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# WETLAND STREAM RESTORATION AND HABITAT MANAGEMENT PLAN

# OXFORD SQUARE

ZONING: TOD

TAX MAP No. 38, GRID No. 20

PARCEL No. 1003

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING GREEN NEIGHBORHOOD PLAN FOR SITES	
<i>Beth Bergman</i> CHIEF, RESOURCE CONSERVATION DIVISION	4-17-17 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Keith Shelton</i> Chief, Division of Land Development	4-24-17 DATE
<i>Ch. Chidister</i> Chief, Development Engineering Division	8-19-16 DATE
<i>Walter Zylka</i> Director - Department of Planning and Zoning	9-24-17 DATE
This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.	
Howard SCD	DATE

### Wetland Restoration (GN Credit D-1)

The wetland restoration efforts shall restore the natural hydrologic conditions, vegetative community and habitat value of Wetland D as follows:

- Eliminate ongoing source of disturbance by securing access points to the property.
- Invasive species will be removed from throughout the Wetland D.
- Two small vernal pools will be created within the wetland in an area previously disturbed by ORV traffic (Restoration Area #3).
- The culvert in the northwest corner of the wetland (Restoration Area #2) will be blocked with the addition of rip rap at the inlet to restore hydrology in this portion of the wetland.
- The culvert on the northern edge of the wetland that goes under the utility access road (Restoration Area #1) will be cleared by removing rip rap from the inlet and outfall to enhance wildlife connections for the wetland. If the existing culvert is not serviceable, it will be replaced with an exact replacement.
- Native shrub and herbaceous species will be planted throughout Wetland D to increase vegetative structural diversity.
- Protect the wetland through access restrictions and periodic inspections to control invasive species.
- All work done will have follow-up monitoring for 5 years after restoration actions have been completed.
- The Existing Culvert On The Northern Edge Of The Wetland F & G (Restoration Area #4), South Of The Gas Easement Will Be Replaced And The Outfall Will Be Reconstructed With A Plunge Pool To Reduce Erosive Velocities.

### Habitat Management Plan (GN Credit D-2)

The Habitat Management Plan efforts shall focus on maintaining and enhancing the health and habitat value of the natural resource systems on the property:

Short term efforts shall include the following:

- Eliminate ongoing source of disturbance by securing access points to the property.
- Remove woody invasive species, trash and debris from all existing forest resources, including those within wetlands and both credited and non-credited forest retention areas, to enhance their successional development.
- Remove trash and debris from all forest and wetland systems to remain.
- Plant native trees to close canopy gaps within the forested portions of the wetland and stream buffers, to limit the return of invasive species and to enhance the habitat and water quality benefits of the buffers.
- Grade and reseed with native vegetation any areas within the open space lots that are undergoing active erosion, particularly the following areas:
  - Eroding areas within Colonial pipeline easement
  - Eroding areas within sewer utility easement
  - Eroding areas within the access roads for the NRFs, including side trail going downhill from the road that circles NRF 5.
  - Eroding area along eastern edge of Forest Conservation Easement #1 within fiber optic line easement.
- Stabilization within the Colonial pipeline will include areas within Wetlands E and EE and buffers for Wetlands D, E and EE. Where reseeding is not possible because access road is needed, the road shall be graded and leveled to correct erosion along with other necessary stabilization measures.
- Install bluebird nest boxes, to provide enhanced habitat.
- Provide 8,644 acres of forest retention (credited and non-credited) and 1.58 acres of forest afforestation.

Long-term efforts will monitor and maintain these areas to ensure invasive species do not return and newly planted areas have good survival. Afforestation areas will be included in this monitoring and maintenance effort, to extend beyond the minimum two-year regulatory requirement



REFER TO HOWARD CO. ADC MAP 35, D-6

### VICINITY MAP

SCALE: 1" = 2000'

# FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

### GENERAL NOTES

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE OCTOBER 6, 2013 PER COUNCIL BILL NO. 32-2013. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS OR PARCELS MUST COMPLY WITH SETBACKS AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF A BUILDING OR GRADING PERMIT APPLICATION.
- COORDINATES BASED ON NAD83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO. 380A AND NO. 380A  
Station No. 380A N 556,796.3221 E 1,390,221.4576 Elev. = 126.08  
Station No. 380A N 556,997.3379 E 1,390,132.0933 Elev. = 80.79
- SUBJECT PROPERTY ZONED TOD PER ZB-1086M DATED 9/13/10.
- BACKGROUND INFORMATION:  
a. SUBDIVISION NAME: OXFORD SQUARE  
b. TAX MAP NO.: 38 & 44  
c. PARCELS NOS.: 761  
d. ZONING: TOD (PER ZB-1086M)  
e. ELECTION DISTRICT: FIRST  
f. GROSS AREA OF TRACT = 118,514 ACRES (EXISTING PARCEL "Q" & OXFORD HOLDINGS-COP LLC. PROPERTY (FORMERLY CSX PROPERTY)) + 11,018 ACRES (EXISTING PARCEL "M-1") = 129,532 AC.  
g. TOTAL NUMBER OF UNITS PROPOSED PER 5-15-001: 1,492 RESIDENTIAL UNITS  
h. TOTAL AREA OF PUBLIC ROADWAY TO BE DEDICATED PER 5-15-001: 6,125 ACRES  
i. PREVIOUS FILE NUMBERS: 5-87-066, P-87-070, F-88-095, F-89-095, SGP-89-275, F-90-125, F-91-069, SGP-90-041, F-93-023, SGP-93-055, ZB-1086M, WP-11-130, F-11-057, WP-11-147, S-11-001, ECP-11-046, SGP-12-075, F-12-026, F-13-095, F-13-108, ZB-1102 M, S-15-001, SGP-13-068, F-14-011, SGP-14-004, SGP-14-019, SGP-14-027, SGP-14-071, SGP-14-072, F-15-008, F-15-088, SGP-15-092 & SGP-15-053.  
j. AREA OF FLOODPLAIN = 7,671 ACRES (PARCEL "Q" & OXFORD HOLDINGS-COP LLC. PROPERTY) + 10,481 ACRES (PARCEL "M-1") = 18,152 ACRES  
k. AREA OF 25% OR GREATER SLOPES = 3,867 ACRES  
l. NET AREA OF TRACT = 107,513 AC.
- AMENITY REQUIREMENTS: T.O.D. DEVELOPMENT SHALL INCLUDE AN AMENITY AREA PER SECTION 127.4.F.I. OF THE ZONING REGULATIONS AND THE ROUTE 1 MANUAL  
a. AMENITY AREA REQUIRED: 10,751 ACRES FOR THE ENTIRE PROJECT (107,513 x 10%)  
b. TOTAL AMENITY AREA PROVIDED: = (1.43 ac. UNDER SGP-15-092, 6.60 ac. UNDER SGP-12-075, 1.57 ac. UNDER SGP-13-068, 0.42 ac. UNDER SGP-14-004, 1.07 AC. UNDER SGP-14-019, 0.78 ac. UNDER SGP-14-027, 0.45 ac. UNDER SGP-14-072 & 1.72 AC. UNDER SGP-14-071) = 14.04 ac. [94%]
- ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.
- EXISTING WATER IS PUBLIC (CONTRACT NO. 14-1707-D & 14-4725-D)  
EXISTING SEWER IS PUBLIC (CONTRACT NO. 14-1707-D & 181-5)
- SOILS INFORMATION TAKEN ECS SOIL SURVEY DATED NOVEMBER 2, 2009. THE PROPERTY LIES WITHIN THE DEEP RUN TRIBUTARY TO THE PATAPSCO RIVER WATERSHED (2130906). MOST OF THE PARCEL "Q" CONSISTS OF OVERGROWN FIELD HABITAT THAT DEVELOPED ON A PORTION OF THE SITE THAT WAS MASS GRADED IN THE LATE 1960'S. IT IS DUE TO THIS PREVIOUSLY MASS GRADED CONDITION THAT THE NORMAL HOWARD COUNTY SOIL SURVEY MAP NOS. 25 & 31 DATED JULY 1968 DO NOT APPLY. AS A RESULT OF THIS SITE CONDITION, THE OWNERS/DEVELOPER HAVE CONTRACTED ECS-MID ATLANTIC, LLC OF HANOVER, MARYLAND. THE SOIL REPORT IS DATED NOVEMBER 2009 WITH AN ADDENDUM DATED FEBRUARY 2010 THAT SUMMARIZED THE SOIL GROUPS REQUIRED FOR THIS SWM REPORT.
- BOUNDARY OUTLINE BASED ON FIELD RUN SURVEY PERFORMED BY FISHER COLLINS AND CARTER, INC. DATED MARCH, 2008.
- TOPOGRAPHIC CONTOURS BASED ON AERIAL SURVEY PERFORMED BY HANOVER AERIAL SURVEYS, INC. DATED JANUARY, 2008 AND SUPPLEMENTED WITH FIELD RUN TOPOGRAPHY PREPARED BY FISHER, COLLINS AND CARTER, INC. DATED MAY, 2010.
- THERE IS ONE AREA OF STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116.b., (0.298 AC.).
- SEVERAL SPECIMEN TREES ARE KNOWN TO BE LOCATED WITHIN THE EXISTING FOREST; HOWEVER, NONE EXIST WITHIN THE LIMITS OF FOREST THAT HAVE BEEN REMOVED.
- FLOODPLAIN STUDY SHOWN HEREON WAS PREPARED BY WHITMAN REQUARDT AND ASSOCIATES AND IS DELINEATED ON PLAT NOS. 9924-9925 (F-91-069).
- THE FOREST CONSERVATION ACT REQUIREMENTS FOR THE OXFORD SQUARE DEVELOPMENT WERE SATISFIED BY F-12-026, HOWEVER, HAVE BEEN REVISED BY THE F-15-008 PLAN. THE FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PROJECT UNDER F-12-026 WERE MET THROUGH THE RETENTION OF 10,511 ACRES OF ON-SITE FOREST AND THE PLANTING OF 5,225 ACRES OF ON-SITE FOREST. THE REVISED FOREST CONSERVATION ACT REQUIREMENTS WILL BE MET BY THE RETENTION OF 6,322 ACRES OF ON-SITE FOREST, THE PLANTING OF 1,500 ACRES OF ON-SITE FOREST AND THE RETENTION OF 34,043 AC. OF OFF-SITE FOREST LOCATED ON THE BERMAN PROPERTY, TAX MAP NO. 11, GRID NO. 19, PARCEL NO. 13. "No Clearing, Grading Or Construction Is Permitted Within The Forest Conservation Easement; However, Forest Management Practices As Defined In The Deed Of Forest Conservation Easement Are Allowed."
- THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MARCH 17, 2011 AND APPROVED UNDER 5-11-001 & ECP-11-046. A NEW FOREST STAND DELINEATION AND WETLAND DELINEATION PLAN (NATURAL RESOURCE INVENTORY PLAN) PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED APRIL 21, 2015 WAS SUBMITTED AND APPROVED UNDER 5-15-001 PLAN. A REVISED WETLAND DELINEATION PREPARED BY GEO-TECHNOLOGY ASSOCIATES WAS SUBMITTED IN MARCH, 2016 WITH SGP-16-052.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- NO CEMETERIES OR HISTORIC STRUCTURES EXIST WITHIN THIS SUBDIVISION.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS, THEIR REQUIRED BUFFERS OR THEIR EXTENDED GREEN NEIGHBORHOOD BUFFERS, UNLESS THE ACTIVITIES ARE CONSIDERED NECESSARY OR WAIVED AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING. ACTIVITIES PROPOSED IN WETLANDS, STREAMS, THEIR BUFFERS, AND THEIR EXTENDED GREEN NEIGHBORHOOD BUFFERS AS PART OF THE APPROVED STREAM AND WETLAND RESTORATION AND HABITAT MANAGEMENT PLANS ARE CONSIDERED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING.
- THIS PROPERTY IS SUBJECT TO A HABITAT MANAGEMENT AGREEMENT WHICH ALLOWS PERIODIC INSPECTIONS BY THE DEPARTMENT OF PLANNING AND ZONING.
- CONTRACTOR SHALL NOTIFY THE COLONIAL PIPELINE COMPANY PRIOR TO ANY ACTIVITIES WITHIN THEIR EASEMENT.
- THE HABITAT MANAGEMENT AGREEMENT WAS SIGNED ON AUGUST 29, 2016 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND AT LIBER 17138 , FOLIO 453.



