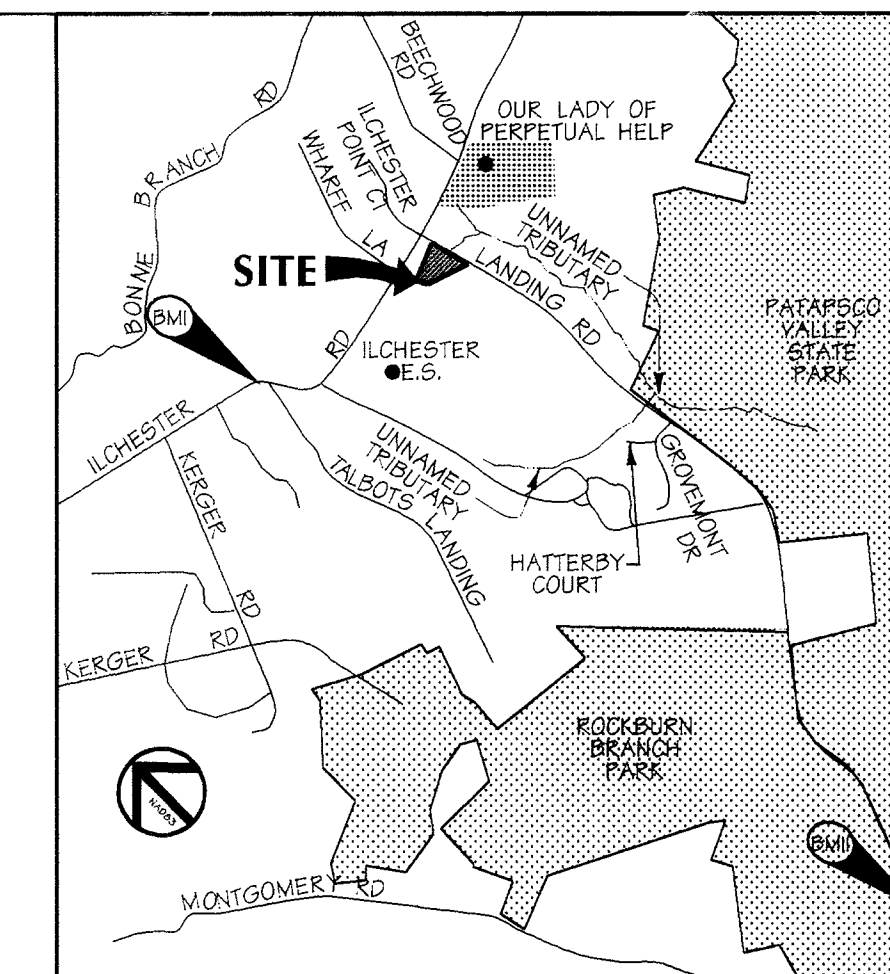


**General Notes**

- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
- The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at 410-313-1800 at least five (5) working days prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs be in place prior to the placement of any asphalt.
- Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume II (1993) and as modified by "Guidelines for Street Lighting in Residential Developments (June 1993)". A minimum 20' feet spacing shall be between the light and any tree.
- The existing topography is taken from low level flight and aerial survey with 2' contour intervals prepared by 301 dated April 8, 2002.
- The coordinates shown hereon are based upon the Howard County Geospatial Control which is based upon the Maryland State Plane Coordinate System. Howard County Monument Nos. 31EA and 37CA were used for this project.
- The traffic study for this project was prepared by The Traffic Group and was approved on March 25, 2002. APFD Traffic Analysis is not required for this project. This project is located farther than 1/4 mile from the intersection of two major collector roadways.
- Sidewalk ramps shall meet current ADA requirements.
- Project background information:  
 Subdivision Name: Zaiser Property  
 Total Area: 7.6 Acres (0.6 Ac Non-Buildable Bulk Parcels to be re-subdivided)  
 Tax Map: 31  
 Grid: 10  
 Parcel: 157  
 Phase: I - Lots/Parcels: 157  
 Zoning: R-22  
 Election District: 1  
 Preliminary Plan Approval Date: 8/10/05  
 File Numbers: P-03-08, S-02-15, F-04-29, P-05-08
- Street trees shall be planted at least 5' from any inlet structure.
- This project complies with Section 16.0200 of the Howard County Code for Forest Conservation. Under this plan, no forest clearing or retention is proposed, and an afforestation obligation of 1.05 acres is generated. The obligation will be met by retaining existing forest storage on an off-site parcel at a 2:1 ratio, in accordance with Howard County regulations. 2.1 acres of existing forest will be permanently retained in a Forest Conservation easement on the Myrtle Property. (F-06-104)
- Stormwater Management for this project will be addressed with the installation of one Stormwater Management Facility (Dry Extended Detention) which will control the runoff per the latest approved Design Standards. Credits are being utilized to meet the stormwater management requirements. Credits used include Open Grass Channels.
- The Stormwater management pond will be owned by the Zaiser Property H.O.A., there will be a public easement (Howard County) on the facility. The pond will be jointly maintained by the H.O.A. and Howard County. The Sand Filter will be owned and maintained by the H.O.A.
- Routine maintenance shall be performed by the Home Owner's Association and non-routine maintenance SWM shall be performed by Howard County. The routine and non-routine schedule is shown on sheet 7 of 19.
- Water and sewer extensions for this project will be public, and the site lies within the metropolitan district. The drainage area is the Patapsco Watershed. Contract # 14-4304-D.
- Existing utilities shown are taken from record drawings obtained from Howard County Water & Sewer Contract Nos. 14-3689-D and 14-3716-D and from field survey. Contractor shall dig test pits by hand 1 week in advance of construction at all crossings and notify engineer if there are any discrepancies.
- Boundary shown hereon is based on field survey by DMW dated September, 2002.
- A noise study is not required for this project.
- There are no known cemeteries or grave sites on this property.
- See Howard County Site Inventory HO-420 Older Mill.
- Financial surety for the required landscaping in the amount of \$20,050.00 must be posted as part of the developer's agreement.
- Financial surety for the Forest Conservation requirements in the amount of \$ 18,236 must be posted as part of the developer's agreement. (21 Ac. X 0.20 of for off-site retention)
- The Maryland Department of the Environment Tracking Number is 200405972.
- 95% compaction in fill areas to be per AASHTO T-100 standards.
- Landing Road is a Scenic Road.
- All sign posts used for traffic control signs installed in the County Right of Way shall be mounted on a 2" galvanized steel perforated square tube post (4 gauge), inserted into 21/2" galvanized steel perforated square tube sleeve (2 gauge)-3' long. A galvanized steel pole cap shall be mounted on top of each post.
- There is no Floodplain on this site as defined in the Howard County Design Manual.
- There are no Wetlands on this site.
- This project is subject to the 5th Edition of the Subdivision and Land Development Regulations and the 1993 Zoning Regulations amended by CB50-2001 (effective 1-8-02).
- The HOA Open Space shown hereon as Lot 11 are hereby dedicated to a property association for the residents of this subdivision. The Articles of Incorporation have been filed with the State Department of Assessments and Taxation.
- The sidewalk on Ilchester Road is to be extended to Landing Road when future road improvements are made. These improvements will include a deceleration lane on Ilchester Road and a realignment of Landing Road at Ilchester Road. These improvements will be made by Howard County.
- The Right of Way for part of the cul-de-sac was dedicated under OWENS PROPERTY, Phase II, F-05-121

# Final Plan Zaiser Property

## Lots 1-10, Open Space Lot 11 A Re-Subdivision Of Non-Buildable Bulk Parcels 'C' and 'D' Howard County, Maryland

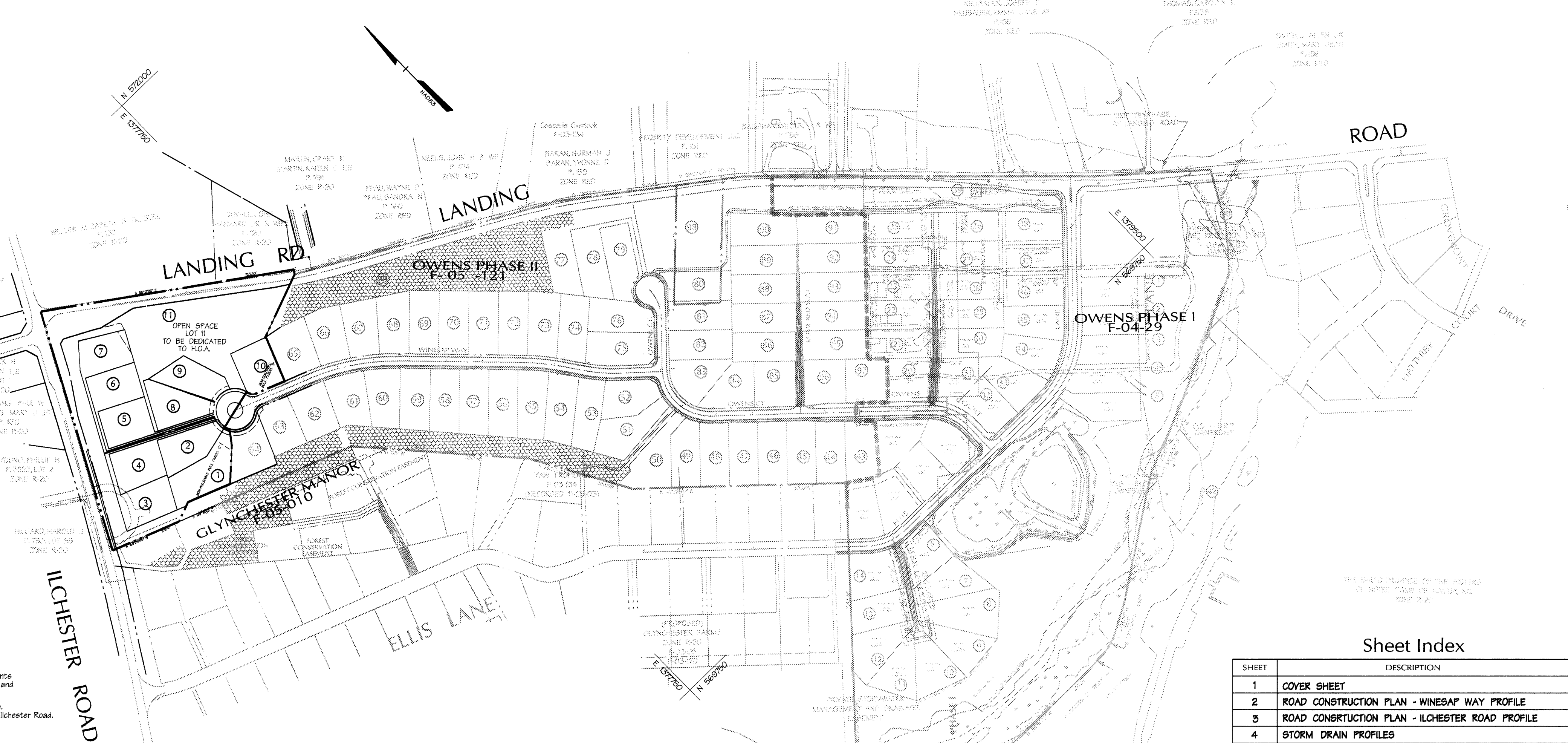


**LOCATION MAP**

SCALE: 1" = 2000'

**BENCHMARK DESCRIPTION**

- BM1  
#31EA-DISC SET IN CONCRETE  
N 56264.123  
E 1374918.935  
ELEVATION = 468.90  
2 FT. SOUTH OF SIDEWALK ON ILCHESTER ROAD  
147.1 FT. FROM GATE IN FENCE ON TRANSMISSION LINE R.O.W.
- BM2  
#37CA-DISC SET IN CONCRETE  
N 564321.656  
E 1382742.880  
ELEVATION = 256.965  
20.6' SOUTH OF CENTERLINE OF LANDING ROAD  
25' ALONG NORTHWEST ON LANDING ROAD FROM  
INTERSECTION OF LANDING ROAD AND MONTGOMERY RD.



**Plan**

SCALE 1" = 200'

**Sheet Index**

SHEET	DESCRIPTION
1	COVER SHEET
2	ROAD CONSTRUCTION PLAN - WINESAP WAY PROFILE
3	ROAD CONSTRUCTION PLAN - ILCHESTER ROAD PROFILE
4	STORM DRAIN PROFILES
5	STORM DRAIN DRAINAGE AREA MAP
6	DETAIL SHEET
7	SEDIMENT AND EROSION CONTROL PLAN
8	SEDIMENT AND EROSION CONTROL DETAILS
9	SEDIMENT AND EROSION CONTROL DETAILS
10	SEDIMENT AND EROSION CONTROL SPECIFICATIONS
11	SWM PLAN
12	SWM PROFILES
13	SWM PROFILES
14	SWM DETAILS
15	SWM SPECIFICATIONS AND BORING LOGS
16	LANDSCAPE PLAN
17	SWM POND PLANTING PLAN
18	FOREST CONSERVATION PLAN
19	MAINTENANCE OF TRAFFIC AND PAYEMENT MARKING PLAN

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Mahan* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Chris Harris* 1/10/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John Williams* 1/19/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**FINAL PLAN  
ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
AND THE RE-SUB DIVISION OF  
NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
TAX MAP 31 PARCEL 243, 572

**OWNER/DEVELOPER:**  
 Ilchester Farm LLC  
 c/o James Keely and Co. Inc.  
 P.O. Box 528  
 61 E. Padonia Road,  
 Timonium, MD 21093

**DMW**  
 Daft-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

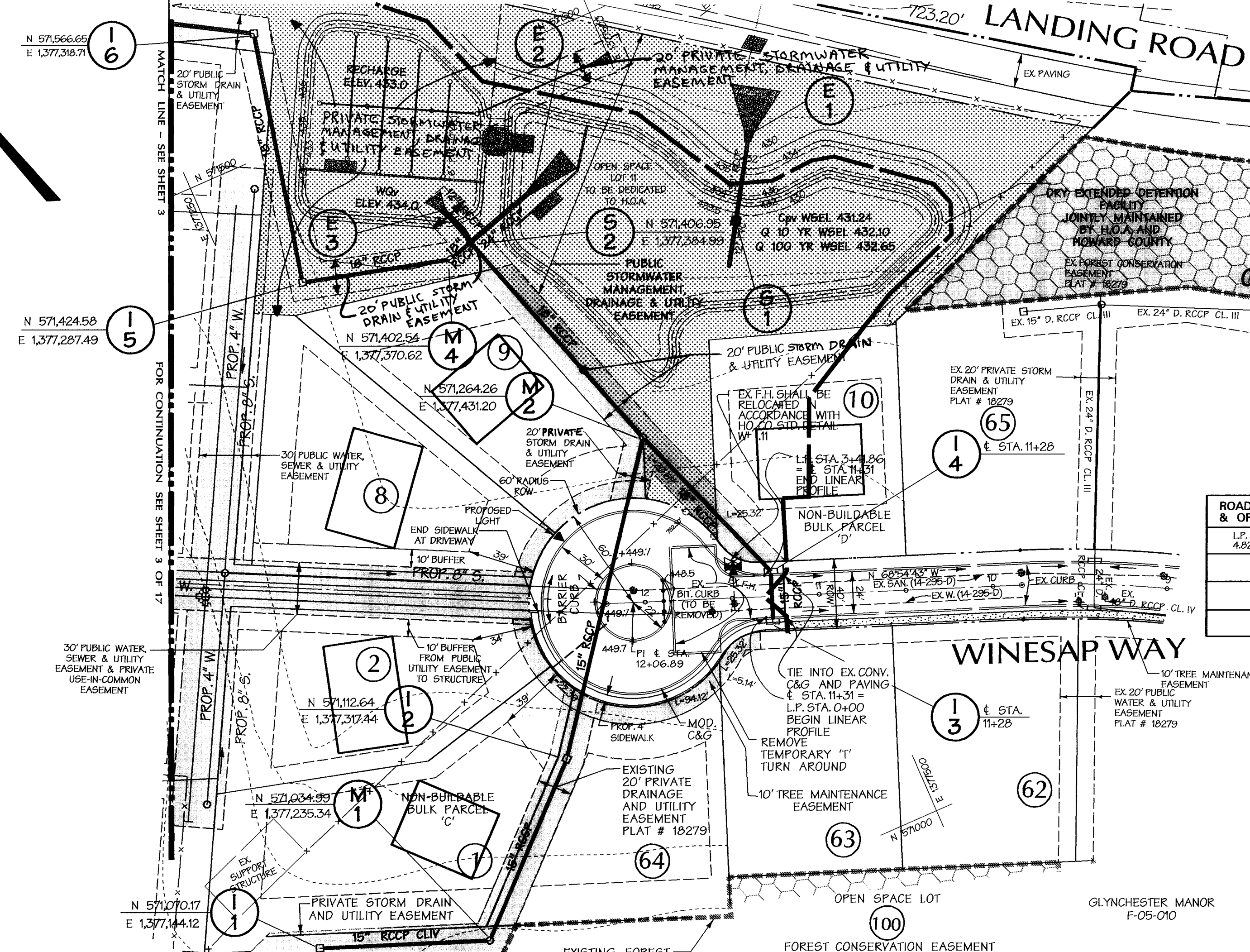
SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
ZAISER PROPERTY	R-20	157
PLAN OR LOT BLOCK #	TAXING MAP #	ELECT. SURVEY #
10,11,16,17	31	1
<b>TITLE</b>		
<b>ZAISER PROPERTY FINAL PLAN COVER SHEET</b>		
Des By	Scale	Proj. No.
Dwn By	Date	02059.B
Chk By	Approved	<b>1 of 19</b>

9/5/06  
 Date  
*John Williams*  
 Professional Engr. No. 14330

DATA SOURCES  
 BOUNDARY SHOWN PER BOUNDARY SURVEY DATED SEPTEMBER, 2002, PREPARED BY DAFT-MCCUNE-WALKER, INC.  
 SOILS (IF SHOWN) TAKEN FROM HOWARD COUNTY SOIL SURVEY, 1968.  
 THE EXISTING TOPOGRAPHY IS TAKEN FROM LOW LEVEL FLIGHT AND AERIAL SURVEY WITH 2' CONTOUR INTERVALS PREPARED BY 301 DATED APRIL 8, 2002 AND ON-SITE FIELD RUN TOPOGRAPHY BY DMW, INC. DATED SEPTEMBER, 2004.



CURVE DATA						
FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD	
0+00 - 0+38.80	55°34'57"	40.00'	38.80'	21.08'	5 83°17'48" W N 21°05'17" E	37.30' 58.78'
0+38.80 - 3+03.06	29°10'9" S	52.00'	264.25'	21.08'	5 41°07'15" E	37.30'
3+03.06 - 3+41.86	55°34'57"	40.00'	38.80'	21.08'	5 41°07'15" E	37.30'



**STREET LIGHT LEGEND**

▲ 100-WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE

**STREET LIGHT TABLE**

ROAD STATION & OFFSET	DESCRIPTION
L.P. STA 2+10.66 4.82' LT.	100-WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE

12-15-06  
Date

20784  
Professional Engr. No.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William T. Mahler*  
 CHIEF, BUREAU OF HIGHWAYS MS 1-3-07 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cynthia Hamilton*  
 CHIEF, DIVISION OF LAND DEVELOPMENT JA 11/0/07 DATE

*Walter Cummings*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION QD 10/07 DATE

Date	No.	Revision Description

**FINAL PLAN  
ZAIER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RE-SUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D' TAX MAP 31 PARCEL 243,572

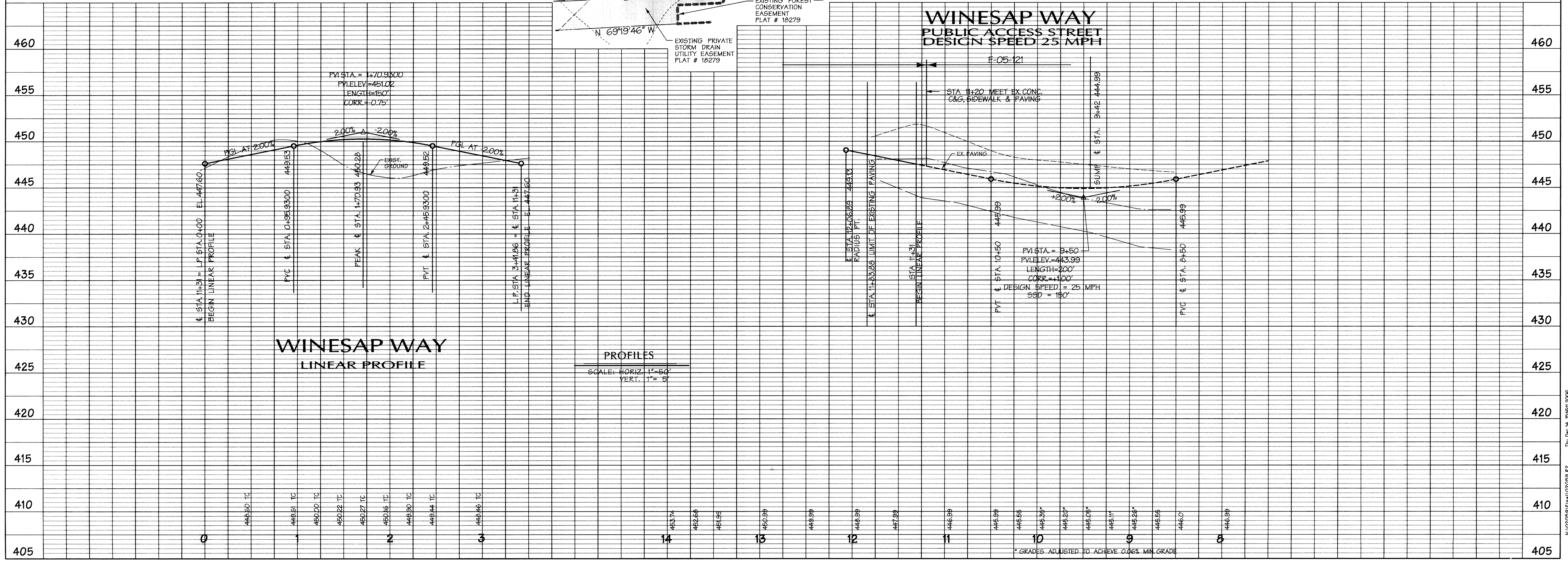
**OWNER/DEVELOPER:**  
 Ilchester Farm LLC  
 c/o James Keilty and Co. Inc.  
 P.O. Box 528  
 61 E. Padonia Road,  
 Timonium, MD 21093

**DMW**  
 Daub-DeCasse-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

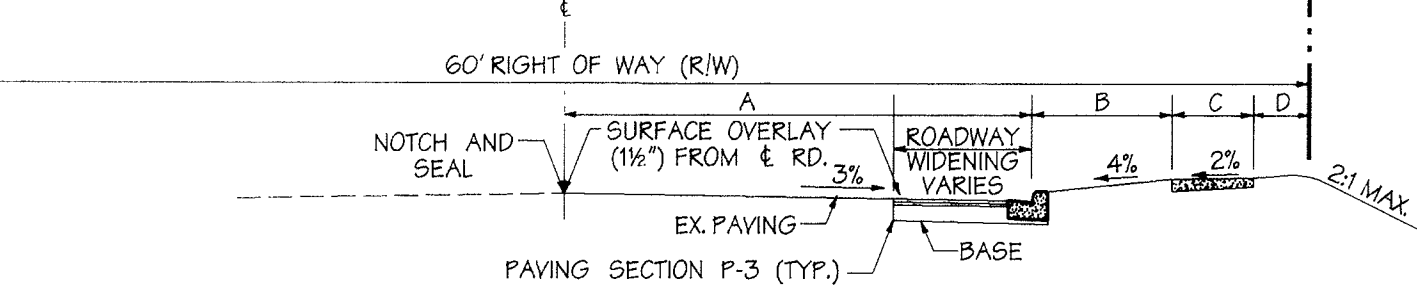
PROJECT NAME	SECTION/AREA	LOT/PARCEL #
ZAIER PROPERTY		157

TITLE: **ZAIER PROPERTY  
FINAL PLAN  
WINESAP WAY PROFILE**

Des. By	KAD	Scale	1" = 50'	Proj. No.	02059.B
Dwn. By	GMO	Date	10/25/06		
Chk. By		Approved			2 of 19

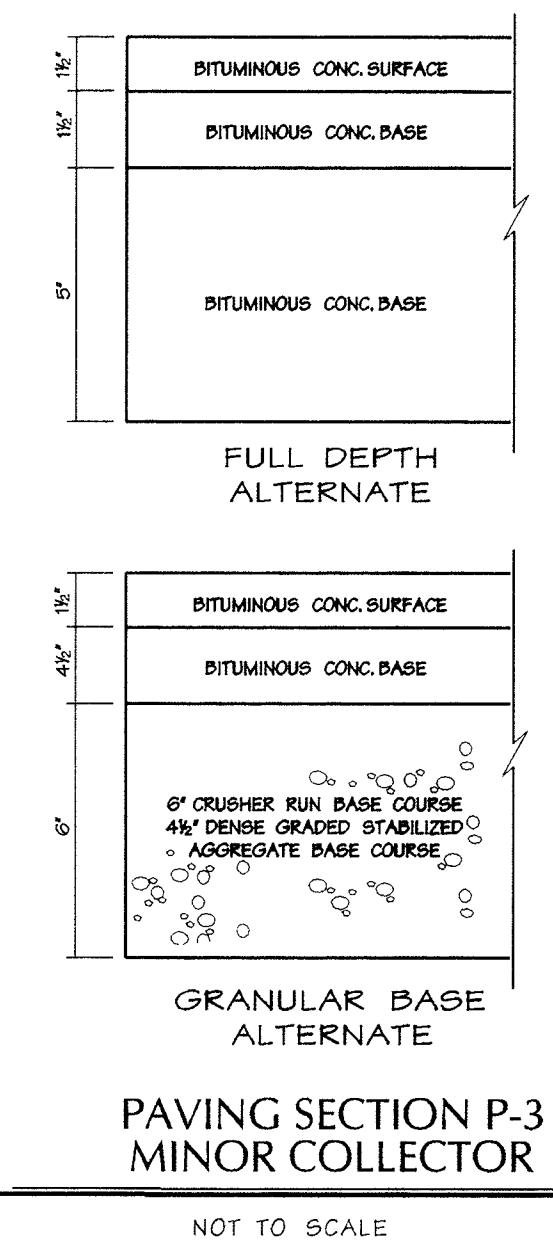




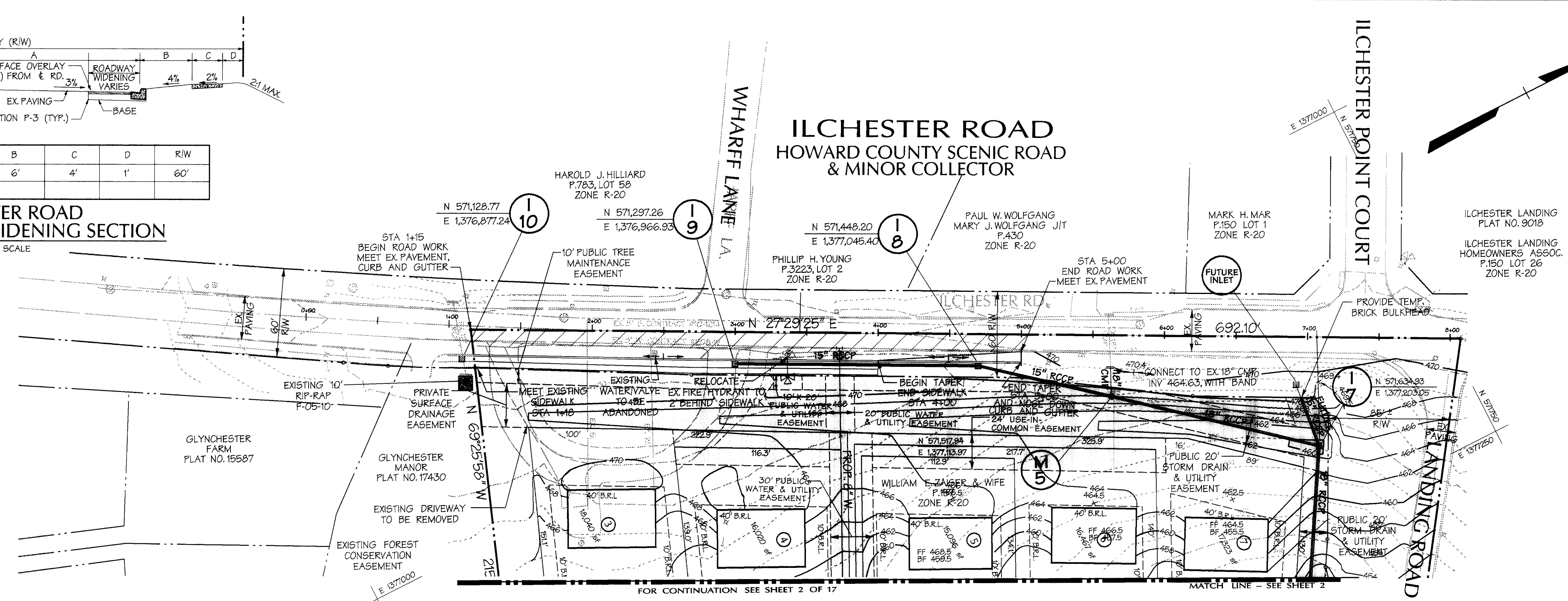


CLASSIFICATION	A	B	C	D	R/W	
MINOR COLLECTOR	500 ADT	19'	6'	4'	1'	60'

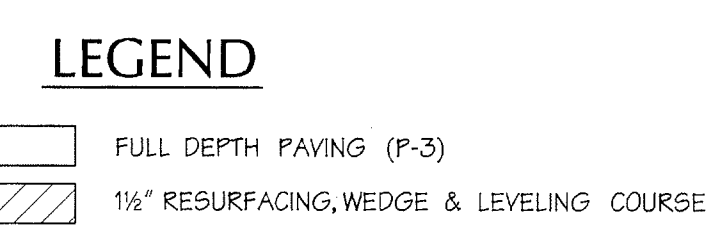
**ILCHESTER ROAD  
TYPICAL ROAD WIDENING SECTION**  
NOT TO SCALE



**PAVING SECTION P-3  
MINOR COLLECTOR**  
NOT TO SCALE



**PLAN**  
SCALE: 1"=50'



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. ...* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cindy Hammit* 1/10/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT JA DATE

*Alan ...* 1/10/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION pro DATE

Date No. Revision Description

**FINAL PLAN  
ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
AND THE RE-SUB DIVISION OF  
NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
TAX MAP 31 PARCEL 243, 572

**OWNER/DEVELOPER:**

Ilchester Road LLC  
c/o James Keely and Co. Inc.  
P.O. Box 528  
61 E. Padonia Road.  
Timonium, MD 21093

**DMW**  
Darr McCune-Walkers, Inc.  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3353  
Fax 296-4706

A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

SUBMISSION NAME	SECTION/AREA	LOT/PARCEL #
ZAISER PROPERTY		157

**TITLE**

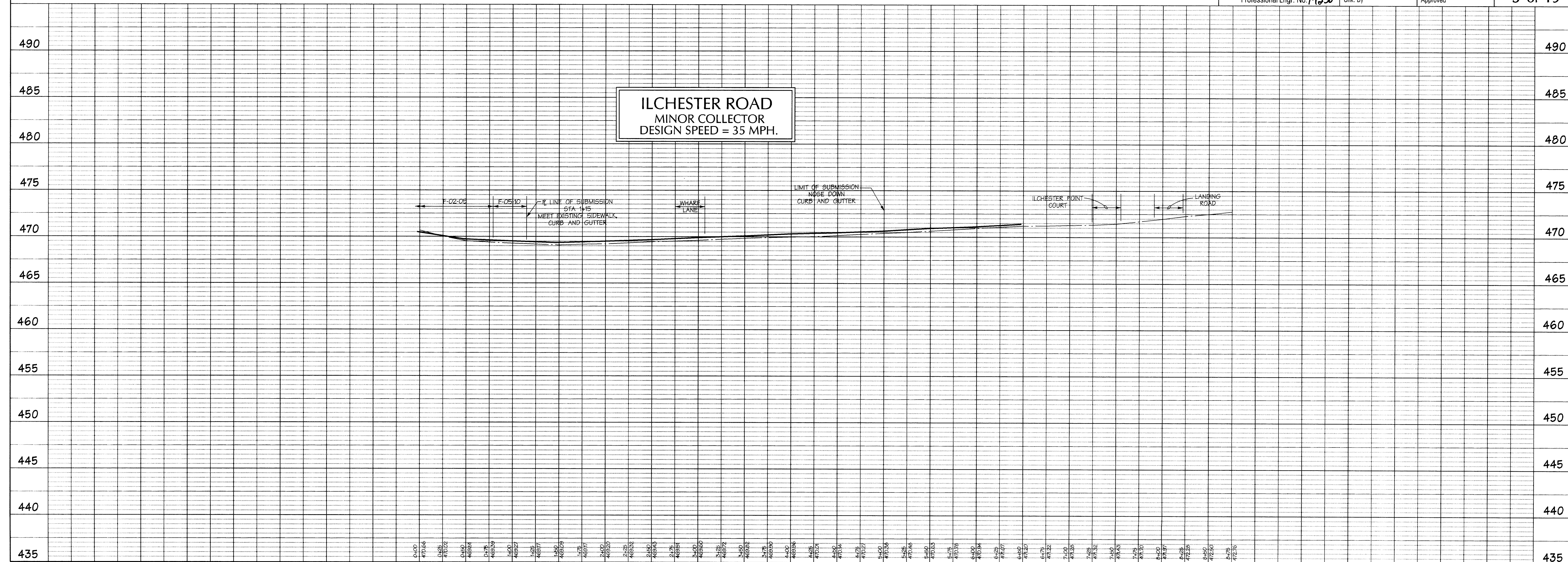
**ZAISER PROPERTY  
FINAL PLAN  
ILCHESTER ROAD**

Des. By	KAD	Scale	1" = 50'	Proj. No.	02059.B
Drn. By	GMO	Date	9/7/06		
Chk. By		Approved			<b>3 of 19</b>

