

Construction Notes & General Notes

- THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-313-1890 AT LEAST 24 HOURS PRIOR TO STARTING ANY OF THE WORK SHOWN HEREON.
- ALL AREAS NOT BEING PAVED OR RECEIVING BUILDING COVERAGE SHALL BE STABILIZED IN ACCORDANCE WITH THE PLANS APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
- THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
- CONTRACTOR SHALL MEET ALL EXISTING IMPROVEMENTS SMOOTHLY FOR LINE, GRADE AND FINISH.
- ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE MARYLAND STATE HIGHWAY ADMINISTRATION AND THE HOWARD COUNTY PLUMBING CODE, UNLESS OTHERWISE NOTED.
- IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID.
- THE CONTRACTOR SHALL INSPECT THE SITE TO DETERMINE IF ANY TREES, PAVING, ETC. ARE TO BE REMOVED PRIOR TO PLACING A BID ON SUCH ITEMS.
- THE LOCATIONS OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE LOCATIONS ARE TAKEN FROM LOCATIONS. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 A MINIMUM OF 5 WORKING DAYS PRIOR TO DIGGING. THE CONTRACTOR SHALL CONFIRM TO HIS OWN SATISFACTION THE LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION OR PLACEMENT OF MATERIALS. IF ANY CONFLICT IS FOUND BETWEEN UNDERGROUND UTILITIES AND THE PROPOSED LOCATION OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT G. W. STEPHENS AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE OR DISRUPTION OF SERVICE SHALL BE AT THE EXPENSE OF THE CONTRACTOR. RELOCATION OF ANY EXISTING UTILITIES, IF NECESSARY, SHALL BE AT THE EXPENSE OF THE OWNER. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THESE FACILITIES, IF NECESSARY.
- CONTRACTOR SHALL PROTECT ALL EXISTING TREES OUTSIDE THE LIMIT OF DISTURBANCE AT ALL TIMES DURING CONSTRUCTION.
- CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT SCHEDULED FOR REMOVAL OR DEMOLITION. COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE BID. ALL EXISTING SITE FEATURES NOT BEING RETAINED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION. ANY DAMAGE TO OFFSITE ROADS, RIGHTS OF WAY, OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES, PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED ON THE PLAN.
- ONLY SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN THE SOILS REPORT PREPARED FOR THIS SITE OR AS RECOMMENDED BY THE EXCEPTING THOSE ASSOCIATED WITH LANDSCAPE BERMING. ALL GRADING UNDER PROPOSED PAVING, AND ALL FILL AND COMPACTION SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
- CONTRACTOR SHALL PROVIDE MINIMUM 4 FOOT BENCH AT EDGE OF PAVING IN FILL AREAS. MAXIMUM SLOPE OF BENCH SHALL BE 4% (1/4 IN PER FOOT).
- MAXIMUM SLOPE SHALL BE 2 HORIZONTALLY TO 1 VERTICALLY.
- CONTRACTOR SHALL PLACE 4" MINIMUM TOPSOIL IN LANDSCAPE AREAS.
- CONTRACTOR SHALL PLACE A WITNESS POST AT THE TERMINUS OF ALL UTILITY STUBS.
- CONTRACTOR SHALL PROVIDE A MINIMUM OF 1 FOOT OF PROTECTIVE FILL OVER STORM DRAIN PIPES DURING CONSTRUCTION.
- ALL TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". ALL STREET AND REGULATORY SIGNS SHALL BE INSTALLED PRIOR TO INSTALLATION OF FINISHED PAVING.
- THE CONTRACTOR SHALL REPLACE ANY EXISTING BITUMINOUS PAVING OR SUB-BASE WHICH IS DAMAGED OR REMOVED DURING CONSTRUCTION. ALL EXCAVATED AREAS SHALL BE BACKFILLED AND IN ACCORDANCE WITH THE SOILS REPORT AND/OR AS DIRECTED BY GEOTECHNICAL ENGINEER. ANY AREAS TO BE PAVED WHICH EXHIBIT UNSTABLE SUBGRADE CONDITIONS SHALL BE EXCAVATED TO BEARING SOIL, REILLED AND COMPACTED.
- IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT OF THE FINAL SUBGRADE.
- WHERE FILL IS PROPOSED WITHIN THE ROAD RIGHT-OF-WAY, THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUBGRADE.
- ALL LIGHTING TO COMPLY WITH ZONING REGULATION SPECIFICATIONS SECTION 134 OUTDOOR LIGHTING.
- ALL STORM DRAINS TO BE RCCP OR HDPE UNLESS OTHERWISE NOTED.
- STORMWATER MANAGEMENT IS EXISTING PER PRIOR SITE DEVELOPMENT PLAN SDP 88-235.
- THERE ARE NO CEMETERIES OR BURIAL GROUND LOCATED ON THIS SITE.
- THIS PROJECT IS EXEMPT FROM THE FOREST CONSERVATION ORDINANCE IN ACCORDANCE WITH SECTION 16.1202.b.1 (v). A PLANNED BUSINESS PARK WHICH HAS A PRELIMINARY PLAN APPROVAL BEFORE DECEMBER 31, 1992, AND WHICH MEETS THE INTENT OF THIS SUBTITLE BY RETAINING FOREST IN HIGH PRIORITY LOCATIONS.
- PREVIOUS FILES RELATED TO THIS PROPERTY ARE F 86-127, F 87-04, F 88-270, F 01-95, SDP 88-235.

Site Data

- TOTAL AREA PARCEL 'H-8' = 84,323 SQ.FT. OR 1.9358 AC. +/-
- EXISTING ZONING = M-1
- PROPERTY REFERENCE = LIBER 5435 FOLIO 464
- EXISTING USE = VACANT
- PROPOSED USE = NEW OFFICE
- BUILDING COVERAGE = 15,243 SQ. FT. OR 0.35 AC.
- % OF BUILDING COVERAGE = 18.07%
- FLOOR AREA = 15,243 S.F. OR 0.35 AC.
- FLOOR AREA RATIO = 18.07%
- AREA TO BE PAVED PLUS BUILDING AREA = 40,946.40 SQ. FT. OR 0.94 AC.
- OPEN SPACE = 0.00
- TOTAL AREA OF PARKING LOT = 26,136 SQ. FT. OR 0.6 AC.
- % OF PARKING LOT COVERAGE = 30.99%
- NUMBER OF PARKING SPACES REQUIRED = 50
- NUMBER OF PARKING SPACES PROVIDED = 55 INCLUDING 3 HANDICAPPED
- AREA TO BE DISTURBED = 71,002.80 SQ. FT. OR 1.63 AC.
- AREA TO BE VEGETATIVELY STABILIZED = 43,377.05 SQ. FT. OR 0.9958 AC.

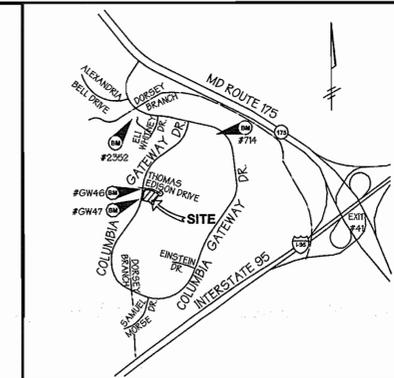
BENCHMARKS

WR & A BM #2352 ELEVATION : 338.29'
IRON PIPE 240 FEET RIGHT OF CENTERLINE
STA. 15+00, COLUMBIA GATEWAY DRIVE

WR & A BM #714 ELEVATION : 315.29'
230 FEET RIGHT OF CENTERLINE
STA. 34+30 COLUMBIA GATEWAY DRIVE

BM #GW46 ELEVATION 340.29
GWS PIN+CAP SET BACK CURB
N 490,284.01 E 854,629.46

BM #GW47 ELEVATION 334.75
GWS PIN+CAP SET BACK CURB
N 489,928.47 E 854,623.99



Location Map
SCALE 1" = 2,000'

Site Development Plans for Columbia Gateway Parcel H - 8 Howard County, Maryland SDP 01-150

Parking Tabulation

PARKING REQUIRED:
PROPOSED BUILDING TOTAL SQ. FT. 15,243
GENERAL OFFICE = 3.3 SPACES/1,000 = 50 SPACES REQUIRED

PARKING PROVIDED = 55 SPACES (INCLUDES 3 HANDICAPPED)

Index of Sheets

- SHEET NO. 1 - COVER SHEET
- SHEET NO. 2 - EXISTING CONDITIONS PLAN
- SHEET NO. 3 - SITE PLAN
- SHEET NO. 4 - SITE PLAN DETAILS
- SHEET NO. 5 - EXISTING AND PROPOSED DRAINAGE AREA MAPS
- SHEET NO. 6 - DRAINAGE AREA MAP AND PROFILES
- SHEET NO. 7 - WATER QUALITY PLAN & DETAILS
- SHEET NO. 8 - SEDIMENT EROSION CONTROL PLAN
- SHEET NO. 9 - SEDIMENT EROSION CONTROL NOTES & DETAILS
- SHEET NO. 10 - LANDSCAPE PLAN & DETAILS

NOTE:
The owner shall provide a separate and independent sewer connection for each tenant or occupant of any building shown on this site development plan who will discharge non-domestic waste to the public sewerage system if each separate and independent sewer connection shall include a standard manhole and other waste pretreatment devices as required and approved by Howard County. Waste lines on the interior of the building shall be designed, constructed or modified such that non-domestic waste will be discharged to the separate and independent sewer connection. No tenant or occupant of any building shown on this site development plan shall discharge regulated non-domestic waste to the public sewerage system prior to installation of the separate and independent sewer connection and related interior waste lines. The above statement shall apply to all initial and future occupants or tenants.

