GENERAL NOTES

1.) THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY WORK.

2.) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE

3.) THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.

4.) THE SUBJECT PROPERTY IS ZONED POR PER THE 10-06-2013 COMPREHENSIVE ZONING 5.) COORDINATES BASED ON NAD '83, MARYLAND COORDINATE SYSTEM AS PROJECTED BY

HOWARD COUNTY GEODETIC CONTROL STATIONS 3511 AND 3512 6.) TRACT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED BY BÉNCHMARK ENGINEERING, INC. APRIL, 2015.

THE EXISTING TOPOGRAPHY ON—SITE SHOWN WAS FIELD SURVEYED BY BENCHMARK ENGINEERING, INC. IN APRIL 15, 2015 WITH 2-FOOT CONTOUR INTERVALS.

8.) A NOISE STUDY WAS PREPARED BY W.T. BALLARD, DATED MARCH, 2008 AND APPROVED ON JUNE 9, 2008. A REVISED STUDY WAS PREPARED BY MARS GROUP, INC. DATED APRIL 8, 2015. A SECOND REVISION WAS PREPARED BY MARS GROUP, INC. DATED AUGUST 4, 2015 AND APPROVED ON Sept. 24, 2015.

9.) AN APFO TRAFFIC STUDY WAS PREPARED BY LEE CUNNINGHAM & ASSOCIATES, INC. DATED FEBRUARY, 2005 AND APPROVED UNDER SP-05-008. IT WAS AMENDED BY TRAFFIC CONCEPTS IN JUNE, 2007 AND THE TRAFFIC GROUP ON JUNE 6, 2008 AND APPROVED ON JULY 29. 2008. A REVISED TRAFFIC IMPACT STUDY WAS PREPARED BY THE TRAFFIC GROUP IN JANUARY 2012 AND SUBMITTED WITH SDP-12-015. THE REPORT WAS APPROVED ON JUNE 16, 2015. 10.) THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.

11.) WATER IS PUBLIC. THE CONTRACT NUMBER FOR PHASE 1 IS 34-4373-D.

THE CONTRACT NUMBER FOR PHASE 2 IS 34-4739-D. THE CONTRACT NUMBER FOR PHASE 3 IS 34-4927-D. 12.) SEWER IS PUBLIC. THE CONTRACT NUMBER FOR PHASE 1 IS 34-4373-D. THE CONTRACT NUMBER FOR PHASE 2 IS 34-4739-D. THE CONTRACT NUMBER FOR PHASE 3 IS 34-4927-D.

13.) THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE PUBLIC WATER AND/OR SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS, THEREOF, EFFECTIVE 3-9-2016, ON WHICH DATE DEVELOPER AGREEMENT #34-4977 WAS FILED AND ACCEPTED. WATER AND SEWER CONTRACT #34-4927-D WAS APPROVED ON AUGUST 24, 2015.

14.) WETLAND AND FOREST STAND DELINEATIONS WERE CONDUCTED BY AB CONSULTANTS, INC. AND WERE SUBMITTED AND APPROVED UNDER S-05-008. BUILDABLE PARCEL "A" CONTAINS NO WETLANDS, STREAMS, THEIR BUFFERS OR STEEP SLOPES.

15.) THE 100YR FLOODPLAIN STUDY WAS PREPARED BY KIDDIE CONSULTANTS, INC. DATED JUNE 23, 1978 FOR HOWARD COUNTY, MARYLAND AND UPGRADED BY AB CONSULTANTS, INC. FOR SP-08-002 AND APPROVED ON JUNE 9, 2008.

16.) NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S), THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS OR 100YR FLOODPLAIN EXCEPT FOR THE CONSTRUCTION OF THE PATHWAY AS PERMITTED BY THE APPROVAL OF WP-12-029.

17.) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON THESE LOTS 18.) THERE ARE NO HISTORIC SITES/FEATURES LOCATED ON THESE LOTS.

19.) THE 65 dBA NOISE CONTOUR LINE DRAWN ON THIS DEVELOPMENT PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992. AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 dBA NOISE EXPOSURE. THE 65 dBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT 20.) STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT ACT OF 2007. ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN COMPLETED BY THE USE OF MICRO-BIORETENTION (M-6), LANDSCAPE INFILTRATION (M-3), DRY WELLS (M-5) POROUS PAVEMENT (A-2) AND GRASS SWALE (M-8) FACILITIES. ALL ECP PRACTICES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A. ECP-11-058 WAS APPROVED FOR THIS PARCEL ON 6-21-11.

21.) FINANCIAL SURETY FOR THE PERIMETER LANDSCAPING, PRIVATE STREET TREES, SWM AND UNIT PLANTINGS IN ACCORDANCE WITH THE LANDSCAPE MANUAL SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$27,450.00 FOR 78 SHADE TREES, 21 EVERGREENS, & 30 SHRUBS POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS

22.) THE TOTAL FOREST CONSERVATION OBLIGATION HAS BEEN MET BY SDP-12-015 BY THE ON-SITE RETENTION OF 4.51 AC. OF NET TRACT AREA FOREST WITHIN A FOREST CONSERVATION EASEMENT AND THE OFFSITE PLANTING OF 5.38 ACRES WITHIN THE FOREST MITIGATION BANK LOCATED WITHIN THE PRESERVE AT CLARKSVILLE SUBDIVISION (F-06-072). FINANCIAL SURETY FOR THE OFF-SITE PLANTING WAS POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT FOR F-06-072.

23.) DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:

a) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).

b) SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN.)c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.

d) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING). e) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO

MORE THAN 1 FOOT DEPTH OVER DRIVEWAY. f) STRUCTURE CLEARANCES - MINIMUM 12 FEET. a) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.

24.) IN ACCORDANCE OF SECTION 128.0 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS, PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT OR REAR YARD SETBACK. ALSO PER SECTION 128.0.A.1 OF THE ZONING REGULATIONS, THE OPEN PORCH OF THE MODELS SHOWN ON LOTS 164 AND 165 CAN PROJECT INTO THE REQUIRED BUILDING TO BUILDING

25.) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF

26.) THE PURPOSE OF OPEN SPACE LOT 175 IS FOR PRIVATE ACCESS TO THE LOTS AND FOR PRIVATE STORMWATER MANAGEMENT ESD PRACTICES AND FOR RECREATIONAL PURPOSES. THIS LOT IS PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. 27.) WP-12-029. A REQUEST TO WAIVE SECTION 16.120(C)(4), TO NOT BE REQUIRED TO PROVIDE ANY OF THE REQUIRED MINIMUM "SINGLE FAMILY ATTACHED" LOT FRONTAGE OF 15 FEET ON AN APPROVED PUBLIC ROAD AND, TO BE PERMITTED TO HAVE THE "SINGLE FAMILY ATTACHED" LOTS FRONT ON A PRIVATE ROAD EXCEEDING A LENGTH OF 200 FEET MEASURED FROM THE EDGE OF A PUBLIC ROAD RIGHT-OF-WAY WAS APPROVED ON OCTOBER 6, 2011

WITH THE FOLLOWING CONDITIONS:

1. A HOMEOWNERS ASSOCIATION SHALL BE CREATED FOR THIS DEVELOPMENT IN ACCORDANCE WITH SUBDIVISION SECTION 16.121(c). 2. THE PRIVATE ROADS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE DED, DPW AND DFRS.

3. THE PRIVATE ROADS SHALL BE MAINTAINED BY THE HOA AND THE OWNERS OF BUILDABLE BULK PARCEL 'A'. 4. SIDEWALKS SHALL BE PROVIDED ALONG BOTH SIDES OF ALL PRIVATE STREETS, AND

ALONG CEDAR LANE, IN ACCORDANCE WITH THE REQUIREMENTS OF SUBDIVISION SECTION

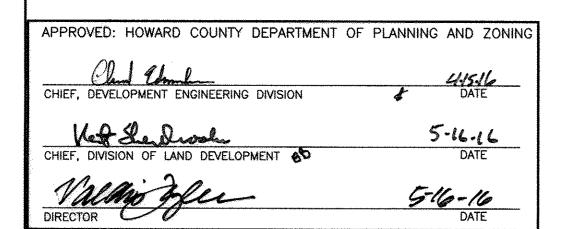
5. STREET TREES SHALL BE PROVIDED ALONG BOTH SIDES OF ALL PRIVATE ROADS, AND CEDAR LANE, IN ACCORDANCE WITH THE REQUIREMENTS OF SUBDIVISION SECTION 16.124 AND THE LANDSCAPE MANUAL 6. SUBJECT TO THE RECORDATION OF F-12-025

28.) TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

29.) STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN AND STREET LIGHT

30.) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2.5" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

31.) ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.



32.) PER ZONING, 10% OF ALL UNITS ON THIS PLAN, RESUBDIVISION OF BULK PARCEL 'A', MUST BE MODERATE INCOME HOUSING UNITS (M.I.H.U). THIS AMOUNTS TO 3 UNITS (10% OF 22) PER 32.) PER ZONING, 10% OF ALL UNITS ON THIS PLAN, RESUBDIVISION OF BULK PARCEL 'A', MUST BE MODERATE INCOME HOUSING UNITS (M.I.H.U). THIS AMOUNTS TO 3 UNITS (10% OF 22) PER SECTION 115.0.E.3(C) OF THE HOWARD COUNTY ZONING REGULATIONS. THE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE DEVELOPER IS PROVIDING THE 3 REQUIRED MODERATE INCOME HOUSING UNITS THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE OF THE PROVIDING THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE OF THE PROVIDING THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE OF THE PROVIDING THROUGH A CERTIFICATE APPROVED RESIDENTIAL SITE OF THROUGH A CERTIFICAT BY THE HOUSING DEPARTMENT PER HOWARD COUNTY CODE, SECTION 13.402(g), ALTERNATIVE OF PROVIDING REHABILITATED EXISTING MODERATE INCOME HOUSING UNITS, AT A RATIO OF 3 MODERATE INCOME HOUSING UNITS PER 1 LOW INCOME HOUSING UNIT. ONE LIHU WILL BE

PROVIDED AT 10472 FAULKNER RIDGE CIRCLE, COLUMBIA MD, 21044. AGREEMENTS WITH THE HOUSING DEPARTMENT HAVE BEEN REORDED WITH THE PINAL PLAT. F-15-093 33.) WP-12-020, A REQUEST TO WAIVE SECTIONS 16.155(a)(2)(ii), 16.1202(a)(3) AND 16.1205(a)(7) TO PROCESS AND USE AN APPROVED GRADING PLAN INSTEAD OF A SITE DEVELOPMENT PLAN FOR THE MASS GRADING OF THE SITE, TO TEMPORARILY DEFER COMPLIANCE WITH THE REQUIREMENTS OF THE FOREST CONSERVATION ACT UNTIL THE SITE DEVELOPMENT PLAN STAGE, AND TO GRANT PERMISSION FOR THE REMOVAL OF 13

EXISTING SPECIMEN TREES WAS APPROVED ON SEPTEMBER 14, 2011 WITH THE FOLLOWING 1. COMPLIANCE WITH THE REQUIREMENT OF THE FOREST CONSERVATION ACT OF

HOWARD COUNTY FOR THIS PROJECT SHALL BE DEFERED TEMPORARILY TO THE FUTURE SITE DEVELOPMENT PLAN FOR THIS SITE. 2. COMPLIANCE WITH THE MSHA COMMENTS INCLUDED WITH THE DED COMMENTS

3. COMPLIANCE WITH THE DRP COMMENTS DATED 09/09/2011. 4. THE SUBMISSION AND ISSUANCE OF ALL APPLICABLE PERMITS REQUIRED BY THE

34.) IN ACCORDANCE WITH SECTION 133.0.D.2.c. OF THE ZONING REGULATIONS, 2.3 PARKING SPACES PER UNIT ARE REQUIRED FOR A TOTAL OF 51 SPACES REQUIRED. EACH UNIT WILL PROVIDE A MINIMUM OF 2 GARAGE PARKING SPACES AND THE SITE WILL PROVIDE 7 OVERFLOW SPACES FOR A TOTAL OF 51 ON SITE SPACES PROVIDED.

35.) TRASH COLLECTION: TRASH COLLECTION FOR THIS SUBDIVISION SHALL BECOME PUBLIC ON THE JULY 1ST AFTER ALL CONSTRUCTION IS COMPLETE. UNTIL SUCH TIME, THE

36.) A REQUEST FOR RECONSIDERATION OF WP-12-029, A REQUEST TO WAIVE SECTION 16.115(c)(2), TO BE PERMITTED TO CONSTRUCT A PAVED PATHWAY WITHIN THE ONSITE FLOODPLAIN, AND; 16.116(a)(2)(ii), TO BE PERMITTED TO CONSTRUCT A PAVED PATHWAY WITHIN THE ONSITE 75' STREAM BUFFER, AND: 16.120(c)(1), TO NOT BE REQUIRED TO PROVIDE ANY OF THE REQUIRED MINIMUM LOT FRONTAGE OF 60 FEET ON AN APPROVED PUBLIC ROAD WHICH PROVIDES ACCESS TO THE PROPERTY FOR THE PROPOSED BULK PARCEL 'A' (ZONED "POR" WITH FRONTAGE ON TWO, EXISTING, VEHICULAR ACCESS RESTRICTED PUBLIC ROADS, CEDAR LANE AND MARYLAND ROUTE 32, AND A PRIVATE ROAD THAT IS INTERNAL TO THE SUBDIVISION), AND; 16.134(a)(1), TO NOT BE REQUIRED TO CONSTRUCT SIDEWALKS ON BOTH SIDES OF ALL STREETS IN THE PROJECT AND ALONG THE PROJECT FRONTAGE WAS APPROVED ON DECEMBER 1, 2011 WITH THE FOLLOWING CONDITIONS:

1. THE PRIVATE ROADS SHALL BE MAINTAINED BY THE HOA AND THE OWNERS OF BUILDABLE BULK PARCEL 'A'.

2. THE SECTION OF PROPOSED PATHWAY SHOWN OUTSIDE OF THE "EXISTING RIGHT-OF-WAY FOR INTERCEPTOR SEWER 1132/129" TO THE SOUTH OF THE ROCK TO BE UTILIZED FOR PROPOSED PATHWAY" ON THE EXHIBIT/PLAN SUBMITTED ON 11/04/2011 FOR THIS WAIVER PETITION RECONSIDERATION SHALL BE RELOCATED SOUTHWARD TO THE NON-FORESTED AREA OF THE "EXISTING RIGHT-OF-WAY FOR INTERCEPTOR SEWER 1132/129".

3. SIDEWALKS SHALL BE PROVIDED ALONG THE PRIVATE ROADS AS SHOWN ON THE EXHIBIT/PLAN SUBMITTED ON 11/04/2011 FOR THIS WAIVER PETITION RECONSIDERATION, WITH THE FOLLOWING ADDITIONAL CONNECTIONS: A. THE PROPOSED SIDEWALK ALONG SOUTH SIDE OF RIVER ROCK WAY SHALL BE

EXTENDED TO CONNECT WITH THE PROPOSED PATHWAY AT THE WEST END OF B. THE PROPOSED SIDEWALK ALONG NORTH SIDE OF GREEN MILL WAY SHALL BE EXTENDED TO CONNECT WITH THE PROPOSED PATHWAY AT THE EAST END OF

THE STREET. 4. THE PROPOSED PATHWAY FROM THE PROPOSED SIDEWALK ALONG THE NORTH SIDE OF PROPOSED SIMPSON MILL ROAD TO THE EXISTING ASPHALT AREA TO THE SOUTH OF HARRIET TUBMAN LANE BRIDGE SHALL BE PROVIDED AS SHOWN ON THE EXHIBIT/PLAN SUBMITTED ON 11/04/2011 FOR THIS WAIVER PETITION RECONSIDERATION

5. ADD A DETAILED NOTE TO THE GENERAL NOTES ON SHEETS 1 OF F-12-025 AND SDP-12-015 THAT INDICATES THIS WAIVER PETITION FILE NUMBER, THE SECTIONS OF THE REGULATIONS, REQUESTS, ACTION, CONDITIONS OF APPROVAL, AND THE

D

R.R.

AS-BUILT NOTES

之

) HORIZONTAL DATUM FOR THIS AS-BUILT

15/BASED ON THE MARYLAND STATE!

REFERENCE SYSTEM NADI 83/ADJ 078

AS PROJECTED FROM HOLCO. GEODETA

COMPROL STATIONS 3511 AND 3512.

