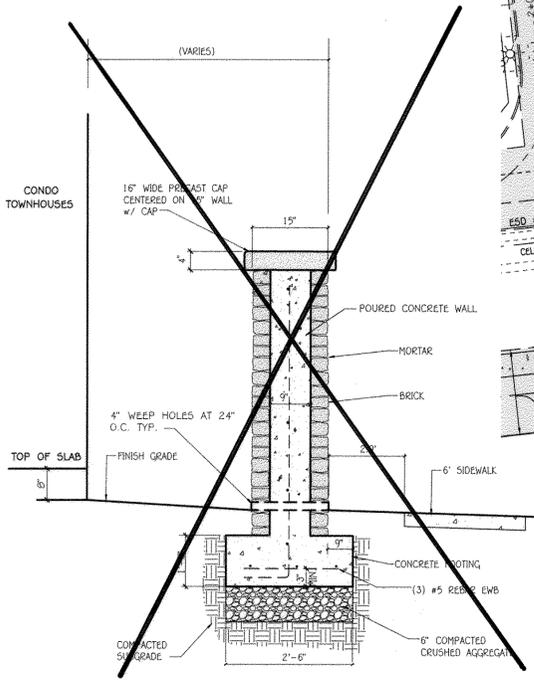
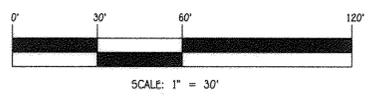


RESERVED FOR LOW EMISSION AND FUEL EFFICIENT VEHICLES

LE & FE SIGN DETAIL
NOT TO SCALE



2'-0" HIGH LANDSCAPE WALL SECTION FOR UNITS FACING SAINT MARGARETS BLVD.



CURVE #	STA. TO STA.	RADIUS	ARC LENGTH	TANGENT	CHORD	DELTA
C1	STA. 0+39.36 TO STA. 1+95.98	500.00'	156.62'	78.96'	55° 44' 44" E 155.98'	17° 56' 50"
C2	STA. 2+36.52 TO STA. 2+88.79	275.00'	52.27'	26.22'	55° 13' 03" E 52.19'	10° 53' 28"
C3	STA. 1+28.55 TO STA. 1+79.40	45.00'	50.83'	28.53'	506° 05' 35" E 48.19'	64° 44' 32"
C4	STA. 2+30.34 TO STA. 3+21.82	200.00'	91.48'	46.55'	351° 33' 54" E 90.68'	26° 12' 25"

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 461-2895



NO.	REVISION	DATE
1	REPLASD STONE WALL WITH BRICK ALONG ST. MARGARETS BOULEVARD	11/07
2	ADDED OPTION - BRICK TO TOWNHOUSE DRIVE	

Owner/Builder
Lennar
10211 Winopin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

Developer
Lennar
10211 Winopin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

V. K. ... 9-23-15
Chief, Division of Land Development

D. J. ... 7-8-15
Chief, Development Engineering Division

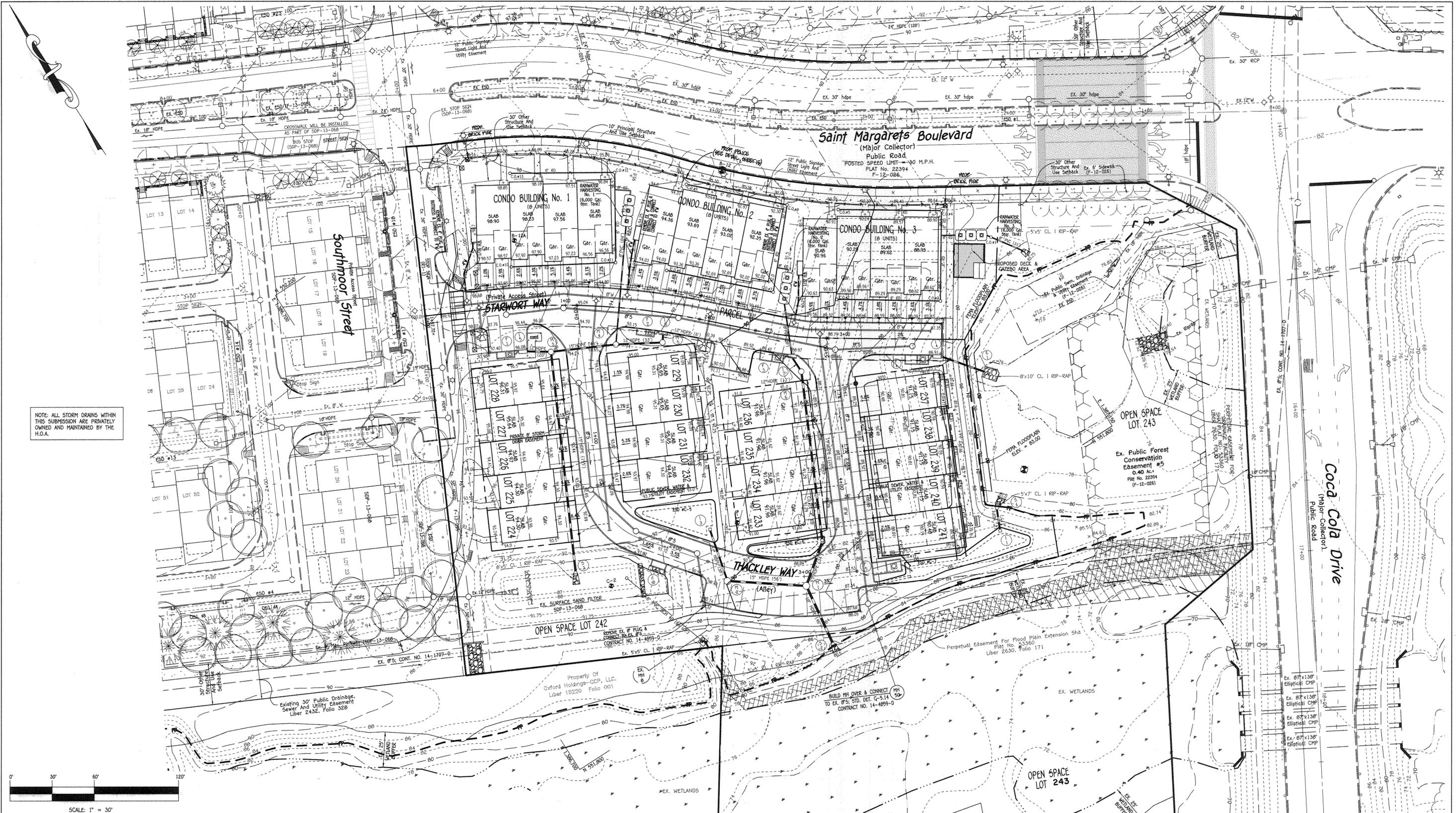
V. ... 9-24-15
Director - Department of Planning and Zoning

SUBDIVISION	PARCEL NO.	LOT NOS.			
OXFORD SQUARE	'C'	LOTS 224-241 & CONDO. BLDGS. 1-3			
PLAT NO.	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
23450-23451	---	TOD	44	1st.	601101

GEOMETRY PLAN
OXFORD SQUARE
"A Howard County Green Neighborhood"
Lots 224-241, Open Space Lots 242 & 243
And Parcel 'U'

(Being A Resubdivision of Parcel 'C', As Shown On Plans Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'J', 'K' And 'M' And Recorded Among The Land Records Of Howard County, Maryland As Plat Nos. 22856, Thru 22859.)

Zoned: TOD
Tax Map No.: 3B Grid No.: 20 Parcel No.: 1005
First Election District: Howard County, Maryland
Scale: As Shown
Date: May 7, 2015
Sheet 3 of 20



NOTE: ALL STORM DRAINS WITHIN THIS SUBMISSION ARE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
 ELLSWORTH CITY, MARYLAND 21144
 (410) 461-2295



NO.	REVISION	DATE
1	REVISIONS TO BE MADE WITH PERMIT ALIANCE BY MARGARETS DEVELOPMENT & CONDO BUILDING NO. 1, 2, 3	1/10/17

Owner/Builder
 Lennar
 10211 Winopin Circle, Suite 180
 Columbia, Maryland 21044
 Ph: 410-423-0460

Developer
 Lennar
 10211 Winopin Circle, Suite 180
 Columbia, Maryland 21044
 Ph: 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Kestelove
 Chief, Division of Land Development
 Date: 9-23-15

David Clark
 Chief, Development Engineering Division
 Date: 7-8-15

Natalie Jager
 Director - Department of Planning and Zoning
 Date: 9-24-15

SUBDIVISION	PARCEL NO.	LOT NOS.			
OXFORD SQUARE	'C'	LOTS 224-241 & CONDO. BLDGS. 1-3			
PLAT NO.	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
23450-23451	---	TOD	44	1st	601101

SITE DEVELOPMENT PLAN
OXFORD SQUARE
 "A Howard County Green Neighborhood"
 Lots 224-241, Open Space Lots 242 & 243
 And Parcel 'U'

(Being A Resubdivision Of Parcel 'C', As Shown On Plans Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K' And 'M' And Recorded Among The Land Records Of Howard County, Maryland As Plat No. 22855 Thru 22859.)

Zone: TOD
 Tax Map No.: 38 Grid No.: 20 Parcel No.: 1003
 First Election District: Howard County, Maryland
 Scale: As Shown
 Date: May 7, 2015
 Sheet 4 of 20

Operation And Maintenance Schedule For Rainwater Harvesting System (M-1)

THE RAINWATER HARVESTING SYSTEM (UNDERGROUND CHAMBERS) SHALL BE INSPECTED AT LEAST TWICE PER YEAR (ONCE EACH IN THE SPRING AND FALL). THE OWNER IS RESPONSIBLE FOR MAINTAINING A DETAILED LOG OF THE MAINTENANCE INSPECTION FINDINGS AND A HISTORY OF THE COMPLETED WORK. THE LOG SHALL BE MADE AVAILABLE TO HOWARD COUNTY DPZ AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UPON REQUEST.

SPECIFIC COMPONENTS TO BE INSPECTED AND MAINTAINED INCLUDE THE ITEMS AS FOLLOWS:

1. REMOVE DEBRIS.
2. EXAMINE STRUCTURES FOR SIGNS OF STRUCTURAL ISSUES (DAMAGE, CORROSION, ETC).
3. REMOVE AND PROPERLY DISPOSE ACCUMULATED SEDIMENT GREATER THAN ONE (1) INCH.
4. THE HOMEOWNER SHALL VERIFY INTEGRITY OF LEAF SCREENS, GUTTERS & DOWNSPOUTS AND CLEAN AND REMOVE ANY DEBRIS.

NOTE:
1. THE RAINWATER HARVESTING STORAGE SHALL BE 80% EMPTIED MINIMUM) WHEN A 2" OR GREATER RAINFALL EVENT IS FORECASTED. THIS IS TO ALLOW STORAGE TO PROVIDE QUANTITY MANAGEMENT NEEDED TO PROTECT DOWNSTREAM WATERWAYS.

FILTERRA: Operation and Maintenance

Annual maintenance consists of a maximum of (2) scheduled visits. The visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands. The fall visit helps the system by removing excessive leaf litter.

Each maintenance inspection consists of the following tasks:

1. Filterra unit inspection
2. Foreign debris, silt, mulch and trash removal
3. Filter media evaluation and recharge as necessary
4. Plant health evaluation and pruning or replacement as necessary
5. Replacement of mulch
6. Disposal of all maintenance refuse items
7. Maintenance records updated and stored

FILTERRA STANDARD PLAN NOTES

Construction & Installation

- Each unit shall be constructed at the locations and elevations according to the sizes shown on the approved drawings. Any modifications to the elevation or location shall be at the direction of and approved by the Engineer.
- If the Filterra® is stored before installation, the top slab must be placed on the box using the 2x4 wood provided, to prevent any contamination from the site. All internal fittings supplied (if any), must be left in place as per the delivery.
- The unit shall be placed on a compacted sub-grade with a minimum 6-inch gravel base matching the final grade of the curb line in the area of the unit. The unit is to be placed such that the unit and top slab match the grade of the curb in the area of the unit. Compact undisturbed sub-grade materials to 95% of maximum density at a 2% of optimum moisture. Unusable material below sub-grade shall be replaced to the site engineer's approval.
- Outlet connections shall be aligned and sealed to meet the approved drawings with modifications necessary to meet site conditions and local regulations.
- Once the unit is set, the internal wooden forms and protective mesh cover must be left intact. Remove only the temporary wooden shipping blocks between the box and top slab. The top lid should be sealed onto the box section before backfilling, using a non-abrasive, butyl rubber or similar waterproof seal. The boards on top of the lid and boards sealed in the unit's throat must NOT be removed. The Supplier (Americast or its authorized dealer) will remove these sections at the time of activation. Backfilling should be performed in a careful manner, bringing the appropriate fill material up in 6" lifts on all sides. Pre-set sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Filterra® shall conform to ASTM specification C991 "Standard Practice for Installation of Underground Precast Urethane Structures", unless directed otherwise in contract documents.
- The contractor is responsible for inlet protection/sediment control and cleaning around each Filterra® unit.
- Curb and gutter construction (where present) shall ensure that the flow-line of the Filterra® units is at a greater elevation than the flow-line of the bypass structure or relief (drop inlet, curb cut or similar). Failure to comply with this guideline may cause failure and/or damage to the Filterra® environmental device.
- Each Filterra® unit must receive adequate irrigation to ensure survival of the living system during periods of drier weather. This may be achieved through a piped system, gutter flow or through the tree grate.

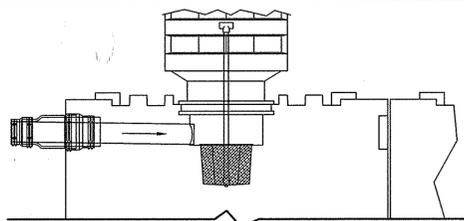
Activation

Activation of the Filterra® unit is performed ONLY by the Supplier. Purchaser is responsible for Filterra® inlet protection and subsequent clean out cost. This process cannot commence until the project site is fully established and cleared (full landscaping, grass cover, final paving and street sweeping completed), negating the chance of construction materials contaminating the Filterra® system. Care shall be taken during construction not to damage the protective throat and top plates.

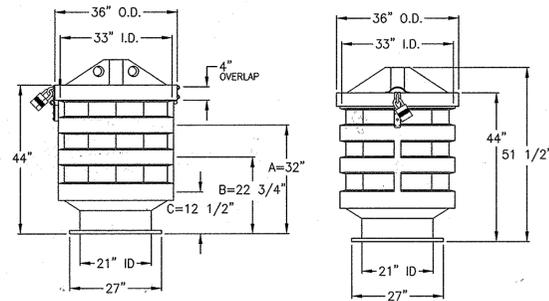
Activation includes installation of plant(s) and mulch layers as necessary.

Included Maintenance

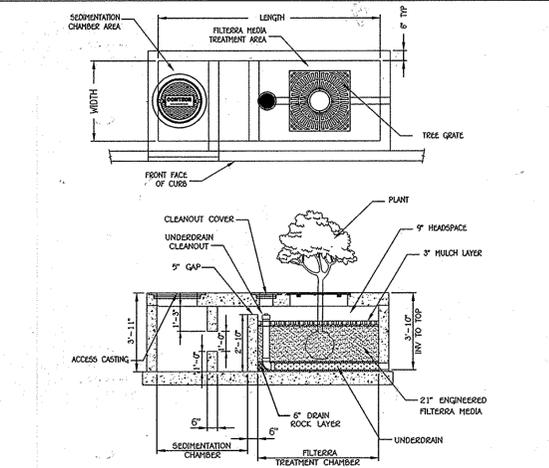
- Each correctly installed Filterra® unit is to be maintained by the Supplier, or a Supplier approved contractor for a minimum period of 1 year. The cost of this service is to be included in the price of each Filterra® unit. Extended maintenance contracts are available at extra cost upon request.
- Annual included maintenance consists of a minimum of (2) scheduled visits. The visits are scheduled seasonally; the spring visit aims to clean up after winter loads that may include salts and sands. The fall visit helps the system by removing excessive leaf litter.
- Each included maintenance visit consists of the following tasks:
 1. Filterra® unit inspection
 2. Foreign debris, silt, mulch & trash removal
 3. Filter media evaluation and recharge as necessary
 4. Plant health evaluation and pruning or replacement as necessary
 5. Replacement of mulch
 6. Disposal of all maintenance refuse items
 7. Maintenance records updated and stored (reports available upon request)
- The beginning and ending date of Supplier's obligation to maintain the installed system shall be determined by the Supplier at the time the system is activated. Owners must promptly notify the Supplier of any damage to the plant(s), which constitute(s) an integral part of the bio-retention technology.



Clarifier with silt dam and debris basket

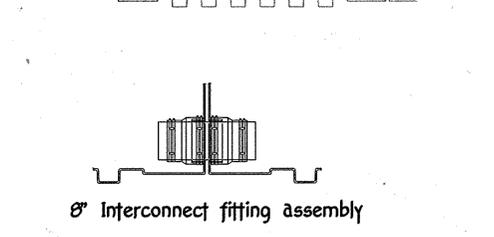
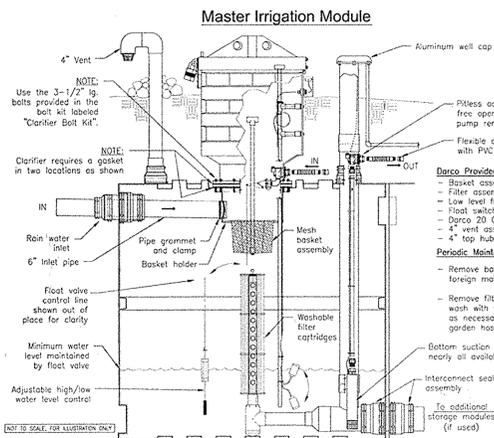
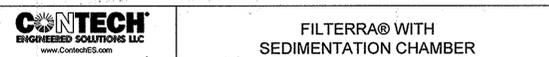


20" x 30" I.D. Polyethylene manway extension



UNIT DESIGNATION	INSIDE VAULT DIMENSIONS	FILTERRA TREATMENT AREA	MAXIMUM DRAINAGE AREA TREATED (SF)	WQV STORAGE CAPACITY (CF)
FTSC 6' x 4'	12' x 4'	6' x 4'	5,216	103
FTSC 8' x 4'	16' x 4'	8' x 4'	7,141	141
FTSC 6' x 6'	12' x 6'	6' x 6'	7,847	155
FTSC 8' x 6'	16' x 6'	8' x 6'	10,734	212
FTSC 10' x 6'	19' x 6'	10' x 6'	12,630	250
FTSC 10' x 8'	20' x 8'	10' x 8'	18,178	360
FTSC 11' x 8'	22' x 8'	11' x 8'	20,000	398

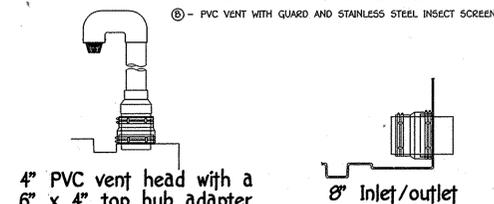
NOTE:
1. MAXIMUM DRAINAGE AREA TREATED ASSUMES 25% WQV AND FILTER SURFACE AREA REQUIREMENTS ARE BOTH MET.
2. STORAGE CAPACITY ASSUMES 40% VOIDS IN UNDERDRAIN STONE AND 30% VOIDS IN MULCH AND MEDIA.
3. ALL INFORMATION IS BASED ON STANDARD 3.0' RM TO OUTLET DEPTH CONTACT CONTACT CONTACT FOR CUSTOM SIZING IF DEPTH IS NOT 3.0'. ACCEPTABLE DEPTHS IS 3.33' MIN. TO 5.00' MAX. RM TO INVERT OUT.



