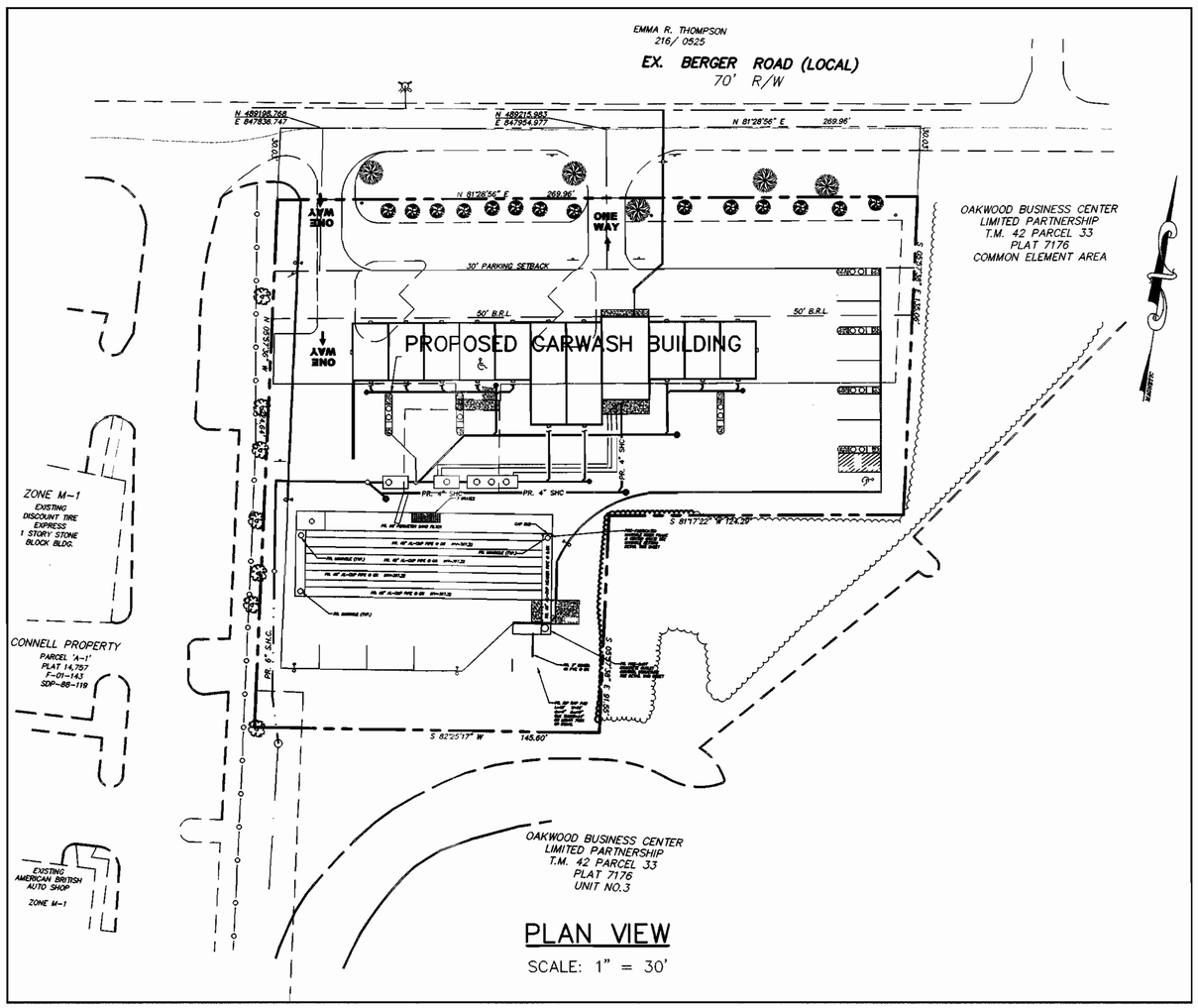
SITE DEVELOPMENT PLAN
FOR
COLUMBIA / STARWASH AT BERGER ROAD
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

CONSTRUCTION NOTES

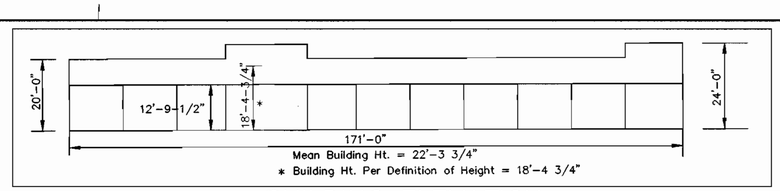
1. No sediment and erosion control devices may be removed without prior approval from the Howard County inspector.
2. Stabilize any disturbed area as soon as possible by permanent or temporary means.
3. All temporary stock piles and excess material shall be removed to an approved spoil site. All borrow material shall be obtained from an approved site.
4. It shall be the responsibility of the contractor or subcontractor to notify the engineer of any deviation to these plans prior to any change being made. Any change in these plans without the written authorization for said change from the engineer shall be the responsibility of the contractor or subcontractor.
5. Utilities shown on these plans are in accordance with the best information available for the contractor. The contractor shall be responsible for locating and protecting all existing services and mains (public or private). The contractor shall obtain the services of a private utility locator to locate all existing private services and mains. The owners and engineer assume no responsibility for accuracy or completeness of the information shown. Existing mains and services shall be carefully protected and any damage to them caused by the work shall be immediately repaired to the satisfaction of the engineer by the contractor at the contractor's expense, using materials of the kinds damaged.
6. The contractor shall call "MISS UTILITY", 1-800-257-7777, a minimum of 48 hours in advance of any excavation, boring, and/or digging to determine the location of underground utilities.
7. The contractor shall grade all areas within the area of construction and shall warp paving as necessary to insure positive drainage.
8. The Contractor shall be responsible for coordination of his construction with the construction by other contractors and subcontractors.
9. All soil erosion control measures shall be in accordance with the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".
10. Failure to specifically mention items which would normally be required to complete the work and develop this site in accordance with the approved plans, shall not relieve the contractor from performing such work. This work shall be part of the contractors base bid.

GENERAL NOTES

1. All construction shall be in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications, as applicable.
2. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
3. The contractor shall notify "MISS UTILITY" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. The existing topography is taken from the approved SDP 89-231 dated April 1993 and as supplemented by Messick Group Inc., January 2003
5. Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to any work being done in the public road.
6. All plan dimensions are to face of curb and face of building unless otherwise noted.
7. The coordinates shown hereon are based upon the Howard County Geodetic Control which is based upon the Maryland State Plane Coordinate System. Howard County Control Station nos. 2341001 and 2441002 taken from a Howard County Record Plat #14,757
8. Existing utilities are based on the approved SDP 89-231 as supplied by Howard County Development Engineering Division.
9. Water is public, (contract no. 178-W).
10. Sewer is public, (contract 609 W&S) existing Berger Road. The Drainage Area is Little Patuxent.
11. Storm water management for this project is provided on-site sand filter and underground pipe detention storage. The storm water management facility is privately owned and shall be maintained by the owner of the property.
12. There is no floodplain on this site.
13. A noise study is not required for this project.
14. The boundary for this project is based on the approved SDP 89-231. The property is zoned M-1
15. There are no wetlands on this site.
16. All elevations shown are based on the existing survey done by Mildenberg, Mochi & Assoc. Inc. in April 1990 as shown on SDP 89-231
17. See Department of Planning and Zoning file no. SDP-89-231, F-04-38, F-04-85.
18. Contractor is solely responsible for construction means, methods, techniques, sequences, procedures, and safety precautions and programs.
19. All pipe elevations shown are invert elevations.
20. All fill areas within roadway and under structures to be compacted to a minimum of 95% compaction of AASHTO T180.
21. No public notice posters are required since no roadway entrance's are proposed, and no wetland mitigation areas are proposed.
22. This plan has been prepared in accordance with the Forest Conservation Act and Manual per Section 16.1204. The forest conservation obligation for this project will be met by payment of a fee-in-lieu of planting, in the amount of $2,178.00 for 0.1 acre.
23. All outdoor lighting shall conform to Section 134 of the Zoning Regulations. All exterior lighting shall be shielded and directed towards this site.
24. The Traffic Study for this project was prepared by Traffic Concepts, Inc. dated January 2003



PLAN VIEW
SCALE: 1" = 30'



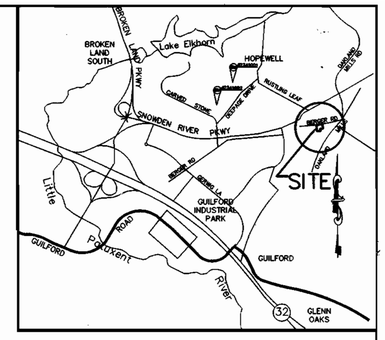
BUILDING ELEVATION
SCALE: 1" = 20'

LEGEND

- EXISTING CONTOURS
- EXISTING CURB & GUTTER
- PROPERTY LINE
- EXISTING LIGHT POLE
- EXISTING BUILDING
- EXISTING CONCRETE SIDEWALK
- EXISTING SEWER LINE AND MANHOLE
- EXISTING TREELINE
- EXISTING TREE/SHRUB
- EXISTING CHAIN LINK FENCE
- PROPOSED TREELINE
- PROPOSED BUILDING
- 400 PROPOSED CONTOUR
- 504.35 PROPOSED SPOT SHOT
- PROPOSED SIDEWALK/CONCRETE AREA
- SF SF SILT FENCE
- LOD LIMIT OF DISTURBANCE (LOD)
- PROPOSED TRAFFICE FLOW AREA / PROPOSED DRAINAGE FLOW AREA
- PR. 8" W.M.C. PROPOSED WATER LINE
- PR. 8" S.M.C. PROPOSED SEWER LINE
- EXISTING PAVEMENT TO BE REMOVED
- PROPOSED PAVEMENT
- EXISTING PAVEMENT TO BE REMOVED & REPLACED

SHEET INDEX

1. TITLE SHEET
2. SITE DEMOLITION PLAN
3. SITE DEVELOPEMENT PLAN
4. GRADING AND SEDIMENT CONTROL PLAN
5. STORMWATER MANAGEMENT PLAN, DETAILS & SITE DETAILS
6. WATER AND SEWER PROFILES
7. DRAINAGE AREA MAPS
8. DETAILS
9. LANDSCAPE PLAN
10. S.W.M. NOTES
11. FOREST STAND DELINEATION
12. FOREST CONSERVATION PLAN



VICINITY MAP
SCALE: 1"=2000'

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA:	1.13 ACRES or 49,122 S.F.
LIMIT OF DISTURBED AREA:	48,653 S.F./1.12 ACRES
PRESENT ZONING:	M-1
PREVIOUS USE:	CAR RENTAL FACILITY
PROPOSED USE:	CAR WASH
FLOOR AREAS:	
EXISTING: TOTAL EXISTING	1,400 SQ. FT.
PROPOSED: TOTAL PROPOSED	4,870 SQ. FT.
PARKING REQUIREMENTS:	
PARKING SPACES REQUIRED: 1 sp. per employee x 1 employee x 1 space	1
PARKING SPACES PROVIDED: TOTAL SPACES PROVIDED	2
BUILDING COVERAGE: (4,870 SQ. FT. / 49,122 SQ. FT.)	9.91%
APPLICABLE DPZ FILE REFERENCES:	SDP 89-231

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/16/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE
TITLE SHEET

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES (410) 266-3212 * FAX (410) 266-3502

ADDRESS CHART

PARCEL	STREET ADDRESS
A	9205 BERGER ROAD COLUMBIA, MD. 21046

SUBDIVISION NAME - Plat # 16435 Columbia Starwash F-04-85 | SECT./AREA - N/A | PARCEL - A

Plat #	BLOCK #	ZONING	TAX MAP NO.	ELECT. DIST.	CENSUS TRACT
16435	5	M-1	42	6th	6067.03

WATER CODE - 178-W | SEWER CODE - 609-W&S

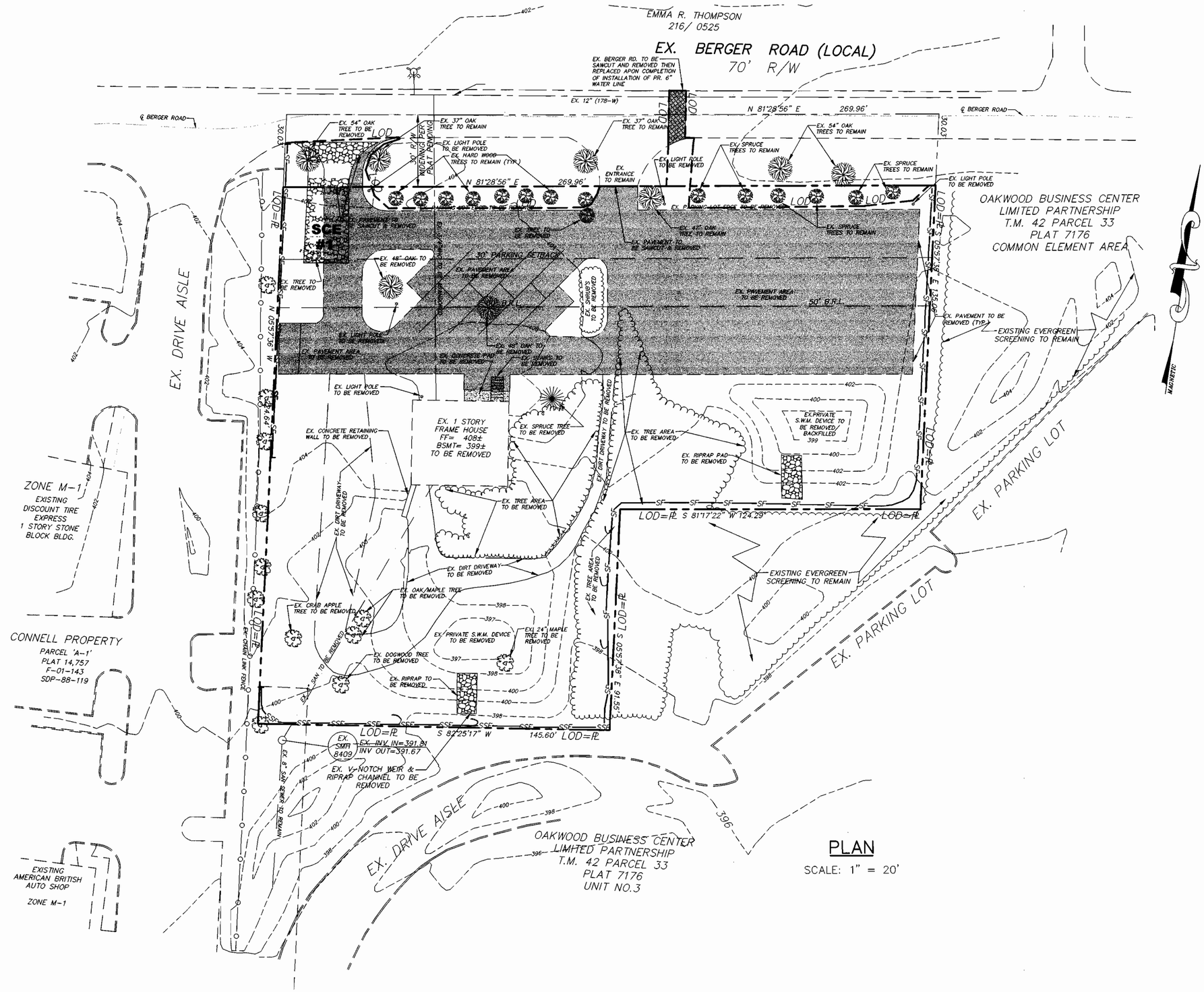
9-17-03
DATE

STATE OF MARYLAND — WAYNE ALAN NEWTON — REG. NO. 21591 — PROFESSIONAL ENGINEER

WAYNE A. NEWTON #21591

DESIGNED BY:	WAN
DRAWN BY:	BPO
PROJECT NO.	
DATE:	MAY, 2003
SCALE:	AS SHOWN
DRAWING NO.:	1 OF 12

SDP-03-111



PLAN

SCALE: 1" = 20'