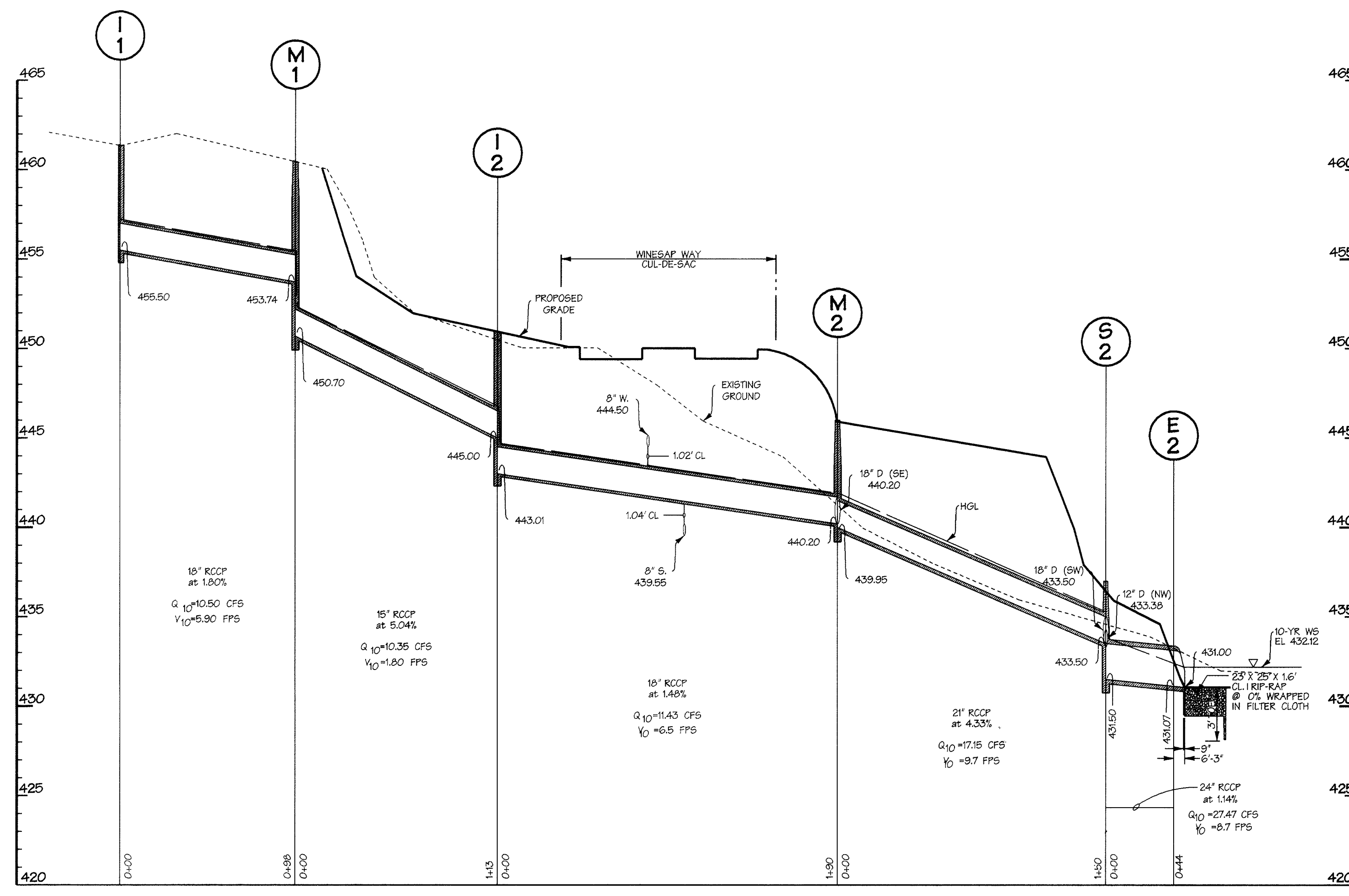
9/5/06  
Date

*William J. ...*  
9/5/06

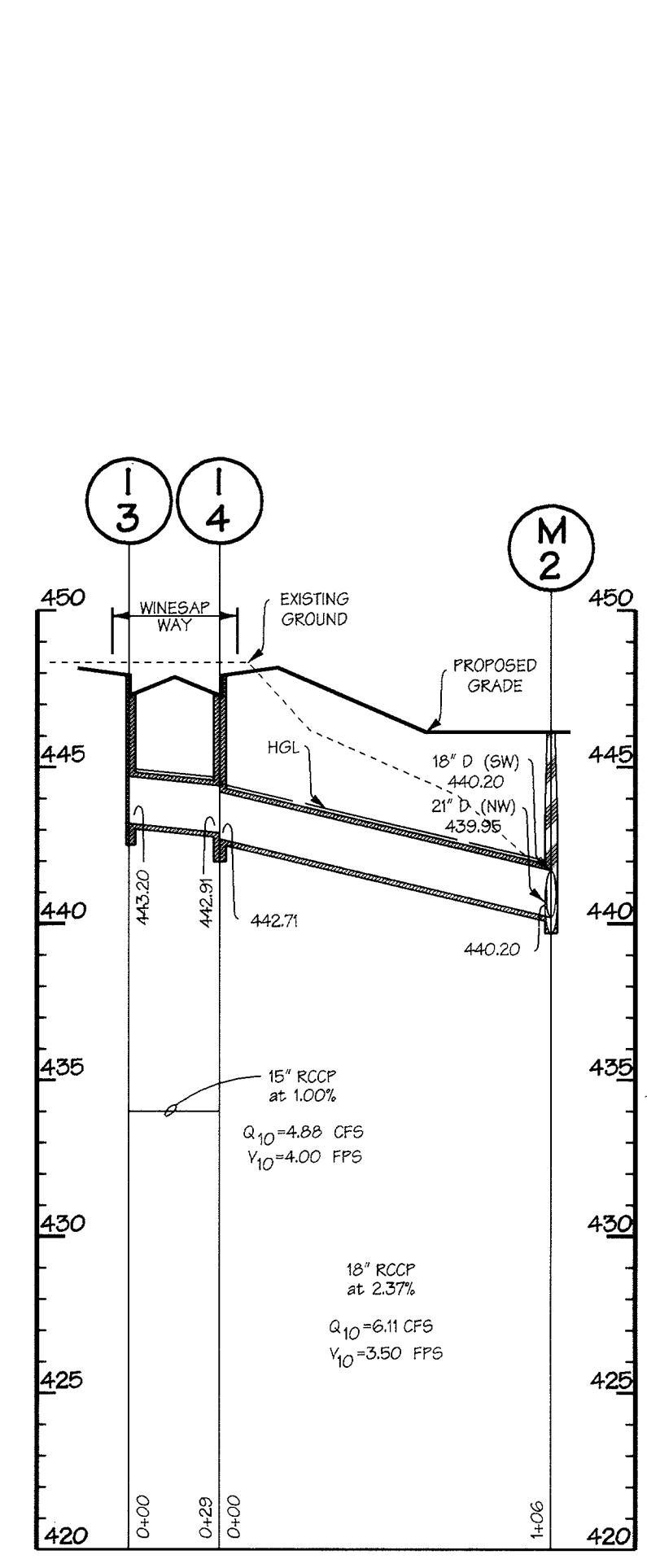
Professional Engr. No. 14930



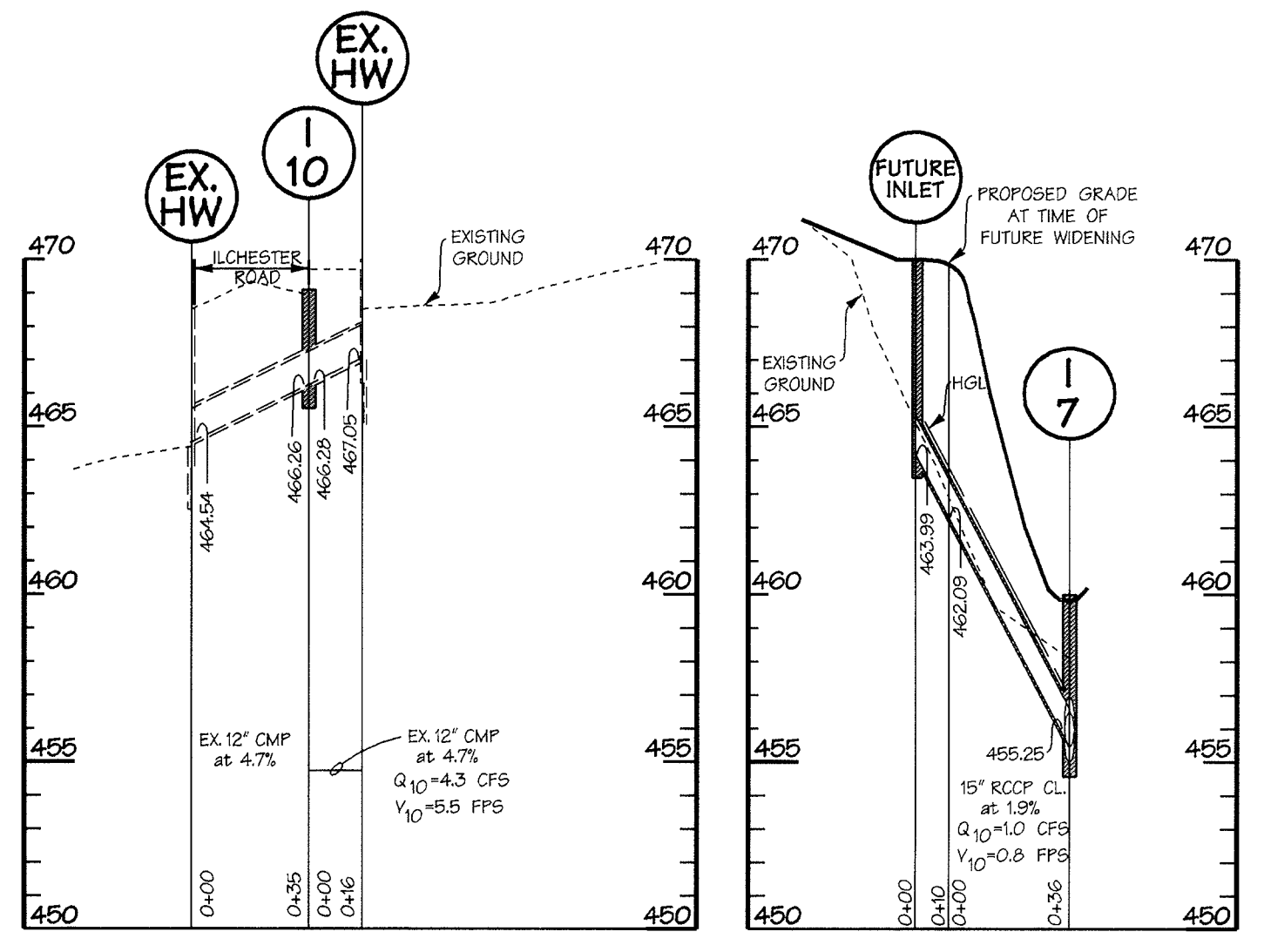
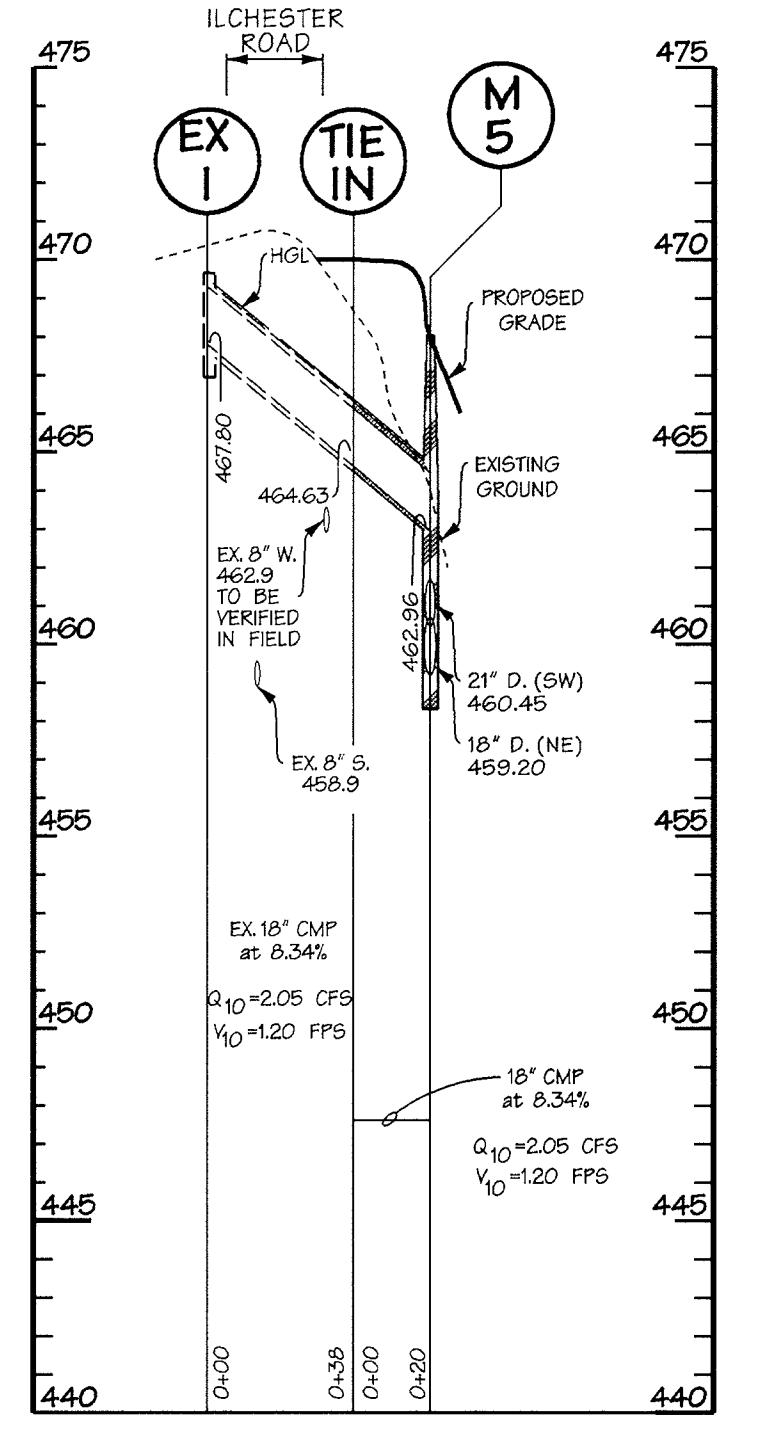
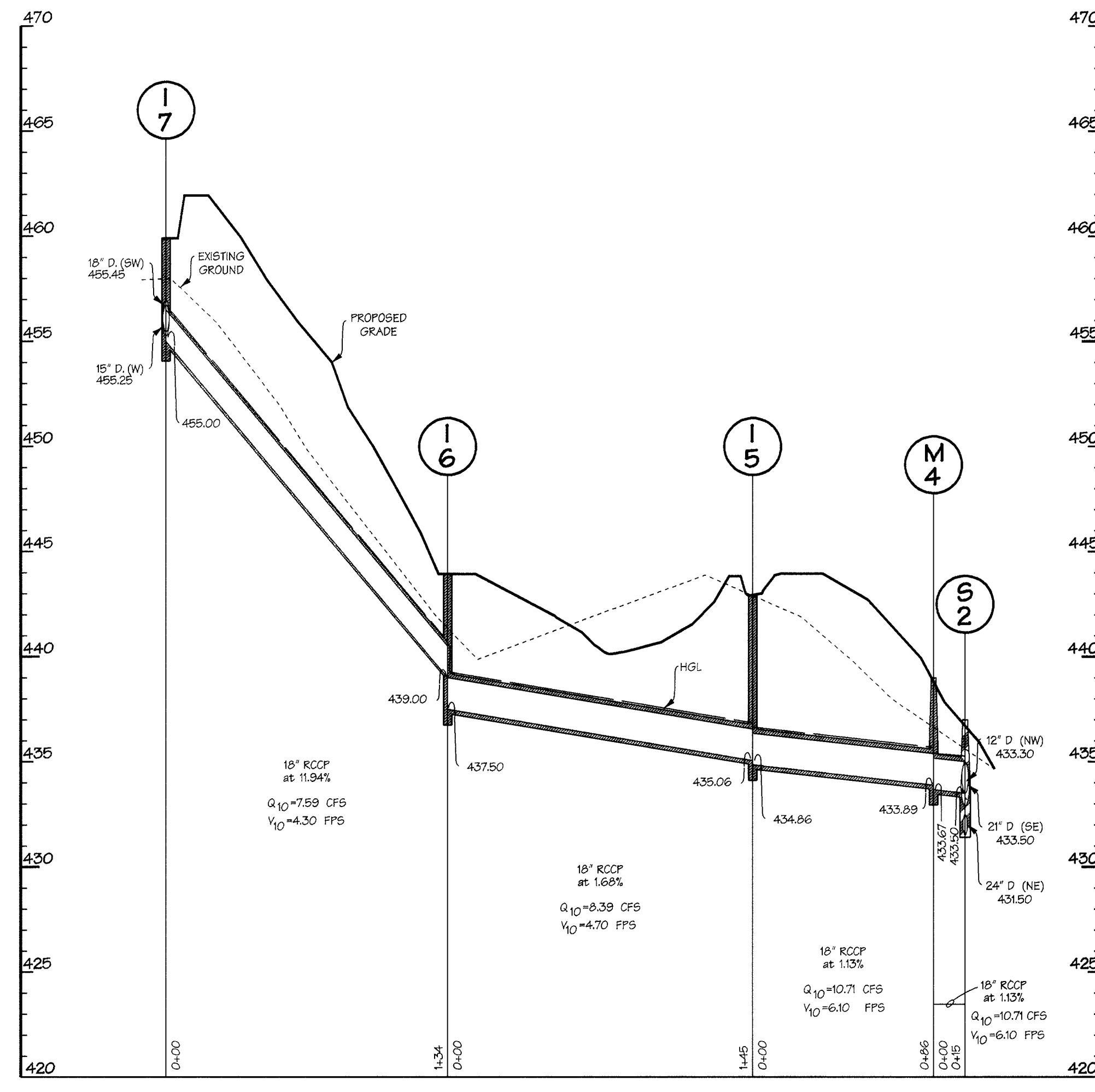
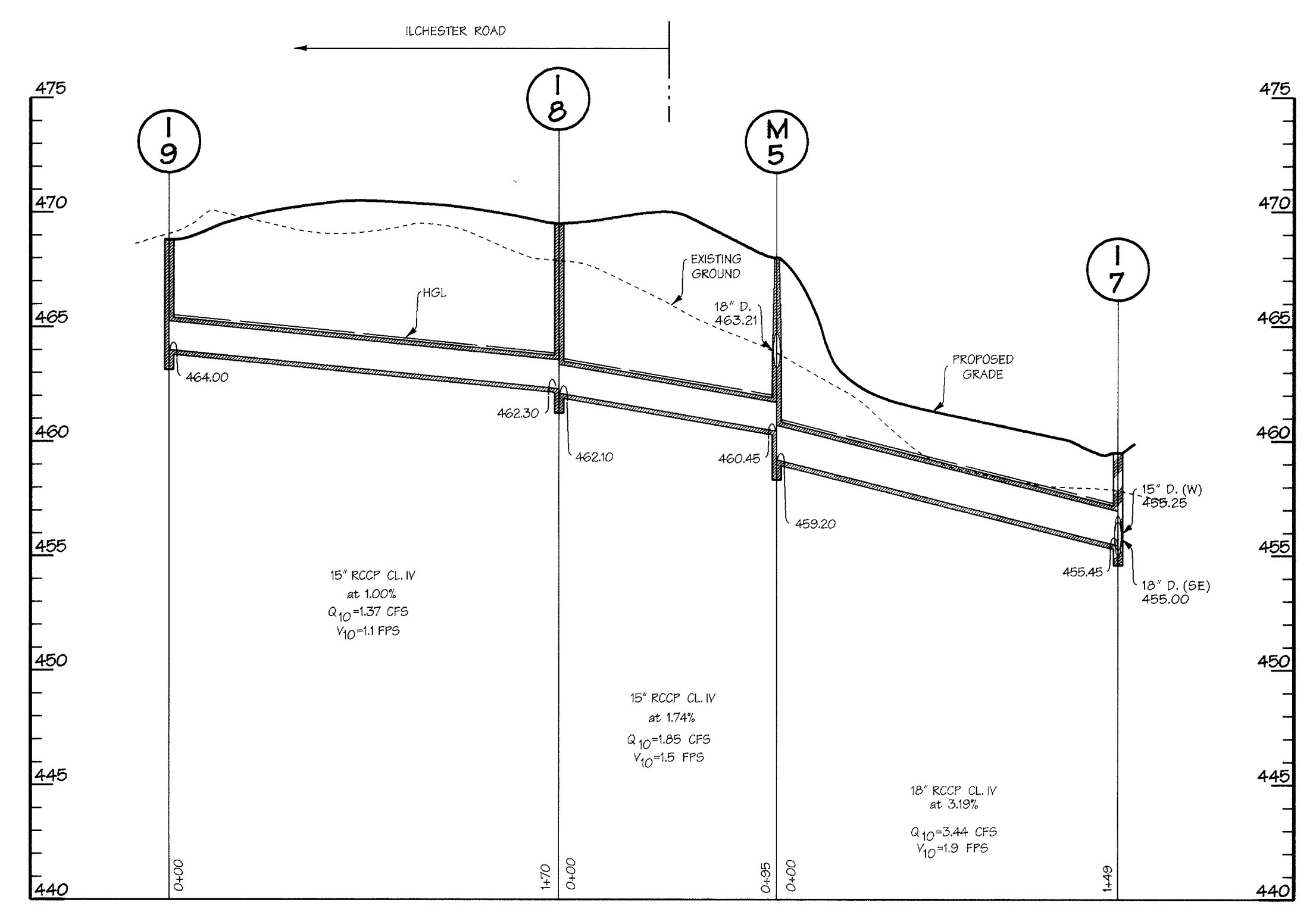




STORM DRAIN PROFILE  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'



STORM DRAIN PROFILE  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'



STORM DRAIN PROFILE  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 5'

STRUCTURE SCHEDULE

NO.	TYPE	SIZE	INV. OUT	TOP ELEV.	LOCATION
I-1	TYPE 'D' INLET SD-4.11		455.50	461.50	SEE PLAN
I-2	TYPE 'B' INLET SD-4.22		443.01	451.00	SEE PLAN
I-3	TYPE 'A-5' INLET SD-4.01		443.20	448.00	SEE PLAN
I-4	TYPE 'A-5' INLET SD-4.01		442.71	448.00	SEE PLAN
I-5	TYPE 'D' INLET SD-4.11		434.86	443.00	SEE PLAN
I-6	TYPE 'D' INLET SD-4.11		437.50	444.00	SEE PLAN
I-7	TYPE 'D' INLET SD-4.11		455.00	460.00	SEE PLAN
I-8	TYPE 'A-5' INLET SD-4.01		462.10	470.10	STA 4+70 OFF 22.0' RT
I-9	TYPE 'A-5' INLET SD-4.01		464.00	469.40	STA 3+00 OFF 21.5' RT
I-10	TYPE 'A-5' INLET SD-4.01		466.26	469.10	STA 1+10 OFF 23.0' RT
S-1	TYPE 'A-10' INLET SD-4.02 MODIFIED		431.50	436.60	SEE PLAN
M-1	STD. G-5.12	48"	450.70	460.50	SEE PLAN
M-2	STD. G-5.13	60"	439.95	446.00	SEE PLAN
M-4	STD. G-5.12	48"	433.67	439.00	SEE PLAN
M-5	STD. G-5.12	48"	459.20	468.00	SEE PLAN
E-1	CONCRETE END SECTION SD-5.51	30"	427.50		SEE PLAN
E-2	CONCRETE END SECTION SD-5.51	24"	431.00	433.53	SEE PLAN
E-3	CONCRETE END SECTION SD-5.51	12"	432.00	433.80	SEE PLAN

NOTE: ELEVATION FOR TYPE 'D' INLETS IS THROAT OPENING ELEVATION, TOP OF CURB FOR TYPE 'A-5'  
\*SEE SHEET 13 FOR STRUCTURE DETAIL.

PIPE SCHEDULE

SIZE	TYPE & CLASS	LENGTH
12"	CMP	16'
15"	RCCP CL IV	340'
18"	RCCP CL IV	1,040'
21"	RCCP CL IV	150'
24"	RCCP CL IV	44'
30"	RCCP CL IV	44'
18"	CMP	38'

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William J. ...* 1-3-07  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Carole ...* 1/10/07  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 1/16/07  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

FINAL PLAN  
**ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
AND THE RE-SUB DIVISION OF  
NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:  
Ilchester Farm, LLC  
c/o James Keilty and Co. Inc.  
P.O. Box 52B  
61 E. Padonia Road.  
Timonium, MD 21093

**DMW**  
Darr McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3333  
Fax 296-4705

A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

PROVISION NAME: ZAISER PROPERTY REGION/AREA: 157  
PLAT OR L.P. TRACT # 10,11,15,17 R-20 TAXING MAP 31 ELECT. DISTRICT 1 CENSUS TRACT  
TITLE: ZAISER PROPERTY FINAL PLAN STORM DRAIN PROFILES

Des. By KAD/CVS Scale AS SHOWN Proj. No. 02059.B  
Dwn. By G/MO Date 9/7/06  
Chk. By Approved

9/5/06  
Date  
*William J. ...*  
Professional Engr. No. 4230



- 1.86 ACRES A ZONING R-20  
C=0.40 %IMP=40
- 3.49 ACRES B ZONING R-20  
C=0.40 %IMP=40
- 0.46 ACRES C ZONING R-20  
C=0.40 %IMP=40
- 0.47 ACRES D ZONING R-20  
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- 0.37 ACRES F ZONING R-20  
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C=0.40 %IMP=40
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C=0.40 %IMP=40
- 0.18 ACRES M ZONING R-20  
C=0.40 %IMP=40



NOTE: ULTIMATE IMPROVEMENTS TO ILCHESTER ROAD AND LANDING ROAD ARE SHOWN ON THIS PLAN.

**LEGEND**

	EX. TREE LINE
	EX. MINOR CONTOUR (2' INT.)
	EX. MAJOR CONTOUR (10' INT.)
	AREA OF INTERPOLATED CONTOURS
	EX. STRUCTURE
	PROP. TREE LINE (IF SHOWN)
	PROPERTY BOUNDARY
	RIGHT OF WAY LINE
	ROADWAY CENTERLINE
	PROP. LOT NUMBER
	ADJACENT LOT LINE
	PROP. LOT LINE
	BUILDING SETBACK LINE
	STOP SIGN
	EX. UTILITY POLE
	PROPOSED LIGHT POLE
	DRAINAGE DIVIDE
	EASEMENT AREAS
	NON WOODY VEGETATION ZONE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. Walker, Jr.* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cindy Hanna* 11/10/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John P. ...* 10/10/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**FINAL PLAN**  
**ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
 AND THE RE-SUB DIVISION OF  
 NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
 TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:  
 PATAPSCO LANDING, LLC  
 c/o James Keilty and Co. Inc.  
 P.O. Box 528  
 61 E. Padonia Road,  
 Timonium, MD 21093

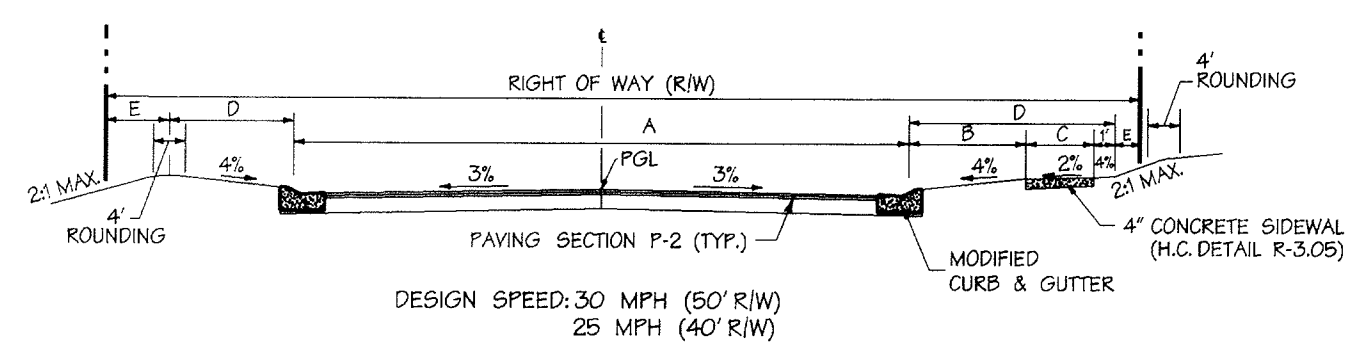
**DMW**  
 Draft McCune-Walker, Inc.  
 300 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax: 296-4705

A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals

9/5/06  
 Date  
*Jeffrey Z...*  
 9/5/06

SUBDIVISION NAME ZAISER PROPERTY	SECTION/AREA 10,11,15,17	LOT/FACES # 157
PLAT OR L.P. 10,11,15,17	ZONE R-20	CENSUS TRACT 31
TITLE <b>ZAISER PROPERTY</b> FINAL PLAN STORM DRAIN DRAINAGE AREAS		
Des. By KAD	Scale 1" = 50'	Proj. No. 02059.B
Drn. By GMO	Date 9/7/06	5 of 19
Chk. By	Approved	

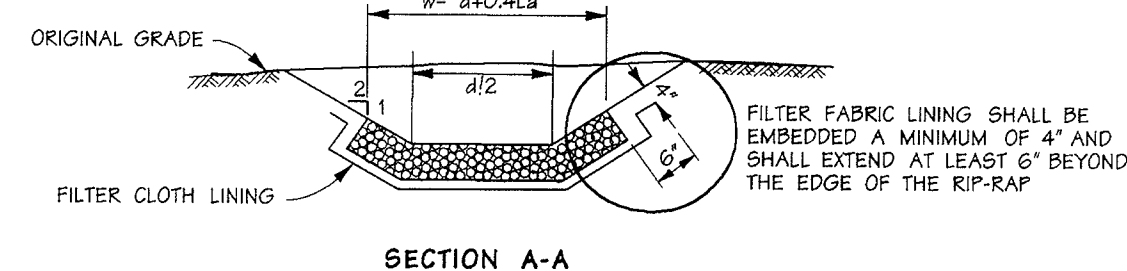
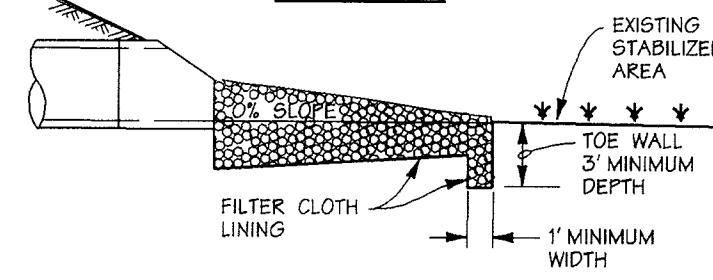
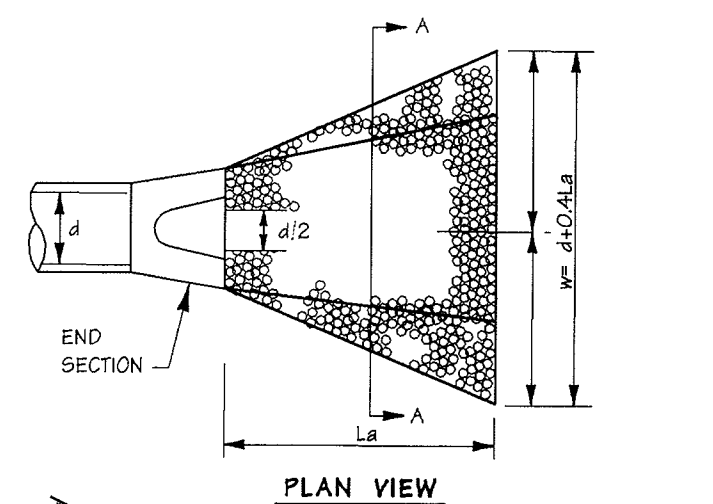




CLASSIFICATION	A	B	C	D	E	R/W
ACCESS STREET	500 ADT	24'	3'	4'	6'	40'

**WINESAP WAY  
TYPICAL ROAD SECTION**

NOT TO SCALE



U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

NOTE: FILTER CLOTH SHALL BE  
GEOTEXTILE CLASS C

**ROCK OUTLET PROTECTION III**

NOT TO SCALE

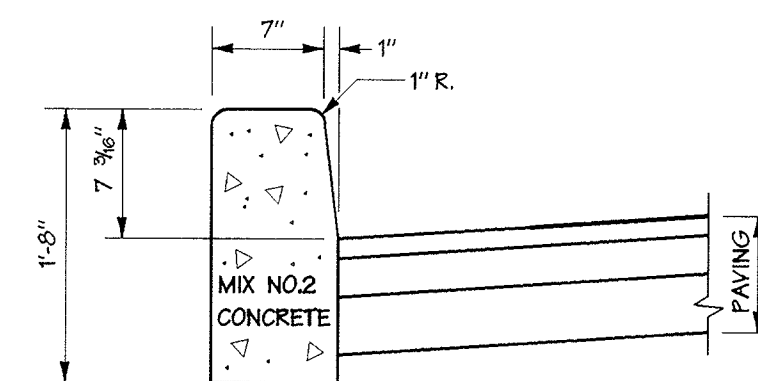
**CONSTRUCTION SPECIFICATIONS**

1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING 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.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS 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 BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. 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 SCOUR ADJACENT TO THE STONE WILL OCCUR.