8" Interconnect fitting assembly

ACCESSORIES

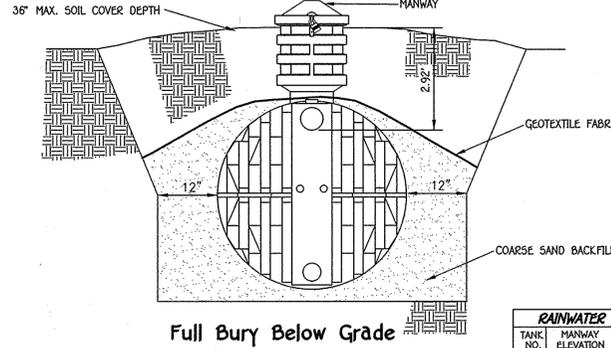
- 20" I.D. POLYETHYLENE SPOOL TYPE MANWAY EXTENSION TO GRADE W/ MESH BASKET ASSEMBLY AND INFLOW PIPE.
- PVC VENT WITH GUARD AND STAINLESS STEEL INSECT SCREEN.



4" PVC vent head with a 6" x 4" top hub adapter

DESIGN GUIDELINES FOR USING FILTERRA

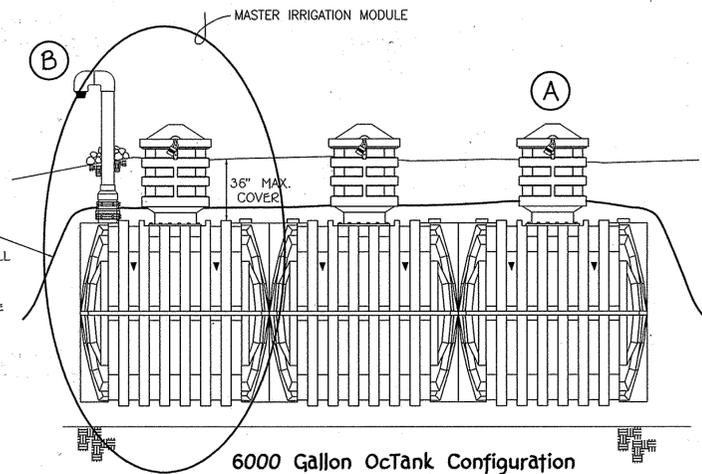
- Do not place in a sump condition. The standard Filterra® cannot be used as a stand alone inlet - it will need effective bypass during higher intensity rainfall events. For sump conditions please contact Filterra®.
- Plans MUST show Filterra® Top Curb (TC) and Flow Line (FL) spot elevations and also bypass TC (where applicable) and bypass FL spot elevations.
- The Filterra® TC and FL elevations MUST be higher than the bypass TC and FL elevations for effective bypass. Use Drawing FLP-2 (p.24) as a detail on the project plans.
- For proper trash collection ensure a minimum 4" and maximum 6" Filterra® throat opening depth and use Drawing CGT-5 (p.25) as a detail on the project plans.
- Do not direct surface flow to the standard Filterra® in a 'head-on' configuration. Refer to Guidelines GU1-A (p.13) and GU2 (p.18) for grading design that encourages flow to enter a Filterra® in a cross linear flow - left-to-right or right-to-left in the gutter in front of the throat, as per a wet curb which prevents system damage. During extreme storm events the excess flow should continue past the Filterra® to a bypass inlet or other means of relief. Guideline Q13, Parking Lot Corners, shows common situations (p.19).
- To calculate which size Filterra® is required, use Table 1, Filterra® Quick Sizing Table, appropriate to the project's geographical region and target treatment regime (p.12). The entire contributing drainage area to the Filterra® should be considered and the minimum allowable C factors noted. The maximum contributing drainage area will vary with site conditions. For further information relating to sizing please contact Filterra®.
- To ensure correct installation, include the Standard Filterra® Plan Notes (p.26-27) on your Filterra® detail project sheet, as well as detailed drawings FLP-2 and CGT-5 (p.24,25).
- Positive drainage of each Filterra® unit's effluent treatment pipe is required to prevent free standing water from accumulating in the system or underdrain. This could occur due to tidal influences or improper connection of Filterra® effluent pipe to a bypass structure or other outfall.



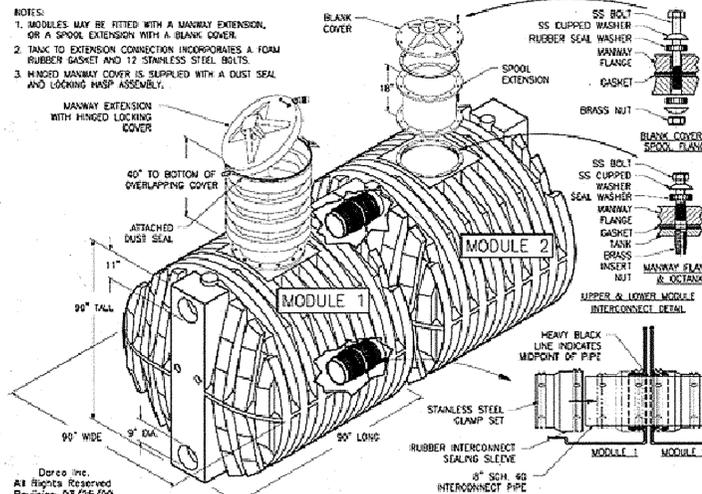
Full Bury Below Grade

TANK NO.	MANWAY ELEVATION	INLET/OUTLET ELEVATION	SIZE (Gallons)
#1	95.4	92.48	6,000
#2	91.0	88.08	6,000
#3	88.0	85.08	6,000

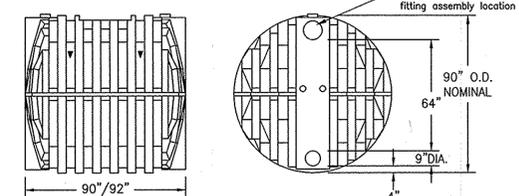
NOTE: EACH DOWNSPOUT THAT IS CONNECTED TO THE OCTANKS SHALL HAVE AN OVERFLOW AND HAVE A GUTTER DRAIN FILTER.



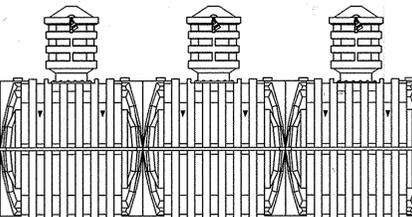
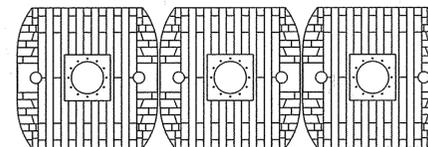
Manway Extensions, Blank Cover, & Interconnect Detail



Darco Inc. All Rights Reserved Revision 03/25/09



SINGLE 2,000 GAL. MODULE



6,000 GAL. OCTANK CONFIGURATION

6000 Gallon OctTank Configuration (shown with manway extension)

SPECIFICATIONS FOR POLYETHYLENE UNDERGROUND WATER TANKS QUALITY ASSURANCE

Manufacturer: Darco Inc. or Equil.
Darco Inc. 980 Darco Dr. - P.O. Box 779 - Bennett, CO. 80102.
Phone: 800-242-8660, Fax: 303-644-5001, Internet: www.darcoinc.com

GENERAL GOVERNING STANDARDS

- ASTM 1998-93, Polyethylene Storage Tanks, those specific sections considered germane and prudent as applied to underground water storage tanks only.
- Section 4: Type 2 high density virgin linear polyethylene resin
- Section 5: Material standards for food contact grade polyethylene resin
- Section 7: Fittings for polyethylene water tanks
- Section 8: Performance requirements based on impact testing
- Section 9: Dimensions and tolerances
- Section 10: Workmanship

DESIGN STANDARDS / DARCO MODULAR POLYETHYLENE OCTANK SYSTEMS

- External Hydrostatic Loading: The empty tank system with manway risers, when anchored into a sand backfilled excavation at a 3 foot bury depth and flooded with water to spring line, must maintain its structural shape and 100% water tightness.
- Traffic Loading: Tank systems, when properly installed and incorporating an approved concrete surface slab, must withstand automotive and HED truck traffic loads.
- Dry Bury Installation: Tank systems must have sufficient wall strength and structural integrity to be installed and completely backfilled to a 3 foot bury depth without the addition of water during the backfill process. Furthermore, tank systems must maintain their structural shape and full storage capacity when left empty for extended periods.

TANK FITTINGS

All fittings shall be of polyolefin or PVC construction and incorporate only 300 series stainless steel hardware. Compatible and warranted tank-to-pipe flexible couplers must be made available along with the tank system at the time of purchase. Fittings, gaskets, and hardware must be available specifically for domestic water use.

POTABLE WATER APPLICATIONS

The virgin polyethylene resin used for construction of potable water storage tanks must be NSF listed and comply with FDA Title 21 when in contact with drinking water.

ACCESSORIES

The accessory package provided with any storage tank system must contain only fully approved accessories and appurtenances which meet all performance standards and warranty coverage guidelines of tank manufacturer.

CAPACITY AND SIZE REQUIREMENTS

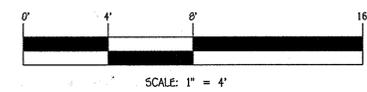
- The nominal volume of the tank system shall be _____ gallons.
- The nominal tank diameter shall be _____ feet by a nominal length of _____ feet.

LIMITED WARRANTY

A standard 2 year structural and corrosion warranty shall become effective upon tank delivery. An optional extended warranty program must be available at time of purchase.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
NATIONAL SQUARE OFFICE PARK - 10722 BALTIMORE NATIONAL PARK
ELLSWORTH CITY, MARYLAND 21042
(410) 461-2855

NO.	REVISION	DATE



Owner/Builder
Lennar
10211 Wincopin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0450

Developer
Lennar
10211 Wincopin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0450

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

V. J. Shuler
Chief, Division of Land Development
Date: 9-23-15

W. J. Chis
Chief, Development Engineering Division
Date: 7.9.15

Valerie J. ...
Director - Department of Planning and Zoning
Date: 9-24-15

SUBDIVISION	PARCEL NO.	LOT NOS.			
OXFORD SQUARE	'C'	LOTS 224-241 & CONDO. BLDGS. 1-3			
PLAT NO.	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
23450-23451	---	TOD	44	1st.	601101

STORMWATER MANAGEMENT NOTES & DETAILS
OXFORD SQUARE
"A Howard County Green Neighborhood"
Lots 224-241, Open Space Lots 242 & 243 And Parcel 'U'
(Being A Resub-division of Parcel 'C', As Shown On Plats Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M' And Recorded Among The Land Records Of Howard County, Maryland As Plat Nos. 22856 Thru 22899)

Grid: TOD
Parcel No.: 1003
Scale: As Shown
Date: May 7, 2015
Sheet 5 Of 20

Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for (V), and (W). In some instances where permeability is great, these facilities may be used for (D) as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorus and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide aeration for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

Design Constraints:

- Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
- Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to bioretention facilities, see figure A.5 and Table A.4 for planting material guidance).
- Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
- Test soil conditions to determine if soil amendments are necessary.
- Plants shall be located so that access is possible for structure maintenance.
- Stabilize heavy flow areas with erosion control mats or soil.
- Temporarily divert flows from seeded areas until vegetation is established.
- See Table A.5 for additional design considerations.

Bio-retention

Soil Bed Characteristics

The characteristics of the soil for the bioretention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to promote and sustain a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must enhance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume (Environmental Quality Resources (EQR), 1996; Engineering Technology Inc. and Biohabitats, Inc. (ET&B), 1993). Soils should fall within the SCL, ML, SC classification or the Unified Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.5"/hr) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Branch or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutedge, and Canada Thistle or other noxious weeds as specified under COMAR 15.06.01.02) should not be present in the soil. Placement of the planting soil should be to 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or traversed by dozer tracks). The specific characteristics are presented in Table A.3.

Table A.3. Planting Soil Characteristics

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

Mulch Layer

The mulch layer plays an important role in the performance of the bioretention facility. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pretreatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (stockpiled or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

Planting Guidance

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bioretention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bioretention facility will be able to treat stormwater runoff and withstand urban stresses from insects, disease, drought, temperature, wind, and exposure. The proper selection and installation of plant material is key to a successful system. There are essentially three zones within a bioretention facility (Figure A.5). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. For appropriate plant materials for bioretention facilities, refer to M&A Approved Species List. The layout of plant material should be flexible, but should follow the general principals described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bioretention plan, consult ET&B, 1993 or Clayton and Schuler, 1997.

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

1. 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 micro-bioretention 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, Quailgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.06.01.02.

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 (50%), 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 allocated 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 hoses 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 failure.

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. Subsoiler methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

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 layer 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. Fine 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 1/10th of the ball is above final grade surface. Fine 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.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball. 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 upright during the entire planting process. Thoroughly water ground bed cover after installation.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

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 by filtering sediments, debris, or at a minimum, impede this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains

Underdrains should meet the following criteria:

- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM 756, Type PS 28, or ASTM M-278) or a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
- Perforations - If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/4" (No. 4 or 4x4) galvanized hardware cloth.
- Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.

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

A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.

A 4" layer of pea gravel (1/4" 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 bed when bed thickness exceeds 24".

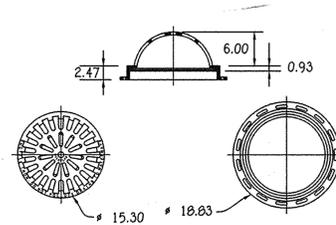
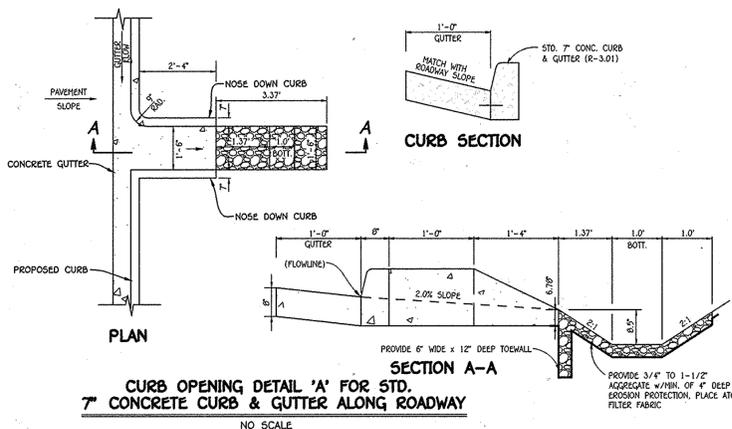
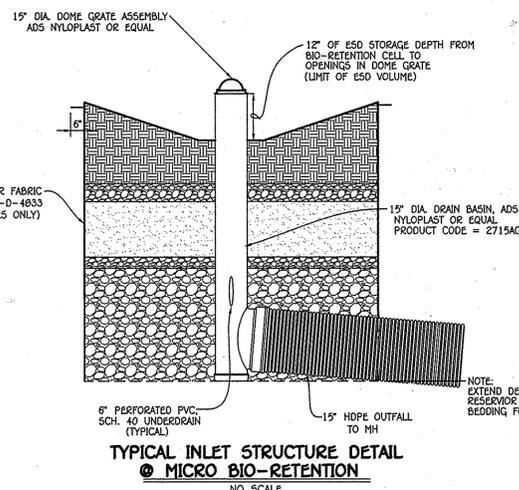
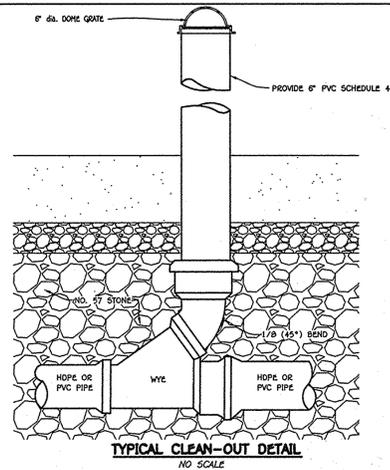
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

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

STORMWATER MANAGEMENT MAINTENANCE NOTE

ALL STORMWATER MANAGEMENT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE OXFORD SQUARE COMMERCIAL ASSOCIATION, INC. THE STREET TREES, PERFORATED UNDERDRAINS, FEEDERS, PLANTINGS AND SWALES WILL ALSO BE PRIVATELY OWNED AND MAINTAINED BY THE OXFORD SQUARE COMMERCIAL ASSOCIATION. HOWARD COUNTY WILL ONLY MAINTAIN THE INLET STRUCTURE WITHIN THE MICRO-BIO-RETENTION FACILITIES ADJACENT TO THE RIGHT-OF-WAY.

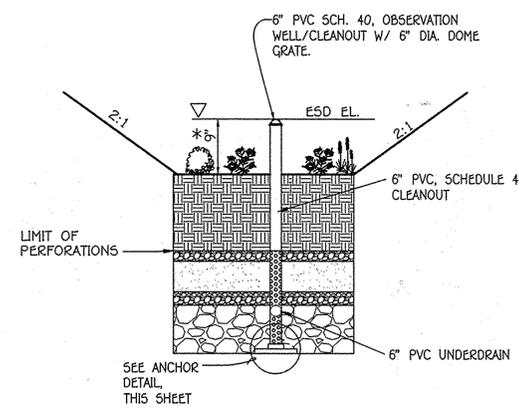


ALL DIMENSIONS IN INCHES UNLESS NOTED OTHERWISE
 QUALITY: MATERIAL SHALL CONFORM TO ASTM A536 GRADE 70-50-05
 PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
 LOCKING DEVICE AVAILABLE UPON REQUEST
 SEE DRAWING NO. 7001-110-230

Nyloplast
 3130 VERONA AVE
 BUFORD, GA 30516
 PHN (770) 932-2443
 FAX (770) 932-2490
 www.nyloplast-us.com

15" DOME GRATE ASSEMBLY

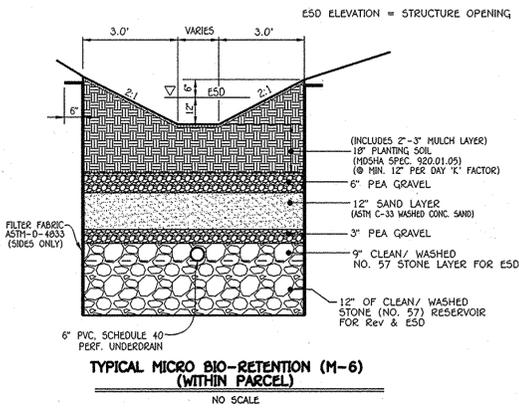
NYLOPLAST OR EQUAL



SECTION @ OBSERVATION WELL LOCATION

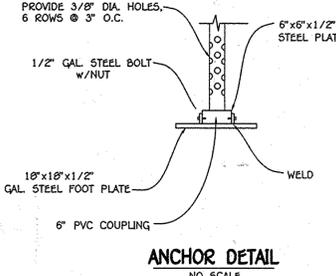
NOT TO SCALE

NOTE: SEE SHEET 12 FOR PLANTING SCHEDULE FOR MICRO-BIO-RETENTION FACILITIES.



