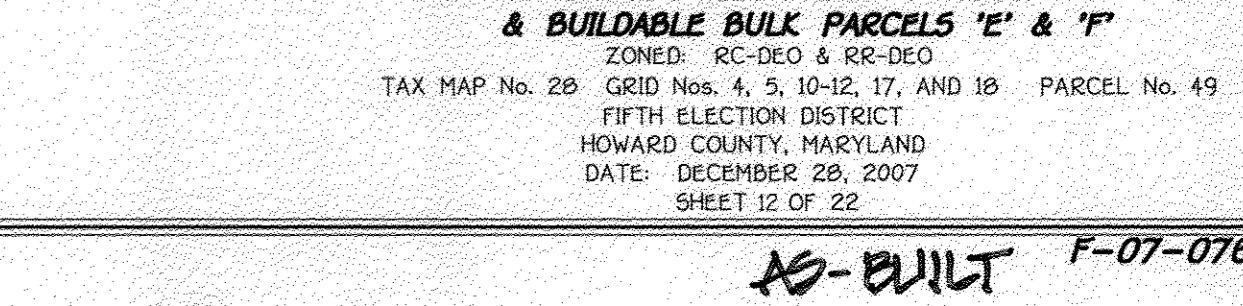
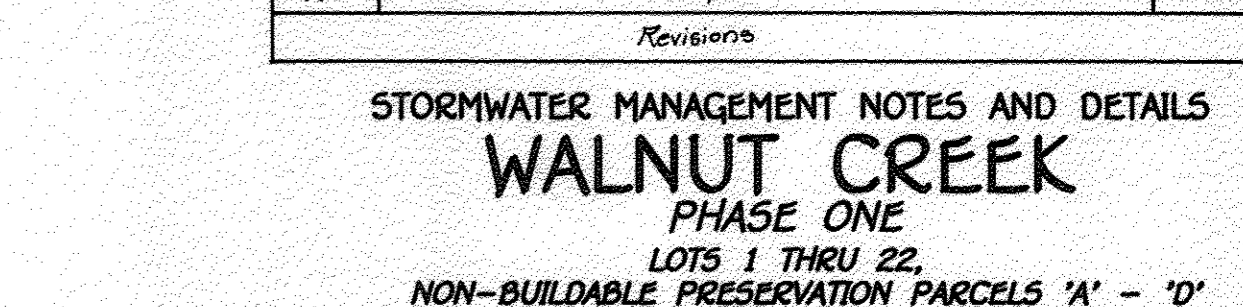
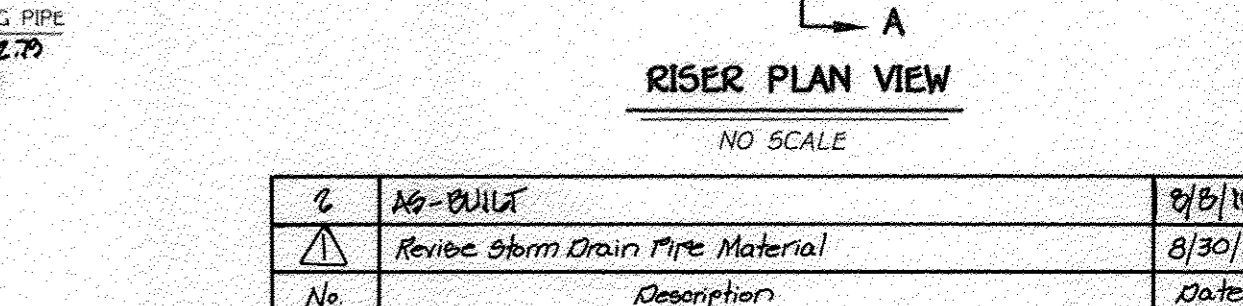
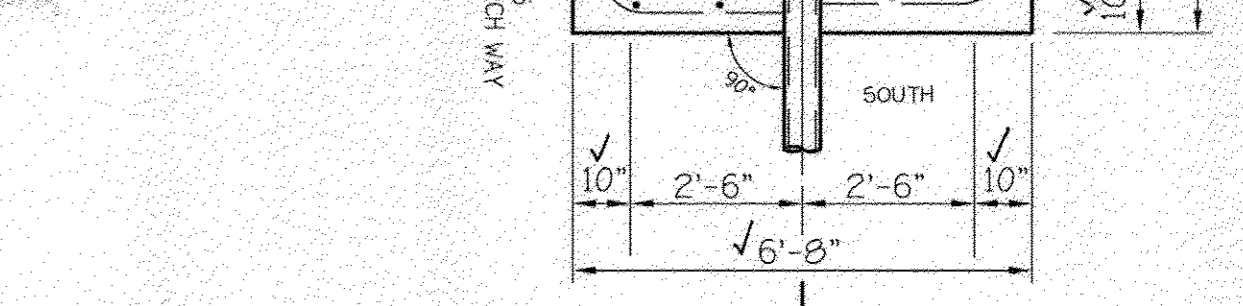
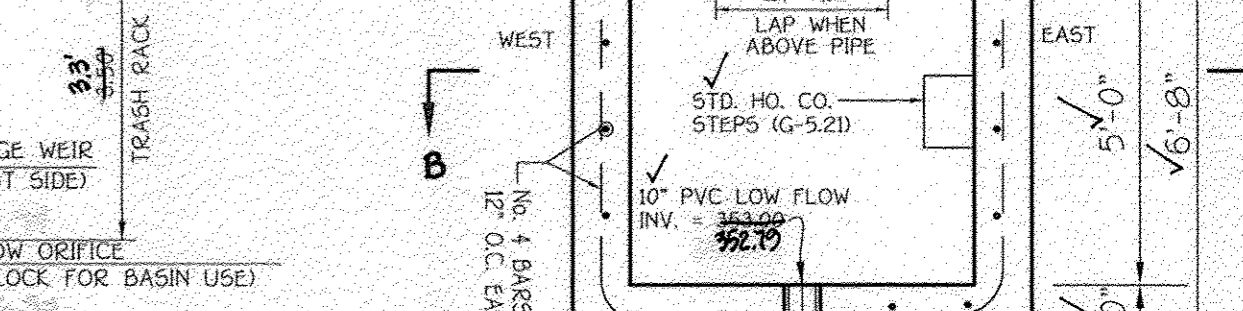
Signature: *[Signature]* Date: 1/30/08

Printed Name: ALYON VITALE

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Nesting Commonly Accepted Industry Practices.

I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS. CHARLES J. CROOK, P.E., No. 19204 AS-BUILT 8/16/08

MAX. 2\"/>



FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

CENTRAL SQUARE OFFICE PARK - 10772 BALDORNE NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042

NOTE: PROVIDE MASTIC JOINT SEALER FROM OUTSIDE OF PIPE JOINTS PRIOR TO INSTALLING BARREL UNDERGROUNDS

OWNER: BASSLERS, INCORPORATED 1950 NORTH AVE. 4934 SHEPARD LANE ELLICOTT CITY, MARYLAND 21042

DEVELOPER: HERITAGE LAND DEVELOPMENT 1950 NORTH AVE. LISBON, MARYLAND 21765

NO. 4 BARS 12\"/>

| No. | Revision | Description | Date |
|-----|----------------------------------|-------------|---------|
| 1 | AS-BUILT | | 8/16/08 |
| 2 | Revise Storm Drain Pipe Material | | 8/30/12 |

STORMWATER MANAGEMENT NOTES AND DETAILS
WALNUT CREEK
PHASE ONE
LOTS 1 THRU 22,
NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
& BUILDABLE BULK PARCELS 'E' & 'F'
TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
FIFTH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
DATE: DECEMBER 28, 2007
SHEET 12 OF 22

AS-BUILT F-07-076

APPROVED: DEPARTMENT OF PUBLIC WORKS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, BUREAU OF HIGHWAYS
 CHIEF, DIVISION OF LAND DEVELOPMENT
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