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — DATE 1/12/04

BY THE ENGINEER :

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

ENGINEER — DATE 9-17-03

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DIRECTOR — DATE 1/16/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
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9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE
SITE DEMOLITION PLAN

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

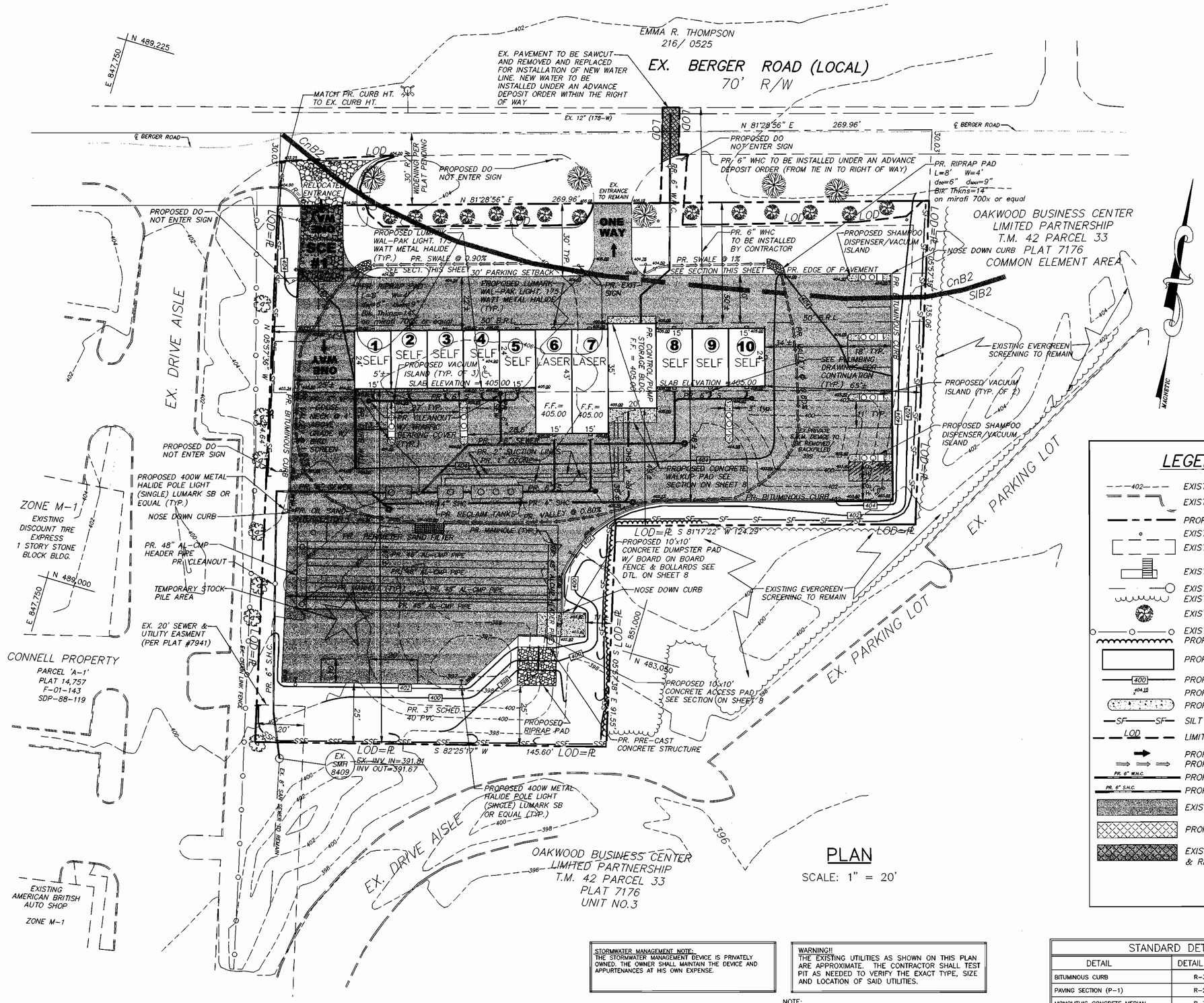
9-17-03
DATE

STATE OF MARYLAND — WAYNE ALAN NEWTON — No. 21591 — PROFESSIONAL ENGINEER

WAYNE A. NEWTON #21591

DESIGNED BY: WAN	
DRAWN BY: BPO	
PROJECT NO:	
DATE: MAY, 2003	
SCALE: AS SHOWN	
DRAWING NO.: 2 OF 12	

SDP-03-111



PLAN

SCALE: 1" = 20'

LEGEND

- EXISTING CONTOURS
- EXISTING CURB & GUTTER
- PROPERTY LINE
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STORMWATER MANAGEMENT NOTE:
THE STORMWATER MANAGEMENT DEVICE IS PRIVATELY OWNED. THE OWNER SHALL MAINTAIN THE DEVICE AND APPURTENANCES AT HIS OWN EXPENSE.

WARNING!!
THE EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL TEST PIT AS NEEDED TO VERIFY THE EXACT TYPE, SIZE AND LOCATION OF SAID UTILITIES.

NOTE:
ALL CONSTRUCTION DETAILS SHALL INCLUDE BUT NOT BE LIMITED TO THE DETAILS SHOWN. THE CONTRACTOR SHALL REFERENCE TO THE MOST RECENT VERSION OF VOLUME IV OF HOWARD COUNTY'S DESIGN MANUAL FOR ADDITIONAL DETAILS UNLESS OTHERWISE PROVIDED.

STANDARD DETAILS		
DETAIL	DETAIL REFERENCE	LOCATION
BITUMINOUS CURB	R-3.03 (H.C.)	SEE SHEET 8
PAVING SECTION (P-1)	R-2.01 (H.C.)	SEE SHEET 8
MONOLITHIC CONCRETE MEDIAN	R-3.04 (H.C.)	SEE SHEET 8
CURB WALL	N/A	SEE SHEET 8
STABILIZED CONSTRUCTION ENTRANCE	F-17-3 (MDE DTL 24)	SEE SHEET 8
SILT FENCE	E-15-3 (MDE DTL 22)	SEE SHEET 8
CONCRETE PAVING	N/A	SEE SHEET 8

NOTES:

1. ALL 6" WATER LINE SHALL BE DUCTILE IRON PIPE (AWWA C-151) UNLESS OTHERWISE SPECIFIED AND SHALL BE LAID AT A MINIMUM 42" BELOW GRADE.

2. THE PROPOSED WATER METER AS SHOWN SHALL BE AN INSIDE WATER METER. THE METER SETTING/LOCATION IS CONCEPTUAL, THE ACTUAL SETTING WILL BE PLACED INSIDE THE BUILDING IN ACCORDANCE WITH ARCHITECTURAL PLANS.

3. ALL SANITARY SEWER PIPING SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) PIPE UNLESS OTHERWISE SPECIFIED.

4. ALL ROOF LEADERS SHALL BE SPILLED AT GRADE.

5. THE SILT FENCE AROUND THE PERIMETER SHALL REMAIN UNTIL THE SITE IS STABILIZED. ONCE THE SITE IS STABILIZED AND WITH APPROVAL OF THE HOWARD COUNTY SCD INSPECTOR, THE CONTRACTOR CAN REMOVE THE SILT FENCE.

BY THE DEVELOPER :

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DEVELOPER — DATE 1/12/04

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ENGINEER — DATE 9-17-03

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL

NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/17/03

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/17/03

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/14/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE
GRADING AND SEDIMENT CONTROL PLAN

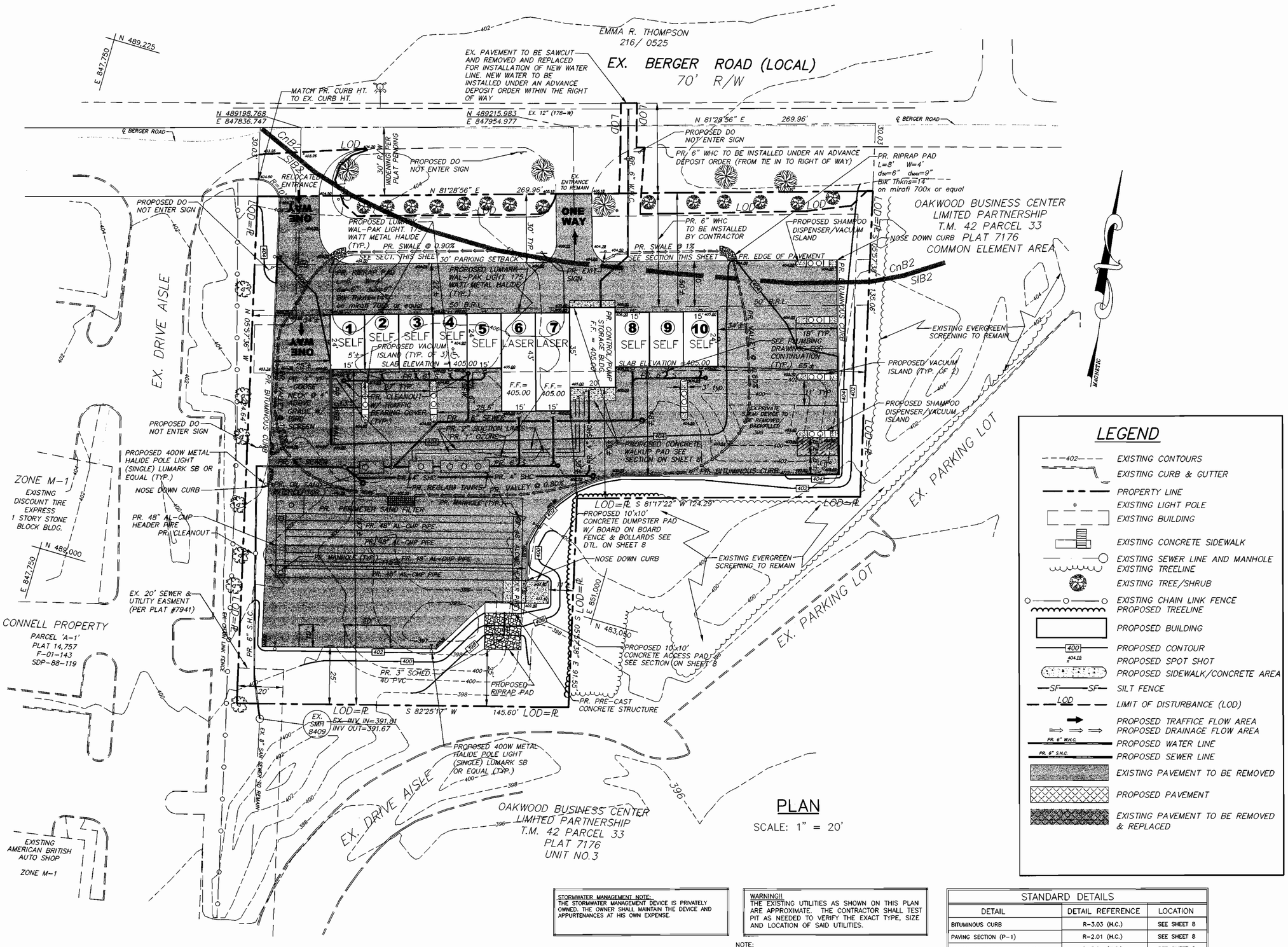
MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

9-17-03
DATE

WAYNE A. NEWTON #21591

DESIGNED BY: WAN	
DRAWN BY: BPO	
PROJECT NO:	
DATE: MAY, 2003	
SCALE: AS SHOWN	
DRAWING NO.: 3 OF 12	

SDP-03-111



PLAN

SCALE: 1" = 20'

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DEVELOPER — DATE 1/12/04

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ENGINEER — DATE 9-17-03

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NATURAL RESOURCES CONSERVATION SERVICE — DATE

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HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/14/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE
SITE DEVELOPMENT PLAN

MESSICK & ASSOCIATES
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502

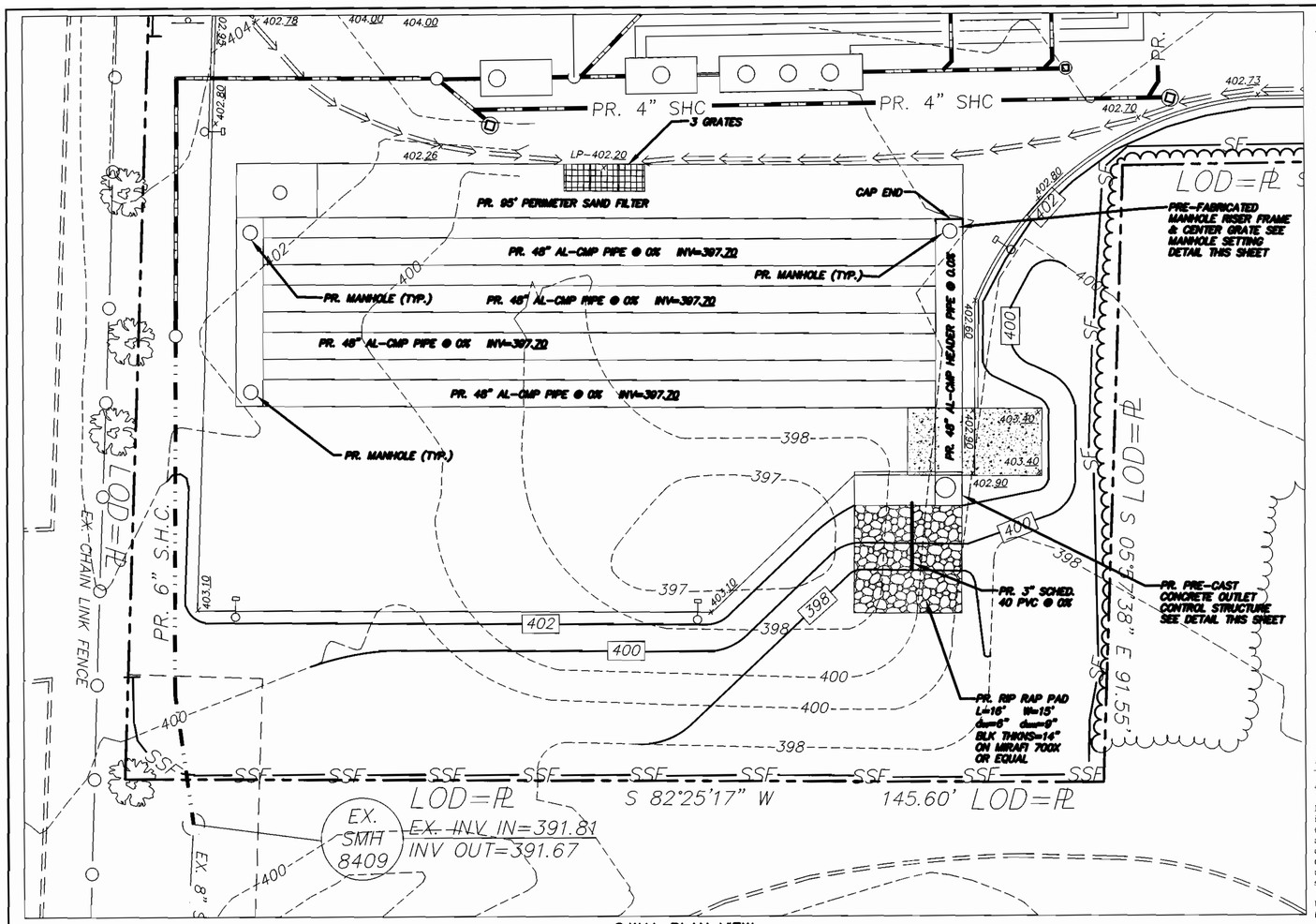
9-17-03
DATE

STATE OF MARYLAND — WAYNE ALAN NEWTON — 21591 — PROFESSIONAL ENGINEER

WAYNE A. NEWTON #21591

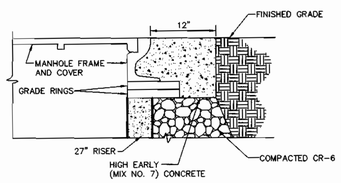
DESIGNED BY: WAN	
DRAWN BY: BPO	
PROJECT NO:	
DATE: MAY, 2003	
SCALE: AS SHOWN	
DRAWING NO.: 4 OF 12	