Reviewed for Howard SCD and meets Technical Requirements

Jim Meyer 12/26/01
USD - NATURAL RESOURCES CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

Geoffrey W. Selomine 12/26/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

Cheryl K. ... 12/28/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Cindy ... 1/8/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

James ... 1/8/02
DIRECTOR DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors

1020 Cromwell Bridge Road
Towson, Maryland 21286
(410) 825-8120

DESIGNED BY: P.R.C.
DRAWN BY: K.E.
CHECKED BY: P.R.C.
REVISIONS

OWNER / DEVELOPER
INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS
5565 STERRETT PLACE, SUITE 310
COLUMBIA, MARYLAND 21044
410-997-9000

ADDRESS CHART	
PARCEL NO. H-8	STREET ADDRESS 7154 COLUMBIA GATEWAY DRIVE
SUBDIVISION NAME Columbia Gateway	
SECTION NAME N/A	PARCEL # H-8
PLAT # 14689	BLOCK # 1
ZONE M-1	MAP # 43
ELECT. DIST. 6	CENSUS TRACT 6065.02
WATER CODE E-06	SEWER CODE 3390000

Cover Sheet

COLUMBIA GATEWAY PARCEL H-8

PREVIOUS FILE # 'S': F 86-127, F 87-04, F 88-270, F 01-95, SDP 88-235

ELECTION DISTRICT : 6
HOWARD CO., MARYLAND

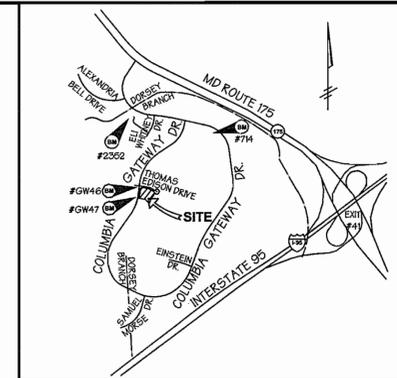
SHT. 1 OF 10
DATE : MARCH 08, 2001

SCALE : As Shown

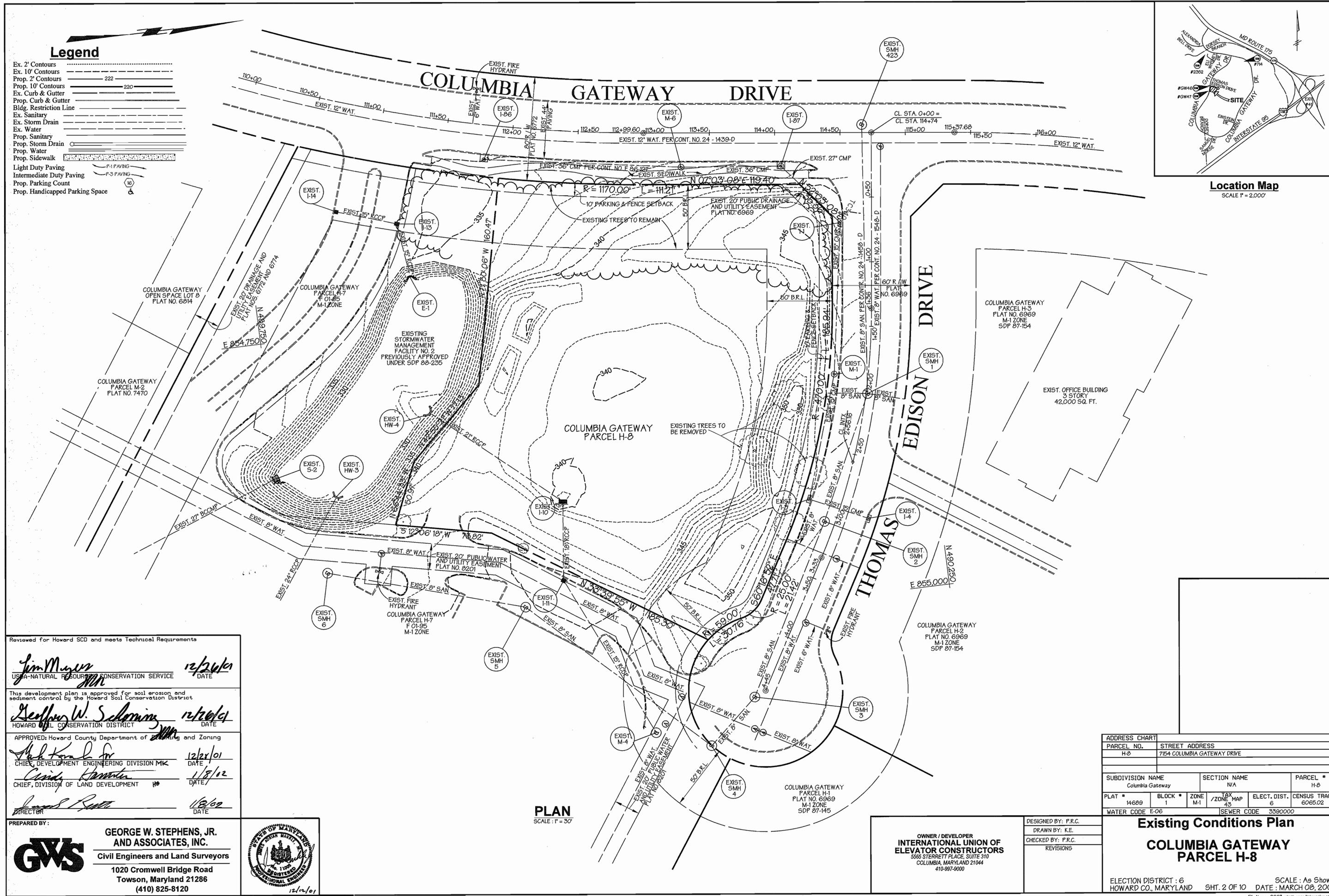
File Name : 9683coverheet.s01

Legend

- Ex. 2' Contours
- Ex. 10' Contours
- Prop. 2' Contours
- Prop. 10' Contours
- Ex. Curb & Gutter
- Prop. Curb & Gutter
- Bldg. Restriction Line
- Ex. Sanitary
- Ex. Storm Drain
- Ex. Water
- Prop. Sanitary
- Prop. Storm Drain
- Prop. Water
- Prop. Sidewalk
- Light Duty Paving
- Intermediate Duty Paving
- Prop. Parking Count
- Prop. Handicapped Parking Space



Location Map
SCALE 1" = 2,000'



Reviewed for Howard SCD and meets Technical Requirements

Jim Meyer 12/20/01
USA-NATURAL RESOURCES CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District
Geoffrey W. Schomins 12/20/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning
Mark Koval 12/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE
Cindy Hammit 1/8/12
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
James P. Ruff 1/8/12
DIRECTOR DATE

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1020 Cromwell Bridge Road
Towson, Maryland 21286
(410) 825-8120



PLAN
SCALE: 1" = 30'

OWNER / DEVELOPER
INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS
5665 STERRETT PLACE, SUITE 310
COLUMBIA, MARYLAND 21044
410-997-9000

DESIGNED BY: P.R.C.
DRAWN BY: K.E.
CHECKED BY: P.R.C.
REVISIONS

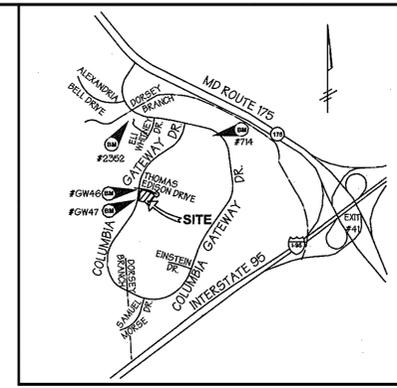
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PARCEL NO.	STREET ADDRESS				
H-8	7154 COLUMBIA GATEWAY DRIVE				
SUBDIVISION NAME					
Columbia Gateway	SECTION NAME				
	N/A				
PLAT #	BLOCK #	ZONE	TAX / ZONE MAP	ELECT. DIST.	CENSUS TRACT
14689	1	M-1	43	6	6065.02
WATER CODE E-06		SEWER CODE 3390000			

Existing Conditions Plan
COLUMBIA GATEWAY
PARCEL H-8

ELECTION DISTRICT: 6
HOWARD CO., MARYLAND SHT. 2 OF 10 DATE: MARCH 08, 2001
SCALE: As Shown
SDP 01-150
File Name: 96630xio-150-existingconditionsplan.dwg

Legend

- Ex. 2' Contours
- Ex. 10' Contours
- Prop. 2' Contours
- Prop. 10' Contours
- Ex. Curb & Gutter
- Prop. Curb & Gutter
- Bldg. Restriction Line
- Ex. Sanitary
- Ex. Storm Drain
- Prop. Sanitary
- Prop. Storm Drain
- Prop. Water
- Prop. Sidewalk
- P-2 Paving
- Prop. Parking Count
- Prop. Handicapped Parking Space



COLUMBIA GATEWAY DRIVE

EDISON DRIVE

THOMAS DRIVE

PROPOSED BUILDING
 ONE STORY
 FIN. FLR. ELEV. 343.00
 15,243 SQ. FT.

ENTRANCE WALL ELEVATION
 N.T.S.

ENTRANCE WALL WITH SIGN ELEVATION
 N.T.S.

Reviewed for Howard SCD and meets Technical Requirements

John R. Keld

USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

Michael J. ... 12/28/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Andy ... 1/8/02
 CHIEF, DIVISION OF LAND DEVELOPMENT #9 DATE

... 1/8/02
 DIRECTOR DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 1020 Cromwell Bridge Road
 Towson, Maryland 21286
 (410) 825-8120

PLAN
 SCALE: 1" = 30'

OWNER / DEVELOPER
INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS
 5555 STERRETT PLACE, SUITE 310
 COLUMBIA, MARYLAND 21044
 410-997-9000

DESIGNED BY: P.R.C.
 DRAWN BY: K.E.
 CHECKED BY: P.R.C.

REVISIONS:
 1. ADDED ADDRESS SIGN AND ENTRANCE SIGNS, PROVIDED SIGN ELEVATIONS, AND ADDED STORAGE SHED BEHIND DUMPSTER BY GWS DATED 2/24/03

2. ADDITIONAL NOTE TO CONCRETE SLAB PERIS COVERED RAMP AREA AT REAR OF BLDG. AND REV. TOP ELEVATION OF 1-10 (CONVERTED TO 1-10) TO 340.78 BY GWS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
H-8	7154 COLUMBIA GATEWAY DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
Columbia Gateway	N/A	H-8

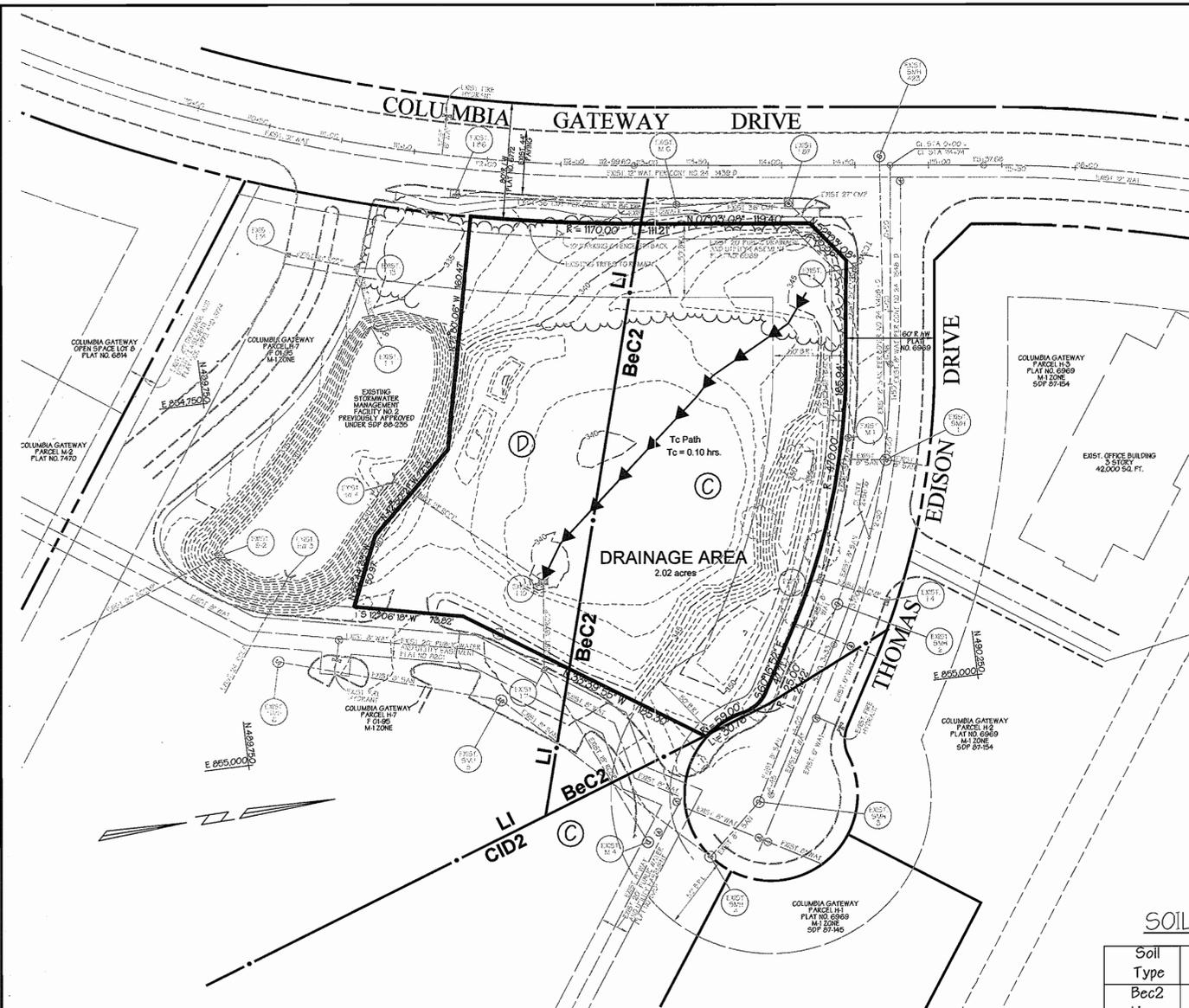
PLAT #	BLOCK #	ZONE	1/2" ZONE MAP	ELECT. DIST.	CENSUS TRACT
14609	1	M-1	43	6	6065.02