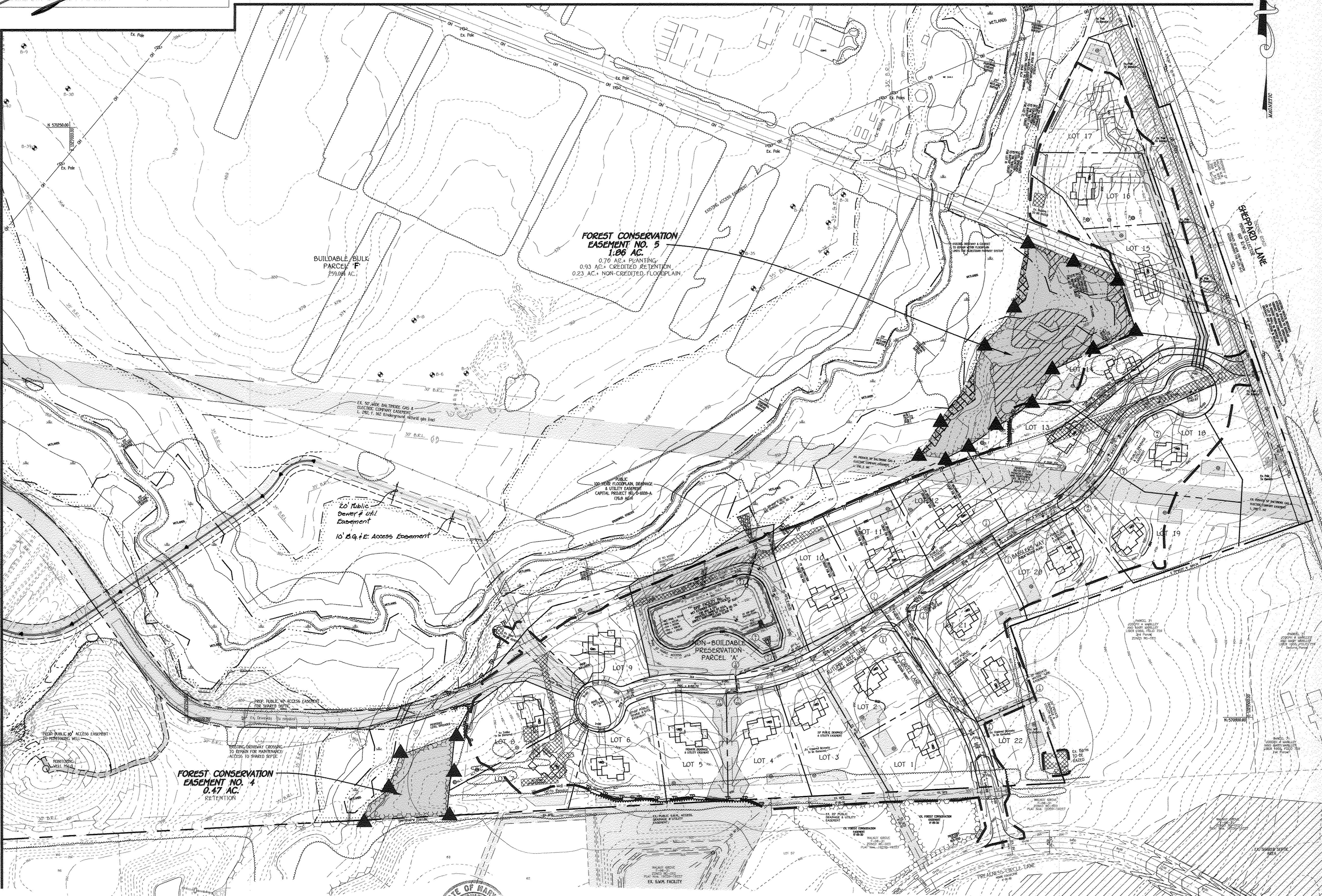
DENOTES B.G.+E. NO PLANTING ZONE

Note: THE FOREST CONSERVATION EASEMENTS WILL BE ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

Reforestation Note:
 The reforestation obligation will be met within priority planting areas on the site. This includes floodplain, wetland and buffers.

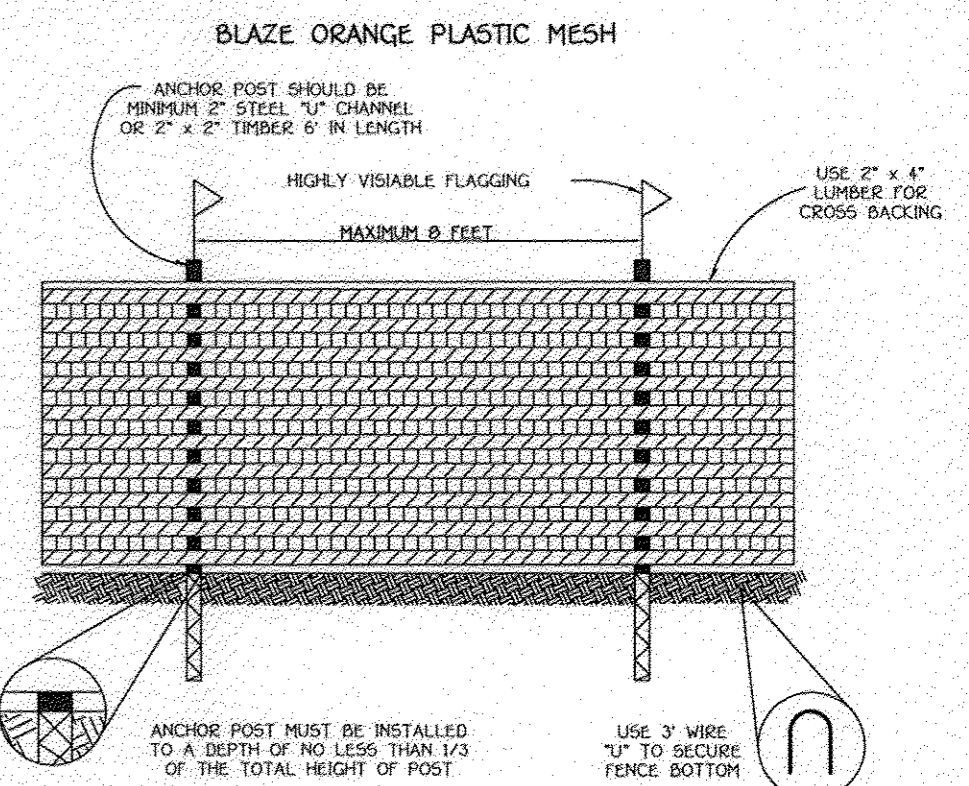
MATCHLINE SEE SHEET 15

MATCHLINE SEE SHEET 16



Specimen Tree Chart

| Key | Species/size | Comments |
|-----|---------------------------|--|
| A | White oak, 44 inch dbh | fair condition, some dieback, poor crown spread |
| B | Tulip poplar, 30 inch dbh | good condition |
| C | Tulip poplar, 48 inch dbh | good condition |
| D | Tulip poplar, 74 inch dbh | poor condition, substantial dieback and poor canopy spread |



NOTES:

- FOREST PROTECTION DEVICE ONLY.
- RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
- BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
- ROOT DAMAGE SHOULD BE AVOIDED.
- PROTECTIVE SIGNAGE MAY ALSO BE USED.
- DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

NOT TO SCALE

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.
 - Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.
 - Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.
 - The Forest Conservation Act requirements for the entire site will be met through the onsite retention of 99.57 acres of forest and 3.66 acres of onsite reforestation. Total Forest Conservation Obligation = 91.23 ac.
 - The forest conservation requirements per section 16.1200 of the howard county code and the forest conservation manual for the entire subdivision will be fulfilled by providing 99.57 acres of onsite forest retention and 3.66 acres of onsite forest afforestation for a total of 91.23 acres.
- A surety for onsite forest retention @ \$0.20/sf for 2,594,869 sf. = \$518,974.00 and On-site afforestation @ \$0.50/sf for 1,379,110 sf. = \$689,555.00 is required. Total surety amount for the entire subdivision = \$1,208,529.00
- The forest conservation provided with Phase One are as follows:
 99.57 total retention acres/160 total units = 0.3723 (22 units x 0.3723 = 8.19 ac.)
 3.66 total planting acres/160 total units = 0.1979 (22 units x 0.1979 = 4.35 ac.)
- A surety for onsite forest retention @ \$0.20/sf for 3,567,756 sf. = \$713,551.00 and On-site afforestation @ \$0.50/sf for 1,094,806 sf. = \$547,403.00 is required. Total surety amount for this submission = \$1,260,954.00
- The forest conservation surety in the amount of \$166,094.00 is to be paid as part of the dpw developer's agreement.