8/4/16

ALDO M. VITUCCI, P.E. DATE  
Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.

## WETLAND STREAM RESTORATION AND HABITAT MANAGEMENT PLAN OXFORD SQUARE

ZONING: TOD  
TAX MAP No. 38, GRID No. 20, PARCEL No. 1003  
FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
DATE: AUGUST 4, 2016  
SHEET 1 OF 9

## SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

### A. Soil Preparation

- Temporary Stabilization**
  - Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chain draggers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged parallel but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
  - Apply fertilizer and lime as prescribed on the plans.
  - Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
- Permanent Stabilization**
  - A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
    - Soil pH between 6.0 and 7.0.
    - Soluble salts less than 500 parts per million (ppm).
    - Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if loesslike soils will be planted, then a sandy soil (less than 30 percent silt plus clay) may be acceptable.
    - Soil contains 1.5 percent minimum organic matter by weight.
    - Soil contains sufficient pore space to permit adequate pore penetration.
  - Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
  - Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
  - Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
  - Soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by disking with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seeded preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seeded loosening may be unnecessary on newly disturbed areas.

### B. Topsoiling

- Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
- Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
- Topsoiling is limited to areas having 2:1 or flatter slopes where:
  - The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
  - The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
  - The original soil to be vegetated contains material toxic to plant growth.
  - The soil is so acidic that treatment with limestone is not feasible.
  - Areas having slopes steeper than 2:1 require special consideration and design.
- Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
  - Topsoil must be a loam, sandy loam, clay loam, silty loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of subsoil and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
  - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
  - Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
  - Topsoil substitute or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
  - Topsoil Application
    - Erosion and sediment control practices must be maintained when applying topsoil.
    - Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
    - Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

### C. Soil Amendments (Fertilizer and Lime Specifications)

- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
- Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
- Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
- Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
- Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

### TEMPORARY SEEDING NOTES (B-4-4)

- Definition**  
To stabilize disturbed soils with vegetation for up to 6 months.
- Purpose**  
To use fast growing vegetation that provides cover on disturbed soils.
- Conditions Where Practice Applies**  
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.
- Criteria**
- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Table B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
  - For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
  - When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3A.1.b and maintain until the next seeding season.

Temporary Seeding Summary				Fertilizer Rate (10-20-20)	Lime Rate (2 tons/acre)
Hardiness Zone (from Figure B.3)	Seed Mixture (from Table B.1)	Application Rate (lb/acre)	Seeding Date		
Species	Application Rate	Seeding Date	Seeding Depth		
BARLEY	96	3/1 - 5/15	1"	456 lb/acre	2 tons/acre
OATS	72	3/1 - 5/15	1"	1000 #/acre	
RYE	112	8/15 - 10/15	1"		

Temporary Seeding Summary				Fertilizer Rate (10-20-20)	Lime Rate (2 tons/acre)
Hardiness Zone (from Figure B.3)	Seed Mixture (from Table B.1)	Application Rate (lb/acre)	Seeding Date		
Species	Application Rate	Seeding Date	Seeding Depth		
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OATS	72	3/1 - 5/15	1"	1000 #/acre	
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Temporary Seeding Summary				Fertilizer Rate (10-20-20)	Lime Rate (2 tons/acre)
Hardiness Zone (from Figure B.3)	Seed Mixture (from Table B.1)	Application Rate (lb/acre)	Seeding Date		
Species	Application Rate	Seeding Date	Seeding Depth		
BARLEY	96	3/1 - 5/15	1"	456 lb/acre	2 tons/acre
OATS	72	3/1 - 5/15	1"	1000 #/acre	
RYE	112	8/15 - 10/15	1"		

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
10722 NATIONAL PIKE, SUITE 200, BALTIMORE, MD 21286  
TEL: 410-651-2042 FAX: 410-651-2055

## SEED MIXTURES FOR RESTORATION PLAN

(FLOOD PLAIN & VERNAL POOL) SEED MIX # ENRMX-154

SEEDING RATE 15 LB. PER ACRE OR 1/3 LB. TO 1/2 LB. PER 1,000 SQ. FT.

MIX TYPE RIPARIAN SITES

- SPECIES LIST**
- 20% FOX SEDGE, PA ECOTYPE (CAREX VULPINOIDEA, PA ECOTYPE)
  - 20% VIRGINIA WILD RYE, PA ECOTYPE (ELYMUS VIRGINICUS, PA ECOTYPE)
  - 10% BIG BLUESTEM, 'NIAGARA' (ANDROPOGON GERARDII, 'NIAGARA')
  - 10% INDIANGRASS, 'PRAIRIE VIEW', IN ECOTYPE (SORGHASTRUM NUTANS, 'PRAIRIE VIEW', IN ECOTYPE)
  - 7% BLUNT BROOM SEDGE, PA ECOTYPE (CAREX SCOPARIA, PA ECOTYPE)
  - 5% BLUE VERVAIN (VERBENA HASTATA)
  - 5% SWITCHGRASS, 'SHELTER' (PANICUM VIRGATUM, 'SHELTER')
  - 4% FRINGED (NOODING) SEDGE, PA ECOTYPE (CAREX CRINITA, PA ECOTYPE)
  - 3% GRASS LEAVED GOLDENROD, PA ECOTYPE (EUTHYMIA GRAMINIFOLIA (SOLIDAGO G.), PA ECOTYPE)
  - 3% COMMON SNEEZEWEED (HELENIUM AUTUMNALE)
  - 2% PURPLE STEMMED ASTER, PA ECOTYPE (ASTER PUNICEUS (SYMPHYOTRICHUM PUNICEUM), PA ECOTYPE)
  - 2% AXL SEDGE, PA ECOTYPE (CAREX STIPATA, PA ECOTYPE)
  - 2% BONESSET, PA ECOTYPE (EUPATORIUM PERFORIATUM, PA ECOTYPE)
  - 2% OYE SUNFLOWER, PA ECOTYPE (HELIOPSIS HELIANTHOIDES, PA ECOTYPE)
  - 2% JOE PYE WEED, PA ECOTYPE (EUPATORIUM FISTULOSUM, PA ECOTYPE)
  - 1% SEEDBOX, PA ECOTYPE (LUDWIGIA ALTERNIFOLIA, PA ECOTYPE)
  - 1% SHAMP MILKWEED, PA ECOTYPE (ASCLEPIAS INCARNATA, PA ECOTYPE)
  - 1% WILD BERGAMOT (MONarda FISTULOSA)
  - 1% WILD BERGAMOT (MONARDA FISTULOSA)

(MARYLAND UPLAND) MIX # ENRMX-172

SEEDING RATE 15 LB. PER ACRE

MIX TYPE UPLAND & MEADOW SITES

- SPECIES LIST**
- 25% LITTLE BLUESTEM, EASTERN U.S. ECOTYPE (SCHIZACHYRIUM SC., E. U.S. ECOTYPE)
  - 15% RIVERBANK WILD RYE, PA ECOTYPE (ELYMUS RIPARIUS, PA ECOTYPE)
  - 15% PURPLE TOP, SE VA ECOTYPE (TRIDENS FLAVUS, SE VA ECOTYPE)
  - 10% INDIANGRASS, PA ECOTYPE (SORGHASTRUM NUTANS, PA ECOTYPE)
  - 10% PARTRIDGE PEA, PA ECOTYPE (CHAMAECRIS FASCICULATA (CASSIA H.), VA & WV ECOTYPE)
  - 6% WILD Senna, VA & WV ECOTYPE (Senna HEBECAERPA (CASSIA H.), VA & WV ECOTYPE)
  - 6% BLACK EYED SUSAN, CP NC ECOTYPE (RUBICECA IRITA, CP NC ECOTYPE)
  - 5% MARYLAND SENNA (Senna HADLANDICA (CASSIA H.), VA & WV ECOTYPE)
  - 3% WILD BERGAMOT (MONARDA FISTULOSA)
  - 3% VIRGINIA SPIDERWEED, SE PA/VN VA BLEND (TRIDASCANTIA VA, SE PA/VN VA BLEND)
  - 2% BUTTERFLY MILKWEED (ASCLEPIAS TUBEROSA)