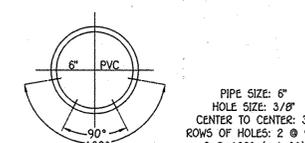
TYPICAL MICRO-BIO-RETENTION (M-6) (WITHIN PARCEL)

NO SCALE



ANCHOR DETAIL

NO SCALE



SCH 40 PVC PERFORATED UNDERDRAIN PIPE DETAIL FOR HORIZONTAL DRAIN PIPE

NO SCALE

NOTES:
 UNDERDRAIN PIPE SHALL BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM 756, TYPE PS 28 OR ASTM M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (e.g., PVC OR HDPE).

PERFORATIONS SHALL BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4 x 4) GALVANIZED HARDWARE CLOTH.

GRAVEL LAYER SHALL BE (NO. 57 STONE PREFERRED) AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.

A RIGID, NON PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQ.FT.) TO PROVIDE A CLEANOUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

A 4" LAYER OF PEA GRAVEL (1/4" 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 BED WHEN BED THICKNESS EXCEEDS 24".

Operation And Maintenance Schedule For Commercial Association Owned & Maintained Bio-Retention Areas (M-6)

- The owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.
- The owner shall maintain all observation wells, clean-outs and perforated underdrains.
- Filter material must be replaced when water remains on the surface of the filter bed for more than 24 hours following a 1 or 2 year storm event or more than 48 hours following a 10 year storm event.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELKLOTT CITY, MARYLAND 21042
 (410) 461-2895



Owner/Builder
 Lenarr
 10211 Wincopin Circle, Suite 180
 Columbia, Maryland 21044
 Ph# 410-423-0460

Developer
 Lenarr
 10211 Wincopin Circle, Suite 180
 Columbia, Maryland 21044
 Ph# 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Victoria D... 9-23-15
 Chief, Division of Land Development Date

... 7-8-15
 Chief, Development Engineering Division Date

Valerio J... 9-24-15
 Director - Department of Planning and Zoning Date

SUBDIVISION	PARCEL NO.	LOT NOS.
OXFORD SQUARE	C	LOTS 224-241 & CONDO. BLDG. 1-3
PLAT NO.	BLOCK NO.	ZONE
23450-23451	---	TOD
TAX/ZONE	ELEC. DIST.	CENSUS TR.
44	1st.	601101

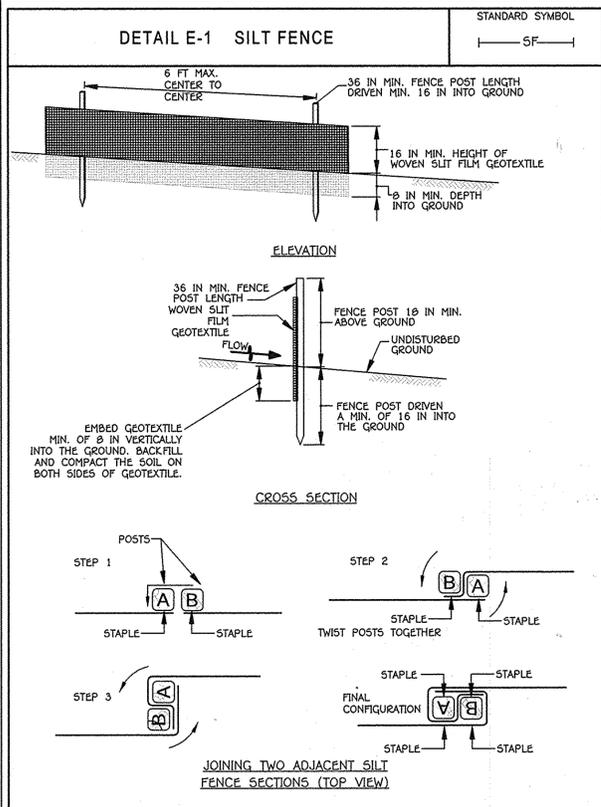
STORMWATER MANAGEMENT NOTES & DETAILS

OXFORD SQUARE

"A Howard County Green Neighborhood"
 Lots 224-241, Open Space Lots 242 & 243 And Parcel 'U'

(Being A Resubdivision of Parcel 'C', As Shown On Plans Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L' And "M" And Recorded Among The Land Records of Howard County, Maryland As Plat Nos. 22856, Thru 22859.)

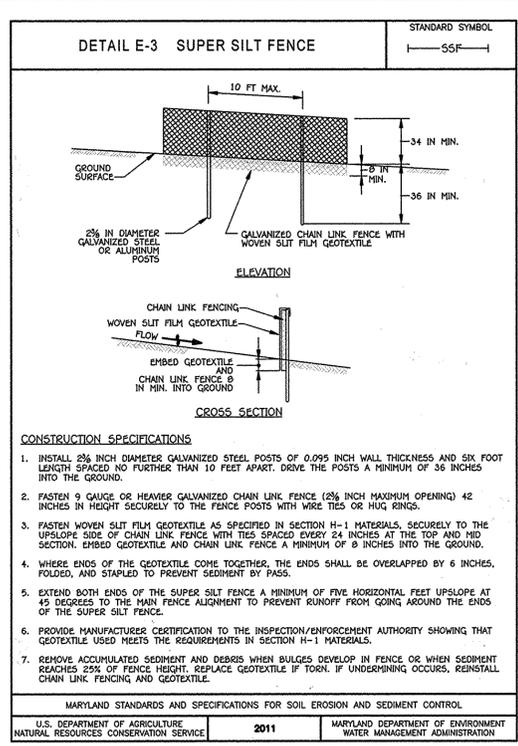
Grid No.: 20 Parcel No.: 1003
 Tax Map No.: 3B
 First Election District: As Shown
 Date: May 7, 2015
 Sheet 6 Of 20



CONSTRUCTION SPECIFICATIONS

- USE WOOD POSTS 1 1/4 x 1 3/4 x 1/2 INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD, AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
- 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 OR STAPLES AT TOP AND MID-SECTION.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- EMBED GEOTEXTILE A MINIMUM OF 9 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
- EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
- 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.

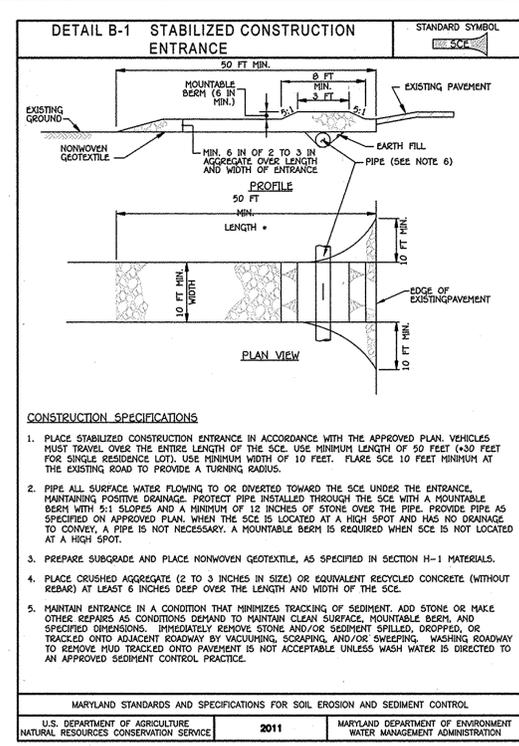
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONSTRUCTION SPECIFICATIONS

- INSTALL 2 3/4 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 3/4 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 9 INCHES INTO THE GROUND.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

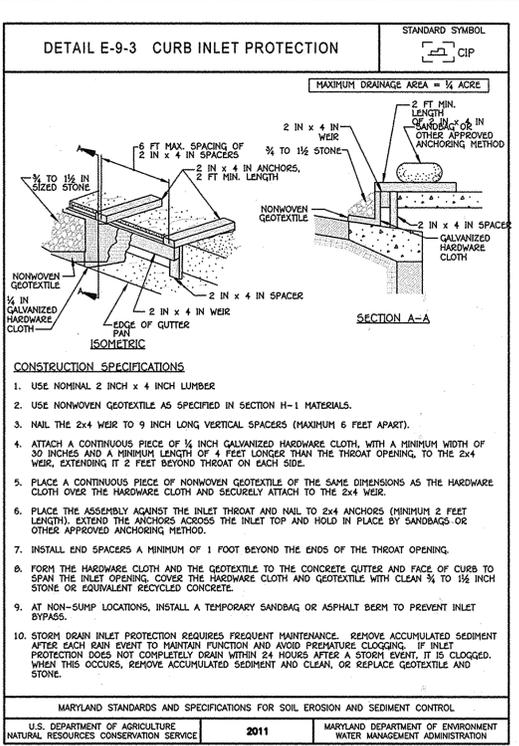
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONSTRUCTION SPECIFICATIONS

- PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (40 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE. MAINTAIN POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
- PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
- MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT, ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCOPING, AND/OR SHEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

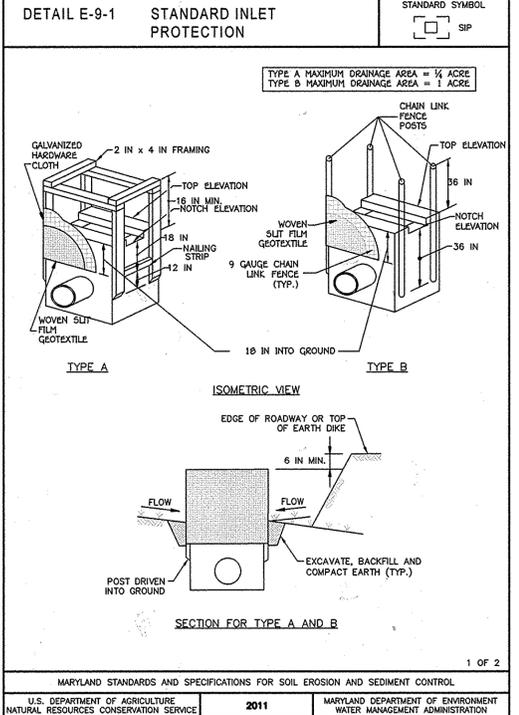
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONSTRUCTION SPECIFICATIONS

- USE NOMINAL 2 INCH x 4 INCH LUMBER.
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
- ATTACH A CONTINUOUS PIECE OF 1/2 INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
- PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
- PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
- INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
- FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
- AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
- 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 DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

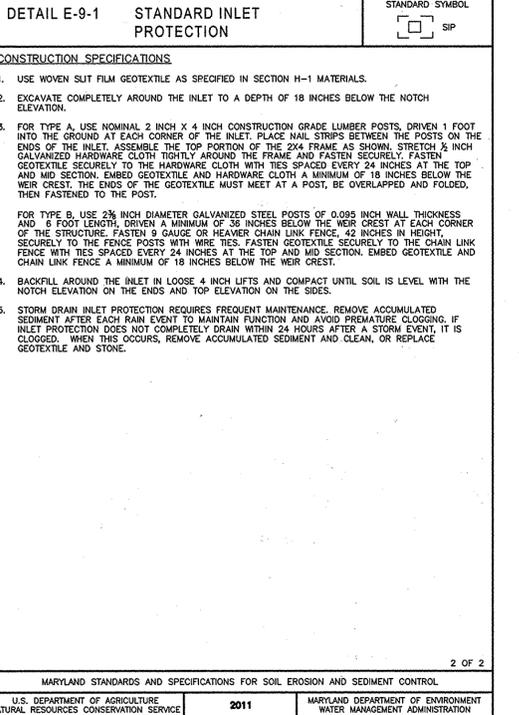
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONSTRUCTION SPECIFICATIONS

- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- 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 THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2x4 FRAME AS SHOWN, STRETCH 1/2 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.
- FOR TYPE B, USE 2 3/4 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 HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
- BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON 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 DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

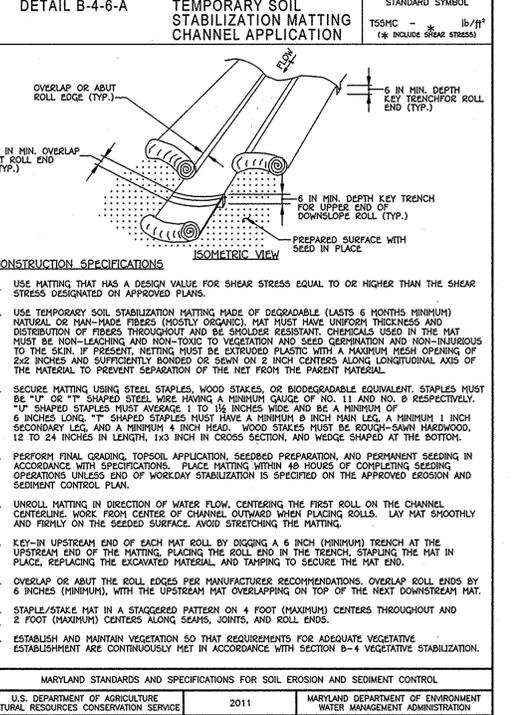
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
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CONSTRUCTION SPECIFICATIONS

- USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- 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 THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2x4 FRAME AS SHOWN, STRETCH 1/2 INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.
- FOR TYPE B, USE 2 3/4 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 HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
- BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON 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 DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

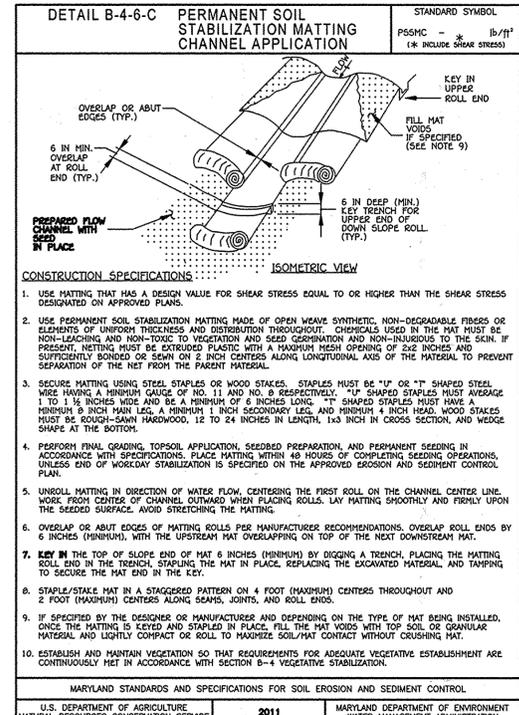
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONSTRUCTION SPECIFICATIONS

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLAN.
- USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY SODIUM). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOODER, RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 9 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE SOUTHWEST HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDBED SURFACE, AVOID STRETCHING THE MATTING.
- KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
- OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG BEAMS, JOINTS, AND ROLL ENDS.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONSTRUCTION SPECIFICATIONS

- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLAN.
- USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
- 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. 9 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE SOUTHWEST HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
- PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
- 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 SEEDBED SURFACE, AVOID STRETCHING THE MATTING.
- 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.
- KEY-IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE ECV.
- STAPLE/STAKE MAT IN A STAGGERED PATTERN ON A FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG BEAMS, JOINTS, AND ROLL ENDS.
- IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYS IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
- ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

NO.	REVISION	DATE



ENGINEER'S CERTIFICATE
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Signature of Engineer (print name below signature) *Joseph J. Carter* Date *6/16/15*

DEVELOPER'S CERTIFICATE
"I/We certify that all development and construction will be done according to this 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 Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
Signature of Developer (print name below signature) *Joseph J. Carter* Date *6/9/2015*

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.
John R. Roberts Date *6/23/15*

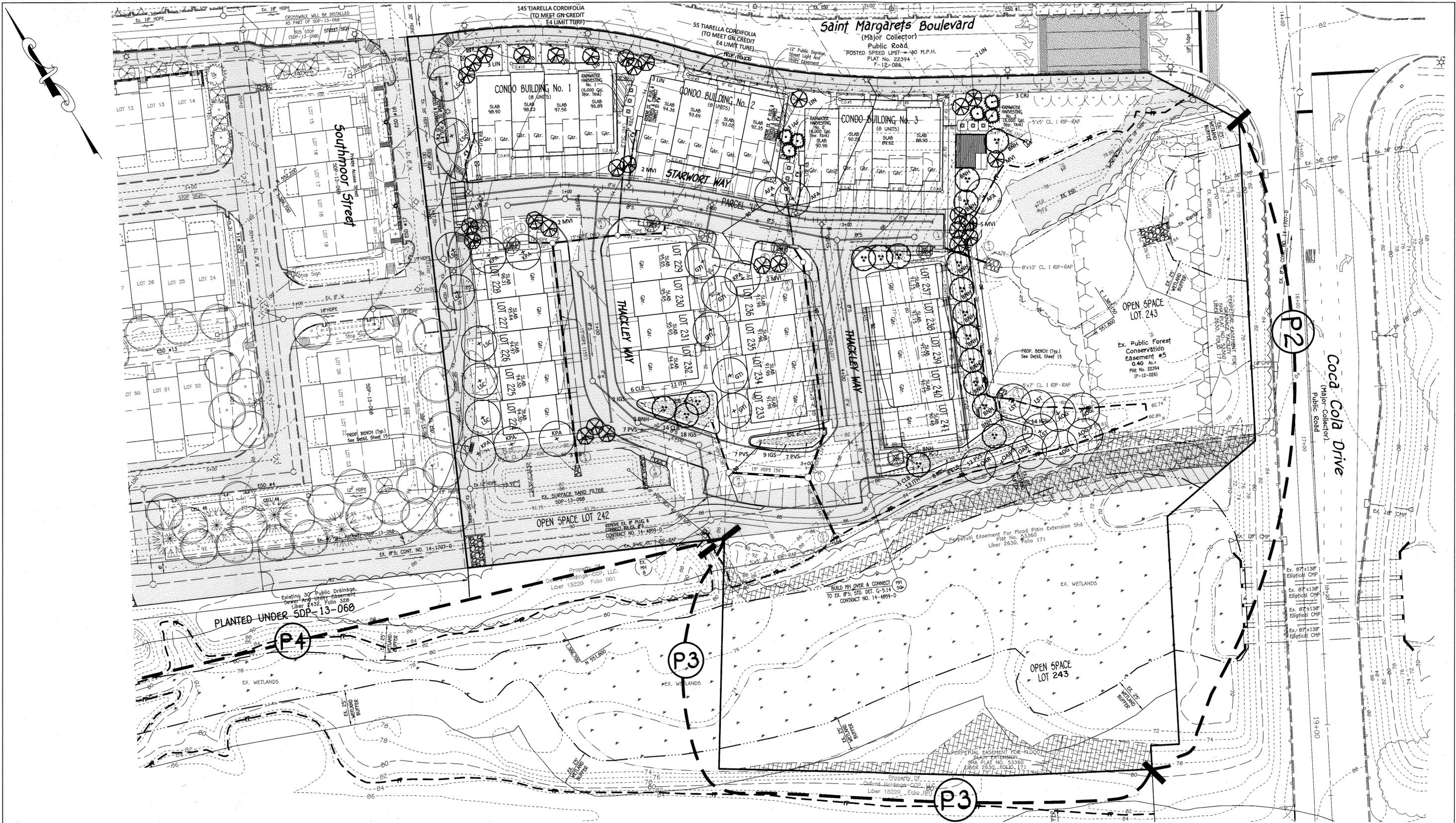
Owner/Builder
Lennar
10211 Winopco Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