LEGEND

- Existing Contours
- Wetland Limits
- Wetland/Stream Buffer
- Proposed Contours
- Forest Conservation Easement (Retention Area)
- Forest Conservation Easement To Be Planted
- NON-CREDITED RETENTION Forest Conservation Easement
- Forest Conservation Sign
- TP Tree Protection Fence
- Limits Of Floodplain
- Proposed Tree Line

FOREST CONSERVATION PLAN WALNUT CREEK PHASE ONE

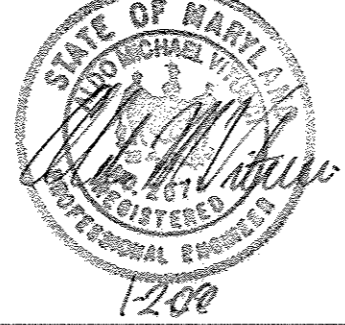
LOTS 1 THRU 22
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'

TAX MAP No. 2B GRID Nos. 4, 5, 10-12, 17, and 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 14 OF 22

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS

MD DNR Qualified Professional
 USACOE Wetland Delineator
 Certification # WDCP230000100448
 JOHN P. CANOLES 1/2/08



PLAN
 SCALE: 1" = 100'

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET. CHECKED BY J. ORLOFF, PE, REG. NO. 19304. NO-BUILT 07/16

OWNER
 BASELERS, INCORPORATED
 470 ALFRED S. BASSLER
 4994 SHEPPARD LANE
 ELLICOTT CITY, MARYLAND 21042

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 2995 NORTH AVE.
 LISBON, MARYLAND 21765

Note: This Plan Is For Forest Conservation Only.

| No. | Description | Date |
|-----|---|---------|
| 1 | Revise L.P.S. And Added B.G.+E. Access Easement | 8/30/12 |
| | Revisions | |

Willa Z. ... 1-14-08 DATE

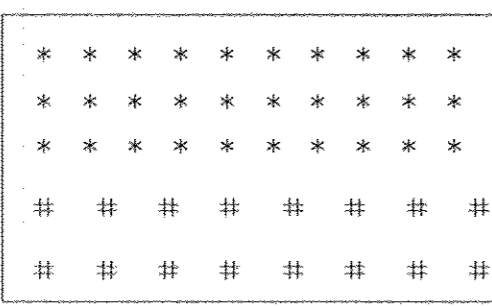
Chief, Bureau of Highways ... 1/22/08 DATE

Chief, Division of Land Development ... 1/27/08 DATE

Planting Notes:

Planting units defined by the spacing requirements established in the FCA Manual. One plant unit is defined as 1 seedling or whip without shelter.

PATTERN SPACING DIAGRAM



* - whip w/shelter 11' on center spacing
- 1" caliper tree 15' on center spacing

Planting/Soil Specifications

- 1. Installation of bareroot plant stock shall take place between March 15 - April 20...

Sequence of Construction

- 1. Sediment control shall be installed in accordance with general construction plan for site.

Maintenance of Plantings

- 1. Maintenance of plantings shall last for a period of 2 years.

Guarantee Requirements

- 1. A 75 percent survival rate of forestation plantings will be required at the end of 2 growing seasons.

Surety for Forestation

- 1. The Surety shall post a surety bond, letter of credit to ensure that forestation plantings are completed.

Planting Notes

When possible, plants shall be installed within 24 hours of delivery. If installation cannot be performed within this time frame, plant stock shall be watered and protected from desiccation.

FCE Planting Area # 3 - 1.96 acres

Planting units required 1372 (686 whips)
Planting units provided 1372 (686 whips and 18 trees)

Table with columns: Qty, Species, Size, Spacing, Total FCA Units. Lists various tree species like Acer rubrum, Quercus alba, etc.

1" CAL. TREES = 200/ACRE (18 TREES/200 = 0.09 AC.)
WHIPS w/shelters = 350/ACRE = 350 x 1.87 AC. = 654.5 WHIPS

FCE Planting Area # 5 - 0.70 acres

Planting units required 490 (245 whips)
Planting units provided 490 (224 whips and 12 trees)

Table with columns: Qty, Species, Size, Spacing, Total FCA Units. Lists various tree species like Acer rubrum, Quercus alba, etc.

1" CAL. TREES = 200/ACRE (12 TREES/200 = 0.06 AC.)
WHIPS w/shelters = 350/ACRE = 350 x 0.64 AC. = 224 WHIPS

FCE Planting Area # 6 - 1.69 acres

Planting units required 1183 (591.5 whips)
Planting units provided 1183 (560 whips and 18 trees)

Table with columns: Qty, Species, Size, Spacing, Total FCA Units. Lists various tree species like Acer rubrum, Quercus alba, etc.

1" CAL. TREES = 200/ACRE (18 TREES/200 = 0.09 AC.)
WHIPS w/shelters = 350/ACRE = 350 x 1.60 AC. = 560 WHIPS

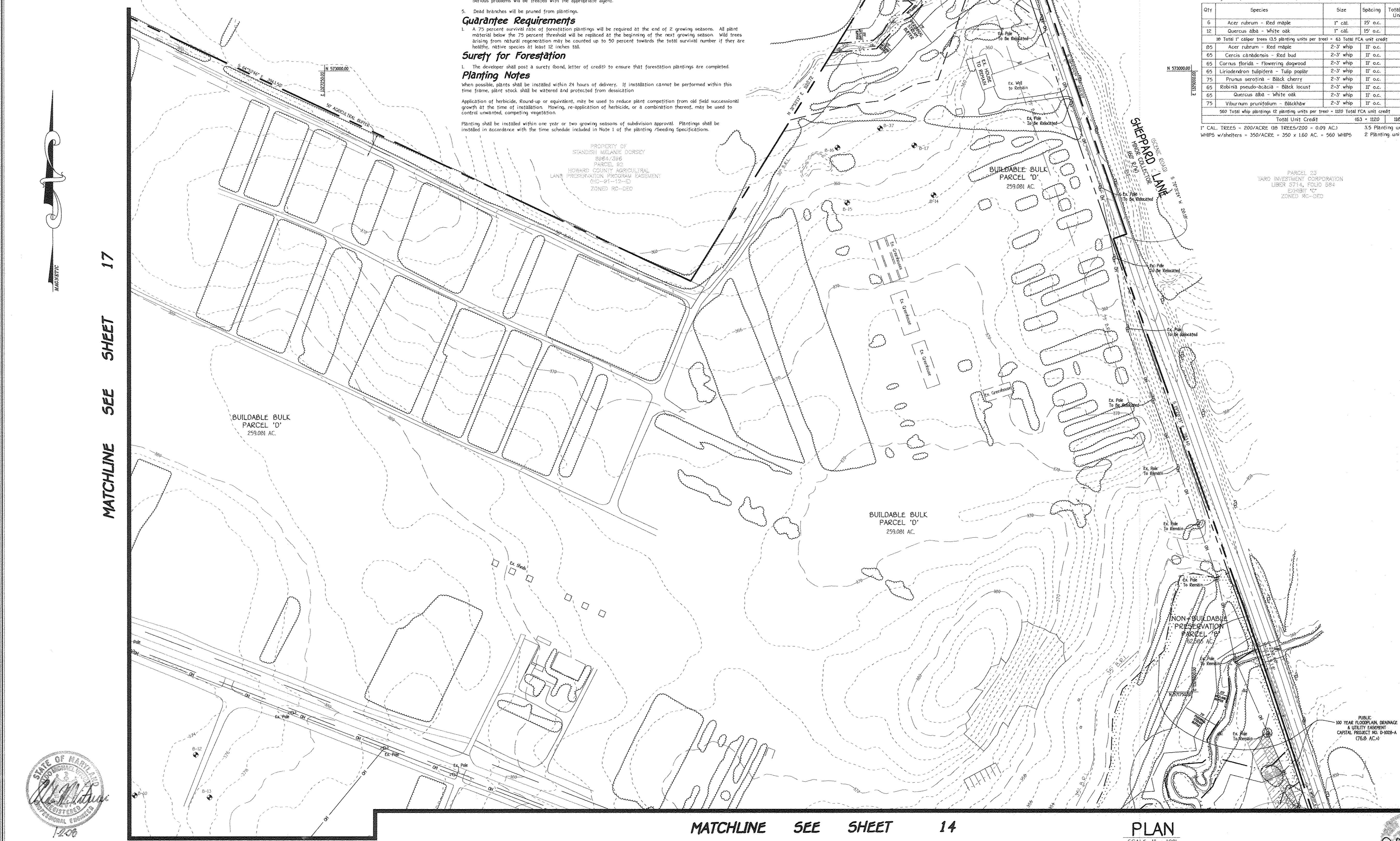
FOREST CONSERVATION DATA (Phase One)

Table with columns: EASEMENT NO., CREDITED RETENTION AREA, PLANTING AREA, NON-CREDITED RETENTION AREA, TOTAL EASEMENT AREA.