WATER CODE	SEWER CODE
E-06	3390000

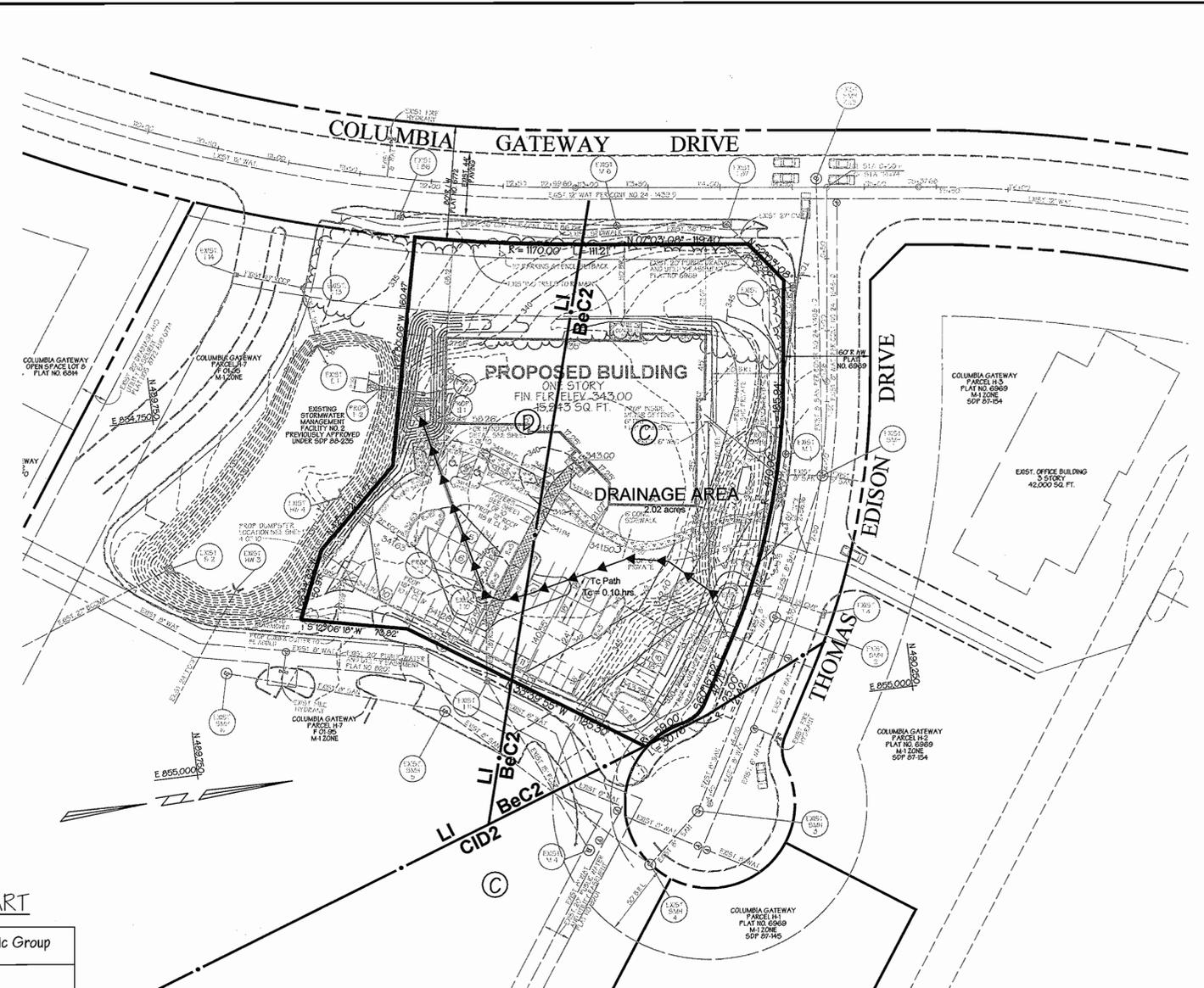
Site Plan

COLUMBIA GATEWAY PARCEL H-8

ELECTION DISTRICT: 6
 HOWARD CO., MARYLAND
 SCALE: As Shown
 SHT. 3 OF 10 DATE: MARCH 08, 2001
 SDP 01-150



Existing Drainage Area Map
SCALE: 1"=50'



Proposed Drainage Area Map
SCALE: 1"=50'

SOILS CHART

Soil Type	Hydrologic Group
BeC2	C
LI	D
CID2	C

LEGEND

- SOILS
- DRAINAGE AREA LINES
- Tc PATH
- Soil Group
- Soil Symbol **NeB2**

Reviewed for Howard SCD and meets Technical Requirements

Jim Meyer 12/26/01
USDA NATURAL RESOURCES CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District
Arthur W. Schmitz 12/26/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning
Michael J. ... 12/28/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Judy ... 1/8/02
CHIEF, DIVISION OF LAND DEVELOPMENT HB DATE

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1020 Cromwell Bridge Road
Towson, Maryland 21286
(410) 825-8120

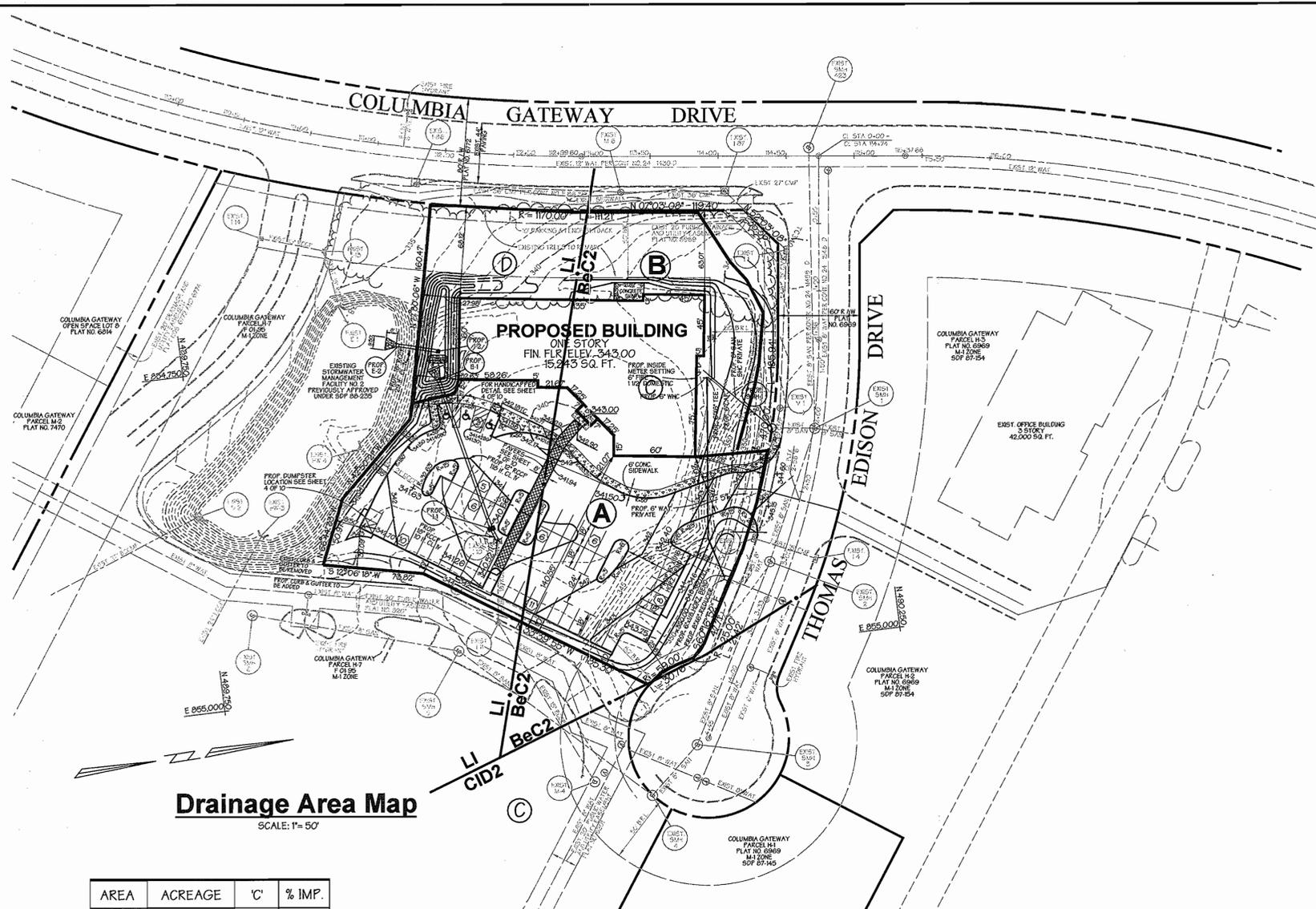


ADDRESS CHART					
PARCEL NO.	STREET ADDRESS				
H-8	7154 COLUMBIA GATEWAY DRIVE				
SUBDIVISION NAME					
Columbia Gateway					
SECTION NAME	PARCEL #				
N/A	H-8				
PLAT #	BLOCK #	ZONE	MAP	ELECT. DIST.	CENSUS TRACT
14689	1	M-1	43	6	6065.02
WATER CODE E-06			SEWER CODE 3390000		

OWNER / DEVELOPER
INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS
5665 STERRETT PLACE, SUITE 310
COLUMBIA, MARYLAND 21044
410-997-9000

DESIGNED BY: P.R.C.
DRAWN BY: K.E.
CHECKED BY: P.R.C.
REVISIONS

Existing and Proposed Drainage Area Maps
COLUMBIA GATEWAY PARCEL H-8
ELECTION DISTRICT: 6
HOWARD CO., MARYLAND SHT. 5 OF 10
SCALE: As Shown
DATE: MARCH 08, 2001
SDP 01-150