SDP-03-111



S.W.M. PLAN VIEW

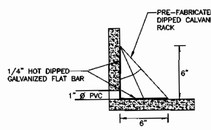
SCALE: 1" = 10'

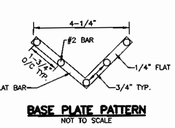


1. ADJUSTMENT OF MANHOLE FRAME TO FINAL GRADE AND CROSS SLOPE SHALL BE MADE PRIOR TO PLACEMENT OF CONC. COLLAR.
2. COVER AND TOP OF FRAME TO BE CLEAN AND FREE OF CONC. AFTER PAVING OPERATION IS COMPLETE.
3. BONDING/ CURING AGENT MUST BE USED FOR GRADE RING INSTALLATION TO PREVENT INFILTRATION. BONDING/ CURING AGENT SHOULD BE COLORED WITH GREEN PIGMENT SO IT WILL BE READILY IDENTIFIABLE.
4. IF MANHOLE RIM IS REQUIRED TO SIT DIRECTLY ON TOP OF TANK, ELIMINATE RISER & GRAVEL

MANHOLE SETTING DETAIL

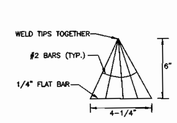
NOT TO SCALE



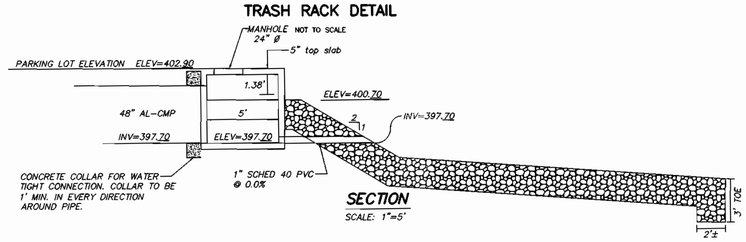


BASE PLATE PATTERN

NOT TO SCALE

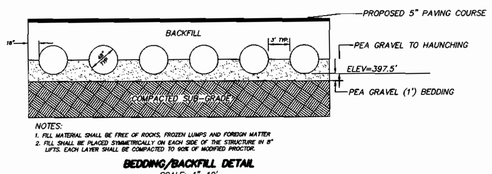


TRASH RACK DETAIL



SECTION

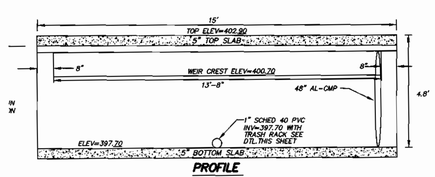
SCALE: 1"=5'



NOTES:
1. FILL MATERIAL SHALL BE FREE OF ROCKS, FROZEN LUMPS AND FOREIGN MATTER
2. FILL SHALL BE PLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN 8" LIFTS. EACH LAYER SHALL BE COMPACTED TO 90% OF MODIFIED PROCTOR.

BEDDING/BACKFILL DETAIL

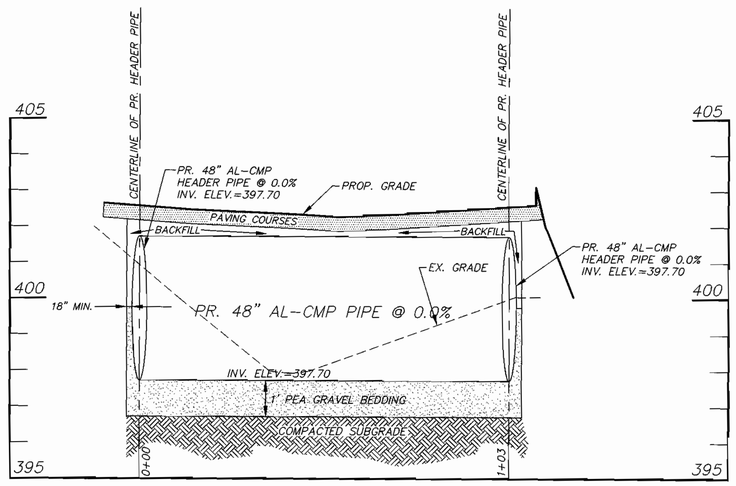
SCALE: 1"=10'



PROFILE

PRECAST OUTLET CONTROL STRUCTURE DETAIL

SCALE: 1"=30'



PROPOSED STORM WATER MANAGEMENT PROFILE

SCALE: 1"=20' HORIZ
1"=2' VERT

Chapter 3. Performance Criteria for Urban BMP Design ..... Stormwater Filtering Systems

3.4.6 Filtering Maintenance Criteria

The sediment chamber outlet devices shall be cleaned/repaired 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 18 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. The removed sediments should be disposed in an acceptable manner (e.g., landfill). Silt/sediment 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 drop of at least six inches shall be provided at the inlet 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.

Appendix B.3. Construction Specifications for Sand Filters, Bioretention and Open Channels

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 within 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 8 hours.

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

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 runoff is to enter the filter until all contributing drainage areas have been stabilized.

Surface of 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.

"Pocket" sand filters (and residential bioretention facilities treating areas larger than an acre) shall be sized with a stone "window" that covers approximately 10% of the filter area. This "window" shall be filled pea gravel (3/4 inch stone).

Appendix B.3. Construction Specifications for Sand Filters, Bioretention and Open Channels

4. Specifications Pertaining to Underground Sand Filters (F-2)

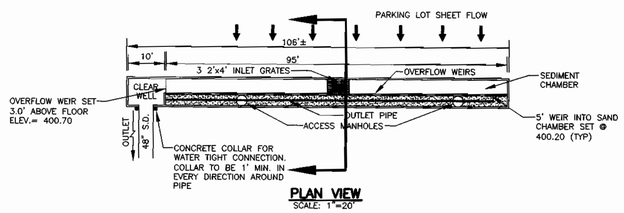
Provide manhole and/or grates to all underground and below grade structures. Manholes shall be in compliance with standard specifications for each county but diameters should be 30" minimum (to comply with OSHA confined space requirements). Aluminum and steel louvered doors are also acceptable. Ten inch wide (minimum) manhole steps (12" o.c.) shall be cast in place or drilled and mortared into the wall below each manhole. A 5' minimum height clearance (from the top of the sand layer to the bottom of the upper surface slab) is required for all permanent underground structures. Lift rings are to be supplied to remove/replace top slabs on pre-fabricated structures. Manhole covers should allow for proper ventilation

Underground sand filters should be constructed with a gate valve located just above the top of the filter bed for dewatering in the event that clogging occurs.

Underground sand beds shall be protected from trash accumulation by a wide mesh geotextile screen to be placed on the surface of the sand bed; screen is to be rolled up, removed, cleaned and re-installed during maintenance operations.

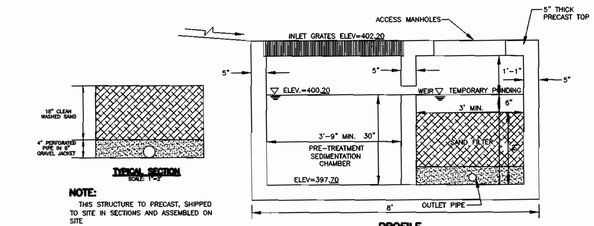
Table B.3.1 Material Specifications for Sand Filters

Material	Specification/Test Method	Size	Notes
sand	either AASHTO-M-6 or ASTM-C-33 concrete sand	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
peat	ash content: < 15% pH range: 3.2 to 4.9 loose bulk density 0.12 to 0.15 g/cc	n/a	The material must be reed-sedge humic peat, shredded, uncompacted, uniform, and clean.
leaf compost		n/a	
underdrain gravel	AASHTO-M-43	0.375" to 0.75"	
geotextile fabric (if required)	ASTM-D-4833 (puncture strength - 125 lb.) ASTM-D-4632 (Tensile Strength - 300 lb.)	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 (thickness) ASTM-D-412 (tensile strength - 1,100 Ps., elongation 200%) ASTM-D-624 (Tear resistance - 150 lb./in) ASTM-D-471 (water absorption; +8 to -2% mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric, should be used to protect the liner from puncture
underdrain piping	F 758, Type PS 28 or AASHTO-M-278	4" - 6" rigid schedule 40 PVC or SDR35	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)	MSHA Standards and Specs. 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
concrete (pre-cast)	per pre-cast manufacturer	n/a	SEE ABOVE NOTE
non-rebar used	ASTM A-36	n/a	structural steel to be hot-dipped galvanized ASTM-A-123



PLAN VIEW

SCALE: 1"=20'



TYPICAL SECTION

SCALE: 1"=2'

NOTE:
THIS STRUCTURE TO PRECAST, SHIPPED TO SITE IN SECTIONS AND ASSEMBLED ON SITE

PROFILE

SCALE: 1"=2'

PRECAST CONCRETE SAND FILTER DETAIL

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/14/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

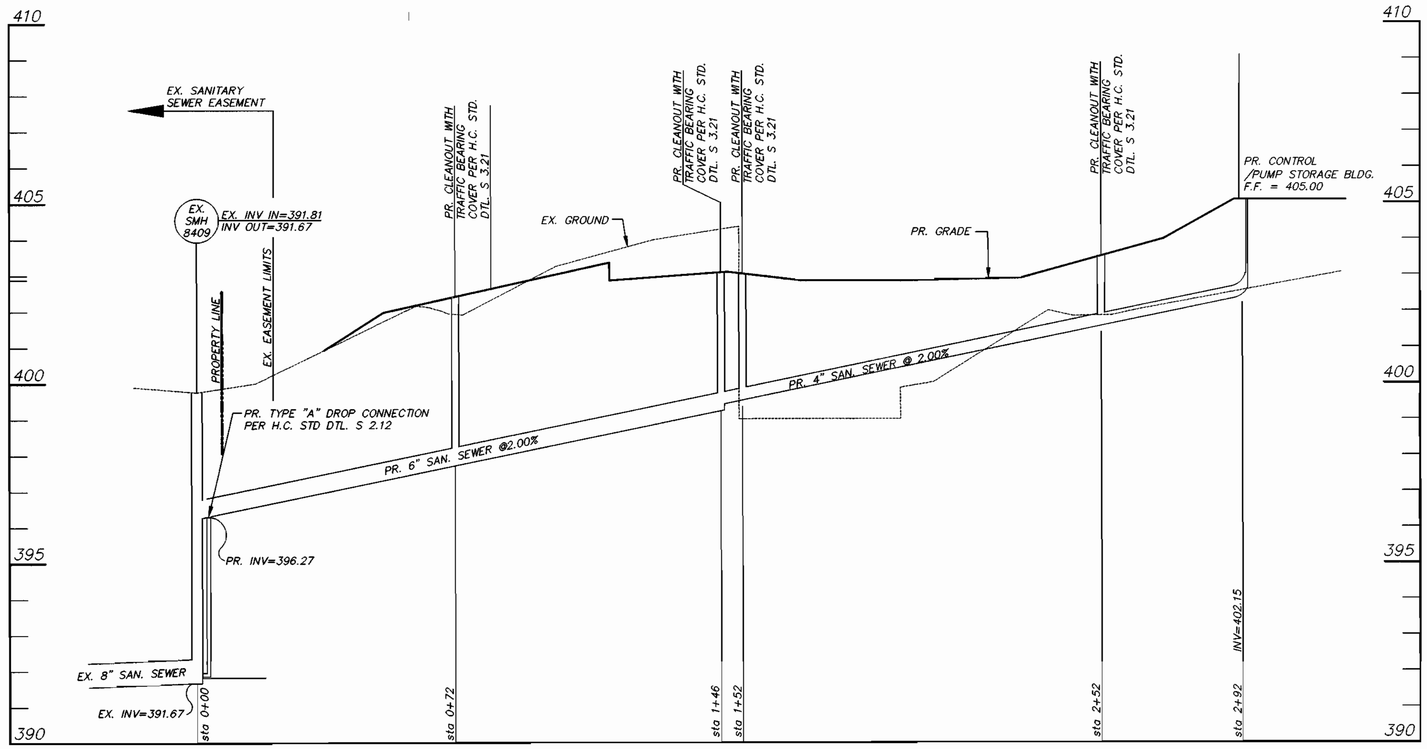
TITLE
STORMWATER MANAGEMENT PLAN, DETAILS & SITE DETAILS

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES (410) 266-3212 * FAX (410) 266-3502

9-17-03
DATE

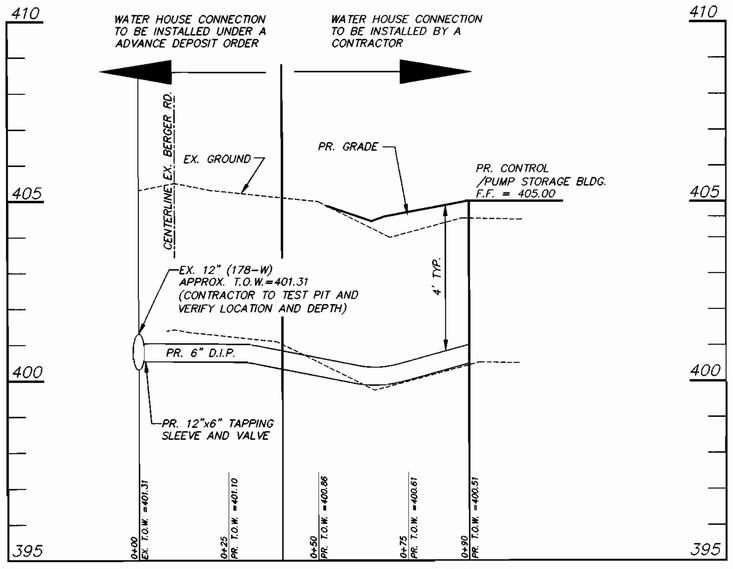
WAYNE A. NEWTON #21591

DESIGNED BY: WAN
DRAWN BY: BPO
PROJECT NO:
DATE: MAY, 2003
SCALE: AS SHOWN
DRAWING NO.: 5 OF 12



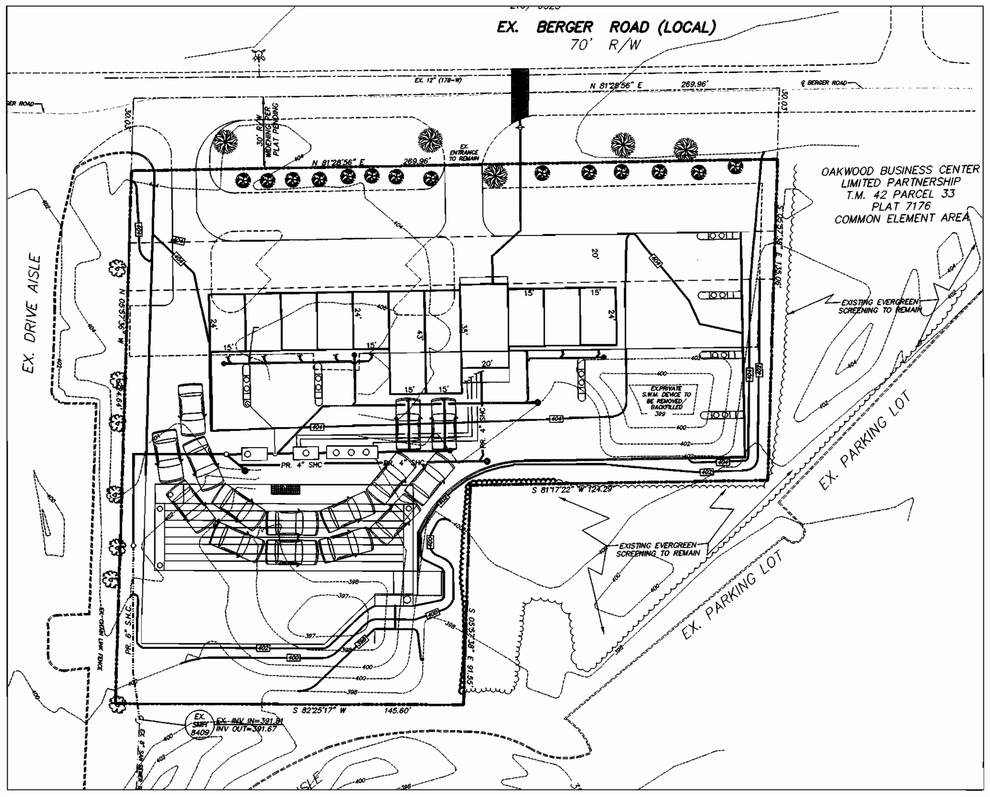
PROPOSED SEWER CONNECTION PROFILE

SCALE: 1"=20' HORIZ
1"=2' VERT



PROPOSED WATER CONNECTION PROFILE

SCALE: 1"=20' HORIZ
1"=2' VERT



CAR STACKING PLAN

SCALE: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/14/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/5/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE
WATER AND SEWER PROFILES