CONTROL STATIONS

AND PRISM.

IN ACCORDANCE WITH SECTION 178.0.11 OF ZONING REGULATIONS; SETBLOWS FROM PORT ZONING CLASSIFICATION DOES NOT BECAUSE IT IS PART OF

HE OVERALL DEVELOPMENT AS INDICATED BY

SETBACK FROM THE R-SA-8 20WAG

SECTION 128, O. A. 10 OF THE ZONING

the minimum construction

Engineering Division approved (INCLUDING WIDENING STRIPS)_
a Design Manual Waiver on TOTAL AREA OF SUPPLYSION T

DISTRICT IS NOT APPLICABLE PER

The chief OF Development

Sept. 9, 2016. Inlainer was to

setback between a wall and

the patios on lots 171-174.

reduce from 10 Feet to 8

61.) It has been determined that a

REGOLACTIONS,

VERTICAL DATUM FOR THIS , AS-BUILT

3) THIS AS BUILT WAS PERFORMED BY

BENCHMARK ENGINEERING, INC.

IS HORTH AMERICAN VERTIGAL DATUM

NGVD SO AS PROJECTIED FROM THE ABOVE

MENTIONED HOWARD COUNTY GEODETIC

2.) THE INSTRUMENTS USED IN PERFORMING

THE AS- BUILT WERE A 5" TOTAL STATION

37.) PER THE ZONING REGULATIONS SECTION 115.0.E(5)(b) THE COMMUNITY SHALL INCLUDE RECREATION AND COMMON AREAS FOR RESIDENTS, INCLUDING AT LEAST PATHWAYS AND SEATING AREAS. THIS REGULATION IS COMPLIED WITH BY PROVIDING AN EXPANDED CLUB HOUSE (MINIMUM, 20 SF PER UNIT), 3 BENCHES, A PATIO AND SIDEWALKS THAT LEAD TO THE RECREATION AREAS IN PHASE 1 AND PHASE 2. THE AGE RESTRICTED ADULT HOUSING HOA SHALL HAVE AN OBLIGATION TO MAINTAIN A PORTION OF THE PHASE 1 & 2 PATHWAYS AND RECREATION AREA. THE PATHWAY WITHIN OPEN SPACE LOT 152 IS AVAILABLE TO THE ARAH RESIDENTS FOR RECREATION.

38.) THE HOA DOCUMENTS OF INCORPORATION WERE FILED WITH THE MD STATE DEPARTMENT OF ASSESSMENTS AND TAXATION ON 9/11/2015 DEPARTMENT TO DIGIGISHIS. THE HOA COVENANTS AND RESTRICTIONS WERE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAT, F-15-093, IN THE LAND RECORDS OF HOWARD COUNTY, MD PLATNO. 23776-23778.

40.) THE HOA SHALL BE RESPONSIBLE FOR AGE ENFORCEMENT OF THIS AGE RESTRICTED ADULT COMMUNITY. AGE RESTRICTED COVENANTS AND RESTRICTIONS HAVE BEEN RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MD. F-15-093 PLAT NO. 23176-23178,

41.) THE HOA SHALL BE RESPONSIBLE FOR THE UPKEEP AND MAINTENANCE OF TRASH PADS, LANDSCAPING AND PRIVATE ROADWAYS. NOISE WALLS/FENCES AND RETAINING WALLS. 42.) THIS PLAN IS IN COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

43.) A PRESUBMISSION COMMUNITY MEETING WAS HELD ON MAY 14, 2015 FOR THIS PROJECT.

44.) GARAGE PARKING MAY NOT BE CONVERTED TO LIVING SPACE

45.) POR RESIDENTS CAN REACH CONSTRUCTED PATHWAY BY THE END OF GREEN MILL WAY OR SIMPSON MILL DRIVE PERPENDICULAR FROM RIVER ROCK WAY. THE PATHWAY PROVIDES A LOOP BETWEEN THESE TWO ACCESS POINTS.

46.) EXISTING UTILITIES ARE BASED ON A FIELD RUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. DATED APRIL 2015; WATER/SEWER CONTRACTS 34-4373-D & 34-4739-D AND APPROVED WAY. 47.) ANY DAMAGES TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE

48.) SHC ELEVATIONS SHOWN ARE LOCATED AT THE PROPERTY LINE OR EASEMENT LINE.

49.) FOR DRIVEWAY ENTRANCE DETAILS REFER TO THE HOWARD COUNTY DESIGN MANUAL,

UNIVERSAL DESIGN REQUIREMENTS FOR AGE-RESTRICTED ADULT HOUSING IN HOWARD COUNTY

FOR MULTI-FAMILY APARTMENT OR CONDO DEVELOPMENTS, AN ACCESSIBLE PATH BETWEEN PARKING, DWELLING UNITS, AND COMMON AREAS THAT MEET ADA STANDARDS.

FOR SINGLE FAMILY ATTACHED DEVELOPMENTS, A "NO-STEP" ACCESS TO THE FRONT DOOR ENTRANCE TO ALL DWELLING UNITS AND COMMUNITY BUILDINGS, IF A NO-STEP ENTRANCE IS NOT FEASIBLE, AN ALTERNATE NO-STEP SIDE OR GARAGE ENTRY TO THE FIRST FLOOR MAY BE APPROVED. (A NO-STEP ENTRANCE IS DESIRABLE, BUT NOT REQUIRED AT OTHER ENTRANCES)

36" WIDE FRONT DOOR WITH EXTERIOR LIGHTING AT THE ENTRANCE (EXTERIOR DOORS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF THE EXTERIOR DOOR; THE ILLUMINATION OF THE EXTERIOR LIGHT SHALL BE CONTROLLED FROM INSIDE THE DWELLING UNIT. EXCEPTION: LIGHTS THAT ARE CONTINUOUSLY ILLUMINATED OR AUTOMATICALLY CONTROLLED).

ALL INTERIOR DOORWAYS AT LEAST 32" CLEAR WIDTH IN THE OPEN POSITION (% DOORS

36" WIDE FULLY ACCESSIBLE ROUTE MUST CONNECT THROUGH OUT THE FIRST FLOOR OF THE DWELLING UNIT. THE MAXIMUM VERTICAL FLOOR LEVEL CHANGE IS 1/2 INCH. EXCEPT WHEN A TAPERED THRESHOLD IS USED, THE MAXIMUM HEIGHT IS 1/2" INCH. (40-42" IS

COMPLETE LIVING AREA INCLUDING MASTER BEDROOM & BATH ON FIRST LEVEL (OR ELEVATOR ACCESS IF MULTI-STORY APARTMENTS.

LEVER HANDLES ON EXTERIOR AND INTERIOR DOORS.

VOLUME IV, STANDARD R-6.02.

CLEAR FLOOR SPACE OF 30"x48" INCHES CENTERED ON THE APPLIANCE OR FIXTURE SHALL BE PROVIDED AT EACH FIXTURE IN THE KITCHEN. FLOOR SPACES CAN OVERLAP. (FAIR HOUSING ACT)

TOILET, TUB, AND SHOWER STALL

REINFORCED WALLS TO ALLOW FOR THE LATER INSTALLATION OF GRAB BARS AROUND THE

MANEUVERING SPACE WITHIN THE BATHROOM TO PERMIT A PERSON USING A MOBILITY AID TO ENTER THE ROOM, CLOSE AND REOPEN THE DOOR, WITH A CLEAR FLOOR SPACE OF 30"x48" OUTSIDE OF THE DOOR SWING. IN ADDITION A CLEAR FLOOR SPACE OF 30"x48" SHOULD FLOOR SPACE BE PROVIDED AT EACH FIXTURE AND CENTERED ON EACH FIXTURE. THE 30"x48" FLOOR SPACE CAN OVERLAP EACH OTHER. (NOTE: THIS IS A REQUIREMENT IN THE FAIR HOUSING ACT GUIDELINES)

WALL MOUNTED LIGHT SWITCHES, ELECTRICAL OUTLETS, OR ENVIRONMENTAL CONTROL SHALL BE MOUNTED FOR A REACHING RANGE OF MINIMUM 15" OF THE FLOOR AND MAXIMUM 48" ABOVE THE FLOOR.

SIMPSON MILL, PHASE 3 BUILDABLE BULK PARCEL 'A'

AGE-RESTRICTED ADULT HOUSING

K

Lot 12

BUILDABLE BULK PARCEL 'A'

VEHICULAR INGRESS AND

1.35± AC

2.07± AC.

44 (2.0 PER UNIT)

7 (0.3 PER UNIT)

44 (22 UNITS x 2.0 SPACES)

7 (INCLUDES 2 HANDICAPPED SPACES)

_0.684± AC.

_0 AC.

Date: 1-9-16

AS-BUILT CERTIFICATION

Donald Mason, P.E.

TOTAL NUMBER OF LOTS AND/OR PARCELS TO BE RECORDED

L AREA OF LOTS AND/OR PARCELS TO BE RECORDED

GARAGE PARKING CANNOT BE CONVERTED TO LIVING SPACE

OPEN SPACE REQUIRED (0.20 x 3.4 ± AC.) -

BUILDABLE LOTS_

OPEN SPACE_

BUILDARIE LOTS

REQUIRED ON LOT

TOTAL REQUIRED.

TOTAL PROVIDED

PROVIDED ON LOT

PROVIDED OFF LOT

REQUIRED OFF LOT-

PARKING SPACES

BUILDABLE PARCELS

BUILDABLE PARCELS_

PRESERVATION PARCELS

OPEN SPACE PROVIDED_

PRESERVATION PARCELS

TOTAL AREA OF ROADWAY TO BE RECORDED

TOTAL AREA OF SUBDIVISION TO BE RECORDED

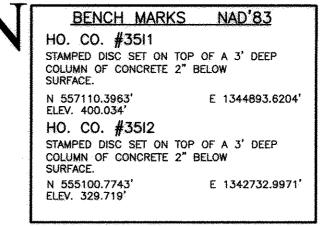
AREA TABULATION CHART - THIS SUBMISSION

I hereby certify, by my seal, that to the best of my knowledge

and belief the facilities shown on this "AS-BUILT"

Plan mealthe Approved Plans and Specifications

101



Area of POR zoned land

Present Zoning Designation

Total Number of Units Allowed

Total Number of Units Proposed

MIHU Required (10% of total units)

Number of Parking Spaces Required

Number of Parking Spaces Provided

Overflow Street Parking Spaces: 7

POR Open Space Required:

POR Open Space Provided:

Recreational Open Space:**

Community Center Area Required

(20 sf/unit, minimum 500 SF)

Community Center Area Provided

* Age Restricted Adult Development (ARAD)

**Per Section 115.0.E.5.b A footpath and seating areas are provided.

Garages (2-car units): 22 x 2 = 44

Limit of Disturbed Area

Proposed uses for site

Total Project Area

MIHU Provided

 $(22 \times 2.3 = 51)$

Lot si

101, 133

DEDÍCATED TO TROPINERS

101 138

MARYLAND ROUTE 32

PRINCIPAL ARTERIAL

R/W VARIES

SHA PLAT NOS. 53458, 52411, 53559

Requirements

1 inch = 50 ft.

PERMIT INFORMATION CHART

SUBDIVISION NAME:

SIMPSON MILL

GRID No. ZONE

23

POR

*See Note No. 32 for MIHY

SECTION/AREA:

TAX MAP NO ELECTION DISTRICT

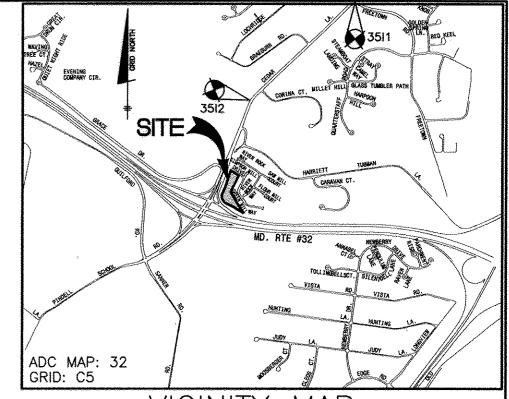
NA

35

LOT/PARCEL #

153-175

6056.02



SCALE : 1'=2000 Site Analysis Data Sheet 3.42 ac 3.42 a 3.20 ac **ADDRESS CHART** Residential SFA homes STREET ADDRESS

1	TITLE SHEET					
1	TITLE					
SHEET INDEX						
	COMMUNICAL COMMUNICAL	TTUS RIVER ROCK				
	174	7758 River Rock Way				
	173	7756 River Rock Way				
	172	7754 River Rock Way				
	171	7752 River Rock Way				
	170	7748 River Rock Way				
	169	7746 River Rock Way				
	168	7744 River Rock Way				
	167	7742 River Rock Way				
	166	7740 River Rock Way				
	165	7734 River Rock Way 7738 River Rock Way				
	164	7732 River Rock Way				
	163	7730 River Rock Way				
	161 162	7728 River Rock Way				
	160	7726 River Rock Way				
	159	7724 River Rock Way				
	158	7720 River Rock Way				
	157	7718 River Rock Way				
	156	7716 River Rock Way				
	155	7714 River Rock Way				
	1	i '1				

7710 River Rock Was

7712 River Rock Way

TITLE SHEET SITE DEVELOPMENT PLAN SITE PLAN ROAD PROFILES AND DETAILS GRADING, SEDIMENT & EROSION CONTROL PLAN 6 SEDIMENT & EROSION CONTROL NOTES AND DETAIL STORM DRAIN DRAINAGE AREA MAP STORM DRAIN PROFILES STORMWATER MANAGEMENT DRAINAGE AREA MAP STORMWATER MANAGEMENT DETAILS STORMWATER MANAGEMENT AND SEDIMENT & EROSION CONTROL DETAILS IANDSCAPE PLAN 13-14 SOILS BORING LOGS NOISE & RETAINING WALL PLAN & DETAILS TIERED RETAINING WALL 7 LOCATION PLAN & TYPICAL WALL CONSTRUCTION DETAILS TIERED RETAINING WALL 7 ELEVATIONS

rofessional Certification. I hereby certify that these documents were prepared or approved by me, and that am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 21443 Expiration Date: 12-21-18

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC 8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLICOTT CITY, MARYLAND 21043

SIMPSON MILI

11.28.16 Add General Note 52 regarding approval Design Manu

PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175

A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101 GRID: 23 PARCEL: 116 ZONED: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND

TITLE SHEET

(see General Note 32)

51

(driveway spaces for 2-car

units were not included in

spaces provided)

20% in ARAD*

2.07 ac (61%)

500 sf

Q64 sf

(P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM

SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244

DRAWN: JMC

DEVELOPER: SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244

DATE

OWNER:

DESIGN: JMC

MARCH, 2016

BEI PROJECT NO: 2634 SHEET

AS-BUILT

SCALE:

