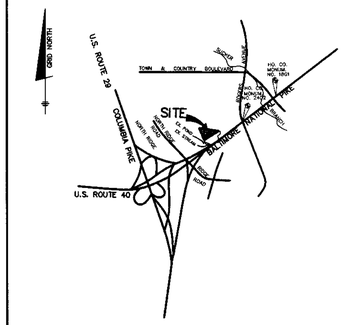
KAISER FARM

LOTS 1–82 AND PARCEL "E"

2nd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

FINAL ROAD CONSTRUCTION, STORM DRAIN, AND STORMWATER MANAGEMENT PLANS



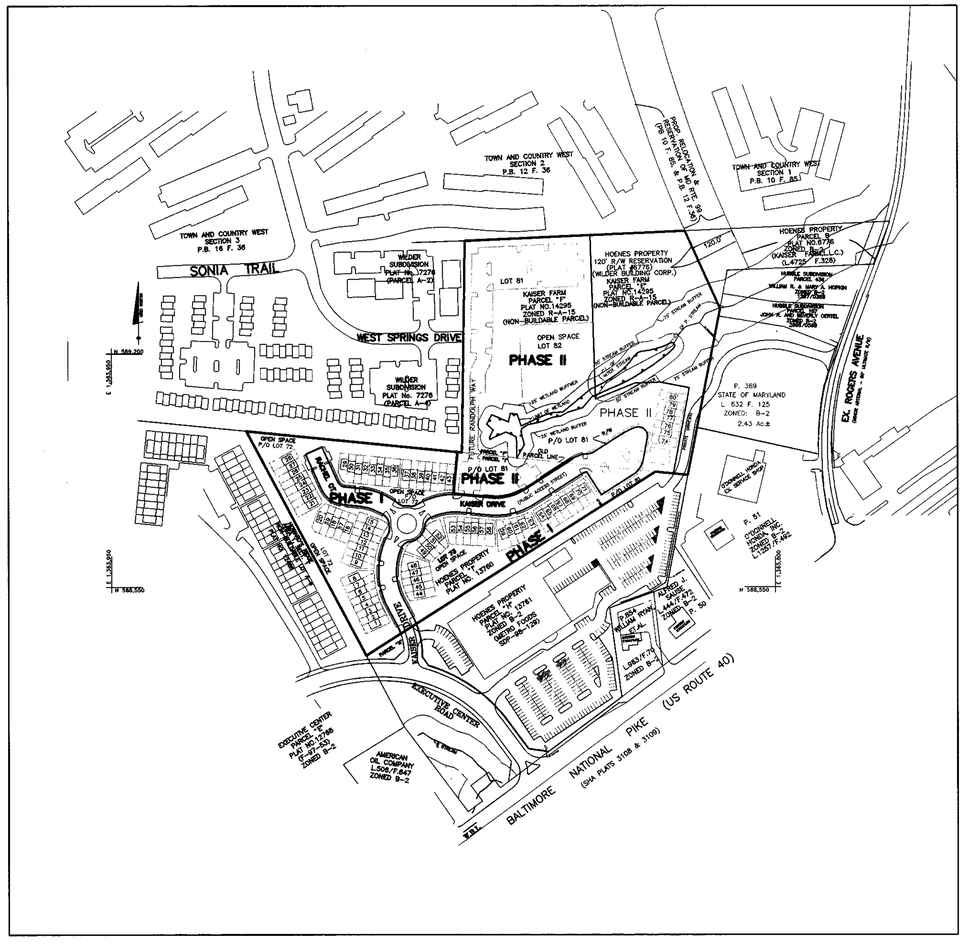
VICINITY MAP

SCALE: 1" = 2000'

BENCH MARKS (NAD83)		
HO. CO. No. 18G1 CONC. MONUMENT AT SURFACE, 4' N. OF MAC. SHOULDER OF RT. 40 WEST 18' W. OF YELLOW BUNKING SIGNAL. N 589,984.9578 E 1,367,750.2376		ELEV. 408.542
HO. CO. No. 24C2 CONC. MONUMENT AT SURFACE 5.5' S. OF LEFT TURN LANE OF RT. 40 WEST 14' E. OF EAST EDGE OF CROSSOVER TO RT. 99 S. N 588,648.3158 E 1,366,038.1347		ELEV. 354.930

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORK/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. PROJECT BACKGROUND:
   LOCATION: TAX MAP: 17, BLOCKS 23 & 24, PARCELS 681 AND P/O 848
   ZONING: R-A-15
   ELECTION DISTRICT: 2 nd
   TOTAL TRACT AREA: 17.57 AC.
   NUMBER OF PROPOSED LOTS: 78 TOWNHOMES
   NUMBER OF PROPOSED OPEN SPACE LOT: 3
   DPZ REFERENCE FILE: SP-00-03, WP-00-31, S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-85-154, P-99-17, F-00-102.
   PRELIMINARY PLAN APPROVED ON JAN. 12, 2000.
5. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
6. TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM FIELD RUN SURVEY DONE BY TSA GROUP, INC. DATED 7/97. CONTOURS SHOWN ARE AT 2 FOOT INTERVALS AND SUPPLEMENTED WITH TOPOGRAPHY AS SHOWN ON F-98-12.
7. COORDINATES ARE BASED ON NAD 83, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD CO. GEODETIC CONTROL STATIONS NO. 18G1 AND 24C2.
8. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
9. THE PROJECT IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER FOR THIS PROJECT SHALL BE PUBLIC AND WILL BE PROVIDED TO THE LOTS UNDER WATER & SEWER CONTRACT NO. 14-3866-D. THE DRAINAGE AREA FOR THIS PROJECT IS THE PATAPSCO.
10. WATER QUALITY AND QUANTITY TREATMENT FOR THE PROPOSED ROADWAY AND THE SITE IS BEING PROVIDED BY EXTENDED DETENTION. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
11. WETLAND LIMITS SHOWN HEREON ARE BASED ON A DELINEATION BY ECO-SCIENCE PROFESSIONAL, INC. DATED MARCH 1995 AND APPROVED UNDER S-95-01a AND WETLAND REPORT FOR PARCELS "E" AND "F", KAISER FARM (PLAT#14295) WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED MAY, 1999.
12. ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS WAS PREPARED BY LEE CUNNINGHAM & ASSOCIATES. DATED AUGUST 1997 AND APPROVED UNDER S-95-01a , F-98-12 AND SDP-98-129.
13. NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
14. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLES-CARNES AND ASSOCIATES. DATED FEB. 9, 1998.
15. EXISTING UTILITIES SHOWN ARE TAKEN FROM RECORD INFORMATION AND FIELD LOCATIONS.
16. FOREST STAND DELINEATION FOR PARCEL "I" WAS PREVIOUSLY APPROVED UNDER S-95-01a AND FOREST STAND DELINEATION PLAN FOR PARCELS "E" & "F" WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED AUGUST, 1999.
17. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFER, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK APPROVED AS PART OF THESE PLANS.
18. CONTRACTOR SHALL VERIFY ALL UTILITIES LOCATIONS PRIOR TO ANY CONSTRUCTION.
19. THE FOREST CONSERVATION EASEMENT (S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN.
20. ALL COMPACTION IN FILL AREA SHALL BE IN ACCORDANCE WITH AASHTO T-180 SPECIFICATIONS.
21. ALL SIDEWALK/HANDICAP RAMPS SHALL BE IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.



LOCATION MAP

SCALE: 1" = 200'

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	ROAD PLAN
3.	ROAD PROFILE: KAISER DRIVE AND TYPICAL SECTIONS
4.	ROAD PROFILE: RACHEL COURT AND FILLET PROFILES
5.	GRADING, SEDIMENT AND EROSION CONTROL PLAN
6.	STORM DRAIN PROFILES
7.	STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES
8-9.	STORMWATER MANAGEMENT NOTES AND DETAILS
10.	LANDSCAPE PLAN
11.	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
12.	FOREST CONSERVATION PLAN
13.	FOREST CONSERVATION NOTES AND DETAILS
14.	STORM DRAIN DRAINAGE AREA MAP

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/01

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Maan — 1/19/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: *KAISER FARM*
LOTS 1–82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL 'I', HOENES PROPERTY AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154, SP-00-03, P-99-17 AND F-00-102

TITLE: *TITLE SHEET*

DATE: JULY 2000 — PROJECT NO. 1268

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 1 OF 14

F-01-25

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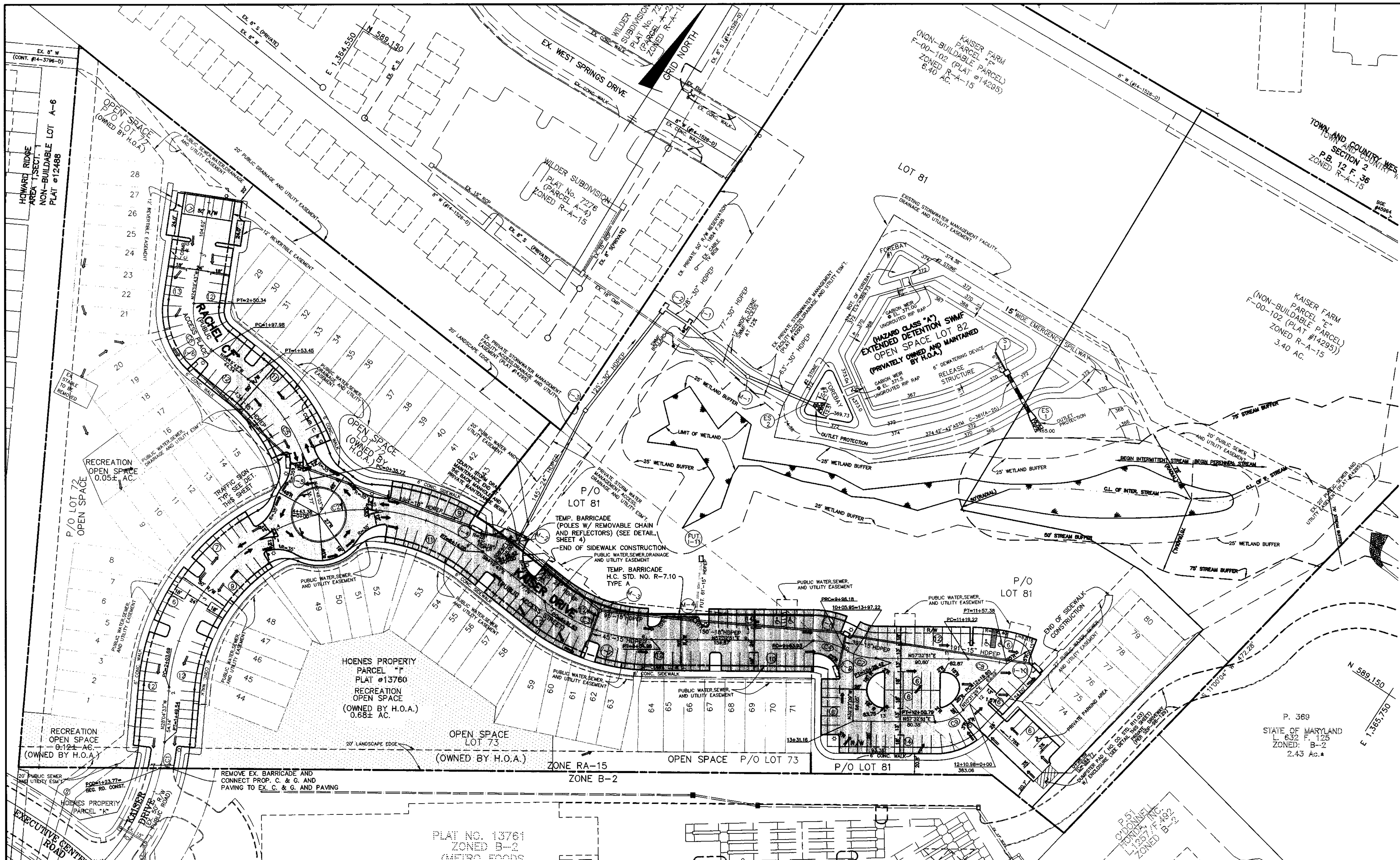


PLAN VIEW

SCALE: 1" = 50'

STREET CENTERLINE CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC STA.	PT STA.
C1	200.00'	25.77'	12.91'	25.76'	07°23'02"	1+23.77	1+49.54
C2	190.00'	410.36'	355.44'	335.13'	123°44'50"	2+03.69	6+14.05
C3	170.00'	113.12'	58.74'	111.04'	38°07'26"	6+91.83	8+04.95
C4	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+63.93	9+96.18
C5	175.00'	117.68'	61.16'	115.47'	38°31'40"	0+35.77	1+53.45
C6	50.00'	52.36'	28.87'	50.00'	60°00'00"	1+97.98	2+50.34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

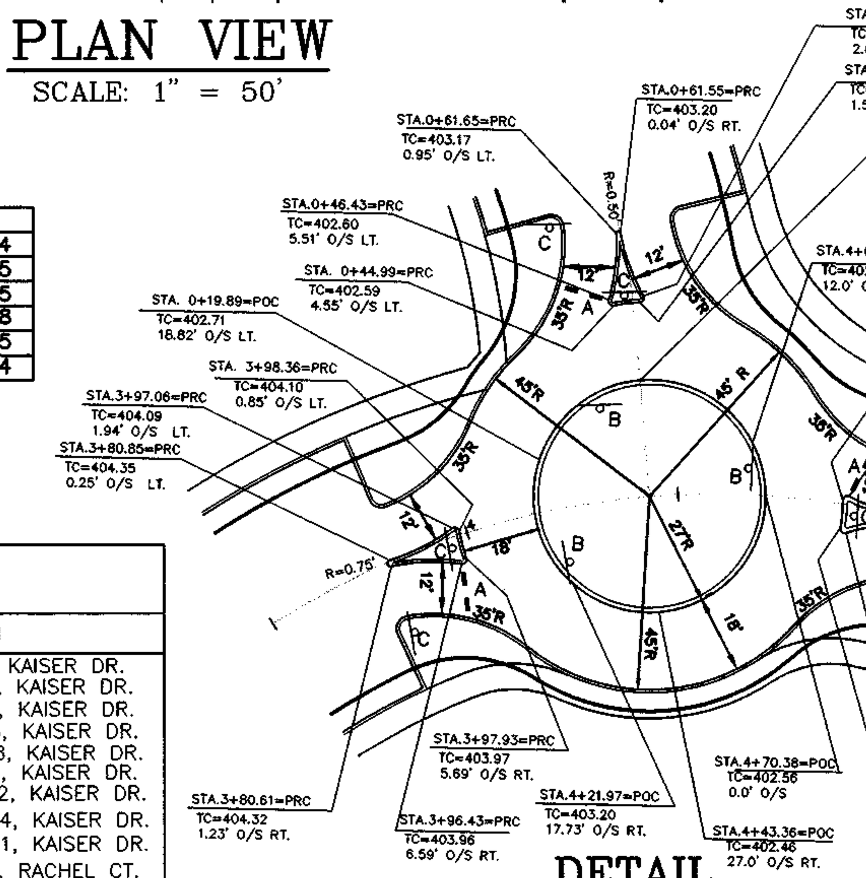
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
☼	100 WATT HPS VAPOR "COLONIAL" POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	15' LT., STA.1+40 KAISER DR. 19' RT., STA.3+85, KAISER DR. 16' LT., STA.4+96, KAISER DR. 17' LT., STA.6+56, KAISER DR. 15' LT., STA.8+58, KAISER DR. 20' LT., STA.9+93, KAISER DR. 16' LT., STA.11+22, KAISER DR. 16' LT., STA.12+24, KAISER DR. 25' LT., STA.13+31, KAISER DR. 22' LT., STA.0+48, RACHEL CT. 15' LT., STA.1+98, RACHEL CT. 16' RT., STA.3+59, RACHEL CT.



DETAIL

NOT TO SCALE

SIGNAGE

(C) YIELD (RI-2) (36"x36"x36") (W96-10) (42"x42") — YIELD / TO TRAFFIC IN CIRCLE

(B) KEEP RIGHT (R4-7A) (24"x30") — KEEP RIGHT

NOTES:
1.) ALL ISLANDS TO BE MOD. COMB. CURB & GUTTER
2.) ALL ISLANDS' FILLET RAD. ARE 1.0' UNLESS OTHERWISE DENOTED ON THE PLAN.

TRAFFIC CONTROL SIGNS AND STRIPING LEGEND

A : DENOTES YIELD LINE (3' STRIPE, 3' GAP AND 12" WHITE LINE)
B : DENOTES "KEEP RIGHT" SIGN (STD. R4-7a)
C: DENOTES "TO TRAFFIC CIRCLE" SIGN (STD. R1-2)

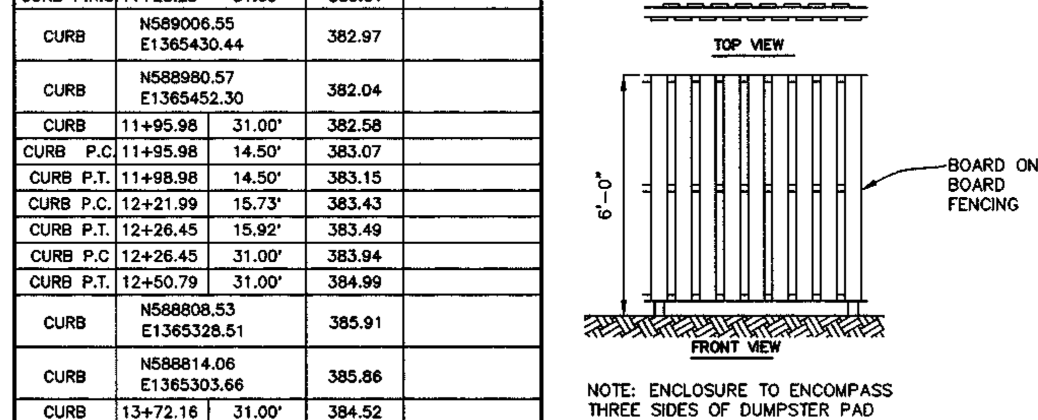
KAISER DRIVE – PARKING AREA CURB DATA

LEFT SIDE

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.C.	1+21.11	12.00'	400.42	MATCH EX.
CURB P.R.C.	1+40.15	12.00'	401.16	
CURB P.T.	1+43.40	15.02'	401.38	
CURB	1+43.40	30.00'	401.83	
CURB P.T.	1+49.54	30.00'	402.05	
CURB P.C.	2+03.69	30.00'	403.66	
CURB P.O.C.	2+49.43	30.00'	404.56	
CURB P.C.	2+49.43	14.98'	404.11	
CURB P.R.C.	2+52.21	12.00'	404.05	
CURB P.R.C.	2+57.94	12.00'	404.13	
CURB P.T.	2+60.72	14.98'	404.27	
CURB	2+60.72	30.00'	404.72	
CURB	3+11.51	30.00'	405.11	
CURB P.C.	3+11.51	14.98'	404.66	
CURB P.R.C.	3+14.29	12.00'	404.57	
CURB P.R.C	3+20.02	12.00'	404.58	
CURB P.T.	3+22.80	14.98'	404.68	
CURB	3+22.80	30.00'	405.13	
CURB	3+82.05	30.00'	404.80	
CURB P.C.	3+82.05	14.98'	404.35	
CURB P.R.C.	3+85.17	12.00	404.22	= L.L.P.0+00
CURB P.R.C.	4+07.47	24.04'	403.79	=L.L.P.0+27.94
CURB P.R.C.	4+79.25	24.04'	401.95	=R.L.P.0+36.58
CURB P.R.C.	5+01.55	12.00'	401.36	=R.L.P.0+08.65
CURB P.R.C.	5+09.68	12.00'	401.17	= R.L.P.0+00
CURB P.T.	5+12.46	14.98'	401.17	
CURB	5+12.46	30.00'	401.62	
CURB	5+88.65	30.00'	398.18	
CURB P.C.	5+88.65	14.98'	397.73	
CURB P.R.C.	5+91.43	12.00'	397.48	= L.L.P.0+00
CURB P.O.C.	6+09.86	17.70'	395.14	=L.L.P.0+21.13
CURB P.C.	6+17.11	31.75'	394.36	=L.L.P.0+37.46
CURB P.C.	6+41.47	37.00'	394.18	=R.L.P.0+39.27
CURB P.O.C.	6+48.79	19.32'	393.55	=R.L.P.0+19.63
CURB P.R.C.	6+66.47	12.00'	393.22	= R.L.P.0+00
CURB P.T.	6+69.73	15.00'	393.16	
CURB	6+69.73	30.00'	393.61	
CURB P.C.	6+91.83	30.00'	392.49	
CURB	8+00.78	30.00'	388.16	
CURB P.C.	8+00.45	15.08'	387.71	
CURB P.R.C.	8+03.76	12.00'	387.52	
CURB P.R.C.	8+05.12	12.00'	387.48	
CURB P.T.	8+15.12	22.00'	387.47	
CURB P.T.	8+51.12	22.00'	386.58	
CURB P.O.C.	8+57.34	12.75'	386.12	
CURB P.T.	8+61.47	14.12'	386.12	
CURB	8+61.47	30.00'	386.60	
CURB P.C.	9+63.93	30.00'	385.24	
CURB	9+86.26	30.00'	385.00	
CURB P.C.	9+86.26	13.97'	384.53	
CURB P.R.C	9+87.89	12.00'	384.45	
CURB P.R.C	9+94.55	12.00'	384.38	
CURB P.T.	9+96.18	13.97'	384.43	
CURB P.C.	9+96.18	31.00'	384.94	
CURB P.T.	10+28.24	31.00'	384.56	
CURB P.C	11+19.22	31.00'	383.65	
CURB	11+20.27	31.00'	383.64	
CURB P.C.	11+20.37	14.48'	383.14	
CURB P.T.	11+22.80	14.48'	383.12	
CURB P.R.C	11+23.25	31.00'	383.61	
CURB	N589006.55 E1365430.44		382.97	
CURB	N588980.57 E1365452.30		382.04	
CURB	11+95.98	31.00'	382.58	
CURB P.C	11+95.98	14.50'	383.07	
CURB P.T.	11+98.98	14.50'	383.15	
CURB P.C.	12+21.99	15.73'	383.43	
CURB P.T.	12+26.45	15.92'	383.49	
CURB P.C	12+26.45	31.00'	383.94	
CURB P.T.	12+50.79	31.00'	384.99	
CURB	N588808.53 E1365328.51		385.91	
CURB	N588814.06 E1365303.66		385.86	
CURB	13+72.16	31.00'	384.52	
CURB P.C.	13+72.16	14.52'	384.00	
CURB P.R.C	13+73.73	13.03'	383.96	
CURB P.O.C.	13+80.97	14.44'	383.84	

RIGHT SIDE

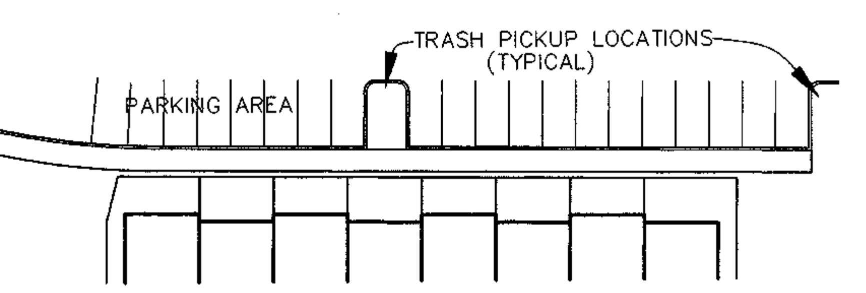
DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.C.	1+23.77	12.00'	400.53	MATCH EX.
CURB P.R.C.	1+44.53	12.00'	401.32	
CURB P.T.	1+47.32	14.98'	401.52	
CURB	1+47.32	30.00'	401.97	
CURB P.T.	1+49.54	30.00'	402.05	
CURB P.C.	2+03.69	30.00'	403.66	
CURB P.O.C.	2+64.84	30.00'	404.72	
CURB P.C.	2+64.84	15.03'	404.27	
CURB P.R.C.	2+68.10	12.00'	404.26	
CURB P.R.C.	2+75.84	12.00'	404.34	
CURB P.T.	2+79.10	15.03'	404.47	
CURB	2+79.10	30.00'	404.92	
CURB	3+75.28	30.00'	404.88	
CURB P.C.	3+75.28	16.19'	404.47	
CURB P.R.C.	3+79.34	13.25'	404.24	
CURB P.R.C	4+06.43	29.62'	403.40	
CURB P.O.C.	4+43.36	45.00'	402.20	
CURB P.R.C.	4+80.29	29.62'	401.65	
CURB P.R.C.	5+09.26	12.86'	401.16	
CURB P.T.	5+13.18	15.83'	401.17	
CURB	5+13.18	30.00'	401.59	
CURB P.T.	6+14.05	30.00'	396.78	
CURB	6+28.11	30.00'	395.94	
CURB P.C.	6+28.11	15.00'	395.49	
CURB P.T.	6+31.11	12.00'	395.22	
CURB P.C.	6+37.11	12.00'	394.87	
CURB P.T.	6+40.11	15.00'	394.61	
CURB P.C.	6+91.83	30.00'	391.41	
CURB	7+44.26	30.00'	389.08	
CURB P.C.	7+44.36	14.95'	389.53	
CURB P.T.	7+47.12	12.00'	389.50	
CURB P.C.	7+54.70	12.00'	389.20	
CURB P.T.	7+57.46	15.00'	389.19	
CURB	7+57.34	30.00'	389.65	
CURB P.T.	8+04.95	30.00'	388.03	
CURB .	8+61.95	30.00'	386.59	
CURB P.C.	8+61.95	15.00'	386.14	
CURB P.T.	8+64.95	12.00'	385.99	
CURB P.C.	8+70.95	12.00'	385.85	
CURB P.T.	8+73.95	15.00'	385.91	
CURB ..	9+63.97	30.00'	385.24	
CURB P.C.	9+63.96	14.04'	384.76	
CURB P.R.C.	9+67.96	12.00'	384.65	
CURB P.O.C.	9+96.18	17.03'	384.21	
CURB P.R.C	10+35.19	13.14'	383.95	ISLAND
CURB P.T.	10+37.44	15.13'	383.87	ISLAND
CURB P.R.C.	10+91.44	15.00'	383.45	ISLAND
CURB P.O.C.	12+11.30	14.42'	384.09	ISLAND
CURB P.R.C.	12+39.69	13.00'	384.33	ISLAND
CURB P.T.	13+00.16	15.13'	384.10	ISLAND
CURB P.C.	13+02.41	13.14'	384.18	ISLAND
CURB P.O.C.	13+62.16	13.00'	384.11	ISLAND



NOTE: ENCLOSURE TO ENCOMPASS THREE SIDES OF DUMPSTER PAD

DUMPSTER ENCLOSURE DETAIL

NOT TO SCALE



TYPICAL TRASH PICK-UP LOCATION

NOT TO SCALE

STREET CENTERLINE CURVE DATA (CONT.)

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC. STA.	PT. STA.
C7	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+96.17	10+28.41
C8	165.40'	38.16'	19.17'	38.08'	13°13'09"	11+19.21	11+57.37
C9	37.00'	30.37'	16.10'	29.52'	47°01'22"	12+18.81	12+49.18

RACHEL COURT – PARKING AREA CURB DATA

LEFT SIDE

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.R.C.	0+35.20	28.03'	403.49	=L.L.P 0+47.37
CURB P.R.C.	0+66.45	12.38'	403.24	=L.L.P 0+80.37
CURB P.T.	0+70.17	15.38'	403.47	
CURB	0+70.17	30.00'	403.91	
CURB P.T.	1+53.45	30.00'	406.65	
CURB	1+92.51	30.00'	408.42	
CURB P.C.	1+92.51	15.00'	407.97	
CURB P.T.	1+95.51	12.00'	408.02	
CURB P.C.	1+97.98	12.00'	408.14	
CURB P.R.C.	2+00.43	12.00'	408.26	
CURB P.T.	2+02.74	14.83'	407.71	
CURB	2+03.06	30.00'	407.85	
CURB P.T.	2+50.34	30.00'	410.30	
CURB	3+08.97	30.00'	413.50	
CURB P.C.	3+08.97	14.00'	413.99	
CURB P.T.	3+12.97	14.00'	414.33	
CURB	3+12.97	36.67'	415.01	
CURB P.C.	3+36.97	36.67'	416.38	
CURB P.T.	3+41.97	31.50'	416.52	
CURB	3+54.97	31.50'	417.27	

RIGHT SIDE

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.R.C.	0+37.06	25.26'	402.44	=R.L.P.0+59.46
CURB P.R.C.	0+61.45	12.00'	403.11	=R.L.P.0+90.49
CURB P.T.	0+64.21	14.98'	403.29	
CURB	0+64.21	30.00'	403.74	
CURB P.T.	1+53.45	30.00'	406.65	
CURB	1+57.10	30.00'	406.80	
CURB P.C.	1+57.10	15.00'	406.35	
CURB P.T.	1+60.10	12.00'	406.38	
CURB P.C.	1+66.10	12.00'	406.63	
CURB P.T.	1+69.10	15.00'	406.87	
CURB	1+69.10	30.00'	407.32	
CURB P.C.	1+97.98	30.00'	408.69	
CURB P.T.	2+50.34	30.00'	411.39	
CURB	3+08.97	30.00'	414.59	
CURB P.C.	3+08.97	14.00'	414.11	
CURB P.T.	3+12.97	14.00'	414.33	
CURB	3+12.97	36.67'	415.01	
CURB P.C.	3+36.97	36.67'	416.38	
CURB P.T.	3+41.97	31.50'	416.52	
CURB	3+54.97	31.50'	417.27	

FUTURE RANDOLPH WAY CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.*	REMARKS	DESC.	℄ STA	OFFSET	T/C ELEV.*	REMARKS
LEFT SIDE					RIGHT SIDE				
CURB P.R.C.	0+31.75	12.36'	394.36	=L.L.P 0+37.46	CURB P.R.C.	0+37	12.00'	394.18	=R.L.P.0+39.27

* NOTE: 2.0% CROSS SLOPE

PRIVATE PARKING AREA CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS	DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
LEFT SIDE					RIGHT SIDE				
CURB P.C.	0+37.59	12.00'	383.50		CURB P.T.	0+98.59	12.00'	385.13	END OF CURB
CURB P.T.	0+39.59	14.00'	383.59						
CURB	0+39.59	30.00'	384.07						
CURB	0+93.59	30.00'	384.87						
CURB P.C.	0+93.59	17.00'	384.48						
CURB P.T.	0+98.59	12.00'	384.41	END OF CURB					

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER [seal and signature]
1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O.BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **ROAD PLAN: KAISER DRIVE AND RACHEL COURT**

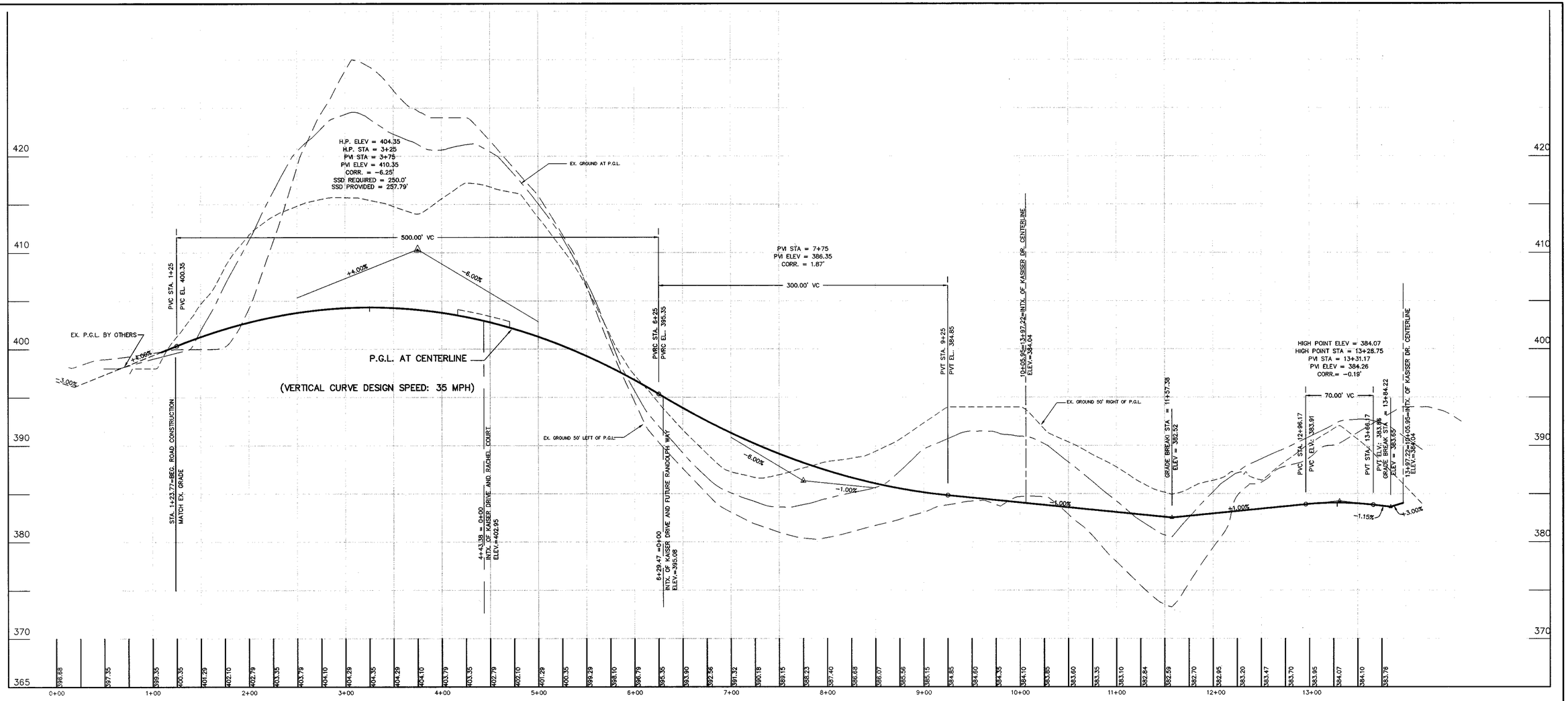
DATE: AUG.,2000 — PROJECT NO. 1268

DES: YSL — DRN: YSL — CHK: DAM — SCALE: AS SHOWN — DRAWING 2 OF 14

F-01-25

P:\PROJECTS\0796\DWG\70170152.DWG

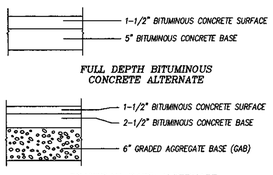
P:\PROJECTS\0796\dwg\7017015x2.dwg



KAISER DRIVE: PUBLIC ACCESS STREET

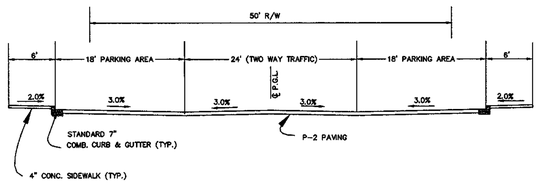
(DESIGN SPEED: 30 MPH)

SCALE: HOR.: 1" = 50'
VERT. 1" = 5'



PAVING SECTION P-2

NOT TO SCALE

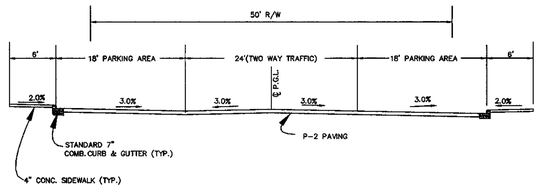


TYPICAL ROAD AND PARKING SECTION DETAIL

KAISER DRIVE :DESIGN SPEED=30 MPH (FROM STA. 1+43.40 TO 3+80.05 , 5+12.46 TO 6+28.11 AND 7+57.34 TO 9+86.26)
(PUBLIC ACCESS STREET)

RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 0+64.21 TO 1+92.51 AND 3+12.97 TO 3+36.97)
(PUBLIC ACCESS PLACE)

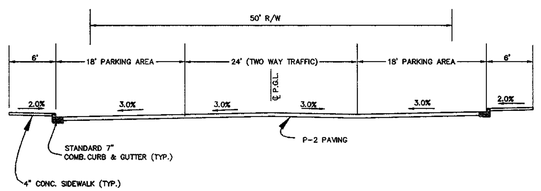
NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL

KAISER DRIVE :DESIGN SPEED=30 MPH (FROM STA. 6+40.11 TO 7+44.26)
(PUBLIC ACCESS STREET)

NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL

RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 2+03.06 TO 3+08.97)
(PUBLIC ACCESS PLACE)

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/16/01

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MORAN — No. 21612 — REGISTERED PROFESSIONAL ENGINEER — 1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O.BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL 'I', HOENES PROPERTY,AND PARCELS "E" AND "I", KAISER FARM

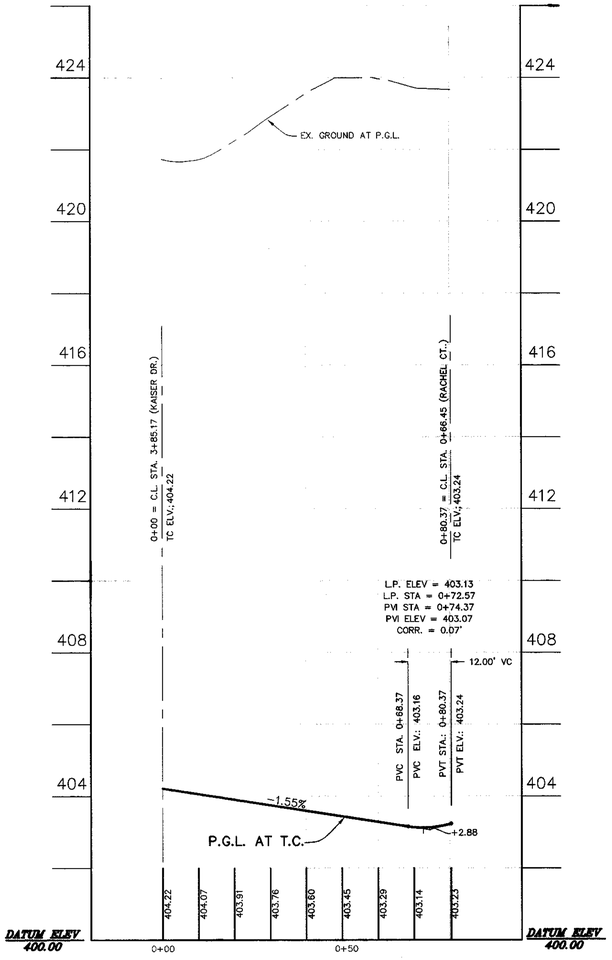
LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-98-91, F-98-12, S-88-05, SDP-98-129, F-98-150, F-86-154,SP-00-03,F-99-17 AND F-00-102

TITLE: **ROAD PROFILE: KAISER DRIVE AND TYPICAL SECTIONS**

DATE: AUG., 2000 — PROJECT NO. 1268

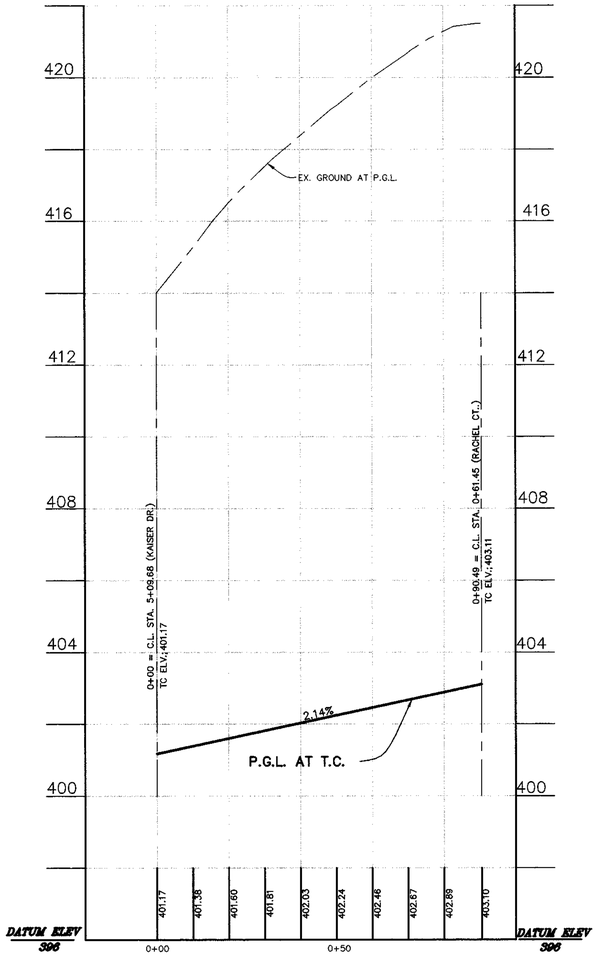
DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 3 OF 14

P:\PROJECTS\0795\dwg\701701Sx3.dwg



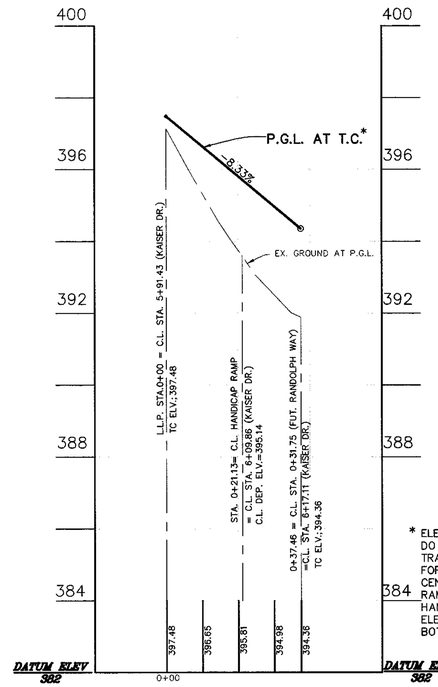
FILLET AT LEFT OF RACHEL CT.

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



FILLET AT RIGHT OF RACHEL CT.