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

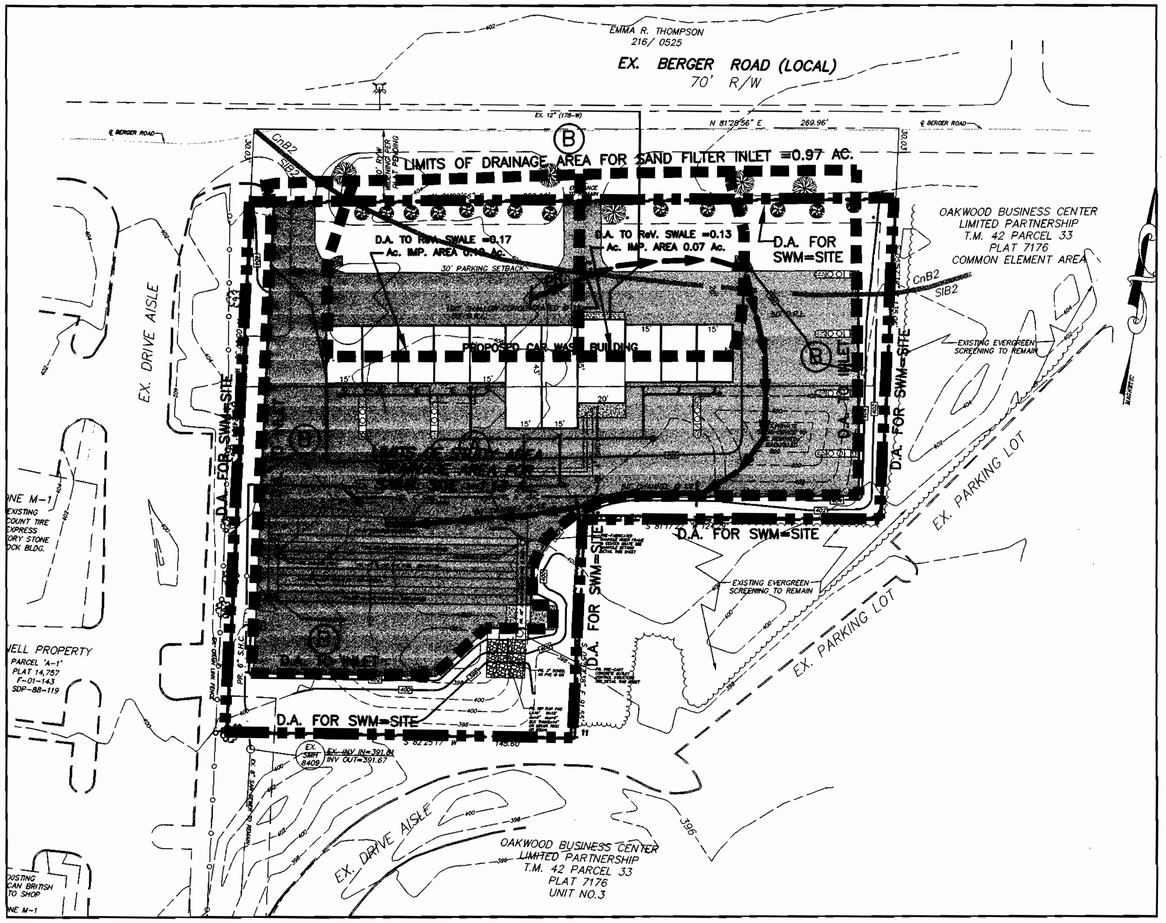
9-12-03
DATE

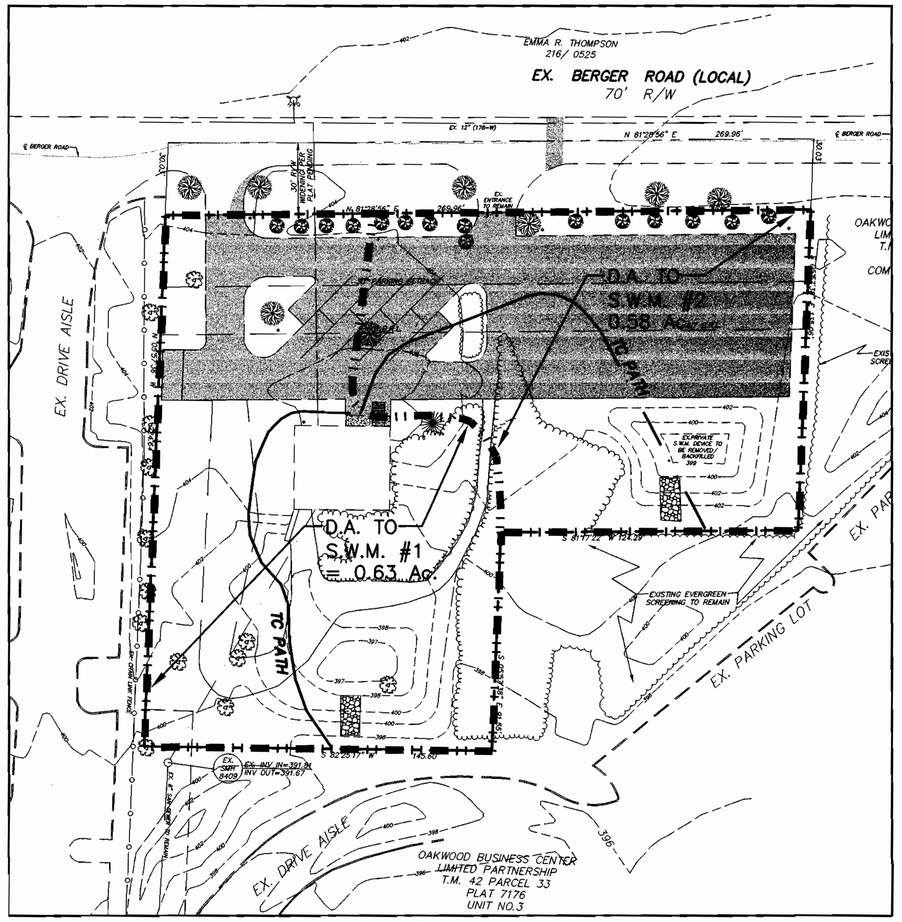
STATE OF MARYLAND — WAYNE ALAN NEWTON — No. 21591 — REGISTERED PROFESSIONAL ENGINEER

WAYNE A. NEWTON #21591

DESIGNED BY: WAN	
DRAWN BY: BPO	
PROJECT NO:	
DATE: MAY, 2003	
SCALE: AS SHOWN	
DRAWING NO.: 6 OF 12	

SDP-03-111





SOILS CHART	
Chillum–Fairfax Loams (CnB2)	1 to 5 Percent slopes, moderately eroded
Sassafras Loam (SlB2)	1 to 5 Percent slopes, Moderately eroded

S.W.M. SAND FILTER/DETENTION SYSTEM
DRAINAGE AREA MAP

SCALE: 1" = 30'

LEGEND

- DRAINAGE AREA BOUNDARY
- A — DRAINAGE AREA IDENTIFICATION
- FLOW DIRECTION
- SOIL CLASSIFICATION DIVIDE

DRAINAGE AREA	RCN	Tc (hrs)	Total Drain Area	IMPERVIOUS AREA	FLOW (cfs)
A =site for s.w.m.	92	0.04	1.13 Ac.	85%=0.96 Ac.	3 cfs (1 yr)
B =inlet drainage area	92*	0.04	0.97 Ac.	85%=0.96 Ac.	4 cfs (1 yr) 6 cfs (10 yr)
Rev Swale West			0.13 Ac.	0.07	
Rev Swale East			0.17 Ac.	0.10	

* ACTUAL RCN COMPUTED = 91 – USE 92 FOR CONSERVATIVENESS

EXISTING
DRAINAGE AREA MAP

SCALE: 1" = 30'

DRAINAGE AREA	RCN	Tc (hrs)	TOTAL DRAIN AREA	IMPERVIOUS AREA	FLOW (cfs)
SWM #1	76	0.07	0.63 Ac.	41%=0.26 Ac.	1 cfs
SWM #2	81	0.03	0.50 Ac.	46%=0.23 Ac.	1 cfs

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/14/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
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COLUMBIA, MD. 21045

DEVELOPER:
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11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178–W SEWER CODE 609–W&S

TITLE
DRAINAGE AREA MAPS

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266–3212 * FAX (410) 266–3502
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

9-17-03
DATE

WAYNE A. NEWTON #21591

DESIGNED BY: WAN
DRAWN BY: BPO
PROJECT NO:
DATE: MAY, 2003
SCALE: AS SHOWN
DRAWING NO.: 7 OF 12

SDP-03-111

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Apply 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq. ft.

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushels per acre of annual rye (3.2 lbs.per 1000 sq. ft.) For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.07 lbs. per 1000 sq. ft.) For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Refer to the 1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. If not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

1) Preferred – Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. per 1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs. per 1000 sq.ft.).

2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 1000 lbs. per acre 10-10-10 fertilizer (25 lbs. per 1000 sq. ft.) before seeding. Harrow or disc into upper three inches of soil.

Seeding: for the period March 1 thru April 30 and from August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs. per 1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.05 lbs. per 1000 sq.ft.) of weeping lovegrass. During the period October 16 thru February 28, protect site by one of the following options:

1) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.

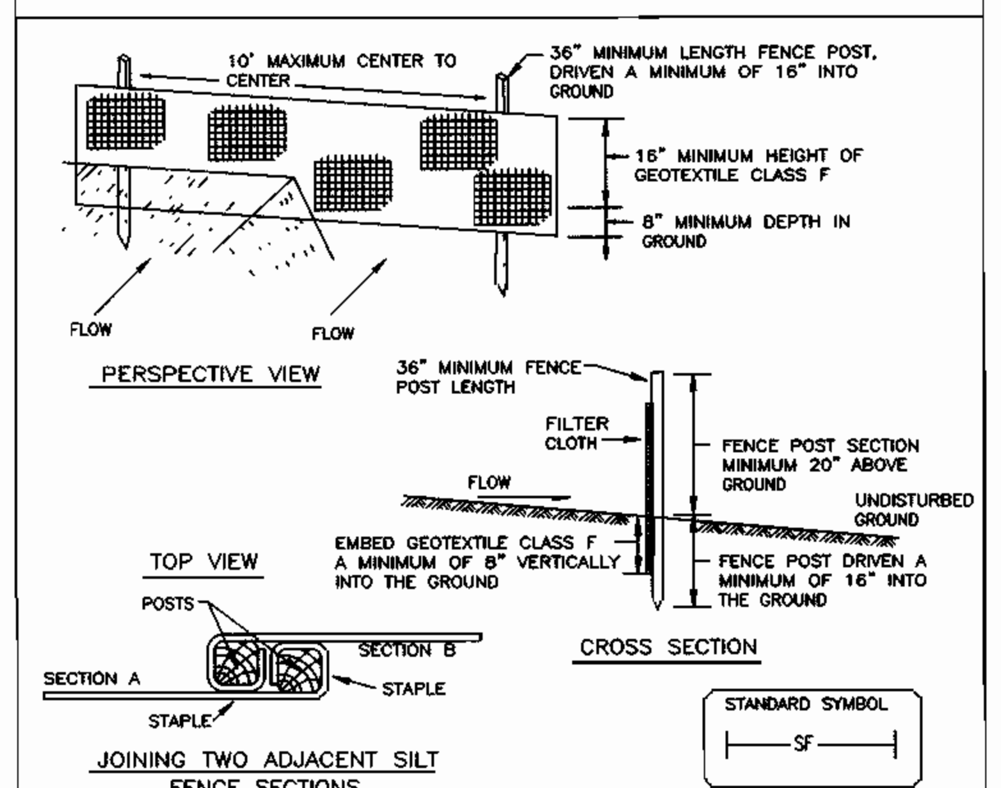
2) Use sod.

3) Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

DETAIL 22 - SILT FENCE



10' MAXIMUM CENTER TO CENTER
36" MINIMUM LENGTH FENCE POST, DRIVEN A MINIMUM OF 16" INTO GROUND
15" MINIMUM HEIGHT OF GEOTEXTILE CLASS F
8" MINIMUM DEPTH IN GROUND
FLOW
PERSPECTIVE VIEW
36" MINIMUM FENCE POST LENGTH
FILTER CLOTH
FENCE POST SECTION MINIMUM 20" ABOVE GROUND
UNDISTURBED GROUND
EMBED GEOTEXTILE CLASS F A MINIMUM OF 8" VERTICALLY INTO THE GROUND
FENCE POST DRIVEN A MINIMUM OF 16" INTO THE GROUND
TOP VIEW
POSTS
SECTION B
SECTION A
STAPLE
CROSS SECTION
STANDARD SYMBOL
SF
JOINING TWO ADJACENT SILT FENCE SECTIONS

Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1-1/2" x 1-1/2" square (minimum) cut, or 1-3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.

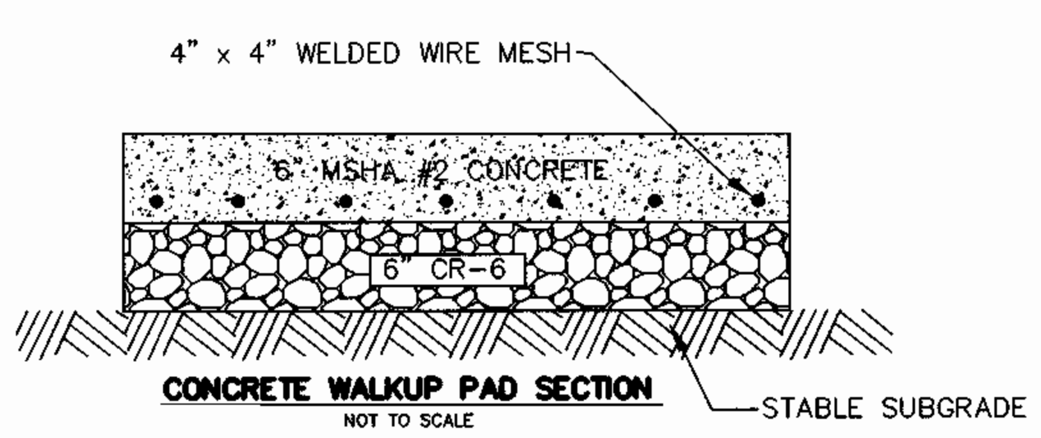
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft^2 / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



CONCRETE WALKUP PAD SECTION
NOT TO SCALE

21.0 Standard and Specifications for Topsoil

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a) The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimentation Station.