SDP-15-057

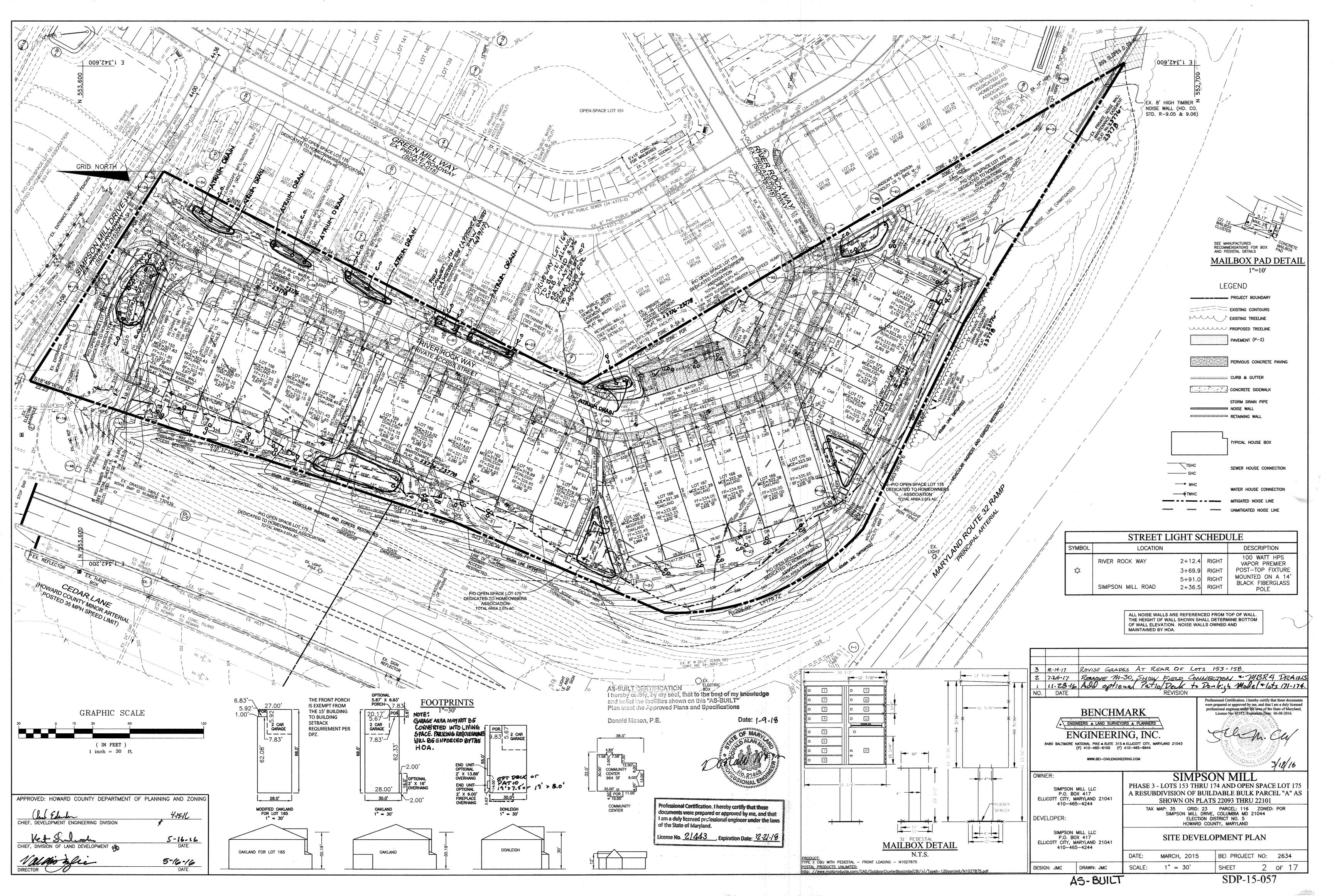
rofessional Certification. I hereby certify that these docum

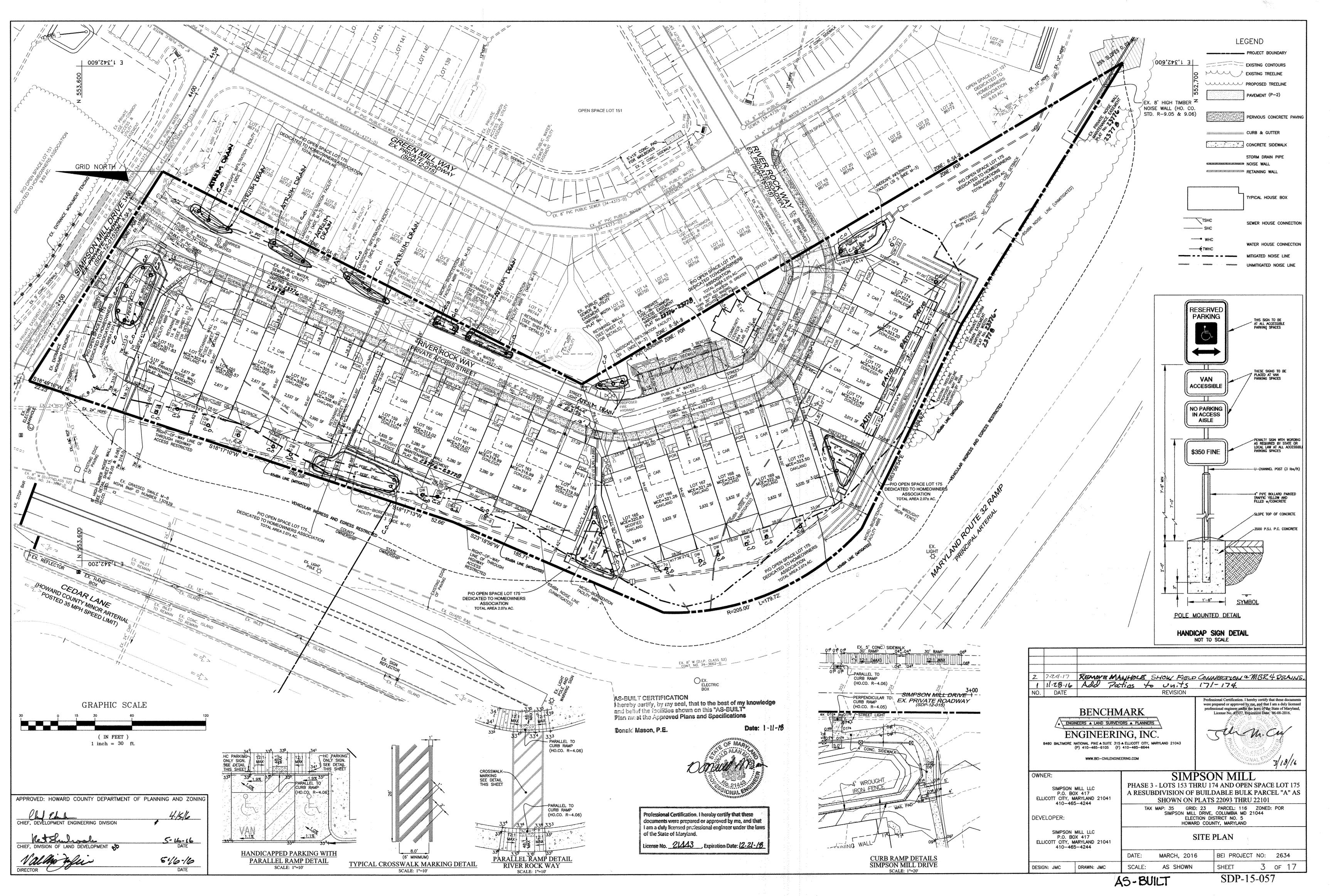
were prepared or approved by me, and that I am a duly license

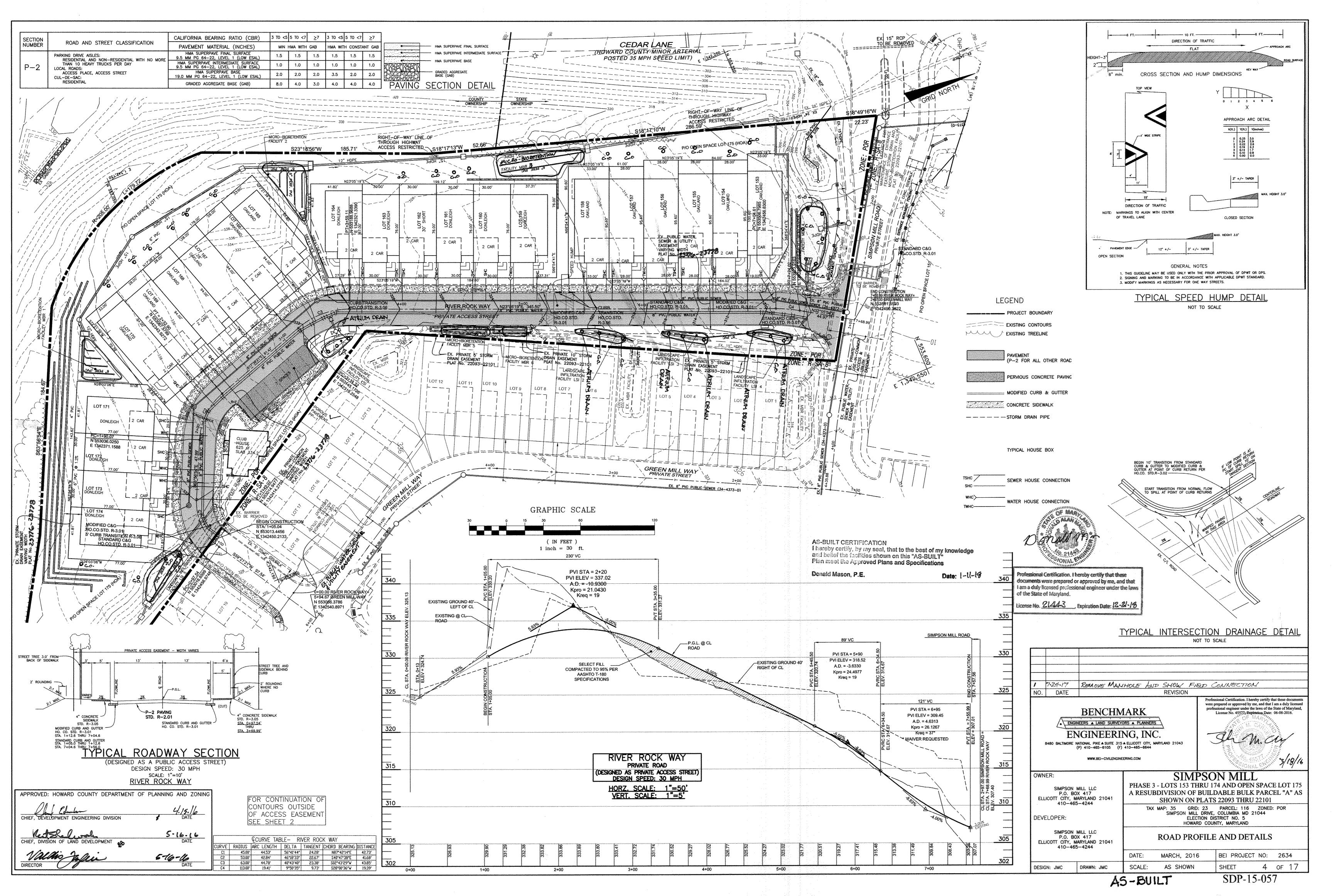
professional engineer under the laws of the State of Maryland

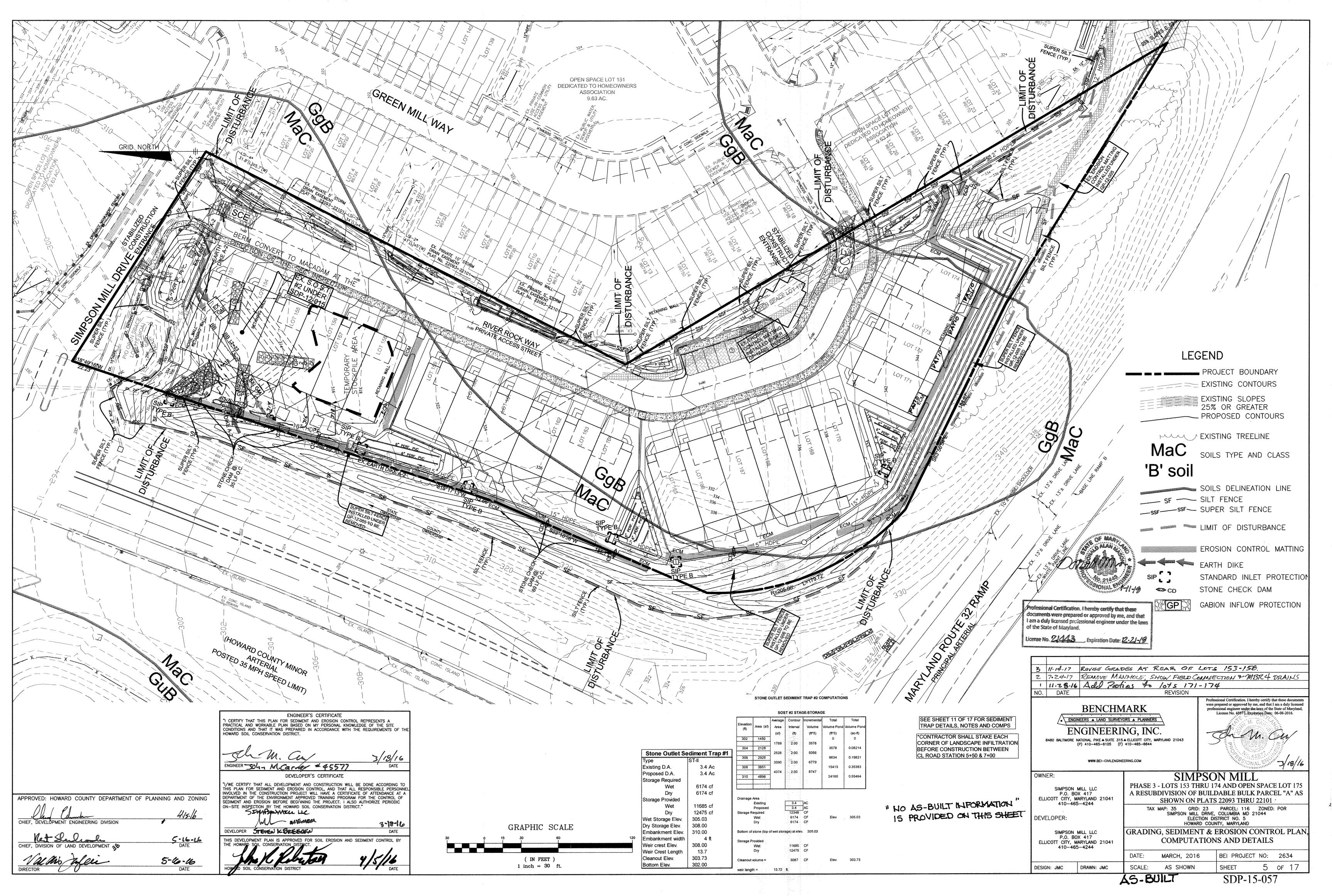
License No. 45577, Expiration Date: 06-08-2016.

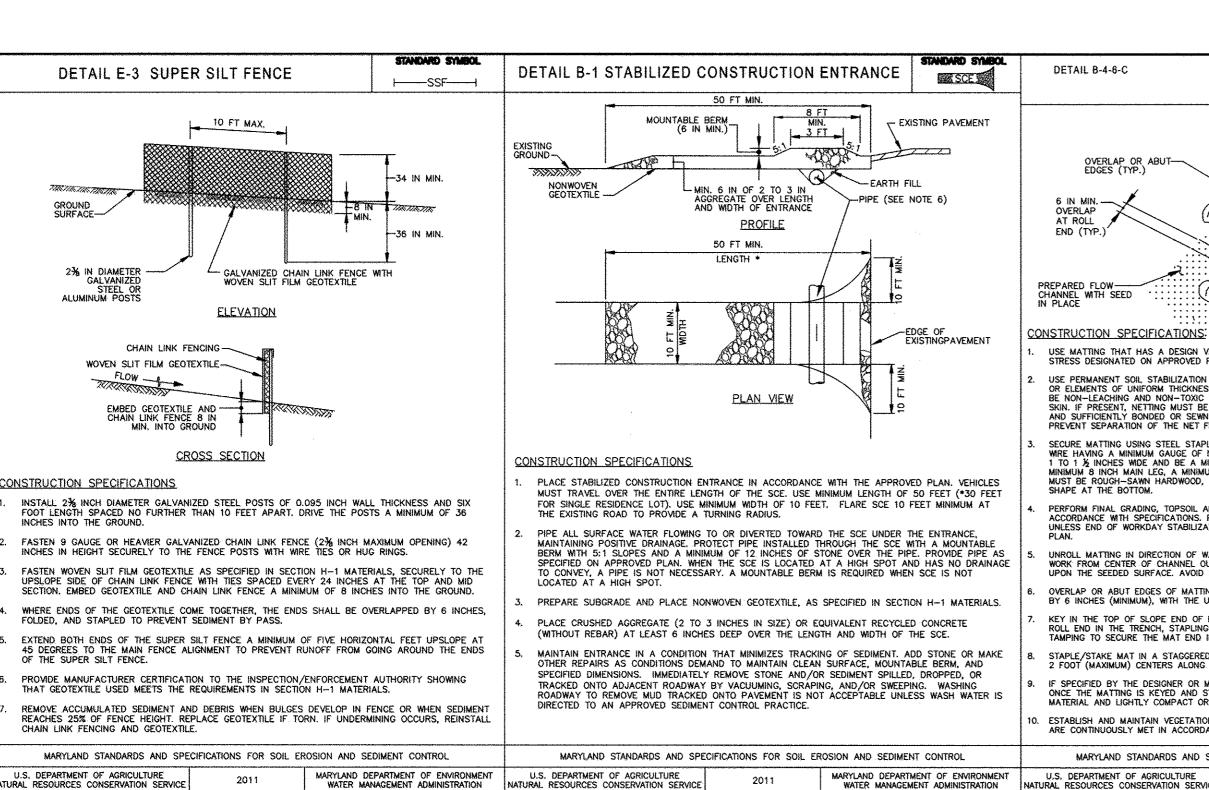
of 17











CENTER TO CENTER ELEVATION WOVEN SLIT FILM-USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. W. W. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO EMBED GEOTEXTILE PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. MIN. OF 8 IN VERTICALLY SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WODE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE AND COMPACT THE SOIL O CROSS SECTION PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL STEP 2 STEP 1 UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING. STAPLE-----STAPLE OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT. TWIST POSTS TOGETHER STAPLE----KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH. PLACING THE MATTING TAMPING TO SECURE THE MAT END IN THE KEY. STAPLE --------STAPLE STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. STEP 3 CONFIGURATION X IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR STAPLE-MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT JOINING TWO ADJACENT SILT establish and maintain vegetation so that requirements for adequate vegetative establishmen' FENCE SECTIONS (TOP VIEW) ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION 1 OF 2 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTRO MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION MARYLAND DEPARTMENT OF ENVIRONMEN B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING DETAIL C-1