FOREST CONSERVATION WORKSHEET (For the entire Walnut Creek subdivision)

Large table for forest conservation calculations with columns: NET TRACT AREA, ACRES, and various sub-sections (A through S).

FOREST CONSERVATION PLAN WALNUT CREEK PHASE ONE. Includes project details, owner/developer info, and a signature.



17 MATCHLINE SEE SHEET

MATCHLINE SEE SHEET 14

PLAN SCALE: 1" = 100'



FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS

Eco-Science Professionals, Inc. CONSULTING ECOCOLOGISTS

MD DNR Qualified Professional USACOE Wetland Delimited Certification: WDCP93M00600448

OWNER BASSLES, INCORPORATED 4994 SHEPPARD LANE ELLICOTT CITY, MARYLAND 21042

DEVELOPER HERITAGE LAND DEVELOPMENT 1990 NORTH AVE. LISBON, MARYLAND 21765

NOTE: THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.

Signature and date: AS-BUILT 8/18/16

APPROVED: DEPARTMENT OF PUBLIC WORKS
Walter R. Wells 1-14-08
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Harris 1/21/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/21/08 DATE

MATCHLINE SEE SHEET 17



Construction Period Protection Program

- A. Forest Protection Techniques**
1. **Soil Protection Areas (Critical Root Zone)**
 The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface.
 The limit of disturbance (LOD) line depicted on the plan shows the proposed extent of construction activities. Eco-Science Professionals, or another qualified professional designated by the developer, will assist in the field mapping of the LOD to ensure that the Critical Root Zone for the Forest Retention Area is determined in accordance with the In-field Edge Determination Guidelines in Appendix B. Eco-Science Professionals, or another qualified professional, will also assess the condition of the new forest edge to determine if selective thinning or pruning is needed to improve the condition of the edge.
2. **Fencing and Signage**
 All forest retention areas will be protected from unauthorized intrusion by appropriate signage and fencing. Signage and fencing will be installed prior to any construction activity. Installation of these devices will be supervised by Eco-Science Professionals or another qualified professional. Fencing will extend along all LOD lines that occur within 30 feet of existing lines. Signage will be placed along the outer edge of the FCZ every 500 feet. Fencing will consist of three orange mesh fence or super soft fence. See Forest Conservation Plan for detailed specifications.
- B. Pre-Construction Meeting**
 Upon obtaining permits and installation of all signage, a pre-construction meeting will be held between the developer, contractor and appropriate County inspectors. The purpose of the meeting will be to verify that all site protection measures outlined on the FCP are in place, 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 Cleaning**
 All equipment storage, parking, storage facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas shown within the limit of disturbance. Washing of equipment will be prohibited from all forest retention areas. Wastewater resulting from equipment washing will be contained to prevent runoff into wetlands, streams and other environmentally sensitive areas.
- D. Sequence of Construction**
 The following timetable represents the proposed timetable for construction of the proposed project. The construction start date for this project has not been finalized. The actual project start date is predicated on the issuance of all necessary permits and approvals for the project. The items outlined in the Forest Conservation Plan will be enacted upon commencement of the project.
- Below is a sequence of construction:
1. Install all site protection signage, fencing, and sediment control devices.
 2. Hold pre-construction meeting between developer, contractor and County inspectors.
 3. Grade site and construct improvements. Stabilize all disturbed areas in accordance with grading plan.
 4. Remove sediment control. Replace any forest retention signage in poor condition.
 5. Hold post-construction meeting with County inspectors to assure compliance with FCP.
- 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. This will include inspections to ensure that signage is properly maintained and that no unauthorized intrusions have been made into forest retention areas.
- F. Activities Permitted During Construction**
 The forest conservation plan will allow the following activities within forest resources during the construction phase of the project:
1. Passive recreation (birdwatching, hiking, etc.).
- These activities will not damage or negatively impact the forest resources on the property.
- G. 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 all Forest Conservation Easement areas have been properly retained and that all post-construction protection measures (permitted signage) have been installed.

Note: This Plan is for Forest Conservation Only.

| No. | Description | Date |
|-----|--|---------|
| 1 | Revise L.P.B., Parcel 'B' and Added B.G. & E. Easement | 8/30/12 |
| | Revisions | |

Post-Construction Management Plan

- The post-construction management plan will further ensure that all Forest Conservation Easement Areas are maintained. The developer will be responsible for implementation of the post-construction management plan.
- The following items will be incorporated into the plan for the subject property:
- A. Signage**
 Signage indicating the limits of the forest retention areas shall be maintained.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
 ELICOTT CITY, MARYLAND 21042
 410.461.2855

Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS

MD DNR Qualified Professional
 USACOE Wetland Delineator
 Certification # WDCP93MD0610044B
John B. Canoles 1/21/08
 JOHN B. CANOLES

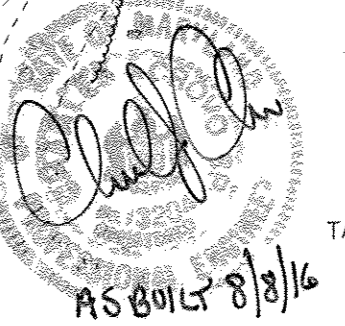


PLAN
 SCALE: 1" = 100'

OWNER
 BASGLES, INCORPORATED
 c/o ALFRED S. BASGLER
 4991 SHEPPARD LANE
 ELICOTT CITY, MARYLAND 21042

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 15950 NORTH AVE.
 L1580N, MARYLAND 21765

NOTE:
 THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
 CHARLES J. GROVE, P.E. PE NO. 19204 AS-BUILT 8/8/16



**FOREST CONSERVATION PLAN
 WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'**

ZONED: RC-DEO & RR-DEO
 TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 16 OF 22