(FAWU WETLAND MEADOW) SEED MIX # ENRMX-122

SEEDING RATE 15 LB. PER ACRE

MIX TYPE WET MEADOW & WETLAND SITES

- SPECIES LIST**
- 21% FOX SEDGE, PA ECOTYPE (CAREX VULPINOIDEA, PA ECOTYPE)
  - 21% VIRGINIA WILD RYE, PA ECOTYPE (ELYMUS VIRGINICUS, PA ECOTYPE)
  - 10% BLUNT BROOM SEDGE, PA ECOTYPE (CAREX SCOPARIA, PA ECOTYPE)
  - 8% LURED (SHALLOW) SEDGE, PA ECOTYPE (CAREX LURIDA, PA ECOTYPE)
  - 5% SOTT TUSH (LUNICUS EFFRUSUS)
  - 4% BLUE VERVAIN (VERBENA HASTATA)
  - 3% GREEN BULRUSH, PA ECOTYPE (SCORPUS ATROVIRENS, PA ECOTYPE)
  - 3% SQUARE STEMMED MOWFLY, PA ECOTYPE (MIMULUS KINGFUS, PA ECOTYPE)
  - 2% HOY SEDGE, PA ECOTYPE (CAREX LURIDA, PA ECOTYPE)
  - 2% GRASS LEAVED GOLDENROD, PA ECOTYPE (EUTHYMIA GRAMINIFOLIA (SOLIDAGO G.), PA ECOTYPE)
  - 2% COSMOS (BRISTLY) SEDGE, PA ECOTYPE (CAREX COSMOA, PA ECOTYPE)
  - 2% COMMON SNEEZEWEED (HELENIUM AUTUMNALE)
  - 2% GOLDEN ALEXANDER (ZZIA ALBA)
  - 2% MANY LEAVED BULRUSH, PA ECOTYPE (SCORPUS POLYPHYLLUS, PA ECOTYPE)
  - 1% SEEDBOX, PA ECOTYPE (LUDWIGIA ALTERNIFOLIA, PA ECOTYPE)
  - 1% PURPLE STEMMED ASTER, PA ECOTYPE (ASTER PUNICEUS (SYMPHYOTRICHUM PUNICEUM), PA ECOTYPE)
  - 1% SHAMP MILKWEED (PA ECOTYPE (ASCLEPIAS INCARNATA, PA ECOTYPE)
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**Grading & Seeding Note:**  
 THE PIPELINE EASEMENT, INCLUDING WETLAND 'E', WETLAND 'EE' & THE SEWER EASEMENT AREAS SHALL BE GRADED AND RESEEDED TO CORRECT EROSION PROBLEMS.

**Note:**  
 FOR DETAILS AND SPECIFICATIONS OF EACH RESTORATION AREA, SEE DETAILS ON SHEET 7.

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

*Beth Burgess* 4-17-17  
 CHIEF, RESOURCE CONSERVATION DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Walt Schaefer* 4-24-17  
 Chief, Division of Land Development DATE

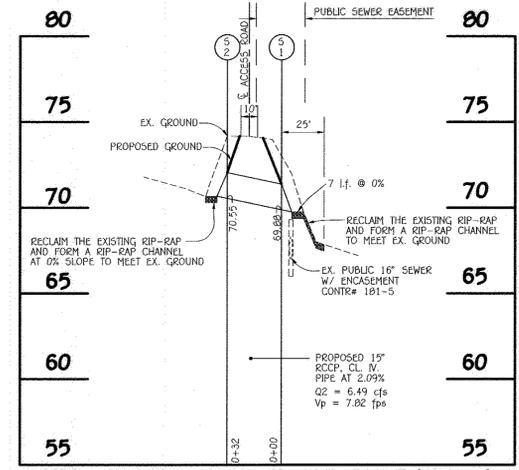
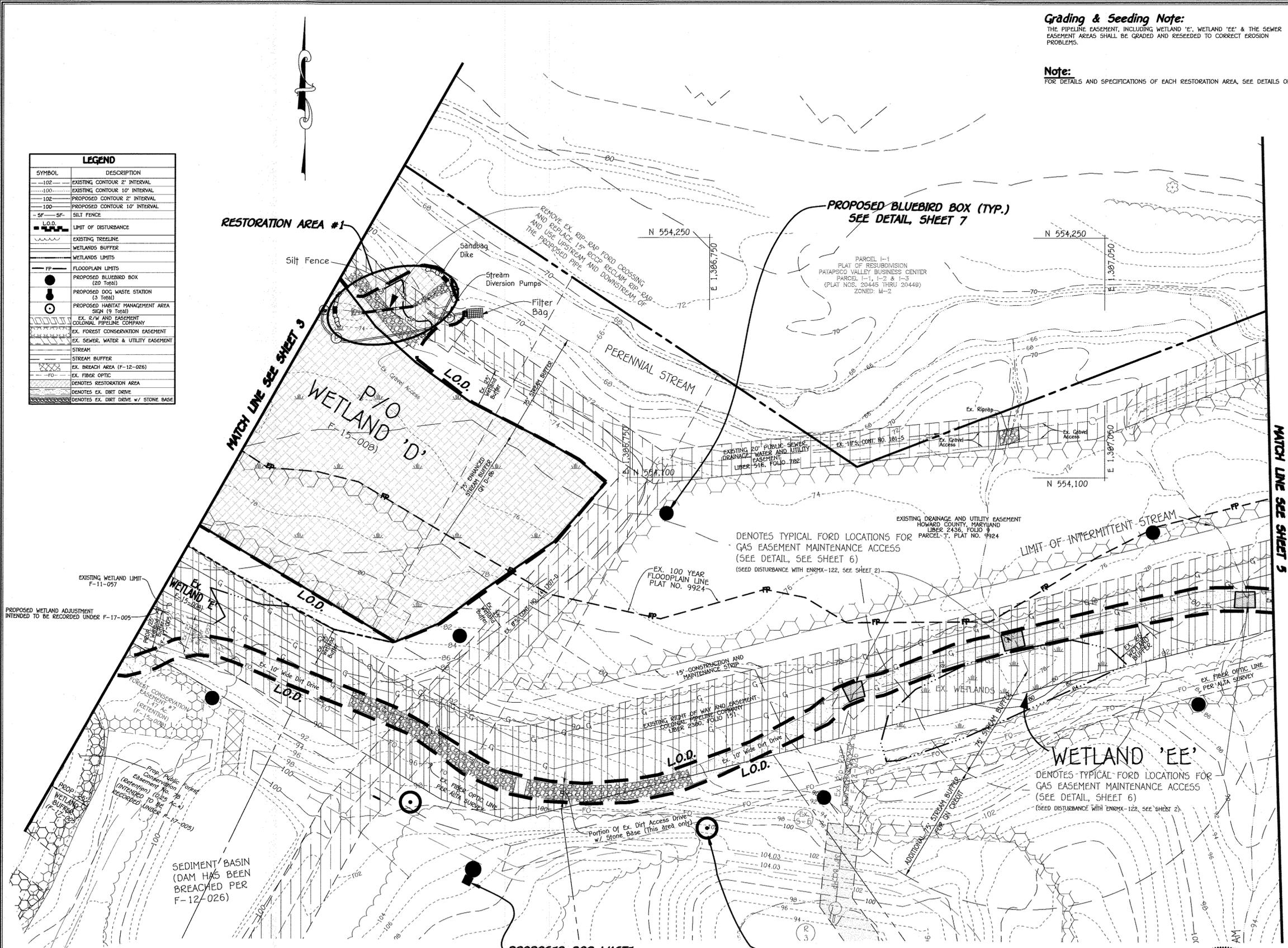
*Chad Clark* 4-20-17  
 Chief, Development Engineering Division DATE

*Valerie Zelle* 4-24-17  
 Director - Department of Planning and Zoning DATE

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

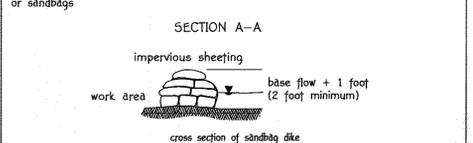
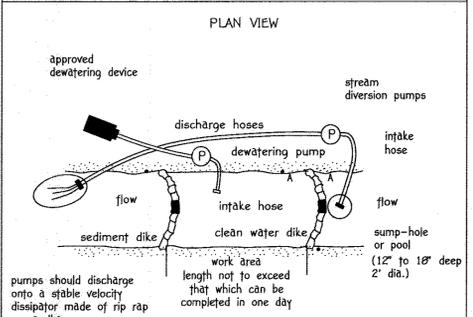
*John R. Robinson* 3/15/17  
 Howard SCD DATE

LEGEND	
---102---	EXISTING CONTOUR 2' INTERVAL
---100---	EXISTING CONTOUR 10' INTERVAL
---102---	PROPOSED CONTOUR 2' INTERVAL
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-SF--SF-	SILT FENCE
LOD	LIMIT OF DISTURBANCE
---	EXISTING TREELINE
---	WETLANDS BUFFER
---	WETLANDS LIMITS
---	FLOODPLAIN LIMITS
●	PROPOSED BLUEBIRD BOX (20 Total)
●	PROPOSED DOG WASTE STATION (3 Total)
○	PROPOSED HABITAT MANAGEMENT AREA SIGN (9 Total)
---	EX. 6"/W AND EASEMENT COLONIAL PIPELINE COMPANY
---	EX. FOREST CONSERVATION EASEMENT
---	EX. SEWER, WATER & UTILITY EASEMENT
---	STREAM
---	STREAM BUFFER
---	EX. BRUSH AREA (F-12-026)
---	EX. FIBER OPTIC
---	DEMOTES RESTORATION AREA
---	DEMOTES EX. DIRT DRIVE
---	DEMOTES EX. DIRT DRIVE w/ STONE BASE



PROFILE PROPOSED CULVERT PIPE REPLACEMENT (AREA #1)  
 SCALE: HORIZ. 1" = 50'  
 VERT. 1" = 5'

Maryland's Guidelines To Waterway Construction  
 DETAIL 1.2: PUMP-AROUND PRACTICE

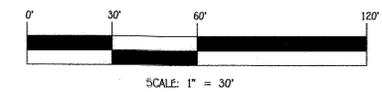


TEMPORARY INSTREAM CONSTRUCTION MEASURES  
 REVISED NOVEMBER 2000  
 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 10722 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2895

**Owner**  
 Kellogg-CCP, LLC  
 c/o David P. Scheffacker, Jr.,  
 Managing Member  
 100 West Road, Suite 304  
 Towson, Maryland 21204  
 Ph# 410-296-3800

**Developer**  
 Preston - Scheffacker Properties  
 100 West Road, Suite 304  
 Towson, Maryland 21204  
 Ph# 410-296-3800



3/9/17  
 DATE

I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-19.