DETAIL E-1

PSSMC - * 15/6

(* INCLUDE SHEAR STRESS)

SILT

FENCE

____SF___

|-----SF------| DETAIL D-3-2 GABION INFLOW GP 🚼 **PROTECTION** USE WOOD POSTS 13/4 X 13/4 ± %0 Inch (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR COMPACTED USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET ISOMETRIC VIEW 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL S. DEPARTMENT OF AGRICULTURE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT RESOURCES CONSERVATION SERVICE 2011 WATER MANAGEMENT ADMINISTRATION PROFILE ALONG CENTERLINE CROSS SECTION Purpose: To prevent blowing and movement of dust from exposed soil surfaces to reduce on and reas subject to dust blowing and movement where on and off-site damage is likely without CONSTRUCTION SPECIFICATIONS PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section ALONG SIDES OF ALL GABION BASKETS. B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The sit

INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

4 TO 7 IN STONE (TYP.)

12 IN LAYER OF WASHED AGGREGATE

STONE CHECK DAM

DITCH,D

SPACING, X

4 TO 7 IN STONE CHANNEL PROFILE

GEOTEXTILE 6 IN

similar material can be used to control air currents and soil blowing. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan BLEND GABIONS INTO EXISTING GROUND. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

TOP OF BANK

GEOTEXTILE 6

FASTEN SECURELY, FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT TH OP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. T OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST. FOR TYPE B, USE 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVI FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURE THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEI BACKFILL AROUND THE INLET IN LODSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION I THE ENDS AND TOP ELEVATION ON THE SIDES. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE, REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAWITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE. MARYLAND STANDARDS AND SPECIFICATIONS

DETAIL E-9-1 STANDARD INLET

H-1 MATERIALS

CONSTRUCTION SPECIFICATIONS
1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION

EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION

GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN T

PORTION OF THE 2X4 FRAME AS SHOWN, STRETCH 1/2 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AN

POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR SOIL EROSION AND SEDIMENT CONTROL 5. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES 2011 MARYLAND DEPARTMENT OF ENVIRONM WATER MANAGEMENT ADMINISTRATIO NATURAL RESOURCES CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE
TURAL RESOURCES CONSERVATION SERVICE STANDARD INLET

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION Definition: Using vegetation as cover to protect exposed soil from erosion Purpose: To promote the establishment of vegetation on exposed soil. Conditions Where Practice Applie On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsciling; seeding and mulching;

temporary stabilization; and permanent stabilization Effects on Water Quality and Quantity Stabilization practices 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 runoff to downstream areas. 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. Over time, vegetation 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 practices must remain in place during grading, seedbed preparation, seeding, mulching. Adequate Vegetative Establishment Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season. Adequate vegetative stabilization requires 95 percent groundcove

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding. 3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates Maintenance fertilizer rates for permanent seeding are shown in Table B.6. **B-4-4 STANDARDS AND SPECIFICATIONS**

FOR TEMPORARY STABLIZATION Definition: To stabilize disturbed soils with vegetation for up to 6 months Purpose: To use fast growing vegetation that provides cover on disturbed soils. Conditions Where Practice Applie Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and time rates must be put on the plan. 2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding. 3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch

alone as prescribed in Section B-4-3,A,1,b and maintain until the next seeding season. SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS efinition: The process of preparing the soils to sustain adequate vegetative stabilization Purpose: To provide a suitable soil medium for vegetative growth. Conditions Where Practice Applies: Where vegetative stabilization is to be established.

Soil Preparation Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisal plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope. Apply fertilizer and lime as prescribed on the plans. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other

suitable means. Permanent Stabilization a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

iv. Soil contains 1.5 percent minimum organic matter by weight.

. Soil pH between 6.0 and 7.0. ii. Soluble salts less than 500 parts per million (ppm). iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

v. Soil contains sufficient pore space to permit adequate root penetration. Application of amendments or topsoil is required if on-site soils do not meet the above Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test. e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions v not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed

Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

loosening may be unnecessary on newly disturbed areas.

CHIEF, DEVELOPMENT ENGINEERING DIVISION

Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4.15.16

5-4-16

Topsoiling is limited to areas having 2:1 or flatter slopes where The texture of the exposed subsoil/parent material is not adequate to produce

vegetative growth.

The soil material is so shallow that the rooting zone is not deep enough to suppor plants or furnish continuing supplies of moisture and plant nutrients. The original soil to be vegetated contains material toxic to plant growth. The soil is so acidic that treatment with limestone is not feasible. Areas having slopes steeper than 2:1 require special consideration and design Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders. stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quaci-

grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified. 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. Erosion and sediment control practices must be maintained when applying topsoi

Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

Soil Amendments (Fertilizer and Lime Specifications) Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and

warranty of the producer. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of

soil by disking or other suitable means. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of B-4-8 STANDARDS AND SPECIFICATIONS

FOR STOCKPILE AREA

Definition: A mound or pile of soil protected by appropriately designed erosion and sediment control measures. Purpose: To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns. Conditions Where Practice Applies Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Access the stockpile area from the upgrade side.

HOWARD SOIL CONSERVATION DISTRICT.

ENGINEER John M. Grney #45577

STEWN & BREEDEN

STAPSON WITH LAC

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading. 3. Runoff from the stockpile area must drain to a suitable sediment control practice.

5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner. 3. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sedimen control practice must be used to intercept the discharge. 7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as

Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile o facilitate cleanup. Stockpiles containing contaminated material must be covered with

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2: slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section

ENGINEER'S CERTIFICATE

CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE

DEVELOPER'S CERTIFICATE

CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A

PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE

ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when

 Mulch Materials (in order of preference) a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dust Note: Use only sterile straw mulch in areas where one species of grass is desired b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state. i. WCFM is to be dyed green or contain a green dye in the package that will

iv. When hydroseeding do not incorporate seed into the soil

iii. Mix seed and fertilizer on site and seed immediately and without interruption

provide an appropriate color to facilitate visual inspection of the uniformly spread slurry. ii. WCFM, including dye, must contain no germination or growth inhibiting factors. iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform

suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings. WCFM material must not contain elements or compounds a

concentration levels that will be phyto-toxic. v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimete oH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre. c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds

of wood cellulose fiber per 100 gallons of water a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:

i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely, If used on sloping land, this practice should follow the contour. i. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net

dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.

v. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to

Definition: The application of seed and mulch to establish vegetative cover Purpose; To protect disturbed soils from erosion during and at the end of construction Conditions Where Practice Applies: To the surface of all perimeter controls, slopes, and any disturbed area not under active grading

 Specifications a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate. b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws. c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding.

Note: It is very important to keep inoculant as cool as possible until used. Temperatures

above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less

d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders

i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries. ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact. b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil. . Cultipacking seeders are required to bury the seed in such a fashion as to

provide at least 1/4 inch of soil covering. Seedbed must be firm after ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction

c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and I. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium),

200 pounds per acre SEDIMENT CONTROL NOTES 1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855). 2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT

CONTROL and revisions thereto. I. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.

4. All disturbed areas must be stabilized within the time period specified above in

accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec.B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allo for proper germination and establishment of grasses. 5. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector. Total Area of Site

3.20 Acres 1.66 Acres Area to be roofed or paved Area to be vegetatively stabilized Total Fill APPROXIMATE VOLUMES. Offsite waste/borrow are location: APPROVED **CUT/FILL LOCATION WITH ACTIVE PERMIT**

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 2/442 Expiration Date: 12-21-18

Type of Plant Material

Table B.3 Notes:

planting during this period.

Seeds - Cool-Season Grasses

(includes mixes with forbs and/or legumes

ncludes mixes with forbs and/or legumes)

Bulbs, Rhizomes, Corms, and Tubers 24

Seeds - Warm-Season/Cool-Season Grass Mixes

Inrooted Woody Materials; Bare-Root Plants;

plant with the permanent seeding mix. (See Table B.2. Note 1. for more information.)

Additional planting dates during which supplemental watering may be needed to ensure plant establishmen

exception—they may be supplied as growing (non-dormant) plants.

Containerized Stock; Balled-and-Burlapped

later plantings, especially on droughty sites

the ground is not frozen and soil moisture is adequate

EARTH DIKE PLACE DESIGNATION (6.6 A-1) -2:1 SLOPE OR FLATTE 2:1 SLOPE OR FLATTER-CROSS SECTION DIKE TYPE CONTINUOUS GRADE 0.5% MIN. TO 10% MAX. SLOPE a - DIKE HEIGHT 18 IN MIN. 30 IN MIN. b - DIKE WIDTH 24 IN MIN. 36 IN MIN. c - FLOW MIDTH 4 FT MIN. 6 FT MIN. d - FLOW DEPTH 12 IN MIN. 24 IN MIN. PLAN VIEW FLOW CHANNEL STABILIZATION SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.) SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD. 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND. A-3/B-3 CONSTRUCTION SPECIFICATIONS

REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.

EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.

PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.

MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AN CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION 8-4 VEGETATIVE STABILIZATION. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

SILT

CONSTRUCTION SPECIFICATIONS

U.S. DEPARTMENT OF AGRICULTURE

Conditions Where Practice Applies:

anchored to prevent blowing

off-site damage including health and traffic hazards.

nust not be irrigated to the point that runoff occurs.

OR STAPLES AT TOP AND MID-SECTION.

FENCE

MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.

BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC

H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and

Definition: Controlling the suspension of dust particles from construction activitie

Vegetative Cover: See Section B-4-4 Temporary Stabilization.

plows are examples of equipment that may produce the desired effect.

U.S. DEPARTMENT OF AGRICULTURE

PHASE 1 1. OBTAIN GRADING PERMIT. (DAY 1)

7. Any sediment control practice that is disturbed by grading activity for placement of utilities must be renaized on the same day of disturbance Additional sediment control must be provided, if deemed necessary by the Howard 9. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made. INSTALL REMAINING STORM DRAINS AND WATER AND SEWER MAINS. INSTALL ALL

Table B.3: Recommended Planting Dates for Permanent Covering Marylan

5b and 6a

Mar 15 to May 3

Aug 1 to Sep 3

Jun 1 to Jun 15

Mar 15 to May 3

Jun 1 to Aug 31

Sep 1 to Nov 1* Mar 15 to May 31

Jun 1 to Jun 30*

Jun 1 to Jun 30*

Sep 1 to Nov 15*+

The planting dates listed are averages for each zone. These dates may require adjustment to reflect local conditions, especially near the boundaries of the zones.

When planted during the growing season, most of these materials must be purchased and kept in a dormant condition until planting. Bare-root grasses are the

Additional planting dates for the lower Constal Plain, dependent on annual rainfall and temperature trends. Recommend adding a nurse crop, as noted above, if

♦♦Warm-season grasses need a soil temperature of at least 50 degrees F in order to germinate. If soil temperatures are colder than 50 degrees, or moisture is not

Frequent freezing and thawing of wet soils may result in frost-heaving of materials planted in late fall, if plants have not sufficiently rooted in place.

adequate, the seeds will remain dormant until conditions are favorable. In general, planting during the latter portion of this period allows more time for weed

emergence and weed control prior to planting. When selecting a planting date, consider the need for weed control vs. the likelihood of having sufficient moisture for

Sod usually needs 4 to 6 weeks to become sufficiently rooted. Large containerized and balled-and-burlapped stock may be planted into the winter months as long as

When seeding toward the end of the listed planting dates, or when conditions are expected to be less than optimal, select an appropriate nurse crop from Table I and

Mar 15 to May 31 + +

10. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter. 1. Any changes or revisions to the sequence of construction must be reviewed as approved by the plan approval authority prior to proceeding with construction. 2. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has be stabilized and approved by the enforcement authority Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time. Rev. 4/2013

NONWOVEN GEOTEXTILE PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2. STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN. SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SIDE SLOPES OF OR FLATTER AND A MINIMUM TOP WIDTH OF 12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY ON FLATIER AND A MINIMUM TOP WIDTH OF 12 INCHES, FLACE THE STORE SO THAT TO PORTLETE.

COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS, FORM THE WEIR SO THAT TOP OF THI

OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 FOOT THICK LAYER OF WASHED AGGREGATE (1/4 TO 1/2 INCH). SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE—HALF THE DEPTH OF THE CHANNEL OR DITCH. TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE MARYLAND DEPARTMENT OF ENVIRONMEN WATER MANAGEMENT ADMINISTRATION

- CHAIN LINK FENCE POSTS TOP ELEVAT -2 IN × 4 IN FRAMINO HARDWARE -TOP ELEVATION GEOTEXTILE 6 IN 9 GAUGE CHAIN -LINK FENCE (TYP.) WOVEN SLIT FILM **GEOTEXTILE** 18 IN INTO GROUND --EDGE OF ROADWAY OR TOP OF EARTH DIKE TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE 6 IN MIN -EXCAVATE, BACKFILE 1 OF 2 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE

WATER MANAGEMENT ADMINISTRATION

PROTECTION

SEQUENCE OF CONSTRUCTION
NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF WORK

Plant Hardiness Zone

Mar 1 to May 15

Mar 1 to May 15♦ ♦

May 16 to Jun 15

Mar 1 to May 15

May 16 to Sep 14*

Mar I to May 15

May 16 to Jun 30*

Mar 1 to May 15

May 16 to Jun 30

Sep 15 to Nov 30* +

Sep 15 to Nov 15*+

2. INSTALL STABILIZED CONSTRUCTION ENTRANCE. REMOVE EXISTING SSF INSTALLED UNDER GP-12-005. UTILIZE NEW SEDIMENT CONTROL FEATURES SHOWN ON THIS PLAN FOR PERIMETER CONTROLS. REMOVE EXISTING EARTH DIKE CONSTRUCTED UNDER GP-12-005 THAT DOES NOT FLOW TO THE SEDIMENT TRAP AS NECESSARY. INSPECT, AND REPLACE IF NECESSARY, THE EARTH DIKES THAT LEAD TO THE SEDIMENT BASIN, (DAY 2-7) LIPON APPROVAL OF THE HOWARD COLINTY SEDIMENT CONTROL INSPECTOR. BRING ROAD

BEDS TO SUBGRADE AND COMMENCE MASS GRADING, GRADE THE MICROSCALE PRACTICES WITH PIPE INFLOWS TO FINISHED GRADE AND CREATE EMBANKMENTS (DO NOT EXCAVATE RELOW SWM MILLOH BLEVATION AT THIS STEP). STABILIZE SLOPES IN ACCORDANCE WITH THE TEMPORARY SEEDBED NOTES. UTILIZE DUST CONTROL METHODS. (DAY 8-60)

RETAINING WALLS. (DAY 61-100) INSTALL CURB & GUTTER AND BASE PAVING, REPLACE EARTH DIKE NEAR RIVER ROCK AND SIMPSON MILL ROAD WITH MACADAM BERM TO CONTINUE FLOW TO SEDIMENT TRAP. (DAY

6. STABILIZE ALL AREAS IN ACCORDANCE WITH THE TEMPORARY SEEDBED NOTES. (DAY 121-125) 7. CONSTRUCT SWM FACILITIES COMPLETE WITH UNDERDRAIN PIPES. (DAY 126-155) 8. ONCE ALL AREAS HAVE BEEN STABILIZED WITH THE PERMANENT SEEDBED NOTES AND UPON

10. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE ANY REMAINING AREAS IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES, (DAY 166)