MATCHLINE SEE SHEET 14

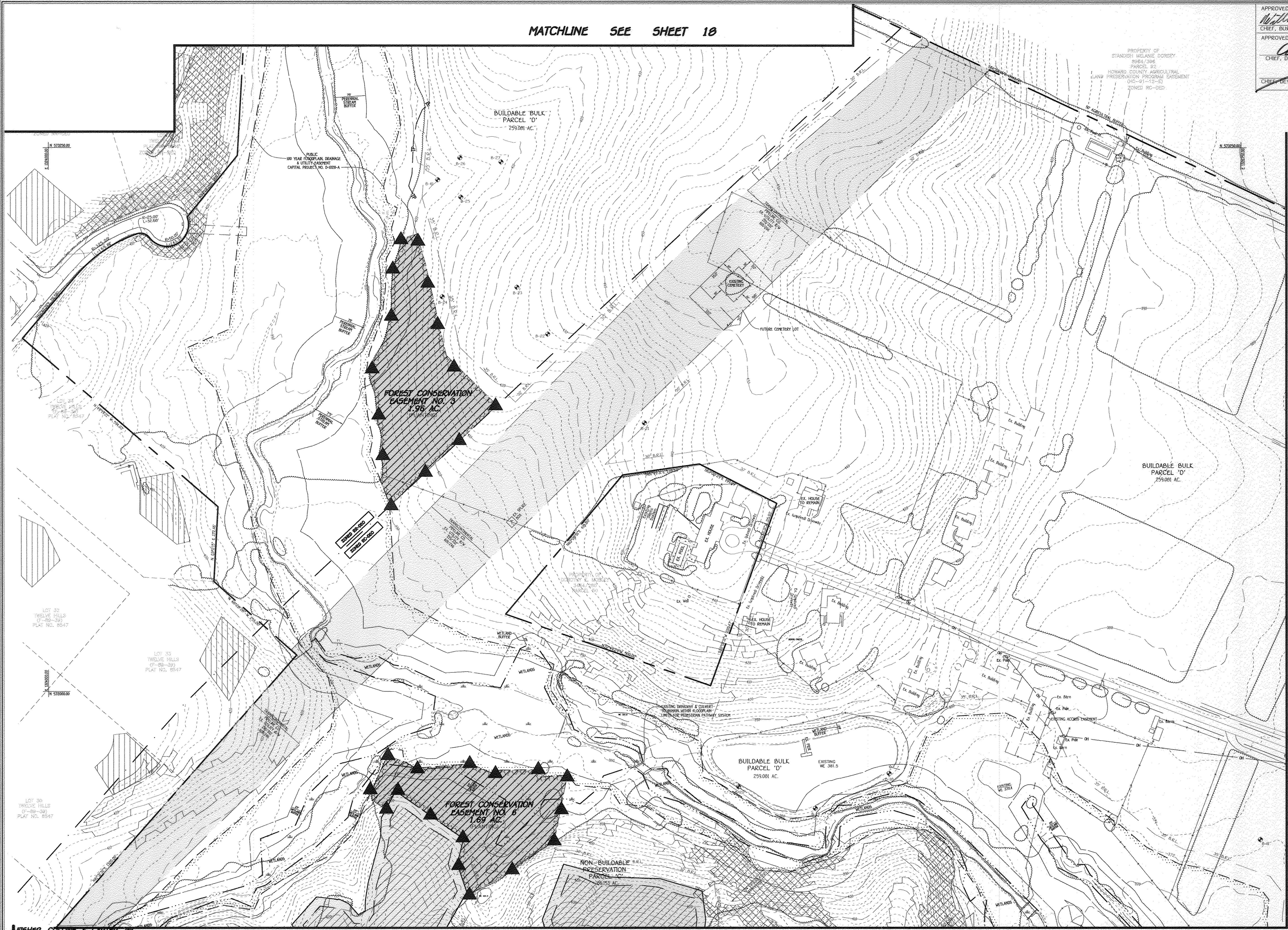
MATCHLINE SEE SHEET 10

APPROVED: DEPARTMENT OF PUBLIC WORKS
Melvin J. Spill 1-14-09
 CHIEF, BUREAU OF HIGHWAYS DATE

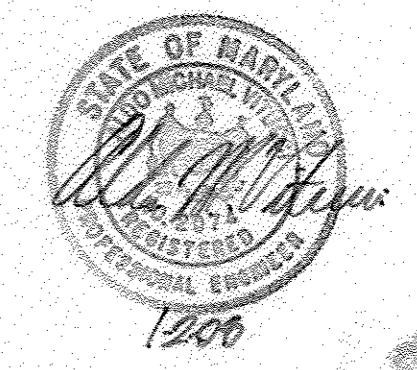
APPROVED: DEPARTMENT OF PLANNING AND ZONING
Andy Kham 1/23/09
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 1-1-09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

PROPERTY OF
 STANDEE MELANIE CORSEY
 5984 200
 PARCEL 92
 HOWARD COUNTY AGRICULTURAL
 LAND PRESERVATION PROGRAM EASEMENT
 (HC-91-12-8)
 ZONED RC-DEO



MATCHLINE SEE SHEET 15



PLAN SCALE: 1" = 100'

[Signature]
 AS BUILT 8/10/16

NOTE:
 THERE IS NO "NO-BUILT" INFORMATION PROVIDED ON THIS SHEET.
 CHARLES J. COOPER, P.E. NO. 19104 NO-BUILT 8/10/16

**FOREST CONSERVATION PLAN
 WALNUT CREEK
 PHASE ONE**
 LOTS 1 THRU 22,
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'
 ZONED RC-DEO & RC-DEO
 TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 17 OF 22

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 4100 461 2000

Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS

MD DNE Qualified Professional
 USACOE Wetland Delicator
 Certification • WDCP93MD06100440
[Signature] 1/6/08
 JOHN P. CANOLES

MATCHLINE SEE SHEET 16

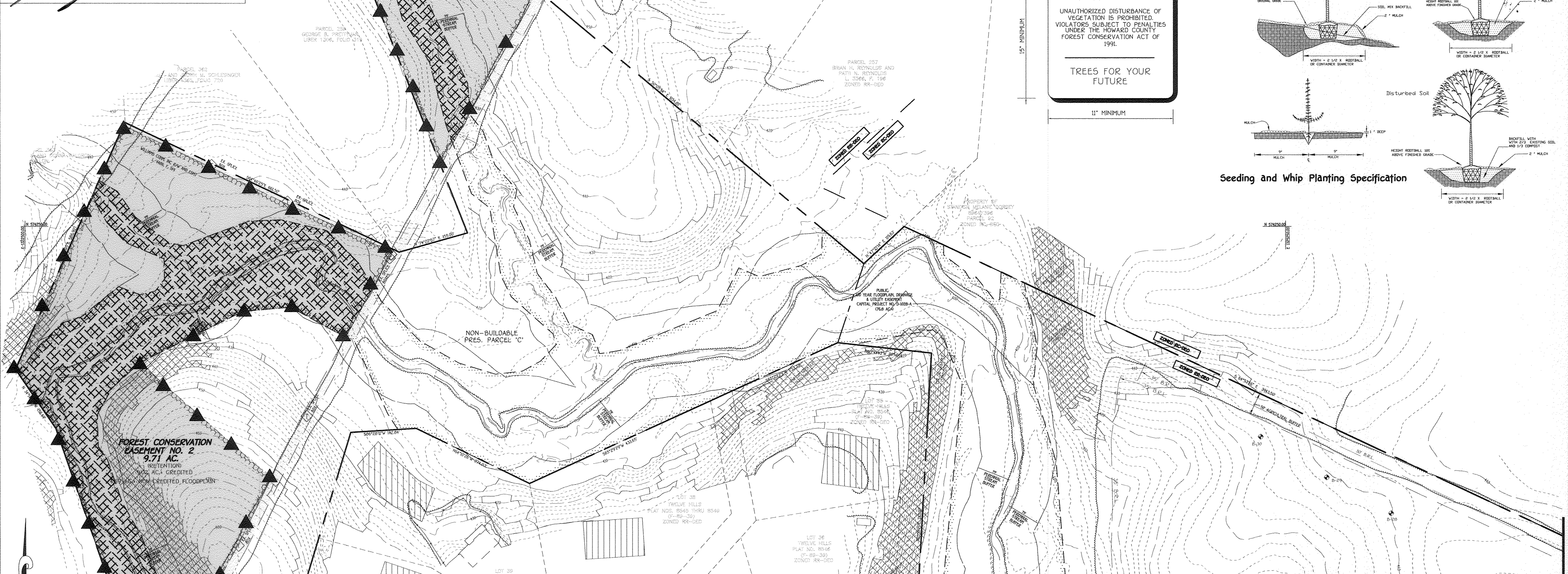
OWNER
 BASSLERS, INCORPORATED
 C/O ALFRED S. BASSLER
 4994 SHEPPARD LANE
 ELLICOTT CITY, MARYLAND 21042

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 19990 NORTH AVE.
 LISBON, MARYLAND 21765

THERE IS NO NO-BUILT INFORMATION ON THIS SHEET F-07-076

APPROVED: DEPARTMENT OF PUBLIC WORKS
William R. Wall 1-14-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
Cindy Hammett 1/22/08
 CHIEF, DIVISION OF LAND DEVELOPMENT
 APPROVED: DEPARTMENT OF PUBLIC WORKS
John P. Canolis 1/15/08
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