Developer
Lennar
10211 Winopco Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

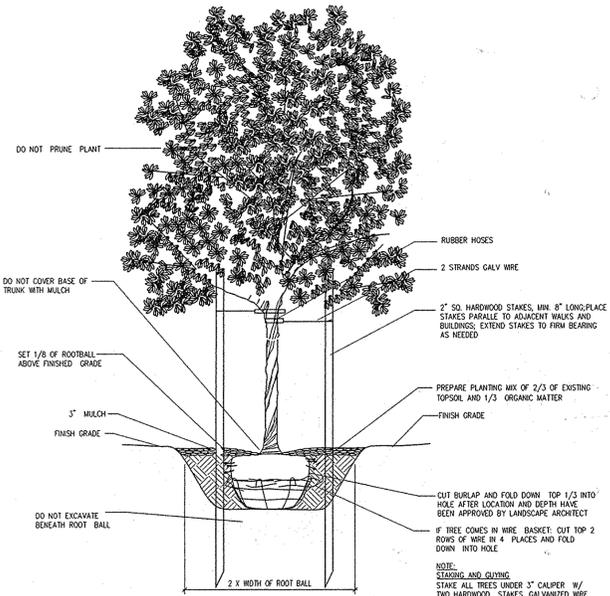
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Kevin Steadman Date *9-23-15*
Chief, Division of Land Development
William J. ... Date *7-8-15*
Chief, Development Engineering Division
William J. ... Date *9-24-15*
Director - Department of Planning and Zoning

SUBDIVISION: OXFORD SQUARE PARCEL NO. 'C'
LOT Nos. 224-241 & CONDO. BLDGS. 1-3
PLAT NO. BLOCK NO. ZONE TAX/ZONE ELEC. DIST. CENSUS TR.
23450-23451 --- TOD 44 1st. 601101

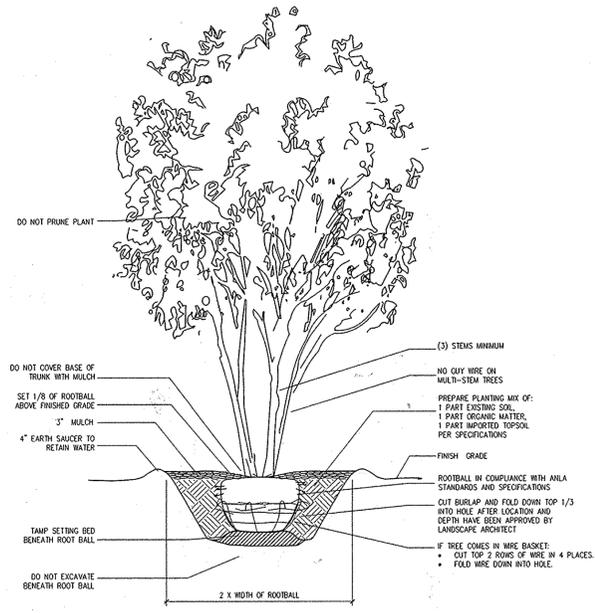
SEDIMENT AND EROSION CONTROL NOTES & DETAILS
OXFORD SQUARE
"A Howard County Green Neighborhood"
Lots 224-241, Open Space Lots 242 & 243 And Parcel 'U'
(Being A Resubdivision Of Parcel 'C', As Shown On Plans Entitled "Revision Plat, Oxford Square, "Green Neighborhood," Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L', 'M', 'N', 'O', 'P', 'Q', 'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y', 'Z', 'AA', 'AB', 'AC', 'AD', 'AE', 'AF', 'AG', 'AH', 'AI', 'AJ', 'AK', 'AL', 'AM', 'AN', 'AO', 'AP', 'AQ', 'AR', 'AS', 'AT', 'AU', 'AV', 'AW', 'AX', 'AY', 'AZ', 'BA', 'BB', 'BC', 'BD', 'BE', 'BF', 'BG', 'BH', 'BI', 'BJ', 'BK', 'BL', 'BM', 'BN', 'BO', 'BP', 'BQ', 'BR', 'BS', 'BT', 'BU', 'BV', 'BW', 'BX', 'BY', 'BZ', 'CA', 'CB', 'CC', 'CD', 'CE', 'CF', 'CG', 'CH', 'CI', 'CJ', 'CK', 'CL', 'CM', 'CN', 'CO', 'CP', 'CQ', 'CR', 'CS', 'CT', 'CU', 'CV', 'CW', 'CX', 'CY', 'CZ', 'DA', 'DB', 'DC', 'DD', 'DE', 'DF', 'DG', 'DH', 'DI', 'DJ', 'DK', 'DL', 'DM', 'DN', 'DO', 'DP', 'DQ', 'DR', 'DS', 'DT', 'DU', 'DV', 'DW', 'DX', 'DY', 'DZ', 'EA', 'EB', 'EC', 'ED', 'EE', 'EF', 'EG', 'EH', 'EI', 'EJ', 'EK', 'EL', 'EM', 'EN', 'EO', 'EP', 'EQ', 'ER', 'ES', 'ET', 'EU', 'EV', 'EW', 'EX', 'EY', 'EZ', 'FA', 'FB', 'FC', 'FD', 'FE', 'FF', 'FG', 'FH', 'FI', 'FJ', 'FK', 'FL', 'FM', 'FN', 'FO', 'FP', 'FQ', 'FR', 'FS', 'FT', 'FU', 'FV', 'FW', 'FX', 'FY', 'FZ', 'GA', 'GB', 'GC', 'GD', 'GE', 'GF', 'GG', 'GH', 'GI', 'GJ', 'GK', 'GL', 'GM', 'GN', 'GO', 'GP', 'GQ', 'GR', 'GS', 'GT', 'GU', 'GV', 'GW', 'GX', 'GY', 'GZ', 'HA', 'HB', 'HC', 'HD', 'HE', 'HF', 'HG', 'HH', 'HI', 'HJ', 'HK', 'HL', 'HM', 'HN', 'HO', 'HP', 'HQ', 'HR', 'HS', 'HT', 'HU', 'HV', 'HW', 'HX', 'HY', 'HZ', 'IA', 'IB', 'IC', 'ID', 'IE', 'IF', 'IG', 'IH', 'II', 'IJ', 'IK', 'IL', 'IM', 'IN', 'IO', 'IP', 'IQ', 'IR', 'IS', 'IT', 'IU', 'IV', 'IW', 'IX', 'IY', 'IZ', 'JA', 'JB', 'JC', 'JD', 'JE', 'JF', 'JG', 'JH', 'JI', 'JJ', 'JK', 'JL', 'JM', 'JN', 'JO', 'JP', 'JQ', 'JR', 'JS', 'JT', 'JU', 'JV', 'JW', 'JX', 'JY', 'JZ', 'KA', 'KB', 'KC', 'KD', 'KE', 'KF', 'KG', 'KH', 'KI', 'KJ', 'KK', 'KL', 'KM', 'KN', 'KO', 'KP', 'KQ', 'KR', 'KS', 'KT', 'KU', 'KV', 'KW', 'KX', 'KY', 'KZ', 'LA', 'LB', 'LC', 'LD', 'LE', 'LF', 'LG', 'LH', 'LI', 'LJ', 'LK', 'LL', 'LM', 'LN', 'LO', 'LP', 'LQ', 'LR', 'LS', 'LT', 'LU', 'LV', 'LW', 'LX', 'LY', 'LZ', 'MA', 'MB', 'MC', 'MD', 'ME', 'MF', 'MG', 'MH', 'MI', 'MJ', 'MK', 'ML', 'MN', 'MO', 'MP', 'MQ', 'MR', 'MS', 'MT', 'MU', 'MV', 'MW', 'MX', 'MY', 'MZ', 'NA', 'NB', 'NC', 'ND', 'NE', 'NF', 'NG', 'NH', 'NI', 'NJ', 'NK', 'NL', 'NM', 'NO', 'NP', 'NQ', 'NR', 'NS', 'NT', 'NU', 'NV', 'NW', 'NX', 'NY', 'NZ', 'OA', 'OB', 'OC', 'OD', 'OE', 'OF', 'OG', 'OH', 'OI', 'OJ', 'OK', 'OL', 'OM', 'ON', 'OO', 'OP', 'OQ', 'OR', 'OS', 'OT', 'OU', 'OV', 'OW', 'OX', 'OY', 'OZ', 'PA', 'PB', 'PC', 'PD', 'PE', 'PF', 'PG', 'PH', 'PI', 'PJ', 'PK', 'PL', 'PM', 'PN', 'PO', 'PP', 'PQ', 'PR', 'PS', 'PT', 'PU', 'PV', 'PW', 'PX', 'PY', 'PZ', 'QA', 'QB', 'QC', 'QD', 'QE', 'QF', 'QG', 'QH', 'QI', 'QJ', 'QK', 'QL', 'QM', 'QN', 'QO', 'QP', 'QQ', 'QR', 'QS', 'QT', 'QU', 'QV', 'QW', 'QX', 'QY', 'QZ', 'RA', 'RB', 'RC', 'RD', 'RE', 'RF', 'RG', 'RH', 'RI', 'RJ', 'RK', 'RL', 'RM', 'RN', 'RO', 'RP', 'RQ', 'RR', 'RS', 'RT', 'RU', 'RV', 'RW', 'RX', 'RY', 'RZ', 'SA', 'SB', 'SC', 'SD', 'SE', 'SF', 'SG', 'SH', 'SI', 'SJ', 'SK', 'SL', 'SM', 'SN', 'SO', 'SP', 'SQ', 'SR', 'SS', 'ST', 'SU', 'SV', 'SW', 'SX', 'SY', 'SZ', 'TA', 'TB', 'TC', 'TD', 'TE', 'TF', 'TG', 'TH', 'TI', 'TJ', 'TK', 'TL', 'TM', 'TN', 'TO', 'TP', 'TQ', 'TR', 'TS', 'TT', 'TU', 'TV', 'TW', 'TX', 'TY', 'TZ', 'UA', 'UB', 'UC', 'UD', 'UE', 'UF', 'UG', 'UH', 'UI', 'UJ', 'UK', 'UL', 'UM', 'UN', 'UO', 'UP', 'UQ', 'UR', 'US', 'UT', 'UU', 'UV', 'UW', 'UX', 'UY', 'UZ', 'VA', 'VB', 'VC', 'VD', 'VE', 'VF', 'VG', 'VH', 'VI', 'VJ', 'VK', 'VL', 'VM', 'VN', 'VO', 'VP', 'VQ', 'VR', 'VS', 'VT', 'VU', 'VV', 'VW', 'VX', 'VY', 'VZ', 'WA', 'WB', 'WC', 'WD', 'WE', 'WF', 'WG', 'WH', 'WI', 'WJ', 'WK', 'WL', 'WM', 'WN', 'WO', 'WP', 'WQ', 'WR', 'WS', 'WT', 'WU', 'WV', 'WW', 'WX', 'WY', 'WZ', 'XA', 'XB', 'XC', 'XD', 'XE', 'XF', 'XG', 'XH', 'XI', 'XJ', 'XK', 'XL', 'XM', 'XN', 'XO', 'XP', 'XQ', 'XR', 'XS', 'XT', 'XU', 'XV', 'XW', 'XZ', 'YA', 'YB', 'YC', 'YD', 'YE', 'YF', 'YG', 'YH', 'YI', 'YJ', 'YK', 'YL', 'YM', 'YN', 'YO', 'YP', 'YQ', 'YR', 'YS', 'YT', 'YU', 'YV', 'YW', 'YX', 'YZ', 'ZA', 'ZB', 'ZC', 'ZD', 'ZE', 'ZF', 'ZG', 'ZH', 'ZI', 'ZJ', 'ZK', 'ZL', 'ZM', 'ZN', 'ZO', 'ZP', 'ZQ', 'ZR', 'ZS', 'ZT', 'ZU', 'ZV', 'ZW', 'ZX', 'ZY', 'ZZ')
Tax Map No.: 36 Grid No.: 20 Parcel No.: 1003
First Election District: Howard County, Maryland
Scale: As Shown
Date: May 7, 2015
Sheet 10 of 20



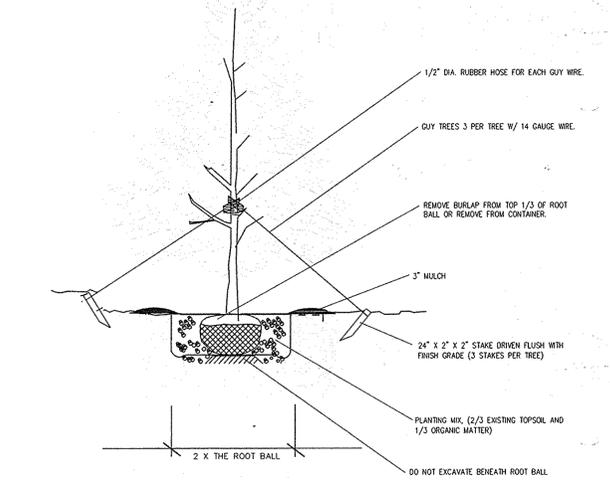
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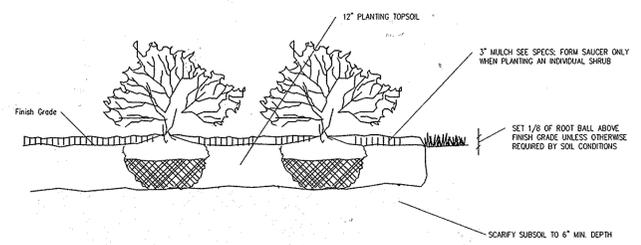
DECIDUOUS TREE - TYPICAL PLANTING DETAIL



MULTISTEM TREE - TYPICAL PLANTING DETAIL



EVERGREEN TREE - TYPICAL PLANTING DETAIL



SHRUB AND HEDGEROW - TYPICAL PLANTING DETAIL

PLANTING SPECIFICATIONS

- CLEAR & GRUB ALL PLANTING AREAS AS INDICATED ON THE DRAWINGS.
- PROVIDE PROTECTION FOR TREES, SHRUBS, AND PERENNIALS/GROUND COVERS THAT ARE TO BE PRESERVED.
- CONTRACTOR SHALL VERIFY THE CORRECT LOCATION OF ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO INSTALLATION OF ANY PLANT MATERIALS.
- ALL PLANTING SHALL BE DONE AS PER PLANTING DETAILS AND SPECIFICATIONS.
- NO CHANGES SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR LANDSCAPE ARCHITECT.
- PRIOR TO CONSTRUCTION OF PLANTING BEDS, THE CONTRACTOR SHALL STAKE OUT PLANTING BED LINES IN THE FIELD FOR REVIEW BY THE LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT SHALL MAKE ADJUSTMENTS IN THE FIELD AS NECESSARY. ALL FINAL PLANTING BED LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT. FOR LAYOUT REVIEW, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF THREE DAYS IN ADVANCE.
- INSTALL ALL REQUIRED PLANTING AND LAWN SOILS AS PER DETAILS AND SPECIFICATIONS, AND ALL SHRUBS, GROUND COVERS, AND PERENNIALS SHALL BE PLANTED IN PLANTING BEDS PREPARED AS REQUIRED BY THE DETAILS AND SPECIFICATIONS.
- MAINTAIN POSITIVE DRAINAGE OUT OF PLANTING BEDS AT A MINIMUM 2% SLOPE AND MAINTAIN POSITIVE DRAINAGE OF ALL LAWN AREAS, UNLESS OTHERWISE NOTED ON DRAWINGS. ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE CONSTRUCTION BEGINS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OR OWNER.
- ALL PLANT BEDS SHALL BE CONTAINED WITH A SPACED EDGE UNLESS OTHERWISE NOTED ON DRAWINGS.
- IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE DRAWINGS AND QUANTITIES SHOWN ON THE PLANT LIST, THE QUANTITIES ON THE DRAWINGS SHALL APPLY. REPORT DISCREPANCIES TO THE LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING.
- ALL PLANTS SHALL CONFORM TO THE SIZES GIVEN IN THE PLANT LIST AND SHALL BE NURSERY GROWN IN ACCORDANCE WITH THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION.
- PLANTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. PRIOR TO PLANTING, THE CONTRACTOR SHALL STAKE OUT THE LOCATIONS OF ALL PLANTS IN THE FIELD FOR REVIEW BY THE LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT SHALL MAKE ADJUSTMENTS IN THE FIELD AS NECESSARY. ALL FINAL PLANT LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT. FOR LAYOUT REVIEW, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT A MINIMUM OF THREE DAYS IN ADVANCE.
- ALL DISTURBED AREAS SHALL BE FINE GRADED AND SEEDED OR SOODED; SEE PLAN FOR LOCATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING AND MAINTAINING ALL PLANTS DURING THE WARRANTY PERIOD; REFER TO SPECIFICATIONS.

SCHEDULE C RESIDENTIAL DEVELOPMENT INTERNAL LANDSCAPING	
NUMBER OF DWELLING UNITS (SFA) (CONDOS)	18 24
NUMBER OF TREES REQUIRED (1:1 DU SFA) (1:3 DU CONDOS)	18 0
NUMBER OF TREES PROVIDED (SHADE TREES) (OTHER TREES (2:1 SUBSTITUTION))	26 -

STREET TREE SCHEDULE				
SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
(LSC)	4	Liquidambar styraciflua 'Cherokee' (seedless only)	2 1/2" CAL. MIN.	ALONG PRIVATE ROAD SOUTHMOOR STREET (SEE PLAN)

NOTE: FINAL PLACEMENT OF STREET TREES WILL OCCUR IN THE FIELD AND BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB, BE LOCATED WITH CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES AND MAINTAIN A MINIMUM 5 FEET DISTANCE ON CENTER FROM A DRAIN INLET STRUCTURE, 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.