II. Topsoil Specifications – Soil to be used as topsoil must meet the following:

I. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1-1/2" in diameter.

II. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

III. Where subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

For sites having disturbed areas under 5 acres:

I. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

III. For sites having disturbed areas over 5 acres:

I. On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5 If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals for weed control until sufficient time has elapsed (14 days minimum) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes to 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.

II. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application

I. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

II. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher in elevation.

III. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that 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 shall be corrected in order to prevent the formation of depressions or water pockets.

IV. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for permanent seeding – instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

1. Composted sludge material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for site having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percentp potassium and have a pH of 7.0 to 8.0 If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410) 313-1855.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL, AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1; B) 14 DAYS AS TO OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL FOR PERMANENT SEEDINGS (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDINGS (SEC.50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS

TOTAL SITE AREA	1.13 ACRES
AREA DISTRUBED	1.12 ACRES
AREA TO BE ROOFED AND PAVED	0.78 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.34 ACRES
TOTAL CUT (contractor to check quantities)	1300± CU. YDS.
TOTAL FILL (contractor to check quantities)	1080± CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

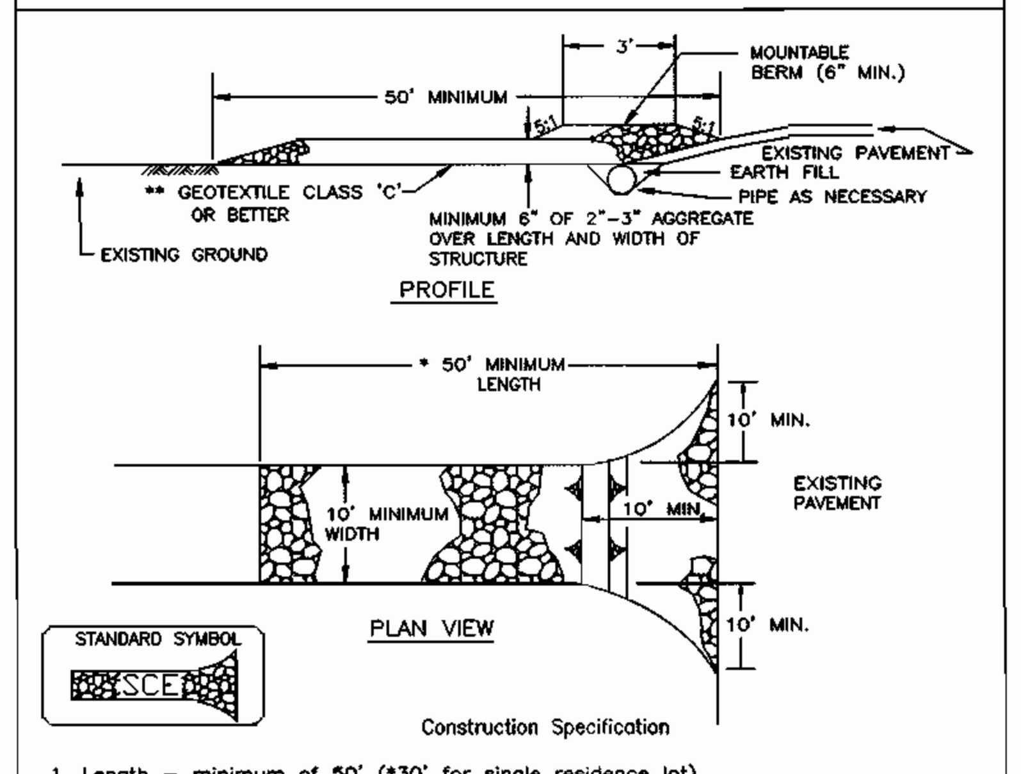
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

10. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.

11. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 AC., APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

12. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACKFILLED AND STABILIZED BY THE END OF EACH WORKING DAY, WHICHEVER IS SHORTER.

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



3'
MOUNTABLE BERM (6" MIN.)
50' MINIMUM
5:1
EXISTING PAVEMENT
EARTH FILL
PIPE AS NECESSARY
** GEOTEXTILE CLASS 'C' OR BETTER
EXISTING GROUND
MINIMUM 6" OF 2"-3" AGGREGATE OVER LENGTH AND WIDTH OF STRUCTURE
PROFILE
* 50' MINIMUM LENGTH
10' MIN.
EXISTING PAVEMENT
10' MINIMUM WIDTH
PLAN VIEW
STANDARD SYMBOL
SCE

Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

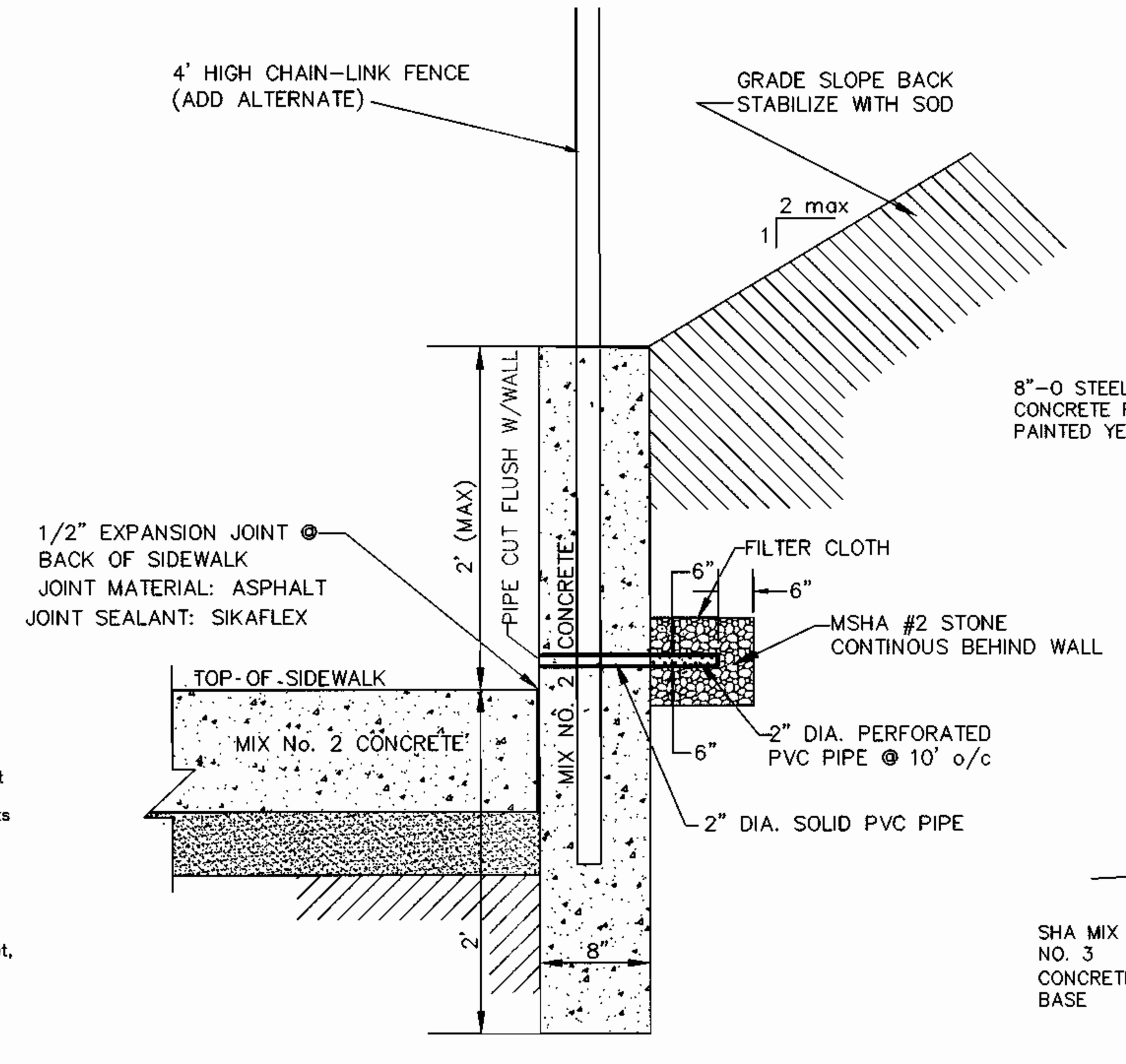
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

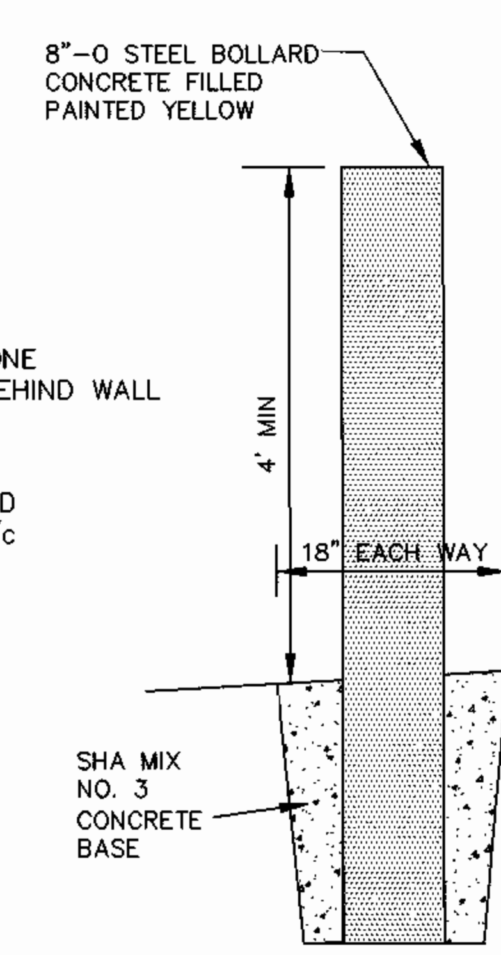
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

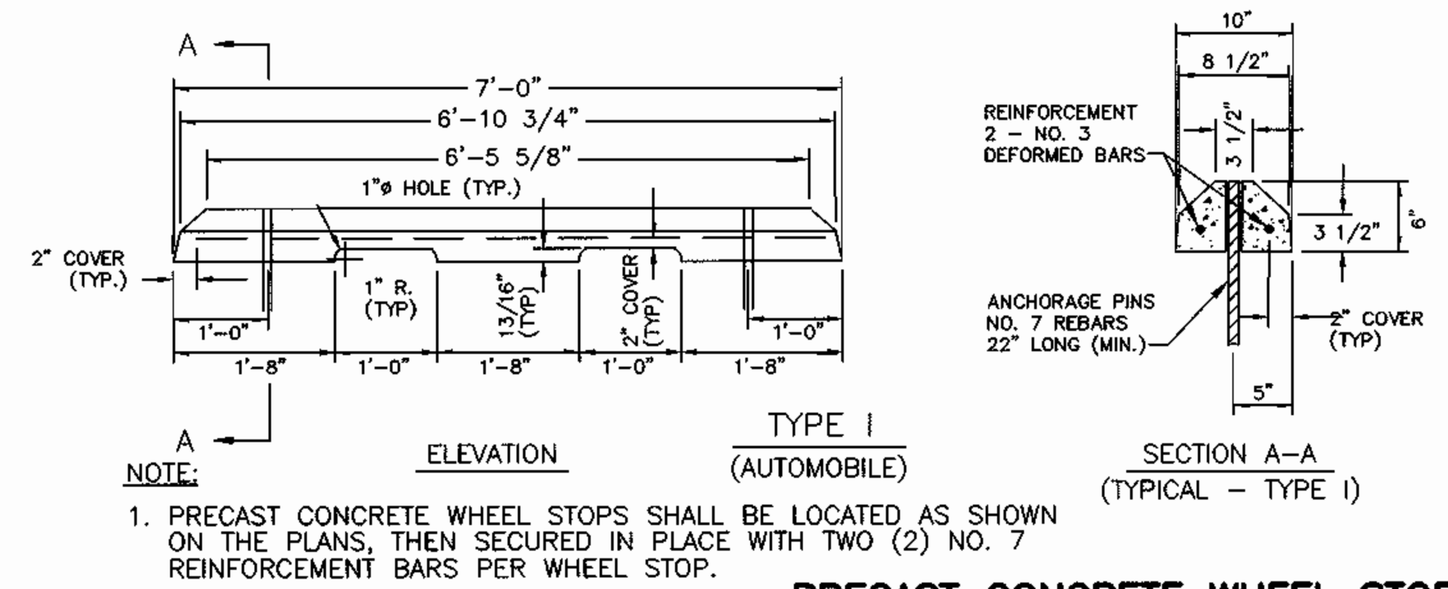


4' HIGH CHAIN-LINK FENCE (ADD ALTERNATE)
GRADE SLOPE BACK STABILIZE WITH SOD
2 max
1
1/2" EXPANSION JOINT BACK OF SIDEWALK
JOINT MATERIAL: ASPHALT
JOINT SEALANT: SIKAFLEX
TOP OF SIDEWALK
MIX No. 2 CONCRETE
PIPE CUT FLUSH W/WALL
CONCRETE
MIX NO. 2
2' (MAX)
FILTER CLOTH
6"
MSHA #2 STONE CONTINOUS BEHIND WALL
2" DIA. PERFORATED PVC PIPE @ 10' o/c
2" DIA. SOLID PVC PIPE

EXTENDED CURB (CURB WALL)
NOT TO SCALE



BOLLARD DETAIL
NOT TO SCALE



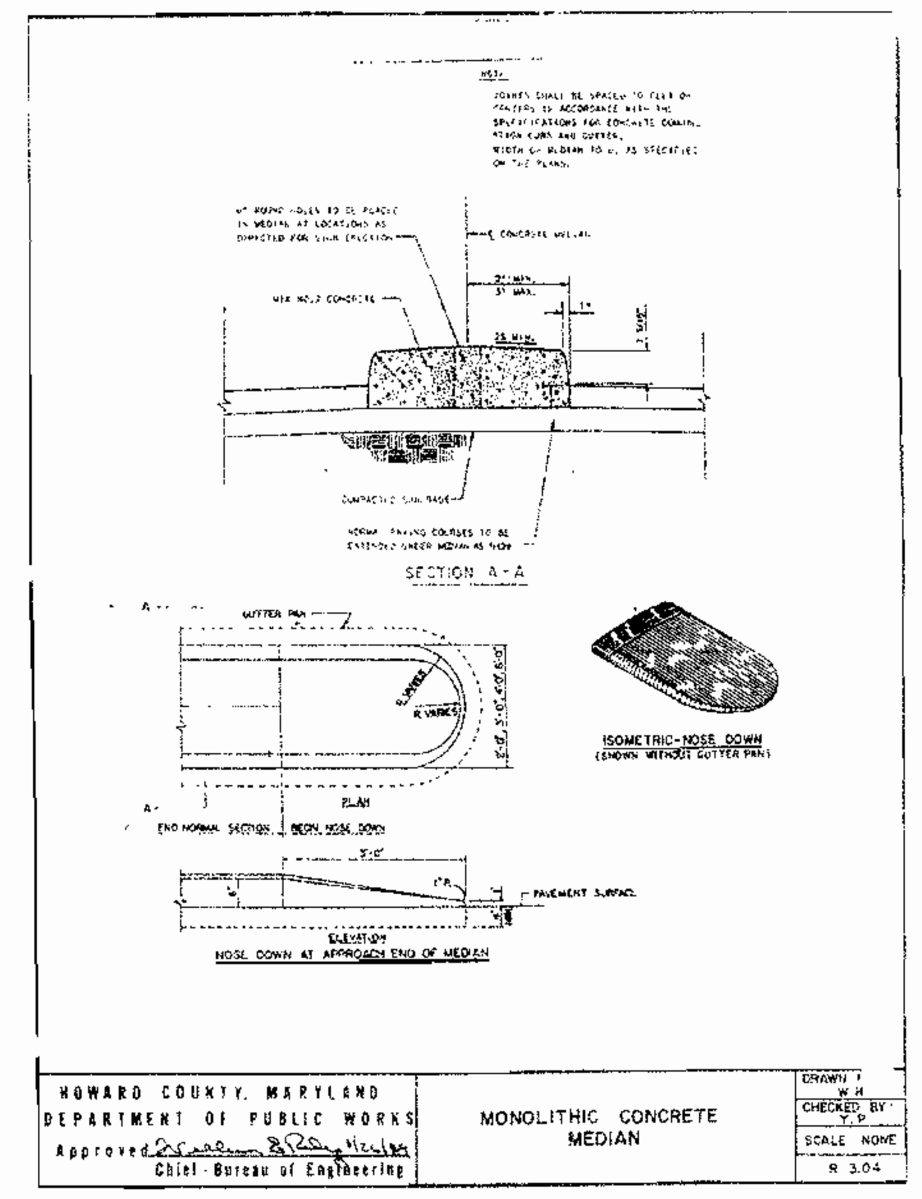
NOTE:
1. PRECAST CONCRETE WHEEL STOPS SHALL BE LOCATED AS SHOWN ON THE PLANS, THEN SECURED IN PLACE WITH TWO (2) NO. 7 REINFORCEMENT BARS PER WHEEL STOP.
2. CONCRETE TO BE MIX NO. 2.