7a and 7b

Feb 15 to Apr 30

Aug 15 to Oct 31

Nov 1 to Nov 30 •

May 1 to May 31*

Feb 15 to Apr 30

May 1 to Sep 30*

Oct 1 to Dec 1*+

Feb 15 to Apr 30

May 1 to Jun 30*

Feb 15 to Apr 30

May 1 to Jun 30*

Oct 1 to Dec 15*+

Feb 15 to Apr 30 ◆ ◆

APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE EXISTING EDIMENT TRAP #2 AND EARTH DIKES AND MACADAM BERMS LEADING TO IT. (DAY 156-165)

SEQUENCE OF CONSTRUCTION (CON'T)

INSTALL SUPER SILT FENCES AROUND LOT STICK, (DAY 1) EXCAVATE FOR FOUNDATION, ROUGH GRADE AND STABILIZE IN ACCORDANCE WITH THE EMPORARY SEEDBED NOTES. (DAY 2-5)

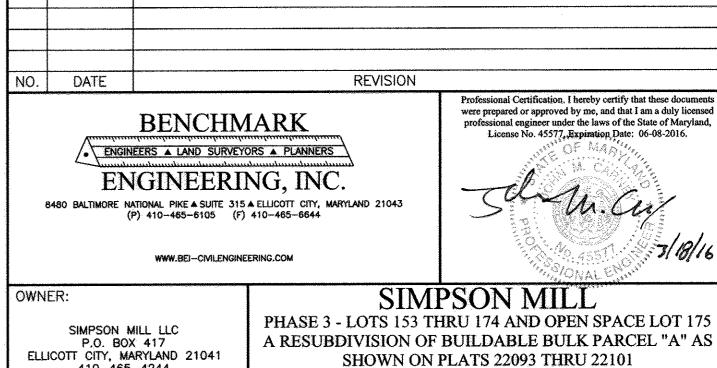
PHASE 2 - (HOUSE CONSTRUCTION*

CONSTRUCT HOUSES, BACKFILL AND CONSTRUCT DRIVEWAYS, CONSTRUCT DRYWELLS AND ANY REMAINING SWM PRACTICES. (DAY 6-90)

4. FINAL GRADE LOT STICK AND STABILIZE IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. 5. UPON APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT

CONTROL DEVICES AND STABILIZE ANY REMAINING DISTURBED AREAS. (DAY 96-100)

*HOUSE CONSTRUCTION SHALL BE PERFORMED FOR AN ENTIRE STICK AT ONE TIME. ** NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET



410-465-4244 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 **DEVELOPER:** ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND SEDIMENT & EROSION CONTROL SIMPSON MILL LLC P.O. BOX 417 NOTES AND DETAILS ELLICOTT CITY, MARYLAND 21041 410-465-4244 BEI PROJECT NO: 2634 DATE: MARCH, 2016 AS SHOWN SHEET 6 of 17 SCALE: DRAWN: JMC DESIGN: JMC

Seeding Rate 1/ Recommended Seeding Dates by Paint Hardiness Zone 3 lb/ac lb/1000 ft² 7a and 7b Annual Ryegrass (Lolium peren Mar I to May 15; Aug Feb 15 to Apr 30; Aug Mar 15 to May 31; Aug 1 to Sep 30 sp. multiflorum) I to Oct 15 Mar 1 to May 15; Aug Feb 15 to Apr 30; Aug Barley (Hordeum vulgare) Mar I to May 15; Aug | Feb 15 to Apr 30; Aug ats (Avena sativa) I to Oct 15 15 to Nov 30 Mar 1 to May 15; Aug | Feb 15 to Apr 30; Aug Wheat (Triticum aestivum) Mar 15 to May 31; Aug 1 to Sep 30 1 to Oct.15 15 to Nov 30 Mar I to May 15; Aug | Feb 15 to Apr 30; Au Cereal Rye (Secale cereale) Mar 15 to May 31; Aug 1 to Oct 31 15 to Dec 15 I to Nov 15 oxtail Millet (Setaria italica) 0.7 May 16 to Jul 31 May I to Aug 14 earl Millet (Pennisetum glaucum) Jun 1 to Jul 31 May 16 to Jul 31

Table B.1: Temporary Seeding for Site Stabilization

tested. Adjustments are usually not needed for the cool-season grasses.

for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal tye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

yonal

As-BUILT

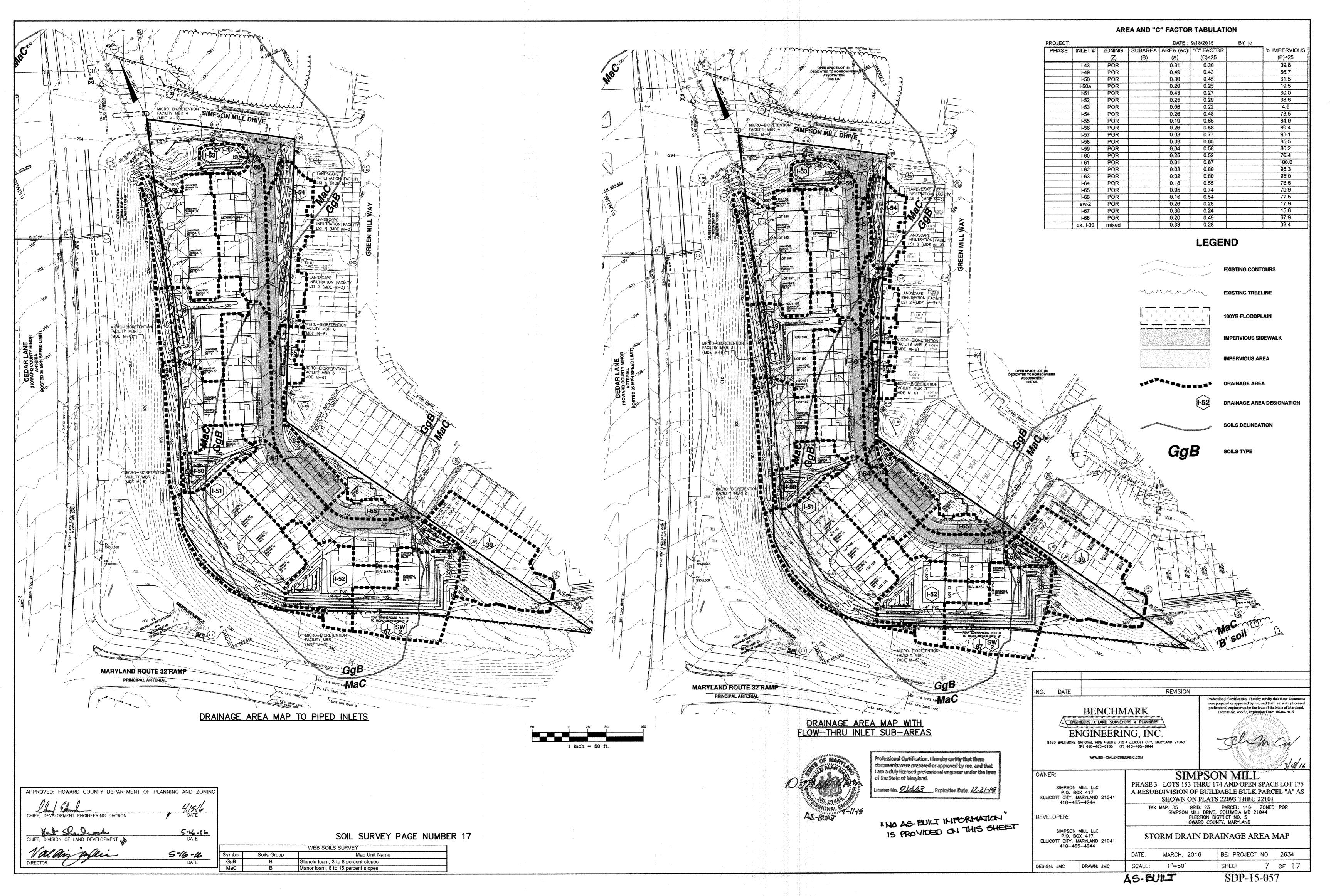
3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone

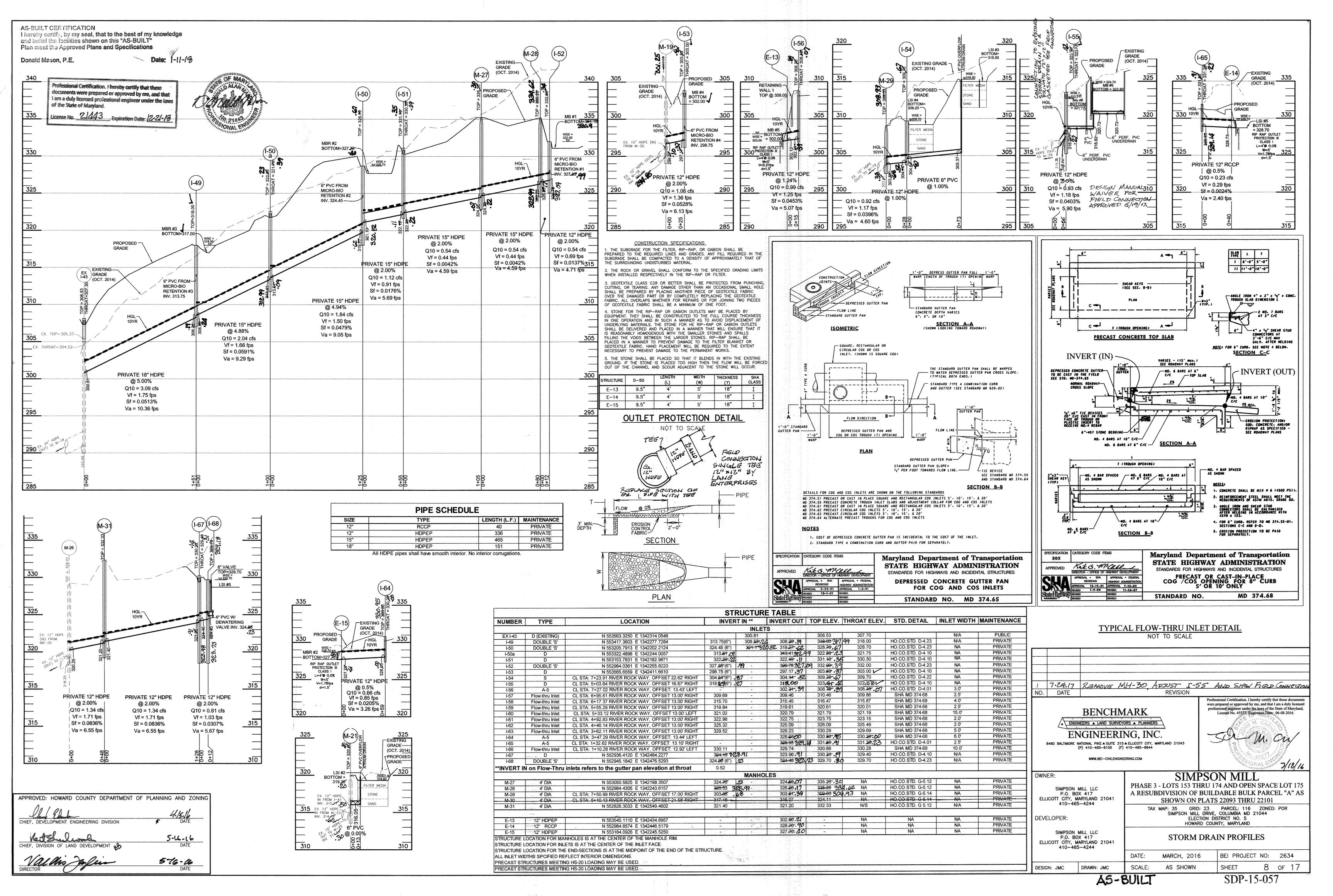
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNE INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT." THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY

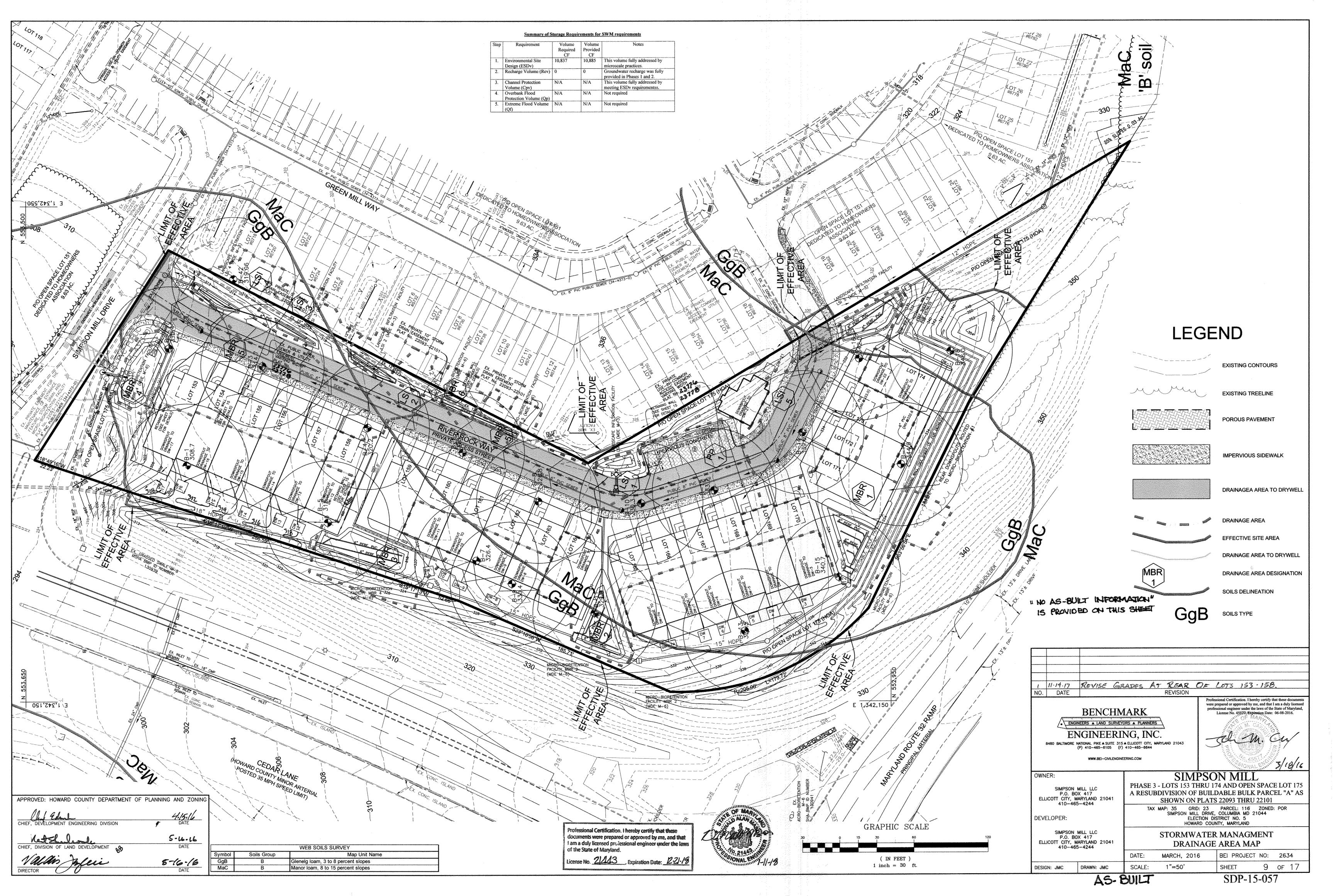
Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above