**WETLAND STREAM RESTORATION AND HABITAT MANAGEMENT PLAN**  
**OXFORD SQUARE**

ZONING: T00  
 TAX MAP No. 3B, GRID No. 20, PARCEL No. 1003  
 FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
 DATE: AUGUST 4, 2016  
 SHEET 4 OF 9

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

*Beth Brinson* 4-17-17  
CHIEF, RESOURCE CONSERVATION DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Went DeQuader* 4-24-17  
Chief, Division of Land Development DATE

*Chad Clark* 8-19-16  
Chief, Development Engineering Division DATE

*Valerie Griffin* 4-24-17  
Director - Department of Planning and Zoning DATE

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

*John R. Roberts* 9/19/16  
Howard SCD DATE

**Grading & Seeding Note:**  
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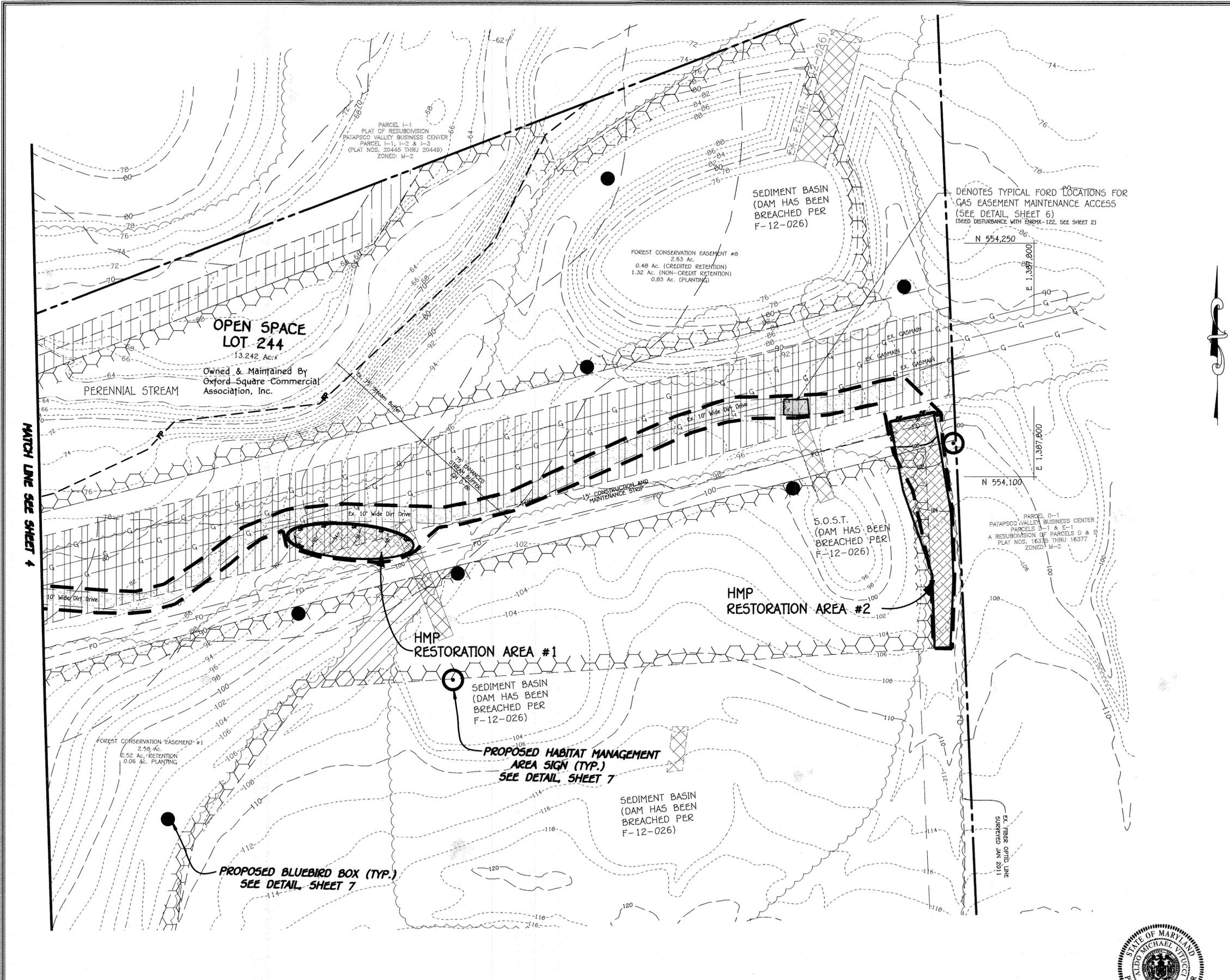
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**LEGEND**

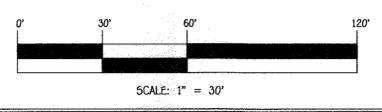
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---	DENOTES EX. DIRT DRIVE w/ STONE BASE

**HMP Restoration Area #2 - 3,000 SF.**

QTY	Species	Size	Spacing
6	Cercis canadensis - Red bud	2-3' whip	8' o.c.
8	Cornus florida - Flowering dogwood	2-3' whip	8' o.c.
6	Juniperus virginiana - Red cedar	2-3' whip	8' o.c.
6	Prunus serotina - Black cherry	2-3' whip	8' o.c.
6	Rubini pseudo-acacia - Black locust	2-3' whip	8' o.c.
6	Sassafras albidum - Sassafras	2-3' whip	8' o.c.
6	Viburnum prunifolium - Black haw	2-3' whip	8' o.c.



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING, CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10772 BALDORNE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 481 - 8995



**Owner**  
Kellogg-CSP, LLC  
c/o David P. Scheffnacker, Jr.,  
Managing Member  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph# 410-296-3800

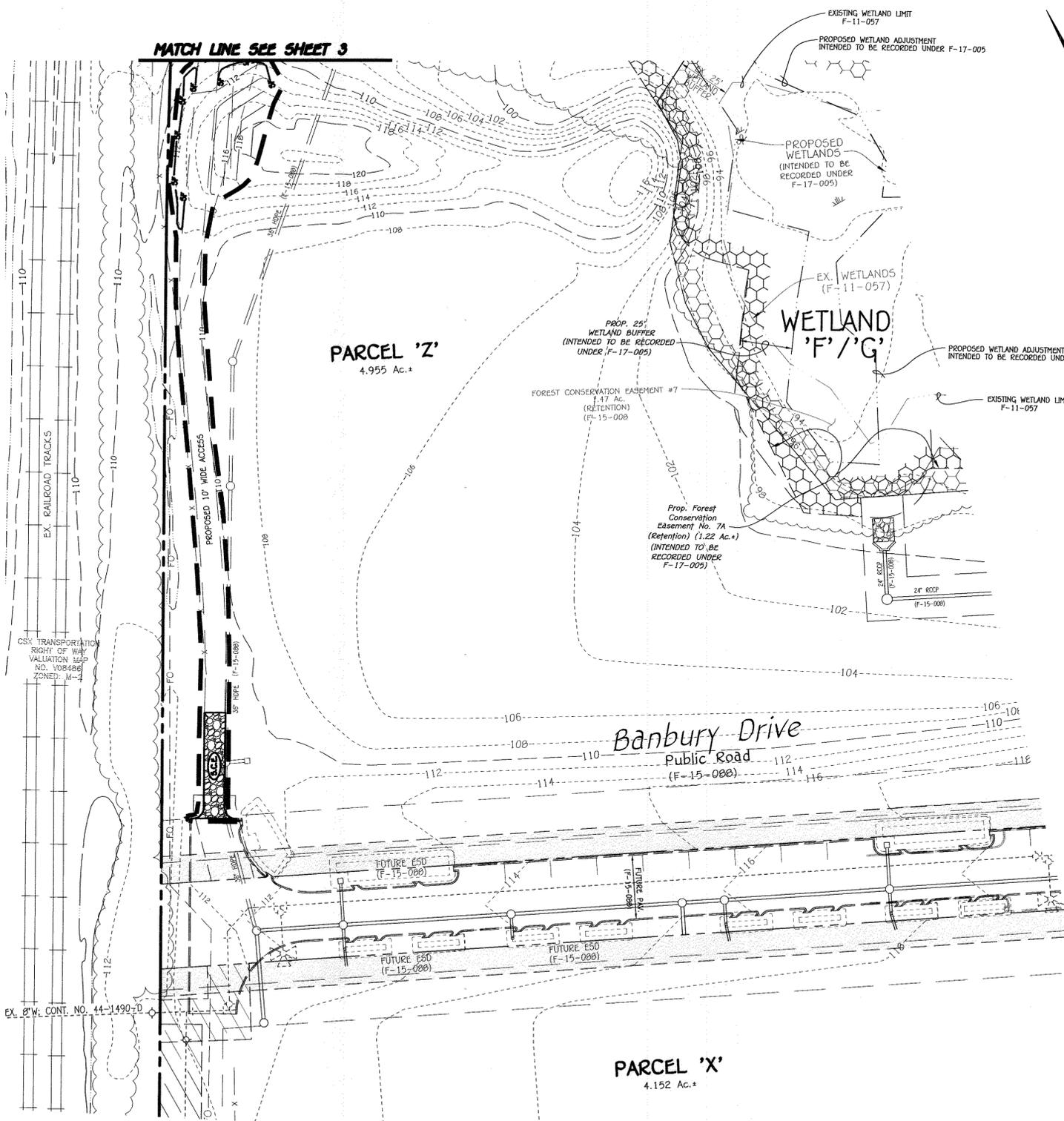
**Developer**  
Preston - Scheffnacker Properties  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph# 410-296-3800



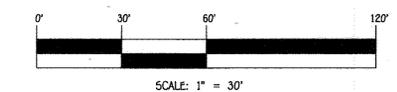
8/4/16  
DATE

\*Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.

**WETLAND STREAM RESTORATION AND HABITAT MANAGEMENT PLAN**  
**OXFORD SQUARE**  
ZONING: T00  
TAX MAP No. 3B, GRID No. 20, PARCEL No. 1003  
FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
DATE: AUGUST 4, 2016  
SHEET 5 OF 9



PLAN  
SCALE: 1" = 30'



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENAL SQUARE OFFICE PARK - 12272 BALTIMORE NATIONAL FREE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 481-2895

**Owner**  
Kellogg-CGP, LLC  
c/o David P. Schefflenacker, Jr.,  
Managing Member  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph: 410-296-3800

**Developer**  
Preston - Schefflenacker Properties  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph: 410-296-3800

**DESCRIPTION:**  
THE WORK SHOULD CONSIST OF CONSTRUCTING A FORD ACCESS ACROSS A STREAM.

**EFFECTIVE USES AND LIMITATIONS:**  
THE FORD SHOULD CREATE A STREAM CROSSING THAT IS COMMENSURATE WITH THE NATURAL CHANNEL WHILE FACILITATING THE NATURAL PASSAGE OF FISH AND OTHER STREAM FAUNA. FORDS SHOULD BE USED ONLY WHEN BRIDGE OR CULVERT CROSSINGS ARE NOT FEASIBLE.