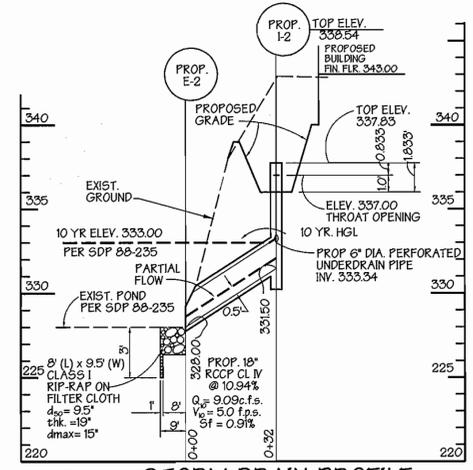


Drainage Area Map
SCALE: 1" = 50'

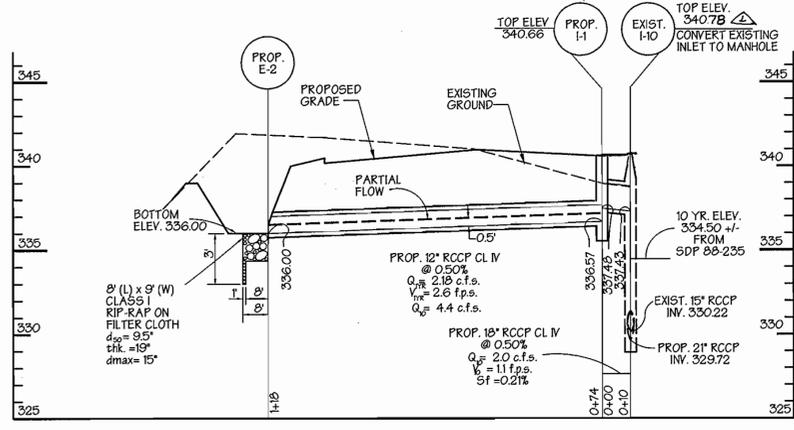
AREA	ACREAGE	'C'	% IMP.
(A)	0.97 AC.	0.71	68.04
(B)	0.84 AC.	0.60	40.48

INLET SCHEDULE						
NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	Qc.f.s.	HO. CO. DTL.
I-1	DOUBLE TYPE 'S'	340.66	337.48	336.57	6.6	SD-4.23
I-2	TYPE 'D' INLET	338.54	—	331.50	9.09	SD-4.11

STRUCTURE SCHEDULE					
NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	HO. CO. DTL.
E-1	12" CONC. END SECTION	—	—	335.50	SD-5.51
E-2	18" CONC. END SECTION	—	—	228.00	SD-5.51



STORM DRAIN PROFILE
SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'



STORM DRAIN PROFILE
SCALE: HORIZ. 1" = 30'
VERT. 1" = 5'

Reviewed for Howard SCD and meets Technical Requirements

Jim Meyer 12/26/01
USD, NATURAL RESOURCES CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

Geoffrey W. Schmitz 12/26/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

Shelby... 12/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Chris... 1/5/02
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

David... 1/8/02
DIRECTOR DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
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Towson, Maryland 21286
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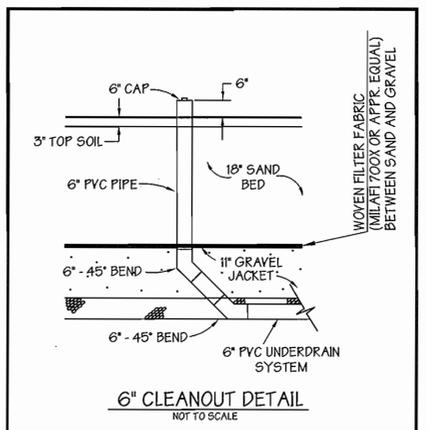
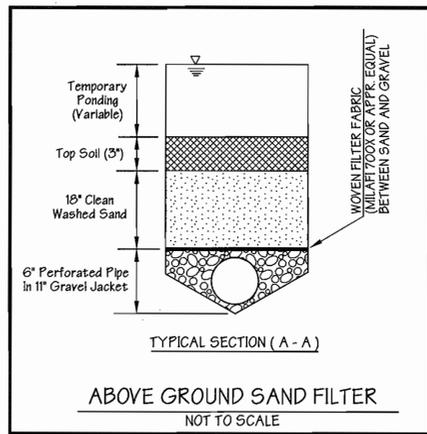
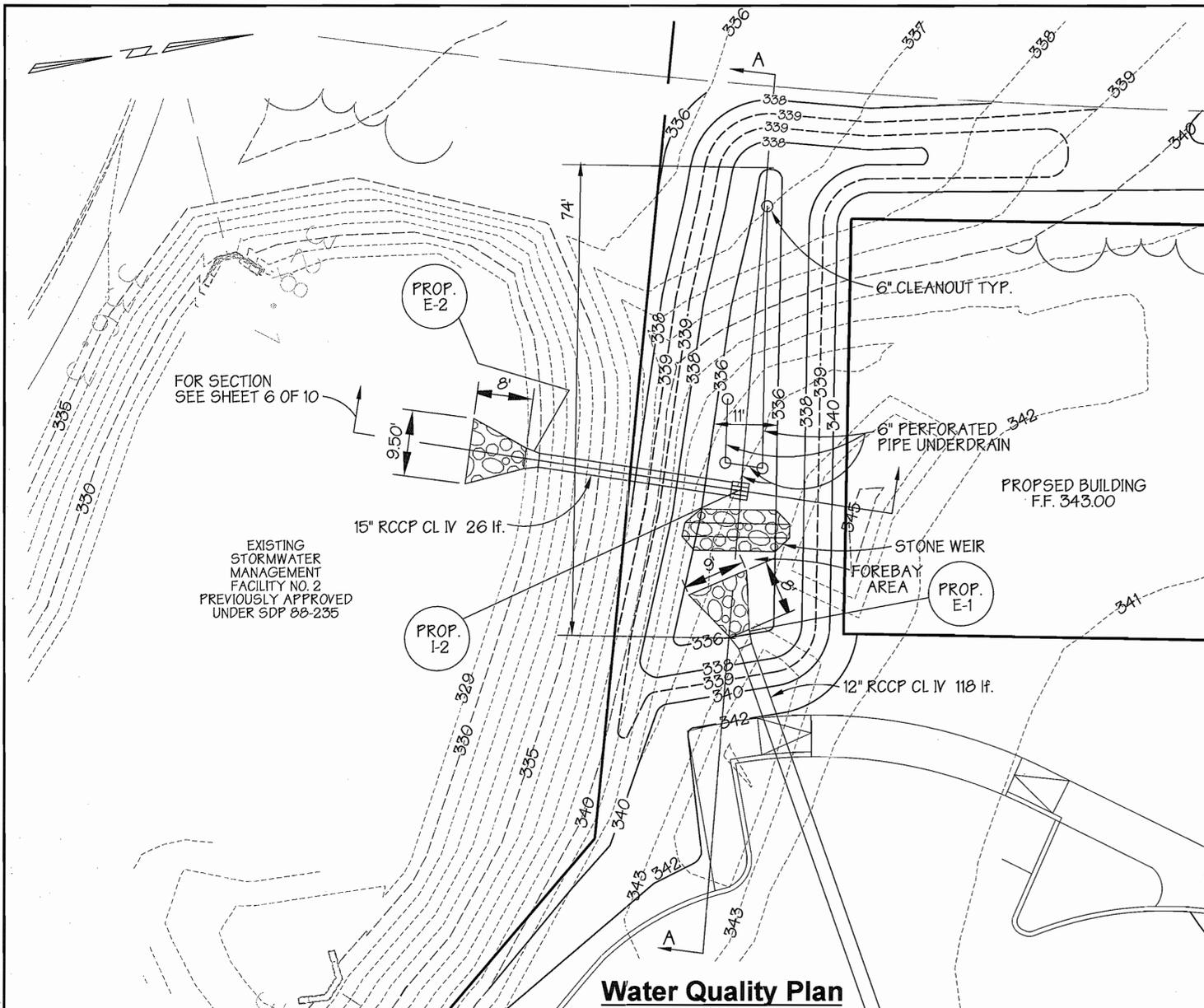
DESIGNED BY: P.R.C.
DRAWN BY: K.E.
CHECKED BY: P.R.C.
REVISIONS
Δ REVISED TOP ELEV. AT CONVERTED INLET TO MANHOLE 3/15/02

ADDRESS CHART					
PARCEL NO.	STREET ADDRESS				
H-8	7154 COLUMBIA GATEWAY DRIVE				
SUBDIVISION NAME		SECTION NAME	PARCEL #		
Columbia Gateway		NA	H-8		
PLAT #	BLOCK #	ZONE	TAX / ZONE MAP	ELECT. DIST.	CENSUS TRACT
14689	1	M-1	43	6	6065.02
WATER CODE E-06			SEWER CODE 3390000		

Drainage Area Map and Profiles
COLUMBIA GATEWAY PARCEL H-8

ELECTION DISTRICT: 6
HOWARD CO., MARYLAND SHT. 6 OF 10 DATE: MARCH 08, 2001

SCALE: As Shown
File Name: 9663drainmapprofiles.dwg



3.4.600 Filter Maintenance Criteria

The sediment chamber outlet devices shall be cleaned/required when drawdown times within the chamber exceed 36 hours. Trash and debris shall be removed as necessary.

Sediment should be cleaned out of the sedimentation chamber when it accumulates to a depth of more than six inches. Vegetation within the sedimentation chamber should be limited to a height of 10 inches.

When the filtering capacity of the filter diminishes substantially (e.g., when water ponds on the surface of the filter bed for more than 72 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material. This removed sediment should be disposed in an acceptable manner (e.g., landfill). Disposal should be removed from the filter bed when the accumulation exceeds one inch.

Organic filters (F-4) or surface sand filters (F-1) that have a grass cover should be mowed a minimum of 3 times per growing season to maintain maximum grass heights less than 12 inches.

A strip of at least six inches shall be provided at the site of bioretention facilities (F-6) (stone diaphragm). Dead or diseased plant material shall be replaced. Areas devoid of mulch should be re-mulched on an annual basis.

Direct maintenance access shall be provided to the pretreatment area and the filter bed.

Construction of sand filters and bioretention areas shall conform to the specifications outlined in Appendix B.3.

B.3.A Sand Filter Specifications

1. Material Specifications for Sand Filters

The allowable materials for sand filter construction are detailed in Table B.3.1.

2. Sand Filter Testing Specifications

Underground sand filters, facilities with sensitive groundwater aquifers, and filters designed to serve urban hot spots are to be tested for water tightness prior to placement of filter media. Entrances and exits should be plugged and the system completely filled with water to demonstrate water tightness. Water tightness means no leakage for a period of 6 hours.

All overflow weirs, multiple orifices and flow distribution slots are to be field tested to verify adequate distribution of flow.

3. Sand Filter Construction Specifications

Provide sufficient maintenance access (i.e., 12-foot-wide road with legally recorded easement). Vegetated access slopes are to be a maximum of 10%; gravel slopes to 15%; paved slopes to 25%.