FINANCIAL SURETY FOR THE 4 STREET TREES SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$1,200.00

PERIMETER	SCHEDULE A PERIMETER LANDSCAPE EDGE		
	P2	P3	P4
CATEGORY	Adjacent to Roadway (Residential)	Res. Adjacent to Other	Res. Adjacent to Other
LANDSCAPE TYPE	B	A	A
LINEAR FEET OF PERIMETER	506.98'	470.63'	1188.54'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	600' (SDP-13-068) 288.54' (SDP-14-019)
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE IF NEEDED)	NO	NO	NO
NUMBER OF PLANTS REQUIRED (SHADE TREES) (EVERGREEN TREES) (SHRUBS)	10 13 -	8 -	0 0 -
NUMBER OF PLANTS PROVIDED (SHADE TREES) (EVERGREEN TREES) (ORNAMENTAL TREES) (SHRUBS (1:1 SUBSTITUTION)) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	10 13 - -	8 - - -	- - - -

PLANT LIST (SDP-14-071)					
QTY.	SYM.	BOTANICAL/COMMON NAME	SIZE	CONT.	REMARKS
DECIDUOUS TREES					
3	AFA	Acer x Freemanii 'Autumn Blaze'	2-1/2" cal. min.	B&B	Seedless Only
18	BNH	Autumn Blaze Freeman Maple	2-1/2" cal. min.	B&B	Multistem/4 canes min.
		Betula nigra 'Heritage'	2-1/2" cal. min.	B&B	
5	GTI	River Birch	2-1/2" cal. min.	B & B	Thornless
		Gleditsia triacanthos var. inermis 'Skyline'	2-1/2" cal. min.	B & B	
6	KPA	Skyline Honeylocust	2-1/2" cal. min.	B&B	
		Koeleruteria paniculata	2-1/2" cal. min.	B&B	
7	LSC	Goldenrain tree	2-1/2" cal. min.	B&B	Seedless/Street Tree
		Liquidambar styraciflua 'Cherokee'	2-1/2" cal. min.	B&B	
3	LST	Sweetgum	2-1/2" cal. min.	B&B	
		Liquidambar styraciflua	2-1/2" cal. min.	B&B	
4	AOG	Sweetgum	2-1/2" cal. min.	B&B	
		Acer rubrum 'October Glory'	2-1/2" cal. min.	B&B	
3	OAR	Red Maple	2-1/2" cal. min.	B&B	
		Oxydendrum arboreum	2-1/2" cal. min.	B&B	
		Sourwood			
ORNAMENTAL TREES					
8	LIB	Multistem/4 canes min.	8'-10" ht. min.	B & B	
		Lagerstroemia x 'Biloxi'			
		Biloxi Crapemyrtle			
9	LIN	Multistem/4 canes min.	8'-10" ht. min.	B & B	
		Lagerstroemia indica x fauriei 'Natchez'			
		Natchez Crapemyrtle			
12	MVI	Multistem/4 canes min.	8'-10" ht. min.	B & B	
		Magnolia virginiana			
		Sweetbay Magnolia			
EVERGREEN TREES					
3	CRJ	6'-8" ht. min.	6'-8" ht. min.	B & B	
		Cryptomeria japonica			
		Japanese Cryptomeria			
3	IAF	6'-8" ht. min.	6'-8" ht. min.	B & B	
		Ilex x attenuata 'Foster'			
		Foster's Holly			
ESD SHRUBS					
33	CLB	30" O.C.	#1	Cont.	
		Caryopteris x clandonensis 'Longwood Blues'			
		Caryopteris			
51	IGS	30" o.c./Male Cultivar	24"-30" Ht.	Cont.	
		Ilex glabra 'Shamrock'			
		Inkberry			
24	ITH	36" o.c. min.	18" - 24" Ht.	3 Gal.	
		Itea virginica 'Little Henry'			
		Dwarf Virginia Sweetspire			
33	PVS	36" o.c. min.	18" - 24" Ht.	3 Gal.	
		Panicum virgatum 'Shenando'			
		Switchgrass			
PERENNIALS					
200	TRC	18" o.c. min.	#1	Cont.	
		Tiarella cordifolia			
		Foamflower			

FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING TREES (35 SHADE, 6 EVERGREEN & 26 ORNAMENTAL TREES) SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$15,500.00

IN ADDITION, FINANCIAL SURETY FOR THE 10 SHADE TREES & 3 ORNAMENTAL TREES SHALL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$3,450.00 TO MEET THE GN CREDIT E-1.

THE DEVELOPER IS PROPOSING 49 SHADE, 29 ORNAMENTAL & 6 EVERGREEN TREES.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10752 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2995

NO.	REVISION	DATE



LANDSCAPE DEVELOPER'S CERTIFICATE
 I/We certify that the landscaping shown on this plan will be done according to the plan, Section 15.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that upon completion a letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.

U.S. Home Dep.
 Joseph J. Jones
 Name
 6/16/15
 Date

Owner/Builder
 Lennar
 10211 Winopin Circle, Suite 180
 Columbia, Maryland 21044
 Ph: 410-423-0460

Developer
 Lennar
 10211 Winopin Circle, Suite 180
 Columbia, Maryland 21044
 Ph: 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Ketsi Calabrese
 Chief, Division of Land Development
 9-23-15
 Date

John P. Smith
 Chief, Development Engineering Division
 7-8-15
 Date

Valencia J. Jolly
 Director - Department of Planning and Zoning
 9-24-16
 Date

SUBDIVISION: OXFORD SQUARE
 PARCEL NO.: 'C'
 LOT NOS.: LOTS 224-241 & CONDOS, BLDGS. 1-3
 PLAT NO.: 23450-23451
 BLOCK NO.: ---
 ZONE: TOD
 TAX/ZONE: 30
 ELEC. DIST.: 1st
 CENSUS TR.: 601101

LANDSCAPING NOTES & DETAILS
OXFORD SQUARE
 "A Howard County Green Neighborhood"
 Lots 224-241, Open Space Lots 242 & 243
 And Parcel 'U'

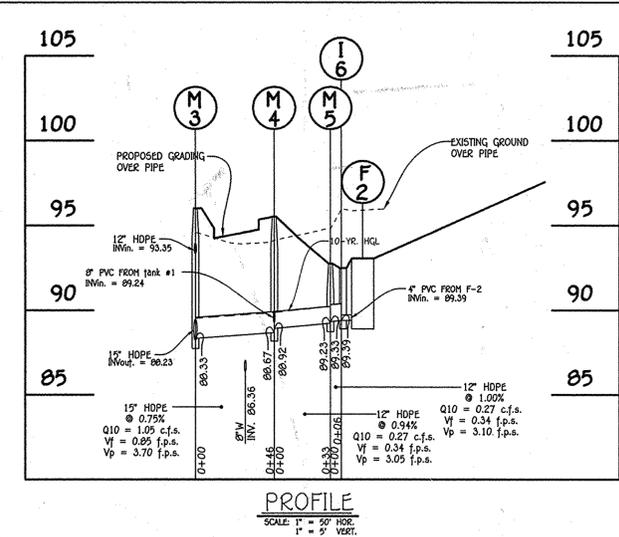
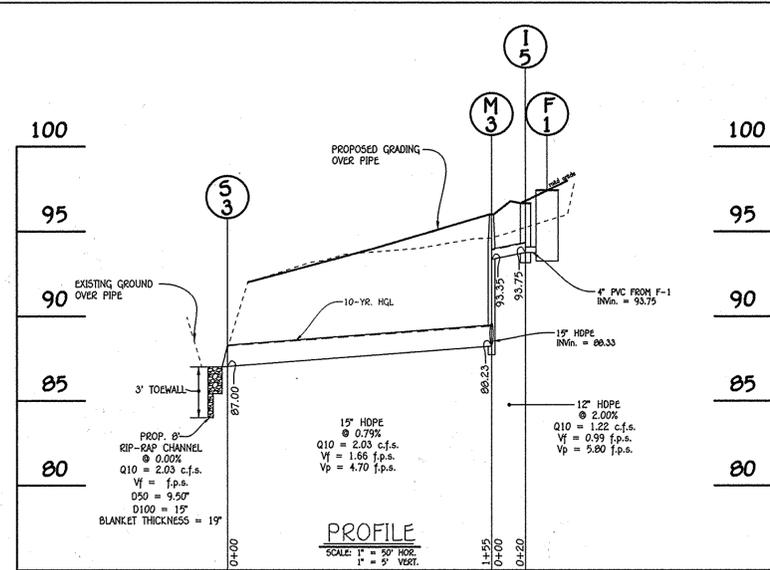
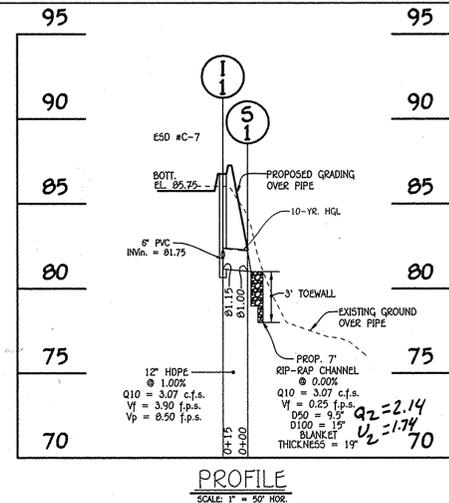
(Being A Resubdivision Of Parcel 'C', As Shown On Plats Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'I', 'J', 'K', 'L' And 'M' And Recorded Among The Land Records Of Howard County, Maryland As Plat Nos. 22856 Thru 22899)

Zoned: TOD
 Tax Map No.: 30
 Grid No.: 20
 Parcel No.: 1003
 First Election District: Howard County, Maryland
 Scale: As Shown
 Date: May 7, 2015
 Sheet 12 Of 20

STRUCTURE SCHEDULE-PRIVATE OWNERSHIP

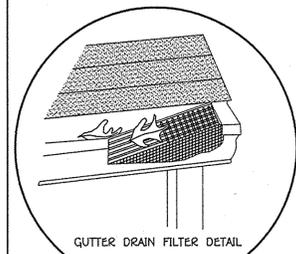
STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	LOCATION NORTH	LOCATION EAST	ROAD STA.	OFFSET	TYPE AND WIDTH	REMARKS
I-1	86.75	81.75 (6")	81.15 (12")	N-551790.88	E-1387042.86	---	---	5" INLET	D-4.22
I-2	89.00	84.50 (6"), 81.40 (15")	81.30 (15")	N-551843.46	E-1386932.76	---	---	5" INLET	D-4.22
I-3	90.25	85.25 (6")	84.75 (12")	N-551892.96	E-1386869.93	---	---	A-5 INLET	D-4.01
I-4	87.49	84.19 (6")	77.40 (12")	N-551908.95	E-1387071.91	---	---	A-5 INLET	D-4.01
I-5	96.66	93.75 (4")	93.75 (12")	N-552071.33	E-1386826.47	---	---	A-5 INLET	D-4.01
I-6	92.49	89.39 (4")	89.39 (12")	N-552028.06	E-1386916.87	---	---	A-5 INLET	D-4.01
I-7	89.55	86.17 (6"), 84.67 (8")	83.67 (12")	N-551964.56	E-1386985.53	---	---	A-5 INLET	D-4.01
I-8	92.17	---	---	N-551892.22	E-1386825.29	---	---	COG/COS OPENING	MD-374.68
M-1	88.49	82.11 (15"), 80.59 (15")	80.34 (18")	N-551822.55	E-1386905.75	---	---	4" DIA. MANHOLE	G - 5.12
M-2	90.06	84.37 (12")	82.67 (15")	N-551855.88	E-1386860.64	---	---	4" DIA. MANHOLE	G - 5.12
M-3	96.10	93.35 (12"), 88.33 (15")	88.23 (15")	N-552060.32	E-1386842.85	---	---	4" DIA. MANHOLE	G - 5.12
M-4	94.50	88.92 (12"), 89.24 (8")	88.67 (15")	N-552039.71	E-1386884.74	---	---	4" DIA. MANHOLE	G - 5.12
M-5	93.90	89.33 (12")	89.23 (12")	N-552023.03	E-1386913.09	---	---	4" DIA. MANHOLE	G - 5.12
M-6	89.75	83.41 (12")	83.16 (15")	N-551952.12	E-1386950.03	---	---	4" DIA. MANHOLE	G - 5.12
S-1	82.00	81.00	---	N-551794.50	E-1387048.91	---	---	FLARED END SECTION	ADS OR EQUAL
S-2	81.57	80.07	---	N-551778.70	E-1386899.75	---	---	FLARED END SECTION	ADS OR EQUAL
S-3	88.25	87.00	---	N-551920.14	E-1386773.77	---	---	FLARED END SECTION	ADS OR EQUAL
E-1	77.75	76.00	---	N-551881.84	E-1387094.06	---	---	TYPE "C" ENDWALL	D - 5.21
F-1	97.42	---	93.75 (4")	N-552074.46	E-1386917.63	---	---	FILTERBA BIO-RETENTION SYSTEM - 5' x 13'	---
F-2	93.06	---	89.39 (4")	N-552033.28	E-1386909.47	---	---	FILTERBA BIO-RETENTION SYSTEM - 5' x 13'	---
F-3	89.84	---	86.17 (6")	N-551969.55	E-1386976.43	---	---	FILTERBA BIO-RETENTION SYSTEM - 7' x 17'	---
F-4	87.86	---	84.19 (6")	N-551912.50	E-1387062.24	---	---	FILTERBA BIO-RETENTION SYSTEM - 7' x 17'	---
F-5	87.90	---	84.23 (6")	N-551800.60	E-1386965.71	---	---	FILTERBA BIO-RETENTION SYSTEM - 9' x 21'	---

15" BASIN TOP ELEVATION IS TOP OF STRUCTURE BEFORE THE DOME CAP IS INSTALLED.
5" INLET TOP ELEVATION IS TOP OF STRUCTURE BEFORE GRATE IS INSTALLED.

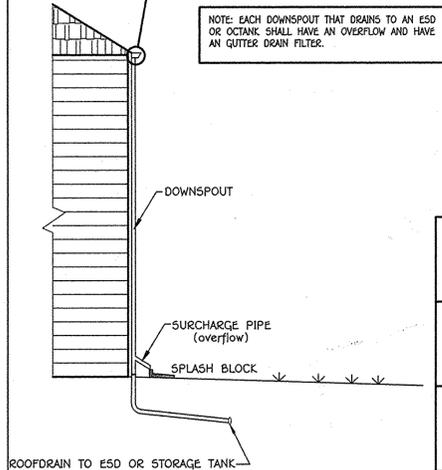


SIZE	CLASS	LENGTH
4"	PVC SCH. 40	49 L.F.
6"	PVC SCH. 40 (PERFORATED)	336 L.F.
8"	PVC SCH. 40	846 L.F.
10"	PVC SCH. 40	202 L.F.
12"	HOPE	144 L.F.
15"	HOPE	460 L.F.
18"	HOPE	46 L.F.

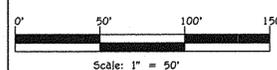
NOTE: HOPE PIPE MAY BE SUBSTITUTED WITH RCP, CL. IV PIPE.



GUTTER DRAIN FILTER DETAIL



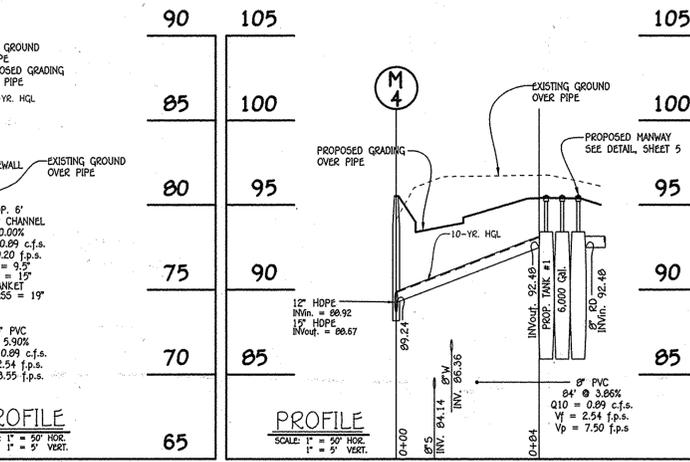
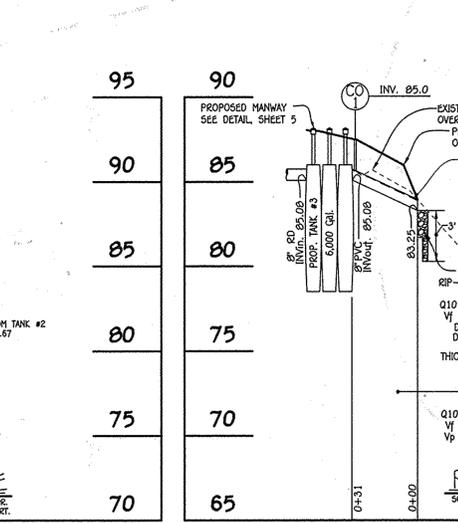
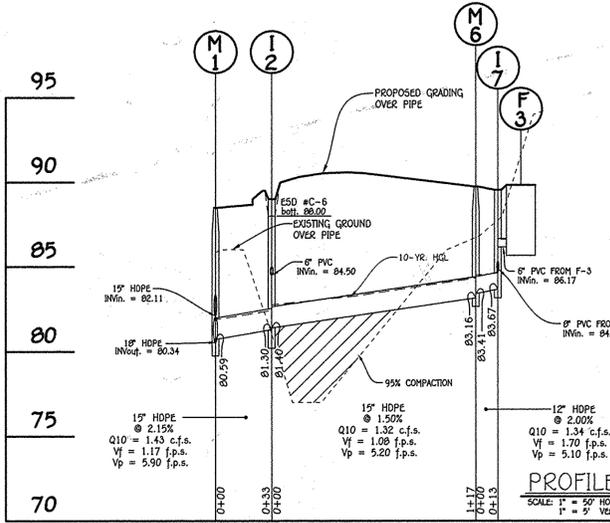
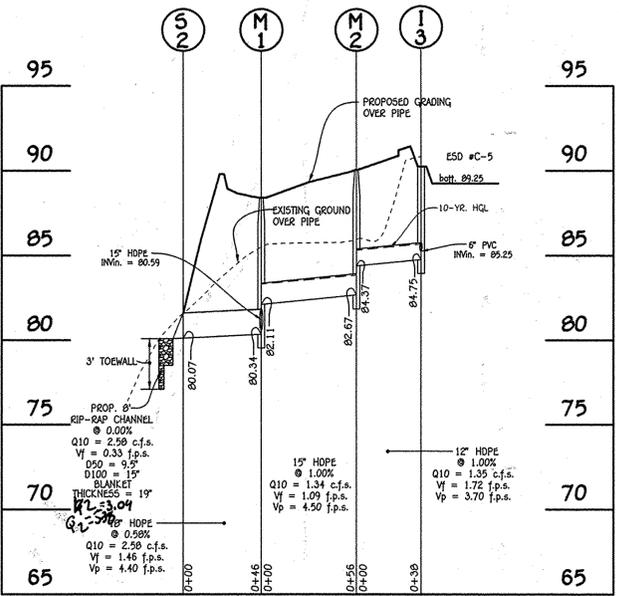
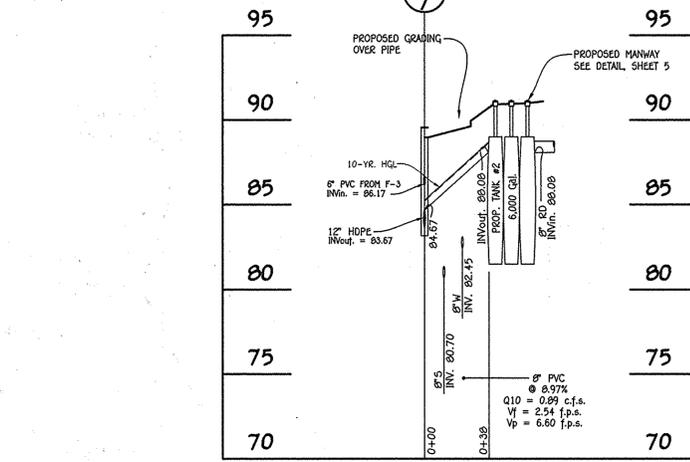
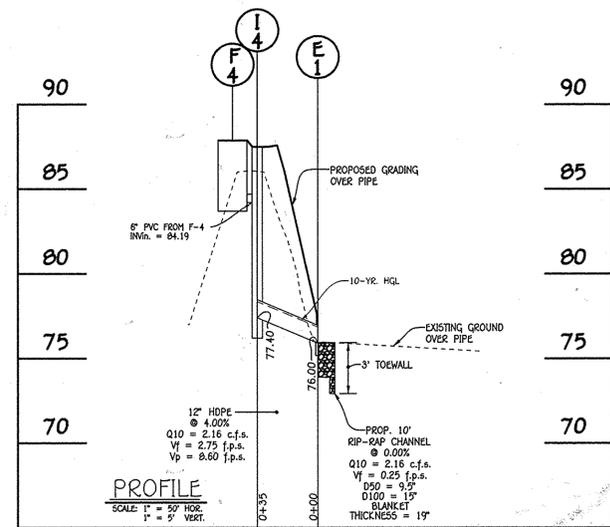
TYPICAL DOWNSPOUT FOR UNITS USING A ROOF DRAIN