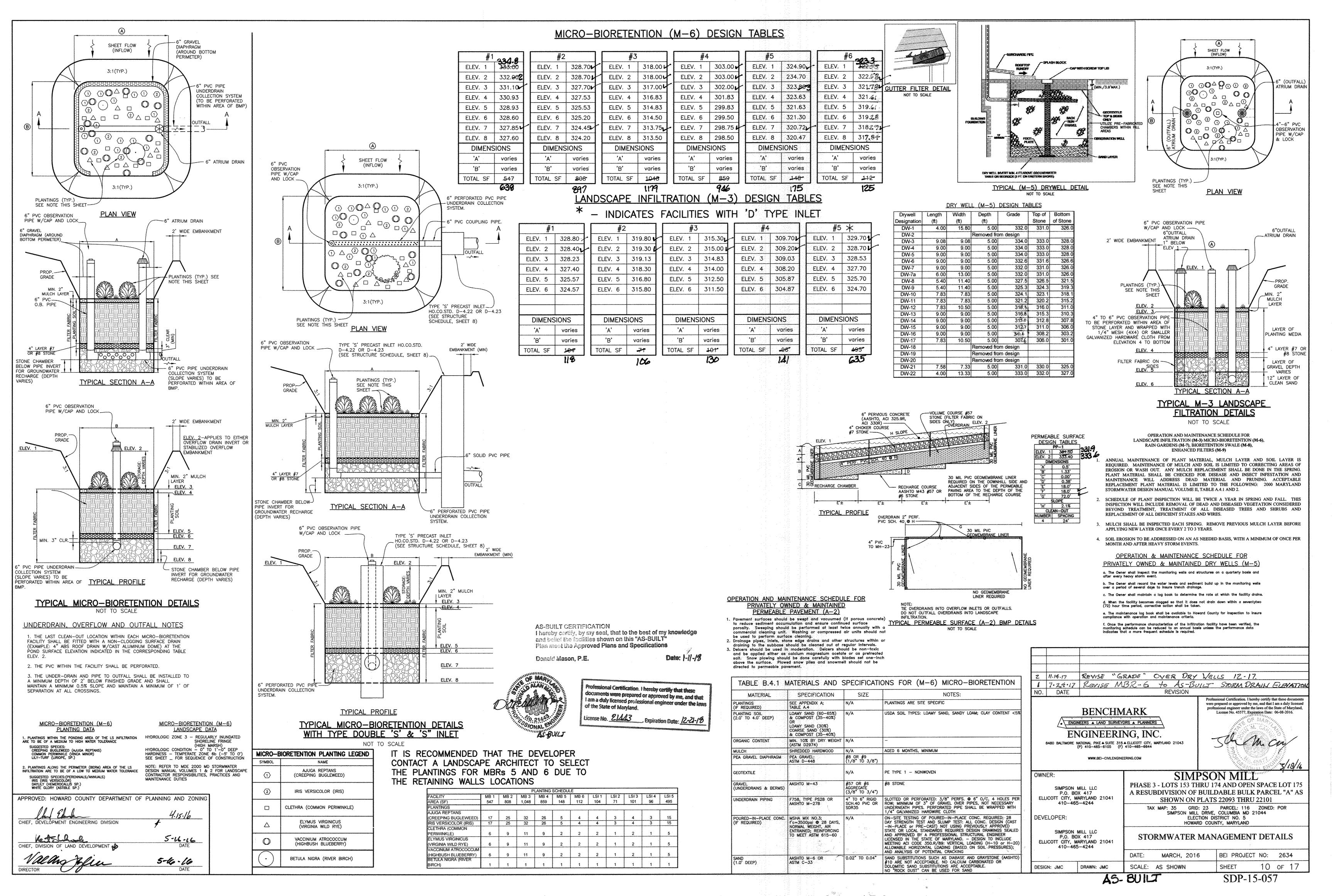
May I to Aug 14 Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as

45-BUILT









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

Site Preparation

Earth Fill

Areas designated for borrow areas, embankment, and structural works shall be cleared. grubbed and stripped to topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared 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 stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be

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.

Material - The fill material shall be taken from approved designated borrow areas. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. 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.

<u>Placement</u> — 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 nstalled 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 tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with teh 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 a 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 cores shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability n addition, the core shall be placed concurrently with the outer shell of the embankment

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material 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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials. Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistively 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 sided of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating 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 that specified for the core of the embankment or other embankment

Pipe Conduits

All pipes shall be circular in cross section

Corrugated Metal Pipe - all of the following criteria shall apply for corrugated metal pipe: Materials - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall bave a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Maerials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances 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 or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be

2. 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.

3. 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.

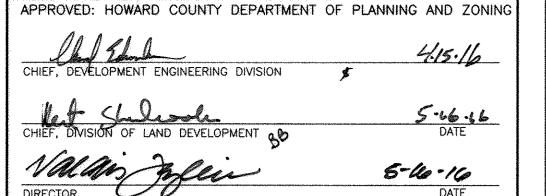
All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger 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

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

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support. Backfilling shall conform to "Structure Backfill"

5. 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.

. 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 a described in the "Structure Backfill" section of this standard. Gravel



Laying pipe — Bell and spigot pipe shall be places with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation form the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

Plastic Pipe - The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4' - 10" inch pipe shall meet the requirements of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirements of AASHTO M294 Type S.

2. Joints and connections to anti-seep collars shall be completely watertight 3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length.

Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support. 4. Backfilling shall conform to "Structure Backfill"

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings. <u>Drainage Diaphragms</u> — 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,

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 31: Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for

Care of Water during Construction

Construction and Materials, Section 921.09, Class C.

All work on permanent structures shall be carried out in areas free from water. The ontractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the evacuations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom 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 location 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.

All borrow areas shall be graded to provide proper drainage and left in a sightly condition All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

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

CONSTRUCTION SPECIFICATIONS

B.4.C Specifications for Micro-Bioretention. Rain Gardens, Landscape Infiltration & Infiltration Berms

Material Specifications

The allowable materials to be used in these practices are detailed in Table B.4.1.

2. Filtering Media or Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the microbioretention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component Loamy Sand or Sandy Loam (USDA Soil Textural Classification) • Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- Clay Content Media shall have a clay content of less than 5%. • pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

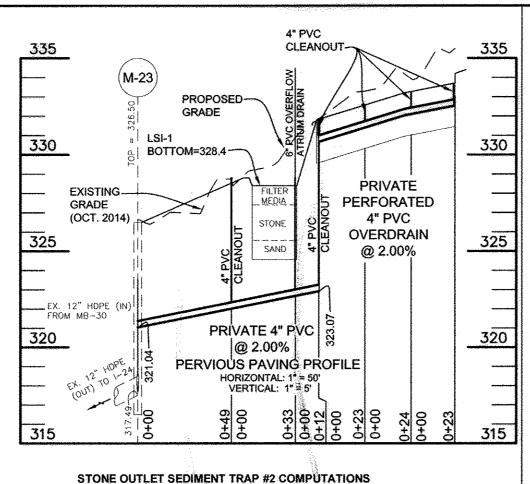
4. Plant Material

Recommended plant material for micro-bioretention practices can be found in Appendix A. Section A.2.3.

5. Plant Installation

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.



SOST #2 STAGE-STORAGE

Volume

(11/3)

3578

5056

6779

8747

Average Contour Incremental

Interval

2.00

2.00

2.00

3.4 AC

3.4 AC

12348 CF

6174 CF

6174 CF

11685 CF

12475 CF

3087 CF

Stakes are to be equally spaced on the outside of the tree ball.

The main collector pipe shall be at a minimum 0.5% slope.

provide a clean-out port and monitor performance of the filter.

Area (sf) | Area

2928

4896

Existing

Drainage Area

Storage Required

Storage Provided

Cleanout volume =

6. Underdrains

weir length =

1789

2528

3390

4374

Bottom of stone (top of wet storage) at elev. 305.03

13.72 ft

Underdrains should meet the following criteria:

bed when bed thickness exceeds 24".

IOWARD SOIL CONSERVATION DISTRICT.

SIMPON WELL LIK

DEVELOPER STEWN & GREENW

Miscellaneous

Total

(ft^3)

3578

8634

15413

24160

Elev

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding

fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are

Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS

28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g.,

Perforations - If perforated pipe is used, perforations should be "" diameter located 6" on center

Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the

A rigid, non-perforated observation well must be provided (one per every 1,0000 square feet) to

A 4" layer of pea gravel (1/8" to 3/8" stone) shall be located between the filter media and underdrain

to prevent migration of fines into the underdrain. This layer may be considered part of the filter

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%.

These practices may not be constructed until all contributing drainage area has been stabilized

ENGINEER'S CERTIFICATE

CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO

HIS PLAN FOR SEDIMENT AND EROSION CONTROL. AND THAT ALL 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

EDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A

PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE

ENGINEER JULIA NI. Carnel # 45577

I—SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet

with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 or 4x4) galvanized

legume plugs shall be planted following the non-grass ground cover planting specifications.

used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

Volume Pond Volume Po

(ac-ft)

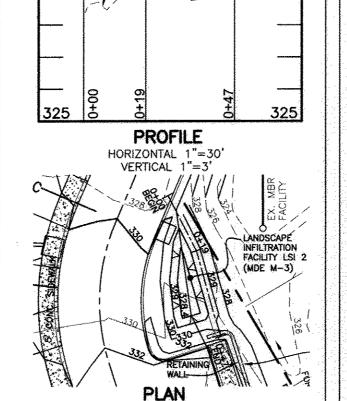
0.08214

0.19821

0.35383

0.55464

303.73



HORIZONTAL 1"=30'

LANDSCAPE INFILTRATION 1

EMBANKMENT

Stone Outlet Sediment Trap #1

Existing D.A.

Proposed D.A.

Storage Required

Storage Provided

Wet Storage Elev.

Dry Storage Elev.

Embankment Elev.

Embankment width

Weir crest Elev.

Weir Crest Length

Cleanout Elev.

Bottom Elev.

3.4 Ac

3.4 Ac

6174 cf

6174 cf

11685 cf

12475 cf

305.03

308.00

310.00

308.00

13.7

303.73

302.00

RETAINING WALL 6 7

PROPOSED

330

BAFFLE BOARD (G-2-4)

COMPUTATIONS

IF FLOW LENGTH IS LESS THAN WE X 2, PROVIDE BAFFLE BOARDS TO LENGTHEN FLOW PATH

IF FLOW LENGTH IS LESS THAN WE X 2, PROVIDE BAFFLE BOARDS TO LENGTHEN FLOW PATH

IF FLOW LENGTH IS LESS THAN WE X 2, PROVIDE BAFFLE BOARDS TO LENGTHEN FLOW PATH

(OUTLET)

RISER (OUTLET)

PLAN VIEWS

11 6 IN 11

\$\frac{1}{4}\frac{1}{

BAFFLE DETAIL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

BAFFLES ARE REQUIRED TO PROVIDE A

FLOW LENGTH BETWEEN INFLOW POINT

AND OUTLET FOUAL TO TWICE THE

EFFECTIVE TRAP/BASIN WIDTH.

-BAFFLE BOARD

SHEETS OF 4 FT x 8 FT x ½ IN CDX EXTERIOR GRADE

PLYWOOD OR EQUIVALENT

LEXISTING GROUND

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS-BUILT CERTIFICATION

Donald Mason, P.E.

EFFECTIVE FLOW LENGTH, Le = $L_1 + L_2 + L_3 = N/A$ ft (MUST BE $\geq W_0 \times 2 = 69.6$ ft)

EFFECTIVE FLOW LENGTH, $L_0 = L_1 + L_2 + L_3 = N/A$ ft (MUST BE $\ge W_0 \times 2 = 69.6$ ft)

EFFECTIVE FLOW LENGTH, L. = 29+23+22+16= 90 ft (MUST BE ≥ W. X 2 = 69.6 ft)

A = SURFACE AREA AT WET STORAGE ELEVATION = 2,432 ft2

 $A = SURFACE AREA AT WET STORAGE ELEVATION = 2,432 ft^2$

A = SURFACE AREA AT WET STORAGE ELEVATION = 2,432 ft²

DETAIL G-2-4 BAFFLE BOARDS

RISER (OUTLET)

SET ELEVATION AT 1/2 OF THE DRY STORAGE (WET STORAGE ELEVATION + DRY STORAGE

(OUTLET) WHICHEVER IS LOWER

4 FT CENTER TO CENTER

U.S. DEPARTMENT OF AGRICULTURE

ELEVATION / 2) OR 6 IN BELOW WEIR CREST

FLOW LENGTH FROM INFLOW POINT TO OUTLET = 28 ft

FLOW LENGTH FROM INFLOW POINT TO OUTLET = 82 ft

FLOW LENGTH FROM INFLOW POINT TO OUTLET = 71 f

EFFECTIVE WIDTH, $W_0 = (A/2)\frac{1}{2} = 34.8 \text{ ft}$

EFFECTIVE WIDTH, $W_0 = (A/2)\frac{1}{2} = 34.8$ ft

EFFECTIVE WIDTH, $W_0 = (A/2)\frac{1}{2} = 34.8 \text{ ft}$

NFLOW

Le=L1+L2

POSTS MINIMUM 4 IN SQUARE OR

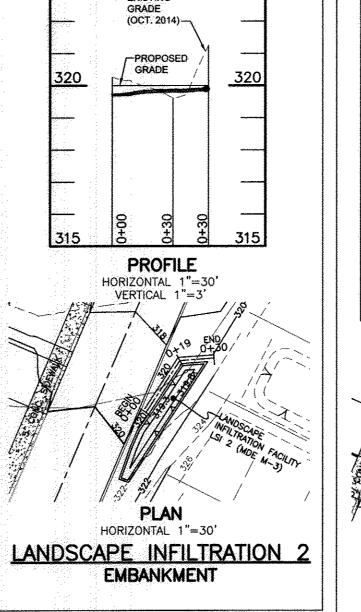
5 IN ROUND SET AT LEAST 3 FT INTO THE GROUND

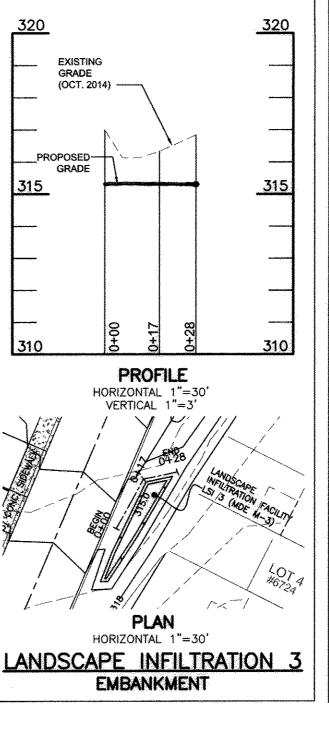
GRADE

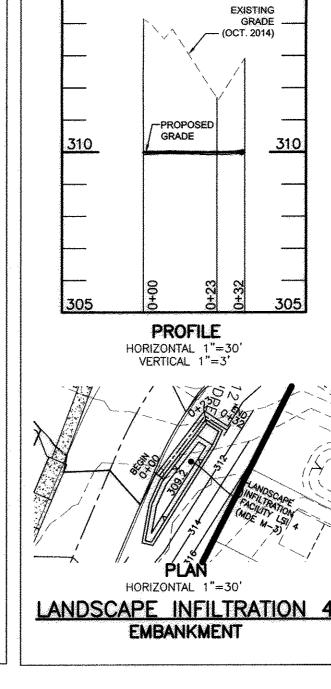
EXISTING

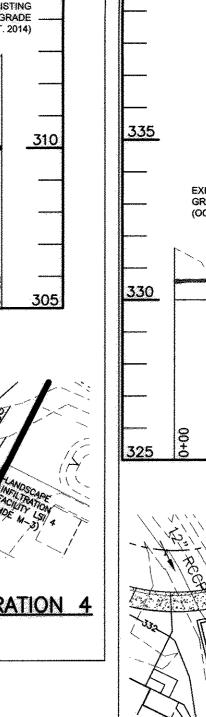
(OCT, 2014)

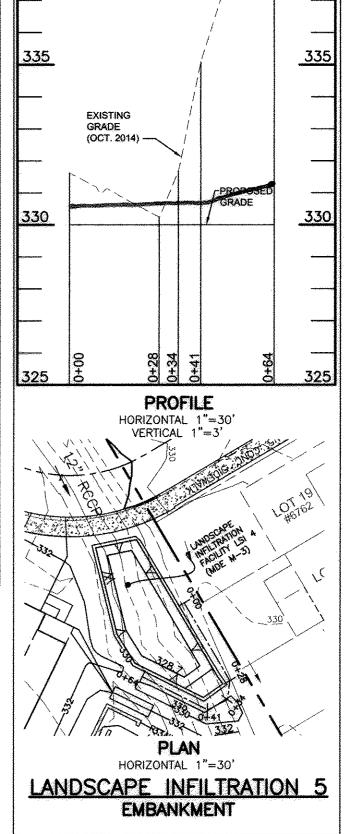
GRADE

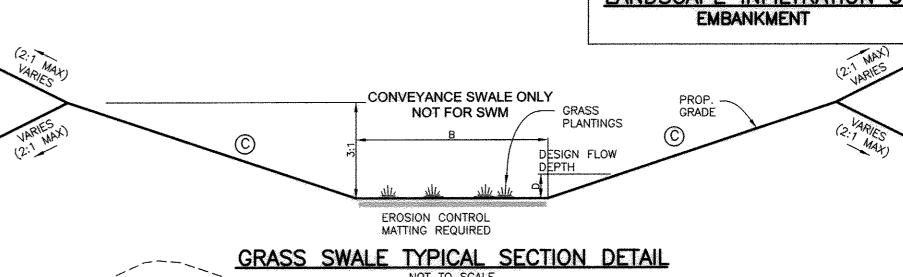


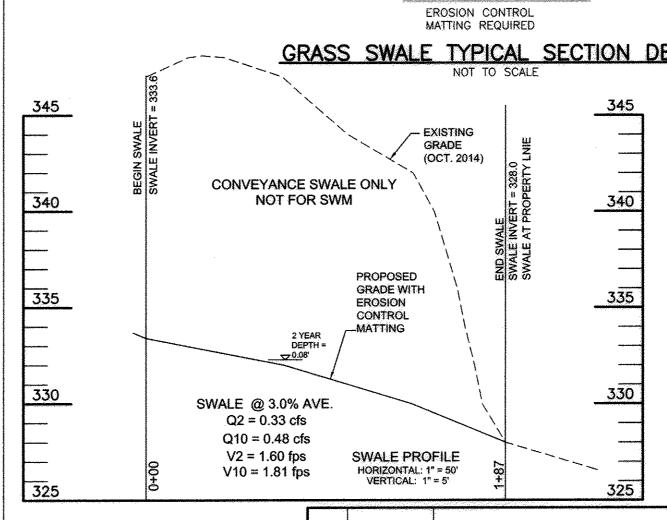


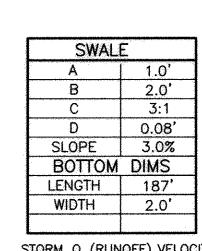












STORM Q (RUNOFF) VELOCITY 2YR 0.33 CFS 1.60 FPS 10YR 0.48 CFS 1.81 FPS GRASS SWALE DESIGN TABLE NOTE: ELEVATIONS LISTED IN CHART ARE ELEVATIONS AT BOTTOM OF THE SWALE. THIS SWALE DOES NOT PROVIDE

Professional Certification. I hereby certify that these docume

were prepared or approved by me, and that I am a duly license

professional engineer under the laws of the State of Maryland

License No. 45577, Expiration Date: 06-08-2016.