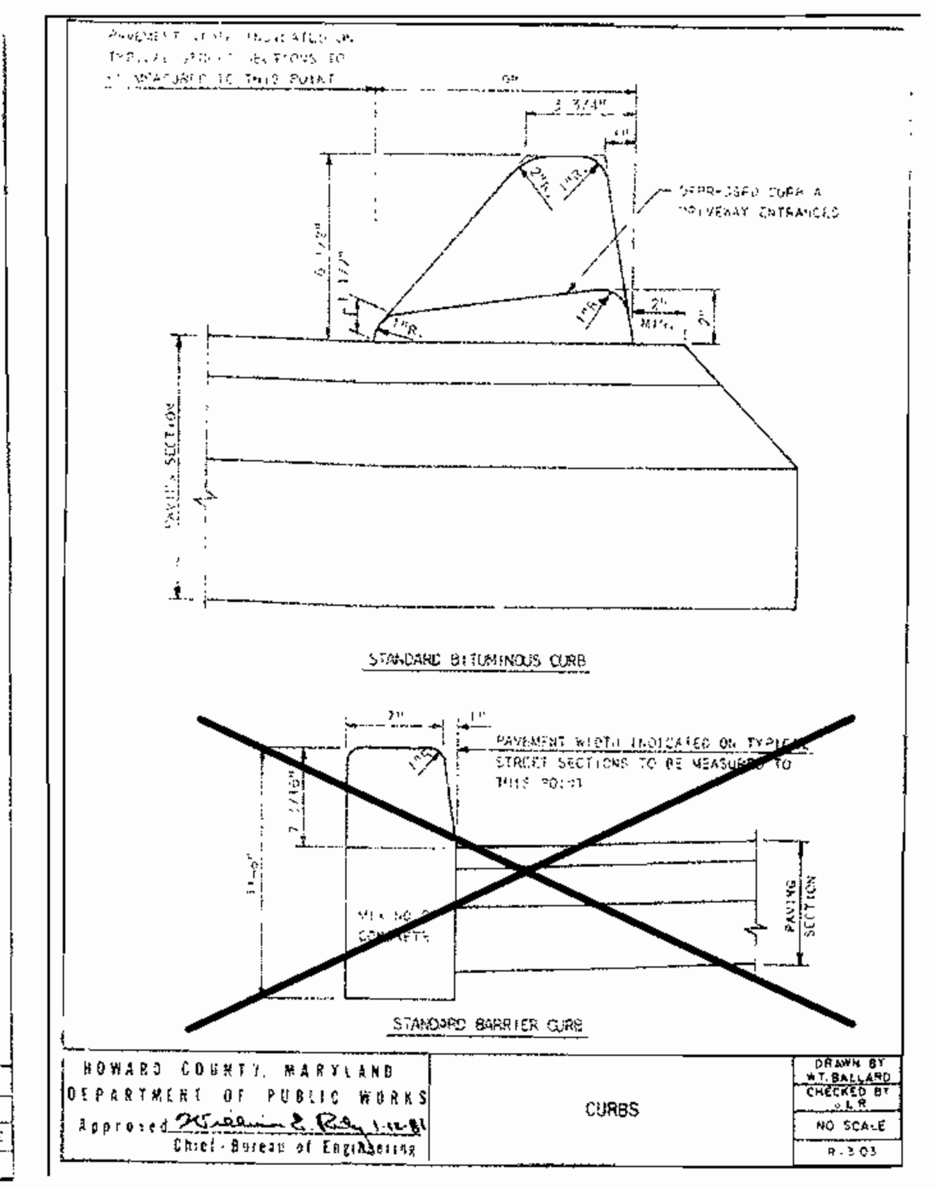
PRECAST CONCRETE WHEEL STOPS
(SHA STANDARD NO. MD-725.01)
NOT TO SCALE

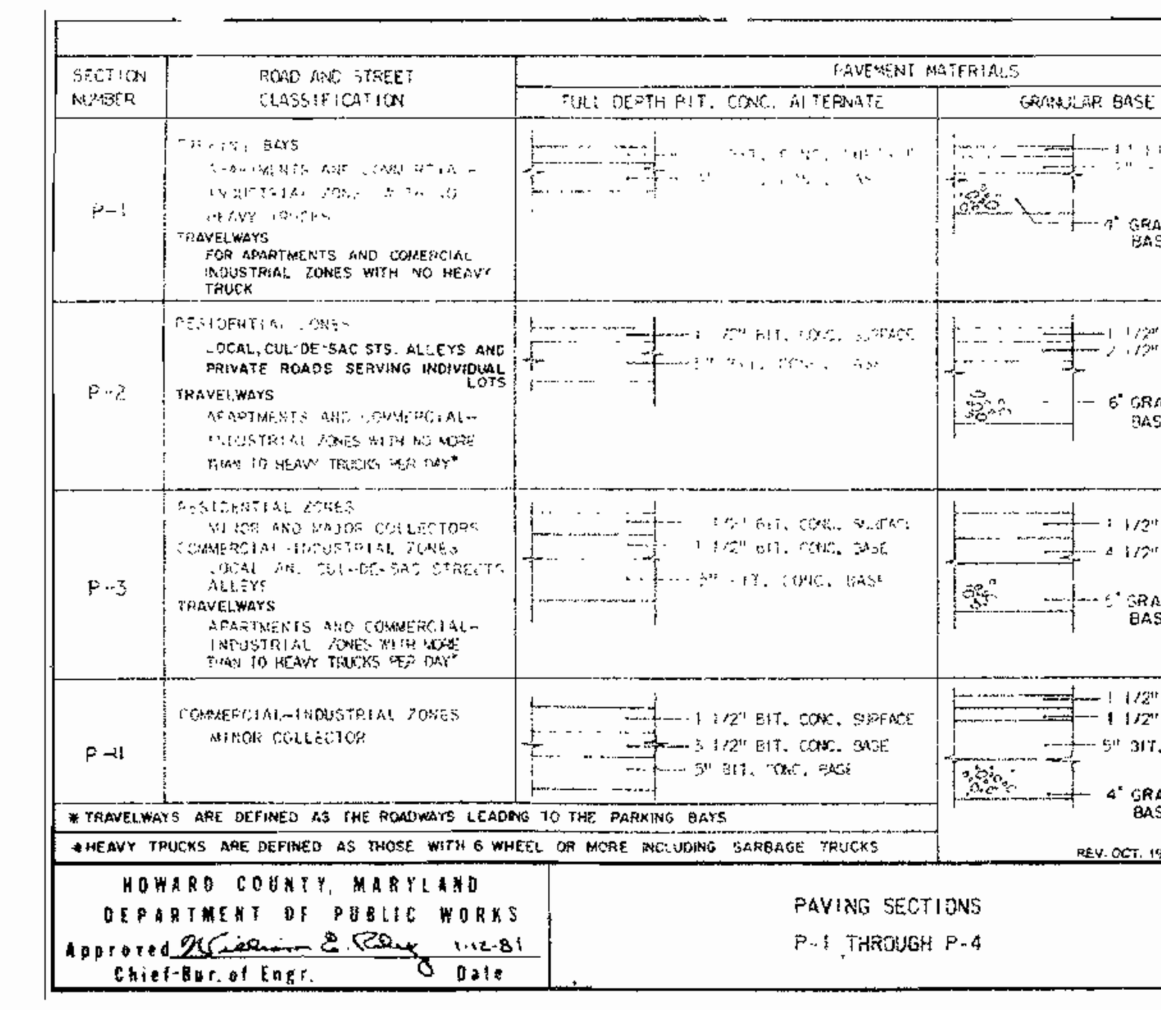
SEQUENCE OF CONSTRUCTION

1. Obtain all necessary approvals, permits, and easements. The contractor must notify the Howard County Department of Inspection and Permits, and Miss Utility at least 48 prior or to beginning work.
2. The contractor shall schedule a pre-construction meeting with the respective agencies to review the plans and permits. (1 day)
3. Clear only for, grade, and install stabilized construction entrance. (1 day)
4. Clear only for and install perimeter silt fence. (1 day)
5. Clear remaining site area within L.O.D as shown on approved plans. (2 days)
6. Demolish existing building and associated site appurtenances. (3 days)
7. Rough grade site per approved plans. (2 weeks)
8. Install water and sanitary sewer connections. (1 week)*
9. Excavate for footings and construction building. (3 months)*
10. Install underground conduits, dumpster pad, curbing and paving courses. (4 weeks)*
11. Install light poles and misc. site appurtenances. (3 weeks)*
12. Fine grade and place 2 inches of topsoil. Stabilize with seed and mulch. (1 week)*
13. Once the site is stabilized and with the approval of the Howard County Sediment Control Inspector, remove all sediment controls measures. Re-stabilize areas, which were disturbed during removal of the sediment control measures.

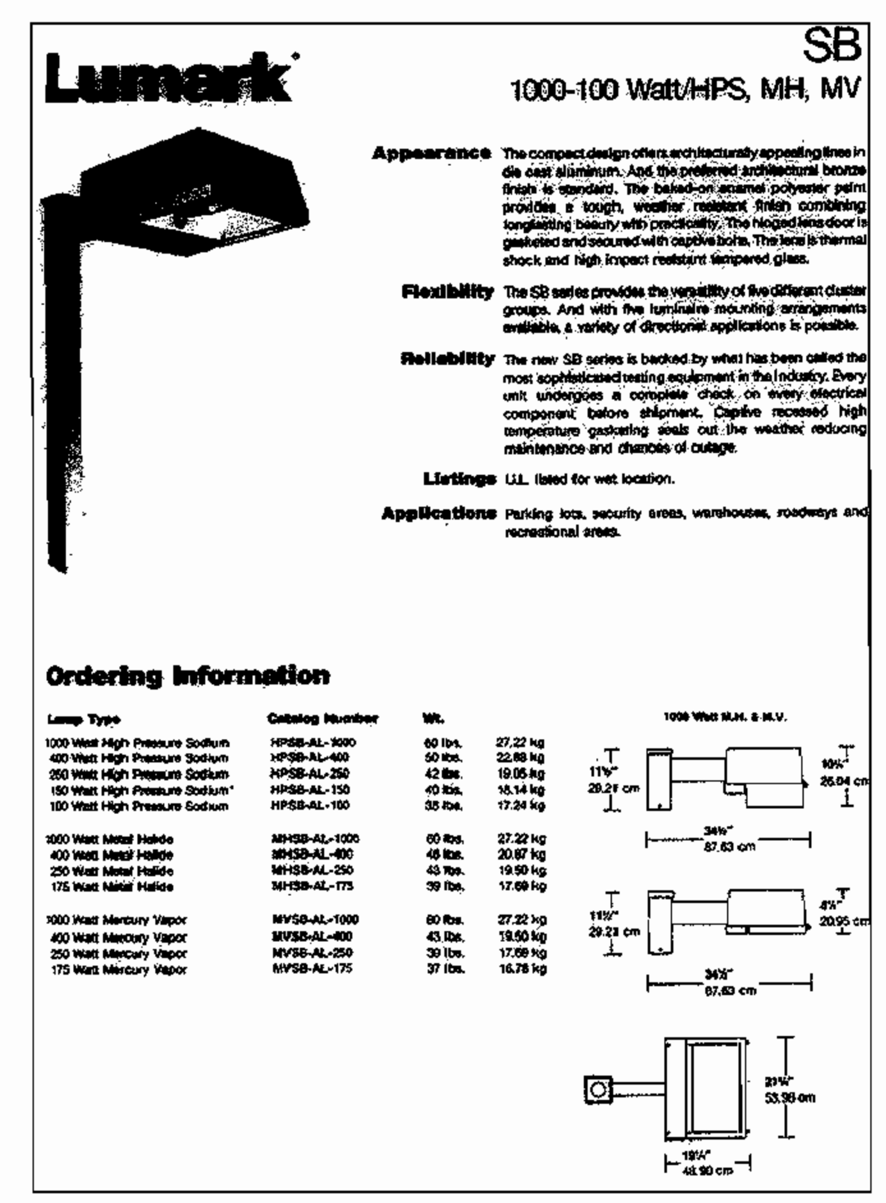
* = Denotes activities that can be done concurrently