FOREST CONSERVATION EASEMENT NO. 1
 2.31 AC.±
 (RETENTION)
 1.77 AC.± CREDITED
 0.54 AC.± NON-CREDITED FLOODPLAIN



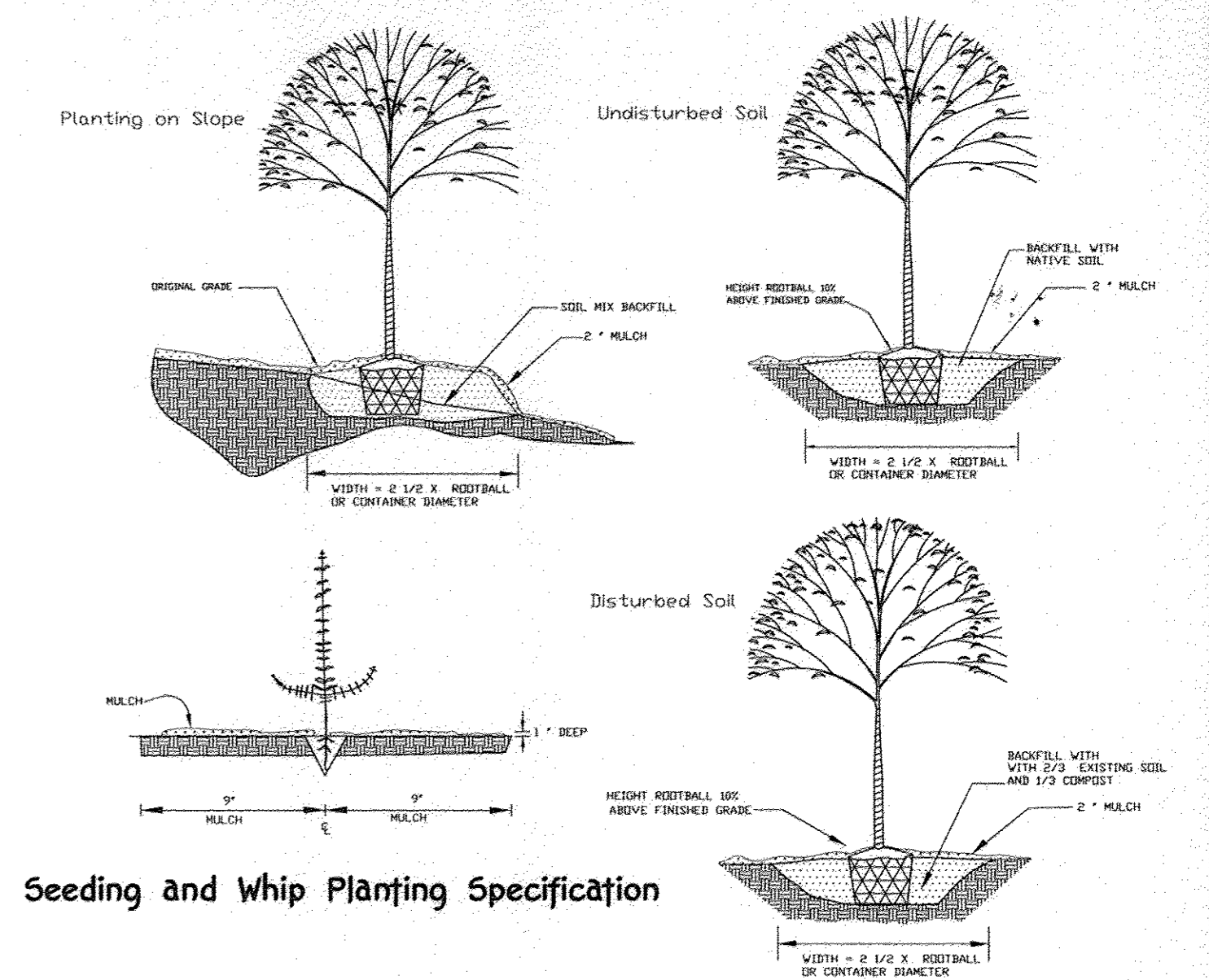
ON-SITE SIGNAGE

FOREST CONSERVATION EASEMENT

UNAUTHORIZED DISTURBANCE OF VEGETATION IS PROHIBITED. VIOLATORS SUBJECT TO PENALTIES UNDER THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1991.

TREES FOR YOUR FUTURE

15" MINIMUM
 11" MINIMUM



Seeding and Whip Planting Specification

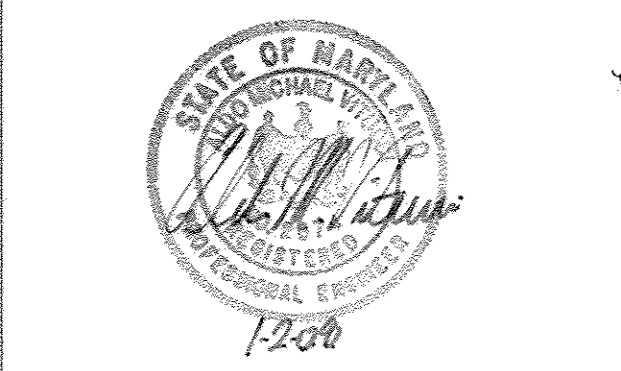
MATCHLINE SEE SHEET 17

PLAN
 SCALE: 1" = 100'

- LEGEND**
- Existing Contours
 - - - Wetland Limits
 - - - Wetland/Stream Buffer
 - Proposed Contours
 - [Hatched Box] Forest Conservation Easement (Retention Area)
 - [Hatched Box] Forest Conservation Easement To Be Planted
 - [Hatched Box] NON-CREDITED RETENTION Forest Conservation Easement
 - ▲ Forest Conservation Signs
 - TP — Tree Protection Fence
 - Limits Of Floodplain

MATCHLINE SEE THIS SHEET

MATCHLINE SEE THIS SHEET



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK • 10272 BAITORRE NATIONAL PARK
 ELLETT CITY, MARYLAND 21042
 410.461.2955

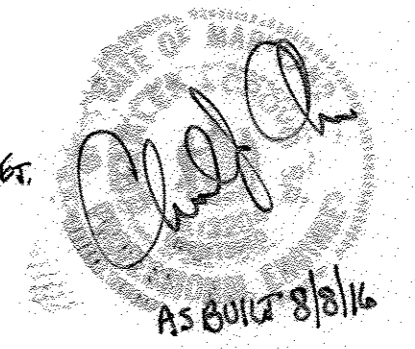
Eco-Science Professionals, Inc.
 CONSULTING ECOLOGISTS

MD DNR Qualified Professional
 USACOE Wetland Delinquent
 Certification • WDCP93M0061004418
John P. Canolis 1/15/08
 JOHN P. CANOLIS

OWNER
 BASSLERS, INCORPORATED
 c/o ALFRED S. BASSLER
 4994 SHEPPARD LANE
 ELLETT CITY, MARYLAND 21042

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 15950 NORTH AVE.
 LISBON, MARYLAND 21765

NOTE:
 THERE IS NO "AS-BUILT" INFORMATION PROVIDED ON THIS SHEET.
 CHARLES J. CRAVO, P.E. PE NO. 19202 AS-BUILT 01/07/06



FOREST CONSERVATION PLAN
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'
 ZONED: RC-DEO & RR-DEO
 TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 18 OF 22

THERE IS NO AS-BUILT INFORMATION ON THIS SHEET

| | | |
|-----|--|---------|
| 2 | AS-BUILT | 8/10/16 |
| 1 | Revise Storm Drain Pipe Material & Added Bq+E Easement | 8/30/12 |
| No. | Description | Date |
| | Revisions | |

