REVISED FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS FOR

ESTATES AT PATAPSCO PARK

BUILDABLE LOTS 203 - 397 AND OPEN SPACE LOTS 196 - 202

LOCATION OF SITE

ROGERS AVENUE

ZONING: R-ED AND R-20, 2ND ELECTION DISTRICT

TAX MAP 17, GRID 5, 6, 11 & 12

HOWARD COUNTY, MARYLAND

ROADWAY INFORMATION CHART

ROAD NAME	STATION	CLASSIFICATION	DESIGN SPEED	R/W WIDTH
VALLEY VIEW WAY	STA 11+18.04 TO STA 15+41.64	MINOR COLLECTOR	35 MPH	70 FT
VALLEY VIEW WAY	STA 15+41.64 TO STA 31+01.49	PUBLIC ACCESS STREET	30 MPH	50 FT
VINEYARD SPRINGS WAY	STA 10+00 TO STA 30+65.26	PUBLIC ACCESS STREET	30 MPH	50 FT
RIVER RIDGE TRAIL	STA 10+00 TO STA 17+42.92	PUBLIC ACCESS STREET	30 MPH	50 FT
SOAPSTONE TRAIL	STA 10+00 TO STA 15+53.20	PUBLIC ACCESS STREET	30 MPH	50 FT
GRIST MILL WAY	STA 10+00 TO STA 15+40	PUBLIC ACCESS STREET	25 MPH	50 FT
MORNING CHOICE COURT	STA 10+00 TO STA 11+26.15	PUBLIC ACCESS STREET	30 MPH	50 FT
SAWMILL BRANCH TRAIL	STA 10+00 TO STA 15+44.41	PUBLIC ACCESS STREET	30 MPH	50 FT
SPRING GLEN COURT	STA 10+00 TO 14+12.86	PUBLIC ACCESS STREET	25 MPH	50 FT
TALL POPLAR COURT	STA 10+00 TO STA 11+97.05	PUBLIC ACCESS STREET	25 MPH	50 FT

UTILITIES:
THE FOLLOWING COMPANIES WERE NOTIFIED BY DELMARVA MISS UTILITY SYSTEM (1-800-257-7777) AND REQUESTED TO MARK OUT UNDERGROUND FACILITIES AFFECTING AND SERVICING THIS SITE. THE UNDERGROUND UTILITY INFORMATION SHOWN HEREON IS BASED UPON THE UTILITY COMPANIES RESPONSE TO THIS REQUEST. SERIAL NUMBER(S): 12499659

UTILITY COMPANY	PHONE NUMBER
VERIZON - LAMBERT CABLE	(410) 536-0070
BGE ELECTRIC-USIC	(800) 778-9140
BGE GAS-USIC	(800) 778-9140
COMCAST- FIBER/UTILIQUEST	(410) 536-0070
HOWARD COUNTY WATER/SEWER	(410) 313-4982
COMCAST/UTILIQUEST	(410) 536-0070
COLONIAL PIPELINE	(678) 762-2403
AT&T TRANSMISSION	(800) 252-1133
QWEST GOVERNMENT SERVICES	(703) 464-7592

MINIMUM LOT SIZE CHART

LOT NO	GROSS AREA (S.F.)	PIPESTEM AREA (S.F.)	MINIMUM LOT SIZE (S.F.)
281	8,923	704	8,219
282	7,666	175	7,491
299	7,777	66	7,711
300	8,628	285	8,343
301	9,902	552	9,350
302	9,179	841	8,338
303	9,832	549	9,283
304	9,243	228	9,015
343	14,348	1,334	13,014
344	9,118	1,038	8,080
345	8,802	739	8,063
346	8,694	445	8,249
347	8,482	158	8,324
367	8,684	315	8,369
368	12,483	708	11,775
369	12,211	543	11,668

ADDRESS CHART/STORMWATER MANAGEMENT PRACTICES

LOT	ADDRESS	FACILITY TYPE & NUMBER	LOT	ADDRESS	FACILITY TYPE & NUMBER	LOT	ADDRESS	FACILITY TYPE & NUMBER
203	2405 VALLEY VIEW WAY / 9803 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	278	2502 TALL POPLAR COURT / 9817 SPRING GLEN CT	DRYWELLS (MDE M-5)	353	9714 MORNING CHOICE CT / 2470 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
204	9807 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	279	9821 SPRING GLEN COURT	DRYWELLS (MDE M-5)	354	2466 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
205	9811 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	280	9825 SPRING GLEN COURT	DRYWELLS (MDE M-5)	355	2462 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
206	9815 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	281	9830 SPRING GLEN COURT	DRYWELLS (MDE M-5)	356	2458 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
207	9819 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	282	9826 SPRING GLEN COURT	DRYWELLS (MDE M-5)	357	2454 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
208	9818 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	283	9822 SPRING GLEN COURT	DRYWELLS (MDE M-5)	358	2450 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
209	9814 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	284	9818 SPRING GLEN COURT	DRYWELLS (MDE M-5)	359	2446 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
210	9810 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	285	99814 SPRING GLEN COURT	DRYWELLS (MDE M-5)	360	2442 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
211	9806 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)	286	9810 SPRING GLEN COURT	DRYWELLS (MDE M-5)	361	2438 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
212	9802 SOAPSTONE TRAIL / 2415 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	287	9806 SPRING GLEN COURT	DRYWELLS (MDE M-5)	362	2434 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
213	9801 GRIST MILL WAY / 2425 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	288	9802 SPRING GLEN CT / 2530 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	363	2422 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
214	VALLEY VIEW WAY	DRYWELLS (MDE M-5)	289	2526 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	364	2418 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
215	9805 GRIST MILL WAY	DRYWELLS (MDE M-5)	290	2522 VINEYARD SPRINGS WAY / 9801 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	365	2414 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
216	9809 GRIST MILL WAY	DRYWELLS (MDE M-5)	291	9805 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	366	2410 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
217	9812 GRIST MILL WAY	DRYWELLS (MDE M-5)	292	9809 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	367	2406 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
218	9808 GRIST MILL WAY	DRYWELLS (MDE M-5)	293	9813 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	368	2402 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
219	9804 GRIST MILL WAY	DRYWELLS (MDE M-5)	294	9817 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	369	2405 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
220	9800 GRIST MILL WAY / 2429 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	295	9821 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	370	2415 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
221	2433 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	296	9825 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	371	2425 VINEYARD SPRINGS WAY / 9791 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)
222	2437 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	297	9829 SAWMILL BRANCH TRAIL	DRYWELLS (MDE M-5)	372	9795 SOAPSTONE TRAIL / 2406 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
223	2441 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	298	9833 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	373	9795 SOAPSTONE TRAIL / 2412 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
224	2445 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	299	9837 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	374	2416 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
225	2449 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	300	9841 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	375	2420 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
226	2453 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	301	SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	376	2424 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
227	2457 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	302	9844 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	377	2428 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
228	2461 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	303	9840 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	378	2432 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
229	2465 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	304	9836 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	379	2436 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
230	2469 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	305	9832 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #2 (MDE M-6)"	380	2440 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
231	2473 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	306	9826 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #1 (MDE M-6)"	381	2444 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
232	2477 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	307	9822 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #1 (MDE M-6)"	382	2448 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
233	2481 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	308	9818 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #1 (MDE M-6)"	383	2452 VALLEY VIEW WAY	DRYWELLS (MDE M-5)
234	2485 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	309	9814 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #1 (MDE M-6)"	384	VALLEY VIEW WAY	DRYWELLS (MDE M-5)
235	2489 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	310	9810 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #1 (MDE M-6)"	385	2456 VALLEY VIEW WAY / 9702 MORNING CHOICE CT	DRYWELLS (MDE M-5)
236	2493 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	311	9806 SAWMILL BRANCH TRAIL	"DRYWELL (MDE M-5) & MICRO-BIO. #1 (MDE M-6)"	386	9706 MORNING CHOICE CT / 2475 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
237	2497 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	312	9802 SAWMILL BRANCH / 2516 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	387	2471 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
238	2501 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	313	2512 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	388	2467 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
239	2496 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	314	2508 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	389	2463 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
240	2492 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	315	2504 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	390	2459 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
241	2488 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	316	2500 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	391	2455 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
242	2484 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	317	2496 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	392	2451 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
243	2480 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	318	2492 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	393	2447 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
244	2476 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	319	2488 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	394	2443 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
245	2472 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	320	2484 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	395	2439 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
246	2468 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	321	2476 VINEYARD SPRINGS WAY / 9715 MORNING CHOICE CT	DRYWELLS (MDE M-5)	396	VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)
247	2464 VALLEY VIEW WAY	DRYWELLS (MDE M-5)	322	9719 MORNING CHOICE CT / 2533 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)	397	2435 VINEYARD SPRINGS WAY / 9790 SOAPSTONE TRAIL	DRYWELLS (MDE M-5)
248	2460 VALLEY VIEW WAY / 9701 MORNING CHOICE CT.	DRYWELLS (MDE M-5)	323	2529 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
249	2479 VINEYARD SPRINGS WAY / 9705 MORNING CHOICE CT.	DRYWELLS (MDE M-5)	324	2525 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
250	2483 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	325	2521 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
251	2487 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	326	2517 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
252	2491 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	327	2513 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
253	2495 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	328	2509 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
254	2499 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	329	2505 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
255	2503 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	330	2501 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
256	2507 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	331	2502 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
257	2511 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	332	2510 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
258	2515 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	333	2514 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
259	2519 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	334	2518 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
260	2523 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	335	2522 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
261	2533 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	336	2526 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
262	2537 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	337	2530 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
263	2541 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	338	2540 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
264	2545 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	339	2544 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
265	2549 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	340	2548 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
266	2550 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	341	2552 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
267	2546 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	342	2556 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
268	2542 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	343	2575 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
269	2538 VINEYARD SPRINGS WAY	DRYWELLS (MDE M-5)	344	2571 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
270	2534 VINEYARD SPRING WAY / 2503 SPRING GLEN CT.	DRYWELLS (MDE M-5)	345	2567 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
271	9811 VINEYARD SPRINGS WAY / 2503 TALL POPLAR CT	DRYWELLS (MDE M-5)	346	2563 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
272	TALL POPLAR COURT	DRYWELLS (MDE M-5)	347	2559 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
273	2507 TALL POPLAR COURT	DRYWELLS (MDE M-5)	348	2555 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
274	2518 TALL POPLAR COURT	DRYWELLS (MDE M-5)	349	2551 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
275	2514 TALL POPLAR COURT	DRYWELLS (MDE M-5)	350	2547 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
276	2510 TALL POPLAR COURT	DRYWELLS (MDE M-5)	351	2543 RIVER RIDGE TRAIL	DRYWELLS (MDE M-5)			
277	2506 TALL POPLAR COURT	DRYWELLS (MDE M-5)	352	2539 RIVER RIDGE TRAIL / 9718 MORNING CHOICE CT	DRYWELLS (MDE M-5)			

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES:
   - A) THE R1-1 ("STOP") SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
   - B) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
   - C) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MDMUTCD).
   - D) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
5. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 5.5.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
6. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
7. FOUR (4) PRIVATE RANGE OF ADDRESS SIGN ASSEMBLIES SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
8. ALL TRAFFIC CONTROL SIGNS SHALL BE PLACED IN FRONT OF TREE LOCATIONS FOR MAXIMUM SIGHT VISIBILITY. NO TREE CAN BE INSTALLED WITHIN 30' OF ANY STOP SIGN (APPROACH DIRECTION). WHERE SIGNS NEED TO BE PLACED BEHIND THE SIDEWALK, ADDITIONAL SPACING BETWEEN TREES MAY BE REQUIRED AT THOSE LOCATIONS.
9. NO STRUCTURES INCLUDING BUT NOT LIMITED TO DECKS AND THEIR SUPPORTS SHALL BE LOCATED WITHIN DRAINAGE EASEMENTS AND/OR DRYWELLS.
10. ALL UNDERGROUND SWM FACILITIES AND FEEDERS SHALL BE OWNED AND MAINTAINED BY HOA AND WITHIN A PRIVATE EASEMENT (I.E., SHEET 15 & SHEET 17).
11. EXISTING TOPOGRAPHIC CONTOURS BASED ON BOUNDARY BY BEN DYER & TOPOGRAPHIC SURVEY PERFORMED BY AERO-METRIC, DATED 1/25/09.
12. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17FA AND 17F7 WHICH WERE USED FOR THIS PROJECT.
    HOWARD COUNTY MONUMENT NO: 17FA ELEV. = 476.72
    HOWARD COUNTY MONUMENT NO: 17F7 ELEV. = 469.40
13. WATER IS PUBLIC (CONTRACT NO. 14-4803-D)
14. SEWER IS PUBLIC (CONTRACT NO. 14-4803-D)
15. STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS. WATER QUALITY AND RECHARGE VOLUMES WILL BE PROVIDED BY MICRO-BIORETENTION FACILITIES, BIORETENTION FACILITIES, INFILTRATION FACILITIES, AND DRY WELLS (ON LOT) TO MEET MDE REQUIREMENTS. FACILITIES TREATING ONLY AREAS FROM PRIVATE PROPERTY WILL BE OWNED AND MAINTAINED BY PROPERTY OWNERS AND HOA. FACILITIES TREATING AREAS WITHIN PUBLIC R/W WILL BE PLACED IN EASEMENTS AND WILL BE MAINTAINED BY BOTH HOWARD COUNTY AND PROPERTY OWNERS/HOA. HOWARD COUNTY WILL MAINTAIN PIPES AND PROPERTY OWNERS/HOA WILL MAINTAIN FACILITY SURFACES. THE HOA WILL BE RESPONSIBLE TO MAINTAIN THE TWO (2) INFILTRATION FACILITES.
16. EXISTING UTILITIES ARE BASED ON THE AERIAL SURVEY AND FIELD SURVEY BY BEN DYER ASSOCIATES.
17. THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY BEN DYER ASSOCIATES, DATED FEBRUARY 2012, AND MEETS THE REQUIREMENTS FOR "OBVIOUSLY NOT CRITICAL STUDY".
18. THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY BEN DYER ASSOCIATES, DATED DECEMBER, 2012.
19. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED APRIL 23, 2013.
20. THE NOISE STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP, DATED SEPTEMBER 24, 2012.
21. A FOREST STAND DELINEATION REPORT WAS COMPLETED BY BEN DYER ASSOCIATES, INC., DATED DECEMBER 2011.
22. THE SUBSURFACE EXPLORATION REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC. DATED 12/16/12.
23. THE SUBJECT PROPERTY IS ZONED R-20 & R-ED PER THE October 6, 2013 COMPREHENSIVE ZONING PLAN.
24. THE R-20 ZONED PORTION OF THE SITE WILL BE DEVELOPED IN ACCORDANCE WITH "R-ED" ZONING REGULATIONS PER SECTION 108.0.G. TO RECEIVE AT LEAST ONE DENSITY SENDING UNIT TO QUALIFY TO USE THE "R-ED" REGULATIONS.
25. IN ACCORDANCE WITH SECTION 108.0.G OF THE HOWARD COUNTY ZONING REGULATIONS, THE APPLICANT WILL BE TRANSFERRING ONE DEVELOPMENT RIGHT FROM A SENDING PARCEL IN ORDER TO DEVELOP THE ENTIRE R-20 ZONING PORTION UNDER THE R-ED BULK REGULATIONS AS WELL AS TO GAIN ONE ADDITIONAL DEVELOPMENT LOT. THE OFF-SITE SENDING LOCATION WILL BE THE HOWARD COUNTY BELMONT PROPERTY.
26. SITE DATA:
    - A. GROSS AREA OF TRACT = 122.79 AC.
    - B. AREA OF FLOODPLAIN = 7.18 AC. (INCLUDES FP IN SHA FC EASEMENT (3.93 ACRES OUTSIDE OF SHA FC EASEMENT))
    - C. AREA OF 25% OR GREATER SLOPES OUTSIDE FLOODPLAIN = 16.07 AC.
    - D. NET AREA OF TRACT = 99.54 AC.
    - E. NUMBER OF LOTS PERMITTED: 199 LOTS (NET ACREAGE X 2)
    - F. NUMBER OF LOTS IMPORTED: 1 LOT (CURTIS PROPERTY)
    - G. TOTAL NUMBER OF LOTS PERMITTED: 200 LOTS
    - H. REQUIRED OPEN SPACE = 50% OF GROSS AREA (BASED ON 6,000 S.F. LOTS) = 61.40 AC.
    - I. PROVIDED OPEN SPACE = 77.415 AC. (LOTS 196-202)
    - J. REQUIRED RECREATIONAL OPEN SPACE = 300 S.F./ 195 LOTS = 58,500 S.F. (1.34 AC.)
    - K. PROVIDED RECREATIONAL OPEN SPACE = 70,550 S.F.
    - L. ONSITE DISTURBANCE = 50.69 AC.
    - M. OFFSITE DISTURBANCE = 4.74 AC.
27. LAND DEDICATED TO HOWARD COUNTY, MARYLAND, FOR PURPOSES OF THE PUBLIC ROAD (9.569 ACRES).(DOES NOT INCLUDE SHA ROADWAY)
28. AREA OF PROPOSED BUILDABLE LOTS = 35.813 AC.
29. NUMBER OF LOTS PROPOSED: 202 (TOTAL)
    - A. BUILDABLE = 195
    - B. OPEN SPACE = 7
30. PRIOR CASE NUMBERS ASSOCIATED WITH THIS PROJECT INCLUDE ECP-13-029, SP-13-012, WP13-165. (PB 403), AND PLATS 23421 TO 23436.
31. THIS PROPERTY IS LOCATED INSIDE OF THE METROPOLITAN DISTRICT.
32. NO CEMETERIES, GRAVE SITES, OR HISTORIC STRUCTURES EXIST WITHIN THIS SUBDIVISION.
33. THE FOLLOWING DESIGN MANUAL WAIVERS HAVE BEEN APPROVED FOR THIS PROPERTY:
    - VOL III SECTION 2.5.B.10 INTERSECTION VERTICAL ALIGNMENT. WAIVER OF MAXIMUM ALLOWABLE LANDING GRADE AT THE SITE ENTRANCE TO ALLOW ROAD A TO DROP QUICKLY AND MATCH ONSITE GRADES. APPROVED MAY 30, 2013.
    - VOL III SECTION 2.5.B.10 INTERSECTION VERTICAL ALIGNMENT. WAIVER OF MAXIMUM ALLOWABLE LANDING GRADE FOR ROAD F AT INTERSECTIONS WITH ROAD A AND ROAD B. STEEPENING THE ROAD GRADE SHORTENS THE LENGTH AND THEREBY AVOIDS EXTENDING THE ROAD INTO ENVIRONMENTALLY SENSITIVE AREAS. APPROVED MAY 30, 2013 .
34. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE AMENDED ZONING REGULATIONS PER COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
35. WAIVER REQUEST WP-13-165 WAS APPROVED SEPTEMBER 16, 2013 FOR THE FOLLOWING;
    - THE REMOVAL OF 35 OUT OF 146 SPECIMEN TREES (SECTION 16.1205.(A)(4-5&7)
    - IMPACTS TO FLOODPLAINS (SECTION 16.115)
36. OPEN SPACE LOTS 196 AND 197 SHALL BE DEDICATED TO THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS.
37. PRELIMINARY EQUIVALENT SKETCH PLAN (SP-13-012) APPROVAL DATE: MARCH 4, 2014 (PLANNING BOARD DECISION)
38. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS:
    - a. WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)
    - b. SURFACE - SIX (6") INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
    - c. GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 TURNING RADIUS
    - d. STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H 25 LOADING)
    - e. DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
    - f. STRUCTURE CLEARANCES - MINIMUM 12 FEET
    - g. MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE
39. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREA EXCEPT AS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING AS SHOWN ON THIS PLAN.
40. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
41. WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE.
42. OFF-SITE WATER AND SEWER CONNECTIONS WILL REQUIRE RECORDATION OF PLATS OF EASEMENT. GRADING IN THE STEEP SLOPES, WETLANDS, STREAMS, THEIR BUFFERS AND/OR FLOODPLAIN FOR WATER AND SEWER CONNECTIONS IS CONSIDERED ESSENTIAL DISTURBANCE; HOWEVER, SUCH DISTURBANCE HAS BEEN APPROVED UNDER WP-13-165. ANY DISTURBANCE IN OFF-SITE FOREST CONSERVATION EASEMENTS WILL REQUIRE AMENDED PLATS AS APPLICABLE.
43. THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. (SEE NOTE 46 FOR ADDITIONAL INFORMATION.)
44. RESERVATION OF PUBLIC UTILITY AND FOREST CONSERVATION EASEMENTS
    DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, ALL EASEMENTS SHOWN ON THIS PLAN FOR WATER, SEWER, STORM DRAINAGE, OTHER PUBLIC UTILITIES AND FOREST CONSERVATION (DESIGNATED AS "FOREST CONSERVATION AREA"), LOCATED IN, ON, OVER AND THROUGH LOTS/PARCELS, ANY CONVEYANCES OF THE AFORESAID LOTS/PARCELS SHALL BE SUBJECT TO THE EASEMENTS HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOT(S)/PARCELS. DEVELOPER SHALL EXECUTE AND DELIVER DEEDS FOR THE EASEMENTS HEREIN RESERVED TO HOWARD COUNTY WITH A METES AND BOUNDS DESCRIPTION OF THE FOREST CONSERVATION AREA. UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR ACCEPTANCE BY HOWARD COUNTY, AND IN THE CASE OF THE FOREST CONSERVATION EASEMENT(S), UPON COMPLETION OF THE DEVELOPER'S OBLIGATIONS UNDER THE FOREST CONSERVATION INSTALLATION AND MAINTENANCE AGREEMENT EXECUTED BY THE DEVELOPER AND THE COUNTY, AND THE RELEASE OF DEVELOPER'S SURETY POSTED WITH SAID AGREEMENT. THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.
45. GRADING AND DISTURBANCE OF ENVIRONMENTAL FEATURES AS APPLICABLE FOR OUTFALL LOCATIONS AND/OR UTILITY CONSTRUCTION IS CONSIDERED ESSENTIAL DISTURBANCE. NO OTHER GRADING, DISTURBANCE OR VEGETATIVE REMOVAL IS PERMITTED IN WETLANDS, STREAMS, THEIR BUFFERS, FLOOD PLAIN OR FOREST CONSERVATION EASEMENT AREAS.
46. FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 12.8 ACRES, 1.8 ACRES FOR REFORESTATION FOR A TOTAL CONSERVATION EASEMENT AREA OF 14.6 ACRES. THE TOTAL SURETY AMOUNT FOR ONSITE REFORESTATION IS \$39,204.00 FOR A TOTAL SURETY AMOUNT OF \$39,204.00 (78,408 X .50) WHICH IS PART OF THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN, F-14-124. THE REMAINING FOREST CONSERVATION REQUIREMENT OF 10.2 ACRES WILL BE MET BY PAYMENT OF FEE-IN-LIEU TO THE FOREST CONSERVATION FUND IN THE AMOUNT OF \$333,234.00 (444,312 X .75). THE AREA OF SHA FOREST CONSERVATION EASEMENT IS NOT UTILIZED IN FULFILLMENT OF FOREST CONSERVATION OBLIGATION FOR THIS SUBDIVISION.
47. THIS PROJECT IS SUBJECT TO PLANNING BOARD CASE NO. 403, WHICH WAS APPROVED ON FEBRUARY 28, 2014.
48. A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON OCTOBER 2, 2012.
49. PERIMETER LANDSCAPING, STREET SIDE AND TRASH PAD SCREENING SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A LANDSCAPING SURETY WILL BE REQUIRED AS PART OF THIS DEVELOPER'S AGREEMENT. A LANDSCAPE SURETY IN THE AMOUNT OF \$32,100.00 FOR 20 SHADE TREES, 63 ORNAMENTAL TREES, AND 111 EVER GREENS SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THIS FINAL PLAN, F-14-124.

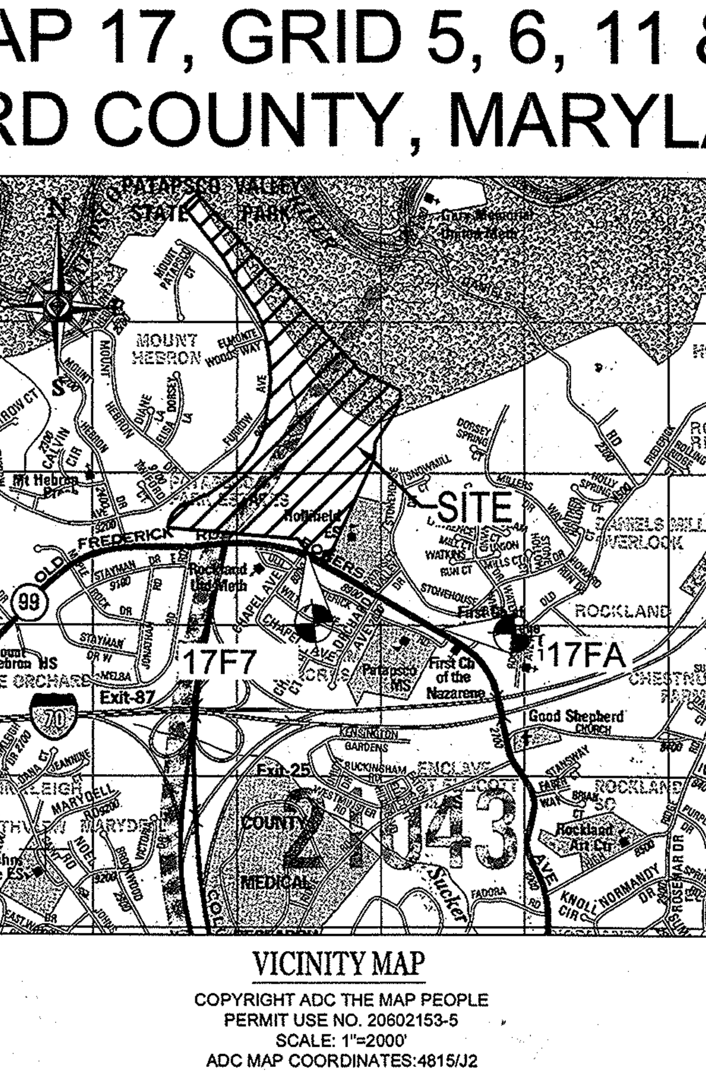
GENERAL NOTES (cont.)

50. ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-180.
51. A HOMEOWNERS ASSOCIATION HAS BEEN ESTABLISHED FOR THE RESIDENTS OF THIS SUBDIVISION AND PROTECTIVE COVENANTS AND COVENANTS GOVERNING THE MAINTENANCE OF THE COMMUNITY OWNED OPEN SPACE LOTS HAS BEEN RECORDED IN THE LAND RECORDS OF HOWARD COUNTY SIMULTANEOUS WITH THE RECORDATION OF F-14-124.
52. THE SHARED DRIVEWAY ACCESS AND MAINTENANCE OBLIGATION AGREEMENTS FOR THE 16' DRIVEWAYS WHICH SERVE LOTS 281 & 282, 299 - 304, 343 - 348, AND 366 - 369 WILL BE RECORDED IN THE LAND RECORDS OF HOWARD COUNTY SIMULTANEOUSLY WITH THE RECORDATION OF THE SUBDIVISION PLAT (F-14-124).
53. RETAINING WALLS LOCATED IN SETBACK AREAS ON INDIVIDUAL LOTS WHERE APPLICABLE WILL NOT EXCEED 3' IN HEIGHT AND WILL BE CONSTRUCTED UNDER THE SITE DEVELOPMENT PLANS. RETAINING WALLS SHALL BE CONSTRUCTED UNDER THESE FINAL ROAD CONSTRUCTION DRAWINGS IF LOCATED ON OPEN SPACE LOTS.
54. THE MARYLAND DEPARTMENT OF ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION HAS ISSUED A LETTER OF AUTHORIZATION (TRACKING NO. 13-NT-3155/201360766) FOR NON-TIDAL WETLANDS DISTURBANCE ASSOCIATED WITH THE PROPOSED STREAM CROSSING WITHIN THESE PLANS.
55. THE PROPOSED FOOT PATHS LOCATED WITHIN FOREST CONSERVATION EASEMENTS ON OPEN SPACE LOTS 196, 197, AND THE DANIELS MILL OVERLOOK OPEN SPACE LOT 2 SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN SPECS. OF THE DEPT. OF REC. & PARKS (REFER TO THE OVERALL PEDESTRIAN PATHWAY PLAN FOR DETAILS).
56. USE-IN-COMMON AGREEMENT(S) ARE REQUIRED BETWEEN THE OWNERS OF LOTS 281 & 282, 299 - 304, 343 - 348, AND 366 - 369 RESPECTIVELY, COVERING THE MAINTENANCE OF TRASH PADS AND ASSOCIATED LANDSCAPE SCREENING.

GENERAL NOTES (cont.)

57. TRASH PAD MAINTENANCE AND LANDSCAPE SCREENING SHALL BE THE RESPONSIBILITY OF THE LOT OWNERS WHICH ACCESS ONTO THE APPLICABLE SHARED DRIVEWAYS AND SHALL BE MADE A PART OF THE USE-IN-COMMON MAINTENANCE AGREEMENTS. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS WILL NOT BE RESPONSIBLE FOR UPKEEP.
58. IMPACT TO THE STREAM, WETLANDS AND THE WETLAND BUFFER IN THE VICINITY OF LOTS 308 & 309 WAS DETERMINED TO BE A NECESSARY DISTURBANCE BY THE DIVISION LAND DEVELOPMENT ON SEPTEMBER 23, 2014.
59. THE DEVELOPER AND THE DEPARTMENT OF PUBLIC WORKS HAVE REACHED AN AGREEMENT TO COMPLETE AN UPGRADE TO THE PUMP STATION. A DEVELOPER'S AGREEMENT WILL BE REQUIRED FOR THE PUMP STATION UPGRADE.
60. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, IN A LETTER DATED JANUARY 21, 2015, APPROVED A WAIVER REQUEST OF THE REQUIREMENTS OF SECTION 4.3.B.3.B AND 4.5.E FOR LOTS 61 THROUGH 66, LOTS 71 THROUGH 74, 97, AND 101 (NO BASEMENT GRAVITY SERVICE). AS A RESULT OF TOPOGRAPHY CAUSING DEPTHS OF SEWER IN EXCESS OF 20 FEET, BASEMENT SEWER SERVICE CANNOT BE PROVIDED TO THESE PROPOSED LOTS. FOR THESE LOTS: GRAVITY SEWER SERVICE TO BE PROVIDED TO FIRST FLOOR ONLY; BASEMENT SERVICE TO BE PROVIDED BY PRIVATE ON-SITE PUMP. THE APPROVAL AND INSPECTION OF ON-SITE PUMPING UNITS INCLUDES THE DEPARTMENT OF INSPECTION, LICENSES AND PERMITS (DILP).
61. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, IN A LETTER DATED JANUARY 21, 2015, APPROVED A WAIVER REQUEST OF THE REQUIREMENTS OF SECTION 3.3.B.5 (DEPTH OF COVER OVER WATER MAINS). THE WAIVER REQUEST TO ALLOW AN INCREASED DEPTH OF COVER OVER THE WATER MAIN CROSSING IN THE FOREST CONSERVATION EASEMENT, BETWEEN STATION 12+23 AND STATION 14+00 OF WATERLINE 'E', TO TEN (10) FEET IS APPROVED WITH THE FOLLOWING LIMITATIONS:
    - DR-14, C-900 PVC PIPE, WITH RESTRAINED JOINTS, SHALL BE USED BETWEEN STATION 13+06 AND STATION 14+20.
    - THE MAXIMUM COVER WITHIN THE LIMITS DESCRIBED ABOVE SHALL NOT EXCEED TEN (10) FEET.

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.



VICINITY MAP
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PERMIT USE NO. 20602153-5
SCALE: 1"=2000'
ADC MAP COORDINATES:4815/J2

BENCHMARK

GEODETIC SURVEY CONTROL -17FA	GEODETIC SURVEY CONTROL - 17F7
ELEV. 476.721'	ELEV. 469.399'
N 594,948.426	N 595,829.688
E 1,364,626.770	E 1,363,088.330

RECREATIONAL OPEN SPACE

NARRATIVE

47,250 SF OF RECREATIONAL OPEN SPACE WILL BE PROVIDED IN 3 TRAIL SIDE REST AREAS. THESE REST AREAS WILL BE DESIGNED AS FORMAL PARKS WITH SLOPES LESS THAN 10% AND WILL INCLUDE BENCHES, PICNIC TABLES, GAZEBOS, EXERCISE STATIONS, ORNAMENTAL PLANTING, DECORATIVE PAVERS ETC.. ADDITIONALLY 23,300 SF OF CREDITS WILL BE UTILIZED FOR RECREATIONAL AMENITIES LOCATED ALONG THE EXTENSIVE PATHWAY SYSTEM WHICH CONNECTS TO BOTH PATAPSCO PARK AND HOWARD COUNTY ATHLETIC FIELDS AND HOWARD COUNTY BOARD OF EDUCATION ATHLETIC FIELDS. THIS TRAIL SYSTEM WILL INCLUDE ADDITIONAL BENCHES, AND INTERPRETIVE SIGNAGE.

SUMMARY

RECREATIONAL OPEN SPACE REQUIRED: 300 SF X 195 LOTS= 58,500 SF (1.34 ACRES)

OPEN SPACE PROVIDED

47,250 SF PROVIDED IN 3 TRAIL SIDE RECREATIONAL OPEN SPACE AREAS.

CREDITS FOR RECREATIONAL AMENITIES (50% MAX):

- 19,800 SF PAVED PATHWAYS @ 3 SF/1 LF (6,600 LF)*
- 2,400 SF 12 BENCHES @ 200 SF/ BENCH
- 2,000 SF 10 INTERPRETIVE SIGNAGE @ 200 SF/SIGN

TOTAL CREDIT REQUESTED = 23,300 SF*

TOTAL OPEN SPACE PROVIDED

47,250 SF + 23,300 SF = 70,550 SF*

*A MINIMUM OF 2,550 L.F. OF PATHWAY MUST BE CONSTRUCTED TO MEET THE RECREATIONAL OPEN SPACE REQUIREMENT.

PHASE I - ROADWORK TO BE COMPLETED*

ROAD NAME	BEGIN STA.	TO	END STA.
VALLEY VIEW WAY	10+00		25+10 (P.C. OF CURB RETURN)
GRIST MILL WAY	10+00		15+40 END STATION
SOAPSTONE TRAIL	(P.C. WEST OF ROUNDABOUT)		15+53.2
MORNING CHOICE COURT	10+00		11+26.15

PHASE II - ROADWORK TO BE COMPLETED *

ROAD NAME	BEGIN STA.	TO	END STA.
VINEYARD SPRINGS WAY	10+00		19+20 (P.C. OF CURB RETURN NORTH SIDE OF INTERSECTION)
RIVER RIDGE TRAIL	10+00		12+90 (P.C. OF CURB RETURN NORTH SIDE OF INTERSECTION
SOAPSTONE TRAIL	10+00		15+53.2 (P.C. EAST OF ROUNDABOUT

PHASE III - ROADWORK TO BE COMPLETED *

ROAD NAME	BEGIN STA.	TO	END STA.
RIVER RIDGE TRAIL	12+90		17+42.82

PHASE V - ROADWORK TO BE COMPLETED *

ROAD NAME	BEGIN STA.	TO	END STA.
VALLEY VIEW WAY	25+10 (STA. SAME AS ABOVE)		31+01.49
VINEYARD SPRINGS WAY	19+20 (STA. SAME AS ABOVE)		30+65.26
SAWMILL BRANCH TRAIL	10+00		15+44.41
SPRING GLEN COURT	10+00		14+12.86
TALL POPLAR COURT	10+00		11+97.05

*ROADWORK CONSTRUCTION TO BE PHASED PER THE EROSION & SEDIMENT CONTROL PLANS IN ORDER TO MAINTAIN A LIMIT OF DISTURBANCE LESS THAN 20 ACRES IN ACCORDANCE WITH THE STATE OF MARYLAND NDPES REGULATIONS. THE SUBDIVISION WILL NOT BE PHASING ALLOCATIONS.

OPEN SPACE CHART

LOT No.	OWNER	PURPOSE
196	HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS	OPEN SPACE*
197	HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS	OPEN SPACE*

* FOR THE CREATION OF FOREST CONSERVATION EASEMENTS, THE PROTECTION OF STEEP SLOPES, STREAMS, WETLAND, STORMWATER MANAGEMENT, AND THEIR ASSOCIATED BUFFERS, AND THE CREATION OF RECREATIONAL OPEN SPACE.

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 11/9/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 12-7-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 11-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013SD4.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:13

PREPARED BY

BOHLER ENGINEERING
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SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	1
GENERAL NOTES AND LEGEND	2 - 3
EX. CONDITIONS & DEMOLITION PLAN KEY SHEET	4
EXISTING CONDITIONS & DEMOLITION PLAN	5 - 8
PUBLIC ROAD PLAN AND PROFILE	9 - 21
PAVEMENT SECTION PLAN	22
TYPICAL ROAD SECTION DETAILS	23 - 24
STANDARD CONSTRUCTION DETAILS	25
EROSION & SEDIMENT CONTROL PHASE I PLAN	26 - 29
EROSION & SEDIMENT CONTROL PHASE II PLAN	30 - 31
EROSION & SEDIMENT CONTROL PHASE III PLAN	32
EROSION & SEDIMENT CONTROL PHASE IV PLAN	33 - 34
EROSION & SEDIMENT CONTROL PHASE V PLAN	35 - 37
EROSION & SEDIMENT CONTROL DRAINAGE AREA MAPS	38 - 40
EROSION & SEDIMENT CONTROL NOTES & DETAILS	41 - 44
ULTIMATE GRADING PLAN KEY SHEET	45
ULTIMATE GRADING PLAN	46 - 49
BORING LOCATION MAP	50
BORING LOGS	51 - 53
STORM DRAIN DRAINAGE AREA MAP	54
STORM DRAIN PROFILES	55 -66
STORM DRAIN DETAILS	67
STORM WATER MANAGEMENT DRAINAGE AREA MAP	68
STORM WATER MANAGEMENT DETAILS	69 - 73
OUTFALL STABILIZATION DETAILS	74
ON-LOT STORM WATER MANAGEMENT DETAILS	75
SWALE PROFILES AND SECTIONS	76 - 82
STREET TREE AND LANDSCAPE PLAN KEY SHEET	83
STREET TREE AND LANDSCAPE PLAN	84 - 87
LANDSCAPE NOTES AND DETAILS	88
FOREST CONSERVATION PLAN KEY SHEET	89
FOREST CONSERVATION PLAN	90-95
FOREST CONSERVATION NOTES AND DETAILS	96-97
OFF-SITE ROAD IMPROVEMENT PLANS	
GRADING, EROSION AND SEDIMENT CONTROL PLAN	98-101
DRAINAGE AREA MAP	102
PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN	103-105
MICRO-BIORETENTION SPECIFICATIONS	106
MICRO-BIORETENTION LANDSCAPING	107
PAVEMENT MARKING AND TRAFFIC CONTROL PLAN	108-109
LANDSCAPE PLAN	110-111
OVERALL PEDESTRIAN PATHWAY PLAN	112
OVERALL LIGHTING PLAN	113
PEDESTRIAN BRIDGE DETAILS	114
TRAFFIC SIGNAL PLAN	115-116

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

DIG WITH C.A.R.E. CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	SD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
No. 40808

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
1

F-14-124

GENERAL NOTES:

CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE NOTES AND SPECIFICATIONS CONTAINED HEREIN. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS.

1. THE FOLLOWING DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THIS SITE PLAN:
   - SURVEY - BOUNDARY & TOPOGRAPHIC SURVEY PERFORMED BY AERO-METRIC, DATED 1/25/09. EXISTING UTILITIES ARE BASED ON THE AERIAL SURVEY BY AERO-METRIC AND FIELD SURVEY BY BEN DYER ASSOCIATES.
   - GEOTECHNICAL REPORT - PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, INC., DATED 1/4/13 WITH SUPPLEMENTAL INFORMATION DATED 5/6/14.
   - STORMWATER MANAGEMENT REPORT - PREPARED BY BOHLER ENGINEERING VA, LLC, DATED MAY 30, 2014.
   - STORMWATER SYSTEM OPERATION AND MAINTENANCE MANUAL - REFER TO STORMWATER MANAGEMENT DETAILS FOR OPERATION AND MAINTENANCE NOTES AND DETAILS FOR THE RESPECTIVE STORMWATER MANAGEMENT FACILITIES THAT ARE PROPOSED WITH THIS PLAN.

   PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST VERIFY THAT HE/SHE HAS THE LATEST EDITION OF THE DOCUMENTS REFERENCED ABOVE. THIS IS CONTRACTOR'S RESPONSIBILITY.
2. ALL ACCESSIBLE (A/K/A ADA) PARKING SPACES MUST BE CONSTRUCTED TO MEET, AT A MINIMUM, THE MORE STRINGENT OF THE REQUIREMENTS OF THE "AMERICANS WITH DISABILITIES ACT" (ADA) CODE (42 U.S.C. § 12101 et seq. AND 42 U.S.C. § 4151 et seq.) OR THE REQUIREMENTS OF THE JURISDICTION WHERE THE PROJECT IS TO BE CONSTRUCTED, AND ANY AND ALL AMENDMENTS TO BOTH WHICH ARE IN EFFECT WHEN THESE PLANS ARE COMPLETED.
3. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED THE COMMENTS TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES AND CONFIRMED THAT ALL NECESSARY OR REQUIRED PERMITS HAVE BEEN OBTAINED. CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.
4. THE OWNER/CONTRACTOR MUST BE FAMILIAR WITH AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
5. ALL WORK MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND CONDITIONS OF APPROVAL, AND ALL APPLICABLE REQUIREMENTS, RULES, REGULATIONS, STATUTORY REQUIREMENTS, CODES, LAWS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES WITH JURISDICTION OVER THIS PROJECT.
6. THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SET FORTH HEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND, IN CASE OF CONFLICT, DISCREPANCY OR AMBIGUITY, THE MORE STRINGENT REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN THE PLANS AND THE GEOTECHNICAL REPORT AND RECOMMENDATIONS SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR MUST NOTIFY THE ENGINEER, IN WRITING, OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORTS AND PLANS AND SPECIFICATIONS PRIOR TO PROCEEDING WITH ANY FURTHER WORK.
7. THESE PLANS ARE BASED ON INFORMATION PROVIDED TO BOHLER ENGINEERING BY THE OWNER AND OTHERS PRIOR TO THE TIME OF PLAN PREPARATION. CONTRACTOR MUST FIELD VERIFY EXISTING CONDITIONS AND NOTIFY BOHLER ENGINEERING, IN WRITING, IMMEDIATELY IF ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLAN, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.
8. ALL DIMENSIONS SHOWN ON THE PLANS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR MUST NOTIFY ENGINEER, IN WRITING, IF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE REDONE OR REPAIRED DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO CONTRACTOR GIVING ENGINEER WRITTEN NOTIFICATION OF SAME AND ENGINEER, THEREAFTER, PROVIDING CONTRACTOR WITH WRITTEN AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.
9. CONTRACTOR MUST REFER TO THE ARCHITECTURAL/BUILDING PLANS "OF RECORD" FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.
10. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT BY CAREFUL REVIEW OF THE ENTIRE SITE PLAN AND THE LATEST ARCHITECTURAL PLANS (INCLUDING, BUT NOT LIMITED TO, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLAN, WHERE APPLICABLE). CONTRACTOR MUST IMMEDIATELY NOTIFY OWNER, ARCHITECT AND SITE ENGINEER, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR AMBIGUITIES WHICH EXIST.
11. DEBRIS MUST NOT BE BURIED ON THE SUBJECT SITE AND ALL UNSUITABLE EXCAVATED MATERIAL AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF ANY AND ALL GOVERNMENTAL AUTHORITIES WHICH HAVE JURISDICTION OVER THIS PROJECT OR OVER CONTRACTOR.
12. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN SHORING IS REQUIRED AND FOR INSTALLING ALL SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT, NEARBY AND CONTIGUOUS STRUCTURES AND PROPERTIES.
13. THE CONTRACTOR IS TO EXERCISE EXTREME CARE WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.
14. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. AND SHALL BEAR ALL COSTS ASSOCIATED WITH SAME TO INCLUDE, BUT NOT BE LIMITED TO, REDESIGN, RE-SURVEY, RE-PERMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAL INTERCONNECTION CABLE, WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH APPLICABLE CODES, LAWS RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. CONTRACTOR IS RESPONSIBLE TO DOCUMENT ALL EXISTING DAMAGE AND TO NOTIFY THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
15. ALL CONCRETE MUST BE AIR ENTRAINED AND HAVE THE MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS UNLESS OTHERWISE NOTED ON THE PLANS, DETAILS AND/OR GEOTECHNICAL REPORT.
16. THE ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION METHODS, MEANS, TECHNIQUES OR PROCEDURES, GENERALLY OR FOR THE CONSTRUCTION MEAN, METHODS, TECHNIQUES OR PROCEDURES FOR COMPLETION OF THE WORK DEPICTED BOTH ON THESE PLANS, AND FOR ANY CONFLICTS/SCOPE REVISIONS WHICH RESULT FROM SAME. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE METHODS/MEANS FOR COMPLETION OF THE WORK PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
17. THE ENGINEER OF RECORD IS NOT RESPONSIBLE FOR JOB SITE SAFETY. THE ENGINEER OF RECORD HAS NOT BEEN RETAINED TO PERFORM OR BE RESPONSIBLE FOR JOB SITE SAFETY, SAME BEING WHOLLY OUTSIDE OF ENGINEER'S SERVICES AS RELATED TO THE PROJECT. THE ENGINEER OF RECORD IS NOT RESPONSIBLE TO IDENTIFY OR REPORT ANY JOB SITE SAFETY ISSUES, AT ANY TIME.
18. ALL CONTRACTORS MUST CARRY THE SPECIFIED STATUTORY WORKER'S COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE (CGL). ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME BOHLER ENGINEERING, AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AS ADDITIONAL NAMED INSURED AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE THIS HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED BY THE CONTRACTORS. ALL CONTRACTORS MUST FURNISH BOHLER ENGINEERING WITH CERTIFICATIONS OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE PRIOR TO COMMENCING WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION AND FOR ONE YEAR AFTER THE COMPLETION OF CONSTRUCTION. IN ADDITION, ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, INDEMNIFY, DEFEND AND HOLD HARMLESS BOHLER ENGINEERING AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS FROM AND AGAINST ANY DAMAGES, INJURIES, CLAIMS, ACTIONS, PENALTIES, EXPENSES, PUNITIVE DAMAGES, TORT DAMAGES, STATUTORY CLAIMS, STATUTORY CAUSES OF ACTION, LOSSES, CAUSES OF ACTION, LIABILITIES OR COSTS, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH OR TO THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTORS, ALL CLAIMS BY THIRD PARTIES AND ALL CLAIMS RELATED TO THE PROJECT. CONTRACTOR MUST NOTIFY ENGINEER, IN WRITING, AT LEAST THIRTY (30) DAYS PRIOR TO ANY TERMINATION, SUSPENSION OR CHANGE OF ITS INSURANCE HEREUNDER.
19. BOHLER ENGINEERING WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND/OR METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER HAS NO RESPONSIBILITY OR LIABILITY FOR SAME HEREUNDER. BOHLER ENGINEERING'S SHOP DRAWING REVIEW WILL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM MUST NOT INDICATE THAT BOHLER ENGINEERING HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT PROMPTLY AND IMMEDIATELY BROUGHT TO ITS ATTENTION, IN WRITING, BY THE CONTRACTOR. BOHLER ENGINEERING WILL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
20. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER ENGINEERING, NOR THE PRESENCE OF BOHLER ENGINEERING AND/OR ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE GENERAL CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, OVERSEEING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND COMPLIANCE ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES WITH JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER ENGINEERING AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY. BOHLER ENGINEERING SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND MUST BE NAMED AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE IN NOTE 19 FOR JOB SITE SAFETY.
21. IF THE CONTRACTOR DEVIATES FROM THE PLANS AND SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE ENGINEER FOR SUCH DEVIATIONS, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK DONE WHICH DEVIATES FROM THE PLANS, ALL FINES AND/OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND, FURTHER, SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE ENGINEER, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, IN ACCORDANCE WITH PARAGRAPH 19 HEREIN, FOR AND FROM ALL FEES, ATTORNEYS' FEES, DAMAGES, COSTS, JUDGMENTS, PENALTIES AND THE LIKE RELATED TO SAME.
22. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE AND PROTECTION OF TRAFFIC PLAN FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE R.O.W. OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE.
23. ALL SIGNING AND PAVEMENT STRIPING MUST CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES OR LOCALLY APPROVED SUPPLEMENT.
24. ENGINEER IS NOT RESPONSIBLE FOR ANY INJURY OR DAMAGES RESULTING FROM CONTRACTOR'S FAILURE TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH THE APPROVED PLANS. IF CONTRACTOR AND/OR OWNER FAIL BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH APPROVED PLANS, THEY AGREE TO JOINTLY AND SEVERALLY INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS.
25. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS, IN STRICT ACCORDANCE WITH THE APPROVED PLAN(S) AND DESIGN AND, FURTHER ENGINEER IS NOT RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND/OR DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS, OWNER AGREES TO INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS AS A RESULT OF SAID FAILURE.
26. ALL DIMENSIONS MUST BE TO FACE OF CURB, EDGE OF PAVEMENT, OR EDGE OF BUILDING, UNLESS NOTED OTHERWISE.
27. ALL CONSTRUCTION AND MATERIALS MUST COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, ORDINANCES, RULES AND CODES, AND ALL APPLICABLE OSHA REQUIREMENTS.
28. CONTRACTOR AND OWNER MUST INSTALL ALL ELEMENTS AND COMPONENTS IN STRICT COMPLIANCE WITH AND ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDED INSTALLATION CRITERIA AND SPECIFICATIONS. IF CONTRACTOR AND/OR OWNER FAIL TO DO SO, THEY AGREE TO JOINTLY AND SEVERALLY INDEMNIFY AND HOLD ENGINEER HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS AS A RESULT OF SAID FAILURE.
29. CONTRACTOR IS RESPONSIBLE TO MAINTAIN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH EPA REQUIREMENTS FOR SITES WHERE ONE (1) ACRE OR MORE (UNLESS THE LOCAL JURISDICTION REQUIRES FEWER) IS DISTURBED BY CONSTRUCTION ACTIVITIES. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE.
30. AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED APPLICATION DOCUMENTS PREPARED BY THE SIGNATORY PROFESSIONAL ENGINEER, THE USE OF THE WORDS CERTIFY OR CERTIFICATION CONSTITUTES AN EXPRESSION OF "PROFESSIONAL OPINION" REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE UNDERSIGNED PROFESSIONAL KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EITHER EXPRESSED OR IMPLIED.

GENERAL DEMOLITION NOTES:

1. THIS PLAN REFERENCES DOCUMENTS AND INFORMATION IDENTIFIED IN GENERAL NOTE 1 ON THIS SHEET (SHEET 2).
2. CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 et seq.), AS AMENDED AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.
3. BOHLER ENGINEERING HAS NO CONTRACTUAL, LEGAL, OR OTHER RESPONSIBILITY FOR JOB SITE SAFETY OR JOB SITE SUPERVISION, OR ANYTHING RELATED TO SAME.
4. THE DEMOLITION PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION, ONLY, REGARDING ITEMS TO BE DEMOLISHED AND/OR REMOVED. THE CONTRACTOR MUST ALSO REVIEW THE OTHER SITE PLAN DRAWINGS AND INCLUDE IN DEMOLITION ACTIVITIES ALL INCIDENTAL WORK NECESSARY FOR THE CONSTRUCTION OF THE NEW SITE IMPROVEMENTS.
5. CONTRACTOR MUST RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS OR SPECIFICATIONS, CONCERNS REGARDING THE APPLICABLE SAFETY STANDARDS, OR THE SAFETY OF THE CONTRACTOR OR THIRD PARTIES IN PERFORMING THE WORK ON THIS PROJECT, WITH BOHLER ENGINEERING, IN WRITING, AND RESPONDED TO BY BOHLER, IN WRITING, PRIOR TO THE INITIATION OF ANY SITE ACTIVITY AND ANY DEMOLITION ACTIVITY. ALL DEMOLITION ACTIVITIES MUST BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, RULES, REQUIREMENTS, STATUTES, ORDINANCES AND CODES.
6. PRIOR TO STARTING ANY DEMOLITION, CONTRACTOR IS RESPONSIBLE FOR/TO:

   A. OBTAINING ALL REQUIRED PERMITS AND MAINTAINING THE SAME ON SITE FOR REVIEW BY THE ENGINEER AND OTHER PUBLIC AGENCIES HAVING JURISDICTION THROUGHOUT THE DURATION OF THE PROJECT, SITE WORK AND DEMOLITION WORK.

ADA INSTRUCTIONS TO CONTRACTOR

CONTRACTORS MUST EXERCISE APPROPRIATE CARE AND PRECISION IN CONSTRUCTION OF ADA (HANDICAP) ACCESSIBLE COMPONENTS AND ACCESS ROUTES FOR THE SITE. THESE COMPONENTS, AS CONSTRUCTED, MUST COMPLY WITH THE CURRENT ADA STANDARDS AND REGULATIONS' BARRIER FREE ACCESS AND ANY MODIFICATIONS, REVISIONS OR UPDATES TO SAME. FINISHED SURFACES ALONG THE ACCESSIBLE ROUTE OF TRAVEL FROM PARKING SPACE, PUBLIC TRANSPORTATION, PEDESTRIAN ACCESS, INTER-BUILDING ACCESS, TO POINTS OF ACCESSIBLE BUILDING ENTRANCE/EXIT, MUST COMPLY WITH THESE ADA CODE REQUIREMENTS. THESE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

- PARKING SPACES AND PARKING AISLES - SLOPE SHALL NOT EXCEED 1:50 (1/4" PER FOOT OR NOMINALLY 2.0%) IN ANY DIRECTION.
- CURB RAMPS - SLOPE MUST NOT EXCEED 1:12 (8.3%) FOR A MAXIMUM OF SIX (6) FEET.
- LANDINGS - MUST BE PROVIDED AT EACH END OF RAMPS, MUST PROVIDE POSITIVE DRAINAGE, AND MUST NOT EXCEED 1:50 (1/4" PER FOOT OR NOMINALLY 2.0%) IN ANY DIRECTION.
- PATH OF TRAVEL ALONG ACCESSIBLE ROUTE - MUST PROVIDE A 36-INCH OR GREATER UNOBSTRUCTED WIDTH OF TRAVEL (CAR OVERHANGS AND/OR HANDRAILS CANNOT REDUCE THIS MINIMUM WIDTH). THE SLOPE MUST BE NO GREATER THAN 1:20 (5.0%) IN THE DIRECTION OF TRAVEL, AND MUST NOT EXCEED 1:50 (1/4" PER FOOT OR NOMINALLY 2.0%) IN CROSS SLOPE. WHERE PATH OF TRAVEL WILL BE GREATER THAN 1:20 (5.0%), ADA RAMP MUST BE ADHERED TO. A MAXIMUM SLOPE OF 1:12 (8.3%), FOR A MAXIMUM RISE OF 2.5 FEET, MUST BE PROVIDED. THE RAMP MUST HAVE ADA HAND RAILS AND "LEVEL" LANDINGS ON EACH END THAT ARE CROSS SLOPED NO MORE THAN 1:50 IN ANY DIRECTION (1/4" PER FOOT OR NOMINALLY 2.0%) FOR POSITIVE DRAINAGE.
- DOORWAYS - MUST HAVE A "LEVEL" LANDING AREA ON THE EXTERIOR SIDE OF THE DOOR THAT IS SLOPED AWAY FROM THE DOOR NO MORE THAN 1:50 (1/4" PER FOOT OR NOMINALLY 2.0%) FOR POSITIVE DRAINAGE. THIS LANDING AREA MUST BE NO LESS THAN 60 INCHES (5 FEET) LONG, EXCEPT WHERE OTHERWISE PERMITTED BY ADA STANDARDS FOR ALTERNATIVE DOORWAY OPENING CONDITIONS. (SEE ICC/ANSI A117.1-2003 AND OTHER REFERENCED INCORPORATED BY COD.)
- WHEN THE PROPOSED CONSTRUCTION INVOLVES RECONSTRUCTION, MODIFICATION, REVISION OR EXTENSION OF OR TO ADA COMPONENTS FROM EXISTING DOORWAYS OR SURFACES, CONTRACTOR MUST VERIFY EXISTING ELEVATIONS SHOWN ON THE PLAN. NOTE THAT TABLE 405.2 OF THE DEPARTMENT OF JUSTICE'S ADA STANDARDS FOR ACCESSIBLE DESIGN ALLOWS FOR STEEPER RAMP SLOPES, IN RARE CIRCUMSTANCES. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES AND/OR FIELD CONDITIONS THAT DIFFER IN ANY WAY OR ANY RESPECT FROM WHAT IS SHOWN ON THE PLANS, IN WRITING, BEFORE COMMENCEMENT OF WORK. CONSTRUCTED IMPROVEMENTS MUST FALL WITHIN THE MAXIMUM AND MINIMUM LIMITATIONS IMPOSED BY THE BARRIER FREE REGULATIONS AND THE ADA REQUIREMENTS.
- THE CONTRACTOR MUST VERIFY THE SLOPES OF CONTRACTOR'S FORMS PRIOR TO POURING CONCRETE. IF ANY NON-CONFORMANCE IS OBSERVED OR EXISTS, CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO POURING CONCRETE. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS TO REMOVE, REPAIR AND REPLACE NON-CONFORMING CONCRETE.

IT IS STRONGLY RECOMMENDED THAT THE CONTRACTOR REVIEW THE INTENDED CONSTRUCTION WITH THE LOCAL BUILDING CODE PRIOR TO COMMENCEMENT OF CONSTRUCTION.

GENERAL GRADING & UTILITY NOTES

1. LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE INDEPENDENTLY CONFIRMED WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS MUST BE INDEPENDENTLY CONFIRMED BY THE CONTRACTOR IN THE FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES MUST IMMEDIATELY BE REPORTED, IN WRITING, TO THE ENGINEER. CONSTRUCTION MUST COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CONTRACTOR MUST VERTICALLY AND HORIZONTALLY LOCATE ALL UTILITIES AND SERVICES INCLUDING, BUT NOT LIMITED TO, GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE OR WORK SPACE, WHICHEVER IS GREATER. THE CONTRACTOR MUST USE, REFER TO, AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION, AT NO COST TO THE OWNER. CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH DAMAGE TO ANY EXISTING UTILITIES DURING CONSTRUCTION.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT AND/OR DISCREPANCY BETWEEN THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE OR APPLICABLE CODES, REGULATIONS, LAWS, RULES, STATUTES AND/OR ORDINANCES, IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD, IN WRITING, OF SAID CONFLICT AND/OR DISCREPANCY PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR'S FAILURE TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE CONTRACTOR'S FULL AND COMPLETE ACCEPTANCE OF ALL RESPONSIBILITY TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, LAWS, STATUTES, ORDINANCES AND CODES AND, FURTHER, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SAME.
4. THE CONTRACTOR MUST LOCATE AND CLEARLY AND UNAMBIGUOUSLY DEFINE VERTICALLY AND HORIZONTALLY ALL ACTIVE AND INACTIVE UTILITY AND/OR SERVICE SYSTEMS THAT ARE TO BE REMOVED. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN ALL ACTIVE AND INACTIVE SYSTEMS THAT ARE NOT BEING REMOVED/RELOCATED DURING SITE ACTIVITY.
5. THE CONTRACTOR MUST FAMILIARIZE ITSELF WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AS IDENTIFIED OR REQUIRED FOR THE PROJECT. THE CONTRACTOR MUST PROVIDE THE OWNER WITH WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH THE JURISDICTION AND UTILITY COMPANY REQUIREMENTS AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.
6. THE CONTRACTOR MUST INSTALL ALL STORM SEWER AND SANITARY SEWER COMPONENTS WHICH FUNCTION BY GRAVITY PRIOR TO THE INSTALLATION OF ALL OTHER UTILITIES.
7. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF SITE PLAN DOCUMENTS AND ARCHITECTURAL DESIGN FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, GREASE TRAP REQUIREMENTS/DETAILS, DOOR ACCESS, AND EXTERIOR GRADING. THE ARCHITECT WILL DETERMINE THE UTILITY SERVICE SIZES. THE CONTRACTOR MUST COORDINATE INSTALLATION OF UTILITIES/SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND TO ENSURE THAT PROPER DEPTHS ARE ACHIEVED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT INSTALLATION OF ALL IMPROVEMENTS COMPLIES WITH ALL UTILITY REQUIREMENTS WITH JURISDICTION AND/OR CONTROL OF THE SITE, AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES AND, FURTHER, IS RESPONSIBLE FOR COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY/SERVICE. WHERE A CONFLICT(S) EXISTS BETWEEN THESE SITE PLANS AND THE ARCHITECTURAL PLANS, OR WHERE ARCHITECTURAL PLAN UTILITY CONNECTION POINTS DIFFER, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER, IN WRITING, AND PRIOR TO CONSTRUCTION, RESOLVE SAME.
8. WATER SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS MUST BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTOR'S PRICE FOR WATER SERVICE MUST INCLUDE ALL FEES, COSTS AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE FULL AND COMPLETE WORKING SERVICE. CONTRACTOR MUST CONTACT THE APPLICABLE MUNICIPALITY TO CONFIRM THE PROPER WATER METER AND VAULT, PRIOR TO COMMENCING CONSTRUCTION.
9. ALL NEW UTILITIES/SERVICES, INCLUDING ELECTRIC, TELEPHONE, CABLE TV, ETC. ARE TO BE INSTALLED UNDERGROUND. ALL NEW UTILITIES/SERVICES MUST BE INSTALLED IN ACCORDANCE WITH THE UTILITY/SERVICE PROVIDER INSTALLATION SPECIFICATIONS AND STANDARDS.
10. SITE GRADING MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT REFERENCED IN THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING UNSUITABLE MATERIALS WITH SUITABLE MATERIALS AS SPECIFIED IN THE GEOTECHNICAL REPORT. ALL EXCAVATED OR FILLED AREAS MUST BE COMPACTED AS OUTLINED IN THE GEOTECHNICAL REPORT. MOISTURE CONTENT AT TIME OF PLACEMENT MUST BE SUBMITTED IN A COMPACTION REPORT PREPARED BY A QUALIFIED GEOTECHNICAL ENGINEER, REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT MUST BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE BY OWNER/DEVELOPER, OR OWNER/DEVELOPER'S REPRESENTATIVE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL COMPACTED AS DIRECTED BY THE GEOTECHNICAL REPORT. EARTHWORK ACTIVITIES INCLUDING, BUT NOT LIMITED TO, EXCAVATION, BACKFILL, AND COMPACTING MUST COMPLY WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. EARTHWORK ACTIVITIES MUST COMPLY WITH THE STANDARD STATE DOT SPECIFICATIONS FOR ROADWAY CONSTRUCTION (LATEST EDITION) AND ANY AMENDMENTS OR REVISIONS THERETO.
11. ALL FILL, COMPACTION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION MUST BE AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND MUST BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS. WHEN THE PROJECT DOES NOT HAVE GEOTECHNICAL RECOMMENDATIONS, FILL AND COMPACTION MUST, AT A MINIMUM, COMPLY WITH THE STATE DOT REQUIREMENTS AND SPECIFICATIONS AND CONSULTANT SHALL HAVE NO LIABILITY OR RESPONSIBILITY FOR OR AS RELATED TO FILL, COMPACTION AND BACKFILL. FURTHER, CONTRACTOR IS FULLY RESPONSIBLE FOR EARTHWORK BALANCE.
12. THE CONTRACTOR MUST COMPLY, TO THE FULLEST EXTENT, WITH THE LATEST OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES AND CONSULTANT SHALL HAVE NO RESPONSIBILITY FOR OR AS RELATED FOR OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES.
13. PAVEMENT MUST BE SAW CUT IN STRAIGHT LINES, AND EXCEPT FOR EDGE OF BUTT JOINTS, MUST EXTEND TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS MUST BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS WILL NOT BE PERMITTED.
14. THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS MUST BE ADJUSTED, AS NECESSARY, TO MATCH PROPOSED GRADES IN ACCORDANCE WITH ALL APPLICABLE STANDARDS, REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.
15. DURING THE INSTALLATION OF SANITARY SEWER, STORM SEWER, AND ALL UTILITIES, THE CONTRACTOR MUST MAINTAIN A CONTEMPORANEOUS AND THOROUGH RECORD OF CONSTRUCTION TO IDENTIFY THE AS-INSTALLED LOCATIONS OF ALL UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR MUST CAREFULLY NOTE ANY INSTALLATIONS THAT DEVIATE FROM THE INFORMATION CONTAINED IN THE UTILITY PLAN. THIS RECORD MUST BE KEPT ON A CLEAN COPY OF THE SITE PLAN, WHICH CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER AT THE COMPLETION OF WORK.
16. WHEN THE SITE IMPROVEMENT PLANS INVOLVE MULTIPLE BUILDINGS, SOME OF WHICH MAY BE BUILT AT A LATER DATE, THE CONTRACTOR MUST EXTEND ALL LINES, INCLUDING BUT NOT LIMITED TO STORM SEWER, SANITARY SEWER, UTILITIES, AND IRRIGATION LINE, TO A POINT AT LEAST FIVE (5) FEET BEYOND THE PAVED AREAS FOR WHICH THE CONTRACTOR IS RESPONSIBLE. CONTRACTOR MUST CAP ENDS AS APPROPRIATE, MARK LOCATIONS WITH A 2X4, AND MUST NOTE THE LOCATION OF ALL OF THE ABOVE ON A CLEAN COPY OF THE SITE PLAN, WHICH CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER UPON COMPLETION OF THE WORK.
17. THE CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCING ANY CONSTRUCTION. CONTRACTOR MUST CONFIRM AND ENSURE 0.75% MINIMUM SLOPE AGAINST ALL ISLANDS, GUTTERS, AND CURBS; 1.0% ON ALL CONCRETE SURFACES; AND 1.5% MINIMUM ON ASPHALT (EXCEPT WHERE ADA REQUIREMENTS LIMIT GRADES), TO PREVENT PONDING. CONTRACTOR MUST IMMEDIATELY IDENTIFY, IN WRITING TO THE ENGINEER, ANY DISCREPANCIES THAT MAY OR COULD AFFECT THE PUBLIC SAFETY, HEALTH OR GENERAL WELFARE, OR PROJECT COST. IF CONTRACTOR PROCEEDS WITH CONSTRUCTION WITHOUT PROVIDING PROPER NOTIFICATION, MUST BE AT THE CONTRACTOR'S OWN RISK AND, FURTHER, CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS THE DESIGN ENGINEER FOR ANY DAMAGES, COSTS, INJURIES, ATTORNEY'S FEES AND THE LIKE WHICH RESULT FROM SAME.
18. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 6" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MINIMUM OF 0.75% GUTTER GRADE ALONG CURB FACE. IT IS CONTRACTOR'S OBLIGATION TO ENSURE THAT DESIGN ENGINEER APPROVES FINAL CURBING CUT SHEETS PRIOR TO INSTALLATION OF SAME.
19. REFER TO SITE PLAN FOR ADDITIONAL NOTES.
20. IN THE EVENT OF DISCREPANCIES AND/OR CONFLICTS BETWEEN PLANS OR RELATIVE TO OTHER PLANS, THE SITE PLAN WILL TAKE PRECEDENCE AND CONTROL. CONTRACTOR MUST IMMEDIATELY NOTIFY THE DESIGN ENGINEER, IN WRITING, OF ANY DISCREPANCIES AND/OR CONFLICTS.
21. CONTRACTOR MUST REQUIRED TO SECURE ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS FOR ALL OFF SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. CONTRACTOR MUST SUPPLY A COPY OF APPROVALS TO ENGINEER AND OWNER PRIOR TO INITIATING WORK ANY WORK.
22. WHERE RETAINING WALLS (WHETHER OR NOT THEY MEET THE JURISDICTIONAL DEFINITION) ARE IDENTIFIED ON PLANS, ELEVATIONS IDENTIFIED ARE FOR THE EXPOSED PORTION OF THE WALL. WALL FOOTINGS/FOUNDATION ELEVATIONS ARE NOT IDENTIFIED HEREIN AND ARE TO BE SET/DETERMINED BY THE CONTRACTOR BASED ON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS.
23. STORM DRAINAGE PIPE:

    UNLESS INDICATED OTHERWISE, ALL STORM SEWER PIPE MUST BE REINFORCED CONCRETE PIPE (RCP) CLASS III WITH SILT TIGHT JOINTS. WHEN HIGH-DENSITY POLYETHYLENE PIPE (HDPE) IS CALLED FOR ON THE PLANS, IT MUST CONFORM TO AASHTO M294 AND TYPE S (SMOOTH INTERIOR WITH ANGULAR CORRUGATIONS) WITH GASKET FOR SILT TIGHT JOINT. PVC PIPE FOR ROOF DRAIN CONNECTION MUST BE SDR 26 OR SCHEDULE 40 UNLESS INDICATED OTHERWISE.
24. SANITARY SEWER PIPE MUST BE POLYVINYL CHLORIDE (PVC) SDR 35 EXCEPT WHERE INDICATED OTHERWISE. SANITARY LATERAL MUST BE PVC SCHEDULE 40 OR PVC SDR 26 UNLESS INDICATED, IN WRITING, OTHERWISE.
25. STORM AND SANITARY SEWER PIPE LENGTHS INDICATED ARE NOMINAL AND MEASURED CENTER OF INLET AND/OR MANHOLES STRUCTURE TO CENTER OF STRUCTURE.
26. STORMWATER ROOF DRAIN LOCATIONS ARE BASED ON PRELIMINARY ARCHITECTURAL PLANS. CONTRACTOR IS RESPONSIBLE TO AND FOR VERIFYING LOCATIONS OF SAME BASED ON FINAL ARCHITECTURAL PLANS.
27. SEWERS CROSSING STREAMS AND/OR LOCATION WITHIN 10 FEET OF THE STREAM EMBANKMENT, OR WHERE SITE CONDITIONS SO INDICATE, MUST BE CONSTRUCTED OF STEEL, REINFORCED CONCRETE, DUCTILE IRON OR OTHER SUITABLE MATERIAL.