Absolutely no rework is to occur to the filter until all contributing drainage areas have been stabilized.

Surface or filter bed is to be level.

All underground sand filters should be clearly delineated with signs so that they may be located when maintenance is due.

Surface sand filters may be planted with appropriate grasses; see Appendix A.

Locks sand filters (and residential bioretention facilities treating areas larger than an acre) shall be sealed with a stone "window" that covers approximately 10% of the filter area. This "window" shall be filled pea gravel (2-4 inch stone).

Material Specifications

The allowable materials to be used in bioretention area are detailed in Table B.3.2.

Planting Soil

The soil shall be a uniform mix, free of stumps, slumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the bioretention area 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, Mammee, Nutcracker, Foliage, Canadian Thistle, Tarweed, or other noxious weeds.

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

pH range	5.5 - 7.0
organic matter	15 - 4%
magnesium	20 lb./ac.
phosphorus P205	75 lb./ac.
potassium K2O	90 lb./ac.
soluble salts	not to exceed 500 ppm

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, Phosphorus, and potassium and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil if topsoil is imported, then a texture analysis shall be performed for each location where the top soil was excavated.

Since different labs calibrate their testing equipment differently, all testing results shall come from the same testing facility.

Should the pH fall out of the acceptable range, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur.

Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoses to remove original soil. If bioretention areas 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, drainage volumes and to non-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. Substrate methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

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

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

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

Plant Material

Plant material should conform to the American Standard Nursery Stock, published by the American Association of Nurserymen, and should be selected from certified, reliable nurseries.

Plant Installation

Shredded hardwood mulch is the only accepted mulch. The 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.

The plant root ball should be planted so 1/3rd of the ball is above the final grade surface. Root stock of the plant material shall be kept moist during transport and on site storage. Planting pits shall follow LCA planting guidelines. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Dig and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

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.

Grasses and legume seed shall be tilled 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. Adding fertilizers, pesticides, or as a minimum, besides the goal only add fertilizer if wood chips or mulch is used to amend the soil. Rototill area fertilizer at a rate of 2 pounds per 1000 square feet.

Underdrains

Underdrains to be placed on a 3'-0" wide section of filter cloth. Pipe is placed next, followed by the gravel bedding. The ends of underdrain pipes not terminating in an observation well shall be capped.

The main collection pipe for underdrain systems shall be constructed at a minimum slope of 0.25%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

Filter Steps

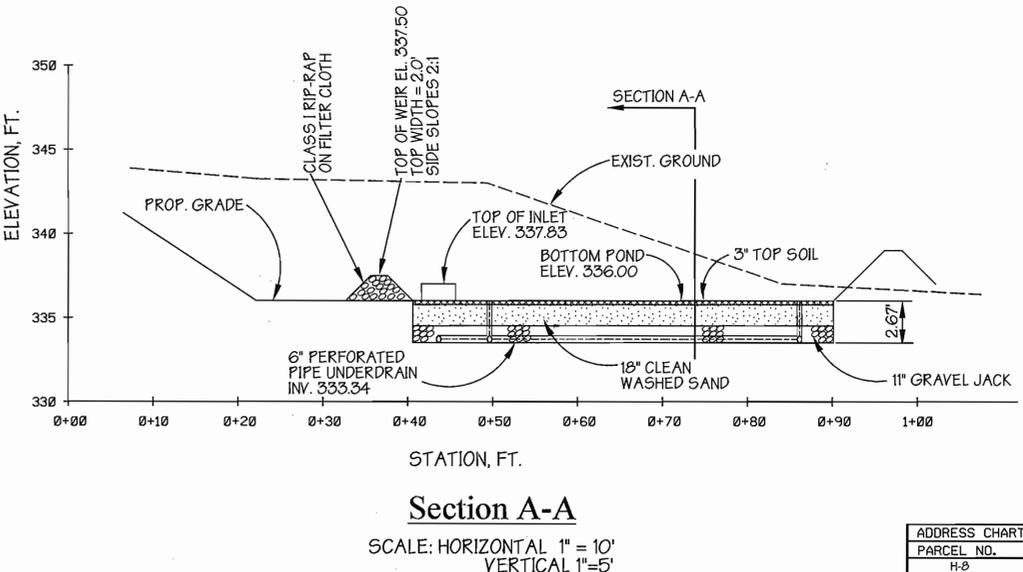
Construct pea gravel diaphragm 12" wide, minimum, and 24" deep minimum.

Perforated weirs to be a sand/gravel mix. See bioretention planting media specifications; add 20% gravel; reduce clay component accordingly. Berms to have overflow weirs with 6 inch minimum head.

Slope range to be 2% minimum to 6% maximum.

Miscellaneous

The bioretention facility facility may not be constructed until all contributing drainage area has been stabilized.



Materials Specifications for Sand Filters

PARAMETER	SPECIFICATION	SIZE	NOTES
Sand	AASHTO M-6 or ASTM C-33 33 concrete sand	0.02" to 0.04"	Sand substitutions such as Database and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
Peat			The material must be reed-sedge hemic peat, shredded, uncompacted, uniform, and clean.
Leaf Compost		n/a	
Underdrain Gravel	AASHTO M-43	0.35" TO 0.75"	
Geotextile Fabric (if required)	ASTM-D-4833 (puncture strength - 125 lbs ASTM-D-4632 (tensile strength - 300 lbs	0.08" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
Impermeable liner (if required)	ASTM-D-4833 (puncture strength ASTM-D-4122 (tensile strength 1100 lbs, elongation 200%) ASTM-D-624 (Tear resistance 150 lbs./in.) ASTM-D-471 (water adsorption; +8 to -2 % mass)		
underdrain piping	F 758, Type PS 2B or AASHTO-M-278	4" - 6" rigid schedule 40 PVC or SDR36	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
concrete (cast in place)	MNSA Standard and Spec, Section 902 - Mix No. 3; f'c = 3500 psi, normal weight, air-entrained; re-enforcing to meet ASTM 615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
concrete (pre-cast)	per pre-cast manufacturer	n/a	SEE ABOVE NOTE
non-rebar steel	ASTM A-36	n/a	structural steel to be hot-dipped galvanized ASTM - A 123

Reviewed for Howard SCD and meets Technical Requirements

JRM 12/26/01

USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

Shah Khand for 12/25/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Wendy Hamada 1/8/02
CHIEF, DIVISION OF LAND DEVELOPMENT #0 DATE

David Smith 1/8/02
DIRECTOR DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1020 Cromwell Bridge Road
Towson, Maryland 21286
(410) 825-8120

ENGINEER CERTIFICATION:

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: *James A. Markle Jr.* Date: 12/26/01
Print Name: **JAMES A. MARKLE JR.** PE # 11005

DEVELOPER CERTIFICATION:

I/We certify that all development and/or 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 of 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 inspections by the Howard Soil Conservation District.

Signature of Developer: *Dana A. Brigham* Date: 6/16/02
Print Name: **DANA A. BRIGHAM**

OWNER / DEVELOPER
INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS
5565 STERRETT PLACE, SUITE 310
COLUMBIA, MARYLAND 21044
410-997-9000

DESIGNED BY: P.R.C.
DRAWN BY: K.E. K.P.S.
CHECKED BY: P.R.C.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
H-8	7154 COLUMBIA GATEWAY DRIVE

SUBDIVISION NAME Columbia Gateway **SECTION NAME** N/A **PARCEL #** H-8

PLAT #	BLOCK	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
14689	1	M-1	43	6	6065.02

WATER CODE E-06 **SEWER CODE** 3390000

Water Quality Plan and Details
COLUMBIA GATEWAY
PARCEL H-8

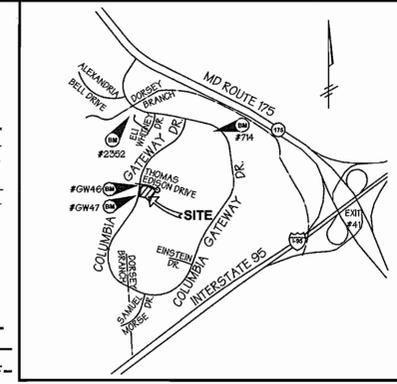
ELECTION DISTRICT : 6 SCALE : As Shown
HOWARD CO., MARYLAND SHT. 7 OF 10 DATE : MARCH 08, 2001
File Name : 9663waterquality.s01

Sequence of Operation

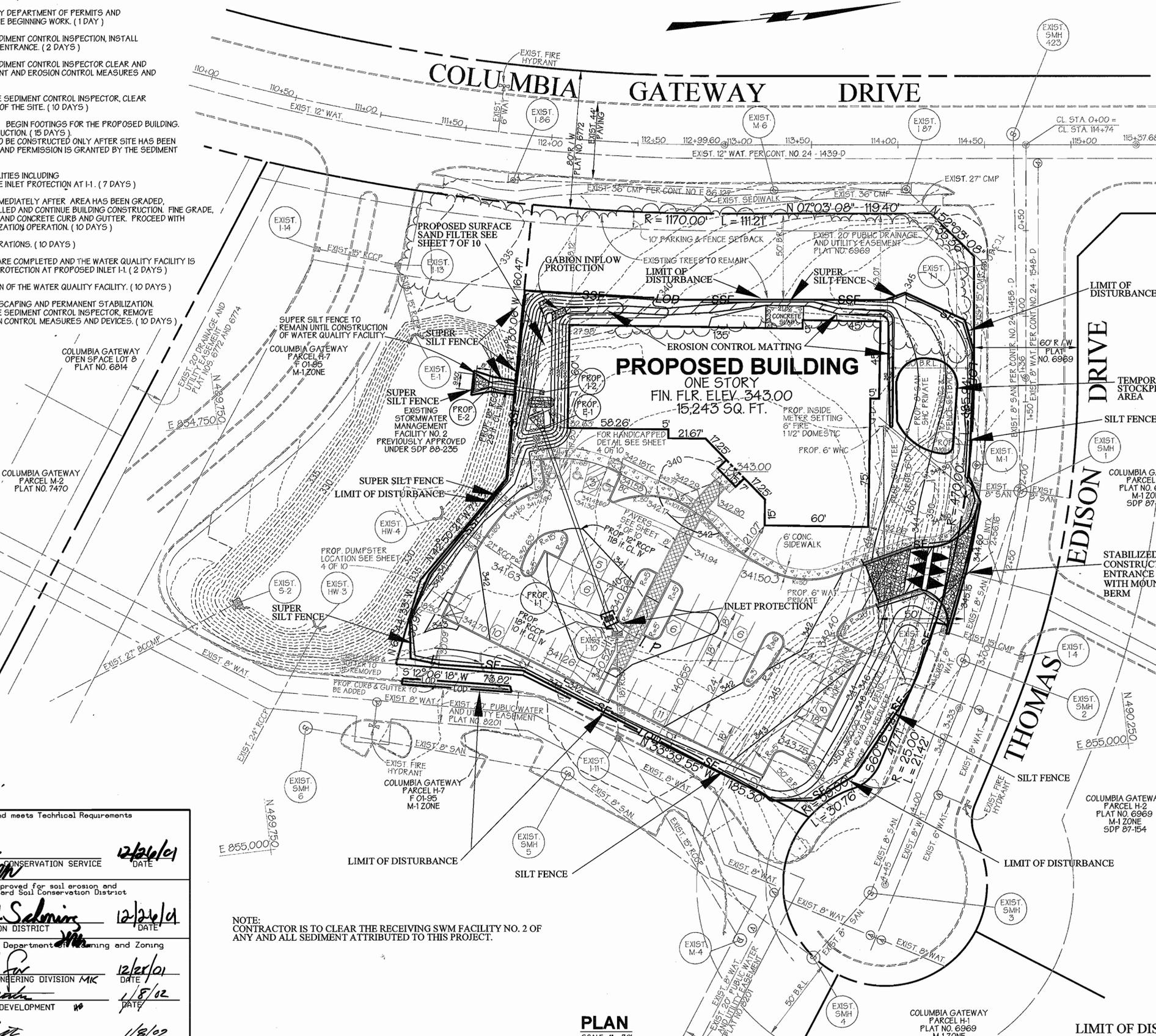
- OBTAIN GRADING PERMIT. (1 DAY)
- NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS AND LICENSES 48 HOURS BEFORE BEGINNING WORK. (1 DAY)
- WITH PERMISSION FROM SEDIMENT CONTROL INSPECTION, INSTALL STABILIZED CONSTRUCTION ENTRANCE. (2 DAYS)
- WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR CLEAR AND GRUB AND INSTALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES. (4 DAYS)
- WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB THE REMAINDER OF THE SITE. (10 DAYS)
- BEGIN GRADING SITE ONLY. BEGIN FOOTINGS FOR THE PROPOSED BUILDING. CONTINUE BUILDING CONSTRUCTION. (15 DAYS)
- WATER QUALITY FACILITY TO BE CONSTRUCTED ONLY AFTER SITE HAS BEEN PERMANENTLY STABILIZED AND PERMISSION IS GRANTED BY THE SEDIMENT CONTROL INSPECTOR.
- BEGIN INSTALLATION OF UTILITIES INCLUDING STORMDRAINS AND PROVIDE INLET PROTECTION AT I-1. (7 DAYS)
- PLACE STONE SUBBASE IMMEDIATELY AFTER AREA HAS BEEN GRADED. UTILITIES HAVE BEEN INSTALLED AND CONTINUE BUILDING CONSTRUCTION. FINE GRADE, INSTALL STONE SUBBASE, AND CONCRETE CURB AND GUTTER. PROCEED WITH LANDSCAPING AND STABILIZATION OPERATION. (10 DAYS)
- PROCEED WITH PAVING OPERATIONS. (10 DAYS)
- ONCE PAVING OPERATIONS ARE COMPLETED AND THE WATER QUALITY FACILITY IS COMPLETE, REMOVE INLET PROTECTION AT PROPOSED INLET I-1. (2 DAYS)
- PROCEED WITH CONSTRUCTION OF THE WATER QUALITY FACILITY. (10 DAYS)
- COMPLETE REMAINING LANDSCAPING AND PERMANENT STABILIZATION WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR. REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES. (10 DAYS)