STORMWATER MANAGEMENT.

DATE REVISION NO. **BENCHMARK** ENGINEERS & LAND SURVEYORS & PLANNERS

ENGINEERING, INC 8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644

SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244 DEVELOPER:

SIMPSON MILL LLC P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244

SIMPSON MILI PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR

ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND STORMWATER MANAGEMENT AND

> BEI PROJECT NO: 2634 MARCH, 2016 AS SHOWN

AS-BUIL

DRAWN: JMC

DESIGN: JMC

of the State of Maryland.

Date: 1-11-18

I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

holesional Certification. I hereby certify that these documents were prepared or approved by me, and that am a duly licensed professional engineer under the laws

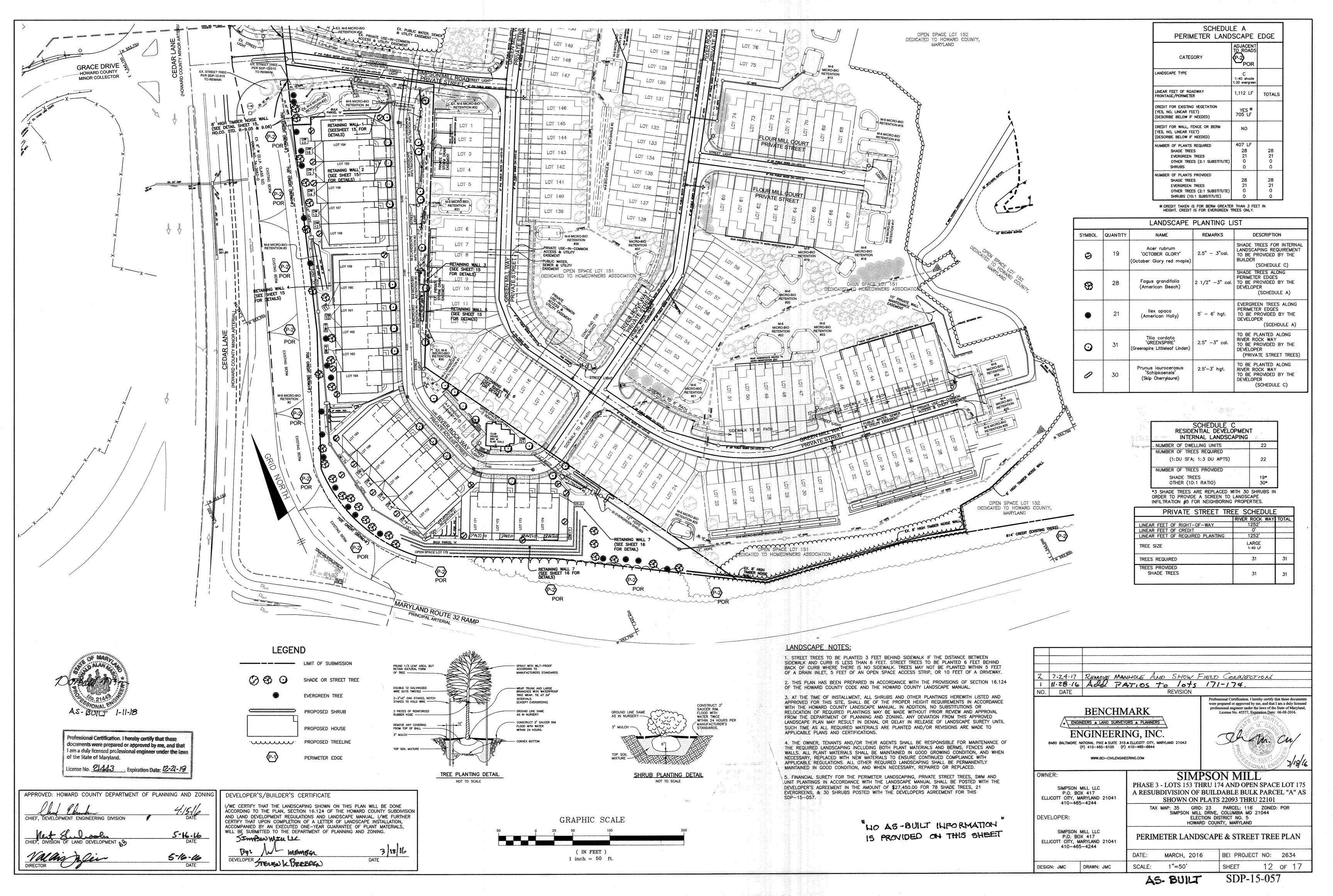
License No. 21443 Expiration Date: 12-21-19

WWW.BEI-CIVILENGINEERING.COM OWNER:

SIMPSON MILL DRIVE, COLUMBIA MD 21044

SEDIMENT & EROSION CONTROL DETAILS DATE:

11 of 17



HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase It SWM Boring No. B-1	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-2	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-3	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-4	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project NameSimpson Mill - Phase II SWMBoring NoB-5
Coalion	Costlorion	Date Date	Location Howard County, MD SAMPLER SOME	Lacellon
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS. HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS. HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS. HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS. HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-9	STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS. HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-10
Simpson Mill - Phase II SYMM Borring No. B-6 Location Howard County, MD Job # 1425AA Harmond Vit 140 1	Some Simpson Mill - Phase II SWM	Project Name	Date	Howard County, MD Job 6 14254A
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING LILL PLANTS CHIEF, DEVELOPMENT ENGINEERING DIVISION	Approximate Depth of Test (ft) Infiltration Rate (in/hr)	Professional Certification. I hereby certify the documents were prepared or approved by I am a duty licensed professional engineers of the State of Maryland. License No. 21443 Expiration Date	IND AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET ELL	BENCHMARK BENCHMARK ENGINEERING, INC. B480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM ER: SIMPSON MILL LLC P.O. BOX 417 JCOTT CITY, MARYLAND 21041 410-465-4244 ELOPER: Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 06-08-2016. SIMPSON MILL PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
CHIEF, DEVELOPMENT ENGINEERING DIVISION S-16-16 CHIEF, DIVISION OF LAND DEVELOPMENT & DATE DIRECTOR DATE	B-17 4 11.3 B-18 4 22.4 B-42 ASSUMED YES LOCATION B-42 WAS NOT TESTED FOR INFILTRATION DURING PHAST THIS TEST PROFILE IS SIMILAR TO TESTS 5, 7, 8, 10, 11, 14, 15 AND 17 ADEQUATE INFILTRATION RATES ARE ASSUMED.			SIMPSON MILL LLC P.O. BOX 417 ICOTT CITY, MARYLAND 21041 410-465-4244 DATE: MARCH, 2016 BEI PROJECT NO: 2634 EN: JMC DRAWN: JMC SCALE: AS SHOWN SHEET 13 OF 17

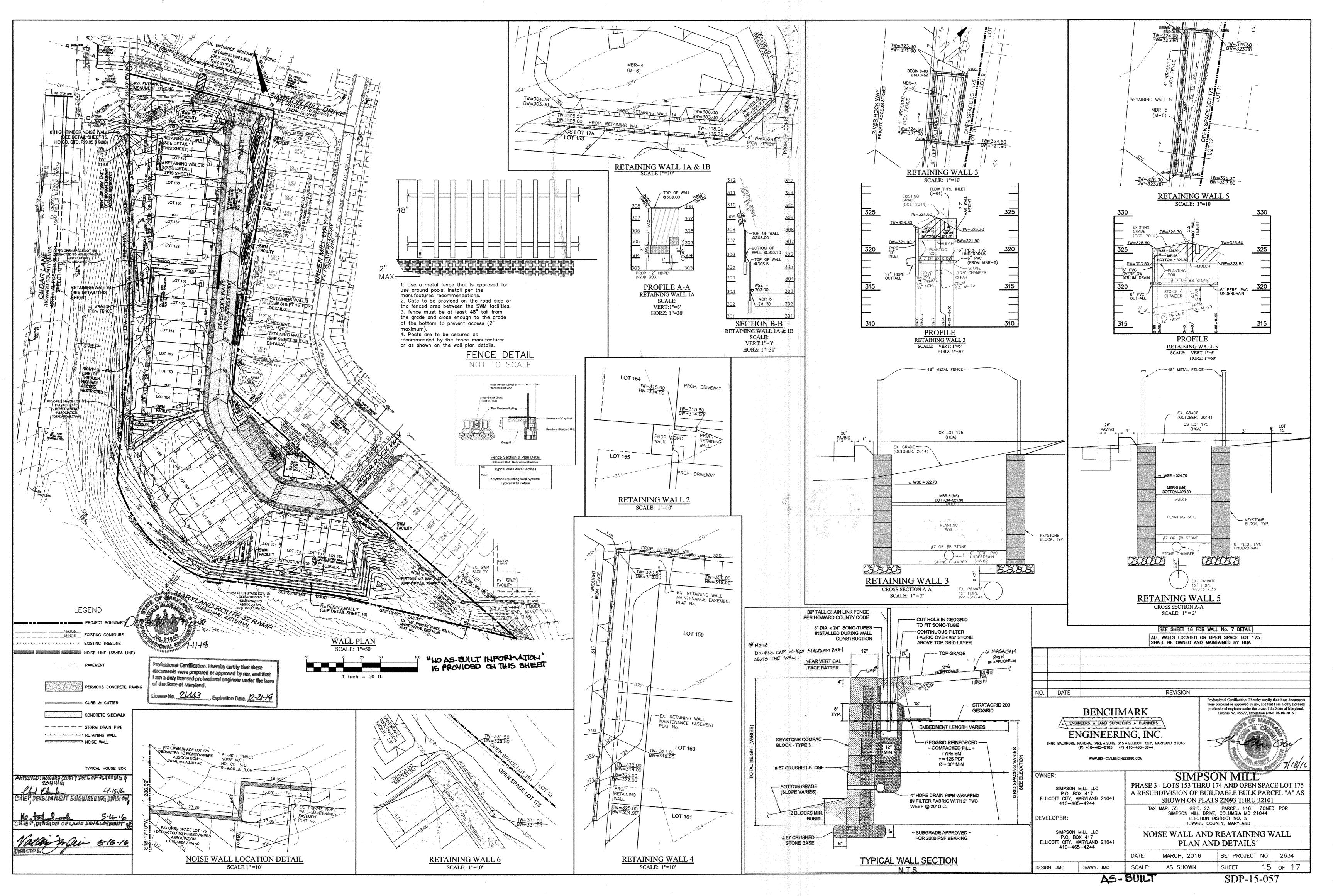
AS-DUILI

SDP-13-03/

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION
Project Name	Detum	Project Name	Project Name	Project Name
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-16 Location Howard County, MD Job # 14254A SAMPLER Surf. Elev. 342.0 ft Hammer Orop 30 in. Rock Core Diameter Inspector Date Started 5/28/14 Pipe Size 2.0 in. Boring Method HSA Date Completed 5/29/14 Elevation/Symbols/SAMPLE Depth CONDITIONS Red-Crange, moist, loose sitly SAND with mica (SM) Orange/Brown, moist, loose SILT with some sand (ML) Orange/Brown, moist, loose SILT No groundwater encountered while drilling	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-17 Location Howard County, MD Job # 14254A Datum Hammer Wt. 140 lbs. Hole Diameter 6 Foreman T. Carroll Surf. Elev. 344.9 ft Hammer Drop 30 in. Rock Core Diameter Inspector Date Started 5/27/14 Pipe Size 2.0 in. Boring Method HSA Date Completed 5/28/14 Elevation/ Synil.	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill - Phase II SWM Boring No. B-18 Location Howard County, MD Job # 14254A SAMPLER Datum Hammer Wt. 140 Ibs. Hole Diameter Surf. Elev. 345.9 ft Hammer Drop 30 in. Rock Core Diameter Date Started 5/27/14 Pipe Size 2.0 in. Boring Method HSA Date Completed 5/28/14 Elevation/SOIL Depth Conditions Description Boring and Sampling Rec. NM% SPT Blows Notes Project Name Simpson Mill - Phase II SWM Boring No. B-18 SAMPLER Datum Hammer Wt. 140 Ibs. Hole Diameter 6 Foreman T. Carroll Inspector Date Started 5/27/14 Pipe Size 2.0 in. Boring Method HSA Date Completed 5/28/14 Elevation/SOIL SYMBOLS/SAMPLE Depth CONDITIONS Description Description Description Description Notes No groundwater 13" 8-6-6 12 Dark Brown, moist, medium dense sandy SILT to sitty SAND (SM-ML) Orange/Brown, moist, medium dense sandy SILT to sitty SAND (SM-ML) Orange/Brown, moist, medium dense sandy SILT to sitty SAND (SM-ML) Orange/Brown, moist, medium dense sandy SILT to sitty SAND (SM-ML) Orange/Brown, moist, medium dense sandy SILT to sitty SAND (SM-ML)	HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION Project Name Simpson Mill Boring No. B-42 Location Howard County, Maryland Job # 11278A SAMPLER Surf. Elev. 319.06 It Hammer Wt. 140 Ibs. Hole Diameter 6" Foreman T. Carroll Surf. Elev. 319.06 It Hammer Drop 30 in. Rock Core Diameter Inspector Date Started 7-18-11 Pipe Size 2.0 in. Boring Method HSA Date Completed 7-18-11 Elevation/SOIL SAMPLER Depith CONDITIONS Brown to gray, moist, loose to medium dense, micaceous silty SAND (SM) Defined Topsoli 12" 16-6-4 10 Inspector 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Inspector 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Insection 11" Topsoli 12" 16-6-4 10 Insection 10 30 50 Ins	Approximate Measured In-situ Depth of Test (ft) Infiltration Rate (in/hr)
Bottom of boring at 12.0 FT Backfilled after 24 hours 18" 8-7-7 14 16-8-9 17 6-8-9 17 325 325 326 327 328 329 320 320 320 320 320 320 320	335 — 10	Dark Brown/Tan, moist, medium dense sithy SAND with fractured rock (SM) Dark Brown/Tan, moist, medium dense sithy SAND (SM) Dark Brown/Tan, moist, medium dense sithy SAND (SM) Bottom of boring at 12.0 FT Backfilled after 24 hours 15" 12-12-14. 26 11" 11" 14-13-16 29 315 320 325 320 325	310 — 10 D D Bottom of Hole at 15.0'	B-13
SAMPLER TYPE SAMPLE CONDITIONS DRIVEN SPLIT SPOON UNLESS OTHERWISE D - DISINTEGRATED AT COMPLETION DTY 1. INTACT AFTER 24 HRS. AFTER 14 HRS. AFTER 15 HRS. AFTER 15 HRS. AFTER 16 HRS. AFTER 16 HRS. AFTER 17 WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.	SAMPLER TYPE SAMPLE CONDITIONS DRIVEN SPLIT SPOON UNLESS OTHERWISE D - DISINTEGRATED AT COMPLETION DIV	SAMPLE TYPE SAMPLE CONDITIONS DRIVEN SPLIT SPOON UNLESS OTHERWISE D - DISINTEGRATED AT COMPLETION DIV 11. 8.5 11. HSA - HOLLOW STEM AUGERS PT - PRESSED SHELBY TUBE I - INTACT AFTER 24 HRS. DIV 11. 8.3 11. CFA - CONTINUOUS FLIGHT AUGERS CA - CONTINUOUS FLIGHT AUGER U - UNDISTURBED AFTER HRS. 11. 12. 13. 14. 15. 16. 17. 17. 18. 18. 18. 18. 18. 19. 19. 19	SAMPLE TYPE SAMPLE CONDITIONS DRIVEN SPLIT SPOON UNLESS OTHERWISE D - DISINTEGRATED AT COMPLETION Dry 1. INTACT AFTER 24 HRS. Dry 1. INTACT AFTER 24 HRS. Dry 1. CFA - CONTINUOUS FLIGHT AUGERS CA - CONTINUOUS FLIGHT AUGER U - UNDISTURBED AFTER HRS. 1. INTACT AFTER 24 HRS. Dry 1. CFA - CONTINUOUS FLIGHT AUGERS CA - CONTINUOUS FLIGHT AUGER BC - ROCK CORE L - LOST MD - MUD DRILLING STANDARD PENETRATION TEST-DRIVING 2° O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30°: COUNT MADE AT 6" INTERVALS.	Professional Certification. I hereby certify that these documents
		OR	NONAL EN 18	BENCHMARK BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS ENGINEERING, INC. B480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6644 WWW.BEI-CIVILENGINEERING.COM
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING CHIEF, DEVELOPMENT ENGINEERING DIVISION			DEVE	PHASE 3 - LOTS 153 THRU 174 AND OPEN SPACE LOT 175 A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS SHOWN ON PLATS 22093 THRU 22101 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND
CHIEF, DIVISION OF LAND DEVELOPMENT DATE WALLING SELICIT 5-16-16 DIRECTOR DATE		NO. DATE		SIMPSON MILL LLC P.O. BOX 417 ICOTT CITY, MARYLAND 21041 410-465-4244 DATE: MARCH, 2016 BEI PROJECT NO: 2634 IN: JMC DRAWN: JMC SCALE: SHEET 14 OF 17