    SEWERS CONVEYING SANITARY FLOW COMBINED SANITARY AND STORMWATER FLOW OR INDUSTRIAL FLOW MUST BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 10 FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES MUST BE IN SEPARATE TRENCHES WITH THE SEWER AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, OR SUCH OTHER SEPARATION AS APPROVED BY THE GOVERNMENT AGENCY WITH JURISDICTION OVER SAME.
    - WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER MUST BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER MUST BE PROVIDED.
28. WATER MAIN PIPING MUST BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE LOCAL WATER PURVEYOR. IN THE ABSENCE OF SUCH REQUIREMENTS, WATER MAIN PIPING MUST BE CEMENT-LINED DUCTILE IRON (DIP) MINIMUM CLASS 52 THICKNESS. ALL PIPE AND APPURTENANCES MUST COMPLY WITH THE APPLICABLE AWWA STANDARDS IN EFFECT AT THE TIME OF APPLICATION.
29. CONTRACTOR MUST ENSURE THAT ALL UTILITY TRENCHES LOCATED IN EXISTING PAVED ROADWAYS INCLUDING SEWER, WATER AND STORM SYSTEMS, MUST BE REPAIRED IN ACCORDANCE WITH REFERENCED DETAILS PER JURISDICTION OF AUTHORITY AS APPLICABLE. CONTRACTOR MUST COORDINATE INSPECTION AND APPROVAL OF COMPLETED WORK WITH THE AGENCY WITH JURISDICTION OVER SAME.
30. WHERE BASEMENTS ARE TO BE PROVIDED FOR PROPOSED DWELLING UNITS, THE DEVELOPER SHALL, BY BORING OR BY TEST PIT, DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED DWELLINGS. WHERE GROUNDWATER IS ENCOUNTERED IN THE BASEMENT AREA, BASEMENTS WILL NOT BE INSTALLED UNLESS SPECIAL CONSTRUCTION METHODS ARE UTILIZED, TO BE REVIEWED AND APPROVED BY THE MUNICIPAL CONSTRUCTION CODE OFFICIAL. IF AND WHERE SUMP PUMPS ARE INSTALLED, ALL DISCHARGES MUST BE CONNECTED TO THE STORM SEWER. A CLEANOUT MUST BE PROVIDED PRIOR TO THE CONNECTION TO THE STORM DRAIN IN ORDER THAT BLOCKAGES CAN BE ADDRESSED.
31. FOR SINGLE AND TWO-FAMILY RESIDENTIAL PROJECTS, WHERE THE PROPOSED DWELLING AND ADJACENT SPOT ELEVATION(S) ARE SCHEMATIC FOR GENERIC BUILDING FOOTPRINT, GRADES MUST BE ADJUSTED BASED ON FINAL ARCHITECTURAL PLANS TO PROVIDE A MINIMUM OF SIX (6) INCHES BELOW TOP OF BLOCK AND /OR SIX (6) INCHES BELOW SIDING, WHICHEVER IS LOWEST, AND MUST PROVIDE POSITIVE DRAINAGE (2% MIN.) AWAY FROM DWELLING. ALL CONSTRUCTION, INCLUDING GRADING, MUST COMPLY WITH THE LATEST LOCAL AND STATE BUILDING CODE AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.
32. LOCATION OF PROPOSED UTILITY POLE RELOCATION IS AT THE SOLE DISCRETION OF UTILITY COMPANY.
33. CONSULTANT IS NEITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS AND FURTHER, SHALL HAVE NO LIABILITY FOR ANY HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, OR POLLUTANTS ON, ABOUT OR UNDER THE PROPERTY.

APPROVED: DEPARTMENT OF PUBLIC WORKS
1/8/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
6.15.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
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OWNER:
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12116 ARBIE ROAD
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CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
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PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY

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THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SD2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
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B.R. ROWE
STATE OF MARYLAND — BRANDON R. ROWE — PROFESSIONAL ENGINEER — No. 40808

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
2

F-14-124

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STANDARD DRAWING LEGEND

FOR ENTIRE PLAN SET
(NOT TO SCALE)

EXISTING NOTE	TYPICAL NOTE TEXT	PROPOSED NOTE
	ONSITE PROPERTY LINE / R.O.W. LINE	
	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE	
	EASEMENT LINE	
	SETBACK LINE	
WB WB	WETLAND BUFFER	WB WB
SBB SBB	STREAM BANK BUFFER	SBB SBB
	CONCRETE CURB & GUTTER	CURB AND GUTTER; SPILL CURB / TRANSITION CURB; DEPRESSED CURB AND GUTTER
	UTILITY POLE WITH LIGHT	
	POLE LIGHT	
	TRAFFIC LIGHT	
	UTILITY POLE	
	ACORN LIGHT	
	TYPICAL SIGN	
170 / 169	CONTOUR LINE	190 / 187
SAN #	SANITARY LABEL	SAN #
X-#	STORM LABEL	X-#
SL	SANITARY SEWER LATERAL	
W	UNDERGROUND WATER LINE	
E	UNDERGROUND ELECTRIC LINE	E
G	UNDERGROUND GAS LINE	G
OH	OVERHEAD WIRE	OH
T	UNDERGROUND TELEPHONE LINE	T
C	UNDERGROUND CABLE LINE	C
	STORM SEWER	
S	SANITARY SEWER MAIN	
	HYDRANT	
S	SANITARY MANHOLE	
D	STORM MANHOLE	
WM	WATER METER	
WV	WATER VALVE	
	GAS VALVE	
	GAS METER	
	TYPICAL END SECTION	
	HEADWALL OR ENDWALL	
	YARD INLET	
	CURB INLET	
	CLEAN OUT	
E	ELECTRIC MANHOLE	E
T	TELEPHONE MANHOLE	T
EB	ELECTRIC BOX	EB
EP	ELECTRIC PEDESTAL	EP
	MONITORING WELL	
	TEST PIT	
	BENCHMARK	
	BORING	

STANDARD ABBREVIATIONS

FOR ENTIRE PLAN SET

AC	ACRES	POG	POINT OF GRADE
ADA	AMERICANS WITH DISABILITY ACT	PROP	PROPOSED
ARCH	ARCHITECTURAL	PT	POINT OF TANGENCY
BC	BOTTOM OF CURB	PTCR	POINT OF TANGENCY, CURB RETURN
BF	BASEMENT FLOOR	PVC	POLYVINYL CHLORIDE PIPE
BK	BLOCK	PVI	POINT OF VERTICAL INTERSECTION
BL	BASELINE	PVT	POINT OF VERTICAL TANGENCY
BLDG	BUILDING	R	RADIUS
BM	BUILDING BENCHMARK	RCP	REINFORCED CONCRETE PIPE
BRL	BUILDING RESTRICTION LINE	RET WALL	RETAINING WALL
CF	CUBIC FEET	R/W	RIGHT OF WAY
CL	CENTERLINE	S	SLOPE
CMP	CORRUGATED METAL PIPE	SAN	SANITARY SEWER
CONN	CONNECTION	SF	SQUARE FEET
CONC	CONCRETE	STA	STATION
CPP	CORRUGATED PLASTIC PIPE	STM	STORM
CY	CUBIC YARDS	S/W	SIDEWALK
DEC	DECORATIVE	TBR	TO BE REMOVED
DEP	DEPRESSED	TBRL	TO BE RELOCATED
DIP	DUCTILE IRON PIPE	TC	TOP OF CURB
DOM	DOMESTIC	TELE	TELEPHONE
ELEC	ELECTRIC	TPF	TREE PROTECTION FENCE
ELEV	ELEVATION	TW	TOP OF WALL
EP	EDGE OF PAVEMENT	TYP	TYPICAL
ES	EDGE OF SHOULDER	UG	UNDERGROUND
EW	END WALL	UP	UTILITY POLE
EX	EXISTING	W	WIDE
FES	FLARED END SECTION	W/L	WATER LINE
FF	FINISHED FLOOR	W/M	WATER METER
FH	FIRE HYDRANT	±	PLUS OR MINUS
FG	FINISHED GRADE	°	DEGREE
G	GRADE	Ø	DIAMETER
GF	GARAGE FLOOR (AT DOOR)	#	NUMBER
GH	GRADE HIGHER SIDE OF WALL		
GL	GRADE LOWER SIDE OF WALL		
GRT	GRATE		
GV	GATE VALVE		
HDPE	HIGH DENSITY POLYETHYLENE PIPE		
HP	HIGH POINT		
HOR	HORIZONTAL		
HW	HEADWALL		
INT	INTERSECTION		
INV	INVERT		
LF	LINEAR FOOT		
LOC	LIMITS OF CLEARING		
LOD	LIMITS OF DISTURBANCE		
LOS	LINE OF SIGHT		
LP	LOW POINT		
LS	LANDSCAPE		
MAX	MAXIMUM		
MIN	MINIMUM		
MH	MANHOLE		
MJ	MECHANICAL JOINT		
OC	ON CENTER		
PA	POINT OF ANALYSIS		
PC	POINT CURVATURE		
PCCR	POINT OF COMPOUND CURVATURE, CURB RETURN		
PI	POINT OF INTERSECTION		

PROPOSED EASEMENT LEGEND

SD (SIGHT DIST)	SIGHT DISTANCE
STM (STORM DRAIN)	STORM DRAIN
SAN (SANITARY SEWER)	SANITARY SEWER
W (WATER)	WATER
PA (PUBLIC ACCESS)	PUBLIC ACCESS
CSE (COMMON SHARED EASEMENT)	COMMON SHARED
IE (INGRESS-EGRESS)	INGRESS-EGRESS
PU (PUBLIC UTILITY)	PUBLIC UTILITY
VAR	VARIABLE WIDTH S

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

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BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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◆ ALBANY, NY
◆ ROCHESTER, NY
◆ COMLPONT, PA
◆ CLIFTON PARK, NY
◆ TAMPA, FL
◆ BOWIE, MD
◆ TOWSON, MD
◆ STERLING, VA
◆ WARRENTON, VA
◆ ROCKVILLE, MD
◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE
MISS UTILITY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SD2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND
OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
BRANDON R. ROWE
PROFESSIONAL ENGINEER
No. 40868
PROFESSIONAL ENGINEER
STATE OF MARYLAND

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
3

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

H:\2015\MD\132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008PCPLOT.DWG PLOTTED BY: RBOWEN 12.12.14 @ 11:22

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
♦ WARREN, NJ

OFFICES:
♦ BOWIE, MD
♦ TOWSON, MD
♦ STERLING, VA
♦ WARRENTON, VA
♦ SOUTHBOROUGH, MA
♦ ALBANY, NY
♦ ROCHESTER, NY
♦ CHALFONT, PA
♦ NEW VALLEY, PA
♦ TAMPA, FL
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REVISIONS

REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=200'
CAD I.D.:	DP0

PROJECT:

FINAL ROAD CONSTRUCTION PLANS

FOR

ESTATES AT PATAPSCO PARK

BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202

LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
No. 40868
12/11/14

SHEET TITLE:

EX. CONDITIONS & DEMOLITION PLAN KEY SHEET

SHEET NUMBER: 4

LEGEND

- LIMITS OF FOREST CLEARING
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)

200 100 50 0 200
1"= 200'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40868, EXPIRATION DATE: 7/0/2015

F-14-124

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008DP3.DWG PRINTED BY: RBOWEN 12.12.14 @ 11:33

LEGEND

- LIMITS OF FOREST CLEARING
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)

1"= 50'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING

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SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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OFFICES:
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REVISIONS

REV	DATE	COMMENT	BY

DIG WITH C.A.R.E. CALL BEFORE YOU DIG

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	DP0

PROJECT: FINAL ROAD CONSTRUCTION PLANS

FOR

ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

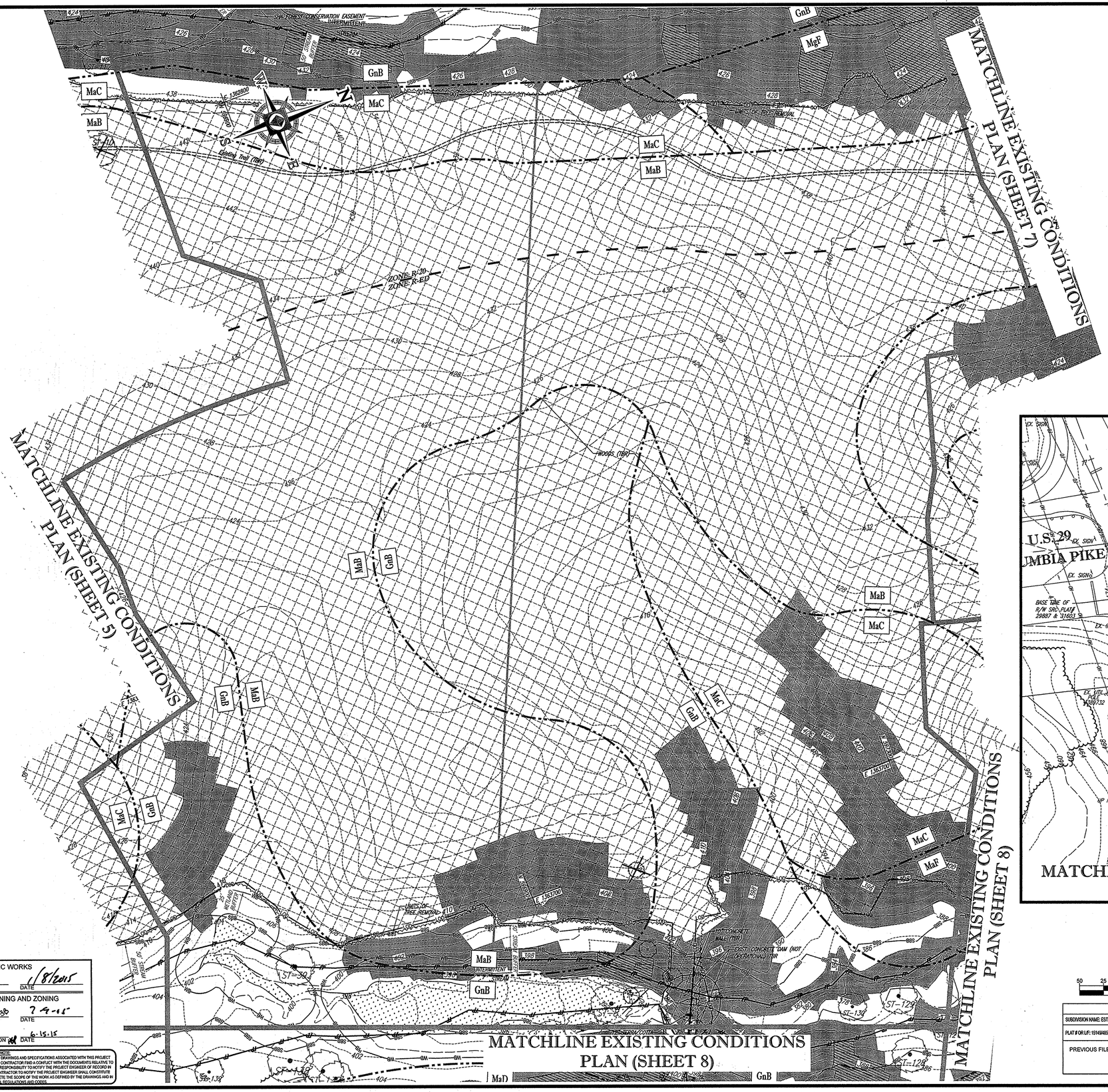
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
No. 40808
12/15/14

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
5

F-14-124



LEGEND

- LIMITS OF FOREST CLEARING
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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◆ WARREN, NJ
OFFICES:
◆ SOUTHBOROUGH, MA
◆ ALBANY, NY
◆ ROCHESTER, NEW YORK, NY
◆ CHALFONT, PA
◆ LEHIGH VALLEY, PA
◆ TAMPA, FL
◆ BOWIE, MD
◆ TOWSON, MD
◆ FREDERICK, MD
◆ WASHINGTON, VA
◆ RICHMOND, VIRGINIA, VA
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REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	DP0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
6

50 25 12.5 0 50
1"= 50'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK	SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149495 & 15149497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

MATCHLINE EXISTING CONDITIONS PLAN (SHEET 6)

MATCHLINE EXISTING CONDITIONS PLAN (SHEET 8)

SHA FOREST CONSERVATION EASEMENT LIBER 18135 FOLIO 469

SHA FOREST CONSERVATION EASEMENT

LIMITS OF TREE REMOVAL

INTERMITTENT STREAM

Existing Trail (Typ.)

ZONE: R-20
ZONE: R-ED

MgF
GoB
MaD
GnB
GnF
GbB
GbC

ST-73
ST-85
ST-86
ST-87
ST-88
ST-89
ST-90
ST-91
ST-92
ST-93
ST-94
ST-95
ST-96
ST-97
ST-98

N 598000
E 1363900

50 25 12.5 0 50
1"= 50'

LEGEND

- LIMITS OF FOREST CLEARING
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

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W:\2015\MD\132000\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132000EXISTING PRINTED BY: RBOWEN 12.13.14 @ 11:03

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/495 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40838, EXPIRATION DATE: 7/30/2015

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
◆ WARREN, NJ

◆ BOWIE, MD
◆ TOWSON, MD
◆ FREDERICK, MD
◆ WASHINGTON, VA
◆ PITTSBURGH, PA
◆ PHILADELPHIA, PA
◆ SOUTHBOROUGH, MA
◆ ALBANY, NY
◆ ROCHESTER, NH
◆ CHALFONT, PA
◆ LEHIGH VALLEY, PA
◆ TAMPA, FL

THE APPROVAL BY BOHLER ENGINEERING OF THESE PLANS ALSO INCORPORATES AND SHALL MEET ALL CONDITIONS AND REQUIREMENTS IMPOSED UPON BOHLER ENGINEERING BY THE APPROVING AUTHORITY. BOHLER ENGINEERING ASSUMES NO RESPONSIBILITY FOR ANY CONSTRUCTION PERFORMED FROM THESE PLANS WHICH DEVIATES FROM THE APPROVED PLANS, AND ASSUMES NO RESPONSIBILITY FOR ANY CONSTRUCTION PERFORMED FROM THESE PLANS UNLESS BOHLER ENGINEERING IS RETAINED BY THE OWNER TO PERFORM CONSTRUCTION PHASE SERVICES.

REVISIONS

REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	DP0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
7

MATCHLINE EXISTING CONDITIONS PLAN (SHEET 7)

MATCHLINE EXISTING CONDITIONS PLAN (SHEET 7)

MATCHLINE EXISTING CONDITIONS PLAN (SHEET 6)

MATCHLINE EXISTING CONDITIONS PLAN (SHEET 6)

LEGEND

- LIMITS OF FOREST CLEARING
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)

PM PATAPSCO, LLC
LIBER 11474 FOLIO 497 &
LIBER 11747 FOLIO 485
TOTAL AREA
= 4,745,915 SQ.FT./ 122.7047 ACRES

N/F
PATAPSCO VALLEY
STATE PARK
STATE OF MARYLAND
LIBER 339 FOLIO 302
ZONE: R-ED
USE: PARK

LOT 2
DANIELS MILL OVERLOOK
PLATS 12795, 12796 & 12797
HOWARD COUNTY, MARYLAND
"DEDICATED TO RECREATION AND PARKS"

CONSERVATION EASEMENT
P/O O.S. LOT 128, PLAT NO. 12763
ZONE: R-ED

EX. 20' DRAINAGE & UTIL. ESMT. PLAT 12796
HOWARD COUNTY, MD
LIBER 5441, FOLIO 389

OPEN SPACE LOT 2 DANIELS MILL OVERLOOK
LIBER 3911, FOLIO 129 HOWARD COUNTY
MARYLAND PLATS 12795, 12796 & 12797

MD DEPT. OF NAT.
LIBER 759 FOLIO

LOT 2
DANIELS MILL OVERLOOK
PLAT 12099
ZONE: R-ED
USE: OPEN SPACE/SCHOOL
HOWARD COUNTY, MARYLAND
(DEDICATED TO RECREATION AND PARKS)
L.3742, F.572

CONSERVATION EASEMENT
P/O O.S. LOT 128, PLAT NO. 12763
ZONE: R-ED

EX. TREELINE (TBR)

TOWSON CONSERVATION AREA

LOT 1 DANIELS MILL OVERLOOK H.O.A.

REBAR W/CAP FOUND

TELEPHONE PEDESTAL

"NO PARKING FIRE LANE"

CONC. WALK

CONC. CURB & 1' GUTTER

PROP. DISTURBANCE OF EXISTING SIDEWALK, CURB & GUTTER, AND ROADWAY SHALL BE REPAIRED IN ACCORDANCE WITH HOWARD COUNTY CONSTRUCTION STANDARDS/SPECIFICATIONS AND DETAILS.

STONE HO

SNOWMILL COURT

50 25 12.5 0 50
1"= 50'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

W:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008FSLDWG PLOTTED BY: RBOWE 12.12.14 @ 11:24

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 15149/495 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40868, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
♦ TOWSON, MD
OFFICES
♦ SOUTHBOROUGH, MA
♦ ALBANY, NY
♦ CHARLOTTESVILLE, VA
♦ CHALFONT, PA
♦ WARRENTON, VA
♦ HARRISBURG, PA
♦ WILLIAMSBURG, VA
♦ TAMPA, FL
♦ BOWIE, MD
♦ TOWSON, MD
♦ COLUMBIA, MD
♦ PHILADELPHIA, PA

THE REPRODUCTION, DESIGN AND CONTENT OF THESE PLANS ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ANY UNAUTHORIZED USE OF THESE PLANS SHALL BE AT THE SOLE RISK OF THE PARTY USING OR REPRODUCING THEM AND WITHOUT LIABILITY TO BOHLER ENGINEERING. THESE PLANS ARE COPYRIGHTED BY BOHLER ENGINEERING AND ALL RIGHTS ARE RESERVED UNDER FEDERAL COPYRIGHT LAWS AND REGULATIONS.

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	DP0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

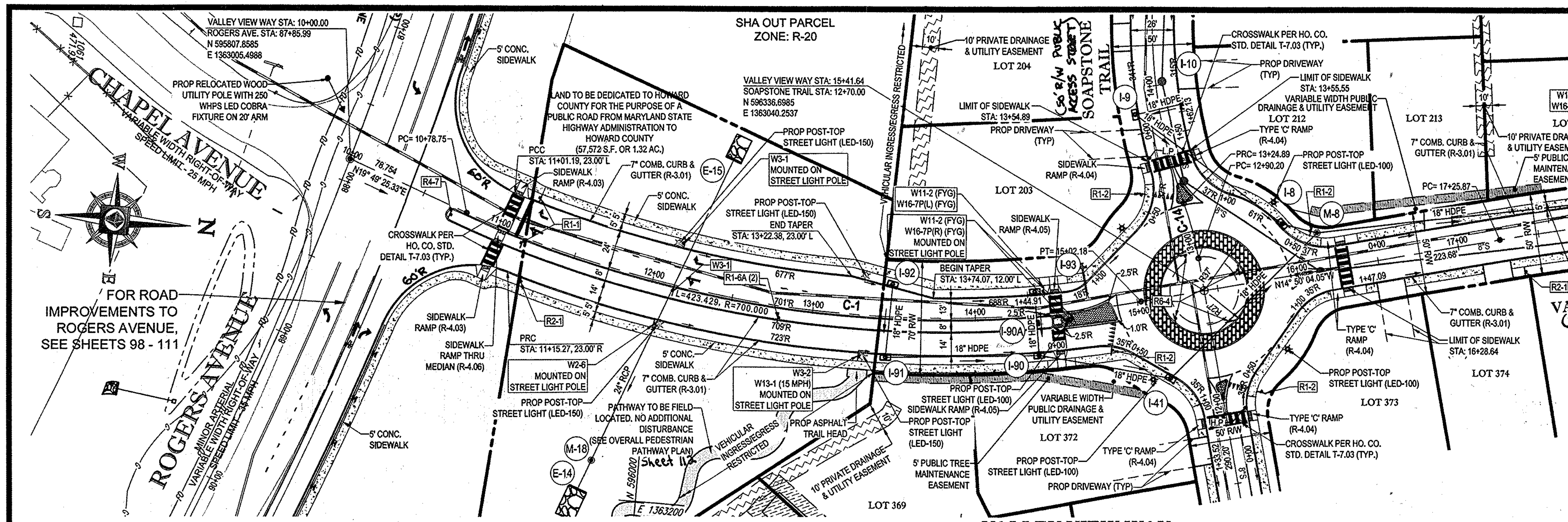
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

BRANDON R. ROWE
PROFESSIONAL ENGINEER
40868

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
8

F-14-124



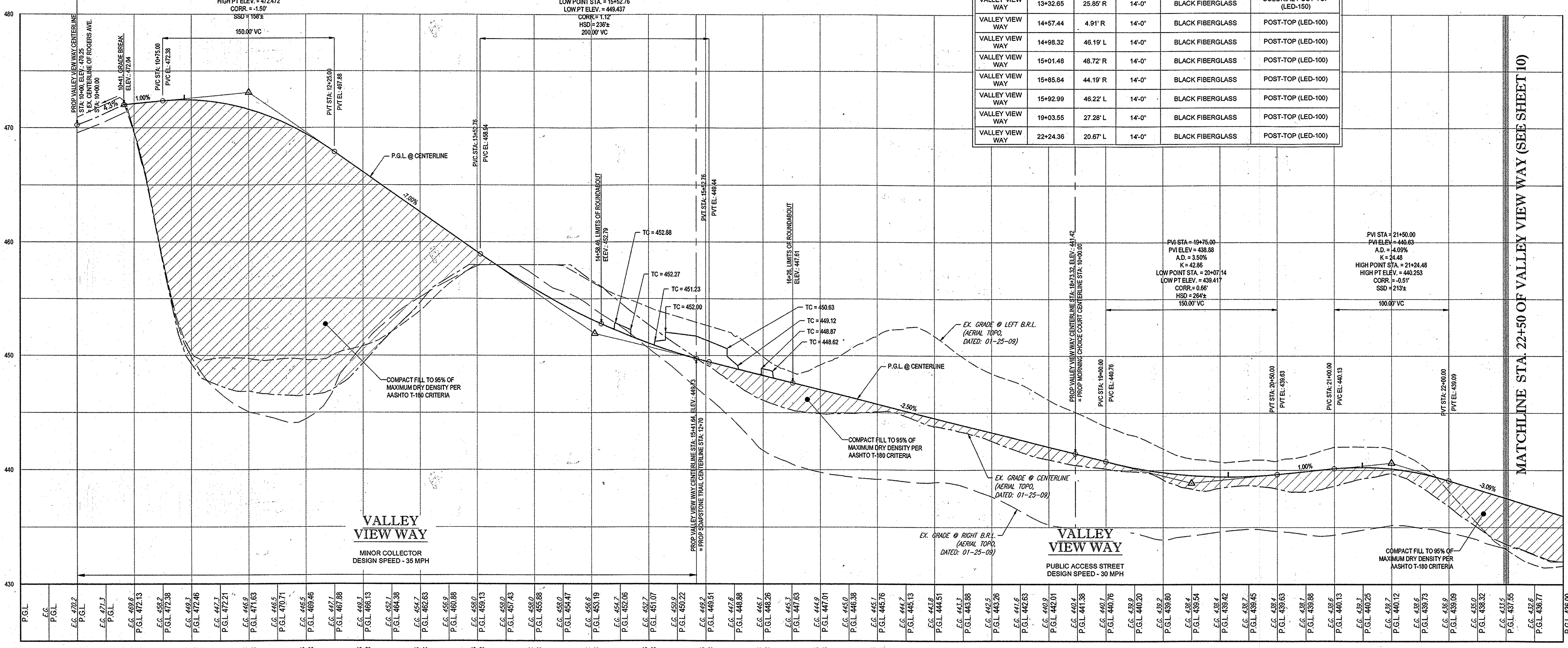
VALLEY VIEW WAY - PLAN

SCALE: 1" = 50'

SEE SHEET 23 FOR ADDITIONAL DETAIL ON ROUNDABOUT

STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
ROGERS AVE.	87+43.74	30.18' R	-	RELOCATED WOOD UTILITY POLE	250 WHPS LED COBRA FIXTURE ON 20' ARM MOUNTED
VALLEY VIEW WAY	12+10.40	25.67' L	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	12+10.40	25.67' R	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	13+30.99	24.59' L	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	13+32.65	25.85' R	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	14+57.44	4.91' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	14+98.32	46.19' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+01.48	48.72' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+85.84	44.19' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+92.99	46.22' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	19+03.55	27.28' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	22+24.36	20.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

ROAD CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-1	700.00'	423.43'	N02°29'41"E	417.00'	034°39'29"	218.42'
C-2	1000.00'	678.96'	S04°36'59"W	666.00'	038°54'06"	353.15'



VALLEY VIEW WAY - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

NOTES:

1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

R1-2 ⟶ GROUND MOUNTED SIGN

STOP R1-1 30"x30" | SPEED LIMIT 25 R2-1 24"x30" | S1-1 30"x30" (FYG) | AHEAD W16-9P 24"x12" (FYG) | W16-7P 24"x12" (FYG) | YIELD R1-2 | R6-4 24"X30" | W11-2 30"x30" | R4-7 24"x30" | R6-5P 30"x30" | W3-1 30"X30" | W3-2 30"X40" | STATE LAW STOP FOR IN X-WALKS R1-6a(2) 36"X42" | 15 MPH W13-1

✲ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS8

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

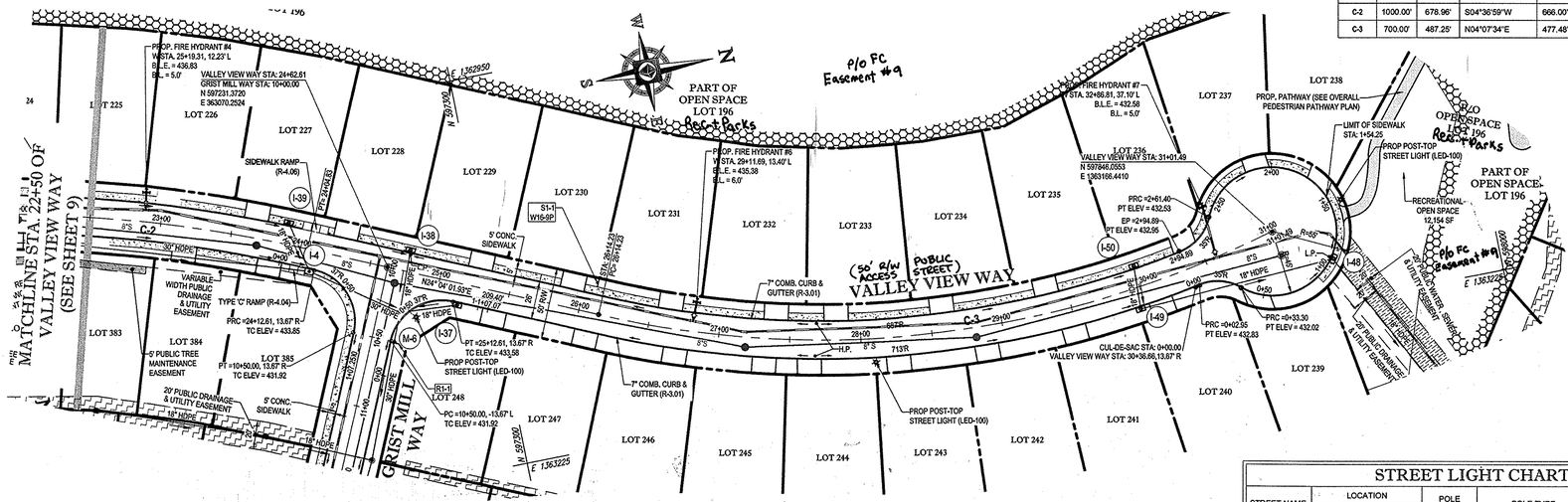
B.R. ROWE
STATE OF MARYLAND — BRANDON R. ROWE — PROFESSIONAL ENGINEER — No. 40808

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
9

F-14-124

H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PP4.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:17

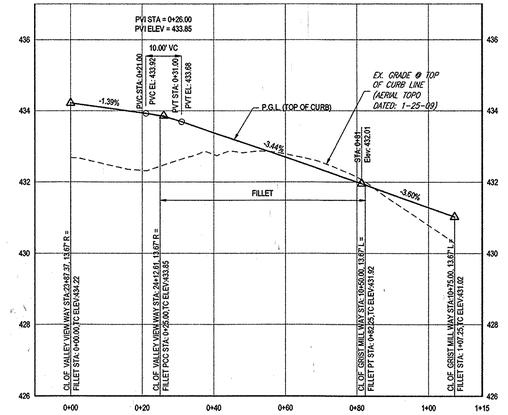


VALLEY VIEW WAY - PLAN
SCALE: 1" = 50'

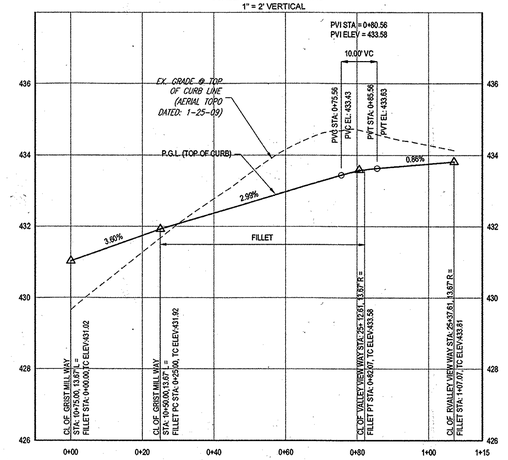
ROAD CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-2	1000.00'	678.96'	S04°36'59"W	666.00'	038°54'06"	353.15'
C-3	700.00'	487.25'	N04°07'34"E	477.48'	039°52'56"	253.97'

STREET LIGHT CHART

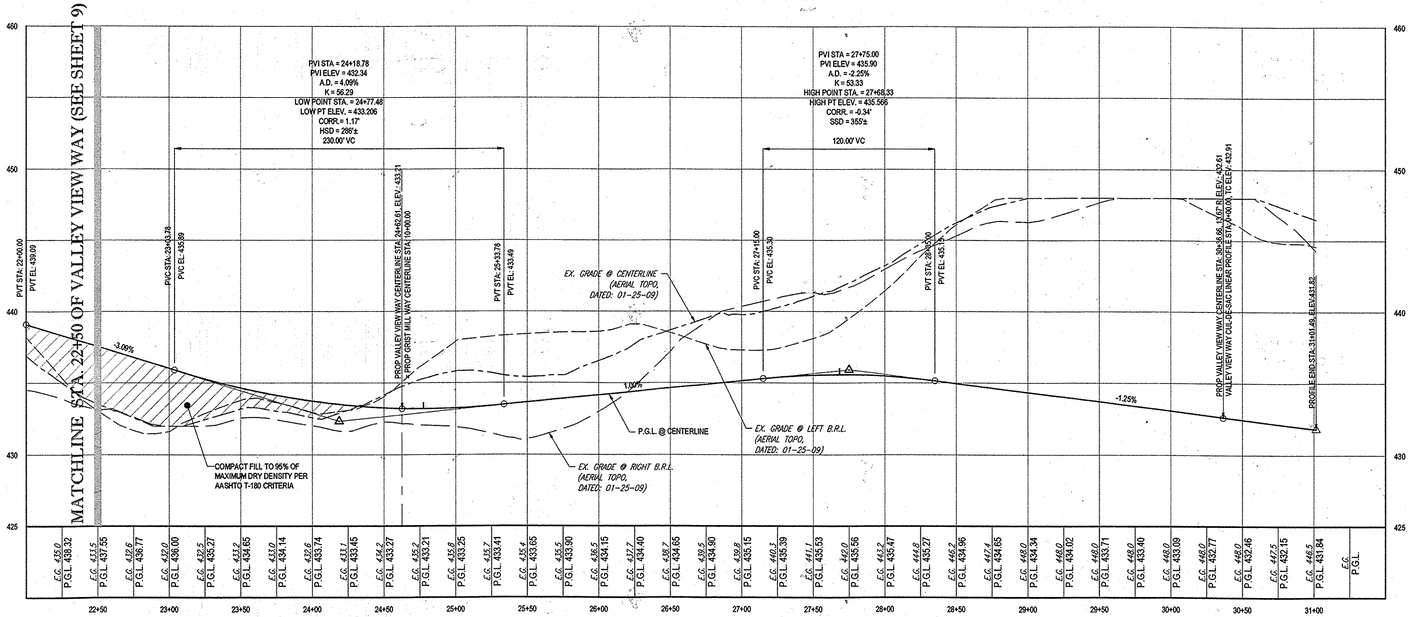
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
VALLEY VIEW WAY	24+89.04	26.43' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	28+09.75	16.67' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	N 597897.6237 E 1363153.7436		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)



VALLEY VIEW WAY & GRIST MILL WAY (SE QUADRANT) - FILLET PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

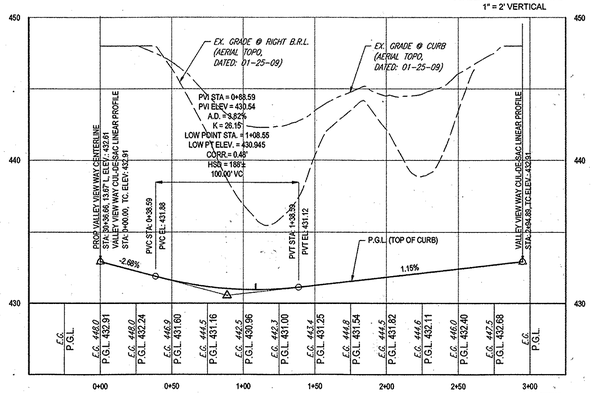


VALLEY VIEW WAY & GRIST MILL WAY (NE QUADRANT) - FILLET PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

VALLEY VIEW WAY - ROAD PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



VALLEY VIEW WAY - CUL-DE-SAC LINEAR PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

NOTES:
1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

R1-2 — GROUND MOUNTED SIGN

✱ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-07-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23438	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:
PREVIOUS FILE No. : SP-13-012 ECP-13-029 WP-13-165 PB CASE NO. 403					

PROFESSIONAL CERTIFICATION
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BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ CHARLOTTE, NC ◆ CHESTER VALLEY, PA ◆ SOWIE, MD ◆ TOWSON, MD ◆ WILMINGTON, DE ◆ STERLING, VA ◆ FORT LAUDERDALE, FL ◆ KEY WEST, FL

THE PROPOSED UTILITIES SHOWN HEREON ARE IN THE APPROXIMATE AREA AS WELL AS CAN BE DETERMINED FROM AVAILABLE RECORDS AND FIELD INVESTIGATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES SHOWN AND FOR LOCATING ANY UTILITIES NOT SHOWN. THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES DURING CONSTRUCTION AND SHALL REPAIR ANY DAMAGE DUE TO HIS OPERATIONS AT NO ADDITIONAL COST TO THE OWNER.

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

MISS UTILITY OF DELMARVA
THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.
IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PSB

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
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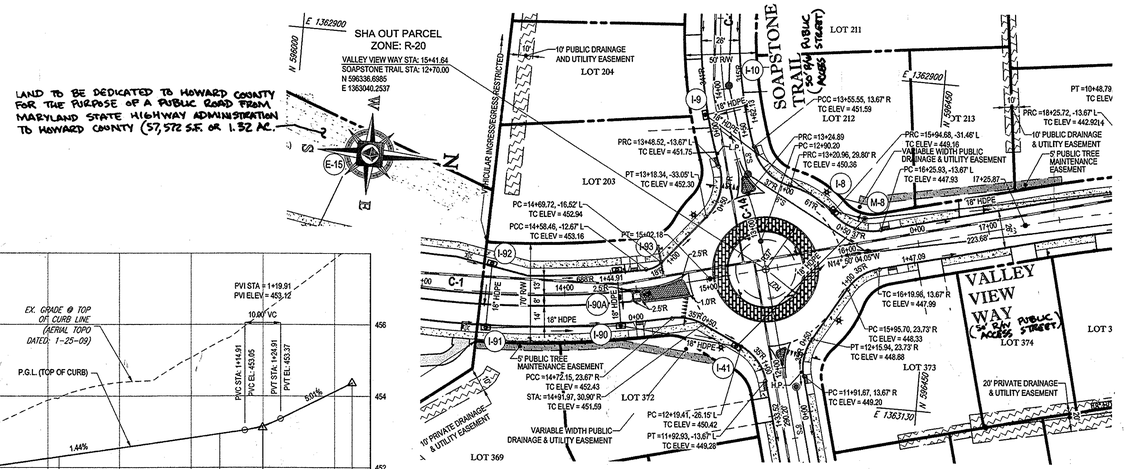
www.BohlerEngineering.com

B. R. ROWE — STATE OF MARYLAND — No. 40808 — PROFESSIONAL ENGINEER — 7/9/2017

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER: 10

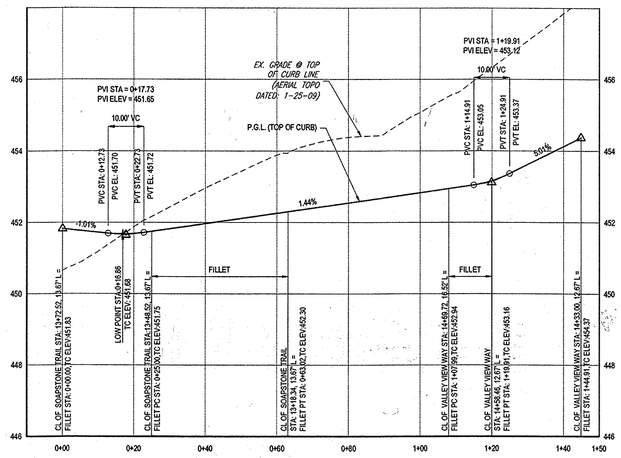
F-14-124



VALLEY VIEW WAY (ROUNDABOUT) - PLAN

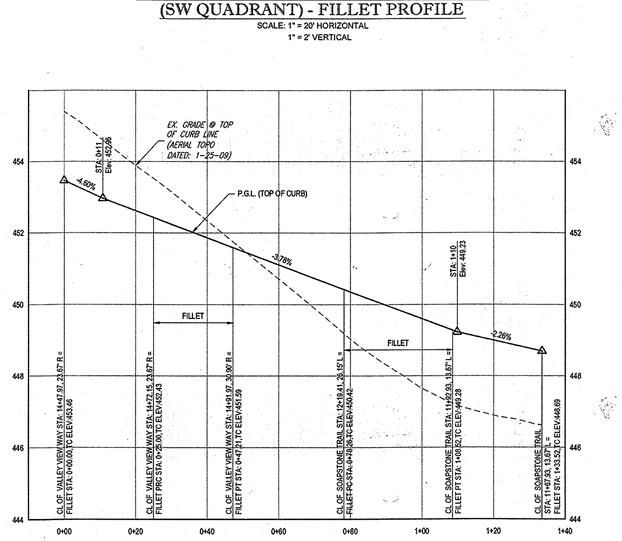
SCALE: 1" = 50'

SEE SHEET 23 FOR ADDITIONAL DETAIL ON ROUNDABOUT



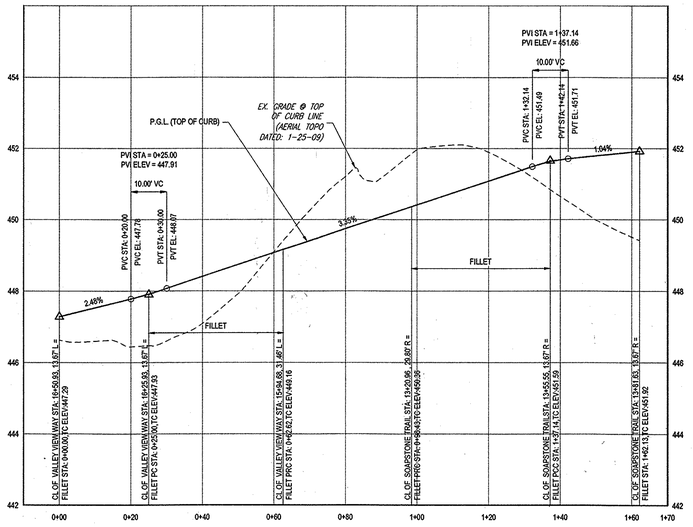
VALLEY VIEW WAY & SOAPSTONE TRAIL (SW QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



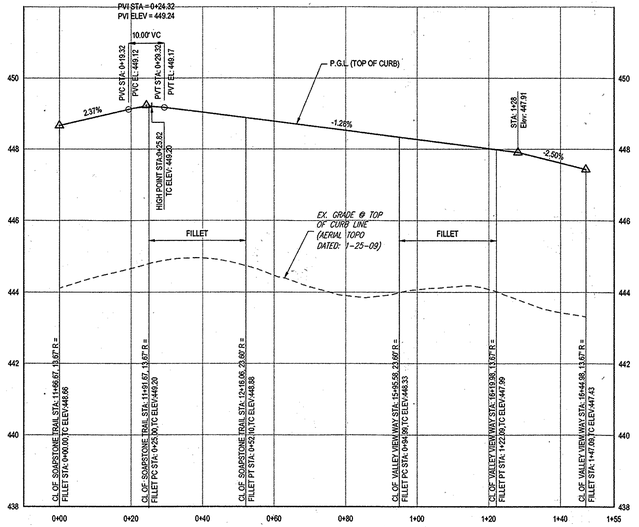
VALLEY VIEW WAY & SOAPSTONE TRAIL (SE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



VALLEY VIEW WAY & SOAPSTONE TRAIL (NW QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



VALLEY VIEW WAY & SOAPSTONE TRAIL (NE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

NOTES:
1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

R1-2 — GROUND MOUNTED SIGN

R1-1 30"x30" | R2-1 24"x30" | S1-1 30"x30" (FYG) | W16-6P 24"x12" (FYG) | W16-7P 24"x12" (FYG) | R1-2 | R6-4 24"x30" | W11-2 30"x30" | R4-7 24"x30" | R6-6P 30"x30" | W3-1 30"x30" | W3-2 30"x60" | R1-6a(2) 36"x42"

* STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE
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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ CHARLOTTE, NC ◆ CHALFONT, PA, NY ◆ CENTER VALLEY, PA ◆ DENVER, CO ◆ SOMIS, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WILLIAMSBURG, VA ◆ FORT LAUDERDALE, FL ◆ TAMPA, FL ◆ AUSTIN, TX

THE PRESENTATION, FORMAT AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED IN WHOLE OR IN PART FOR ANY PURPOSE WHATSOEVER WITHOUT THE WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ANY UNAUTHORIZED USE OF THESE PLANS SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO BOHLER ENGINEERING. ALL RIGHTS RESERVED AND COPYRIGHTED © 2015 BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

MISS UTILITY
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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS6

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

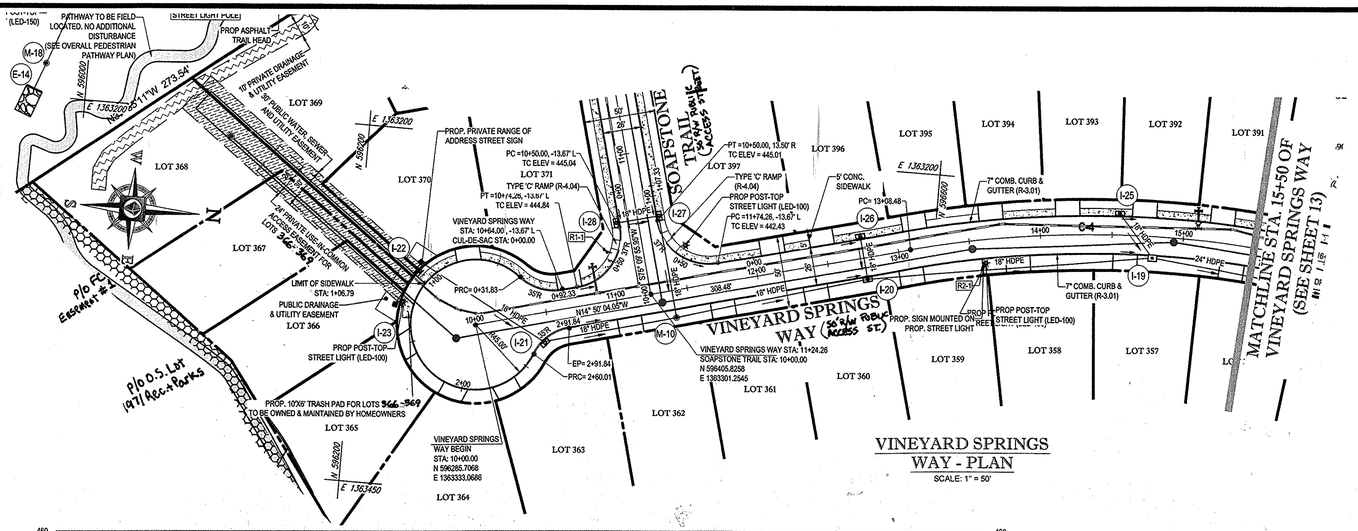
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — STATE OF MARYLAND — PROFESSIONAL ENGINEER — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
11

F-14-124

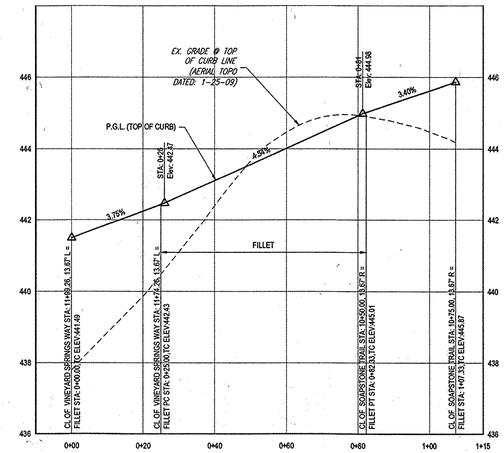


VINEYARD SPRINGS WAY - PLAN

SCALE: 1" = 50'

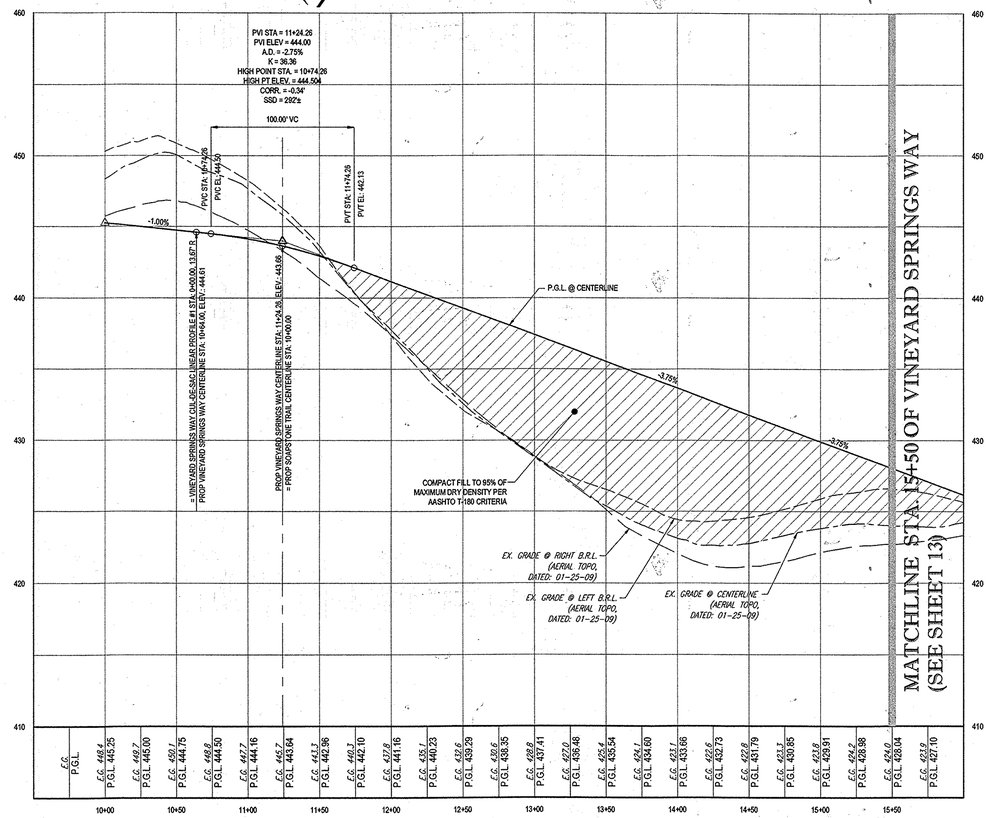
STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
VINEYARD SPRINGS WAY	N 596233.8336 E 1363321.4320		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	11+53.87	29.61' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	13+39.66	16.67' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

ROAD CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-4	730.00'	495.64'	S04°36'59"W	486.18'	038°54'06"	257.60'



VINEYARD SPRINGS WAY & SOAPSTONE TRAIL (NW QUADRANT) - FILLET PROFILE

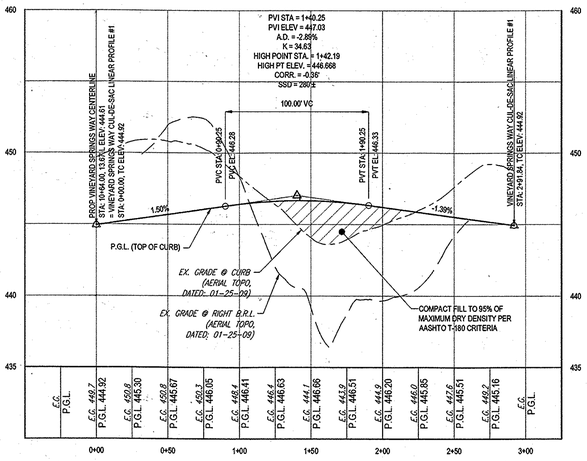
SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

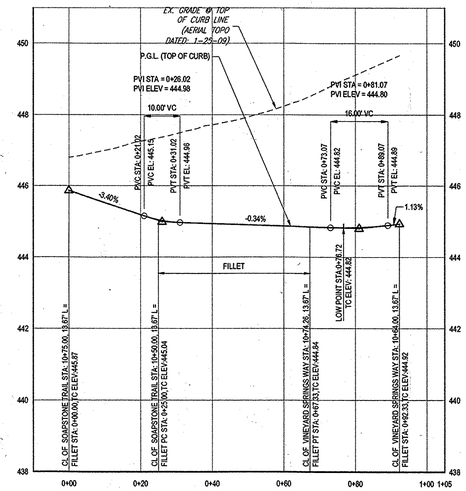
VINEYARD SPRINGS WAY - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



VINEYARD SPRINGS WAY - CUL-DE-SAC LINEAR PROFILE #1

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



VINEYARD SPRINGS WAY & SOAPSTONE TRAIL (SW QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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NOTES:
1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

GROUND MOUNTED SIGN

* STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

R1-1 30"x30" STOP
R2-1 24"x30" SPEED LIMIT 25
S1-1 30"x30" (FYG)
W16-9P 24"x12" AHEAD (FYG)
W16-7P 24"x12" (FYG)
R1-2 YIELD
R6-4 24"x30"
W11-2 30"x30"
R4-7 24"x30"
R6-5P 30"x30"
W3-1 30"X30"
W3-2 30"X40"
R1-6a(2) 36"X42" STATE LAW STOP FOR IN X-WALKS

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051 .

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012, ECP-13-029, WP-13-165, PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

OWNER:
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24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
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BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
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LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; CHARLOTTE, NC; CHESTER VALLEY, PA; DOVER, DE; SOMME, MD; TOWSON, MD; WATERBURY, CT; WILLIAMSBURG, VA; FORT LAUDERDALE, FL; CHICAGO, IL; DENVER, CO

THE PROPOSED UTILITY LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR COMPLETE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND TO AGREE TO HOLD HARMLESS THE OWNER AND ENGINEER FOR ANY DAMAGES AND/OR DELAYS CAUSED BY THE FAILURE TO LOCATE, OR THE INACCURATE LOCATION OF UTILITIES. THE CONTRACTOR SHALL CONTACT ALL UTILITIES AND/OR THEIR AGENTS FOR FIELD LOCATION OF THEIR FACILITIES PRIOR TO CONSTRUCTION.

REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS8

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
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www.BohlerEngineering.com

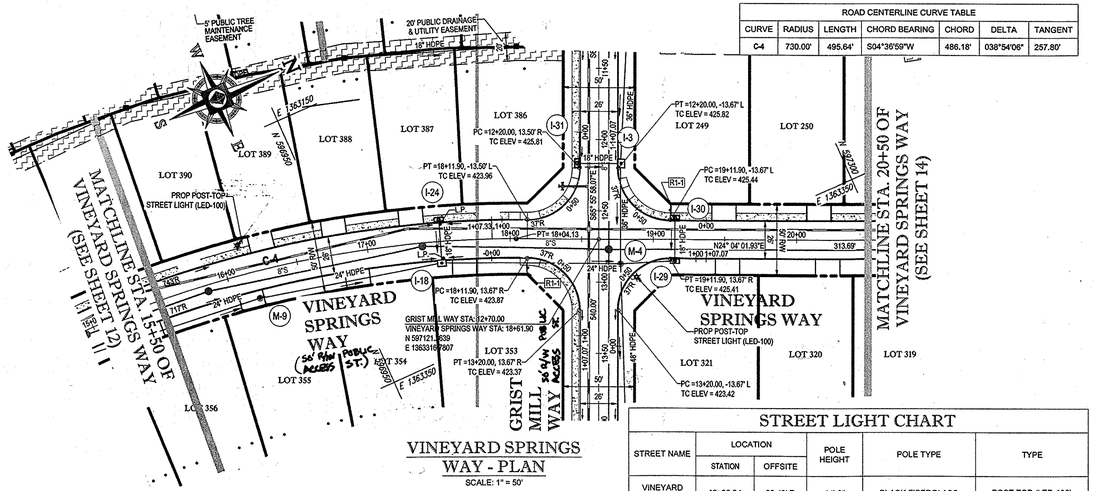
B. R. ROWE
STATE OF MARYLAND
No. 40808
PROFESSIONAL ENGINEER
7/3/2017

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
12

F-14-124

H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PFINLDWG PLOTTED BY: BROWER 10:22:15 @ 12:21



VINEYARD SPRINGS WAY - PLAN

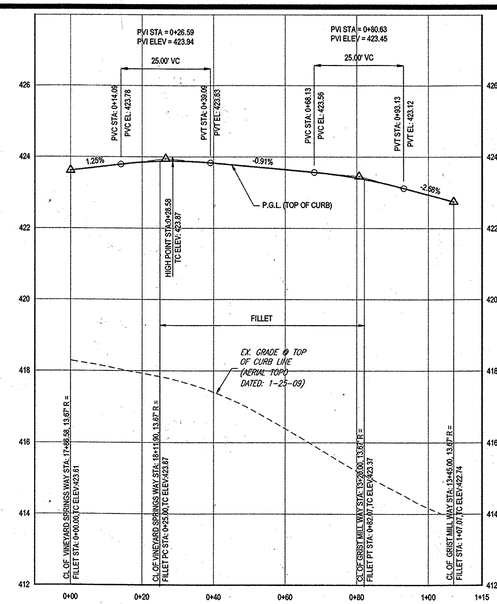
SCALE: 1" = 50'

ROAD CENTERLINE CURVE TABLE

CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-4	730.00'	495.64'	S04°36'59"W	486.18'	038°54'06"	257.80'

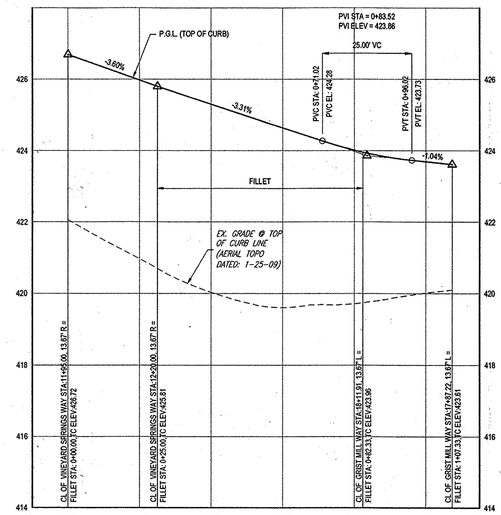
STREET LIGHT CHART

STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
VINEYARD SPRINGS WAY	18+88.34	26.43' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	16+12.60	20.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)



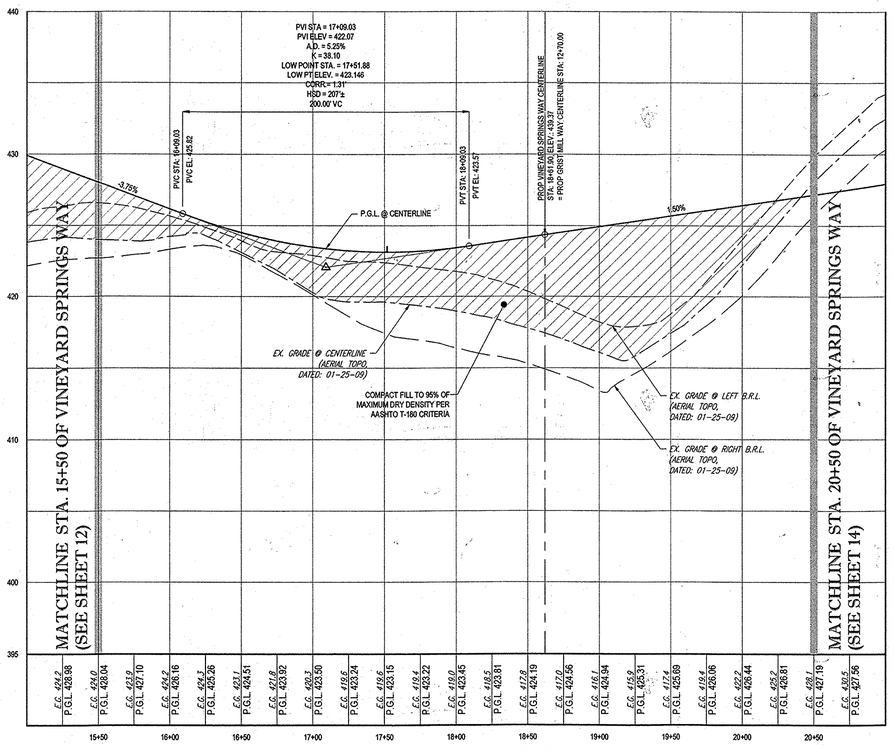
VINEYARD SPRINGS WAY & GRIST MILL WAY (SE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



VINEYARD SPRINGS WAY & GRIST MILL WAY (SW QUADRANT) - FILLET PROFILE

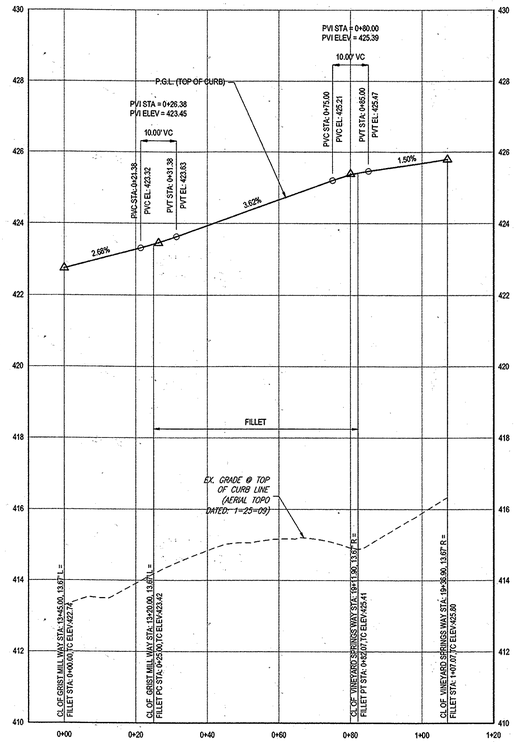
SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

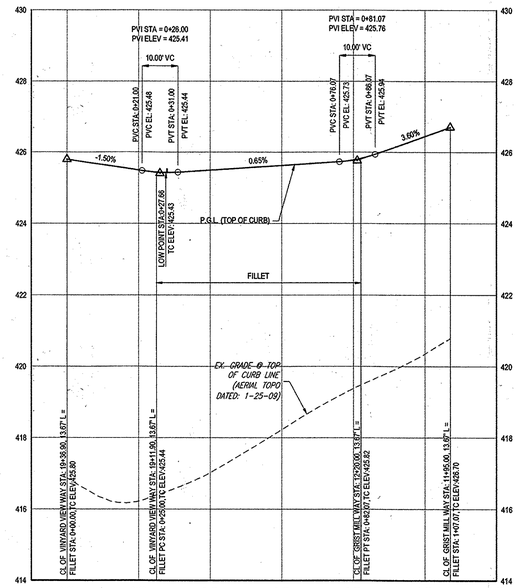
VINEYARD SPRINGS WAY - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



VINEYARD SPRINGS WAY & GRIST MILL WAY (NE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



VINEYARD SPRINGS WAY & GRIST MILL WAY (NW QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

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3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

R1-2 — GROUND MOUNTED SIGN

✱ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

R1-1 STOP 30"x30" (FYG)
R2-1 SPEED LIMIT 25 24"x30"
S1-1 30"x30" (FYG)
W16-9P AHEAD 24"x12" (FYG)
W16-7P 24"x12" (FYG)
R1-2 YIELD
R6-4 24"x30"
W11-2 30"x30"
R4-7 24"x30"
R6-5P 30"x30"
W3-1 30"x30"
W3-2 30"x40"
R1-6a(2) STATE LAW STOP FOR IN X - WALKS 36"x42"

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051

OWNER:
ESTATES AT PATAPSCO PARK, LLC
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CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
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DEVELOPER:
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CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A	LOT/PARCEL NO.: N/A
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17
			ELECT DISTR: 2ND
			CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
♦ WARREN, NJ

OFFICES:
♦ SOUTHBOROUGH, MA
♦ ALBANY, NY
♦ CHARLOTTE, NC
♦ CHANTILLY, VA
♦ CHERRY HILL, NJ
♦ CHESTER VALLEY, PA
♦ DENVER, CO
♦ EPHRATA, PA
♦ FORT LAUDERDALE, FL
♦ GREENVILLE, SC
♦ PHOENIX, AZ
♦ SPRING, TX
♦ TOWSON, MD
♦ WILLIAMSBURG, VA
♦ WILMINGTON, DE

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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PSB

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

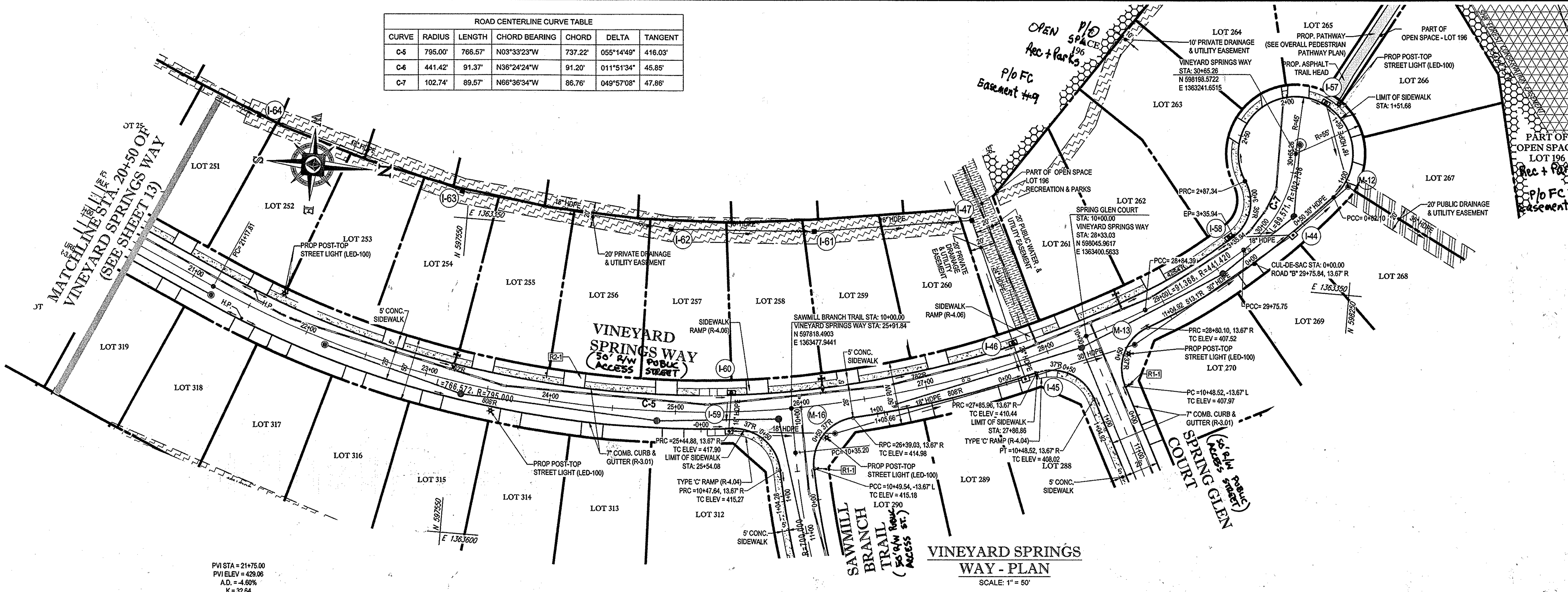
B.R. ROWE
PROFESSIONAL ENGINEER
No. 40808
7/9/2017

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
13

F-14-124

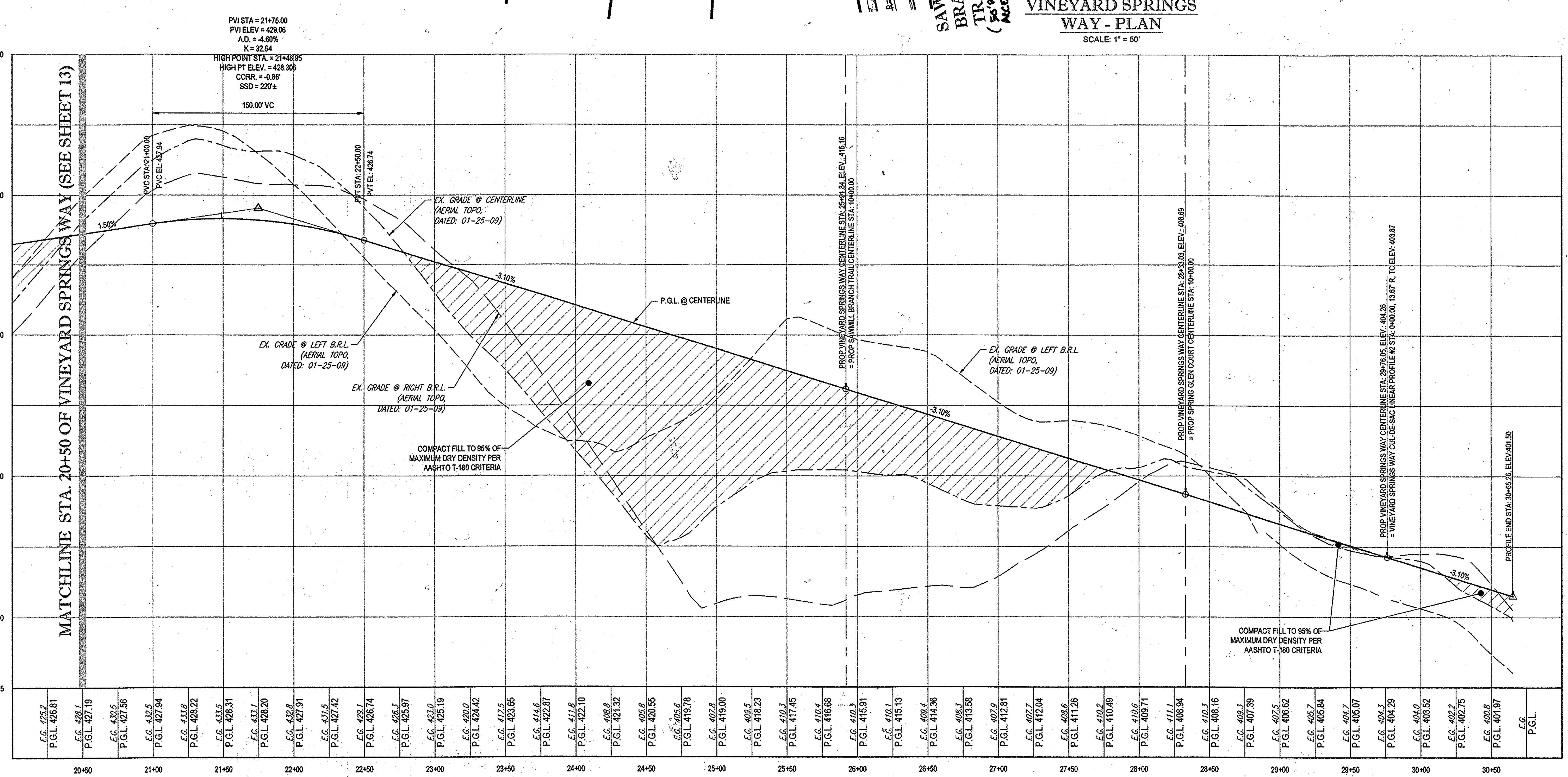
ROAD CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-5	795.00'	766.57'	N03°33'23"W	737.22'	055°14'49"	416.03'
C-6	441.42'	91.37'	N36°24'24"W	91.20'	011°51'34"	45.85'
C-7	102.74'	89.57'	N66°36'34"W	86.76'	049°57'08"	47.86'



VINEYARD SPRINGS WAY - PLAN

SCALE: 1" = 50'

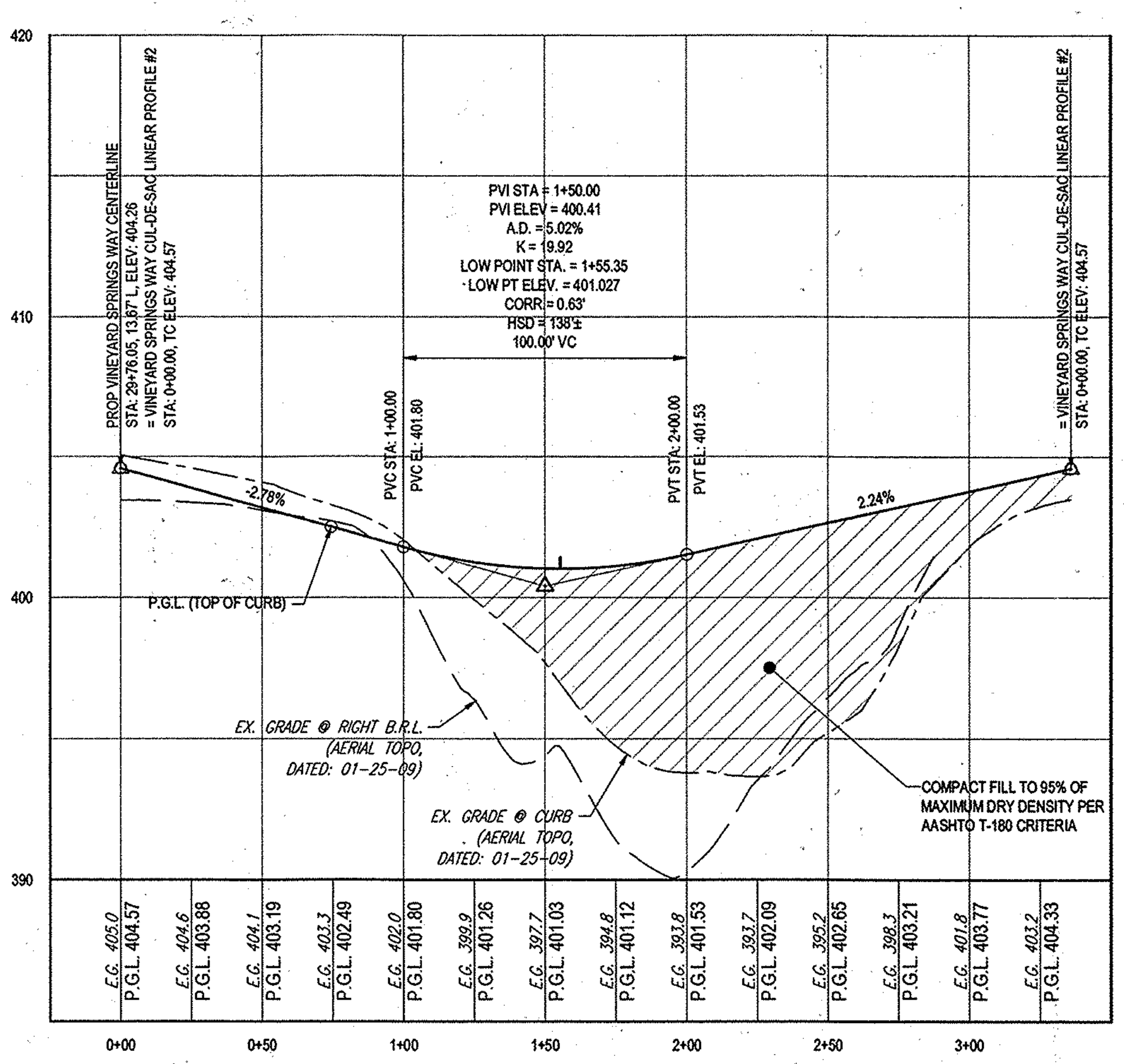
STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
VINEYARD SPRINGS WAY	21+71.10	20.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	23+59.92	16.67' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	26+16.66	26.30' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	28+57.96	26.06' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	N 598232.6808 E 1363201.9344		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

VINEYARD SPRINGS WAY - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



VINEYARD SPRINGS WAY - CUL-DE-SAC LINEAR PROFILE #2

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

NOTES:
1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 11/9/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 12-17-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 11-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
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LEGEND:

R1-2 — GROUND MOUNTED SIGN

★ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

DIG WITH C.A.R.E. CALL BEFORE YOU DIG
THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

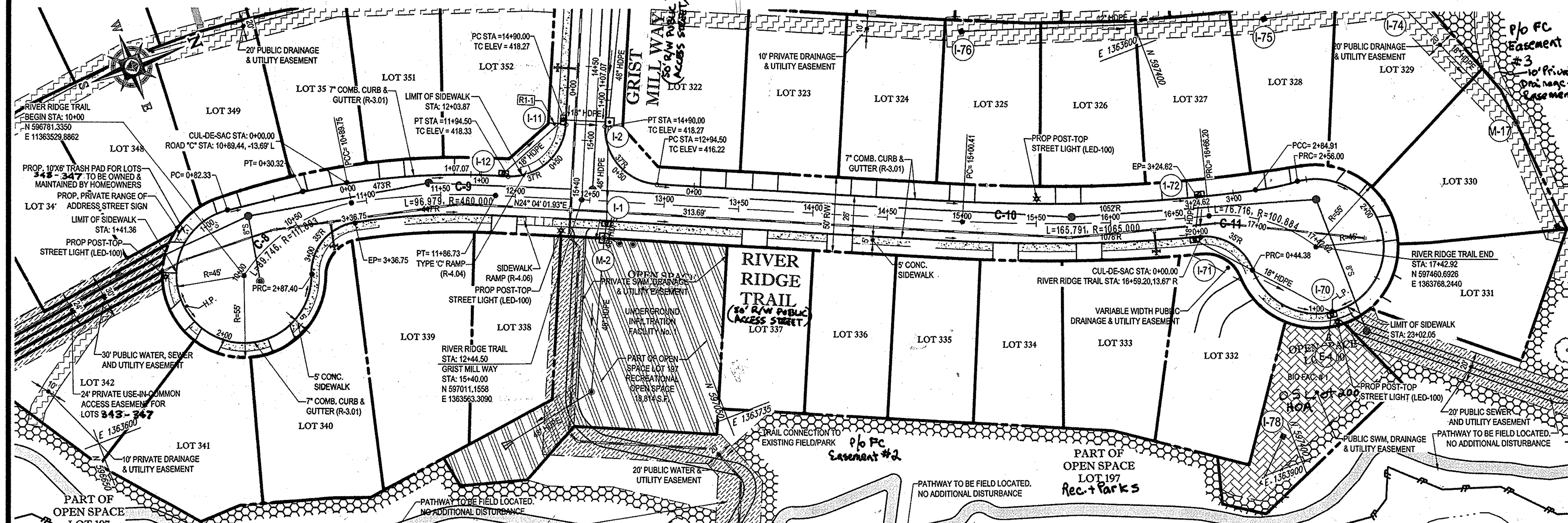
B.R. ROWE
STATE OF MARYLAND BRANDON R. ROWE PROFESSIONAL ENGINEER No. 40808
10/22/15

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
14

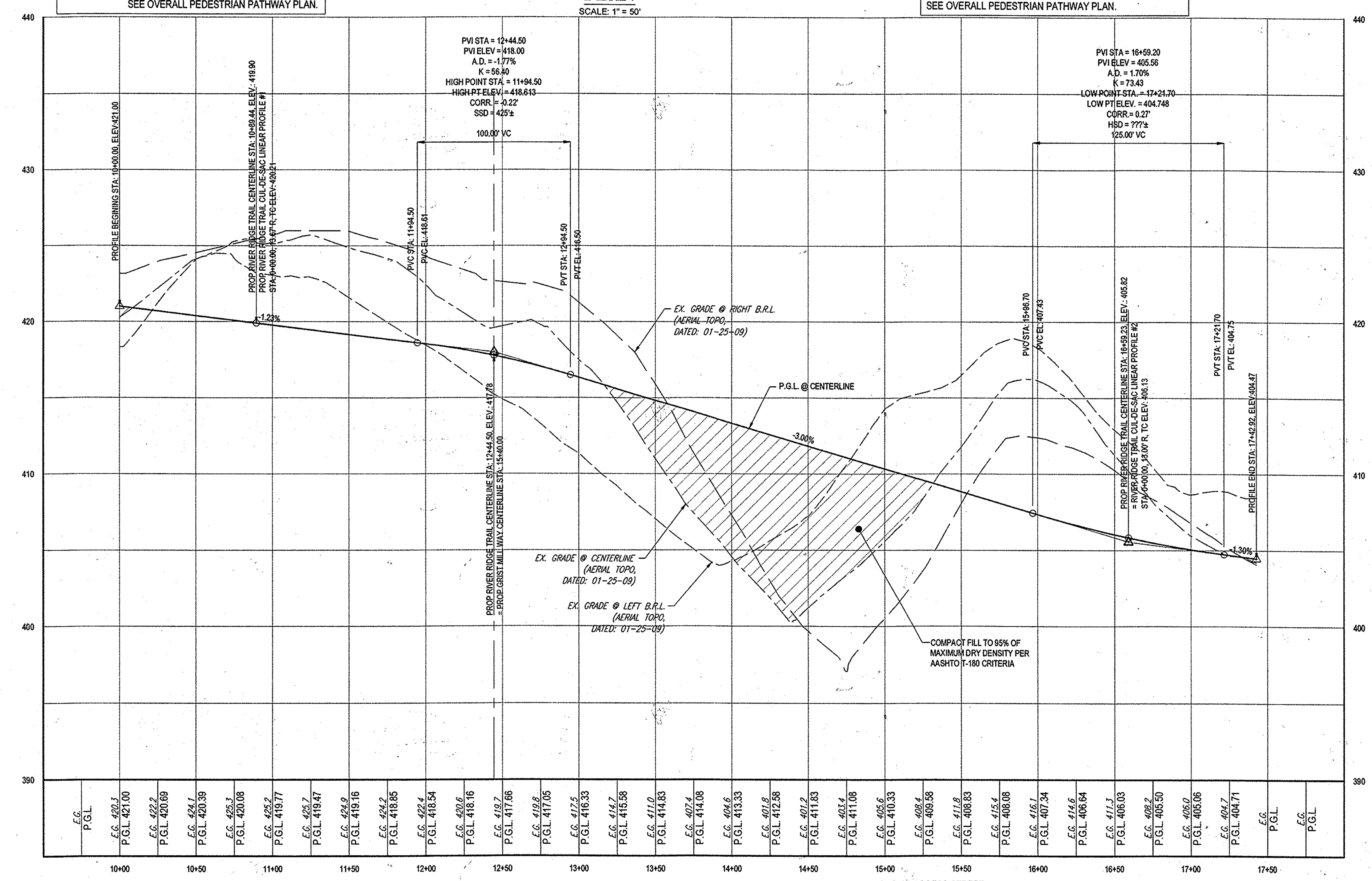
F-14-124

H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PP4.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:23



RIVER RIDGE TRAIL - PLAN

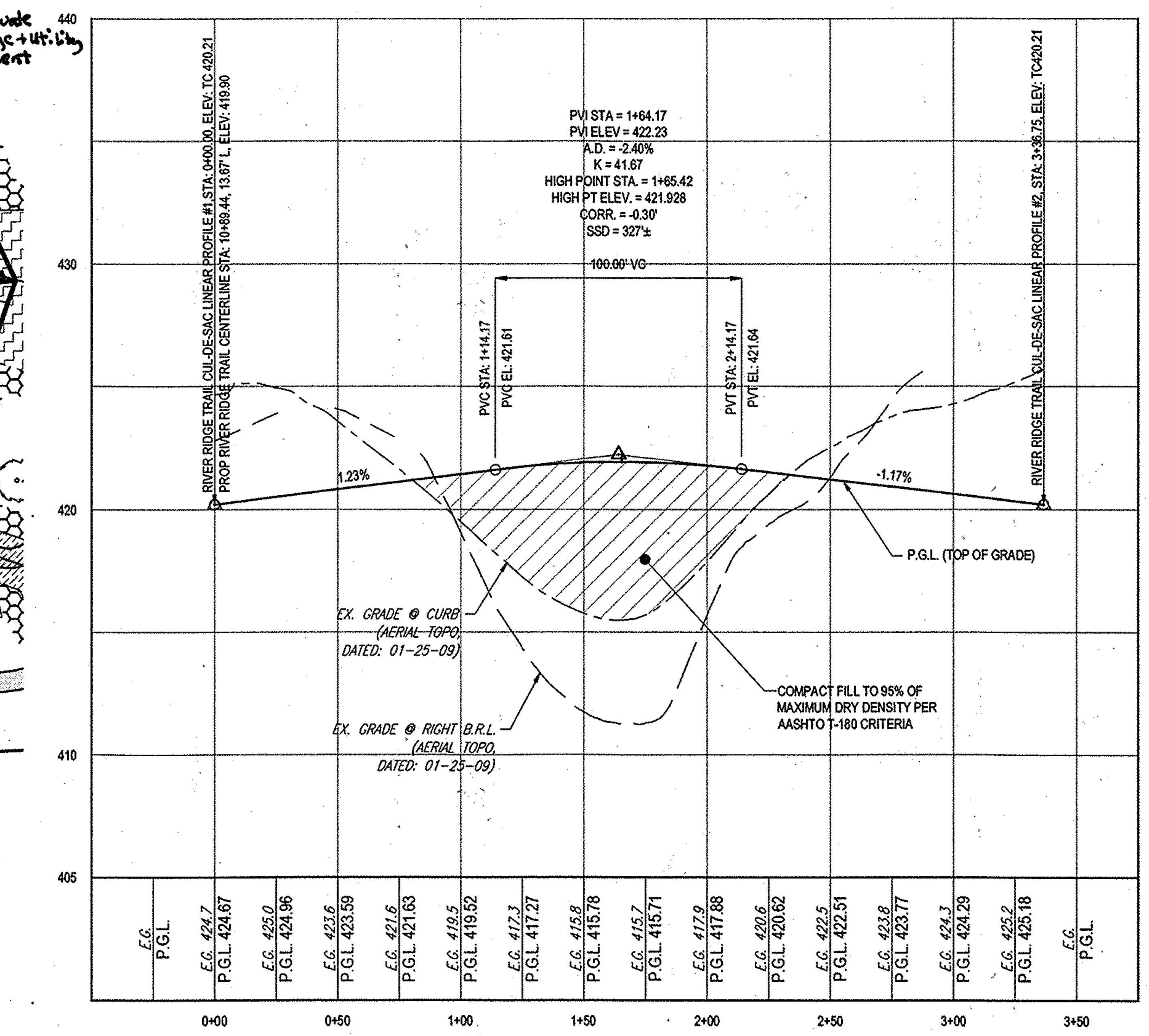
SCALE: 1" = 50'



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

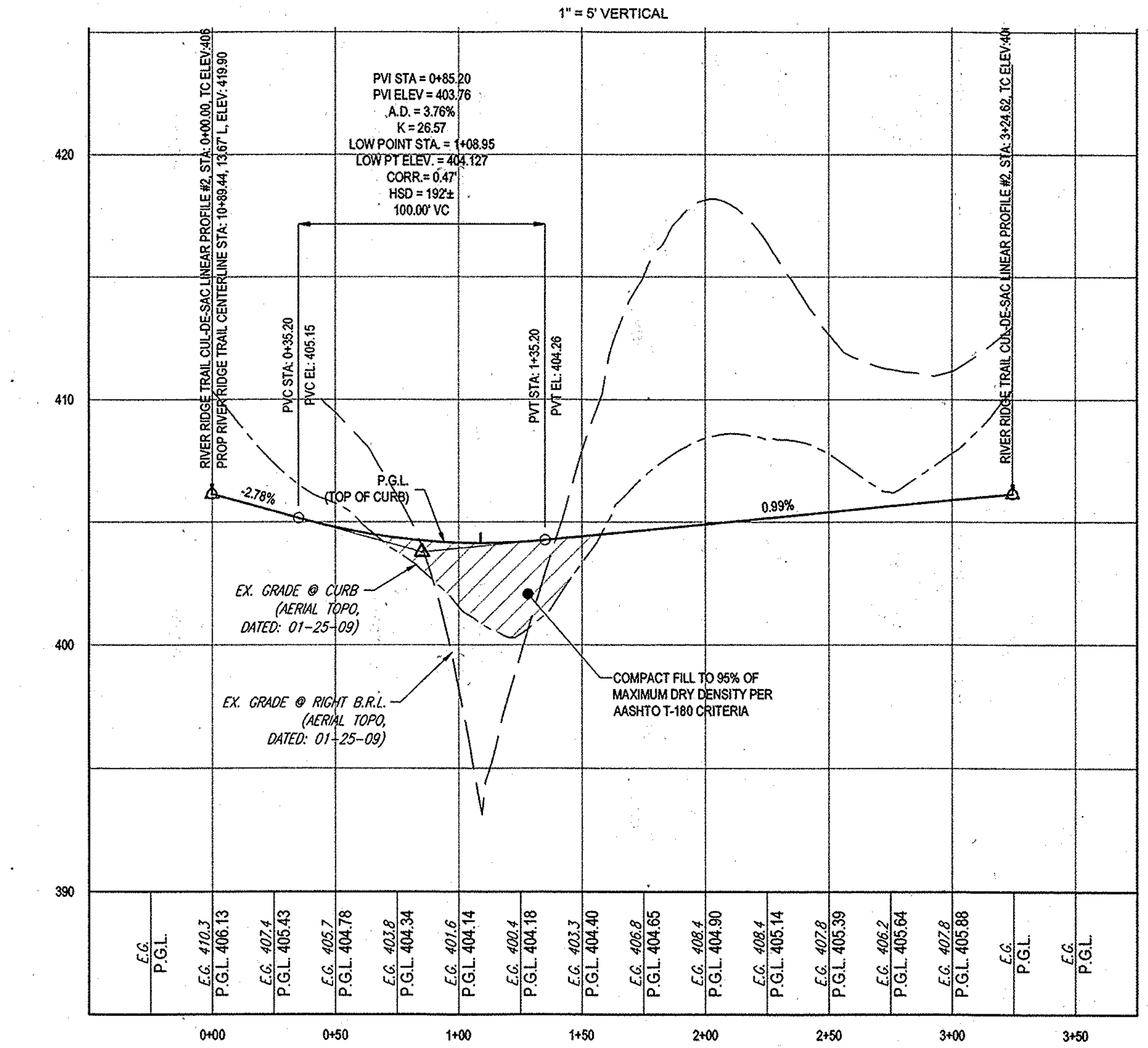
RIVER RIDGE TRAIL - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



RIVER RIDGE TRAIL - CUL-DE-SAC LINEAR PROFILE #1

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



RIVER RIDGE TRAIL - CUL-DE-SAC LINEAR PROFILE #2

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

NOTES:
1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

R1-2 —— GROUND MOUNTED SIGN

STOP — R1-1 30"x30"
SPEED LIMIT 25 — R2-1 24"x30"
S1-1 30"x30" (FYG)
AHEAD — W16-9P 24"x12" (FYG)
W16-7P 24"x12" (FYG)
YIELD — R1-2
R6-4 24"X30"
W11-2 30"x30"
R4-7 24"x30"
R6-5P 30"x30"
W3-1 30"X30"
W3-2 30"X40"
STATE LAW STOP FOR IN X-WALKS — R1-6a(2) 36"X42"

✲ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 11/9/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 12-17-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

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STREET LIGHT CHART

STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
RIVER RIDGE TRAIL	N 596731.82 E 1363511.92		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	12+31.94	21.26' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	15+50.26	16.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	N 597455.79 E 1363820.69		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051 .

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES © 2008 BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

DIG WITH C.A.R.E. CALL BEFORE YOU DIG

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS8

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
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TOWSON, MARYLAND 21204
Phone: (410) 821-7900
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www.BohlerEngineering.com

B. R. ROWE
BRANDON R. ROWE, MARYLAND PROFESSIONAL ENGINEER No. 40808
10/23/15

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
15

F-14-124

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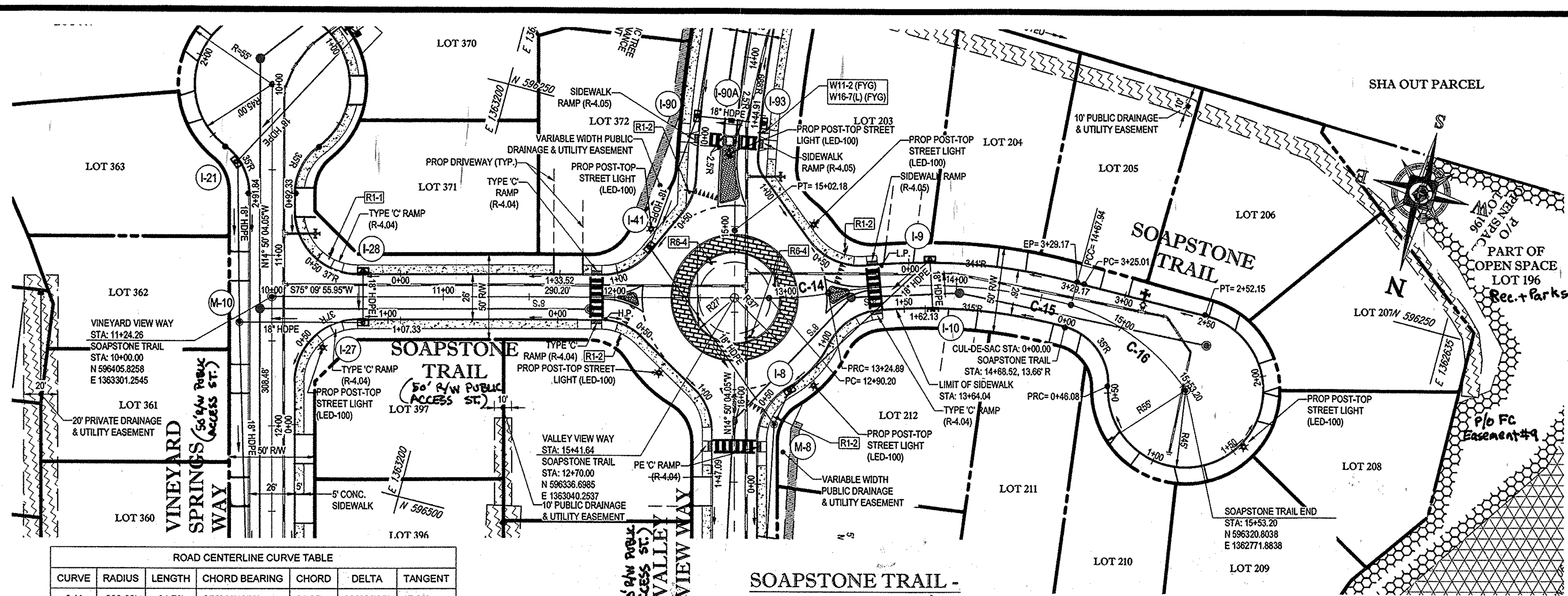
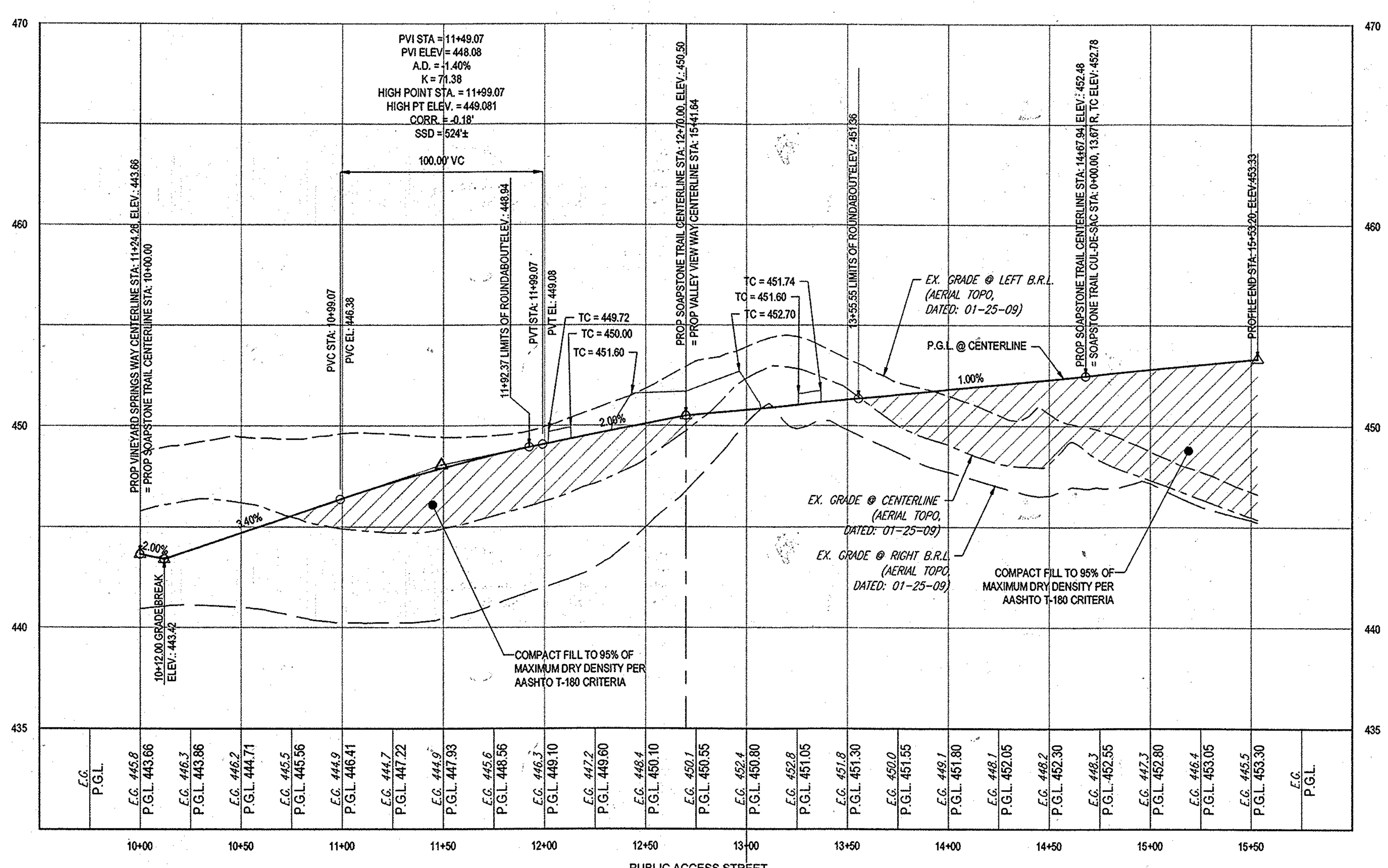


ROAD CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-14	200.00'	34.70'	S70°11'43"W	34.65'	009°56'25"	17.39'
C-15	328.03'	143.04'	N77°43'03"E	141.91'	024°59'05"	72.68'
C-16	125.17'	85.26'	S68°05'13"E	83.62'	039°01'39"	44.36'

SOAPSTONE TRAIL - PLAN
SCALE: 1" = 50'

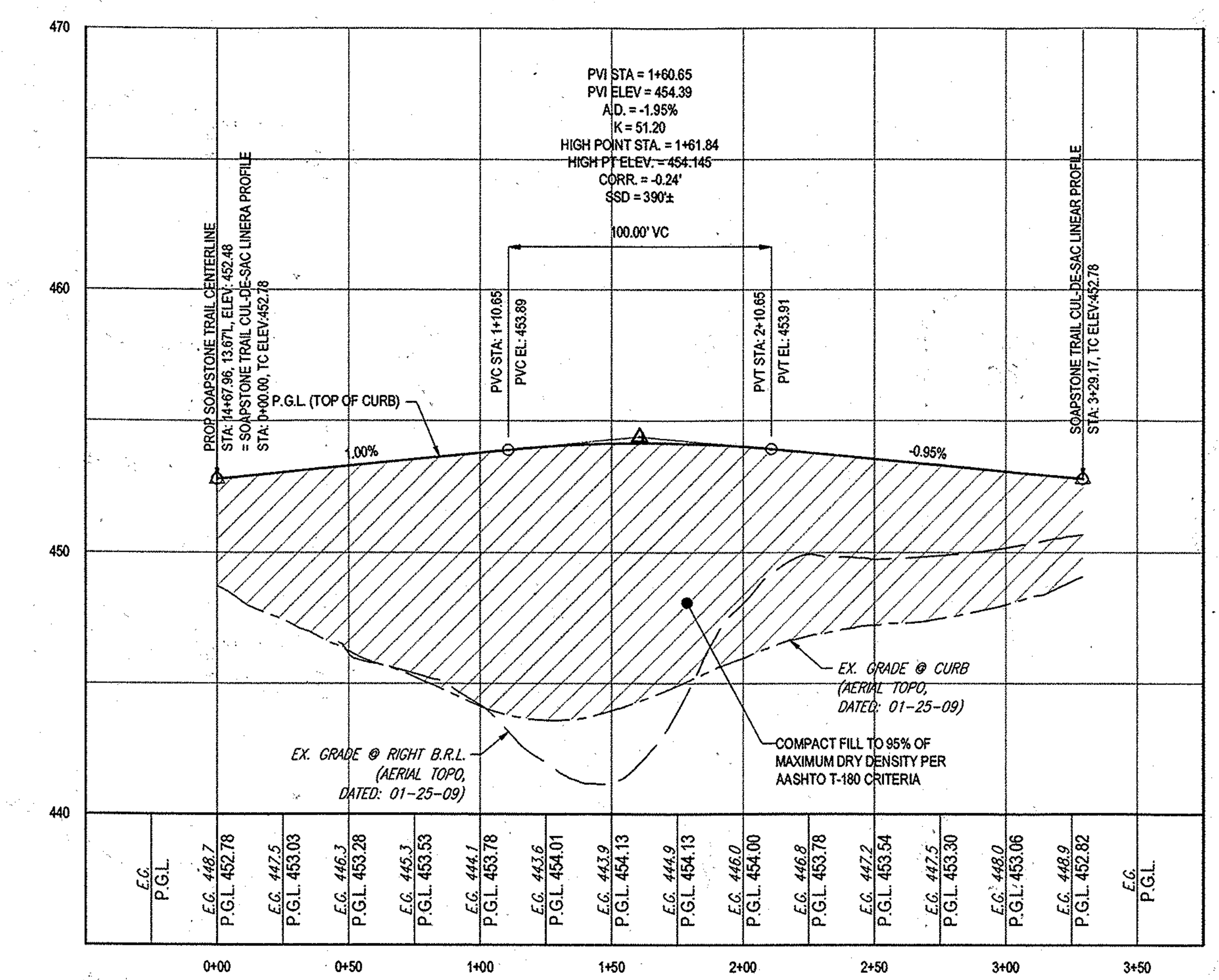
SEE SHEET 23 FOR ADDITIONAL DETAIL ON ROUNDABOUT

STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
VALLEY VIEW WAY	14+57.44	4.91' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	14+98.32	46.19' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+01.48	48.72' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+85.84	44.19' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+92.99	46.22' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SOAPSTONE TRAIL	N 596340.6799 E 1362728.5552		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

SOAPSTONE TRAIL - ROAD PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



SOAPSTONE TRAIL - CUL-DE-SAC LINEAR PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

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3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

R1-2 — GROUND MOUNTED SIGN

R1-1 30"x30" | R2-1 24"x30" | S1-1 30"x30" (FYG) | W16-9P 24"x12" (FYG) | W16-7P 24"x12" (FYG) | R1-2 | R6-4 24"X30" | W11-2 30"x30" | R4-7 24"x30" | R6-5P 30"x30" | W3-1 30"X30" | W3-2 30"X40" | R1-6a(2) 36"X42"

★ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

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H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PP4.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:25

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
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CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.: MD152013
DRAWN BY: RLB
CHECKED BY: BRR
DATE: 1/23/15
SCALE: AS SHOWN
CAD I.D.: PS8

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
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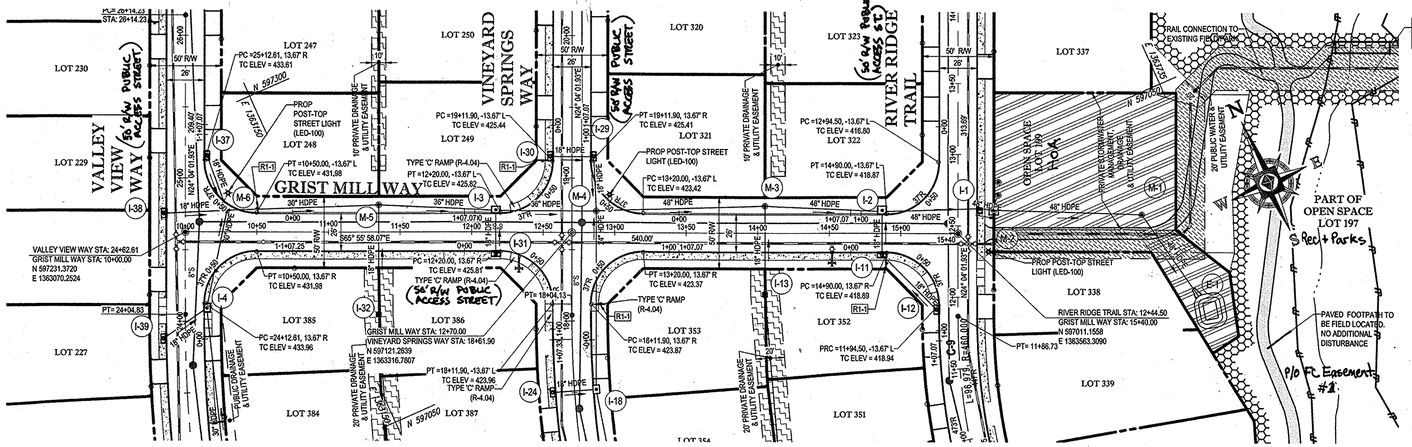
B.R. ROWE
STATE OF MARYLAND BRANDON R. ROWE PROFESSIONAL ENGINEER No. 40808
10/23/15

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
16

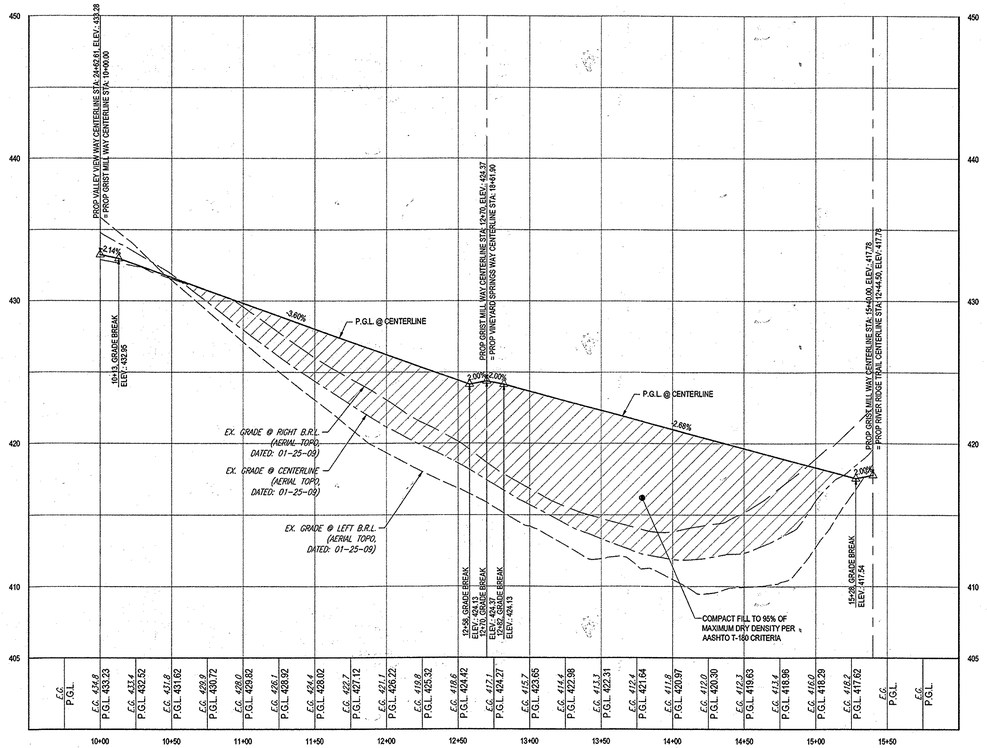
F-14-124



FOR MORE DETAILS ON THE PATH TO STONEHOUSE DRIVE, SEE OVERALL PEDESTRIAN PATHWAY PLAN.

STREET LIGHT CHART

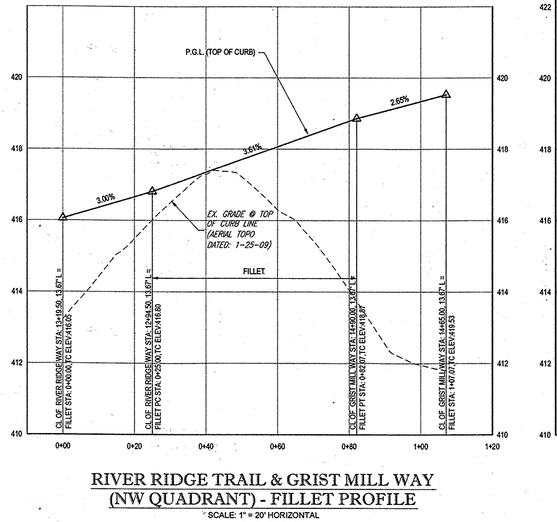
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
VALLEY VIEW WAY	24+89.04	26.43' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	18+88.34	26.43' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	12+31.94	21.26' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)



PUBLIC ACCESS STREET
DESIGN SPEED - 25 MPH

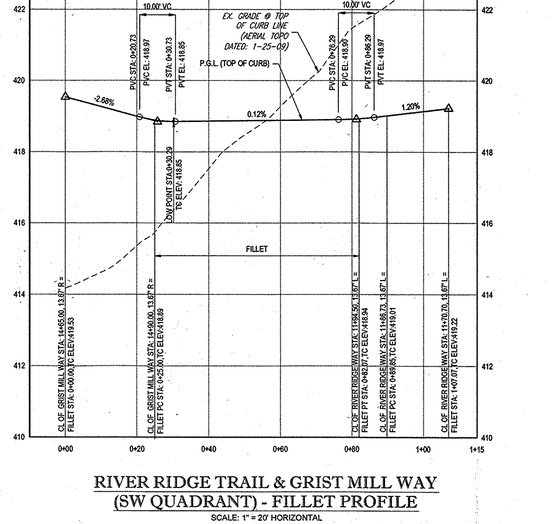
GRIST MILL WAY - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



RIVER RIDGE TRAIL & GRIST MILL WAY (NW QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



RIVER RIDGE TRAIL & GRIST MILL WAY (SW QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
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NOTES:
1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

R1-2 — GROUND MOUNTED SIGN

✱ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

R1-1 30"X30" · R2-1 24"X30" · S1-1 30"X30" (FYG) · W16-9P 24"X12" (FYG) · W16-7P 24"X12" (FYG) · R1-2 · R6-4 24"X30" · W11-2 30"X30" · R4-7 24"X30" · R6-5P 30"X30" · W3-1 30"X30" · W3-2 30"X40" · R1-6a(2) 36"X42"

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051 .

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE:
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OFFICES:
SOUTHBOROUGH, MA
ALBANY, NY
DUNMORE, PA
CENTER VALLEY, PA
BOWIE, MD
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STERLING, VA
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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS8

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

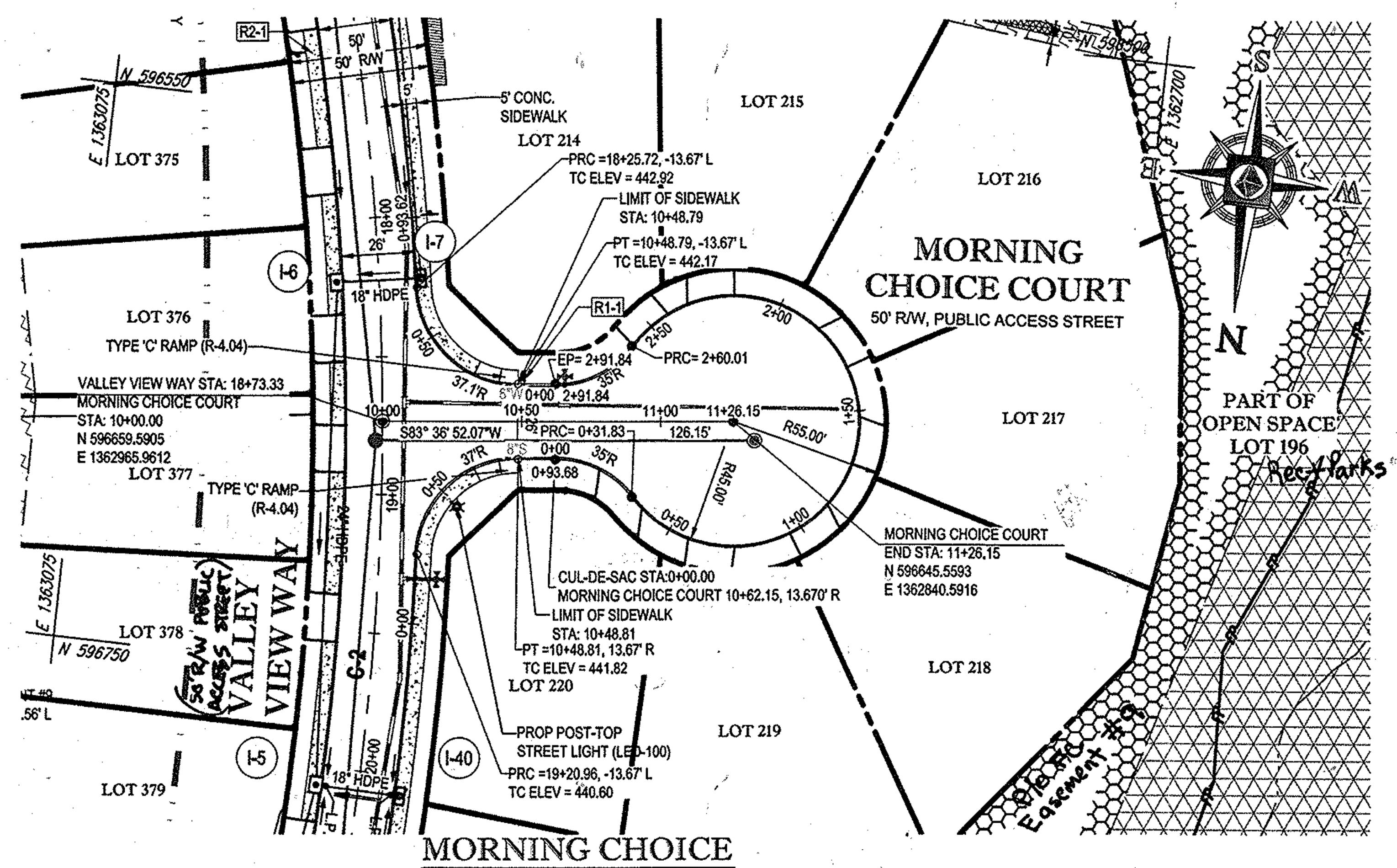
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE
BRANDON R. ROWE
LICENSE NO. 40808
PROFESSIONAL ENGINEER
STATE OF MARYLAND

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
17

F-14-124

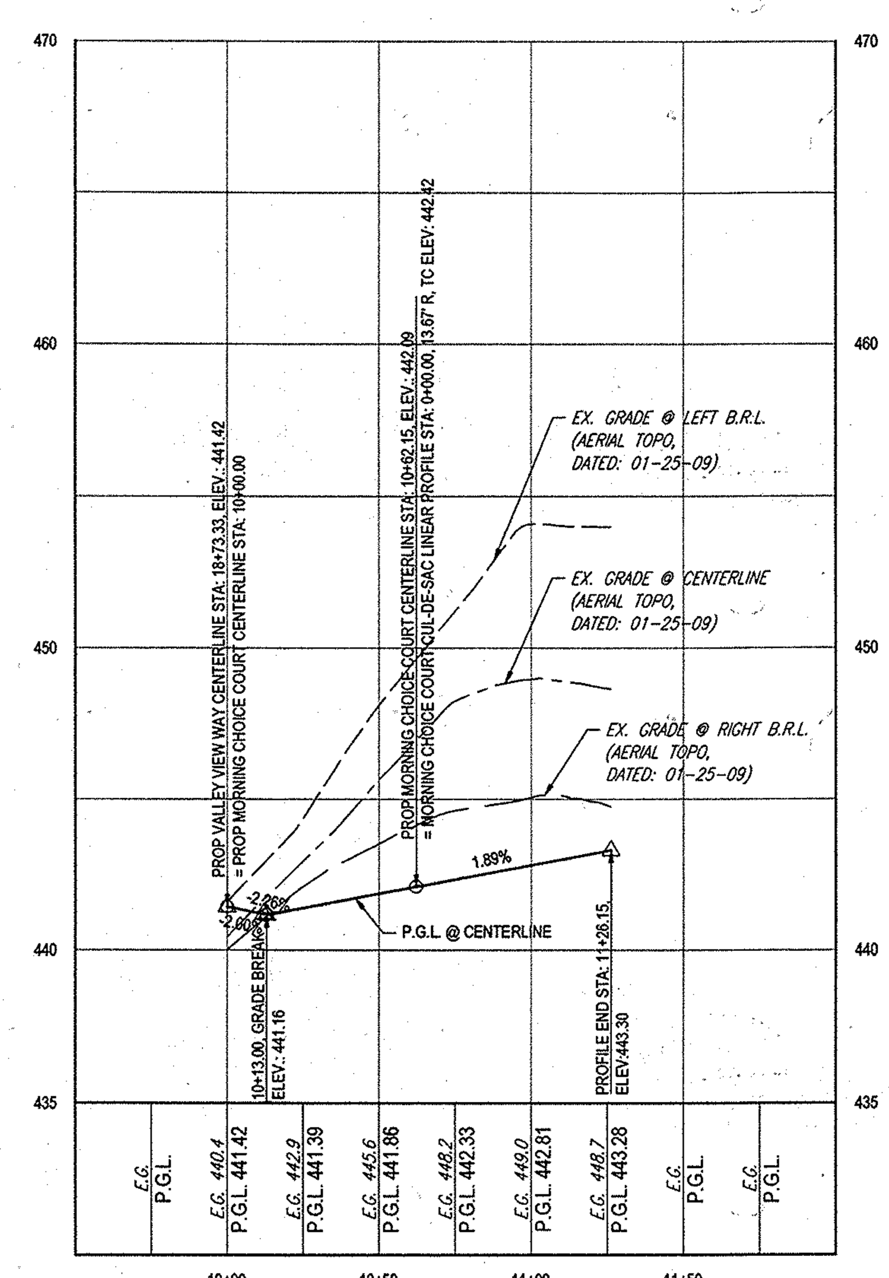


MORNING CHOICE COURT - PLAN

SCALE: 1" = 50'

STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
VALLEY VIEW WAY	19+03.55	27.28' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

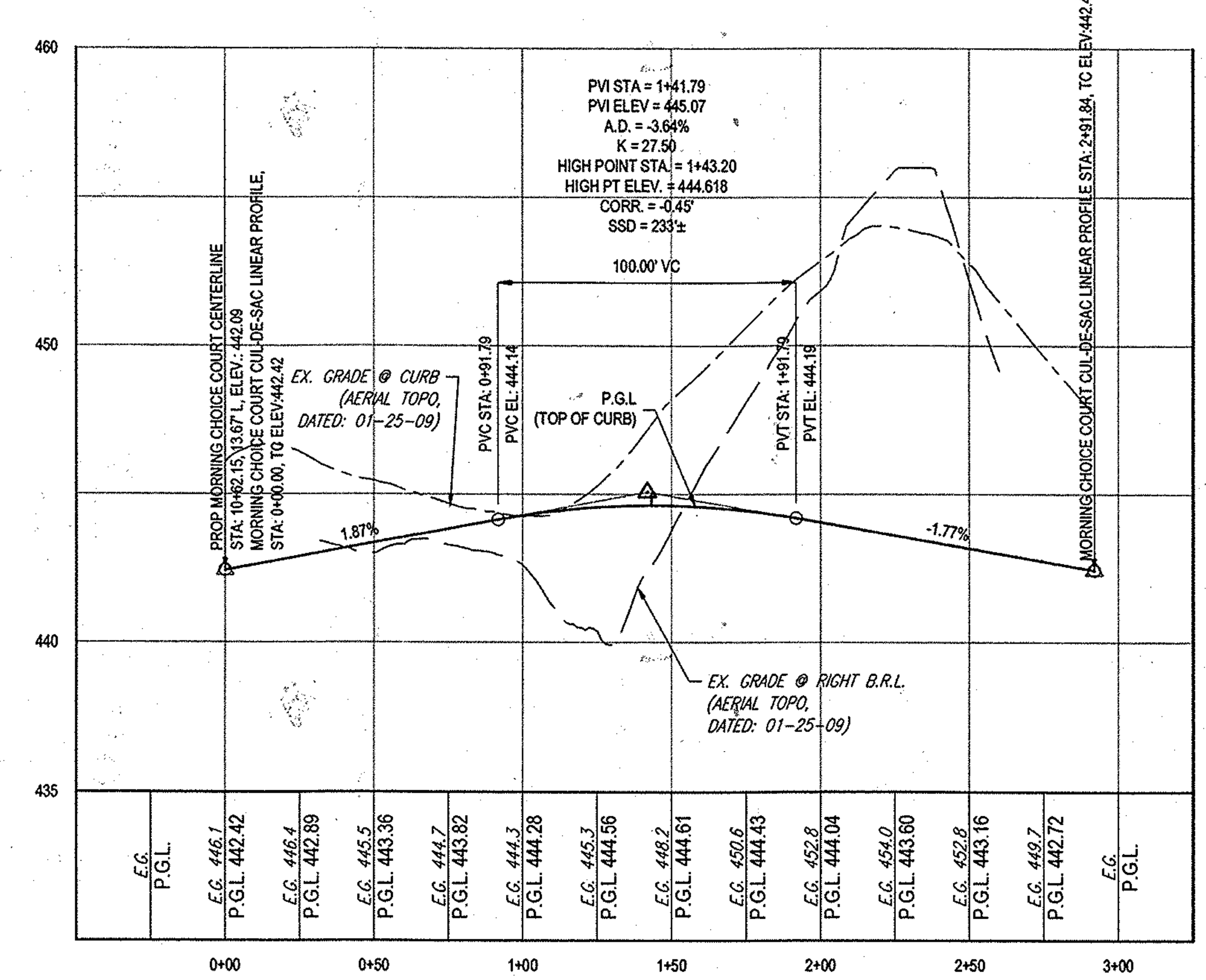
ROAD CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-2	1000.00'	678.96'	S04°36'59"W	666.00'	038°54'06"	353.15'



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

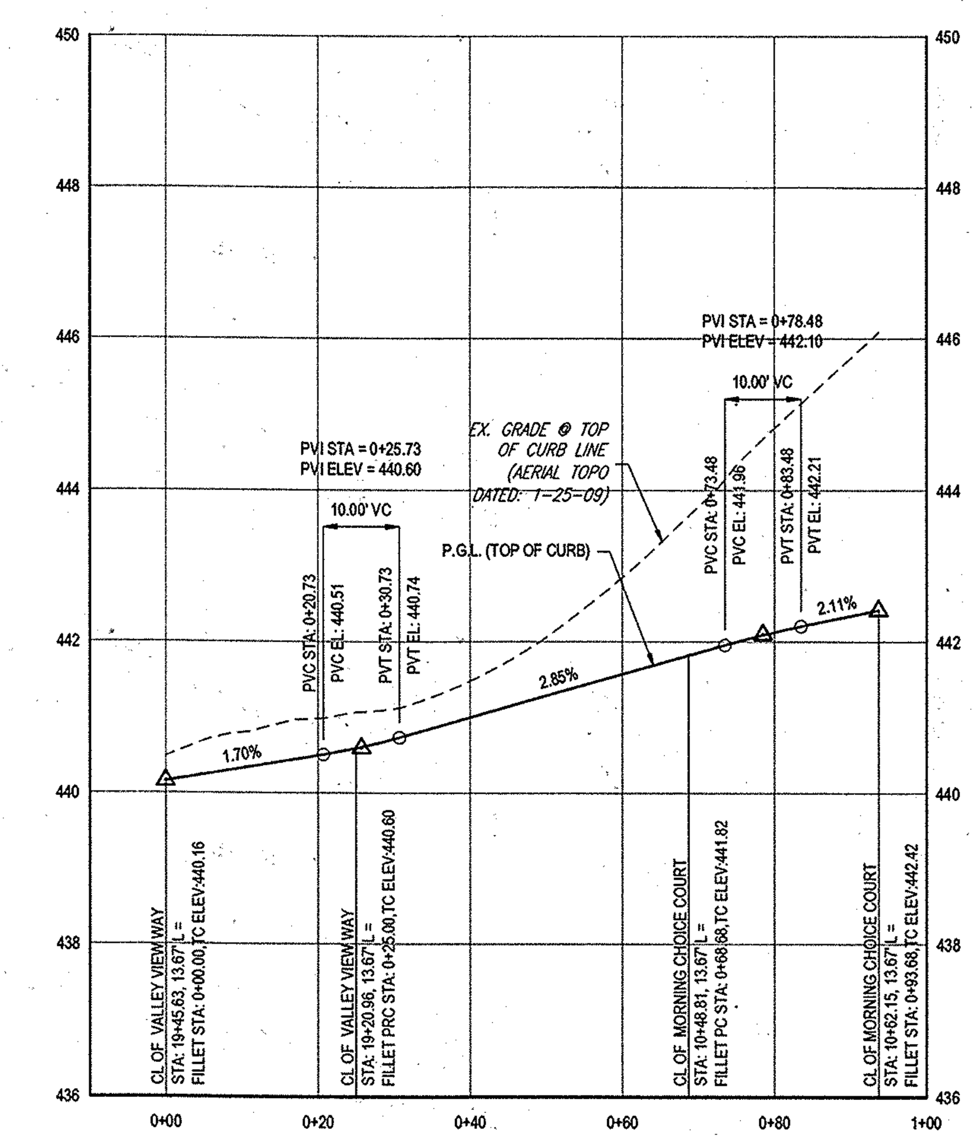
MORNING CHOICE COURT - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