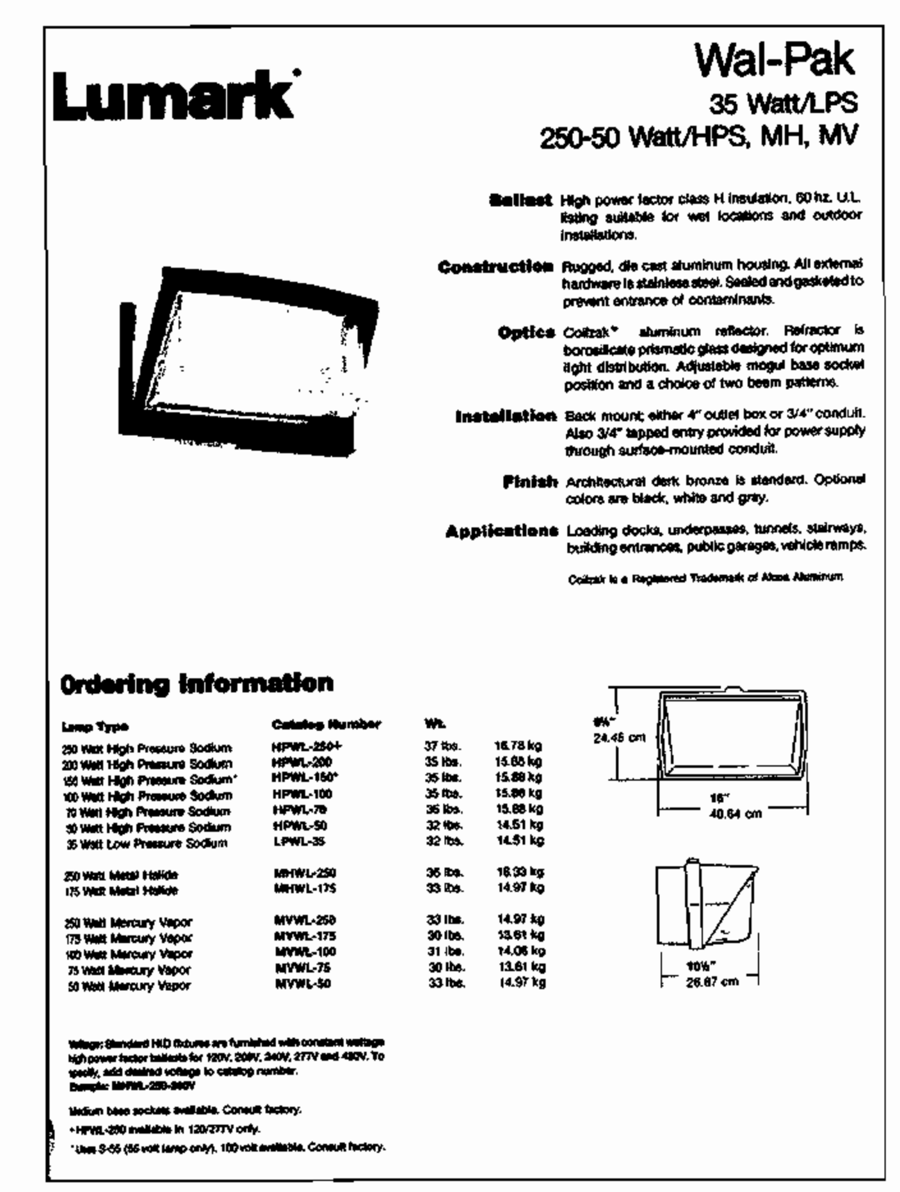






SECTION NUMBER
ROAD AND STREET CLASSIFICATION
PAVEMENT MATERIALS
FULL DEPTH BIT. CONC. ALTERNATE
GRANULAR BASE ALTERNATES
P-1
P-2
P-3
P-4
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
Chief-Bur. of Engr.
PAVING SECTIONS
P-1 THROUGH P-4
NO SCALE





THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved ____ 12/17/03
Howard S.C.D. Date

Reviewed for HOWARD S.C.D.
and meets Technical Requirements
Name ____ Date 12/17/03
Signature
USDA, NATURAL RESOURCES CONS. SERVICE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR	DATE 1/16/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 12/23/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT **COLUMBIA STARWASH AT BERGER ROAD**

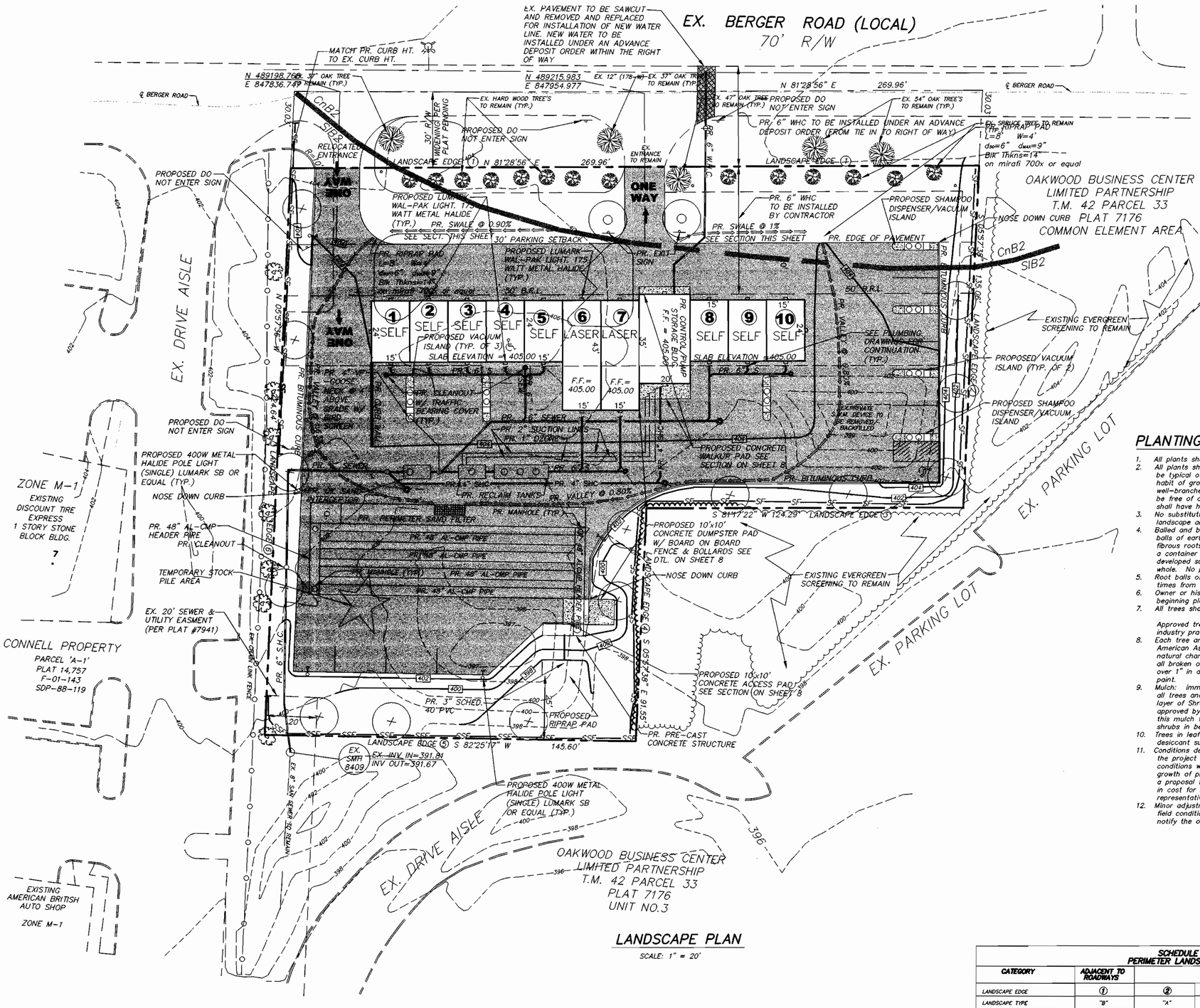
TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE **DETAILS**

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

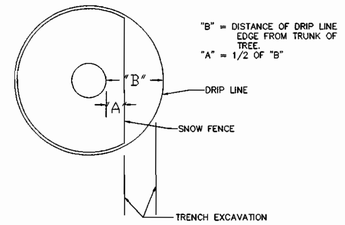
9-17-03
DATE
WAYNE A. NEWTON #21591

DESIGNED BY:	WAN
DRAWN BY:	BPO
PROJECT NO:	
DATE:	MAY, 2003
SCALE:	AS SHOWN
DRAWING NO.:	8 OF 12



LANDSCAPE PLAN

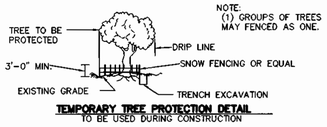
SCALE: 1" = 20'



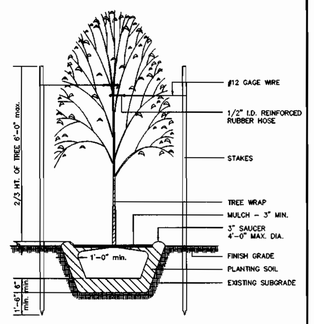
TEMPORARY TREE PROTECTION (PLAN)

NOTE: FENCING SHALL BE PLACED AT THE DRIP LINE OF TREES TO BE PROTECTED DURING CONSTRUCTION EXCEPT ON THE SIDE OF THE UTILITY TRENCHING. FENCING SHALL NOT BE PLACED CLOSER TO THE TREE THAN 1/2 THE TOTAL DISTANCE FROM THE TREE TO THE LIMITS OF THE TREE'S DRIP LINE. THIS MODIFICATION SHALL BE ALLOWED TO ACCOMODATE TRENCHING ONLY AND NOT TO ALLOW ADDITIONAL WORKING SPACE.

NOTE: (1) GROUPS OF TREES MAY FENCED AS ONE.



TEMPORARY TREE PROTECTION DETAIL
TO BE USED DURING CONSTRUCTION



TREE PLANTING DETAIL - LESS THAN 4" CAL.

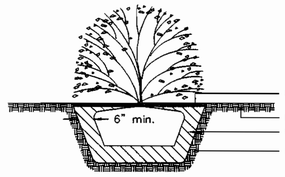
GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $4,800.00.

PLANTING NOTES:

1. All plants shall be nursery grown.
2. All plants shall conform to the standards of AAN. They shall be typical of their species or variety and shall have a normal habit of growth. They shall be sound, healthy and vigorous, well-branched and densely foliated when in leaf. They shall be free of disease and insect pests, eggs, or larvae. They shall have healthy, well-developed root systems.
3. No substitutions shall be made without the approval of the landscape architect.
4. Balled and burlapped plants shall be dug with firm natural balls of earth, of diameter and depth to include most of the fibrous roots. Container grown stock shall have been grown in a container long enough for the root system to be have developed sufficiently to hold its soil together firm and whole. No plants shall be loose in the container.
5. Root balls of all plants shall be adequately protected at all times from sun and drying winds or frost.
6. Owner or his representative shall be notified prior to beginning planting operations.
7. All trees shall be wrapped immediately after they are planted.

   Approved tree wrap shall be installed according to accepted industry practice.
8. Each tree and shrub shall be pruned in accordance with the American Association of Nurserymen Standards to preserve the natural character of the plant. All dead wood or suckers and all broken or badly bruised branches shall be removed. Cuts over 1" in diameter shall be painted with an approved tree paint.
9. Mulch: immediately after planting operations are completed all trees and shrub planting pits shall be covered with a 2" layer of Shredded Hardwood Bark Mulch or other material approved by the owner or his representative. The limit of this mulch for trees shall be the area of the pit and for shrubs in beds, the entire area of the shrub bed.
10. Trees in leaf when planted shall be treated with anti-desiccant such as Wilt-proof.
11. Conditions detrimental to plants: the contractor shall notify the project representative in writing of all soil or drainage conditions which the contractor considers detrimental to the growth of plants. He shall state the conditions and submit a proposal for correcting the conditions, including any change in cost for review and acceptance by the project representative.
12. Minor adjustments to tree location may be necessary due to field conditions and final grading. The contractor shall notify the owner if major adjustments are required.



SHRUB PLANTING DETAIL

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES				
LANDSCAPE EDGE	①	②	③	④	⑤	⑥
LANDSCAPE TYPE	"B"	"A"	"A"	"A"	"A"	"A"
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	270'	164'	124'	92'	146'	234'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES/270'*	NO/0'	NO/0'	NO/0'	NO/0'	NO/0'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO/0'	NO/0'	NO/0'	NO/0'	NO/0'	NO/0'
RESULTANT PERIMETER LENGTH	0'	164'	124'	92'	146'	234'
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	0 0 0	164/60'=3 0 0	124/60'=2 0=0 0=0	92/60'=2 0=0 0=0	146/60'=3 0=0 0=0	234/60'=4 0=0 0=0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	0 0 0 0 0	3 0 0 0 0	2 0 0 0 0	2 0 0 0 0	3 0 0 0 0	4 0 0 0 0

* = EX. SCREEN ROW OF TREES ALONG BERGER RD. TO REMAIN

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES (NEW)	16
NUMBER OF TREES REQUIRED (1/20 sp.)	1
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	2 2 0
NUMBER OF ISLANDS REQUIRED	1
NUMBER OF ISLANDS PROVIDED (200 sf/ISLAND, 12' MIN. WIDTH)	2

PLANT LIST

Symbol	Key	Botanical Name / Common Name	Size	Quantity
(x)	T1	Platanus Acerfolio Bloodgood / Bloodgood London Plane Tree	2' - 2 1/2' CAL. B&B	14
(○)	T2	Zelkova Serratta / Village Green Zelkova	2' - 2 1/2' CAL. B&B	2

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/16/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/23/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE
LANDSCAPE PLAN

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES (410) 266-3212 * FAX (410) 266-3502

9-17-03 DATE

STATE OF MARYLAND — ALAN WAYNE NEWTON — 21591 — REGISTERED PROFESSIONAL ENGINEER

WAYNE A. NEWTON #21591

DESIGNED BY: WAN	
DRAWN BY: BPO	
PROJECT NO:	
DATE: MAY, 2003	
SCALE: AS SHOWN	
DRAWING NO.: 9 OF 12	

SDP-03-111

SPECIFICATIONS

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

Site Preparation

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

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of 25 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Materials – The fill material shall be taken from approved, designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stone greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment shall conform to Unified Soil Classification GC, SC, CH or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of the fill. Fill materials shall be placed in maximum 8" thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than on tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within ±2% optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core

The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be compacted. with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of the structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completelly fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24' or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Polymer Coated steel pipe) – Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to he requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

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

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and /or water conditions warrant for, increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

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

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less that 24" inches diameter: flanges on both ends of the pipe, a 12 inch wide standard lap type band with 12 inch wide by 3/8 inch thick closed cell circular neoprene gasket; and a 12 inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inches long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24 inch wide by 3/8 inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

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

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

5. Backfilling shall be conform to "Structural Backfill"

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

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding – Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

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

4. Backfilling shall confirm to "Structural Backfill"

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

Plastic Pipe – The following criteria shall apply for plastic pipe.

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

2. Joints and connections to anti-seep collars shall be completely watertight.

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

4. Backfilling shall conform to "Structure Backfill"

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

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water During Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water will be pumped.

Stabilization

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

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES

1. The underground stormwater management facility is privately owned and it shall be the responsibility of the owner to periodically inspect and clean the facility to maintain its operation and function.
2. The underground stormwater management facility shall be inspected yearly at a minimum and after especially severe storm events.
3. When sediment accumulation of more than 2" is observed or any debris that might obstruct the outfall is observed, the facility shall be cleaned.
4. The facility shall be cleaned immediately after petroleum spills. The owner shall contact the appropriate regulatory agencies notifying them of the spill and cleanup operation.
5. The sediment and debris shall be removed from the underground stormwater management facility by vacuum truck or other manuel means. The owner shall follow proper cleaning and disposal of the removed material and liquid.
6. The inlet and outlet pipes shall be checked for any obstructions at least once every six (6) months. If obstructions are found, the owner shall have them removed and properly disposed of.