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

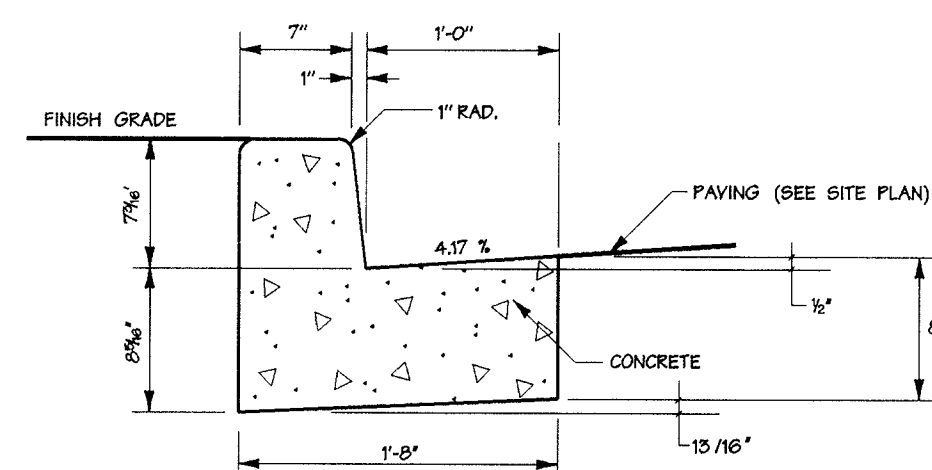
MARYLAND DEPARTMENT OF ENVIRONMENT  
WATER MANAGEMENT ADMINISTRATION

**ROCK OUTLET PROTECTION SPECIFICATIONS**



**STANDARD BARRIER CURB**

NOT TO SCALE

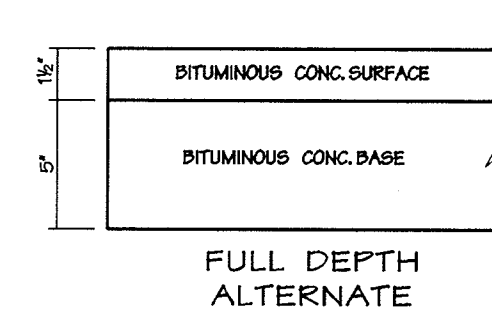


**SECTION**

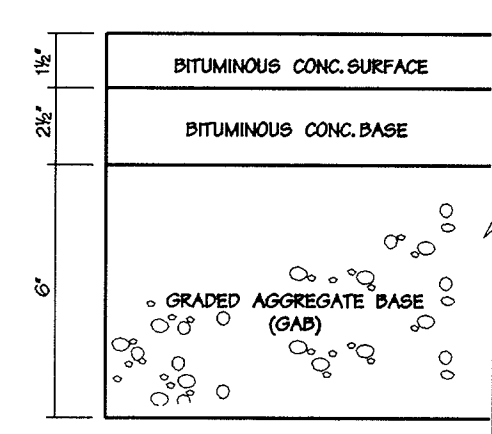
ILCHESTER ROAD  
AND  
BARRIER CURB FOR CUL-DE-SAC ISLAND

**TYPE "A" CURB AND GUTTER R-3.01**

NOT TO SCALE



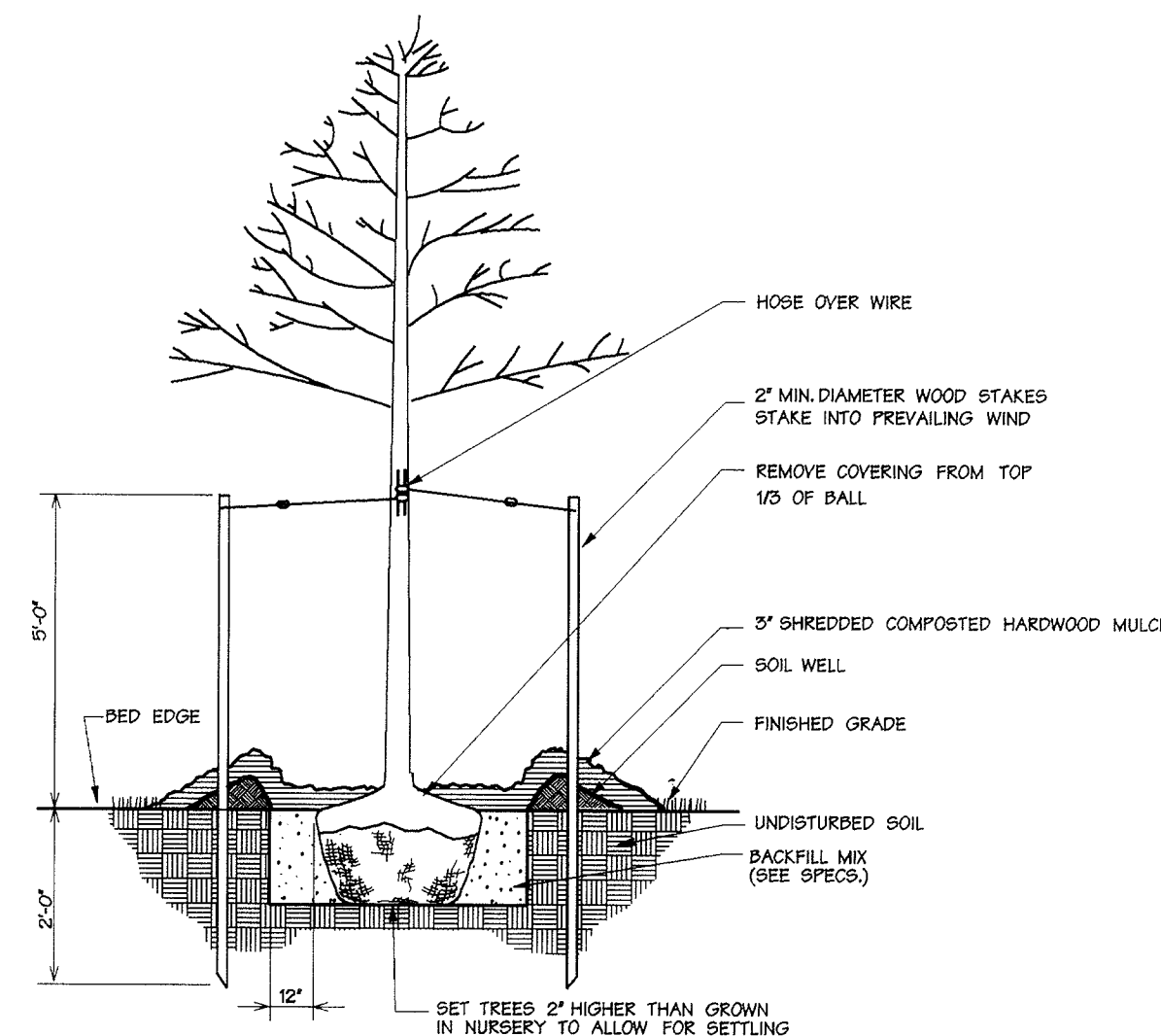
**FULL DEPTH  
ALTERNATE**



**GRANULAR BASE  
ALTERNATE**

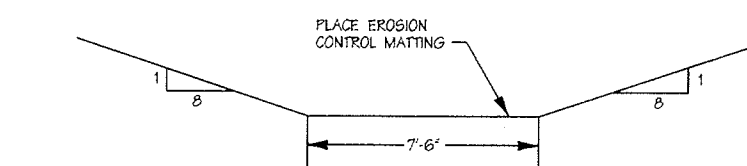
**PAVING SECTION P-2  
PUBLIC ACCESS STREET**

NOT TO SCALE



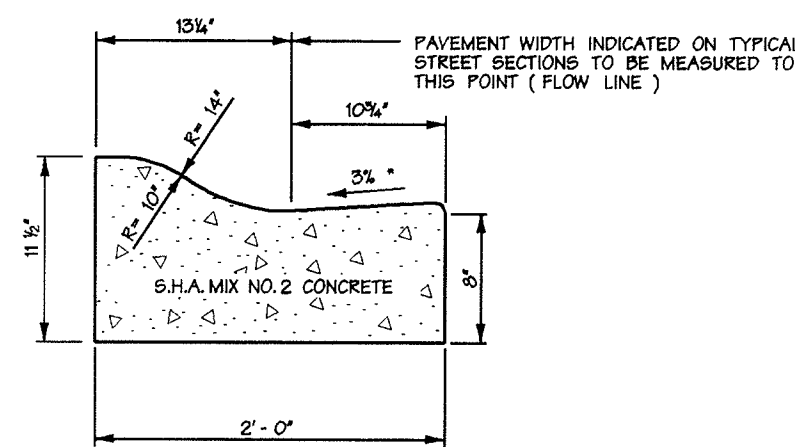
**DECIDUOUS TREE DETAIL**

(TO 3" CALIPER)



**LANDING ROAD  
GRASS CHANNEL TYPICAL SECTION**

NOT TO SCALE

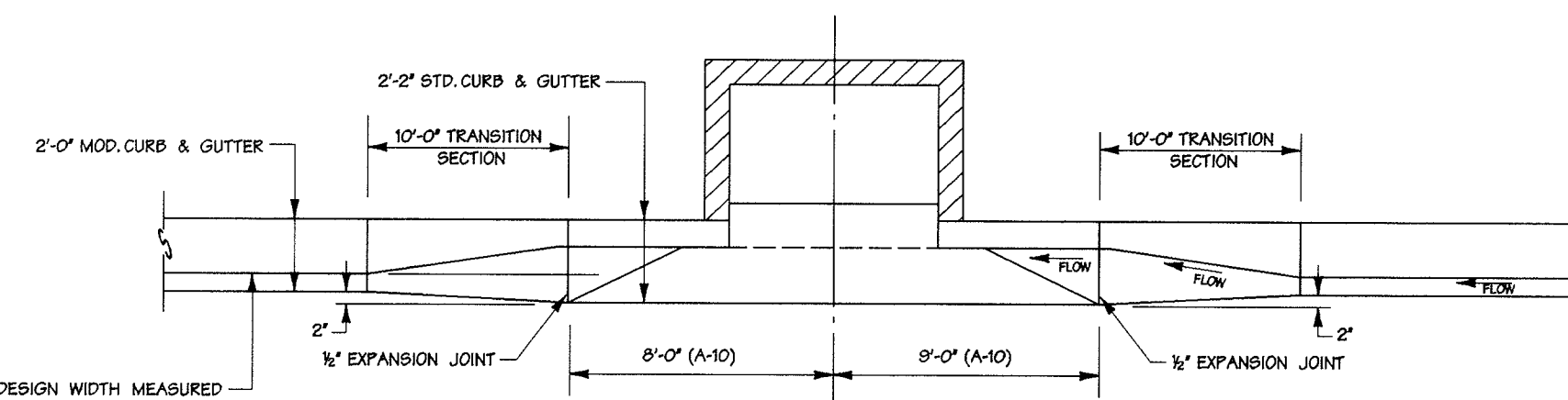


**SECTION**

\* GUTTER PAN AT MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT SAME RATE AND IN SAME DIRECTION AS PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPER ELEVATION IS GREATER THAN 3% FOR MODIFIED CURB AND GUTTER.

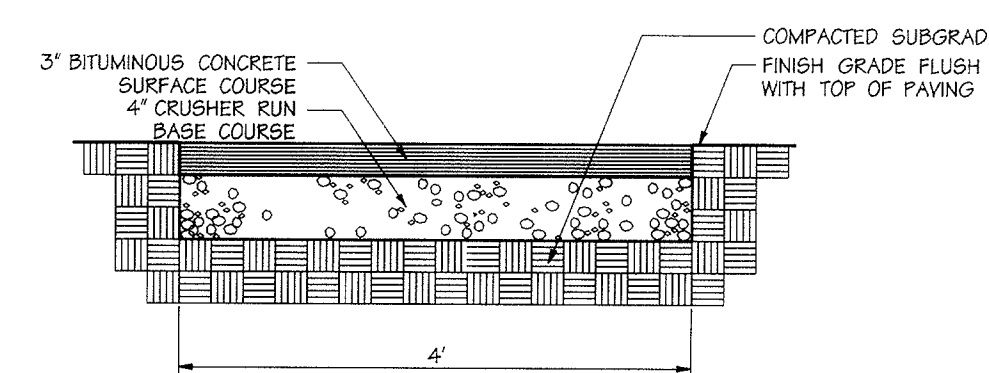
**MODIFIED COMBINATION CURB & GUTTER R-3.01**

NOT TO SCALE



**TRANSITION CURB FROM MODIFIED CURB & GUTTER  
TO STANDARD CURB & GUTTER AT A-10 INLETS**

NOT TO SCALE



**MACADAM PATH (SECTION)**

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William T. ...* 1-3-07  
CHIEF, BUREAU OF HIGHWAYS *me* DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Cindy ...* 1/10/07  
CHIEF, DIVISION OF LAND DEVELOPMENT *JA* DATE

*William ...* 1/10/07  
CHIEF, DEVELOPMENT ENGINEERING DIVISION *me* DATE

Date	No.	Revision Description

**FINAL PLAN  
ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
AND THE RE-SUB DIVISION OF  
NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:  
Ilchester Farm LLC  
c/o James Keelty and Co. Inc.  
P.O. Box 528  
61 E. Padonia Road.  
Timonium, MD 21093

**DMW**  
DRAFT McConne Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 396-3333  
Fax 396-4705

A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

SECTION	DATE	BY	APP. BY
107	10/16/17	R-20	21

**ZAISER PROPERTY  
FINAL PLAN  
DETAIL SHEET**

Des. By	KAD	Scale	1" = 50'	Proj. No.	02059.B
Dwn. By	GMO	Date	6/8/06		
Chk. By	Approved				6 of 19

9/05/06  
Date!

*John ...*  
9/5/06

Professional Engr. No. 14230



**BASIN TABLE**

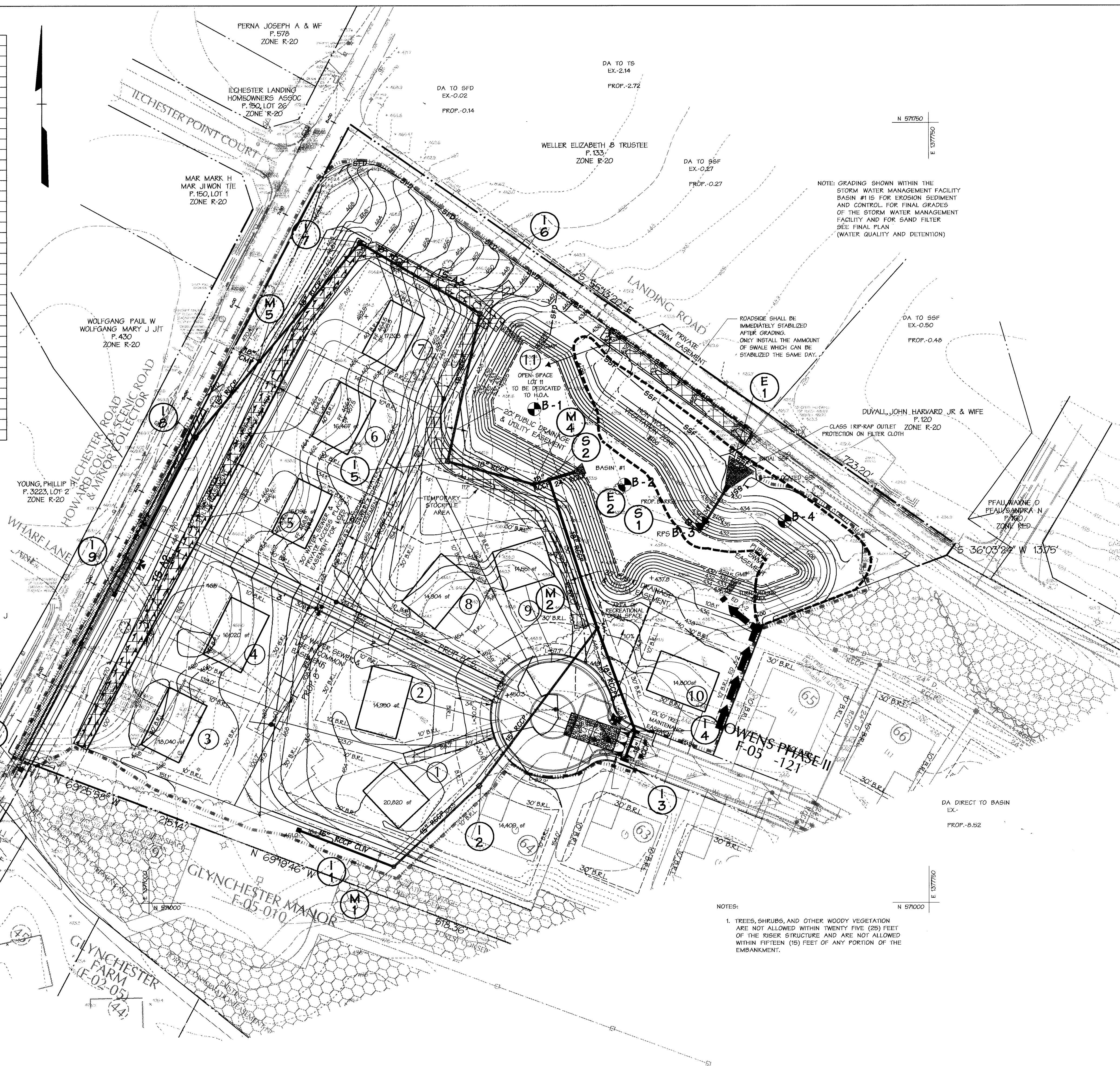
BASIN NUMBER	1
EXISTING DRAINAGE AREA: ACRES	11.74
INTERIM DRAINAGE AREA: ACRES	11.74
PROPOSED DRAINAGE AREA: ACRES	11.74
STORAGE REQUIRED: CUBIC FEET	
WET	21,132
DRY	21,132
TOTAL	42,264
STORAGE PROVIDED: CUBIC FEET	
WET	24,158
DRY	22,263
TOTAL	46,421
EXISTING GROUND ELEVATION	430.60
TOP EMBANKMENT ELEVATION	439.00
EMERGENCY SPILLWAY CREST ELEVATION	N/A
RISER CREST ELEVATION	431.75
WET STORAGE ELEVATION	430.75
CLEANOUT ELEVATION	430.00
Q-10 INTO BASIN (C.F.S.)	50.96
Q-10 OUT BARREL (C.F.S.)	34.48
Q-10 OUT EMERGENCY SPILLWAY (C.F.S.)	N/A
TOTAL Q-10 OUT OF BASIN (C.F.S.)	36.67
BASIN DEPTH:	
WET	1.25
DRY	1.00
TOTAL	2.25
DESIGN HIGHWATER	432.53
FREEBOARD PROVIDED	2.47
BARREL DIAMETER	30"
RISER INTERIOR DIMENSIONS	4' X 4'
EMERGENCY SPILLWAY WIDTH	N/A
WET STORAGE ZONE ELEVATION	429.50-430.75
DRY STORAGE ZONE ELEVATION	430.75-431.75
BOTTOM DIMENSIONS	40' X 205'
STORAGE REQUIRED AT CLEANOUT C.F.	10,556
STORAGE PROVIDED AT CLEANOUT C.F.	9,180
DIMENSION FROM CLEANOUT ELEV. TO RISER TOP	3.33
START DRAWDOWN PERFORATIONS AT ELEV.	430.75
EXISTING Q-1	5.69 CFS
PROPOSED Q-1	1.34 CFS
WSE Q-1	431.63

**TEMPORARY MANAGEMENT**

EX. 1 YR TO BASIN 3.42 CFS  
 PROP. 1 YR FROM BASIN 1.34 CFS

**LEGEND**

	100' W. WSE + 1' FREEBOARD (E.FLOORPLAIN ELEVEMENT)		GMP
	EX TREELINE		B-4 BORING LOCATIONS
	EX MINOR CONTOUR (2' INT.)		RIP-RAP OUTLET PROTECTION
	EX MAJOR CONTOUR (10' INT.)		EROSION CONTROL MATTING
	AREA OF INTERPOLATED CONTOURS		8" W. EX WATER
	EX STRUCTURE		8" S. EX SEWER
	PROP. TREDLINE (IF SHOWN)		24" D. EX STORM DRAIN
	PROPERTY BOUNDARY		8" W. PROP. WATER
	RIGHT OF WAY LINE		8" S. PROP. SEWER
	TEMPORARY SWALE		24" D. PROP. STORM DRAIN
	EARTH DIRT		BASE OF EMBANKMENT
	LIMIT OF DISTURBANCE		NON WOODY VEGETATION ZONE
	REMOVABLE PUMPING STATION		EX CURB AND GUTTER
	91		PROP. CURB AND GUTTER
	PROP. LOT NUMBER		PROP. MINOR CONTOUR
	ADJACENT LOT LINE		PROP. MAJOR CONTOUR
	PROP. LOT LINE		ROADWAY CENTERLINE
	BUILDING SETBACK LINE		SOIL TYPE DELINEATION LINE
	STOP SIGN		
	EX UTILITY POLE		
	PROPOSED LIGHT POLE		
	EASEMENT AREAS		
	SUPPL. SILT FENCE		
	SFT		
	STABILIZED CONSTRUCTION ENTRANCE		
	MOUNTABLE BERM		



NOTE: GRADING WITHIN THE STORM WATER MANAGEMENT FACILITY BASIN #16 FOR EROSION SEDIMENT AND CONTROL FOR FINAL GRADES OF THE STORM WATER MANAGEMENT FACILITY AND FOR SAND FILTER SEE FINAL PLAN (WATER QUALITY AND DETENTION)

NOTES:  
 1. TREES, SHRUBS, AND OTHER WOODY VEGETATION ARE NOT ALLOWED WITHIN TWENTY FIVE (25) FEET OF THE RISER STRUCTURE AND ARE NOT ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William Z. ...* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Judy ...* 1/10/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 1/9/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**FINAL PLAN**  
**ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RE-SUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D' TAX MAP 31 PARCEL 243,572

**OWNER/DEVELOPER:**  
 Ilchester Farm, LLC  
 P.O. Box 528  
 61 E. Padonia Road.  
 Timonium, MD 21093

**DMW**  
 Dan McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705

A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals

12-15-06  
 Date

*Charles V. Main II*  
 PROFESSIONAL ENGINEER

20784  
 Professional Engr. No.

F-06-116

**DEVELOPER'S CERTIFICATION:**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT 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 SHALL EMPLOY A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Mark Buda*  
 SIGNATURE OF DEVELOPER  
 PRINT NAME BELOW SIGNATURE: MARK BUDA

12/15/06  
 DATE

**ENGINEER'S CERTIFICATION:**  
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Charles V. Main II*  
 SIGNATURE OF ENGINEER  
 PRINT NAME BELOW SIGNATURE: Charles V. Main II