AS-BUILT

SDP-15-057



SPECIFICATIONS MODULAR CONCRETE BLOCK RETAINING WALL RIGHT-OF-WAY LINE -FENCE PER HOWARD REINFORCEMENT APPLICATIONS AND SHALL BE COUNTY CODE UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS. FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO FILL CLOSELY WITH STRUCTURE BACKFILL. UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND **PART 1: GENERAL** TOP GRADE (TIER #4 ONLY) PROVIDE CONNECTION BETWEEN VERTICALLY AND MANUFACTURED FROM HIGH TENACITY POLYESTER YARN. SHALL BE + 3% TO - 3% OF OPTIMUM. (2:1 MAX, SLOPE) EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS. HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR 1.01 DESCRIPTION CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM O. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL 2.07 DRAINAGE PIPE PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT CONNECTORS BETWEEN VERTICAL ADJACENT UNITS BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE A. WORK SHALL CONSIST OF FURNISHING AND A DISTANCE OF 10 FEET UNDER DIFFUSED LIGHTING. SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF AND COMPACTION, SHALL NOT EXCEED THREE COURSES. . THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM 10 DEGREES F TO + 100 DEGREES F. B. SHEAR MODULAR CONCRETE UNIT. MODULAR CONCRETE MATERIALS SHALL CONFORM TO HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM 3.04 STRUCTURAL GEOGRID INSTALLATION IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN CONNECTORS SHALL BE CAPABLE OF HOLDING THE THE REQUIREMENTS OF ASTM C1372 - STANDARD . TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE REASONABLY CLOSE CONFORMITY WITH THE LINES, GEOGRID IN THE PROPER DESIGN POSITION DURING GRID A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST 8" DIA BY 24" SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS. GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE OPERATED DIRECTLY UPON THE GEOGRID E-TENSIONING AND BACKFILLING. PART 3 EXECUTION STRENGTH AXIS PERPENDICULAR TO THE WALL **DEEP SONO-TUBE** REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE 2.03 BASE LEVELING PAD MATERIAL INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED 5 MIN - SEE SITE PLAN 3.01 EXCAVATION FOLLOWING STRUCTURAL AND GEOMETRIC B. WORK INCLUDES PREPARING FOUNDATION SOIL, VEHICLES OVER THE GEOGRID. TRACKED VEHICLE B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE REQUIREMENTS MEASURED IN ACCORDANCE WITH RNISHING AND INSTALLING LEVELING PAD, UNIT A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED . CONTRACTOR SHALL EXCAVATE TO THE LINES AND TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT APPROPRIATE REFERENCES: STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES STONE BASE AS SHOWN ON THE CONSTRUCTION TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. CONSTRUCTION DESIGN DRAWINGS OR AS DIRECTED BY COMPRESSIVE STRENGTH = 3000 PSI MINIMUM: OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE EXCAVATION PRIOR TO ABSORPTION = 8% MAXIMUM (6% IN NORTHERN STATES) C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID 2.04 UNIT DRAINAGE FILL RUBBER TIRED EQUIPMENT MAY PASS OVER GEOGRID PLACEMENT OF LEVELING MATERIAL OR FILL SOILS. FOR STANDARD WEIGHT AGGREGATES: C. THE GEOGRID SHALL BE LAID HORIZONTALLY ON SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. COMPACTED BACKFILL AND ATTACHED TO THE MODULAR A. UNIT DRAINAGE FILL SHALL CONSIST OF #57CRUSHED LENGTHS DESIGNATED ON THE CONSTRUCTION TIER #4 --3.02 BASE LEVELING PAD SUDDEN BRAKING AND SHARP TURNING SHALL BE DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT WALL UNITS. PLACE THE NEXT COURSE OF MODULAR DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE, ±1/16" CONCRETE UNITS OVER THE GEOGRID, THE GEOGRID A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES 2.05 REINFORCED BACKFILL SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO 1.02 DELIVERY, STORAGE AND HANDLING G. AT THE END OF EACH DAY'S OPERATION, THE UNIT HEIGHT - TOP AND BOTTOM PLANES; UNIT SIZE - 8" (H) AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS BACKFILL PLACEMENT ON THE GEOGRID. CONTRACTOR SHALL SLOPE THE LAST LIFT OF X 18" (W) X 12 (D) MINIMUM; A. REINFORCED BACKFILL SHALL TYPE SM, BE FREE OF TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, DIRECT RUNOFF AWAY FROM WALL FACE. THE UNIT WEIGHT - 75 LBS/UNIT MINIMUM FOR STANDARD ACCORDANCE WITH ASTM D-422 AND MEET OTHER MODULAR WALL UNIT THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED COLOR, AND CERTIFICATION HAS BEEN RECEIVED. TOP GRADE -CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM **NEIGHT AGGREGATES:** PROPERTIES SHOWN ON THE PLAN: SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH (4:1 TYP. SLOPE B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI TIER #1 THRU #3) CONTACT TO THE BASE SURFACE OF THE CONCRETE SIEVE SIZE PERCENT PASSING DAMAGE DUE TO JOB SITE CONDITIONS AND IN PIECES OF GEOGRID OR GAPS BETWEEN ADJACENT NORMAL PRESSURE; AT 2 PSI NORMAL FORCE. **ACCORDANCE WITH MANUFACTURER'S** PIECES OF GEOGRID ARE NOT PERMITTED. 3.06 CAP INSTALLATION 2 INCH RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF 3.03 MODULAR UNIT INSTALLATION 3.05 REINFORCED BACKFILL PLACEMENT INCORPORATED INTO THE WORK. A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND PART 2: PRODUCTS D. MODULAR CONCRETE UNITS SHALL CONFORM TO THE NO. 40 LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. MANUFACTURER. COMPACTED IN SUCH A MANNER THAT MINIMIZES THE FOLLOWING CONSTRUCTABILITY REQUIREMENTS: (IF ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL 2.01 MODULAR CONCRETE RETAINING WALL UNITS DEVELOPMENT OF SLACK IN THE GEOGRID AND NO. 200 3.07 FIELD QUALITY CONTROL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULI CONTACT WITH THE BASE AND PROPERLY SEATED. A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <35 PER ASTM A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING FOLLOWING ARCHITECTURAL REQUIREMENTS: REINFORCED BACKFILL SHALL BE PLACED AND CONTINUOUS MIRAFI ----RVICES, INCLUDING INDEPENDENT LABORATORIES, TO OR 1"+ PER COURSE PER THE DESIGN; ALIGNMENT AND B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE 140-N FILTER FABRIC GRID POSITIONING MECHANISM - FIBERGLASS PINS, TWO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER . MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE HAND COMPACTION IS USED, OR 8 - 10 INCHES WHERE **OVER #57 STONE ABOVE** URING CONSTRUCTION. AND CURVES SHALL BE IN ACCORDANCE WITH ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS HEAVY COMPACTION EQUIPMENT IS USED, LIFT THICKNESS **INSTALL DRAIN BOARD BEHIND** TOP GRID LAYER (TYP. FACE FINISH - SCULPTURED ROCK FACE IN ANGULAR MANUFACTURER'S RECOMMENDATIONS. MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS FOR BACKFILL (HIGH PLASTIC CLAYS OR ORGANIC SOILS) B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD SHALL BE DECREASED TO ACHIEVE THE REQUIRED **GEOGRIDS WITH DRAIN PIPE** TRI-PLANER OR FLAT CONFIGURATION, OTHER FACE INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND SHALL NOT BE USED IN THE REINFORCED SOIL MASS. DENSITY AS REQUIRED. DAYLIGHTING THRU WALL BLOCK AS C. INSTALL SHEAR/CONNECTING DEVICES PER SHALL BE - 1/2 INCH. FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN BACKFILL TESTING, VERIFICATION OF DESIGN DETERMINED NECESSARY BY SITE MANUFACTURER'S RECOMMENDATIONS. APPROVAL OF OWNER 2.06 GEOGRID SOIL REINFORCEMENT C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF 2.02 SHEAR CONNECTORS (IF APPLICABLE) PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GEOTECHNICAL ENGINEER TO THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. **BOND CONFIGURATION - RUNNING WITH BONDS** D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND INTERCEPT ANY SEEPING WATER (OR A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THE MOISTURE CONTENT OF THE BACKFILL MATERIAL WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND SPECIFICATIONS. AREAS LIKELY TO SEEP) ALONG THE NOMINALLY LOCATED AT MIDPOINT VERTICALLY ADJACENT THERMOSET ISOPTHALIC POLYESTER RESIN-PROTRUDED GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL PRIOR TO AND DURING COMPACTION SHALL BE DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE # 57 CRUSHED STONE BLOCK EXCAVATION FACE. FILL & DRAIN BLANKET (TYP. ALL WALLS) TIER #2 -NOTE: MAX. GRADE CHANGE --3 FT. TYP. ALL WALLS COMPACTED FILL TYPE SM v = 125 PCFLOT 172 - EXCAVATION FACE SLOPED IN $Ø = 32^{\circ} MIN$ **NEAR VERTICAL** CHELSEA (TYP. ALL WALLS) ACCORDANCE WITH OSHA FACE BATTER **REQUIREMENTS - MEANS &** (TYPICAL) GRID EMBEDMENT LENGTH METHODS FOR EXCAVATING A SHORING TO SAFELY INSTALI WALL SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY FF=334.55 MICRO-BIORETENTION FACILITY MBR 1 ~ UNDISTURBED SOIL ROOF LEADER **KEYSTONE BLOCK-**TYPE 3 (TYP.) Professional Certalisation. Thereby certify that these SECTION B-E BF=324.55 SECTION D-D BOTTOM GRADE documents were prepared or approved by me, and that MIRAGRID 3XT GEOGRID SECTION C-C SCALE: 1"=10' SCALE: 1"=10" (SLOPE VARIES) TYPICAL ALL WALLS I am a duly licensed professional engincer under the laws SCALE: 1"=10' of the State of Maryland. 4" HDPE DRAIN PIPE L. Expiration Date: 06:08:12 WRAPPED IN FILTER FABRIC FENCE PER HOWARD -WITH 2" PVC WEEP @ 20' O.C. COUNTY CODE and the state of t CONTINUOUS MIRAFI 140-N FILTER FARRIC OVER #57 STONI ~ SUBGRADE APPROVED · FOR 2000 PSF BEARING ABOVE TOP GRID LAYER (TYP.) # 57 CRUSHED ---STONE BASE (SLOPE VARIES) **NEAR VERTICAL TYPICAL WALL #7 SECTION** FACE BATTER (TYPICAL) N.T.S. "NO AS-BUILT INFORMATION is provided on this sheet 11.28.16 FOR BEI rofessional Certification. I hereby certify that these MIRAGRID 3XT GEOGRID REV. # 1 ONLY documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laser **KEYSTONE BLOCK**of the State of Maryland TYPE 3 (TYP.) (2 GRID LAYER MAX.) License No. 21443 Expiration Date: 12-21-19 - BOTTOM GRADE GEOGRID REINF, COMPACTED FILL (SLOPE VARIES) TYPE SM y = 125 PCF APPROVED : HOLDARD COUNTY DOPART MENT OF PLANNING AND ZOOLING Ø = 32° MIN 4.15.16 4" HDPE DRAIN PIPE WRAPPED IN FILTER (SEE ELEV.) FABRIC WITH 2" PVC WEEP Chier development engagering division VALE @ 20' O.C. ~ SUBGRADE APPROVED -5-66-16 TIERED # 57 CRUSHED ---CHIER DIVISION OPLAND DESERBORMENT BB STONE BASE RETAINING WALL #7 5-16-16 TIER #2 TIER #1 DISACTOR, Min **TYPICAL WALL SECTION - NON TIERED** SITE WALL PLAN N.T.S. **SCALE:** 1'' = 50'LOT 171 MICRO-BIORETENTIO 11.28.16 Add Patios to Lots 171-174 BEI REVISION. LOT 172 DATE REVISION LOT 173 PATIO PROFESSIONAL CERTIFICATION LOT 174 PATIO 2+00 PATIO | 2+00| TIER #4 2+00 HEREBY CERTIFY THAT THESE PLANS WERE TIER #2 PREPARED OR APPROVED BY PRIVATE STORM DRAIN FASEMENT VARYING 1+00 **ENGINEERING ASSOCIATES** ME, AND THAT I AM A DULY LICENSED PROFESSIONAL 10975 Guilford Road, Suite A **ENGINEER UNDER THE LAWS** TIER #1 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098 OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/17. **TIER #3** SIMPSON MILL OPEN SPACE LOT 175 PHASE 3 - LOTS 153 THRU 175 AND OPEN SPACE LOT 175 SIMPSON MILL LLC A RESUBDIVISION OF BUILDABLE BULK PARCEL "A" AS P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 SHOWN ON PLATS 22093 THRU 22101 - RIGHT-OF-WAY LINE OF THROUGH -TIER #3 410-465-4244 2+23 -4 TAX MAP: 35 GRID: 23 PARCEL: 116 ZONED: POR SIMPSON MILL DRIVE, COLUMBIA MD 21044 ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND HIGHWAY ACCESS RESTRICTED TIER #4 2+00 DEVELOPER: $\mathbf{\Omega}$ S63°56'54"E SIMPSON MILL LLC **TIERED RETAINING WALL #7 LOCATION PLAN** P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 & TYPICAL WALL CONSTRUCTION DETAILS 410-465-4244 TIERED RETAINING WALL #7 LOCATION PLAN HCEA PROJECT NO: 11278-E MARCH, 2016 **SCALE: 1" = 10'** DRAWN: HM DESIGN: RWS SCALE: AS SHOWN SHEET 16 OF 17 AS-BULT SDP-15-057