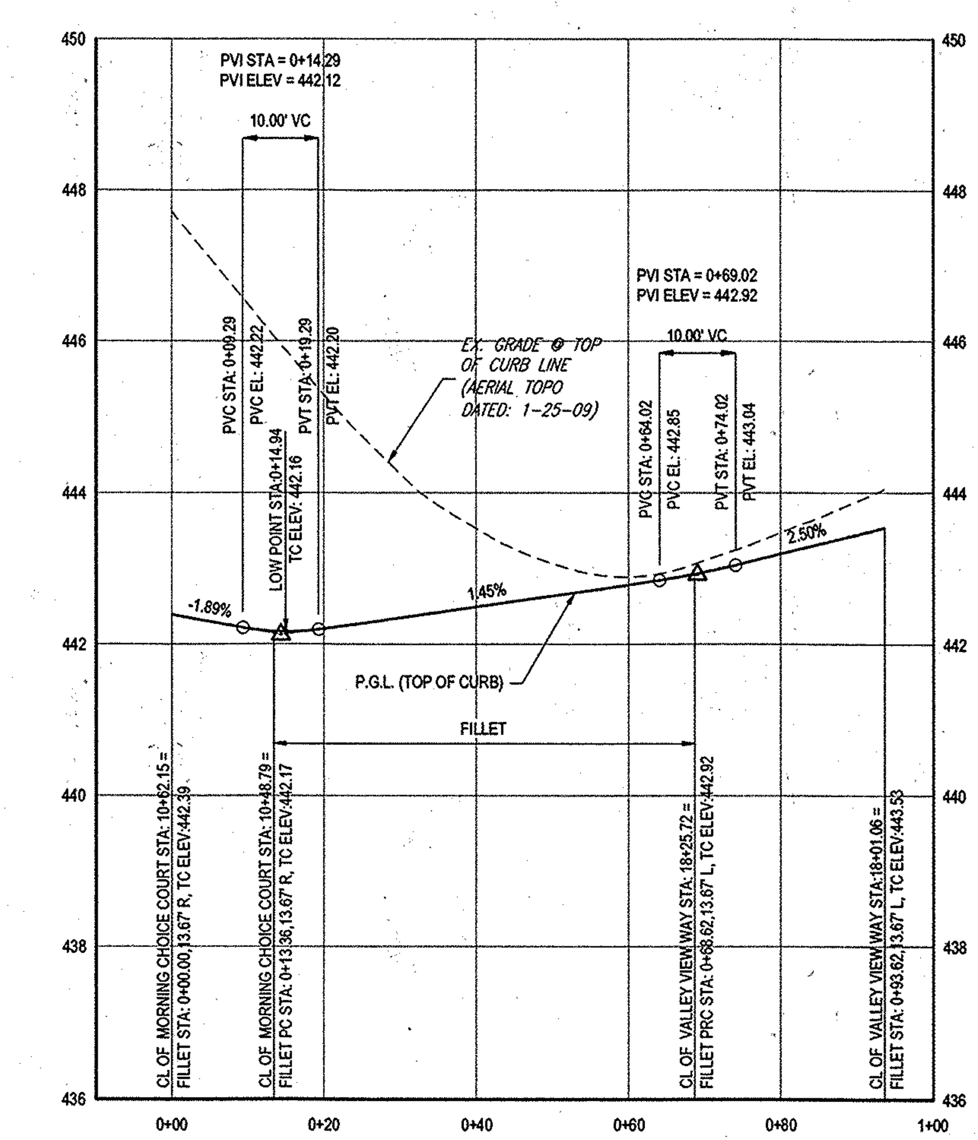
MORNING CHOICE COURT - CUL-DE-SAC LINEAR PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



VALLEY VIEW WAY & MORNING CHOICE COURT (NE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



VALLEY VIEW WAY & MORNING CHOICE COURT (SE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

NOTES:
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2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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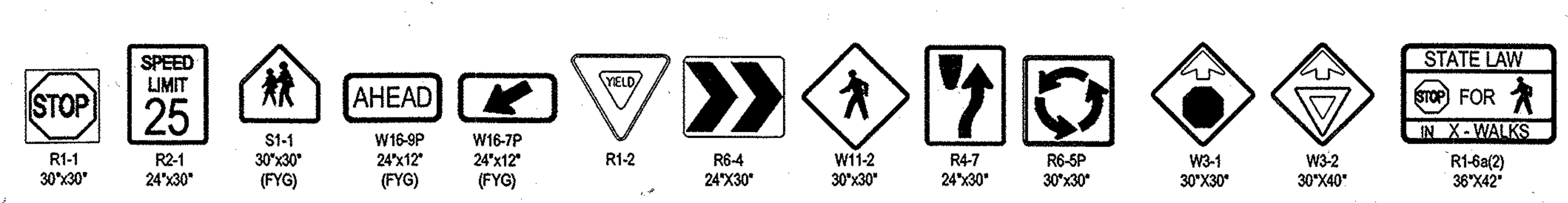
LEGEND:

R1-2 — GROUND MOUNTED SIGN



✲ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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◆ RONKONKOMA, NY ◆ STERLING, VA
◆ CHALFONT, PA ◆ WARRENTON, VA
◆ CENTER VALLEY, PA ◆ FORT LAUDERDALE, FL
◆ TAMPA, FL ◆ PHILADELPHIA, PA

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REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

DIG WITH C.A.R.E. CALL BEFORE YOU DIG
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APPROVED FOR CONSTRUCTION

PROJECT No.: MD152013
DRAWN BY: RLB
CHECKED BY: BRR
DATE: 1/23/15
SCALE: AS SHOWN
CAD I.D.: PS0

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
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ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
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www.BohlerEngineering.com

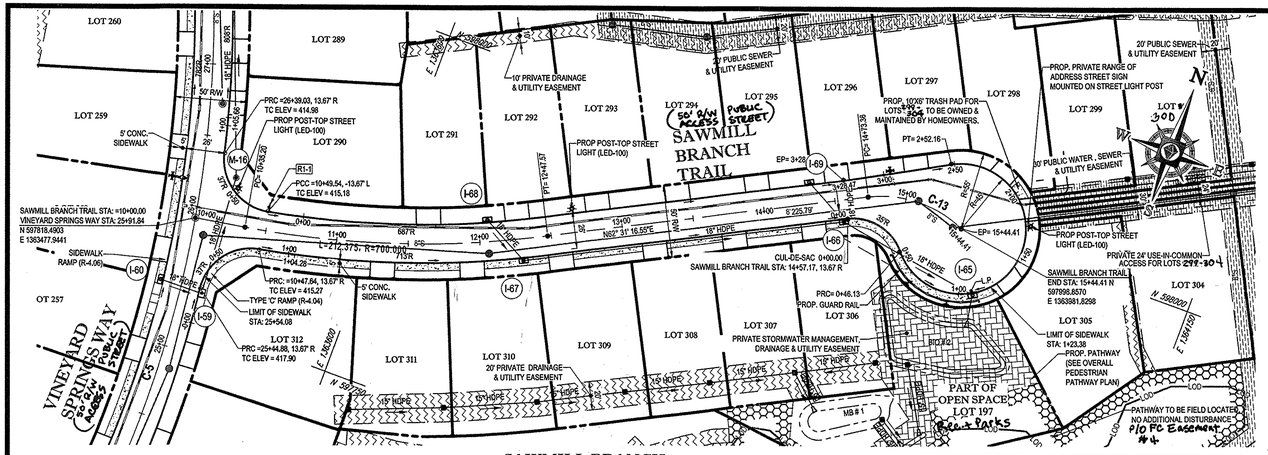
B.R. ROWE
STATE OF MARYLAND PROFESSIONAL ENGINEER No. 40808
10/21/15

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
18

F-14-124

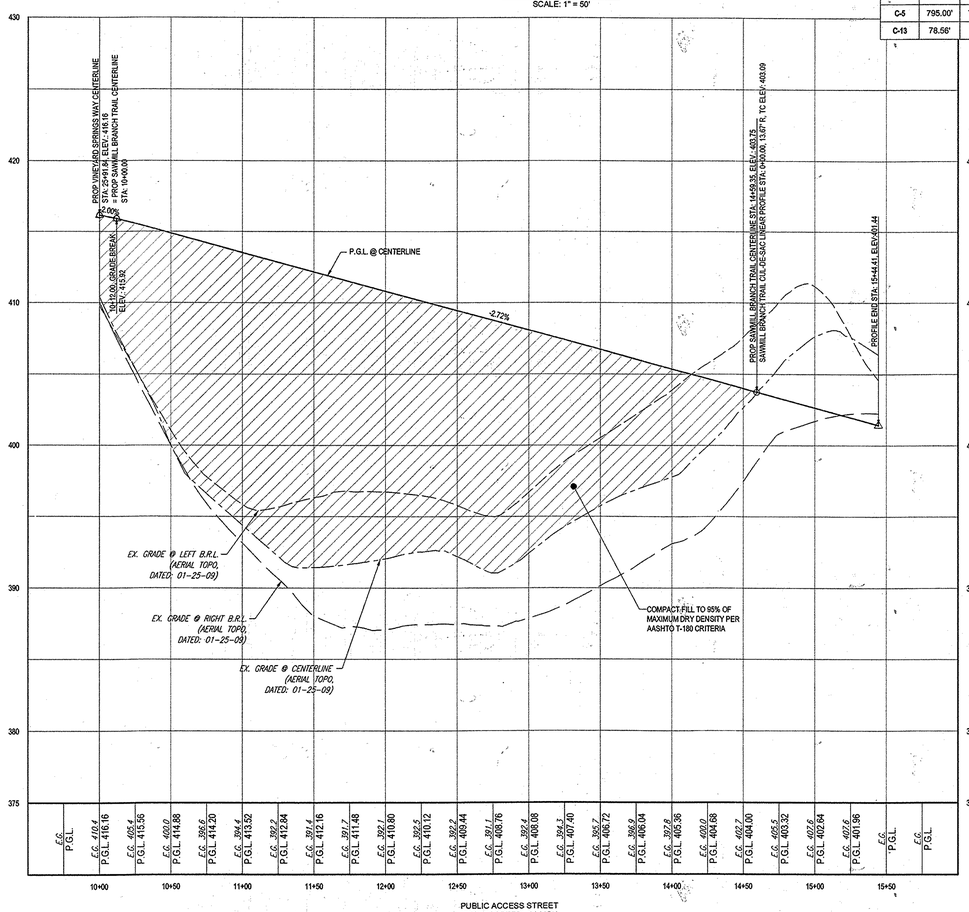
H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PP4.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:28



SAWMILL BRANCH TRAIL - PLAN

SCALE: 1" = 50'

ROAD CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-5	795.00'	766.57'	N03°33'23"W	737.22'	055°14'49"	416.03'
C-13	78.56'	71.05'	S88°25'49"W	68.65'	051°49'05"	38.16'



PUBLIC ACCESS STREET
DESIGN SPEED - 30 MPH

SAWMILL BRANCH TRAIL - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

NOTES:
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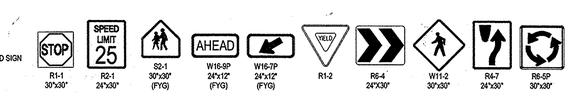
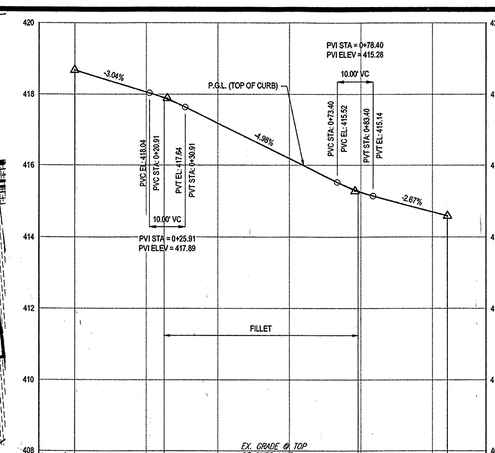
2. SEE SHEET 85-89 FOR STREET TREE TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.01 & R-6.03

LEGEND:

R1-2 → GROUND MOUNTED SIGN

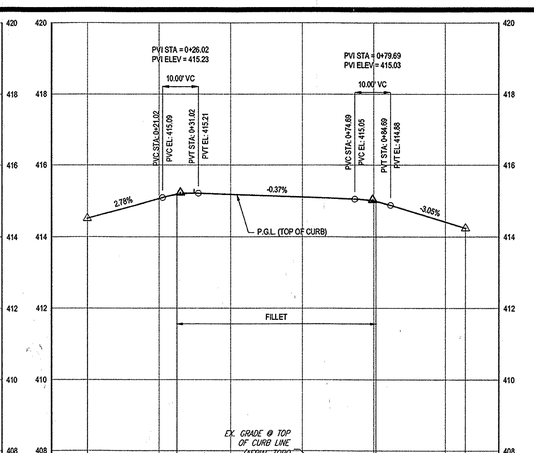
✱ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE





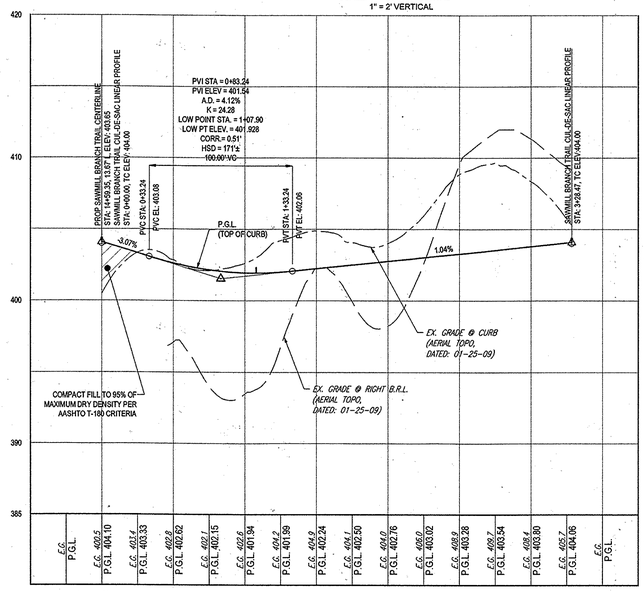
VINEYARD SPRINGS WAY & SAWMILL BRANCH TRAIL (SE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



VINEYARD SPRINGS WAY & SAWMILL BRANCH TRAIL (NE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



SAWMILL BRANCH TRAIL - CUL-DE-SAC LINEAR PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
VINEYARD SPRINGS WAY	26+16.66	26.30' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SAWMILL BRANCH TRAIL	12+66.69	16.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SAWMILL BRANCH TRAIL	N 598017.46 E 1364026.80		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-7-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
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CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23438	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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◆ CENTER VALLEY, PA
◆ RICHMOND, VA
◆ ROWIE, MD
◆ TOWSON, MD
◆ STERLING, VA
◆ WILLIAMSBURG, VA
◆ PORT LAUDERDALE, FL
◆ ATLANTA, GA

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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

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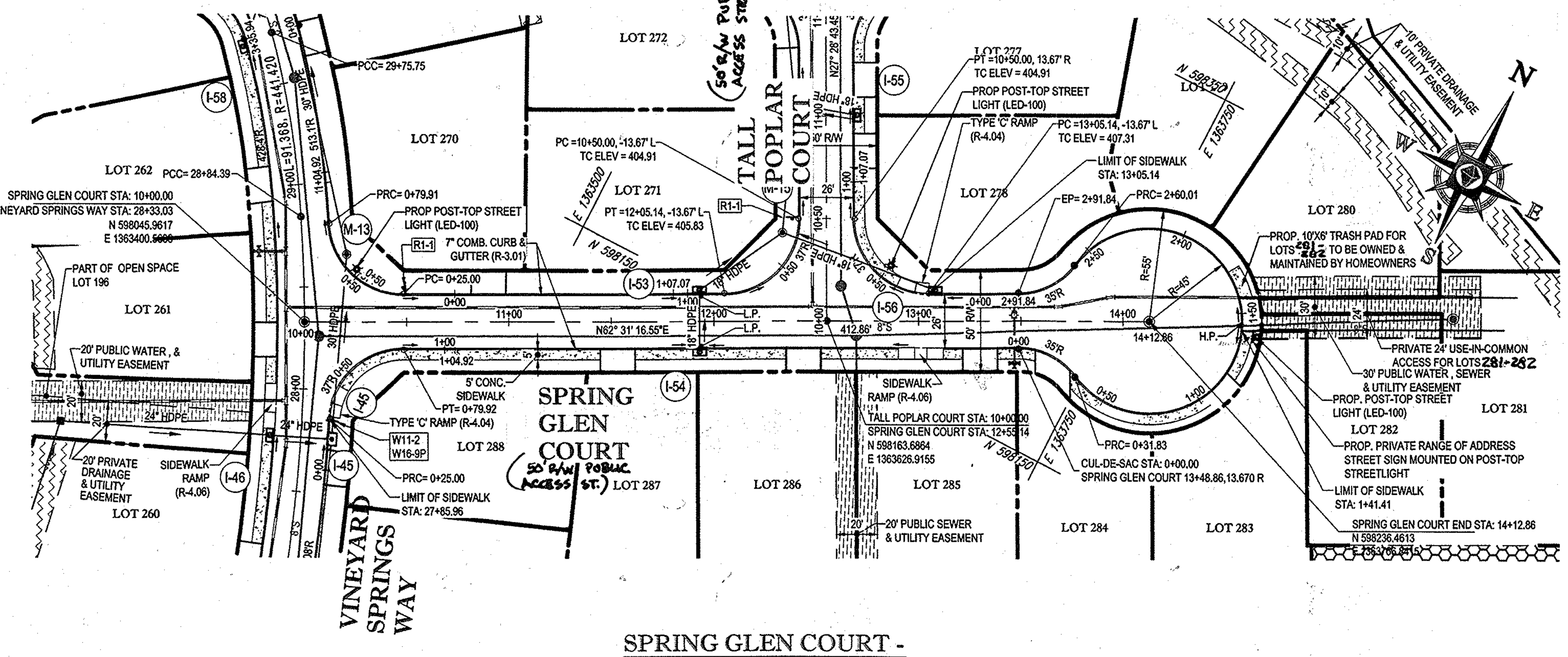
www.BohlerEngineering.com

BRANDON R. ROWE — STATE OF MARYLAND — No. 40808 — PROFESSIONAL ENGINEER — 1/23/15

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
19

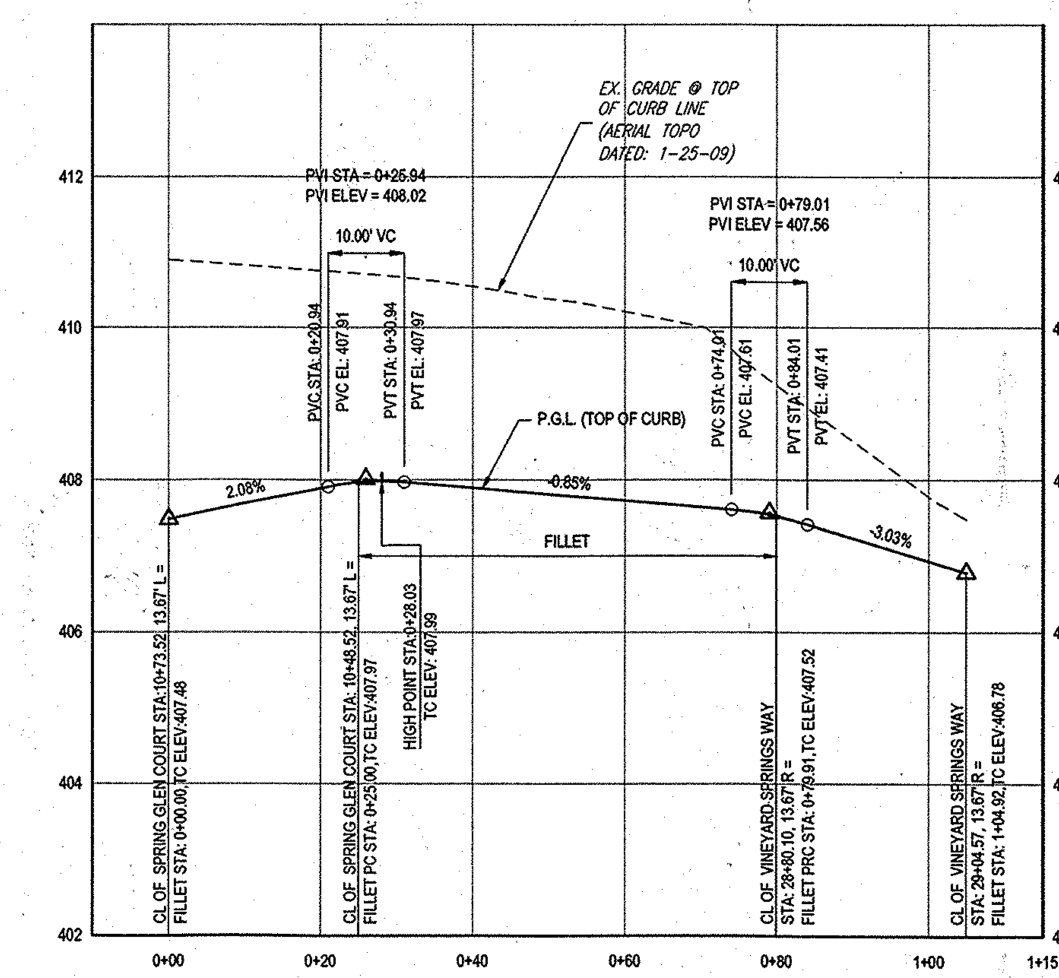
F-14-124



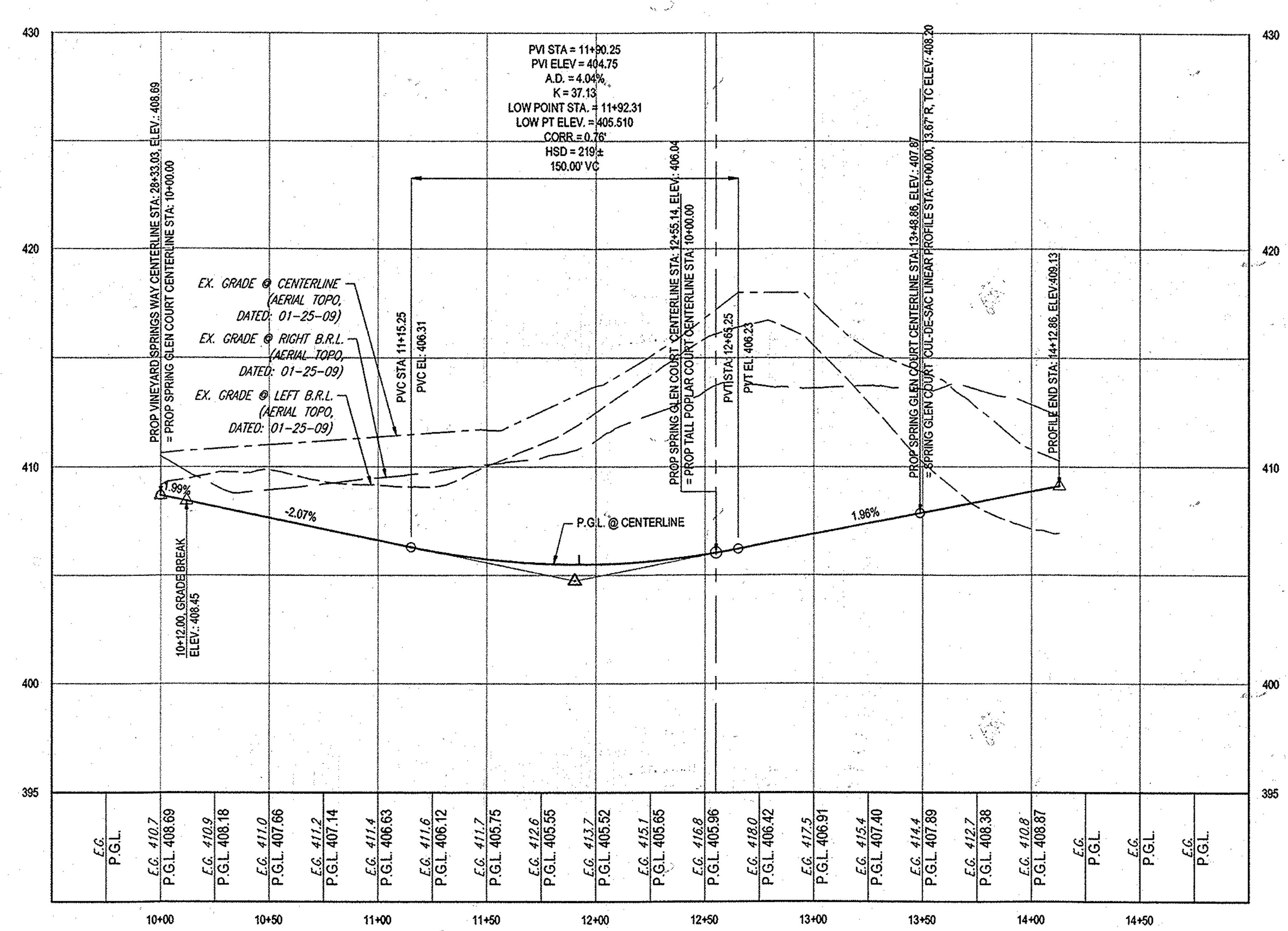
SPRING GLEN COURT - PLAN
SCALE: 1" = 50'

STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
SPRING GLEN COURT	12+88.68	27.19' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SPRING GLEN COURT	N 598254.1471 E 1363816.9787		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

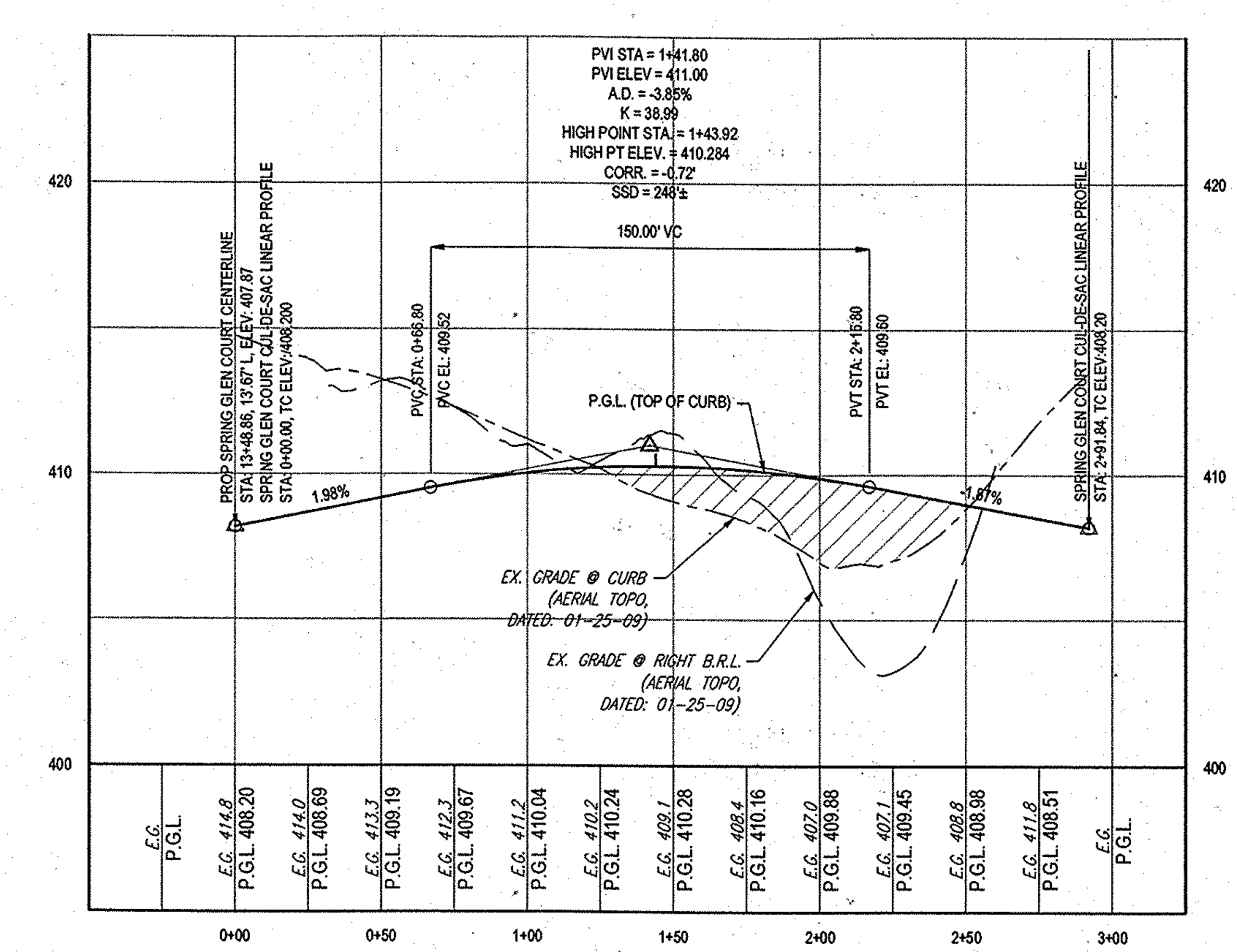
STREET LIGHT CHART



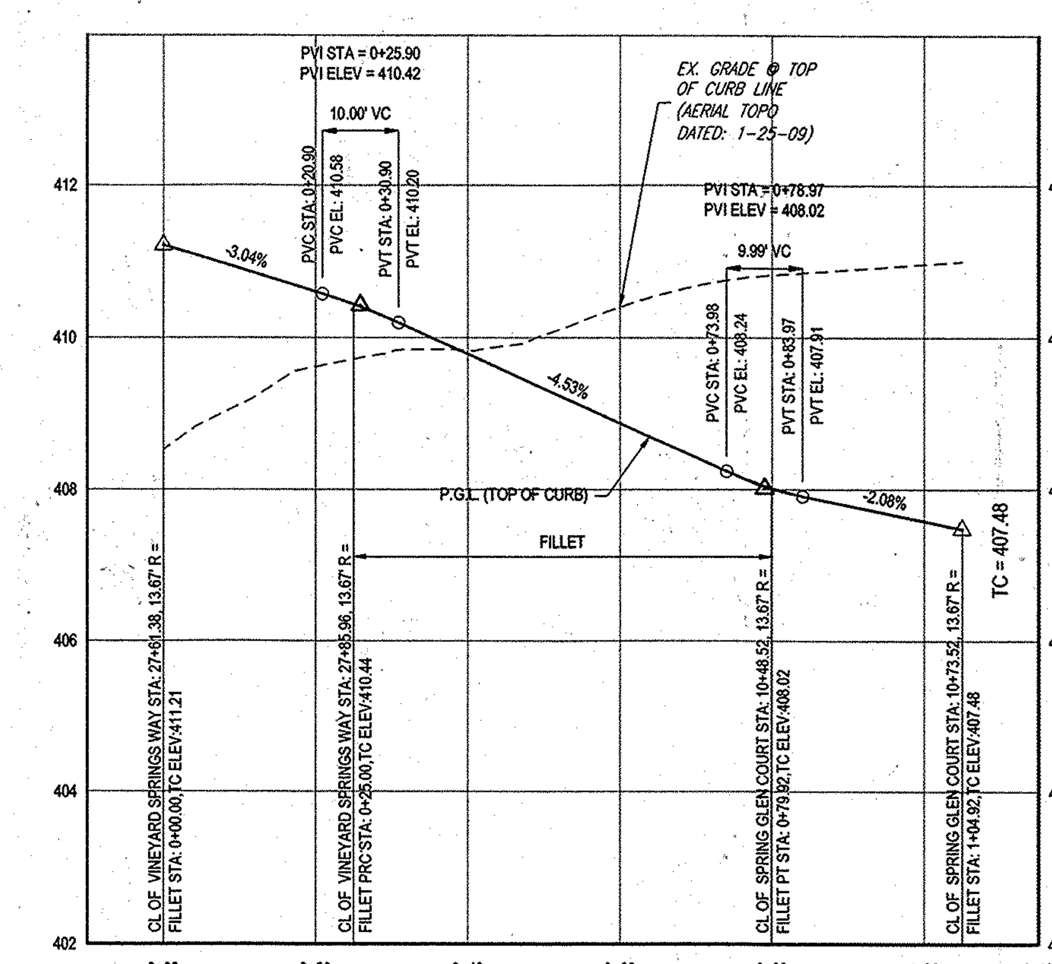
VINEYARD SPRINGS WAY & SPRING GLEN COURT (NE QUADRANT) - FILLET PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



SPRING GLEN COURT - ROAD PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



SPRING GLEN COURT - CUL-DE-SAC LINEAR PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



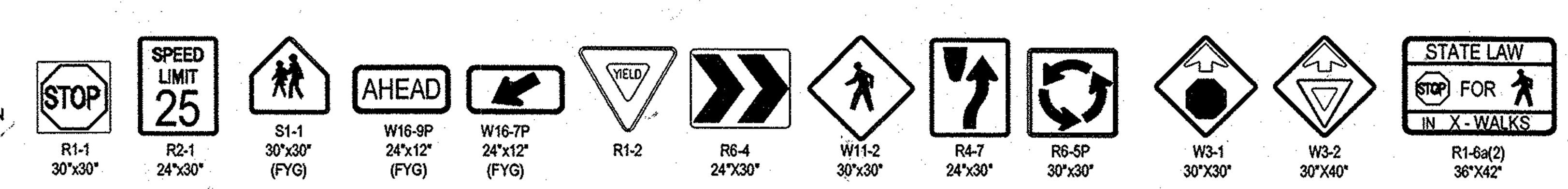
VINEYARD SPRINGS WAY & SPRING GLEN COURT (SE QUADRANT) - FILLET PROFILE
SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

NOTES:
1. ALL PROPOSED PAVEMENT IS TO BE HOWARD COUNTY P-3 PAVEMENT. SEE SHEET 24 FOR PAVEMENT SECTION DETAIL.
2. SEE SHEET 83-87 FOR STREET TREE LOCATIONS.
3. ALL DRIVEWAY ENTRANCES ARE HO. CO. STD. DETAILS R-6.02 (WITH SIDEWALK NEXT TO CURB) & R-6.05 (WITHOUT SIDEWALK)

LEGEND:

GROUND MOUNTED SIGN

STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE



APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397. AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK	SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS8

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

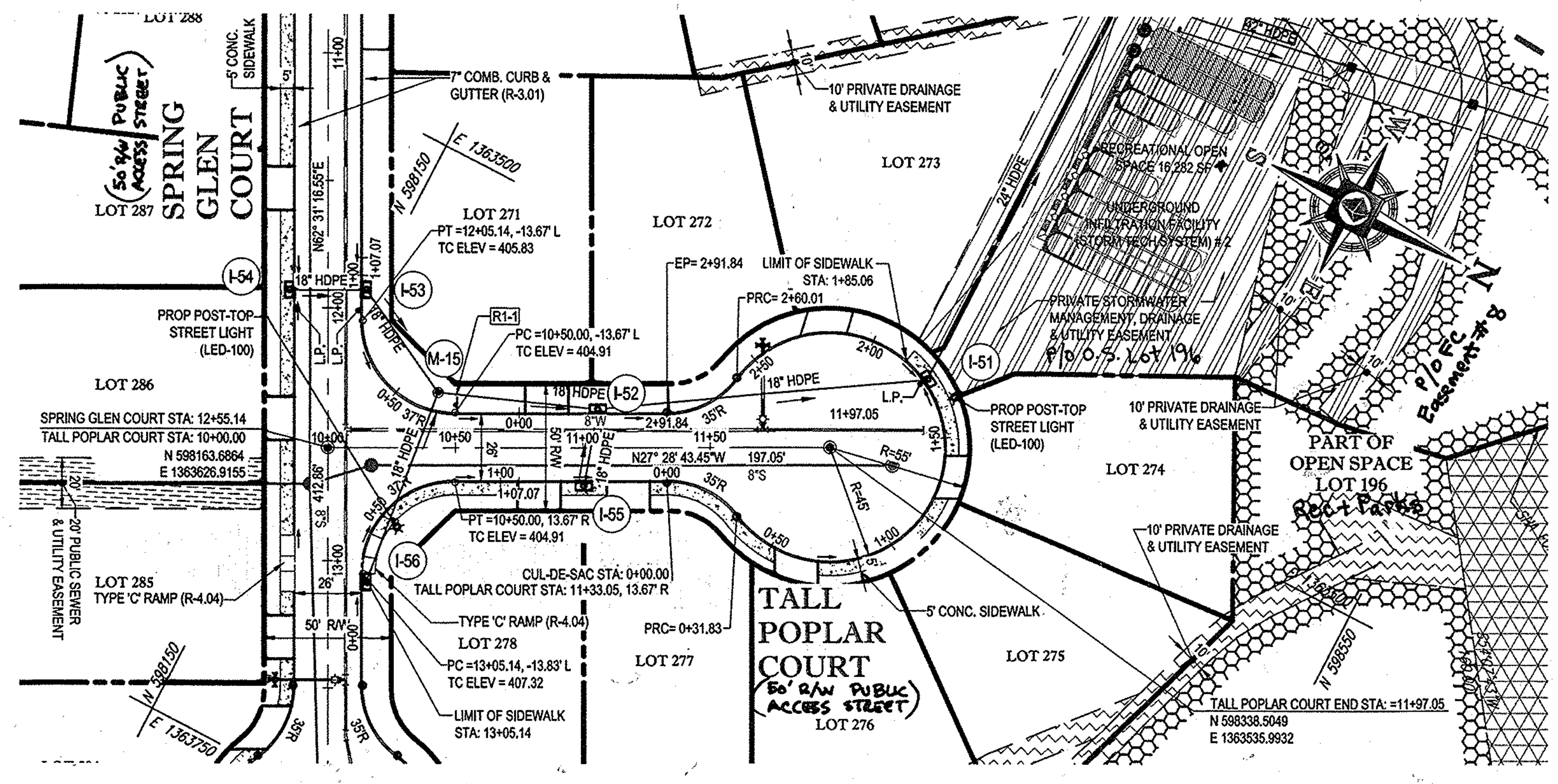
B.R. ROWE
PROFESSIONAL ENGINEER

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
20

F-14-124

H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PP4.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:30

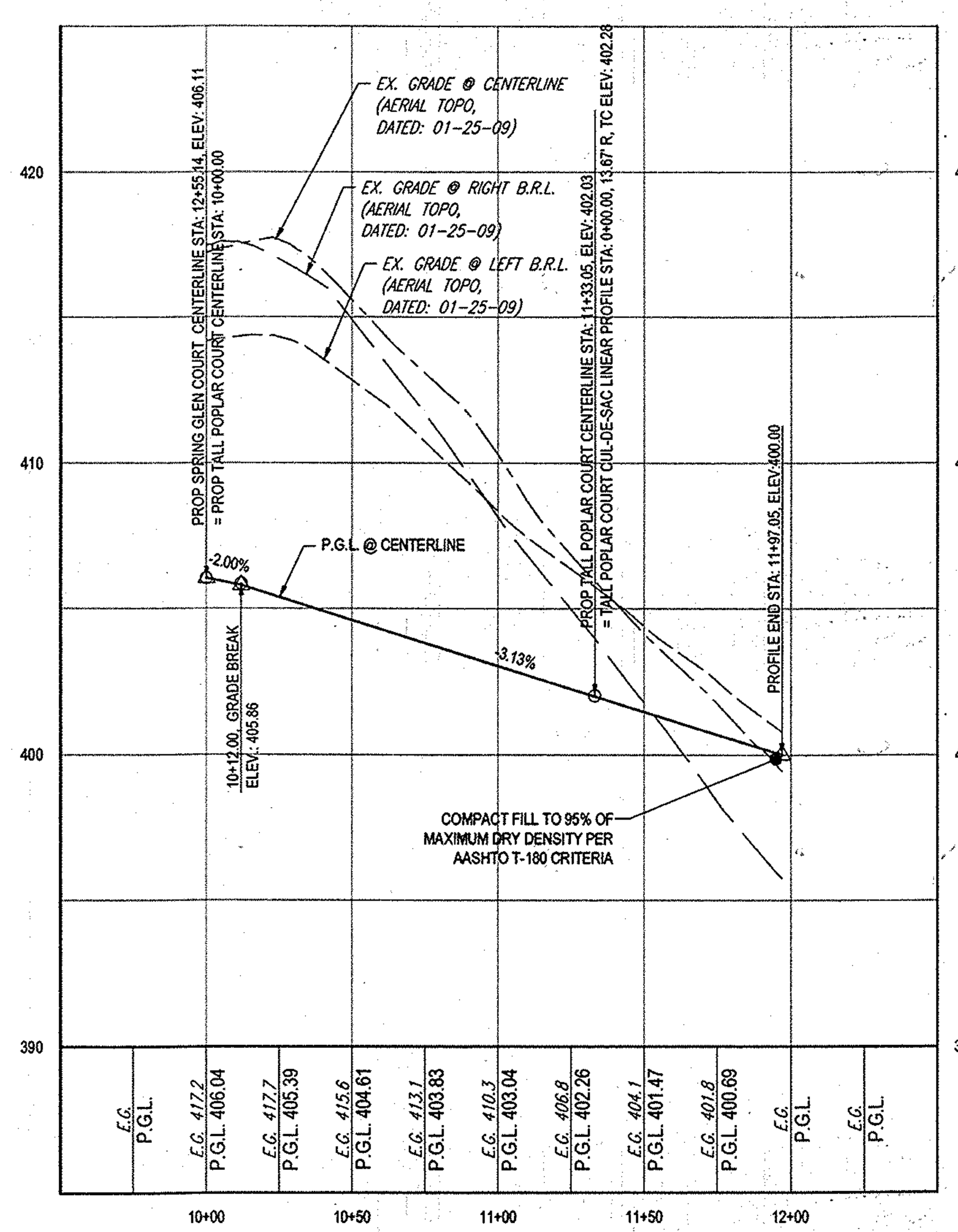


TALL POPLAR COURT - PLAN

SCALE: 1" = 50'

STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
SPRING GLEN COURT	12+88.68	27.19' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
TALL POPLAR COURT	N 598372.8399 E 1363495.6816		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

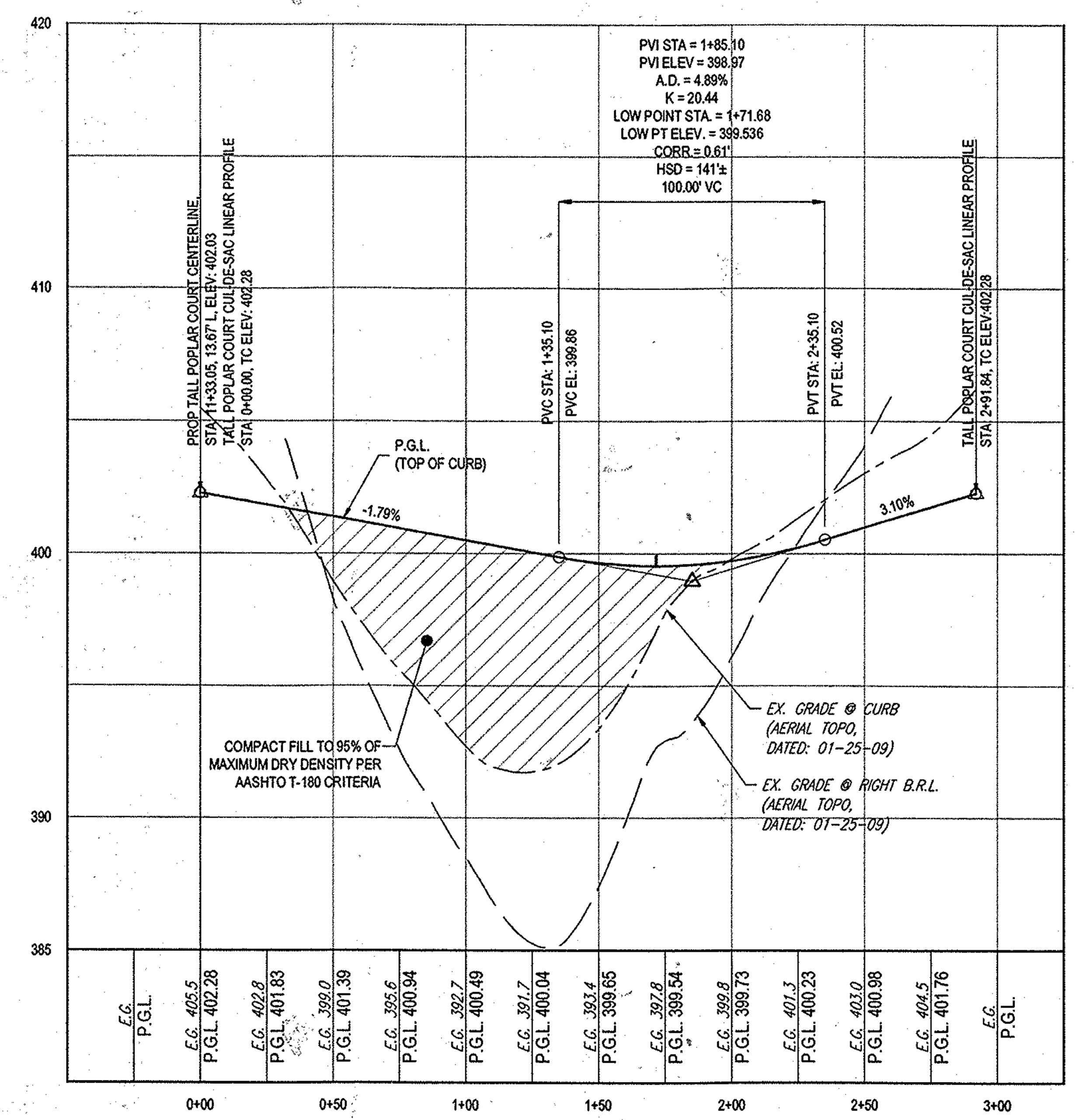
* Determination by DPZ to allow Rec open space over easement



PUBLIC ACCESS STREET
DESIGN SPEED - 25 MPH

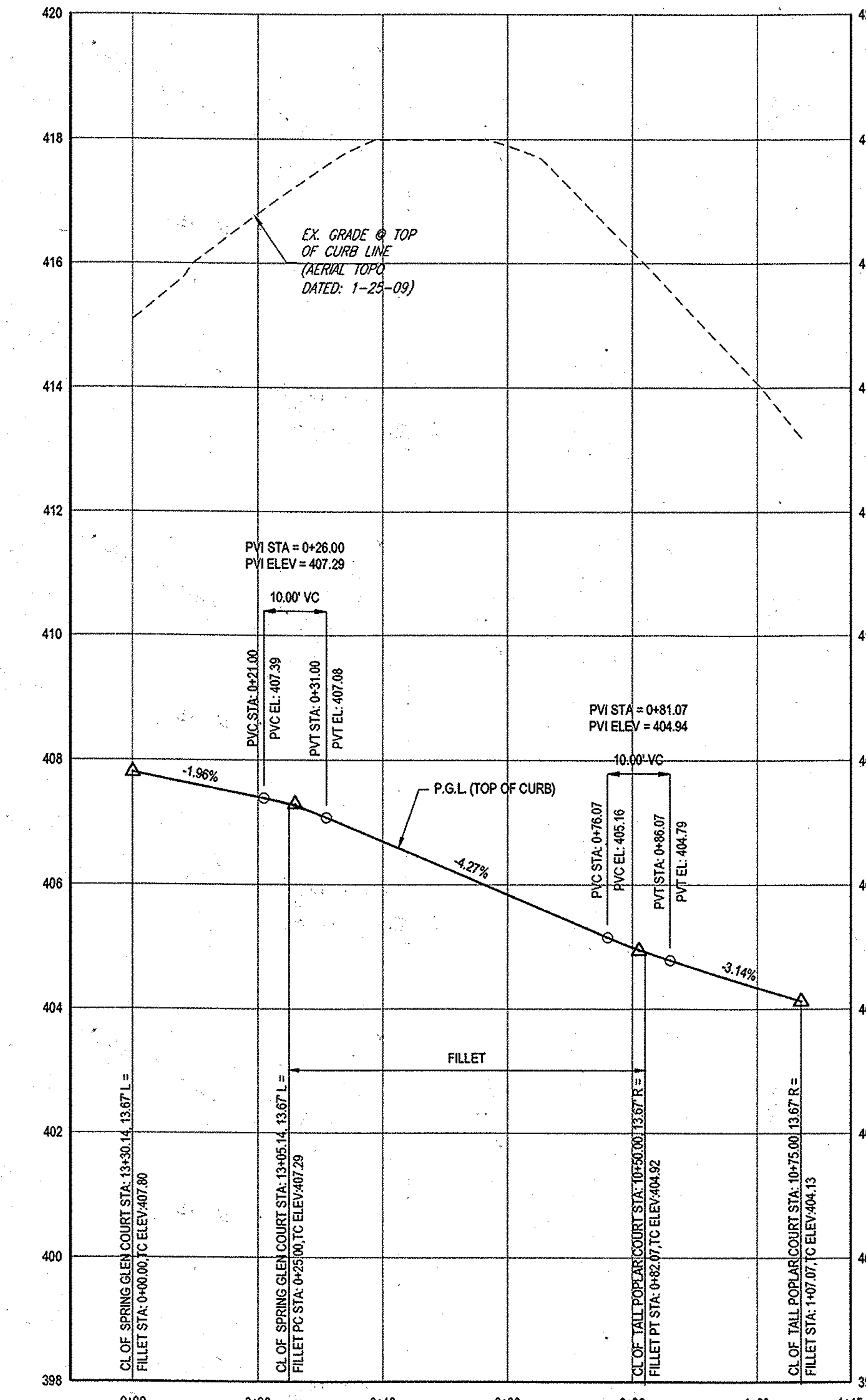
TALL POPLAR COURT - ROAD PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



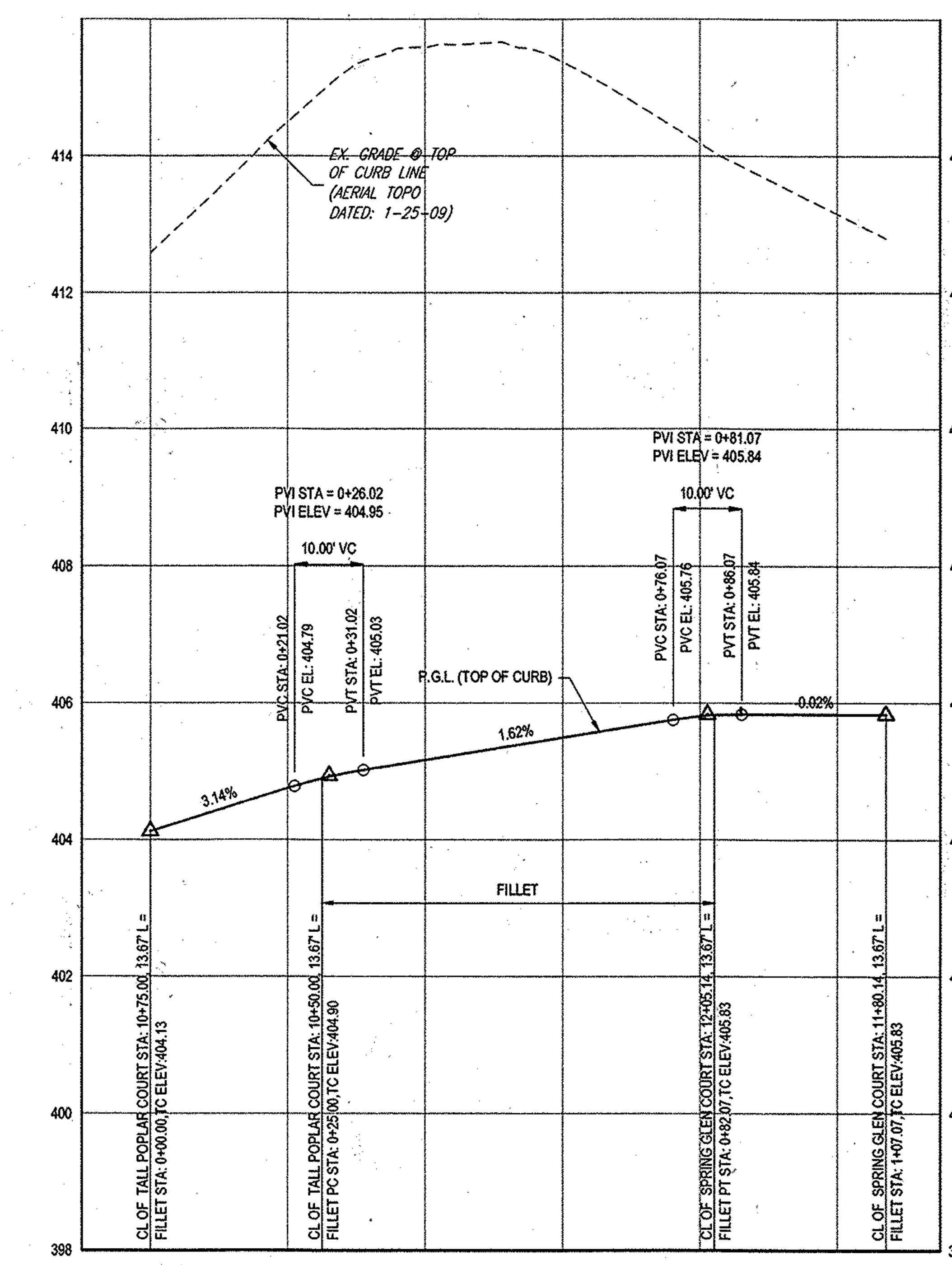
TALL POPLAR COURT - CUL-DE-SAC LINEAR PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL



SPRING GLEN COURT & TALL POPLAR COURT (NE QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL



SPRING GLEN COURT & TALL POPLAR COURT (NW QUADRANT) - FILLET PROFILE

SCALE: 1" = 20' HORIZONTAL
1" = 2' VERTICAL

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LEGEND:

R1-2 → GROUND MOUNTED SIGN

Sign	Code	Size
STOP	R1-1	30"x30"
SPEED LIMIT 25	R2-1	24"x30"
	S1-1	30"x30" (FYG)
AHEAD	W16-9P	24"x12" (FYG)
	W16-7P	24"x12" (FYG)
YIELD	R1-2	
	R6-4	24"X30"
	W11-2	30"x30"
	R4-7	24"x30"
	R6-5P	30"x30"
	W3-1	30"X30"
	W3-2	30"X40"
STATE LAW STOP FOR IN X-WALKS	R1-6a(2)	36"X42"

✲ STREET LIGHT. SEE TABLE THIS SHEET FOR LOCATIONS AND TYPE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 11/9/2015
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 12-17-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[signature] 11.17.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PP4.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:32

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER:	ESTATES AT PATAPSCO PARK, LLC 24012 FREDERICK ROAD CLARKSBURG, MD 20861 CONTACT: MR. DAN SNYDER PHONE: (301) 674-8509
DEVELOPER:	ESTATES AT PATAPSCO PARK, LLC 24012 FREDERICK ROAD CLARKSBURG, MD 20861 CONTACT: MR. DAN SNYDER PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

DIG WITH CARE - CALL BEFORE YOU DIG
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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
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FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
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BOHLER ENGINEERING
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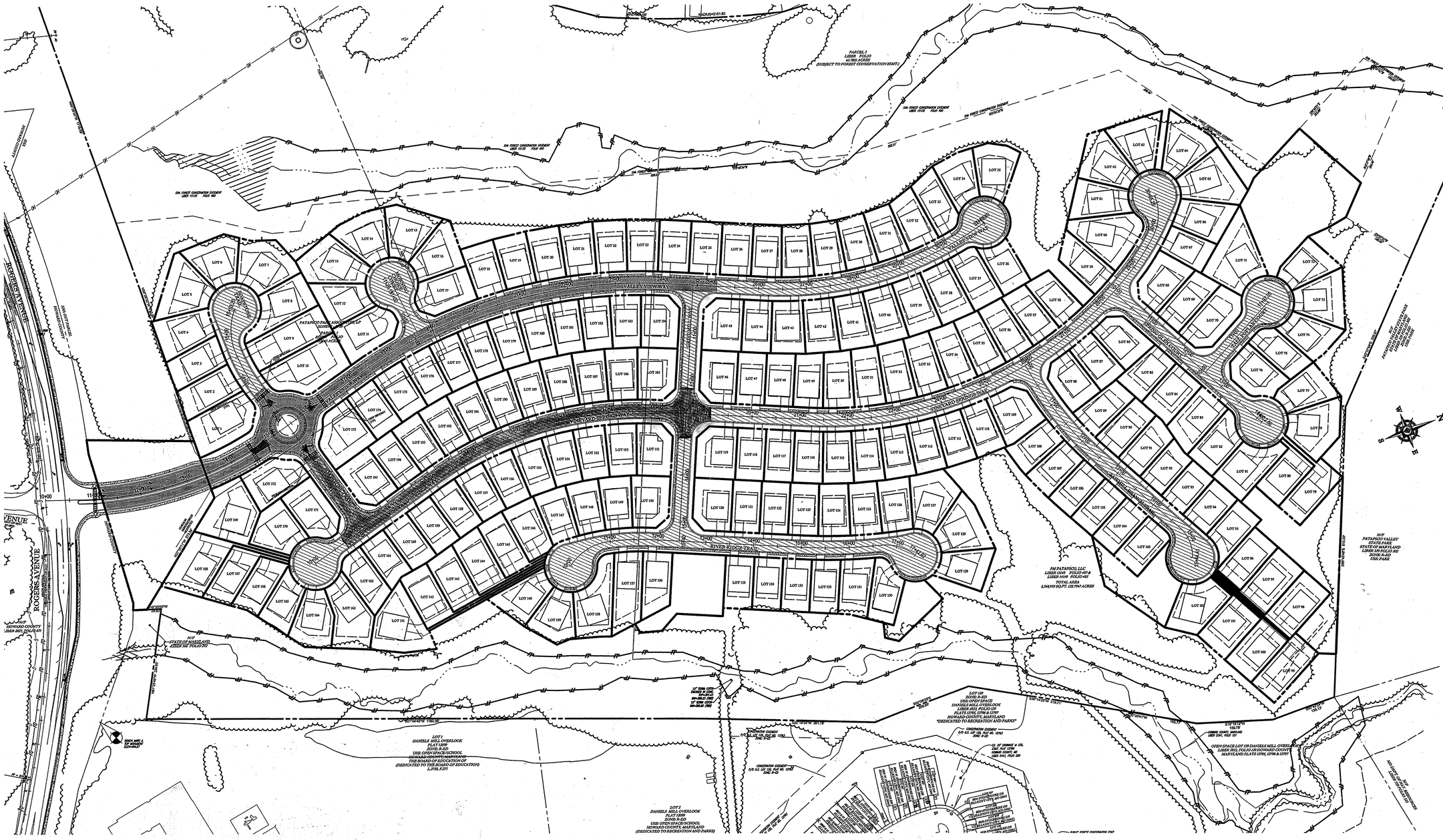
www.BohlerEngineering.com

B.R. ROWE
STATE OF MARYLAND BRANDON R. ROWE PROFESSIONAL ENGINEER No. 40808
10/23/15

SHEET TITLE:
PUBLIC ROAD PLAN AND PROFILE

SHEET NUMBER:
21

F-14-124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LIBER 10128 FOLIO 480
(SUBJECT TO FOREST CONSERVATION EASEMENT)
PARCEL 'A'
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(SUBJECT TO FOREST CONSERVATION EASEMENT)
PARCEL 'B'
LIBER 10128 FOLIO 480
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PARCEL 'C'
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(SUBJECT TO FOREST CONSERVATION EASEMENT)
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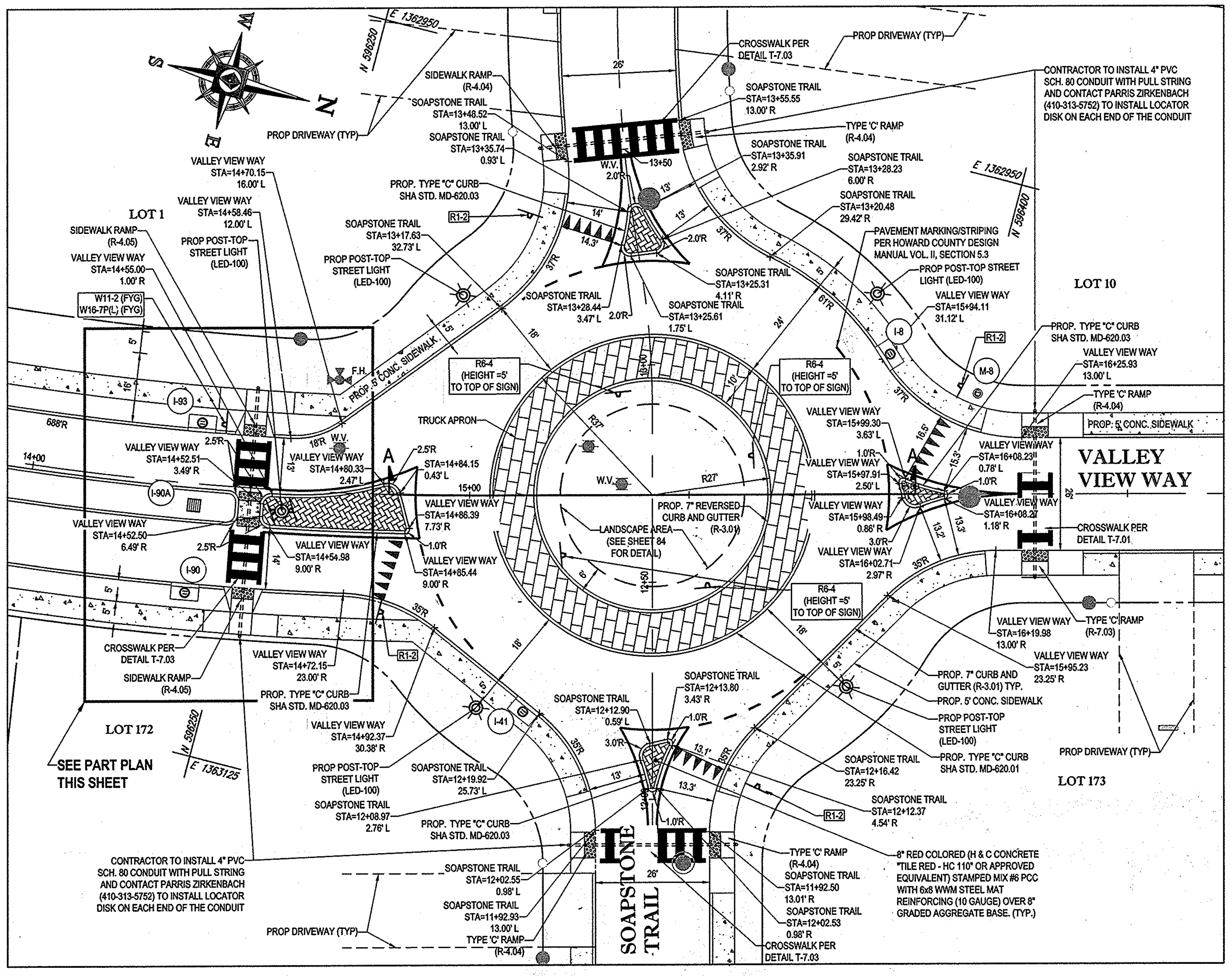
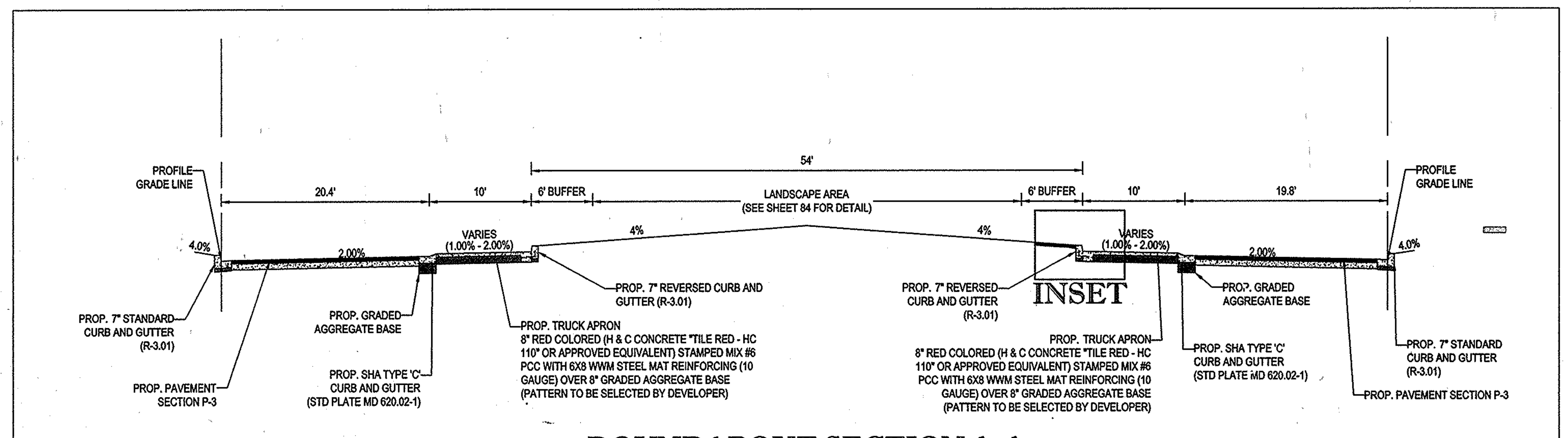


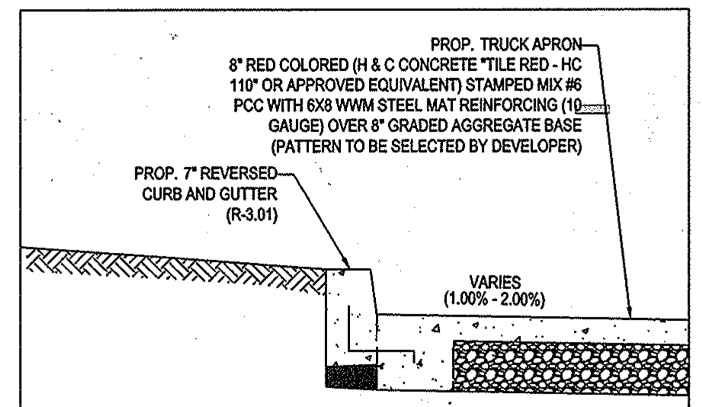
ROUNDABOUT TYPICAL DETAIL

SCALE : 1" = 20'



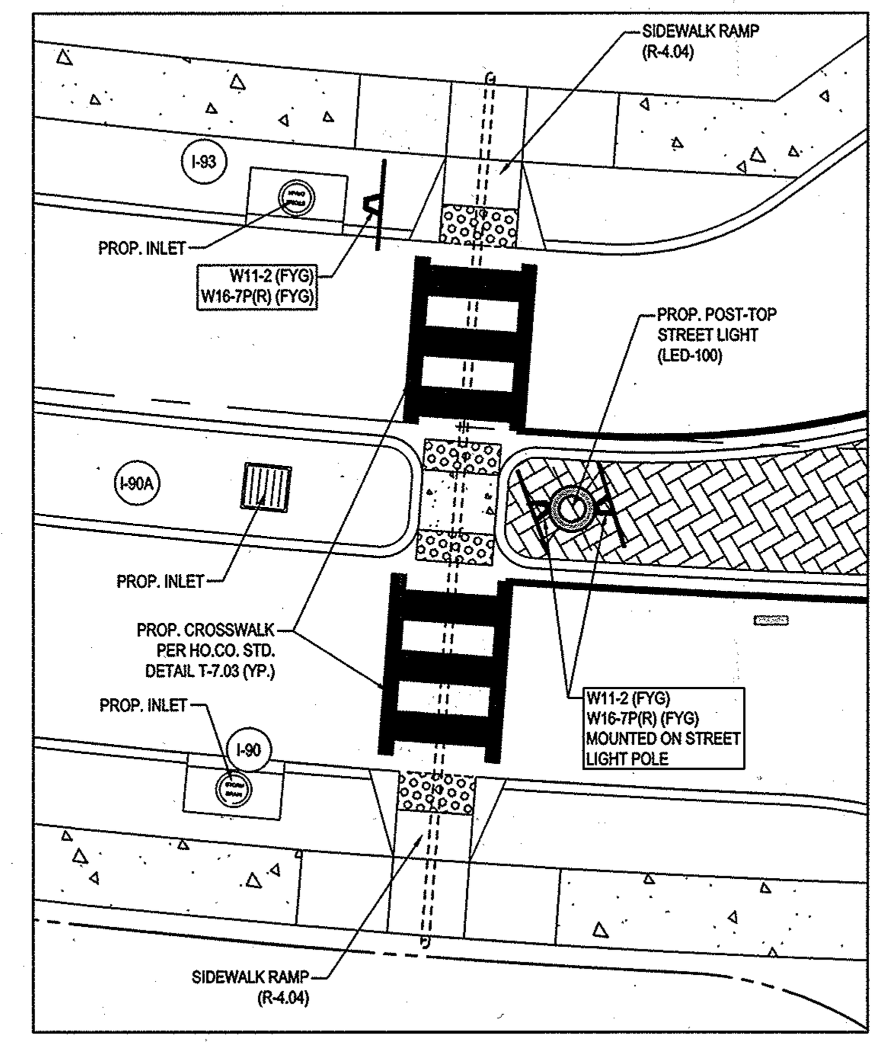
ROUNDABOUT SECTION A-A

NOT TO SCALE



TRUCK APRON INSET

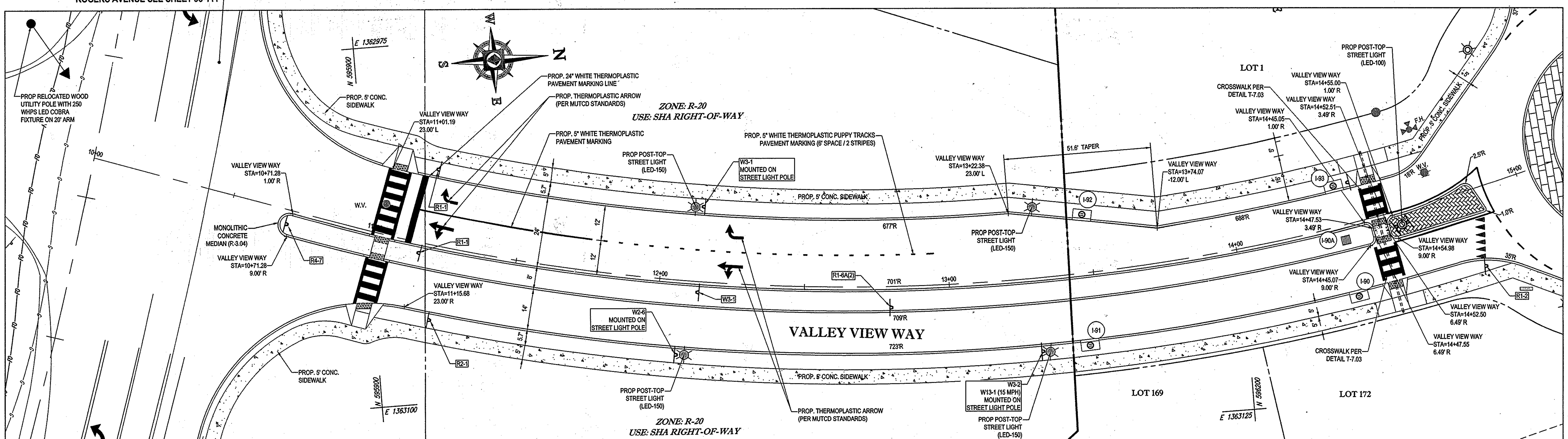
NOT TO SCALE



PART PLAN

SCALE : 1" = 10'

FOR ROAD IMPROVEMENTS TO ROGERS AVENUE SEE SHEET 98-111



ENTRANCE TYPICAL DETAIL

SCALE : 1" = 20'

NOTE: ALL TRAFFIC SIGNS AND PAVEMENT MARKING LOCATIONS MUST BE APPROVED BY HOWARD COUNTY TRAFFIC DIVISION PRIOR TO INSTALLATION. CONTRACTOR TO CONTACT PARRIS ZIRKENBACH (410-313-5752) OR RAY MERCADO (410-313-5751) FOR LOCATION APPROVAL AND INSTALLATION SUPERVISION.