12/15/06  
 DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

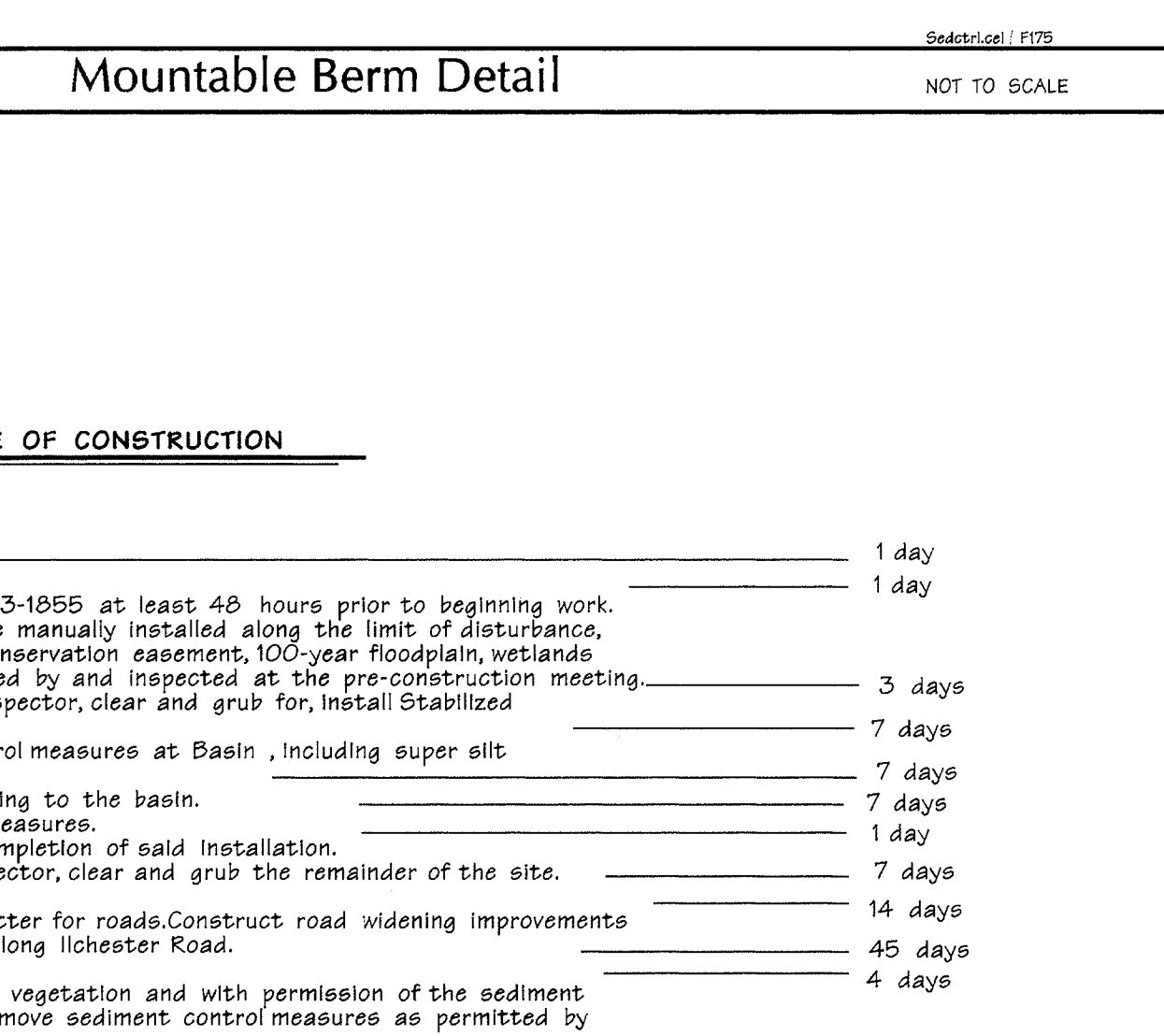
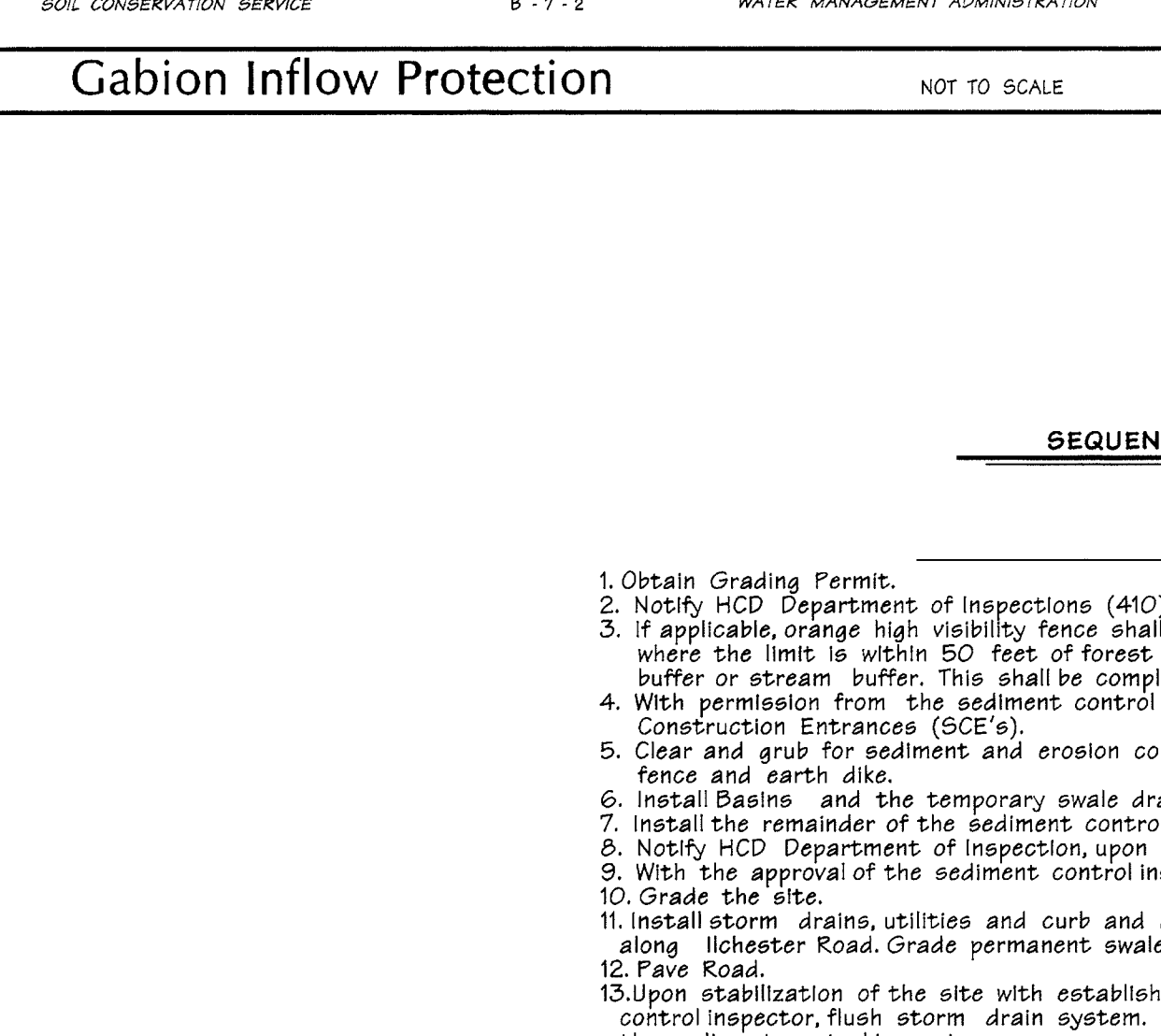
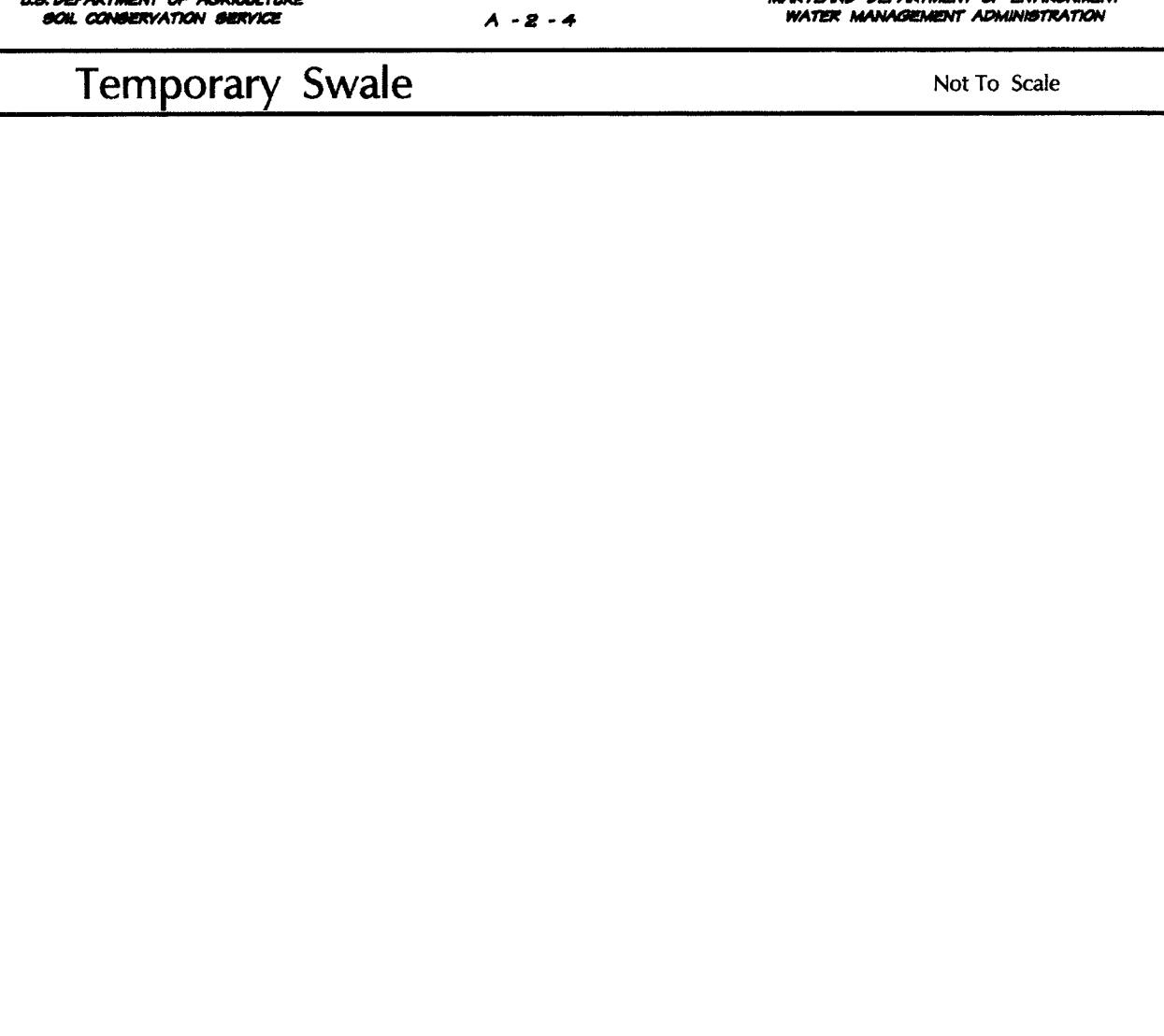
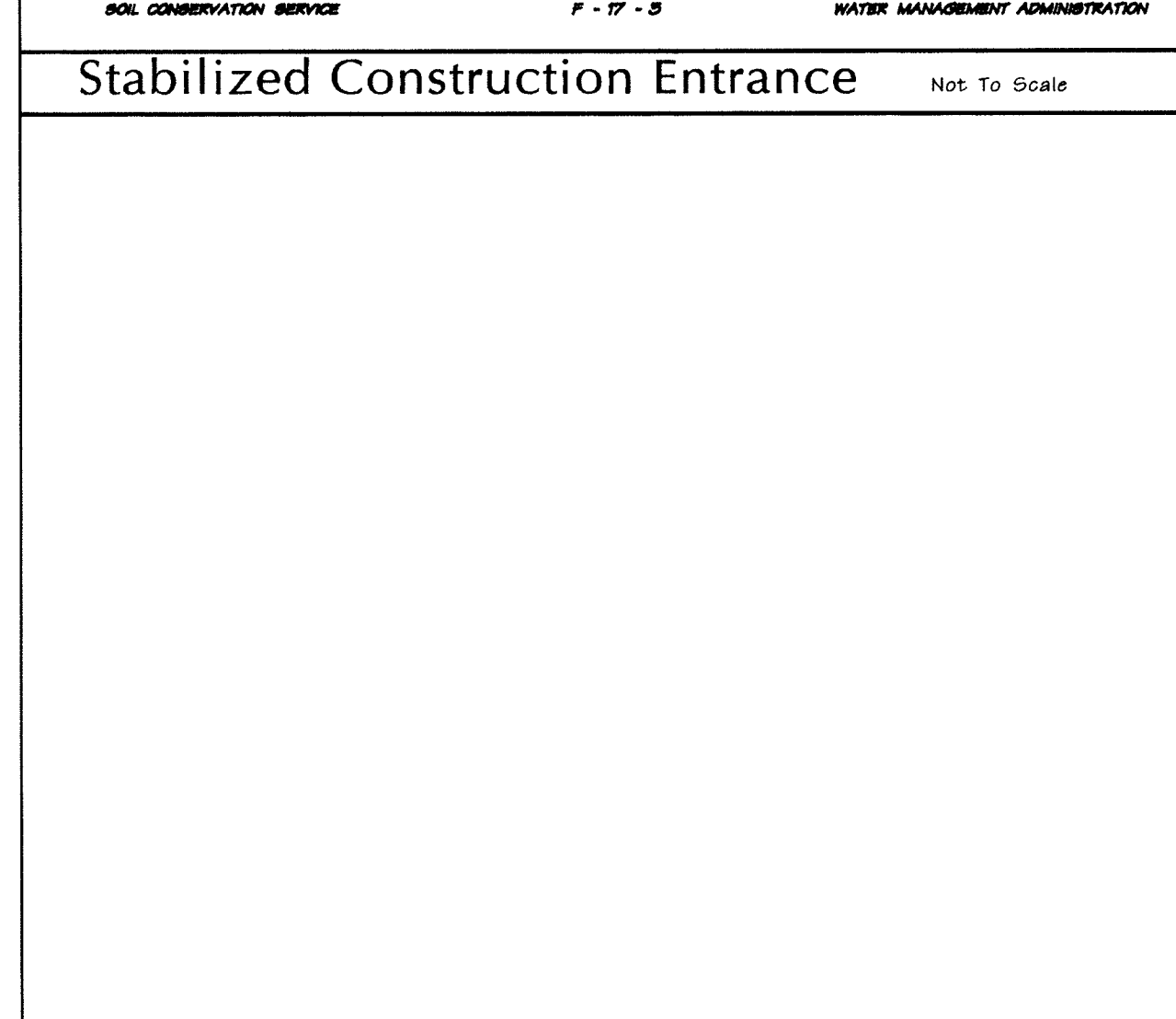
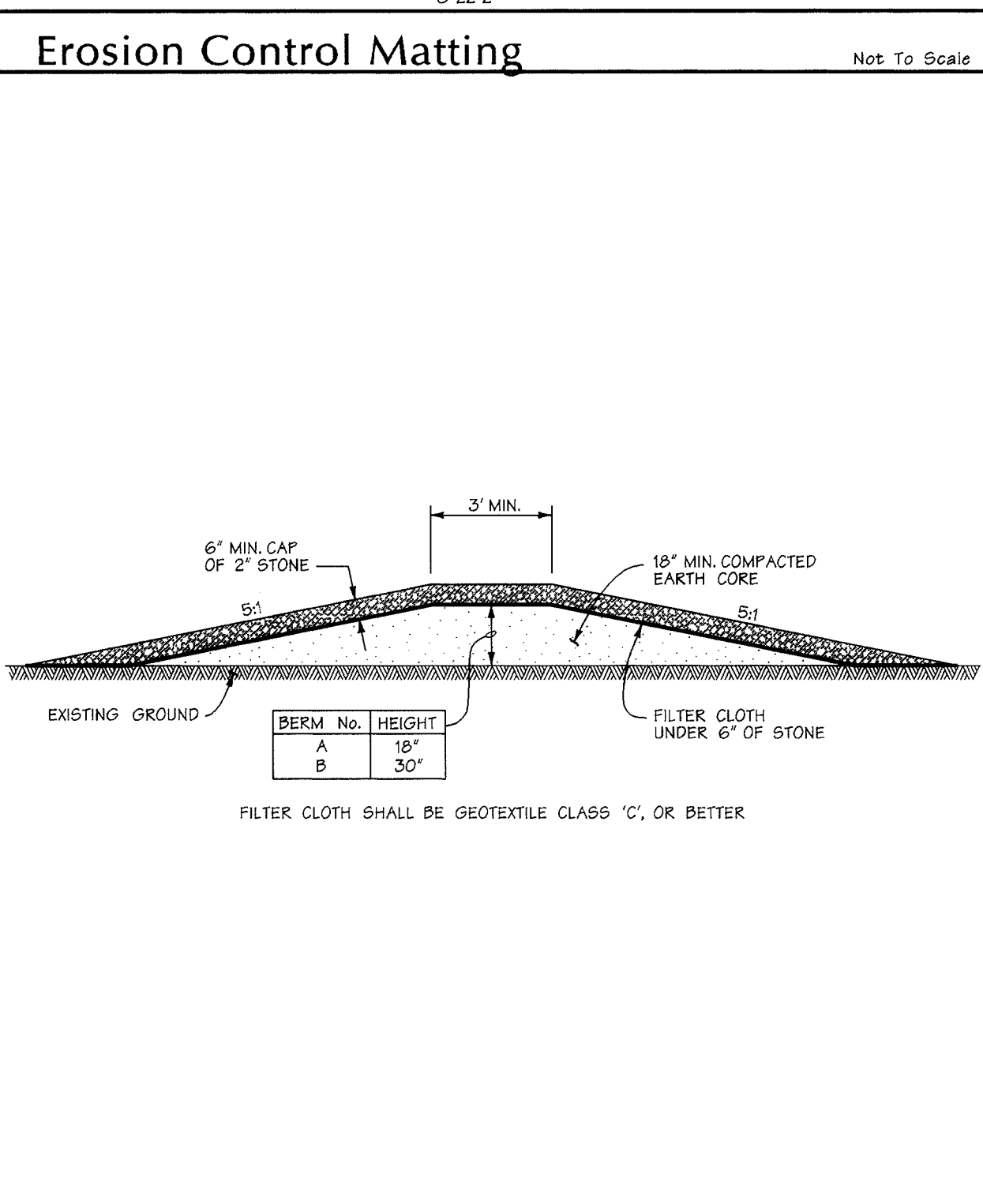
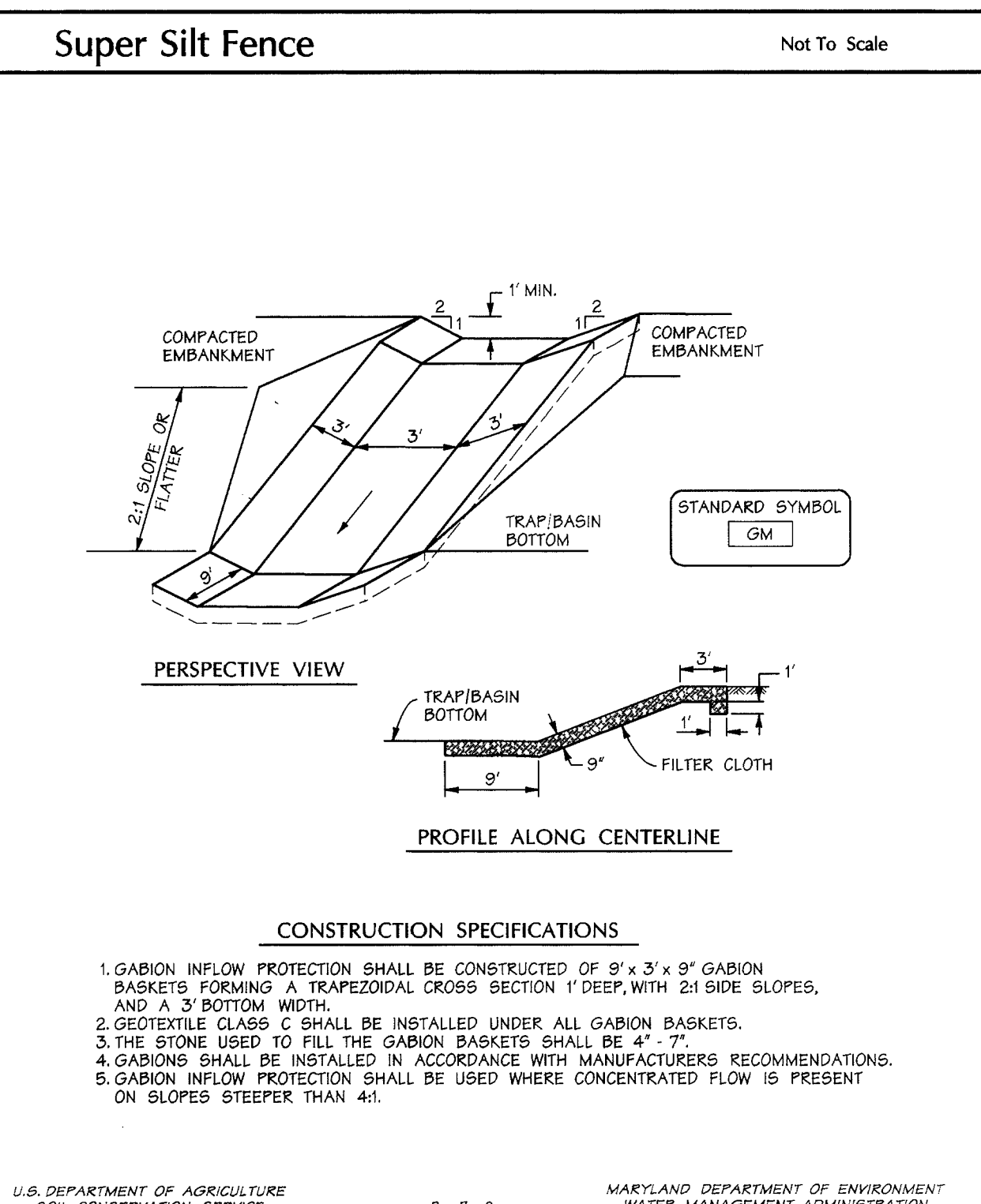
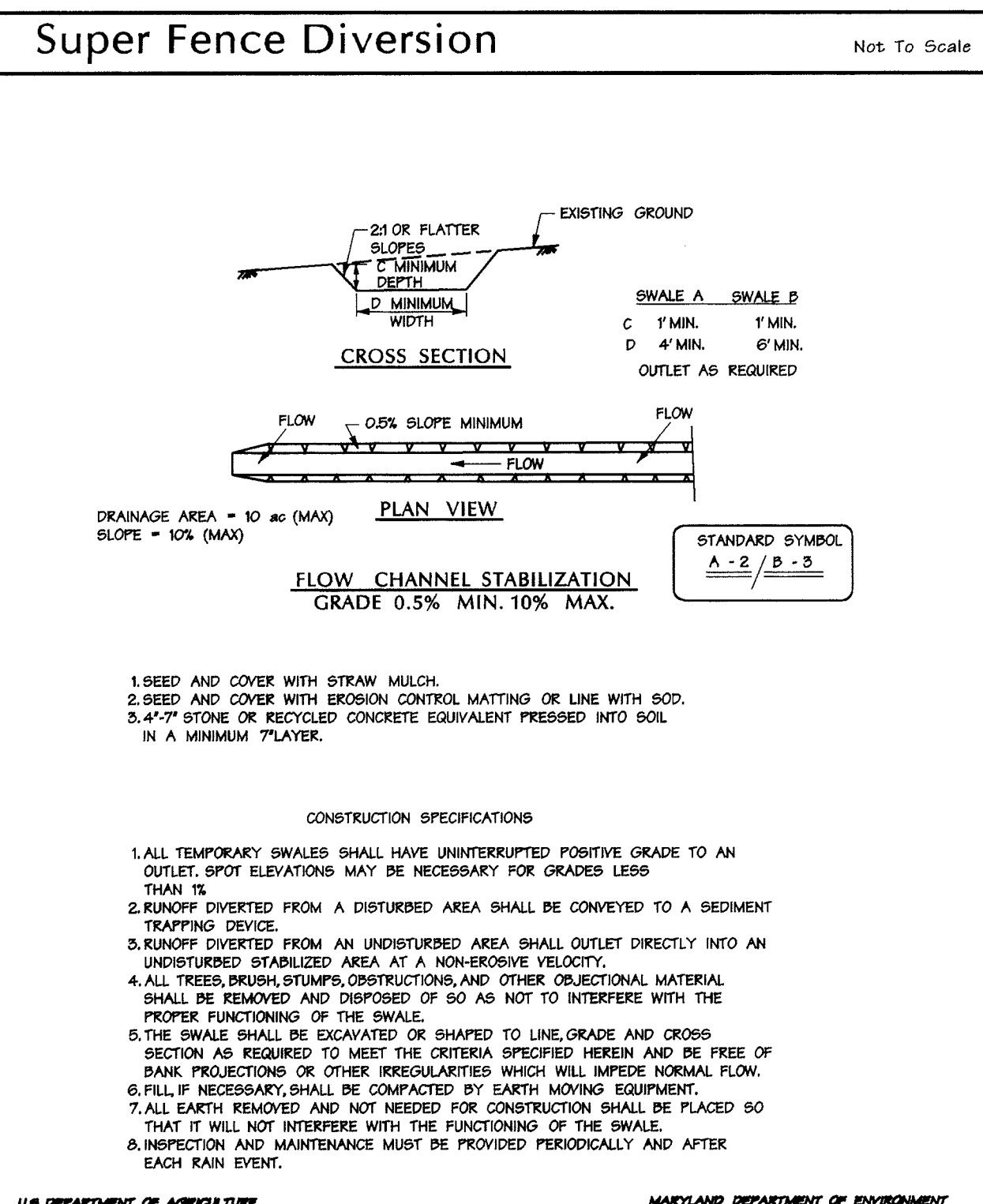
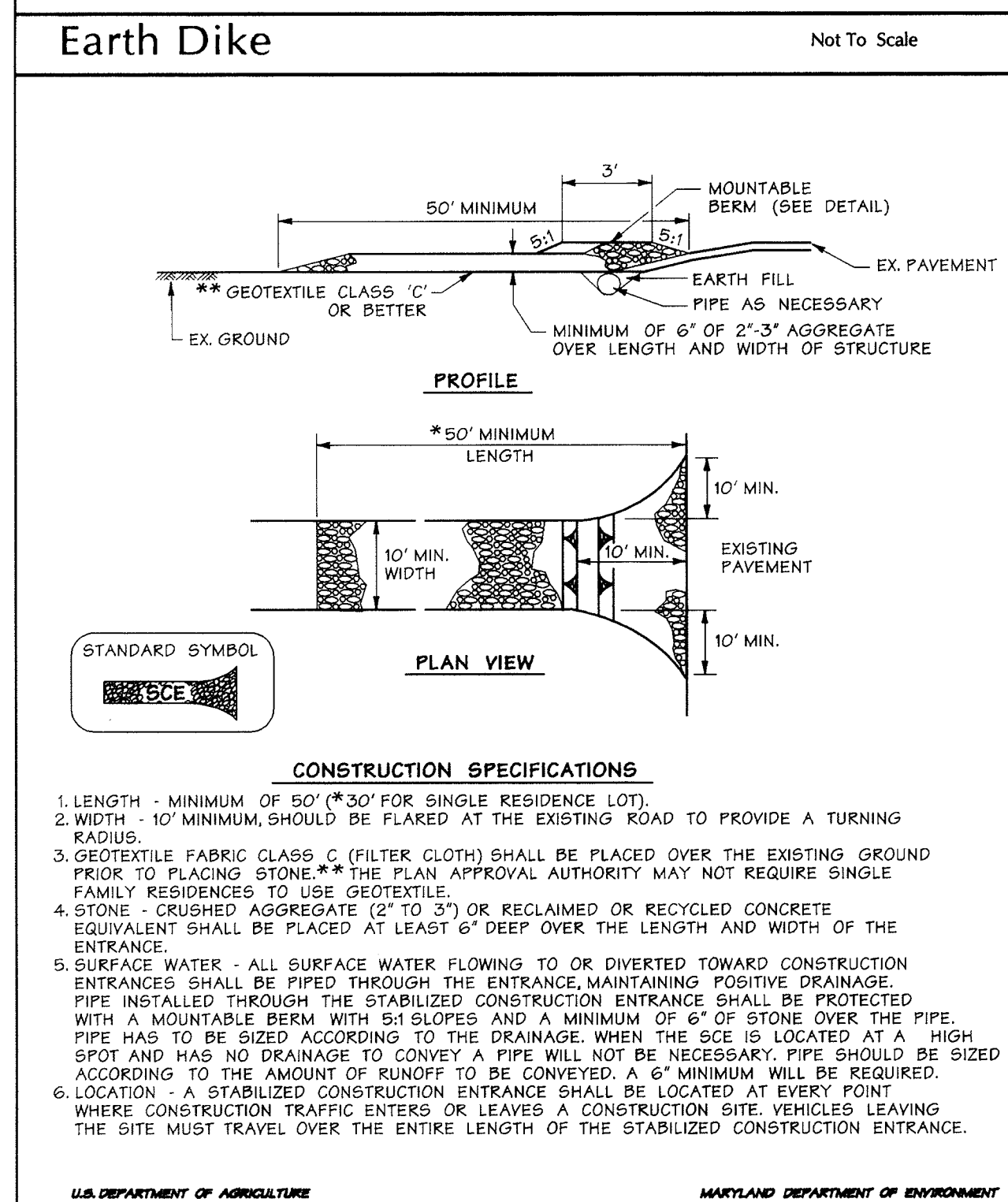
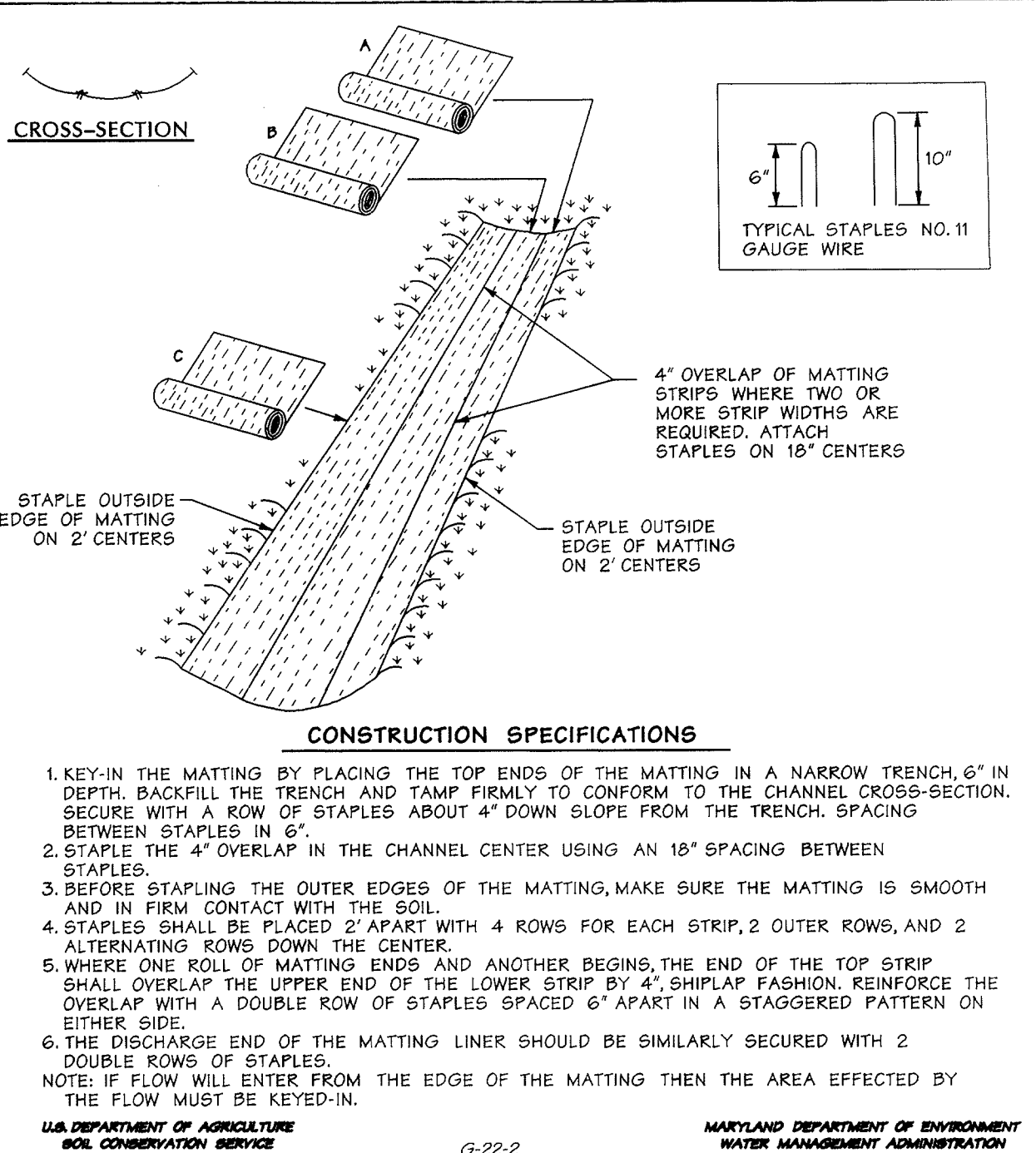
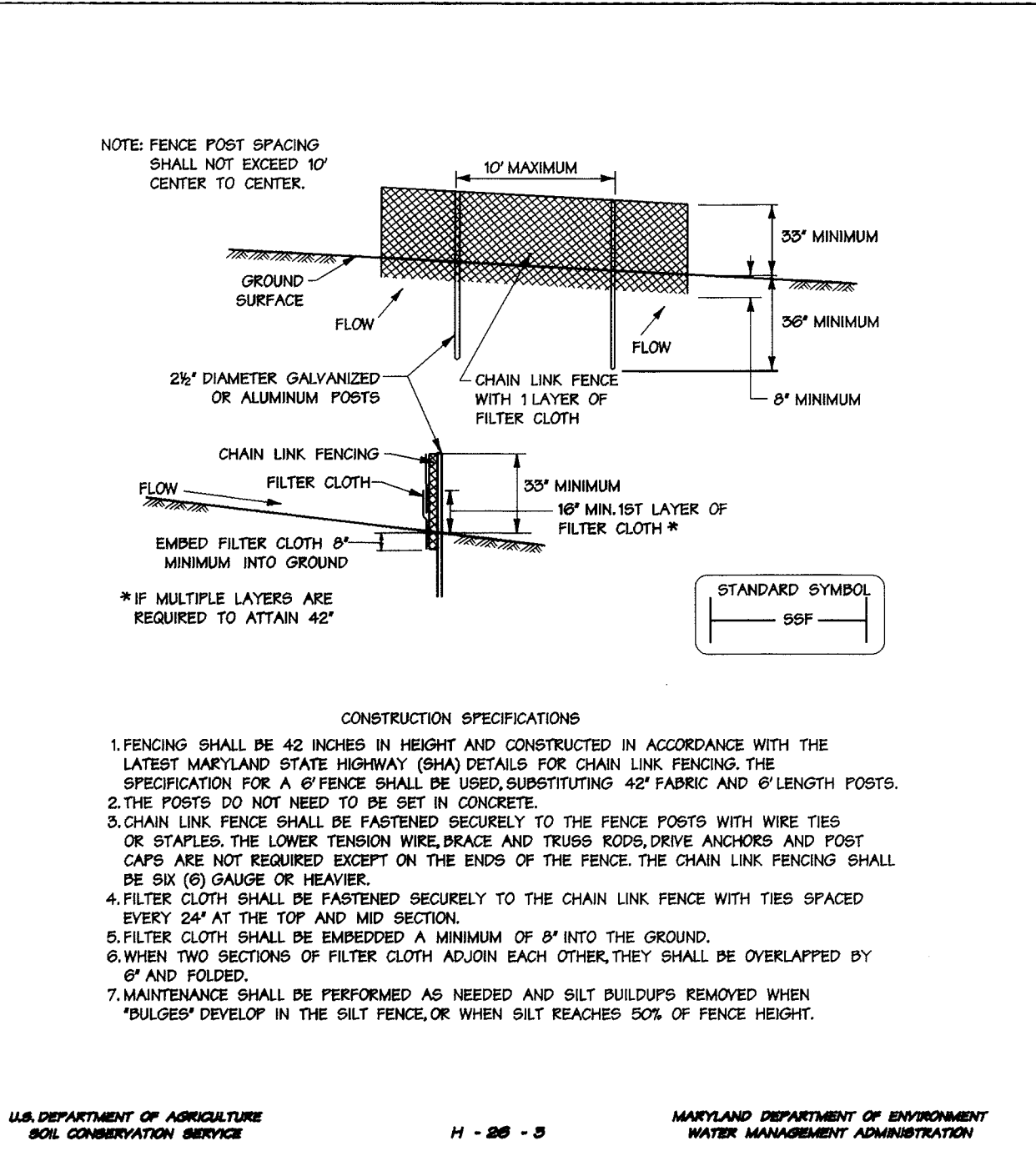
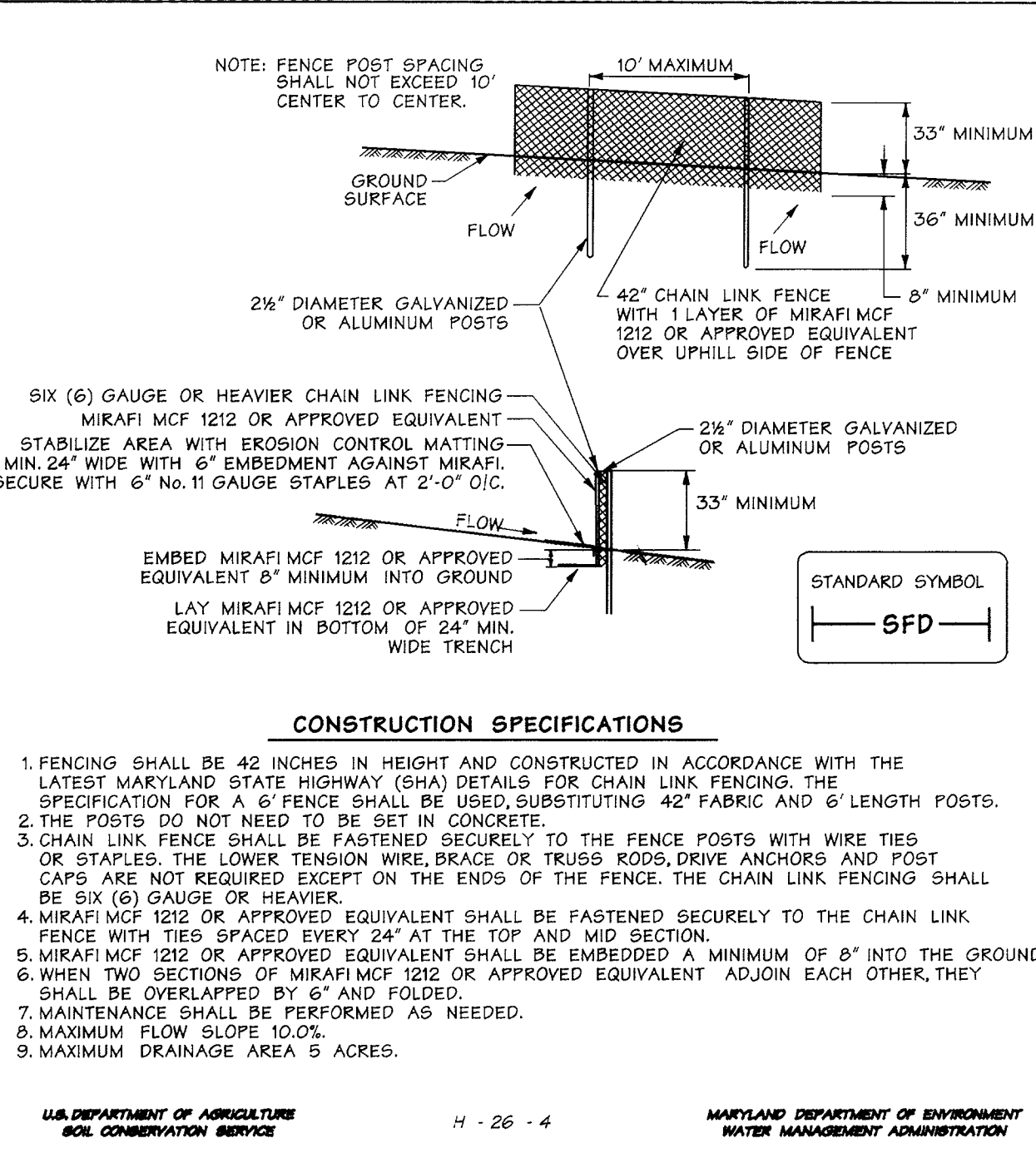
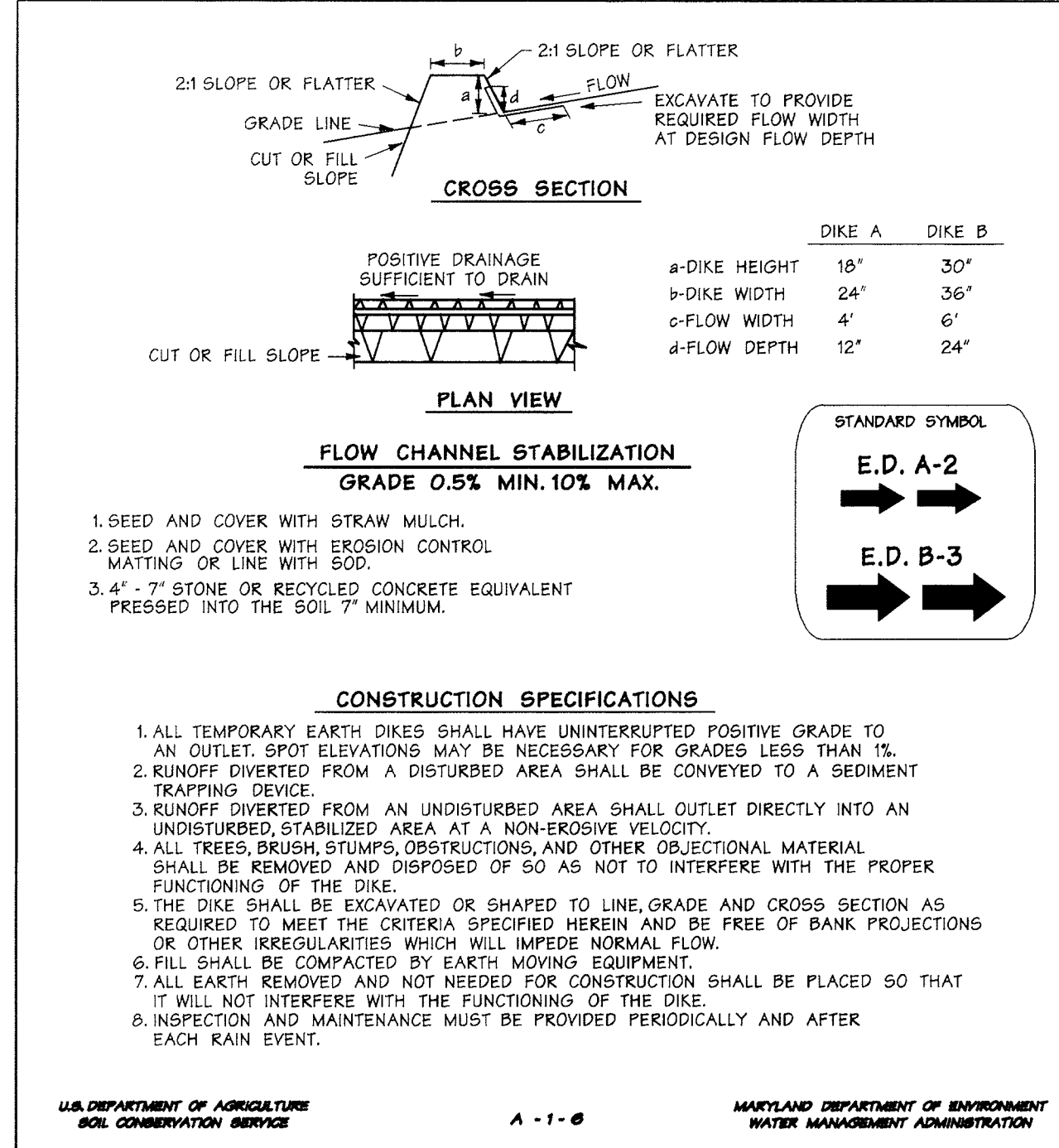
*Jim Myers* 12/15/06  
 U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*...* 12/15/06  
 HOWARD SOIL CONSERVATION DISTRICT DATE

SUBDIVISION NAME	ZAISER PROPERTY	DISTRICT/AREA	DIFFERENCE #
PLAT OR L.P.	TRACES 4 - 10	BLOCK/PARCEL	157
	10,11,16,17 R-20	1	
TITLE	ZAISER PROPERTY		
	FINAL PLAN		
	SEDIMENT AND EROSION CONTROL PLAN		
Des. By	CRW	Scale	1" = 50'
Drn. By	GMO	Date	10/25/06
Proj. No.	02059.B		
Chk. By	Approved		7 of 19





**DEVELOPER'S CERTIFICATION:**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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/SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

MARK BUDA  
12/15/06

**ENGINEER'S CERTIFICATION:**

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Charles V. Main II  
12/15/06

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

12/15/06

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

12/15/06

**SEQUENCE OF CONSTRUCTION**

1. Obtain Grading Permit.	1 day
2. Notify HCD Department of Inspections (410)313-1855 at least 48 hours prior to beginning work.	1 day
3. If applicable, orange high visibility fence shall be manually installed along the limits of disturbance, where the limits is within 50 feet of forest conservation easements, 100-year floodplain, wetlands buffer or stream buffer. This shall be completed by and inspected at the pre-construction meeting.	3 days
4. With permission from the sediment control inspector, clear and grub for, install Stabilized Construction Entrances (SCE's).	7 days
5. Clear and grub for sediment and erosion control measures at Basin, including super silt fence and earth dike.	7 days
6. Install Basins and the temporary swale draining to the basin.	7 days
7. Install the remainder of the sediment control measures.	1 day
8. Notify HCD Department of Inspection, upon completion of said installation.	1 day
9. With the approval of the sediment control inspector, clear and grub the remainder of the site.	7 days
10. Grade the site.	14 days
11. Install storm drains, utilities and curb and gutter for roads. Construct road widening improvements along Ilchester Road. Grade permanent swale along Ilchester Road.	45 days
12. Pave Road.	4 days
13. Upon stabilization of the site with established vegetation and with permission of the sediment control inspector, flush storm drain system. Remove sediment control measures as permitted by the sediment control inspector.	7 days
14. Convert Basins to stormwater management (SWM) facility.	7 days
a. Install foray sand filter and gabion weir per details.	14 days
b. Convert the riser. Stabilize disturbed areas in the ponds.	4 days
c. Stabilize disturbed areas in the ponds.	4 days
15. With the permission of the Sediment Control Inspector, remove sediment control measures and stabilize any areas disturbed by their removal.	4 days

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
1/3/07  
DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
1/10/07  
DATE

1/9/05  
DATE

Date	No.	Revision Description

**FINAL PLAN**  
**ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
AND THE RE. SUB. DIVISION OF  
NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
TAX MAP 31 PARCEL 243,572

**OWNER/DEVELOPER:**

Ilchester Farm, LLC  
c/o James Keelty and Co. Inc.  
P.O. Box 528  
61 E. Padonia Road.  
Timonium, MD 21093

**DMW**  
Darr McCune-Walker, Inc.  
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Towson, Maryland 21286  
(410) 296-3353  
Fax: 296-4705

A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

12-15-06  
Date

12/15/06  
DATE

20784  
Professional Engr. No.

8 of 19

F-06-116



### CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER RIP-RAP OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C SHALL BE PROTECTED FROM PUNCHING, CUTTING OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING 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.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS 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 BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. 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 SCOUR ADJACENT TO THE STONE WILL OCCUR.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-8A, 9A, 10A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### CONSTRUCTION SPECIFICATIONS

1. PERFORATIONS IN THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
2. THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 4 TIMES THE AREA OF THE INTERNAL ORIFICE.
3. THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.
4. PROVIDE SUPPORT OF DRAW-DOWN DEVICE TO PREVENT SAGGING AND FLUTATION. AN ACCEPTABLE PREVENTATIVE MEASURE IS TO STAKE BOTH SIDES OF THE DRAW-DOWN DEVICE WITH 1" STEEL ANGLE, OR 2" BY 2" SQUARE OR 2" ROUND WOODEN POSTS SET 3" MINIMUM INTO THE GROUND THEN JOINING THEM TO THE DEVICE BY WRAPPING WITH 12 GAUGE MINIMUM WIRE.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE C-10-30 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### CONSTRUCTION SPECIFICATIONS

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (303-1955).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERE TO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
  - A. SEVEN CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1.
  - B. FOURTEEN DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAP BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR 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 EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 8), SOGS (SEC. 54), TEMPORARY SEEDING (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 AREA OF SITE	7.6 ACRES
AREA DISTURBED	7.2 ACRES
AREA TO BE ROOFED OR PAVED	12 ACRES
AREA TO BE VEGETATIVELY STABILIZED	6.0 ACRES
TOTAL CUT	6,500 CUBIC YARDS
TOTAL FILL	6,500 CUBIC YARDS
OFF-SITE WASTE/BORROW AREA LOCATION WASTE	= 0
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. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-10 (HEAD) MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### Sediment Control General Notes

#### CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER RIP-RAP OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C SHALL BE PROTECTED FROM PUNCHING, CUTTING OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING 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.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS 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 BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. 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 SCOUR ADJACENT TO THE STONE WILL OCCUR.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-8A, 9A, 10A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### ROCK OUTLET PROTECTION SPECIFICATIONS

#### CONSTRUCTION SPECIFICATIONS

1. THE OUTER PIPE SHOULD BE 48" DIAMETER OR SHALL IN ANY CASE BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
2. AFTER INSTALLING THE OUTER PIPE, BACKFILL AROUND OUTER PIPE WITH 2" AGGREGATE OR CLEAN GRAVEL.
3. THE INSIDE STAND PIPE (CENTER PIPE) SHOULD BE CONSTRUCTED BY PERFORATING A CORRUGATED OR PVC PIPE BETWEEN 12" AND 36" IN DIAMETER. THE PERFORATIONS SHALL BE 1/2" x 6" SLOTS OR 1" DIAMETER HOLES 6" ON CENTER. THE CENTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH FIRST, THEN WRAPPED AGAIN WITH GEOTEXTILE CLASS E.
4. THE CENTER PIPE SHOULD EXTEND 12" TO 18" ABOVE THE ANTICIPATED WATER SURFACE ELEVATION OR RISER CREST ELEVATION WHEN DEWATERING A BASIN.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE D-12-5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### Basin Drawdown Schematic Ver. Drawdown Device

#### CONSTRUCTION SPECIFICATIONS

1. THE OUTER PIPE SHOULD BE 48" DIAMETER OR SHALL IN ANY CASE BE AT LEAST 4" GREATER IN DIAMETER THAN THE CENTER PIPE. THE OUTER PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH TO PREVENT BACKFILL MATERIAL FROM ENTERING THE PERFORATIONS.
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-10 (HEAD) MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### BASIN #2 DRAWDOWN PERFORMANCE DETAIL

#### CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER RIP-RAP OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C SHALL BE PROTECTED FROM PUNCHING, CUTTING OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING 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.
4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS 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 BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
5. 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 SCOUR ADJACENT TO THE STONE WILL OCCUR.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-10 (HEAD) MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### ROCK OUTLET PROTECTION III

#### CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER RIP-RAP OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
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4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR RIP-RAP OR GABION OUTLETS 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 BLANKET OR GEOTEXTILE. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-8A, 9A, 10A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### Removable Pumping Station

NOT TO SCALE

#### CONSTRUCTION SPECIFICATIONS

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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE D-12-5 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### SEDIMENT CONTROL DRAW-DOWN

Not to Scale

#### CONSTRUCTION SPECIFICATIONS

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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-10 (HEAD) MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### ROCK OUTLET PROTECTION SPECIFICATIONS

#### CONSTRUCTION SPECIFICATIONS

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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-8A, 9A, 10A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### SEDIMENT CONTROL DRAW-DOWN

Not to Scale

#### CONSTRUCTION SPECIFICATIONS

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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-10 (HEAD) MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

### DEVELOPER'S CERTIFICATION:

I, THE DEVELOPER, CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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 HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Mark Buda* DATE: 12/15/06

### ENGINEER'S CERTIFICATION:

I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE. CONDYING THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

Signature: *Charles V. Main II* DATE: 12/15/06

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

Signature: *Charles V. Main II* DATE: 12/15/06

U.S. NATURAL RESOURCE CONSERVATION SERVICE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: *Mark Buda* DATE: 12/15/06

HOWARD SOIL CONSERVATION DISTRICT

### APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William T. White* 1-3-07  
CHIEF, BUREAU OF HIGHWAYS No DATE

### APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Andy Hamilton* 1/10/07  
CHIEF, DIVISION OF LAND DEVELOPMENT No DATE

### APPROVED: HOWARD COUNTY DEPT. OF ENGINEERING

*Mark Buda* 1/9/07  
CHIEF, DEVELOPMENT ENGINEERING DIVISION No DATE

Date	No.	Revision Description

### FINAL PLAN

## ZAISER PROPERTY

LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RE-SUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D' TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:  
Ilchester farm, LLC  
c/o James Keely and Co. Inc.  
P.O. Box 528  
61 E. Fadonia Road.  
Timonium, MD 21093

**DMW**  
Duff McCune-Walker, Inc.  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3333  
Fax: 296-4705  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

12-15-06  
Date

Signature: *Charles V. Main II*

Professional Engr. No. 20784

DATE	NO.	REVISION DESCRIPTION

### SEDIMENT CONTROL DRAW-DOWN

Not to Scale

#### CONSTRUCTION SPECIFICATIONS

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2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
3. GEOTEXTILE CLASS C SHALL BE PROTECTED FROM PUNCHING, CUTTING OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING 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.
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U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE F-19-10 (HEAD) MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



**STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION**

**SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS**

- A. SITE PREPARATION**
1. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.
  2. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
  3. Schedule required soil test to determine soil amendment composition and application rates for sites having disturbed areas over 5 acres.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
1. Soil tests must be performed to determine the exact rates 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 taken for engineering purposes may also be used for chemical analysis.
  2. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval 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 a warrant of the producer.
  3. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxide (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98 - 100% will pass through a #200 mesh sieve.
  4. Incorporate lime and fertilizer into the top 3 - 5 inches of soil by disking or other suitable means.