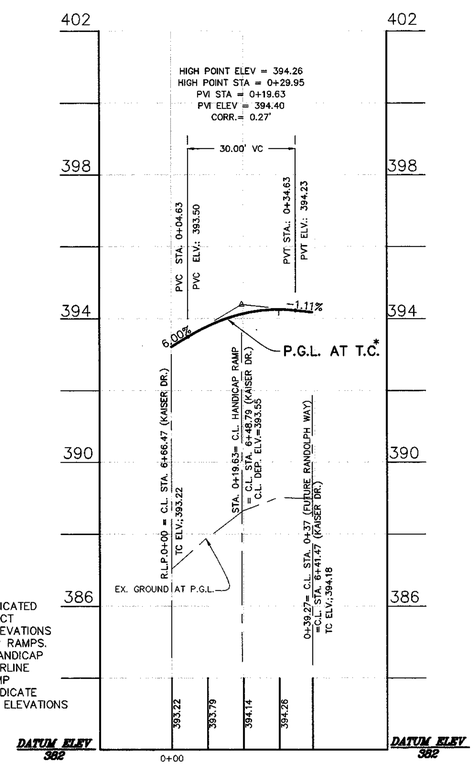
SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



* ELEVATION INDICATED DO NOT REFLECT TRANSITION ELEVATIONS FOR HANDICAP RAMPS. CENTERLINE HANDICAP RAMPS. CENTERLINE HANDICAP RAMP ELEVATIONS INDICATE BOTTOM CURB ELEVATIONS

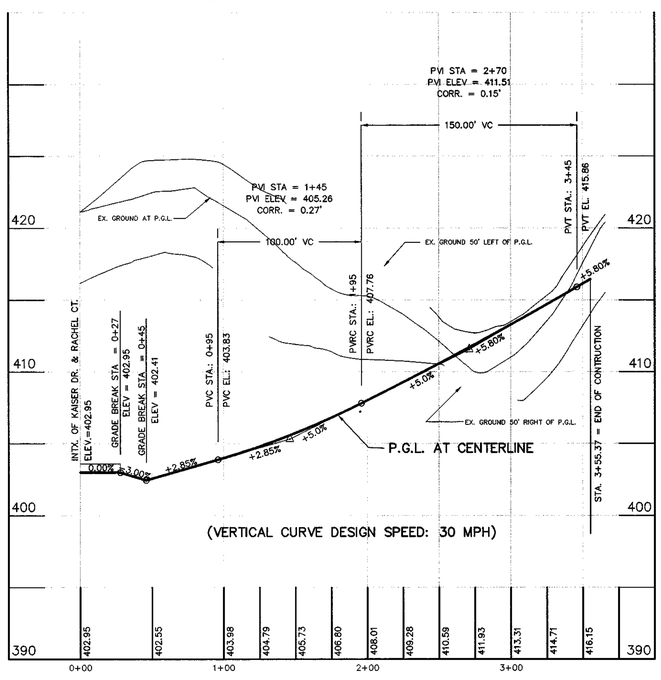
FILLET AT LEFT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



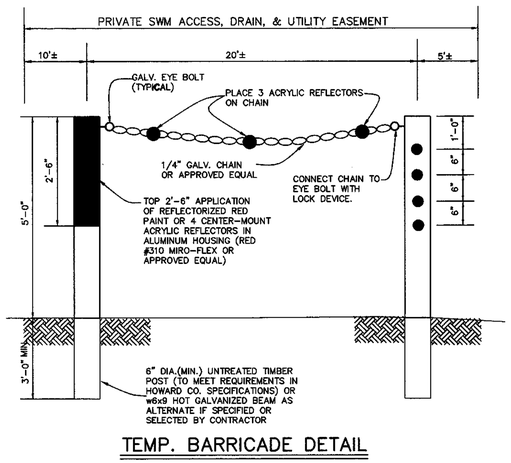
FILLET AT RIGHT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



RACHEL COURT: PUBLIC ACCESS PLACE
(DESIGN SPEED: 25 MPH)

SCALE: HOR.: 1" = 50'
VERT. 1" = 5'



TEMP. BARRICADE DETAIL

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/20/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/16/01

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Mason 1/26/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O.BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOBNES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-93-01a, P-97-02, F-95-91, F-95-12, S-98-05, SDP-98-128, F-86-160, F-86-154,SP-00-03,F-99-17 AND F-00-102

TITLE: *ROAD PROFILE: RACHEL COURT AND FILLET PROFILES*

DATE: AUG.,2000 PROJECT NO. 1268

DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 4 OF 14

F-01-25

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STORMWATER MANAGEMENT SUMMARY DATA

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (CFS) AT DESIGN POINT	POST-DEVELOPED COMBINED DISCHARGE (CFS) WITH SWM AT DESIGN POINT
	DESIGN POINT #1	DESIGN POINT #1
2	13.32	12.95
10	41.77	28.69
100	–	81.15

	POND #1		
STORM FREQUENCY	2	10	100
INFLOW Q (CFS)	27.6	51.5	78.1
DISCHARGE Q (CFS)	1.6	13.2	50.2
ELEVATION	370.19	371.50	372.34
STORAGE VOLUME PROVIDED (AC.-FT)	1.202	1.905	2.409

PLAN VIEW

SCALE: 1" = 50'

PLAT NO. 13761 ZONED B-2 (METRO FOODS SDP-00-123)

FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 11

SEDIMENT BASIN NO. 1 DATA

D.A. = 7.32 AC.
WET STORAGE REQUIRED : 13176 C.F.
WET STORAGE PROVIDED : 13176 C.F.
DRY STORAGE REQUIRED : 13176 C.F.
DRY STORAGE PROVIDED : 13176 C.F.
CLEANOUT ELEVATION : 367.5
TOP OFV EMBANKMENT ELEVATION : 374.0
RISER CREST ELEVATION : 369.75
2 YR. RELEASE RATE : 4.21 CFS (EXIST.)
DURING CONSTRUCTION: 0.27 CFS (DEV.)

SEDIMENT TRAP NO. 1 DATA

TYPE: ST-II (S.O.S.T)
D.A. = 1.92 AC. (DEVELOPED CONDITION)
STORAGE REQUIRED: 6912 C.F.
WET STORAGE : 3456 C.F.
DRY STORAGE : 3456 C.F.
STORAGE PROVIDED: 7522.25 C.F.
WET STORAGE : 3704.10 C.F.
DRY STORAGE : 3818.15 C.F.
BOTTOM DIMENSION : 70'x35'
DEPTH : 2.5'
SIDE SLOPE: 2 : 1
WEIR LENGTH: 8.0'
EMBANKMENT HEIGHT: 2.2'
EMBANKMENT ELEVATION: 370.0
BOTTOM ELEVATION: 366.5
WET STORAGE LIMIT: 367.85
WEIR CREST ELEVATION: 369.0
OUTLET ELEVATION: 367.85
CLEANOUT ELEVATION: 367.18
APRON LENGTH: 10.0'

LEGEND

CONTOUR INTERVAL 2 FEET
EXISTING CONTOUR
PROPOSED CONTOUR
PROPOSED SEWER MAIN
PROPOSED WATER MAIN
PROPOSED STORM DRAIN
STABILIZED CONSTRUCTION ENTRANCE
PROPOSED EARTH DIKE
MOUNTABLE BERM
SILT FENCE
SUPER SILT FENCE
LIMIT OF DISTURBED AREA
EXISTING TREE LINE
PROPOSED TREE LINE
FOREST RETENTION EASEMENT
REFORESTATION EASEMENT
NO WOODY VEGETATION BUFFER
GABION INFLOW PROTECTION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/01

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

HOWARD SOIL CONSERVATION DISTRICT — ACTING DIST. MGR. — DATE 2/13/01

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/13/01

ENGINEER'S CERTIFICATE

"I/WE 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."

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 1/19/01

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."

DEVELOPER – KAISER FARM, L.L.C. — DATE 1/19/01

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-6105

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL 'I', HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-016, F-97-02, F-98-91, F-98-12, S-99-05, SDP-98-128, F-98-160, F-98-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN**

DATE: AUG., 2000 — PROJECT NO. 1268

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 5 OF 14

F-01-25

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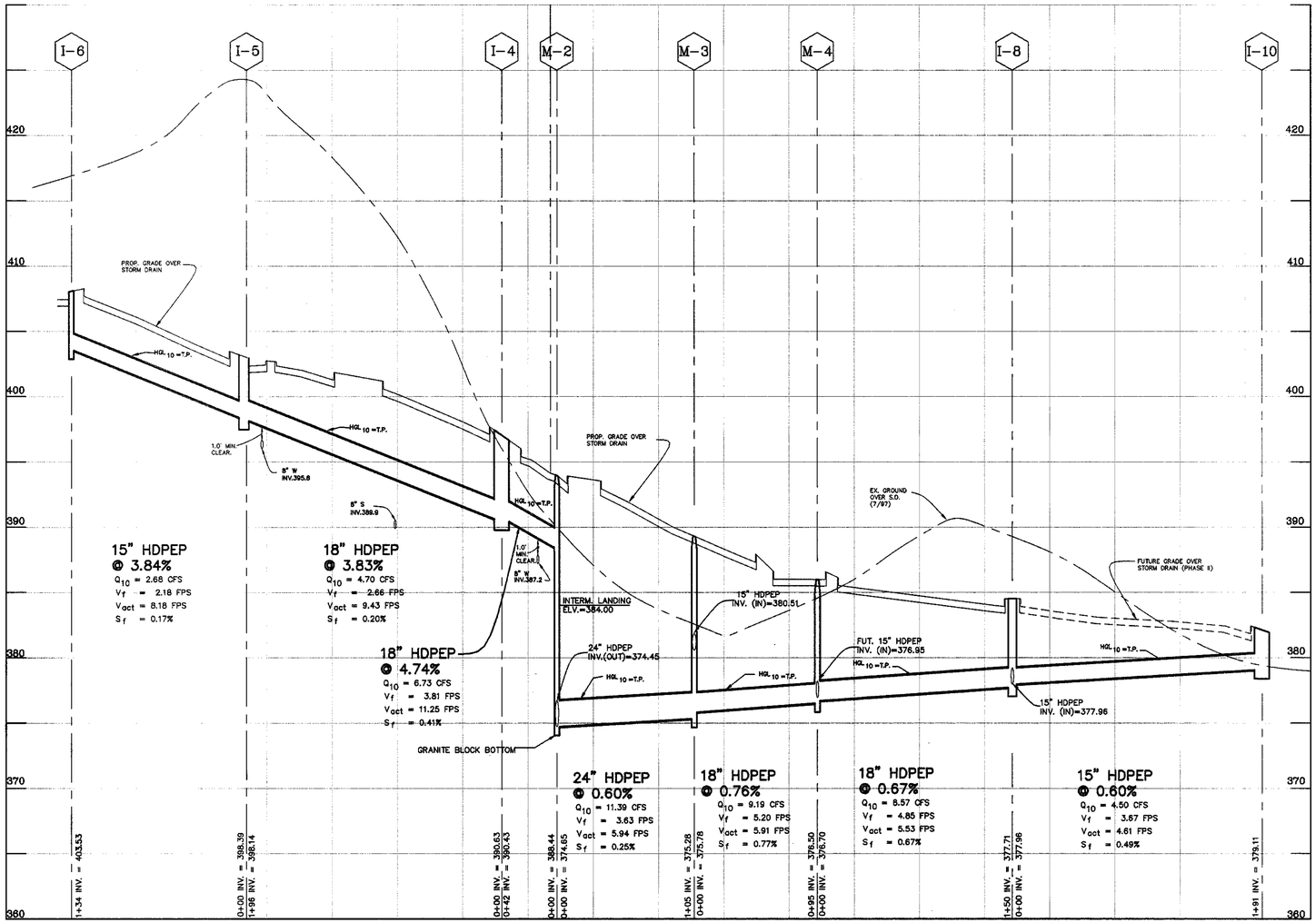
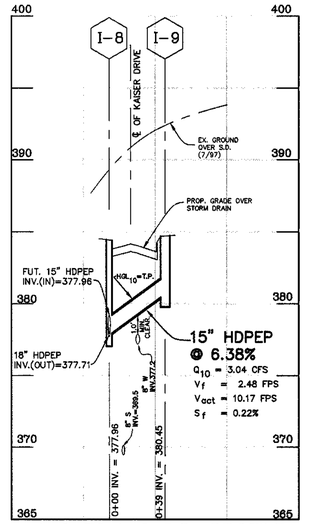


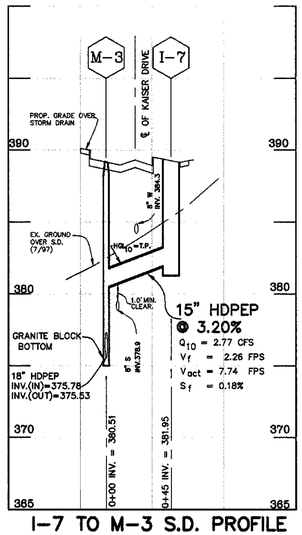
STORM DRAIN PROFILE AT KAISER DRIVE AND RACHEL CT.

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



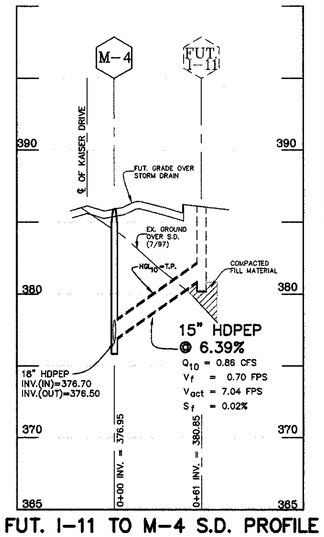
I-9 TO I-8 S.D. PROFILE

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



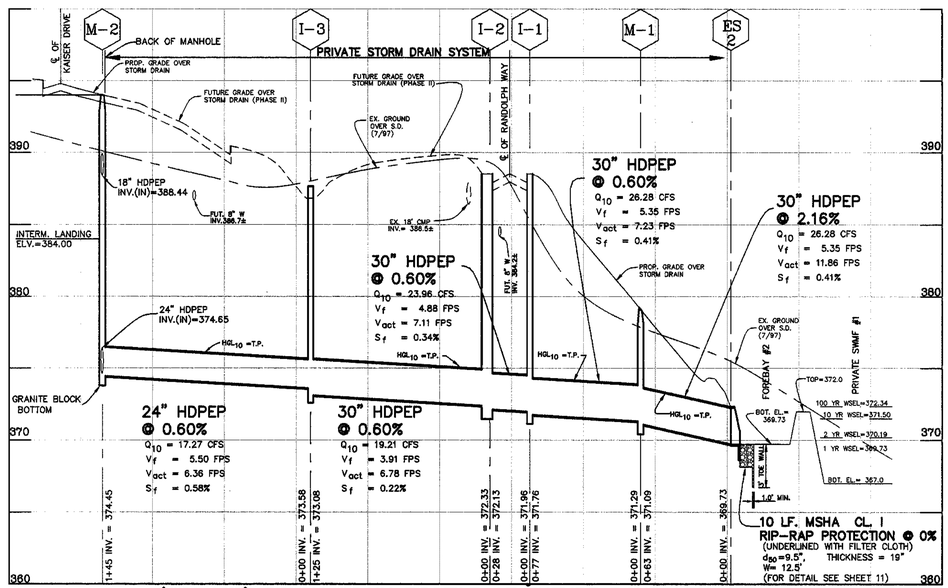
I-7 TO M-3 S.D. PROFILE

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



FUT. I-11 TO M-4 S.D. PROFILE

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



(PRIVATE) STORM DRAIN PROFILE AT FUTURE RANDOLPH WAY

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"

STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	INVERT (OUT)	INVERT (IN)	INVERT (IN)	TOP ELEVATION	LOCATION	REMARKS
I-1	"A-10" INLET (WIDTH=2.5')	371.76	371.96	---	388.55	STA. 2+99.55 12.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-2	"A-10" INLET (WIDTH=3.5')	372.13	372.33	---	388.55	STA. 2+99.55 12.00' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-3	TYPE "D" INLET	373.08	373.58	---	387.00	STA. 1+73.43 23.11' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.39 (PRECAST)
I-4	"A-10" INLET (WIDTH=2.5')	390.43	390.63	---	397.21	STA. 5+96.47 12.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-5	"A-10" INLET (WIDTH=3.0')	388.14	388.39	---	402.83	STA. 0+57.74 14.22' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-6	"A-10" INLET (WIDTH=2.5')	403.53	---	---	408.01	STA. 2+02.98 24.34' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-7	"A-10" INLET (WIDTH=2.5')	381.95	---	---	389.23	STA. 7+44.30 24.34' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-8	"A-5" INLET (WIDTH=3.0')	377.71	377.96 (15" ø)	377.96 (15" ø)	384.41	STA. 9+91.22 12.00' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.40
I-9	"A-10" INLET (WIDTH=2.5')	380.46	---	---	383.84	STA. 13+80.97 14.44' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-10	"A-10" INLET (WIDTH=3.0')	379.11	---	---	382.04	N 588981.7859 E 1365445.7422	HOWARD COUNTY STD. SD-4.41
ES-2	END SECTION	369.73	---	---		N 589050.1020 E 1365115.9907	HOWARD COUNTY STD. 05.51
MH-1	MANHOLE	371.09	371.29	---	379.00	N 589069.1589 E 1365052.5022	HOWARD COUNTY STD. 05.11
MH-2	MANHOLE	374.46	374.65 (24" ø)(SE)	388.44 (18" ø)(NW)	393.97	STA. 04+29.01 5.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. 05.11
MH-3	MANHOLE	375.28	375.78 (18" ø)(SE)	380.51 (15" ø)(SW)	389.15	STA. 7+46.20 19.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. 05.11
MH-4	MANHOLE	376.50	376.70 (18" ø)(SE)	376.95 (15" ø)(NW)	385.97	STA. 8+47.59 18.91' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. 05.11

NOTES: 1.) STRUCTURE ELEVATION FOR MANHOLE IS AT THE TOP CENTER OF THE RIM.
2.) STRUCTURE ELEVATION FOR THE INLET IS THE TOP OF CURB ELEVATION LOCATED AT THE MID-POINT OF THE INLET.

PIPE SCHEDULE

LOCATION	SIZE & TYPE	LENGTH (ft)
M-1 TO ES-2	30" HDPEP	63'
M-1 TO I-1	30" HDPEP	77'
I-1 TO I-2	30" HDPEP	28'
I-2 TO I-3	30" HDPEP	125'
I-3 TO M-2	24" HDPEP	145'
M-2 TO I-4	18" HDPEP	42'
I-4 TO I-5	18" HDPEP	196'
I-5 TO I-6	15" HDPEP	134'
M-2 TO M-3	24" HDPEP	105'
M-3 TO M-4	18" HDPEP	95'
M-4 TO I-8	18" HDPEP	150'
I8 TO I10	15" HDPEP	191'
I-8 TO I-9	15" HDPEP	39'
M-3 TO I-7	15" HDPEP	45'
M4 TO FUT. I11	15" HDPEP	61'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/01

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD A. MASON — No. 21431 — REGISTERED PROFESSIONAL ENGINEER

11/9/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-47244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL 'I', HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-12, F-98-91, F-88-13, S-98-08, SDP-98-12a, F-88-180, F-88-154,SP-00-03,P-99-17 AND F-00-102

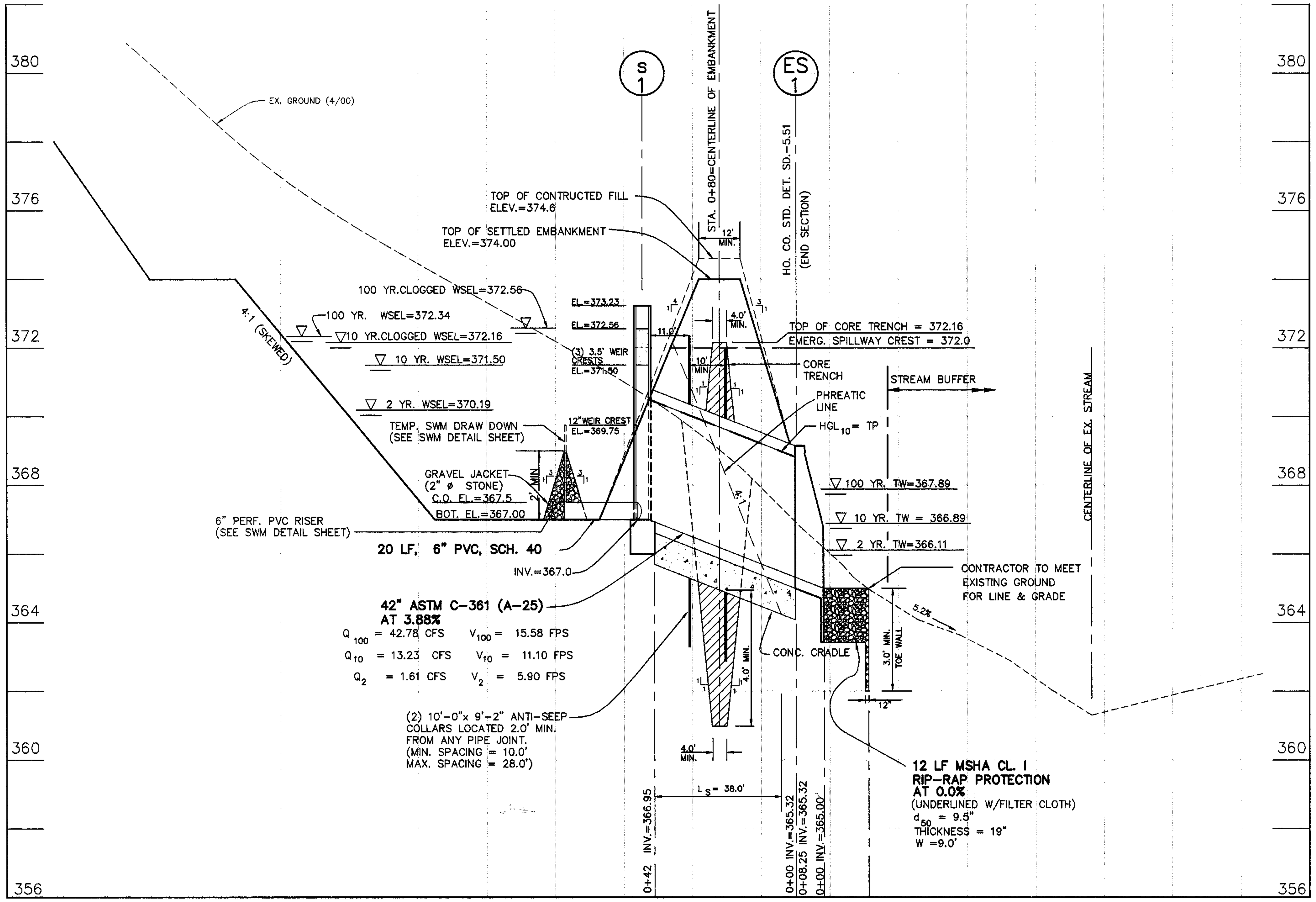
TITLE: **STORM DRAIN PROFILES**

DATE: JULY,2000 PROJECT NO. 1268

DES: YSL DRN: YSL CHK: DAM SCALE: AS SHOWN DRAWING 6 OF 14

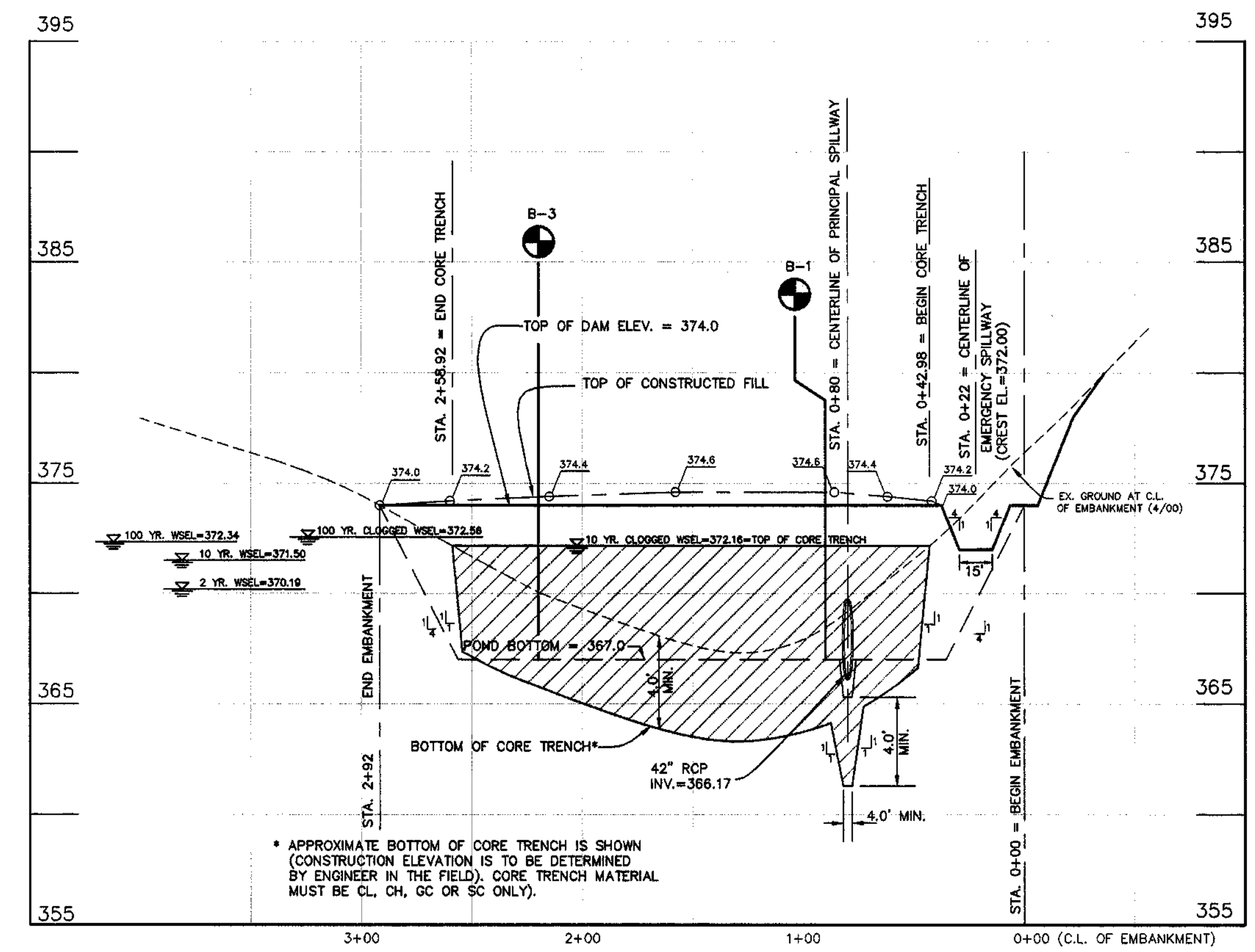
F-01-25

P:\PROJECTS\10796\dwg\704401s1.dwg



SECTION THRU PRINCIPAL SPILLWAY

SCALE: HOR.: 1" = 20' VERT. 1" = 2'



PROFILE ALONG CENTERLINE OF EMBANKMENT

SCALE: HOR.: 1" = 50' VERT. 1" = 5'

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. RECOMMENDATIONS

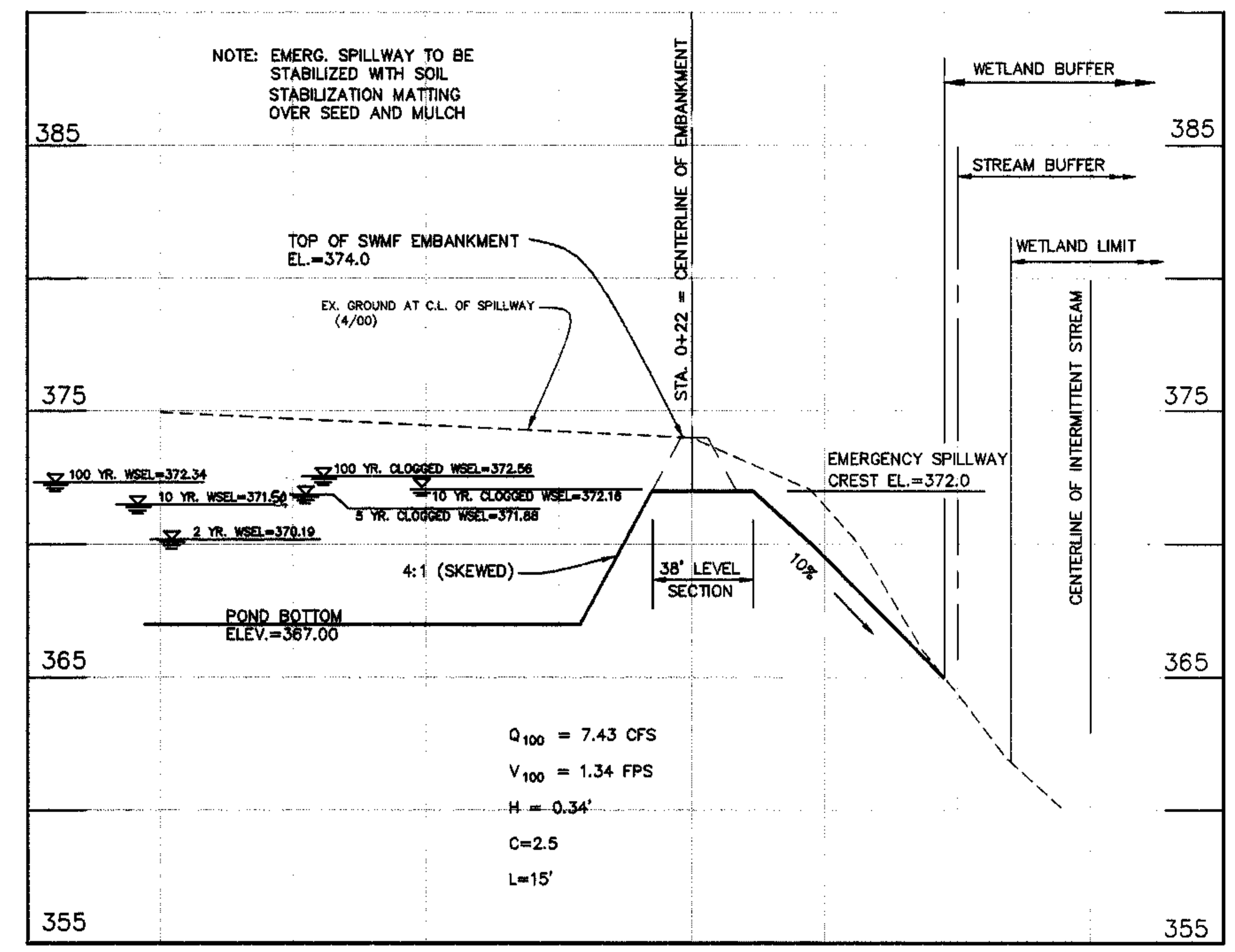
Embankment and Cut-off trench Construction

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dumptruck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the geotechnical Engineer should be present to monitor placement and compaction of fill for each embankment and cut-off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Per SCS 378, consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer. Any materials for core and cut-off trench construction should be tested prior to placement to determine its suitability. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications (that is, to a minimum of 95 percent of the Standard Proctor maximum dry density).

Additionally, the following procedures should be utilized to construct the proposed embankments:

1. Slope construction should commence at the toes of the proposed slopes and continue upwards as additional fill is placed. The engineered fill placed for slope construction should be benched into the natural slopes in the abutment areas to provide good contact and to prevent the presence of weak zones.
2. Typically during slope construction, compaction equipment has difficulty compacting soils along the shoulder. It is therefore important that the bank be overfilled during slope construction and then cut back to the required geometry.
3. After construction, the slopes should be promptly vegetated to prevent erosion. Also, to prevent erosion from occurring prior to sprouting of the vegetation, the slopes should be protected with straw or an erosion control geotextile.
4. The embankment construction should be done under the supervision of an experienced soil inspector or the Geotechnical Engineer. Sufficient testing during fill placement should be done to verify adequate compaction.



SECTION THRU EMERGENCY SPILLWAY

SCALE: HOR.: 1" = 50' VERT. 1" = 5'

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST 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 CONTINUED 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.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

DONALD A. MASON — PE NO. 21443 — DATE ________

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."

James R Morley III — DEVELOPER – KAISER FARM, LLC — 1/19/01 DATE

BY THE ENGINEER:

"I/WE 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."

Donald Mason — ENGINEER – DONALD A. MASON, P.E. # 21443 — 1/19/01 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
[signature] CHIEF, BUREAU OF HIGHWAYS — 2-19-01 DATE	*[signature]* HOWARD SOIL CONSERVATION DISTRICT ACTING DIST. MGR. — 2/13/01 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
[signature] CHIEF, DIVISION OF LAND DEVELOPMENT — 2/28/01 DATE; *[signature]* CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/21/01 DATE	*[signature]* USDA-NATURAL RESOURCES CONSERVATION SERVICE — 2/13/01 DATE

NO	DATE	REVISION

BENCHMARK ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Mason 1/19/01 (seal: STATE OF MARYLAND, PROFESSIONAL ENGINEER)

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
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A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

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2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-98-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-88-154, SP-00-03, P-99-17 AND F-00-102

TITLE: **STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES**

DATE: AUG., 2000	PROJECT NO. 1268
DES: MLV / DRN: CAD / CHK: DAM / SCALE: AS SHOWN	DRAWING 7 OF 14

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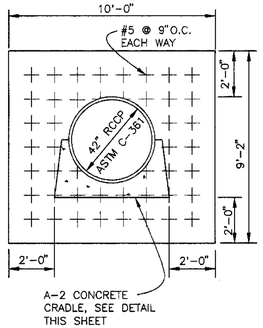
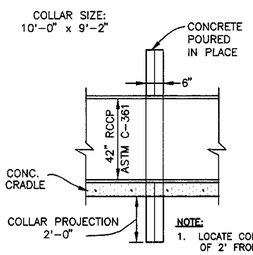
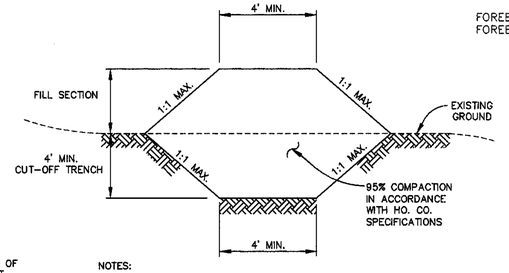
F-01-25





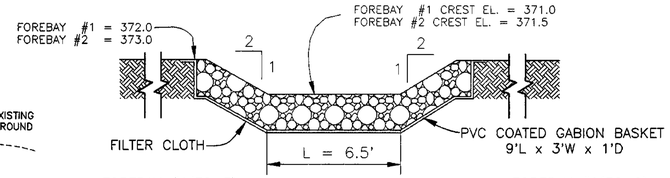
NOTE:
1. LOCATE COLLARS A MINIMUN OF OF 2' FROM ANY PIPE JOINT.
2. PROVIDE ASPHALT JOINT FILLER MATERIAL BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND CRADLE.

ANTI-SEEP COLLAR
NOT TO SCALE



NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (CL, CH, GC OR SC) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

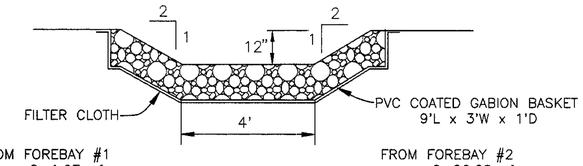
CORE TRENCH SECTION
NOT TO SCALE



FOREBAY #1(ES-3)
Q=1.97 cfs
H=0.24'
L=6.5'
C=2.5

FOREBAY #2(ES-2)
Q= 26.28 cfs
H=1.38'
L=6.5'
C=2.5

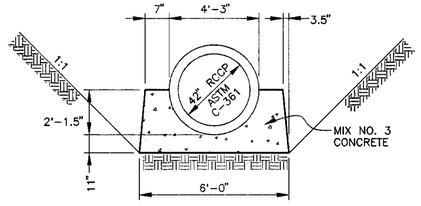
PROFILE THROUGH FOREBAY WEIR
NOT TO SCALE



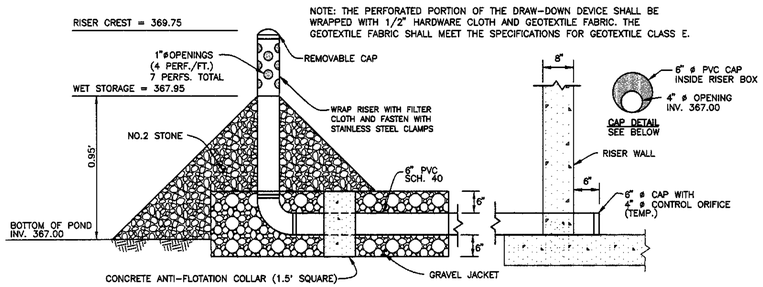
FROM FOREBAY #1
Q=1.97 cfs
n=0.03
s=0.25
b=4
z=2:1
H=0.10'

FROM FOREBAY #2
Q=26.28 cfs
n=0.03
s=0.25
b=4
z=2:1
H=0.43'

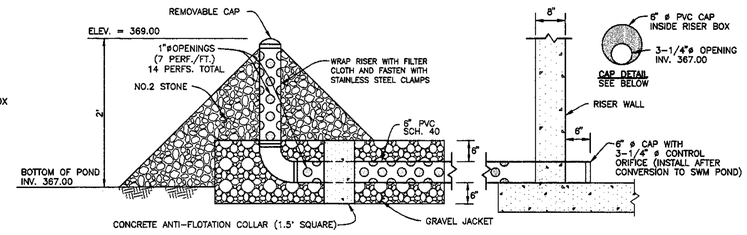
GABION INFLOW PROTECTION CHANNEL
NOT TO SCALE



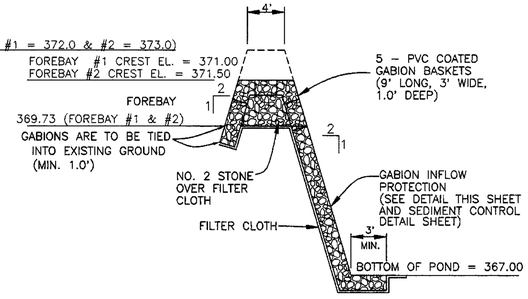
TYPE A-2 CONCRETE CRADLE
NOT TO SCALE



6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE



6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE



TYPICAL SECTION OF GABION WEIR AT FOREBAY
NOT TO SCALE

OPERATION, MAINTENANCE AND INSPECTION NOTE

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DONALD A. MASON — PE NO. 21443 — DATE

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James R. Morley III — 1/19/01
DEVELOPER - KAISER FARM, L.L.C. — DATE

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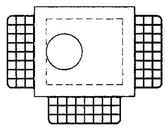
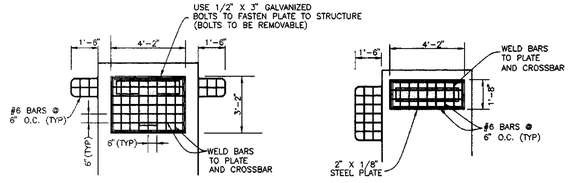
Donald Mason — 1/19/01
ENGINEER - DONALD A. MASON, P.E. # 21443 — DATE



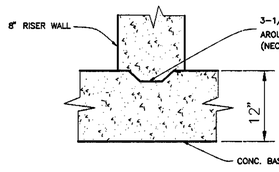
TOP VIEW

NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.

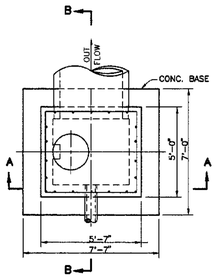


FRONT ELEVATION — SIDE ELEVATION

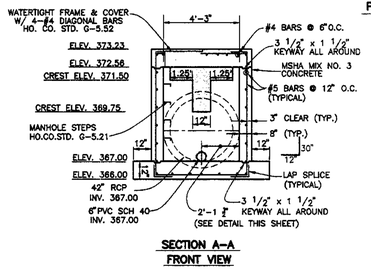
TRASH RACK
SCALE: 1" = 4'



KEYWAY DETAIL
NOT TO SCALE

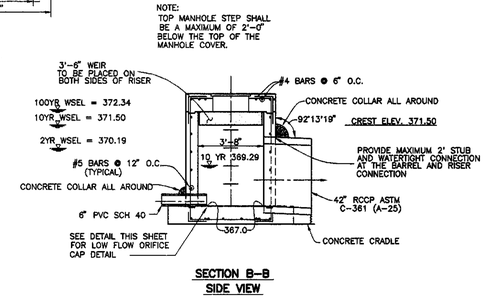


PLAN



SECTION A-A FRONT VIEW

NOTE:
TOP MANHOLE STEP SHALL BE A MAXIMUM OF 2'-0" BELOW THE TOP OF THE MANHOLE COVER.



SECTION B-B SIDE VIEW

CONTROL STRUCTURE DETAIL
SCALE: 1" = 4'

APPROVED:	HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	APPROVED:	THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
CHIEF, BUREAU OF HIGHWAYS	2-19-01 DATE	HOWARD SOIL CONSERVATION DISTRICT	2/13/01 DATE
		ACTING DIST. MGR.	
APPROVED:	HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING	APPROVED:	THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
CHIEF, DIVISION OF LAND DEVELOPMENT	2/21/01 DATE		
CHIEF, DEVELOPMENT ENGINEERING DIVISION	2/14/01 DATE	USDA-NATURAL RESOURCES CONSERVATION SERVICE	2/13/01 DATE

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

Donald Mason — 1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOBNES PROPERTY, AND PARCELS "E" AND "I", KAISER FARM

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2nd. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-98-91, F-98-12, S-98-05, SDP-95-129, F-88-180, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **STORMWATER MANAGEMENT NOTES AND DETAILS**

DATE: AUG., 2000 — PROJECT NO. 1268

DES: MLV | DRN: CAD | CHK: DAM | SCALE: AS SHOWN | DRAWING 8 OF 14

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CONSTRUCTION SPECIFICATIONS

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

Site Preparation

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

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

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. 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 have construction supervised by a geotechnical engineer.