STREAMS WITH STEEP BANKS OR SOFT SILT-CLAY BEDS ARE NOT SUITED FOR THIS TYPE OF CROSSING. ADDITIONALLY, THE EFFECTS OF SIZE, TYPE, AND FREQUENCY OF TRAFFIC ON THE STRUCTURAL INTEGRITY OF THE FORD SHOULD BE CONSIDERED. FINALLY, VEHICLES WHICH LEAK OIL OR HYDRAULIC FLUID SHOULD NOT CROSS THE STREAM.

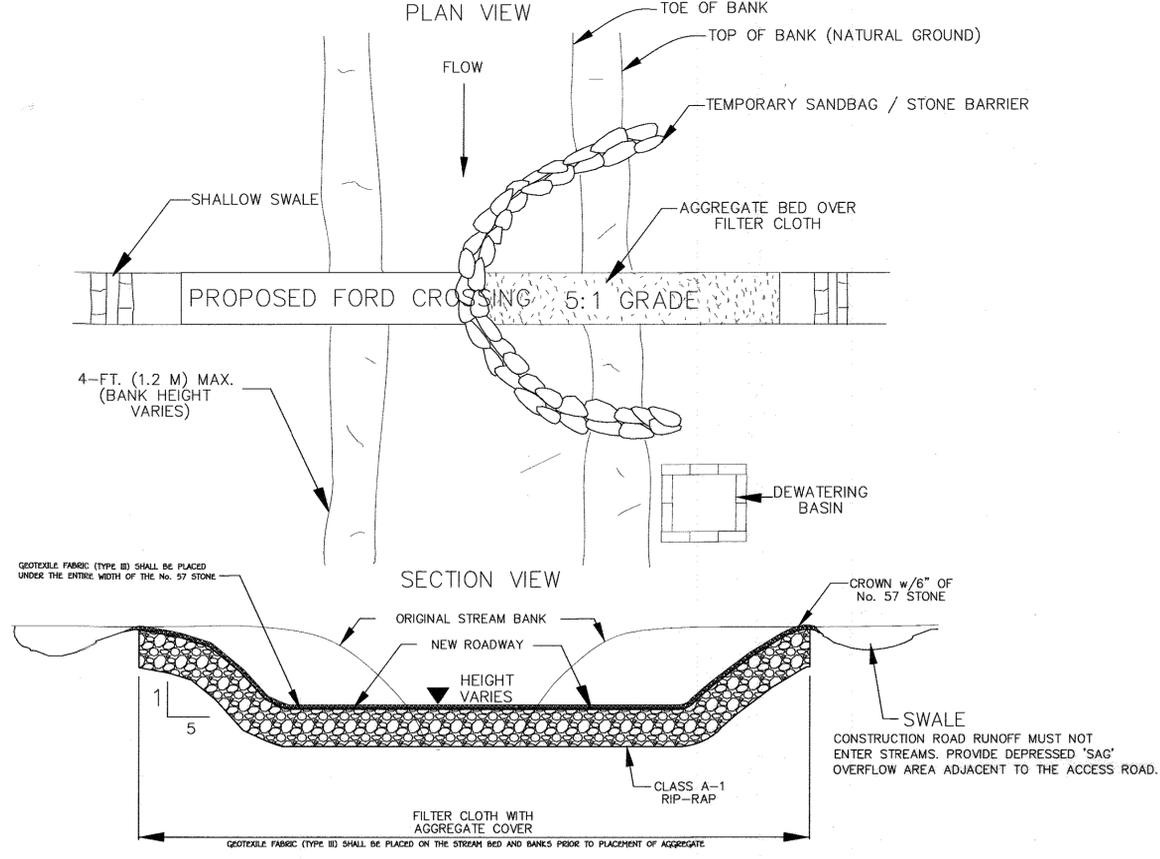
**INSTALLATION GUIDELINES:**  
ALL EROSION AND SEDIMENT CONTROL DEVICES, INCLUDING DOWATERING BASINS, SHOULD BE IMPLEMENTED AS THE FIRST ORDER OF BUSINESS ACCORDING TO A PLAN APPROVED BY THE WMA OR LOCAL AUTHORITY. (SEE THE 2011 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.)

THE PROPOSED CONSTRUCTION SEQUENCE IS AS FOLLOWS:

1. THE CONTRACTOR SHOULD INSURE THAT A CONTINUOUS PERIMETER CONTROL BARRIER IS IN PLACE TO MINIMIZE THE AMOUNT OF POLLUTANTS ENTERING THE FLOW.
2. THE STREAM SHOULD BE DIVERTED BY AN APPROVED TEMPORARY STREAM DIVERSION (SEE SECTION 1: TEMPORARY INSTREAM CONSTRUCTION MEASURES, MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION). THE CONSTRUCTION AREA SHOULD BE DEWATERED, AND ANY DISTURBED BANKS SHOULD BE STABILIZED.
3. THE FORD SHOULD BE CONSTRUCTED IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. SHALLOW SWALES SHOULD BE INSTALLED AS NECESSARY TO TRAP SURFACE RUNOFF, THUS COLLECTING POLLUTION FROM THE FORD ACCESS ROAD.
4. ALL MATERIAL EXCAVATED FROM THE CONSTRUCTION AREA SHOULD BE PLACED IN AN APPROVED DISPOSAL AREA OUTSIDE OF THE 100-YEAR FLOOD PLAIN UNLESS OTHERWISE ALLOWED ON THE PLANS BY THE WMA.
5. ONCE THE CROSSING IS COMPLETED, THE DIVERSION SHOULD BE REMOVED FROM UPSTREAM TO DOWNSTREAM. SEDIMENT CONTROL DEVICES, INCLUDING PERIMETER EROSION CONTROLS, ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED IN ACCORDANCE WITH AN APPROVED SEDIMENT AND EROSION CONTROL PLAN AND THE INSPECTION AUTHORITY APPROVES THEIR REMOVAL.

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING GREEN NEIGHBORHOOD PLAN FOR SITES	
<i>Beth Bengson</i> Chief, Resource Conservation Division	4-17-17 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Kentley Lusk</i> Chief, Division of Land Development	4-24-17 DATE
<i>Paul Adams</i> Chief, Development Engineering Division	4-20-17 DATE
<i>Nadine Joffe</i> Director - Department of Planning and Zoning	4-24-17 DATE
This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.	
<i>John R. Banton</i> Howard SCD	3/15/17 DATE

MDE DETAIL 4.1: PERMANENT FORD CROSSING



3/9/17  
DATE

"Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-19."

**WETLAND STREAM RESTORATION AND HABITAT MANAGEMENT PLAN**  
**OXFORD SQUARE**  
ZONING: TOD  
TAX MAP No. 38, GRID No. 20, PARCEL No. 1003  
FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
DATE: AUGUST 4, 2016  
SHEET 6 OF 9

# Maintenance of Plantings

Site inspections will be performed a minimum of three times during the growing season. The purpose of the inspections will be to assess the health of the plantings. Appropriate measures will be taken to rectify any problems which may arise.

In addition, maintenance of the plantings will involve the following steps:

1. Watering - All plant material shall be watered twice a month during the 1st growing season, more or less frequently depending on weather conditions. During the second growing season, once a month during May-September, if needed.
2. Removal of invasive exotics and noxious weeds. Old field successional species will be retained.
3. Identification of serious plant pests and diseases, treatment with appropriate agent.
4. Pruning of dead branches.
5. After each growing season, replacement of plants, if required, in accordance with the Guarantee Requirements.

# Guarantee Requirements

A 90 percent survival rate of the Wetland and reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be replaced at the beginning of the second growing season. At the end of the second growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season. A 75 percent survival threshold shall be maintained throughout the 5 year maintenance period. Natural succession may be credited toward survival rate provided plantings are at least 10' in height and appropriately spaced in planting area.

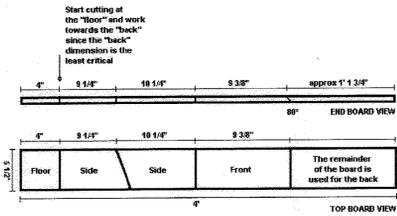
# Eastern or Western Bluebird Nestbox

## MATERIALS LIST

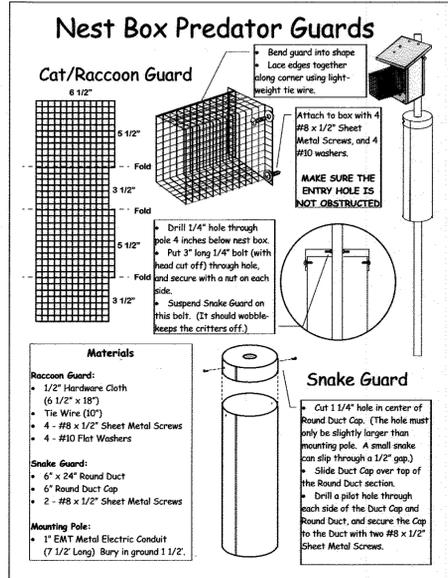
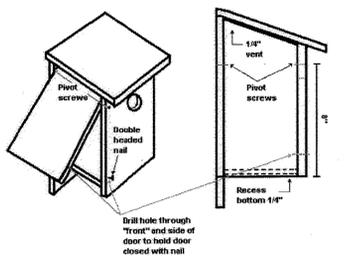
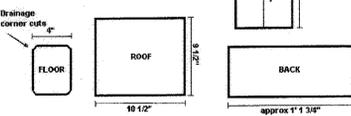
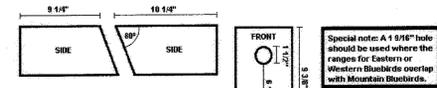
- Standard board 1" x 6" x 4' long
- Standard Board 1" x 10" x 10 1/2" long (for roof)
- 1-3/4" galvanized nails or screws - approx. 20
- 1-3/4" galvanized screw or nail for pivot point - 2
- Double-headed nail for holding door closed - 1

NOTE: ALL WOOD SHALL BE UNPAINTED & UNTREATED.

## BOARD DIAGRAM



## CONSTRUCTION PLAN



# Green Neighborhood Section D 1- Wetland/Stream Restoration

Wetland D - 77,005 sq.ft.

## Task 1. Trash/Debris Removal

All trash and debris will be removed from Wetland D

## Task 2. Invasive Species Removal

All invasive species will be removed from Wetland D. Shrubs shall be cut at the base. Plant material may be left or placed in brush piles. Re-growth shall be sprayed with Rodeo per manufacturers instructions.

## Task 3 - Vegetative Enhancement

Following the initial removal of the invasive species in Wetland D the wetland shall be enhanced with native shrub and herbaceous plantings. Shrubs plantings will include arrowwood, winterberry, spicebush, and elderberry. Herbaceous species will include sensitive fern, cinnamon fern, cardinal flower, turtle head, asters and Joe-Pye weed.