**C. SEEDBED PREPARATION**

- I. TEMPORARY SEEDING**
1. Seedbed preparation shall consist of loosening soil to a depth of 3 inches to 5 inches by means of suitable agricultural or construction equipment, such as a disc harrow or chisel plow or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3%) should be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.
  2. Apply fertilizer and lime as prescribed on the plans.
  3. Incorporate lime and fertilizer into the top 3 - 5 inches of soil by disking or other suitable means.
- II. PERMANENT SEEDING**
1. Minimum soil conditions required for permanent vegetative establishment:
    - a. Soil pH shall be between 6.0 and 7.0.
    - b. Soluble salts shall be less than 500 parts per million (PPM).
    - c. The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is for Lovgrass or sorrel. Lovgrass is to be planted. Then a sandy soil (< 30% silt plus clay) would be acceptable.
    - d. Soil shall contain 1.5% minimum organic matter by weight.
    - e. Soil must contain sufficient pore space to permit adequate root penetration.
    - f. If these conditions cannot be met by the soils on site, adding topsoil is required in accordance with Section 21 - Standard and Specification for Topsoil.
  2. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 - 5 inches to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
  3. Apply soil amendments as per soil test or as included on the plans.
  4. Mix soil amendments into the top 3 - 5 inches of topsoil by disking or other suitable means. Lawn areas should be raked 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 seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3%) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3 inches of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

**D. SEED SPECIFICATIONS**

1. 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 on this job.
  2. Inoculant - The inoculant for treating legume seed in the seed mixtures 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 used. Temperatures above 75-80 F. can weaken bacteria and make the inoculant less effective.
- E. METHODS OF SEEDING**
1. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or outpacker seeder.
    - a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following:
      - Nitrogen: maximum of 100 pounds per acre total of soluble Nitrogen P2O5 (phosphorus): 200 pounds per acre K2O (potassium): 200 pounds per acre.
    - b. Lime: Use only ground agricultural limestone, (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
    - c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
  2. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
    - a. Seed spread dry shall be incorporated into the subsoil at the depths prescribed on the temporary or permanent seeding summaries or tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed soil contact.
    - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
    3. Drill or outpacker seeding: Mechanized seeders that apply and cover seed with soil.
      - a. Outpacking seeders are required to bury the seed in such a fashion as to provide at least 1 inch of soil covering.
        - Seeded must be firm after planting.
      - b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.
- F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)**
1. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty, and shall be free of noxious weeds seeds as specified in the Maryland Seed Law.
  2. Wood cellulose fiber mulch (WCFM)
    - a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
    - b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
    - c. WCFM, including dye shall contain no germination or growth inhibiting factors.
    - d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

**SECTION V - TURFGRASS ESTABLISHMENT**

Areas where turfgrasses may be desired may include lawns, parks, playgrounds, and commercial areas which will receive a medium high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1/4 inches in diameter shall be removed. The resulting seeded 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**

1. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive rapid establishment is necessary and when turf will receive medium to intensive management. Certified Kentucky Bluegrass cultivars seeding rate: 1.5 to 2.0 pounds per 1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.
  2. Kentucky Bluegrass/Perennial Rye - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass cultivars/certified Kentucky Bluegrass seeding rate: 2 pounds mixture per 1000 square feet. A minimum of 3 Kentucky Bluegrass cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.
  3. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium management 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 pounds per 1000 square feet. One or more cultivars may be blended.
  4. Kentucky Bluegrass/Fine Fescue - Shade mixture - For use in areas with shade in bluegrass lawns. For establishment in high quality, intensively managed turf areas. Mixture includes: certified Kentucky Bluegrass cultivars 30-40% and certified Fine Fescue and 60-70%. Seeding rate: 1 1/2 - 3 pounds per 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 35% of the mixture by weight.
- Note: Turfgrasses varieties should be selected from those listed in the most current University of Maryland publication, agronomy mimeo number 77, "Turfgrasses Cultivar Recommendations for Maryland".

**B. IDEAL TIMES OF SEEDING**

Western Maryland: March 15 - June 1, August 1 - October 1 (hardiness zones - 5B, 6A), Central Maryland: March 1 - May 15, August 15 - October 15 (hardiness zone - 6B), Southern Maryland, Eastern Shore: March 1 - May 15, August 15 - October 15 (hardiness zones - 7A - 7B)

**C. IRRIGATION**

If soil moisture is different, 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 reseeding within the planting season.
1. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately established.
  2. If the stand provides less than 40% ground coverage, re-establish following original time, fertilizer, seedbed preparation and seeding recommendations.
  3. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.
  4. Maintenance fertilizer rates for permanent seedings are shown in Table 24, for lawns and other medium high maintenance turfgrasses areas, refer to the University of Maryland publication "Lawn Care in Maryland" bulletin number 171.

**MATERIALS SPECIFICATIONS**

**TABLE 27 GEOTEXTILE FABRICS**

Class	Apparent Opening Size MM. Max.	Grab Tensile Strength Lb. Min.	Burst Strength Psi. Min.
A	0.30 **	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (silt fence)	0.40-0.80 *	90	190

\* US Standard sieve CW-02215 \*\* .50 MM max. for super silt fence

The properties shall be determined in accordance with the following procedures:  
 - Apparent opening size: meet 323.  
 - Grab tensile strength ASTM 1602: 4 x 8" specimen, 1 x 2" clamps, 12" min. strain rate in both principal directions of geotextile fabric.  
 - Burst strength: ASTM D 3786.

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% by weight of polyolefins, polyesters, or polyamides. The geotextile fabric shall resist deterioration from ultraviolet exposure.

In addition, classes A through E shall have a 0.01 cm/sec. minimum permeability when tested in accordance with meet 507, and an apparent minimum elongation of 20 percent (20%) when tested in accordance with the grab tensile strength requirements listed above.

Silt fence  
 Class F geotextile fabric for silt fence shall have a 50 lb./in. minimum tensile strength and a 20 lb./in. minimum tensile modulus when tested in accordance with meet 509. The material shall also have a 0.3 gal./ft./min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance with meet 322. Geotextile fabric used in the construction of silt fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amount of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected useful construction life at a temperature range of 0 to 120 degree Fahrenheit.

**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.

Seed Mixture (Hardiness Zone 7A)					Fertilizer Rate (10-10-10)	Lime Rate
No.	Species	Application Rate (Lb./Ac.)	Seeding Dates	Seeding Depth		
1	Annual Ryegrass	50	2/15 - 3/30 8/15 - 11/11	1/4" - 1/2"	600 Lbs./Ac. (150 Lbs./1000 SF)	2 Tons/Ac. (100 Lbs./1000 SF)
2	Weeping Lovgrass	15	5/1 - 8/14	1/4" - 1/2"		

**SECTION III - PERMANENT SEEDING**

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

Seed Mixture No. 3 (Hardiness Zone 7A)					** Fertilizer Rate (10-20-20)			** Lime Rate
%	Species	Application Rate (Lb./Ac.)	Seeding Dates	Seeding Depth	N	P2O5	K2O	
85	Kentucky Bluegrass	125			90	175	175	2 Tons/Ac.
10	Perennial Ryegrass	15	3/1 - 5/15 8/15 - 11/15	1/4" - 1/2"	(2 Lb./Sq.Ft.)	(4 Lb./Sq.Ft.)	(4 Lb./Sq.Ft.)	(100 Lb./1000 Sq.Ft.)
5	Kentucky Bluegrass	10						

\* For 5-16 through 10-14 add two (2) pounds of Weeping Lovgrass per acre or ten (10) pounds of Millet per acre to seed mixture (Lb./Min #3 shown).  
 \*\* As time of fine grading, fertilizer and lime rates will be based on soil test results. (See section 1.8.1.) Copy of recommended rates to be supplied to the Sediment Control Inspector.

**SECTION IV - SOD**

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

**A. GENERAL SPECIFICATIONS**

1. Class of turfgrass sod shall be Maryland or Virginia State certified or approved. Sod labels shall be made available to the job foreman as an inspector.
2. Sod shall be machine cut at a uniform soil thickness of 3/4", plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the supplier's width length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.
3. 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.
4. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
5. 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.

**B. SOD INSTALLATION**

1. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.
2. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which air-drying of the roots.
3. Whenever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure soil contact between sod roots and the underlying soil.
4. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad 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**

1. 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 inches. Watering should be done during the heat of the day to prevent wilting.
2. After the first week, sod watering is required as necessary to maintain adequate moisture content.
3. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass heights shall be maintained between 2 inches and 3 inches unless otherwise specified.

**TABLE 28 STONE SIZE**

	Size Range	D50	D100	AASHTO	Weight
Number 57 *	3/8" - 1 1/2"	1/2"	1 1/4"	M-43	N/A
Number 1	2" - 3"	2 1/4"	3"	M-43	N/A
Rip-Rap **	4" - 7"	5 1/4"	7"	N/A	N/A
Class I	N/A	9.5"	15"	N/A	150 Lb. max.
Class II	N/A	16"	24"	N/A	700 Lb. max.
Class III	N/A	23"	34"	N/A	2000 Lb. max.

\* This classification is to be used on the inside face of stone outlets and check dams.  
 \*\* This classification is to be used when ever small rip-rap is required. The State Highway Administration designation for this stone is stone for gabions (90S.01.04).

**STONE FOR GABION BASKETS**

Basket Thickness	Size of Individual Stones	
	Inches	MM
6	150	3 - 5
9	225	4 - 7
12	300	4 - 7
18	460	4 - 7
36	910	4 - 12

Note: Recycled concrete equivalent may be substituted for all stone classifications. Recycled concrete equivalent shall be equivalent prior to the class meeting the appropriate classification, shall contain no steel reinforcement, and shall have a density of 150 pounds per cubic foot.

H - 24 - 1

**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**

1. 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 containing supplies of moisture and plant nutrients.
  - c. The original soil to be vegetated contains material toxic to plant growth.
  - d. The soils so acidic that treatment with limestone is not feasible.
2. 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**

1. Topsoil salvages 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 Experimental Station.
2. Topsoil Specifications - Soil to be used as topsoil must meet the following:
  1. 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 coarse fragments (stones, rocks, sticks, roots, trash, or other materials larger than 1 1/2" in diameter).
  2. Topsoil must be free of plants or plant parts such as bermuda grass, guacagrass, Johnsongrass, nutgrass, poison ivy, thistle, or other as specified on the plans.
  3. Where the subsoil is either highly acidic or composed of heavy clay, 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.
  4. For sites having disturbed areas under 5 acres:
    1. 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 used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic material.
    2. Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
    3. Place topsoil (if required) and apply soil amendments as specified in 2.0.1 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
3. Topsoil Application
  1. 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.
  2. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
  3. 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 seeding or sodding 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.
  4. 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 seeded preparation.
  5. 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 sites 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 percent potassium and have a Ph of 6.0 or greater. In addition to the above, if the nutrient requirements for 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.
      4. Composted sludge shall be amended with a potassium fertilizer applied at a rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

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

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

*William F. Hubert* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

*Condy Hamann* 1/19/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT JA DATE

*Chris DeMunnich* 1/9/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION JMS DATE

Date	No.	Revision Description

**FINAL PLAN  
 ZAISER PROPERTY**

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

LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RESUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D' TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:

lchester farm, LLC  
 c/o James Keely and Co. Inc.  
 P.O. Box 528  
 61 E. Padonia Road,  
 Timonium, MD 21093

**DMW**  
 Draft McCreary-Walkers, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax: 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	SECTION/AREA	LOT/INCL. #
ZAISER PROPERTY		157

TITLE: **ZAISER PROPERTY**  
 FINAL PLAN  
 SEDIMENT AND EROSION CONTROL  
 SPECIFICATIONS

Des. By	KAD	Scale	1" = 50'	Proj. No.	02059.B
Dwn. By	GMO	Date	9/7/06		
Chk. By		Approved			10 of 19

9/5/06  
 Date  
*Mark Buda*  
 Professional Engr. No. 14330

Vegetative Stabilization

**DEVELOPER'S CERTIFICATION:**

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT AN RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A STATE APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE THE CONSTRUCTION OF THE PROJECT AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER: *Mark Buda* DATE: 9/5/06

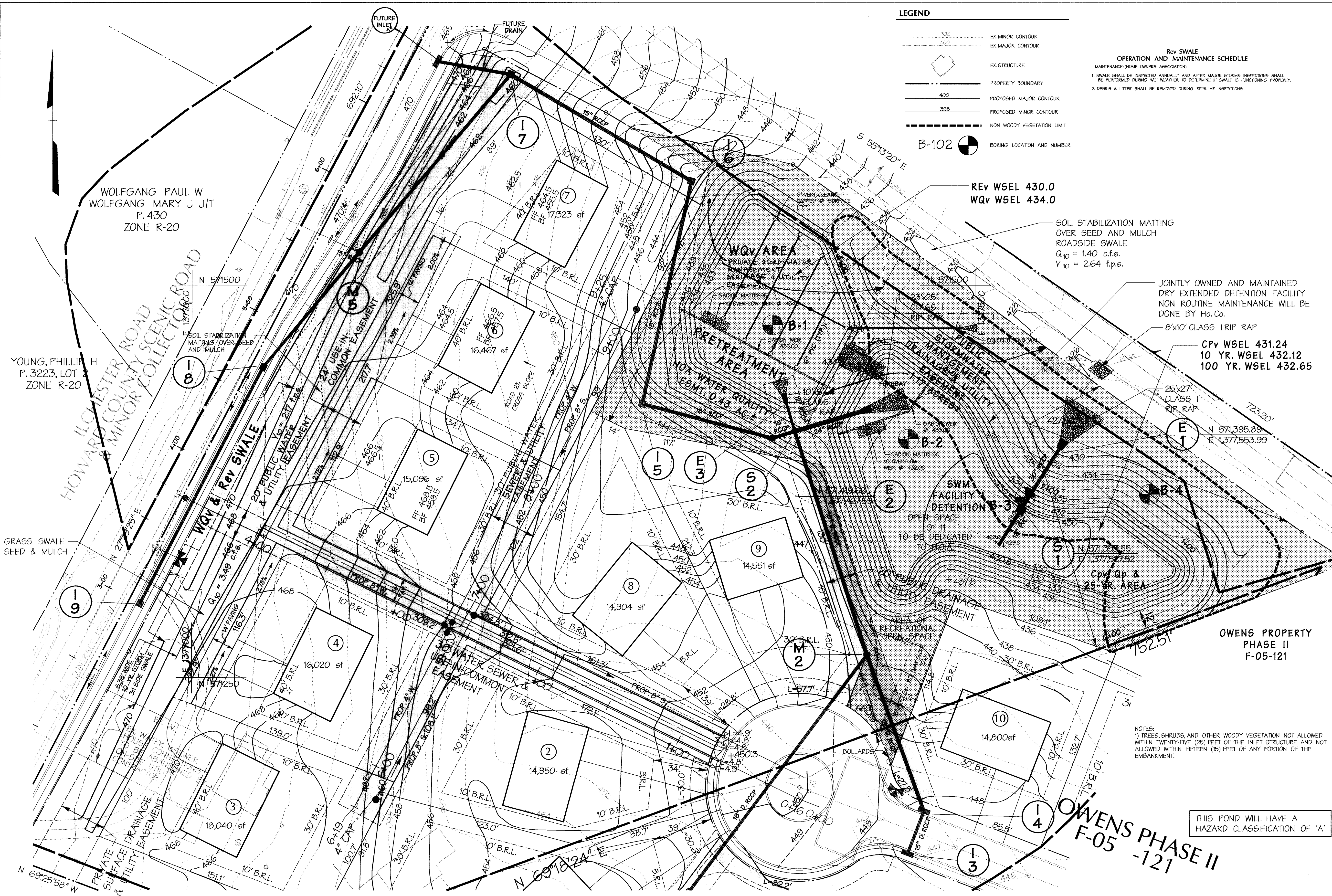
**ENGINEER'S CERTIFICATION:**

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

SIGNATURE OF ENGINEER: *Jeffrey Schaub* DATE: 9/5/06

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND





**LEGEND**

- EX MINOR CONTOUR
- EX MAJOR CONTOUR
- EX STRUCTURE
- PROPERTY BOUNDARY
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- NON WOODY VEGETATION LIMIT
- B-102 BORING LOCATION AND NUMBER

**Rev SWALE**  
**OPERATION AND MAINTENANCE SCHEDULE**  
 MAINTENANCE (HOME OWNERS ASSOCIATION)  
 1. SWALE SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF SWALE IS FUNCTIONING PROPERLY.  
 2. DEBRIS & LITTER SHALL BE REMOVED DURING REGULAR INSPECTIONS.

**SWM FACILITY 1**  
**DESIGN FLOW SUMMARY PROPOSED CONDITIONS**

Structure Type	Extended Detention Pocket Sand Filter and Open Channel Credits
Water Quality Type	0.19
Water Quality Storage Required (WQV) (Ac-ft)	0.33
Water Quality Storage Provided (WQV) (Ac-ft)	0.04
Recharge Required (Rev) (Ac)	0.06
Recharge Provided (Rev) (Ac)	0.37
Channel Protection Required (Cp) (Ac-ft)	0.33
Channel Protection Provided (Cp) (Ac-ft)	0.33
1-Yr Pre-development Q (cfs)	5.32
1-Yr Post-development Q (cfs)	6.96
1-Yr Post-development Q, Bypass (cfs)	1.09
10-Yr Pre-development Q (cfs)	27.10
10-Yr Post-development Q (cfs)	29.66
10-Yr Post-development Q, Bypass (cfs)	4.00
25-Yr Pre-development Q (cfs)	32.36
25-Yr Post-development Q (cfs)	34.97
25-Yr Post-development Q, Bypass (cfs)	4.67
100-Yr Pre-development Q (cfs)	50.77
100-Yr Post-development Q (cfs)	53.32
100-Yr Post-development Q, Bypass (cfs)	6.85
Wq =	434.0' WSEL
Cp =	431.24' WSEL
10 YR =	432.12' WSEL
25 YR =	432.24' WSEL
100 YR =	432.65' WSEL

**WATER QUALITY IS MET BY OPEN CHANNEL CREDITS AND A PROPOSED SAND FILTER. RECHARGE IS MET BY OPEN CHANNEL CREDITS AND A STONE AREA UNDERNEATH THE PROPOSED SAND FILTER. CHANNEL PROTECTION VOLUME IS MET BY EXTENDED DETENTION OF THE 1-YR STORM. FLOOD PROTECTION OF THE 10 & 25 YEAR STORMS WILL BE PROVIDED BY DETENTION IN THE SWM FACILITY.**

**STORMWATER MANAGEMENT FACILITY**  
**OPERATION AND MAINTENANCE SCHEDULE**  
 ROUTINE MAINTENANCE (HOME OWNERS ASSOCIATION)  
 1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF FACILITY IS FUNCTIONING PROPERLY.  
 2. TOP AND SIDE SLOPES OF EMBANKMENT SHALL BE MAINTAINED TO A MINIMUM OF TWO (2) TIMES PER YEAR. ONE (1) TIME IN LINE AND ONE (1) TIME IN SLOPE. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MAINTAINED AS NEEDED. VEGETATION SHALL NOT EXCEED 10' NOR SHALL IT BE LESS THAN 4" IN HEIGHT.  
 3. DEBRIS & LITTER SHALL BE REMOVED DURING REGULAR MAINTENANCE OPERATIONS AND AS NEEDED.  
 4. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED. NON-ROUTINE MAINTENANCE (HOWARD COUNTY)  
 1. STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE REPAIRED DURING ROUTINE MAINTENANCE OPERATIONS.  
 2. SEDIMENT SHALL BE REMOVED FROM FACILITY AND FOREBAY NO LATER THAN HALF CAPACITY OF THE POND OR FOREBAY IS HALF FULL OF SEDIMENT OR WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.  
 3. VISIBLE SIGNS OF EROSION IN THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

**SAND FILTER**  
**OPERATION AND MAINTENANCE SCHEDULE**  
 ROUTINE MAINTENANCE (HOME OWNERS ASSOCIATION)  
 1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF FACILITY IS FUNCTIONING PROPERLY.  
 2. DEBRIS & LITTER SHALL BE REMOVED DURING REGULAR INSPECTIONS.  
 3. STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE PERFORATION MATRICES AND RIP-RAP SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE REPAIRED DURING ROUTINE MAINTENANCE OPERATIONS.  
 4. SEDIMENT SHALL BE REMOVED FROM THE SAND FILTER WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.  
 5. VISIBLE SIGNS OF EROSION OF THE SAND AND THE GABION MATRICES AND RIP-RAP SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*Walter R. Wald* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cathy Hamilton* 1/10/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT, JA DATE

*Mark Budz* 1/10/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION, JVO DATE

Date	No.	Revision Description
		<b>FINAL PLAN</b>
		<b>ZAISER PROPERTY</b>
		LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RE-SUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D' TAX MAP 31 PARCEL 243,572

**OWNER/DEVELOPER:**  
 PATAPSCO LANDING, LLC  
 c/o James Keely and Co. Inc.  
 P.O. Box 528  
 61 E. Padonia Road,  
 Timonium, MD 21093

**DMW**  
 Daft McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3233  
 Fax 296-4705  
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

NOTE: The property downstream of the existing 24" CMP culvert will be subject to current environmental constraints if improvements are proposed. Future development would require establishment of a stream buffer adequate to contain the dam breach flow from the proposed stormwater management facility.

**DEVELOPER'S CERTIFICATION:**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERSONS ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Mark Budz* 12/15/06  
 SIGNATURE OF DEVELOPER DATE  
 PRINT NAME: MARK BUDZ

**ENGINEER'S CERTIFICATION:**  
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT THESE PLANS MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Charles V. Main II* 12/21/06  
 SIGNATURE OF ENGINEER DATE  
 PRINT NAME: CHARLES V. MAIN II

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

*Jim Hym /cs* 12/21/06  
 U.S. NATIONAL RESOURCE CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL, MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

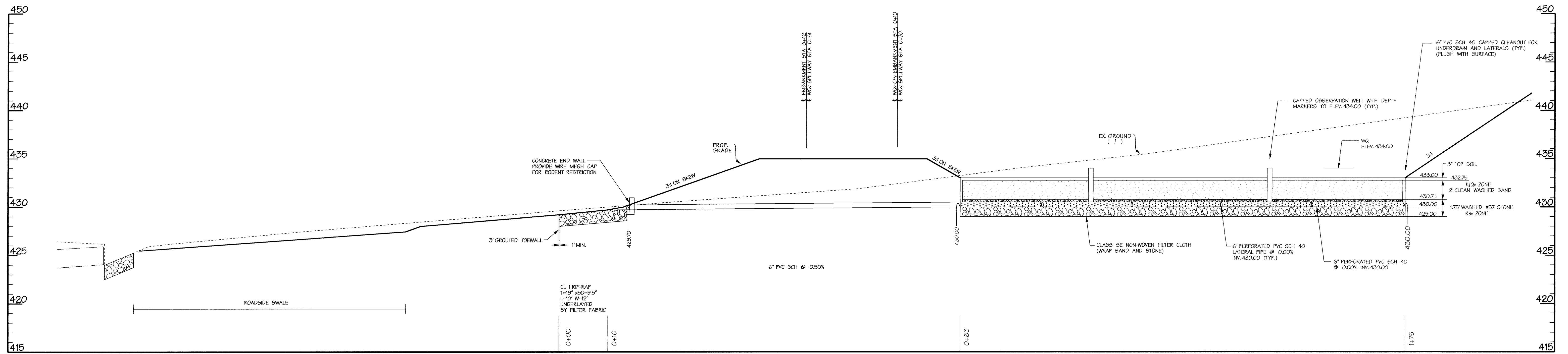
*Mark Budz* 12/21/06  
 HOWARD COUNTY DATE

12-15-06  
 Date

*Charles V. Main II*  
 Professional Engr. No. 20784

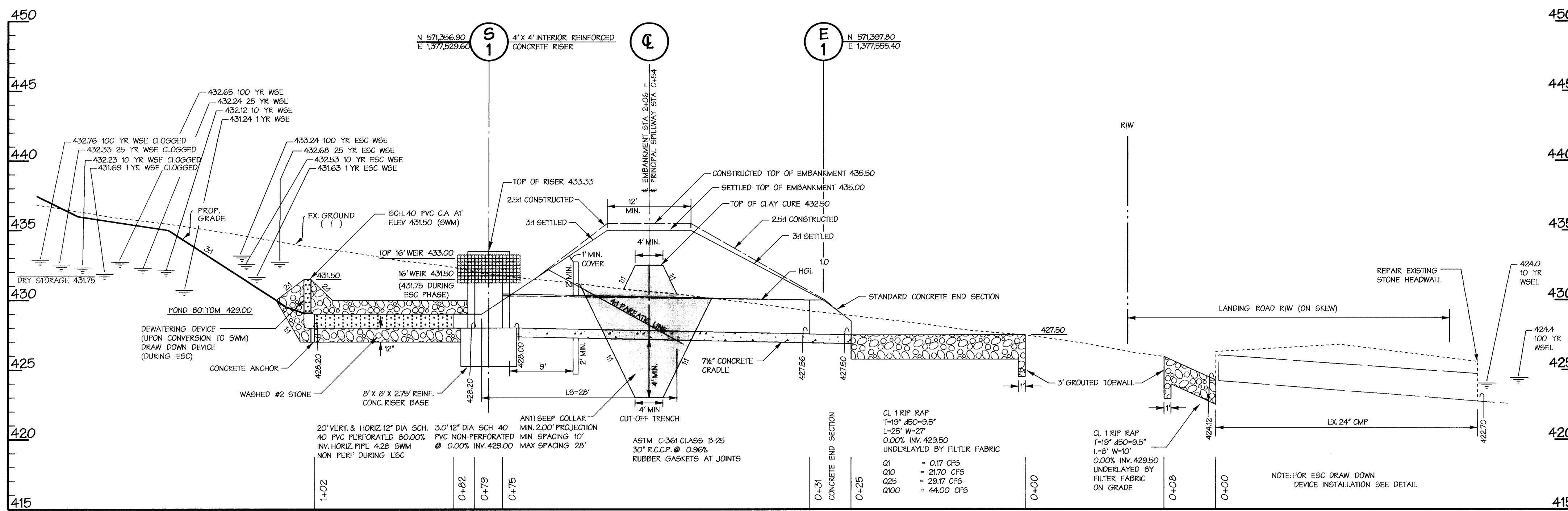
SUBDIVISION NAME	ZAISER PROPERTY	DISTRICT/AREA	SECTION	LOT/PARCEL #
PLAT/BLK OR LIP	10, 11, 16, 17, R-20	TOWNSHIP	31	1
TITLE	<b>ZAISER PROPERTY</b>			
	<b>FINAL PLAN</b>			
	<b>STORMWATER MANAGEMENT PLAN</b>			
Des. By	CRW	Scale	1" = 30'	Proj. No. 02059.B
Des. By	GMO	Date	10/25/06	11 of 19
Chk. By	Approved			





**PROFILE ALONG WQv SPILLWAY**

SCALE: HORIZ. 1"=10'  
VERT. 1"=5'



**PROFILE THROUGH RISER AND PRINCIPAL SPILLWAY**

SCALE: HORIZ. 1"=10'  
VERT. 1"=5'

NOTE: ACTUAL LENGTH AND DEPTH OF CUT-OFF TRENCH SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER IN THE FIELD. FILL MATERIAL FOR THE CUT-OFF TRENCH / CLAY CORE SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION CL-CL. CHOK SC CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William T. Hubert* 1-3-07  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Chad Hamman* 1/10/07  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Chad Hamman* 1/9/07  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date No. Revision Description

**FINAL PLAN  
ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
AND THE RE-SUB DIVISION OF  
NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:  
PATAPSCO LANDING, LLC  
c/o James Keilty and Co. Inc.  
P.O. Box 528  
61 E. Padonia Road.  
Timonium, MD 21093

**DMW**  
Dart McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Thousand, Maryland 21286  
(410) 296-3333  
Fax 296-4705  
A Team of Land Planners,  
Landscape Architects,  
Engineers, Surveyors &  
Environmental Professionals

12-15-06  
Date  
*Charles V. Main*  
Professional Engr. No. 20784



SUBDIVISION NAME: ZAISER PROPERTY  
DISTRICT: 31  
TRACT: R-20  
BLOCK: 1  
SUBTRACT: 1  
DATE: 10/16/07

TITLE: **ZAISER PROPERTY  
FINAL PLAN  
STORMWATER MANAGEMENT PROFILES**

Des. By: CRW Scale: 1" = 10' Proj. No. 02059.B  
Drn. By: GMO Date: 10/25/06  
Chk. By: Approved

12 of 19

	1 YR		10 YR		25 YR		100 YR	
DP	EX	PROP	EX	PROP	EX	PROP	EX	PROP
#1	5.32 CFS	1.26 CFS	27.83 CFS	25.47 CFS	33.13 CFS	32.31 CFS	51.00 CFS	43.56 CFS
#2	0.38 CFS	0.27 CFS	1.54 CFS	0.80 CFS	1.80 CFS	0.92 CFS	2.66 CFS	1.30 CFS

DEVELOPER'S CERTIFICATION:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY 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/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Mark Buda* 12/13/06  
SIGNATURE OF DEVELOPER DATE  
MARK BUDA

ENGINEER'S CERTIFICATION:  
I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Charles V. Main* 12/21/06  
SIGNATURE OF ENGINEER DATE  
Charles V. Main

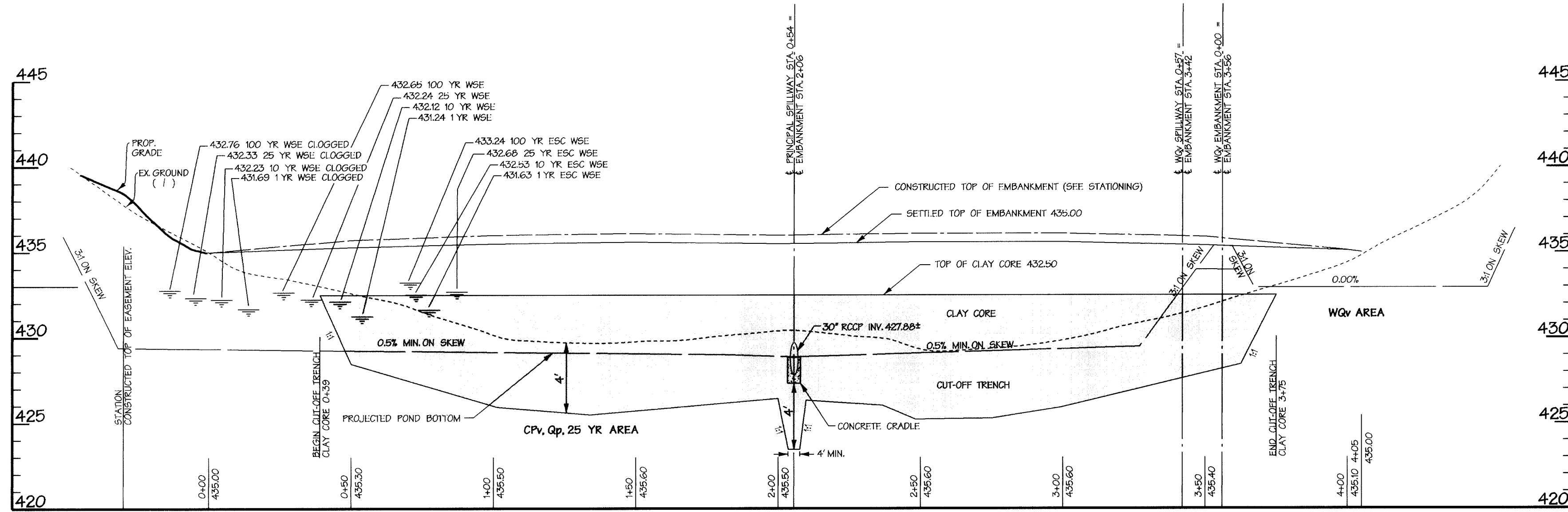
THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL.