Scale: 1" = 50'

STRUCTURE NO.	TOP ELEVATION	INVERT
C.O. #1	87.5	85.0
C.O. #2	90.0	87.0
C.O. #3	88.4	85.6
C.O. #4	88.4	85.3
C.O. #5	90.8	87.8
C.O. #6	93.2	90.2
C.O. #7	91.6	88.6
C.O. #8	91.8	89.0
C.O. #9	94.2	91.0
C.O. #10	98.0	95.0
C.O. #11	96.0	93.0
C.O. #12	96.0	93.0
C.O. #13	98.5	95.5
C.O. #14	91.2	88.5
C.O. #15	89.5	87.0
C.O. #16	89.5	86.3
C.O. #17	87.9	86.4
C.O. #18	88.0	85.9

ROOF DRAIN CLEAN-OUT DATA



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALDOR NATIONAL PARK
ELICOTT CITY, MARYLAND 21042
(410) 451-0255



Owner/Builder
Lennar
10211 Winopin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

Developer
Lennar
10211 Winopin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Keth D. D...
Chief, Division of Land Development
Date: 9-23-15

...
Chief, Development Engineering Division
Date: 7-8-15

Valeria J...
Director - Department of Planning and Zoning
Date: 9-24-15

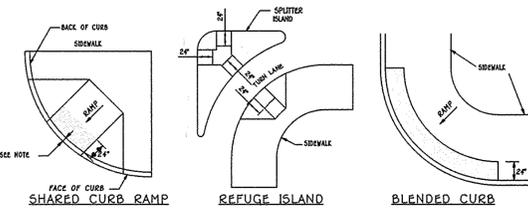
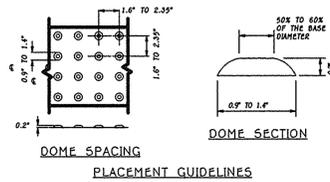
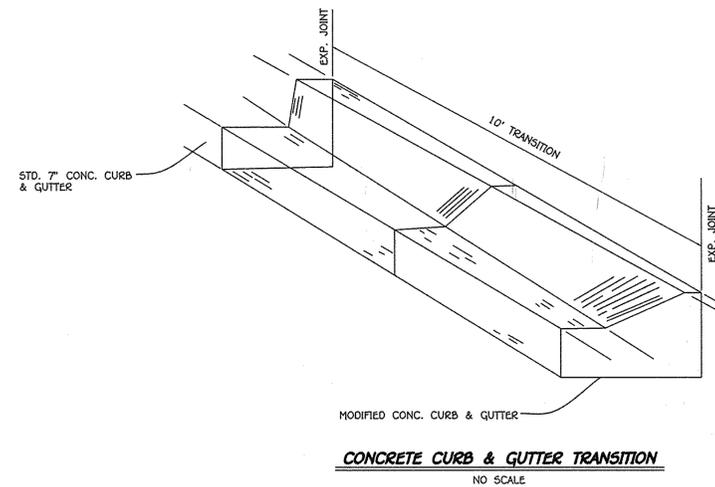
PLAT NO.	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
23450-23451	---	TOD	44	1st	601101

STORM DRAIN PROFILES
OXFORD SQUARE
"A Howard County Green Neighborhood"
Lots 224-241, Open Space Lots 242 & 243
And Parcel 'U'

(Being A Re-subdivision Of Parcel 'C', As Shown On Plans Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels "C", "E", "F", "G", "H", "I", "J", "K" And "M" And Recorded Among The Land Records Of Howard County, Maryland As Plat Nos. 22855, Thru 22859.)

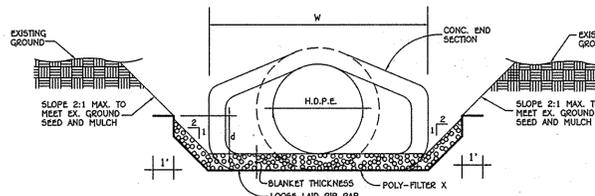
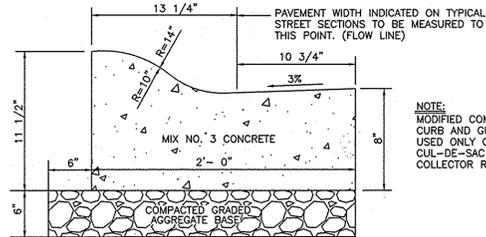
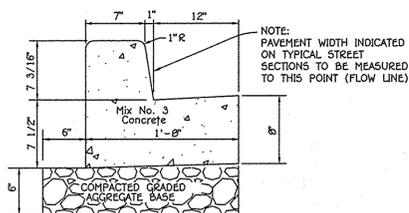
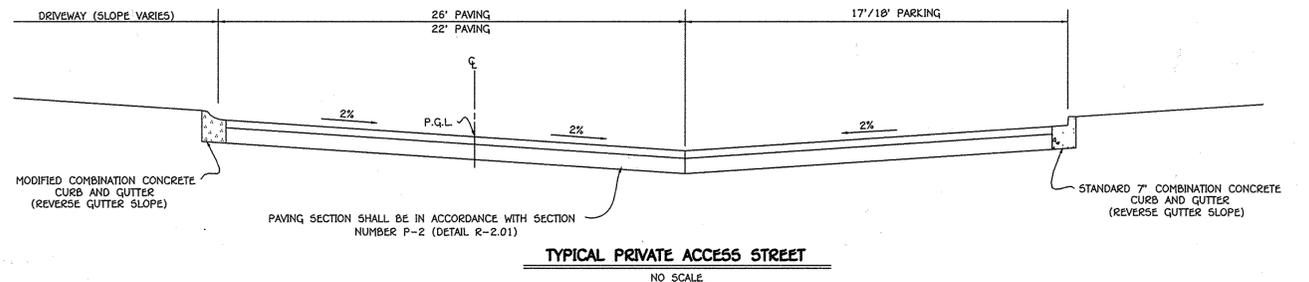
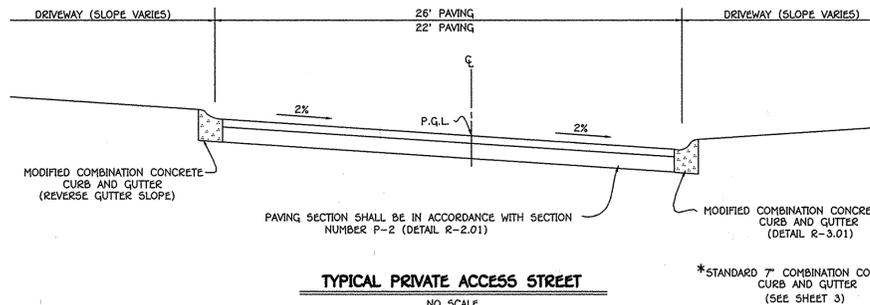
Zone: TOD
Tax Map No.: 38 Grid No.: 20 Parcel No.: 1003
First Election District: Howard County, Maryland
Scale: As Shown
Date: May 7, 2014
Sheet 13 Of 20

(MATT DETAILS OR OPTIONAL 12"x12" TILE TECH PAVERS(RED))



- NOTES**
1. THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 TO 8 INCHES FROM THE FACE OF CURB.
 2. FOR SKEWED APPLICATIONS DETECTABLE WARNING SHALL BE PLACED SUCH THAT THE DOMES CLOSEST TO THE BACK OF CURB ARE NO LESS THAN 0.5' AND NO MORE THAN 3.0' FROM THE BACK OF CURB. TRUNCATED DOME SURFACES SHALL BE FABRICATED TO PROVIDE FULL DOMES ONLY.
 3. DETECTABLE WARNING SURFACES SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 611 OF THE SPECIFICATIONS.
 4. DETECTABLE WARNING SURFACES ARE REQUIRED AT STREET CROSSING & SIGNALIZED INTERSECTIONS.

DETECTABLE WARNING SURFACE GUIDELINES
STD. DETAIL NO. 655-40

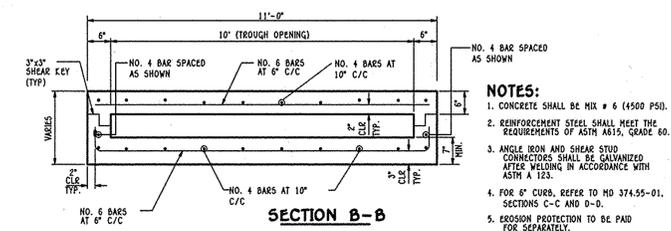
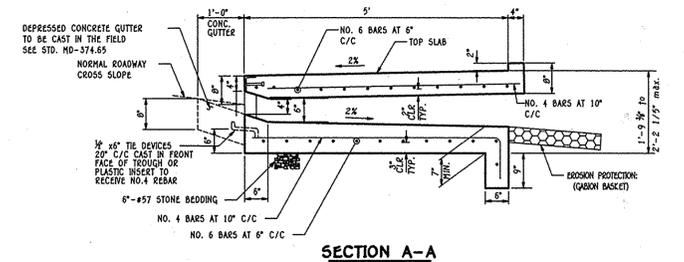
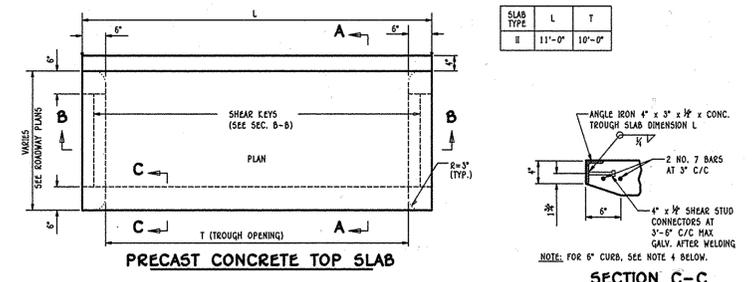


RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	N	V (f.p.s.)	Q (c.f.s.)	RIP-RAP SIZE D ₅₀ D _{max}	BLANKET THICKNESS	LENGTH	PIPE SIZE
S-1	22.50	6.678	3.36	2.252	0.05	0.0707	6'	0.30'	0.04	3.55	6.60	9.5" 15"	19"	5'	15"
S-2	22.50	6.309	3.57	2.346	0.05	0.0707	6'	0.13'	0.04	2.16	1.01	9.5" 15"	19"	9'	10"

CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed, respectively in the riprap or filter.
3. Filter cloth shall be protected from puncturing, cutting or tearing. Any damage other than an occasional hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



COG/COS OPENING DETAIL (I-B)
NO SCALE

DETAIL R-2.01

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)		3 TO <5			5 TO <7			≥7		
		MIN HMA WITH GAB	HMA WITH CONSTANT GAB	MIN HMA WITH GAB	HMA WITH CONSTANT GAB	MIN HMA WITH GAB	HMA WITH CONSTANT GAB	MIN HMA WITH GAB	HMA WITH CONSTANT GAB			
P-1	PARKING BAYS: RESIDENTIAL AND NON-RESIDENTIAL PARKING DRIVE ASILES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.5	3.0	2.5				
P-2	PARKING DRIVE ASILES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SACS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.0	1.0	1.0	1.0	1.0	1.0				
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.5	2.0	2.0				
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 461-2255



Owner/Builder
Lennar
10211 Minocoin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

Developer
Lennar
10211 Minocoin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Veronica Lewis
Chief, Division of Land Development
Date: 9-23-15

Neil Clark
Chief, Development Engineering Division
Date: 7-8-15

Natalia Jagan
Director - Department of Planning and Zoning
Date: 9-24-15

SUBDIVISION	OXFORD SQUARE	PARCEL NO.	'C'	LOT NOS.	LOTS 224-241 & CONDO. BLDGS. 1-3
PLAT NO.	23450-23451	BLOCK NO.	---	ZONE	TOD
TAX/ZONE	44	ELEC. DIST.	1st	CENSUS TR.	601101

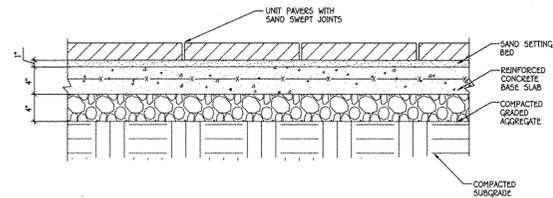
DETAIL SHEET

OXFORD SQUARE

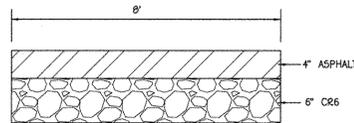
"A Howard County Green Neighborhood"
Lots 224-241, Open Space Lots 242 & 243
And Parcel 'U'

(Being A Resubdivision of Parcel 'C', As Shown On Plans Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K' And 'M' And Recorded Among The Land Records of Howard County, Maryland As Plat Nos. 22856, Thru 22858)

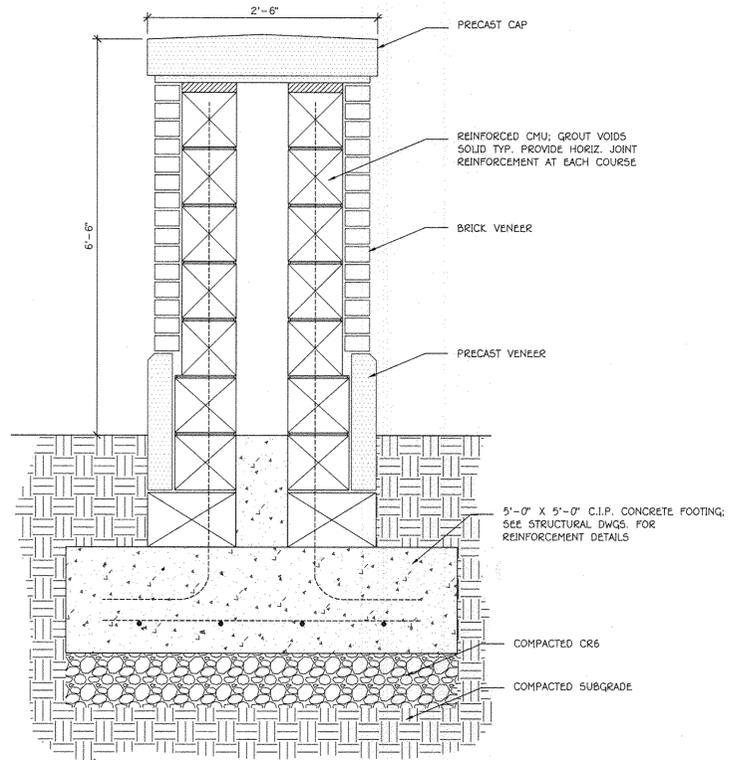
Tax Map No.: 38 Grid No.: 20 - Parcel No.: 1003
First Election District: Howard County, Maryland
Scale: As Shown
Date: May 7, 2014
Sheet 14 of 20



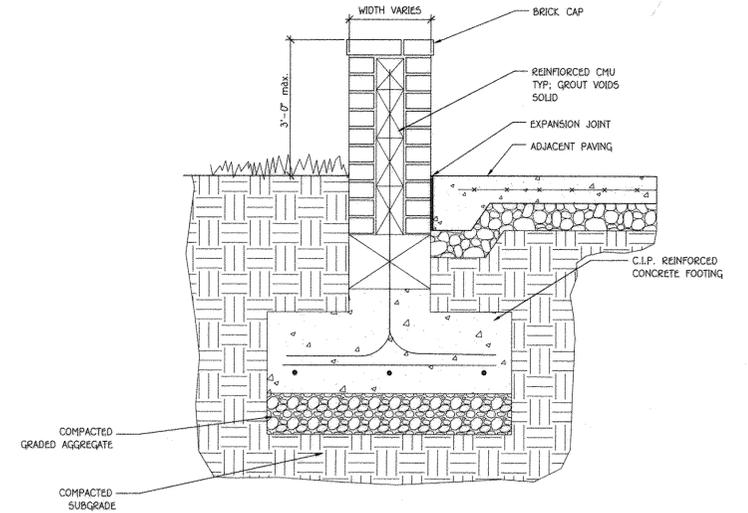
UNIT PAVING SECTION
NO SCALE



MACADAM PATHWAY DETAIL
NO SCALE

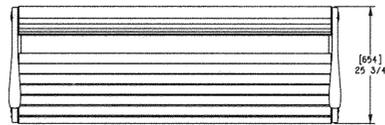


BRICK PIER - TYPICAL SECTION
NO SCALE

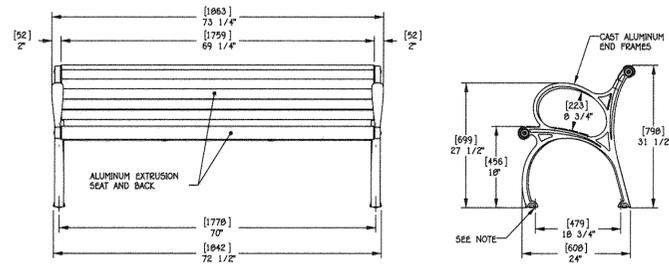


SITE WALL - TYPICAL SECTION
NO SCALE

Plainwell™ Product Drawing landscapeforms®
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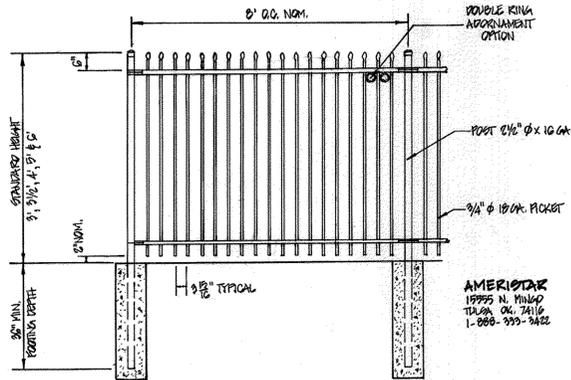


NOTE:
FREESTANDING OR SURFACE MOUNT
OPTIONS. CORROSION-RESISTANT
ANCHORING HARDWARE SUPPLIED BY
OTHERS. Ø13/32" HOLES WITH COUNTERBORE
PROVIDED FOR SOCKET HEAD CAP SCREWS.