Planting schedule provided.

## Task 4. Vernal Pool Creation

Restoration Area 3  
This area has been previously disturbed by ORV usage. MDE requested that vernal pools be excavated within the area to enhance amphibian habitat. As such, excavation of two vernal pool basins within the area that were previously disturbed by ORV traffic shall be performed. The pools will be excavated by hand and excess soil will be removed from wetlands by hand. The basins and disturbed areas shall be excavated to a depth of 6 inches with 3:1 side slopes. Each pool shall be constructed to be approximately 100 sq.ft. in overall size. The pools shall be circular to semi-circular in shape. Planting of the pools will not be required but basins and disturbed areas shall be seeded with floodplain seed mix ERNMX-154. Specific pool location will be determined in the field by representative of Eco-Science Professionals, Inc.

## Task 5. Wetland Hydrology Restoration

Restoration Area 2  
The restoration of this area involves the reduction of drainage flows through a culvert pipe under the utility line right of way access road. The drainage way, which is approximately 18 inches below the adjacent grades, appears to have been constructed to drain surface water from the wetland during storm events. This drainage prevents surface water from accumulating and inundating the adjacent wetlands. As a result, this area of the wetlands has experienced some invasion of multi-stor trees. The culvert does not convey base flow or provide any aquatic species migration.

To accomplish this goal, rip rap will be added at the inlet to reduce the surface flows into the drainage pipe and this will increase hydrologic input to wetlands on south side of access road. The drainage pipe does not currently convey base flow or provide aquatic species migration route. Installation of rip rap will be overseen by representative of Eco-Science Professionals, Inc.

## Task 6. Culvert/ Road Crossing Upgrade

Restoration Area 1  
The existing culvert is clogged and impeding aquatic migration. MDE has proposed that the existing culvert be retained if serviceable or replaced if in need of replacement. MDE indicated that HAH study will not be required if culvert is replaced with exact replacement. The aquatic migration function of the culvert will be restored by removing rip rap from inlet/outfall and replacing along channel banks for stability of culvert. Determination of need for replacement will be determined by Eco-Science Professionals, Inc. and the project engineer in the field during removal and replacement of the bank protection riprap. If the culvert must be replaced appropriate sediment and erosion control plans will be provided to County for approval. The up-stream end of the culvert will be located to insure that drainage of the upstream wetlands does not occur. The upstream inlet of the culvert will match the existing culvert/stream bottom elevation.

## Task 7. Culvert Replacement

Restoration Area 4  
The existing culvert is heavily rusted throughout and no outfall protection is provided. Replace the existing metal pipe with concrete pipe and provide an adequate rip-rap plunge pool to reduce the outlet velocity to be non-erosive.

# PLANTING SCHEDULE

## Wetland D - Enhancement Plantings - 80,810 sq.ft.

Qty	Species	Size	Spacing
54	Cornus amomum - Silky dogwood	2-3' whip	**
54	Ilex verticillata - Winterberry	2-3' whip	**
54	Sambucus canadensis - Elderberry	2-3' whip	**
54	Viburnum dentatum - Arrowwood	2-3' whip	**
72	Aster paniculatus - Swamp Aster	quart	**
72	Chelone glabra - White Turtlehead	quart	**
72	Eupatorium perfoliatum - Joe-pye-weed	quart	**
72	Lobelia cardinalis - Cardinal flower	quart	**
72	Onoclea sensibilis - Sensitive fern	quart	**
72	Osmunda cinnamomea - Cinnamon fern	quart	**

## Habitat Management Plan Wetland and Stream Buffer Enhancement Areas

Qty	Species	Size	Spacing
tbd	Cercis canadensis - Red bud	2-3' whip	***
tbd	Cornus florida - Flowering dogwood	2-3' whip	***
tbd	Juncus virginiana - Red cedar	2-3' whip	***
tbd	Pinus virginiana - Virginia pine	3-5' cont	***
tbd	Prunus serotina - Black cherry	2-3' whip	***
tbd	Robinia pseudo-acacia - Black locust	2-3' whip	***
tbd	Sassafras albidum - Sassafras	2-3' whip	***
tbd	Viburnum prunifolium - Black haw	2-3' whip	***

## Planting Notes:

- \*\* - shrubs shall be planted in consecutive groups of 3 plants each, individual plants shall be spaced at 5 feet on center, groupings shall be spaced randomly within wetland.
- \*\* - herbs shall be planted in consecutive groups of 6 plants each, individual plants shall be spaced 2 feet on center, groupings shall be spaced randomly within wetland.
- \*\*\* - plant density shall be established based on 15 foot spacing for the area to be enhanced. Plantings may be planted in variable spacing to account for presence of existing trees and shrubs. A mix of 8' hole (four species should be used for each enhancement area. No species should account for more than 50% of the total planting site).

All whips are required to be installed with tree shelters per Howard County PCA requirements

**Owner**  
Kelllogg-CCP, LLC  
c/o David F. Scheffemaker, Jr.,  
Managing Member  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph: 410-296-3800

**Developer**  
Preston - Scheffemaker Properties  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph: 410-296-3800

# Green Neighborhood Section D 2- Habitat Management Plan

Short\_Term efforts:

## Task 1. Remove Invasives

Remove woody invasive species from all existing forest resources, including those within wetlands, buffers and other created and non-created forest restoration areas. Woody invasive species shall also be removed from pipeline area. Shrubs shall be cut at the base. Plant material may be left or placed in brush piles. Re-growth shall be sprayed with Rodeo/round-up or equivalent per manufacturers instructions.

## Task 2. Vegetative Enhancement

Plant native trees to close canopy gaps within the forested portions of the wetlands, wetland buffers and stream buffers, to limit the return of invasive species and to enhance the habitat and water quality benefits of the buffers. Planting of buffers will not be performed if it conflicts with other existing use such as Utility Line or Sewer Right Of Way, includes Wetland 'C' As An Area That Will Have Supplemental Understory Planting. Planting schedule provided.

## Task 3. Soil Stabilization

Grass and reseed with native seed mix any areas within the open space lots that are undergoing active erosion. These areas should be seeded and strawed with Maryland Upland Mix - ERNMX-172, FLOW Wetland Meadow Seed Mix - ERNMX-122, or Flood Plain Seed Mix - ERNMX-154. Eroded areas will be determined in the field based on conditions occurring at the time of installation. Seed mix to be used will be determined in field depending on site conditions. This includes but is not limited to the following areas:

- a. Eroding areas within the Colonial pipeline easement, includes Wetlands 'C' And 'E'.
- b. Eroding areas within the sewer utility easement.
- c. Eroding areas within the access roads for the NRPs, including a side trail going downhill from the road that circles NRP 5.
- d. HMP Restoration Areas 1 and 2  
These areas include eroded gullies that have developed due to surface water concentration and soil disturbance. Each gully shall be filled with compacted topsoil seeded with Maryland Upland Mix - ERNMX-172 and protected with erosion control fabric. The upper end of the gully repair shall be elevated to divert flow away from restored areas.
- e. HMP Restoration Area #3 - Existing utility access road  
Access along the utility line right of way is required to be maintained through the site. The current access road has been disturbed by unauthorized uses. The restoration of the area will include the formal development of a 10 foot wide access road along the existing centerline. The road shall be graded to provide a level, stable driving surface. Where necessary stone may be added to the road to provide stable base. The access road shall be seeded with Maryland Upland Mix - ERNMX-172. The remaining Area Within The Easement Will Be Re-seeded To Create A Native Meadow.

## Task 4. Habitat Enhancement

Installation of bluebird boxes within forest and meadow areas areas. In shallow Run Riparian area. Box specifications and installation locations provided.

## Long Term Efforts

1. Long term efforts will monitor and maintain these areas to ensure invasive species do not return and newly planted areas have good survival. Afforestation areas should also be included in this monitoring and maintenance effort, to extend beyond the minimum two-year regulatory requirement.
2. Monitoring of Wetland 'D' restoration and habitat management areas will be performed throughout the five (5) year monitoring period to insure that restoration efforts have a beneficial impact to the wetland and riparian resources. If adverse impacts are observed, efforts will be made to rectify the situation.
3. Maintain access restrictions to eliminate future use of the site by unauthorized off road vehicles. This includes installation and maintenance of gates, berms, fencing and signage, as needed.
4. Pet waste bag stations will be placed along trail system and pet owners will be encouraged to clean up after their pets. Oxford Square Master Association will be responsible for maintenance of pet waste bag stations, trash removal and maintenance of nest boxes.

## Project Time Frame

The project will be implemented within three years of the final approval of SDP-14-019, the site development plan associated with construction of the 190th residential unit. Follow-up and monitoring of the plantings will continue for a five year period from the date of installation and acceptance by the county to insure that the vegetative enhancements are succeeding. Planting and maintenance specifications and guarantee requirements are provided on the restoration plans.

## Habitat Management Agreement

A long term Habitat Management Agreement and funding mechanism has been implemented by the Oxford Square Master Association. The Habitat Management Agreement will be executed by the developer, the Oxford Square Master Association and Howard County and is recorded in the land records.

The Habitat Management Agreement stipulates requirements necessary to insure the long term maintenance of the natural resource areas to be retained on the property. In this case the Habitat Management Agreement will be coordinated with Howard County Department of Public Works as it relates to maintenance and use of the sewer line right of way and with the easement holders for the underground utilities.

The Agreement will stipulate the management identify for control of pet waste, trash and maintenance of nest boxes.

## Planting Plan and Methods

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

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

Prior to planting, invasive species shall be removed from planting area. Removal shall be performed by cutting, mowing and/or herbicide treatments. Physical removal of all top growth followed by a periodic herbicide treatment of stump sprouts is recommended. Native tree and shrub species occurring within treatment areas should be retained whenever possible. Herbicide treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicide used shall be made specifically to address target species and shall be applied as per manufacturers specifications. Care should be taken not to spray planted trees or naturally occurring native tree seedlings. It is recommended that inhibition of invasive species removal begin at least six months prior to planting.

Enhancement plantings should be installed so that impact to the root zone of existing trees and shrubs is minimized. Enhancement plantings and installation activities should also avoid unnecessary disturbance to native herbaceous species.