20 10 5 0 20
1"= 20'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008RD3.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:41

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

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THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	RD1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

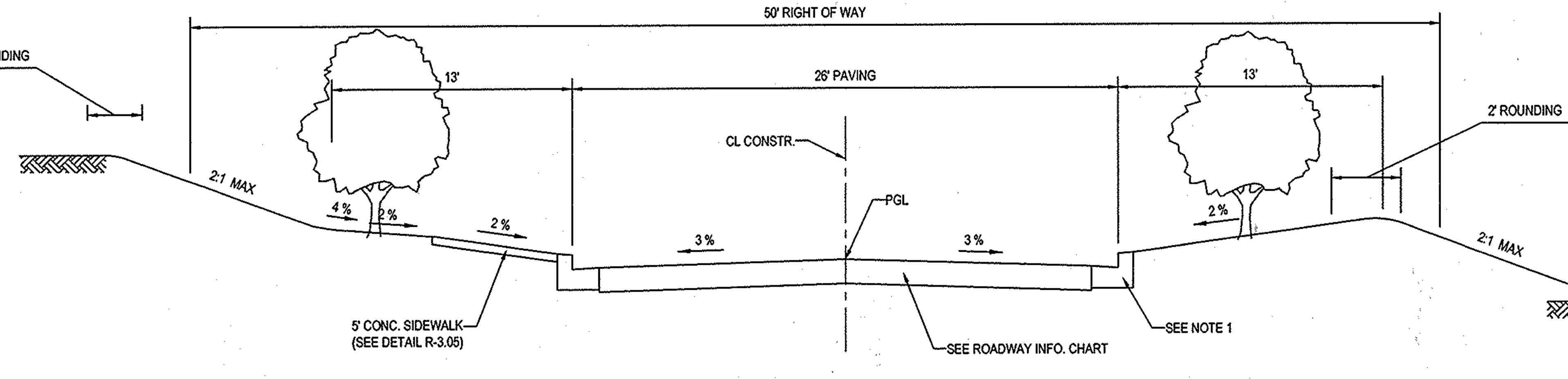
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B R ROWE
STATE OF MARYLAND — PROFESSIONAL ENGINEER — No. 40808

SHEET TITLE:
TYPICAL ROAD SECTION DETAILS

SHEET NUMBER:

F-14-124



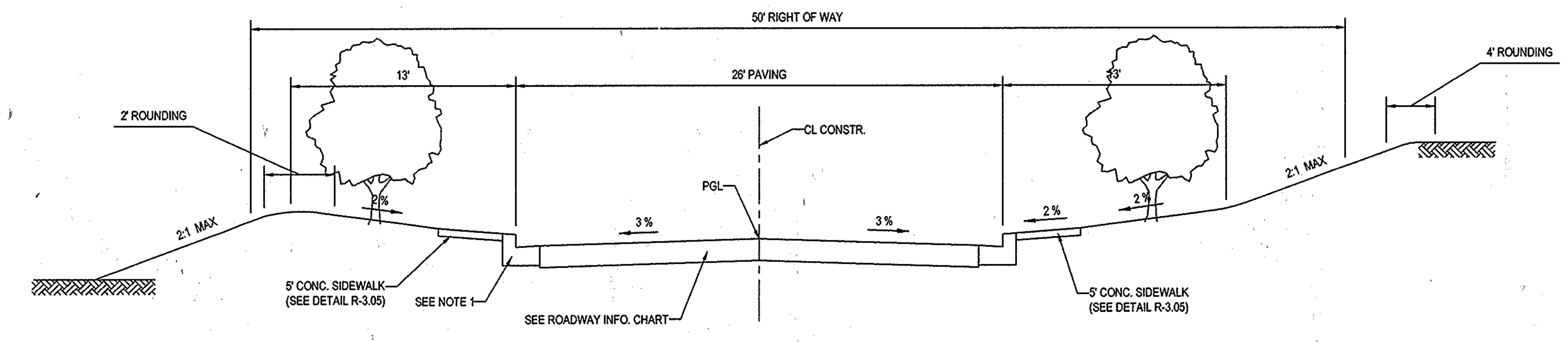
NOTES :

1. TYPE OF CURB VARIES (MODIFIED COMBINATION CURB & GUTTER OR COMBINATION CURB & GUTTER - SEE DESIGN MANUAL VOLUME III FOR CRITERIA).

TYPICAL ROAD CLOSED SECTION

NOT TO SCALE

VALLEY VIEW WAY SECTION FROM STA. 16+28.56 TO 30+35.16
VINEYARD SPRINGS WAY SECTION FROM STA. 10+64.00 TO 29+75.75
TALL POPLAR COURT SECTION FROM STA. 10+50.00 TO 11+33.05



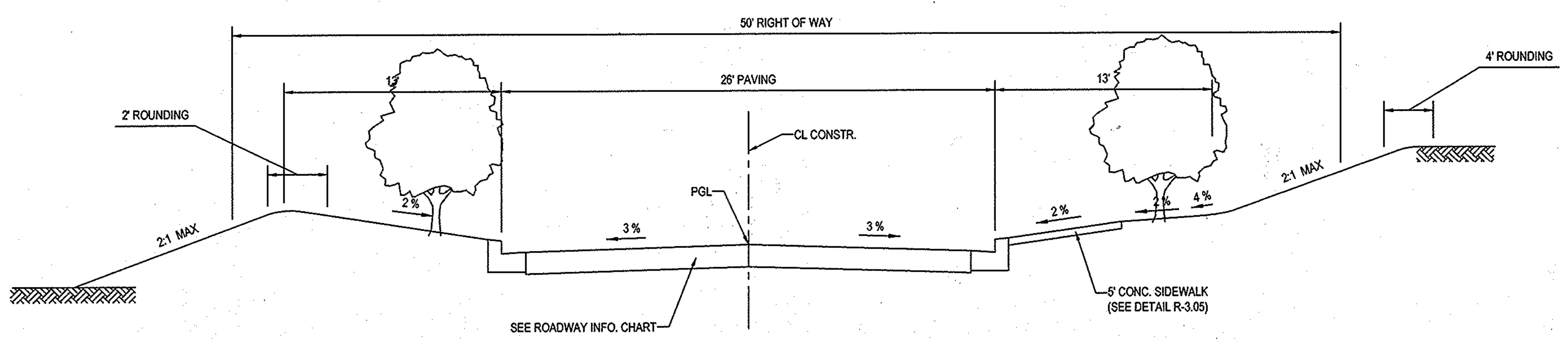
NOTES :

1. TYPE OF CURB VARIES (MODIFIED COMBINATION CURB & GUTTER OR COMBINATION CURB & GUTTER - SEE DESIGN MANUAL VOLUME III FOR CRITERIA).

TYPICAL ROAD CLOSED SECTION

NOT TO SCALE

SOAPSTONE TRAIL SECTION FROM STA. 10+50.00 TO 11+92.93



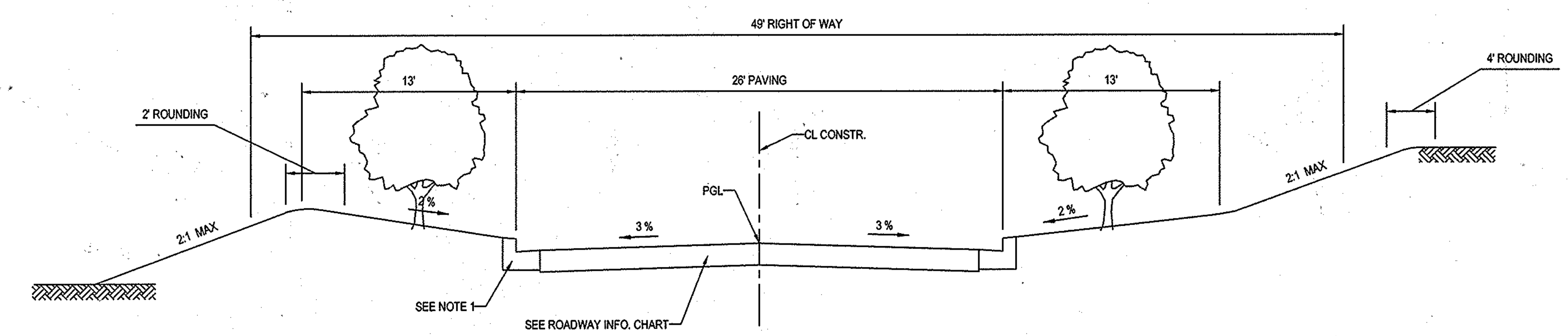
NOTES :

1. TYPE OF CURB VARIES (MODIFIED COMBINATION CURB & GUTTER OR COMBINATION CURB & GUTTER - SEE DESIGN MANUAL VOLUME III FOR CRITERIA).

TYPICAL ROAD CLOSED SECTION

NOT TO SCALE

RIVER RIDGE TRAIL SECTION FROM STA. 10+90.08 TO 16+58.66
GRIST MILL WAY SECTION FROM STA. 10+50.00 TO 12+20.00
GRIST MILL WAY SECTION FROM STA. 13+20.00 TO 14+90.00
SAWMILL BRANCH TRAIL SECTION FROM STA. 10+47.64 TO 14+47.17
SPRING GLEN COURT SECTION FROM STA. 10+48.52 TO 13+48.86



NOTES :

1. TYPE OF CURB VARIES (MODIFIED COMBINATION CURB & GUTTER OR COMBINATION CURB & GUTTER - SEE DESIGN MANUAL VOLUME III FOR CRITERIA).

TYPICAL ROAD CLOSED SECTION

NOT TO SCALE

SOAPSTONE TRAIL SECTION FROM STA. 13+48.52 TO 14+67.39
MORNING CHOICE COURT SECTION FROM STA. 10+48.79 TO 10+62.15

ROADWAY INFORMATION CHART

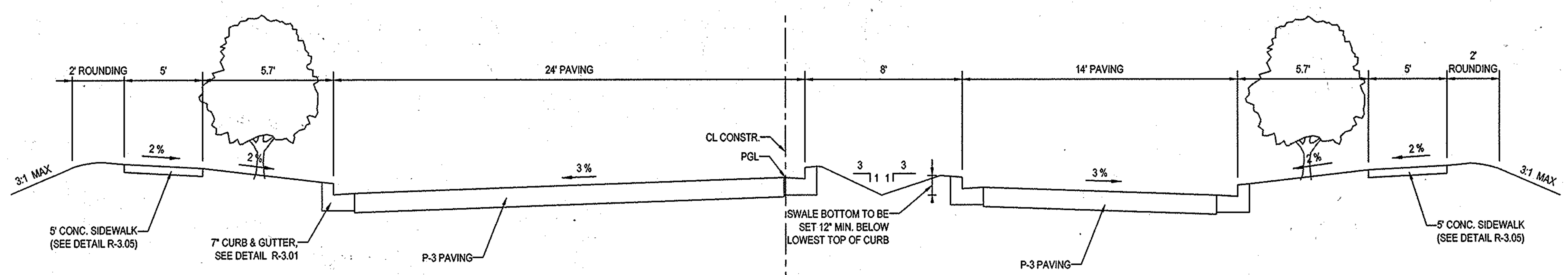
ROAD NAME	CLASSIFICATION	DESIGN SPEED	CL STATION LIMITS	PAVING SECTION
VALLEY VIEW WAY	MINOR COLLECTOR	35 M.P.H.	STA 11+18.04 TO STA 15+41.64	P-3
	PUBLIC ACCESS PLACE	30 M.P.H.	STA 15+41.64 TO STA 25+12.61	P-3
			STA 25+12.61 TO STA 31+01.49	P-2
VINEYARD SPRINGS WAY	PUBLIC ACCESS PLACE	30 M.P.H.	STA 10+00 TO STA 10+74.26 STA 10+74.26 TO STA 19+11.90 STA 19+11.90 TO STA 30+15.76	P-2 P-3 P-2
RIVER RIDGE TRAIL	PUBLIC ACCESS PLACE	30 M.P.H.	STA 10+00 TO STA 17+42.92	P-2
SOAPSTONE TRAIL	PUBLIC ACCESS PLACE	30 M.P.H.	STA 10+00 TO 11+78.37	P-2
			STA 13+64 TO 15+53.20	P-2
			STA 11+78.37 TO STA 13+64	P-3
GRIST MILL WAY	PUBLIC ACCESS PLACE	25 M.P.H.	STA 10+13 TO STA 12+30 STA 12+30 TO STA 13+20 STA 13+20 TO STA 15+40	P-2 P-3 P-2
MORNING CHOICE COURT	PUBLIC ACCESS PLACE	30 M.P.H.	STA 10+13 TO STA 11+26.15	P-2
SAWMILL BRANCH TRAIL	PUBLIC ACCESS PLACE	30 M.P.H.	STA 10+00 TO STA 15+44.41	P-2
SPRING GLEN COURT	PUBLIC ACCESS PLACE	25 M.P.H.	STA 10+00 TO 14+12.86	P-2
TALL POPLAR COURT	PUBLIC ACCESS PLACE	25 M.P.H.	STA 10+00 TO STA 11+97.05	P-2

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR) / PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB 3 TO <5	5 TO <7	≥ 7	HMA WITH CONSTANT GAB 3 TO <5	5 TO <7	≥ 7
P-1	PARKING BAYS: RESIDENTIAL AND NON-RESIDENTIAL; PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE (NA)	NA	NA	NA	NA	NA	NA
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.5	3.0	2.5
		GRADED AGGREGATE BASE (GAB)	8.5	7.0	6.0	4.0	4.0	4.0
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY; LOCAL ROADS: ACCESS PLACE, ACCESS STREET; CUL-DE-SACS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	2.0	2.0	2.0	3.3	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY; LOCAL ROADS: ACCESS PLACE, ACCESS STREET; CUL-DE-SACS: NON-RESIDENTIAL; MINOR COLLECTORS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM, PG 64-22, LEVEL 1 (ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 1 (ESAL)	3.0	3.0	3.0	4.5	3.0	2.0
		GRADED AGGREGATE BASE (GAB)	10.0	6.0	3.0	6.0	6.0	6.0
P-4	MINOR COLLECTORS: NON-RESIDENTIAL; MAJOR COLLECTORS	HMA SUPERPAVE FINAL SURFACE 12.5 MM, PG 64-22, LEVEL 2 (LOW ESAL)	2.0	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE INTERMEDIATE SURFACE 12.5 MM, PG 64-22, LEVEL 2 (LOW ESAL)	2.0	2.0	2.0	2.0	2.0	2.0
		HMA SUPERPAVE BASE 19.0 MM, PG 64-22, LEVEL 2 (LOW ESAL)	4.0	4.0	3.0	6.0	5.0	3.0
		GRADED AGGREGATE BASE (GAB)	13.0	7.0	4.0	6.0	6.0	6.0

Notes:
1) HEAVY TRUCKS ARE DEFINED AS THOSE WITH SIX (6) WHEELS OR MORE INCLUDING GARBAGE TRUCKS.
2) HMA SUPERPAVE LAYERS SHALL BE PLACED IN APPROPRIATE COMPACTED LIFT THICKNESS: 19.0 MM BASE (2.0" MIN TO 4.0" MAX), 12.5 MM SURFACE (1.5" MIN TO 3.0" MAX), AND 9.5 MM SURFACE (1.0" MIN TO 2.0" MAX)
3) GRADED AGGREGATE BASE (GAB) TO BE PLACED AND COMPACTED IN 6" MAX COMPACTED THICKNESS LAYERS.
4) THE INTERMEDIATE SURFACE COURSE LAYER MUST BE PLACED WITHIN 2 WEEKS OF PLACEMENT OF BASE COURSE, AND IS REQUIRED PRIOR TO SUBSTANTIAL COMPLETION INSPECTION AND BOND REDUCTION.
5) IN LIEU OF PLACING THE INTERMEDIATE SURFACE COURSE LAYER FOR COMMERCIAL/INDUSTRIAL ENTRANCE APRONS WITHIN THE COUNTY RIGHT-OF-WAY WHERE AUXILIARY LANES ARE NOT REQUIRED, THE THICKNESS OF THE INTERMEDIATE PAVEMENT LAYER CAN BE ADDED TO THE REQUIRED THICKNESS OF THE BASE ASPHALT LAYER.
6) THE CONSTRUCTION DRAWINGS SHALL SHOW THE PAVING SECTION, ROAD CLASSIFICATION AND CRB VALUE FOR EACH ROADWAY

HMA SUPERPAVE FINAL SURFACE
HMA SUPERPAVE INTERMEDIATE SURFACE
HMA SUPERPAVE BASE
GRADED AGGREGATE BASE (GAB)

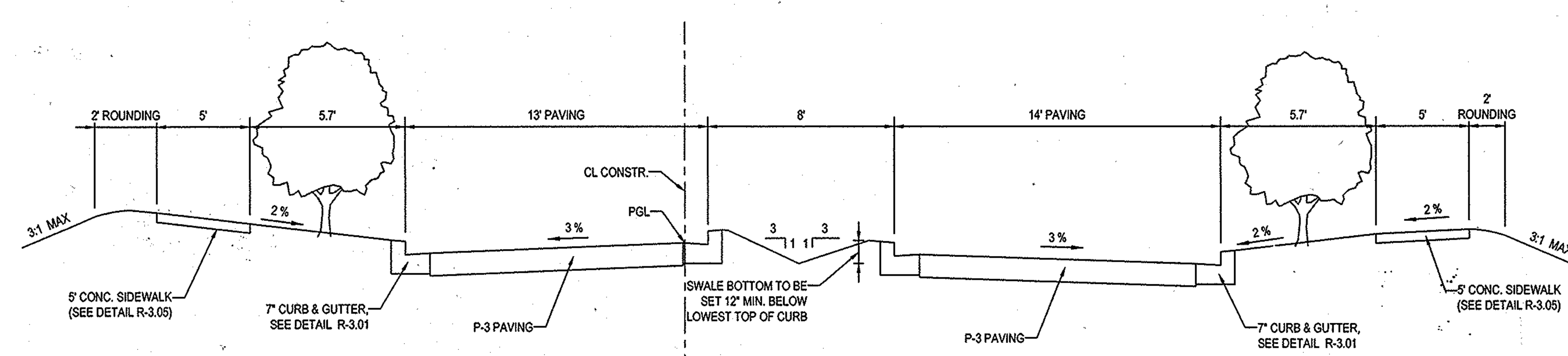
Revised / Revised 5/1/2007 / Approved — Howard County, Maryland Department of Public Works — Approved: [signature] Chief, Bureau of Engineering — PAVING SECTIONS P-1 to P-4 — Detail R-2.01



TYPICAL ROAD CLOSED SECTION

NOT TO SCALE

VALLEY VIEW WAY SECTION FROM STA. 11+15.60 TO 13+22.33
AND TAPER TO STA. 13+74.07



TYPICAL ROAD CLOSED SECTION

NOT TO SCALE

VALLEY VIEW WAY SECTION FROM STA. 13+74.07
TO 14+58.46 LEFT & STA. 14+72.15 RIGHT

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 1/8/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 7-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 6-15-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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APPROVED FOR CONSTRUCTION

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PROJECT:
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FOR
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BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
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TOWSON, MARYLAND 21204
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Fax: (410) 821-7987
www.BohlerEngineering.com

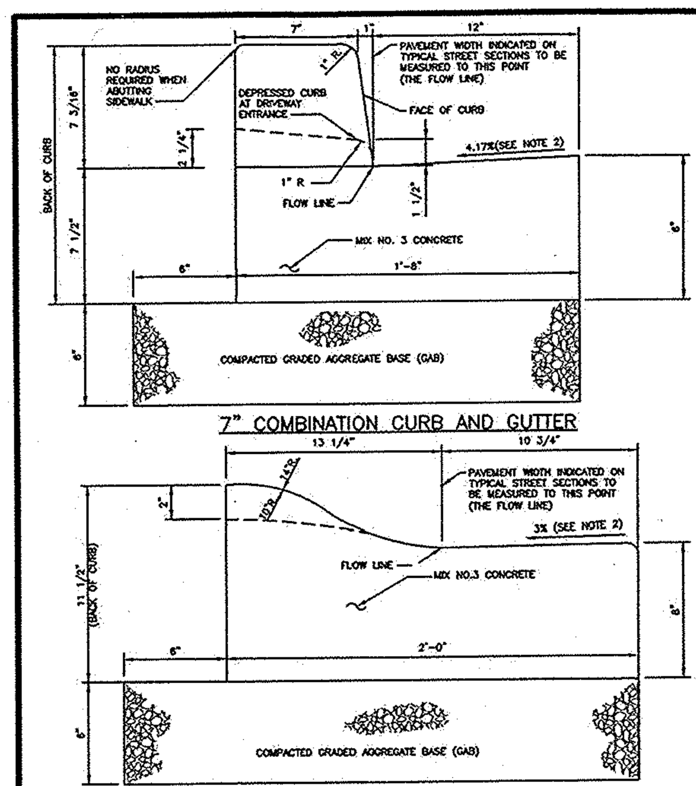
B.R. ROWE
PROFESSIONAL ENGINEER
12/15/14

SHEET TITLE:
TYPICAL ROAD SECTION DETAILS

SHEET NUMBER:
24

F-14-124

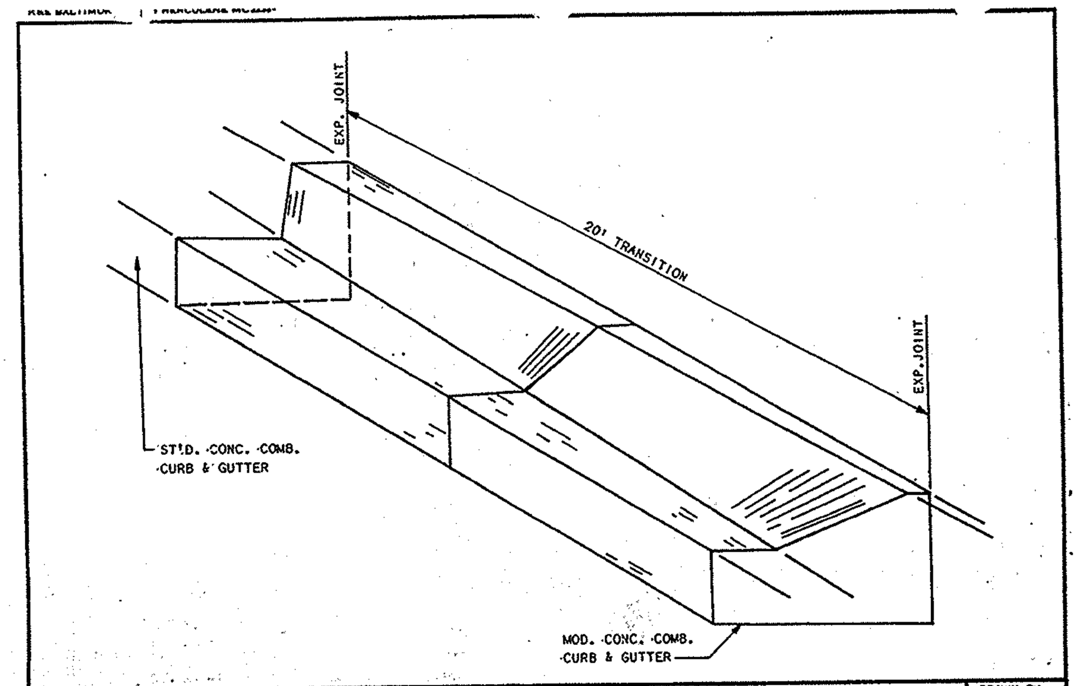
H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008RD3.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:38



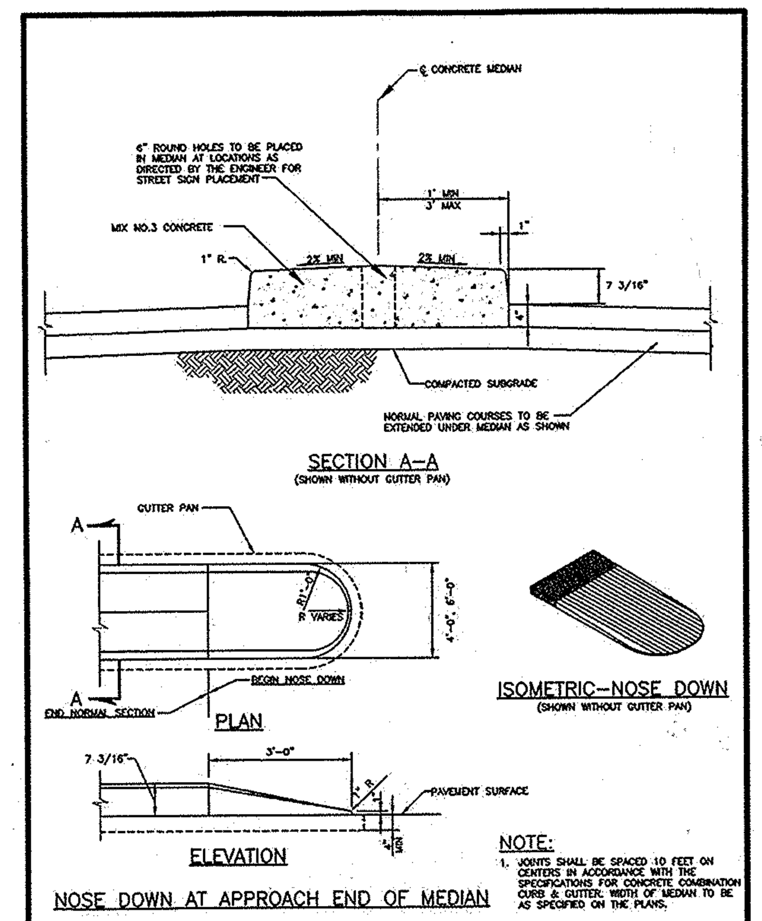
NOTE:

1. A REVERSE GUTTER PAN SHALL HAVE A GUTTER SLOPE OF 4.17% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS DRAINAGE CREATES A HAZARDOUS CONDITION.
2. GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB & GUTTER.
3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.
4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

Howard County, Maryland Department of Public Works — CURB AND GUTTER 7" & Modified — Detail R-3.01

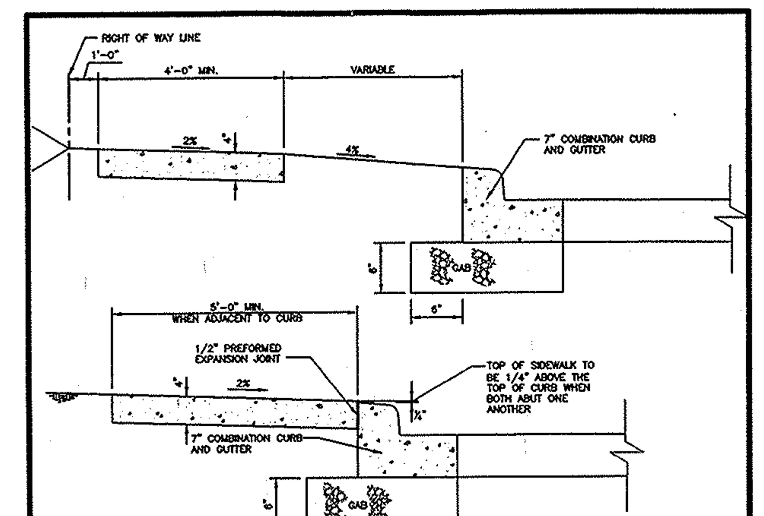


HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS — Approved Chief-Bur. of Engr. 1-12-81 Date — CONCRETE CURB AND GUTTER TRANSITION — DRAWN BY W.T. BALLARD, CHECKED BY J.L.R., NO SCALE, R-3.02



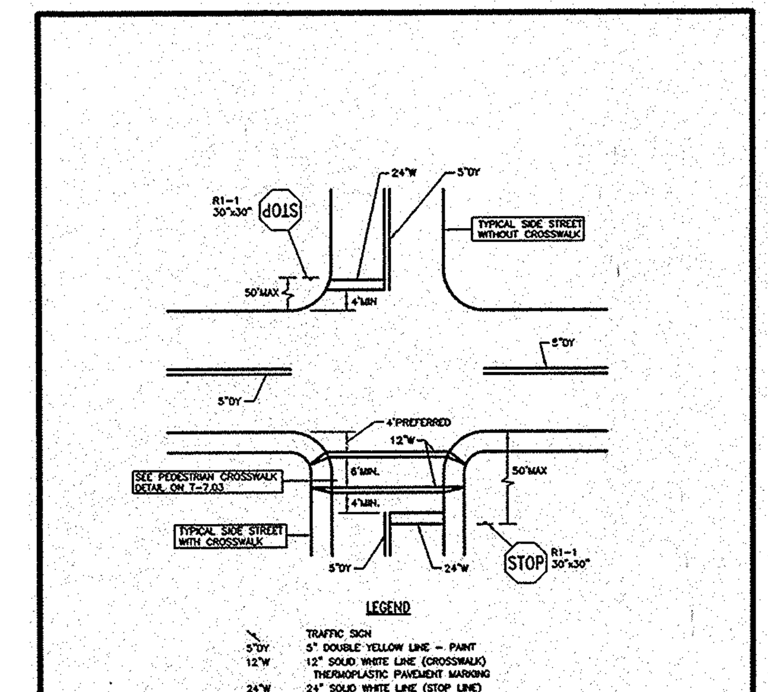
NOTE:
1. JOINTS SHALL BE SPACED 10 FEET ON CENTERS IN ACCORDANCE WITH THE SPECIFICATIONS FOR CONCRETE COMBINATION CURB & GUTTER. WIDTH OF MEDIAN TO BE AS SPECIFIED ON THE PLANS.

Howard County, Maryland Department of Public Works — Monolithic Concrete Median — Detail R-3.04

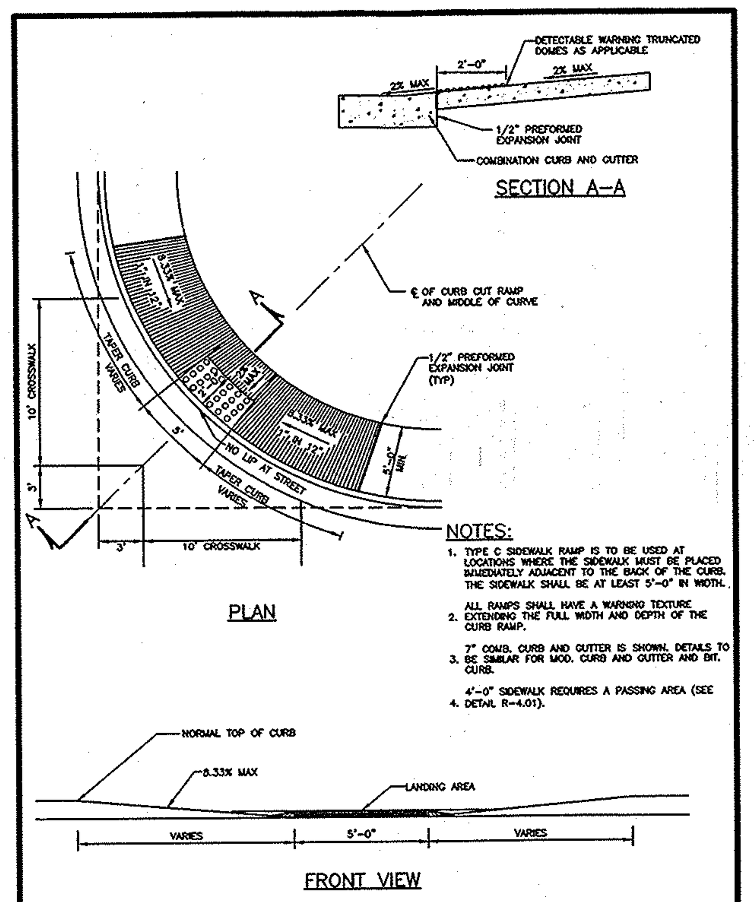


NOTES:
1. SIDEWALK TO BE SCRIBED IN 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 15' APART.
3. 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
4. CONCRETE TO BE MIX NO.3.
5. WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
6. ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 6" THICK AND 6" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT THE EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.
7. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MINIMUM EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0" WIDE.
8. SIDEWALK LOCATED 2' OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5'x5' PAVED SECTION PLACED 200' APART.
9. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

Howard County, Maryland Department of Public Works — Concrete Sidewalk — Detail R-3.05

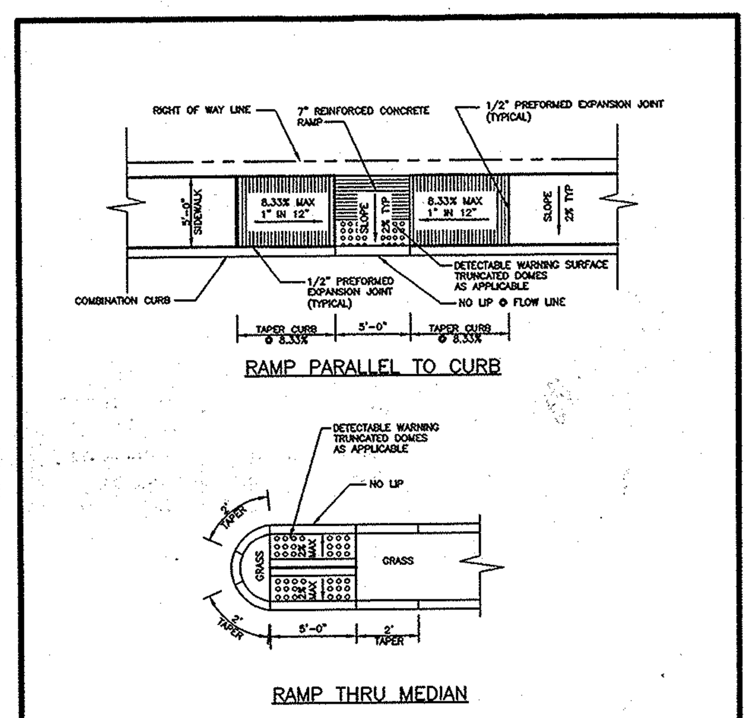


Howard County, Maryland Department of Public Works — Typical Intersection Signing And Marking Layout — Detail T-7.01



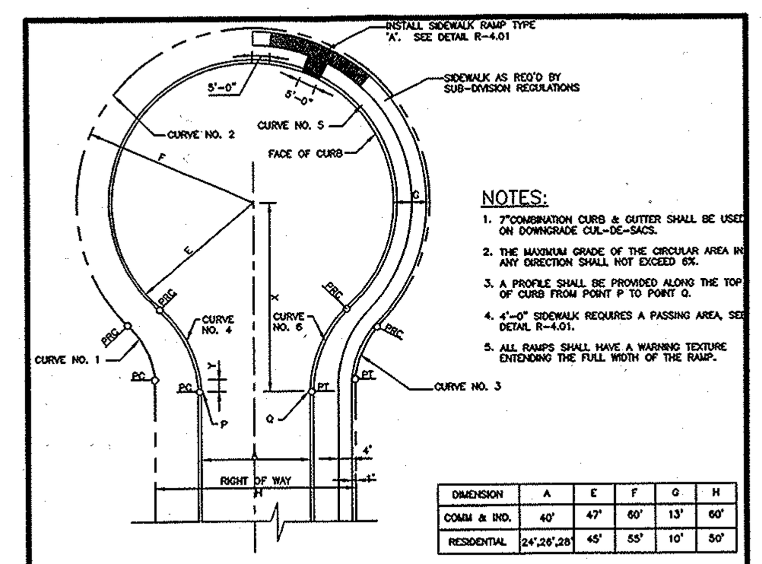
NOTES:
1. TYPE C SIDEWALK RAMP IS TO BE USED AT LOCATIONS WHERE THE SIDEWALK MUST BE PLACED IMMEDIATELY ADJACENT TO THE BACK OF THE CURB. THE SIDEWALK SHALL BE AT LEAST 5'-0" IN WIDTH.
2. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE CURB RAMP.
3. 7" COMB. CURB AND GUTTER IS SHOWN. DETAILS TO BE SIMILAR FOR MOD. CURB AND GUTTER AND BIT. CURB.
4. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

Howard County, Maryland Department of Public Works — SIDEWALK RAMP Type C — Detail R-4.04



NOTES:
1. ALL RAMPS SHALL HAVE DETECTABLE WARNING SURFACES. SEE DETAIL R-4.07.
2. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.

Howard County, Maryland Department of Public Works — SIDEWALK RAMP Layout & Grading Parallel to Curb & Thru Median — Detail R-4.06



NOTES:
1. 7"COMBINATION CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT P TO POINT Q.
4. 4'-0" SIDEWALK REQUIRES A PASSING AREA, SEE DETAIL R-4.01.
5. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH OF THE RAMP.

DIMENSION	A	E	F	G	H
COMM & IND.	40'	47'	60'	13'	60'
RESIDENTIAL	24',26',28'	45'	55'	10'	50'

CURVE DATA

COMMERICAL-INDUSTRIAL (40' APPROACH) X=61.70', Y=-3.11' L.P.=286.25'

	CURVE 1&3	CURVE 2	CURVE 4&6	CURVE 5
Δ	49° 40'47"	27[illegible]'34"	[illegible]16'04"	274° 32'09"
R	25.00'	60.00'	37.00'	47.00'
L	21.68'	292.54'	[illegible]	225.20'
T	[illegible]	—	16.19'	—
L.C.	21.00'	—	29.67'	—

RESIDENTIAL (24' APPROACH) X=64.74', Y=2.29' L.P.=292.23'

	CURVE 1&3	CURVE 2	CURVE 4&6	CURVE 5
Δ	51° 19'04"	28[illegible]8'08"	[illegible]01'03"	251° 57'35"
R	25.00'	55.00'	35.00'	45.00'
L	22.39'	271.31'	[illegible]	226.33'
T	[illegible]	—	17.84'	—
L.C.	21.65'	—	31.79'	—

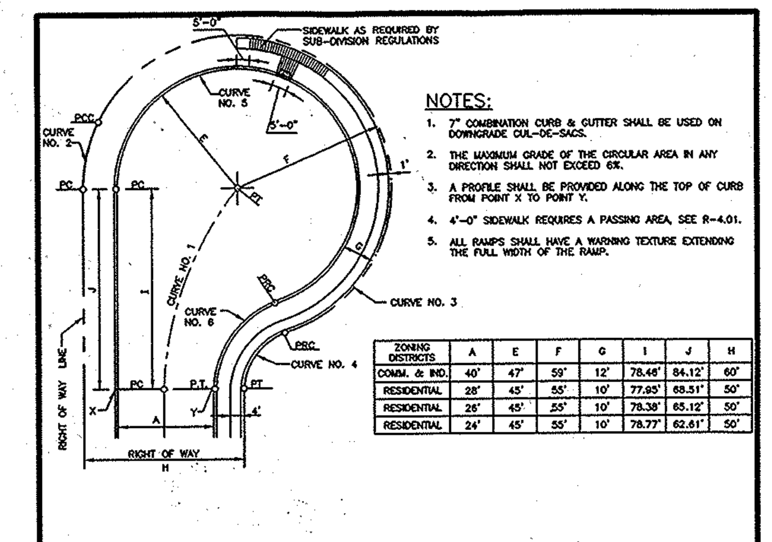
RESIDENTIAL (26' APPROACH) X=64.00', Y=3.64' L.P.=289.74'

	CURVE 1&3	CURVE 2	CURVE 4&6	CURVE 5
Δ	51° 19'04"	282° 38'08"	53° 07'48"	286° 15'37"
R	25.00'	55.00'	35.00'	45.00'
L	22.39'	271.31'	32.46'	224.83'
T	12.01'	—	17.50'	—
L.C.	21.65'	—	31.30'	—

RESIDENTIAL (28' APPROACH) X=63.24', Y=1.55' L.P.=287.22'

	CURVE 1&3	CURVE 2	CURVE 4&6	CURVE 5
Δ	51° 19'04"	28[illegible]8'08"	[illegible]3'46"	284° 27'32"
R	25.00'	55.00'	35.00'	45.00'
L	22.39'	271.31'	[illegible]	223.41'
T	[illegible]	—	17.16'	—
L.C.	21.65'	—	30.81'	—

Howard County, Maryland Department of Public Works — CUL-DE-SAC without Island — Detail R-5.01



NOTES:
1. 7" COMBINATION CURB & GUTTER SHALL BE USED ON DOWNGRADE CUL-DE-SACS.
2. THE MAXIMUM GRADE OF THE CIRCULAR AREA IN ANY DIRECTION SHALL NOT EXCEED 6%.
3. A PROFILE SHALL BE PROVIDED ALONG THE TOP OF CURB FROM POINT X TO POINT Y.
4. 4'-0" SIDEWALK REQUIRES A PASSING AREA, SEE R-4.01.
5. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH OF THE RAMP.

ZONING DISTRICTS	A	E	F	G	I	J	H
COMM. & IND.	40'	47'	59'	12'	78.46'	84.12'	60'
RESIDENTIAL	28'	45'	55'	10'	77.95'	68.51'	50'
RESIDENTIAL	26'	45'	55'	10'	78.38'	65.12'	50'
RESIDENTIAL	24'	45'	55'	10'	78.77'	62.61'	50'

CURVE DATA

COMMERCIAL – INDUSTRIAL 40' APPROACH L.P.=327.3[illegible]

	CURVE 1	CURVE 2	CURVE 3	CURVE 4	CURVE 5	CURVE 6
Δ	37°58'45"	38°5[illegible]	[illegible]11°35'11"	70°3[illegible]	[illegible]49°04'31"	69°04'31"
R	127.50'	50.00'	[illegible]	25.00'	47.00'	37.00'
L	84.51'	33.9[illegible]	217.88'	30.[illegible]	204.32'	44.61'
T	43.6[illegible]	17.66'	—	17.68'	—	25.47'
L.C.	82.98'	33.33'	—	28.87'	—	[illegible]

RESIDENTIAL 28' APPROACH L.P.=328.83'

	CURVE 1	CURVE 2	CURVE 3	CURVE 4	CURVE 5	CURVE 6
Δ	43°22'31"	12°0[illegible]	244°09'34"	76°5[illegible]	256°59'50"	76°59'50"
R	113.50'	100.00'	[illegible]	25.00'	45.00'	35.00'
L	85.92'	21.[illegible]	234.38'	[illegible]	201.85'	47.03'
T	45.1[illegible]	10.60'	—	19.88'	—	27.84'
L.C.	83.89'	21.08'	—	31.12'	—	[illegible]

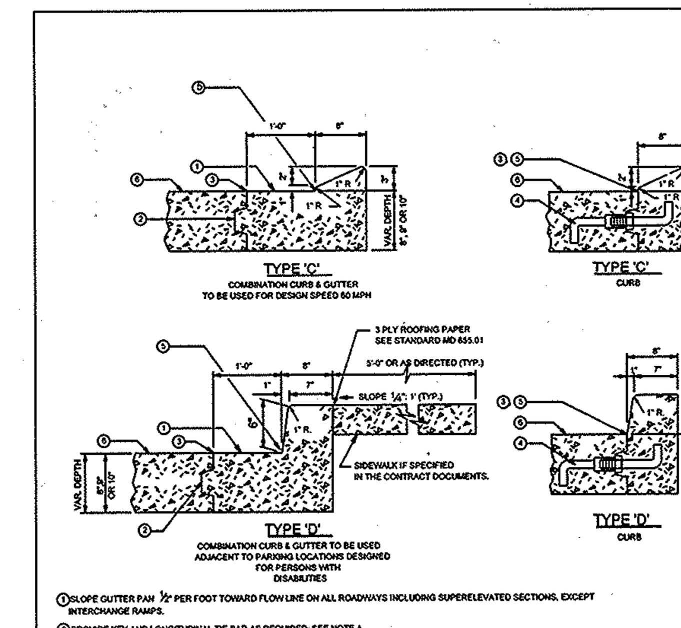
RESIDENTIAL 26' APPROACH L.P.=329.31'

	CURVE 1	CURVE 2	CURVE 3	CURVE 4	CURVE 5	CURVE 6
Δ	44°24'55"	17°08'46"	239°51'03"	76°59'50"	258°27'47"	78°27'47"
R	112.00'	100.00'	55.00'	25.00'	45.00'	35.00'
L	86.82'	29.93'	230.24'	33.60'	203.00'	47.93'
T	45.72'	15.08'	—	19.88'	—	28.58'
L.C.	84.66'	29.81'	—	31.12'	—	44.27'

RESIDENTIAL 24' APPROACH L.P.=331.73'

	CURVE 1	CURVE 2	CURVE 3	CURVE 4	CURVE 5	CURVE 6
Δ	45°27'50"	21°02'[illegible]	[illegible]41'30"	76°[illegible]	259°55'17"	79°55'17"
R	110.50'	100.00'	[illegible]	25.00'	45.00'	35.00'
L	87.68'	36.[illegible]	227.21'	33.[illegible]	204.14'	48.82'
T	46.[illegible]	18.57'	—	19.88'	—	29.33'
L.C.	85.40'	36.52'	—	31.12'	—	[illegible]

Howard County, Maryland Department of Public Works — CUL-DE-SAC Offset without Island. — Detail R-5.03



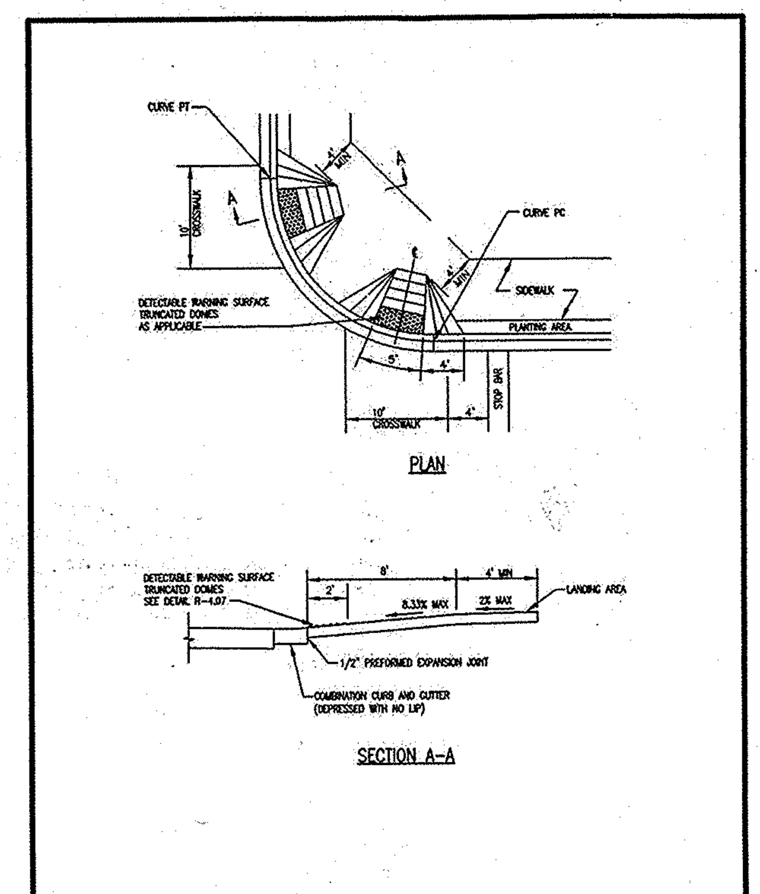
① SLOPE GUTTER PAN ½" PER FOOT TOWARD FLOW LINE ON ALL ROADWAYS INCLUDING SUPERELEVATED SECTIONS, EXCEPT INTERCHANGE RAMPS.
② PROVIDE KEY AND LONGITUDINAL TIE BAR AS REQUIRED, SEE NOTE A
③ ROADWAY PAVEMENT CONSTRUCTION JOINT
④ LONGITUDINAL TIE DEVICE "J" BAR MODIFIED
⑤ FLOW LINE
⑥ ROADWAY PAVEMENT SLOPE

NOTES
A. RIGID PAVEMENT ROADWAY ADJACENT TO COMBINATION CURB AND GUTTER AND CLOSED SECTION ROADWAY USING RIGID PAVEMENT WITH COMBINATION CURB AND GUTTER SHALL BE KEYED AND TIED AT THE ROADWAY PAVEMENT CONSTRUCTION JOINT. REFER TO STANDARD MD 572.61 FOR METHOD OF KEYWAY AND LONGITUDINAL TIE DEVICES. SPACING OF THE TIE BARS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. RIGID PAVEMENT AND CURB SHALL BE CONSTRUCTED AS INDICATED. TIE DEVICES AND KEYS ARE NOT REQUIRED WHEN USING FLEXIBLE PAVEMENT FOR ROADWAY.
B. MAXIMUM JOINT SPACING FOR CONCRETE CURB AND COMBINATION CURB & GUTTER IS 10'. SEE SPECIFICATION FOR LOCATIONS AND DESCRIPTION OF TREATMENT FOR THE TYPES OF JOINTS USED.
C. TYPE C OR D COMBINATION CURB AND GUTTER SHALL BE USED FOR ALL APPLICABLE NEW CONSTRUCTION AND IN THOSE AREAS WHERE THE COMBINATION CURB AND GUTTER IS TO BE REPLACED IN KIND.
D. TYPE C OR D CURB SHALL BE USED FOR THE REPLACEMENT OF LIKE KIND OF CURB ONLY. NOT TO BE USED FOR NEW CONSTRUCTION EXCEPT WHERE INDICATED ON APPROPRIATE INLET STANDARDS.

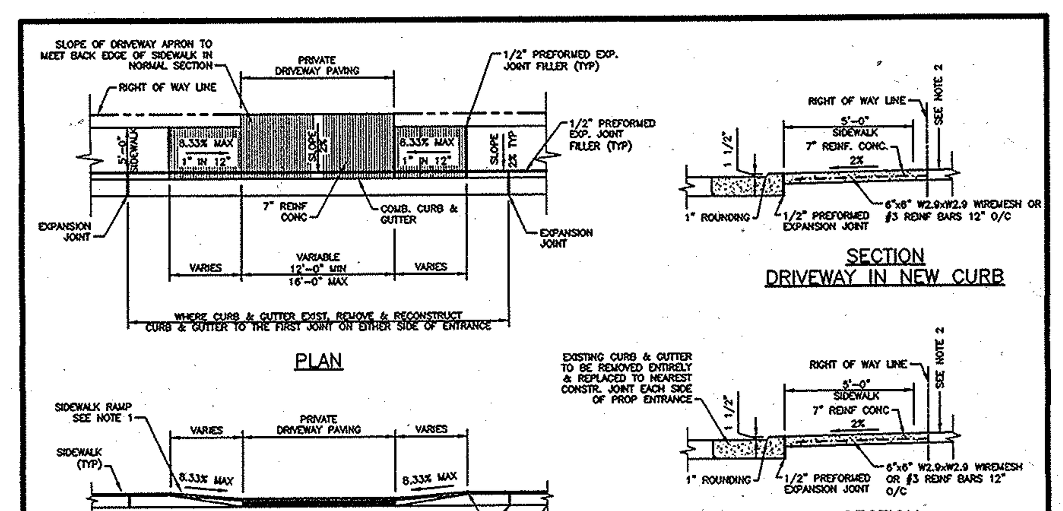
SPECIFICATION 602 — CATEGORY CODE ITEMS — APPROVED — DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT — APPROVAL 2-10-04, REVISED 4-17-07 — APPROVAL 3-31-04

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STANDARD TYPES C & D CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER
STANDARD NO. MD 620.02-01

2 OF 2



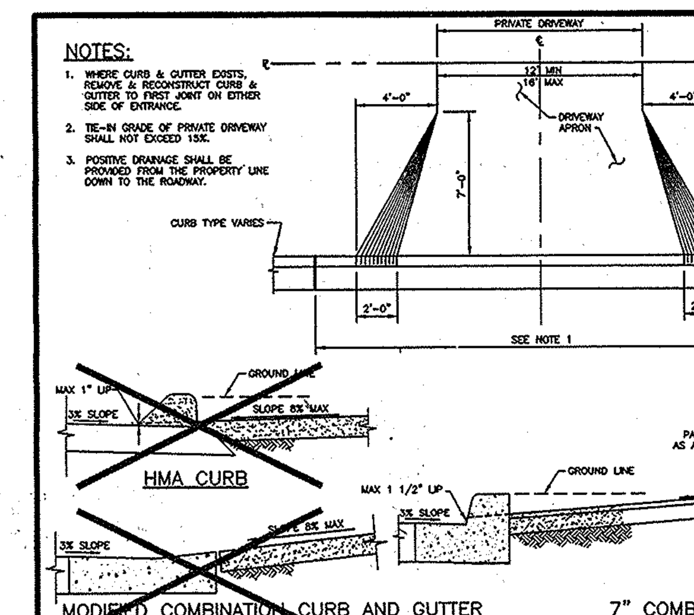
Howard County, Maryland Department of Public Works — SIDEWALK RAMP Type B Dual Ramp — Detail R-4.03



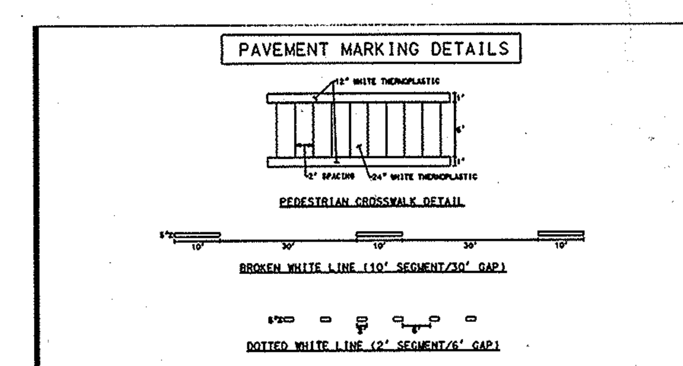
NOTES:
1. ALL RAMPS SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH OF THE RAMP.
2. TIE-IN GRADE OF PRIVATE DRIVEWAY SHALL NOT EXCEED 15%.
3. PRIVATAE DRIVEWAY PAVING (IF CONC, 1/2" PREFOMRED EXP JT IS TO BE PROVIDED AT R/W LINE.)
4. GRASS AREA ADJACENT TO SIDEWALK MUST BE SLOPED TO MEET RAMP.

Howard County, Maryland Department of Public Works — RESIDENTIAL DRIVEWAY ENTRANCE 7" Combination Curb and Gutter Sidewalk Abutting Curb — Detail R-6.02

NOTES:
1. WHERE CURB & GUTTER EXISTS, REMOVE & RECONSTRUCT CURB & GUTTER TO FIRST JOINT ON EITHER SIDE OF ENTRANCE.
2. TIE-IN GRADE OF PRIVATE DRIVEWAY SHALL NOT EXCEED 15%.
3. POSITIVE DRAINAGE SHALL BE PROVIDED FROM THE PROPERTY LINE DOWN TO THE ROADWAY.



Howard County, Maryland Department of Public Works — RESIDENTIAL DRIVEWAY ENTRANCE Closed Section Roadway without Sidewalk — Detail R-6.05



Howard County, Maryland Department of Public Works — Signing and Marking Details — Detail T-7.03

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008SD3.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:35

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES © 2008 BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY

DIG WITH C.A.R.E. — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SD2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — PROFESSIONAL ENGINEER

SHEET TITLE:
STANDARD CONSTRUCTION DETAILS

SHEET NUMBER:
25

F-14-124

EROSION AND SEDIMENT CONTROL LEGEND

Symbol	Description
(hatched box)	STABILIZED CONSTRUCTION ENTRANCE
(stone box)	RIP-RAP OUTLET PROTECTION
—SF—	SILT FENCE
—▶—	EARTH DIKE (A-1 SEED W/MULCH AND TACK, A-2 STABILIZED MATTING OR SOD)
—SSF—	SUPER SILT FENCE
—TPF—	TREE PROTECTION FENCE
—LOD—	LIMIT OF DISTURBANCE
—LOW—	LIMIT OF WORK (PHASE I)
——	BAFFLE BOARD
(stone box)	RIP-RAP INFLOW PROTECTION
(shaded box)	STEEP SLOPES (15%-25%)
(cross-hatched box)	STEEP SLOPES (>25%)
— · · —	SOIL DIVIDE
MaB	SOIL LABEL
CIP	CURB INLET PROTECTION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
RPS	REMOVABLE PUMP STATION
PSD	PIPE SLOPE DRAIN (CLEAR WATER DIVERSION)
SIP	STANDARD INLET PROTECTION

PHASE I EROSION AND SEDIMENT CONTROL QUANTITIES:

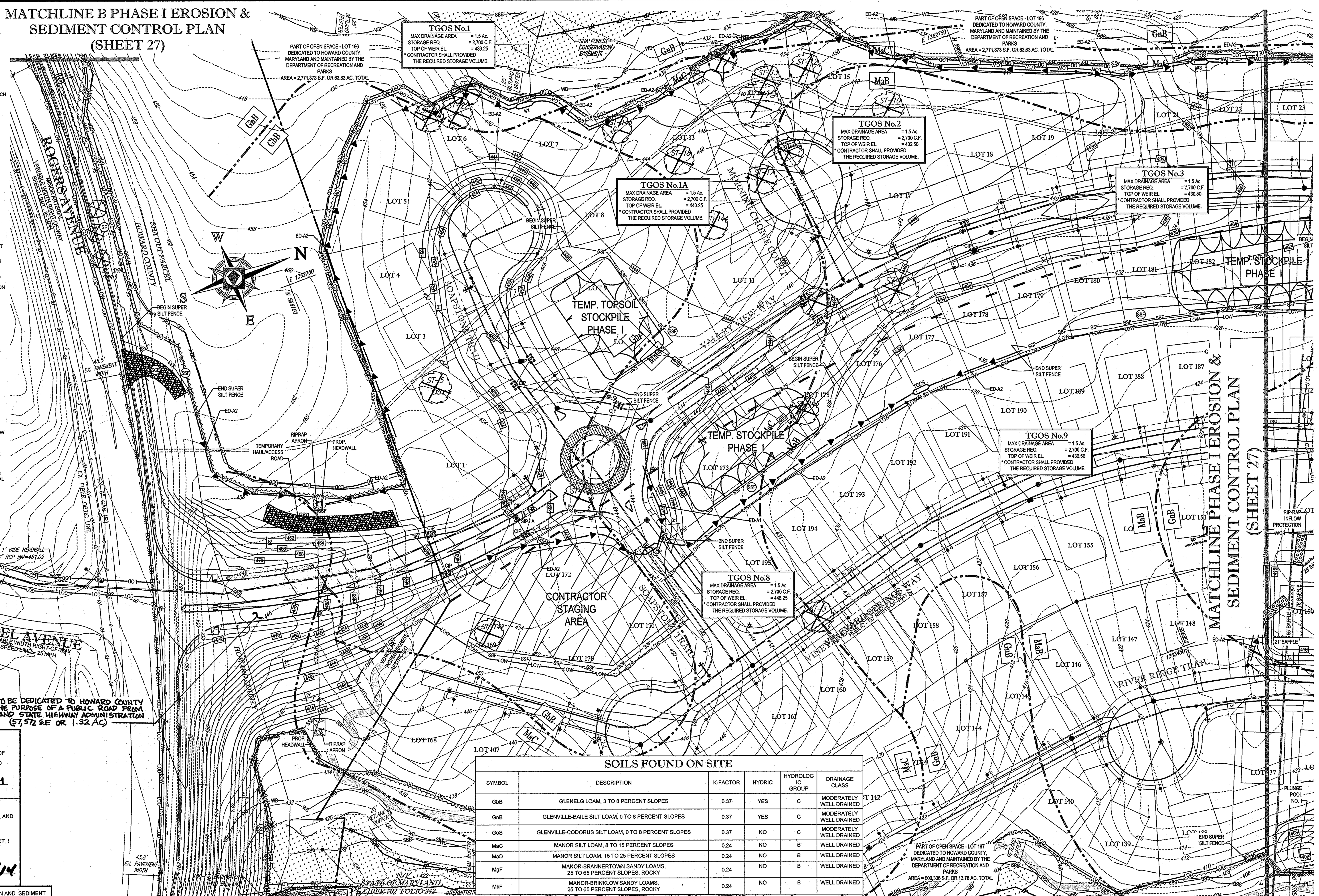
LIMIT OF WORK (OFFSITE):	150154 S.F. OR 3.45 AC
LIMIT OF WORK (ON-SITE):	952014 S.F. OR 21.86 AC
SILT FENCE:	2227 LF
SUPER SILT FENCE:	2930 LF
TREE PROTECTION FENCE:	8025 LF
STANDARD INLET PROTECTION	1 EA
AT GRADE INLET PROTECTION:	2 EA.
CURB INLET PROTECTION:	22 EA.
EARTH DIKE	5064 LF
STONE CHECK DAM	10 EA.
EARTHWORK:	66100 CY CUT 64100 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

LIMIT OF DISTURBANCE (LOD) DEPICTS THE ULTIMATE DISTURBED AREA FOR THE PROJECT, WHILE THE LIMIT OF WORK (LOW) DEPICTS THE EXPECTED DISTURBED AREA FOR THE PARTICULAR PHASE OF CONSTRUCTION



SOILS FOUND ON SITE

SYMBOL	DESCRIPTION	K-FACTOR	HYDRIC	HYDROLOGIC GROUP	DRAINAGE CLASS
GbB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.37	YES	C	MODERATELY WELL DRAINED
GnB	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37	YES	C	MODERATELY WELL DRAINED
GoB	GLENVILLE-CODORUS SILT LOAM, 0 TO 8 PERCENT SLOPES	0.37	NO	C	MODERATELY WELL DRAINED
MaC	MANOR SILT LOAM, 8 TO 15 PERCENT SLOPES	0.24	NO	B	WELL DRAINED
MaD	MANOR SILT LOAM, 15 TO 25 PERCENT SLOPES	0.24	NO	B	WELL DRAINED
MgF	MANOR-BRANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	0.24	NO	B	WELL DRAINED
MkF	MANOR-BRINKLOW SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	0.24	NO	B	WELL DRAINED

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 12/15/14

SIGNATURE OF ENGINEER — DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 12/10/14

SIGNATURE OF DEVELOPER — DATE

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

[signature] 12/23/14

HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 1/8/2015

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] BB 7-9-15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 6.15.15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

EROSION AND SEDIMENT CONTROL NOTES:

1. TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
2. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. REFER TO SHEET 41- 44 FOR SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SEE SHEETS 30-31 FOR PHASE II GRADING, AND SHEETS 45-49 FOR ULTIMATE GRADING.
7. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
8. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
9. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
10. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
11. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

1. CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

BENCHMARK NOTE:

THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17-F7 AND 17-FA WHICH WERE USED FOR THIS PROJECT.

HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

1) ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE.
2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E.23. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

50 25 12.5 0 50
1"= 50'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	EA2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
[seal: STATE OF MARYLAND — BRANDON R. ROWE — PROFESSIONAL ENGINEER — No. 40808] 12/15/14

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE I PLAN

SHEET NUMBER:
26

F-14-124

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008EA3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:24 P

PHASE I EROSION AND SEDIMENT CONTROL QUANTITIES:

LIMIT OF WORK:	1364650 S.F. OR 29.75 AC
SILT FENCE:	2227 LF
SUPER SILT FENCE:	2920 LF
TREE PROTECTION FENCE:	8025 LF
AT GRADE INLET PROTECTION:	2 EA.
CURB INLET PROTECTION:	22 EA.
EARTH DIKE	5064 LF
STONE CHECK DAM	10 EA.
EARTHWORK:	66100 CY CUT 64100 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

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THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

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2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E.23. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

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2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

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5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SEE SHEETS 30-31 FOR PHASE II GRADING, AND SHEETS 45-49 FOR ULTIMATE GRADING.
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11. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

EROSION AND SEDIMENT CONTROL LEGEND

Symbol	Description
	STABILIZED CONSTRUCTION ENTRANCE
	RIP-RAP OUTLET PROTECTION
SF	SILT FENCE
	EARTH DIKE (A-1 SEED W/MULCH AND TACK, A-2 STABILIZED MATTING OR SOD)
SSF	SUPER SILT FENCE
TPF	TREE PROTECTION FENCE
LOD	LIMIT OF DISTURBANCE
LOW	LIMIT OF WORK (PHASE I)
	BAFFLE BOARD
	RIP-RAP INFLOW PROTECTION
	STEEP SLOPES (15%-25%)
	STEEP SLOPES (>25%)
	SOIL DIVIDE
MaB	SOIL LABEL
AGIP	AT GRADE INLET PROTECTION
CIP	CURB INLET PROTECTION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
RPS	REMOVABLE PUMP STATION
PSD	PIPE SLOPE DRAIN (CLEAR WATER DIVERSION)
CD	STONE CHECK DAM

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 12/15/14 DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — 12/10/14 DATE

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

HOWARD SCD — 12/23/14 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — 1/8/2015 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — 7-9-15 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6.15.15 DATE

GENERAL NOTE:
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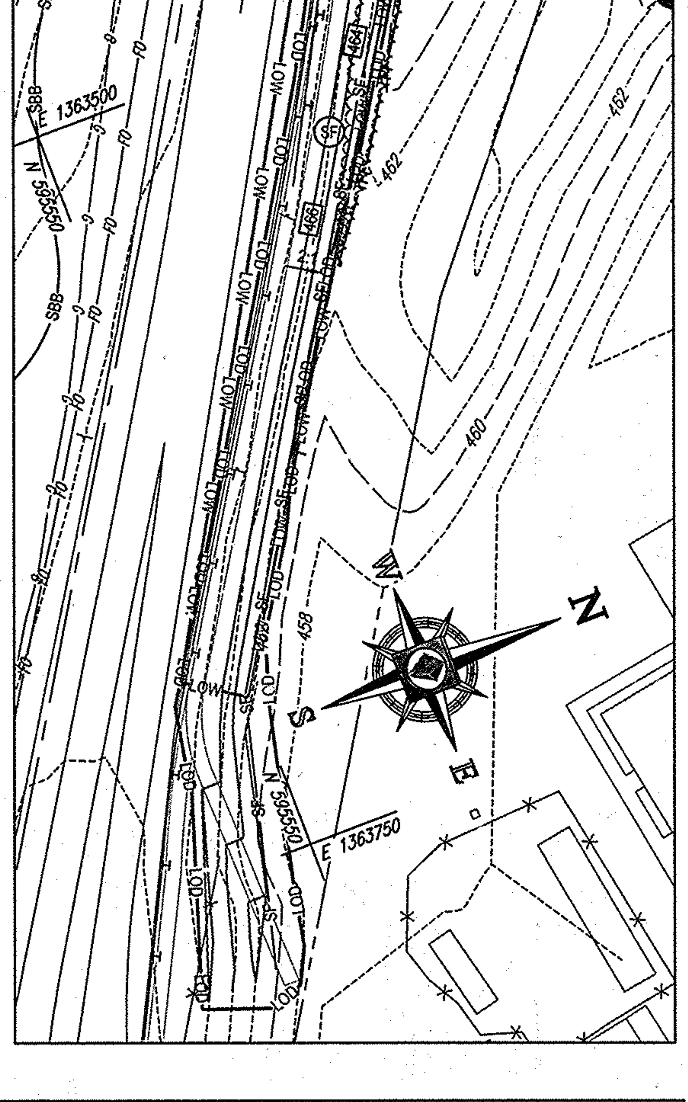
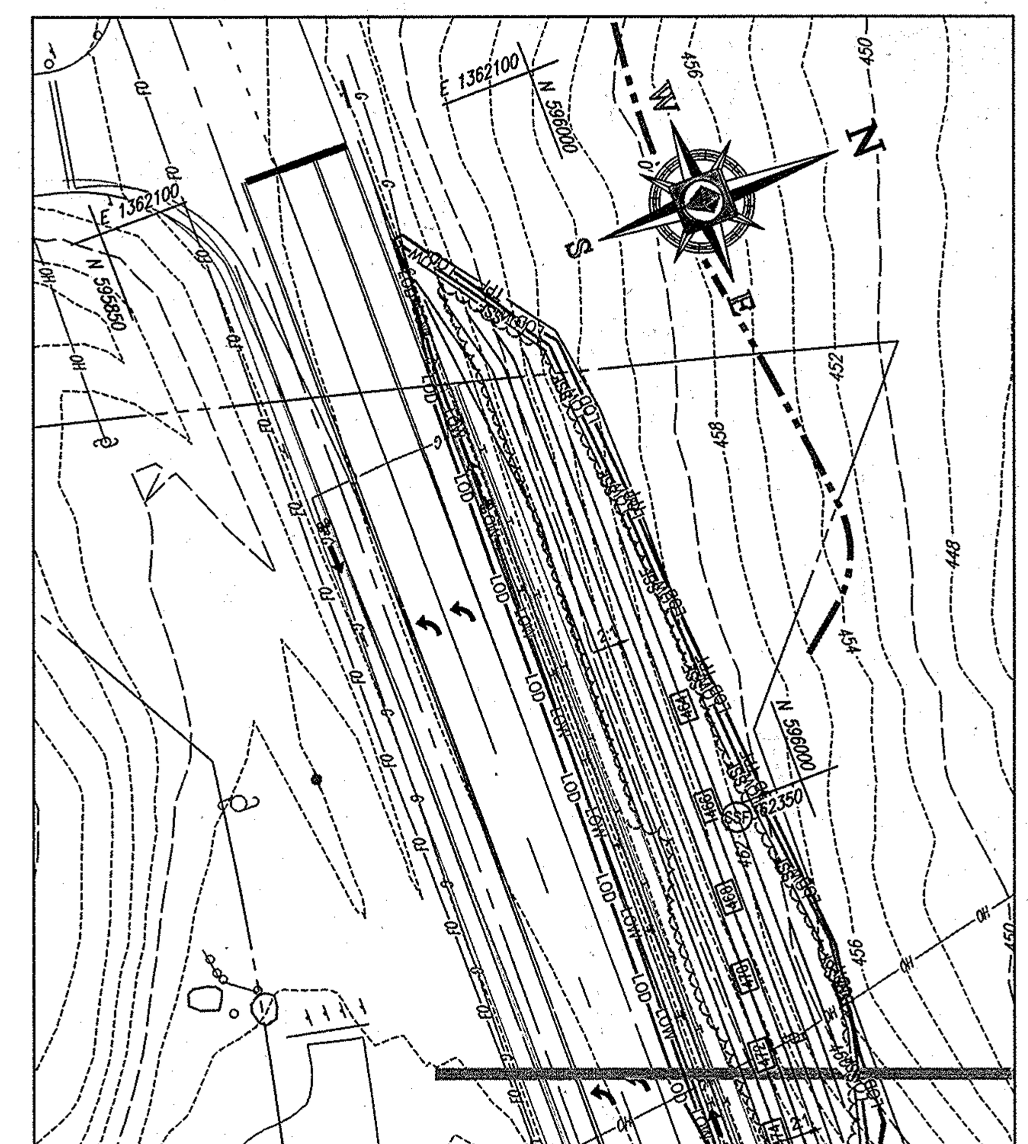
MATCHLINE A PHASE I EROSION & SEDIMENT CONTROL PLAN (SHEET 26)





MATCHLINE B PHASE I EROSION & SEDIMENT CONTROL PLAN (SHEET 26)

BENCHMARK NOTE:

THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17-F7 AND 17-FA WHICH WERE USED FOR THIS PROJECT.

HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

Scale: 50 25 12.5 0 50 — 1"= 50'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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NOT APPROVED FOR CONSTRUCTION

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BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
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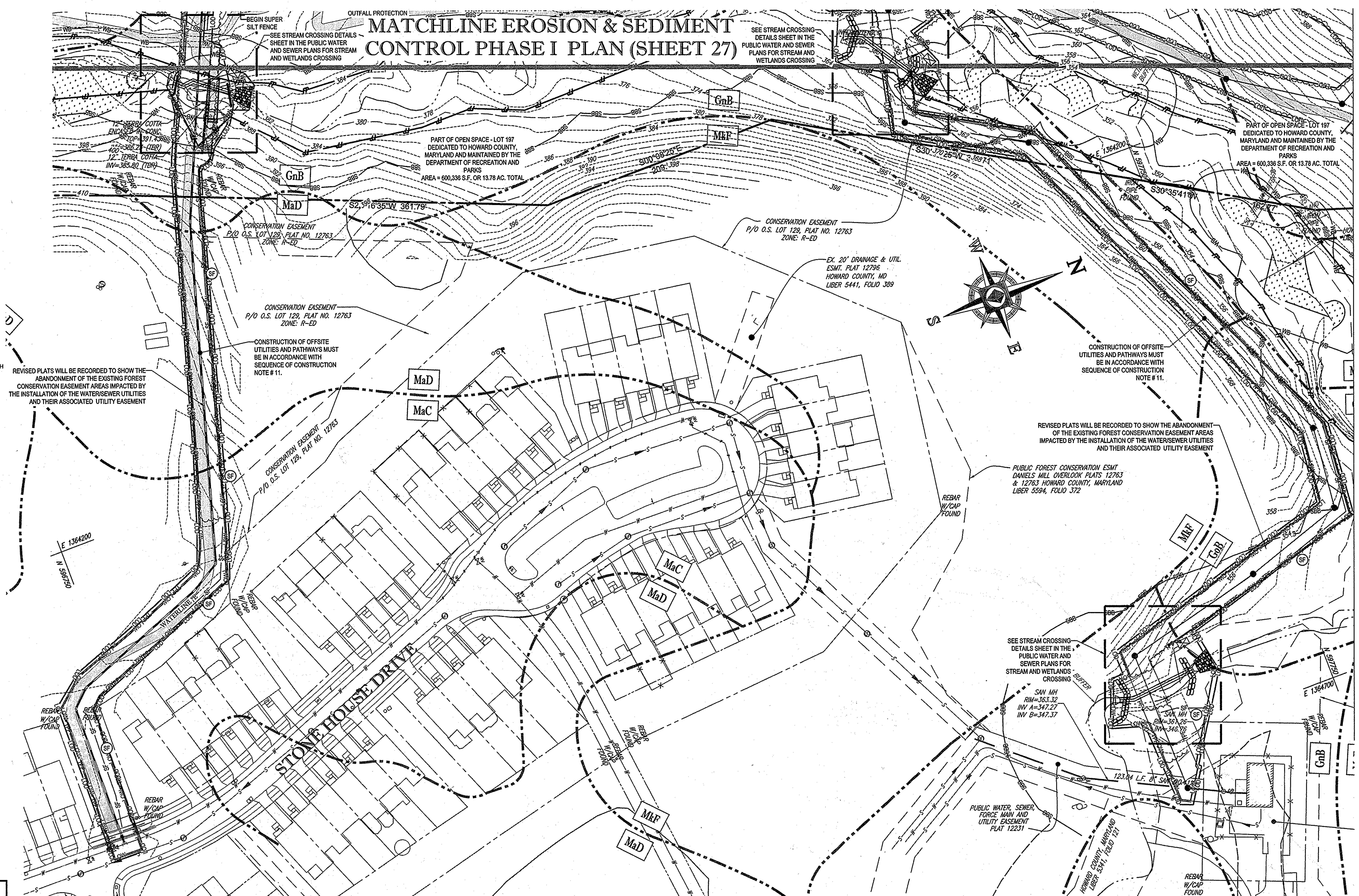
B.R. ROWE — PROFESSIONAL ENGINEER — MARYLAND LICENSE NO. 40808

SHEET TITLE: EROSION & SEDIMENT CONTROL PHASE I PLAN

SHEET NUMBER: 27

F-14-124



EROSION AND SEDIMENT CONTROL LEGEND

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- SSF — SUPER SILT FENCE
- TPF — TREE PROTECTION FENCE
- LOD — LIMIT OF DISTURBANCE
- LOW — LIMIT OF WORK (PHASE I)
- BAFFLE BOARD
- RIP-RAP INFLOW PROTECTION
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
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- MaB — SOIL LABEL
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SIGNATURE OF ENGINEER — BRANDON R. ROWE, P.E. — DATE 12/15/14

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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

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HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

CONTRACTOR SHALL
REFER TO JOINT FEDERAL/STATE APPLICATION FOR THE ALTERATION OF THE FLOODPLAIN, WATERWAY, AND NON-TIDAL WETLAND AND BUFFER IN MARYLAND

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

50 25 12.5 0 50
1"= 50'

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A	LOT/PARCEL NO.: N/A	
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PREVIOUS FILE No. : SP-13-012
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WP-13-165
PB CASE NO. 403

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901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
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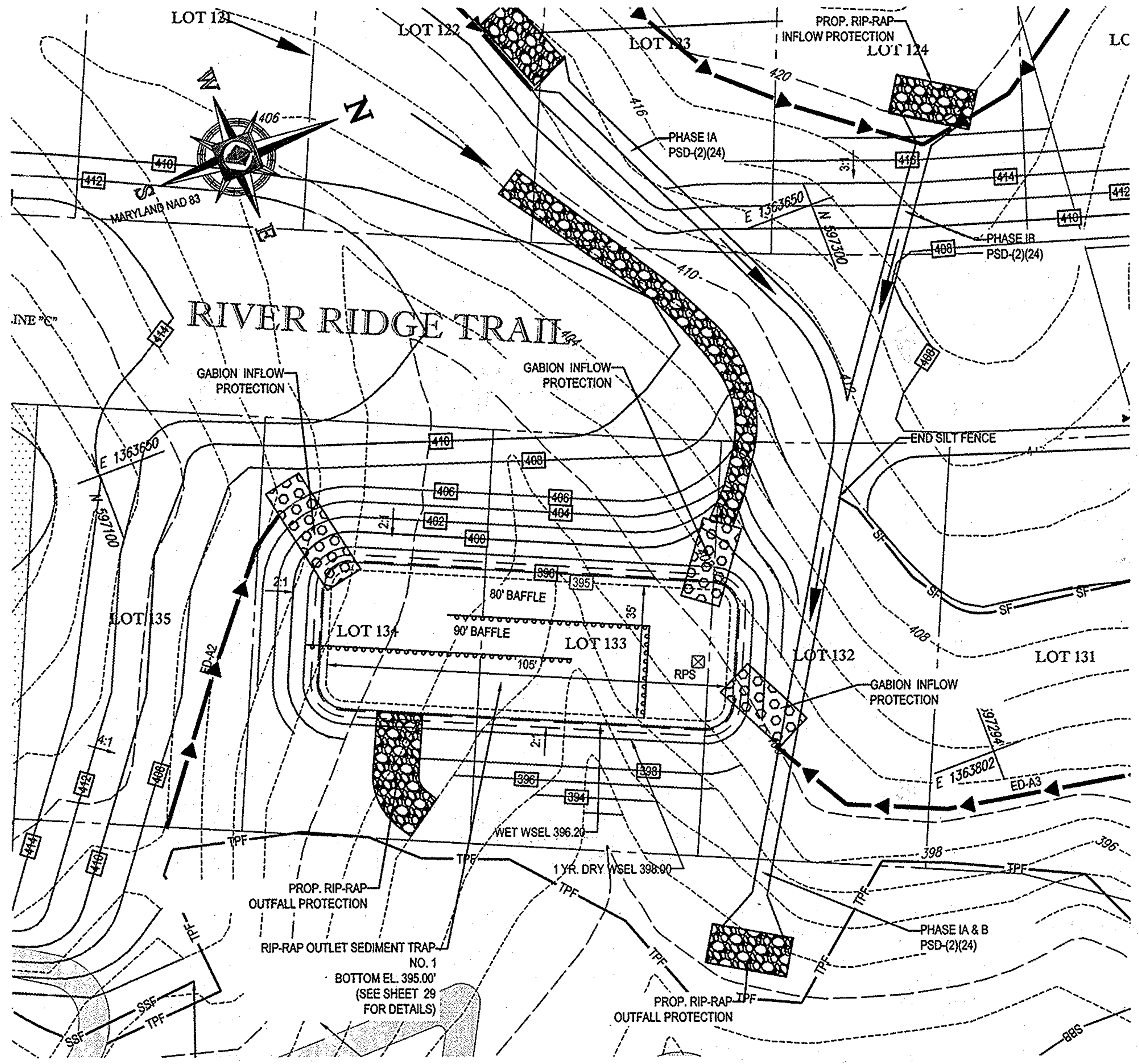
B.R. ROWE
PROFESSIONAL ENGINEER

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE I PLAN

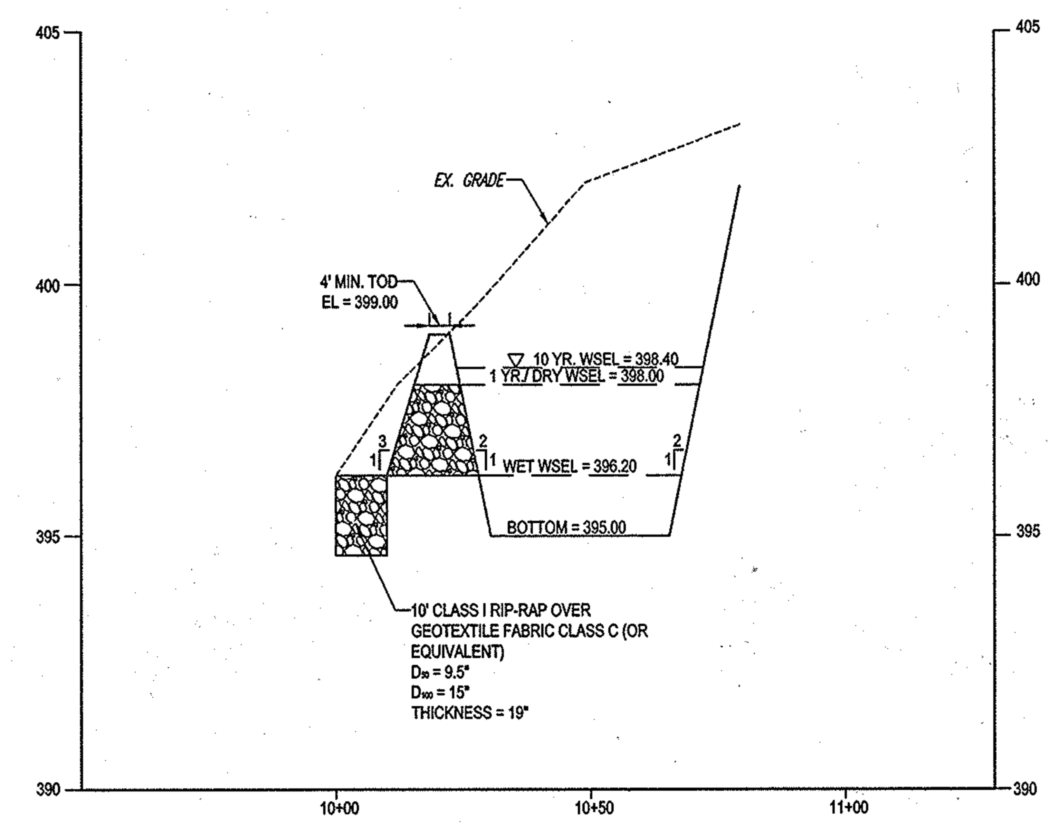
SHEET NUMBER:
28

F-14-124



RIP-RAP OUTLET SEDIMENT TRAP NO. 1

SCALE: 1"=30'



RIP-RAP OUTLET SEDIMENT TRAP NO. 1 PROFILE THROUGH PRINCIPAL SPILLWAY

SCALE: HORZ. 1"=30'
VERT. 1"=3'

RIP-RAP OUTLET SEDIMENT TRAP NO. 1 DATA TABLE

RIP-RAP OUTLET SEDIMENT TRAP (ST-11)

EXISTING DRAINAGE AREA = 2.3 AC.
WORST CASE INTERIM DRAINAGE AREA = 3.0 AC.

WET STORAGE VOL. REQUIRED = 0.12 AC. FT.
WET STORAGE VOL. PROVIDED = 0.12 AC. FT.
WET STORAGE ELEV = 396.20
DRY STORAGE REQUIRED = 0.12 AC. FT.
DRY STORAGE PROVIDED =0.19 AC. FT.
DRY STORAGE WSEL =398.00
EXISTING Q-1 YR. = 0.13 C.F.S.
INTERIM Q-1 YR. = 2.16 C.F.S.
SAFE PASS OF 10 YR. STORM PROVIDED
Q10 = 9.65 C.F.S.
10 YR. WSEL = 398.40
BOTTOM ELEV = 395.00
TOP OF EMBANKMENT ELEV = 399.00
WEIR CREST ELEV = 398.00
WEIR LENGTH = 12'

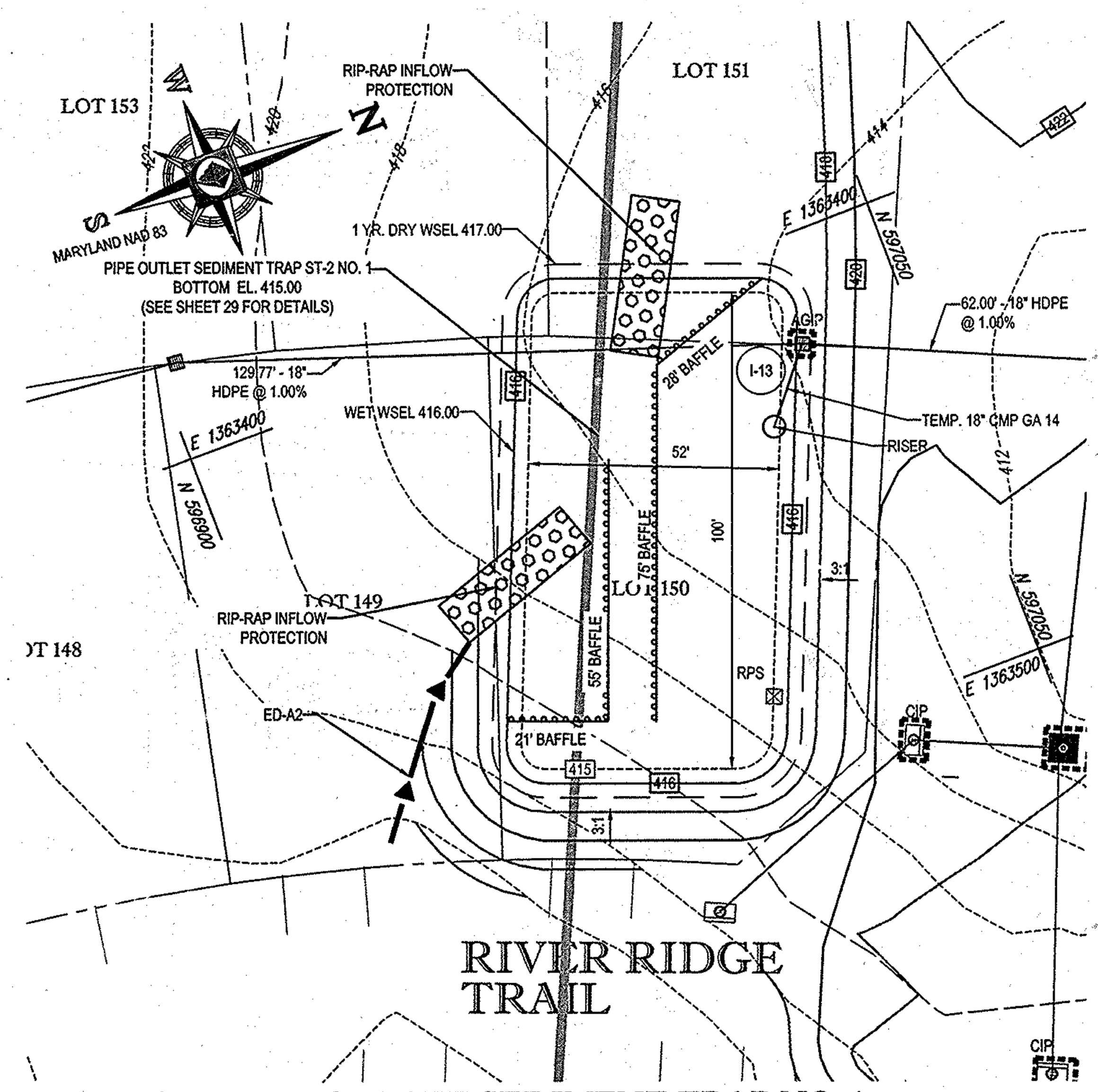
EMERGENCY SPILLWAY ELEV = NONE
CLEANOUT ELEV = 395.00
EMBANKMENT TOP WIDTH = 4'
SIDE SLOPES: 2:1 INTERIOR - 2:1 EXTERIOR

BAFFLE COMPUTATION 1

D = 42'
A WET POOL = 5227 CF
We = √(A/2) = 51'
Le = 2We = 102' REQUIRED
Le = 115' PROVIDED

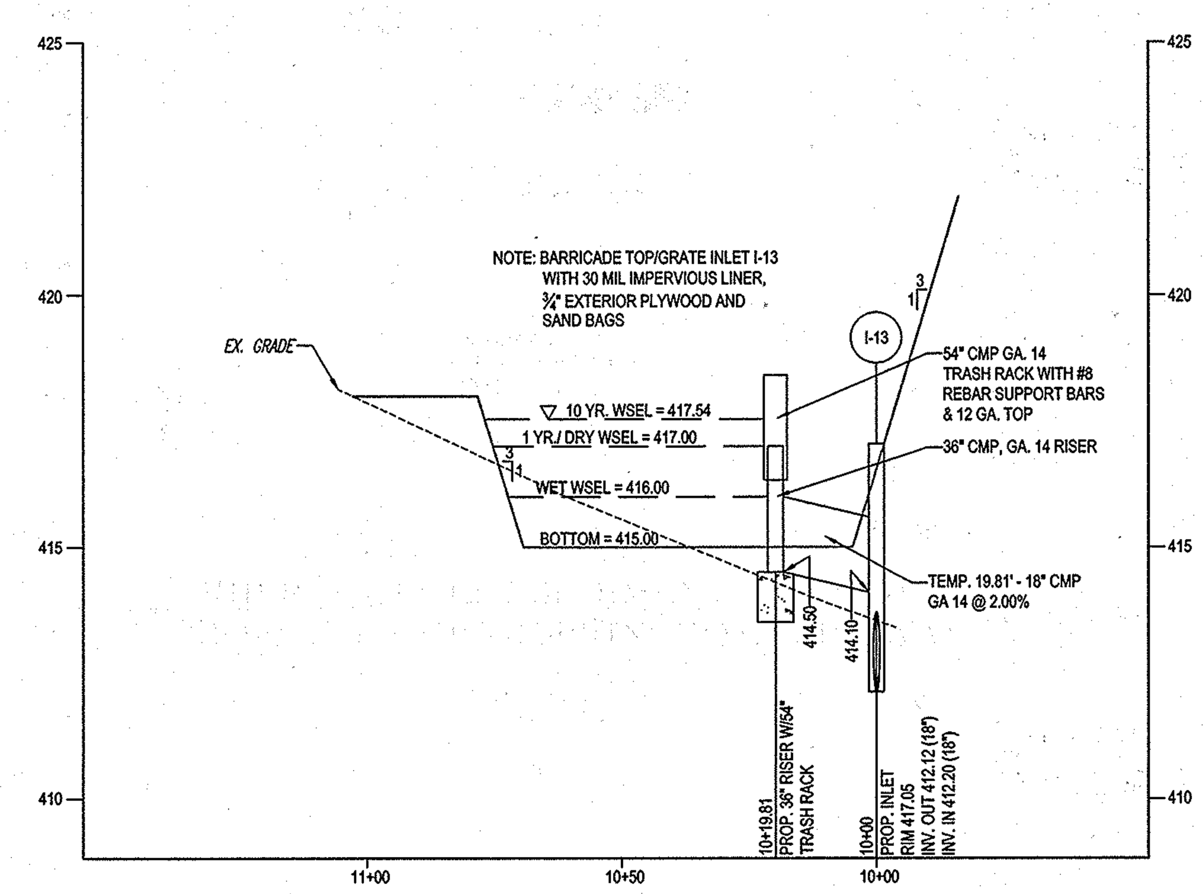
BAFFLE COMPUTATION 2

D = 88'
A WET POOL = 5227 CF
We = √(A/2) = 51'
Le = 2We = 102' REQUIRED
Le = 116' PROVIDED



PIPE OUTLET SEDIMENT TRAP NO. 1

SCALE: 1"=30'



PIPE OUTLET SEDIMENT TRAP NO. 1 PROFILE THROUGH PIPE OUTLET STRUCTURE

SCALE: HORZ. 1"=30'
VERT. 1"=3'

PIPE OUTLET SEDIMENT TRAP NO. 1 DATA TABLE

PIPE OUTLET SEDIMENT TRAP (ST-1) @ I-13

EXISTING DRAINAGE AREA = 0.76 AC.
WORST CASE INTERIM DRAINAGE AREA = 3.66 AC.

WET STORAGE VOL. REQUIRED = 0.15 AC. FT.
WET STORAGE VOL. PROVIDED = 0.15 AC. FT.
WET STORAGE ELEV = 416.00
DRY STORAGE REQUIRED = 0.15 AC. FT.
DRY STORAGE PROVIDED = 0.15 AC. FT.
DRY STORAGE WSEL = 417.00
EXISTING Q-1 YR. = 0.04 C.F.S.
INTERIM Q-1 YR. = 2.63 C.F.S.
SAFE PASS OF 10 YR. STORM PROVIDED
Q10 = 11.77 C.F.S.
10 YR. WSEL = 417.54
BOTTOM ELEV = 415.00
TOP OF EMBANKMENT ELEV = 420.00
RISER CREST ELEV = 417.00
TRASH RACK DIA.= 54"
TRASH RACK HEIGHT= 25"
BARREL DIA.= 18" (18" BARREL SELECTED TO MATCH PROPOSED 18" STORM DRAIN AT INLET I-13.)

EMERGENCY SPILLWAY ELEV = NONE
CLEANOUT ELEV = 415.50
EMBANKMENT TOP WIDTH = 6'
SIDE SLOPES: 3:1 INTERIOR - 3:1 EXTERIOR

BAFFLE COMPUTATION 3

D = 60'
A WET POOL = 6588 CF
We = √(A/2) = 58'
Le = 2We = 116' REQUIRED
Le = 123' PROVIDED

BAFFLE COMPUTATION 4

D = 37'
A WET POOL = 6588 CF
We = √(A/2) = 58'
Le = 2We = 116' REQUIRED
Le = 128' PROVIDED

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 12/15/14
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 12/10/14

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

HOWARD SCD — DATE 12/23/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008EA3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:26 P

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

50 25 12.5 0 50
1"= 50'

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE:
♦ WARREN, NJ
OFFICES:
♦ SOUTHBOROUGH, MA ♦ BOWIE, MD
♦ ALBANY, NY ♦ TOWSON, MD
♦ RONKONKOMA, NY ♦ STERLING, VA
♦ CHALFONT, PA ♦ WARRENTON, VA
♦ CENTER VALLEY, PA ♦ FORT LAUDERDALE, FL
♦ TAMPA, FL ♦ PHILADELPHIA, PA

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES © 2008 BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	EA2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
12/15/14

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE I PLAN

SHEET NUMBER:
29

F-14-124

PHASE II EROSION AND SEDIMENT CONTROL QUANTITIES:

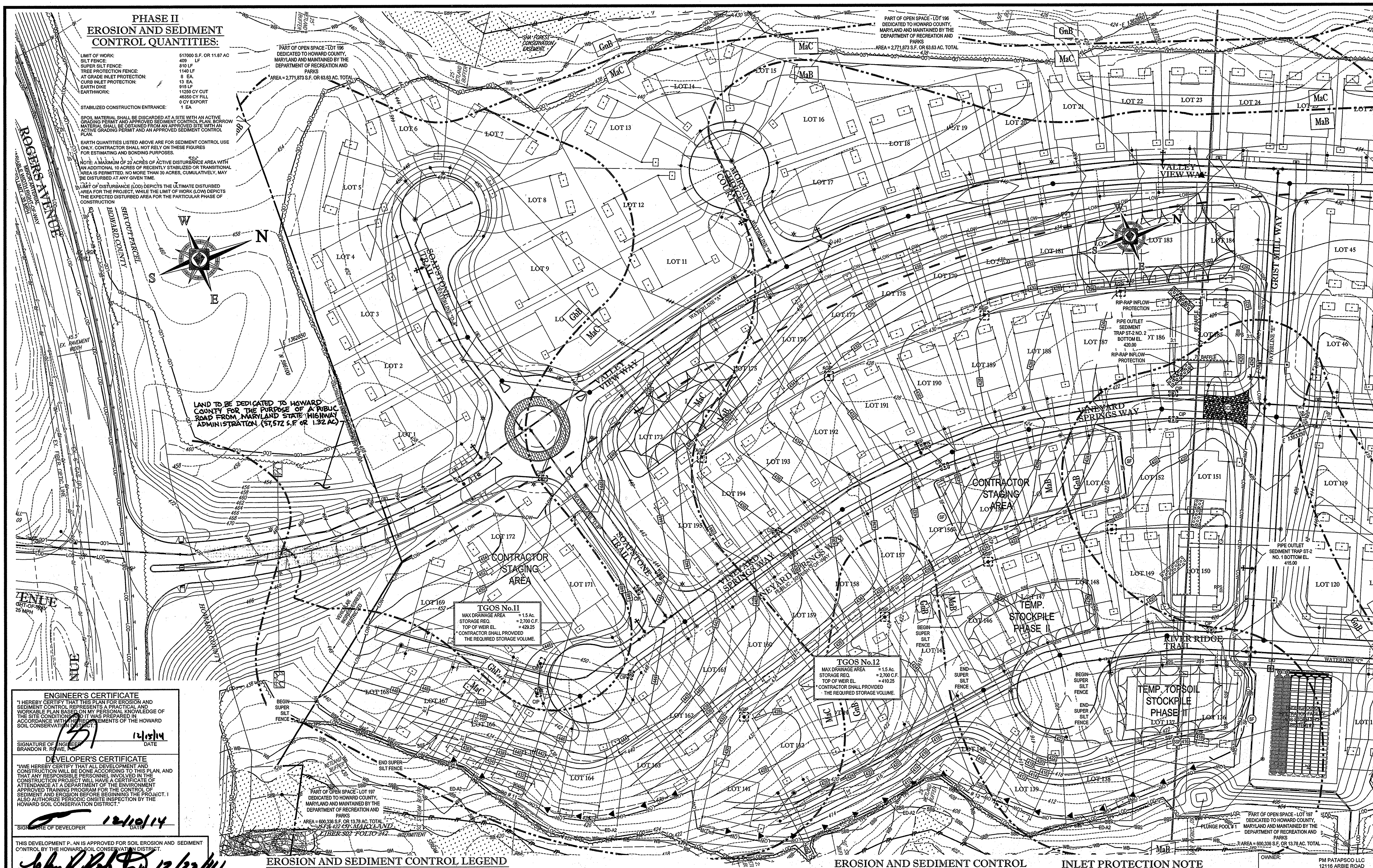
LIMIT OF WORK:	517000 S.F. OR 11.87 AC
SILT FENCE:	409 LF
SUPER SILT FENCE:	810 LF
TREE PROTECTION FENCE:	1140 LF
AT GRADE INLET PROTECTION:	8 EA.
CURB INLET PROTECTION:	13 EA.
EARTH DIKE	915 LF
EARTHWORK:	11250 CY CUT 46350 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

LIMIT OF DISTURBANCE (LOD) DEPICTS THE ULTIMATE DISTURBED AREA FOR THE PROJECT, WHILE THE LIMIT OF WORK (LOW) DEPICTS THE EXPECTED DISTURBED AREA FOR THE PARTICULAR PHASE OF CONSTRUCTION



ENGINEER'S CERTIFICATE

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SIGNATURE OF ENGINEER — BRANDON R. ROWE, P.E. — DATE 12/15/14

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 12/10/14

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

HOWARD SCD — DATE 12/23/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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EROSION AND SEDIMENT CONTROL LEGEND

Symbol	Description	Symbol	Description
	STABILIZED CONSTRUCTION ENTRANCE		STEEP SLOPES (15%-25%)
	RIP-RAP OUTLET PROTECTION		STEEP SLOPES (>25%)
SF — SF	SILT FENCE		SOIL DIVIDE
	EARTH DIKE (A-1 SEED W/MULCH AND TACK, A-2 STABILIZED MATTING OR SOD, A-3 - 4-7" STONE)	MaB	SOIL LABEL
SSF — SSF	SUPER SILT FENCE	AGIP	AT GRADE INLET PROTECTION
TPF — TPF	TREE PROTECTION FENCE	SIP	STANDARD INLET PROTECTION
LOD — LOD	LIMIT OF DISTURBANCE	CIP	CURB INLET PROTECTION
LOW — LOW	LIMIT OF WORK (PHASE I)	MAGIP	MODIFIED AT GRADE INLET PROTECTION
	BAFFLE BOARD	MCIP	MODIFIED CURB INLET PROTECTION
	RIP-RAP INFLOW PROTECTION	TGOS	TEMPORARY GABION OUTLET STRUCTURE
		RPS	REMOVABLE PUMP STATION
		PSD	PIPE SLOPE DRAIN (CLEAR WATER DIVERSION)

EROSION AND SEDIMENT CONTROL NOTES:

1. TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
2. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. REFER TO SHEET 41 - 44 FOR SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SEE SHEETS 29-30 FOR PHASE II GRADING, AND SHEETS 45-49 FOR ULTIMATE GRADING.
7. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
8. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
9. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
10. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
11. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

1. CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

BENCHMARK NOTE:

THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17-F7 AND 17-FA WHICH WERE USED FOR THIS PROJECT.

HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

50 25 12.5 0 50
1"= 50'

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

1) ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE.
2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E.23. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A	LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

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(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	EB2

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE — PROFESSIONAL ENGINEER — MARYLAND LICENSE No. 40808

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE II PLAN

SHEET NUMBER: 30

F-14-124

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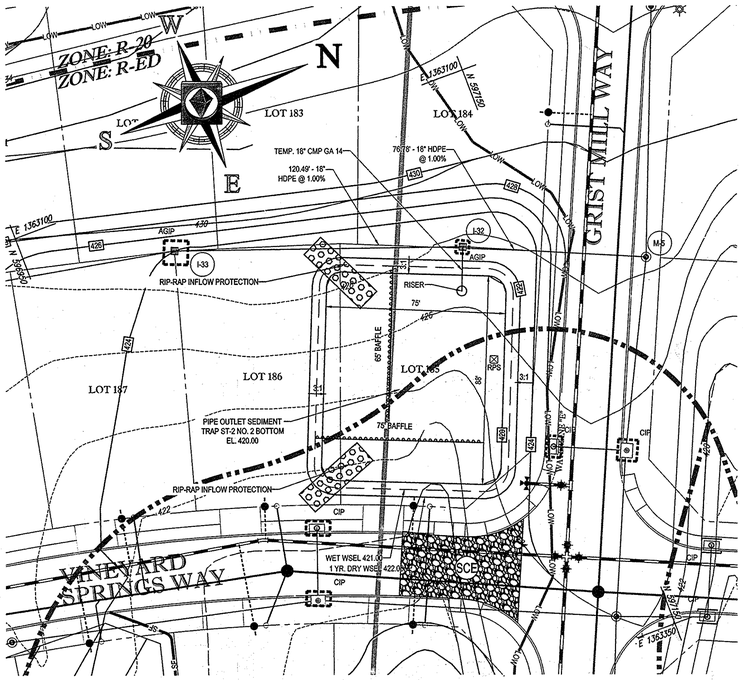
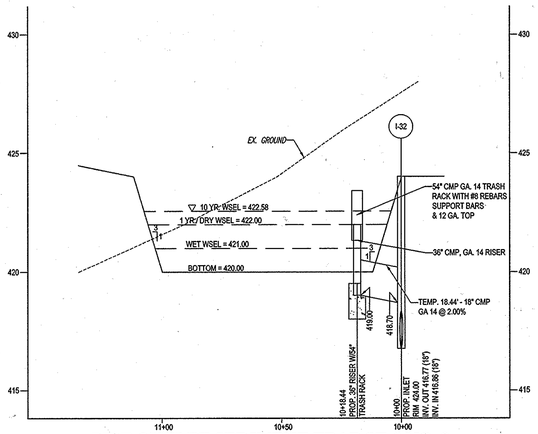


PIPE OUTLET SEDIMENT TRAP ST-2 NO. 2

SCALE: 1"=30'



PIPE OUTLET SEDIMENT TRAP ST-2 NO. 2
PROFILE THROUGH PIPE OUTLET STRUCTURE

SCALE: HORZ. 1"=30'
VERT. 1"=3'

PIPE OUTLET SEDIMENT TRAP ST-2 NO. 2 DATA TABLE

PIPE OUTLET SEDIMENT TRAP (ST-2) @ I-32

EXISTING DRAINAGE AREA = 0.59 AC.
WORST CASE INTERIM DRAINAGE AREA = 4.00 AC.

WET STORAGE VOL. REQUIRED = 0.17 AC. FT.
WET STORAGE VOL. PROVIDED = 0.19 AC. FT.
WET STORAGE ELEV = 421.00
DRY STORAGE REQUIRED = 0.17 AC. FT.
DRY STORAGE PROVIDED = 0.19 AC. FT..
DRY STORAGE WSEL = 422.00
EXISTING Q-1 YR. = 0 03 C.F.S.
INTERIM Q-1 YR. = 2.88 C.F.S.
SAFE PASS OF 10 YR. STORM PROVIDED
Q10 = 12.86 C.F.S.
10 YR. WSEL = 422.58
BOTTOM ELEV = 420.00
TOP OF EMBANKMENT ELEV = 424.00
RISER CREST ELEV = 422.00
TRASH RACK DIA. = 54"
TRASH RACK HEIGHT = 25"
BARREL DIA. = 18" (18" BARREL SELECTED)
TO MATCH PROPOSED 18" STORM DRAIN
AT INLET I-32)

EMERGENCY SPILLWAY ELEV = NONE
CLEANOUT ELEV = 420.50
EMBANKMENT TOP WIDTH = 6'
SIDE SLOPES: 3:1 INTERIOR - 3:1 EXTERIOR

BAFFLE COMPUTATION 5

D = 55'
A WET POOL = 8100 CF
Wo = √(A/2) = 64'
Le = 2We = 128' REQUIRED
Le = 131' PROVIDED

BAFFLE COMPUTATION 6

D = 97'
A WET POOL = 8100 CF
Wo = √(A/2) = 64'
Le = 2We = 128' REQUIRED
Le = 132' PROVIDED

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER BRANDON R. ROWE P.E. — DATE 12/15/14

DEVELOPER'S CERTIFICATE

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SIGNATURE OF DEVELOPER — DATE 12/10/14

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

HOWARD SCD — DATE 12/23/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT - WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

50 25 12.5 0 50
1"= 50'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15145/455 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
◆ WARREN, NJ
OFFICES:
◆ SOUTHBOROUGH, MA
◆ ALBANY, NY
◆ ROANOKE, VA
◆ CHARLOTTE, NC
◆ CENTER VALLEY, PA
◆ DENVER, CO
◆ BOWIE, MD
◆ TOWSON, MD
◆ STERLING, VA
◆ WILLIAMSBURG, VA
◆ FORT LAUDERDALE, FL
◆ TAMPA, FL
◆ PHOENIX, AZ

THE APPROVAL & ISSUANCE OF THESE PLANS BY THE HOWARD COUNTY AND ANNE ARUNDEL COUNTIES DOES NOT RELIEVE ANY PERSON FROM OBTAINING ALL OTHER APPROVALS AND PERMITS NECESSARY FOR THE CONSTRUCTION OF THE PROJECT SHOWN ON THESE PLANS. THE APPROVAL & ISSUANCE OF THESE PLANS BY THE HOWARD COUNTY AND ANNE ARUNDEL COUNTIES DOES NOT RELIEVE ANY PERSON FROM OBTAINING ALL OTHER APPROVALS AND PERMITS NECESSARY FOR THE CONSTRUCTION OF THE PROJECT SHOWN ON THESE PLANS. THE APPROVAL & ISSUANCE OF THESE PLANS BY THE HOWARD COUNTY AND ANNE ARUNDEL COUNTIES DOES NOT RELIEVE ANY PERSON FROM OBTAINING ALL OTHER APPROVALS AND PERMITS NECESSARY FOR THE CONSTRUCTION OF THE PROJECT SHOWN ON THESE PLANS. THE APPROVAL & ISSUANCE OF THESE PLANS BY THE HOWARD COUNTY AND ANNE ARUNDEL COUNTIES DOES NOT RELIEVE ANY PERSON FROM OBTAINING ALL OTHER APPROVALS AND PERMITS NECESSARY FOR THE CONSTRUCTION OF THE PROJECT SHOWN ON THESE PLANS.

REVISIONS

REV.	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE: IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	EB2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

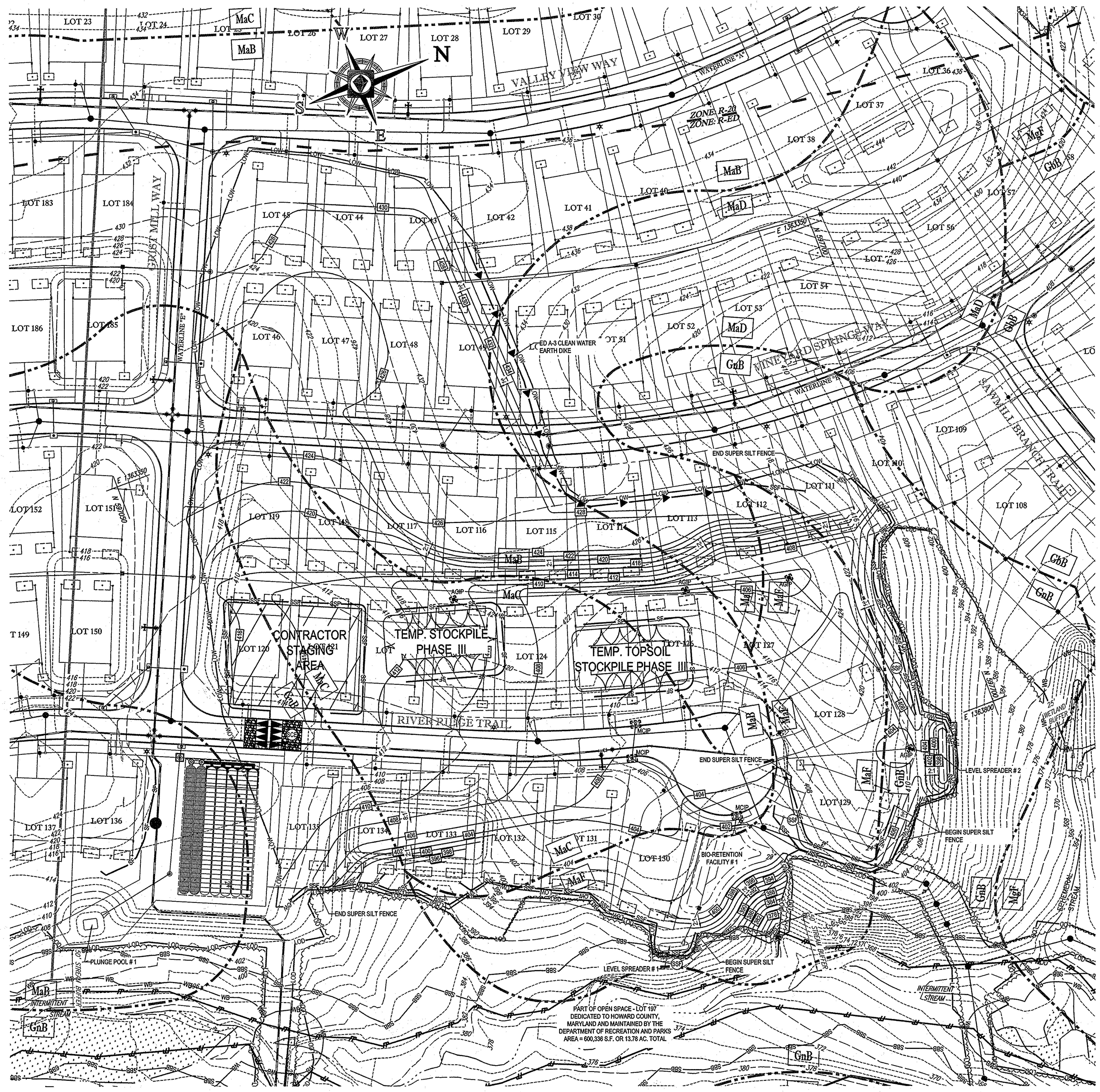
B.R. ROWE — PROFESSIONAL ENGINEER

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE II PLAN

SHEET NUMBER:
31

F-14-124

H:\2013\MD\132008\SHEETS\FINAL PLANS\132008SED.DWG PLOTTED BY: RSOMICH 12.11.14 @ 9:23:3



EROSION AND SEDIMENT CONTROL LEGEND

Symbol	Description
	STABILIZED CONSTRUCTION ENTRANCE
	RIP-RAP OUTLET PROTECTION
—SF—SF—	SILT FENCE
	EARTH DIKE (A-1 SEED W/MULCH AND TACK, A-2 STABILIZED MATTING OR SOD)
—SSF—SSF—	SUPER SILT FENCE
—TPF—TPF—	TREE PROTECTION FENCE
—LOD—LOD—	LIMIT OF DISTURBANCE
—LOW—LOW—	LIMIT OF WORK (PHASE III)
	BAFFLE BOARD
	RIP-RAP INFLOW PROTECTION
	STEEP SLOPES (15%-25%)
	STEEP SLOPES (>25%)
	SOIL DIVIDE
MaB	SOIL LABEL
AGIP	AT GRADE INLET PROTECTION
SIP	STANDARD INLET PROTECTION
CIP	CURB INLET PROTECTION
MAGIP	MODIFIED AT GRADE INLET PROTECTION
MCIP	MODIFIED CURB INLET PROTECTION
TGOS	TEMPORARY GABION OUTLET STRUCTURE
RPS	REMOVABLE PUMP STATION
PSD	PIPE SLOPE DRAIN (CLEAR WATER DIVERSION)

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER 12/15/14 DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER 12/10/14 DATE

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

12/23/14 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS 1/8/2015 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT 7-9-15 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION 6.15.15 DATE

GENERAL NOTE:
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H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008EC3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:28 P

EROSION AND SEDIMENT CONTROL NOTES:

1. TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
2. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. REFER TO SHEET 41 - 44 FOR SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SEE SHEETS 33 - 34 FOR PHASE IV GRADING, AND SHEETS 45-49 FOR ULTIMATE GRADING.
7. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
8. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
9. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
10. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
11. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

1. CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

1) ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE.
2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E.23. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

BENCHMARK NOTE:

THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17-F7 AND 17-FA WHICH WERE USED FOR THIS PROJECT.

HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

PHASE III EROSION AND SEDIMENT CONTROL QUANTITIES:

LIMIT OF WORK:	293500 S.F. OR 6.74 AC
SILT FENCE:	472 LF
SUPER SILT FENCE:	1627 LF
TREE PROTECTION FENCE:	500 LF
AT GRADE INLET PROTECTION:	4 EA.
CURB INLET PROTECTION:	3 EA.
EARTH DIKE	400 LF
EARTHWORK:	38230 CY CUT 10625 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

LIMIT OF DISTURBANCE (LOD) DEPICTS THE ULTIMATE DISTURBED AREA FOR THE PROJECT, WHILE THE LIMIT OF WORK (LOW) DEPICTS THE EXPECTED DISTURBED AREA FOR THE PARTICULAR PHASE OF CONSTRUCTION

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE:
◆ WARREN, NJ
OFFICES:
◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL
◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES. © 2008 BOHLER ENGINEERING.

REVISIONS			
REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	EC2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

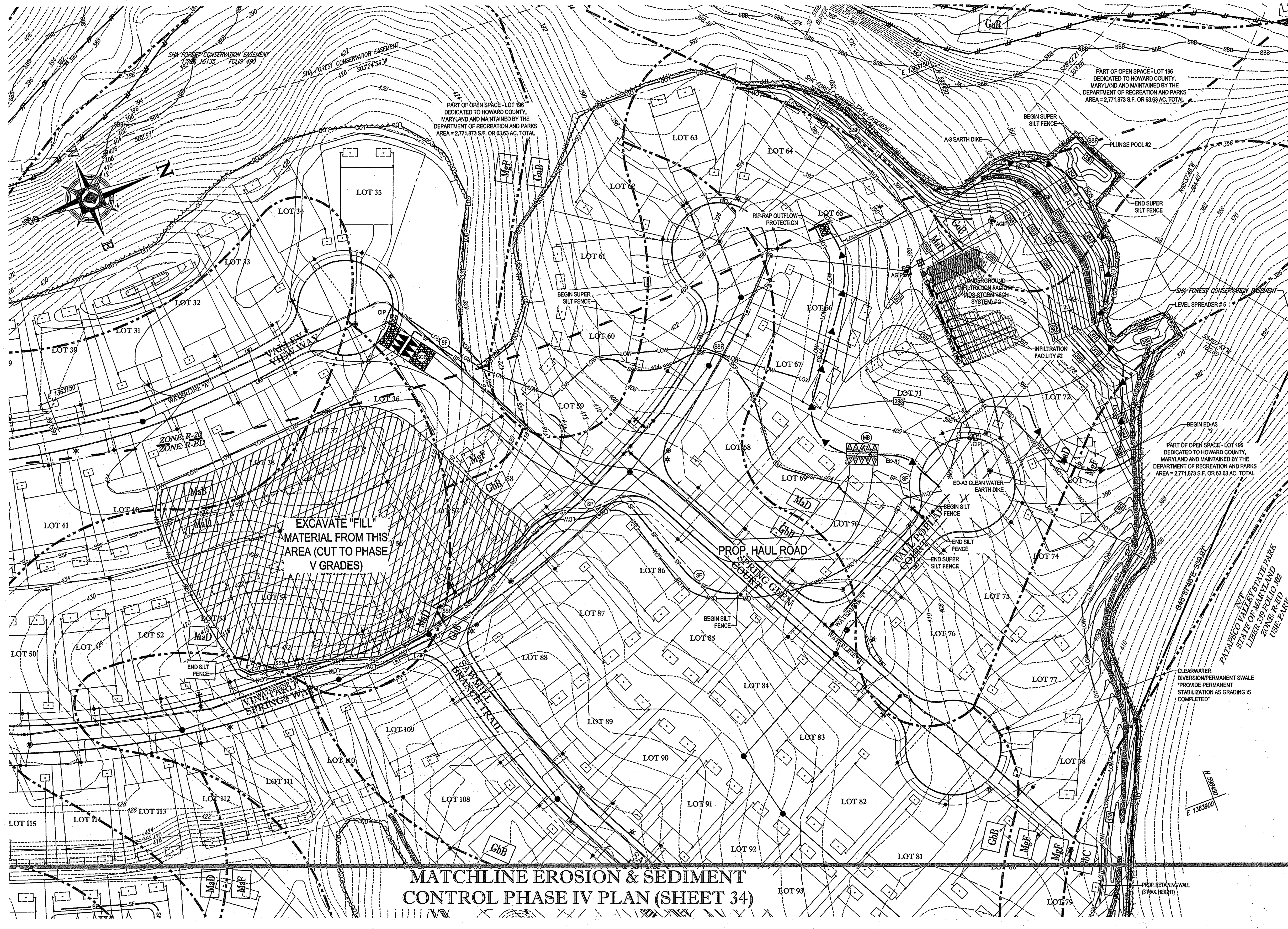
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE
PROFESSIONAL ENGINEER
12/15/14

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE III PLAN

SHEET NUMBER:
32

F-14-124



TGOS No.13

MAX DRAINAGE AREA	= 1.5 Ac.
STORAGE REQ.	= 2,700 C.F.
TOP OF WEIR EL.	= 357.25

* CONTRACTOR SHALL PROVIDED THE REQUIRED STORAGE VOLUME.

EROSION AND SEDIMENT CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- RIP-RAP OUTLET PROTECTION
- SF — SILT FENCE
- EARTH DIKE (A-1 SEED W/MULCH AND TACK, A-2 STABILIZED MATTING OR SOD)
- SSF — SUPER SILT FENCE
- TPF — TREE PROTECTION FENCE
- LOD — LIMIT OF DISTURBANCE
- LOW — LIMIT OF WORK (PHASE IV)
- BAFFLE BOARD
- RIP-RAP INFLOW PROTECTION
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
- SOIL DIVIDE
- MaB — SOIL LABEL
- AGIP — AT GRADE INLET PROTECTION
- SIP — STANDARD INLET PROTECTION
- CIP — CURB INLET PROTECTION
- MAGIP — MODIFIED AT GRADE INLET PROTECTION
- MCIP — MODIFIED CURB INLET PROTECTION
- TGOS — TEMPORARY GABION OUTLET STRUCTURE
- RPS — REMOVABLE PUMP STATION
- PSD — PIPE SLOPE DRAIN (CLEAR WATER DIVERSION)

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 12/15/14
SIGNATURE OF ENGINEER — DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

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[signature] 12/10/14
SIGNATURE OF DEVELOPER — DATE

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

[signature] 12/23/14
HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 1/8/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 2-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 6.15.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
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EROSION AND SEDIMENT CONTROL NOTES:

1. TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
2. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. REFER TO SHEET 41 - 44 FOR SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SEE SHEETS 35-37 FOR PHASE V GRADING, AND SHEETS 45-49 FOR ULTIMATE GRADING.
7. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
8. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
9. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
10. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
11. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

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2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

PHASE IV EROSION AND SEDIMENT CONTROL QUANTITIES:

LIMIT OF WORK:	243000 S.F. OR 5.58 AC
SILT FENCE:	353 LF
SUPER SILT FENCE:	1078 LF
TREE PROTECTION FENCE:	1575 LF
AT GRADE INLET PROTECTION:	1 EA.
CURB INLET PROTECTION:	2 EA.
EARTH DIKE	800 LF
EARTHWORK:	17000 CY CUT 17000 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

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LIMIT OF DISTURBANCE (LOD) DEPICTS THE ULTIMATE DISTURBED AREA FOR THE PROJECT, WHILE THE LIMIT OF WORK (LOW) DEPICTS THE EXPECTED DISTURBED AREA FOR THE PARTICULAR PHASE OF CONSTRUCTION

INLET PROTECTION NOTE

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BENCHMARK NOTE:

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HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

50 25 12.5 0 50
1"= 50'

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DEVELOPER:
NAI THE MICHAEL COMPANIES
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CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	ED2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

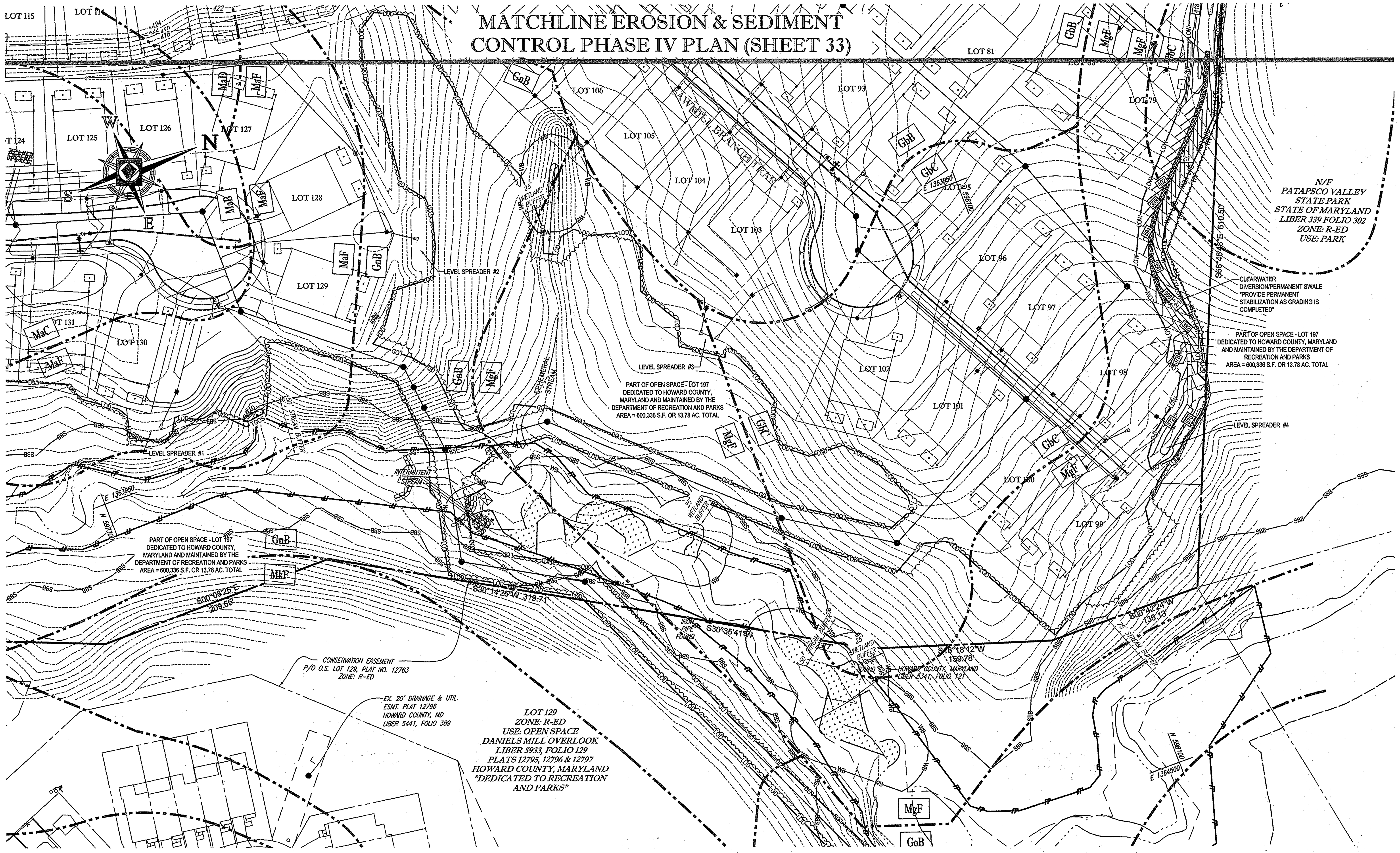
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE No. 40808

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE IV PLAN
SHEET NUMBER:
33

F-14-124

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008ED3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:29 P



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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

12/15/14

SIGNATURE OF ENGINEER — DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

12/10/14

SIGNATURE OF DEVELOPER — DATE

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

John R Robertson 12/23/14
DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

1/8/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

7-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

6.15.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

EROSION AND SEDIMENT CONTROL NOTES:

1. TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
2. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. REFER TO SHEET 41 - 44 FOR SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. SEE SHEETS 35-37 FOR PHASE V GRADING, AND SHEETS 45-49 FOR ULTIMATE GRADING.
7. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
8. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
9. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
10. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
11. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

1. CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

PHASE IV EROSION AND SEDIMENT CONTROL QUANTITIES:

LIMIT OF WORK:	243000 S.F. OR 5.58 AC
SILT FENCE:	353 LF
SUPER SILT FENCE:	1078 LF
TREE PROTECTION FENCE:	1575 LF
AT GRADE INLET PROTECTION:	1 EA.
CURB INLET PROTECTION:	2 EA.
EARTH DIKE	800 LF
EARTHWORK:	17000 CY CUT 17000 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

LIMIT OF DISTURBANCE (LOD) DEPICTS THE ULTIMATE DISTURBED AREA FOR THE PROJECT, WHILE THE LIMIT OF WORK (LOW) DEPICTS THE EXPECTED DISTURBED AREA FOR THE PARTICULAR PHASE OF CONSTRUCTION

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

1) ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE.
2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E.23. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

BENCHMARK NOTE:

THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17-F7 AND 17-FA WHICH WERE USED FOR THIS PROJECT.

HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

50 25 12.5 0 50
1"= 50'

EROSION AND SEDIMENT CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- RIP-RAP OUTLET PROTECTION
- SF — SILT FENCE
- EARTH DIKE (A-1 SEED W/MULCH AND TACK, A-2 STABILIZED MATTING OR SOD)
- SSF — SUPER SILT FENCE
- TPF — TREE PROTECTION FENCE
- LOD — LIMIT OF DISTURBANCE
- LOW — LIMIT OF WORK (PHASE IV)
- BAFFLE BOARD
- RIP-RAP INFLOW PROTECTION
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
- SOIL DIVIDE
- MaB — SOIL LABEL
- AGIP — AT GRADE INLET PROTECTION
- SIP — STANDARD INLET PROTECTION
- CIP — CURB INLET PROTECTION
- MAGIP — MODIFIED AT GRADE INLET PROTECTION
- MCIP — MODIFIED CURB INLET PROTECTION
- TGOS — TEMPORARY GABION OUTLET STRUCTURE
- RPS — REMOVABLE PUMP STATION
- PSD — PIPE SLOPE DRAIN (CLEAR WATER DIVERSION)

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
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PB CASE NO. 403

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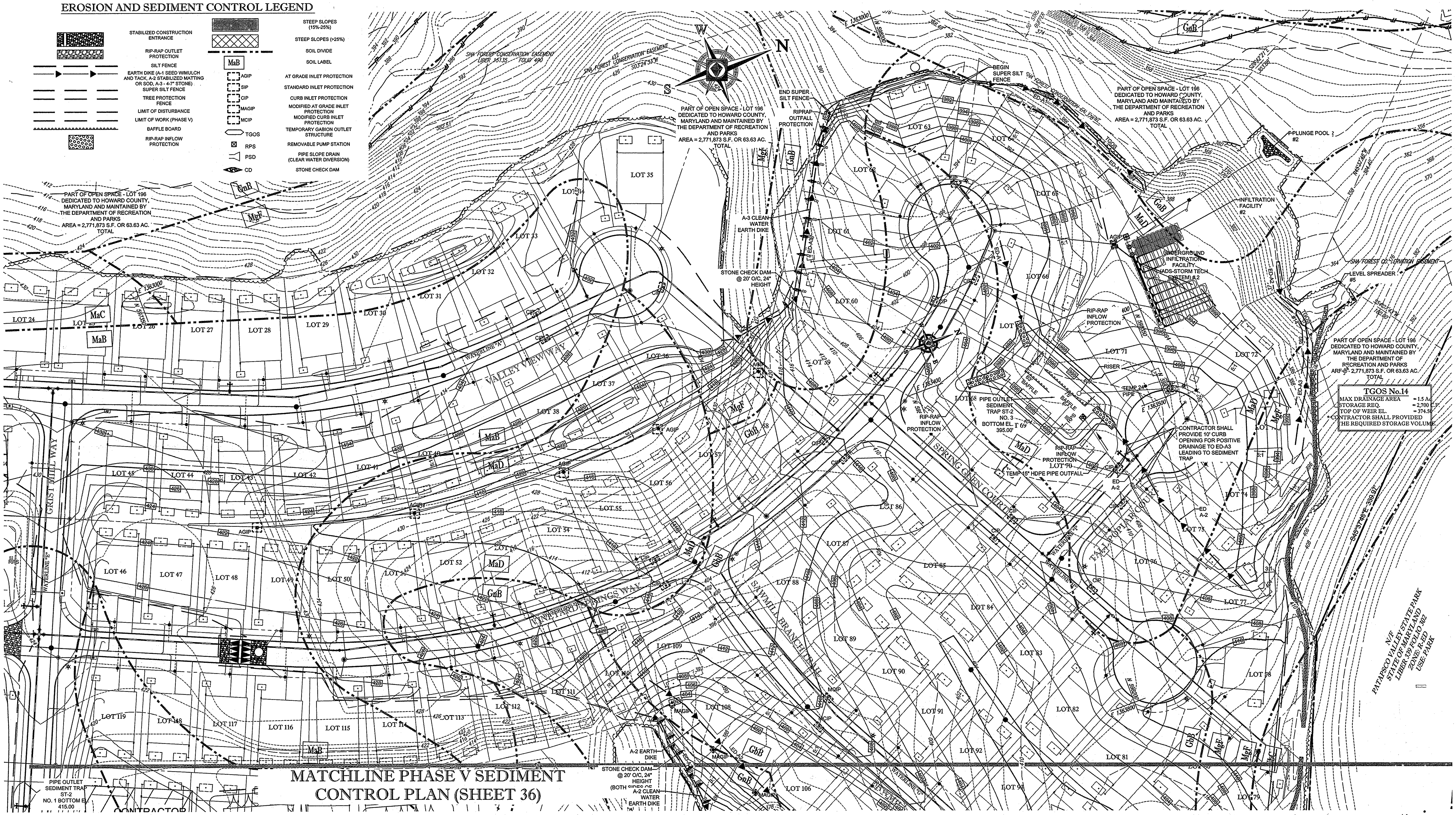
www.BohlerEngineering.com

B.R. ROWE — PROFESSIONAL ENGINEER — MARYLAND

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE IV PLAN

SHEET NUMBER:
34

F-14-124



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[signature] 12/23/14
HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 1/8/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 2-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 6-15-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

ENGINEER'S CERTIFICATE

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[signature] 12/15/14
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[signature] 12/10/14
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50 25 12.5 0 50
1"= 50'

PHASE V EROSION AND SEDIMENT CONTROL QUANTITIES:

LIMIT OF WORK:	791000 S.F. OR 18.16 AC
SILT FENCE:	750 LF
SUPER SILT FENCE:	387 LF
TREE PROTECTION FENCE:	1472 LF
AT GRADE INLET PROTECTION:	15 EA.
CURB INLET PROTECTION:	20 EA.
EARTH DIKE	2235 LF
EARTHWORK:	75000 CY CUT 75000 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

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OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
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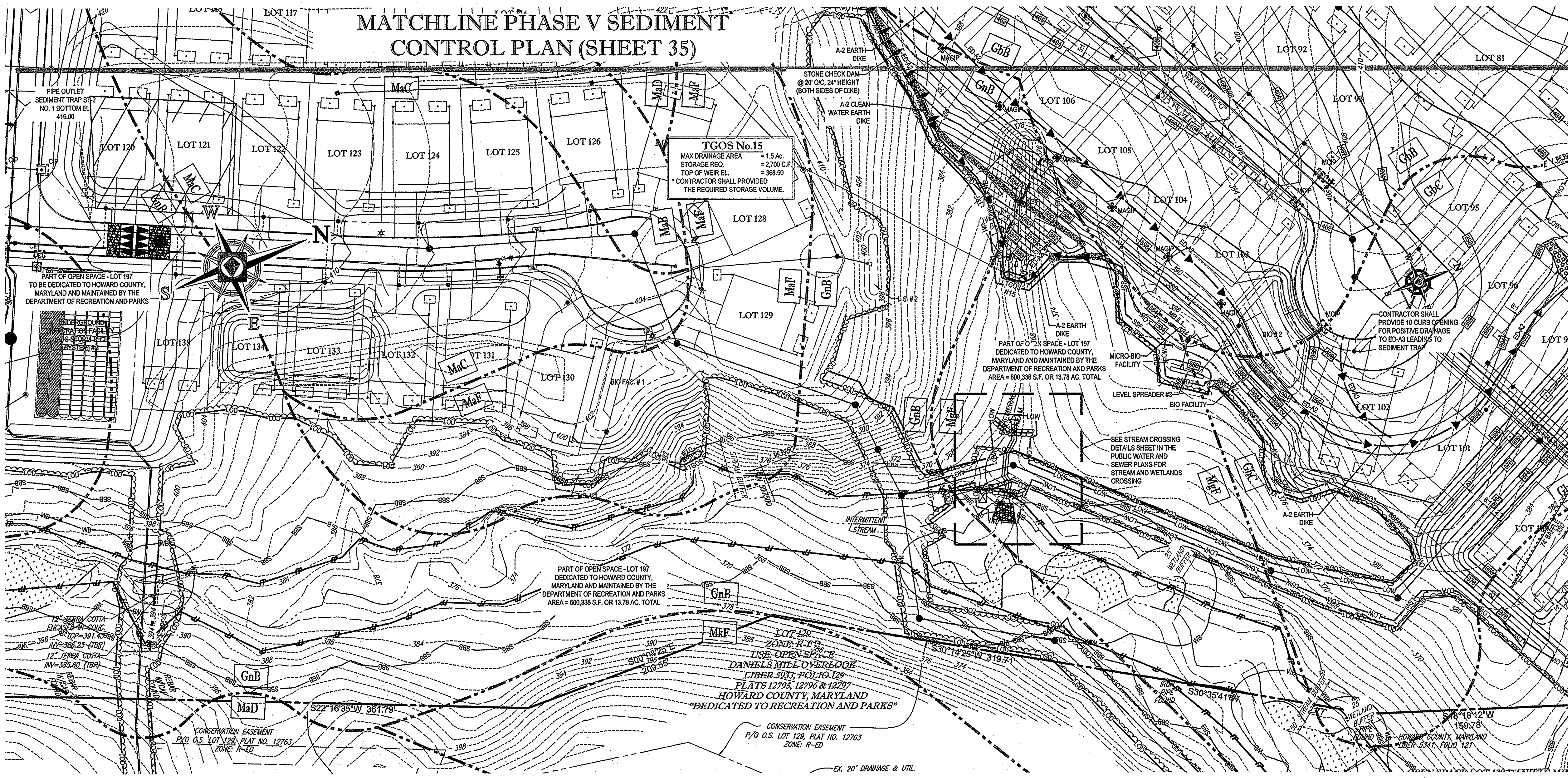
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE PROFESSIONAL ENGINEER [seal, signed 12/15/14]

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE V PLAN
SHEET NUMBER:
35

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008EE3.DWG PRINTED BY: RBOWEN 12.11.14 @ 3:07 P

F-14-124



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6. SEE SHEETS 45-49 FOR ULTIMATE GRADING.
7. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
8. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
9. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
10. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
11. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

PHASE V EROSION AND SEDIMENT CONTROL QUANTITIES:

LIMIT OF WORK:	791000 S.F. OR 18.16 AC
SILT FENCE:	750 LF
SUPER SILT FENCE:	387 LF
TREE PROTECTION FENCE:	1472 LF
AT GRADE INLET PROTECTION:	15 EA.
CURB INLET PROTECTION:	20 EA.
EARTH DIKE	2235 LF
EARTHWORK:	75000 CY CUT 75000 CY FILL 0 CY EXPORT
STABILIZED CONSTRUCTION ENTRANCE:	1 EA

SPOIL MATERIAL SHALL BE DISCARDED AT A SITE WITH AN ACTIVE GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN. BORROW MATERIAL SHALL BE OBTAINED FROM AN APPROVED SITE WITH AN ACTIVE GRADING PERMIT AND AN APPROVED SEDIMENT CONTROL PLAN.

EARTH QUANTITIES LISTED ABOVE ARE FOR SEDIMENT CONTROL USE ONLY. CONTRACTOR SHALL NOT RELY ON THESE FIGURES FOR ESTIMATING AND BONDING PURPOSES.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

LIMIT OF DISTURBANCE (LOD) DEPICTS THE ULTIMATE DISTURBED AREA FOR THE PROJECT, WHILE THE LIMIT OF WORK (LOW) DEPICTS THE EXPECTED DISTURBED AREA FOR THE PARTICULAR PHASE OF CONSTRUCTION

EROSION AND SEDIMENT CONTROL UTILITY INSTALLATION NOTES:

1. CONTRACTOR SHALL OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. THE CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PROTECT PEDESTRIANS AT ALL TIMES DURING UNDERGROUND UTILITY CONSTRUCTION.

BENCHMARK NOTE:

THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM. HORIZONTAL AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 17-F7 AND 17-FA WHICH WERE USED FOR THIS PROJECT.

HOWARD COUNTY MONUMENT NO: 17-F7 ELEV. = 469.399
HOWARD COUNTY MONUMENT NO: 17-FA ELEV. = 476.721

INLET PROTECTION NOTE

THE CONTRACTOR IS REQUIRED TO INSTALL INLET PROTECTION ON ALL STORM DRAIN INLETS WITH THE EXCEPTION OF THE FOLLOWING:

1) ANY INLET DIRECTLY OUTFALLING INTO A SEDIMENT TRAPPING DEVICE.
2) INLETS ON PRIVATE OR PUBLIC ROAD OPEN TO THE PUBLIC.

ALL INLET PROTECTION WILL BE INSTALLED AS DIRECTED BY THE INSPECTOR IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, PAGE E.23. THE REMOVAL OF ANY INLET PROTECTION DEVICES WILL REQUIRE APPROVAL FROM THE INSPECTOR.

EROSION AND SEDIMENT CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- RIP-RAP OUTLET PROTECTION
- SF — SILT FENCE
- EARTH DIKE (A-1 SEED W/MULCH AND TACK, A-2 STABILIZED MATTING OR SOD)
- SSF — SUPER SILT FENCE
- TPF — TREE PROTECTION FENCE
- LOD — LIMIT OF DISTURBANCE
- LOW — LIMIT OF WORK (PHASE V)
- BAFFLE BOARD
- RIP-RAP INFLOW PROTECTION
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
- SOIL DIVIDE
- MaB — SOIL LABEL
- AGIP — AT GRADE INLET PROTECTION
- SIP — STANDARD INLET PROTECTION
- CIP — CURB INLET PROTECTION
- MAGIP — MODIFIED AT GRADE INLET PROTECTION
- MCIP — MODIFIED CURB INLET PROTECTION
- TGOS — TEMPORARY GABION OUTLET STRUCTURE
- RPS — REMOVABLE PUMP STATION
- PSD — PIPE SLOPE DRAIN (CLEAR WATER DIVERSION)
- CD — STONE CHECK DAM

"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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 12/15/14
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 12/10/14

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

HOWARD SCD — DATE 12/23/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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50 25 12.5 0 50
1"= 50'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS			
REV	DATE	COMMENT	BY

DIG WITH C.A.R.E. — CALL BEFORE YOU DIG
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	EE2

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE No. 40808

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE V PLAN

SHEET NUMBER:
36

F-14-124

PIPE OUTLET SEDIMENT TRAP NO.4 DATA TABLE

PIPE OUTLET SEDIMENT TRAP (ST-1) @ I-13

EXISTING DRAINAGE AREA = 0.73 AC.
WORST CASE INTERIM DRAINAGE AREA = 6.11 AC.

WET STORAGE VOL. REQUIRED = 0.25 AC. FT.
WET STORAGE VOL. PROVIDED = 0.25 AC. FT.
WET STORAGE ELEV = 368.25
DRY STORAGE REQUIRED = 0.25 AC. FT.
DRY STORAGE PROVIDED =0.41 AC. FT.
DRY STORAGE WSEL = 370.00
EXISTING Q-1 YR. = 0.08 C.F.S.
INTERIM Q-1 YR. = 1.32 C.F.S.
SAFE PASS OF 10 YR. STORM PROVIDED
Q10 = 38.57 C.F.S. (23.9 CFS ROUTED)
10 YR. WSEL = 370.68
BOTTOM ELEV = 367.00
TOP OF EMBANKMENT ELEV = 372.20
RISER CREST ELEV = 370.00
TRASH RACK DIA. = 18"
TRASH RACK HEIGHT = 33"

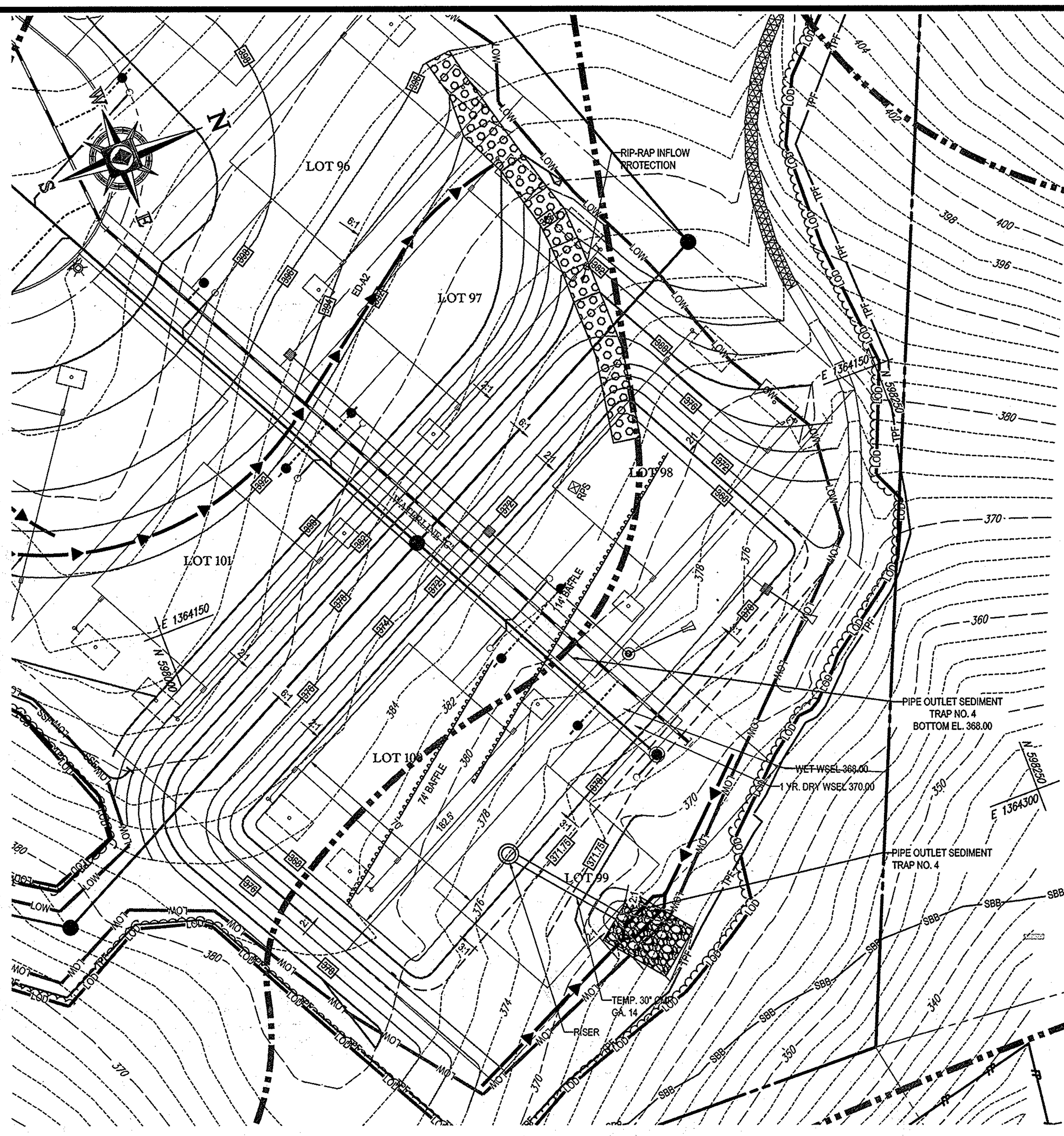
EMERGENCY SPILLWAY ELEV = NONE
CLEANOUT ELEV = 367.63
EMBANKMENT TOP WIDTH = 4'
SIDE SLOPES: 3:1 INTERIOR - 2:1 EXTERIOR

BAFFLE COMPUTATION 7

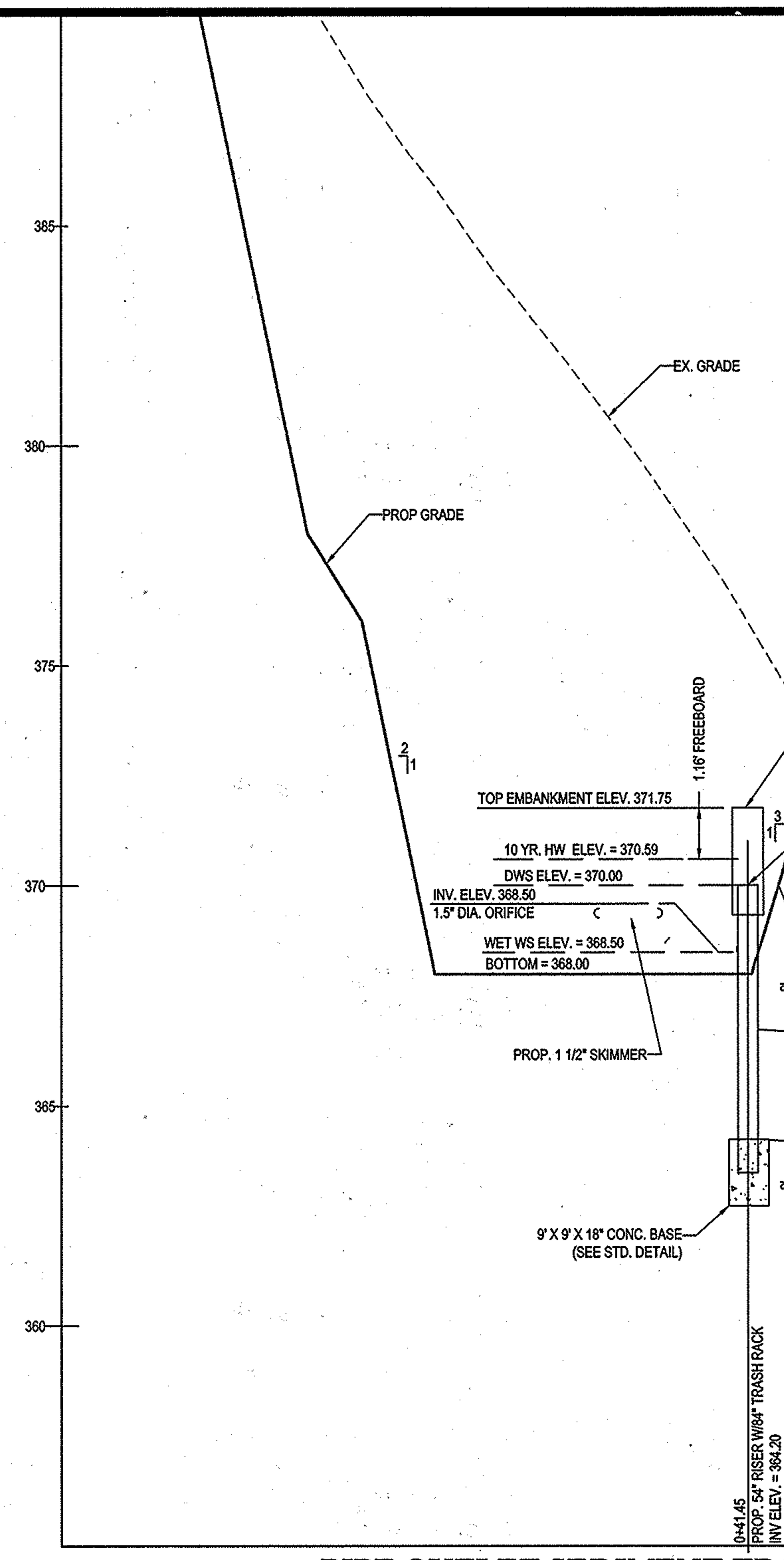
D = 137'
A WET POOL = 10,890 CF
We = √(A/2) = 74'
Le = 2We = 148' REQUIRED
Le = 151' PROVIDED

BAFFLE COMPUTATION 8

D = 66'
A WET POOL = 10,890 CF
WE = √(A/2) = 74'
LE = 2WE = 148' REQUIRED
Le = 151' PROVIDED

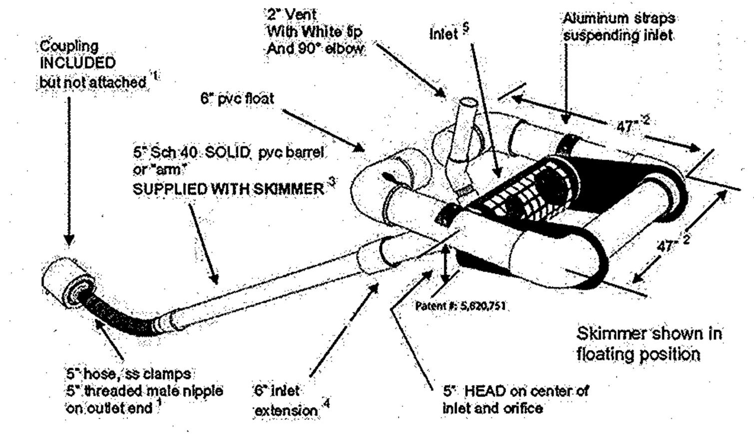


PIPE OUTLET SEDIMENT TRAP NO. 4
SCALE: 1"=30'



PIPE OUTLET SEDIMENT TRAP NO. 4
PROFILE THROUGH PIPE OUTLET STRUCTURE
SCALE: HORZ. 1"=30'
VERT. 1"=3'

6" *Faircloth Skimmer®* Cut Sheet
J. W. Faircloth & Son, Inc.
www.FairclothSkimmer.com



1. Hose can be attached to outlet using the threaded 5" nipple. Typical methods used: on a metal structure a steel stubout welded on the side at the bottom with a 5" threaded coupling or reducers; on a concrete structure with a hole or orifice at the bottom, use a steel plate with a hole and coupling welded to it that will fit over the hole in the concrete and bolted to the structure with sealant.
2. Dimensions are approximate, not intended as plans for construction.
3. Barrel (solid, not foam core pipe) should be 1.4 times the depth of water with a minimum length of 8' so the inlet can be pulled to the side for maintenance. If more than 12' long weight may have to be added to inlet to counter the increased buoyancy.
4. Inlet tapers down from 6" maximum inlet to a 5" barrel and hose. Barrel is smaller to reduce buoyancy and tendency to lift inlet but is sufficient for flow through inlet because of slope. The inlet orifice can be reduced using the plug and cutter provided to control the outflow rate.
5. Inlet is 10" pipe between the straps with slots cut in the inlet and aluminum screen door (smaller than shown in illustration) for access to the 6" inlet and orifice inside.
6. Capacity 51,840 cubic feet per day maximum with 6" inlet and 5" head. Inlet can be reduced by installing a smaller orifice using the plug and cutter provided to adjust flow rate for the particular basin volume and drawdown time required.
7. Shipped assembled. User glues inlet extension and barrel, installs vent, cuts orifice in plug and attaches to outlet pipe or structure. Includes flexible hose, rope, orifice cutter, etc.

6inchCut TM 11-07 November 14, 2007

PIPE OUTLET SEDIMENT TRAP ST-2 NO. 3 DATA TABLE

PIPE OUTLET SEDIMENT TRAP (ST-II)

EXISTING DRAINAGE AREA = 0.89AC.
WORST CASE INTERIM DRAINAGE AREA = 2.14 AC.

WET STORAGE VOL. REQUIRED = 0.09 AC. FT.
WET STORAGE VOL. PROVIDED = 0.15 AC. FT.
WET STORAGE ELEV = 397.00
DRY STORAGE REQUIRED = 0.09 AC. FT.
DRY STORAGE PROVIDED =0.22 AC. FT.
DRY STORAGE WSEL =398.50
EXISTING Q-1 YR. = 0.05 C.F.S.
INTERIM Q-1 YR. = 1.54 C.F.S.
SAFE PASS OF 10 YR. STORM PROVIDED
Q10 = 6.87 C.F.S.
10 YR. WSEL = 398.88
BOTTOM ELEV = 396.00
TOP OF EMBANKMENT ELEV = 400.00
RISER CREST ELEV. = 398.50
TRASH RACK DIA. = 54"
TRASH RACK HEIGHT = 25"

EMERGENCY SPILLWAY ELEV = NONE
CLEANOUT ELEV = 396.30
EMBANKMENT TOP WIDTH = 4'+
SIDE SLOPES: 3:1 INTERIOR - 2:1 EXTERIOR

BAFFLE COMPUTATION 9

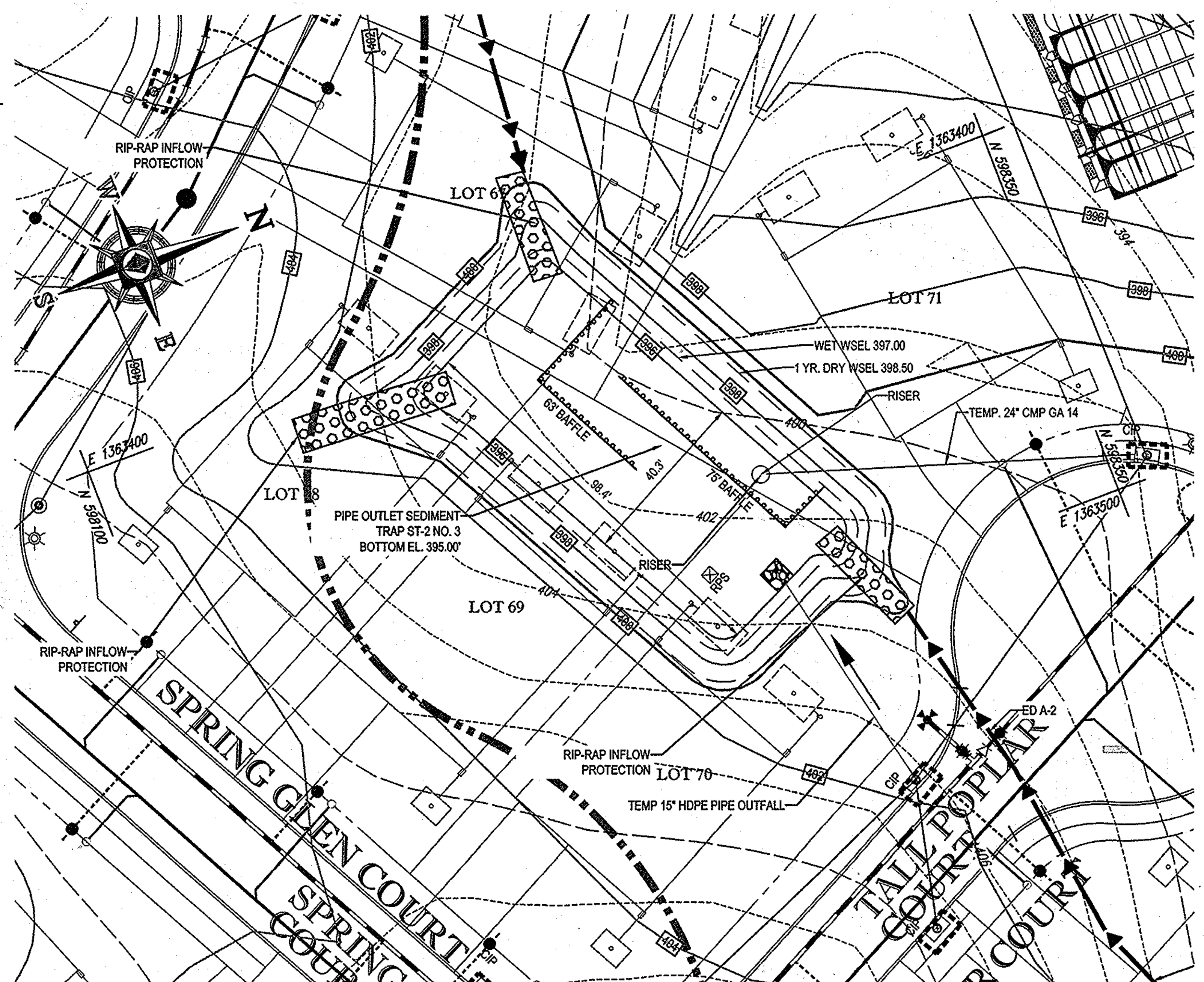
D = 31'
A WET POOL = 6534 CF
We = √(A/2) = 57'
Le = 2We = 114' REQUIRED
Le = 117' PROVIDED

BAFFLE COMPUTATION 10

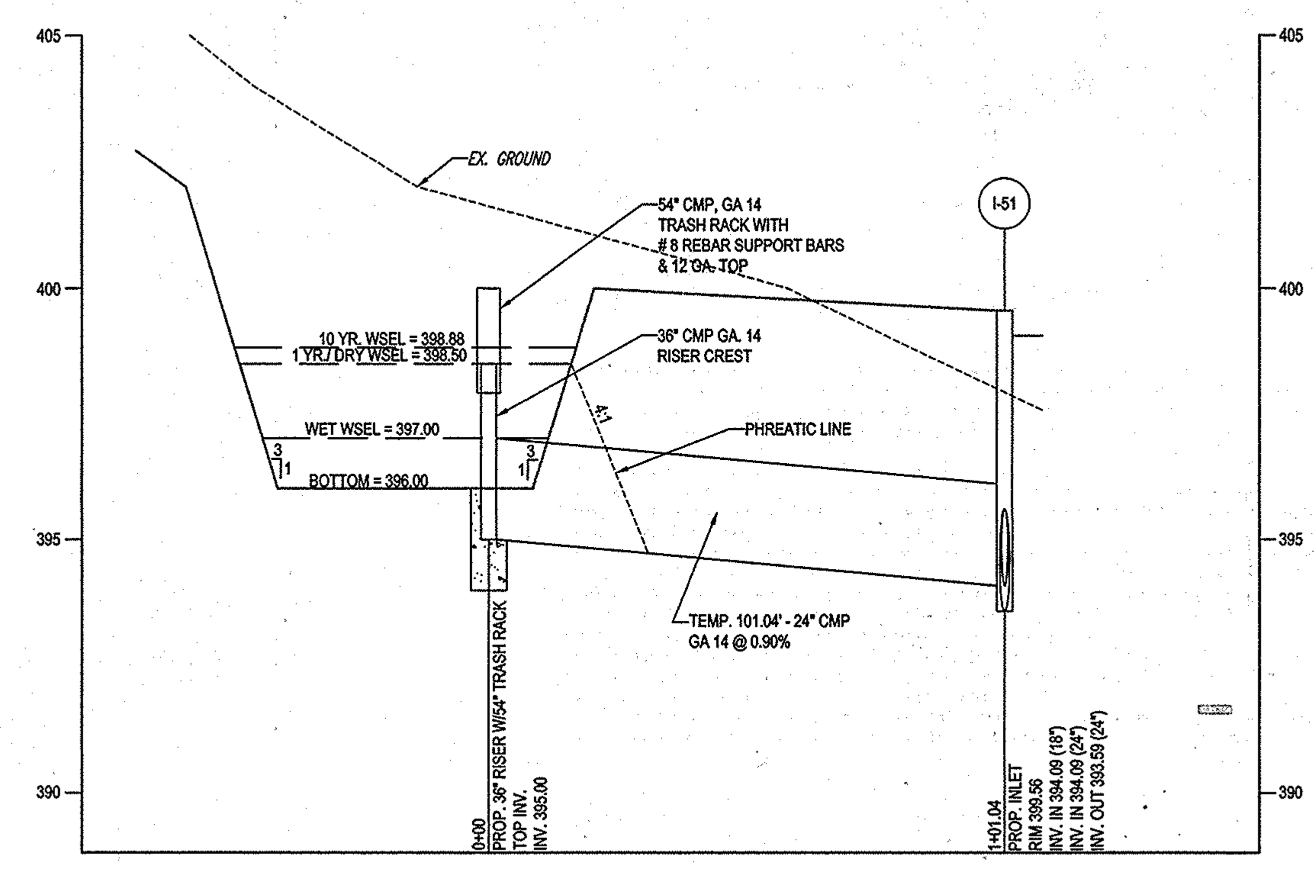
D = 91'
A WET POOL = 6534 CF
We = √(A/2) = 57'
Le = 2We = 114' REQUIRED
Le = 130' PROVIDED

BAFFLE COMPUTATION 11

D = 80'
A WET POOL = 6534 CF
We = √(A/2) = 57'
Le = 2We = 114' REQUIRED
Le = 138' PROVIDED



PIPE OUTLET SEDIMENT TRAP ST-2 NO. 3
SCALE: 1"=30'



PIPE OUTLET SEDIMENT TRAP ST-2 NO. 3
PROFILE THROUGH PIPE OUTLET STRUCTURE
SCALE: HORZ. 1"=30'
VERT. 1"=3'

30 15 7.5 0 30
1"= 30'

ENGINEER'S CERTIFICATE
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SIGNATURE OF ENGINEER 12/15/14 DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE
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SIGNATURE OF DEVELOPER 12/10/14 DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John R Robertson 12/23/14
HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS 1/8/2015 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT 7-9-15 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION 6-15-15 DATE

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OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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CORPORATE OFFICE:
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REV	DATE	COMMENT	BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	EE2

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

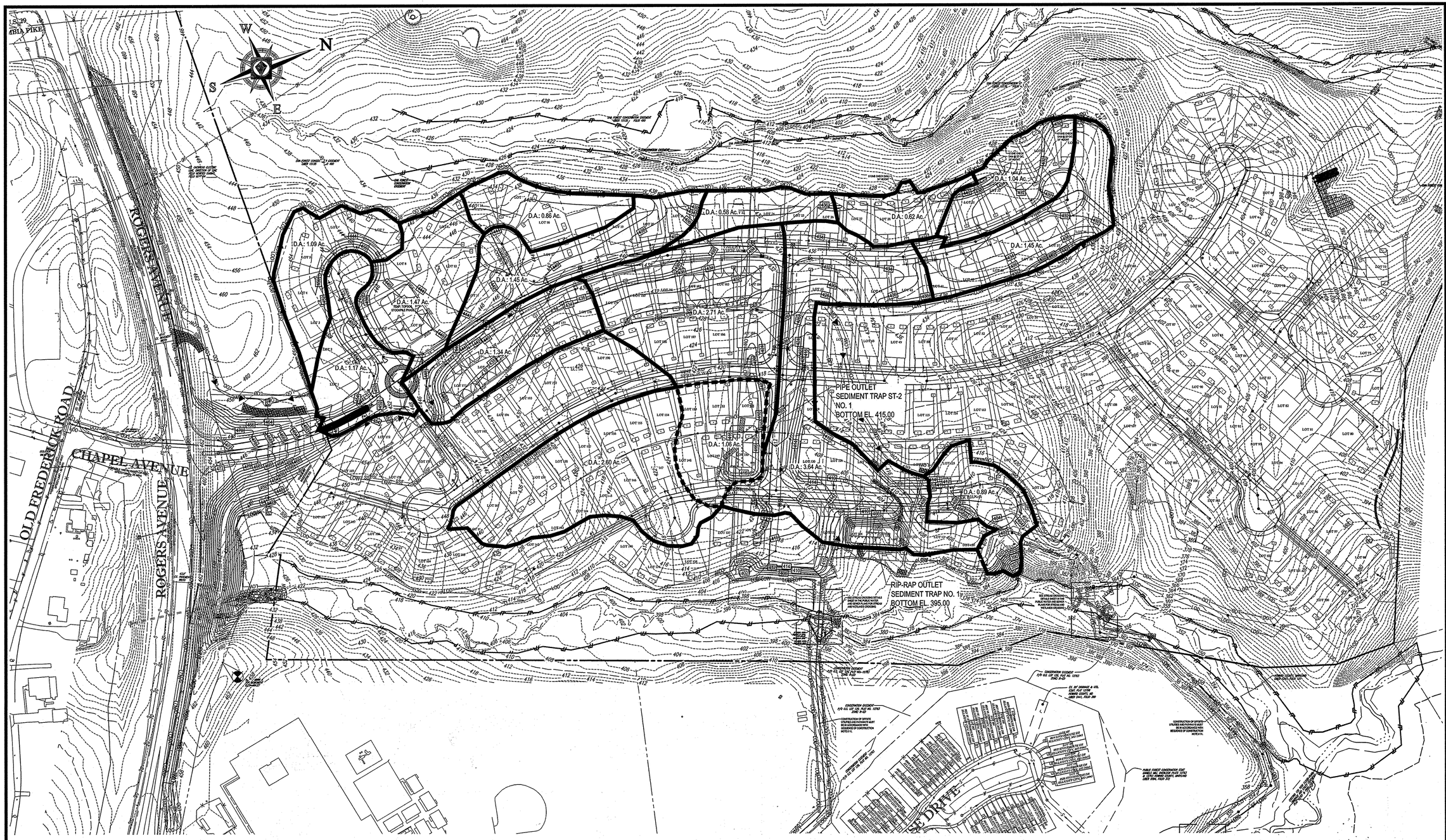
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER

SHEET TITLE:
EROSION & SEDIMENT CONTROL PHASE V PLAN
SHEET NUMBER:
37

F-14-124

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008EE3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:32 P



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

HOWARD SCD — DATE 12/23/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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SIGNATURE OF ENGINEER
BRANDON R. ROWE, P.E. — DATE 12/15/14

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SIGNATURE OF DEVELOPER — DATE 12/10/14

EROSION AND SEDIMENT CONTROL PHASE I

NOTE: THE PURPOSE OF THIS PLAN IS TO IDENTIFY THE DRAINAGE AREAS TO RIP-RAP OUTLET SEDIMENT TRAP NO. 1 AND PIPE OUTLET SEDIMENT TRAP ST-2 NO. 1

EROSION AND SEDIMENT CONTROL DRAINAGE AREA LEGEND

- EXISTING AND INTERIM DRAINAGE AREA TO RIP-RAP SEDIMENT TRAP NO. 1= 2.90 AC.
- EXISTING DRAINAGE AREA TO PIPE OUTLET SEDIMENT TRAP ST-2 NO. 1 = 1.06 AC.
- INTERIM DRAINAGE AREA TO PIPE OUTLET SEDIMENT TRAP ST-2 NO. 1 = 3.66AC.

100 50 25 0 100
1"= 100'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0945

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 15149/495 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/7/2015

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CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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OFFICES:
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♦ ORLANDO, FL

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REVISIONS

REV.	DATE	COMMENT	BY

MISS UTILITY
1-800-257-7777
THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTHS SURFACE ANYWHERE IN THE STATE: IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(NV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

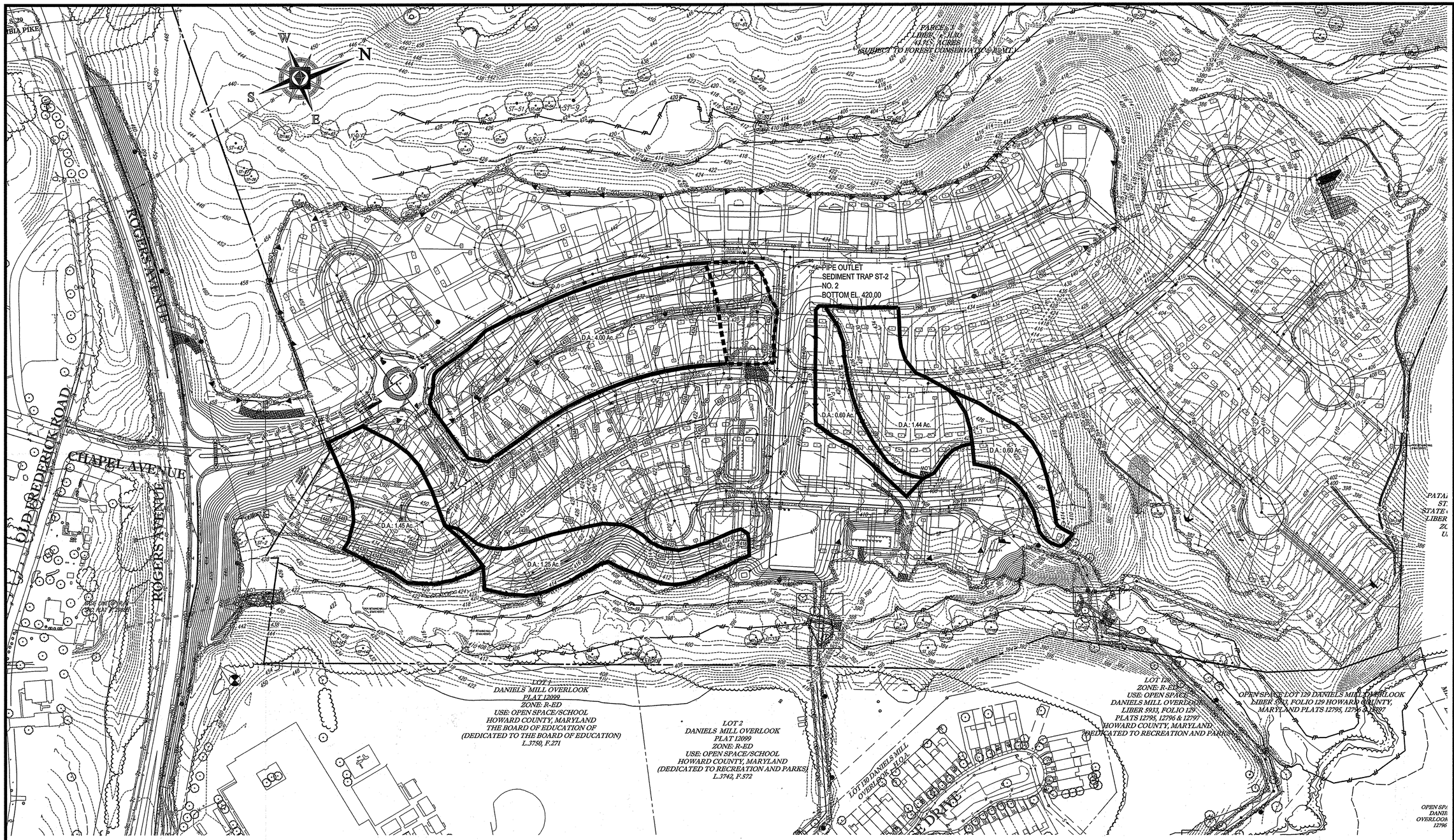
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — PROFESSIONAL ENGINEER — No. 40808 — STATE OF MARYLAND

SHEET TITLE:
EROSION & SEDIMENT CONTROL DRAINAGE AREA MAPS

SHEET NUMBER:
38

F-14-124



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

HOWARD SCD — DATE 12/23/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER
BRANDON R. ROWE, P.E. — DATE 12/5/14

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 12/10/14

EROSION AND SEDIMENT CONTROL PHASE II

NOTE: THE PURPOSE OF THIS PLAN IS TO IDENTIFY THE DRAINAGE AREA2 TO PIPE OUTLET SEDIMENT TRAP ST-2 NO. 2

EROSION AND SEDIMENT CONTROL DRAINAGE AREA LEGEND

- EXISTING DRAINAGE AREA TO PIPE OUTLET SEDIMENT TRAP ST-2 NO. 2 = 0.56 AC.
- INTERIM DRAINAGE AREA TO PIPE OUTLET SEDIMENT TRAP ST-2 NO. 2 = 4.00 AC.

100 50 25 0 100
1"= 100'

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART				
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR LIF: 15149/405 & 15149/407	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/0/2015

BOHLER ENGINEERING

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SURVEYORS
PROJECT MANAGERS
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CORPORATE OFFICE:
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OFFICES:
SOUTHBOROUGH, MA
ALBANY, NY
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REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811:
NW 1-800-245-4848 (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
No. 40808
STATE OF MARYLAND

SHEET TITLE:
EROSION & SEDIMENT CONTROL DRAINAGE AREA MAPS

SHEET NUMBER:
39

F-14-124

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

HOWARD SCD — DATE 12/23/14

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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ENGINEER'S CERTIFICATE

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SIGNATURE OF ENGINEER
BRANDON R. ROWE, P.E. — DATE 12/15/14

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 12/10/14

EROSION AND SEDIMENT CONTROL PHASE V

NOTE: THE PURPOSE OF THIS PLAN IS TO IDENTIFY THE DRAINAGE AREAS TO PIPE OUTLET SEDIMENT TRAPS ST-2 NO. 3 AND 4

EROSION AND SEDIMENT CONTROL DRAINAGE AREA LEGEND

- EXISTING DRAINAGE AREA TO PIPE OUTLET SEDIMENT ST-2 NO. 3 = 0.89 AC.
- INTERIM DRAINAGE AREA TO PIPE OUTLET SEDIMENT ST-2 NO. 3 = 2.14 AC.
- EXISTING DRAINAGE AREA TO RIP-RAP OUTLET SEDIMENT TRAP NO. 2 = 0.73 AC.
- INTERIM DRAINAGE AREA TO RIP-RAP OUTLET SEDIMENT TRAP NO. 2 = 6.11 AC.

100 50 25 0 100
1"= 100'

OWNER:
PM PATAPSCO LLC
12115 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD13200B
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
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BRANDON R. ROWE
STATE OF MARYLAND
PROFESSIONAL ENGINEER
No. 40808
12/15/14

SHEET TITLE:
EROSION & SEDIMENT CONTROL DRAINAGE AREA MAPS

SHEET NUMBER:
40

F-14-124

N:\2013\MD\13200B\DWG\PLAN SETS\PWA GRADING AND ROAD CONSTRUCTION PLANS\MD13200BPCSLDWG PRINTED BY: RROWER 12.11.14 @ 9:25

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION

USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE

TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES

ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION; SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING; SEEDING AND MULCHING; TEMPORARY STABILIZATION; AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY

STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.

SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT

INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUNDCOVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUNDCOVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUNDCOVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

B-4-1 STANDARDS AND SPECIFICATIONS FOR INCREMENTAL STABILIZATION

DEFINITION

ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE

TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES

ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA

A. INCREMENTAL STABILIZATION - CUT SLOPES

1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS THE WORK PROGRESSES.
2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
   a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
   b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
   c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
   d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

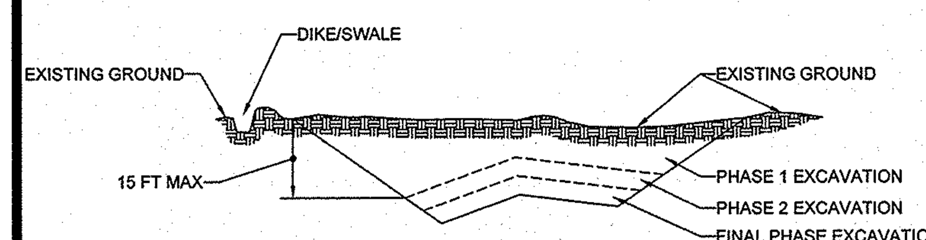

FIGURE B.1: INCREMENTAL STABILIZATION - CUT

B. INCREMENTAL STABILIZATION - FILL SLOPES

1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.
2. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
3. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
4. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
   a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
   b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
   c PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.
   d. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
   e. PLACE FINAL PHASE FILL, PREPARE SEEDBED, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

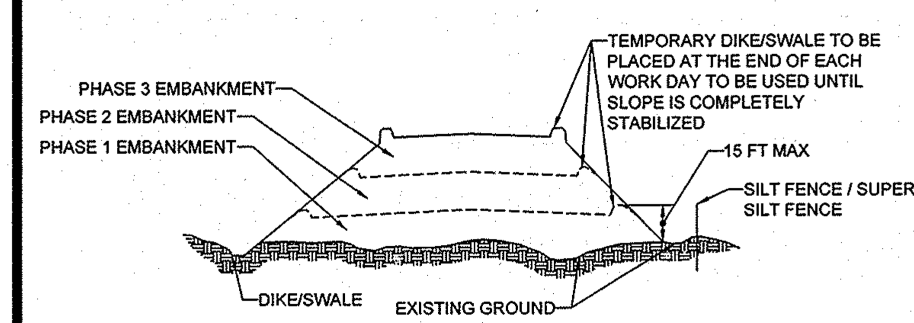

FIGURE B.2: INCREMENTAL STABILIZATION - FILL

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

12/23/14

HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

1/8/2015

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

7-9-15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

6.15.15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION
   a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
   c. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
2. PERMANENT STABILIZATION
   a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

i. SOIL PH BETWEEN 6.0 AND 7.0.
ii. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
iii. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
iv. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
v. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

B. TOPSOILING

3. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
4. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
5. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
c. 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.
6. TOPSOIL APPLICATION
a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE

TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA

A. SEEDING

1. SPECIFICATIONS
a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
d. SOD OR SEED MUST NOT 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.
2. APPLICATION
a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
i. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
b. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
i. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
ii. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
i. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P2O5 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
ii. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
iii. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
iv. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
   a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

   i. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
   ii. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
   iii. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
   iv. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
   v. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
2. APPLICATION
   a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
   b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
   c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
3. ANCHORING
   a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
   i. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
   ii. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
   iii. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
   iv. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (from Figure B.3): ZONE 6B SEED MIXTURE (from Table B.1)					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS		
COOL SEASON GRASSES						
1	ANNUAL RYEGRASS	40	3/1 - 5/15 8/1 - 10/15	0.5"	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
2	BARLEY	96	3/1 - 5/15 8/1 - 10/15	1"		
3	OATS	72	3/1 - 5/15 8/1 - 10/15	1"		
4	WHEAT	120	3/1 - 5/15 8/1 - 10/15	1"		
5	CEREAL RYE	112	3/1 - 5/15 8/1 - 10/15	1"		
WARM SEASON GRASSES						
6	FOXTAIL MILLET	30	5/16 - 7/31	0.5"	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
7	PEARL MILLET	20	5/16 - 7/31	0.5"		

B-4-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

A. SEED MIXTURES

1. GENERAL USE
   a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
   b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
   c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
   d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 ½ POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY .
2. TURFGRASS MIXTURES
   a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
   b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

   i. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
   ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
   iii. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
   iv. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1½ TO 3 POUNDS PER 1000 SQUARE FEET.

   NOTES:

   SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND"

   CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE
   c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

   WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)

   CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)

   SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)
   d. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1½ INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
   e. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (½ TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE (from Figure B.3): ZONE 6B SEED MIXTURE (from Table B.3)					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P2O5	K2O	
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYE GRASS	60 40 20	2/15 - 4/30 8/15 - 11/30	1/4" - 1/2"	45 LB/AC (1.0 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	90 LB/AC (2 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
5	HARD FESCUE PERENNIAL RYE GRASS FLAT PEA	20 10 15	2/15 - 4/30 8/15 - 11/30	1/4" - 1/2"				
1	SWITCH GRASS CREEPING RED FESCUE PARTRIDGE PEA	10 15 4	2/15 - 5/31	1/4" - 1/2"				

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS
   a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
   b. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF ¾ INCH, PLUS OR MINUS ¼ INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
   c. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
   d. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
   e. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.
2. SOD INSTALLATION
   a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
   b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
   c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
   d. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.
3. SOD MAINTENANCE
   a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
   b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
   c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN ⅓ OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

B-4-6 STANDARDS AND SPECIFICATIONS FOR SOIL STABILIZATION MATTING

DEFINITION

MATERIAL USED TO TEMPORARILY OR PERMANENTLY STABILIZE CHANNELS OR STEEP SLOPES UNTIL GROUNDCOVER IS ESTABLISHED.

PURPOSE

TO PROTECT THE SOILS UNTIL VEGETATION IS ESTABLISHED.

CONDITIONS WHERE PRACTICE APPLIES

ON NEWLY SEEDED SURFACES TO PREVENT THE APPLIED SEED FROM WASHING OUT; IN CHANNELS AND ON STEEP SLOPES WHERE THE FLOW HAS EROSIVE VELOCITIES OR CONVEYS CLEAR WATER; ON TEMPORARY SWALES, EARTH DIKES, AND PERIMETER DIKE SWALES AS REQUIRED BY THE RESPECTIVE DESIGN STANDARD; AND, ON STREAM BANKS WHERE MOVING WATER IS LIKELY TO WASH OUT NEW VEGETATIVE PLANTINGS.

MAINTENANCE

VEGETATION MUST BE ESTABLISHED AND MAINTAINED SO THAT THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

12/15/14

SIGNATURE OF ENGINEER — DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

12/15/14

NAME: — DATE
TITLE:

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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◆ TAMPA, FL ◆ PHILADELPHIA, PA

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REVISIONS			
REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — STATE OF MARYLAND — PROFESSIONAL ENGINEER — No. 40808 — 12/15/14

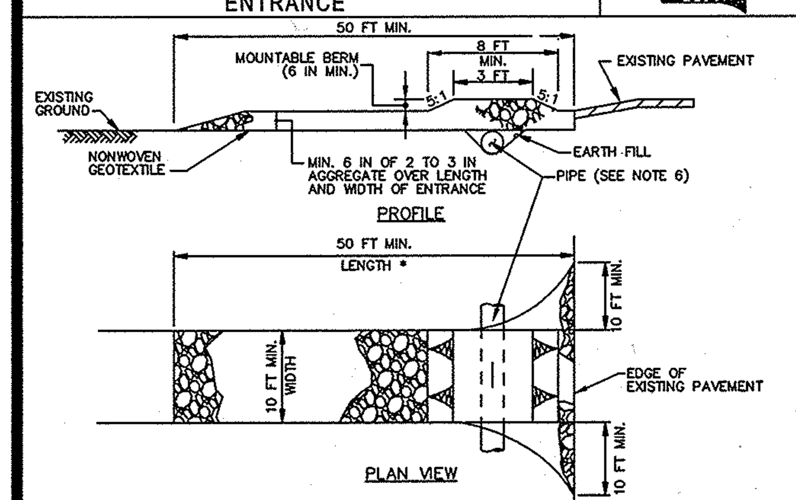
SHEET TITLE:
EROSION & SEDIMENT CONTROL NOTES & DETAILS

SHEET NUMBER:
41

F-14-124

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

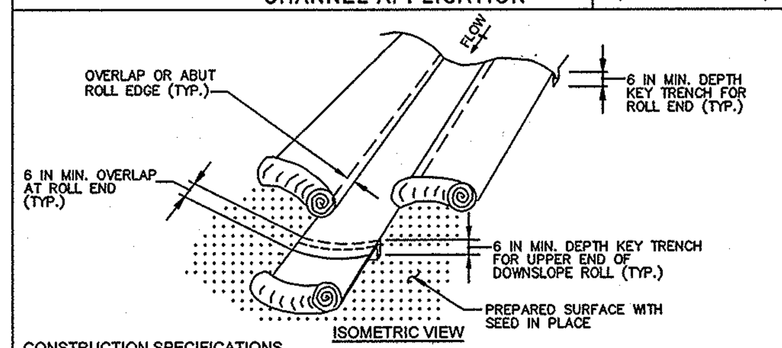
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: TSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

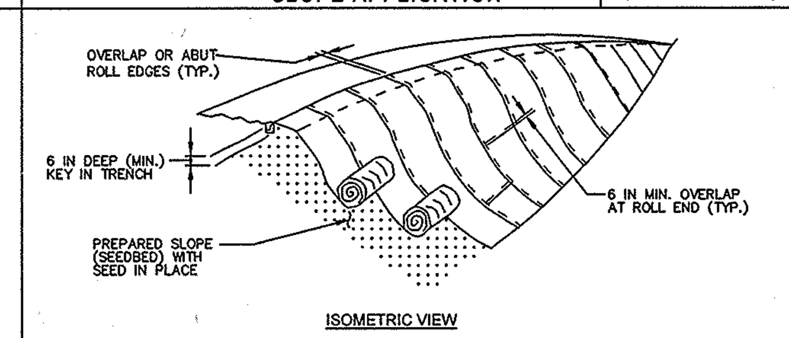
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: TSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

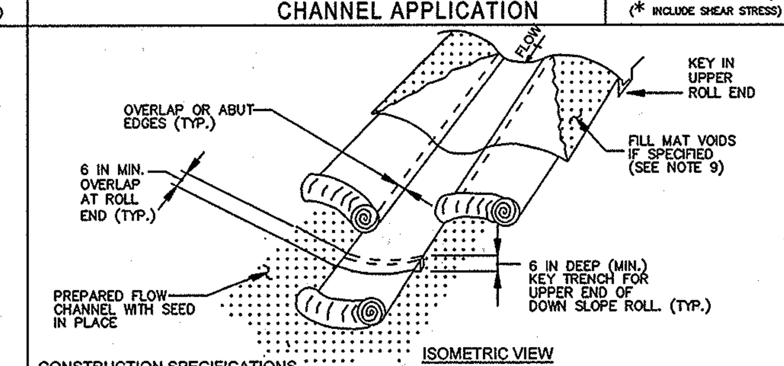
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

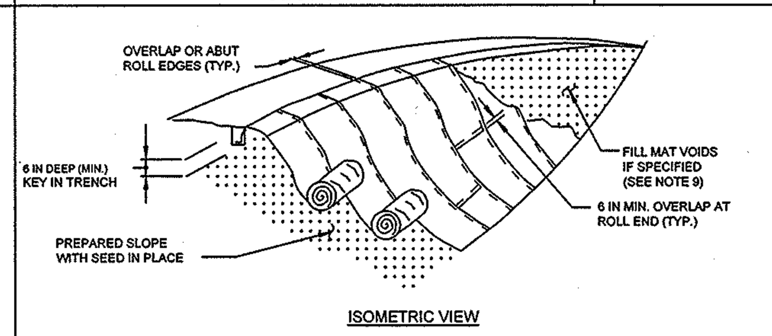
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: PSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

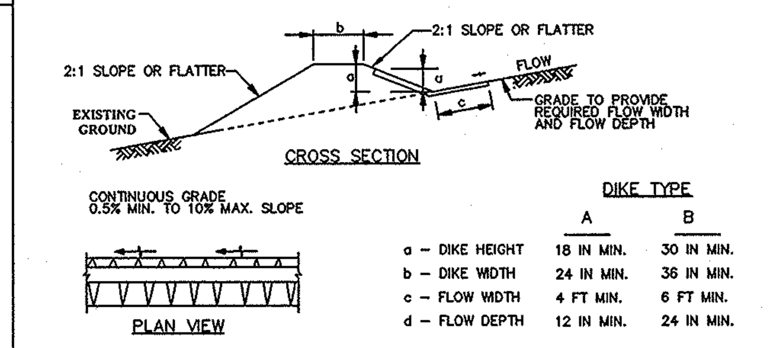
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-1 EARTH DIKE

STANDARD SYMBOL: A-1 (PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.)



DIKE TYPE	A	B
a – DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b – DIKE WIDTH	24 IN MIN.	36 IN MIN.
c – FLOW WIDTH	4 FT MIN.	6 FT MIN.
d – FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)

A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.

A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

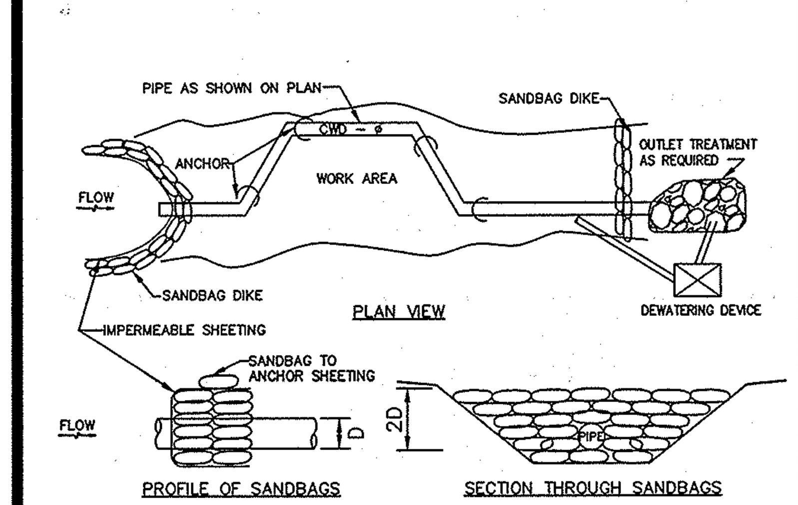
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD – 12 (DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION.)