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

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

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

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be a 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 cores 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.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of 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 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sided 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 backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section

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

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

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

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

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

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

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

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

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

5. Backfilling shall conform to "Structure Backfill".

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

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

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

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

3. Laying pipe – Bell and spigot pipe shall be places with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation form 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. Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

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

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

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

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

4. Backfilling shall conform to "Structure Backfill".

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

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

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

Rock Riprap

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

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

Care of Water during Construction

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

Stabilization

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

Erosion and Sediment Control

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

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Page 1 of 1

PROJECT NAME: Kaiser Farm — BORING # B-1
LOCATION: Howard County, Maryland — JOB # 99235A
Datum ____ Hammer Wt. ____ Hole Diameter ____ Foreman R.Yonkers
Surf. Elev. 368.48 Hammer Drop ____ Rock Core Dia. ____ Inspector
Date Started 06-09-99 Pipe Size ____ Boring Method Backhoe Date Completed 06-09-99

ELEV.	SOIL DESCRIPTION COLOR,MOISTURE,DENSITY,SIZE,PROPORTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON	SAMPLE BELOW 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Brown/gray, dry to moist micaceous sandy silt with trace weathered rock fragments (ML)							No groundwater encountered
		5.5	5.0					
	Bottom of Test Hole at 5.5'							Backfilled after 4.0 hours
			10.0					
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; TW=PRESSED SHELBY TUBE; CA=CONTINUOUS FLIGHT AUGER; RC=ROCK CORE
SAMPLE CONDITIONS: D=DISINTEGRATED; I=INTACT; U=UNDISTURBED; L=LOST
GROUND WATER DEPTH: AT COMPLETION dry FT.; AFTER 4 hr. dry FT.; AFTER ____ FT.
BORING METHOD: HSA=HOLLOW STEM AUGERS; CFA=CONT. FLIGHT AUGERS; DC=DRIVING CASING; MD=MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

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ENGINEERING ASSOCIATES,INC.

Page 1 of 1

PROJECT NAME: Kaiser Farm — BORING # B-2
LOCATION: Howard County, Maryland — JOB # 99235A
Datum ____ Hammer Wt. ____ Hole Diameter ____ Foreman R.Yonkers
Surf. Elev. 372.84 Hammer Drop ____ Rock Core Dia. ____ Inspector
Date Started 06-09-99 Pipe Size ____ Boring Method Backhoe Date Completed 06-09-99

ELEV.	SOIL DESCRIPTION COLOR,MOISTURE,DENSITY,SIZE,PROPORTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON	SAMPLE BELOW 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					8" Topsoil
	Brown, dry to wet, micaceous silty sand with weathered rock fragments (SM)							Groundwater encountered at 9.0'
			5.0					
		10.0						
	Bottom of Test Hole at 10.0'		10.0					Backfilled after 4.0 hours
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; TW=PRESSED SHELBY TUBE; CA=CONTINUOUS FLIGHT AUGER; RC=ROCK CORE
SAMPLE CONDITIONS: D=DISINTEGRATED; I=INTACT; U=UNDISTURBED; L=LOST
GROUND WATER DEPTH: AT COMPLETION 9.5 FT.; AFTER 4 hr. 7.5 FT.; AFTER ____ FT.
BORING METHOD: HSA=HOLLOW STEM AUGERS; CFA=CONT. FLIGHT AUGERS; DC=DRIVING CASING; MD=MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

HILLIS-CARNES
ENGINEERING ASSOCIATES,INC.

Page 1 of 1

PROJECT NAME: Kaiser Farm — BORING # B-3
LOCATION: Howard County, Maryland — JOB # 99235A
Datum ____ Hammer Wt. ____ Hole Diameter ____ Foreman R.Yonkers
Surf. Elev. 370.43 Hammer Drop ____ Rock Core Dia. ____ Inspector
Date Started 06-09-99 Pipe Size ____ Boring Method Backhoe Date Completed 06-09-99

ELEV.	SOIL DESCRIPTION COLOR,MOISTURE,DENSITY,SIZE,PROPORTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON	SAMPLE BELOW 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					6" Topsoil
	Brown/gray, dry to wet, micaceous silty sand with weathered rock fragments (SM)							Groundwater encountered at 7.0'
			5.0					
		8.0						
	Bottom of Test Hole at 8.0'		10.0					Backfilled after 4.0 hours
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; TW=PRESSED SHELBY TUBE; CA=CONTINUOUS FLIGHT AUGER; RC=ROCK CORE
SAMPLE CONDITIONS: D=DISINTEGRATED; I=INTACT; U=UNDISTURBED; L=LOST
GROUND WATER DEPTH: AT COMPLETION 7.5 FT.; AFTER 4 hr. 8.0 FT.; AFTER ____ FT.
BORING METHOD: HSA=HOLLOW STEM AUGERS; CFA=CONT. FLIGHT AUGERS; DC=DRIVING CASING; MD=MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30":COUNT MADE AT 6" INTERVALS

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE OAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE 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.

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST 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 CONTINUED 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.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE ____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."

James R. Morley III — 1/19/01
DEVELOPER – KAISER FARM, L.L.C. — DATE

BY THE ENGINEER:

"I/WE 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."

Donald Mason — 1/19/01
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-19-01 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 2/13/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/14/01 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/13/01 DATE
ACTING DIST. MGR.

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — 2/13/01 DATE

BENCHMARK
ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: KAISER FARM
LOTS 1-82 AND PARCEL 'E'
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL 'I', HOENES PROPERTY,AND PARCELS 'E' AND 'F', KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-014, P-97-02, F-98-91, F-98-13, S-98-05, SDP-98-129, F-98-180, F-98-154,SP-00-03,P-99-17 AND F-00-102

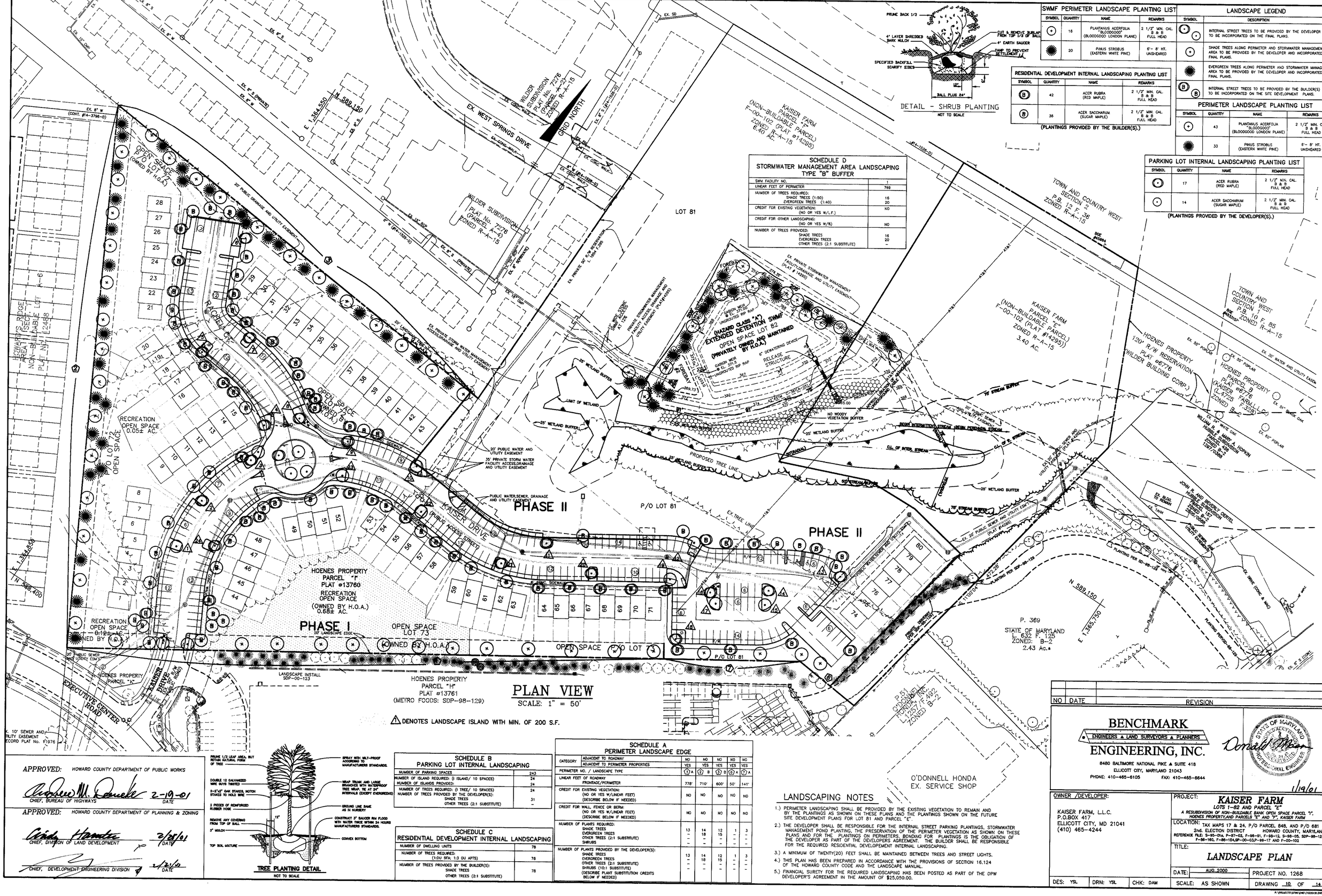
TITLE: STORMWATER MANAGEMENT NOTES & DETAILS

DATE: AUG.,2000 — PROJECT NO. 1268

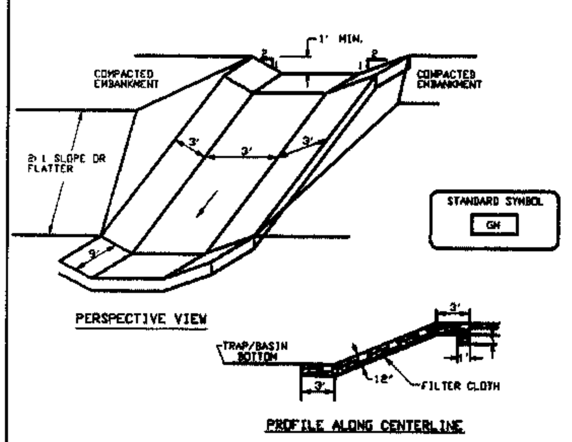
DES: MLV | DRN: CAD | CHK: DAM | SCALE: AS SHOWN | DRAWING 9 OF 14

F-01-25

P:\PROJECTS\1268\DWG\1268NTES.DWG


EX. 8" W (CONT. #14-3796-D)
EX. 6" S
EX. 6" W
EX. 15" CMP
E 1,364,550
N 589,150
EX. 6" S (PRIVATE)
EX. WEST SPRINGS DRIVE
EX. CONC. WALK
GRID NORTH
WILDER SUBDIVISION PLAT No. 7278 (PARCEL A-4) ZONED R-A-15
EX. SD
8" W (#14-1328-D)
EX. 6" S (#14-1328-D)
KAISER FARM PARCEL "E" (NON-BUILDABLE PARCEL) F-00-102 (PLAT #14285) ZONED R-A-15 6.40 AC.
LOT 81
TOWN AND COUNTRY WEST SECTION 2 P.B. 12 F. 38 ZONED R-A-15
TOWN AND COUNTRY WEST SECTION 1 P.B. 10 F. 85 ZONED R-A-15
HOENES PROPERTY 120' R/W RESERVATION PLAT #6776 (WILDER BUILDING CORP.)
HOENES PROPERTY PARCEL B PLAT #6776 (KAISER FARM LLC) (LIBER 7725 FOLIO 228) ZONED B-2
KAISER FARM PARCEL "E" (NON-BUILDABLE PARCEL) F-00-102 (PLAT #14295) ZONED R-A-15 3.40 AC.
EX. PRIVATE STORMWATER MANAGEMENT, EQUIPMENT ACCESS AND UTILITY EASEMENT (PLAT #14285)
EX. PRIVATE 50' R/W RESERVATION L. 1564 F. 285
EX. PRIVATE STORM WATER MANAGEMENT FACILITY ACCESS, DRAINAGE AND UTILITY EASEMENT (PLAT #15308)
EX. 4" CMP
EX. 8" W (#14-1328-D)
EX. 12" SCP
EX. 6" S (PRIVATE)
EX. 8" W (PRIVATE)
EX. 8" S
EX. 8" W
EX. 15" CMP
EX. 6" S (PRIVATE)
EX. 6" W
EX. 6" S
EX. 6" W
EX. 8" W (CONT. #14-3796-D)
OPEN SPACE P/O LOT 72 (OWNED BY H.O.A.)
20' PUBLIC DRAINAGE AND UTILITY EASEMENT
20' UNDERGROUND UTILITY EASEMENT
EX. PRIVATE STORM WATER MANAGEMENT ACCESS, DRAINAGE AND UTILITY EASEMENT
HOWARD'S RIDGE AREA 4 NON-BUILDABLE LOT P-6 PLAT No. 12448
RECREATION OPEN SPACE 0.05± AC.
OPEN SPACE P/O LOT 72 (OWNED BY H.O.A.)
RACHEL CT.
SIDEWALK
OPEN SPACE P/O LOT 72 (OWNED BY H.O.A.)
20' PUBLIC WATER AND UTILITY EASEMENT
35' PRIVATE STORM WATER FACILITY ACCESS, DRAINAGE AND UTILITY EASEMENT
PUBLIC WATER, SEWER, DRAINAGE AND UTILITY EASEMENT
PHASE II
P/O LOT 81
KAISER DRIVE (PUBLIC ACCESS STREET)
PUBLIC SIDEWALK
HOENES PROPERTY PARCEL "I" PLAT #13760 RECREATION OPEN SPACE (OWNED BY H.O.A.) 0.68± AC.
PHASE I
30' LANDSCAPE EDGE
OPEN SPACE LOT 73 (OWNED BY H.O.A.)
OPEN SPACE P/O LOT 71
P/O LOT 81
20' PUBLIC SEWER AND UTILITY ESMT.
HOENES PROPERTY PARCEL "K"
KAISER DRIVE (PUBLIC ACCESS STREET)
EXECUTIVE CENTER ROAD
LANDSCAPE INSTALL SDP-00-123
HOENES PROPERTY PARCEL "I" PLAT #13761 (METRO FOODS: SDP-98-129)
EX. 10" SEWER AND UTILITY EASEMENT RECORD PLAT No. 11976
EX. 8" W (#14-1328-D)
EX. 6" S (#14-1328-D)
EX. 8" W
EX. 6" S
EX. 6" W
EX. 6" S (PRIVATE)
EX. 8" W (PRIVATE)
EX. 8" S
EX. 6" W
EX. 6" S
EX. 15" CMP
E 1,364,550
N 589,150
EX. 6" S (PRIVATE)
EX. 6" W
EX. 6" S
EX. 8" W (CONT. #14-3796-D)
E 1,364,550
N 588,400
EX. 8" W
EX. SD
EX. WEST SPRINGS DRIVE
EX. CONC. WALK
GRID NORTH
WILDER SUBDIVISION PLAT No. 7278 (PARCEL A-4) ZONED R-A-15
EX. 6" S (#14-1328-D)
EX. 8" W (#14-1328-D)
EX. 12" SCP
EX. 6" S (PRIVATE)
EX. 8" W (PRIVATE)
EX. 4" CMP
LOT 81
KAISER FARM PARCEL "E" (NON-BUILDABLE PARCEL) F-00-102 (PLAT #14285) ZONED R-A-15 6.40 AC.
EX. PRIVATE STORMWATER MANAGEMENT, EQUIPMENT ACCESS AND UTILITY EASEMENT (PLAT #14285)
EX. PRIVATE 50' R/W RESERVATION L. 1564 F. 285
EX. PRIVATE STORM WATER MANAGEMENT FACILITY ACCESS, DRAINAGE AND UTILITY EASEMENT (PLAT #15308)
EX. 4" CMP
EX. 8" W (#14-1328-D)
EX. 6" S (#14-1328-D)
EX. 12" SCP
EX. 6" S (PRIVATE)
EX. 8" W (PRIVATE)
EX. 8" S
EX. 6" W
EX. 6" S
EX. 6" W
EX. 8" W (CONT. #14-3796-D)

DETAIL 6 - GABION INFLOW PROTECTION



Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" – 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

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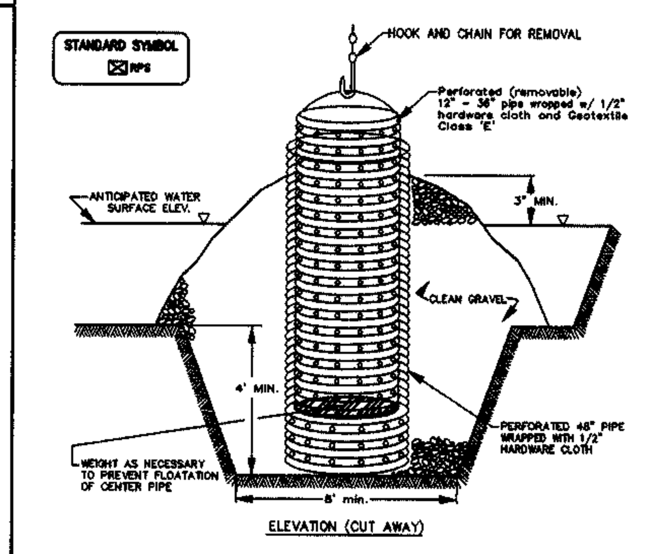
DETAIL 20A – REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. 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" slits 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 C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

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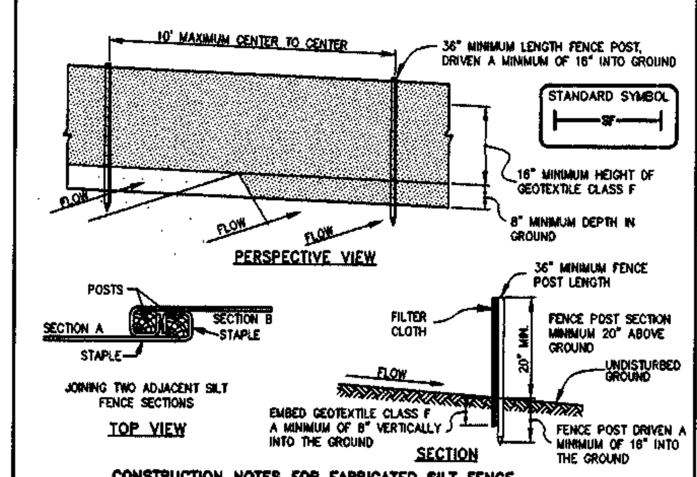
DETAIL 22 – SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

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

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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SILT FENCE

SILT FENCE DESIGN CRITERIA

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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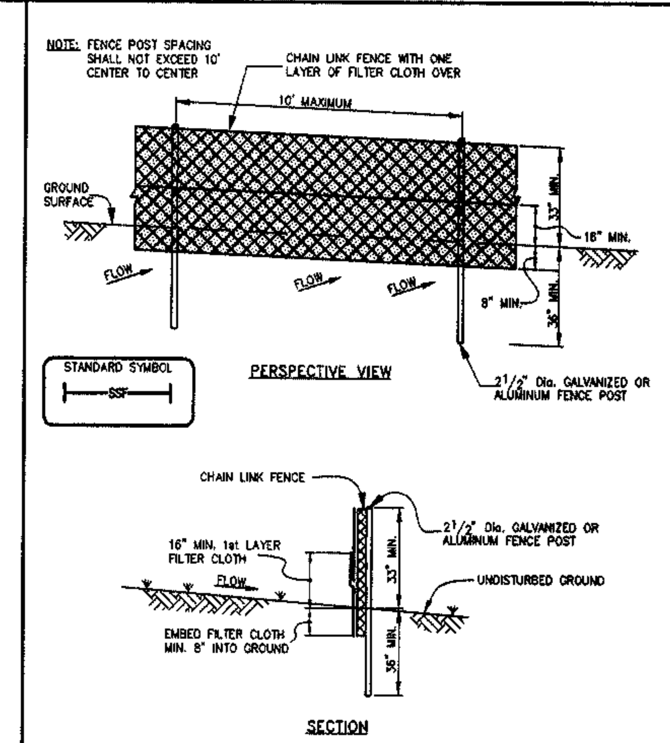
DETAIL 33 – SUPER SILT FENCE



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SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

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

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 – 10%	0 – 10:1	Unlimited	Unlimited
10 – 20%	10:1 – 5:1	200 feet	1,500 feet
20 – 33%	5:1 – 3:1	100 feet	1,000 feet
33 – 50%	3:1 – 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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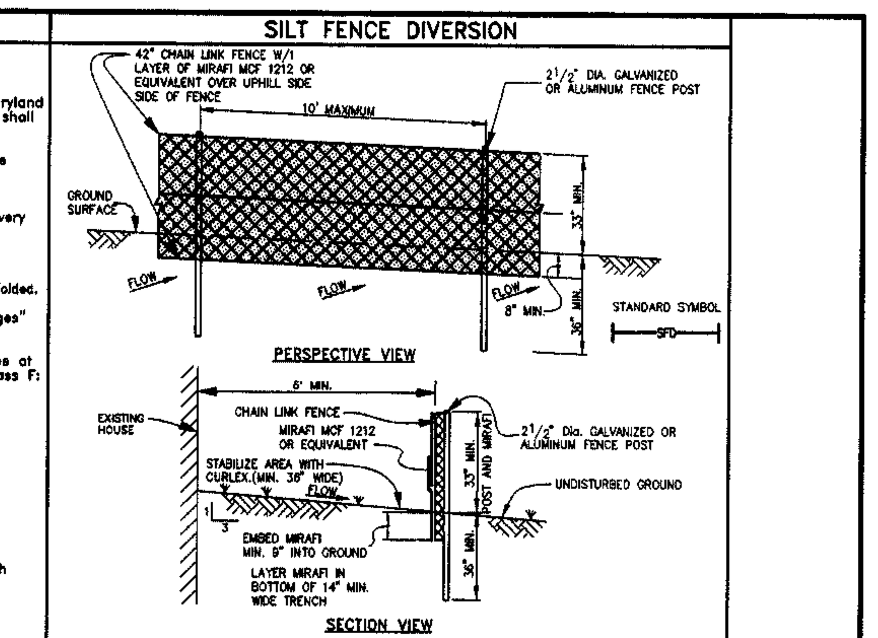
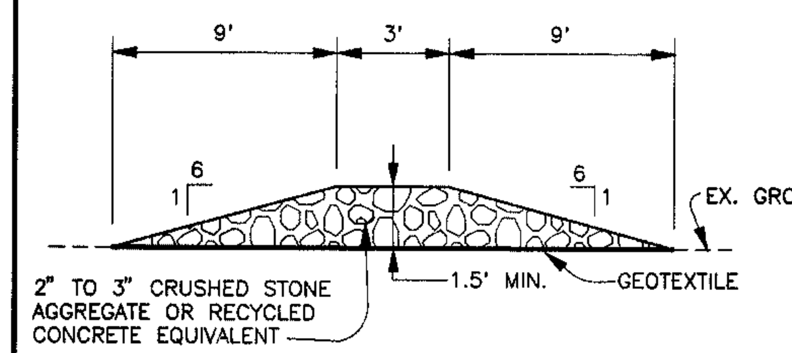
SILT FENCE DIVERSION



CONSTRUCTION SPECIFICATIONS

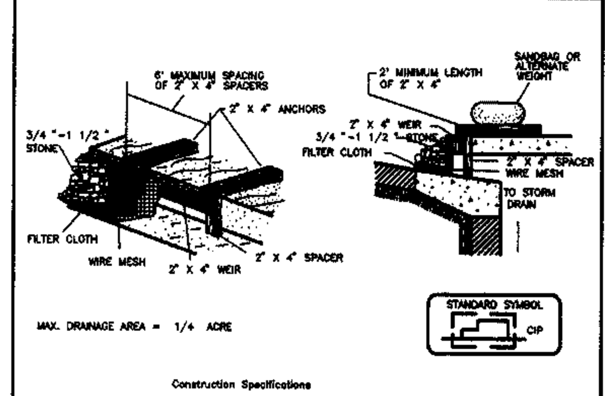
1. FENCING SHALL BE 42" HIGH CHAIN CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02 FOR CHAIN LINK FENCING. THE SPECIFICATIONS FOR A 6'-0" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' POSTS. POSTS SHALL BE PLACED WITHOUT CONCRETE EMBEDMENT.
2. CHAIN LINK FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
4. FILTER CLOTH SHALL BE IMBEDDED A MINIMUM OF 9" INTO THE GROUND.
5. WHEN TWO SECTIONS OF DIVERSION CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED.



MOUNTABLE BERM DETAIL

NOT TO SCALE

DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)



Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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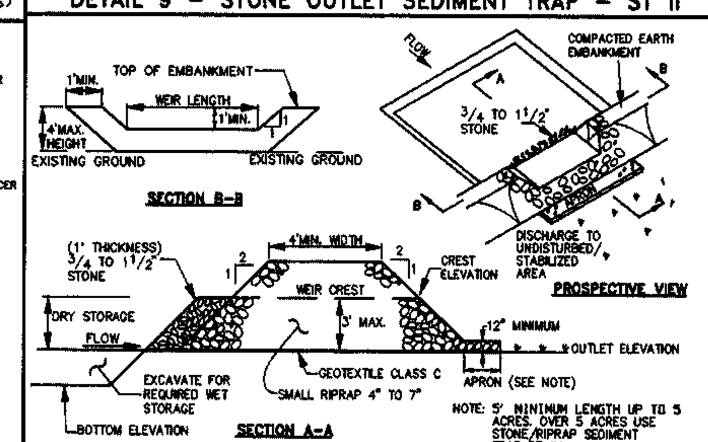
DETAIL 9 – STONE OUTLET SEDIMENT TRAP – ST II



CONSTRUCTION SPECIFICATIONS

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4" to 11/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be an necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

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STONE OUTLET SEDIMENT TRAP – ST II

CONSTRUCTION SPECIFICATIONS

6. The structure shall be inspected periodically and after each rain and repairs made as needed.
7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected in accordance with grade stabilization structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
8. The Structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.
9. Refer to Section D for specifications concerning trap dewatering.
10. Minimum trap depth shall be measured from the weir elevation.
11. The elevation of the top if any dike directing water into the trap must equal or exceed the elevation of the trap embankment.
12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.
13. Outlet – An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

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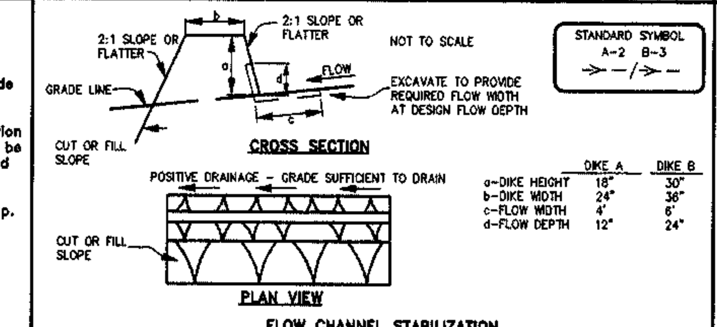
DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a–DIKE HEIGHT	18"	30"
b–DIKE WIDTH	24"	36"
c–FLOW WIDTH	4'	6'
d–FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

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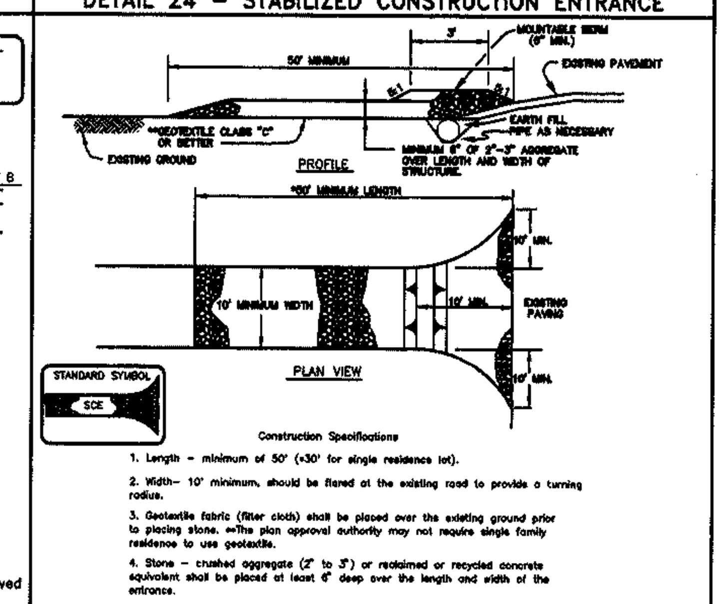
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

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

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

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

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

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

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

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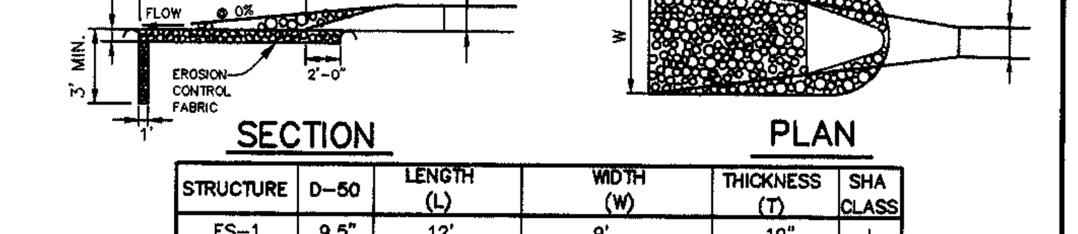
SEQUENCE OF CONSTRUCTION

DAY 1	OBTAIN GRADING PERMIT.
DAY 2–4	INSTALL SUPER SILT FENCE AS SHOWN ON THE PLAN AROUND THE FOREST CONSERVATION EASEMENTS PRIOR TO ANY CLEARING AND GRUBBING OF THE SITE. (USE FOREST CONSERVATION PLAN INCONJUNCTION WITH SEDIMENT CONTROL PLAN FOR LOCATION).
DAY 5–8	CLEAR AND GRUB FOR SEDIMENT CONTROL DEVICES, INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, SUPER SILT FENCE AND CLEANWATER DIVERSIONS.
DAY 9–19	INSTALL S.O.S.T. #1,STORM DRAIN FROM ES–2 TO I–3, AND SWMF/TSWM POND #1.
DAY 17–25	INSTALL REMAINING SEDIMENT DEVICES. CLEAR AND GRUB REMAINDER OF SITE.
DAY 26–46	MASS GRADE SITE.
DAY 47–52	STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES..
DAY 53–73	INSTALL REMAINDER OF STORM DRAIN AND OTHER UTILITIES.
DAY 74–79	INSTALL CURB AND GUTTER.
DAY 80–85	INSTALL PAVING FOR ROADS.
DAY 86–91	FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDED NOTS.
DAY 92–97	WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE S.O.S.T. #1,AND CONVERT SWMF/TSWM POND #1 TO SWMF.
DAY 98–103	INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THE LANDSCAPE PLAN.
DAY 104–108	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE.



STRUCTURE	D–50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
ES–1	9.5"	12'	9'	19"	I
ES–2	9.5"	10'	12.5'	19"	I

OUTLET PROTECTION DETAIL

NOT TO SCALE

PERMANENT SEEDING NOTES

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

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

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

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

2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 1000 lbs per acre 10–10–10 fertilizer (23 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 through April 30 and August 1 through October 15, seed with 60 lbs per acre (1.4 lbs/1000 sf) of Kentucky 31 Tall Fescue. For the period May 1 through July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.05 lbs/1000 sf) of Weeping Lovegrass. During the period of October 16 through February 28, protect site by: Option 1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2) use sod. Option 3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1–1/12 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

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

TEMPORARY SEEDING NOTES

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

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

Soil Amendments: Apply 600 lbs per acre 10–10–10 fertilizer (14 lbs/1000 sf).

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

Mulching: Apply 1–1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Refer to the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

SEDIMENT CONTROL NOTES

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 (313–1855).
2. All vegetative and structural practices are to be installed accordingly 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 thereto.
3. Following initial soil disturbances or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 calendar days as to all other disturbed or graded areas on the project site.
4. All sediment traps/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. 51) Sod (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:	17.57± acres
Area to be Disturbed:	13.31± acre
Area to be roofed or paved:	4.03± acre
Area to be vegetatively stabilized:	9.28± acre
Total Cut:	76,812 C.Y.
Total Fill:	24,577 C.Y.
Offsite Waste/Borrow Area Location : *	

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 DPW 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 can be back filled and stabilized within one working day, whichever is shorter.
12. Quantities and estimates shown are for sediment control purposes only. Contractor shall prepare his/her own quantity estimates to his/her satisfaction. * It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLAT NUTRIENTS.
 C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA–SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
 I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
 II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 III. WHERE THE SUBSOIL IS EITHER ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4–8 TONS/ACRE (200–400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
 I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
 A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
 B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
 C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
 D. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO–TOXIC MATERIALS.

 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.

 II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION 1 – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION
 I. WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
 II. GRADES ON THE AREAS TO BE TOP SOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4"–8" HIGHER IN ELEVATION.
 III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"–8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING – INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
 I. 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 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
 C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
 II. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD–VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

ENGINEER'S CERTIFICATE

I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Donald Mason 1/19/01
Date

DEVELOPER'S CERTIFICATE

I/We certify that all development and construction will be done in accordance with this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction of this project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic onsite inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

James R. Morley III 1/19/01
Signature of Developer Date

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. [signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS DATE

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

Sharon A. [signature] 2/13/01
HOWARD SOIL CONSERVATION DISTRICT DATE
ACTING DIST MGR.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hamilton 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 2/26/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

[signature] 2/13/01
USDA–NATURAL RESOURCES CONSERVATION SERVICE DATE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410–465–6105 FAX: 410–465–6644

Donald Mason 1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465–4244

PROJECT: **KAISER FARM**
LOTS 1–82 AND PARCEL "E"
A RESUBDIVISION OF NON–BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

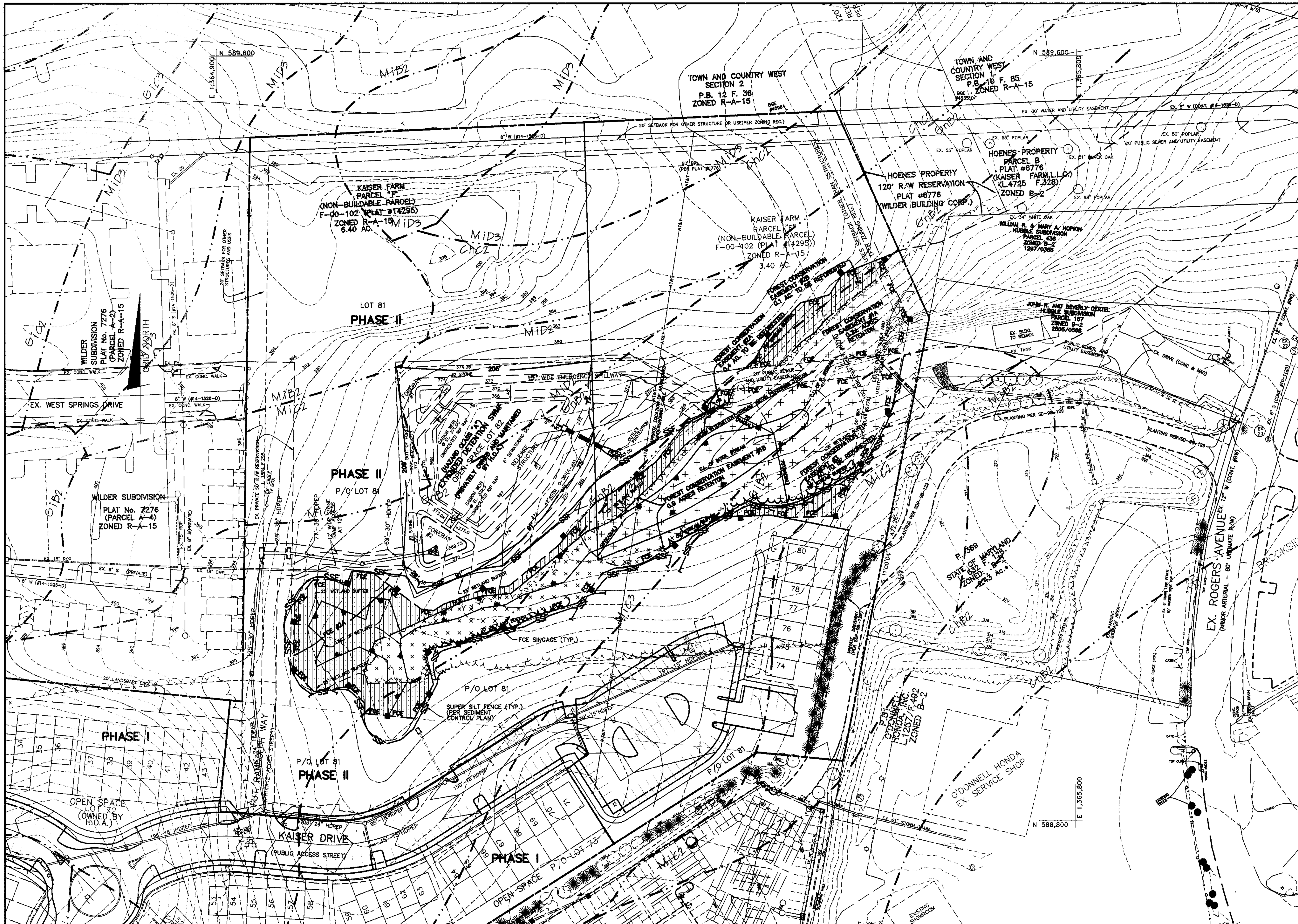
LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S–95–01a, P–97–02, F–98–91, F–98–12, S–98–05, SDP–98–129, F–86–160, F–86–154,SP–00–03,P–99–17 AND F–00–102

TITLE: **SEDIMENT AND EROSION CONTROL NOTES AND DETAILS**

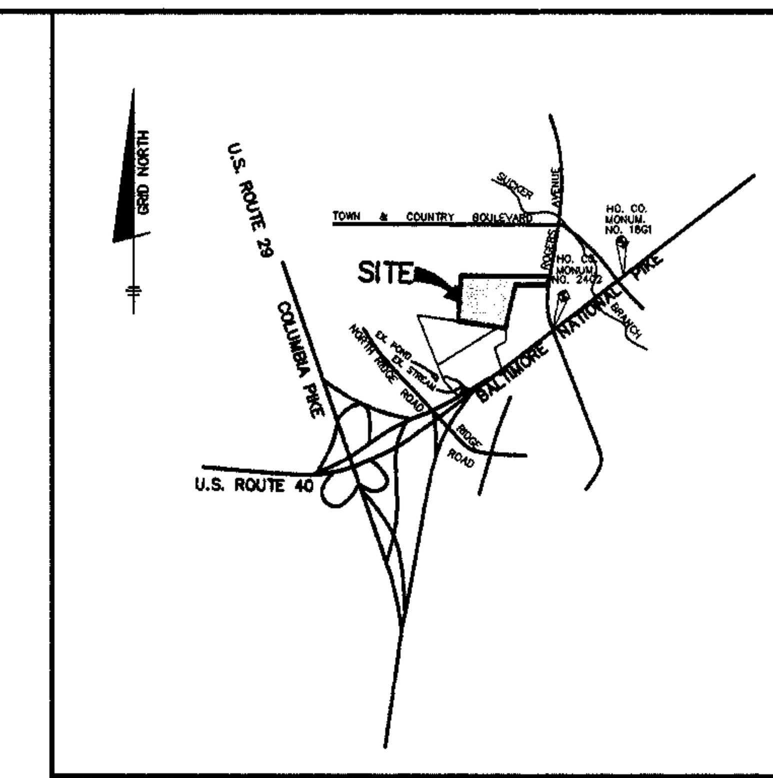
DATE: AUG.,2000	PROJECT NO. 1268
DES: YSL / DRN: YSL / CHK: DAM	SCALE: AS SHOWN
	DRAWING 11 OF 14

F–01–25

P:\PROJECTS\0796\dwg\702301Sx1.dwg



PLAN VIEW
SCALE: 1" = 50'



VICINITY MAP
SCALE: 1" = 2000'

FOREST CONSERVATION EASEMENT DATA

FCE NO.	ACREAGE	TOTAL RETENTION ACREAGE
1A	0.2 AC.	1.1 AC.
1B	0.9 AC.	
FCE NO.	**ACREAGE**	**TOTAL REFORESTATION ACREAGE**
2A	0.4 AC.	0.6 AC.
2B	0.1 AC.	
3	0.1 AC.	