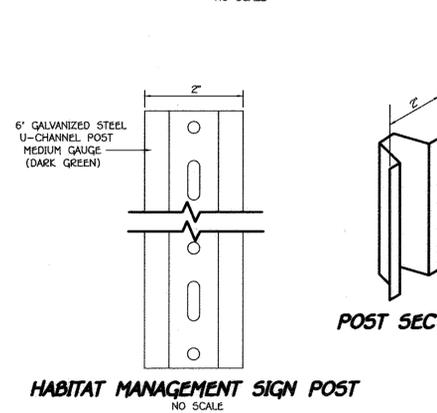
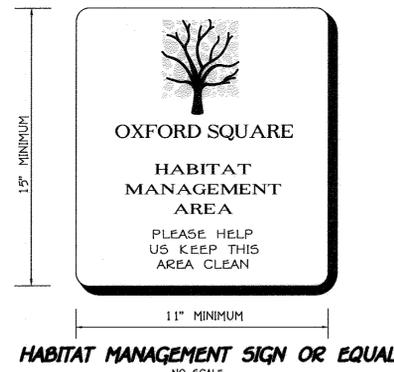
## Planting and Soil Specifications

Plant material will be installed in accordance with the Planting Detail and Seed Mixtures shown on sheet 2.

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

# Oxford Square Habitat Management Plan Proposed Time Schedule/Sequence of Construction

- Step 1 - Prepare HMP Agreement - Fall 2015  
Sign HMP Agreement with Recreation Of F-15-008 Plat.
- Step 2 - Perform HMP/Wetland Restoration Tasks
- Task 1 - Limit access to site for unauthorized ATV activity  
Estimated work time - Initial effort completed, Long term control ongoing  
Estimated schedule - Summer 2016
- Task 2 - Complete processing of MDE permit for work within wetlands/stream  
Estimated work time - 3 months  
Estimated schedule - Summer 2016
- Task 3 - Removal of all trash and debris from within the Habitat Management Area. This includes all forest and wetlands to be retained, any onsite planting areas, and other natural areas occurring outside the development envelope.  
Estimated work time - 2 weeks  
Estimated schedule - Summer 2016
- Task 4 - Physical removal of invasive species from Wetland D and Habitat Management Areas (wetlands and forest areas to be retained). This includes the cutting of multiflora rose, oriental bittersweet, Russian/autumn olive, Japanese barberry, Chinese Lysichiton and common reed.  
Estimated work time 5 weeks  
Estimated schedule - Summer/Fall 2016
- Task 5 - Installation of bluebird nest boxes along utility line right of way and other appropriate habitats including forest areas for chickadees and vireos. Boxes should be installed at 100 foot intervals along the utility line right of way and scattered randomly within woods along shallow Run.  
Estimated work time - 1 week  
Estimated schedule - Summer/Fall 2016
- Task 6 - Perform restoration of hydrology (Restoration Area 2) and replacement of culvert (Restoration Area 1 & 4). Appropriate Sediment And Erosion Control Plans For Area 1 & 4 Is Provided As Part Of This Plan Set. (Area 1 is Shown On Sheet 4 & Area 4 is Shown on Sheet 3)  
This requires MDE permit.  
Estimated work time - 2 weeks  
Estimated schedule - Fall 2016
- Task 7 - Perform vernal pool creation within (Restoration Area #3)  
Estimated work time - 1 weeks  
Estimated schedule - Fall 2016
- Task 8 - Construct stabilized access road within pipe line right of way & install ford crossings.  
Estimated work time 2 weeks  
Estimated schedule - Fall 2016
- Task 9 - Stabilize eroded areas on Open Space lots and undeveloped areas, correct and stabilize gullies (HMP Restoration Areas 1 and 2)  
Estimated work time - 4 weeks  
Estimated schedule - Fall 2016
- Task 10 - Vegetative Enhancement of Wetland C and D (Wetland Restoration credit) and wetland/stream buffers (Habitat Management Plan).  
Estimated work time 2 weeks  
Estimated schedule - Fall 2016
- Task 11 - Forest Conservation Plantings. Install afforestation/reforestation plantings onsite per approved Forest Conservation Plan.  
Estimated work time - 1 week  
Estimated schedule - Fall 2016
- Step 3 - Maintenance and Monitor All Wetland Restoration and Habitat Management Plan stabilization efforts including Wetland 'D' hydrology modification efforts, invasive species removal, nest boxes, and planting per guarantee requirements. Five year maintenance period required.



ALDO M. VITUCCI, P.E. DATE: 8/4/16  
Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-17.

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

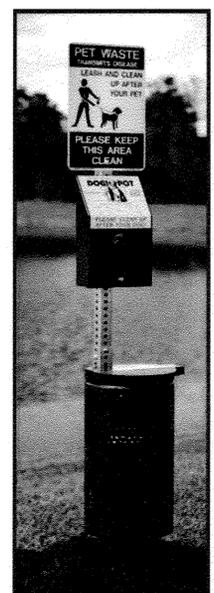
**Beth Burgess** 4-17-17  
CHIEF, RESOURCE CONSERVATION DIVISION DATE

**Kentel D. O'Connell** 4-24-17  
Chief, Division of Land Development DATE

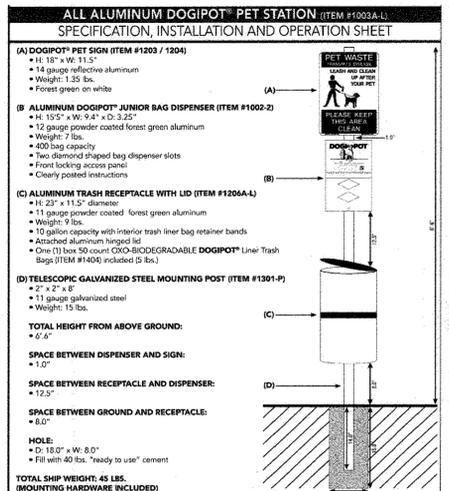
**John L. P. ...** 8-19-16  
Chief, Development Engineering Division DATE

**William J. ...** 4-24-17  
Director - Department of Planning and Zoning DATE

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.  
**John L. P. ...** 8/19/16  
Howard SCD



# DOG WASTE STATION OR EQUAL NO SCALE



WETLAND STREAM RESTORATION AND HABITAT MANAGEMENT PLAN  
**OXFORD SQUARE**  
ZONING: TO2  
TAX MAP NO. 3B, GRID NO. 20, PARCEL NO. 1003  
FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
DATE: AUGUST 4, 2016  
SHEET 7 OF 9

HMP Restoration Efforts Within  
Open Space Lot 244, Parcel 'B-B' and F.C.E. #1 on Parcel 'B'  
Activity Task:  

- Remove Invasives
- Vegetative Enhancement
- Soil Stabilization
- Habitat Enhancement

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

*Robt Benson* 4-17-17  
Chief, Resource Conservation Division DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Keith D. Duvall* 4-24-17  
Chief, Division of Land Development DATE

*Chad Clark* 4-20-17  
Chief, Development Engineering Division DATE

*Valeria Zyllic* 4-24-17  
Director - Department of Planning and Zoning DATE

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

*John L. Roberts* 3/15/17  
Howard SCD DATE

WETLAND 'D' RESTORATION  
TOTAL AREA = 77,005 SQ.FT.±  
(GN D-1)

- Activity Type:  
  - "Elimination of ATV Disturbances"
  - "Remove Invasives"
  - "Enhancement Planting"

Restoration Area #2  
Activity Type - "Hydrology Enhancement"

Restoration Area #3  
Activity Type - "Habitat Enhancement - Vernal Pool Creation"

Restoration Area #1  
Activity Type - "Stream Channel Restoration/ Stabilization"

HMP RESTORATION AREA #2  
Activity Type:  
 "Stabilize eroded area"  
 "Correct and Stabilize Gullies"

HMP RESTORATION AREA #3  
"Colonial Easement Area"  
Activity Type:  

- Stabilize eroded areas
- Perform ford upgrades
- Re-establish 10 foot wide drive
- Woody Vegetation Will Be Removed And The Area Will Be Reseeded With A Native Meadow Seed Mix

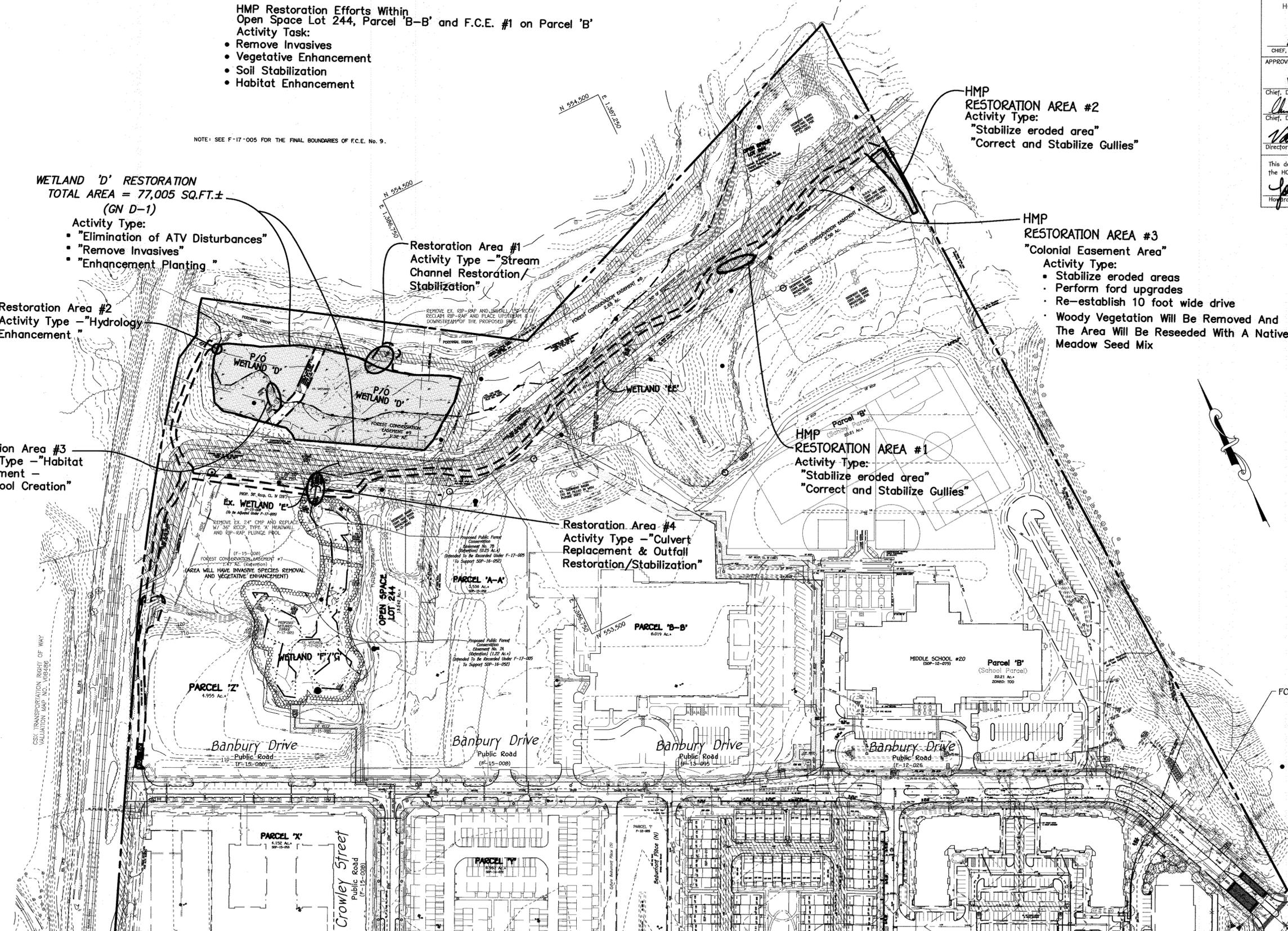
HMP RESTORATION AREA #1  
Activity Type:  
 "Stabilize eroded area"  
 "Correct and Stabilize Gullies"