Legend

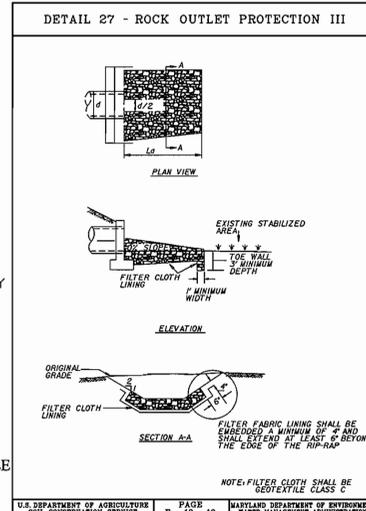
- Ex. 2' Contours
- Ex. 10' Contours
- Prop. 2' Contours
- Prop. 10' Contours
- Ex. Curb & Gutter
- Prop. Curb & Gutter
- Bldg. Restriction Line
- Ex. Sanitary
- Ex. Storm Drain
- Ex. Water
- Prop. Sanitary
- Prop. Storm Drain
- Prop. Water
- Prop. Sidewalk
- P-2 Paving
- Proposed Parking Count
- Handicapped Parking Space
- Limit of Disturbance
- Silt Fence
- Super Silt Fence
- Inlet Protection
- Stabilized Construction Entrance With Mountable Berm
- Erosion Control Matting



Location Map
SCALE 1" = 2,000'



PLAN
SCALE: 1" = 30'



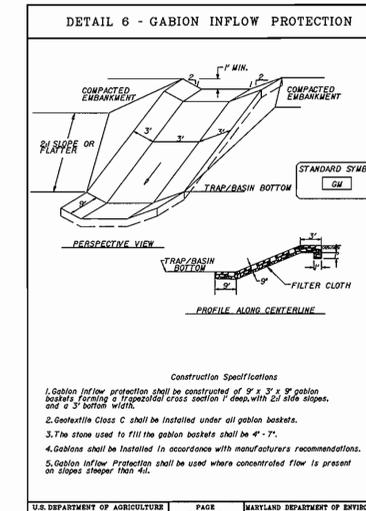
ROCK OUTLET PROTECTION III

Construction Specifications

- The substrate for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill material in the substrate shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile Class C shall be protected from puncturing, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by sewing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps, whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
- Stones for the rip-rap or gabion matting may be placed by equipment. They shall be distributed to the full course thickness in the horizontal direction in a manner so to avoid displacement of underlying materials. The stones for rip-rap or gabion matting shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter, geotextile or geotextile. Stone placement will be required to the extent necessary to prevent damage to the permanent works.
- The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and occur adjacent to the stone will occur.

NOTE: FILTER CLOTH SHALL BE 60D/2.5/12 CLASS

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 7 - 16 - 10 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES WATER MANAGEMENT ADMINISTRATION PAGE 7 - 16 - 10A MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES WATER MANAGEMENT ADMINISTRATION PAGE 7 - 16 - 10A



GABION INFLOW PROTECTION

Construction Specifications

- Gabion inflow protection shall be constructed of 2' x 2' x 3' gabion baskets forming a trapezoidal cross section if steep with 2:1 side slopes, and 6' bottom width.
- Geotextile Class C shall be installed under all gabion baskets.
- The stone used to fill the gabion baskets shall be 4" - 7".
- Gabions shall be installed in accordance with manufacturer's recommendations.
- Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 8 - 7 - 2 MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES WATER MANAGEMENT ADMINISTRATION PAGE 8 - 7 - 2

Reviewed for Howard SCD and meets Technical Requirements

Jim Meyer 12/26/01
USDA NATURAL RESOURCES CONSERVATION SERVICE DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District
Heather W. Schmitz 12/24/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

Michael Fox 12/25/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

Andy Korman 1/5/12
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

George W. Stephens, Jr. 1/5/02
DIRECTOR DATE

NOTE:
CONTRACTOR IS TO CLEAR THE RECEIVING SWM FACILITY NO. 2 OF ANY AND ALL SEDIMENT ATTRIBUTED TO THIS PROJECT.

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
1020 Cromwell Bridge Road
Towson, Maryland 21286
(410) 825-8120



ENGINEER CERTIFICATION:
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: *J. Markle Jr.* Date: 12/12/01
Print Name: **JAMES A. MARKLE JR.** PE # 11005

DEVELOPER CERTIFICATION:
I/We certify that all development and/or 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 inspections by the Howard Soil Conservation District.
Signature of Developer: *Dana C. Brigham* Date: 6/12/02
Print Name: **DANA A. BRIGHAM**

OWNER / DEVELOPER
INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS
5565 STERRETT PLACE, SUITE 310
COLUMBIA, MARYLAND 21044
410-997-9000

DESIGNED BY: P.R.C.
DRAWN BY: K.E.
CHECKED BY: P.R.C.
REVISIONS:

ADDRESS CHART					
PARCEL NO.	STREET ADDRESS				
H-8	7154 COLUMBIA GATEWAY DRIVE				
SUBDIVISION NAME: Columbia Gateway					
SECTION NAME: N/A					
PARCEL #: H-8					
PLAT #	BLOCK #	ZONE	1/20' MAP	ELECT. DIST.	CENSUS TRACT
14629	1	M-1	43	6	6065.02
WATER CODE E-06		SEWER CODE 3390000			

Erosion and Sediment Control Plan
COLUMBIA GATEWAY PARCEL H-8
ELECTION DISTRICT: 6
HOWARD CO., MARYLAND
SCALE: As Shown
DATE: MARCH 08, 2001
SDP 01-150
File Name: 9663sedcontrolplan.s01

Stabilization Specifications

Section I - Vegetative Stabilization Methods and Materials

A. Site Preparation

- Install erosion and sediment control structures (either temporary or permanent) such as diversions, grass stabilization structures, berms, waterways, or sediment control basins.
- Perform any grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
- Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

- Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples may be taken for engineering purposes may also be used for chemical analysis.
- Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Fertilizer may be substituted for fertilizer with prior approval from the appropriate state authority. Fertilizers shall be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranties of the producer.
- Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 90-100% will pass through a #20 mesh sieve.
- Incorporate lime and fertilizer into the top 3-5" of soil by disk or other suitable means.
- Soil Amendments - Use only one of the following schedules:
 - Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs./1000 s.f.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs./1000 s.f.) before seeding, harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 uniform fertilizer (91 lbs./100 s.f.)
 - Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs./1000 s.f.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs./1000 s.f.) before seeding, harrow or disc upper three inches of soil.

C. Seeded Preparation

- Temporary Seeding
 - Seeded preparation shall consist of loosening soil to a depth of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should be rolled or dragged smooth but left in the roughened condition. Skipped or skid or other tools should not be tracked leaving the surface in an irregular condition 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 3-5" of soil by disk or other suitable means.
- Permanent Seeding
 - Minimum soil conditions required for permanent vegetative establishment:
 - Soil pH shall be between 6.0 and 7.0.
 - Soluble salts shall be less than 500 parts per million (ppm).
 - The soil shall contain less than 40% clay but enough fine grained material (> 20% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if legumes or cereals lespedeza is to be planted, then a sandy soil (< 20% silt plus clay) would be acceptable.
 - Soil shall contain 15% minimum organic matter by weight.
 - Soil must contain sufficient pore space to permit adequate root penetration.
 - If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.
 - Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise tamped to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal crown check slots to prevent topsoil from sliding down a slope.
 - Apply soil amendments as per soil test or as included on the plans.
 - Mix soil amendments into the top 3-5" of topsoil by disk or other suitable means. Lawn areas should be rolled to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seeded preparation, loose surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (greater than 3:1) should be treated by a seed leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

D. Seed Specifications

- All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed shall have been tested within the 6 months immediately preceding the date of sowing such material in this job.
- Inoculant - The inoculant for treating legume seed in the seed mixture shall be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. NOTE: It is very important to keep inoculant as cool as possible until use. Temperatures above 75-80 degrees F. can weaken bacteria and make inoculant less effective.

E. Methods of Seeding

- Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.
- Seeding: Apply seed uniformly with broadcast or drop seeder, or a cultipacker seeder.

F. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

G. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

H. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

I. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

J. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

K. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

L. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

M. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

N. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

O. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

P. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Q. Seeding Rates

- For sites having disturbed areas over 5 acres, the rates shown in this table shall be deleted and the rates recommended by the testing agency shall be written in.
- For areas receiving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/acre). In addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

v. Site Preparation: Fertilizer and Lime application rates will be determined by soil test. Under unusual circumstances where there is insufficient time for a complete soil test, fertilizer and lime may be applied in amounts shown under v.b. below.

- Prior to seeding, the surface will be cleared of all trash, debris, and of all roots, brush, wire, grade stakes and other objects that would interfere with planting, fertilizing, or maintenance operations.
- Where soil is acid or composed of heavy clay, ground limestone will be spread at the rate of 2 tons per acre (200 lbs./1000 s.f.). In all soils 1000 lbs. per acre (20 lbs./1000 s.f.) of 10-10-10 fertilizer or equivalent will be uniformly applied and mixed into the top three inches of soil with the required lime.
- All areas receiving sod will be uniformly fine graded. Hard packed earth will be scarified prior to placement of sod.

B. Sod Installation

- During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
- The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and slightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sods not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause drying of the roots.
- Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, or otherwise secured to prevent slippage on slopes and to ensure solid contact between sods and the underlying soil surface.
- Sod shall be watered immediately following rolling or tamping until the underside of the sod and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

C. Sod Maintenance

- In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.
- After the first week, sod watering is required as necessary to maintain adequate moisture content.
- The first mowing of sod should not be attempted until the soil is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

Section IV - Turfgrass Establishment

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will require a medium to high level of maintenance. Areas to receive seed shall be tilled by disk or other approved methods to a depth of 2 to 4 inches, leveled and graded to prepare a proper seedbed. Stones and debris over 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.

NOTE: Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

A. Turfgrass Mixtures

- Kentucky Bluegrass - Full sun mixture:** For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 15 to 2.0 pounds/1000 square feet. A minimum of three Bluegrass cultivars should be chosen ranging from a minimum of 50% to a maximum of 50% of the mixture by weight.
- Kentucky Bluegrass/Pennsylvania Ryegrass - Full sun mixture:** For use in full sun areas where rapid establishment is necessary and turf will receive moderate to intensive management. Certified Pennsylvania Ryegrass Cultivars Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Certified Kentucky Bluegrass cultivars must be chosen, with each cultivar ranging from 10% to 30% of the mixture by weight.
- Tall Fescue/Kentucky Bluegrass - Full sun mixture:** For use in droughty prone areas and/or for areas receiving low to medium maintenance in full sun to medium shade. Recommended mixture includes: certified Tall Fescue Cultivars 95-100%, certified Kentucky Bluegrass Cultivars 0-5%. Seeding rate: 5 to 8 lbs./1000 square feet. One or more cultivars may be blended.
- Kentucky Bluegrass/Fescue - Shade mixture:** For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensive managed turf area. Mixture includes: certified Kentucky Bluegrass Cultivars 30-40% and certified Fescue and 60-70%. Seeding rate: 11/2 - 3 lbs./1000 square feet. A minimum of 3 Kentucky Bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 30% of the mixture by weight.

NOTE: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland."

B. Ideal times of Seeding

Western MD: March 15-June 1, August 15-October 15 (Hardiness Zones - 6a, 6b)
Central MD: March 15-May 15, August 15-October 15 (Hardiness Zones - 6a)
Southern MD, Eastern Shore: March 15-May 15, August 15-October 15 (Hardiness Zones - 7a, 7b)

C. Irrigation

If soil moisture is deficient, supply new seedlings with adequate water for plant growth (1/2" - 1" every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedlings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

D. Repairs and Maintenance

- Inspect all seeded areas for failures and make necessary repairs, replacements, and reseeds within the planting season.
- Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.
- If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seeded preparation and seeding recommendations.
- If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.

NOTE:

- USED BY SMA ON SLOPED AREAS. ADD A LEGUME FOR SLOPES > THAN 3:1.
- USED IN MEDIUM AREAS BY SMA. SHARP TOADY.
- POPULAR USE - PROLONGS PERMANENT GROUND COVER. GRASSY, BLUEGRASS THICKENS STAND.
- BEST USE ON SHADY SLOPES NOT ON POORLY DRAINED CLAYS.
- SUITABLE FOR SEEDING IN MID-SUMMER.
- USE ON POORLY DRAINED SOILS - IMPROVES WATERWAYS, BIRDSFOOT TREESILLS BEST FOR ZONES 7a AND 7b.
- USE ON MOIST SHORE FOR TURFMAINTAINANCE IN WET SWAMPY AREAS.
- TALL FESCUE MAY BE SEEDER ALONE. THE WARD FESCUE PROVIDES BETTER SHEAR TOLERANCE AND PRODUCES A BETTER STAND.
- LOW FERTILITY GRASS. REQUIRES FREQUENT MOWING. GOOD COMPANION FOR WILDFLOWERS.

Section V - Sod Installation

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. Matching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

If grading is completed outside of the seeding season, mulch shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications:

- When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
- Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.
- Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (noted by preference), depending upon size of area and erosion hazard:
 - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to provide the capacity to hold a moderate amount of moisture. An exception is if legumes or cereals lespedeza is to be planted, then a sandy soil (< 20% silt plus clay) would be acceptable.
 - Wood cellulose fiber may be used for anchoring safety. If used on sloping land, this practice should be used on the contour if possible.
 - Wood cellulose fiber may be used for anchoring safety. If used on sloping land, this practice should be used on the contour if possible.
 - Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4" to 12" wide and 200 to 3000 feet long.

Section II - Temporary Seeding

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed Mixtures - Permanent Seeding

- Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes or for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

Section III - Permanent Seeding

Seeding rates and legumes to establish ground cover for a minimum period of one year on disturbed areas generally requiring low maintenance.

A. Seed Mixtures - Permanent Seeding

- Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes or for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.

Section IV - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section V - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section VI - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section VII - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section VIII - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section IX - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section X - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section XI - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section XII - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section XIII - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

Section XIV - Sod

To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

- Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.
- Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurements for thickness shall be taken and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes and for special purposes such as wildlife or aesthetic treatments may be found in USDA-SCS Technical Field Office Guide, Section 242 - Critical Area Planning. For special lawn maintenance areas, see Sections IV Sod and V Turfgrass.
- Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
- Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

DETAIL 30 - EROSION CONTROL MATTING

Construction Specifications

- Key in the matting by placing the top edge of the matting in a trench 1/2" deep. Drive the trench into the soil to conform to the channel cross-section. Secure with a row of staples spaced @ 6" on center along the top edge of the channel.
- Staple the overlap in the channel center using an 18" spacing between staples.
- After one row of staples is in place, make sure the matting is smooth and in firm contact with the soil.
- Staples shall be placed @ 6" apart with a row for each strip. 2 rows @ 6" apart @ 4" offsetting rows down the slope.
- Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by at least 6" on center. Drive a row of staples spaced @ 6" apart in a staggered pattern on either side.
- The structure and the matting shall be stably secured with 2 double rows of staples.

NOTE: If flow will enter from the edge of the matting then the area affected by the flow must be tapered.

DETAIL 22 - SILT FENCE

Construction Specifications

- Face posts shall be a minimum of 30" long driven 18" minimum into the ground. Wood posts shall be 1 1/2" square minimum cut or 1 1/2" diameter minimum round and shall be spaced equally and shall be standard T or U section weighting not less than 100 pound per linear foot.
- Geotextile shall be fastened securely to each fence post with wire ties at top and mid-section and shall meet the following requirements for Geotextile Class F.
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment

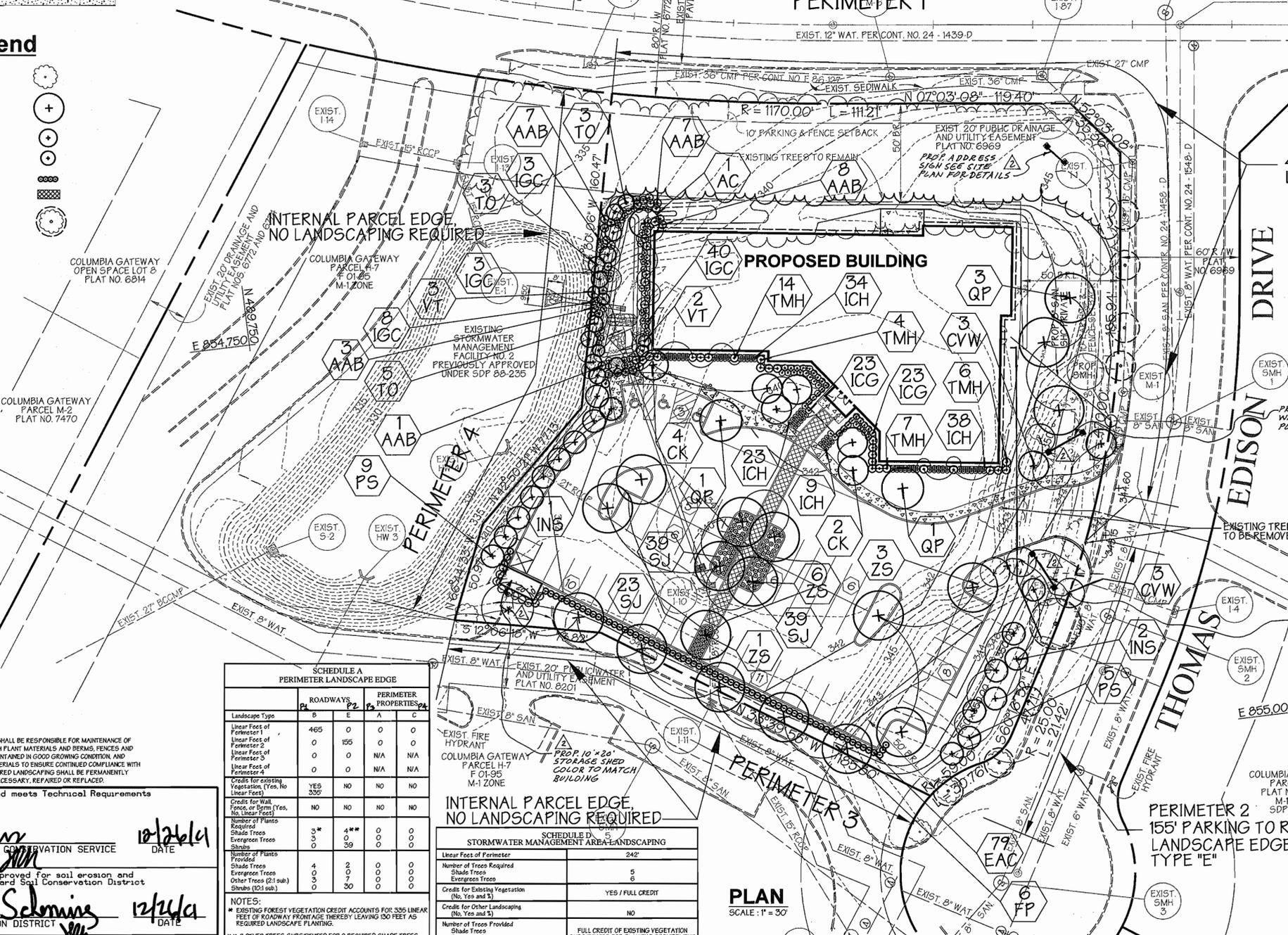
Legend

- Ex. 2' Contours
- Ex. 10' Contours
- Prop. 2' Contours
- Prop. 10' Contours
- Ex. Curb & Gutter
- Prop. Curb & Gutter
- Bldg. Restriction Line
- Ex. Sanitary
- Ex. Storm Drain
- Ex. Water
- Prop. Sanitary
- Prop. Storm Drain
- Prop. Water
- Prop. Sidewalk