LEGEND

EXISTING CONTOURS
PROPOSED CONTOURS
FOREST RETENTION EASEMENT
REFORESTATION EASEMENT
LIMITS OF FOREST CONSERVATION EASEMENT — FCE —
FCE SIGNAGE ■

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB2	CHESTER SILT LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8-15 % SLOPES, MODERATELY ERODED	B
GiB2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
GiC2	GLENELG LOAM, 8-15% SLOPES, MODERATELY ERODED	B
GiC3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
MiB2	MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED	B
MiC2	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
MiC3	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD2	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD3	MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED	B

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 2-10-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[signature] 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. BOX 5006 GLEN ARM, MD 21057 (410)592-6752
MD DNR Qualified Professional
USACOE Wetland Delineator
Certification #WDCP93MD0610044B2
[signature]
John P. Canoles

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
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PHONE: 410-465-6105 FAX: 410-465-6644

[signature] 1/19/01

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REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-88-154, SP-00-03, P-99-17 AND F-00-102

TITLE: **FOREST CONSERVATION PLAN**

DATE: JULY,2000 — PROJECT NO. 1268
DES: — DRN: — CHK: — SCALE: AS SHOWN — DRAWING 12 OF 14

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F-01-25

P:\PROJECTS\0796\dwg\705201Sx1.dwg

FOREST
RETENTION
AREA

MACHINERY, DUMPING
OR STORAGE OF
ANY MATERIALS IS
PROHIBITED

VIOLATORS ARE SUBJECT TO
FINES AS IMPOSED BY THE
HOWARD COUNTY
FOREST CONSERVATION ACT
OF 1992

MIN. 15"

MIN. 11"

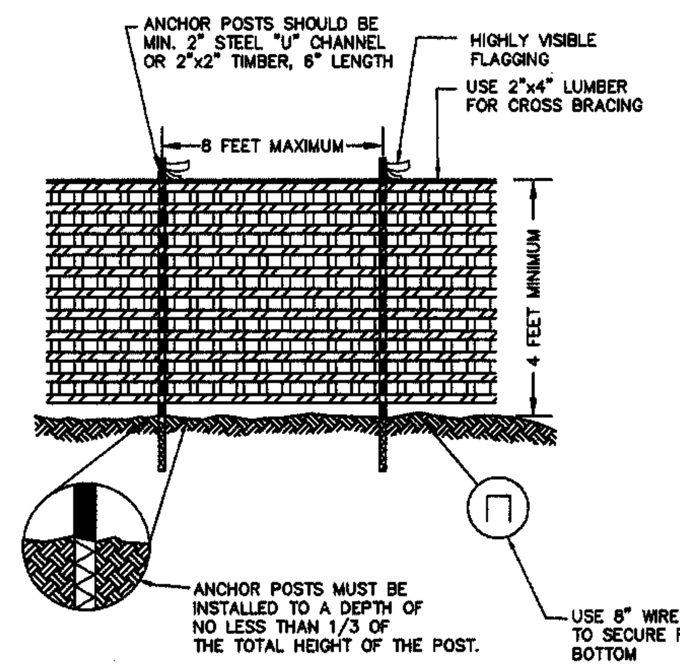
Forest
Conservation Area

REFORESTATION
PROJECT

Trees for Your
Future

MIN. 15"

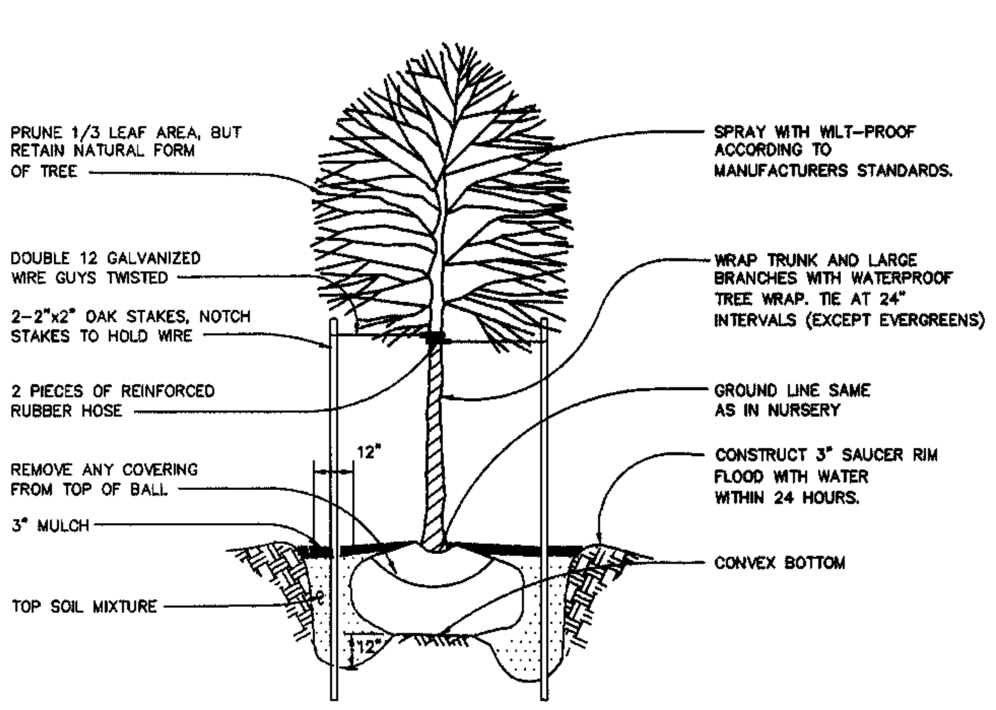
MIN. 11"



NOTES:
1. BLAZE ORANGE OF BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OF SEVER LARGE ROOTS WHEN INSTALLING POSTS.
5. PROTECTIVE SIGNS ARE REQUIRED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

ADAPTED FROM PRINCE GEORGE'S COUNTY, MARYLAND. WOODLAND CONSERVATION MANUAL AND FOREST CONSERVATION MANUAL, 1991.

PLASTIC MESH TREE PROTECTION FENCE



TREE PLANTING DETAIL
NOT TO SCALE

FCP NOTES:

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE CONVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. FORESTED AREAS OCCURRING OUTSIDE THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
5. NO STOCKPILES, PARKING AREAS,EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION AND THE REFORESTATION EASEMENTS DURING THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
7. PERMANENT SIGNAGE SHALL BE PLACED 50 - 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
8. THE REFORESTATION OBLIGATIONS FOR PARCELS "E" AND "F", KAISER FARM CONSISTS OF 1.9 ACRES. OF THE 1.9 ACRES, 0.6 ACRES WILL BE ON-SITE REFORESTATION. THE REMAINING 1.3 ACRES WILL BE PROVIDED OFF-SITE IN AN APPROVED FOREST CONSERVATION BANK KNOWN AS ENVIRONMENTAL BANC & EXCHANGE, L.L.C. (SEE SDP-99-117) THIS OFF-SITE FOREST CONSERVATION EASEMENT WILL BE RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND, PRIOR TO THE FINAL PLAT RECORDATION. FOREST CONSERVATION OBLIGATION FOR THE NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY HAS BEEN FULFILLED BY OFF-SITE PLANTING AT THE RIDGE VIEW HUNT SUBDIVISION, F-97-120 (TAX MAP 14, PARCEL 14, PRESERVATION PARCEL "B") AS PREVIOUSLY INDICATED UNDER P-97-02. THIS OFF-SITE AREA HAS BEEN BONDED AND IS PART OF THE DEVELOPER'S AGREEMENT FOR F-98-12.
9. IF PARCEL "E" IS TO BE DEVELOPED WITH A USE OTHER THAN "RESIDENTIAL", THE ADDITIONAL FOREST CONSERVATION OBLIGATION MUST BE ADDRESSED WITH THE PLAN FOR THE NON-RESIDENTIAL DEVELOPMENT.
10. SURETY FOR THE ON-SITE FOREST CONSERVATION EASEMENTS HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $12,632.40 ($4,791.60 RETENTION AND $7,840.80 REFORESTATION).

FOREST DATA

GROSS AREA (PARCEL "E" & "F"):	9.8 AC.
NET TRACT AREA (NTA)	9.8 AC.
EXISTING FOREST (NTA)	2.3 AC.
AFFORESTATION THRESHOLD:	1.5 AC.
REFORESTATION THRESHOLD:	2.0 AC.
FOREST TO BE CLEARED (NTA):	1.2 AC.
REFORESTATION REQUIRED:	1.9 AC.
ONSITE FORESTATION AVAILABLE:	0.6 AC.
OUTSTANDING FORESTATION OBLIGATION:	1.3 AC.

FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA

GROSS SITE AREA (PARCELS "E" & "F")	9.8 AC.
AREA WITHIN 100 YEAR FLOODPLAIN	0
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	0
NET TRACT AREA	9.8 AC.
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/I/O) R-A-15	

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
C. AFFORESTATION MINIMUM (15 % x A)	1.5 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. REFORESTATION

IF EXISTING FOREST AREAS EQUAL OR EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C), AND CLEARING OF FOREST AREAS IS PROPOSED, REFORESTATION REQUIREMENT MAY APPLY.

GO TO SECTION IV

IF EXISTING FORESTS EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C) AND NO CLEARING OF EXISTING FOREST RESOURCES IS PROPOSED, NO REFORESTATION IS REQUIRED. NO FURTHER CALCULATIONS ARE NEEDED.

2. AFFORESTATION

IF EXISTING FOREST AREA ARE LESS THAN THE AFFORESTATION MINIMUM (IF D IS LESS THAN C). AFFORESTATION REQUIREMENTS APPLY.

GO TO SECTION V

IV. REFORESTATION CALCULATIONS

A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D - F, IF F EQUALS OR IS GREATER THAN B, ALTERNATE 1) (D - B, IF F IS LESS THAN B, ALTERNATE 2)	0.3 AC.
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B - F, IF APPLICABLE)	0.9 AC.
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F - B, RETENTION CREDIT, IF APPLICABLE)	0.0 AC.

SELECTION THE ALTERNATIVE THAT APPLIES:

1. CLEARING ABOVE THE THRESHOLD ONLY

IF FOREST AREAS TO BE RETAINED EQUAL OR ARE GREATER THAN THE REFORESTATION THRESHOLD (IF F EQUALS OR IS GREATER THAN B). THE FOLLOWING CALCULATIONS APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	N/A
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD I = RETENTION CREDIT	N/A
TOTAL REFORESTATION REQUIRED G x 1/4 - I	N/A

2. CLEARING BELOW THRESHOLD

IF FOREST AREAS TO BE RETAINED ARE LESS THAN THE REFORESTATION THRESHOLD (IF F IS LESS THAN B), THE FOLLOWING CALCULATION APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	0.1 AC.
REFORESTATION FOR CLEARING BELOW THRESHOLD H x 2	1.8 AC.
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	1.9 AC.

SINCE CLEARING OCCURS BELOW THE THRESHOLD, NO FOREST RETENTION CREDIT IS POSSIBLE.

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH - NOVEMBER 15TH.
2. A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL FORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE.
5. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
6. A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
7. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
8. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLANS.
2. PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER #2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
3. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
4. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
5. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM FORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
4. PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD.
2. THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO VANDALISM.

SURETY FOR REFORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2A (0.4 ACRES)

QTY.	SPECIES	SIZE	SPACING
25	ACER RUBRUM - RED MAPLE	2-3' WHIP	**
35	FRAXINUS PENNSYLVANICA- GREEN ASH	2-3' WHIP	**
20	JUGLANS NIGRA - BLACK WALNUT	2-3' WHIP	**
15	LIRIODENDRUM TULIPIFERA - POPLAR	2-3' WHIP	**
20	PLATANUS OCCIDENTALIS - SYCAMORE	2-3' WHIP	**
25	VIBURNUM DENTATUM - ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2B (0.1 ACRES)

QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM - RED MAPLE	2-3' WHIP	**
15	FRAXINUS PENNSYLVANICA- GREEN ASH	2-3' WHIP	**
10	VIBURNUM DENTATUM - ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #3 (0.1 ACRES)

QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM - RED MAPLE	2-3' WHIP	**
15	FRAXINUS PENNSYLVANICA- GREEN ASH	2-3' WHIP	**
10	VIBURNUM DENTATUM - ARROWWOOD	18-24" B.T.	**

KEY:
CAL. - CALIPER WHIP - MAY BE CONTAINER GROWN OR BAREROOT B.T. BRANCHED TRANSPLANT
- ONE INCH CALIPER TREES SHALL BE SPACED AROUND PERIMETER OF FCE EASEMENT IN RANDOM PATTERN.

** - WHIPS AND SHRUBS SHALL BE PLANTED, ON AVERAGE, AT A SPACING OF 11 FEET ON CENTER, NOT IN A GRID PATTERN, LIMITED CLUMPING OF SHRUBS IS PERMITTED.

PLANTING NOTES:

1. FCEs 'G' AND 'P' ARE HEAVILY INFLUENCED BY A MULTIFLORA ROSE. IT IS RECOMMENDED THAT THE MULTIFLORA ROSE BE REMOVED AND CONTROLLED PRIOR TO FORESTATION. IF THE ROSE IS NOT REMOVED IT WILL BE A CHRONIC MAINTENANCE PROBLEM FOR THE SITE. EXISTING NATIVE TREES MAY BE RETAINED.

2. THE POTENTIAL FOR DEER AND RODENT DAMAGE ON THIS FORESTATION PROJECT IS HIGH. THE PLANTING CONTRACTOR MAY UTILIZE PHYSICAL AND CHEMICAL TECHNIQUES TO IMPROVE THE SUCCESS OF THE PLANTINGS. THESE TECHNIQUES MUST BE APPROVED BY THE OWNER PRIOR TO INITIATION OF WORK.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/25/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. BOX 5006 GLEN ARM, MD 21057 (410)592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification #WDCP93MD0610044B2
[signature]
John P. Canoles

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

[seal and signature] 1/19/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-06, SDP-98-129, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **FOREST CONSERVATION NOTES AND DETAILS**

DATE: JULY,2000	PROJECT NO. 1268
DES: / DRN: / CHK: / SCALE: AS SHOWN	DRAWING 13 OF 14

P:\PROJECTS\0796\DWG\705201S2.DWG

F-01-25

P:\PROJECTS\0796\dwg\705201Sx2.dwg

PLAN VIEW

SCALE: 1" = 50'

PHASE II STORM DRAIN PIPES ARE SHOWN AS DASHED LINES.

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB2	CHESTER SILT LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8-15 % SLOPES, MODERATELY ERODED	B
GiB2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
GiC2	GLENELG LOAM, 8-15% SLOPES, MODERATELY ERODED	B
GiC3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
MiB2	MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED	B
MiC2	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
MiC3	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD2	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD3	MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

[seal: STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER] [signature] 1/19/01

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TITLE: ***STORM DRAIN DRAINAGE AREA MAP***

DATE: AUG., 2000	PROJECT NO. 1268
SCALE: AS SHOWN	DRAWING 14 OF 14

DES: MLV | DRN: CAD | CHK: DAM

P:\PROJECTS\0796\DWG\7025015X1.DWG

F-01-25

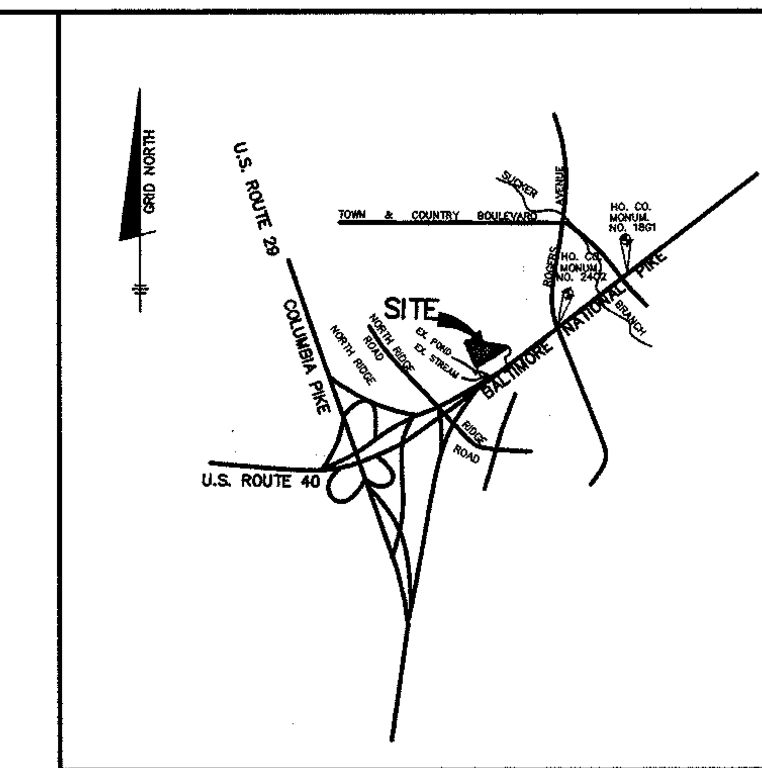
P:\PROJECTS\0796\dwg\7025015x1.dwg

KAISER FARM

LOTS 1-82 AND PARCEL "E"

2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FINAL ROAD CONSTRUCTION, STORM DRAIN, AND STORMWATER MANAGEMENT PLANS



VICINITY MAP
SCALE: 1" = 2000'

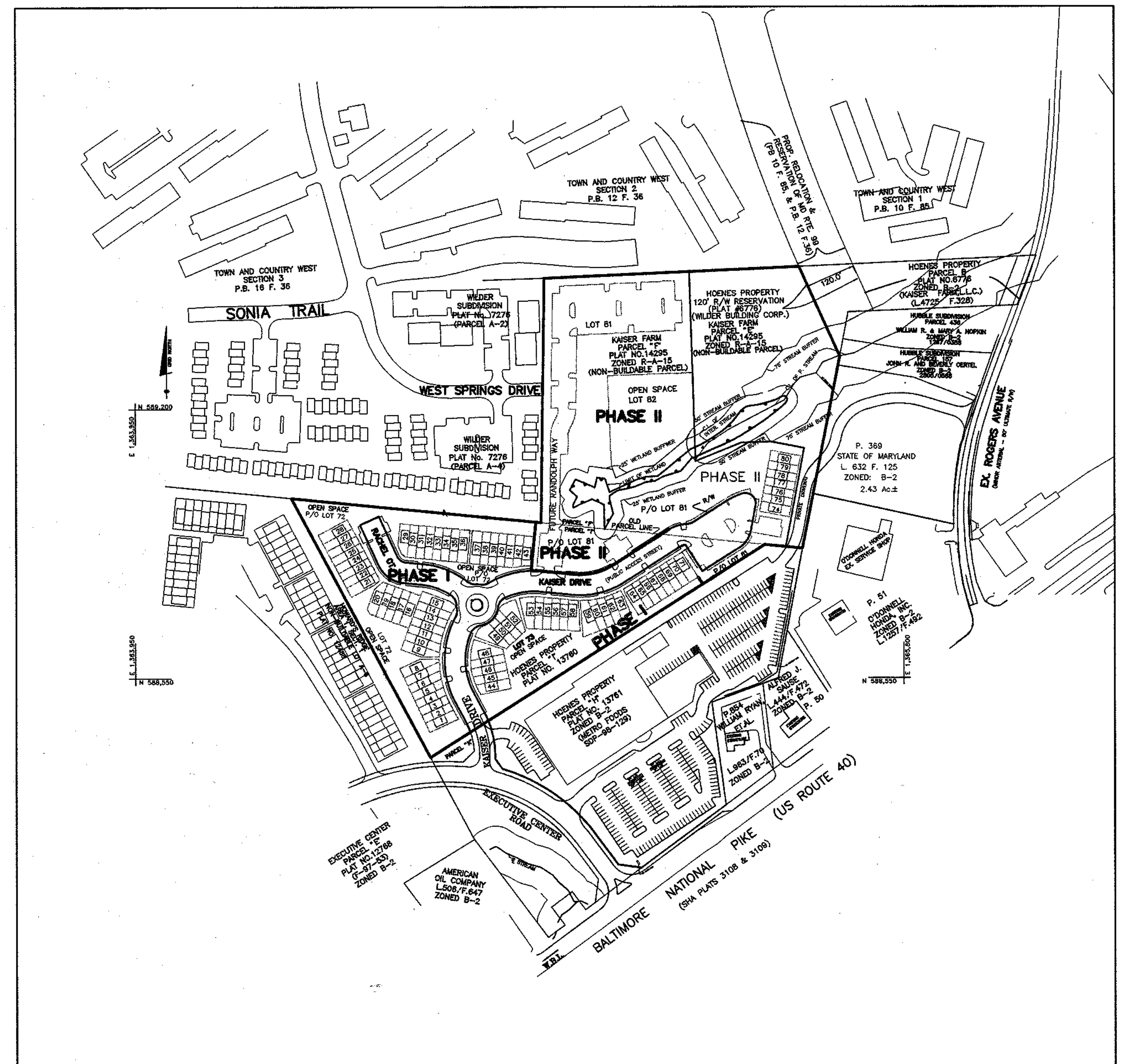
BENCH MARKS (NAD83)

HO. CO. No. 18G1
CONC. MONUMENT AT SURFACE, 4' N. OF MAC. SHOULDER OF RT. 40 WEST
18' W. OF YELLOW BLINKING SIGNAL.
N 589,984.9578 E 1,367,750.2376 ELEV. 408.542

HO. CO. No. 24C2
CONC. MONUMENT AT SURFACE 5.5' S. OF LEFT TURN LANE OF RT. 40 WEST
14' E. OF EAST EDGE OF CROSSOVER TO RT. 99 S.
N 588,648.3158 E 1,366,038.1347 ELEV. 354.930

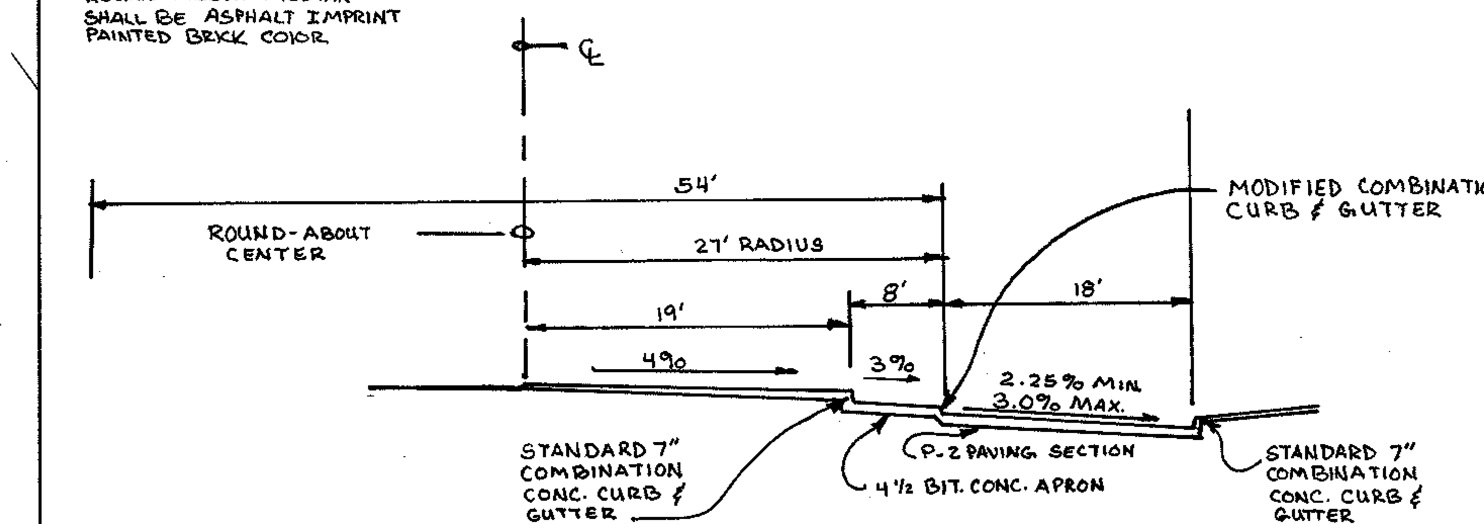
GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORK/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. PROJECT BACKGROUND:
   LOCATION: TAX MAP: 17, BLOCKS 23 & 24, PARCELS 681 AND P/O 848
   ZONING: R-A-15
   ELECTION DISTRICT: 2 nd
   TOTAL TRACT AREA: 17.57 AC.
   NUMBER OF PROPOSED LOTS: 78 TOWNHOMES
   NUMBER OF PROPOSED OPEN SPACE LOT: 3
   DPZ REFERENCE FILE: SP-00-03, WP-00-31, S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154, P-99-17, F-00-102.
   PRELIMINARY PLAN APPROVED ON JAN. 12, 2000.
5. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
6. TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM FIELD RUN SURVEY DONE BY TSA GROUP, INC. DATED 7/97. CONTOURS SHOWN ARE AT 2 FOOT INTERVALS AND SUPPLEMENTED WITH TOPOGRAPHY AS SHOWN ON F-98-12.
7. COORDINATES ARE BASED ON NAD 83, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD CO. GEODETIC CONTROL STATIONS NO. 18G1 AND 24C2.
8. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
9. THE PROJECT IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER FOR THIS PROJECT SHALL BE PUBLIC AND WILL BE PROVIDED TO THE LOTS UNDER WATER & SEWER CONTRACT NO. 14-3866-D. THE DRAINAGE AREA FOR THIS PROJECT IS THE PATAPSCO.
10. WATER QUALITY AND QUANTITY TREATMENT FOR THE PROPOSED ROADWAY AND THE SITE IS BEING PROVIDED BY EXTENDED DETENTION. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
11. WETLAND LIMITS SHOWN HEREON ARE BASED ON A DELINEATION BY ECO-SCIENCE PROFESSIONAL, INC. DATED MARCH 1995 AND APPROVED UNDER S-95-01a AND WETLAND REPORT FOR PARCELS "E" AND "F", KAISER FARM (PLAT#14295) WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED MAY, 1999.
12. ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS WAS PREPARED BY LEE CUNNINGHAM & ASSOCIATES, DATED AUGUST 1997 AND APPROVED UNDER S-95-01a, F-98-12 AND SDP-98-129.
13. NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
14. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLES-CARNES AND ASSOCIATES. DATED FEB.9, 1998.
15. EXISTING UTILITIES SHOWN ARE TAKEN FROM RECORD INFORMATION AND FIELD LOCATIONS.
16. FOREST STAND DELINEATION FOR PARCEL "I" WAS PREVIOUSLY APPROVED UNDER S-95-01a AND FOREST STAND DELINEATION PLAN FOR PARCELS "E" & "F" WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED AUGUST, 1999.
17. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFER, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK APPROVED AS PART OF THESE PLANS.
18. CONTRACTOR SHALL VERIFY ALL UTILITIES LOCATIONS PRIOR TO ANY CONSTRUCTION.
19. THE FOREST CONSERVATION EASEMENT (S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN.
20. ALL COMPACTION IN FILL AREA SHALL BE IN ACCORDANCE WITH AASHTO T-180 SPECIFICATIONS.
21. ALL SIDEWALK/HANDICAP RAMPS SHALL BE IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.



LOCATION MAP
SCALE: 1" = 200'

NOTE:
MATERIALS USED FOR ROUND-ABOUT MEDIAN SHALL BE ASPHALT IMPRINT PAINTED BRICK COLOR.



ROUND-ABOUT SECTION - TYPICAL BOTH SIDES
NOT TO SCALE

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	ROAD PLAN
3.	ROAD PROFILE: KAISER DRIVE AND TYPICAL SECTIONS
4.	ROAD PROFILE: RACHEL COURT AND FILLET PROFILES
5.	GRADING, SEDIMENT AND EROSION CONTROL PLAN
6.	STORM DRAIN PROFILES
7.	STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES
8-9.	STORMWATER MANAGEMENT NOTES AND DETAILS
10.	LANDSCAPE PLAN
11.	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
12.	FOREST CONSERVATION PLAN
13.	FOREST CONSERVATION NOTES AND DETAILS
14.	STORM DRAIN DRAINAGE AREA MAP

NO	DATE	REVISION
△	5-3-04	REVISE ROUND-ABOUT AND ADDED ROUND-ABOUT CROSS SECTION AND REMOVED ISLANDS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

Cindy Hamilton 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER
1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
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A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
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REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154, SP-00-03, P-99-17 AND F-00-102

TITLE: **TITLE SHEET**

DATE: JULY 2000 — PROJECT NO. 1268

DES: YSL — DRN: YSL — CHK: DAM — SCALE: AS SHOWN — DRAWING 1 OF 14

P:\PROJECTS\0796\DWG\700901S1.DWG

F-01-25

P:\PROJECTS\0796\dwg\700901sx1.dwg

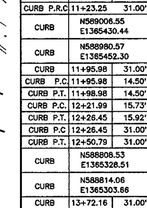
PLAN VIEW

SCALE: 1" = 50'

KAISER DRIVE – PARKING AREA CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
LEFT SIDE				
CURB P.C.	1+21.11	12.00'	400.42	MATCH EX.
CURB P.R.C.	1+40.15	12.00'	401.16	
CURB P.T.	1+43.40	15.02'	401.38	
CURB	1+43.40	30.00'	401.83	
CURB P.T.	1+49.54	30.00'	402.05	
CURB P.C.	2+03.69	30.00'	403.66	
CURB P.O.C.	2+49.43	30.00'	404.56	
CURB P.C.	2+49.43	14.98'	404.11	
CURB P.R.C.	2+59.21	12.00'	404.05	
CURB P.R.C.	2+57.94	12.00'	404.13	
CURB P.T.	2+60.72	14.98'	404.27	
CURB	2+60.72	30.00'	404.72	
CURB	3+11.51	30.00'	405.11	
CURB P.C.	3+11.51	14.98'	404.66	
CURB P.R.C.	3+14.29	12.00'	404.57	
CURB P.R.C.	3+20.02	12.00'	404.58	
CURB P.T.	3+22.80	14.98'	404.68	
CURB	3+22.80	30.00'	405.13	
CURB	3+82.05	30.00'	404.80	
CURB P.C.	3+82.05	14.98'	404.35	
CURB P.R.C.	3+85.17	12.00	404.22	= L.L.P.0+00
CURB P.R.C.	4+07.47	24.04'	403.79	=L.L.P.0+27.94
CURB P.R.C.	4+79.25	24.04'	401.95	=R.L.P.0+36.58
CURB P.C.	5+01.55	12.00'	401.38	=R.L.P.0+08.65
CURB P.R.C.	5+09.68	12.00'	401.17	= R.L.P.0+00
CURB P.T.	5+12.46	14.98'	401.17	
CURB	5+12.46	30.00'	401.62	
CURB	5+88.65	30.00'	398.18	
CURB P.C.	5+88.65	14.98'	397.73	
CURB P.R.C.	5+91.43	12.00'	397.48	= L.L.P.0+00
CURB P.O.C.	6+09.86	17.70'	395.14	=L.L.P.0+21.13
CURB P.C.	6+17.11	31.75'	394.36	=L.L.P.0+37.46
CURB P.C.	6+41.47	37.00'	394.18	=R.L.P.0+39.27
CURB P.O.C.	6+48.79	19.32'	393.55	=R.L.P.0+19.63
CURB P.R.C.	6+66.47	12.00'	393.22	= R.L.P.0+00
CURB P.T.	6+69.73	15.00'	393.16	
CURB	6+69.73	30.00'	393.61	
CURB P.C.	6+91.83	30.00'	392.49	
CURB P.C.	8+00.78	30.00'	386.16	
CURB P.C.	8+00.45	15.08'	387.71	
CURB P.R.C.	8+03.76	12.00'	387.52	
CURB P.R.C.	8+05.12	12.00'	387.48	
CURB P.T.	8+15.12	22.00'	387.47	
CURB P.T.	8+51.12	22.00'	386.58	
CURB P.O.C.	8+57.34	12.75'	386.12	
CURB P.T.	8+61.47	14.12'	386.12	
CURB	8+61.47	30.00'	386.60	
CURB P.C.	9+63.93	30.00'	385.24	
CURB	9+86.26	30.00'	385.00	
CURB P.C.	9+86.26	13.97'	384.53	
CURB P.R.C	9+87.89	12.00'	384.45	
CURB P.R.C	9+94.55	12.00'	384.38	
CURB P.T.	9+96.18	13.97'	384.43	
CURB P.C.	9+96.18	31.00'	384.94	
CURB P.T.	10+28.24	31.00'	384.56	
CURB P.C	11+19.22	31.00'	383.65	
CURB	11+20.27	31.00'	383.64	
CURB P.C.	11+20.37	14.48'	383.14	
CURB P.T.	11+22.80	14.48'	383.12	
CURB P.R.C	11+23.25	31.00'	383.61	
CURB	N589006.55 E1365430.44		382.97	
CURB	N588980.57 E1365452.30		382.04	
CURB	11+95.98	31.00'	382.58	
CURB P.C.	11+95.98	14.50'	383.07	
CURB P.T.	11+98.98	14.50'	383.15	
CURB P.C.	12+21.99	15.73'	383.43	
CURB P.T.	12+28.45	15.92'	383.49	
CURB P.C	12+28.45	31.00'	383.94	
CURB P.T.	12+50.79	31.00'	384.99	
CURB	N588808.53 E1365328.51		385.91	
CURB	N588814.06 E1365303.88		385.86	
CURB	13+72.16	31.00'	384.52	
CURB P.C.	13+72.16	14.52'	384.00	
CURB P.R.C	13+73.73	13.03'	383.96	
CURB P.O.C.	13+80.97	14.44'	383.84	

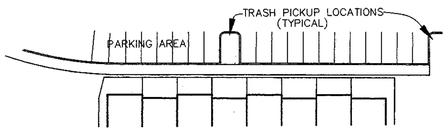
DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
RIGHT SIDE				
CURB P.C.	1+23.77	12.00'	400.53	MATCH EX.
CURB P.R.C.	1+44.53	12.00'	401.32	
CURB P.T.	1+47.32	14.98'	401.52	
CURB	1+47.32	30.00'	401.97	
CURB P.T.	1+49.54	30.00'	402.05	
CURB P.C.	2+03.69	30.00'	403.66	
CURB P.O.C.	2+64.84	30.00'	404.72	
CURB P.C.	2+64.84	15.03'	404.27	
CURB P.R.C.	2+68.10	12.00'	404.26	
CURB P.R.C.	2+75.84	12.00'	404.34	
CURB P.T.	2+79.10	15.03'	404.47	
CURB	2+79.10	30.00'	404.92	
CURB	3+75.28	30.00'	404.88	
CURB P.C.	3+75.28	16.19'	404.47	
CURB P.R.C.	3+79.34	13.25'	404.24	
CURB P.R.C.	4+06.43	29.62'	403.40	
CURB P.O.C.	4+43.36	45.00'	402.20	
CURB P.R.C.	4+80.29	29.62'	401.65	
CURB P.R.C.	5+09.26	12.86'	401.16	
CURB P.T.	5+13.18	15.83'	401.17	
CURB	5+13.18	30.00'	401.59	
CURB P.T.	6+14.05	30.00'	396.78	
CURB	6+28.11	30.00'	395.94	
CURB P.C.	6+28.11	15.00'	395.49	
CURB P.T.	6+31.11	12.00'	395.22	
CURB P.C.	6+37.11	12.00'	394.87	
CURB P.T.	6+40.11	15.00'	394.61	
CURB P.C.	6+91.83	30.00'	391.41	
CURB	7+44.26	30.00'	389.08	
CURB P.C.	7+44.35	14.95'	389.53	
CURB P.T.	7+47.12	12.00'	389.50	
CURB P.C.	7+55.70	12.00'	389.20	
CURB P.T.	7+57.46	15.00'	389.19	
CURB	7+57.34	30.00'	389.65	
CURB P.T.	8+04.95	30.00'	388.03	
CURB .	8+61.95	30.00'	386.59	
CURB P.C.	8+61.95	15.00'	386.14	
CURB P.T.	8+64.95	12.00'	385.99	
CURB P.C.	8+70.85	12.00'	385.85	
CURB P.T.	8+73.95	15.00'	385.91	
CURB .	9+63.97	30.00'	385.24	
CURB P.C.	9+63.96	14.04'	384.76	
CURB P.R.C.	9+67.96	12.00'	384.65	
CURB P.O.C.	9+98.18	17.03'	384.21	
CURB P.R.C	10+35.19	13.14'	383.95	ISLAND
CURB P.T.	10+37.44	15.13'	383.87	ISLAND
CURB P.R.C.	10+91.44	15.00'	383.45	ISLAND
CURB P.O.C.	12+11.30	14.42'	384.09	ISLAND
CURB P.R.C.	12+39.69	13.00'	384.33	ISLAND
CURB P.T.	13+00.16	15.13'	384.10	ISLAND
CURB P.C.	13+02.41	13.14'	384.18	ISLAND
CURB P.O.C.	13+62.16	13.00'	384.11	ISLAND



NOTE: ENCLOSURE TO ENCOMPASS THREE SIDES OF DUMPSTER PAD

DUMPSTER ENCLOSURE DETAIL

NOT TO SCALE



TYPICAL TRASH PICK-UP LOCATION

NOT TO SCALE

STREET CENTERLINE CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC STA.	PT STA.
C1	200.00'	25.77'	12.91'	25.76'	07°23'02"	1+23.77	1+49.54
C2	190.00'	410.36'	355.44'	335.13'	123°44'50"	2+03.69	6+14.05
C3	170.00'	113.12'	58.74'	111.04'	38°07'26"	6+91.83	8+04.95
C4	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+63.93	9+96.18
C5	175.00'	117.68'	61.16'	115.47'	38°31'40"	0+35.77	1+53.45
C6	50.00'	52.36'	28.87	50.00'	60°00'00"	1+97.98	2+50.34

STREET CENTERLINE CURVE DATA (CONT.)

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC. STA.	PT. STA.
C7	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+96.17	10+28.41
C8	165.40'	38.16'	19.17'	38.08'	13°13'09"	11+19.21	11+57.37
C9	37.00'	30.37'	16.10'	29.52'	47°01'22"	12+18.81	12+49.18

SIGNAGE

(C) YIELD (R1-2) (36"x36"x36") (W98-10) (42"x42") — YIELD — TO TRAFFIC IN CIRCLE

(B) ONE WAY R6-2R (MOUNT 5' FROM TOP OF SIGN TO ROAD SURFACE) — ONE WAY

DETAIL

NOT TO SCALE

TRAFFIC CONTROL SIGNS AND STRIPING LEGEND

A : DENOTES YIELD LINE (3" STRIPE, 3' GAP AND 12" WHITE LINE)

B : DENOTES "KEEP RIGHT" SIGN (STD. R4-7a)

C: DENOTES "TO TRAFFIC CIRCLE" SIGN (STD. R1-2)

RACHEL COURT – PARKING AREA CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
LEFT SIDE				
CURB P.R.C.	0+35.20	28.03'	403.49	=L.L.P 0+47.37
CURB P.R.C.	0+68.45	12.38'	403.24	=L.L.P 0+80.37
CURB P.T.	0+70.17	15.38'	403.47	
CURB	0+70.17	30.00'	403.91	
CURB P.T.	1+53.45	30.00'	406.65	
CURB	1+92.51	30.00'	408.42	
CURB P.C.	1+92.51	15.00'	407.97	
CURB P.T.	1+95.51	12.00'	408.02	
CURB P.C.	1+97.98	12.00'	408.14	
CURB P.R.C.	2+00.43	12.00'	408.26	
CURB P.T.	2+02.74	14.83'	407.71	
CURB	2+03.06	30.00'	407.85	
CURB P.T.	2+50.34	30.00'	410.30	
CURB	3+08.97	30.00'	413.50	
CURB P.C.	3+08.97	14.00'	413.99	
CURB P.T.	3+12.97	14.00'	414.33	
CURB	3+12.97	36.67'	415.01	
CURB P.C.	3+36.97	36.67'	415.36	
CURB P.T.	3+41.97	31.50'	416.52	
CURB	3+54.97	31.50'	417.27	

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
RIGHT SIDE				
CURB P.R.C.	0+37.06	25.26'	402.44	=R.L.P.0+59.46
CURB P.R.C.	0+61.45	12.00'	403.11	=R.L.P.0+90.49
CURB P.T.	0+64.21	14.98'	403.29	
CURB	0+64.21	30.00'	403.74	
CURB P.T.	1+53.45	30.00'	406.65	
CURB	1+57.10	30.00'	406.80	
CURB P.C.	1+57.10	15.00'	408.36	
CURB P.T.	1+60.10	12.00'	408.38	
CURB P.C.	1+66.10	12.00'	408.63	
CURB P.T.	1+69.10	15.00'	406.87	
CURB	1+69.10	30.00'	407.32	
CURB P.C.	1+97.98	30.00'	408.69	
CURB P.T.	2+50.34	30.00'	411.39	
CURB	3+08.97	30.00'	414.59	
CURB P.C.	3+08.97	14.00'	414.11	
CURB P.T.	3+12.97	14.00'	414.33	
CURB	3+12.97	36.67'	415.01	
CURB P.C.	3+36.97	36.67'	416.36	
CURB P.T.	3+41.97	31.50'	416.52	
CURB	3+54.97	31.50'	417.27	

FUTURE RANDOLPH WAY CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
LEFT SIDE				
CURB P.R.C.	0+31.75	12.38'	394.36	=L.L.P 0+37.46

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
RIGHT SIDE				
CURB P.R.C.	0+37	12.00'	394.18	=R.L.P.0+39.27

* NOTE: 2.0% CROSS SLOPE

PRIVATE PARKING AREA CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
LEFT SIDE				
CURB P.C.	0+37.59	12.00'	383.50	
CURB P.T.	0+39.59	14.00'	383.59	
CURB P.C.	0+39.59	30.00'	384.07	
CURB	0+93.59	30.00'	384.87	
CURB P.C.	0+93.59	17.00'	384.46	
CURB P.T.	0+98.59	12.00'	384.41	END OF CURB

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
RIGHT SIDE				
CURB P.T.	0+98.59	12.00'	385.13	END OF CURB

STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
☼	100 WATT HPS VAPOR "COLONIAL" POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	15' LT., STA.1+40 KAISER DR. 19' RT., STA.3+85, KAISER DR. 16' LT., STA.4+96, KAISER DR. 17' LT., STA.6+56, KAISER DR. 15' LT., STA.8+58, KAISER DR. 20' LT., STA.9+93, KAISER DR. 16' LT., STA.11+22, KAISER DR. 16' LT., STA.12+24, KAISER DR. 25' LT., STA.13+31, KAISER DR. 22' LT., STA.0+48, RACHEL CT. 15' LT., STA.1+98, RACHEL CT. 16' RT., STA.3+59, RACHEL CT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-9-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/21/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/21/01

△	5-3-04	REVISE ROUND-ABOUT AND REMOVED ISLANDS
NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — CHARLES W. HAMSTER — REGISTERED PROFESSIONAL ENGINEER

1/19/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O.BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-96-016, P-97-02, F-96-91, F-96-12, S-88-05, SDP-88-129, F-88-180, F-86-154, SP-00-03, P-99-17 AND F-00-102

TITLE: **ROAD PLAN: KAISER DRIVE AND RACHEL COURT**

DATE: AUG., 2000 — PROJECT NO. 1268

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 2 OF 14

F-01-25

P:\PROJECTS\0795\DWG\701701Sx2.dwg

STORMWATER MANAGEMENT SUMMARY DATA

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (CFS) AT DESIGN POINT	POST-DEVELOPED COMBINED DISCHARGE (CFS) WITH SWM AT DESIGN POINT
	DESIGN POINT #1	DESIGN POINT #1
2	13.32	12.95
10	41.77	28.69
100	–	81.15

	POND #1		
STORM FREQUENCY	2	10	100
INFLOW Q (CFS)	27.6	51.5	78.1
DISCHARGE Q (CFS)	1.6	13.2	50.2
ELEVATION	370.19	371.50	372.34
STORAGE VOLUME PROVIDED (AC.-FT)	1.202	1.905	2.409

PLAN VIEW
SCALE: 1" = 50'

FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 11

SEDIMENT BASIN NO. 1 DATA
D.A. = 7.32 AC.
WET STORAGE REQUIRED : 13176 C.F.
WET STORAGE PROVIDED : 13176 C.F.
DRY STORAGE REQUIRED : 13176 C.F.
DRY STORAGE PROVIDED : 13176 C.F.
CLEANOUT ELEVATION : 367.5
TOP OFV EMBANKMENT ELEVATION : 374.0
RISER CREST ELEVATION : 369.75
2 YR. RELEASE RATE : 4.21 CFS (EXIST.)
DURING CONSTRUCTION: 0.27 CFS (DEV.)