*John M. ...* 12/21/06  
U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

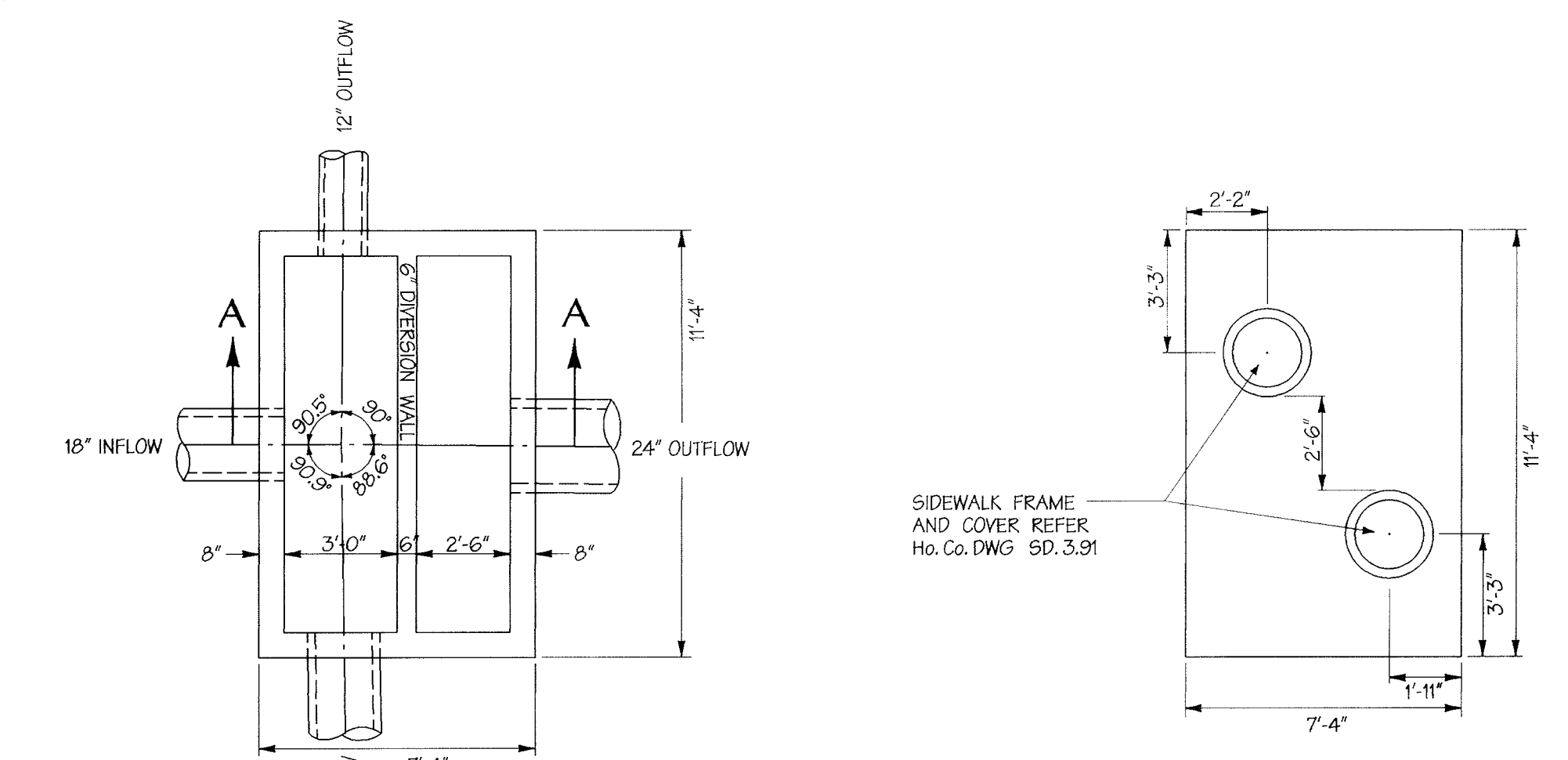
THESE PLANS FOR SMALL POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Charles V. Main* 12/21/06  
SIGNATURE OF ENGINEER DATE  
Charles V. Main

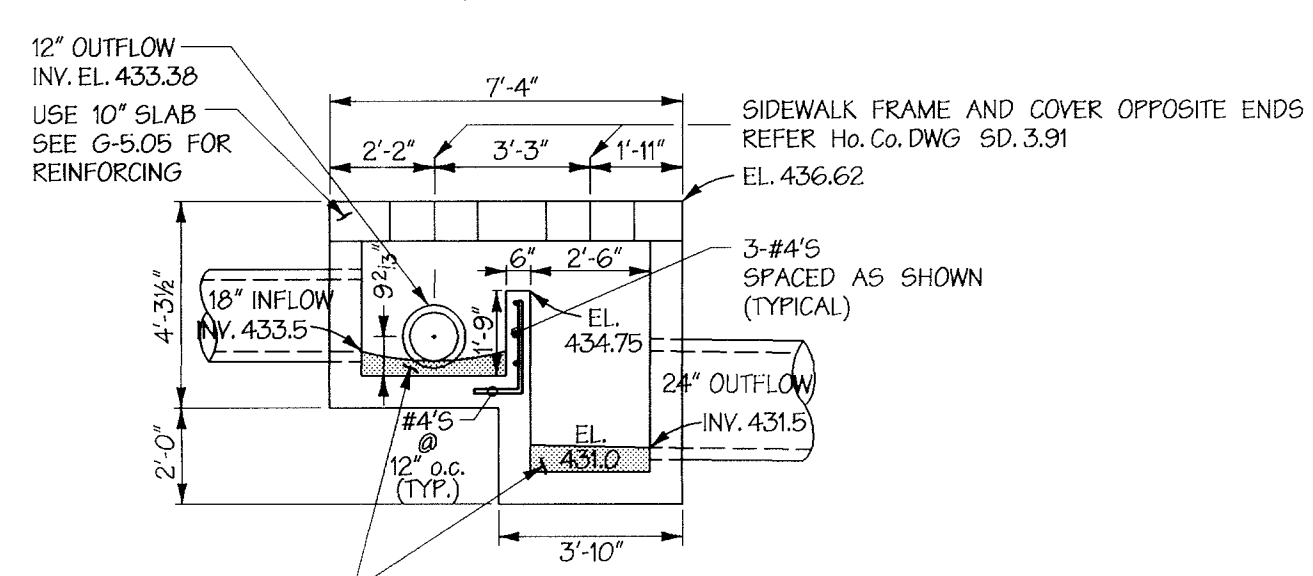




**PROFILE ALONG CENTERLINE OF EMBANKMENT**  
 SCALE: HORIZ. 1"=30'  
 VERT. 1"=5'



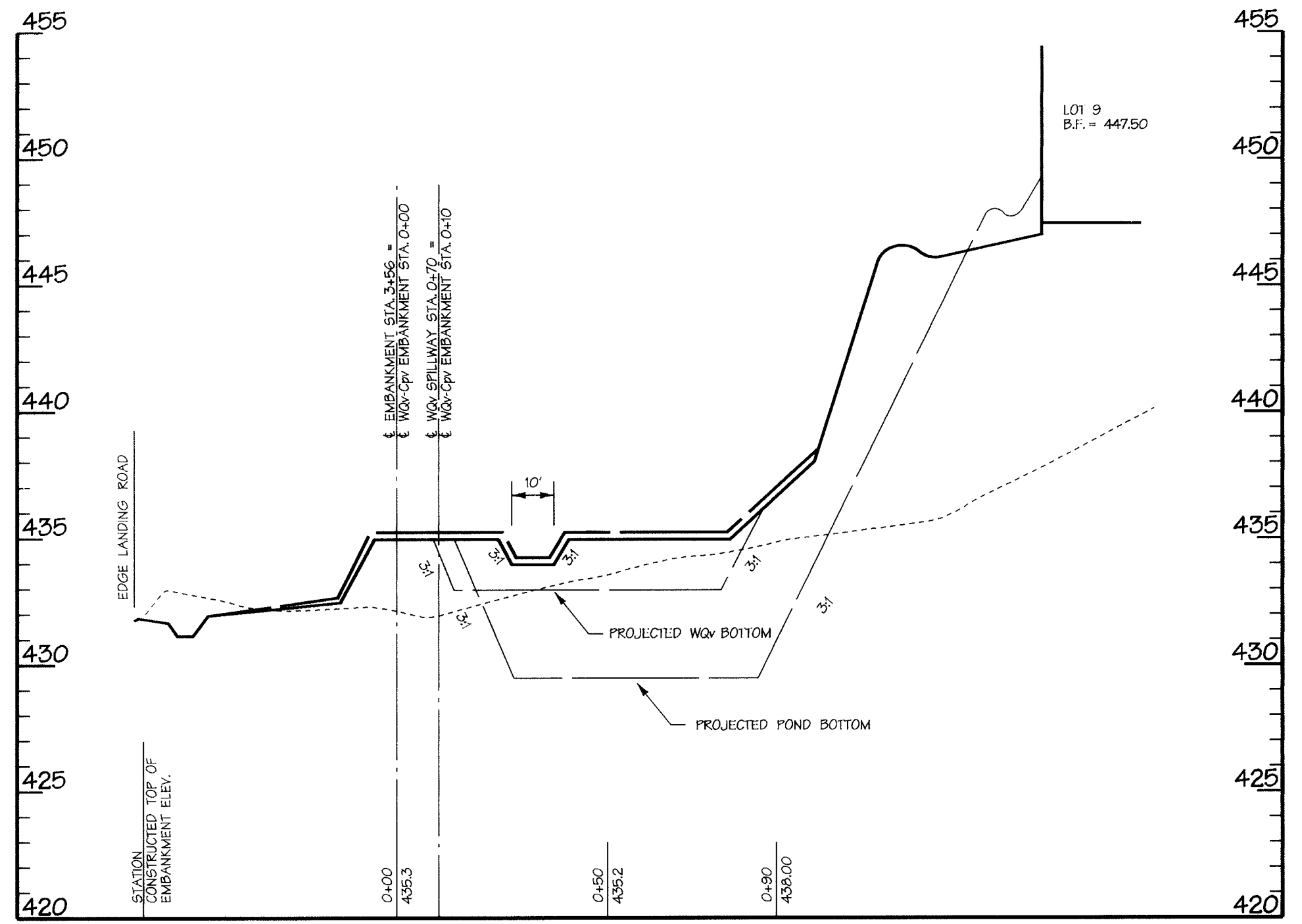
**PLAN**  
**SLAB PLAN**



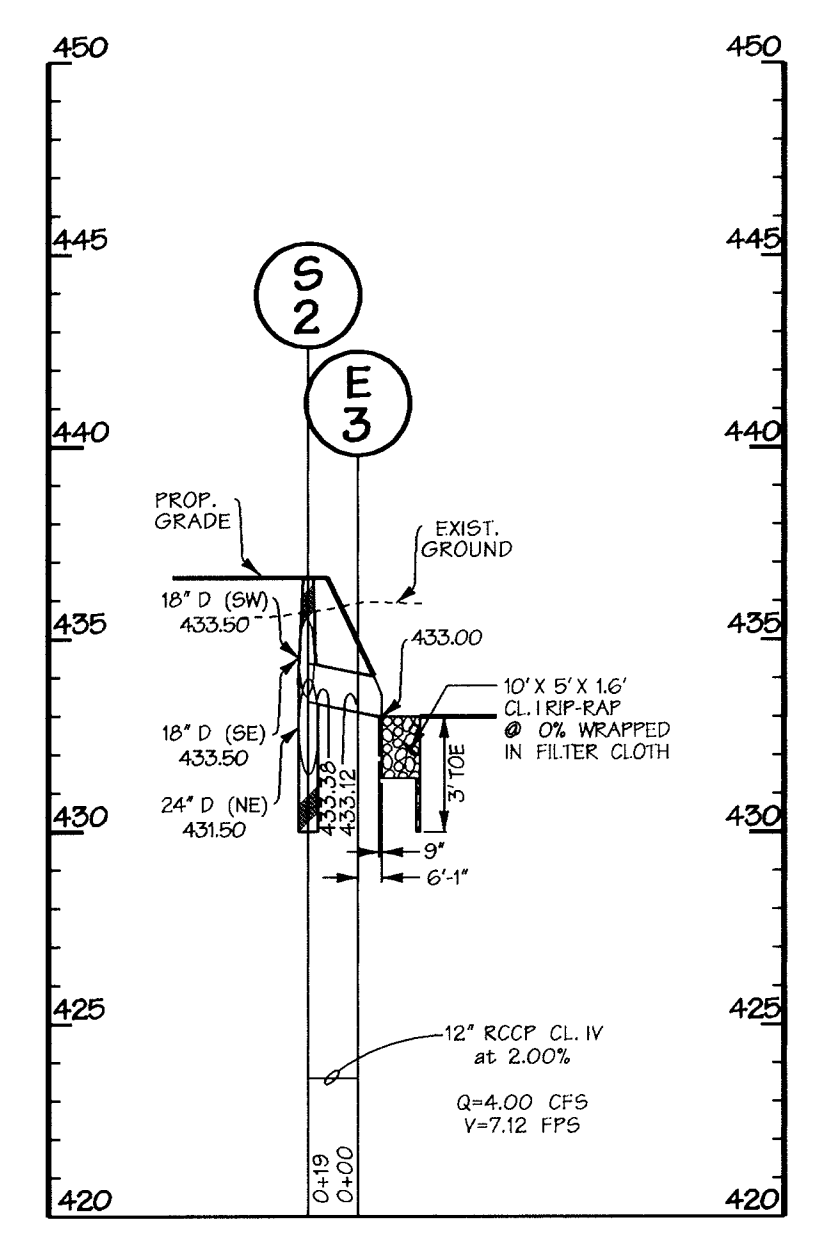
**SECTION A-A**  
 FORM CHANNEL LINING USING BRICK AND NON-SHRINK GROUT. SLOPE UP AND AWAY FROM OUTFLOW PIPE AT 2% BOTH SIDES OF DIVERSION WALL.

**DIVERSION STRUCTURE (S-2) FOR SWM FACILITY**  
**TYPE 'A-10' INLET (SD 4.02)**

SCALE: 1/4" = 1'-0"

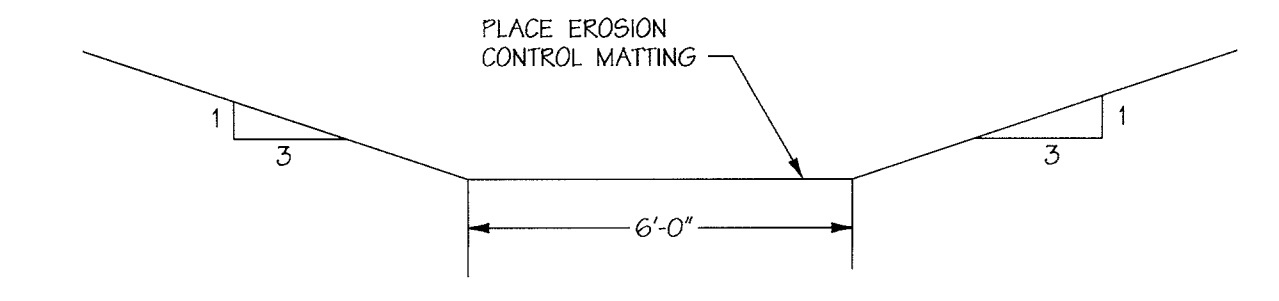


**PROFILE ALONG CENTERLINE OF WQv-Cpv EMBANKMENT**  
 SCALE: HORIZ. 1"=30'  
 VERT. 1"=5'

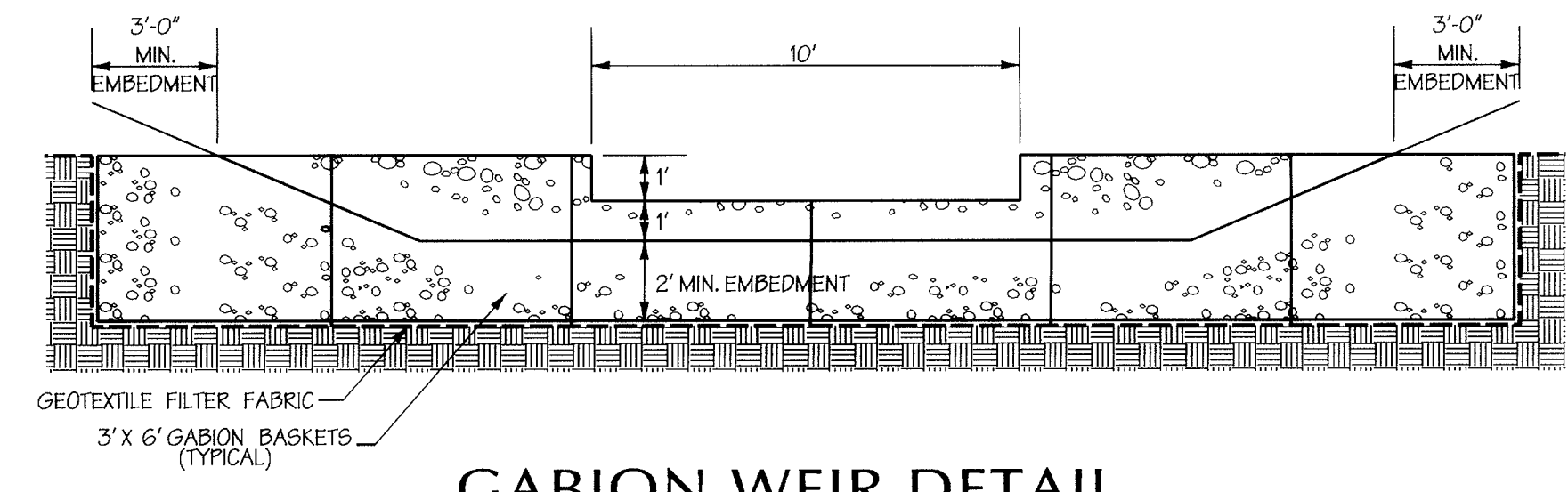


**STORM DRAIN PROFILE**  
 SCALE: HORIZ. 1"=30'  
 VERT. 1"=5'

NOTE: SEE SHEET 4 FOR STRUCTURE TABLE



**GRASS CHANNEL TYPICAL SECTION**  
 NOT TO SCALE



**GABION WEIR DETAIL**  
 NOT TO SCALE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William J. Mabel</i> CHIEF, BUREAU OF HIGHWAYS	1-3-07 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Candice Hammett</i> CHIEF, DIVISION OF LAND DEVELOPMENT	1/10/07 DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>William J. Mabel</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	1/9/07 DATE

Date	No.	Revision Description

**FINAL PLAN**  
**ZAISER PROPERTY**  
 LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
 AND THE RE-SUB DIVISION OF  
 NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
 TAX MAP 31 PARCEL 243,572

**OWNER/DEVELOPER:**  
 PATAPSCO LANDING, LLC  
 c/o James Keelty and Co. Inc.  
 P.O. Box 528  
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 Timonium, MD 21093

**DMW**  
 Daft-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705

*A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals*

12-15-06  
 Date

20784  
 Professional Engr. No.

**DEVELOPER'S CERTIFICATION:**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROCESS 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODS ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*MARK BUDA*  
 SIGNATURE OF DEVELOPER  
 PRINT NAME BELOW SIGNATURE

12/15/06  
 DATE

**ENGINEER'S CERTIFICATION:**  
 I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTICED THE DEVELOPER THAT PERMITS MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Charles V. Main*  
 SIGNATURE OF ENGINEER  
 PRINT NAME BELOW SIGNATURE

12/15/06  
 DATE

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

*Jim Myrland* 12/21/06  
 U.S. NATURAL RESOURCE CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL, MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Charles V. Main* 12/21/06  
 HOWARD SOIL CONSERVATION SERVICE DATE

APPROVAL NAME	SECTION/AREA	DATE	APPROVAL #
ZAISER PROPERTY			157
PLANS OR UP	TRUCK #	TRUCK #	GENUS TRACT
10,11,16,17	R-20	31	1
<b>TITLE: ZAISER PROPERTY</b>			
<b>FINAL PLAN</b>			
<b>STORMWATER MANAGEMENT PROFILES</b>			
Des. By	CRW	Scale	AS SHOWN
Dwn. By	GMO	Date	10/25/06
Chk. By	Approved	Proj. No.	02059.B
			<b>13 of 19</b>







**STORMWATER MANAGEMENT POND GENERAL CONSTRUCTION SPECIFICATIONS**

**1. GENERAL**  
All stormwater management facilities shall be constructed in accordance with Howard County's "Standard Specifications and Details for Construction", (1985) and the N.R.C.S. Maryland "Standards and Specifications for Ponds", (MD-378, 2000).  
These specifications are appropriate to all ponds within the scope of the standard practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

**2. 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 and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.  
Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be 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.

**3. EARTH FILL**  
**MATERIAL** - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must be constructed 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 fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.  
**COMPACTION** - Control the movement of the hauling equipment over the fill so that the entire surface of each lift is compacted to 95% of AASHTO Specification T-99 (or equivalent ASTM specifications). Fill material must contain enough moisture to yield the required degree of compaction with the equipment used.  
When required by the reviewing agency the minimum required density shall not be less than 95% of the maximum dry density with a moisture content within +/- 2% of 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 cut off 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 1 to 1 or flatter. The core 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.

**4. 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 4 inches in thickness and compacted by hand tampers or other manually directed construction 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 4 feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.  
Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 315 as modified. The mixture shall have a 100-200 psi 28 day unconfined compressive strength. The flowable fill must have a minimum pi 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 completely fill all voids adjacent to the flowable fill zone. At no time during the 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.

**5. REMOVAL AND REPLACEMENT OF DEFECTIVE FILL**  
Fill placed at densities lower than specified minimum density or at moisture contents outside the specified acceptable range of moisture content or otherwise not conforming to the requirements of the specifications shall be reworked to meet the requirements or removed and replaced by acceptable fill. The bottoms of such excavations shall be finished flat or gently curving and at the sides of such excavations the adjacent sound fill shall be trimmed to a slope not steeper than 3 feet horizontally to 1 foot vertically extending from the bottom of the excavation to the fill surface.  
**6. PIPE CONDUITS**  
All pipes shall be circular in cross section. All perforated pipes shall have a minimum of 3.31 square inches of opening per square foot of pipe surface (ex. 30 3/8-inch holes per square foot). Perforations are to be uniformly spaced around the full periphery of the pipe. Any holes blocked or partially blocked by bituminous coating shall be opened prior to installation.  
**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 purposes, 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 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 conform to "Structure Backfill".  
5. Connections - All connections to (anti-seep collars, riser, etc.) shall be watertight.  
6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.  
**PLASTIC PIPE** - All of 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-2247. Corrugated high density polyethylene (HDPE) pipes, couplings and fittings shall conform to 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, sprigg, 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.

**7. CONCRETE**  
Concrete must meet minimum requirements set forth in Maryland State Highway Administration Standard Specifications for Construction and Materials, Section 618 (Portland Cement Concrete Mixtures), Mix Number 3. Reinforcing steel must be ASTM A615, Grade 60. Steel angles and anchor bars must be ASTM A36.

**8. ROCK RIP-RAP**  
Rock rip-rap shall meet the requirements of the Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.  
Geotextile shall be placed under all rip-rap and shall meet the requirements of the Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.  
The rip-rap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the rip-rap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks.

**9. 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 area so as not to interfere in any way with the operation of 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 pumps from which the water shall be pumped.

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

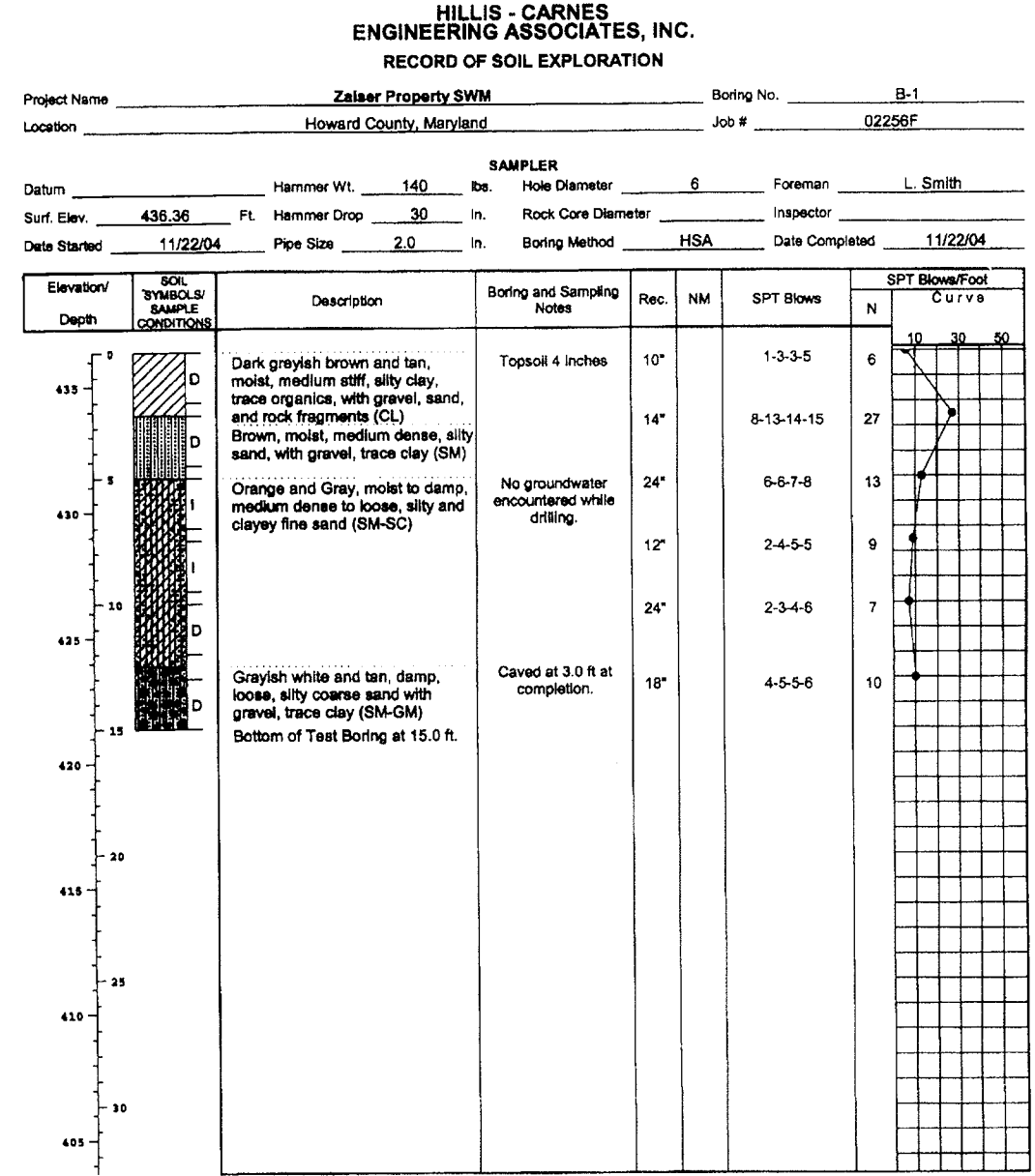
**11. EROSION AND SEDIMENT CONTROL**  
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.  
All disturbed areas shall be controlled by an erosion and sediment control plan which has been approved by the Baltimore County Soil Conservation District (B.C.S.C.D.).

**12. SEEDING**  
Seeding, fertilizing and mulching shall be as follows:  
Seed Mix: 50% Kenblue Kentucky Bluegrass  
40% Pennlaw Creeping Red Fescue  
10% Streaker Redtop  
Applied at a rate of 150 pounds per acre.  
(or)  
Rebel II Tall Fescue (125 pounds per acre)  
Pennlaw Perennial Ryegrass (15 pounds per acre)  
Kenblue Kentucky Bluegrass (10 pounds per acre)  
(or)  
Pennlaw Creeping Red Fescue (70 pounds per acre)  
Luzerne Hard Fescue (50 pounds per acre)  
Common White Clover (6 pounds per acre)  
Winter Rye (45 pounds per acre)  
Lime: 2 tons per acre Dolomitic Limestone.  
Fertilizer: 600 pounds per acre 10-10-10 fertilizer before seeding.  
400 pounds per acre 30-0-0 Ureafom Fertilizer at time of seeding.  
Mulch: Straw at 4,000 pounds per acre.  
Anchoring: Mulching tool or wood cellulose fiber binder at a net dry binder rate of 750 pounds per acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water or at rates recommended by the manufacturer.

**13. FILTER CLOTH**  
All filter cloth shall conform to the 1994 Maryland Standards and Specifications for soil erosion and sediment control, or the latest edition.  
**14. GABIONS**  
All gabions shall be PVC coated woven wire baskets. Stone size shall be 4 inches to 7 inches, (Class IV gabions).  
**15. FENCE**  
Split rail fencing:  
Fencing shall be constructed in accordance with the details on these plans. The split rail fence shall be constructed of locust post and spruce rails, round side out, with post spaced 10 feet on center. The wire fabric shall be 4" x 2", 14 gauge, black vinyl coated welded wire mesh attached to the inside of the fence with stainless steel electrical splices 12 inches on center, each rail, and shall extend 6 inches below finished grade.  
Chain link fencing:  
Construct fencing in accordance with the State Highway Administration Standard details 690.01 and 690.02. Use specifications for a 6-foot fence, substituting 42" fabric and 6"-8" line posts. Construct the gate in accordance with SHA Standard Detail 692.01 with 42" fabric. The fabric used for the fence and gate must conform to AASHTO Designation M181-74.

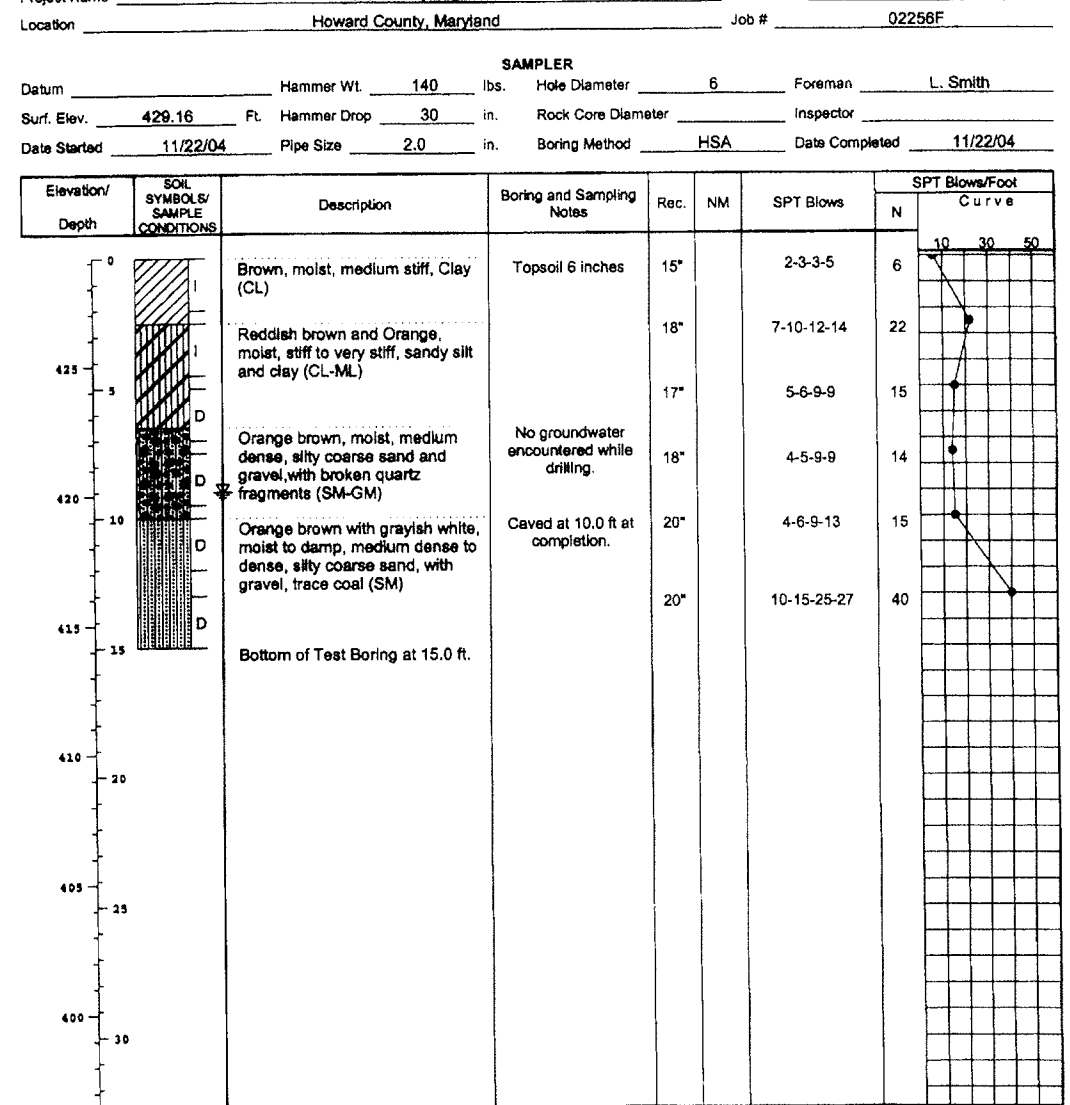
**16. INSPECTION SCHEDULE**  
1. Prior notification shall be given to the engineer so that inspections may be made at the following stages:  
(1) Upon completion of excavation to subfoundation and where required, installation of structural supports or reinforcement for structures, including but not limited to:  
(i) Core trenches for structural embankments.  
(ii) Inlet-Outlet Structures and Anti-Seep Structures, watertight connectors on pipes and  
(iii) Trenches for enclosed storm drainage facilities.  
(2) During placement of structural fill, reinforcement and concrete, and installation of piping and catch basins.  
(3) During backfill of foundations and trenches.  
(4) During embankment construction and  
(5) Upon completion of final grading and establishment of permanent stabilization.  
No work shall proceed until the engineer inspects and approves the work previously completed.  
2. Geotechnical compaction testing of the facility embankment is required. Certification must be provided to the designated engineer in charge of the as-built.  
3. A copy of all material supply tickets must be given to the designated engineer in charge of the as-built.

**17. OPERATION, MAINTENANCE AND INSPECTION**  
Inspection of ponds show heads shall be performed at least twice annually in accordance with the checklist and requirements contained within USDA, SCS "Standards and Specifications for Ponds" (MD-378), the pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the control of operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.  
**18. UTILITIES**  
No utilities may be constructed within/along any MD-378 Embankment.