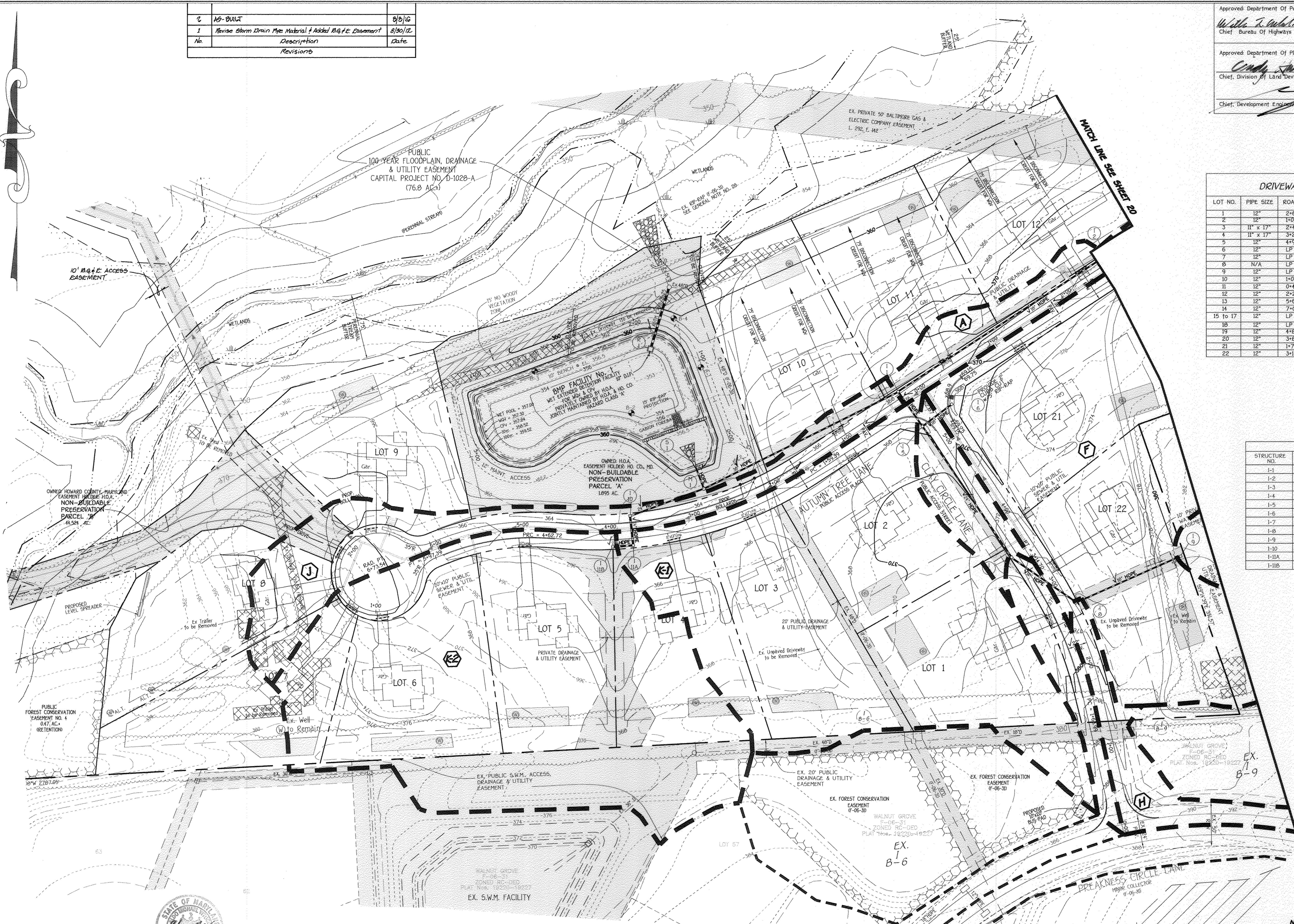
Approved: Department of Public Works
Walter R. Curbish 1-14-08
 Chief, Bureau of Highways Date

Approved: Department of Planning And Zoning
Cathy Smith 1/14/08
 Chief, Division of Land Development Date

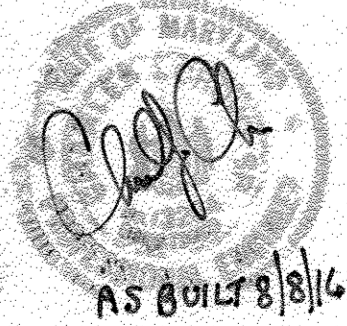
[Signature] 1/14/08
 Chief, Development Engineering Division Date

| LOT NO. | PIPE SIZE | ROAD STA. & GRADE | ROAD NAME | REMARKS |
|----------|-----------|----------------------|------------------|-------------|
| 1 | 12" | 2+63 @ 5% | Clay Circle Lane | Q = 0.9 cfs |
| 2 | 12" | 1+07 @ 1.5% | Autumn Tree Lane | Q = 0.7 cfs |
| 3 | 11" x 17" | 2+41 @ 1.5% | Autumn Tree Lane | Q = 4.2 cfs |
| 4 | 11" x 17" | 3+29 @ 1.5% | Autumn Tree Lane | Q = 3.3 cfs |
| 5 | 12" | 4+98 @ 2.5% | Autumn Tree Lane | Q = 3.0 cfs |
| 6 | 12" | LP 0+93 @ 2.5% | Autumn Tree Lane | Q = 0.6 cfs |
| 7 | 12" | LP 1+25 @ 0.6% | Autumn Tree Lane | Q = 0.5 cfs |
| 8 | N/A | LP 1+57 @ High Point | Autumn Tree Lane | N/A |
| 9 | 12" | LP 2+30 @ 2.5% | Autumn Tree Lane | Q = 0.7 cfs |
| 10 | 12" | 1+06 @ 1.5% | Autumn Tree Lane | Q = 0.8 cfs |
| 11 | 12" | 0+42 @ 1.5% | Baslers Way | Q = 2.5 cfs |
| 12 | 12" | 2+29 @ 1.5% | Baslers Way | Q = 0.8 cfs |
| 13 | 12" | 5+63 @ 1.7% | Baslers Way | Q = 0.5 cfs |
| 14 | 12" | 7+03 @ 2.5% | Baslers Way | Q = 0.8 cfs |
| 15 to 17 | 12" | LP 1+09 @ 2.5% | Baslers Way | Q = 1.0 cfs |
| 18 | 12" | LP 2+54 @ 2.5% | Baslers Way | Q = 2.2 cfs |
| 19 | 12" | 4+93 @ 6.7% | Baslers Way | Q = 1.2 cfs |
| 20 | 12" | 3+83 @ 6.7% | Baslers Way | Q = 2.8 cfs |
| 21 | 12" | 1+77 @ 1.5% | Baslers Way | Q = 1.0 cfs |
| 22 | 12" | 3+15 @ 0.6% | Clay Circle Lane | Q = 1.0 cfs |

| STRUCTURE NO. | DRAINAGE AREA | AREA | C | ZONED | % IMP. |
|---------------|---------------|----------|------|--------|--------|
| I-1 | A | 0.31 AC. | 0.44 | RC-DEO | 28% |
| I-2 | B | 0.20 AC. | 0.49 | RC-DEO | 35% |
| I-3 | C | 1.88 AC. | 0.34 | RC-DEO | 12% |
| I-4 | D | 1.89 AC. | 0.37 | RC-DEO | 17% |
| I-5 | E | 0.25 AC. | 0.41 | RC-DEO | 23% |
| I-6 | F | 4.94 AC. | 0.30 | RC-DEO | 6% |
| I-7 | G | 0.25 AC. | 0.51 | RC-DEO | 38% |
| I-8 | H | 0.66 AC. | 0.52 | RC-DEO | 38% |
| I-9 | J | 5.32 AC. | 0.39 | RC-DEO | 20% |
| I-10 | I | 0.89 AC. | 0.50 | RC-DEO | 36% |
| I-11A | K-1 | 2.10 AC. | 0.48 | RC-DEO | 33% |
| I-11B | K-2 | 3.08 AC. | 0.28 | RC-DEO | 4% |

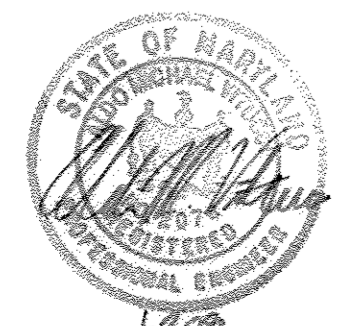


I HEREBY CERTIFY BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS
 CHARLES J. ORR, JR., PE NO 18224 AS-BUILT 8/16



AS-BUILT 8/16
STORM DRAIN DRAINAGE AREA MAP
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'
 ZONED: RC-DEO & RC-DEO
 TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 19 OF 22

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21117
 410-461-2905



PLAN
 SCALE: 1" = 50'