SEDIMENT TRAP NO. 1 DATA
TYPE: ST-II (S.O.S.T)
D.A. = 1.92 AC. (DEVELOPED CONDITION)
STORAGE REQUIRED: 6912 C.F.
WET STORAGE : 3456 C.F.
DRY STORAGE : 3456 C.F.
STORAGE PROVIDED: 7522.25 C.F.
WET STORAGE : 3704.10 C.F.
DRY STORAGE : 3818.15 C.F.
BOTTOM DIMENSION : 70'x35'
DEPTH : 2.5'
SIDE SLOPE: 2 : 1
WEIR LENGTH: 8.0'
EMBANKMENT HEIGHT: 2.2'
EMBANKMENT ELEVATION: 370.0
BOTTOM ELEVATION: 366.5
WET STORAGE LIMIT: 367.85
WEIR CREST ELEVATION: 369.0
OUTLET ELEVATION: 367.85
CLEANOUT ELEVATION: 367.18
APRON LENGTH: 10.0'

LEGEND
CONTOUR INTERVAL 2 FEET
EXISTING CONTOUR
PROPOSED CONTOUR
PROPOSED SEWER MAIN
PROPOSED WATER MAIN
PROPOSED STORM DRAIN
STABILIZED CONSTRUCTION ENTRANCE
PROPOSED EARTH DIKE
MOUNTABLE BERM
SILT FENCE
SUPER SILT FENCE
LIMIT OF DISTURBED AREA
EXISTING TREE LINE
PROPOSED TREE LINE
FOREST RETENTION EASEMENT
REFORESTATION EASEMENT
NO WOODY VEGETATION BUFFER
GABION INFLOW PROTECTION

PLAT NO. 13761
ZONED B-2
(METRO FOODS
SDP-00-123)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/21/01

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
HOWARD SOIL CONSERVATION DISTRICT — DATE 2/13/01
ACTING DIST. MGR.

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/13/01

ENGINEER'S CERTIFICATE
"I/WE 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."
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 1/19/01

DEVELOPER'S CERTIFICATE
"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."
DEVELOPER – KAISER FARM, L.L.C. — DATE 1/19/01

NO	DATE	REVISION
1	5-3-04	REVISE ROUND-ABOUT & REMOVED ISLANDS

BENCHMARK
ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD A. MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER
1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-6105

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "I", KAISER FARM
LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-016, P-97-02, F-98-81, F-98-12, S-98-05, SDP-98-129, F-98-180, F-98-184,SP-00-03,SDP-99-17 AND F-00-103

TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN**

DATE: AUG.,2000 — PROJECT NO. 1268
DES: YSL — DRN: YSL — CHK: DAM — SCALE: AS SHOWN — DRAWING 5 OF 14

F-01-25

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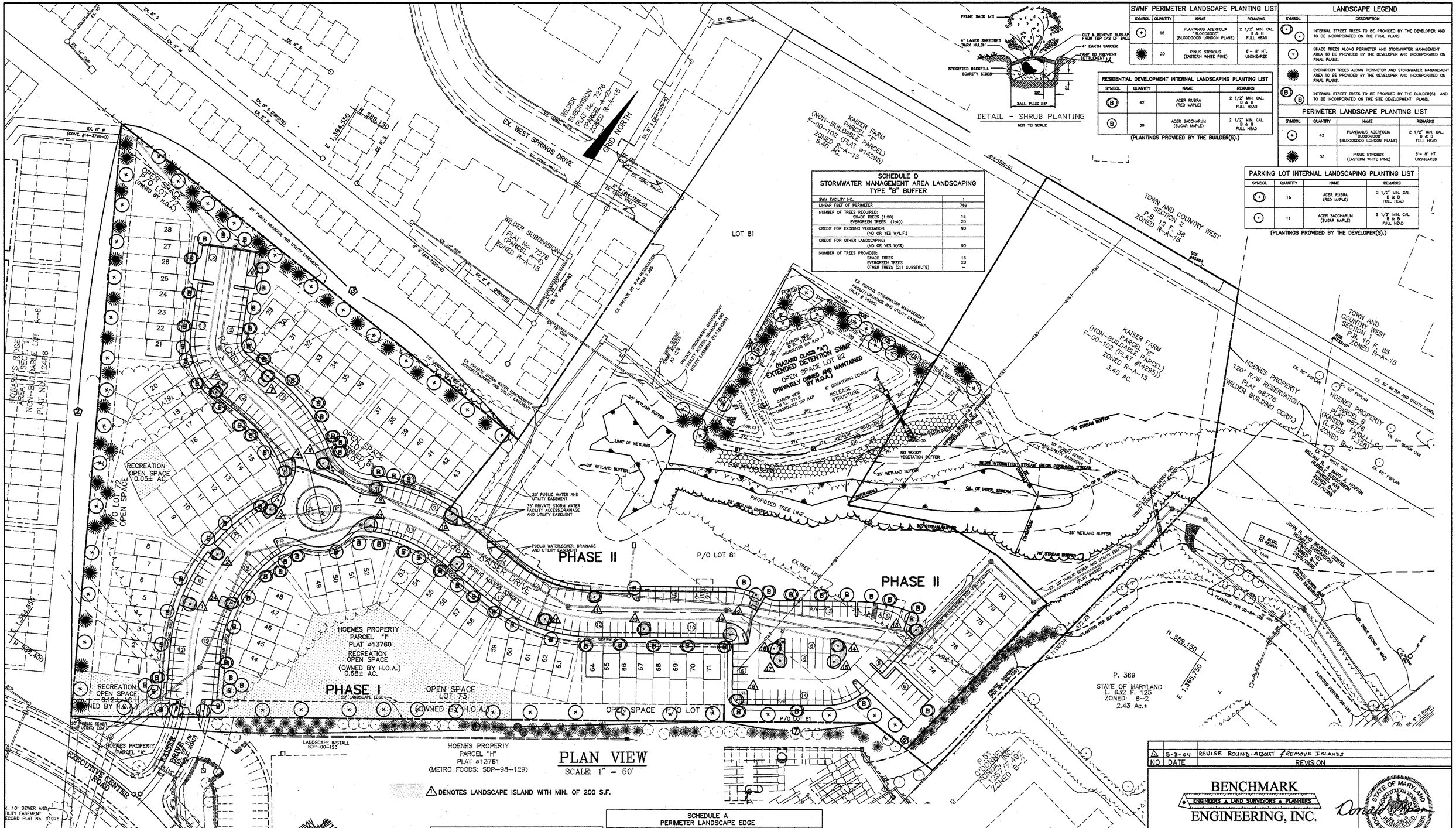

EX. 8" W
(CONT. #14-3796-D)
EX. 6" S
EX. 15" CMP
EX. 8" W
EX. 6" S (PRIVATE)
EX. 8" W
E 1,364,550
N 389,150
EX. 6" S
EX. WEST SPRINGS DRIVE
EX. CONC. WALK
GRID NORTH
EX. SD
EX. 6" S (#14-1358-D)
WILDER SUBDIVISION
PLAT No. 7276
(PARCEL A-4)
ZONED R-A-15
KAISER FARM
PARCEL "F"
(NON-BUILDABLE PARCEL)
F-00-102 (PLAT #14295)
ZONED R-A-15
3.40 AC.
LOT 81
EX. 8" S (#14-1358-D)
EX. 8" W (#14-1358-D)
EX. 15" SSCP
EX. 8" S (PRIVATE)
EX. 8" W (APPROVED)
EX. 18" CMP
EX. PRIVATE 50' R/W RESERVATION
L. 1858 F. 388
EX. PRIVATE STORM WATER MANAGEMENT FACILITY ACCESS, DRAINAGE AND UTILITY EASEMENT (PLAT #12295)
EX. PRIVATE STORMWATER MANAGEMENT FACILITY, DRAINAGE AND UTILITY EASEMENT (PLAT #14295)
EX. 8" S
EX. 8" W
EX. 8" W (#14-3796-D)
EX. 8" S (#14-1358-D)
EX. 8" W (#14-1358

PLAN VIEW

SCALE: 1" = 50'

PHASE II STORM DRAIN PIPES ARE SHOWN AS DASHED LINES.

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB2	CHESTER SILT LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8-15 % SLOPES, MODERATELY ERODED	B
GiB2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
GiC2	GLENELG LOAM, 8-15% SLOPES, MODERATELY ERODED	B
GiC3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
MiB2	MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED	B
MiC2	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
MiC3	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD2	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD3	MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO	DATE	REVISION
1	5-3-04	REVISE ROUND-ABOUT & REMOVE ISLANDS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

[signature] STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER — 1/9/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-88-160, F-88-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **STORM DRAIN DRAINAGE AREA MAP**

DATE: AUG.,2000	PROJECT NO. 1268
SCALE: AS SHOWN	DRAWING 14 OF 14

DES: MLV | DRN: CAD | CHK: DAM

F-01-25

P:\PROJECTS\0796\dwg\702501Sx1.dwg

PLAN VIEW

SCALE: 1" = 50'

PHASE II STORM DRAIN PIPES ARE SHOWN AS DASHED LINES.

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB2	CHESTER SILT LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8-15 % SLOPES, MODERATELY ERODED	B
GiB2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
GiC2	GLENELG LOAM, 8-15% SLOPES, MODERATELY ERODED	B
GiC3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
MiB2	MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED	B
MiC2	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
MiC3	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD2	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD3	MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED	B

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO	DATE	REVISION
2	7-9-05	REVISED PER AS-BUILT CONDITIONS
1	5-3-04	REVISE ROUND-ABOUT & REMOVE ISLANDS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD A. MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER [seal]
[signature] 1/19/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154, SP-00-03, P-99-17 AND F-00-102

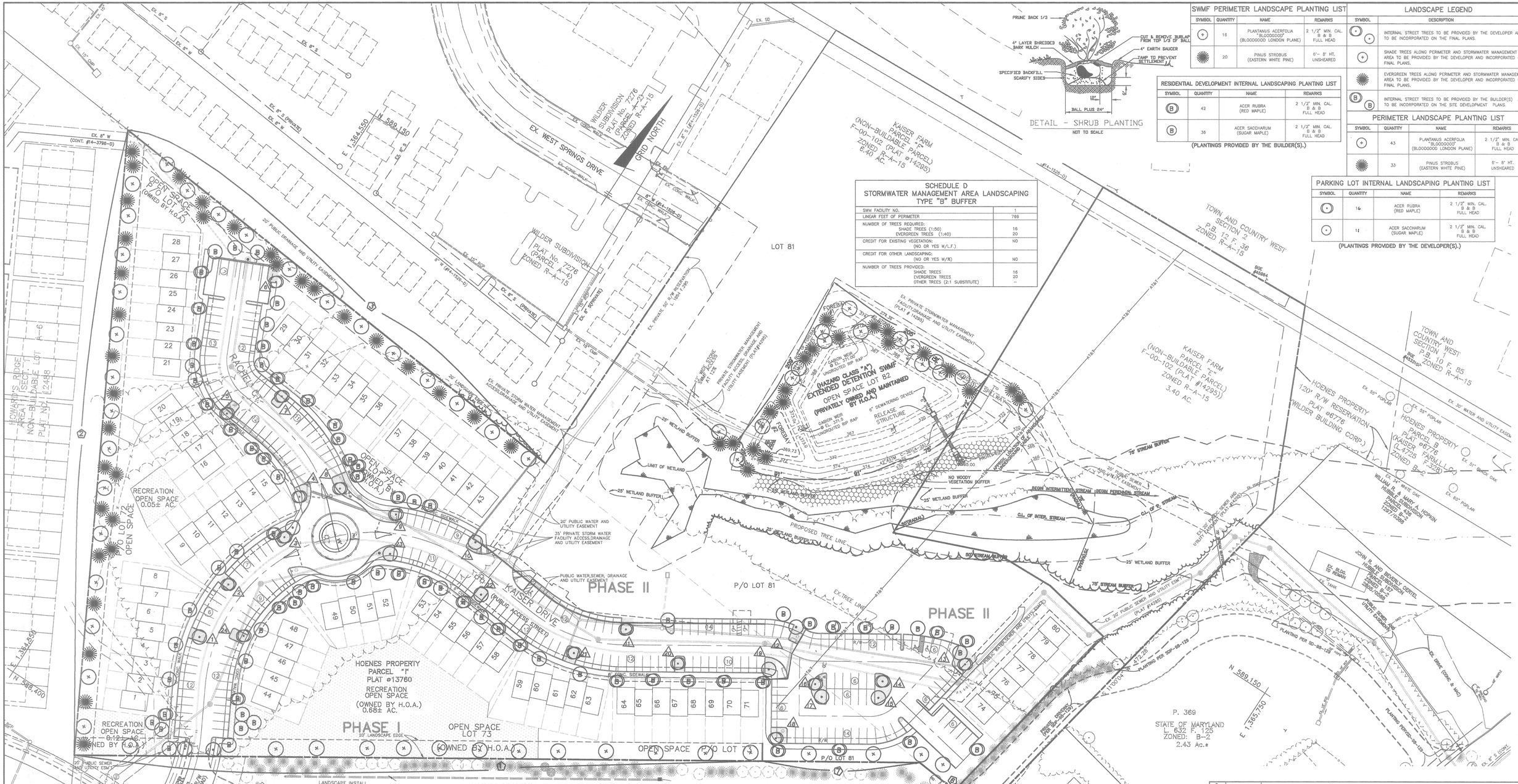
TITLE: **STORM DRAIN DRAINAGE AREA MAP**

DATE: AUG., 2000	PROJECT NO. 1268
DES: MLV / DRN: CAD / CHK: DAM / SCALE: AS SHOWN	DRAWING 14 OF 14

P:\PROJECTS\0796\DWG\70250151.DWG

F-01-25

P:\PROJECTS\0796\dwg\70250151.dwg


EX. 8" W
EX. 8" S
EX. 15" CMP
E 1,364,550
N 589,150
E 1,364,850
N 588,400
EX. WEST SPRINGS DRIVE
EX. CONC. WALK
GRID NORTH
EX. SD
EX. 8" S (PRIVATE)
WILDER SUBDIVISION
PLAT No. 7276
(PARCEL A-4)
ZONED R-A-15
EX. 15" RCP
EX. 8" S (APPROX.)
EX. 8" W (#14-1528-D)
EX. 8" W (#14-3798-D)
KAISER FARM
PARCEL "E"
(NON-BUILDABLE PARCEL)
P-00-102 (PLAT #14295)
ZONED R-A-15
6.40 AC.
LOT 81
TOWN AND COUNTRY WEST
SECTION 2
P.B. 12 F. 36
ZONED R-A-15
TOWN AND COUNTRY WEST
SECTION 1
P.B. 10 F. 85
ZONED R-A-15
EX. 30" WATER AND UTILITY EASEMENT
HOENES PROPERTY
120' R/W RESERVATION
PLAT #6776
(WILDER BUILDING CORP.)
HOENES PROPERTY
PARCEL "B"
PLAT #6776
(KAISER FARM, L.L.C.)
(L.4725 F.320)
ZONED B-2
EX. 55" POPLAR
EX. 51" BLACK OAK
EX. 54" WHITE OAK
EX. 60" POPLAR
WILLIAM R. & MARY A. HORMAN
HUBER & SUSAN SCHNEIDER
TAX MAP 17, P/O 681
ZONED R-A-15
1257/0368
JOHN R. AND BEVERLY OERTEL
HUBER & SUSAN SCHNEIDER
TAX MAP 17, P/O 681
ZONED R-A-15
1257/0368
EX. BLDG. TO REMAIN
EX. TANK
PUBLIC SEWER AND UTILITY EASEMENT (PLAT #14295)
PLANTING PER SDP-98-129
EX. DRIVE (CONC. & MAC)
EX. 8" S (PRIVATE)
EX. 8" W
EX. 8" S
EX. 15" CMP
OPEN SPACE
P/O LOT A
(OWNED BY H.O.A.)
RACHEL CT.
20' PUBLIC DRAINAGE AND UTILITY EASEMENT
20' LANDSCAPE EDGE
EX. PRIVATE STORM WATER MANAGEMENT ACCESS,DRAINAGE AND UTILITY EASEMENT
EX. PRIVATE STORMWATER MANAGEMENT FACILITY,DRAINAGE AND UTILITY EASEMENT (PLAT #14295)
PRIVATE STORMWATER MANAGEMENT FACILITY ACCESS, DRAINAGE AND UTILITY EASEMENT (PLAT#14295)
EX. PRIVATE 50' R/W RESERVATION "L" 1,085 F.255
EX. 8" S (PRIVATE)
EX. 8" W (#14-1528-D)
EX. 15" RCP
EX. 8" W (#14-3798-D)
EX. 8" S
EX. 8" W
EX. 8" S
EX. 15" CMP
EX. 8" S (PRIVATE)
EX. 8" W
EX. 8" S
EX. 15" CMP
EX. 8" S

STORMWATER MANAGEMENT SUMMARY DATA

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (CFS) AT DESIGN POINT	POST-DEVELOPED COMBINED DISCHARGE (CFS) WITH SWM AT DESIGN POINT
	DESIGN POINT #1	DESIGN POINT #1
2	13.32	12.95
10	41.77	28.69
100	–	81.15

	POND #1		
STORM FREQUENCY	2	10	100
INFLOW Q (CFS)	27.6	51.5	78.1
DISCHARGE Q (CFS)	1.6	13.2	50.2
ELEVATION	370.19	371.50	372.34
STORAGE VOLUME PROVIDED (AC.-FT)	1.202	1.905	2.409

PLAN VIEW

SCALE: 1" = 50'

SEDIMENT BASIN NO. 1 DATA

D.A. = 7.32 AC.
WET STORAGE REQUIRED : 13176 C.F.
WET STORAGE PROVIDED : 13176 C.F.
DRY STORAGE REQUIRED : 13176 C.F.
DRY STORAGE PROVIDED : 13176 C.F.
CLEANOUT ELEVATION : 367.5
TOP OF MBANKMENT ELEVATION : 374.0
RISER CREST ELEVATION : 369.75
2 YR. RELEASE RATE : 4.21 CFS (EXIST.)
DURING CONSTRUCTION: 0.27 CFS (DEV.)

SEDIMENT TRAP NO. 1 DATA

TYPE: ST-II (S.O.S.T.)
D.A. = 1.92 AC. (DEVELOPED CONDITION)
STORAGE REQUIRED: 6912 C.F.
WET STORAGE : 3456 C.F.
DRY STORAGE : 3456 C.F.
STORAGE PROVIDED: 7522.25 C.F.
WET STORAGE : 3704.10 C.F.
DRY STORAGE : 3818.15 C.F.
BOTTOM DIMENSION : 70'x35'
DEPTH : 2.5'
SIDE SLOPE: 2 : 1
WEIR LENGTH: 8.0'
EMBANKMENT HEIGHT: 2.2'
EMBANKMENT ELEVATION: 370.0
BOTTOM ELEVATION: 366.5
WET STORAGE LIMIT: 367.85
WEIR CREST ELEVATION: 369.0
OUTLET ELEVATION: 367.85
CLEANOUT ELEVATION: 367.18
APRON LENGTH: 10.0'

LEGEND

CONTOUR INTERVAL 2 FEET
EXISTING CONTOUR
PROPOSED CONTOUR
PROPOSED SEWER MAIN
PROPOSED WATER MAIN
PROPOSED STORM DRAIN
STABILIZED CONSTRUCTION ENTRANCE
PROPOSED EARTH DIKE
MOUNTABLE BERM
SILT FENCE
SUPER SILT FENCE
LIMIT OF DISTURBED AREA
EXISTING TREE LINE
PROPOSED TREE LINE
FOREST RETENTION EASEMENT
REFORESTATION EASEMENT
NO WOODY VEGETATION BUFFER
GABION INFLOW PROTECTION

FOR SEQUENCE OF CONSTRUCTION SEE SHEET NO. 11

PLAT NO. 13761
ZONED B-2
(MEIRO FOODS
SDP-00-123)

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/16/01

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 2/13/01

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/13/01

ENGINEER'S CERTIFICATE

"I/WE 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."

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 1/19/01

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."

DEVELOPER – KAISER FARM, L.L.C. — DATE 1/19/01

NO	DATE	REVISION
1	7-9-05	REVISED PER AS-BUILT CONDITIONS
2	5-3-04	REVISE ROUND-ABOUT & REMOVED ISLANDS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALEXANDER MASON — 21443 — REGISTERED PROFESSIONAL ENGINEER

1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-6105

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "I", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-85-164, P-87-02, F-96-91, F-98-12, S-98-05, SDP-88-150, F-88-180, F-88-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN**

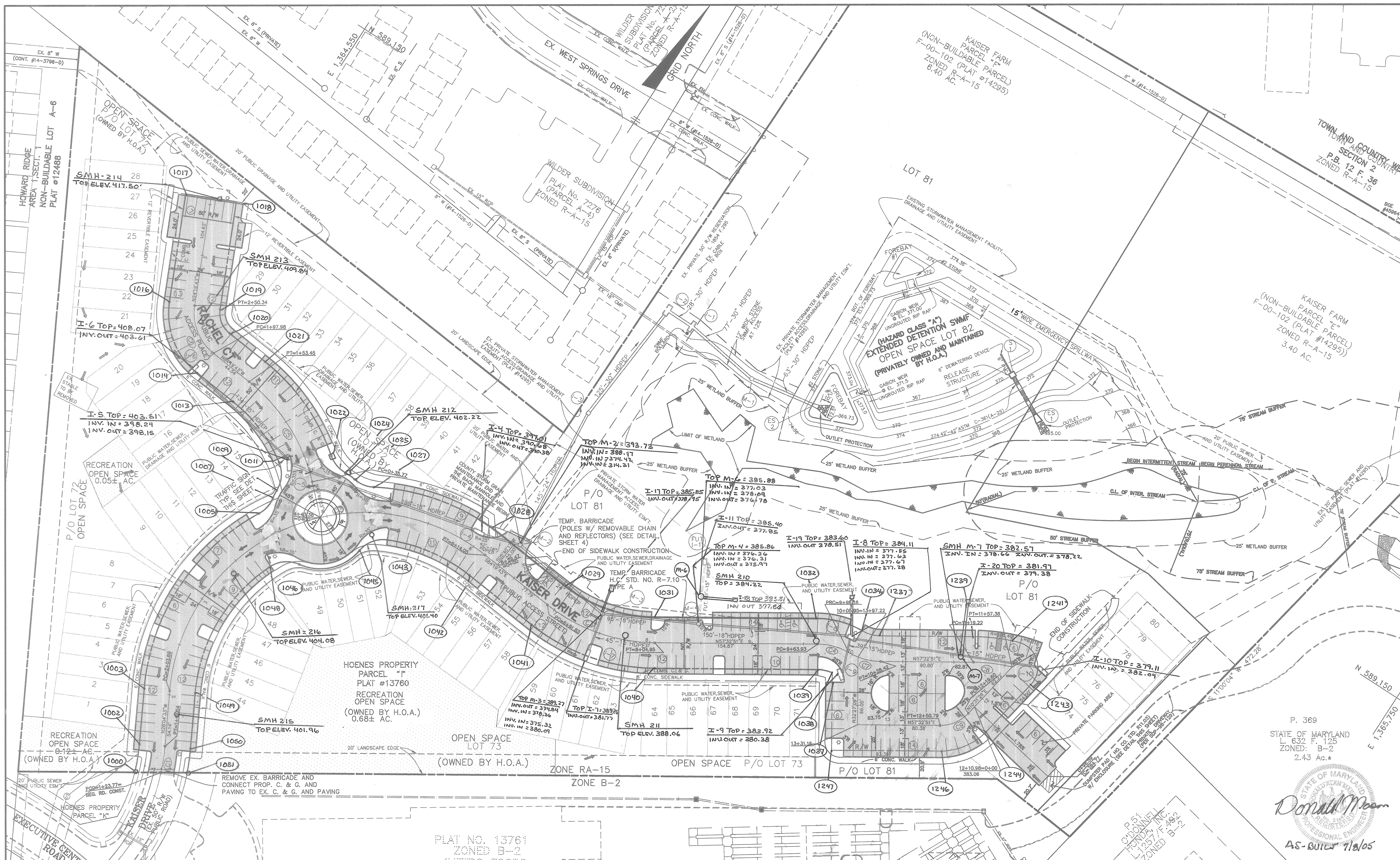
DATE: AUG., 2000 — PROJECT NO. 1268

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 5 OF 14

F-01-25

P:\PROJECTS\01796\dwg\02605154.DWG

P:\PROJECTS\01796\dwg\02605154.dwg



PLAN VIEW

SCALE: 1" = 50'

STREET CENTERLINE CURVE DATA

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC STA.	PT STA.
C1	200.00'	25.77'	12.91'	25.76'	07°23'02"	1+23.77	1+49.54
C2	190.00'	410.36'	355.44'	335.13'	123°44'50"	2+03.69	6+14.05
C3	170.00'	113.12'	58.74'	111.04'	38°07'26"	6+91.83	8+04.95
C4	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+63.93	9+96.18
C5	175.00'	117.68'	61.16'	115.47'	38°31'40"	0+35.77	1+53.45
C6	50.00'	52.36'	28.87'	50.00'	60°00'00"	1+97.98	2+50.34

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

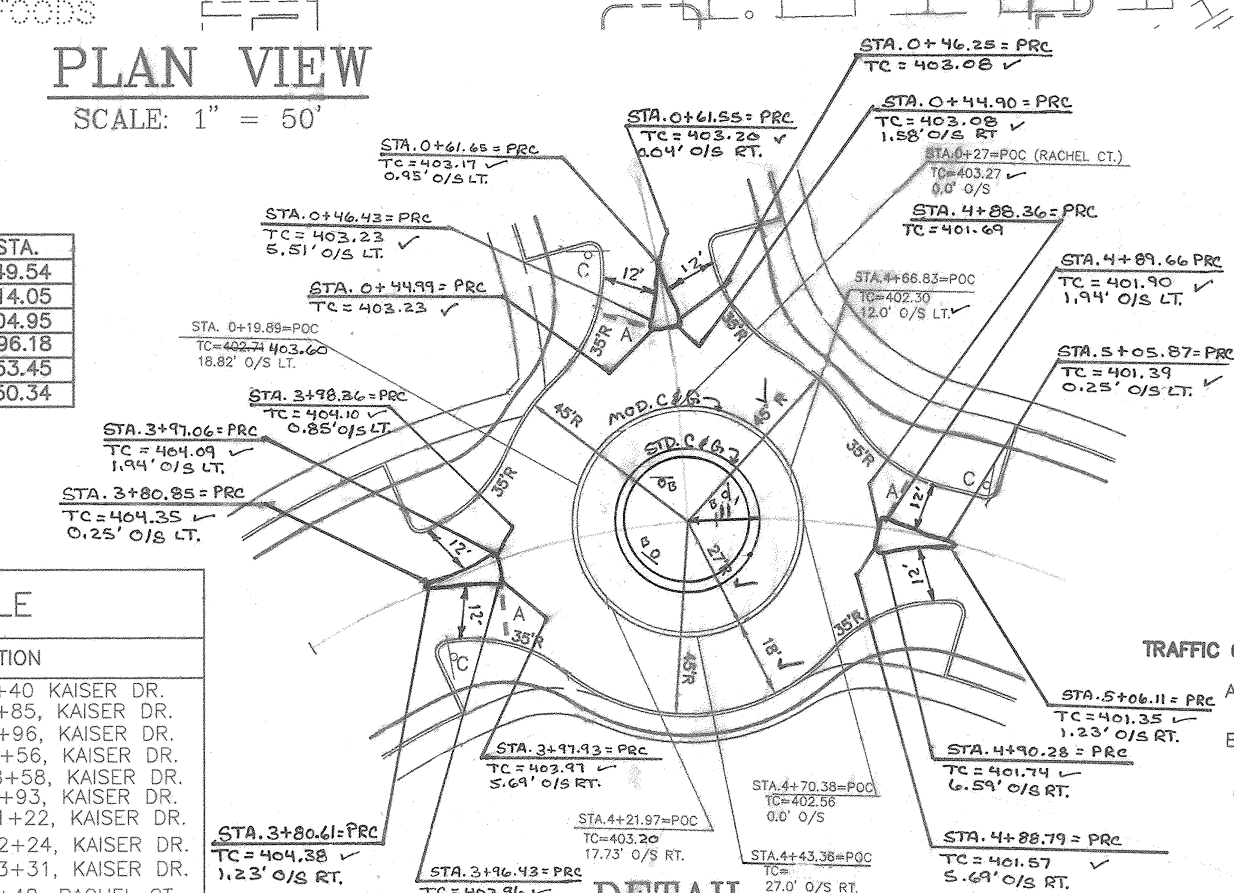
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
☼	100 WATT HPS VAPOR "COLONIAL" POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	15' LT., STA.1+40 KAISER DR. 19' RT., STA.3+85, KAISER DR. 16' LT., STA.4+96, KAISER DR. 17' LT., STA.6+56, KAISER DR. 15' LT., STA.8+58, KAISER DR. 20' LT., STA.9+93, KAISER DR. 16' LT., STA.11+22, KAISER DR. 16' LT., STA.12+24, KAISER DR. 25' LT., STA.13+31, KAISER DR. 22' LT., STA.0+48, RACHEL CT. 15' LT., STA.1+98, RACHEL CT. 16' RT., STA.3+59, RACHEL CT.



DETAIL

NOT TO SCALE

SIGNAGE

Ⓒ YIELD (RI-2) (36"x36"x36") (W96-10) (42"x42") — YIELD / TO TRAFFIC IN CIRCLE

Ⓑ ONE WAY R6-2R (MOUNT 5' FROM TOP OF SIGN TO ROAD SURFACE) — ONE WAY

TRAFFIC CONTROL SIGNS AND STRIPING LEGEND

A : DENOTES YIELD LINE (3' STRIPE, 3' GAP AND 12" WHITE LINE)

B : DENOTES "KEEP RIGHT" SIGN (STD. R4-7a)

C: DENOTES "TO TRAFFIC CIRCLE" SIGN (STD. R1-2)

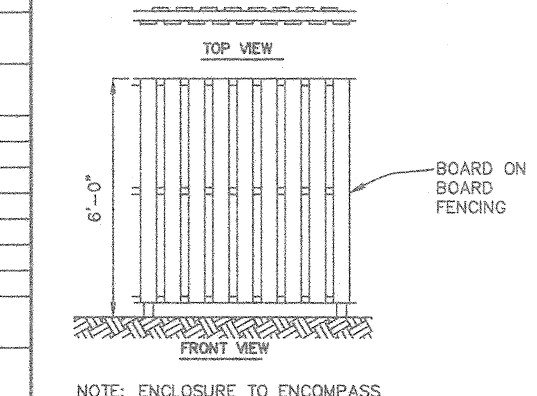
KAISER DRIVE – PARKING AREA CURB DATA

LEFT SIDE

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.C.	1+21.11	12.00'	400.42	MATCH EX.
CURB P.R.C.	1+40.15	12.00'	~~401.16~~	401.32
CURB P.T.	1+43.40	15.02'	401.38	
CURB	1+43.40	30.00'	~~401.83~~	402.01
CURB P.T.	1+49.54	30.00'	402.05	
CURB P.C.	2+03.69	30.00'	~~403.66~~	403.84
CURB P.O.C.	2+49.43	30.00'	~~404.56~~	404.72
CURB P.C.	2+49.43	14.98'	~~404.11~~	404.32
CURB P.R.C.	2+52.21	12.00'	~~404.05~~	404.27
CURB P.R.C.	2+57.94	12.00'	~~404.13~~	404.29
CURB P.T.	2+60.72	14.98'	~~404.27~~	404.42
CURB	2+60.72	30.00'	~~404.72~~	404.89
CURB	3+11.51	30.00'	405.11	
CURB P.C.	3+11.51	14.98'	404.66	
CURB P.R.C.	3+14.29	12.00'	404.57	
CURB P.R.C	3+20.02	12.00'	404.58	
CURB P.T.	3+22.80	14.98'	404.68	
CURB	3+22.80	30.00'	~~405.13~~	405.43
CURB	3+82.05	30.00'	404.80	
CURB P.C.	3+82.05	14.98'	404.35	
CURB P.R.C.	3+85.17	12.00	404.22	= L.L.P.0+00
CURB P.R.C.	4+07.47	24.04'	403.79	=L.L.P.0+27.94
CURB P.R.C.	4+79.25	24.04'	401.95	=R.L.P.0+36.58
CURB P.R.C.	5+01.55	12.00'	401.36	=R.L.P.0+08.65
CURB P.R.C.	5+09.68	12.00'	401.17	= R.L.P.0+00
CURB P.T.	5+12.46	14.98'	401.17	
CURB	5+12.46	30.00'	401.62	
CURB	5+88.65	30.00'	~~398.18~~	398.37
CURB P.C.	5+88.65	14.98'	397.73	
CURB P.R.C.	5+91.43	12.00'	397.48	= L.L.P.0+00
CURB P.O.C.	6+09.86	17.70'	395.~~14~~ 4.76	=L.L.P.0+21.13
CURB P.C.	6+17.11	31.75'	394.~~36~~ .72	=L.L.P.0+37.46
CURB P.C.	6+41.47	37.00'	394.18	=R.L.P.0+39.27
CURB P.O.C.	6+48.79	19.32'	393.~~56~~ .83	=R.L.P.0+19.63
CURB P.R.C.	6+66.47	12.00'	393.22	= R.L.P.0+00
CURB P.T.	6+69.73	15.00'	393.16	
CURB	6+69.73	30.00'	393.61	
CURB P.C.	6+91.83	30.00'	392.49	
CURB	8+00.78	30.00'	388.16	
CURB P.C.	8+00.45	15.08'	387.71	
CURB P.R.C.	8+03.76	12.00'	387.52	
CURB P.R.C.	8+05.12	12.00'	387.48	
CURB P.T.	8+15.12	22.00'	387.47	
CURB P.T.	8+51.12	22.00'	386.58	
CURB P.O.C.	8+57.34	12.75'	386.12	
CURB P.T.	8+61.47	14.12'	386.12	
CURB	8+61.47	30.00'	386.60	
CURB P.C.	9+63.93	30.00'	~~385.24~~	383.87
CURB	9+86.26	30.00'	~~385.00~~	383.57
CURB P.C.	9+86.26	13.97'	384.53	
CURB P.R.C	9+87.89	12.00'	~~384.45~~	384.17
CURB P.R.C	9+94.55	12.00'	~~384.38~~	384.14
CURB P.T.	9+96.18	13.97'	384.43	
CURB P.C.	9+96.18	31.00'	384.94	
CURB P.T.	10+28.24	31.00'	384.56	
CURB P.C	11+19.22	31.00'	~~383.65~~	383.46
CURB	11+20.27	31.00'	~~383.64~~	383.47
CURB P.C.	11+20.37	14.48'	383.14	
CURB P.T.	11+22.80	14.48'	383.12	
CURB P.R.C	11+23.25	31.00'	383.61	
CURB	N589006.55 E1365430.44		~~382.97~~ 383.24	
CURB	N588980.57 E1365452.30		382.04	
CURB	11+95.98	31.00'	~~382.58~~	383.04
CURB P.C.	11+95.98	14.50'	383.07	
CURB P.T.	11+98.98	14.50'	383.15	
CURB P.C.	12+21.99	15.73'	383.43	
CURB P.T.	12+26.45	15.92'	383.49	
CURB P.C	12+26.45	31.00'	383.94	
CURB P.T.	12+50.79	31.00'	384.99	
CURB	N588808.53 E1365328.51		385.91	
CURB	N588814.06 E1365303.66		385.86	
CURB	13+72.16	31.00'	384.52	
CURB P.C.	13+72.16	14.52'	384.00	
CURB P.R.C	13+73.73	13.03'	383.96	
CURB P.O.C.	13+80.97	14.44'	383.84	

RIGHT SIDE

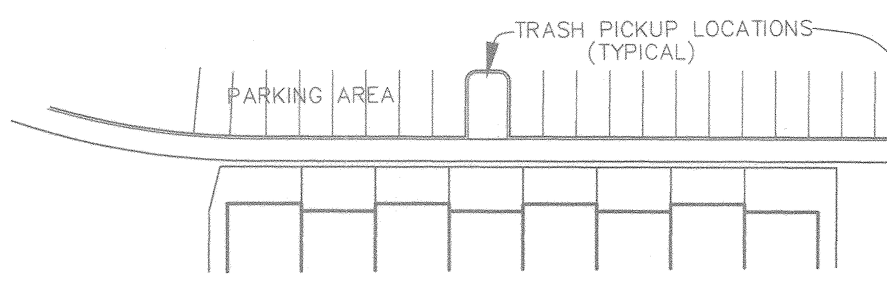
DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.C.	1+23.77	12.00'	400.53	MATCH EX.
CURB P.R.C.	1+44.53	12.00'	401.32	
CURB P.T.	1+47.32	14.98'	401.52	
CURB	1+47.32	30.00'	401.97	
CURB P.T.	1+49.54	30.00'	~~402.05~~	402.22
CURB P.C.	2+03.69	30.00'	403.66	
CURB P.O.C.	2+64.84	30.00'	404.72	
CURB P.C.	2+64.84	15.03'	404.27	
CURB P.R.C.	2+68.10	12.00'	404.26	
CURB P.R.C.	2+75.84	12.00'	404.34	
CURB P.T.	2+79.10	15.03'	404.47	
CURB	2+79.10	30.00'	404.92	
CURB	3+75.28	30.00'	404.88	
CURB P.C.	3+75.28	16.19'	~~404.47~~	404.62
CURB P.R.C.	3+79.34	13.25'	~~404.24~~	404.51
CURB P.R.C	4+06.43	29.62'	403.40	
CURB P.O.C.	4+43.36	45.00'	~~402.20~~	402.37
CURB P.R.C.	4+80.29	29.62'	401.65	
CURB P.R.C.	5+09.26	12.86'	401.16	
CURB P.T.	5+13.18	15.83'	401.17	
CURB	5+13.18	30.00'	401.59	
CURB P.T.	6+14.05	30.00'	396.78	
CURB	6+28.11	30.00'	395.94	
CURB P.C.	6+28.11	15.00'	395.49	
CURB P.T.	6+31.11	12.00'	395.22	
CURB P.C.	6+37.11	12.00'	394.87	
CURB P.T.	6+40.11	15.00'	394.61	
CURB P.C.	6+91.83	30.00'	391.41	
CURB	7+44.26	30.00'	~~389.08~~	389.30
CURB P.C.	7+44.36	14.95'	~~389.53~~	389.33
CURB P.T.	7+47.12	12.00'	389.50	
CURB P.C.	7+54.70	12.00'	389.20	
CURB P.T.	7+57.46	15.00'	389.19	
CURB	7+57.34	30.00'	389.65	
CURB P.T.	8+04.95	30.00'	388.03	
CURB .	8+61.95	30.00'	386.59	
CURB P.C.	8+61.95	15.00'	386.14	
CURB P.T.	8+64.95	12.00'	385.99	
CURB P.C.	8+70.95	12.00'	385.85	
CURB P.T.	8+73.95	15.00'	385.91	
CURB	9+63.97	30.00'	~~385.24~~	386.38
CURB P.C.	9+63.96	14.04'	~~384.76~~	385.26
CURB P.R.C.	9+67.96	12.00'	384.65	
CURB P.O.C.	9+96.18	17.03'	~~384.21~~	383.96
CURB P.R.C	10+35.19	13.14'	383.95	ISLAND
CURB P.T.	10+37.44	15.13'	383.87	ISLAND
CURB P.R.C.	10+91.44	15.00'	383.45	ISLAND
CURB P.O.C.	12+11.30	14.42'	~~384.09~~ 383.68	ISLAND
CURB P.R.C.	12+39.69	13.00'	384.33	ISLAND
CURB P.T.	13+00.16	15.13'	384.10	ISLAND
CURB P.C.	13+02.41	13.14'	384.18	ISLAND
CURB P.O.C.	13+62.16	13.00'	384.11	ISLAND



NOTE: ENCLOSURE TO ENCOMPASS THREE SIDES OF DUMPSTER PAD

DUMPSTER ENCLOSURE DETAIL

NOT TO SCALE



TYPICAL TRASH PICK-UP LOCATION

NOT TO SCALE

[seal: STATE OF MARYLAND, DONALD ALAN MASON, REGISTERED PROFESSIONAL ENGINEER, No. 21468] [signature] AS-BUILT 7/8/05

RACHEL COURT – PARKING AREA CURB DATA

LEFT SIDE

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.R.C.	0+35.20	28.03'	403.49	=L.L.P 0+47.37
CURB P.R.C.	0+66.45	12.38'	403.~~24~~ .58	=L.L.P 0+80.37
CURB P.T.	0+70.17	15.38'	403.47	
CURB	0+70.17	30.00'	~~403.91~~	403.75
CURB P.T.	1+53.45	30.00'	406.65	
CURB	1+92.51	30.00'	408.42	
CURB P.C.	1+92.51	15.00'	407.97	
CURB P.T.	1+95.51	12.00'	408.02	
CURB P.C.	1+97.98	12.00'	408.14	
CURB P.R.C.	2+00.43	12.00'	408.26	
CURB P.T.	2+02.74	14.83'	~~407.71~~	408.24
CURB	2+03.06	30.00'	~~407.85~~	408.00
CURB P.T.	2+50.34	30.00'	~~410.30~~	411.43
CURB	3+08.97	30.00'	~~413.50~~	414.40
CURB P.C.	3+08.97	14.00'	~~413.99~~	414.12
CURB P.T.	3+12.97	14.00'	414.33	
CURB	3+12.97	36.67'	~~415.01~~	415.76
CURB P.C.	3+36.97	36.67'	416.38	
CURB P.T.	3+41.97	31.50'	416.52	
CURB	3+54.97	31.50'	417.27	

RIGHT SIDE

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
CURB P.R.C.	0+37.06	25.26'	402.44	=R.L.P.0+59.46
CURB P.R.C.	0+61.45	12.00'	403.~~11~~ .27	=R.L.P.0+90.49
CURB P.T.	0+64.21	14.98'	403.29	
CURB	0+64.21	30.00'	~~403.74~~	403.40
CURB P.T.	1+53.45	30.00'	~~406.65~~	406.83
CURB	1+57.10	30.00'	406.80	
CURB P.C.	1+57.10	15.00'	406.35	
CURB P.T.	1+60.10	12.00'	406.38	
CURB P.C.	1+66.10	12.00'	~~406.63~~	406.82
CURB P.T.	1+69.10	15.00'	406.87	
CURB	1+69.10	30.00'	~~407.32~~	407.51
CURB P.C.	1+97.98	30.00'	~~408.69~~	408.94
CURB P.T.	2+50.34	30.00'	411.39	
CURB	3+08.97	30.00'	414.59	
CURB P.C.	3+08.97	14.00'	414.11	
CURB P.T.	3+12.97	14.00'	414.33	
CURB	3+12.97	36.67'	415.01	
CURB P.C.	3+36.97	36.67'	416.38	
CURB P.T.	3+41.97	31.50'	416.52	
CURB	3+54.97	31.50'	417.27	

FUTURE RANDOLPH WAY CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.*	REMARKS	DESC.	℄ STA	OFFSET	T/C ELEV.*	REMARKS
LEFT SIDE			394.72		RIGHT SIDE				
CURB P.R.C.	0+31.75	12.36'	~~394.36~~	=L.L.P 0+37.46	CURB P.R.C.	0+37	12.00'	394.18	=R.L.P.0+39.27

* NOTE: 2.0% CROSS SLOPE

PRIVATE PARKING AREA CURB DATA

DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS	DESC.	℄ STA	OFFSET	T/C ELEV.	REMARKS
LEFT SIDE					RIGHT SIDE				
CURB P.C.	0+37.59	12.00'	383.50		CURB P.T.	0+98.59	12.00'	385.13	END OF CURB
CURB P.T.	0+39.59	14.00'	383.59						
CURB	0+39.59	30.00'	384.07						
CURB	0+93.59	30.00'	384.87						
CURB P.C.	0+93.59	17.00'	384.48						
CURB P.T.	0+98.59	12.00'	384.41	END OF CURB					

STREET CENTERLINE CURVE DATA (CONT.)