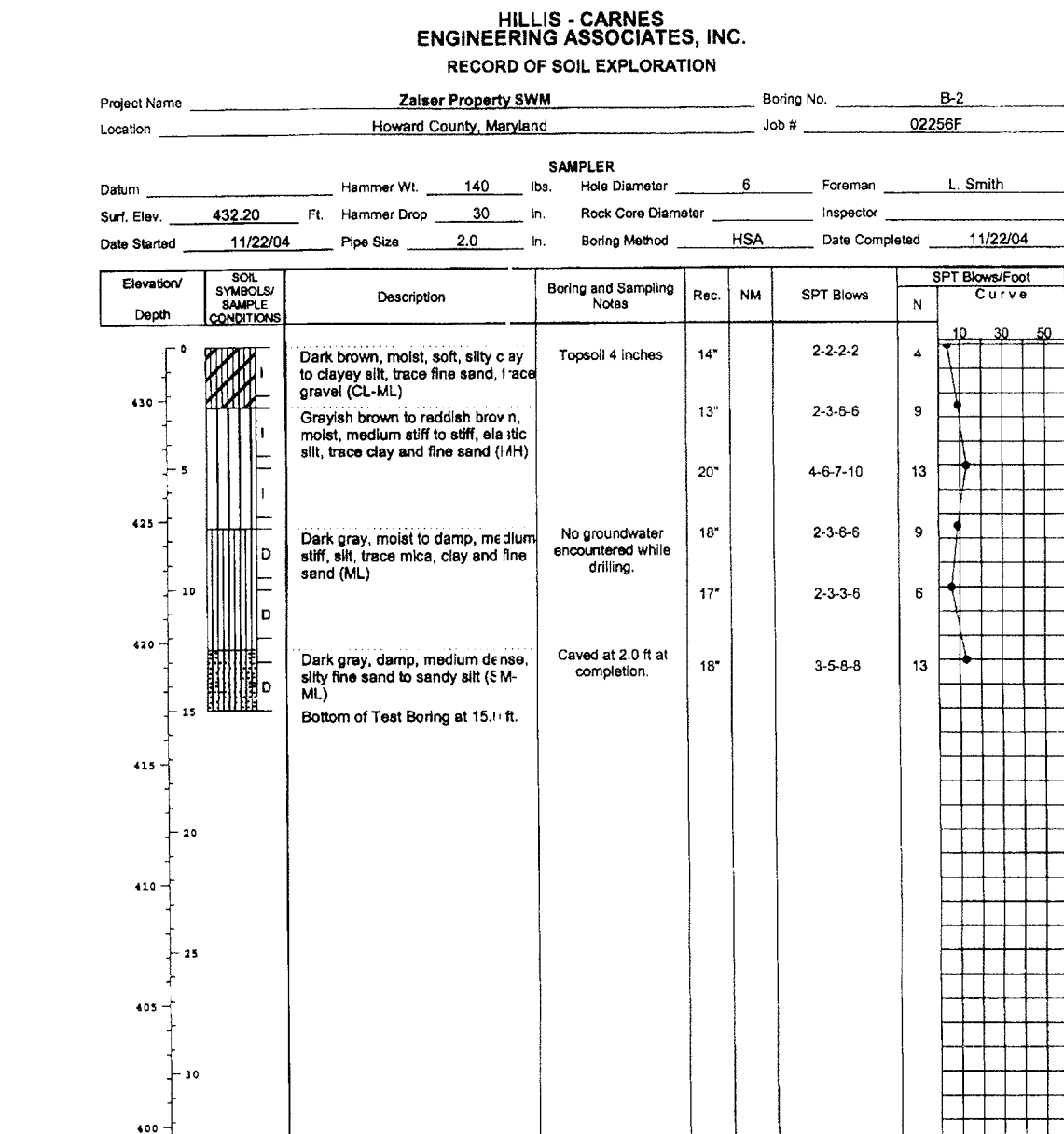
DEPTH	DESCRIPTION	REMARKS	REMARKS	REMARKS	REMARKS
0-4	Topsoil 4 inches				
4-14	Dark brown, moist, soft, silty clay to clayey silt, trace fine sand, 1 trace gravel (CL-M)				
14-17	Brown, moist, medium dense, silty sand, with gravel, trace silt (SM)				
17-20	Orange and grey, moist to dense, medium dense to loose, silty and clayey fine sand (SM-SC)				
20-24	Greyish white and tan, damp, loose, silty coarse sand with gravel, trace silt (SM-GM)				
24-30	Clayish white and tan, damp, loose, silty coarse sand with gravel, trace silt (SM-GM)				

STANDARD PENETRATION TEST-DRAWING P.O.D. SAMPLER WITH HIGH HAMMER FALLS 30" COUNT MADE AT 4" INTERVALS.



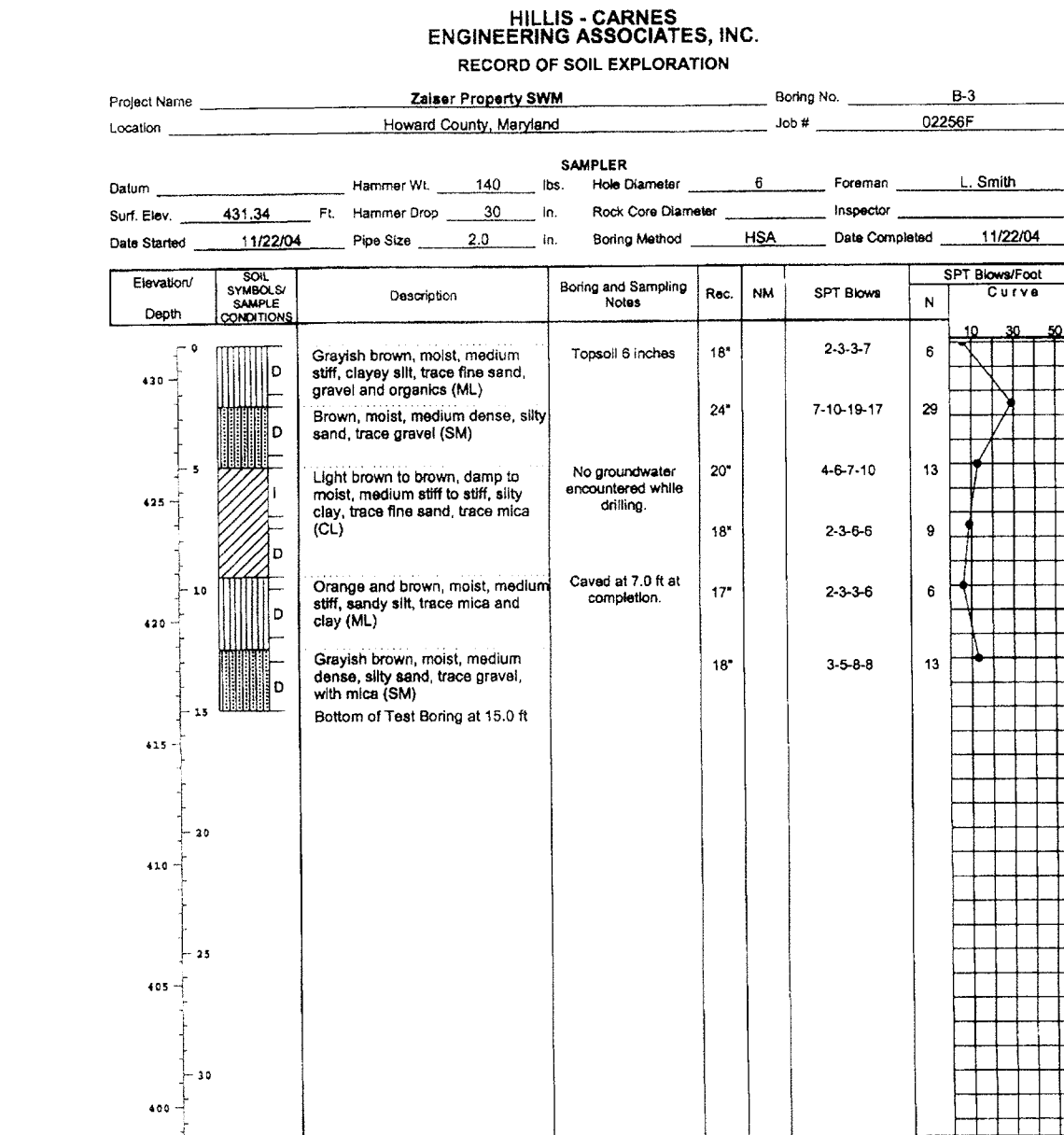
DEPTH	DESCRIPTION	REMARKS	REMARKS	REMARKS	REMARKS
0-4	Topsoil 4 inches				
4-14	Brown, moist, medium stiff, clay (CL)				
14-17	Headed brown and orange, moist, stiff to very stiff, silty silt and clay (CL-M)				
17-20	Orange brown, moist, medium dense, silty coarse sand and gravel with bentonitic fragments (SM-GM)				
20-24	Orange brown with greyish white, moist to damp, medium dense to dense, silty coarse sand, with gravel, trace silt (SM)				
24-30	Orange brown with greyish white, moist to damp, medium dense to dense, silty coarse sand, with gravel, trace silt (SM)				

STANDARD PENETRATION TEST-DRAWING P.O.D. SAMPLER WITH HIGH HAMMER FALLS 30" COUNT MADE AT 4" INTERVALS.



DEPTH	DESCRIPTION	REMARKS	REMARKS	REMARKS	REMARKS
0-4	Topsoil 4 inches				
4-14	Dark brown, moist, soft, silty clay to clayey silt, trace fine sand, 1 trace gravel (CL-M)				
14-17	Brown, moist, medium dense, silty sand, with gravel, trace silt (SM)				
17-20	Light brown to brown, damp to moist, medium stiff to stiff, silty clay, trace fine sand, trace mica (SC)				
20-24	Orange and brown, moist, medium stiff, sandy silt, trace mica and clay (ML)				
24-30	Greyish brown, moist, medium dense, silty sand, trace gravel, with mica (ML)				

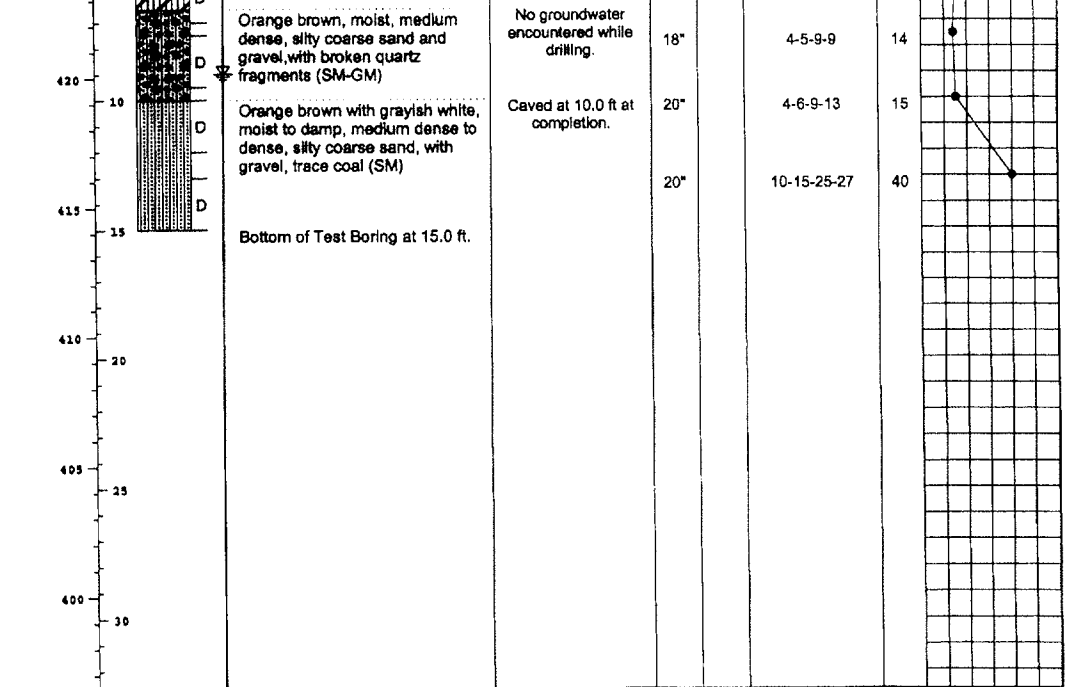
STANDARD PENETRATION TEST-DRAWING P.O.D. SAMPLER WITH HIGH HAMMER FALLS 30" COUNT MADE AT 4" INTERVALS.



DEPTH	DESCRIPTION	REMARKS	REMARKS	REMARKS	REMARKS
0-4	Topsoil 4 inches				
4-14	Greyish brown, moist, medium stiff, clayey silt, trace fine sand, gravel and organic (ML)				
14-17	Brown, moist, medium dense, silty sand, with gravel, trace silt (SM)				
17-20	Light brown to brown, damp to moist, medium stiff to stiff, silty clay, trace fine sand, trace mica (SC)				
20-24	Orange and brown, moist, medium stiff, sandy silt, trace mica and clay (ML)				
24-30	Greyish brown, moist, medium dense, silty sand, trace gravel, with mica (ML)				

STANDARD PENETRATION TEST-DRAWING P.O.D. SAMPLER WITH HIGH HAMMER FALLS 30" COUNT MADE AT 4" INTERVALS.

**HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION**  
Project Name: Zaiser Property SWM, Boring No. B-4, Location: Howard County, Maryland, Job # 02256F.  
Date Started: 11/22/04, Date Completed: 11/22/04.  
SAMPLER: Hammer Wt. 140 lbs, Hole Diameter: 6 in, Rock Core Diameter: 3 in, Pipe Size: 2.0 in, Boring Method: HSA, Date Completed: 11/22/04.



DEPTH	DESCRIPTION	REMARKS	REMARKS	REMARKS	REMARKS
0-4	Topsoil 4 inches				
4-14	Brown, moist, medium stiff, clay (CL)				
14-17	Headed brown and orange, moist, stiff to very stiff, silty silt and clay (CL-M)				
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STANDARD PENETRATION TEST-DRAWING P.O.D. SAMPLER WITH HIGH HAMMER FALLS 30" COUNT MADE AT 4" INTERVALS.



DEPTH	DESCRIPTION	REMARKS	REMARKS	REMARKS	REMARKS
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4-14	Dark brown, moist, soft, silty clay to clayey silt, trace fine sand, 1 trace gravel (CL-M)				
14-17	Brown, moist, medium dense, silty sand, with gravel, trace silt (SM)				
17-20	Light brown to brown, damp to moist, medium stiff to stiff, silty clay, trace fine sand, trace mica (SC)				
20-24	Orange and brown, moist, medium stiff, sandy silt, trace mica and clay (ML)				
24-30	Greyish brown, moist, medium dense, silty sand, trace gravel, with mica (ML)				

STANDARD PENETRATION TEST-DRAWING P.O.D. SAMPLER WITH HIGH HAMMER FALLS 30" COUNT MADE AT 4" INTERVALS.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. ...* 1-3-07  
CHIEF, BUREAU OF HIGHWAYS  
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*David ...* 1/10/07  
CHIEF, DIVISION OF LAND DEVELOPMENT  
*Chris ...* 1/10/07  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**FINAL PLAN ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RE-SUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D' TAX MAP 31 PARCEL 243,572

**OWNER/DEVELOPER:**  
Ilchester farm, LLC  
c/o James Keilty and Co. Inc.  
P.O. Box 528  
61 E. Padonia Road.  
Timonium, MD 21093

**DMW**  
Dart-McCune-Walker, Inc.  
200 East Pennsylvania Avenue  
Towson, Maryland 21286  
A Team of Land Planners, Landscape Architects, Engineers, Surveyors and Environmental Professionals

**DEVELOPERS CERTIFICATE:**  
I, the undersigned, hereby certify that the above described project is being constructed in accordance with the approved plans and specifications. I authorize the undersigned to execute all necessary permits and to take all necessary actions to complete the project.  
DATE: 1/10/07  
SIGNATURE: *Mark Buda*  
MARK BUDA

**DEVELOPERS CERTIFICATE:**  
I, the undersigned, hereby certify that the above described project is being constructed in accordance with the approved plans and specifications. I authorize the undersigned to execute all necessary permits and to take all necessary actions to complete the project.  
DATE: 12/21/06  
SIGNATURE: *Jeffrey L. Schwab*  
JEFFREY L. SCHWAB

**DEVELOPERS CERTIFICATE:**  
I, the undersigned, hereby certify that the above described project is being constructed in accordance with the approved plans and specifications. I authorize the undersigned to execute all necessary permits and to take all necessary actions to complete the project.  
DATE: 9/5/06  
SIGNATURE: *Jeffrey L. Schwab*  
JEFFREY L. SCHWAB

**DEVELOPERS CERTIFICATE:**  
I, the undersigned, hereby certify that the above described project is being constructed in accordance with the approved plans and specifications. I authorize the undersigned to execute all necessary permits and to take all necessary actions to complete the project.  
DATE: 9/5/06  
SIGNATURE: *Jeffrey L. Schwab*  
JEFFREY L. SCHWAB



PUBLIC ROAD STREET TREE PLANT LIST

QTY	SYM	BOTANICAL NAME / COMMON NAME	SIZE	REMARKS
10	AR	ACER RUBRUM / OCTOBER GLORY	2.1, 2" - 3" CAL. 12-14 HT.	B & B
14	ZS	ZELKOVA SERBATA / JAPANESE ZELKOVA	2.1, 2" - 3" CAL. 12-14 HT.	B & B

PERIMETER PLANT LIST

QTY	SYM	BOTANICAL NAME / COMMON NAME	SIZE	REMARKS
2	QR	QUERCUS RUBRA / RED OAK	2.1, 2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
4	FS	FINUS STROBUS / EASTERN WHITE PINE	6'-8" HT.	B & B UNSHEARED

SWM PERIMETER PLANT LIST

QTY	SYM	BOTANICAL NAME / COMMON NAME	SIZE	REMARKS
1	AK	ACER RUBRUM / RED SUNSET	2.1, 2" - 3" CAL. 12-14 HT.	B & B
7	QR	QUERCUS RUBRA / RED OAK	2.1, 2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
14	PA	PICEA ABIES / NORWAY SPRUCE	6'-8" HT.	B & B
13	FS	FINUS STROBUS / EASTERN WHITE PINE	6'-8" HT.	B & B UNSHEARED
5	CC	CORNUS CANADENSIS / EASTERN KOBOLD	11, 2" - 2" CAL. 6' HT.	B & B FULL HEAD
5	CK	CORNUS KOUSA / KOSAN CORMORANT	11, 2" - 2" CAL. 6' HT.	B & B FULL HEAD

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING

FORM	TYPE	REQ. LF
1	PERIMETER (TYPE 'B')	188
2	NO LANDSCAPING REQUIRED	0
3	SHADE TREES	3
4	EVERGREEN TREES	0
5	FLORING TREES	0
6	NON WOODY VEGETATION	0
7	CREDIT FOR EXISTING VEGETATION	N/A
8	CREDIT FOR OTHER LANDSCAPING	N/A
9	NUMBER OF TREES PROVIDED	3
10	SHADE TREES	3
11	EVERGREEN TREES	0
12	FLORING TREES	0
13	NON WOODY VEGETATION	0

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES
LANDSCAPE TYPE 'A'		P 3
LINEAR FEET OF PERIMETER		188 LF.
LANDSCAPE TYPE 'B'	P 1	P 2*
LINEAR FEET OF PERIMETER	183 LF.	660 LF.
LANDSCAPE TYPE 'C'		
LINEAR FEET OF PERIMETER		
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	N/A	N/A
CREDIT FOR PERM (DESCRIBE BELOW IF NEEDED)	N/A	N/A
NUMBER OF PLANTS REQUIRED		
SHADE TREES	3	N/A
EVERGREEN TREES	4	N/A
SHRUBS	0	N/A
NUMBER OF PLANTS PROVIDED		
SHADE TREES	3	0
EVERGREEN TREES	4	0
OTHER TREES (2:1 SUBSTITUTION)	0	0
SHRUBS (10:1 SUBSTITUTION)	0	0
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)		

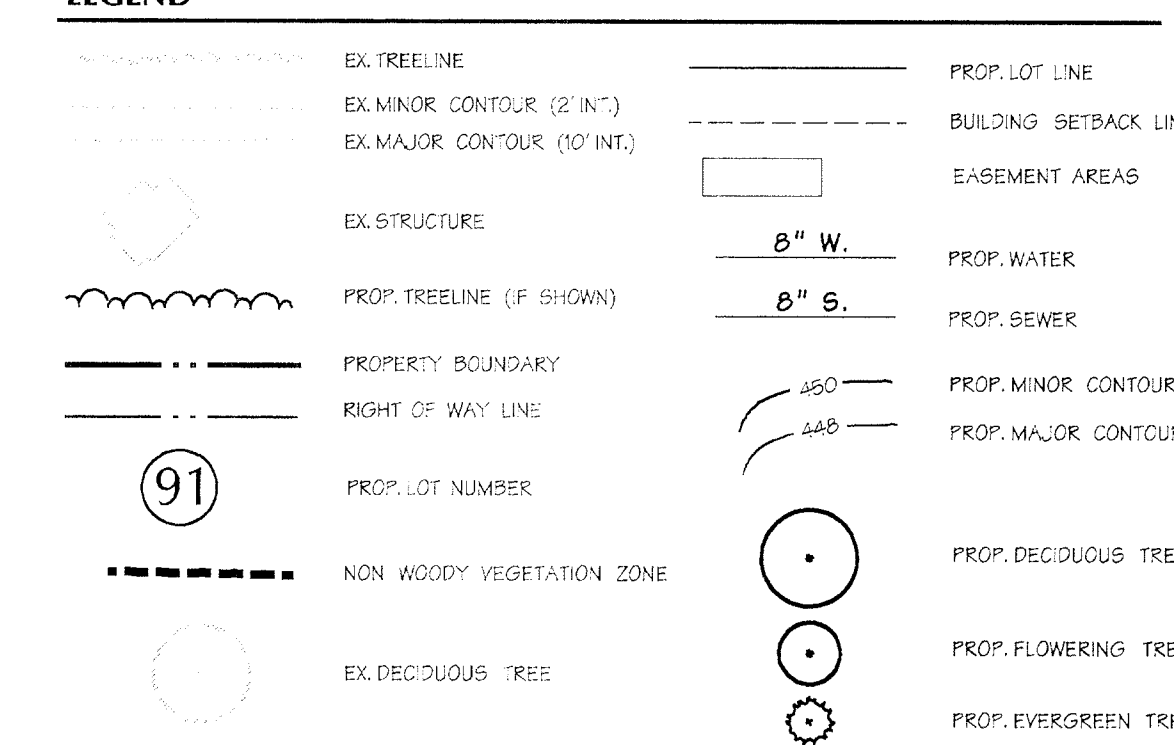
General Planting Notes

- All plant material to meet A.A.N. Standards.
- Landscape Contractor to follow landscape specification guidelines for Baltimore Washington Metro area approved by LCMAM.
- No substitutions to be made without consent of Landscape Architect or Owner.
- All beds to be topped with three inches of hardwood mulch.
- Landscape Contractor to verify location of utilities with Owner before planting.
- Landscape Architect/Owner shall select, verify and/or approve all plant material. As Owner's discretion, specimen and other plant material will be selected.
- Landscape Contractor shall coordinate plant bed filling operations and plant material installation with General Contractor and Utilities Contractor. At the time of final inspection with acceptance, all electric, water, drainage, and fountain utilities, as well as all plant materials, shall remain undamaged. Likewise, Landscape Contractor and Utilities Contractor shall coordinate efforts to ensure that surface utilities are at the proper elevation relative to final grades.
- Contractor shall notify Miss Utility 72 hours prior to construction.
- 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.
- This plan has been prepared in accordance with the provisions of Section 16.124 of the Ho.Co.Code. Financial surty for the required landscaping in the amount of \$20,000.00 must be posted as part of the developer's agreement. (53 shade, 33 evergreens).
- Developer's/Builder's Certificate

We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County code and the Howard County Landscape Manual. 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.

DATE: 9/5/06  
NAME: MARK BUDA

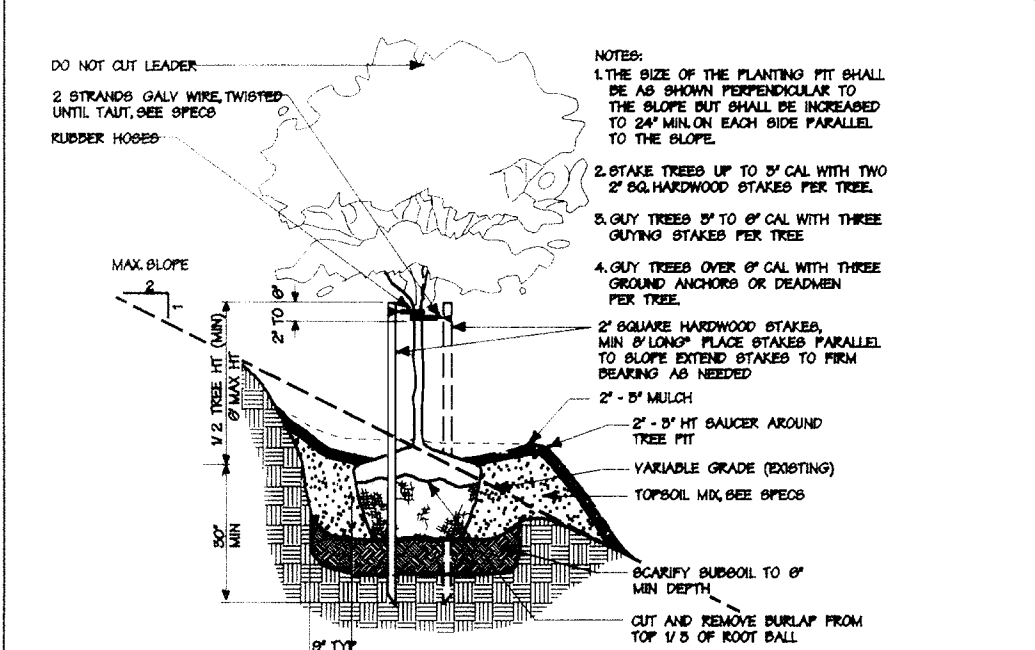
LEGEND



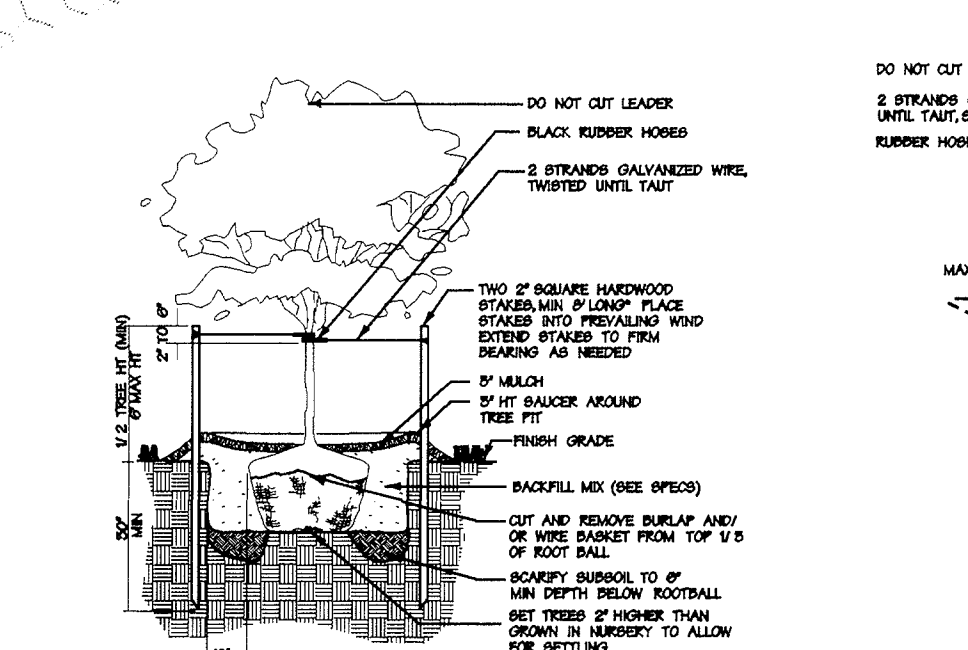
STREET TREE SCHEDULE

ROAD NAME	LENGTH OF ROAD	# OF TREES REQUIRED (1 PER 40 LF.)	# OF TREES PROVIDED
LANDING ROAD	**660' (400')	17 (10)	*10
ILCHESTER ROAD	**597' (400')	15 (10)	*10
WINESAP WAY	168'	4	4
TOTAL	**1,425' (968')	36 (24)	*24

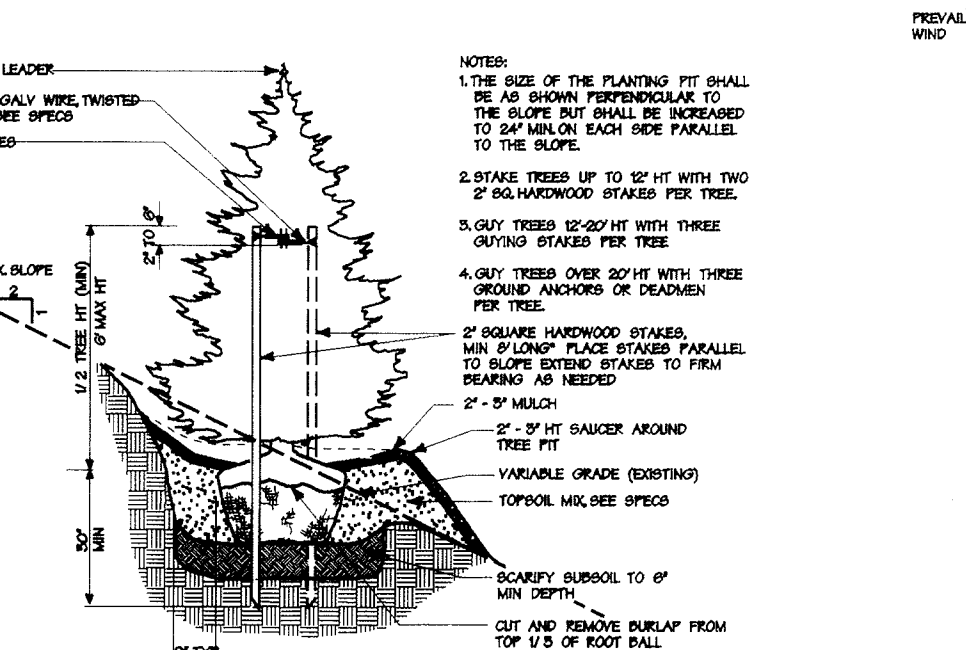
NOTE: LOCATION OF TREES MAY VARY BASED ON EASEMENTS.  
\* STREET TREES ARE NOT PROVIDED ALONG THE FUTURE LANDING ROAD RELOCATION AREA THAT WILL BE DISTURBED WITH FUTURE CONSTRUCTION.  
\*\* STREET TREE LENGTH CALCULATION BASED ON PLANTABLE AREA WHICH WILL NOT BE DISRUPTED BY FUTURE ROAD WIDENING CONSTRUCTION. STREET TREES IN FUTURE ROAD WIDENING AREA WILL BE PROVIDED WITH FUTURE ROAD WIDENING.



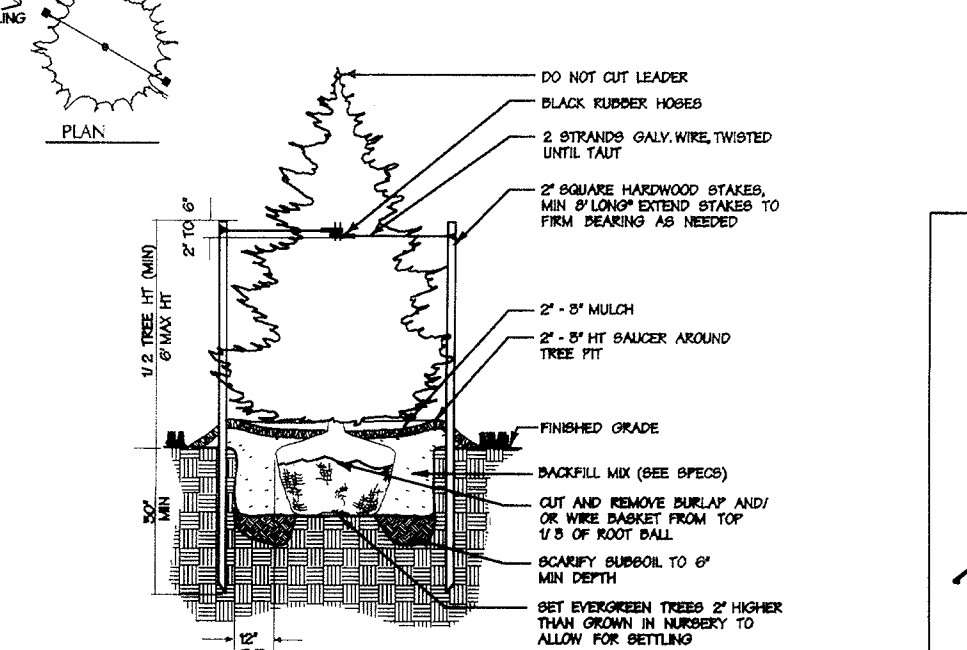
1 Tree Planting on Slope Not To Scale



2 Less Than 3" Cal. Tree Planting Not To Scale

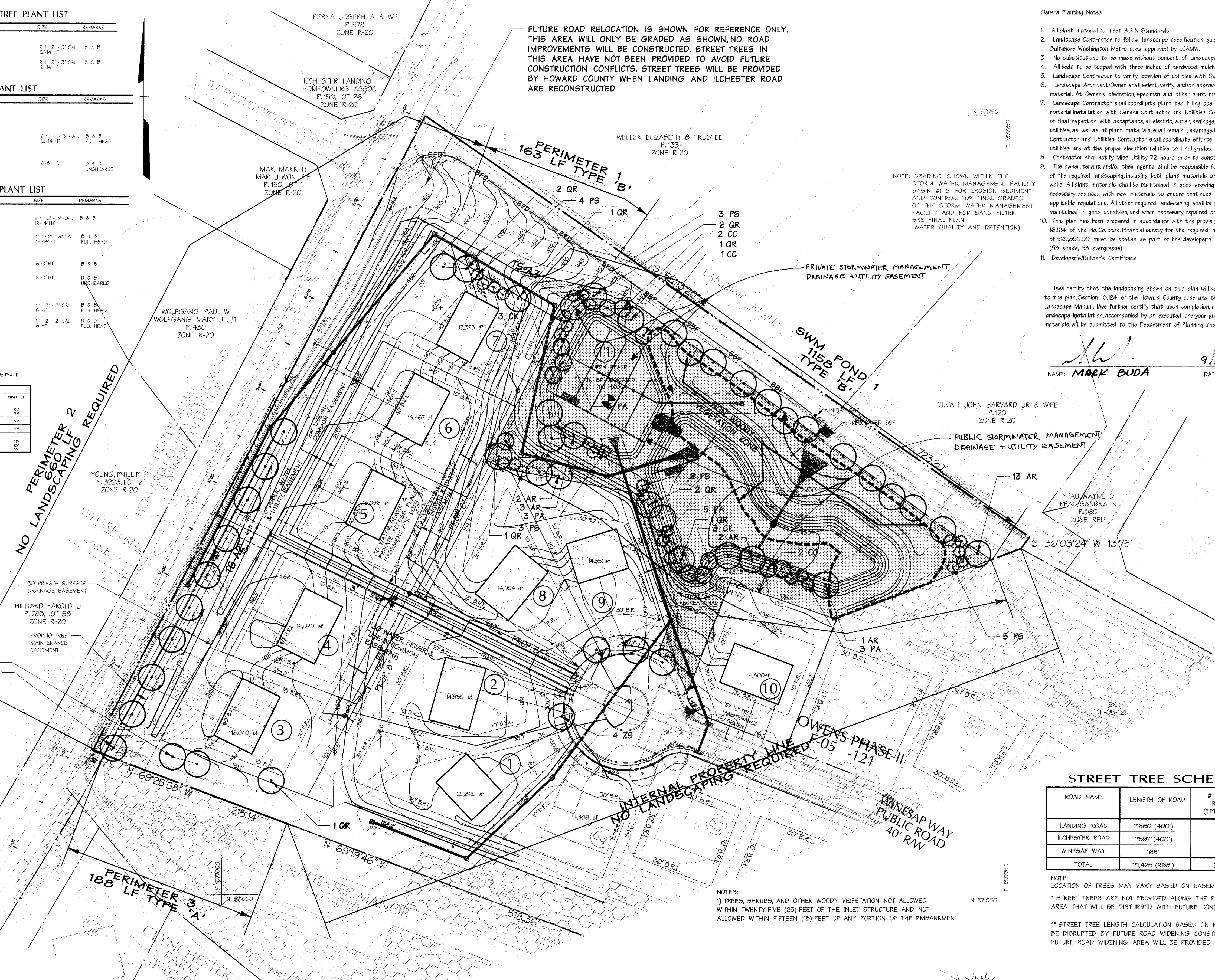
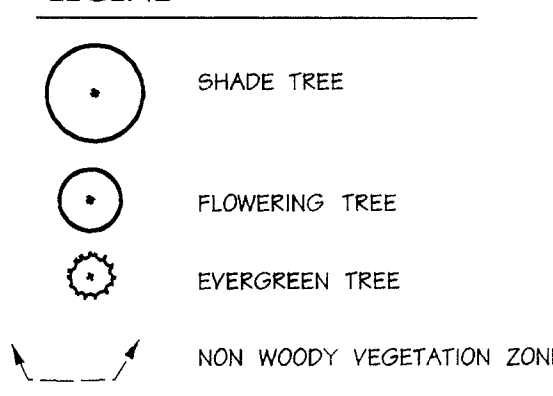