Restoration Area #4  
Activity Type - "Culvert Replacement & Outfall Restoration/Stabilization"

LEGEND	
SYMBOL	DESCRIPTION
102	EXISTING CONTOUR 2' INTERVAL
100	EXISTING CONTOUR 10' INTERVAL
102	PROPOSED CONTOUR 2' INTERVAL
100	PROPOSED CONTOUR 10' INTERVAL
SF	SILT FENCE
L.O.D.	LIMIT OF DISTURBANCE
---	EXISTING TREELINE
---	WETLANDS BUFFER
---	WETLANDS LIMITS
FP	FLOODPLAIN LIMITS
●	PROPOSED BLEEDER BOX (20 Tons)
●	PROPOSED DOG WASTE STATION (3 Tons)
○	PROPOSED HABITAT MANAGEMENT AREA (20 Tons)
---	EX. R/W AND EASEMENT COLONIAL PIPELINE COMPANY
---	EX. FOREST CONSERVATION EASEMENT
---	EX. SEWER, WATER & UTILITY EASEMENT
---	STREAM
---	STREAM BUFFER
---	EX. BREACH AREA (F-12-026)
---	EX. FIBER OPTIC
---	DENOTES RESTORATION AREA

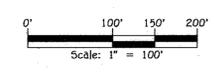
FOREST CONSERVATION EASEMENT #6  
0.29 Ac.  
HMP Restoration Efforts Within Open Space Lot 2 (FCE #6)  
Activity Task:  

- Remove Invasives



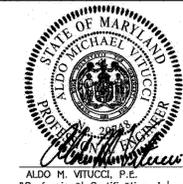
NOTE: SEE F-17-005 FOR THE FINAL BOUNDARIES OF F.C.E. No. 9.

Match Line See Sheet 9



Owner  
Kelllogg-CCP, LLC  
c/o David P. Scheffacker, Jr.  
Managing Member  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph# 410-296-3800

Developer  
Preston • Scheffacker Properties  
100 West Road, Suite 304  
Towson, Maryland 21204  
Ph# 410-296-3800



ALDO M. VITUCCI, P.E. DATE 3/9/17  
"Professional Certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-19."

OVERALL PLAN VIEW  
WETLAND STREAM RESTORATION AND HABITAT MANAGEMENT PLAN  
OXFORD SQUARE

ZONING: T00  
TAX MAP No. 38, GRID No. 20, PARCEL No. 1003  
FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
DATE: AUGUST 4, 2016  
SHEET # OF 9

1:2009/09/04/04/04/Habitat Management Plan/09/04 revised AUG 4 Sheet 8 of 9 overall planning 3/9/2017 11:56:20 AM 11

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	SILT FENCE
---	L.O.D.
---	LIMIT OF DISTURBANCE
---	EXISTING TREELINE
---	WETLANDS BUFFER
---	WETLANDS LIMITS
---	FLOODPLAIN LIMITS
●	PROPOSED BLUEBIRD BOX (20 Total)
●	PROPOSED DOG WASTE STATION (3 Total)
○	PROPOSED HABITAT MANAGEMENT AREA SIGN (9 Total)
---	EX. E/W AND EASEMENT
---	COLONIAL PIPELINE COMPANY
---	EX. FOREST CONSERVATION EASEMENT
---	EX. SEWER, WATER & UTILITY EASEMENT
---	STREAM
---	STREAM BUFFER
---	EX. BEACH AREA (F-12-026)
---	EX. FIBER OPTIC
---	DEMOTES RESTORATION AREA

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

*Beth Benson* 4-17-17  
CHIEF, RESOURCE CONSERVATION DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Kent Seale* 4-24-17  
Chief, Division of Land Development DATE

*John Cohen* 8-19-16  
Chief, Development Engineering Division DATE

*Valerie Joffe* 4-24-17  
Director - Department of Planning and Zoning DATE

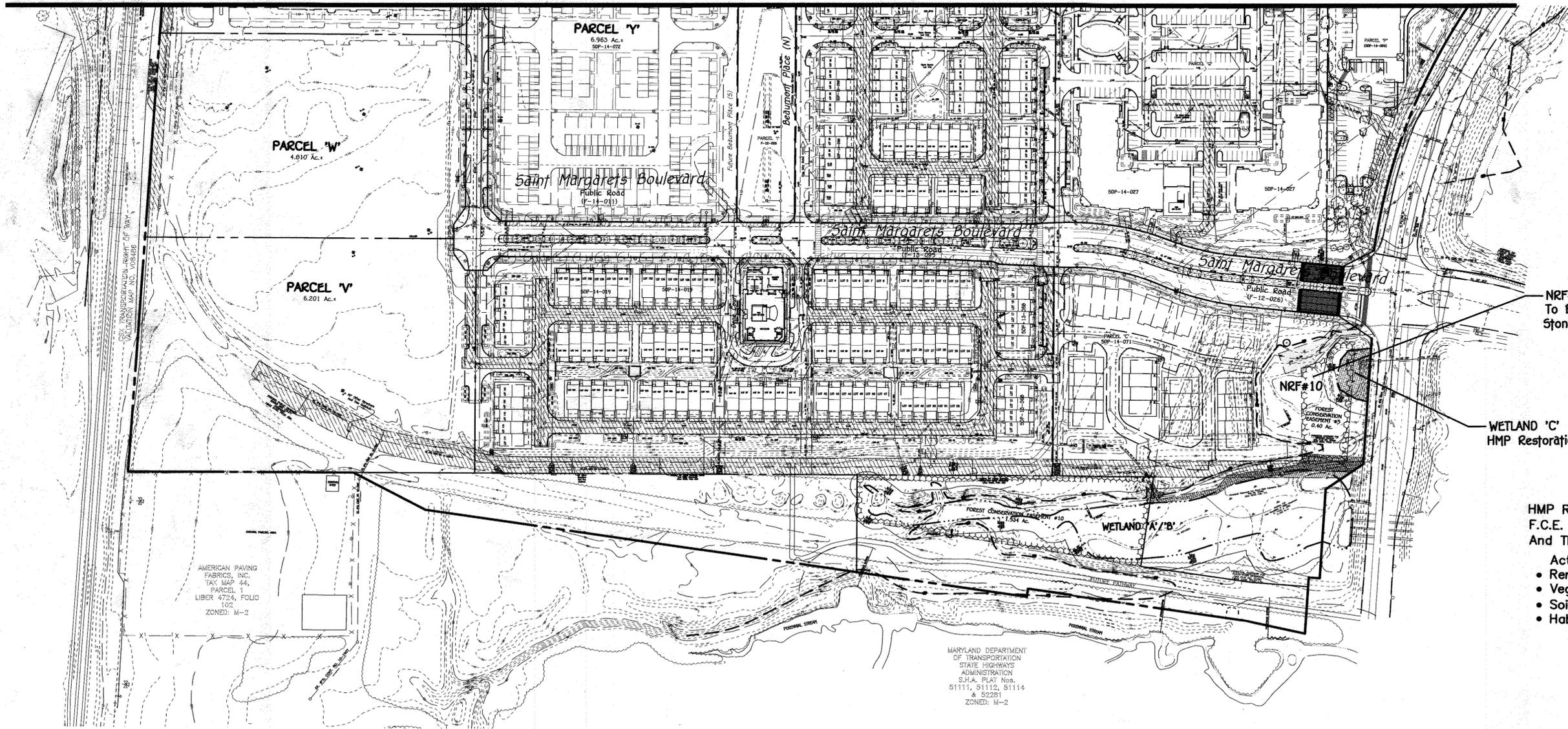
This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

*John R. Roberts* 8/19/16  
Howard SOCD DATE

HMP Restoration Area Wetland C - 9,800 SF.

Qty	Species	Size	Spacing
10	Cornus amomum - 'Silky dogwood'	2-3' whip	8' o.c.
8	Ilex verticillata - Winterberry	2-3' whip	8' o.c.
10	Sambucus canadensis - Elderberry	2-3' whip	8' o.c.
10	Viburnum dentatum - Arrowwood	2-3' whip	8' o.c.

Match Line See Sheet 8



NRF#10 (Old 5.0.5.T.)  
To Be Breached At  
Stone Weir & Dewatered

WETLAND 'C'  
HMP Restoration Area = 9,800 SF.

HMP Restoration Efforts Within  
F.C.E. #5 & #10, Wetlands A/B & C  
And Their Buffers

- Activity Task:
- Remove Invasives
  - Vegetative Enhancement
  - Soil Stabilization
  - Habitat Enhancement

AMERICAN PAVING  
FABRICS, INC.  
TAX MAP 44,  
PARCEL 1  
LIBER 4724, FOLIO  
102.  
ZONED: M-2

MARYLAND DEPARTMENT  
OF TRANSPORTATION  
STATE HIGHWAYS  
ADMINISTRATION  
S.H.A. PLAT NOS.  
51111, 51112, 51114  
& 52281  
ZONED: M-2

0' 100' 150' 200'  
Scale: 1" = 100'

Owner  
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Developer  
Preston + Scheffnacker Properties  
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Towson, Maryland 21204  
Ph# 410-296-3800



8/1/16  
DATE

OVERALL PLAN VIEW  
WETLAND STREAM RESTORATION AND  
HABITAT MANAGEMENT PLAN  
**OXFORD SQUARE**

ZONING: TOU  
TAX MAP No. 38, GRID No. 20, PARCEL No. 1003  
FIRST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
DATE: AUGUST 4, 2016  
SHEET 9 OF 9