CURVE	RADIUS	LENGTH	TANGENT	CHORD	DELTA	PC. STA.	PT. STA.
C7	61.58'	32.24'	16.50'	31.88'	30°00'00"	9+96.17	10+28.41
C8	165.40'	38.16'	19.17'	38.08'	13°13'09"	11+19.21	11+57.37
C9	37.00'	30.37'	16.10'	29.52'	47°01'22"	12+18.81	12+49.18

NO	DATE	REVISION
2	7-9-05	REVISED PER AS-BUILT CONDITIONS
1	5-3-04	REVISE ROUND-ABOUT AND REMOVED ISLANDS

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

[seal: STATE OF MARYLAND, REGISTERED PROFESSIONAL ENGINEER] [signature] 1/19/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O.BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1–82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154, SP-00-03, P-99-17 AND F-00-102

TITLE: **ROAD PLAN: KAISER DRIVE AND RACHEL COURT**

DATE: AUG., 2000 — PROJECT NO. 1268

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 2 OF 14

F-01-25

P:\PROJECTS\0796\DWG\701701S2.DWG

KAISER FARM

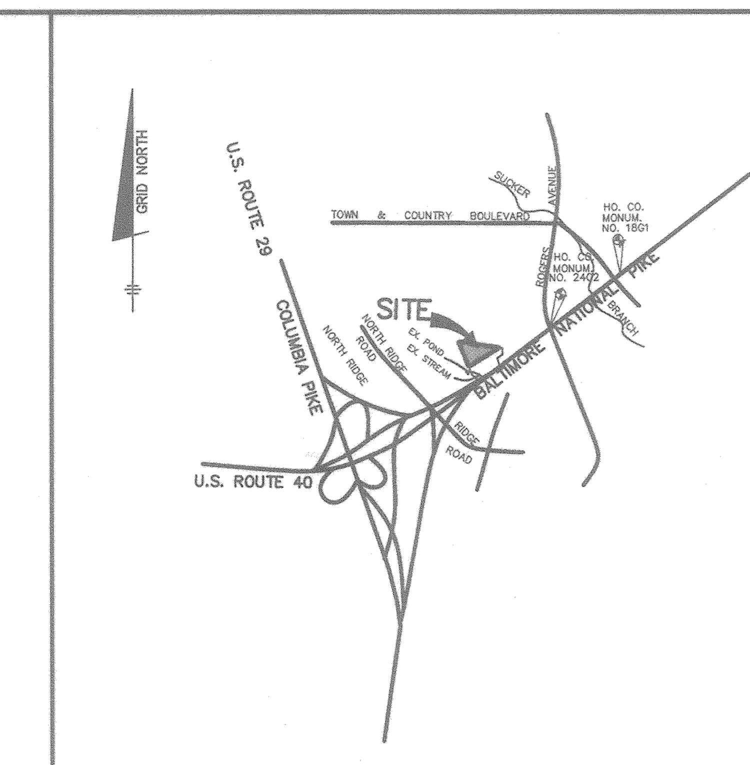
LOTS 1-82 AND PARCEL "E"

2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FINAL ROAD CONSTRUCTION, STORM DRAIN, AND STORMWATER MANAGEMENT PLANS

RIGHT OF WAY ELEVATION CHART (83)		
R/W POINT NO.	DISCRIPTION	ELEVATION
1000	CONC. MON.	401.18'
1002	PK. NAIL	401.39'
1003	PK. NAIL	403.09'
1005	REBAR & CAP	404.61'
1007	X CUT IN WALK	403.63'
1009	X CUT IN WALK	403.46'
1011	REBAR & CAP	404.66'
1013	PK. NAIL	406.09'
1014	REBAR & CAP FND	408.33'
1016	PK. NAIL	410.96'
1017	CONC. MON.	417.61'
1018	REBAR & CAP FND	417.11'
1019	PK. NAIL	410.86'
1020	PK. NAIL	408.27'
1021	PK. NAIL	406.10'
1022	CONC. MON.	403.31'
1024	REBAR & CAP	402.40'
1025	REBAR & CAP	402.36'
1027	REBAR & CAP	402.11'
1028	X CUT IN CURB	394.67'
1029	PK. NAIL	391.88'
1031	CONC. MON.	388.02'

RIGHT OF WAY ELEVATION CHART (83)		
R/W POINT NO.	DISCRIPTION	ELEVATION
1032	PK. NAIL	384.69'
1034	X CUT IN CURB	384.77'
1037	REBAR & CAP	384.43'
1038	REBAR & CAP	384.61'
1039	X CUT IN CURB	385.09'
1040	PK. NAIL	387.52'
1041	PK. NAIL	391.09'
1042	PK. NAIL	396.11'
1043	X CUT IN CURB	401.46'
1045	X CUT IN CURB	401.82'
1046	X CUT IN CURB	403.61
1048	PK. NAIL	404.28'
1049	PK. NAIL	403.07'
1050	PK. NAIL	401.44
1051	REBAR & CAP	401.11'
1237	PK NAIL	383.89'
1239	X CUT IN CURB	382.86'
1241	PK. NAIL	382.62'
1243	PK. NAIL	381.81'
1244	PK. NAIL	383.12'
1246	PK. NAIL	384.37'
1247	REBAR & CAP	386.06'



VICINITY MAP
SCALE: 1" = 2000'

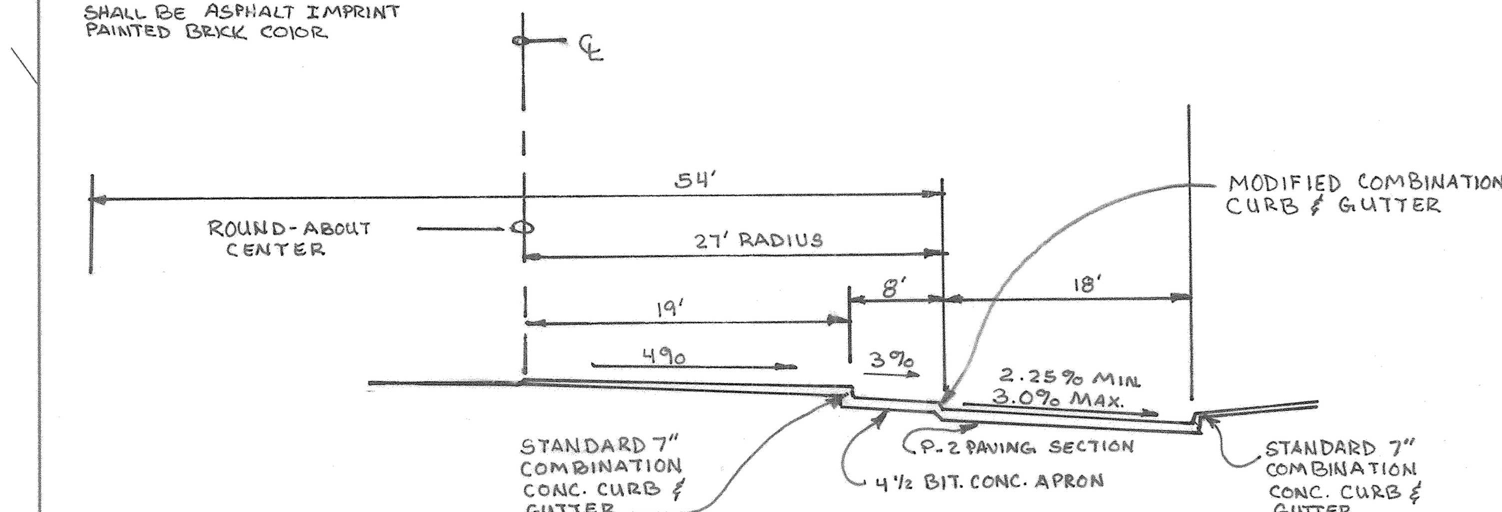
BENCH MARKS (NAD83)		
HO. CO. No. 18G1 CONC. MONUMENT AT SURFACE, 4' N. OF MAC. SHOULDER OF RT. 40 WEST 18' W. OF YELLOW BLINKING SIGNAL. N 589,984.9578	E 1,367,750.2376	ELEV. 408.542
HO. CO. No. 24C2 CONC. MONUMENT AT SURFACE 5.5' S. OF LEFT TURN LANE OF RT. 40 WEST 14' E. OF EAST EDGE OF CROSSOVER TO RT. 99 S. N 588,648.3158	E 1,366,038.1347	ELEV. 354.930

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORK/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. PROJECT BACKGROUND:
   LOCATION: TAX MAP: 17, BLOCKS 23 & 24, PARCELS 681 AND P/O 848
   ZONING: R-A-15
   ELECTION DISTRICT: 2 nd
   TOTAL TRACT AREA: 17.57 AC.
   NUMBER OF PROPOSED LOTS: 78 TOWNHOMES
   NUMBER OF PROPOSED OPEN SPACE LOT: 3
   DPZ REFERENCE FILE: SP-00-03, WP-00-31, S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154, P-99-17, F-00-102.
   PRELIMINARY PLAN APPROVED ON JAN. 12, 2000.
5. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
6. TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM FIELD RUN SURVEY DONE BY TSA GROUP, INC. DATED 7/97. CONTOURS SHOWN ARE AT 2 FOOT INTERVALS AND SUPPLEMENTED WITH TOPOGRAPHY AS SHOWN ON F-98-12.
7. COORDINATES ARE BASED ON NAD 83, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD CO. GEODETIC CONTROL STATIONS NO. 18G1 AND 24C2.
8. STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
9. THE PROJECT IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER FOR THIS PROJECT SHALL BE PUBLIC AND WILL BE PROVIDED TO THE LOTS UNDER WATER & SEWER CONTRACT NO. 14-3866-D. THE DRAINAGE AREA FOR THIS PROJECT IS THE PATAPSCO.
10. WATER QUALITY AND QUANTITY TREATMENT FOR THE PROPOSED ROADWAY AND THE SITE IS BEING PROVIDED BY EXTENDED DETENTION. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
11. WETLAND LIMITS SHOWN HEREON ARE BASED ON A DELINEATION BY ECO-SCIENCE PROFESSIONAL, INC. DATED MARCH 1995 AND APPROVED UNDER S-95-01a AND WETLAND REPORT FOR PARCELS "E" AND "F", KAISER FARM (PLAT#14295) WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED MAY, 1999.
12. ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS WAS PREPARED BY LEE CUNNINGHAM & ASSOCIATES. DATED AUGUST 1997 AND APPROVED UNDER S-95-01a, F-98-12 AND SDP-98-129.
13. NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
14. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLES-CARNES AND ASSOCIATES. DATED FEB.9, 1998.
15. EXISTING UTILITIES SHOWN ARE TAKEN FROM RECORD INFORMATION AND FIELD LOCATIONS.
16. FOREST STAND DELINEATION FOR PARCEL "I" WAS PREVIOUSLY APPROVED UNDER S-95-01a AND FOREST STAND DELINEATION PLAN FOR PARCELS "E" & "F" WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED AUGUST, 1999.
17. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFER, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK APPROVED AS PART OF THESE PLANS.
18. CONTRACTOR SHALL VERIFY ALL UTILITIES LOCATIONS PRIOR TO ANY CONSTRUCTION.
19. THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN.
20. ALL COMPACTION IN FILL AREA SHALL BE IN ACCORDANCE WITH AASHTO T-180 SPECIFICATIONS.
21. ALL SIDEWALK/HANDICAP RAMPS SHALL BE IN ACCORDANCE WITH CURRENT ADA REQUIREMENTS.

LOCATION MAP
SCALE: 1" = 200'

NOTE:
MATERIALS USED FOR ROUND-ABOUT MEDIAN SHALL BE ASPHALT IMPRINT PAINTED BRICK COLOR



ROUND-ABOUT SECTION - TYPICAL BOTH SIDES
NOT TO SCALE

SHEET INDEX

SHEET NO.	DESCRIPTION
1.	TITLE SHEET
2.	ROAD PLAN
3.	ROAD PROFILE: KAISER DRIVE AND TYPICAL SECTIONS
4.	ROAD PROFILE: RACHEL COURT AND FILLET PROFILES
5.	GRADING, SEDIMENT AND EROSION CONTROL PLAN
6.	STORM DRAIN PROFILES
7.	STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES
8-9.	STORMWATER MANAGEMENT NOTES AND DETAILS
10.	LANDSCAPE PLAN
11.	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
12.	FOREST CONSERVATION PLAN
13.	FOREST CONSERVATION NOTES AND DETAILS
14.	STORM DRAIN DRAINAGE AREA MAP

NO	DATE	REVISION
2	7-9-05	REVISED PER AS-BUILT CONDITIONS
1	5-3-04	REVISE ROUND-ABOUT AND ADDED ROUND-ABOUT CROSS SECTION AND REMOVED ISLANDS

Donald Mason
AS-BUILT 7/8/05

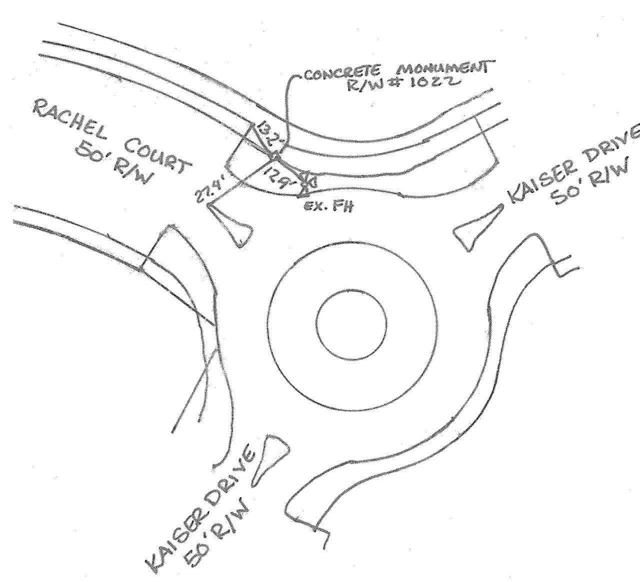
BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

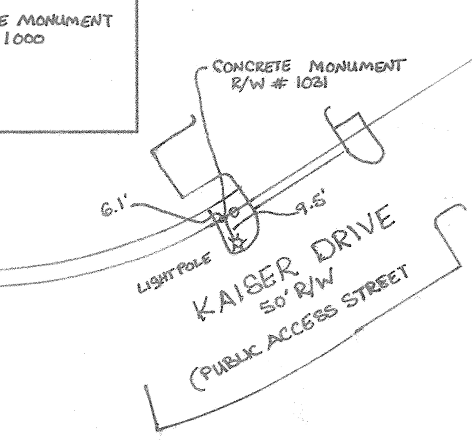
Donald Mason
1/19/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE





OWNER /DEVELOPER:	PROJECT:
KAISER FARM, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 21041 (410) 465-4244	KAISER FARM LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM
	LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681 2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154, SP-00-03, P-99-17 AND F-00-102
	TITLE: TITLE SHEET
	DATE: JULY 2000 — PROJECT NO. 1268
DES: YSL DRN: YSL CHK: DAM	SCALE: AS SHOWN — DRAWING 1 OF 14

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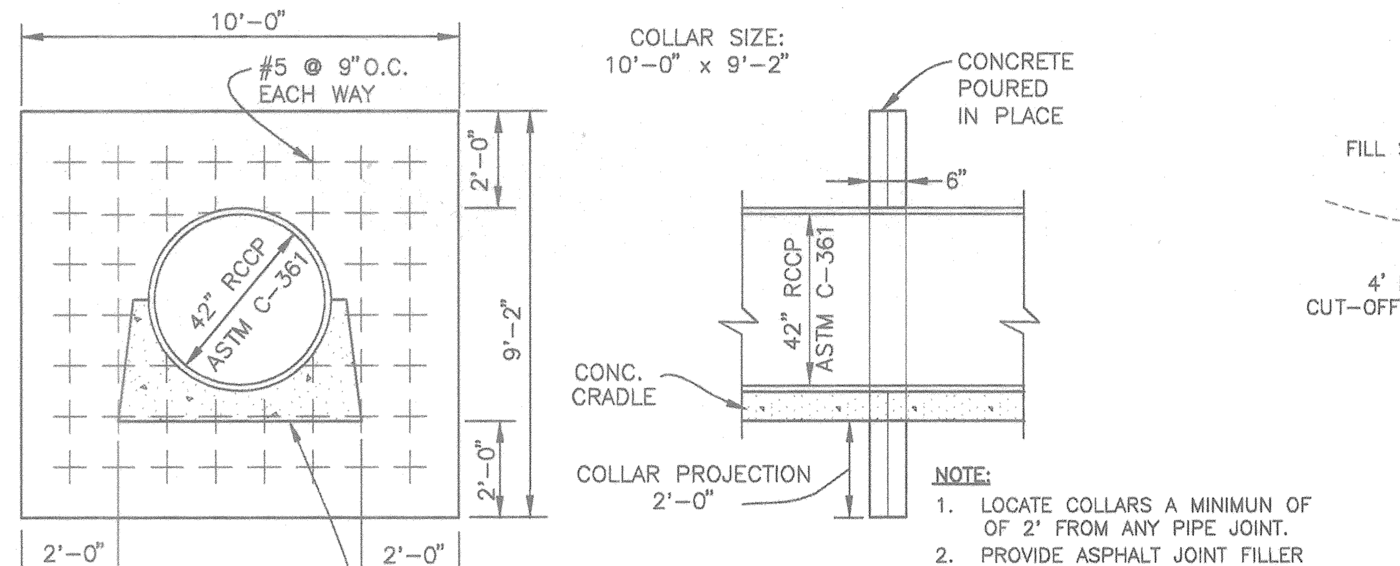
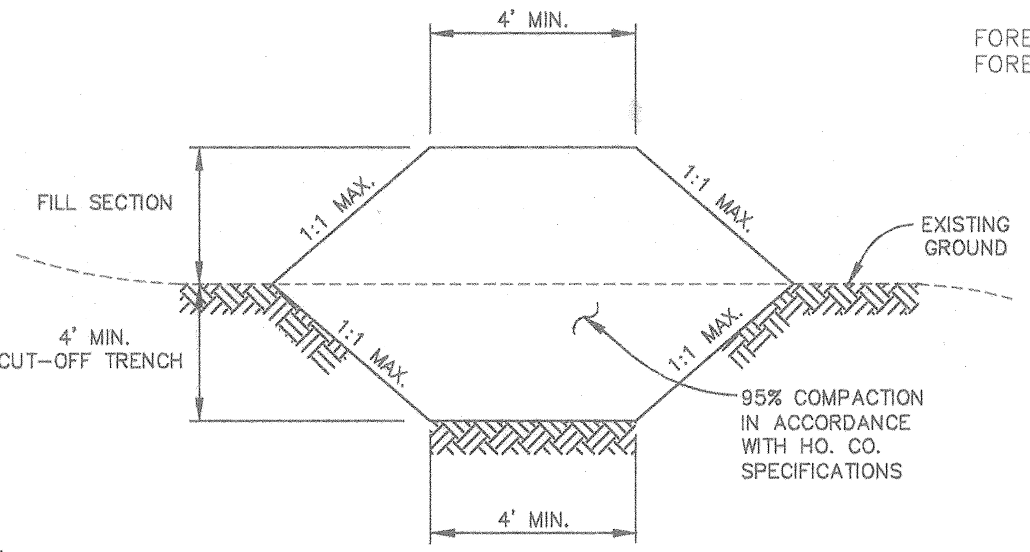
F-01-25

P:\PROJECTS\0796\dwg\700901sx1.dwg



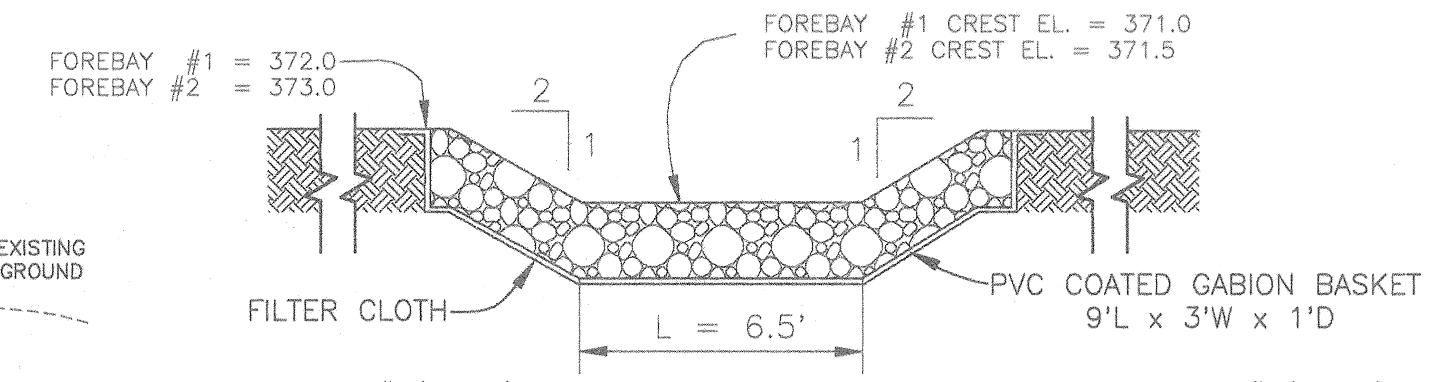
NOTE:
1. LOCATE COLLARS A MINIMUN OF OF 2' FROM ANY PIPE JOINT.
2. PROVIDE ASPHALT JOINT FILLER MATERIAL BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND CRADLE.

ANTI-SEEP COLLAR
NOT TO SCALE



NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (CL, CH, GC OR SC) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

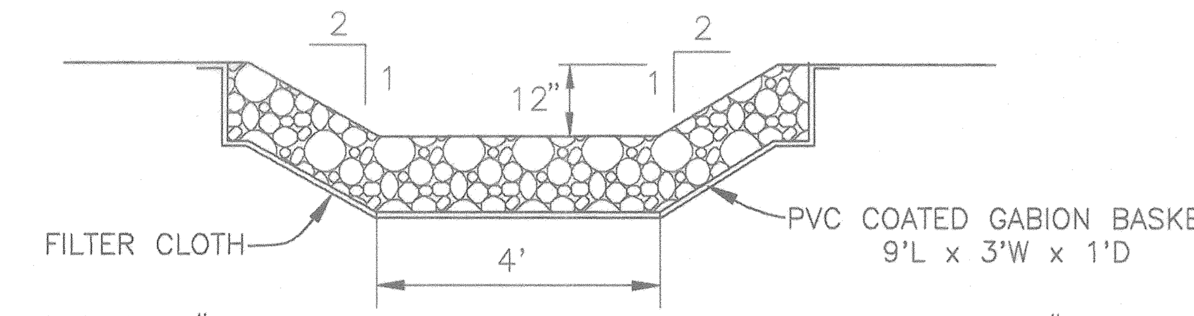
CORE TRENCH SECTION
NOT TO SCALE



FOREBAY #1(ES-3)
Q=1.97 cfs
H=0.24'
L=6.5'
C=2.5

FOREBAY #2(ES-2)
Q= 26.28 cfs
H=1.38'
L=6.5'
C=2.5

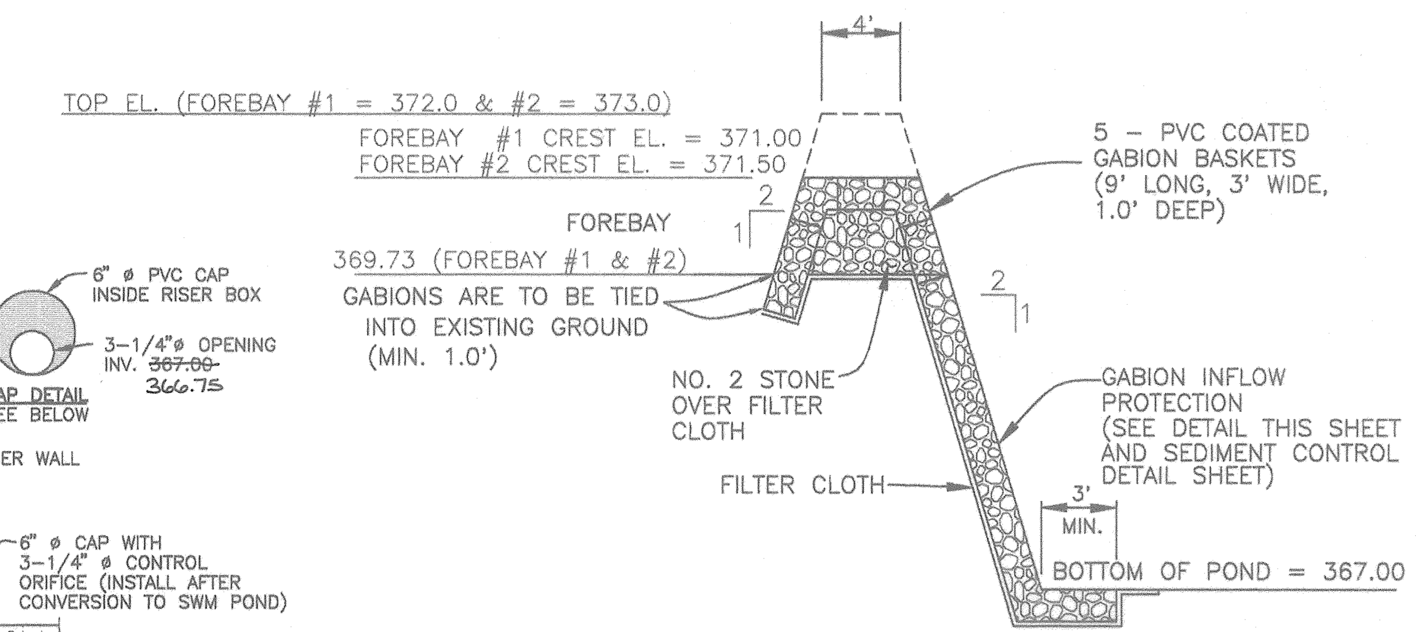
PROFILE THROUGH FOREBAY WEIR
NOT TO SCALE



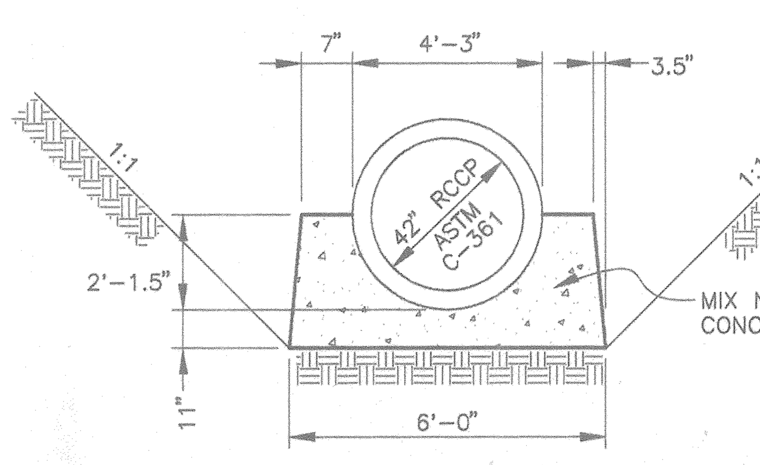
FROM FOREBAY #1
Q=1.97 cfs
n=0.03
s=0.25
b=4
z=2:1
H=0.10'

FROM FOREBAY #2
Q=26.28 cfs
n=0.03
s=0.25
b=4
z=2:1
H=0.43'

GABION INFLOW PROTECTION CHANNEL
NOT TO SCALE

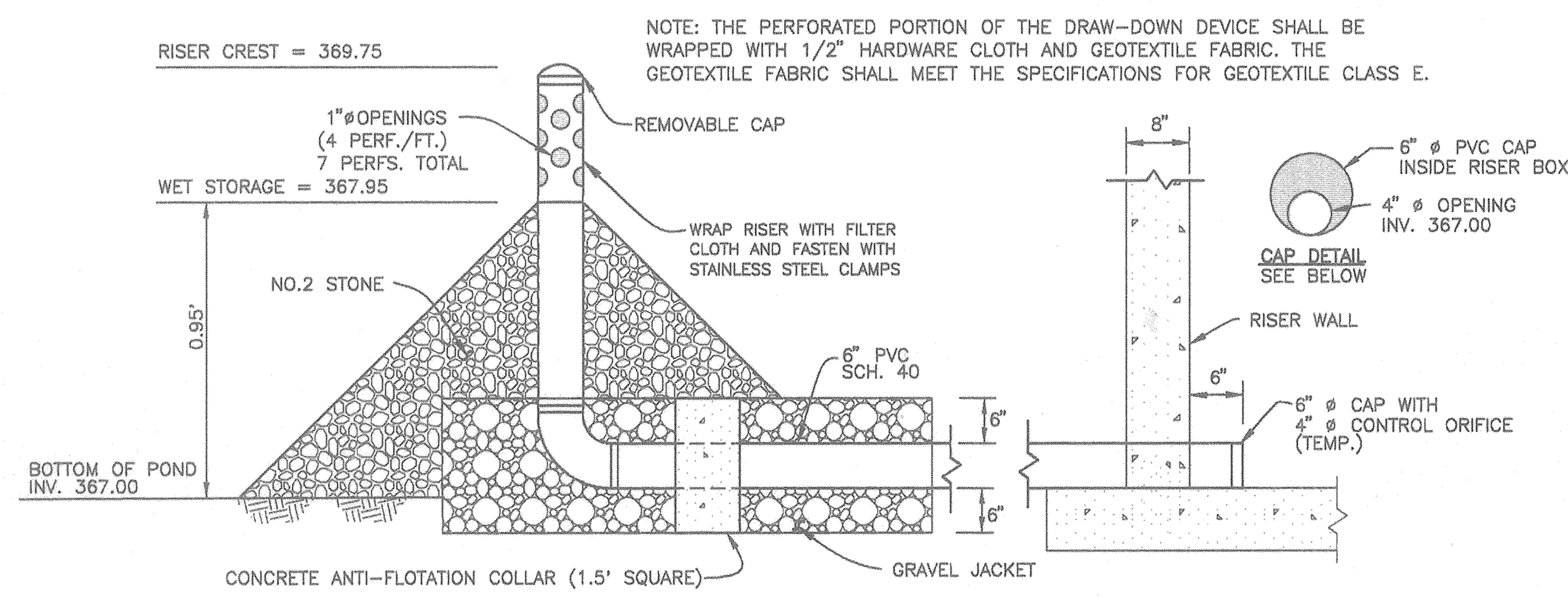


TYPICAL SECTION OF GABION WEIR AT FOREBAY
NOT TO SCALE

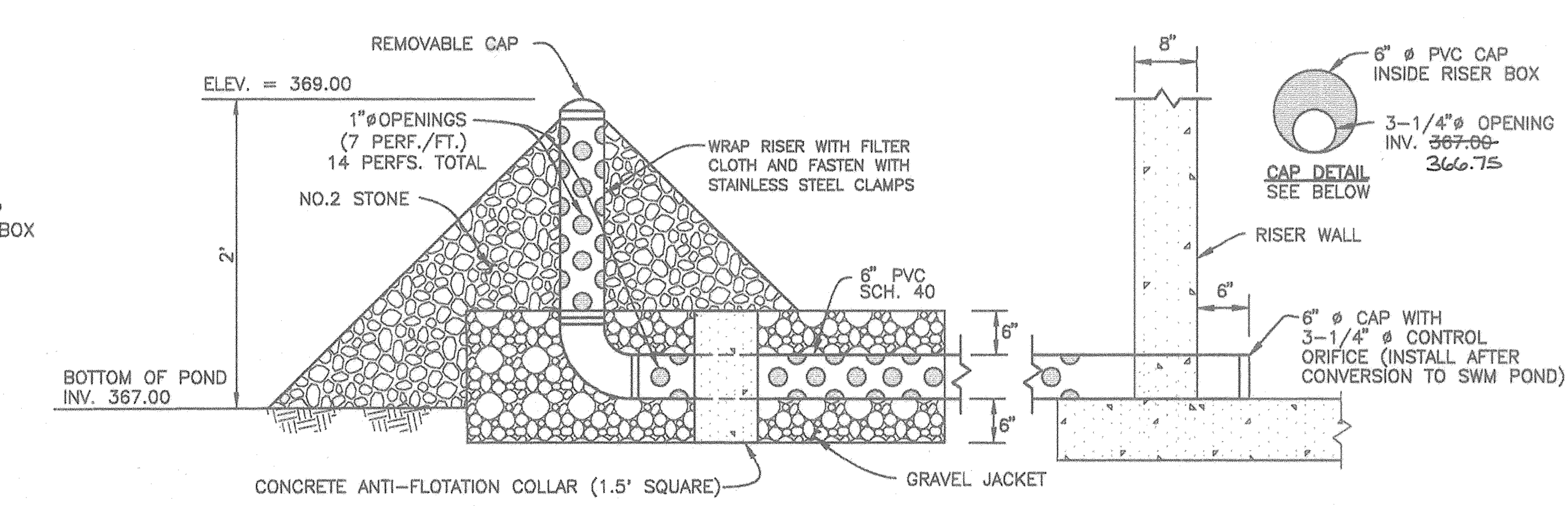


TYPE A-2 CONCRETE CRADLE
NOT TO SCALE

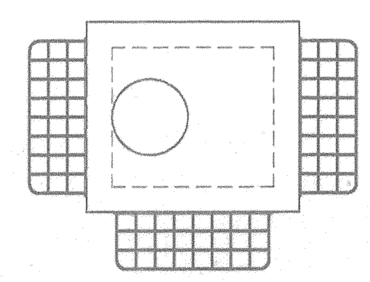
NOTE: THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.



6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE

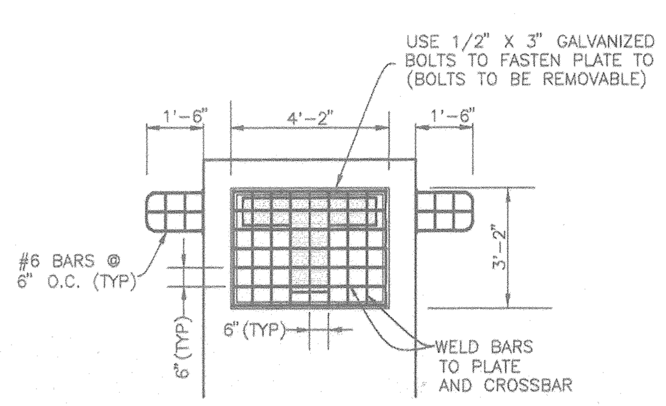


6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE

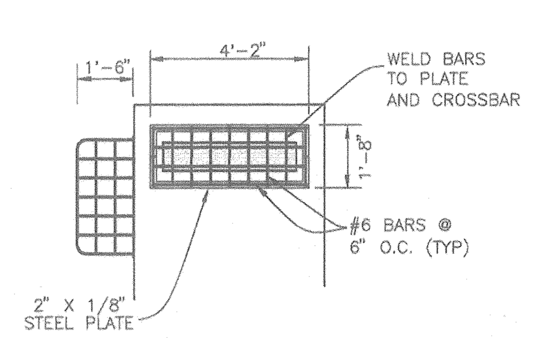


TOP VIEW

NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.

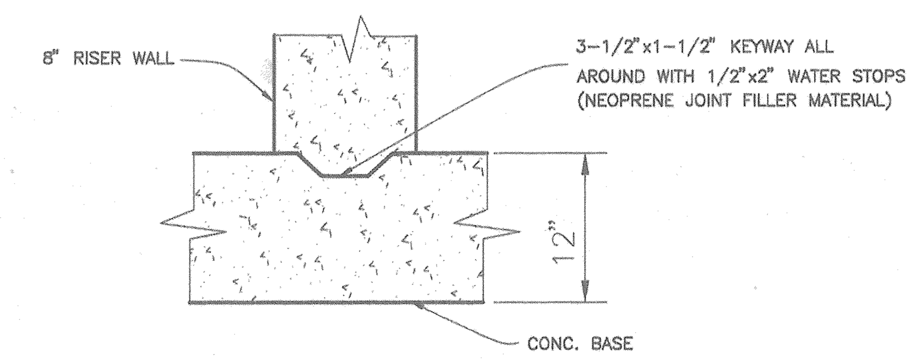


FRONT ELEVATION

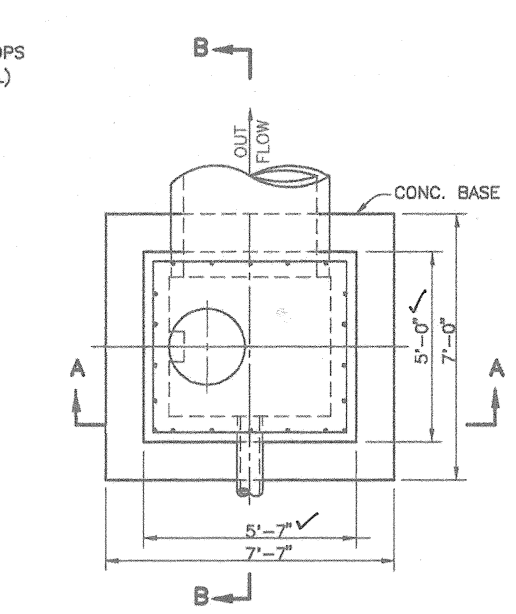


SIDE ELEVATION

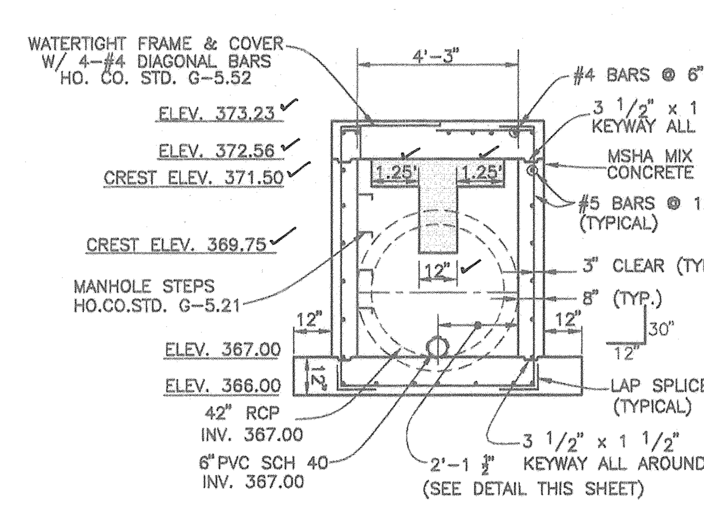
TRASH RACK
SCALE: 1" = 4'



KEYWAY DETAIL
NOT TO SCALE

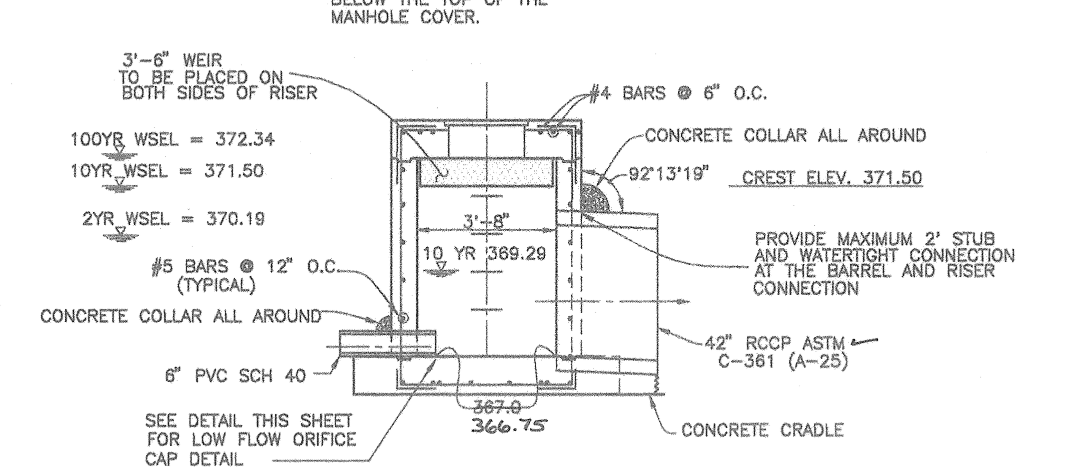


PLAN



SECTION A-A
FRONT VIEW

NOTE:
TOP MANHOLE STEP SHALL BE A MAXIMUM OF 2'-0" BELOW THE TOP OF THE MANHOLE COVER.



SECTION B-B
SIDE VIEW

CONTROL STRUCTURE DETAIL
SCALE: 1" = 4'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS *[signature]* 2-19-01 CHIEF, BUREAU OF HIGHWAYS DATE	APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. *[signature]* 2/13/01 HOWARD SOIL CONSERVATION DISTRICT DATE ACTING DIST. MGR.
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING *Cindy Hamilton* 2/28/01 CHIEF, DIVISION OF LAND DEVELOPMENT DATE *[signature]* 2/26/01 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE	APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL. *[signature]* 2/13/01 USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

Donald Mason [seal: STATE OF MARYLAND, DONALD ALAN MASON, NO. 21443, REGISTERED PROFESSIONAL ENGINEER]
AS-BUILT 7/8/05

OPERATION, MAINTENANCE AND INSPECTION NOTE
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST 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 CONTINUED 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.