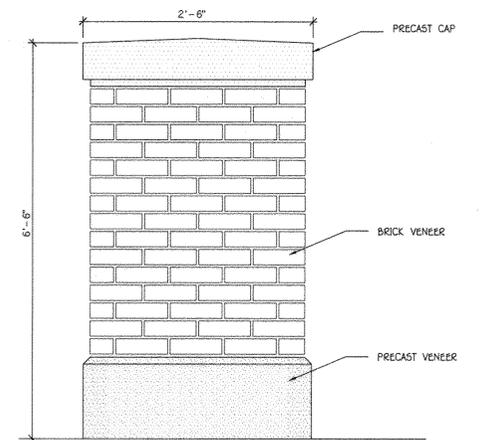


Drawings: PL271-01 Date: 4/9/2010
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GARDEN BENCH DETAIL
NO SCALE



MONTAGE PLUS CLASSIC 2/3-RAIL FENCE DETAIL
NO SCALE



BRICK PIER - TYPICAL SECTION
NO SCALE

- WATER MAIN NOTES:**
1. ALL WATER MAINS SHALL BE AWWA C900 PVC PIPE: DR-18.
 2. ALL PIPE BEDDING, TRACER WIRE, LOCATING TAPE AND OTHER APPURTENANCES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV - WATER AND SEWER STANDARDS FOR AWWA C900 PVC WATER PIPE INSTALLATION.
 3. DEFLECTION COUPLINGS SHALL BE CERTAIN-TEED HIGH DEFLECTION COUPLINGS.
 4. ALL WATER HOUSE CONNECTIONS AND TAPS SHALL BE PERFORMED USING A SADDLE.

FISHER, COLLINS & CARTER, INC.
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CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21042
(410) 461-2895



NO.	REVISION	DATE
1	ADD 4" WATER MAIN PROFILES, FOR BUILDING NOS. 1, 2 & 3, (3 TOTAL)	3/17/15

Owner/Builder
Lennar
10211 Wincopin Circle, Suite 180
Columbia, Maryland 21044
Ph: 410-423-0460

Developer
Lennar
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Ph: 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Vet. Sheeple 9-23-15
Chief, Division of Land Development Date

W. Clark 7-9-15
Chief, Development Engineering Division Date

N. J. J. J. 9-24-15
Director - Department of Planning and Zoning Date

SUBDIVISION OXFORD SQUARE		PARCEL No. 'C'	LOT Nos. LOTS 224-241 & CONDO. BLDGS. 1-3
PLAT NO. 23450-23451	BLOCK NO. ---	ZONE TOD	TAX/ZONE 44
ELEC. DIST. 1st.		CENSUS TR. 601101	

SITE DETAILS

OXFORD SQUARE
"A Howard County Green Neighborhood"
Lots 224-241, Open Space Lots 242 & 243
And Parcel 'U'

(Being A Re-subdivision Of Parcel 'C', As Shown On Plats Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K' And 'M' And Recorded Among The Land Records Of Howard County, Maryland As Plat Nos. 22858 Thru 22859)

Zoned: TOD
Tax Map No.: 38 Grid No.: 20 Parcel No.: 1003
First Election District: Howard County, Maryland
Scale: As Shown
Date: May 7, 2014
Sheet 15 of 20

GREEN NEIGHBORHOOD CHECKLIST:

Credit No.	Credit	Champion (Name, Role)	Requirement	Site Development Plan GN Strategies	Documentation Location	Points	Points
A Innovative / Integrated Design Process							
A-1	Green Development Plan	HCM/Planners	Show a how alone meet criteria, includes checklist, natural resource inventory and energy analysis	Provide documentation	GN Report GN Plan	4	4
A-2	Interdisciplinary Project Team	HCM/Planner	Includes U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Accredited professional, ecologist / environmental professional, landscape architect, and engineer	The design team includes a LEED AP professional, an ecologist, a civil engineer, an architect and landscape architect.	GN Plan	4	4
A-3	Third Party Certification	HCM/Planner	Certification of credits by independent LEED accredited professional	Alexander Design Studio	GN Plan	4	4
A-4a	Innovative Design A	HCM/Planners	Green Streets	Green Streets	GN Report SGP (SDP-14-071) Sheet 3, 14 Reference: Sketch Plan (S-14-001)	1	1
A-4b	Innovative Design B	HCM/Planners	Priority Parking for Fuel Efficient Cars	Reserve 0% for Priority Parking for Fuel Efficient Cars	GN Plan SGP (SDP-14-071) Sheet 3, 14 Reference: Sketch Plan (S-14-001)	1	1
A-4c	Innovative Design C	HCM/Planners	Compact Development	Residential Development w # exceed 20 DU/AC	GN Report GN Plan Reference: Sketch Plan (S-14-001)	1	1
A-4d	Innovative Design D	HCM/Planners	Walkable Streets	More than 60% building frontage oriented towards public spaces; Less than 20% service and garage openings to public spaces.	GN Plan GN Report Reference: Sketch Plan (S-14-001)	1	1
B Location/Linkages & Community Context							
B-1a	Redevelopment Site	HCM/Planners	Reuse of previously developed site (minimum 20% existing impervious, with a 10% scale for credits based on amount of % impervious)	More than 25% area previously developed (former sand and gravel operation).	GN Plan Reference: Sketch Plan (S-14-001)	4	2
B-1b	Redevelopment Site (Brown field)	N/A	Brown field cleanup of redevelopment site	N/A	N/A	8	0
B-2	Historic Buildings	N/A	Preserve, restore or rehabilitate historic properties.	N/A	N/A	4	0
B-3a	Transit Access & Amenities for Reduced Auto Dependence (Stop)	HCM/Planners	Site is served by transit stop within 1/2 mile (1 point) or 1/4 mile (2 points) walk from property	Provide shuttle service with 2 stops (100% DU within 1/4 mile walking distance)	GN Plan Reference: Sketch Plan (S-14-001) and F Plan (F-13-095)	2	2
B-3b	Transit Access & Amenities for Reduced Auto Dependence (Shelter)	HCM/Planners	Provide county-specified transit shelter with benches and lighting at transit stop within 1/2 mile of property and provided pedestrian link to stop if none currently exists	Provide HCo transit approved shelter for private shuttle service	Reference: Sketch Plan (S-14-001) SGP (SDP-13-068)	4	4
B-4	Proximity to Community Resources	N/A	Credit for 1/2 mile proximity to existing or proposed community resources such as schools, parks, library, post office, etc.	N/A	N/A	5	0
C Compact, Complete & Connected Development							
C-1	Diversity of Uses	HCM/Planners	1 point per different land use; minimum 100 of for each non-residential per DU. Minimum of 148,900 SF each of office, institutional and civic use, per 1,489 DU	Provide 3 Uses: Institutional, Civic and Office	GN Plan Reference: Sketch Plan (S-14-001) SGP (SDP-12-075)	3	3
C-2	Planned Service Area	HCM/Planners	Locate the project within the Planned Service Area	The project is within the Planned Service Area	GN Plan	5	5
C-3a	Pedestrian System (Path)	HCM/Planners	Provide an off-site path system with 2 connections to internal or external sidewalks, with minimal environmental impacts, long-term maintenance	Provide a shared use path system	GN Plan GN Report SGP (SDP-14-071) Sheet 3, 4 Reference: Sketch Plan (S-14-001) SGP (SDP-13-068) SGP (SDP-14-019) SGP (SDP-12-075)	2	2
C-3b	Pedestrian System (Connections)	N/A	Provide an off-site path system with 2 connections to internal or external sidewalks, with minimal environmental impacts, long-term maintenance	N/A	N/A	2	0
C-3c	Pedestrian System (Amenities)	HCM/Planners	Provide at least two different pedestrian experience features	Provide pedestrian amenities at trailheads, the lawn, school and residential mews	GN Plan SGP (SDP-14-071) Sheet 11 Reference: Sketch Plan (S-14-001)	2	2
C-4	Connected On-site Street Network	HCM/Planners	Provide a gridded street network	More than 75% connected streets	GN Plan Reference: Sketch Plan (S-14-001)	2	2
C-5	Parking does not exceed Required Minimum	HCM/Planners	Surface parking lots do not exceed required parking ratios (1 point); plan takes advantage of shared parking provisions parking structure provided (in deck or beneath building; does not include garages within individual units) (4 points)	Provide common parking structures (4 points)	GN Plan Reference: Sketch Plan (S-14-001)	4	4
C-6	Exceed Minimum Open Space Requirements	HCM/Planners	1 point for every 5% above required minimum open space for the TOD zone; 1 point for every 10% of non-bulkable HCo parcels above 50% of the site (up to 3 points).	Provide more than 25% increase in amenity space above the required minimum amenity space (TOD zoning regulations)	GN Plan SGP (SDP-14-071) Sheets 3, 19 Reference: Sketch Plan (S-14-001)	5	5
C-7	Green Spaces and Amenity Areas	HCM/Planners	Open space along public/private roads available for public use	Publicly accessible open space w # provided at the nature trail and clubhouse and pool.	GN Plan Reference: Sketch Plan (S-14-001) SGP (SDP-13-068)	2	2

Credit No.	Credit	Champion (Name, Role)	Requirement	Site Development Plan GN Strategies	Documentation Location	Points	Points
D Environmental Preservation							
D-1	Stream Restoration or Wetland Creation or Restoration	EcoScience	Restoration of degraded or lost stream channel; on-site restoration of degraded wetlands or creation of additional wetlands (skidding scale based on % of length of stream restored and % of acres of wetland created or restored)	Provide wetland restoration for 91,000 SF and stream restoration for intermittent stream segment ST-2 (100-120 FT of channel).	Reference: Sketch Plan (S-14-001) Sketch Plan (S-11-001) SGP (SDP-14-019)	16	16
D-2	Habitat Management Plan	EcoScience	Prepare and implement plan that identifies, conserves and enhances natural resources and ecological communities (may include clean up of debris, removal of invasives, etc.)	Provide Habitat Management Plan	Reference: Sketch Plan (S-14-001) Sketch Plan (S-11-001) SGP (SDP-14-019)	4	4
D-3	25% Steep Slope Preservation	N/A	Protect all existing steep slopes as defined by County regulations (required; provide 25' minimum buffer at top of 25% slope (2 points))	N/A	N/A	2	0
D-4	15% Slope Preservation	FCCOVI, HCM/Planners	Protect existing 15%+ slopes (protect minimum 1/2 acre, with skidding scale based on area or % protected)	Preserve between 51-75% of 15%-24.9% slopes	GN Plan GN Report Reference: Sketch Plan (S-14-001)	4	3
D-5	Minimize Grading and Site Disturbance	FCCOVI, HCM/Planners	Minimize limit of disturbance; leave at least 20% of site undisturbed (1 point); 30% (2 points); 40% (3 points); balance and fill on site (2 points); retaining walls 3-5' (deduct 1 point) retaining walls 6-8' (deduct 2 points); walls 9' and higher (deduct 3 points); no new created steep slopes over 25% (1 point); amend soil nutrients in turf and planting areas (1 point)	Balance Out and Fill on entire site - 2 points Minimize Retaining Walls - 0 points No new > 25% Steep slopes - 1 point Leave more than 30% of site undisturbed - 2 points	GN Plan GN Report Reference: Sketch Plan (S-14-001)	5	5
D-6	Exceed Minimum Forest Conservation Requirements	EcoScience, FCCOVI, HCM/Planners	1 point for every 10% of existing forest retained above break even point; 1 point for every 10% of on-site forest planted in excess of reforestation obligation	Provide 5.35 acres of planting area (50% over reforestation obligation)	Reference: Sketch Plan (S-14-001) Final Plan (F-12-026)	5	5
D-7	Save Trees above 12" Minimum Caliper	N/A	1 point for protecting each 25% of all specimen trees (does not include specimen trees within forest conservation area or within forests that are being cleared)	N/A	N/A	4	0
D-8a	Exceed Minimum Stream Buffer Requirements	FCCOVI, HCM/Planners	75' buffer required for perennial and intermittent streams inside PSA; 100' buffer required for perennial and intermittent streams outside PSA	75' buffer required for perennial and intermittent streams inside PSA.	Reference: Sketch Plan (S-14-001) Final Plan (F-12-026)	RECD	RECD
D-8b	Exceed Minimum Stream Buffer Requirements	EcoScience, FCCOVI, HCM/Planners	2 points for each additional 25' of wetland buffer (75 FT enhanced buffer) - 6 points	Provide 150 FT Stream Buffer (75 FT enhanced buffer) - 6 points	Reference: Sketch Plan (S-14-001) Final Plan (F-12-026)	6	6
D-9	Exceed Minimum Wetland Buffer Requirements	EcoScience, FCCOVI, HCM/Planners	2 points for each additional 25' of wetland buffer (75 FT enhanced buffer) - 6 points	N/A	N/A	4	0
D-10	Floodplain Buffer	N/A	1 point for each 25' of buffer to floodplain outside required or provided wetland or stream buffer	N/A	N/A	2	0
E Site Landscape Improvements							
E-1	Landscape Exceeds Minimum Requirements and Reduces Heat Island Effect	N/A	1 point for each 10% increase in number of plants (must be native plants) provided above total minimum required in Landscape Manual; retain or plant trees on south and west sides of building and increase trees within parking areas and along sidewalk and along	Provide 20% increase in Landscape Requirements	GN Plan SGP (SDP-14-071) Sheets 11, 12	5	2
E-2	Native Plants	N/A	1 point for 80%; 2 points for 90%; 3 points for 100% of all plants native to within 200 miles of site	N/A	N/A	3	0
E-3	No Invasive Plants	HCM/Planners	No plants that are on DNR, USDA or Cooperative Extension Service lists of invasive plants	Will not plant invasive plants	GN Plan SGP (SDP-14-071) Sheets 11 & 12	RECD	RECD
E-4	Limit Turf	HCM/Planners	Turf does not exceed 30% of ungraded site (1 point); no turf on new created steep slopes 25%+ or in densely shaded areas (1 point); non-turf areas must be planted in native vegetation	Will not plant conventional turf in densely shaded areas and on newly created 25% steep slopes	GN Plan SGP (SDP-14-071) Sheets 11 & 12 Reference: Sketch Plan (S-14-001)	2	1

Credit No.	Credit	Champion (Name, Role)	Requirement	Site Development Plan GN Strategies	Documentation Location	Points	Points
F Water Conservation / Efficiency / Management							
F-1	Rainwater Harvesting System	Stragahan	Collect and make use of water runoff from minimum 50% of roof area; provide storage system and monitoring device and maintenance / management program	Provide rainwater harvesting for school and recreational uses	Reference: SGP (SDP-12-075)	5	5
F-2	Water-Permeable Walkways	N/A	Use water permeable materials in 50% or more of parking lots; provide maintenance program	N/A	N/A	4	0
F-3a	Low Impact Development (LID) Stormwater Treatment	FCCOVI	Meets minimum Design Manual requirements; no dry ponds allowed	No dry ponds	GN Plan SGP (SDP-14-071) Sheets 5-6 Reference: Sketch Plan (S-14-001)	RECD	RECD
F-3b	Low Impact Development (LID) Stormwater Treatment	FCCOVI	Exceeds Design Manual requirements; maximize use of bioretention (esp. for parking lots), rain gardens, rain barrels, stormwater wetlands, green roof, etc.	Will provide 51% water quality volume stored and infiltrated on-site	GN Plan GN Report SGP (SDP-14-071) Sheets 5-8 Reference: Sketch Plan (S-14-001)	8	6
G Energy Efficiency							
G-1	Light Pollution Reduction	FCCOVI, HCM/Planners	Shield all site lighting fixtures to reduce light and spillover below county code requirements; install sensors or timers on all exterior site lighting fixtures	N/A	N/A	4	0
G-2	Solar Orientation	N/A	Orient 50% (1 point) or 75% (2 points) or 100% (3 points) of buildings to maximize solar strategies	N/A	N/A	3	0
G-3	Infrastructure Energy Efficiency	N/A	Select high efficiency fixtures for parking lot and other site lighting fixtures	N/A	N/A	6	0
H Materials Beneficial to the Environment / Waste Management							
H-1	Environmentally Preferable Site Products	Stragahan, FCCOVI, HCM/Planners	Select products from a list including: recycled materials (concrete, asphalt, trees, plastic, etc.); materials with recycled content; salvaged or engineered materials.	Use 26-50% environmentally preferable materials	GN Report	8	0
H-2	Reduce Heat Island Effect of Paving	N/A	Use light-colored or high albedo materials and/or porous paving with a minimum Solar Reflective Index of 0.6 or over for at least 30% of the site hardscape	N/A	N/A	2	0
H-3	Site Construction Waste Management	Stragahan	Develop and implement a construction waste management plan to divert, reuse, recycle or reduce the amount of site material sent to the landfill by 25% (2 points) or 50% (3 points) or 75% (4 points)	Divert 75% or more site construction waste	GN Report	4	4
H-4	Regionally Produced Materials	Stragahan, FCCOVI, HCM/Planners	20% of common and public infrastructure materials from within 200 miles	Use regionally produced materials for 20% of total site materials	GN Report	3	3
I Operations and Maintenance Education							
I-1	HCA Documents	Stragahan;	Include information about green site features and maintenance requirements in HCA documents	Provide HCA document	Under review with SGP-13-068	0	0
I-2	Maintenance Manual for Owner / HCA / Manager	Stragahan	Provide a manual that includes information on how to maintain the green features of the site, including paving materials, landscaping and stormwater management LP and encourages additional green activities such as recycling, gardening, etc.	Provide manual	Under review with SGP-13-068	RECD	RECD
I-3	Public Awareness of Sustainable Community	Stragahan; HCM	Develop a program to educate the environmental benefits of the community	Implement public awareness strategy	GN Report	RECD	RECD
TOTAL GREEN NEIGHBORHOOD SITE POINTS						167	87
Number of points required to obtain Green Neighborhood Allocations						80	

Third Party Certification
 I, the undersigned, do hereby declare and affirm to Howard County that the targeted Green Neighborhood Site Credits and point total specified in this Green Neighborhood Site Compliance Checklist, are reasonable and achievable.
 Signature: Charles Alexander Title: PRESIDENT No. 10439208 Date: 6-16-15
 Name: ALEXANDER DESIGN STUDIO Organization: ALEXANDER DESIGN STUDIO
 Submission (mark "X" where applicable): SGP (SDP-14-071)