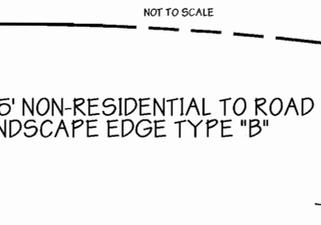
Plant Legend

- EXISTING TREE
- PROPOSED MAJOR DECIDUOUS TREE
- PROPOSED MINOR DECIDUOUS TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS
- PROPOSED PERENNIALS
- EXISTING TREE TO BE SAVED

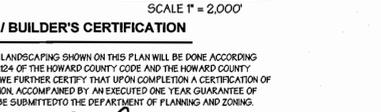
COLUMBIA GATEWAY DRIVE PERIMETER 1



Evergreen Planting Detail



Location Map



DEVELOPER'S / BUILDER'S CERTIFICATION

I / WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.24 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I / WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Dana A. Brigham 6/12/2001
 NAME DATE

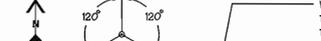
DANA A. BRIGHAM

PRINT NAME

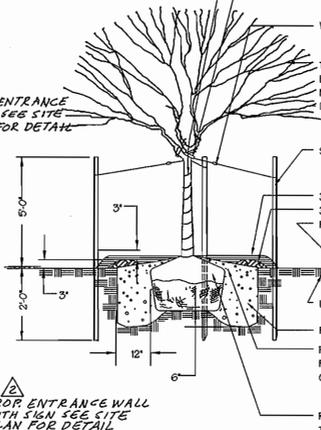
PLANTING NOTES

- PLANT LOCATIONS SHALL BE FIELD ADJUSTED TO AVOID UTILITIES. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO START OF WORK. ALL TREES AND SHRUBS SHALL BE MULCHED TO A MINIMUM OF 18" BEYOND THE EDGE OF THE ROOT BALL. SHRUBS SHALL BE PLANTED IN CONTINUOUS MOUND BEDS. ALL WIRE, PLASTIC AND TWINE TIES SHALL BE REMOVED FROM TOP OF THE ROOT BALL.
- PLANT STANDARDS**
 ALL NURSERY STOCK SHALL BE TOP QUALITY AND IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSEMEYEN, INC. "AMERICAN STANDARDS FOR NURSERY STOCK" LATEST EDITION. INFERIOR NURSERY STOCK WILL BE SUBJECT TO REJECTION BY THE LANDSCAPE ARCHITECT. BARE ROOT SHALL NOT BE ALLOWED FOR ANY TREE DEFINED AS MAJOR DECIDUOUS, MINOR DECIDUOUS OR EVERGREEN.
- CHANGES MAY IMPACT REQUIRED CERTIFICATION**
 PLANT TYPES (DECIDUOUS TREES, EVERGREEN ETC.), QUANTITIES, STAKING, LOCATION, AND SPECIES SHOWN ON THE APPROVED LANDSCAPE PLAN ARE BASED ON REQUIREMENTS STATED IN THE LATEST HOWARD COUNTY LANDSCAPE MANUAL. ANY CHANGE IN THESE ITEMS MAY AFFECT THE REQUIRED APPROVAL AND CERTIFICATION OF THE INSTALLED PLANTING. OWNER IS REQUIRED TO ARRANGE AND PAY FOR CERTIFICATION BY LANDSCAPE ARCHITECT.
- LANDSCAPE SPECIFICATIONS**
 LANDSCAPE SPECIFICATION SHALL CONFORM TO LCA LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREA, INCLUDING PLANTING PROCEDURES AND SOIL PREPARATION FOR SHRUBS AND PERENNIALS. A ONE-YEAR WARRANTY PERIOD SHALL BE REQUIRED. MAINTENANCE REQUIRED TO HONOR THE ONE-YEAR WARRANTY SHALL BE PERFORMED AS PART OF THIS CONTRACT.
- SPECIAL PROVISIONS TO LCA STANDARD SPECIFICATIONS**
 CONTRACTOR IS ENCOURAGED TO PERFORM SOIL TESTING. TEST RESULTS SHALL BE SUBMITTED 30 DAYS BEFORE PLANTING. FAILURE TO PERFORM TESTING WILL VOID GUARANTEE PROVISIONS.
 CONTRACTOR SHALL REVIEW AND TEST SUBSOIL DRAINAGE CHARACTERISTICS 30 DAYS PRIOR TO PLANTING AND NOTIFY OWNER UNACCEPTABLE CONDITIONS.
 NO EXCEPTIONS TO THE GUARANTEE PROVISIONS ARE ALLOWED UNLESS AGREED TO IN WRITING PRIOR TO PLANTING.
 THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE IN THE AMOUNT OF \$4,620 IS PART OF THE DEVELOPER'S AGREEMENT.
- PLANT'S PROVIDED CALCULATIONS**
 SHADE TREES 10 @ 300.00 = 3,000
 EVERGREEN TREES 3 @ 150.00 = 450
 SHRUBS 39 @ 30.00 = 1,170
 TOTAL = 4,620

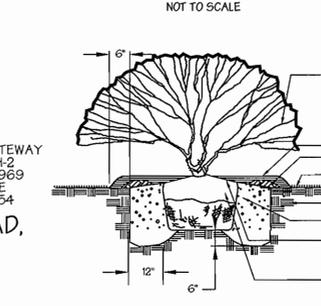
465' NON-RESIDENTIAL TO ROAD LANDSCAPE EDGE TYPE "B"



Tree Planting Detail



Shrub Planting Detail



SCHEDULE A PERIMETER LANDSCAPE EDGE

Landscape Type	ROADWAYS		PERIMETER PROPERTIES	
	B	E	A	C
Linear Feet of Perimeter 1	465	0	0	0
Linear Feet of Perimeter 2	0	156	0	0
Linear Feet of Perimeter 3	0	0	N/A	N/A
Linear Feet of Perimeter 4	0	0	N/A	N/A
Credits for Existing Vegetation (Yes, No Linear Feet)	YES	NO	NO	NO
Credits for Wall Posts or Fences (Yes, No Linear Feet)	NO	NO	NO	NO
Number of Plants Required	3**	4**	0	0
Shade Trees	0	0	0	0
Evergreen Trees	0	39	0	0
Shrubs	0	0	0	0
Number of Plants Provided	4	2	0	0
Shade Trees	0	0	0	0
Evergreen Trees (21 sub)	3	7	0	0
Shrubs (21 sub)	0	30	0	0

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

Linear Feet of Perimeter	242'
Number of Trees Required	5
Shade Trees	5
Evergreen Trees	0
Credits for Existing Vegetation (Yes, No, %)	YES / FULL CREDIT
Credits for Other Landscaping (No, Yes, %)	NO
Number of Trees Provided	5
Shade Trees	5
Evergreen Trees	0
Other Trees (21 substitution) 16	0

PLAN

SCALE: 1" = 30'

PLANT SCHEDULE

KEY	QUANT.	BOTANICAL NAME / COMMON NAME	SIZE / COND.	SPACING	REMARKS
SHADE TREES					
QP	5	Quercus palustris / Pin Oak	2 1/2" - 3" B&B	As Shown	Full Crown
FP	6	Fraxinus pennsylvanica 'Fastmore' / 'Fastmore' Green Ash	2 1/2" - 3" B&B	As Shown	Full Crown
ZS	10	Zelkova serrata / Village Green Zelkova	2 1/2" - 3" B&B	As Shown	Full Crown
MINOR TREES / EVERGREENS					
NS	4	Ilex opaca / American Holly	5" - 6" B&B	As Shown	Heavy
PS	14	Pinus strobus / White Pine	6" - 8" B&B	As Shown	Heavy
TO	11	Thuja occidentalis 'Nigra' / American Arborvitae Nigra	6" - 8" B&B	As Shown	Heavy
OYW	6	Crataegus viridis 'Winter King' / Winter King Hawthorn	2 - 2 1/2" B&B	As Shown	Full Crown
CK	6	Cornus chinensis 'Kousa' / Kousa Dogwood	2 - 2 1/2" B&B	As Shown	Full Crown
AC	1	Amelanchier canadensis / Serviceberry	6" - 8" B&B	Multi-STEM	Full Crown
SHRUBS					
ICH	104	Ilex crenata 'Helleri' / Helleri's Japanese Holly	10 - 24" spp. cont.	2 ft. oc.	Full
ICG	46	Ilex crenata 'Green Lustre' / Green Lustre Holly	24 - 30" B&B	3 ft. oc.	Heavy
IGC	54	Ilex glabra compacta / Compact Holly	10 - 24" B&B	3 ft. oc.	Heavy
AB	26	Aronia arbutifolia brilliantissima / Red Chokeberry	3 - 4" B&B	4 ft. oc.	Heavy
EAC	79	Euonymus alata compacta / Dwarf Burning Bush	30 - 36" B&B	3 ft. oc.	Heavy
TMH	11	Taxus media 'Hicks' / Hicks' Yew	30 - 36" B&B	3 ft. oc.	Heavy
VT	5	Viburnum trilobum / American Cranberry Bush	4 - 5" B&B	As Shown	Heavy
SJ	101	Juniperus chinensis sargentii / Sargent Juniper	10 - 24" spp. cont.	3 ft. oc.	Heavy

NOTE: THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.

Reviewed for Howard SCD and meets Technical Requirements

USDA-NATURAL RESOURCES CONSERVATION SERVICE
 Jim Meyer 12/26/01
 DATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District
 Geoffrey W. Schomins 12/26/01
 DATE

APPROVED: Howard County Department of Planning and Zoning
 Chie Development Engineering Division MK 12/20/01
 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT RB 1/5/02
 DATE

APPROVED: 1/8/02
 DATE

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
 Civil Engineers and Land Surveyors
 1020 Cromwell Bridge Road
 Towson, Maryland 21286
 (410) 825-8120



OWNER / DEVELOPER
INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS
 5565 STERRET PLACE, SUITE 310
 COLUMBIA, MARYLAND 21044
 410-997-9000

DESIGNED BY: P.R.C.
 DRAWN BY: K.E.
 CHECKED BY: P.R.C.
 REVISIONS: ALL ADDED ENTRANCE SIGNS AND 10' x 20' SHED BEHIND DUMPSTER, RELOCATED TREES AND SHRUBS AS NECESSARY BY GWS DATED 2/26/03

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
H-8	7154 COLUMBIA GATEWAY DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
Columbia Gateway	N/A	H-8

PLAT #	BLOCK #	ZONE	MAP	ELECT. DIST.	CENSUS TRACT
14609	1	M-1	43	6	6065.02

WATER CODE	SEWER CODE
E-06	3390000

Landscape Plan
COLUMBIA GATEWAY PARCEL H-8
 ELECTION DISTRICT: 6
 HOWARD CO., MARYLAND SHT. 10 OF 10 DATE: MARCH 08, 2001
 SCALE: As Shown
 SDP 01-150
 File Name: 9962Landscape.p01