AS-BUILT CERTIFICATION
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Donald Mason
DONALD A. MASON
PE NO. 21443
DATE 7/8/05

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."

James R. Moxley III 1/19/01
DEVELOPER - KAISER FARM, L.L.C. DATE

BY THE ENGINEER:

"I/WE 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."

Donald Mason 1/19/01
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

NO	DATE	REVISION
1	7-9-05	REVISED PER AS-BUILT CONDITIONS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

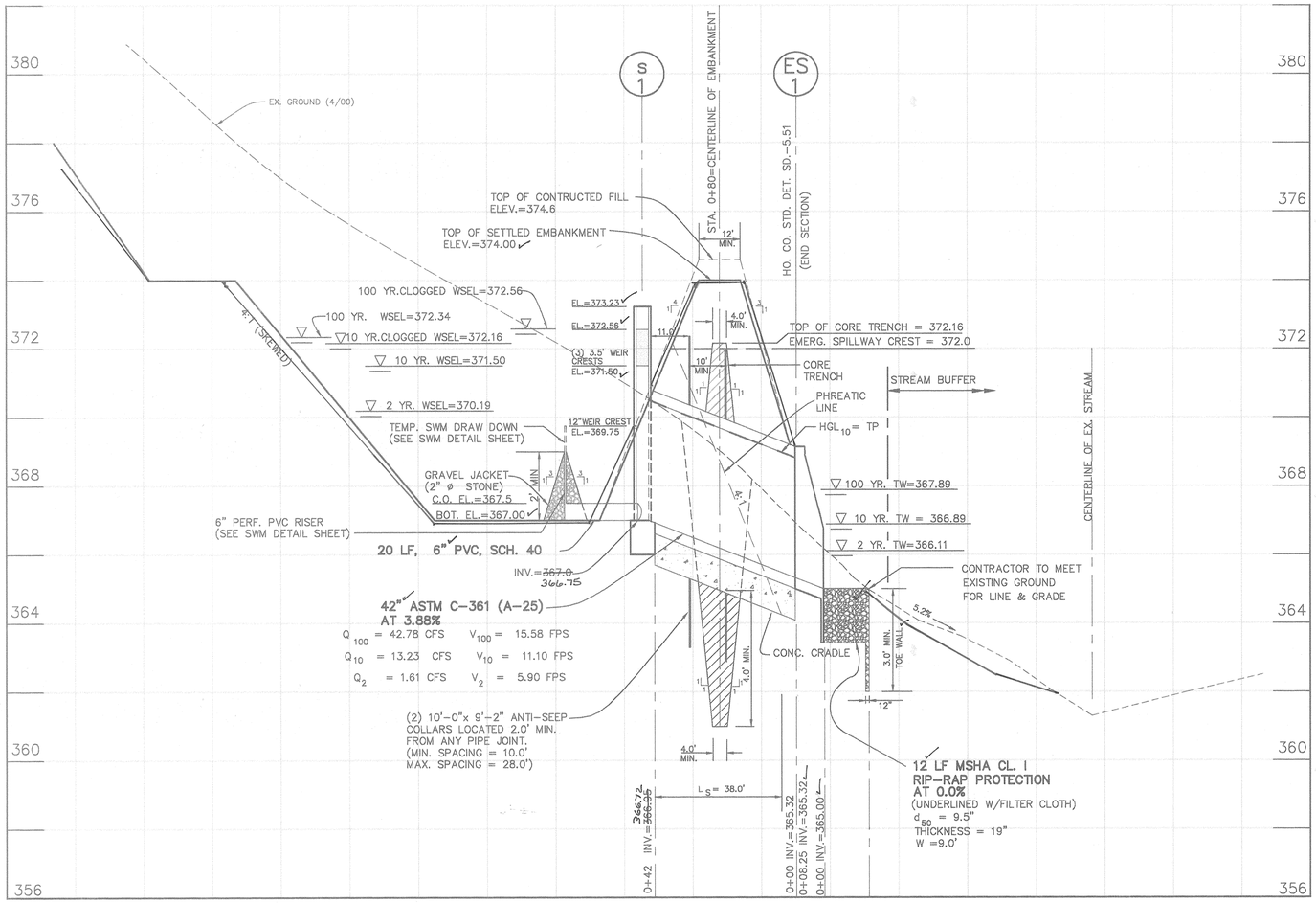
Donald Mason [seal: STATE OF MARYLAND, DONALD ALAN MASON, NO. 21443, REGISTERED PROFESSIONAL ENGINEER] 1/19/01

OWNER /DEVELOPER: KAISER FARM, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 21041 (410) 465-4244	PROJECT: **KAISER FARM** LOTS 1-82 AND PARCEL "E" A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681 2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND REFERENCE FILE: S-95-01a, P-97-02, F-98-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102 TITLE: **STORMWATER MANAGEMENT NOTES AND DETAILS** DATE: AUG.,2000 PROJECT NO. 1268

DES: MLV	DRN: CAD	CHK: DAM	SCALE: AS SHOWN	DRAWING 8 OF 14

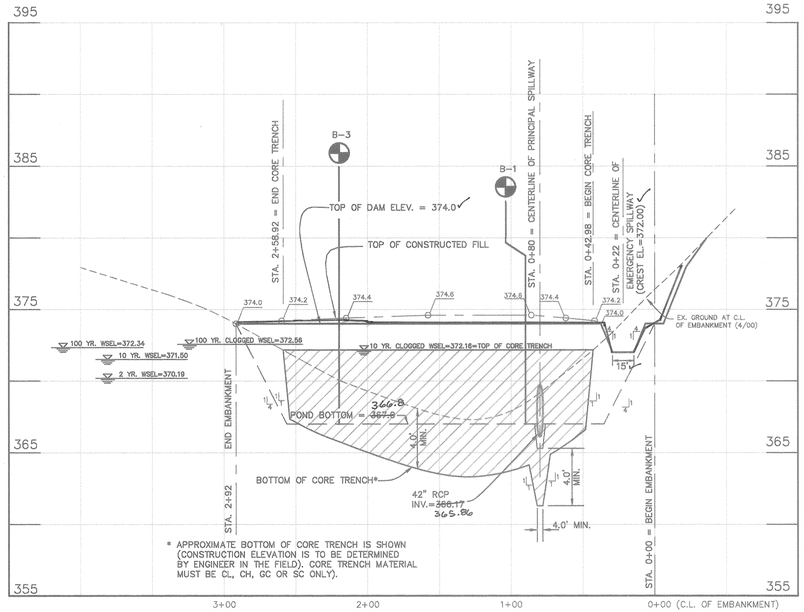
P:\PROJECTS\0796\DWG\70240181.DWG

F-01-25



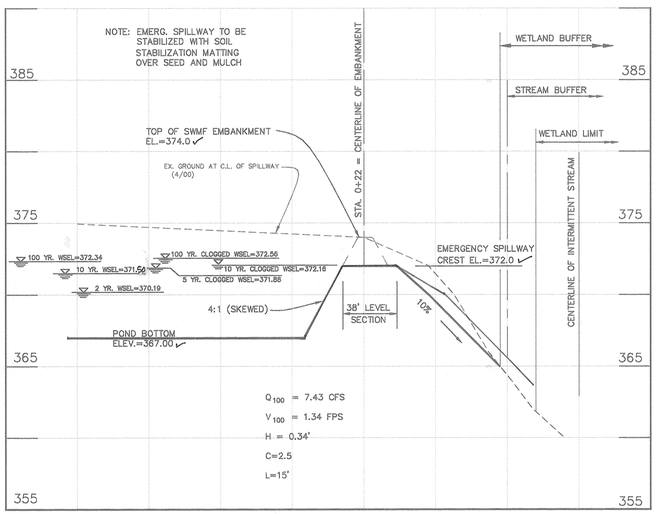
SECTION THRU PRINCIPAL SPILLWAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



PROFILE ALONG CENTERLINE OF EMBANKMENT

HOR.: 1" = 50'
SCALE: VERT. 1" = 5'



SECTION THRU EMERGENCY SPILLWAY

SCALE: HOR.: 1" = 50'
VERT. 1" = 5'

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. RECOMMENDATIONS

Embankment and Cut-off trench Construction

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dumptruck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the geotechnical Engineer should be present to monitor placement and compaction of fill for each embankment and cut-off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Per SCS 378, consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer. Any materials for core and cut-off trench construction should be tested prior to placement to determine its suitability. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications (that is, to a minimum of 95 percent of the Standard Proctor maximum dry density).

Additionally, the following procedures should be utilized to construct the proposed embankments:

1. Slope construction should commence at the toes of the proposed slopes and continue upwards as additional fill is placed. The engineered fill placed for slope construction should be benched into the natural slopes in the abutment areas to provide good contact and to prevent the presence of weak zones.
2. Typically during slope construction, compaction equipment has difficulty compacting soils along the shoulder. It is therefore important that the bank be overfilled during slope construction and then cut back to the required geometry.
3. After construction, the slopes should be promptly vegetated to prevent erosion. Also, to prevent erosion from occurring prior to sprouting of the vegetation, the slopes should be protected with straw or an erosion control geotextile.
4. The embankment construction should be done under the supervision of an experienced soil inspector or the Geotechnical Engineer. Sufficient testing during fill placement should be done to verify adequate compaction.

OPERATION, MAINTENANCE AND INSPECTION NOTE

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AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Donald Mason — DONALD A. MASON — PE NO. 21443 — DATE 7/8/05

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."

James R. Mosley III. — DEVELOPER - KAISER FARM, LLC — DATE 1/9/01

BY THE ENGINEER:

"I/WE 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."

Donald Mason — ENGINEER - DONALD A. MASON, P.E. # 21443 — DATE 1/9/01

NO	DATE	REVISION
⚠	7-9-05	REVISED PER AS-BUILT CONDITIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

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

HOWARD SOIL CONSERVATION DISTRICT — ACTING DIST. MGR. — DATE 2/12/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/08/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/9/01

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE 2/13/01

Donald Mason — STATE OF MARYLAND — DONALD A. MASON — REG. NO. 21443 — REGISTERED PROFESSIONAL ENGINEER — AS-BUILT 7/8/05

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

Donald Mason — STATE OF MARYLAND — DONALD A. MASON — REG. NO. 21443 — REGISTERED PROFESSIONAL ENGINEER — 1/9/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: KAISER FARM
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-85-01a, P-87-02, F-96-91, F-98-12, S-98-05, SDP-98-125, F-86-180, F-86-154,SP-00-03,P-99-17 AND F-00-102

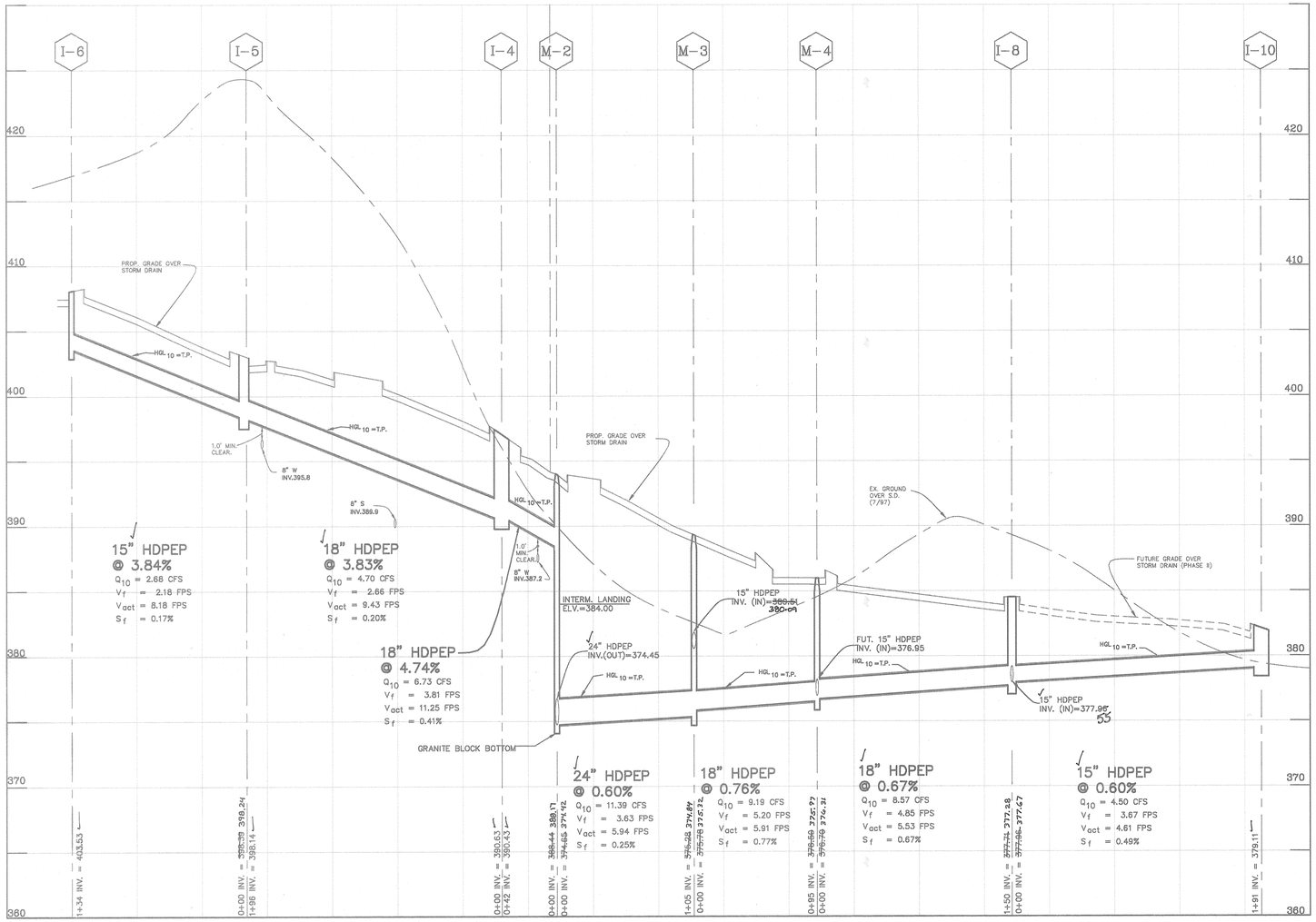
TITLE: STORMWATER MANAGEMENT FACILITY PROFILES AND NOTES

DATE: AUG., 2000 — PROJECT NO. 1268

DES: MLV | DRN: CAD | CHK: DAM | SCALE: AS SHOWN | DRAWING 7 OF 14

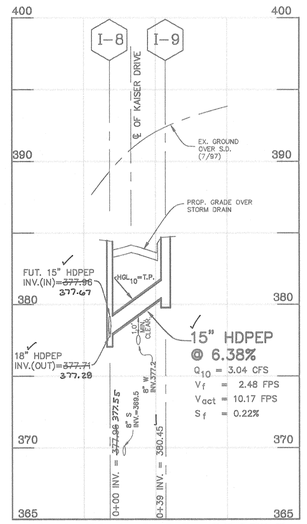
P:\PROJECTS\1268\DWG\1268H02.DWG

F-01-25



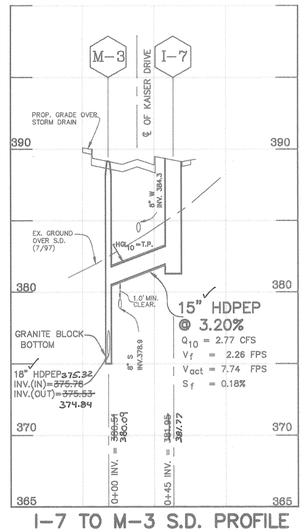
STORM DRAIN PROFILE AT KAISER DRIVE AND RACHEL CT.

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



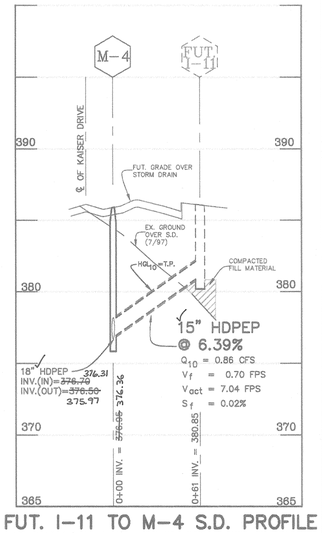
I-9 TO I-8 S.D. PROFILE

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



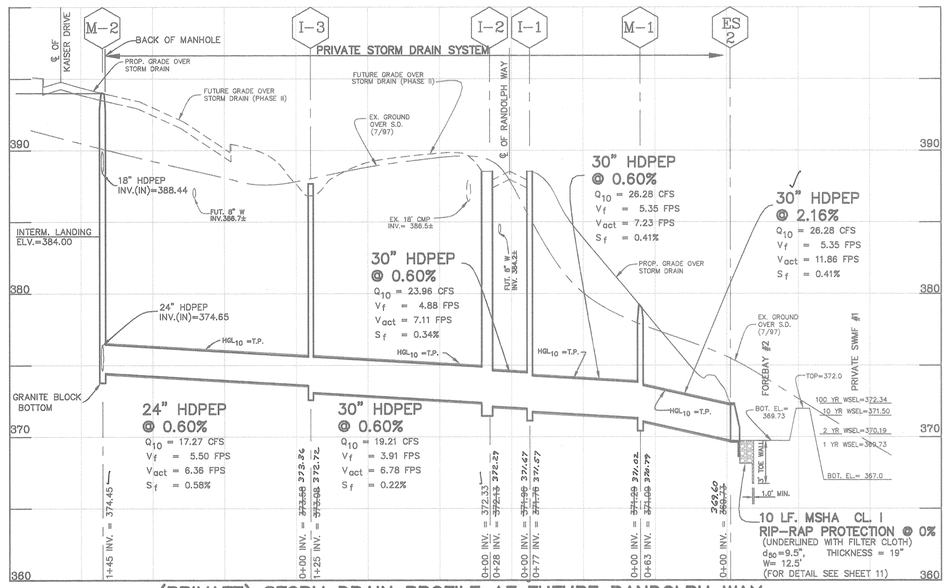
I-7 TO M-3 S.D. PROFILE

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



FUT. I-11 TO M-4 S.D. PROFILE

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"



(PRIVATE) STORM DRAIN PROFILE AT FUTURE RANDOLPH WAY

SCALE: HOR.: 1" = 50'
VER.: 1" = 5"

STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	INVERT (OUT)	INVERT (IN)	INVERT (IN)	TOP ELEVATION	LOCATION	REMARKS
I-1	"A-10" INLET (WIDTH=2.5')	~~377.79~~ 377.67	~~377.66~~ 377.57	---	388.55	STA. 2+99.55 12.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-2	"A-10" INLET (WIDTH=3.5')	~~372.13~~ 372.29	372.33	---	388.55	STA. 2+99.55 12.00' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.41
I-3	TYPE "D" INLET	~~373.66~~ 372.72	~~373.59~~ 372.56	---	~~389.00~~ 387.87	STA. 1+73.43 23.11' O/S LT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. SD-4.39 (PRECAST)
I-4	"A-10" INLET (WIDTH=2.5')	390.43	390.63	---	~~397.21~~ 397.01	STA. 5+98.47 12.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-5	"A-10" INLET (WIDTH=3.0')	398.14	~~398.39~~ 398.24	---	~~402.09~~ 403.55	STA. 0+87.74 14.22' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-6	"A-10" INLET (WIDTH=2.5')	403.53	---	---	408.01	STA. 2+02.96 24.34' O/S LT. RACHEL COURT	HOWARD COUNTY STD. SD-4.41
I-7	"A-10" INLET (WIDTH=2.5')	~~381.39~~ 381.77	---	---	389.23	STA. 7+44.30 24.34' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-8	"A-5" INLET (WIDTH=3.0')	~~377.28~~ 377.28	377.08 (15" ø)	~~377.08~~ (15" ø) 377.08	~~384.41~~ 384.11	STA. 9+91.22 12.00' O/S RT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.40
I-9	"A-10" INLET (WIDTH=2.5')	380.45	---	---	383.84	STA. 13+80.97 14.44' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. SD-4.41
I-10	"A-10" INLET (WIDTH=3.0')	379.11	---	---	382.04	N 588981.7859 E 1365445.7422	HOWARD COUNTY STD. SD-4.41
ES-2	END SECTION	~~369.72~~ 369.22	---	---		N 589080.1020 E 1365115.9907	HOWARD COUNTY STD. 05.51
MH-1	MANHOLE	~~371.09~~ 370.79	371.02 ~~371.29~~	---	~~376.00~~ 378.73	N 589069.1589 E 1365052.5022	HOWARD COUNTY STD. 05.11
MH-2	MANHOLE	374.45	374.65 (24" ø)(SE)	388.44 (18" ø)(NW) 388.67	~~393.97~~ 393.73	STA. 0+29.01 5.00' O/S RT. FUT. RANDOLPH WAY	HOWARD COUNTY STD. 05.11
MH-3	MANHOLE	374.84 ~~378.28~~	~~375.79~~ 375.32 (18" ø)(SE)	~~380.61~~ 380.09 (15" ø)(SW)	389.15	STA. 7+46.20 19.00' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. 05.11
MH-4	MANHOLE	~~376.50~~ 375.97	376.70 ±31 (18" ø)(SE)	376.84 ±30 (15" ø)(NW)	385.97	STA. 8+47.59 18.91' O/S LT. KAISER DRIVE	HOWARD COUNTY STD. 05.11
ES-3	END SECTION	370.33				N 589264.46 E 1365,128.846	HOWARD COUNTY STD. 05.51

NOTES: 1.) STRUCTURE ELEVATION FOR MANHOLE IS AT THE TOP CENTER OF THE RIM.
2.) STRUCTURE ELEVATION FOR THE INLET IS THE TOP OF CURB ELEVATION LOCATED AT THE MID-POINT OF THE INLET.

PIPE SCHEDULE

LOCATION	SIZE & TYPE	LENGTH (ft)
M-1 TO ES-2	30"√HDPEP	63'
M-1 TO I-1	30"√HDPEP	77'
I-1 TO I-2	30"√HDPEP	28'
I-2 TO I-3	30"√HDPEP	125'
I-3 TO M-2	24"√HDPEP	145'
M-2 TO I-4	18"√HDPEP	42'
I-4 TO I-5	18"√HDPEP	196'
I-5 TO I-6	15"√HDPEP	134'
M-2 TO M-3	24"√HDPEP	105'
M-3 TO M-4	18"√HDPEP	95'
M-4 TO I-8	18"√HDPEP	150'
I8 TO I10	15"√HDPEP	191'
I-8 TO I-9	15"√HDPEP	39'
M-3 TO I-7	15"√HDPEP	45'
M4 TO FUT. I11	15"√HDPEP	61'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-10-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/08/05

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/4/05

NO	DATE	REVISION
⚠	7-9-05	REVISED PER AS-BUILT CONDITIONS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD MOAN — No. 21615 — PROFESSIONAL ENGINEER
Donald Moan 1/9/01

AS-BUILT 7/8/05

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-47244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL 'I', HOENES PROPERTY,AND PARCELS "E" AND "I", KAISER FARM

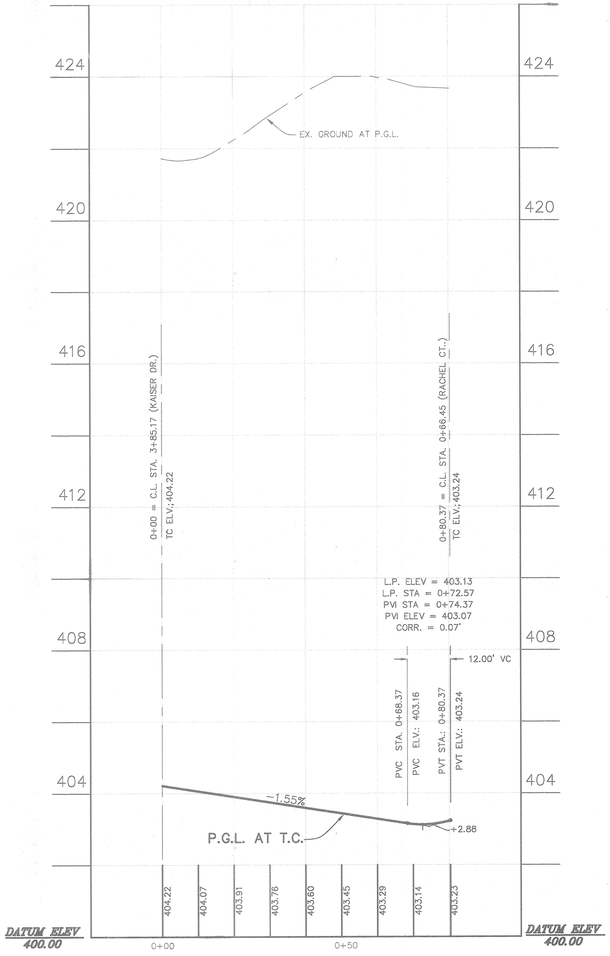
LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILES: S-95-016, P-97-02, F-96-91, F-98-12, S-98-05, SDP-88-129, F-88-180, F-88-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **STORM DRAIN PROFILES**

DATE: JULY,2000 — PROJECT NO. 1268
DES: YSL — DRN: YSL — CHK: DAM — SCALE: AS SHOWN — DRAWING 6 OF 14

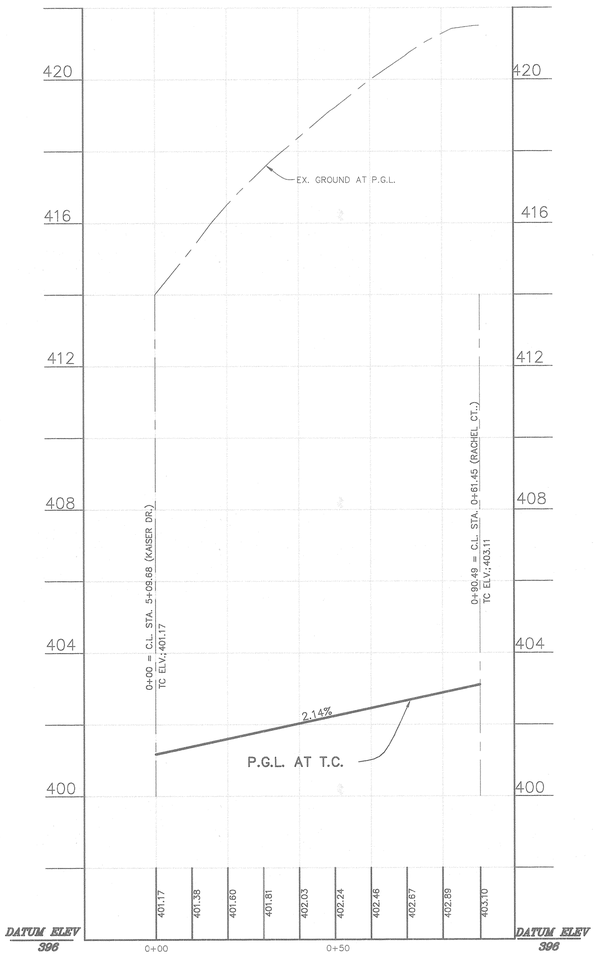
F-01-25

P:\PROJECTS\0795\DWG\704401SX1.DWG



FILLET AT LEFT OF RACHEL CT.

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



FILLET AT RIGHT OF RACHEL CT.

SCALE: HOR.: 1" = 20'
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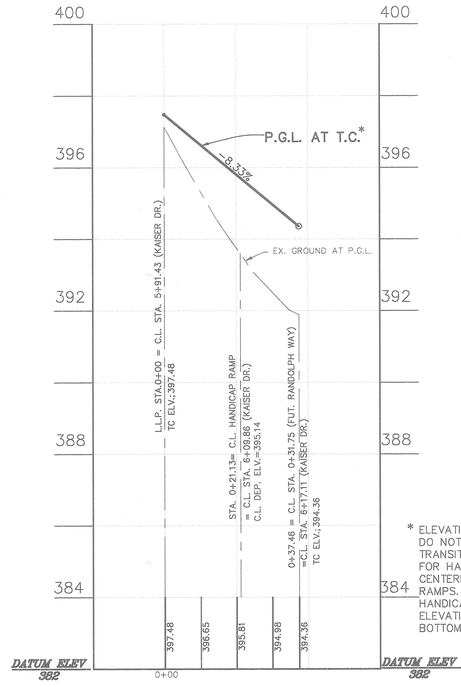
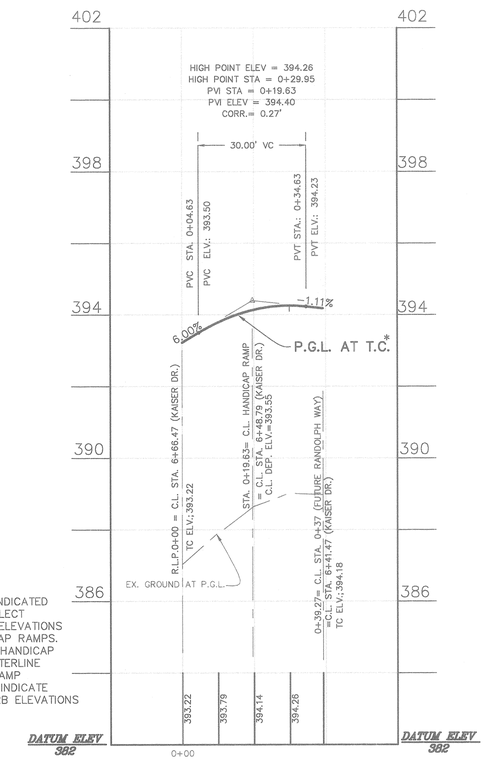


* ELEVATION INDICATED DO NOT REFLECT TRANSITION ELEVATIONS FOR HANDICAP RAMPS. CENTERLINE HANDICAP RAMPS. CENTERLINE HANDICAP RAMP ELEVATIONS INDICATE BOTTOM CURB ELEVATIONS

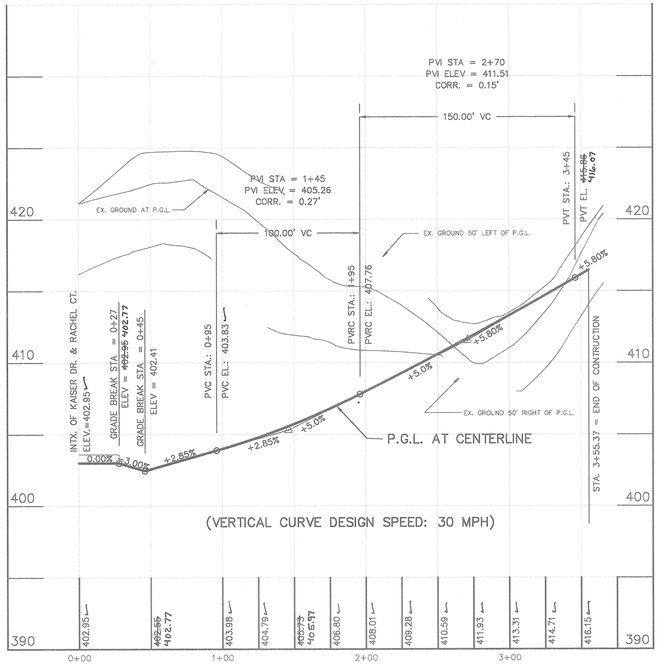
FILLET AT LEFT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



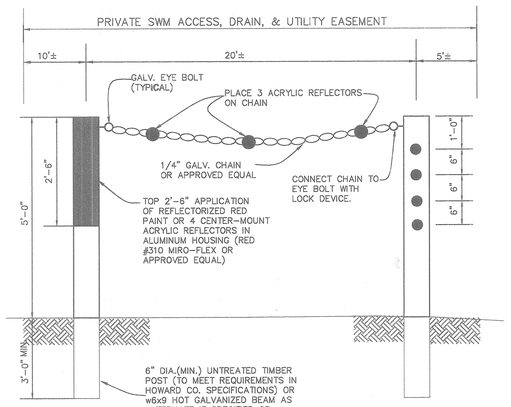
FILLET AT RIGHT OF RANDOLPH WAY

SCALE: HOR.: 1" = 20'
VERT. 1" = 2'



RACHEL COURT: PUBLIC ACCESS PLACE
(DESIGN SPEED: 25 MPH)

SCALE: HOR.: 1" = 50'
VERT. 1" = 5'



TEMP. BARRICADE DETAIL

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/28/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/19/01

STATE OF MARYLAND — DONALD MASON — REGISTERED PROFESSIONAL ENGINEER

AS-BUILT 7/8/05

NO	DATE	REVISION
⚠	7-9-05	REVISED PER AS-BUILT CONDITIONS

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD MASON — REGISTERED PROFESSIONAL ENGINEER

1/26/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O.BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILES: S-95-016, F-97-92, F-96-91, F-98-12, S-98-05, SDP-88-128, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **ROAD PROFILE: RACHEL COURT AND FILLET PROFILES**

DATE: AUG.,2000 — PROJECT NO. 1268

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 4 OF 14

F-01-25

P:\PROJECTS\0795\DWG\70170154.DWG

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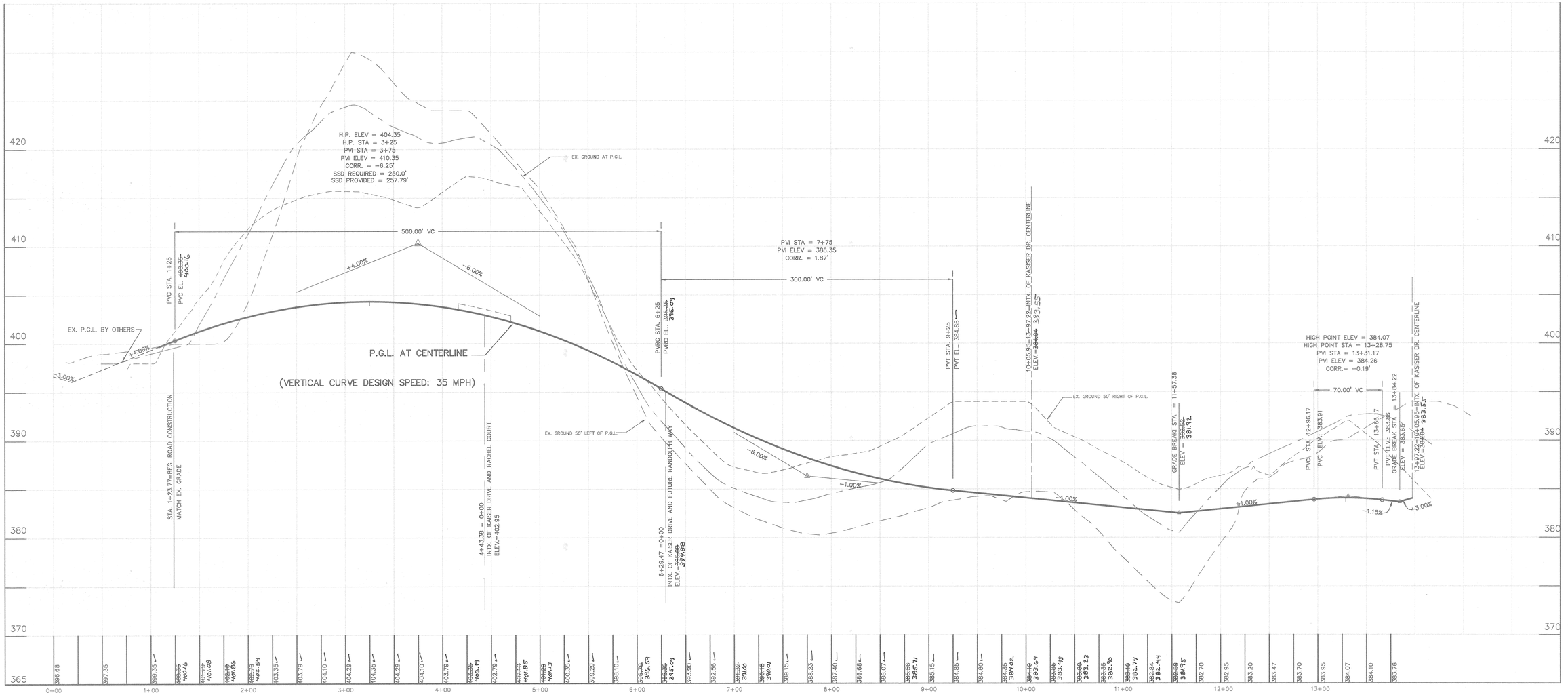
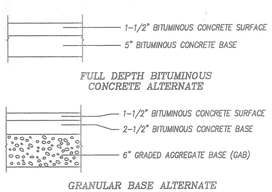


KAISER DRIVE: PUBLIC ACCESS STREET

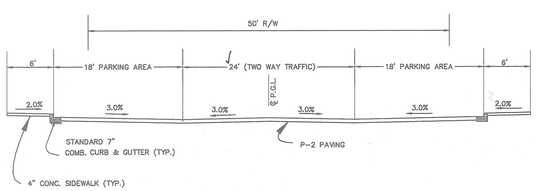
(DESIGN SPEED: 30 MPH)

SCALE: HOR.: 1" = 50'
VERT. 1" = 5'



PAVING SECTION P-2

NOT TO SCALE

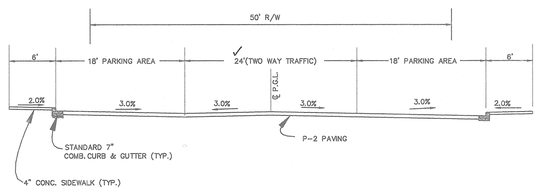


TYPICAL ROAD AND PARKING SECTION DETAIL

KAISER DRIVE : DESIGN SPEED=30 MPH (FROM STA. 1+43.40 TO 3+80.05 , 5+12.46 TO 6+28.11 AND 7+57.34 TO 9+86.26)
(PUBLIC ACCESS STREET)

RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 0+64.21 TO 1+92.51 AND 3+12.97 TO 3+36.97)
(PUBLIC ACCESS PLACE)

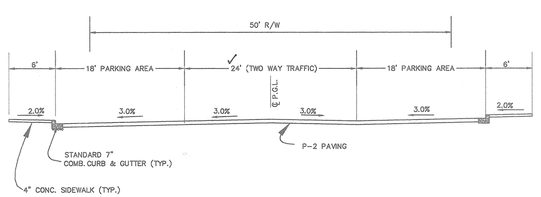
NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL

KAISER DRIVE : DESIGN SPEED=30 MPH (FROM STA. 6+40.11 TO 7+44.26)
(PUBLIC ACCESS STREET)

NOT TO SCALE



MODIFIED ROAD AND PARKING SECTION DETAIL

RACHEL CT. : DESIGN SPEED= 25 MPH (FROM 2+03.06 TO 3+08.97)
(PUBLIC ACCESS PLACE)

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 2-19-01

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/25/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/14/01

STATE OF MARYLAND — DONALD MASON — REGISTERED PROFESSIONAL ENGINEER

AS-BUILT 7/3/05

NO	DATE	REVISION
⚠	7-9-05	REVISED PER AS-BUILT CONDITIONS

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STATE OF MARYLAND — DONALD MASON — REGISTERED PROFESSIONAL ENGINEER

1/19/01

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PROJECT: **KAISER FARM**
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2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01e, P-97-02, F-98-01, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **ROAD PROFILE: KAISER DRIVE AND TYPICAL SECTIONS**

DATE: AUG., 2000 — PROJECT NO. 1268

DES: YSL | DRN: YSL | CHK: DAM | SCALE: AS SHOWN | DRAWING 3 OF 14

P:\PROJECTS\07951\DWG\701701SX3.DWG

P:\PROJECTS\2761\DWG\701701S3.DWG

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS

PROHIBITED

VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1992

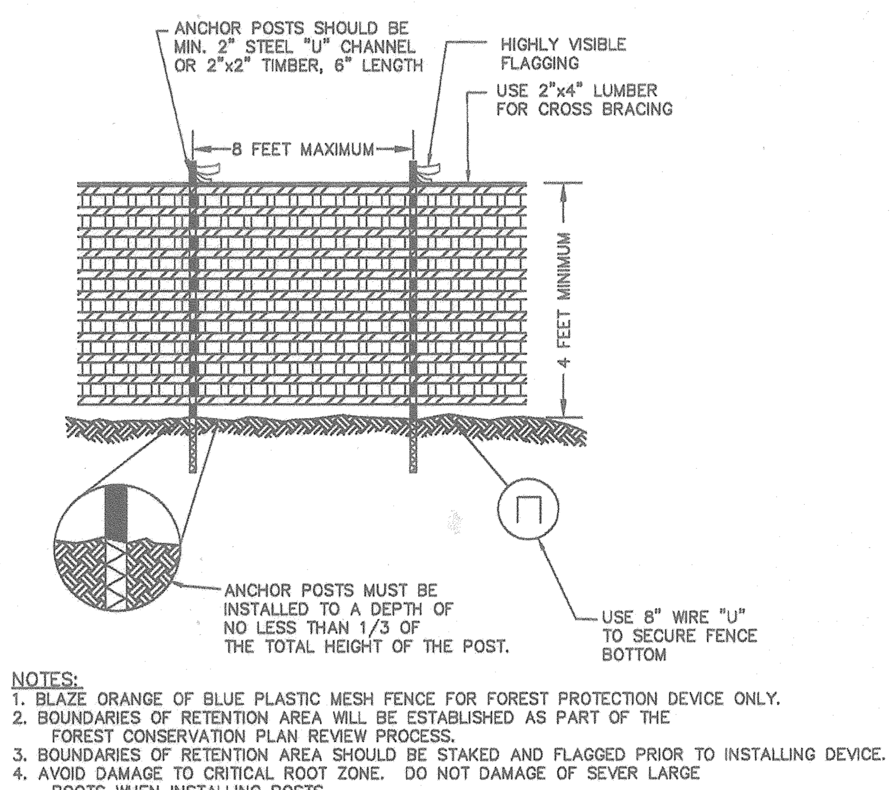
MIN. 15" / MIN. 11"

Forest Conservation Area

REFORESTATION PROJECT

Trees for Your Future

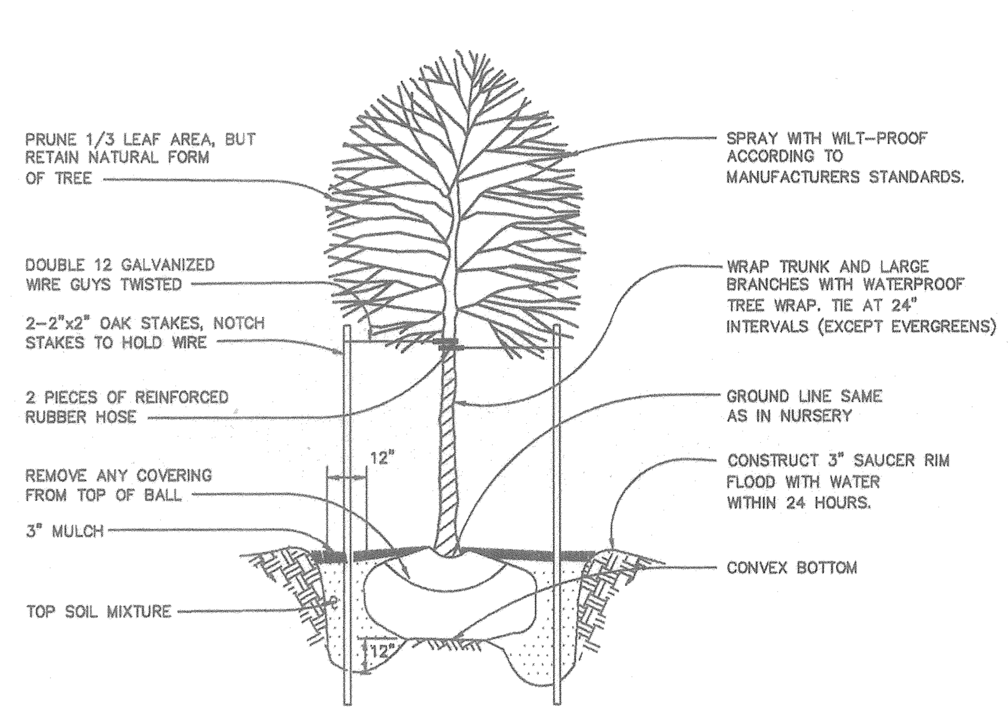
MIN. 15" / MIN. 11"



NOTES:
1. BLAZE ORANGE OF BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE ONLY.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OF SEVER LARGE ROOTS WHEN INSTALLING POSTS.
5. PROTECTIVE SIGNS ARE REQUIRED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

ADAPTED FROM PRINCE GEORGE'S COUNTY, MARYLAND. WOODLAND CONSERVATION MANUAL AND FOREST CONSERVATION MANUAL, 1991.