APPROVED
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 GREEN NEIGHBORHOOD PLAN FOR SITES
 [Signature] 9-14-15
 CHIEF, RESOURCE CONSERVATION DIVISION DATE
 LEED ACCREDITED PROFESSIONAL CERTIFICATE
 GREEN NEIGHBORHOOD PLAN FOR SITES
 I hereby certify that this plan represents a practical and workable plan for achieving the targeted credits and point total shown on the Green Neighborhood for Sites Compliance Checklist.
 [Signature] 10007912 6-16-15
 MATTHEW J FITZSIMMONS, LEED AP LEED ACCREDITATION NUMBER DATE

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLIOTT CITY, MARYLAND 21142
 (410) 461 - 2955

STATE OF MARYLAND
 MICHAEL B. HARRIS
 LAND SURVEYOR
 LICENSE NO. 20748
 EXPIRES 06/30/2018
 6-15-15

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 9-23-15
 Chief, Division of Land Development Date

[Signature] 7-9-15
 Chief, Development Engineering Division Date

[Signature] 9-24-15
 Director - Department of Planning and Zoning Date

Owner/Builder **Developer**

Lennar Lennar
 10211 Mincopin Circle, Suite 180 10211 Mincopin Circle, Suite 180
 Columbia, Maryland 21044 Columbia, Maryland 21044
 Ph# 410-423-0460 Ph# 410-423-0460

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

GREEN NEIGHBORHOOD PLAN
OXFORD SQUARE
 "A Howard County Green Neighborhood"
 Lots 224-241, Open Space Lots 242 & 243
 And Parcel 'U'
 (Being A Re-subdivision Of Parcel 'C', As Shown On Plans Entitled "Revision Plan, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K', 'L' And "H" And Recorded Among The Land Records Of Howard County, Maryland As Plat Nos. 22856, Thru 22859.)
 Zoned: TOD
 Tax Map No.: 38 Grid No.: 20 Parcel No.: 1003
 First Election District: Scale: As shown
 Date: May 7, 2015 Sheet 19 Of 20

Subdivision: OXFORD SQUARE Parcel No.: 'C'
 Lot Nos. 224-241 & CONDO. BLDGS. 1-3
 Plat No. 23450-23451 Block No. --- Zone TOD Tax/Zone 44 Elec. Dist. 1st Census Tr. 601101

hord | coplan | macht
 750 E. Pratt Street, Suite 1100 Baltimore MD 21202
 410.837.7311 | www.hcm2.com
 Hord Coplan Macht, Inc. 2014

13209090014\hgs\SDP (Lennar) Parcel 'C' - 17 2014 sdp per volume change\09014 Sheet 19-20 p. plan\hgs_C-19_SDP-14-071_Sheet 19-20 p. plan.dwg, C-19_SDP-14-071_Sheet 19-20 p. plan.dwg, 15_592015_140239_PLM_11

GREEN NEIGHBORHOOD NOTES:

- A-2 THE DESIGN AND DEVELOPMENT TEAM INCLUDES A LEED AP (MATTHEW FITZSIMMONS- HORD COPLAN MACTH), ENVIRONMENTAL PROFESSIONAL (JOHN CANOLES- ECO-SCIENCE PROFESSIONALS, INC.), LANDSCAPE ARCHITECT (JOSH KILRAIN- HORD COPLAN MACTH) AND AN ENGINEER (ALDO VITUCCI PE- FISHER COLLINS & CARTER)
- A-3 THE THIRD PARTY CERTIFICATION IS PROVIDED BY CHARLES ALEXANDER, LEED-AP OF ALEXANDER DESIGN STUDIOS.
- B-1a THE 111.1 ACRE DEVELOPMENT CONSISTS OF 28.4 ACRES OF PREVIOUSLY DEVELOPED LAND (25.6% OF THE OXFORD SQUARE DEVELOPMENT).
- B-3a OXFORD SQUARE WILL PROVIDE TWO TRANSIT STOPS FOR THE PROPOSED PRIVATE SHUTTLE SERVICE CONNECTING OXFORD SQUARE TO THE DORSEY MARC COMMUTER RAIL STATION. THE STOPS WILL BE WITHIN 1/4 WALKING DISTANCE TO ALL DWELLING UNITS.
- B-3b OXFORD SQUARE WILL PROVIDE ONE SHELTER AT ONE OF THE PRIVATE SHUTTLE STOPS. THE SHELTER WILL COMPLY WITH COUNTY -APPROVED CRITERIA INCLUDING BENCHES AND LIGHTING.
- C-1 OXFORD SQUARE WILL PROVIDE THREE DIVERSE USES OTHER THAN RESIDENTIAL: INSTITUTIONAL (MIDDLE SCHOOL BUILDING AND OUTDOOR CLASSROOM SPACE, ELEMENTARY SCHOOL), CIVIC (SCHOOL'S RECREATIONAL PLAYING FIELDS AND SHARED-USE PATH) AND OFFICE.
- C-2 OXFORD SQUARE IS LOCATED WITHIN THE EXISTING PLANNED WATER AND SEWER SERVICE AREA.
- C-3c OXFORD SQUARE WILL PROVIDE A MINIMUM OF TWO PEDESTRIAN SYSTEM AMENITY EXPERIENCES: 1) SHARED USE PATH AND NATURE TRAIL (TRAIL SIGNS AND MARKERS, BENCHES, LITTER RECEPTACLES, INFORMATIONAL SIGNS, BIKE RACKS), 2) THE LAWN (BENCHES, EXTERIOR LIGHTING, SHADE TREES, INFORMATIONAL SIGNS), 3) RESIDENTIAL COURTYARDS AND MEWS (BENCHES), AND 4) SCHOOL SITES (PLAYING FIELDS, BENCHES, BIKE RACKS)
- D-8b OXFORD SQUARE WILL PROVIDE A MINIMUM 75 FT ENHANCED STREAM BUFFER.
- E-3 OXFORD SQUARE WILL NOT PLANT INVASIVE PLANTS.
- E-4 OXFORD SQUARE WILL NOT PLANT TURF IN DENSELY SHADED AREAS.
- F-3b OXFORD SQUARE WILL PROVIDE AT LEAST 51% WATER QUALITY VOLUME STORED AND INFILTRATED/RE-USED ON-SITE.

GREEN NEIGHBORHOOD CALCULATIONS & TABLES:

A-4b Priority Parking for Low-Emitting and Fuel Efficient Vehicles

Total Number of Off-Street Parking Spaces:	18 Spaces
Total Number of Proposed Preferred Parking Spaces:	1 Spaces
Percent of Preferred Parking Spaces:	5.6%

A-4c Compact Development

	Complete Build-Out	SDP
Total Dwelling Units:	1,489 DU	42 DU
Residential Land Area:	42.1 AC	3.25 AC
Residential Density:	35.37 DU/AC	12.92 DU/AC

Note: This SDP expanded the Residential Land Area by 1.05 Acres in comparison to Sketch Plan (S-14-001). This increase in Residential Land Area does not expand the limits of disturbance on Parcel 'C'. This SDP reduced the quantity of units by 3 DU since Sketch Plan (S-14-001).

A-4d Walkable Streets

	Complete Build-Out	SDP
Length of Building Frontage Oriented Towards the Public Space:	11,021 FT	720 FT
Total Length of Building Frontages:	12,276 FT	720 FT
% of Building Frontage Oriented Towards the Public Space:	89.8%	100.0%

	Complete Build-Out	SDP
Length of Building Frontage with Service or Garage Openings:	754 FT	FT
Length of Building Frontage Oriented Towards Public Spaces (including Service and Garage Openings):	11,775 FT	720 FT
% of Building Frontage with Service or Garage Openings:	6.4%	0.0%

Note: In comparison to the Sketch Plan (S-14-001) this SDP provides 390 additional feet to the length of building frontage oriented towards the public space, total length of building frontage and length of building frontage oriented towards the public space (including service and garage openings) on Parcel 'C'.

B-1a Redevelopment Site

Gross Site Area (Parcel C):	111.1 Acres
Area of Existing Development (Acres):	28.4 Acres
Percent of Previously Developed:	25.6%

B-3a Transit Access & Amenities for Reduced Auto Dependence (Stop)

Residential Buildings within 1/4 Mile (<1,320 FT)	Total Number of Qualifying Units	Percent of all Units
All Buildings	1,489 DU	100%

C-1 Diversity of Uses

Residential Uses	Number of Units	Percent of Total Units
Apartments & Townhouses	1,489 DU	100%
Non-Residential Uses		
Office:	Area	SF per Dwelling Unit
	154,000 SF	103 SF/DU
Institutional:	Area	SF per Dwelling Unit
Middle School ¹	55,747 SF	
Middle School Outdoor Classroom Space ²	2,500 SF	
Elementary School	101,014 SF	
Institutional Subtotal:	159,261 SF	134 SF/DU
Civic:	Area	SF per Dwelling Unit
Recreational Playing Fields (School Site) ³	236,139 SF	
Northern Loop Shared-Use Path (8 FT wide) ⁴	19,504 SF	
Southern Loop Shared-Use Path (8 FT wide) ⁴	8,056 SF	
Civic Subtotal:	263,699 SF	177 SF/DU

Note: ¹ Revised per the approved Middle School SDP (SDP-12-075)
² 12,803 SF of Shared Use Path will be constructed on Middle School site (SDP-12-075)
³ This SDP provides 224 SF of the southern shared use path.

C-3a Pedestrian System (Paths and Trails)

Northern Shared Use Path:	Width of Path: 8 FT Length: 2,438 FT (0.46 Miles)
Southern Shared Use Path:	Width of Path: 8 FT Length: 1,002 FT (0.19 Miles)
Milch Nature Trail:	Width of Path: 5 FT Length: 595 FT

Note: This SDP provides 281 linear feet of the southern shared use path.

C-4 Street Connections

Street Name / ID	Street Length	Qualifying Street
Saint Margarets Boulevard	1,684 FT	Yes
Barbury Drive	2,589 FT	Yes
Road A	220 FT	No
Road B	514 FT	No
Road C	228 FT	No
Road D	740 FT	Yes
Road E (North and South)	1,450 FT	Yes
Road F	1,016 FT	Partial
Road G	120 FT	No
Road H	120 FT	No
Road J	465 FT	Yes
Road I	245 FT	No

Summary		
Total Street Length:	9,301 FT	
Total Connected Street Length:	7,393 FT	
Percent Connected Streets:	78.7%	

Note: This SDP completes improvements to Southmoor Street (Formerly Road F).

C-6 Exceed Minimum Open Space

Net Acreage:	101.6 AC
Required Amenity Space (TOD: 10% of Net Acreage):	10.2 AC
Provided Amenity Space:	15.7 AC
Percent Increase above the Minimum Required:	53.9 %

Note: 1. This SDP submission contributes 1.72 Acres of Amenity Space to the Complete Build-Out goal.

C-7 Green Spaces and Amenity Areas

Parcel	Road Frontage	Amenity Type	Amenity Area
Open Space 1: The Nature Trail (future SDP)	100 FT	Nature Trail, Benches, Trail Signs, Educational Signage	31,266 SF (0.72 AC)
Open Space 2: Pool House and Pool (C.S. Lot #107 on SDP-13-068)	4/138 FT (length along Private Road 'B')	Pool house, Pool, Fitness Room and Warming Kitchen	11,282 SF (0.26 AC)

D-4 15% Slope Preservation

Total Area of Slopes 15-24.9%	504,072 SF
Area of Undisturbed Slopes 15-24.9%	289,178 SF
Percent of Undisturbed Slopes:	57.4 %

Note: The area of undisturbed slopes is the summation of slopes impacted by the greatest extent of LDCs accumulated from the entire Approved Sketch Plan (S-14-001), Approved Final Plan (F-12-028), Approved Middle School SDP (SDP-12-075) and future environmental restoration work.

D-5 Minimize Grading and Site Disturbance

	Complete Build Out
Gross Area of Site:	111.1 AC
Existing Impervious Cover:	28.4 AC
Area of Site:	82.7 AC
Area of Site to Remain Undisturbed:	28.4 AC
Percent of Site to Remain Undisturbed:	34.3 %
Ratio of Cut to Fill:	1:1.3 Ratio
Retaining Wall:	0 FT

Note: 1. Complete Build Out Calculations are based on the aggregate greatest extent of LDC's from the submitted Sketch Plan (S-14-001), Approved Final Plan (F-12-028) and Approved Middle School SDP (SDP-12-075).
 2. SDP submission land area is located within the Complete Build Out LDC therefore there are no impacts to undisturbed areas.
 3. No dirt was imported or exported from Oxford Square.

D-6 Exceed Minimum Forest Conservation Requirements

Afforestation Obligation:	3.50 AC
Afforestation Provided in Excess of Obligation:	2.75 AC
Percentage of Provided in Excess of Obligation:	50.00 %

D-8b Exceed Minimum Stream Buffer Requirements

Total Stream Buffer Width:	150 FT
Width of Buffer Exceeding Requirements:	75 FT
Total Length of Stream Buffer:	1,584.2 FT
Length of Stream Buffer Outside Other Buffers:	1,352.3 FT
Percent of Stream Buffer Outside Other Buffers:	68.2 %

APPROVED
 HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 GREEN NEIGHBORHOOD PLAN FOR SITES

Beth Bevan 9-14-15
 CHIEF, RESOURCE CONSERVATION DIVISION DATE

LEED ACCREDITED PROFESSIONAL CERTIFICATE
 GREEN NEIGHBORHOOD PLAN FOR SITES

I hereby certify that this plan represents a practical and workable plan for achieving the targeted credits and point total shown on the Green Neighborhood for Sites Compliance Checklist.

Matthew J. Fitzsimmons 10007912 9-8-15
 MATTHEW J. FITZSIMMONS, LEED AP LEED ACCREDITATION NUMBER DATE

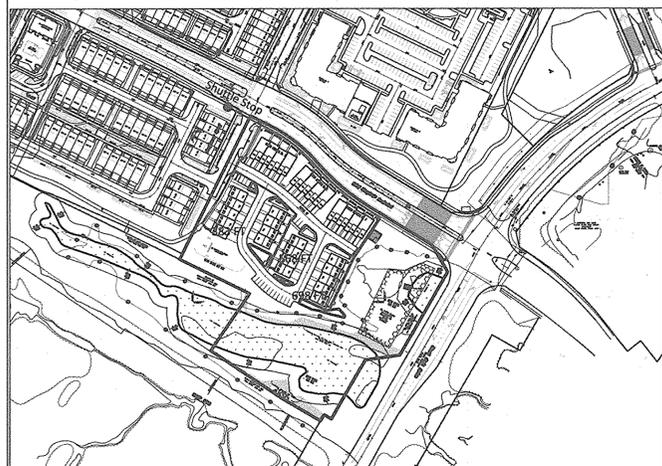
E-1 Landscaping

Plants Required	Shade Trees	Evergreen	Shrubs	Total	Percent
Number of Plants Required by Landscape Manual	46	13	0	61	
Number Excess Plants Required for GN Credit	10	3	0	13	21.3
Landscape Manual and GN Requirements	56	16	0	74	

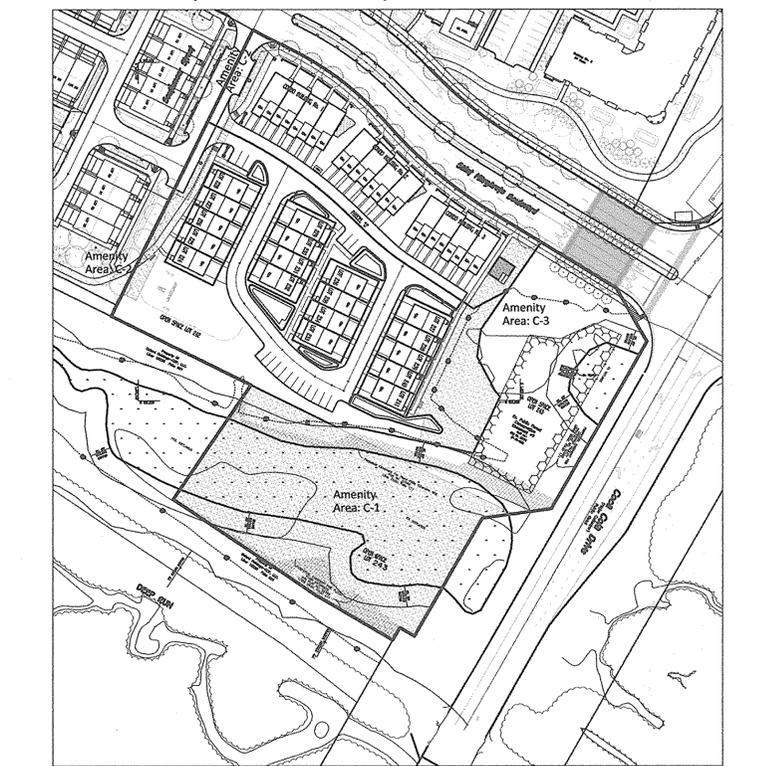
Plants Provided	Shade Trees	Shade Tree (Substitute)	Evergreen	Evergreen (Substitute)	Other Trees (Substitute)	Shrubs	Shrub (Substitute)	Total
Number of Plants Provided to Meet Landscape Manual	39	9	6	7	0	0	0	61
Number of Plants Provided to Meet GN Credits	10	0	3	0	0	0	0	13
Total Number of Plants Provided	49	9	6	10	0	0	0	74

Note: 1. Shade Tree Substitution (10 Ornamental/2= 9 Required Shade Trees)
 2. Evergreen Substitution (7 Ornamentals = 7 Required Evergreen)
 3. Native Evergreen Substitution (3 NM = 3 Native Evergreens)
 4. Native Shade Trees: (18 NM + 3 LST, 3 ORN = 24 Native Shade Trees)
 5. Native Ornamental Trees: (12 NM)
 6. This plan meets the project's goal to provide a 20% increase of native shade trees.

B-3a & B-3b VICINITY MAP (Scale: 1" = 200')



C-6 Green Spaces & Amenity Area (Scale: 1" = 100')



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FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PLACE
 ELLSWORTH CITY, MARYLAND 21042
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Owner/Builder
 Lennar
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 Columbia, Maryland 21044
 Phe 410-423-0460

Developer
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Keith S. Leavelle 9-23-15
 Chief, Division of Land Development Date

Chad E. Johnson 9-16-15
 Chief, Development Engineering Division Date

Valerie J. J. J. J. 9-24-15
 Director - Department of Planning and Zoning Date

PLAT NO.	BLOCK NO.	ZONE	TAX/ZONE	ELEC. DIST.	CENSUS TR.
23450-23451	---	TOD	30	1st.	601101

GREEN NEIGHBORHOOD PLAN
OXFORD SQUARE
 "A Howard County Green Neighborhood"
 Lots 224-241, Open Space Lots 242 & 243
 And Parcel 'U'

(Being A Resubdivision Of Parcel 'C', As Shown On Plats Entitled "Revision Plat, Oxford Square, "Green Neighborhood", Parcels 'C', 'E', 'F', 'G', 'H', 'I', 'J', 'K' And 'M' And Recorded Among The Land Records Of Howard County, Maryland As Plat Nos. 22856 Thru 22859)

Zone: TOD
 Grid No.: 20
 Parcel No.: 1003
 First Election District: Howard County, Maryland
 Scale: As Shown
 Date: May 7, 2015
 Sheet 20 Of 20