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEMS (F-2 AND F-3)

1. The sediment chamber outlet devices shall be cleared and/or replaced when drawdown times within the chamber exceed 36 hours.
2. Debris and litter shall be removed as necessary to insure proper operation of the system.
3. Sediment shall be cleaned out of the sedimentation chamber when it accumulates to a depth of 6 inches. Vegetation within the sediment chamber shall be limited to a height of 18 inches.
4. When water ponds on the surface of the filter bed more than 72 hours, the top few inches of discolored material shall be replaced with fresh material. The owner must follow proper cleaning and disposal of the removed materials and liquid.
5. A logbook shall be maintained to determine the rate at which the facility drains.
6. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
7. Once the performance characteristics of the infiltration system have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/20/04

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/22/03

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/15/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE 178-W SEWER CODE 609-W&S

TITLE
MD. 378 POND SPECS AND WATER PROFILES

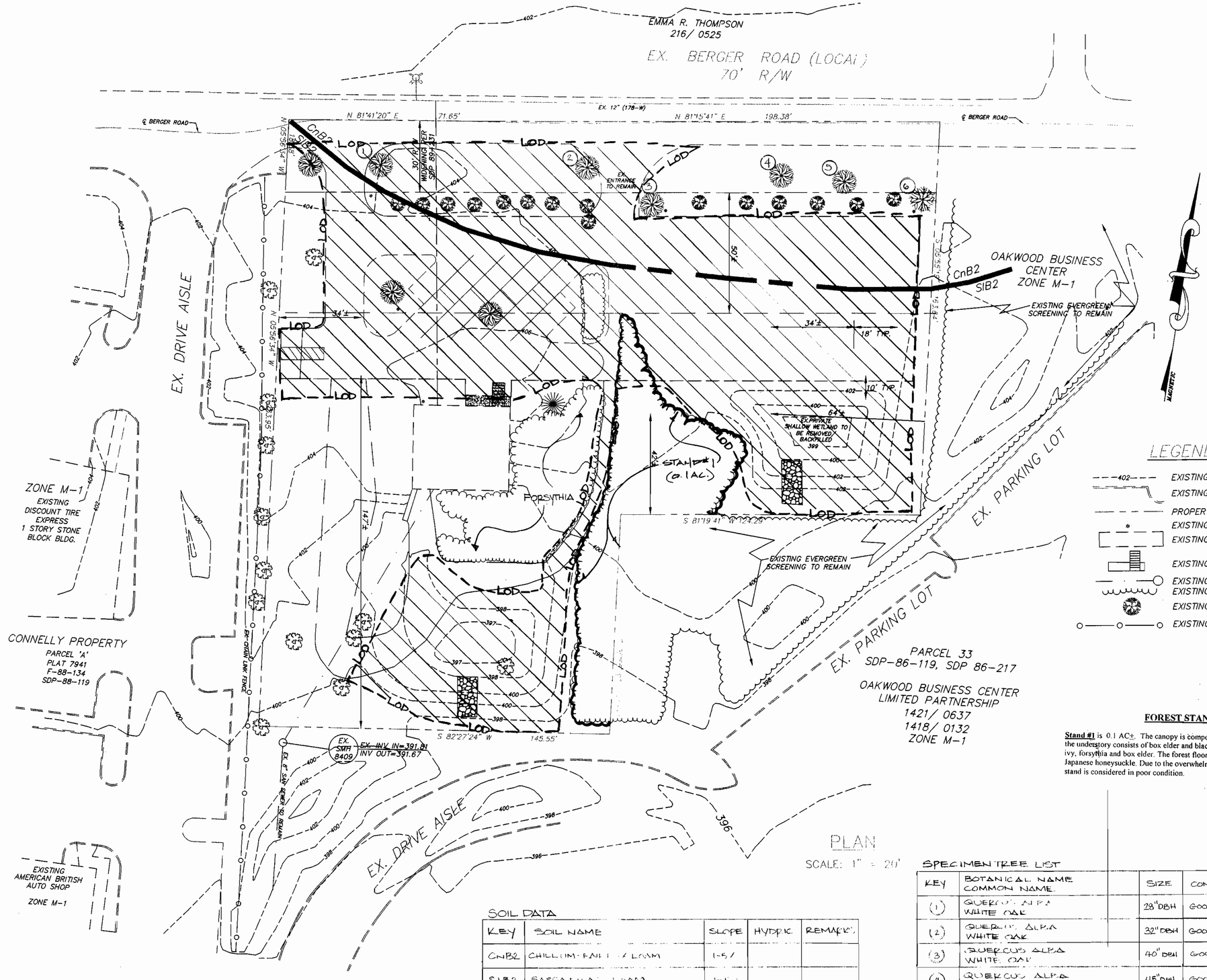
MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

9-17-03
DATE

WAYNE A. NEWTON #21591

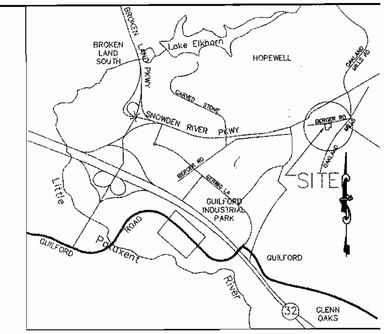
DESIGNED BY: WAN	
DRAWN BY: BPO	
PROJECT NO:	
DATE: MAY, 2003	
SCALE: AS SHOWN	
DRAWING NO.: 10 OF 12	

SDP-03-111



PLAN

SCALE: 1" = 20'



VICINITY MAP

SCALE: 1"=2000'

KEY

- EXISTING FOREST LINE 0.1 AC STAND DOES NOT MEET DEFINITION OF FOREST
- EXISTING SHRUB BORDER
- (3) SPECIMEN TREE
- CnB2 SIB2 SOILS BOUNDARY
- LOD LOD FROM PRIOR APPROVED SDP 89-231 AREA SUBTRACTED FROM NTA ON FC WORKSHT.

LEGEND

- 402 EXISTING CONTOURS
- EXISTING CURB & GUTTER
- PROPERTY LINE
- EXISTING LIGHT POLE
- EXISTING BUILDING
- EXISTING CONCRETE SIDEWALK
- EXISTING SEWER LINE AND MANHOLE
- EXISTING TREELINE
- EXISTING TREE/SHRUB
- EXISTING CHAIN LINK FENCE

FOREST STAND NARRATIVE

Stand #1 is 0.1 AC±. The canopy is composed of Norway maple and black locust and the understory consists of box elder and black cherry. The shrub layer is mostly poison ivy, forsythia and box elder. The forest floor is mostly covered with areas of vinca and Japanese honeysuckle. Due to the overwhelming presence of invasive plants, the forest stand is considered in poor condition.

SOIL DATA

KEY	SOIL NAME	SLOPE	HYDRIC	REMARKS
CnB2	CHILLUM-FALLING LOAM	1-5%		
SIB2	SASSAFRAS LOAM	1-5%		

SPECIMEN TREE LIST

KEY	BOTANICAL NAME COMMON NAME	SIZE	COND.	REMARKS
(1)	QUERCUS ALPA WHITE OAK	28" DBH	GOOD	
(2)	QUERCUS ALPA WHITE OAK	32" DBH	GOOD	
(3)	QUERCUS ALPA WHITE OAK	40" DBH	GOOD	
(4)	QUERCUS ALPA WHITE OAK	45" DBH	GOOD	
(5)	QUERCUS ALPA WHITE OAK	50" DBH	POOR 3/4 DEAD	
(6)	QUERCUS ALPA WHITE OAK	42" DBH	GOOD	

NOTES

-THIS PLAN IS FOR FOREST CONSERVATION PURPOSES ONLY

-THERE ARE NO WETLANDS ON SITE

HUMAN & ROHDE, INC.
Landscape Architects
512 Virginia Avenue
Towson, Maryland 21286
(410) 825-3885

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 4/16/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/28/07

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/15/08

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE SEWER CODE

TITLE
SIMPLIFIED FOREST STAND DELINEATION

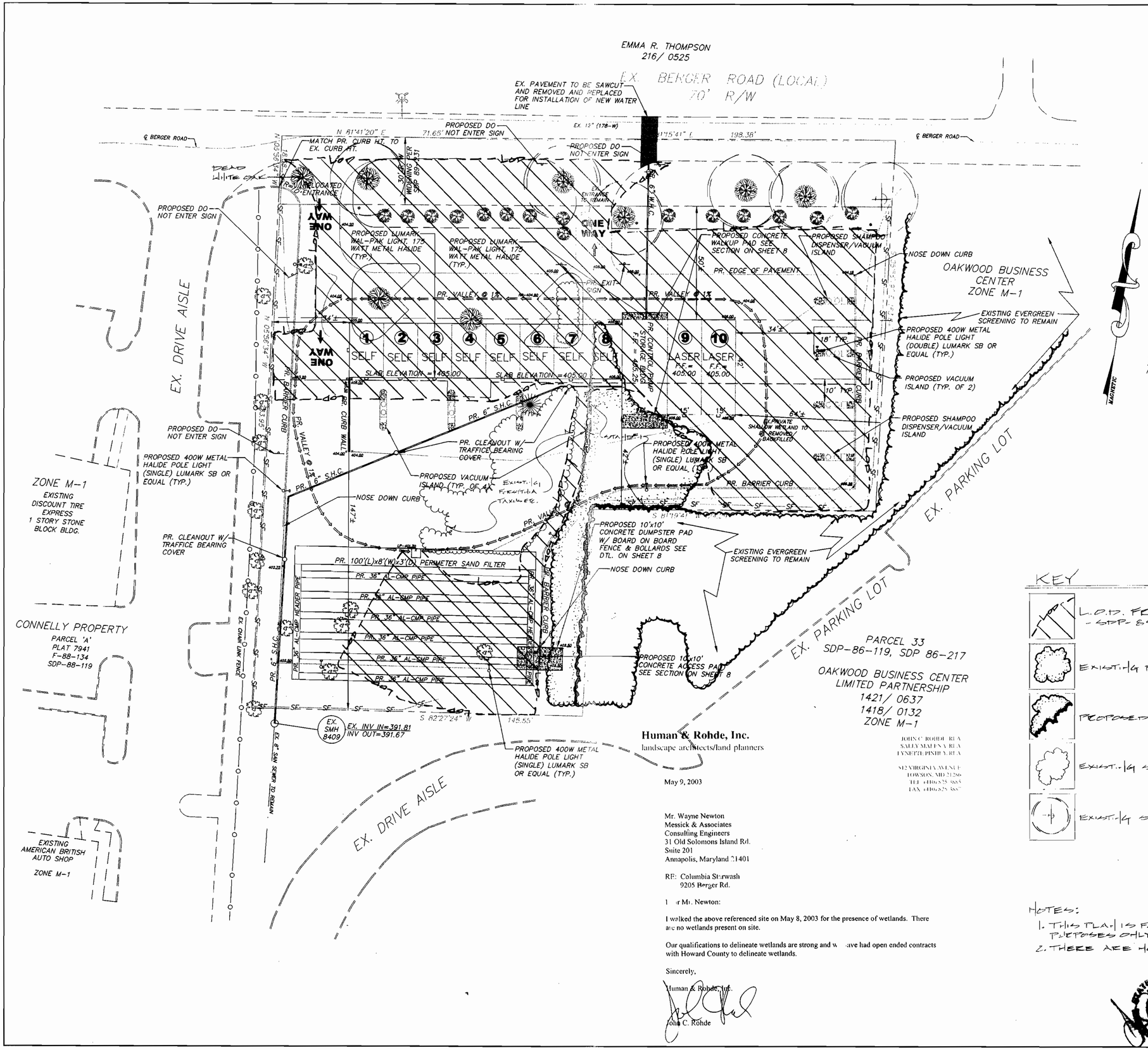
MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

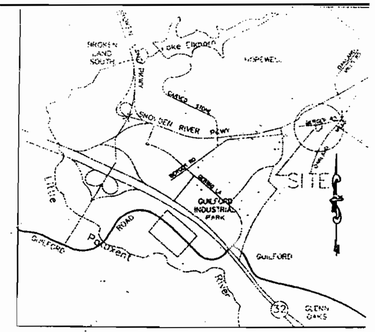
DATE

DESIGNED BY: WAN
DRAWN BY: BPO
PROJECT NO:
DATE: MAY 9, 2008
SCALE: AS SHOWN

WAYNE A. NEWTON #21597 — 11/6/12

SDP-03-111





VICINITY MAP
SCALE: 1" = 2000'

FOREST CONSERVATION WORKSHEET

PROJECT NAME/PROPERTY OWNER: COLUMBIA STARWASH DATE: 5-9-03
LOCATION: 9205 BERGER RD. COLUMBIA, MARYLAND

I. BASIC SITE DATA

	ACRES (0.1 AC.)
GROSS SITE AREA:	1.3
AREA WITHIN 100 YR. FLOODPLAIN:	N/A
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL:	N/A
AREA WITHIN LOD OF PRIOR APPROVED SDP - (SDP-84-231)	0.9
NET TRACT AREA:	2.4
LAND USE CATEGORY:	ME

I. INFORMATION FOR CALCULATIONS:

A. NET TRACT AREA:	2.4
B. FOREST CONSERVATION THRESHOLD (15% X A):	0.1
C. AFFORESTATION THRESHOLD (15% X A):	0.1
D. EXISTING FOREST ON NET TRACT AREA:	0.0
E. FOREST TO BE CLEARED: (NOT IN EASEMENT)	0.0
F. FOREST TO BE RETAINED:	0.0

V. AFFORESTATION CALCULATIONS

A. NET TRACT AREA:	2.4
B. FOREST CONSERVATION THRESHOLD (15% X A):	0.1
C. AFFORESTATION THRESHOLD (15% X A):	0.1
D. EXISTING FOREST ON NET TRACT AREA:	0.0
E. FOREST TO BE CLEARED: (NOT IN EASEMENT)	0.0
F. FOREST TO BE RETAINED:	0.0

1. NO CLEARING BELOW THE MINIMUM

- IF EXISTING FORESTS ARE LESS THAN THE AFFORESTATION MINIMUM (IF D IS LESS THAN C) AND NO CLEARING IS PROPOSED THE FOLLOWING CALCULATIONS APPLY:

- TOTAL AFFORESTATION REQUIRED (C - D) 0.1

NOTE: PAYMENT OF A FEE-IN-LIEU HAS BEEN REQUESTED TO SATISFY THE AFFORESTATION REQUIREMENT.

KEY

- L.O.D. FROM PRIOR APPROVED(SDP - SDP-89-231 - AREA SUBSTRACTED FROM N.T.A. on FOREST WORKSHT.
- EXISTING FOREST ON SITE (0.1 AC.)
- PROPOSED TREE LINE-CLEARING (0.1 AC.)
- EXISTING SHRUBS & BRUSH
- EXISTING SPECIMEN TREE TO REMAIN

NOTES:
1. THIS PLAN IS FOR FOREST CONSERVATION PURPOSES ONLY.
2. THERE ARE NO WETLANDS ON SITE.

Human & Rohde, Inc.
landscape architects/land planners

JOHN C. ROHDE, RLA
SALLY MAHONEY, RLA
LYNETTE PINDLE, RLA

512 VIRGINIA AVENUE
TOWSON, MD 21286
TEL (410) 825-3885
FAX (410) 825-3887

May 9, 2003

Mr. Wayne Newton
Messick & Associates
Consulting Engineers
31 Old Solomons Island Rd.
Suite 201
Annapolis, Maryland 21401

RE: Columbia Starwash
9205 Berger Rd.

Dear Mr. Newton:

I walked the above referenced site on May 8, 2003 for the presence of wetlands. There are no wetlands present on site.

Our qualifications to delineate wetlands are strong and we have had open ended contracts with Howard County to delineate wetlands.

Sincerely,

Human & Rohde, Inc.

John C. Rohde

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR	DATE 1/16/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 12/23/03
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/5/04

DATE	NO.	REVISION

OWNER:
MARK A. WALZER
9814 PUSHCART WAY
COLUMBIA, MD. 21045

DEVELOPER:
MR. DAVID FARRELL
11748 FREDERICK ROAD
ELLICOTT CITY, MD. 21042

PROJECT
COLUMBIA STARWASH
AT BERGER ROAD

TAX MAP 42, GRID 5, PARCEL 340
6th ELECTION DISTRICT
WATER CODE SEWER CODE

TITLE
FOREST CONSERVATION PLAN

MESSICK & ASSOCIATES
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212 * FAX (410) 266-3502

DATE

SCALE 1" = 20'	
DESIGNED BY: WAN	
DRAWN BY: BPO	
PROJECT NO:	
DATE: MAY 9, 2003	
SCALE: AS SHOWN	
DRAWING NO.: 12 OF 12	

WAYNE A. NEWTON #21591

STATE OF MARYLAND

HUMAN & ROHDE, INC.
Landscape Architects
512 Virginia Avenue
Towson, Maryland 21286
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SDP-03-111