3 Evergreen Tree Planting on Slope Not To Scale



4 Evergreen Tree Planting Not To Scale

LEGEND



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
 CHIEF, BUREAU OF HIGHWAYS DATE 1-7-07

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 1/11/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 1/19/07

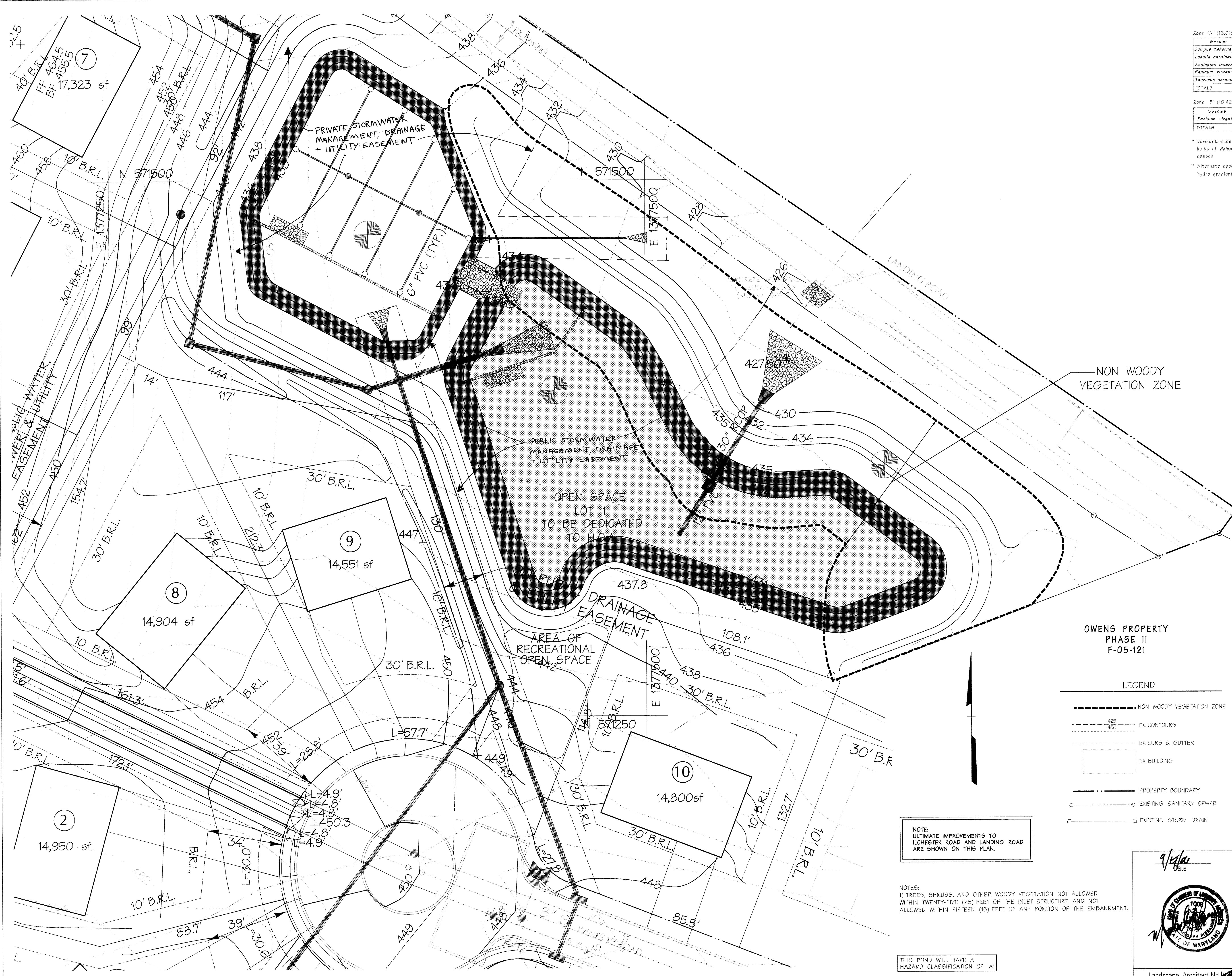
FINAL PLAN  
**ZAISER PROPERTY**  
 LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RE-SUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
 TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:  
 PATAPSCO LANDING, LLC  
 c/o James Keely and Co. Inc.  
 P.O. Box 528  
 61 E. Padonia Road.  
 Timonium, MD 21093

**DMW**  
 Dan McClellan Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax 296-4705

SUBDIVISION NAME	PROJECT AREA	SECTION	DATE	SCALE	PROJECT NO.
ZAISER PROPERTY	SECTION 01	101	10/11/07	R-20	02059.B
TITLE: <b>ZAISER PROPERTY</b>					
FINAL PLAN LANDSCAPE PLAN					
Des. By	JLT	Scale	1" = 50'	Proj. No.	02059.B
Drn. By	GMO	Date	9/7/06		
Chk. By		Approved			



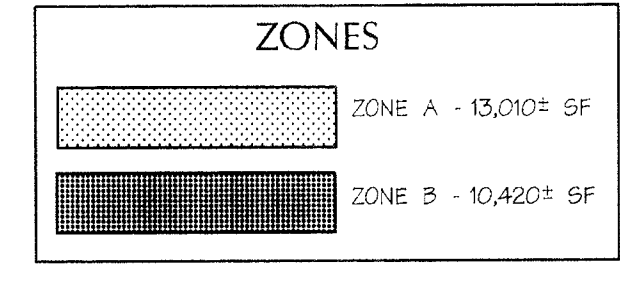


Water Quality Planting Plan \*\*

Zone 'A' (13,010 <sup>±</sup> SF)				
Species	Size	Plant Spacing	Quantity	Remarks
<i>Scirpus tabernaemontani</i>	quart container	36"	334	OBL
<i>Lobelia cardinalis</i>	quart container	36"	334	FACW
<i>Asclepias incarnata</i>	quart container	36"	334	OBL
<i>Panicum virgatum</i>	quart container	36"	334	FAC
<i>Saururus cernuus</i>	quart container	36"	334	OBL
<b>TOTALS</b>			<b>1,670</b>	

Zone 'B' (10,420 <sup>±</sup> SF)				
Species	Size	Plant Spacing	Quantity	Remarks
<i>Panicum virgatum</i>	quart container	36"	1,357	FAC
<b>TOTALS</b>			<b>1,357</b>	

\* Dormant rhizomes of *Scirpus*, *Iris* and *Saururus*, dormant tubers of *Sagittaria*, and 1st year bulbs of *Feltandra* may be substituted if plantings are to be installed during dormant season  
 \*\* Alternate species and install in random pattern, distributing each species across the hydro gradient of each planting zone. Single species massings to be avoided.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*Walter F. ...* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Judy Hamilton* 1/19/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT JPT DATE

*Chris ...* 1/9/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION gmo DATE

Date	No.	Revision Description

**FINAL PLAN  
 ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
 AND THE RE-SUB DIVISION OF  
 NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
 TAX MAP 31 PARCEL 243,572

OWNER/DEVELOPER:  
 PATAPSCO LANDING, LLC  
 c/o James Keilty and Co. Inc.  
 P.O. Box 52B  
 61 E. Padonia Road  
 Timonium, MD 21093

**DMW**  
 East-McCune-Walkers, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 286-3833  
 Fax 286-4705

A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals

SUBDIVISION NAME	DISTRICT/AREA	LOT/PARCEL #
ZAISER PROPERTY	R-20	157

DATE: 9/1/06

**ZAISER PROPERTY  
 FINAL PLAN  
 STORMWATER MANAGEMENT  
 POND PLANTING PLAN**

Des. By	Scale	1" = 20'	Proj. No.	02059.B
Drn. By	Date	9/17/06		
Chk. By	Approved			



NOTE:  
 ULTIMATE IMPROVEMENTS TO  
 ILCHESTER ROAD AND LANDING ROAD  
 ARE SHOWN ON THIS PLAN.

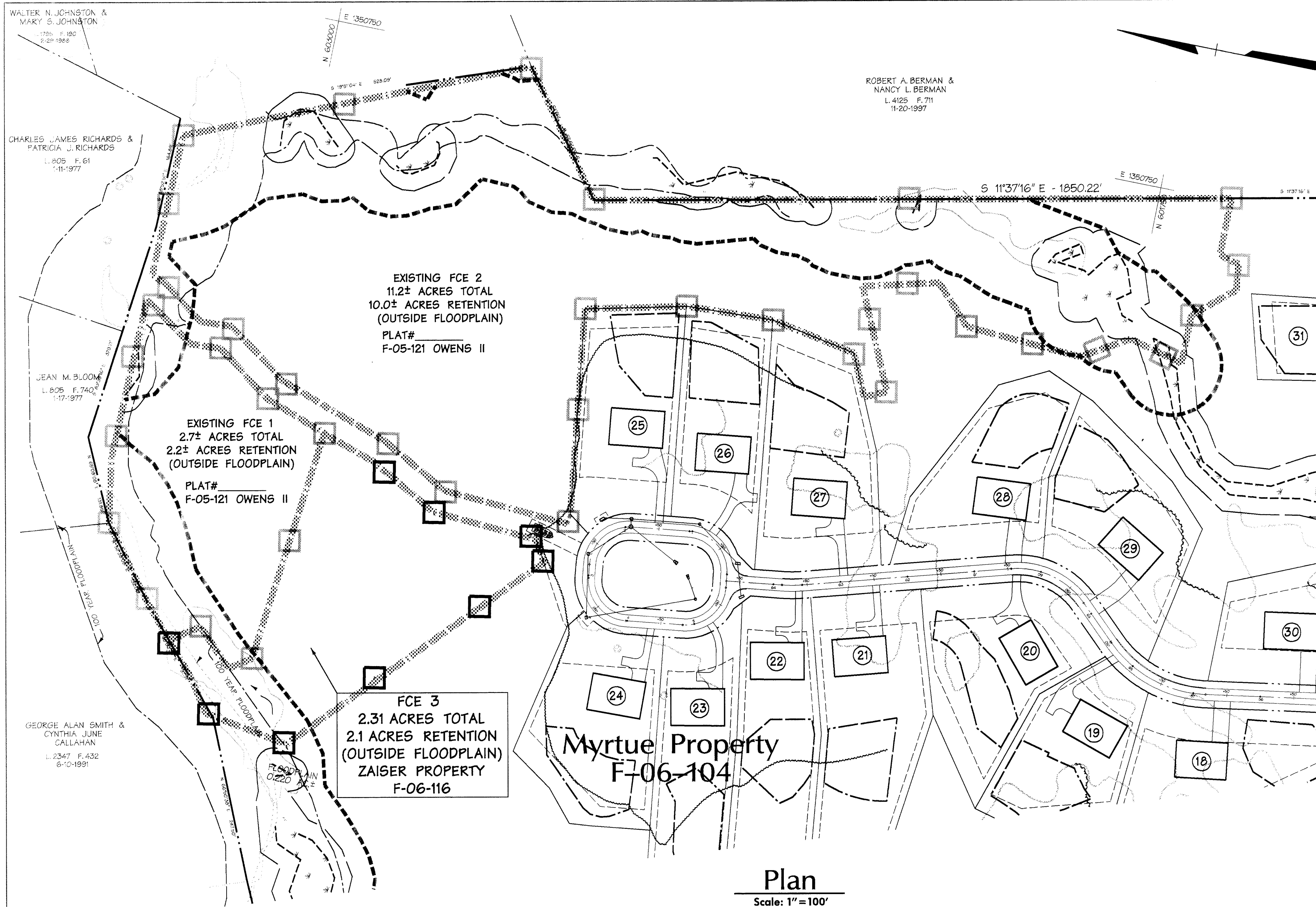
NOTES:  
 1) TREES, SHRUBS, AND OTHER WOODY VEGETATION NOT ALLOWED  
 WITHIN TWENTY-FIVE (25) FEET OF THE INLET STRUCTURE AND NOT  
 ALLOWED WITHIN FIFTEEN (15) FEET OF ANY PORTION OF THE EMBANKMENT.

THIS POND WILL HAVE A  
 HAZARD CLASSIFICATION OF 'A'

OWENS PROPERTY  
 PHASE II  
 F-05-121

- LEGEND
- NON WOODY VEGETATION ZONE
  - - - EX CONTOURS
  - - - EX CURB & GUTTER
  - EX BUILDING
  - PROPERTY BOUNDARY
  - EXISTING SANITARY SEWER
  - EXISTING STORM DRAIN





2.1 ACRES OF NON-FLOOD PLAIN FOREST RETAINED ON MYRTUE PROPERTY (MAP 10, GRID 10, P 225) TO FULFILL THE ZAISER FOREST CONSERVATION OBLIGATION. THE ZAISER PROPERTY AFFORESTATION OBLIGATION IS MET BY RETENTION AT 2:1 OR 2.127 ACRES.

**FOREST CONSERVATION CALCULATIONS**

BASIC SITE DATA	ACRES (1/10)
GROSS SITE AREA	7.0
AREA WITHIN 100 YEAR FLOODPLAIN	0.0
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	0.0
NET TRACT AREA	7.0
LAND USE CATEGORY	SUBURBAN

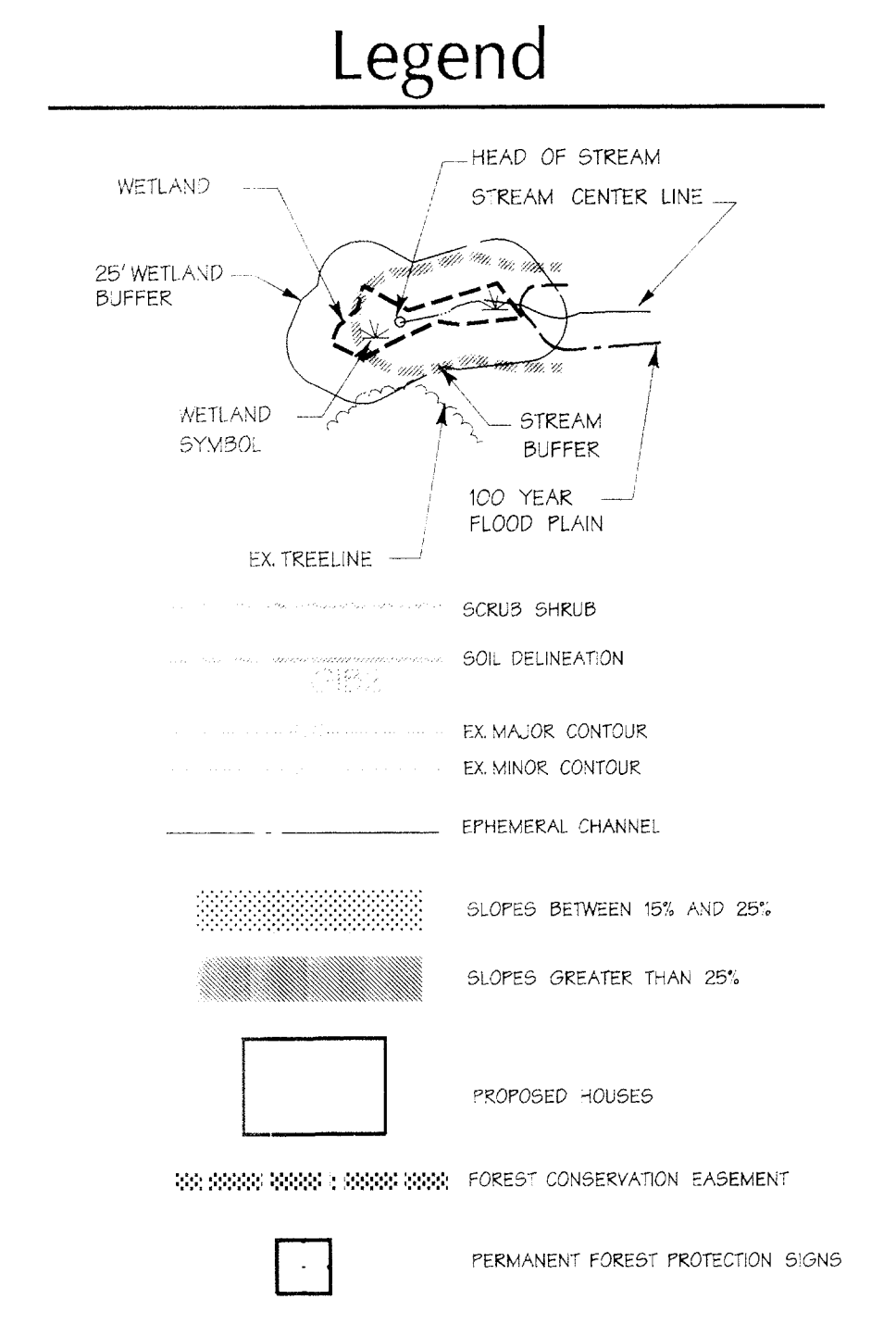
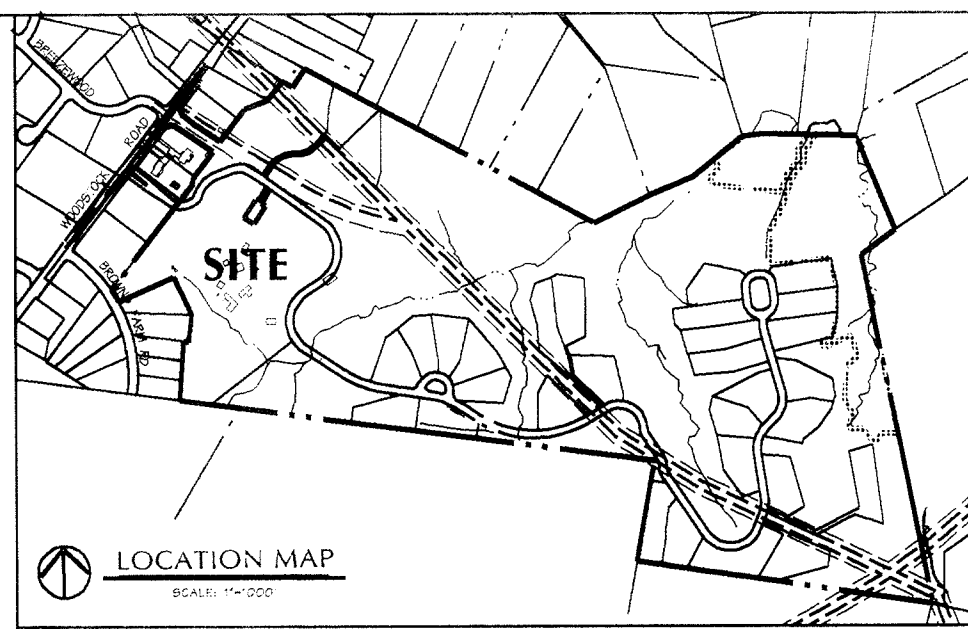
  

INFORMATION FOR CALCULATIONS	
A. NET TRACT AREA	7.0
B. REFORESTATION THRESHOLD (25% x A)	1.4
C. AFFORESTATION MINIMUM (20% x A)	1.05
D. EXISTING FOREST ON NET TRACT AREA	0.0
E. FOREST AREAS TO BE CLEARED	0.0
F. FOREST AREAS TO BE RETAINED	0.0

AFFORESTATION CALCULATIONS	
A. NET TRACT AREA	7.0
B. AFFORESTATION THRESHOLD (15% x A)	1.05
C. EXISTING FOREST ON NET TRACT AREA	0.0
D. FOREST AREAS TO BE CLEARED	0.0
E. FOREST AREAS TO BE RETAINED	0.0
F. AFFORESTATION OBLIGATION	1.05
G. AFFORESTATION PROVIDED ON-SITE	0.0
H. RETENTION PROVIDED OFF-SITE	2.10

The goals and objectives of the Forest Conservation Plan are to satisfy Forest Conservation Act compliance by providing for an afforestation obligation of 1.05 acres for the Zaiser property. The 1.05 acre obligation for this parcel will be satisfied in accordance with Howard County regulations, by off-site retention of existing Forest (2:1 ratio) = 2.10 Acres at the Myrtue property in a recorded Forest Conservation easement.  
Tax Map 31 Grid 10 Parcel 157 - Zaiser Property Myrtue, Tax Map 10, Grid 24, Parcel 225



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. White* 1-3-07  
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cynthia Harris* 1/10/07  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John Pennington* 1/9/07  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**FINAL PLAN**  
**ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11 AND THE RE-SUB DIVISION OF NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
TAX MAP 31 PARCEL 572

OWNER/DEVELOPER:  
Ichester Road LLC  
c/o James Keelty and Co. Inc.  
P.O. Box 528  
61 E. Padonia Road.  
Timonium, MD 21093

**DMW**  
Daft McCune-Walker, Inc.  
300 East Pennsylvania Avenue  
Towson, Maryland 21286  
(410) 296-3333  
Fax: 296-4705

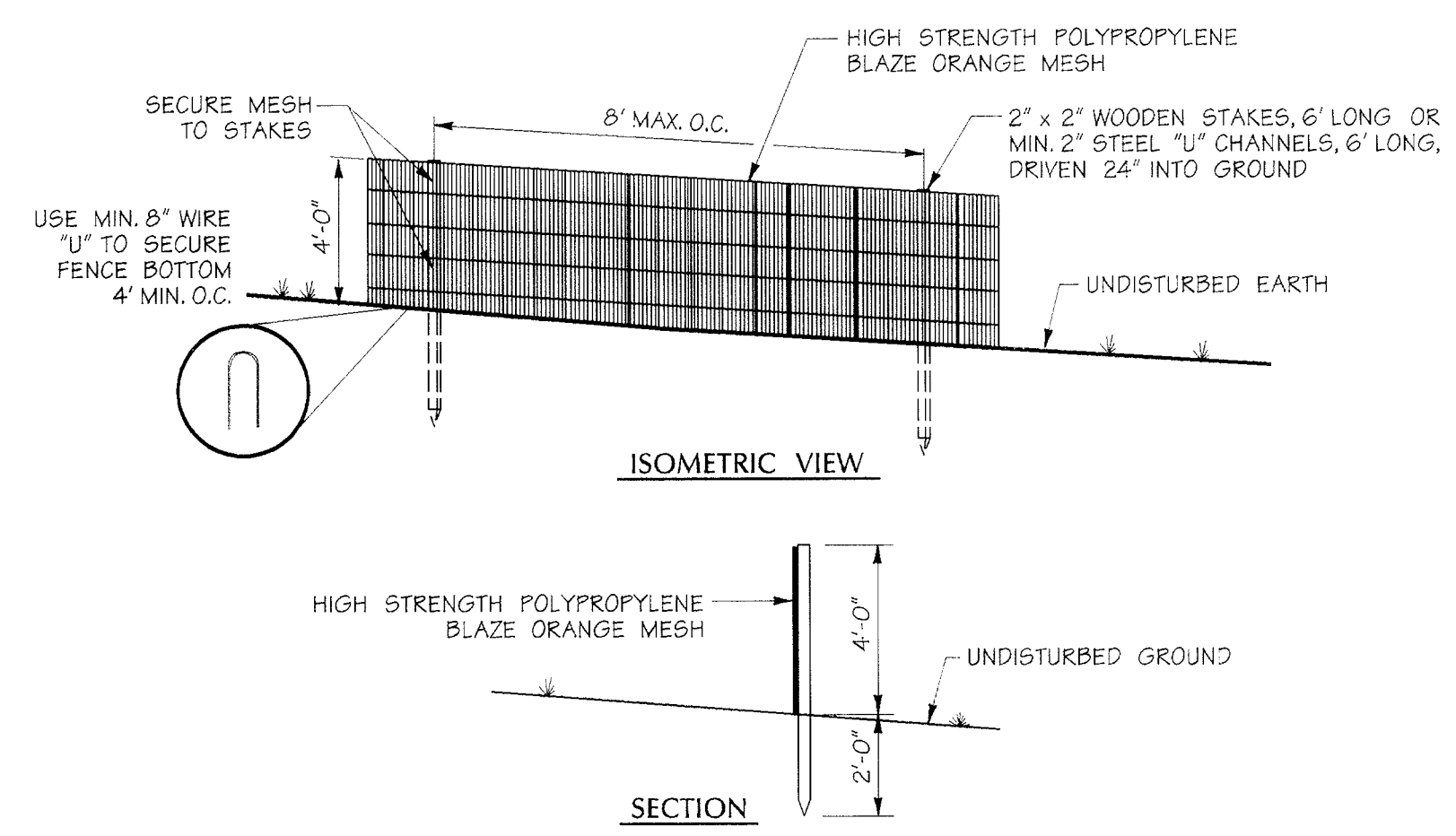
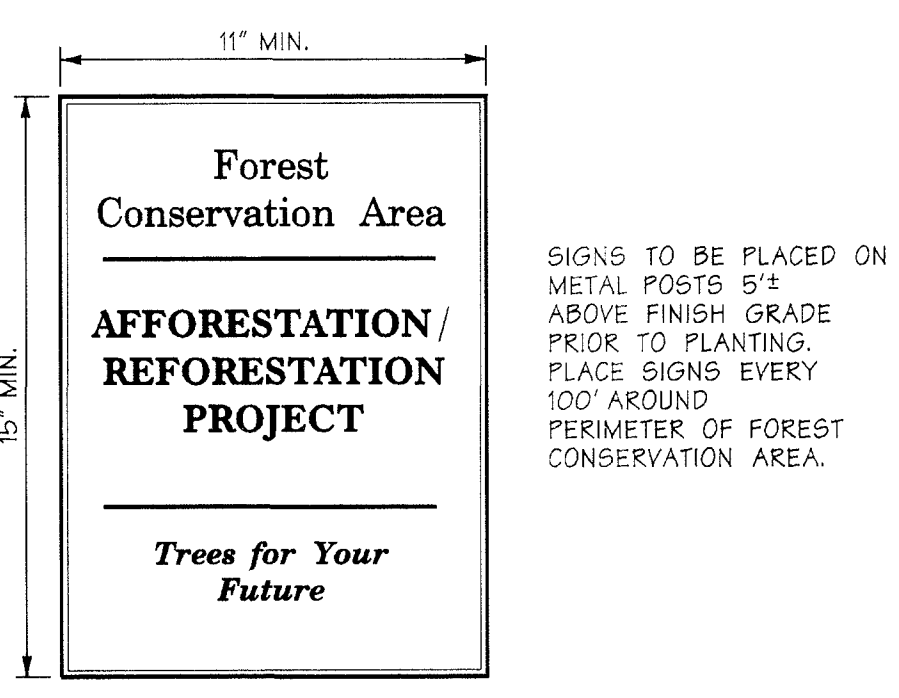
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	ZAISER PROPERTY	SECTION/AREA	LOT/PARCEL #
PLAT OR LP #	10,11,17	TAXMAP	31
BLOCK #	R-20	ELECT. DISTRICT	1
CELEBRITY		CENSUS TRACT	157

TITLE: **FOREST CONSERVATION PLAN**  
OFFSITE FOREST CONSERVATION AREA

Des. By	KAD	Scale	1" = 100'	Proj. No.	02059.B
Drn. By	GMO	Date	6/8/06		
Chk. By		Approved			

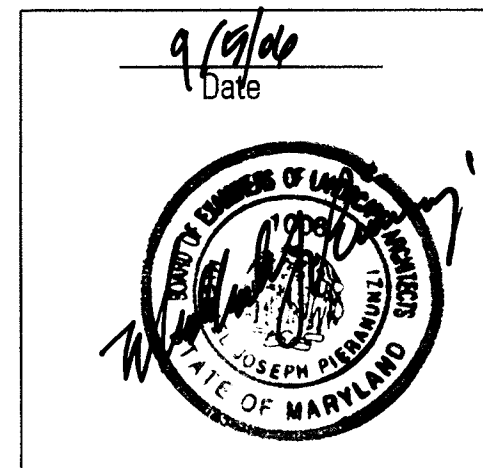
Landscape Architect No. *108*



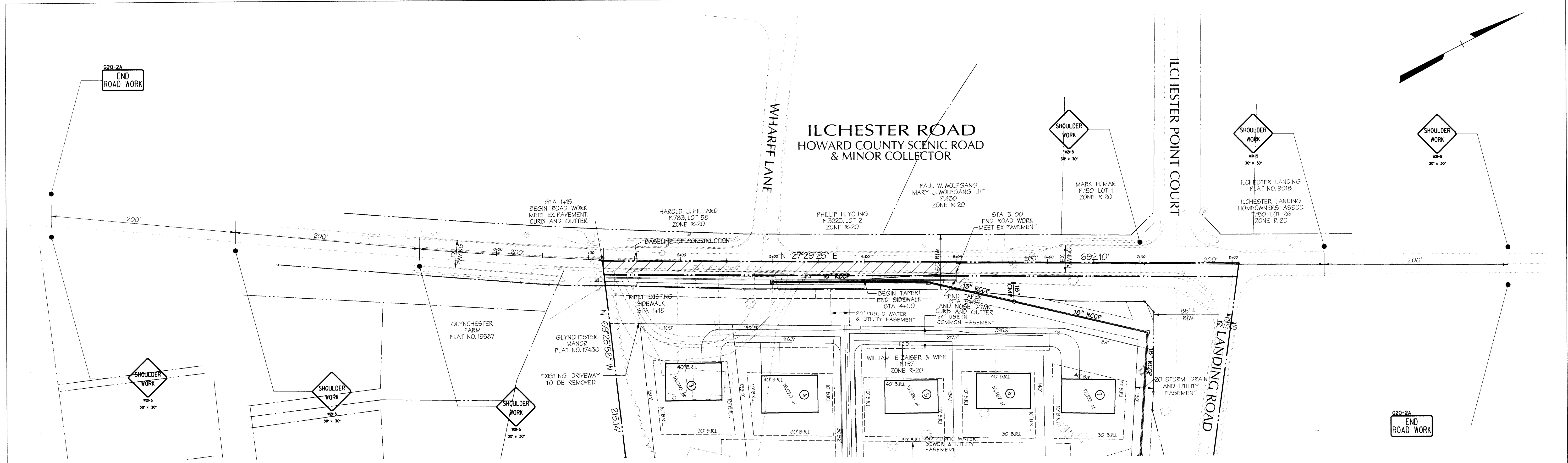
- NOTES:
- THIS DETAIL IS FOR FOREST PROTECTION DEVICE ONLY.
  - FOREST RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
  - BOUNDARIES OF FOREST RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING THE DEVICE.
  - ROOT DAMAGE SHALL BE AVOIDED.
  - PROTECTION SIGNAGE MAY ALSO BE USED.
  - FOREST PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
  - INSTALLATION OF FOREST PROTECTION FENCE MUST BE APPROVED BY BALTIMORE COUNTY EIR (410-887-3980) PRIOR TO ISSUANCE OF BUILDING OR GRADING PERMITS.
- Enviro.cel / ALFFP  
Not To Scale

Permanent Signage

Forest Protection Fence



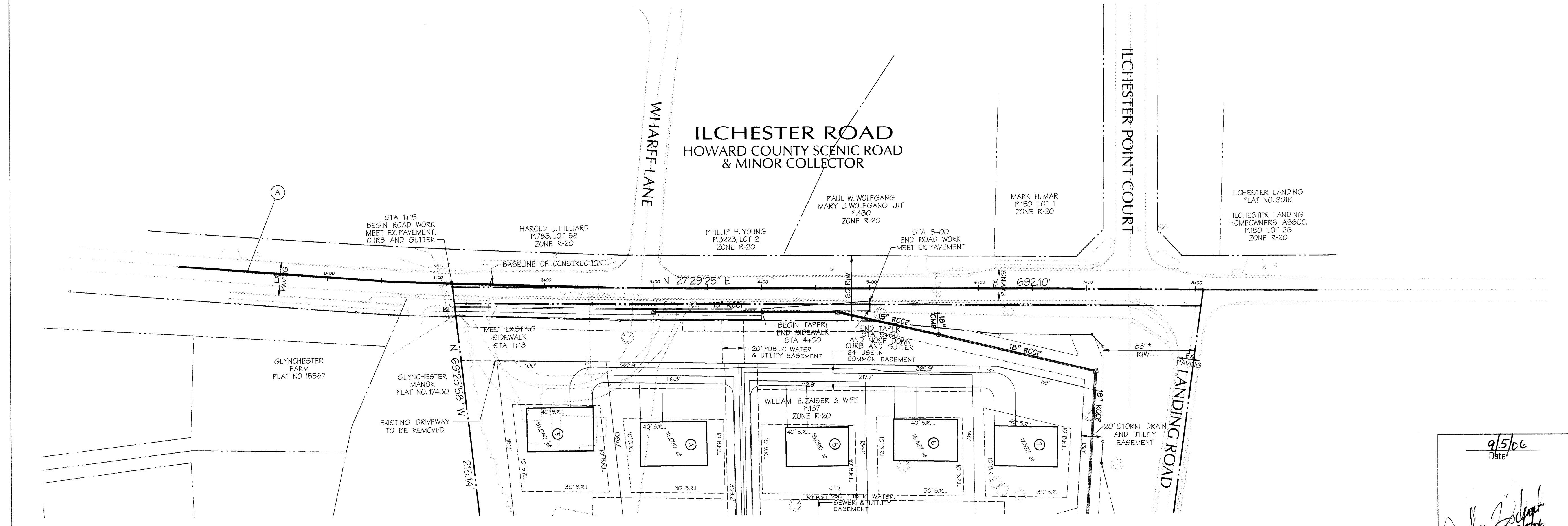




**MAINTENANCE OF TRAFFIC PLAN**

**LEGEND**

	FULL DEPTH PAVING (F-3)
	1 1/2" RESURFACING, WEDGE & LEVELING COURSE



**STRIPING PLAN**

**PAVEMENT MARKING LEGEND**

A - 5 IN. SOLID DOUBLE YELLOW PAVEMENT MARKING LINE
---

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS  
*William F. ...* 1-3-07  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING  
*Cindy ...* 1/10/07  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 1/19/07  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description

**FINAL PLAN**  
**ZAISER PROPERTY**

LOTS 1 THRU 10 AND OPEN SPACE LOT 11  
 AND THE RE-SUB DIVISION OF  
 NON-BUILDABLE BULK PARCELS 'C' AND 'D'  
 TAX MAP 31 PARCEL 243, 572

**OWNER/DEVELOPER:**  
 Ilchester Road LLC  
 c/o James Keilty and Co. Inc.  
 P.O. Box 528  
 61 E. Padonia Road,  
 Timonium, MD 21093

**DMW**  
 Duff-McCune-Walker, Inc.  
 200 East Pennsylvania Avenue  
 Towson, Maryland 21286  
 (410) 296-3333  
 Fax: 296-4700  
 A Team of Land Planners,  
 Landscape Architects,  
 Engineers, Surveyors &  
 Environmental Professionals

9/5/06 Date  
*Jeffrey ...*

SUBDIVISION NAME	SECTION	LOT/FACIL #
ZAISER PROPERTY		157

PLATE OR L.P.	BLOCK #	ZONE	TAXATION MAP	ELECT. DISTRICT	CENSUS TRACT
	10,11,16,17	R-20	31	1	

TITLE  
**ILCHESTER ROAD**  
 MAINTENANCE OF TRAFFIC AND  
 PAVEMENT MARKING PLAN

Des. By	KAD	Scale	1" = 50'	Proj. No.	02059.B
Drn. By	GMO	Date	9/7/06		
Chk. By		Approved			

Professional Engr. No. 14230

19 of 19