OWNER: BASLERS, INCORPORATED
 410 ALFRED S. BASLERS
 4994 SHEPPARD LANE
 ELLICOTT CITY, MARYLAND 21142

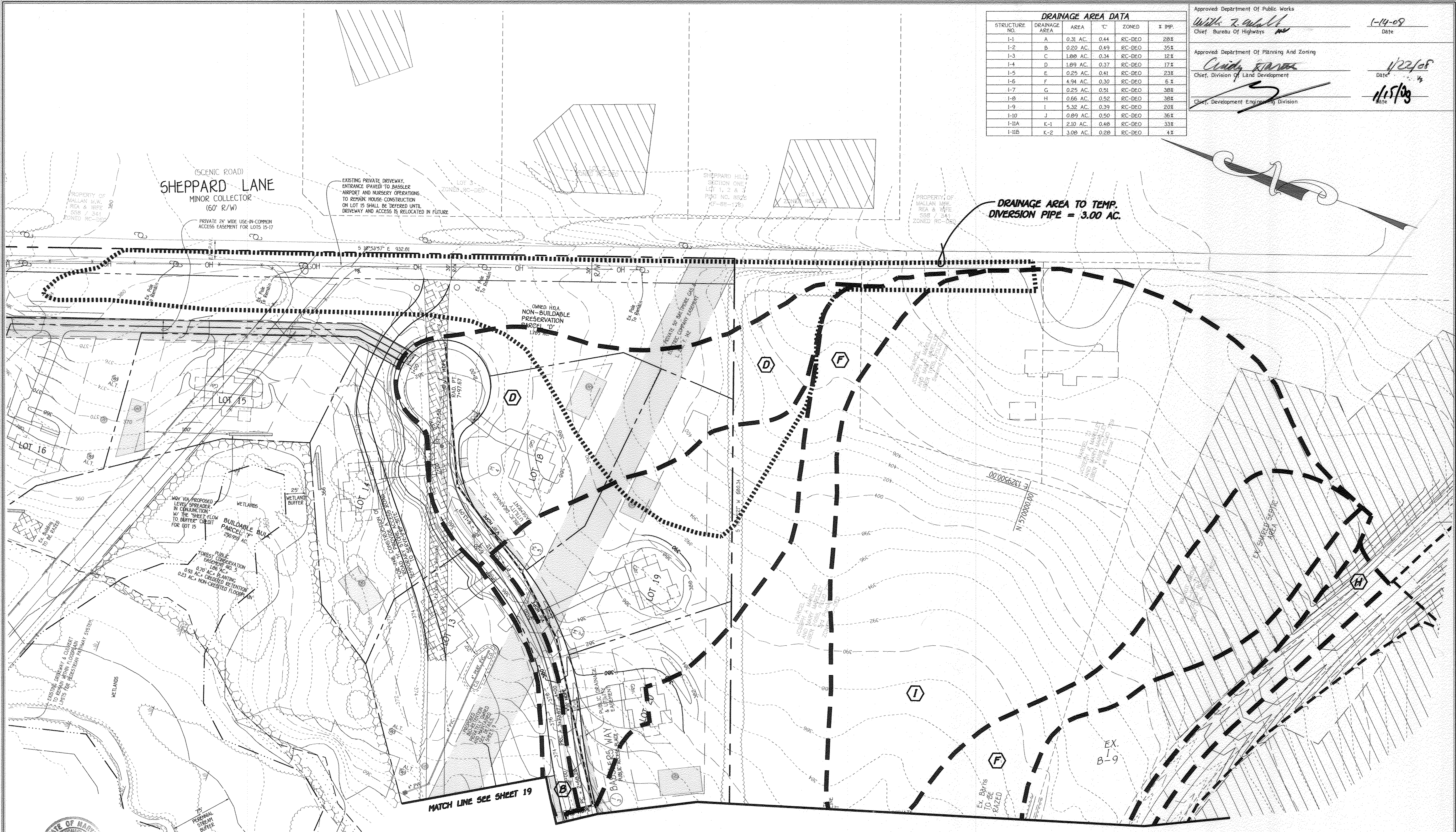
DEVELOPER: HERITAGE LAND DEVELOPMENT
 19960 NORTH AVE.
 LISBON, MARYLAND 21765

| DRAINAGE AREA DATA | | | | | | |
|--------------------|---------------|----------|------|--------|--------|--|
| STRUCTURE NO. | DRAINAGE AREA | AREA | 'C' | ZONED | I IMP. | |
| I-1 | A | 0.31 AC. | 0.44 | RC-DEO | 28% | |
| I-2 | B | 0.20 AC. | 0.49 | RC-DEO | 35% | |
| I-3 | C | 1.00 AC. | 0.34 | RC-DEO | 12% | |
| I-4 | D | 1.09 AC. | 0.37 | RC-DEO | 17% | |
| I-5 | E | 0.25 AC. | 0.41 | RC-DEO | 23% | |
| I-6 | F | 4.94 AC. | 0.30 | RC-DEO | 6% | |
| I-7 | G | 0.25 AC. | 0.51 | RC-DEO | 30% | |
| I-8 | H | 0.66 AC. | 0.52 | RC-DEO | 30% | |
| I-9 | I | 5.32 AC. | 0.39 | RC-DEO | 20% | |
| I-10 | J | 0.89 AC. | 0.50 | RC-DEO | 36% | |
| I-11A | K-1 | 2.10 AC. | 0.49 | RC-DEO | 33% | |
| I-11B | K-2 | 3.09 AC. | 0.28 | RC-DEO | 4% | |

Approved: Department Of Public Works
Willie Z. Galloway
 Chief, Bureau Of Highways
 Date: 1-14-09

Approved: Department Of Planning And Zoning
Cathy R. Rader
 Chief, Division Of Land Development
 Date: 1/22/08

Chief, Development Engineering Division
 Date: 1/15/08



STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 MD 100 - 2009

| No | Description | Date |
|-----------|-----------------------------------|---------|
| 1 | AS-BUILT | 8/8/16 |
| 1 | Revised Storm Drain Pipe Material | 8/30/12 |
| Revisions | | |

PLAN
 SCALE: 1" = 50'

OWNER
 BASSLER, INCORPORATED
 C/O ALFRED S. BASSLER
 4994 SHEPPARD LANE
 ELLICOTT CITY, MARYLAND 21042

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 19590 NORTH AVE.
 LISBON, MARYLAND 21765

I HEREBY CERTIFY BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
 CHARLES J. ORR, P.E. REG. NO. 13024 MD-BUILT 07/10

Charles J. Orr
 AS BUILT 8/8/16

STORM DRAIN DRAINAGE AREA MAP
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'
 ZONED: RC-DEO & RR-DEO
 TAX MAP No. 28 GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 20 OF 22

APPROVED: DEPARTMENT OF PUBLIC WORKS
With 2. walls 1-14-08
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Linda Hamel 1/23/08
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

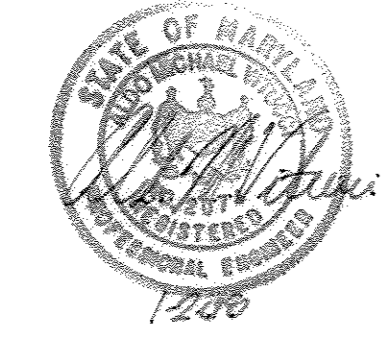
CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/5/08
 DATE

N 574500
 E 1321000
 175107.9502
 (Meters)

N 574500
 E 1331000
 175107.9502
 (Meters)



N 570500
 E 1331000
 173808.7477
 (Meters)



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 1075 BALTIMORE NATIONAL PIKE
 ELLETTT CITY, MARYLAND 21042
 4100 861-2092

OWNER
 BASSLERS, INCORPORATED
 c/o ALFRED S. BASSLER
 4994 SHEPARD LANE
 ELICOTT CITY, MARYLAND 21042

DEVELOPER
 HERITAGE LAND DEVELOPMENT
 1990 NORTH AVE.
 LISBON, MARYLAND 21765

PLAN
 SCALE: 1" = 300'

NOTE:
 THERE IS NO "NO-BUILT" INFORMATION PROVIDED ON THIS SHEET.
 CHARLES J. ORDO, JR., PE NO. 19204 NO-BUILT 09/16



EXISTING STRUCTURE LOCATION PLAN
WALNUT CREEK
 PHASE ONE
 LOTS 1 THRU 22
 NON-BUILDABLE PRESERVATION PARCELS 'A' - 'D'
 & BUILDABLE BULK PARCELS 'E' & 'F'
 ZONED: RC-DEO & R8-DEO
 TAX MAP No. 2B GRID Nos. 4, 5, 10-12, 17, AND 18 PARCEL No. 49
 FIFTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 DATE: DECEMBER 28, 2007
 SHEET 21 OF 22