PLASTIC MESH TREE PROTECTION FENCE



TREE PLANTING DETAIL

NOT TO SCALE

PLANTING/SOIL SPECIFICATIONS

1. PLANTING OF NURSERY STOCK SHALL TAKE PLACE BETWEEN MARCH 15TH AND APRIL 30TH OR SEPTEMBER 15TH – NOVEMBER 15TH.
2. A TWELVE (12) INCH LAYER OF TOPSOIL SHALL BE SPREAD OVER ALL FORESTATION AREAS IMPACTED BY SITE GRADING TO ASSURE A SUITABLE PLANTING AREA. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. ALL BAREROOT PLANTING STOCK SHALL HAVE THEIR ROOT SYSTEMS DIPPED INTO AN ANTI-DESICANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE.
5. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS.
6. A TWO (2) INCH LAYER OF HARDWOOD MULCH SHALL BE PLACED OVER THE ROOT AREA OF ALL PLANTINGS.
7. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
8. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLANS.
2. PROPOSED FORESTATION AREAS IMPACTED BY SITE GRADING SHALL BE TOPSOILED AND STABILIZED AS PER #2 OF PLANTING/SOIL SPECIFICATIONS FOR PROJECT.
3. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
4. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.
5. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.

MAINTENANCE OF PLANTINGS

1. MAINTENANCE OF ALL PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED FROM FORESTATION AREAS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
4. PLANTS WILL BE EXAMINED A MINIMUM OF TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON. AFTER ONE GROWING SEASON, PLANT MATERIAL SHALL BE MAINTAINED AT 90% SURVIVAL THRESHOLD.
2. THE CONTRACTOR WILL NOT BE LIABLE FOR PLANT LOSS DUE TO VANDALISM.

SURETY FOR REFORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT REFORESTATION PLANTINGS ARE COMPLETED. UPON ACCEPTANCE OF THE PLANTINGS BY THE COUNTY, THE BOND SHALL BE RELEASED.

FCP NOTES:

1. ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE CONVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. FORESTED AREAS OCCURRING OUTSIDE THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
3. LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
4. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
5. NO STOCKPILES, PARKING AREAS,EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
6. TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION AND THE REFORESTATION EASEMENTS DURING THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD. THE FENCING SHALL BE PLACED ALONG ALL FCE BOUNDARIES WHICH OCCUR WITHIN 15 FEET OF THE PROPOSED LIMITS OF DISTURBANCE.
7. PERMANENT SIGNAGE SHALL BE PLACED 50 – 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.
8. THE REFORESTATION OBLIGATIONS FOR PARCELS "E" AND "F", KAISER FARM CONSISTS OF 1.9 ACRES. OF THE 1.9 ACRES, 0.6 ACRES WILL BE ON-SITE REFORESTATION. THE REMAINING 1.3 ACRES WILL BE PROVIDED OFF-SITE IN AN APPROVED FOREST CONSERVATION BANK KNOWN AS ENVIRONMENTAL BANC & EXCHANGE, L.L.C. (SEE SDP-99-117) THIS OFF-SITE FOREST CONSERVATION EASEMENT WILL BE RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND, PRIOR TO THE FINAL PLAT RECORDATION. FOREST CONSERVATION OBLIGATION FOR THE NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY HAS BEEN FULFILLED BY OFF-SITE PLANTING AT THE RIDGE VIEW HUNT SUBDIVISION, F-97-120 (TAX MAP 14, PARCEL 14, PRESERVATION PARCEL "B") AS PREVIOUSLY INDICATED UNDER P-97-02. THIS OFF-SITE AREA HAS BEEN BONDED AND IS PART OF THE DEVELOPER'S AGREEMENT FOR F-98-12.
9. IF PARCEL "E" IS TO BE DEVELOPED WITH A USE OTHER THAN "RESIDENTIAL", THE ADDITIONAL FOREST CONSERVATION OBLIGATION MUST BE ADDRESSED WITH THE PLAN FOR THE NON-RESIDENTIAL DEVELOPMENT.
10. SURETY FOR THE ON-SITE FOREST CONSERVATION EASEMENTS HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $12,632.40 ($4,791.60 RETENTION AND $7,840.80 REFORESTATION).

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2A (0.4 ACRES)

QTY.	SPECIES	SIZE	SPACING
25	ACER RUBRUM – RED MAPLE	2-3' WHIP	**
35	FRAXINUS PENNSYLVANICA– GREEN ASH	2-3' WHIP	**
20	JUGLANS NIGRA – BLACK WALNUT	2-3' WHIP	**
15	LIRIODENDRUM TULIPIFERA – POPLAR	2-3' WHIP	**
20	PLATANUS OCCIDENTALIS – SYCAMORE	2-3' WHIP	**
25	VIBURNUM DENTATUM – ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #2B (0.1 ACRES)

QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM – RED MAPLE	2-3' WHIP	**
15	FRAXINUS PENNSYLVANICA– GREEN ASH	2-3' WHIP	**
10	VIBURNUM DENTATUM – ARROWWOOD	18-24" B.T.	**

PLANTING SCHEDULE

FOREST CONSERVATION EASEMENT #3 (0.1 ACRES)

QTY.	SPECIES	SIZE	SPACING
10	ACER RUBRUM – RED MAPLE	2-3' WHIP	**
15	FRAXINUS PENNSYLVANICA– GREEN ASH	2-3' WHIP	**
10	VIBURNUM DENTATUM – ARROWWOOD	18-24" B.T.	**

KEY:

CAL. – CALIPER WHIP – MAY BE CONTAINER GROWN OR BAREROOT B.T. BRANCHED TRANSPLANT
– ONE INCH CALIPER TREES SHALL BE SPACED AROUND PERIMETER OF FCE EASEMENT IN RANDOM PATTERN.

** – WHIPS AND SHRUBS SHALL BE PLANTED, ON AVERAGE, AT A SPACING OF 11 FEET ON CENTER, NOT IN A GRID PATTERN, LIMITED CLUMPING OF SHRUBS IS PERMITTED.

PLANTING NOTES:

1. FCEs 'G' AND 'P' ARE HEAVILY INFLUENCED BY A MULTIFLORA ROSE. IT IS RECOMMENDED THAT THE MULTIFLORA ROSE BE REMOVED AND CONTROLLED PRIOR TO FORESTATION. IF THE ROSE IS NOT REMOVED IT WILL BE A CHRONIC MAINTENANCE PROBLEM FOR THE SITE. EXISTING NATIVE TREES MAY BE RETAINED.

2. THE POTENTIAL FOR DEER AND RODENT DAMAGE ON THIS FORESTATION PROJECT IS HIGH. THE PLANTING CONTRACTOR MAY UTILIZE PHYSICAL AND CHEMICAL TECHNIQUES TO IMPROVE THE SUCCESS OF THE PLANTINGS. THESE TECHNIQUES MUST BE APPROVED BY THE OWNER PRIOR TO INITIATION OF WORK.

FOREST DATA

GROSS AREA (PARCEL "E" & "F"):	9.8 AC.
NET TRACT AREA (NTA)	9.8 AC.
EXISTING FOREST (NTA)	2.3 AC.
AFFORESTATION THRESHOLD:	1.5 AC.
REFORESTATION THRESHOLD:	2.0 AC.
FOREST TO BE CLEARED (NTA):	1.2 AC.
REFORESTATION REQUIRED:	1.9 AC.
ONSITE FORESTATION AVAILABLE:	0.6 AC.
OUTSTANDING FORESTATION OBLIGATION:	1.3 AC.

FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA

GROSS SITE AREA (PARCELS "E" & "F")	9.8 AC.
AREA WITHIN 100 YEAR FLOODPLAIN	0
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	0
NET TRACT AREA	9.8 AC.
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/I/O)	R-A-15

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
C. AFFORESTATION MINIMUM (15 % x A)	1.5 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. REFORESTATION

IF EXISTING FOREST AREAS EQUAL OR EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C), AND CLEARING OF FOREST AREAS IS PROPOSED, REFORESTATION REQUIREMENT MAY APPLY.

GO TO SECTION IV

IF EXISTING FORESTS EXCEED THE AFFORESTATION MINIMUM (IF D EQUALS OR IS MORE THAN C) AND NO CLEARING OF EXISTING FOREST RESOURCES IS PROPOSED, NO REFORESTATION IS REQUIRED. NO FURTHER CALCULATIONS ARE NEEDED.

2. AFFORESTATION

IF EXISTING FOREST AREA ARE LESS THAN THE AFFORESTATION MINIMUM (IF D IS LESS THAN C). AFFORESTATION REQUIREMENTS APPLY.

GO TO SECTION V

IV. REFORESTATION CALCULATIONS

A. NET TRACT AREA	9.8 AC.
B. REFORESTATION THRESHOLD (20 % x A)	2.0 AC.
D. EXISTING FOREST ON NET TRACT AREA	2.3 AC.
E. FOREST AREAS TO BE CLEARED	1.2 AC.
F. FOREST AREAS TO BE RETAINED	1.1 AC.
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D – F, IF F EQUALS OR IS GREATER THAN B, ALTERNATE 1) (D – B, IF F IS LESS THAN B, ALTERNATE 2)	0.3 AC.
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B – F, IF APPLICABLE)	0.9 AC.
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F – B, RETENTION CREDIT, IF APPLICABLE)	0.0 AC.

SELECTION THE ALTERNATIVE THAT APPLIES:

1. CLEARING ABOVE THE THRESHOLD ONLY

IF FOREST AREAS TO BE RETAINED EQUAL OR ARE GREATER THAN THE REFORESTATION THRESHOLD (IF F EQUALS OR IS GREATER THAN B). THE FOLLOWING CALCULATIONS APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	N/A
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD I = RETENTION CREDIT	N/A
TOTAL REFORESTATION REQUIRED G x 1/4 – I	N/A

2. CLEARING BELOW THRESHOLD

IF FOREST AREAS TO BE RETAINED ARE LESS THAN THE REFORESTATION THRESHOLD (IF F IS LESS THAN B), THE FOLLOWING CALCULATION APPLY:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	0.1 AC.
REFORESTATION FOR CLEARING BELOW THRESHOLD H x 2	1.8 AC.
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	1.9 AC.

SINCE CLEARING OCCURS BELOW THE THRESHOLD, NO FOREST RETENTION CREDIT IS POSSIBLE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 2/21/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. BOX 5006 GLEN ARM, MD 21057 (410)592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification #WDCP93MD0610044B2

John P. Canoles

NO	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — REGISTERED PROFESSIONAL ENGINEER [seal] 1/19/01

OWNER /DEVELOPER:

KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 881
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: ***FOREST CONSERVATION NOTES AND DETAILS***

DATE: JULY,2000	PROJECT NO. 1268
DES: DRN: CHK: SCALE: AS SHOWN	DRAWING 13 OF 14

P:\PROJECTS\0796\DWG\70520152.DWG

F-01-25

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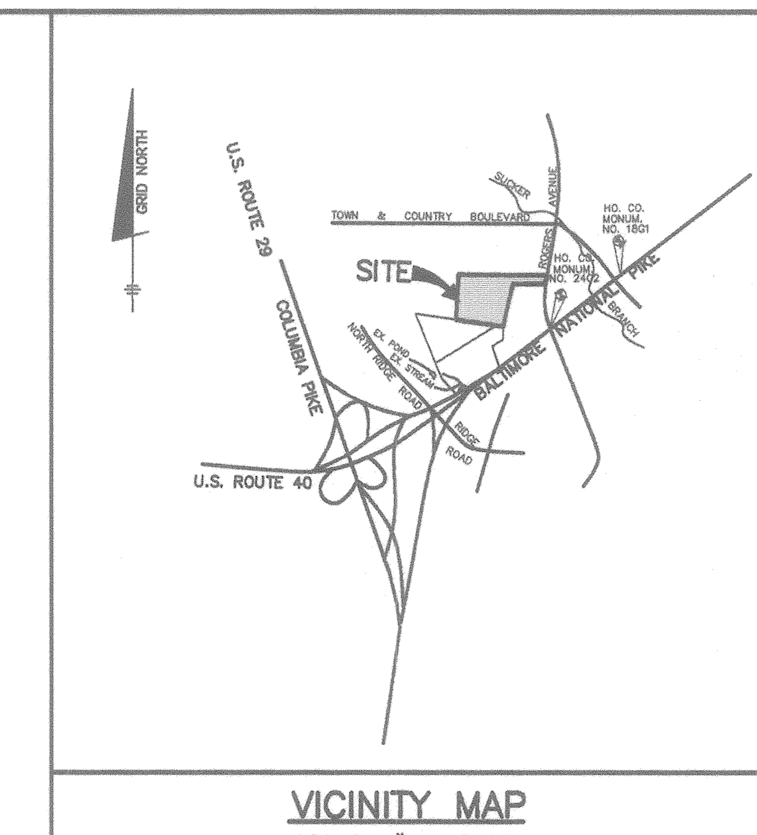
PLAN VIEW

SCALE: 1" = 50'



VICINITY MAP

SCALE: 1" = 2000'

FOREST CONSERVATION EASEMENT DATA

FCE NO.	ACREAGE	TOTAL RETENTION ACREAGE
1A	0.2 AC.	1.1 AC.
1B	0.9 AC.	
FCE NO.	**ACREAGE**	**TOTAL REFORESTATION ACREAGE**
2A	0.4 AC.	0.6 AC.
2B	0.1 AC.	
3	0.1 AC.	

LEGEND

EXISTING CONTOURS

PROPOSED CONTOURS

FOREST RETENTION EASEMENT

REFORESTATION EASEMENT

LIMITS OF FOREST CONSERVATION EASEMENT — FCE

FCE SIGNAGE

SOILS CLASSIFICATION

SYMBOL	DESCRIPTION	HYDROLOGIC GROUP
ChB2	CHESTER SILT LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
ChC2	CHESTER SILT LOAM, 8-15 % SLOPES, MODERATELY ERODED	B
GiB2	GLENELG LOAM, 3-8 % SLOPES, MODERATELY ERODED	B
GiC2	GLENELG LOAM, 8-15% SLOPES, MODERATELY ERODED	B
GiC3	GLENELG LOAM, 8-15% SLOPES, SEVERELY ERODED	B
GnB2	GLENVILLE SILT LOAM, 3-8% SLOPES, MODERATELY ERODED (HYDRIC)	C
MiB2	MANOR LOAM, 3-8% SLOPES, MODERATELY ERODED	B
MiC2	MANOR LOAM, 8-15% SLOPES, MODERATELY ERODED	B
MiC3	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD2	MANOR LOAM, 8-15% SLOPES, SEVERELY ERODED	B
MiD3	MANOR LOAM, 15-25% SLOPES, SEVERELY ERODED	B

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-19-01 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 2/28/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/21/01 DATE

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1/19/01

OWNER /DEVELOPER:
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LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-98-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **FOREST CONSERVATION PLAN**

DATE: JULY,2000	PROJECT NO. 1268
SCALE: AS SHOWN	DRAWING 12 OF 14

DES: DRN: CHK:

P:\PROJECTS\0796\DWG\705201S1.DWG

F-01-25

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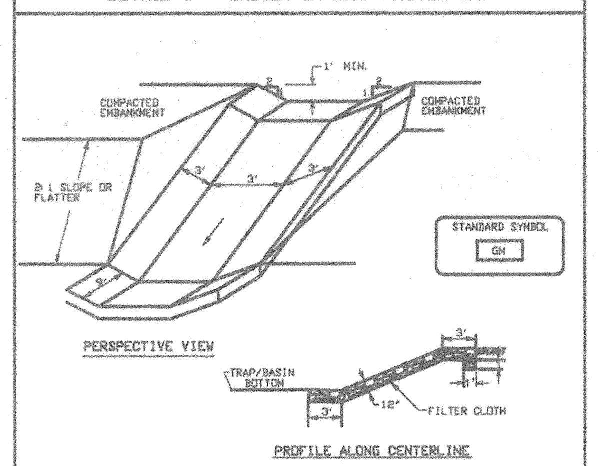
DETAIL 6 - GABION INFLOW PROTECTION



Construction Specifications

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" – 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

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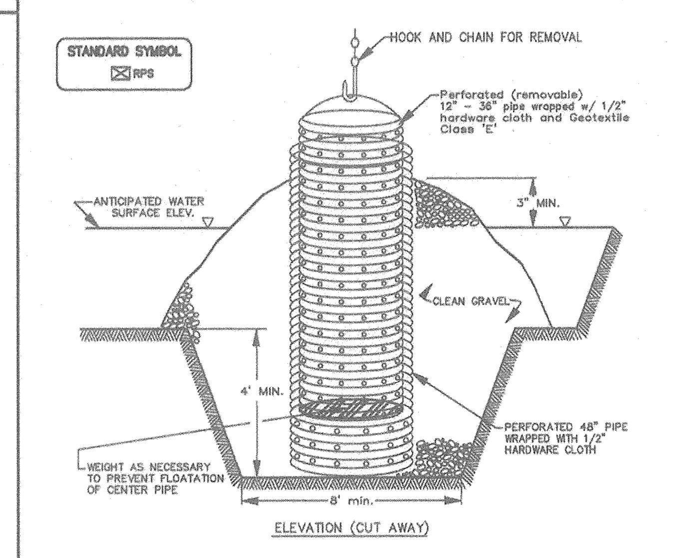
DETAIL 20A – REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. 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" slits 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 C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

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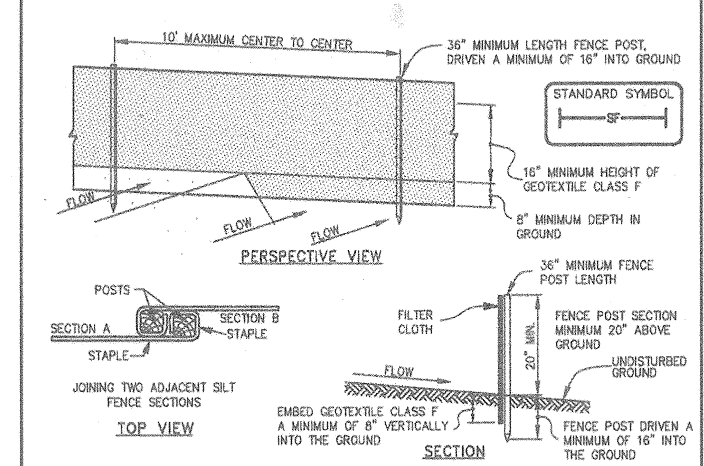
DETAIL 22 – SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

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

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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SILT FENCE

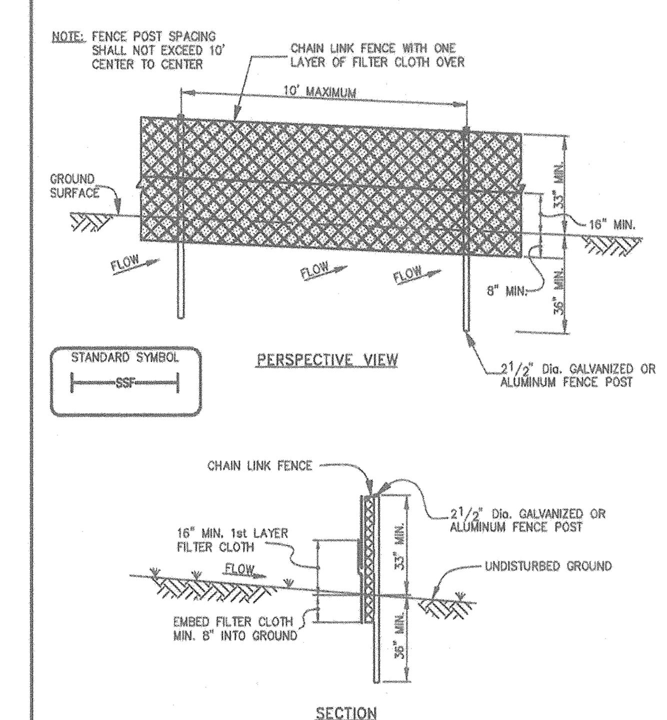
SILT FENCE DESIGN CRITERIA

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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

DETAIL 33 – SUPER SILT FENCE



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 26 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

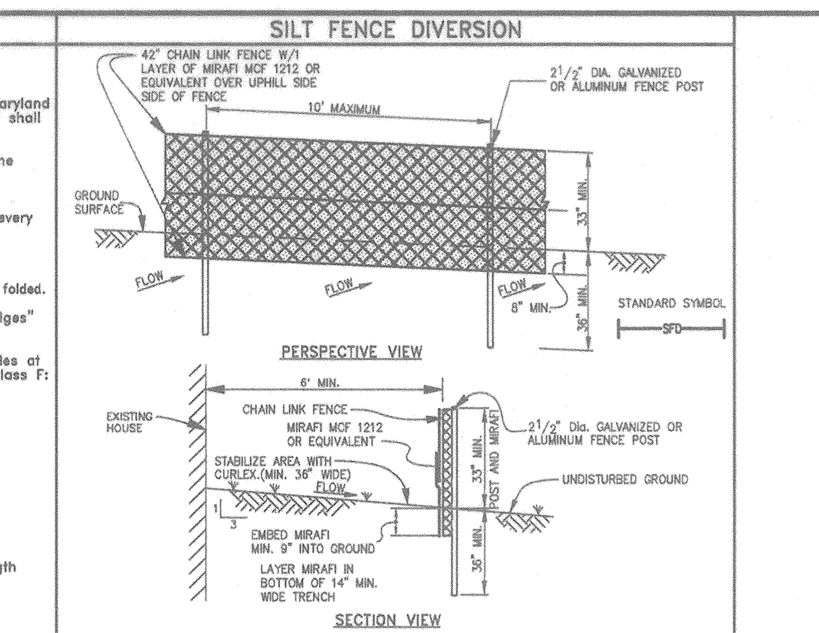
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 – 10%	0 – 10:1	Unlimited	Unlimited
10 – 20%	10:1 – 5:1	200 feet	1,500 feet
20 – 33%	5:1 – 3:1	100 feet	1,000 feet
33 – 50%	3:1 – 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 26 - 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

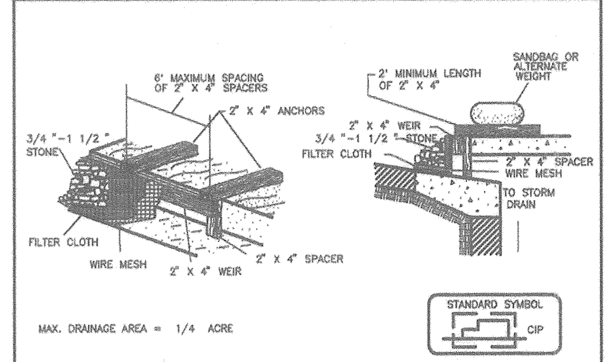
SILT FENCE DIVERSION



CONSTRUCTION SPECIFICATIONS

1. FENCING SHALL BE 42" HIGH CHAIN CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02 FOR CHAIN LINK FENCING. THE SPECIFICATIONS FOR A 6'-0" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6' POSTS. POSTS SHALL BE PLACED WITHOUT CONCRETE EMBEDMENT.
2. CHAIN LINK FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE.
3. FILTER CLOTH TO BE FASTENED SECURELY TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
4. FILTER CLOTH SHALL BE IMBEDDED A MINIMUM OF 9" INTO THE GROUND.
5. WHEN TWO SECTIONS OF DIVERSION CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED.

DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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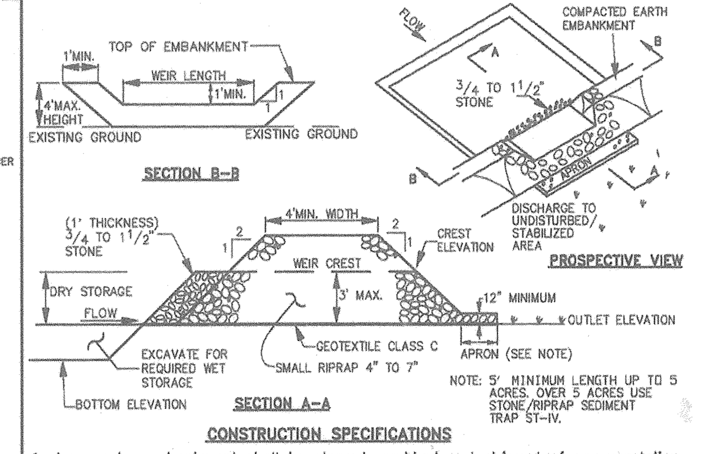
DETAIL 9 – STONE OUTLET SEDIMENT TRAP – ST II



CONSTRUCTION SPECIFICATIONS

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1' thick layer of 3/4" to 11/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be an necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

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STONE OUTLET SEDIMENT TRAP – ST II

CONSTRUCTION SPECIFICATIONS

6. The structure shall be inspected periodically and after each rain and repairs made as needed.
7. Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected in accordance with grade stabilization structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
8. The Structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.
9. Refer to Section D for specifications concerning trap dewatering.
10. Minimum trap depth shall be measured from the weir elevation.
11. The elevation of the top if any dike directing water into the trap must equal or exceed the elevation of the trap embankment.
12. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.
13. Outlet – An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

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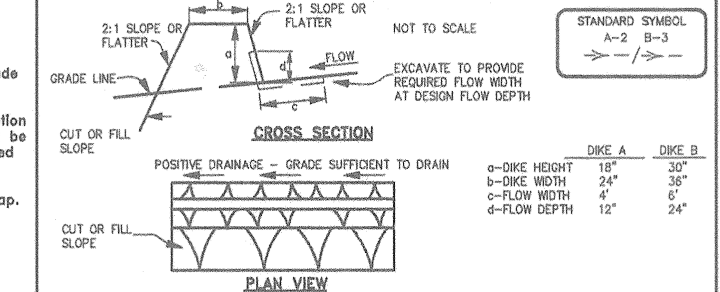
DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
6. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

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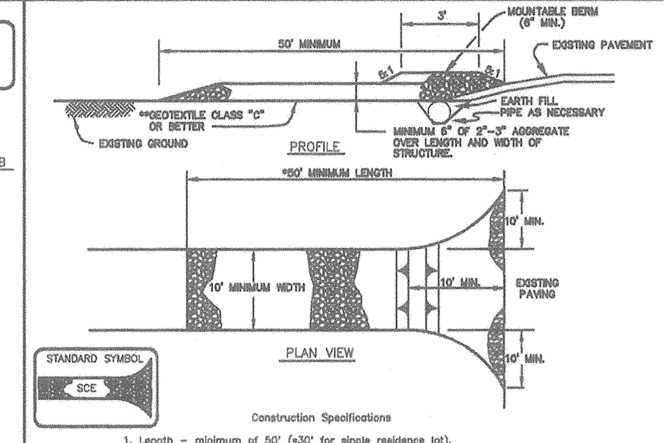
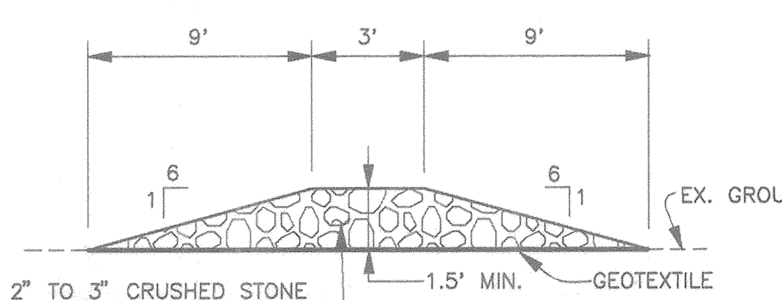
DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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

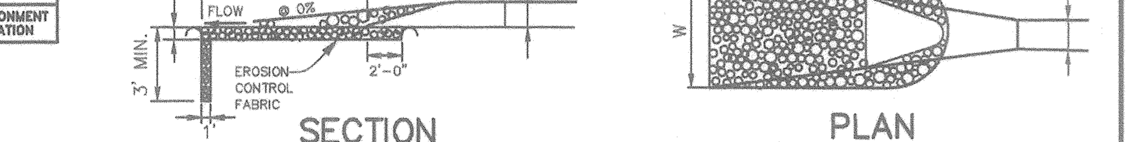


MOUNTABLE BERM DETAIL

NOT TO SCALE

SEQUENCE OF CONSTRUCTION

DAY 1	OBTAIN GRADING PERMIT.
DAY 2–4	INSTALL SUPER SILT FENCE AS SHOWN ON THE PLAN AROUND THE FOREST CONSERVATION EASEMENTS PRIOR TO ANY CLEARING AND GRUBBING OF THE SITE. (USE FOREST CONSERVATION PLAN INCONJUNCTION WITH SEDIMENT CONTROL PLAN FOR LOCATION).
DAY 5–8	CLEAR AND GRUB FOR SEDIMENT CONTROL DEVICES, INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, SUPER SILT FENCE AND CLEANWATER DIVERSIONS.
DAY 9–19	INSTALL S.O.S.T. #1,STORM DRAIN FROM ES–2 TO I–3, AND SWMF/TSWM POND #1.
DAY 17–25	INSTALL REMAINING SEDIMENT DEVICES. CLEAR AND GRUB REMAINDER OF SITE.
DAY 26–46	MASS GRADE SITE.
DAY 47–52	STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES..
DAY 53–73	INSTALL REMAINDER OF STORM DRAIN AND OTHER UTILITIES.
DAY 74–79	INSTALL CURB AND GUTTER.
DAY 80–85	INSTALL PAVING FOR ROADS.
DAY 86–91	FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDED NOTS.
DAY 92–97	WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE S.O.S.T. #1,AND CONVERT SWMF/TSWM POND #1 TO SWMF.
DAY 98–103	INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THE LANDSCAPE PLAN.
DAY 104–108	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE.



STRUCTURE	D–50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
ES–1	9.5"	12'	9'	19"	I
ES–2	9.5"	10'	12.5'	19"	I

OUTLET PROTECTION DETAIL

NOT TO SCALE

PERMANENT SEEDING NOTES

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

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

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

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

2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil.

Seeding: For the periods March 1 through April 30 and August 1 through October 15, seed with 60 lbs per acre (1.4 lbs/1000 sf) of Kentucky 31 Tall Fescue. For the period May 1 through July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.05 lbs/1000 sf) of Weeping Lovegrass. During the period of October 16 through February 28, protect site by: Option 1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2) use sod. Option 3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching: Apply 1-1/12 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

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

TEMPORARY SEEDING NOTES

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

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

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf).

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

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Refer to the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

SEDIMENT CONTROL NOTES

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 (313-1855).
2. All vegetative and structural practices are to be installed accordingly 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 thereto.
3. Following initial soil disturbances or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 calendar days as to all other disturbed or graded areas on the project site.
4. All sediment traps/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. 51) Sod (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:	17.57± acres
Area to be Disturbed:	13.31± acre
Area to be roofed or paved:	4.03± acre
Area to be vegetatively stabilized:	9.28± acre
Total Cut:	76,812 C.Y.
Total Fill:	24,577 C.Y.
Offsite Waste/Borrow Area Location : *	

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 DPW 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 can be back filled and stabilized within one working day, whichever is shorter.
12. Quantities and estimates shown are for sediment control purposes only. Contractor shall prepare his/her own quantity estimates to his/her satisfaction. * It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

DEFINITION

PLACEMENT OF TOPSOIL OVER A PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

CONDITIONS WHERE PRACTICE APPLIES

I. THIS PRACTICE IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLAT NUTRIENTS.
C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

II. FOR THE PURPOSE OF THESE STANDARDS AND SPECIFICATIONS, AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN FOR ADEQUATE STABILIZATION. AREAS HAVING SLOPES STEEPER THAN 2:1 SHALL HAVE THE APPROPRIATE STABILIZATION SHOWN ON THE PLANS.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.

II. TOPSOIL SPECIFICATIONS – SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
I. TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
II. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
III. WHERE THE SUBSOIL IS EITHER ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

III. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
B. ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
C. TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
D. NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

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.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION – SECTION 1 – VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION
I. WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
II. GRADES ON THE AREAS TO BE TOP SOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4"-8" HIGHER IN ELEVATION.
III. TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
IV. TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

VI. ALTERNATIVE FOR PERMANENT SEEDING – INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
I. 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 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
II. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SODDING. MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES. REVISED 1973.

ENGINEER'S CERTIFICATE

I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Donald Mason — 1/19/01
Date

DEVELOPER'S CERTIFICATE

I/We certify that all development and construction will be done in accordance with this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction of this project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic onsite inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

James R. Moxley III — 1/19/01
Signature of Developer — Date

NO	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. [signature] 2-19-01
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Sharon A. Mariace 2/13/01
HOWARD SOIL CONSERVATION DISTRICT — DATE
ACTING DIST MGR.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Cindy Hamilton 2/28/01
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 2/26/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.
[signature] 2/13/01
USDA-NATURAL RESOURCES CONSERVATION SERVICE — DATE

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER
Donald Mason 1/19/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: **KAISER FARM**
LOTS 1–82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY,AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-95-01a, P-97-02, F-96-91, F-98-12, S-98-05, SDP-98-129, F-86-160, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: **SEDIMENT AND EROSION CONTROL NOTES AND DETAILS**

DATE: AUG.,2000	PROJECT NO. 1268

DES: YSL	DRN: YSL	CHK: DAM	SCALE: AS SHOWN	DRAWING 11 OF 14

F-01-25

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CONSTRUCTION SPECIFICATIONS

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

Site Preparation

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

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

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. If shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable material. 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 have construction supervised by a geotechnical engineer.

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

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

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

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be a 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 cores 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.

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of 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 313 as modified. The mixture shall have a 100-200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sided 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 backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section

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

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

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

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

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

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

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

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

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

5. Backfilling shall conform to "Structure Backfill".

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

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

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

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

3. Laying pipe – Bell and spigot pipe shall be places with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation form 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. Other details (anti-seep collars, valves, etc.) shall be shown on the drawings.

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

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

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

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

4. Backfilling shall conform to "Structure Backfill".

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

Drainage Diaphragms – When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

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

Rock Riprap

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

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

Care of Water during Construction

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

Stabilization

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

Erosion and Sediment Control

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

HILLIS-CARNES ENGINEERING ASSOCIATES,INC. Page 1 of 1

PROJECT NAME: Kaiser Farm — BORING # B-1
LOCATION: Howard County, Maryland — JOB # 99235A
Datum — Hammer Wt. — Hole Diameter — Foreman R.Yonkers
Surf. Elev. 368.48 — Hammer Drop — Rock Core Dia. — Inspector
Date Started 06-09-99 — Pipe Size — Boring Method Backhoe — Date Completed 06-09-99

ELEV.	SOIL DESCRIPTION COLOR,MOISTURE,DENSITY,SIZE,PROPORTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON	SAMPLE BELOW 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown/gray, dry to moist micaceous sandy silt with trace weathered rock fragments (ML)							8" Topsoil
								No groundwater encountered
		5.5	5.0					
	Bottom of Test Hole at 5.5'							Backfilled after 4.0 hours
			10.0					
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT=PRESSED SHELBY TUBE; CA=CONTINUOUS FLIGHT AUGER; RC=ROCK CORE
SAMPLE CONDITIONS: D=DISINTEGRATED; I=INTACT; U=UNDISTURBED; L=LOST
GROUND WATER DEPTH: AT COMPLETION dry FT.; AFTER 4 hr. dry FT.; AFTER ____ FT.
BORING METHOD: HSA=HOLLOW STEM AUGERS; CFA=CONT. FLIGHT AUGERS; DC=DRIVING CASING; MD=MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES ENGINEERING ASSOCIATES,INC. Page 1 of 1

PROJECT NAME: Kaiser Farm — BORING # B-2
LOCATION: Howard County, Maryland — JOB # 99235A
Datum — Hammer Wt. — Hole Diameter — Foreman R.Yonkers
Surf. Elev. 372.84 — Hammer Drop — Rock Core Dia. — Inspector
Date Started 06-09-99 — Pipe Size — Boring Method Backhoe — Date Completed 06-09-99

ELEV.	SOIL DESCRIPTION COLOR,MOISTURE,DENSITY,SIZE,PROPORTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON	SAMPLE BELOW 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown, dry to wet, micaceous silty sand with weathered rock fragments (SM)							8" Topsoil
								Groundwater encountered at 9.0'
			5.0					
		10.0						
	Bottom of Test Hole at 10.0'		10.0					Backfilled after 4.0 hours
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT=PRESSED SHELBY TUBE; CA=CONTINUOUS FLIGHT AUGER; RC=ROCK CORE
SAMPLE CONDITIONS: D=DISINTEGRATED; I=INTACT; U=UNDISTURBED; L=LOST
GROUND WATER DEPTH: AT COMPLETION 9.5 FT.; AFTER 4 hr. 7.5 FT.; AFTER ____ FT.
BORING METHOD: HSA=HOLLOW STEM AUGERS; CFA=CONT. FLIGHT AUGERS; DC=DRIVING CASING; MD=MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

HILLIS-CARNES ENGINEERING ASSOCIATES,INC. Page 1 of 1

PROJECT NAME: Kaiser Farm — BORING # B-3
LOCATION: Howard County, Maryland — JOB # 99235A
Datum — Hammer Wt. — Hole Diameter — Foreman R.Yonkers
Surf. Elev. 370.43 — Hammer Drop — Rock Core Dia. — Inspector
Date Started 06-09-99 — Pipe Size — Boring Method Backhoe — Date Completed 06-09-99

ELEV.	SOIL DESCRIPTION COLOR,MOISTURE,DENSITY,SIZE,PROPORTION	STRA. DEPTH	DEPTH SCALE	SAMPLE CON	SAMPLE BELOW 6"	SAMPLE NO.	SAMPLE REC.	BORING & SAMPLING NOTES
	SURFACE		0.0					
	Brown/gray, dry to wet, micaceous silty sand with weathered rock fragments (SM)							6" Topsoil
								Groundwater encountered at 7.0'
			5.0					
		8.0						
	Bottom of Test Hole at 8.0'							Backfilled after 4.0 hours
			10.0					
			15.0					
			20.0					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED; PT=PRESSED SHELBY TUBE; CA=CONTINUOUS FLIGHT AUGER; RC=ROCK CORE
SAMPLE CONDITIONS: D=DISINTEGRATED; I=INTACT; U=UNDISTURBED; L=LOST
GROUND WATER DEPTH: AT COMPLETION 7.5 FT.; AFTER 4 hr. 6.0 FT.; AFTER ____ FT.
BORING METHOD: HSA=HOLLOW STEM AUGERS; CFA=CONT. FLIGHT AUGERS; DC=DRIVING CASING; MD=MUD DRILLING

STANDARD PENETRATION TEST – DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIP-RAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENTS SHALL BE REMOVED FROM THE POND, AND FOREBAY. NO LATER THAN WHEN THE 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.

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST 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 CONTINUED 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.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR 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."

James R. Morley III. — 1/9/01
DEVELOPER – KAISER FARM, L.L.C. — DATE

BY THE ENGINEER:

"I/WE 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."

Donald Mason — 1/9/01
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 2-12-01 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 2/13/01 DATE
ACTING DIST. MGR.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 2/13/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 2/14/01 DATE

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

USDA-NATURAL RESOURCES CONSERVATION SERVICE — 2/13/01 DATE

NO	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND — DONALD ALLEN MASON — 21443 — REGISTERED PROFESSIONAL ENGINEER

Donald Mason — 1/9/01

OWNER /DEVELOPER:
KAISER FARM, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MD 21041
(410) 465-4244

PROJECT: KAISER FARM
LOTS 1-82 AND PARCEL "E"
A RESUBDIVISION OF NON-BUILDABLE BANK OPEN SPACE PARCEL "I", HOENES PROPERTY, AND PARCELS "E" AND "F", KAISER FARM

LOCATION: TAX MAPS 17 & 24, P/O PARCEL 848, AND P/O 681
2nd. ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
REFERENCE FILE: S-98-01a, P-97-02, F-98-91, F-98-13, S-98-05, SDP-98-12B, F-88-180, F-86-154,SP-00-03,P-99-17 AND F-00-102

TITLE: STORMWATER MANAGEMENT NOTES & DETAILS

DATE: AUG.,2000 — PROJECT NO. 1268

DES: MLV — DRN: CAD — CHK: DAM — SCALE: AS SHOWN — DRAWING 9 OF 14

P:\PROJECTS\1268\DWG\1268DET03.DWG

F-01-25