CONSTRUCTION SPECIFICATIONS

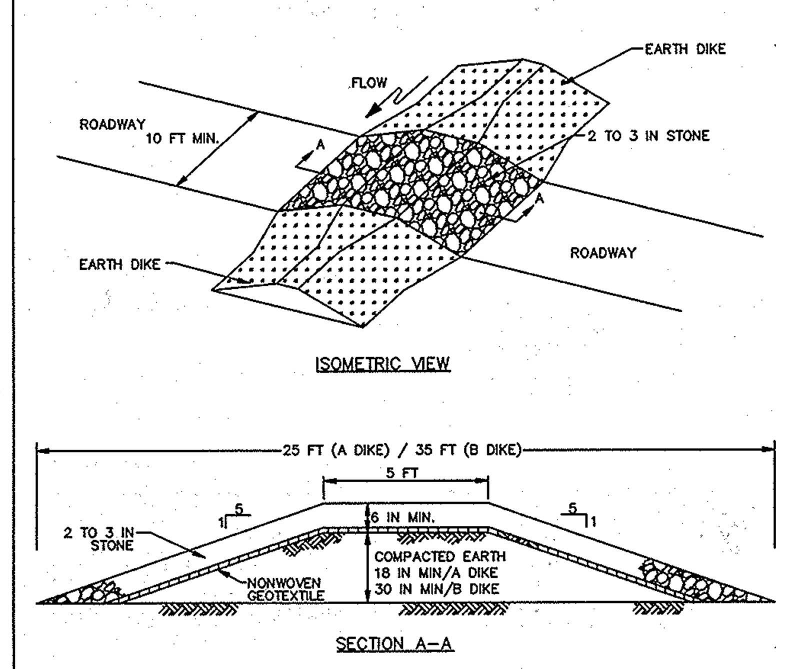
1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL: MB



CONSTRUCTION SPECIFICATIONS

1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

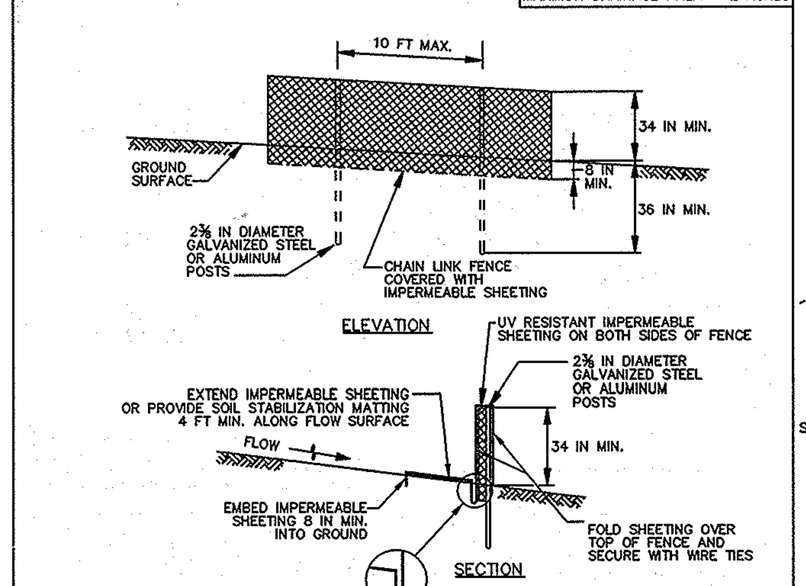
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: DF

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

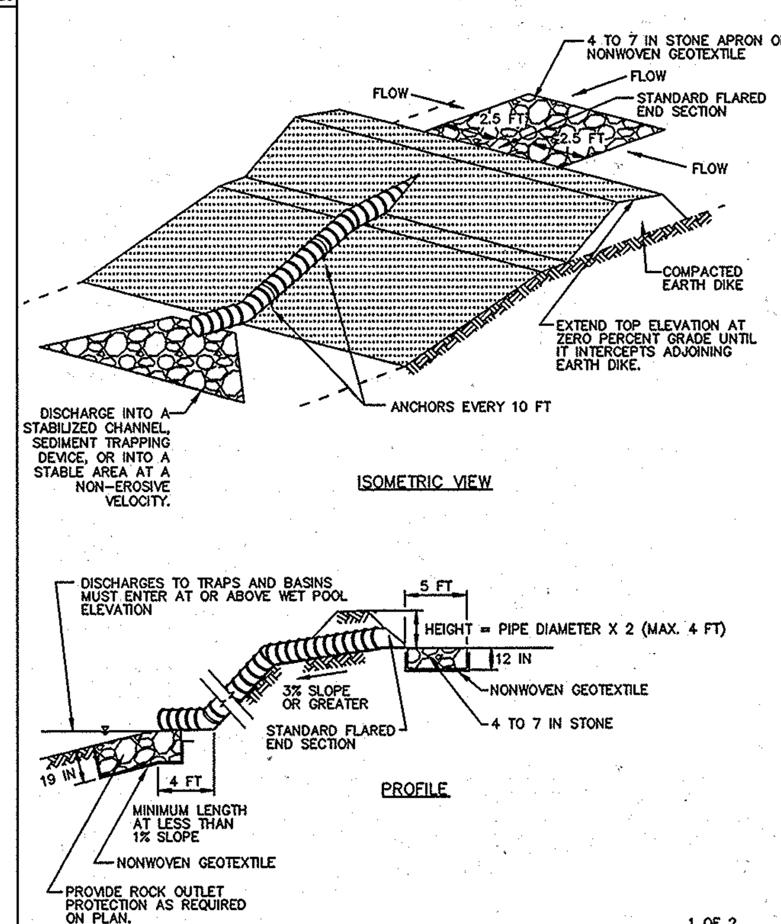
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-1 PIPE SLOPE DRAIN

STANDARD SYMBOL: PSD – 12 (DESIGNATION PSD-12 REFERS TO 12 IN PIPE SLOPE DRAIN.)



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-1 PIPE SLOPE DRAIN

STANDARD SYMBOL: PSD – 12 (DESIGNATION PSD-12 REFERS TO 12 IN PIPE SLOPE DRAIN.)

CONSTRUCTION SPECIFICATIONS

1. THE HEIGHT OF THE EARTH DIKE MUST BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED FROM THE INVERT OF THE PIPE. EXTEND THE TOP ELEVATION OF DIKE AT ZERO PERCENT GRADE UNTIL IT INTERCEPTS THE TOP OF THE ADJOINING EARTH DIKE.
2. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. ALL CONNECTIONS MUST BE WATERTIGHT.
3. ATTACH A FLARED END SECTION TO THE INLET END OF PIPE WITH A WATERTIGHT CONNECTION. AT THE INLET OF THE PIPE SLOPE DRAIN, INSTALL 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PLACED 12 INCHES IN DEPTH ON NONWOVEN GEOTEXTILE AND EXTEND OUT 5 FEET FROM THE INLET IN ALL DIRECTIONS.
4. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
5. SECURELY ANCHOR THE PIPE SLOPE DRAIN (PSD) TO THE SLOPE. SPACE THE ANCHORS EVERY 10 FEET.
6. HAND TAMP THE SOIL AROUND AND UNDER THE PIPE AND END SECTION IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE.
7. UPON COMPLETING INSTALLATION OF THE PSD, STABILIZE ASSOCIATED DISTURBANCES WITH SEED, MULCH, AND TACK.
8. INSTALL OUTLET PROTECTION AS SPECIFIED ON APPROVED PLAN.
9. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REMOVE ACCUMULATED SEDIMENT AND DEBRIS.

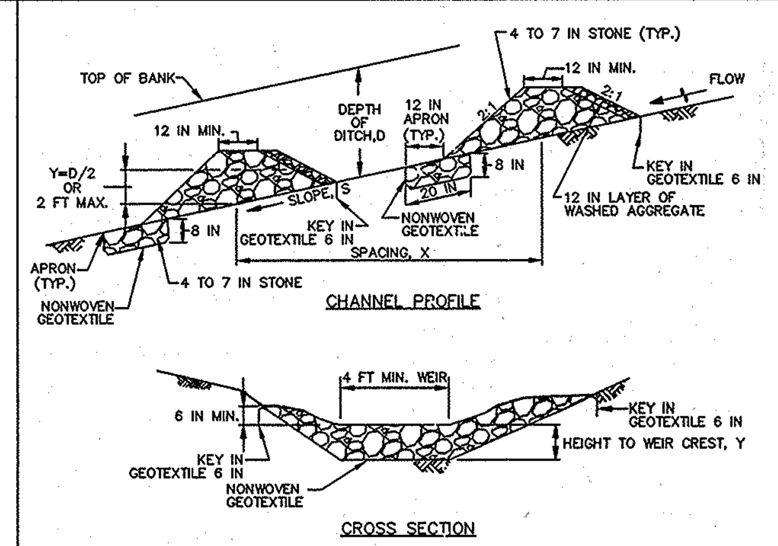
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-2 STONE CHECK DAM

STANDARD SYMBOL: CD



CONSTRUCTION SPECIFICATIONS

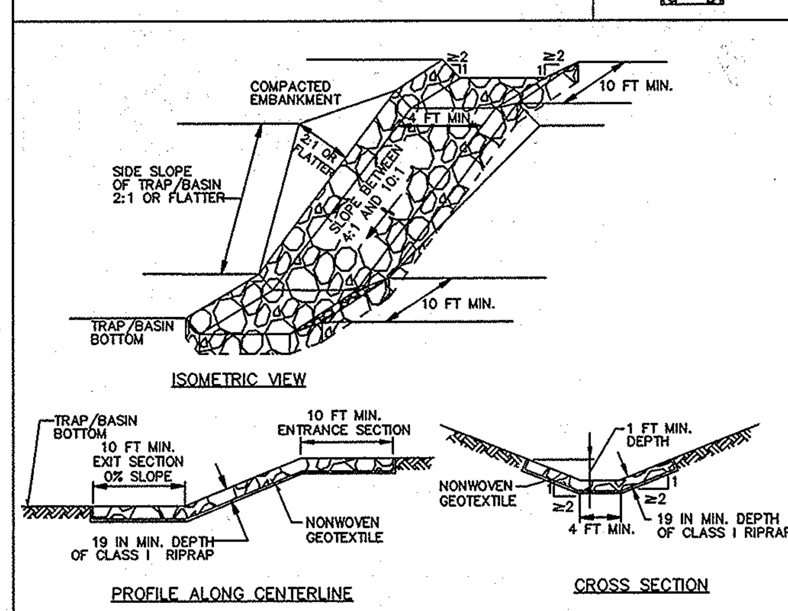
1. PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2, STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM TOP WIDTH OF 12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS. FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 FOOT THICK LAYER OF WASHED AGGREGATE (¾ TO 1½ INCH).
3. SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE-HALF THE DEPTH OF THE CHANNEL OR DITCH. TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-3-1 RIPRAP INFLOW PROTECTION

STANDARD SYMBOL: RRP



CONSTRUCTION SPECIFICATIONS

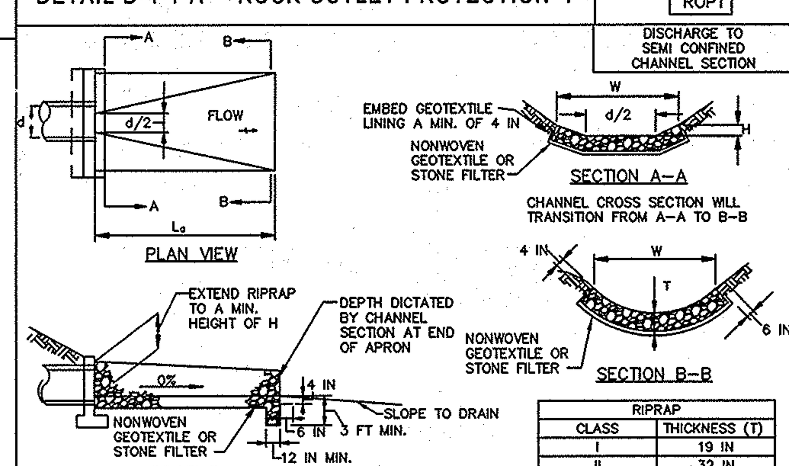
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP.
2. CONSTRUCT INFLOW CHANNEL WITH CLASS I RIPRAP OR EQUIVALENT RECYCLED CONCRETE LINING TO A MINIMUM DEPTH OF 19 INCHES ($2 \times D_{50}$) AND A 1 FOOT DEEP FLOW CHANNEL. INFLOW RIPRAP PROTECTION CHANNEL MUST HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND A 4 FOOT MINIMUM BOTTOM WIDTH.
3. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
4. BLEND RIPRAP INTO EXISTING GROUND.
5. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-A ROCK OUTLET PROTECTION I

STANDARD SYMBOL: ROP1 — DISCHARGE TO SEMI CONFINED CHANNEL SECTION



RIPRAP CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

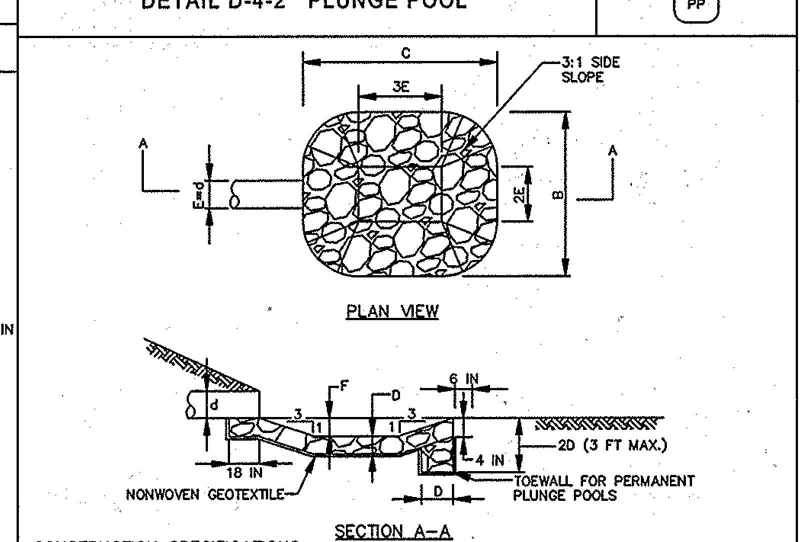
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-2 PLUNGE POOL

STANDARD SYMBOL: PP



CONSTRUCTION SPECIFICATIONS

1. USE SPECIFIED CLASS OF RIPRAP.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.
3. PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
5. STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

HOWARD SCD — 12/23/14 — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 1/8/2015 — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 2-9-15 — DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6.15.15 — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 12/15/14 — DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

NAME: — 12/15/14 — DATE
TITLE:

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ♦ WARREN, NJ
OFFICES: ♦ SOUTHBOROUGH, MA ♦ ALBANY, NY ♦ RONKONKOMA, NY ♦ CHALFONT, PA ♦ CENTER VALLEY, PA ♦ TAMPA, FL ♦ BOWIE, MD ♦ TOWSON, MD ♦ STERLING, VA ♦ WARRENTON, VA ♦ FORT LAUDERDALE, FL ♦ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE — PROFESSIONAL ENGINEER — No. 40808 — 12/15/14

SHEET TITLE:
EROSION & SEDIMENT CONTROL NOTES & DETAILS

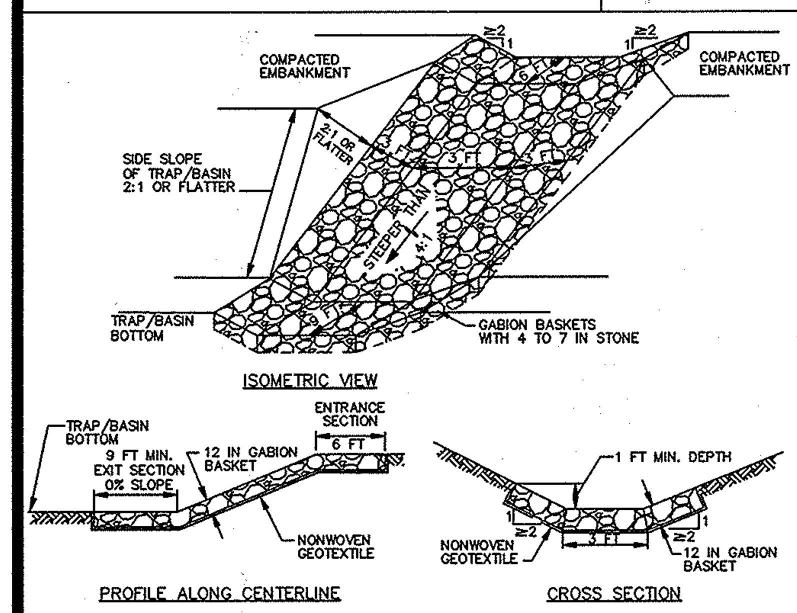
SHEET NUMBER:
42

F-14-124

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008CD3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:17 P

DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL GP



CONSTRUCTION SPECIFICATIONS

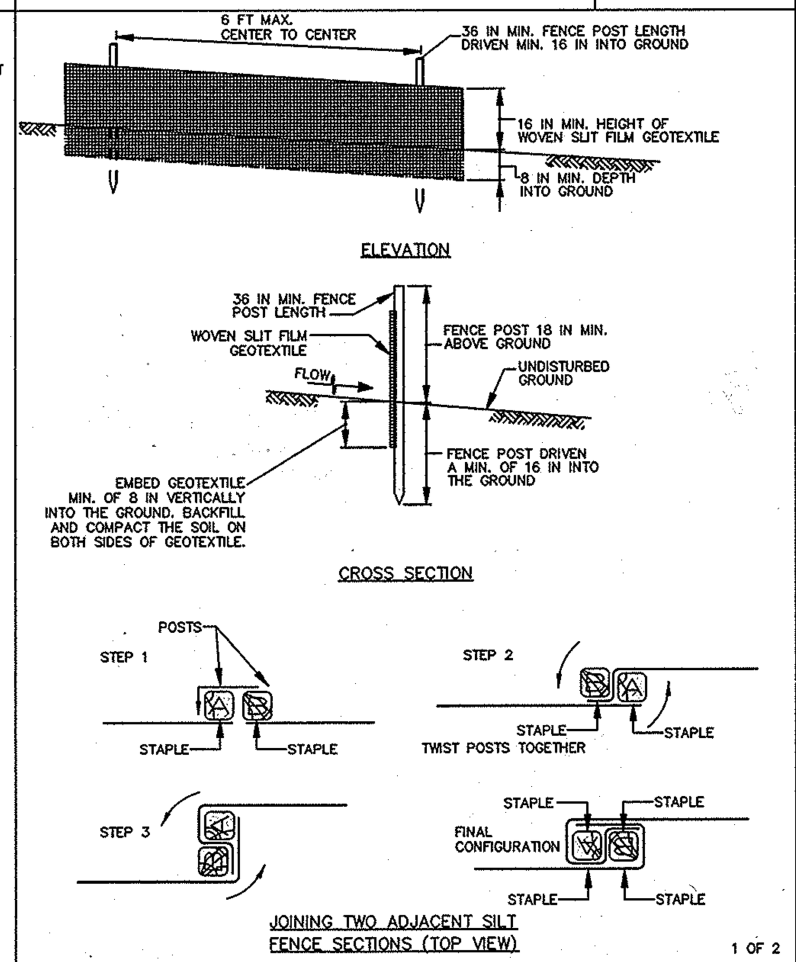
1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL —SF—



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL —SF—

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ¹⁄₁₆ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

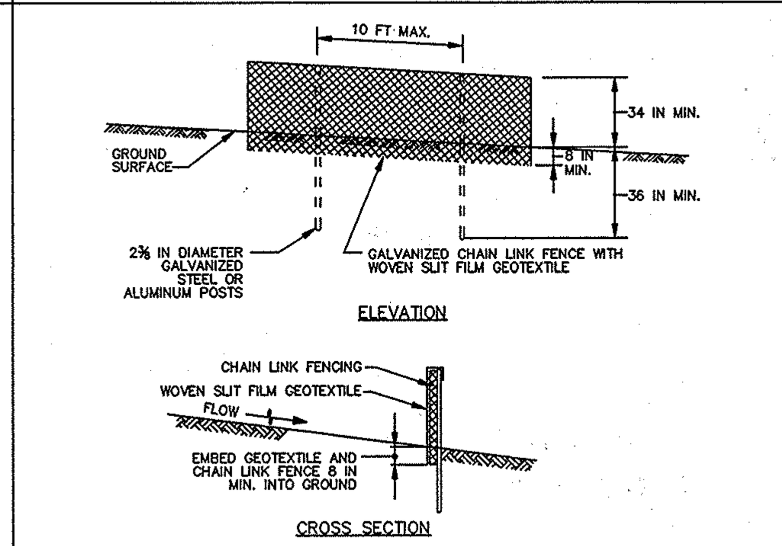
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL —SSF—



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

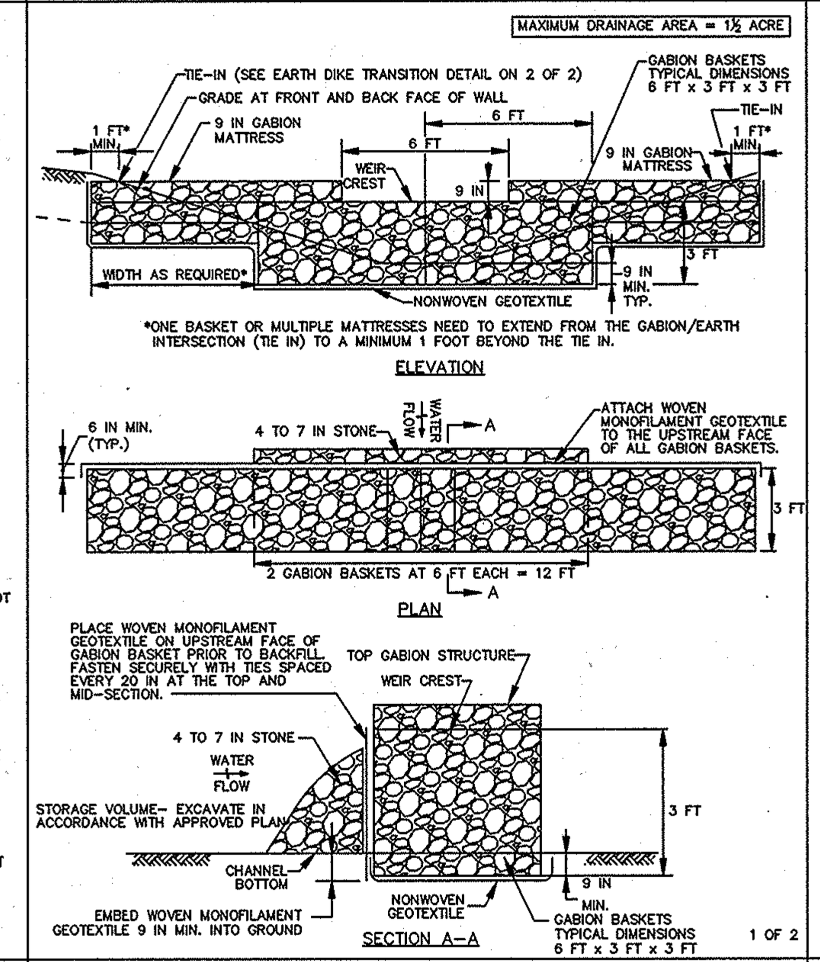
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL TGOS

MAXIMUM DRAINAGE AREA = 1½ ACRE



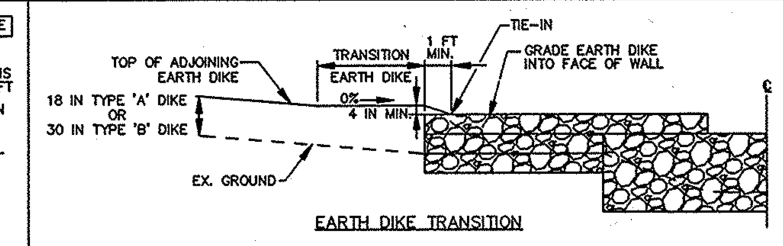
1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE

STANDARD SYMBOL TGOS



NOTES:

1. PROVIDE TRANSITION LENGTH AND HEIGHT AS SPECIFIED ON PLAN. HEIGHT OF TRANSITION EARTH DIKE MUST EXCEED 4 INCH MINIMUM FREEBOARD ABOVE TOP OF GABION AND EXTEND AT THIS ELEVATION UNTIL IT INTERCEPTS THE TOP OF ADJOINING EARTH DIKE.
2. PROVIDE POSITIVE DRAINAGE ALONG EARTH DIKE TO GABION OUTLET STRUCTURE.
3. COMPACT FILL.
4. SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED ON PLAN. BANK PROJECTIONS OR IRREGULARITIES ARE NOT ALLOWED.

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
3. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
4. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
5. EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9 INCHES. PROVIDE NONWOVEN GEOTEXTILE UNDER ALL GABIONS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH.
7. MAKE THE WEIR CREST OF THE GABION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT GABIONS.
8. PROVIDE A MINIMUM WEIR CREST OF 6 FEET.
9. ATTACH WOVEN MONOFILAMENT GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7 INCH STONE.
10. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12 INCHES OF THE WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
11. UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

2 OF 2

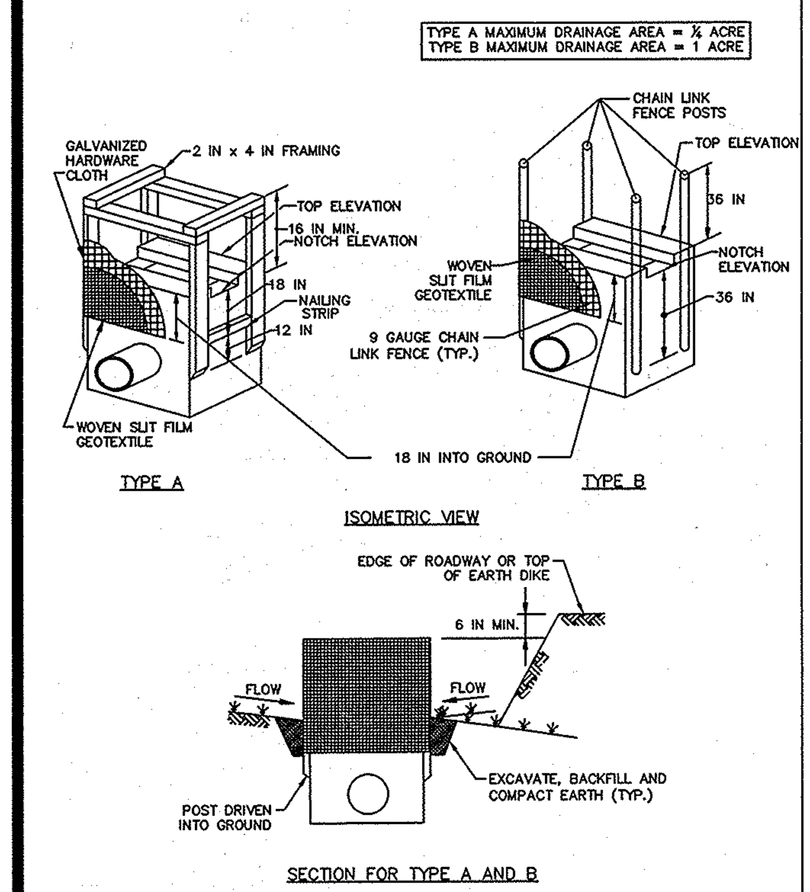
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL SIP

TYPE A MAXIMUM DRAINAGE AREA = ¼ ACRE
TYPE B MAXIMUM DRAINAGE AREA = 1 ACRE



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

2 OF 2

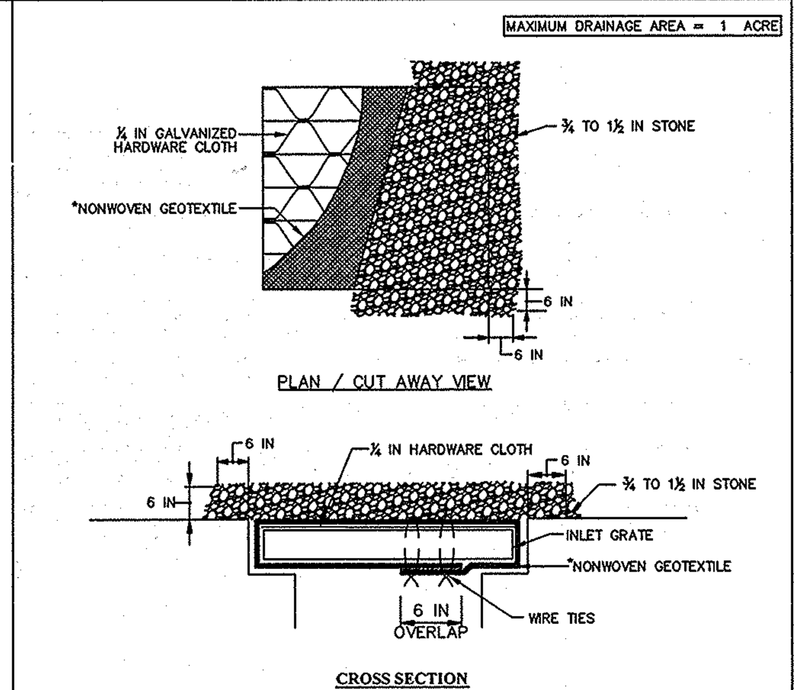
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

*SEE MODIFIED INLET PROTECTION NOTE BELOW

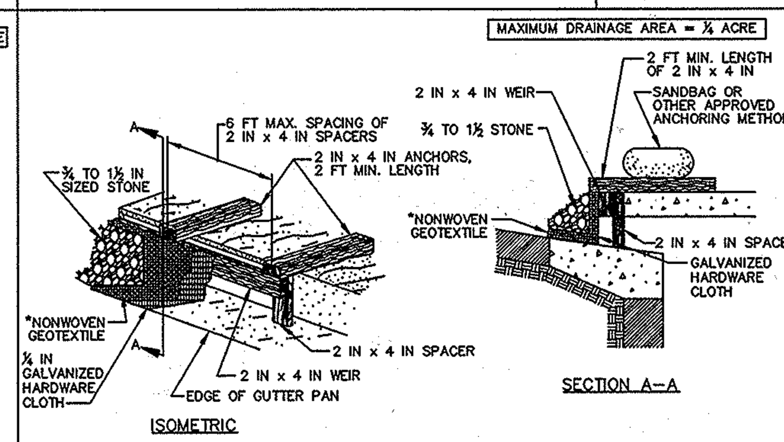
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

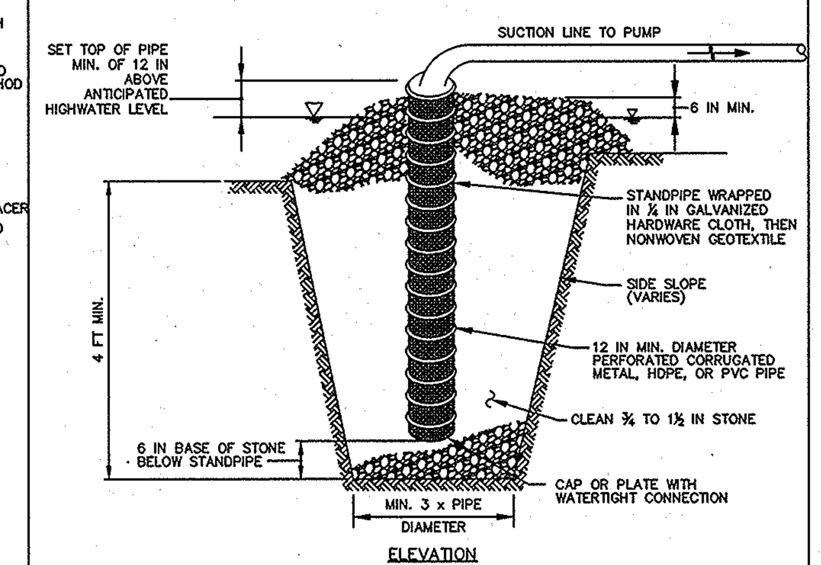
*SEE MODIFIED INLET PROTECTION NOTE BELOW

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-2 SUMP PIT

STANDARD SYMBOL SP



CONSTRUCTION SPECIFICATIONS

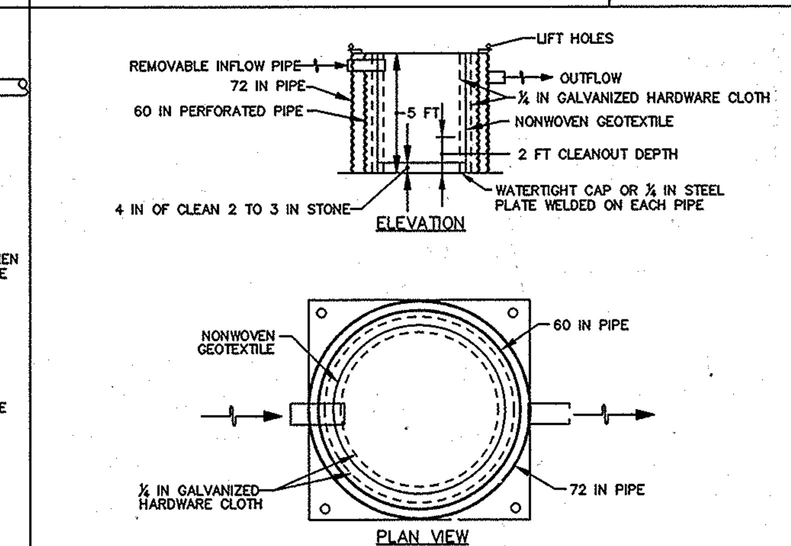
1. USE 12 INCH OR LARGER DIAMETER CORRUGATED METAL, HDPE, OR PVC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER. BOTTOM OF PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
2. WRAP PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH AND WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
3. EXCAVATE PIT TO THREE TIMES THE PIPE DIAMETER AND FOUR FEET IN DEPTH. PLACE ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
4. SET TOP OF PIPE MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
5. BACKFILL PIT AROUND THE PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
6. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
7. A SUMP PIT REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, REMOVE PERFORATED PIPE AND REPLACE GEOTEXTILE AND STONE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-3 PORTABLE SEDIMENT TANK

STANDARD SYMBOL PST



CONSTRUCTION SPECIFICATIONS

1. PROVIDE 1 CUBIC FOOT OF STORAGE FOR EACH GALLON PER MINUTE OF PUMP CAPACITY. REQUIRED STORAGE VOLUME MAY BE ATTAINED BY PLACEMENT OF TANKS IN PARALLEL WITH INFLOW EVENLY DISTRIBUTED AMONG TANKS. OVERTOPPING OF TANKS IS NOT PERMITTED.
2. USE 60 INCH CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS, 6 INCHES ON CENTER FOR THE INNER PIPE. LINE PIPE WITH NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, SANDWICHED BETWEEN, AND ATTACHED TO, ¼ INCH HARDWARE CLOTH.
3. OVERLAP GEOTEXTILE 8 INCHES MINIMUM AT VERTICAL SEAM AND AT THE BOTTOM PLATE.
4. ANCHOR GEOTEXTILE AT BOTTOM OF TANK WITH 4 INCHES OF 2 TO 3 INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE.
5. USE 72 INCH CORRUGATED METAL OR PLASTIC OUTER PIPE WITH PERMANENT OUTFLOW PIPE WITH INVERT LOWER THAN INFLOW PIPE
6. INFLOW PIPE MUST DISCHARGE INTO INNER PIPE AND BE REMOVABLE.
7. PLACE TANK ON LEVEL SURFACE AND DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A PORTABLE SEDIMENT TANK REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT FROM INNER PIPE WHEN IT REACHES TWO FEET IN DEPTH. IF SYSTEM CLOGS, PULL OUT INNER PIPE, REMOVE ACCUMULATED SEDIMENT, AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

MODIFIED INLET PROTECTION
(M.A.G.I.P. & M.C.I.P.)

*FOR INLETS DRAINING TO PROPOSED BIORETENTION AND/OR MICRO-BIORETENTION FACILITIES, REPLACE "NONWOVEN GEOTEXTILE" FABRIC WITH 30 ML IMPERMEABLE LINER TO PREVENT RUNOFF FROM ENTERING BIORETENTION AND/OR MICRO-BIORETENTION FACILITIES UNTIL SUCH TIME THAT BOTH THEIR DRAINAGE AREAS HAVE RECEIVED PERMANENT STABILIZATION AND THE FACILITIES THEMSELVES HAVE BEEN INSTALLED AND STABILIZED. SEE EROSION AND SEDIMENT CONTROL PLAN FOR TEMPORARY DIVERSION OF RUNOFF TO OTHER SEDIMENT CONTROL MEASURES.

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

[signature] 12/23/14
HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 1/8/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 2-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 6.15.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 12/15/14
SIGNATURE OF ENGINEER — DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 12/10/14
NAME: — DATE
TITLE:

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008CD3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:17 P

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS			
REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B R ROWE
STATE OF MARYLAND — BRANDON R. ROWE — No. 40808 — PROFESSIONAL ENGINEER

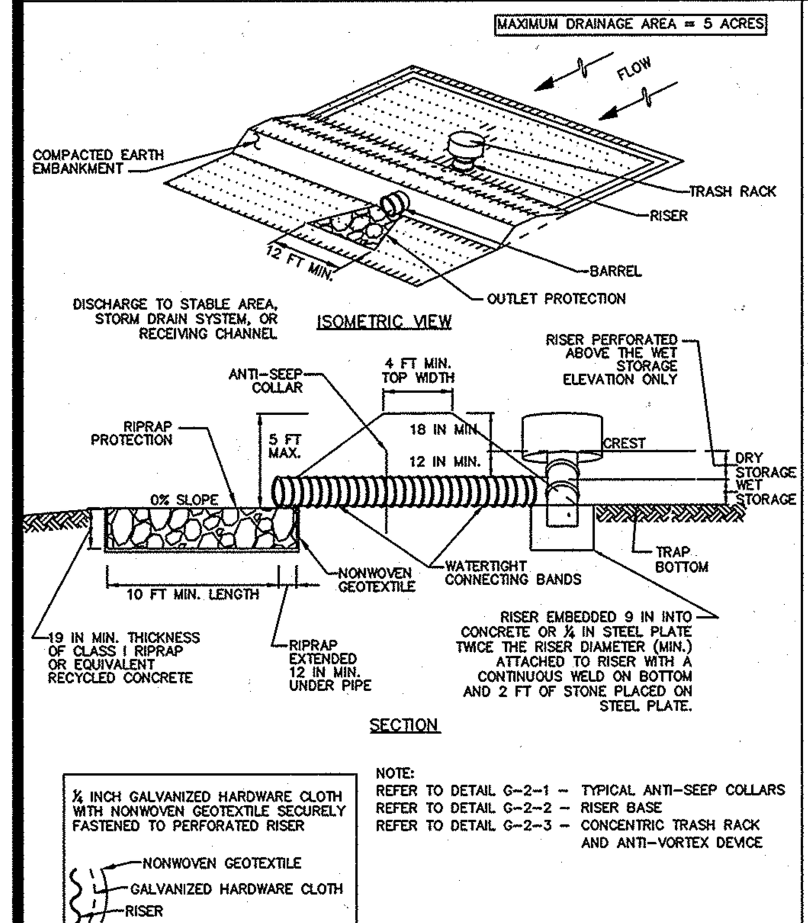
SHEET TITLE:
EROSION & SEDIMENT CONTROL NOTES & DETAILS

SHEET NUMBER:
43

F-14-124

DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL: ST-I



NOTE:
REFER TO DETAIL G-2-1 – TYPICAL ANTI-SEEP COLLARS
REFER TO DETAIL G-2-2 – RISER BASE
REFER TO DETAIL G-2-3 – CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

1 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL: ST-I

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. PERFORATE THE RISER WITH 1 INCH DIAMETER HOLES SPACED 6 INCHES ON CENTER WITH THE LOWEST PERFORATIONS AT THE WET STORAGE ELEVATION OR PROVIDE A HORIZONTAL OR VERTICAL DRAW-DOWN DEVICE PERFORATED ACCORDING TO APPROVED PLAN. DO NOT PERFORATE THE RISER WITHIN 6 INCHES OF THE TOP OF THE HORIZONTAL BARREL.
4. SET RISER/BARREL ASSEMBLY PRIOR TO EMBANKMENT CONSTRUCTION. MAKE ALL PIPE CONNECTIONS WATERTIGHT. OFFSET RISER FROM EMBANKEMENT TO ACCOMMODATE PLACEMENT OF THE TRASH RACK. ANCHOR THE RISER WITH EITHER A REINFORCED CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. MAKE CONCRETE BASES AT LEAST TWICE THE RISER DIAMETER AND 18 INCHES THICK WITH THE RISER EMBEDDED 9 INCHES.
5. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
6. HAND COMPACT IN 4 INCH LAYERS FILL MATERIAL AROUND THE PIPE SPILLWAY. PLACE A MINIMUM OF 2 FEET OF HAND COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
7. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE RISER CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
8. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
9. WRAP THE RISER WITH ¼ INCH GALVANIZED HARDWARE CLOTH THEN WRAP WITH NONWOVEN GEOTEXTILE. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE. EXTEND HARDWARE CLOTH AND GEOTEXTILE AT LEAST 6 INCHES ABOVE THE HIGHEST PERFORATIONS AND AT LEAST 6 INCHES BELOW THE LOWEST PERFORATIONS. OVERLAP, FOLD AND FASTEN WHERE ENDS OF GEOTEXTILE COME TOGETHER TO PREVENT BYPASS. REPLACE GEOTEXTILE AS NECESSARY TO PREVENT CLOGGING.
10. USE STRAPS OR CONNECTING BANDS AT THE TOP AND BOTTOM OF THE GEOTEXTILE TO HOLD THE GEOTEXTILE AND HARDWARE CLOTH IN PLACE.
11. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
12. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
13. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO THE APPROVED PLAN AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
14. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.
15. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
16. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

2 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-1 PIPE OUTLET SEDIMENT TRAP ST-I

STANDARD SYMBOL: ST-I

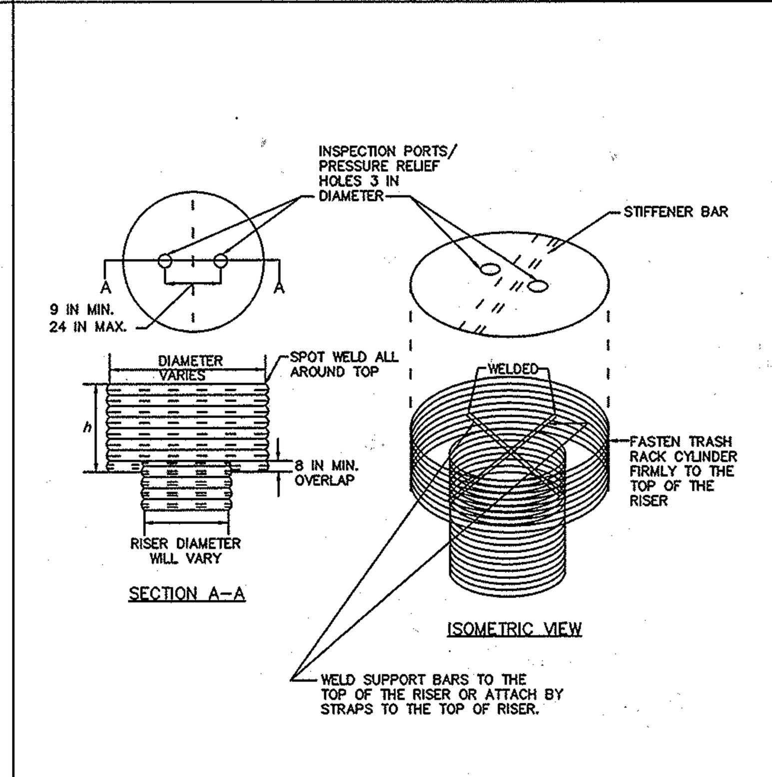
PIPE OUTLET SEDIMENT TRAP ST-I, TRAP NO.______		
DRAINAGE AREA – INITIAL		ACRES
DRAINAGE AREA – INTERIM		ACRES
DRAINAGE AREA – FINAL		ACRES
TOTAL STORAGE REQUIRED		CF
TOTAL STORAGE PROVIDED		CF
WET STORAGE REQUIRED		CF
WET STORAGE PROVIDED		CF
DRY STORAGE REQUIRED		CF
DRY STORAGE PROVIDED		CF
TRAP BOTTOM ELEVATION		FT
TRAP BOTTOM DIMENSIONS		FT x FT
RISER CREST (DRY STORAGE) ELEVATION		FT
OUTLET (WET STORAGE) ELEVATION		FT
CLEANOUT ELEVATION		FT
TOP OF EMBANKMENT ELEVATION		FT
SIDE SLOPE		H:V RATIO
EMBANKMENT TOP WIDTH		FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)		
RISER DIAMETER		IN
BARREL DIAMETER		IN
TRASH RACK DIAMETER		IN
TRASH RACK HEIGHT		IN
ANTI-SEEP COLLAR DIMENSIONS		FT
OUTLET PROTECTION – LENGTH		FT
OUTLET PROTECTION – WIDTH		FT
OUTLET PROTECTION – DEPTH		IN

3 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

STANDARD SYMBOL: TR



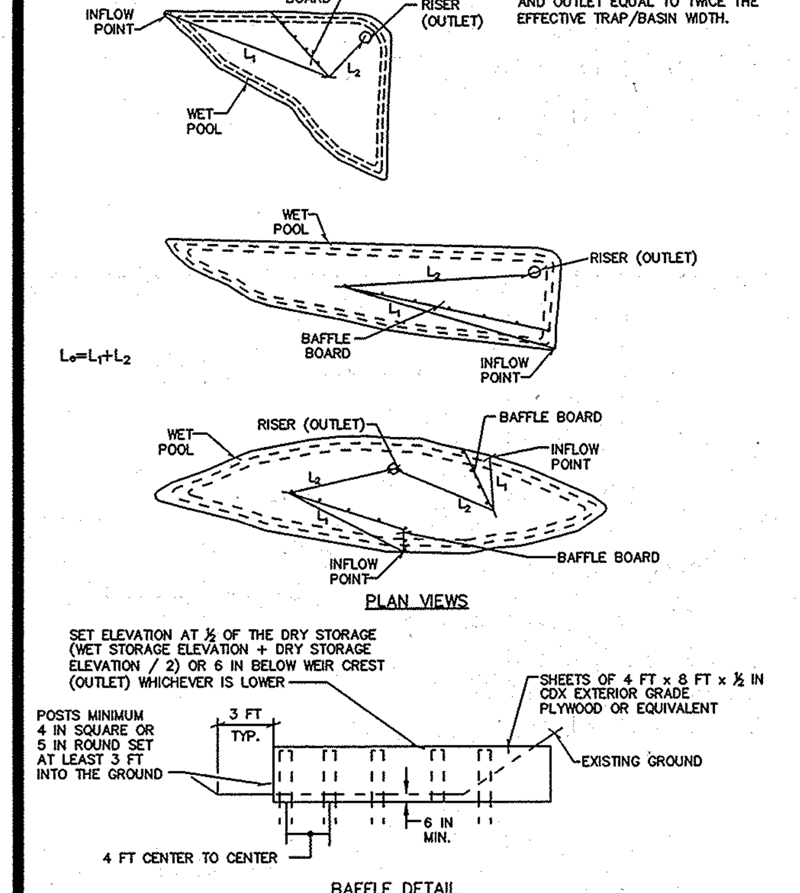
1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL: BB

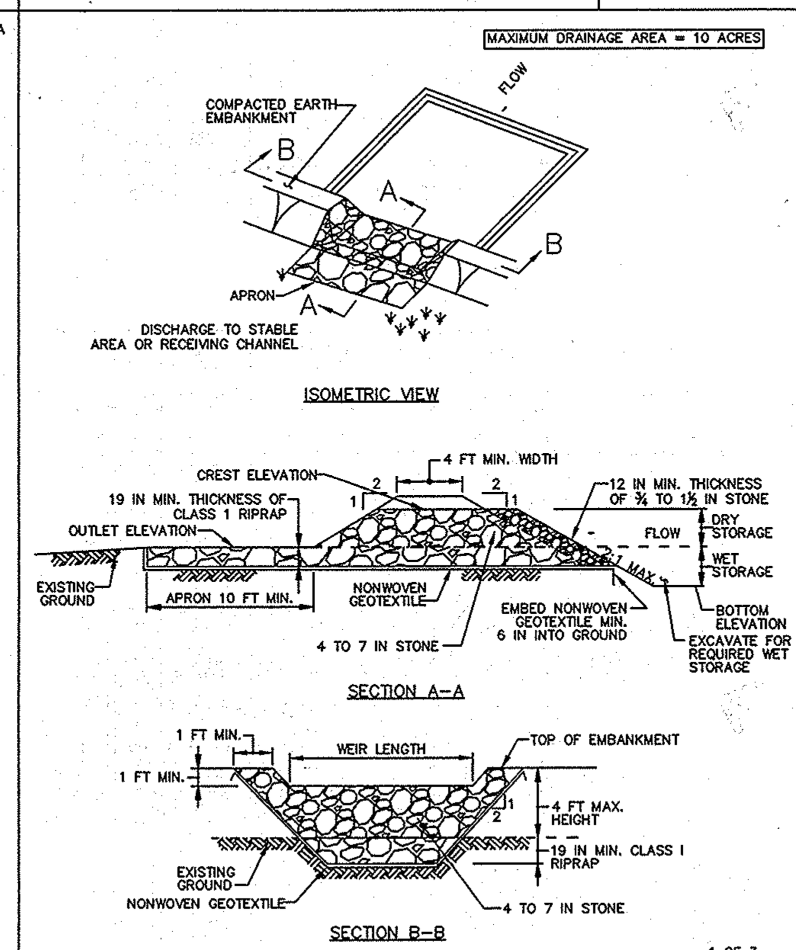
BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II



1 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-1-2 STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II

STANDARD SYMBOL: ST-II

CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2. CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3. USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERSIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE EMBANKMENT.
4. CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
5. MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
6. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APRON PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACED ON TOP. EMBED GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
7. USE CLEAN 4 TO 7 INCH RIPRAP TO CONSTRUCT THE WEIR. USE CLASS I RIPRAP FOR THE APRON. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
8. PLACE 1 FOOT OF CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
9. CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
10. STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
11. REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (50% OF WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS INTERIOR OF THE TRAP FREE FROM EROSION, AND REMOVE ACCUMULATED DEBRIS. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. REMOVE ANY TREES, BRUSH, OR OTHER WOODY VEGETATION GROWING ON EMBANKMENT OR NEAR PRINCIPAL SPILLWAY. MAINTAIN LINE, GRADE, AND CROSS SECTION.
12. WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL PRACTICE.
13. UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

2 OF 3

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-3 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

STANDARD SYMBOL: TR

RISER DIA.. (IN)	TRASH RACK CYLINDER DIA.. (IN)	TRASH RACK CYLINDER THICKNESS (GAUGE)	h (IN)	MINIMUM SIZE SUPPORT BAR	MINIMUM TOP THICKNESS (GAUGE)	MINIMUM TOP STIFFENER
12	18	16	14	#6 REBAR	16	N/A
15	21	16	15	#6 REBAR	16	N/A
18	27	16	16	#6 REBAR	16	N/A
21	30	16	19	#6 REBAR	16	N/A
24	36	16	21	#6 REBAR	14	N/A
27	42	16	21	#6 REBAR	14	N/A
36	54	14	25	#8 REBAR	12	N/A
42	60	14	27	#8 REBAR	12	N/A
48	72	12	29	1¼ IN PIPE OR 1¼ x 1¼ x ¼ ANGLE	10	N/A
54	78	12	33	1¼ IN PIPE OR 1¼ x 1¼ x ¼ ANGLE	10	N/A
60	90	12	37	1½ IN PIPE OR 1½ x 1½ x ¼ ANGLE	8	N/A
66	96	10	41	2 IN PIPE OR 2 x 2 x 3⁄16 ANGLE	8	2 x 2 x ¼ ANGLE
72	102	10	44	2 IN PIPE OR 2 x 2 x 3⁄16 ANGLE	8	2½ x 2½ x ¼ ANGLE
78	114	10	47	2½ IN PIPE OR 2 x 2 x ¼ ANGLE	8	2½ x 2½ x ¼ ANGLE
84	120	10	50	2½ IN PIPE OR 2½ x 2½ x ¼ ANGLE	8	2½ x 2½ x 5⁄16 ANGLE

NOTE:
THE ABOVE TRASH RACK AND ANTI-VORTEX DEVICE INFORMATION IS FOR CORRUGATED METAL PIPE ONLY. CONCRETE RISERS MUST MEET THE REQUIREMENTS OF MD 378.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

PHASE I - ROADWORK TO BE COMPLETED

ROAD NAME	BEGIN STA.	TO	END STA.
VALLEY VIEW WAY	10+00		25+10 (P.C. OF CURB RETURN)
GRIST MILL WAY	10+00		15+40 END STATION
SOAPSTONE TRAIL	(P.C. WEST OF ROUNDABOUT)		15+53.2
MORNING CHOICE COURT	10+00		11+26.15

PHASE II - ROADWORK TO BE COMPLETED

ROAD NAME	BEGIN STA.	TO	END STA.
VINEYARD SPRINGS WAY	10+00		19+20 (P.C. OF CURB RETURN NORTH SIDE OF INTERSECTION)
RIVER RIDGE TRAIL	10+00		12+90 (P.C. OF CURB RETURN NORTH SIDE OF INTERSECTION
SOAPSTONE TRAIL	10+00		15+53.2 (P.C. EAST OF ROUNDABOUT

PHASE III - ROADWORK TO BE COMPLETED

ROAD NAME	BEGIN STA.	TO	END STA.
RIVER RIDGE TRAIL	12+90		17+42.82

PHASE V - ROADWORK TO BE COMPLETED

ROAD NAME	BEGIN STA.	TO	END STA.
VALLEY VIEW WAY	25+10 (STA. SAME AS ABOVE)		31+01.49
VINEYARD SPRINGS WAY	19+20 (STA. SAME AS ABOVE)		30+65.26
SAWMILL BRANCH TRAIL	10+00		15+44.41
SPRING GLEN COURT	10+00		14+12.86
TALL POPLAR COURT	10+00		11+97.05

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John R Robertson 12/23/14
HOWARD SCD DATE

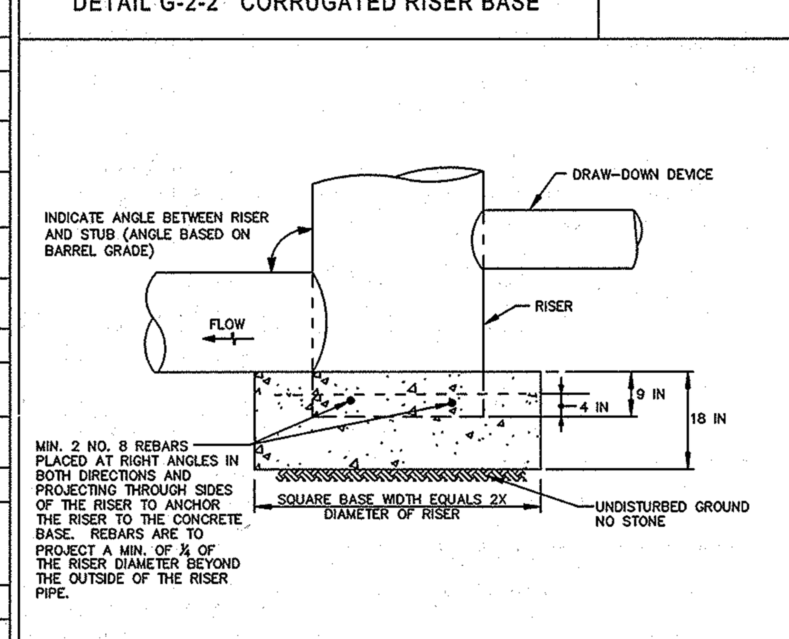
APPROVED: DEPARTMENT OF PUBLIC WORKS
1/8/2015
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
6.15.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

DETAIL G-2-2 CORRUGATED RISER BASE

STANDARD SYMBOL



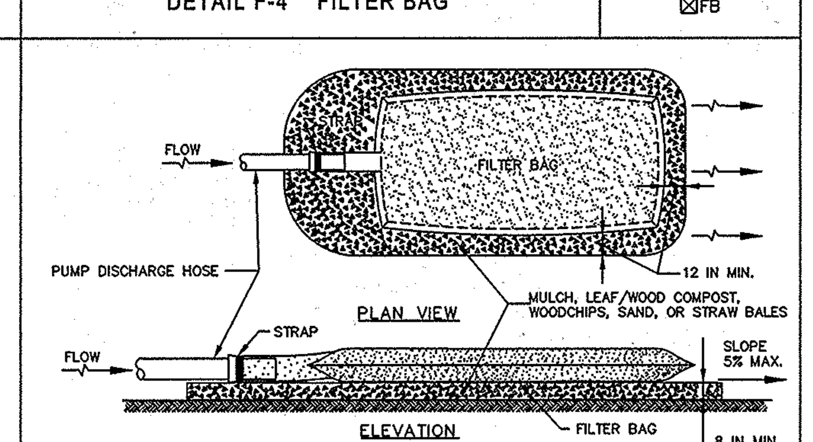
CONSTRUCTION SPECIFICATIONS

1. BOTTOM OF CONCRETE BASE TO BE PLACED ON UNDISTURBED, NATURAL GROUND.
2. NO STONE IS ALLOWED UNDER BASE. IF NECESSARY, TO ACHIEVE STABILITY INCREASE DEPTH OF CONCRETE BASE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15–0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

1. NOTIFY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION. (1 DAY)
2. THE GENERAL CONTRACTOR SHALL NOT COMMENCE ANY LAND DISTURBING ACTIVITIES PRIOR TO OBTAINING A GRADING PERMIT. (1 DAY)
3. THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION MANAGER AND THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES. (1 DAY)
4. ALL AREAS WHICH ARE TO BE DISTURBED SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DISTURBED AREAS WITHIN THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED SHALL BE PERMANENTLY OR TEMPORARILY STABILIZED WITHIN:
   a. THREE (3) CALENDAR DAYS ON SLOPES GREATER THAN 3:1, ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROLS.
   b. SEVEN (7) CALENDAR DAYS ON ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT.

PHASE 1

5. OBTAIN GRADING PERMIT
6. INSTALL STABILIZED CONSTRUCTION ENTRANCE AS SHOWN. ALL HARD SURFACE PUBLIC ROADS SHALL BE CLEANED AT THE END OF EACH WORK DAY. (2 DAYS)
7. INSTALL FOREST PROTECTION MEASURES AND SPECIMEN TREE PROTECTION MEASURES ALONG THE ULTIMATE L.O.D. AS SHOWN FOR THIS SPECIFIC PHASE. (1 WEEK)
8. INSTALL PERIMETER SILT FENCES, SUPER SILT FENCES, TEMPORARY GABION OUTLET STRUCTURES, EARTH DIKES, PHASE IA (CWD), PIPE SLOPE DRAINS, AND RIPRAP OUTLET SEDIMENT TRAP No.1 AS SHOWN ON THE PHASE I PLANS. IN AREAS WHERE EARTH DIKES ARE LOCATED ON FILL, CONTRACTOR SHALL GRADUALLY RAISE DIKES ALONG WITH PROPOSED GRADE. ENSURE POSITIVE DRAINAGE AT ALL TIMES. (2 WEEKS)
9. UPON APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR; CLEAR AND GRUB THE PHASE 1 AREAS IDENTIFIED WITHIN THE PHASE I LIMIT OF WORK (L.O.W.) ON THE PLANS. (2 WEEKS)
10. INSTALL CLEARWATER DIVERSION MEASURES ASSOCIATED WITH THIS CULVERT PIPE. BEGIN ROUGH GRADING "PHASE 1" AREA. INSTALL PROPOSED CULVERT PIPE LOCATED BENEATH THE MONUMENTAL ENTRANCE AND INSTALL ACCESS/ HAUL ROAD. MAKE ADJUSTMENTS TO ACCESS/HUAL ROAD AS FILLS ARE PLACED. ONCE MONUMENTAL ENTRANCE HAS REACHED PROPOSED SUBGRADE, RELOCATE STONE CONSTRUCTION ENTRANCE AS SHOWN ON PHASE II PLANS. (4 WEEKS)
11. BEGIN CONSTRUCTION OF OFFSITE WATER AND SANITARY SEWER MAINS, PROVIDING SILT FENCE PROTECTION DOWNSLOPE OF UTILITY TRENCHING. EXCAVATED MATERIALS ARE TO BE PLACED ON THE UPSLOPE SIDE OF TRENCH, DISTURBING ONLY THAT PORTION THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. SEE MDE LETTER OF AUTHORIZATION 13-nt-3155/201360766, DATED FEBRUARY 20, 2014 AND STREAM CROSSING DETAILS ON THE PUBLIC WATER AND SEWER PLAN FOR STREAM AND WETLAND CROSSINGS. (4 WEEKS)
12. CONCURRENT TO STEP 11, INSTALL SEDIMENT CONTROL MEASURES AS SHOWN ON SHEET 98 AND 99. BEGIN ROAD IMPROVEMENTS ALONG ROGERS AVE. AND U.S. 29 (COLUMBIA PIKE). CONSTRUCT STORMWATER MANAGEMENT FACILITIES SHOWN ON SHEET 98 AND 99 AND ONCE PERMANENT STABILIZATION BEING ESTABLISHED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES ASSOCIATED WITH THE ROAD IMPROVEMENTS.
13. CONCURRENT TO STEP 11, BEGIN CONSTRUCTION OF ONSITE WATER, SANITARY SEWER AND STORM DRAIN SYSTEMS ALONG THOSE PORTIONS OF THE SUBDIVISION ROADS VALLEY VIEW WAY, SOAPSTONE TRAIL, GRIST MILL WAY AND MORNING CHOICE COURT WITHIN THE LIMITS OF PHASE I. CONTRACTOR TO INSTALL FROM DOWNSTREAM END OF UTILITY TO UPSTREAM END. AS ROAD 'C' GRADING OPERATIONS BEGIN, ADJUST PHASE IA (CWD) TO PHASE IB (CWD) LOCATION AS SHOWN ON PHASE I SEDIMENT CONTROL PLANS. CONSTRUCT PLUNGE POOL No.1. CONSTRUCT INFILTRATION FACILITY No.1, AND TEMPORARILY SEAL PIPE LEADING TO INFILTRATION FACILITY No.1. INSTALL INLET PROTECTION ON ALL PROPOSED INLETS IMMEDIATELY UPON INSTALLATION. (8 WEEKS)
14. INSTALL PIPE OUTLET SEDIMENT TRAP No.1 AS SHOWN ON THE PHASE I PLANS. (2 DAYS)
15. FINE GRADE ROAD AREAS AND INSTALL PROPOSED ROAD BASE COURSE AND CURB AND GUTTER FOR SUBDIVISION ROADS VALLEY VIEW WAY, SOAPSTONE TRAIL, GRIST MILL WAY AND MORNING CHOICE COURT AS IDENTIFIED ON THE PHASE I ROAD CONSTRUCTION LIMITS TABLE MAINTAIN INLET PROTECTIONS AT ALL TIMES. STABILIZE AREAS DISTURBED DURING "PHASE I" GRADING OPERATIONS. (2 WEEK)
16. ONCE 50% OF "PHASE I" HAS BEEN STABILIZED AND WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, BEGIN INSTALLING "PHASE II" SEDIMENT CONTROL MEASURES, INCLUDING STONE CONSTRUCTION ENTRANCE, SILT FENCES, SUPER SILT FENCES, AND EARTH DIKES. (3 DAYS)

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

PHASE II

17. INSTALL FOREST PROTECTION MEASURES AND SPECIMEN TREE PROTECTION MEASURES ALONG THE ULTIMATE L.O.D. AS SHOWN FOR THIS SPECIFIC PHASE. (1 WEEK)
18. CLEAR AND GRUB "PHASE II" AREA.
19. INSTALL PIPE OUTLET SEDIMENT TRAP No.2. (5 DAYS)
20. BEGIN ROUGH GRADING "PHASE II" AREA. BRING THOSE PORTIONS OF SUBDIVISION ROADS VINEYARD SPRINGS WAY, RIVER RIDGE TRAIL AND SOAPSTONE TRAIL LOCATED WITHIN "PHASE II" AREA UP TO SUBGRADE. (2 WEEKS)
21. BEGIN CONSTRUCTION OF "PHASE II" WATER, SANITARY SEWER AND STORM DRAIN SYSTEMS. CONTRACTOR TO INSTALL FROM DOWNSTREAM END OF UTILITY TO UPSTREAM END. INSTALL INLET PROTECTION ON ALL PROPOSED INLETS IMMEDIATELY UPON INSTALLATION. (2 WEEKS)
22. FINE GRADE ROAD AREAS AND INSTALL PROPOSED ROAD BASE COURSE AND CURB AND GUTTER FOR SUBDIVISION ROADS VINEYARD SPRINGS WAY, RIVER RIDGE TRAIL AND SOAPSTONE TRAIL AS IDENTIFIED ON THE PHASE II ROAD CONSTRUCTION LIMITS TABLE. MAINTAIN INLET PROTECTION AT ALL TIMES. STABILIZE AREAS DISTURBED DURING "PHASE II" GRADING OPERATIONS. (2 WEEK)
23. ONCE AREAS DRAINING TO PIPE OUTLET SEDIMENT TRAP No.1 AND No.2 HAVE BEEN STABILIZED, AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE PIPE OUTLET SEDIMENT TRAPS No. 1 AND No.2. (3 DAYS)
24. ONCE 50% OF "PHASE II" AREA HAS BEEN STABILIZED AND WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, BEGIN INSTALLING "PHASE III" SEDIMENT CONTROL MEASURES, INCLUDING STONE CONSTRUCTION ENTRANCE, SILT FENCES, SUPER SILT FENCES, AND EARTH DIKES. ONCE CONTRIBUTING DRAINAGE TO INFILTRATION FACILITY No. 1 IS PERMANENTLY STABILIZED, AND WITH APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR, REMOVE TEMPORARY CAP FROM PIPE LEADING TO INFILTRATION FACILITY No.1. (3 DAYS)

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

PHASE III

25. INSTALL FOREST PROTECTION MEASURES AND SPECIMEN TREE PROTECTION MEASURES ALONG THE ULTIMATE L.O.D. AS SHOWN FOR THIS SPECIFIC PHASE. (1 WEEK)
26. CLEAR AND GRUB "PHASE III" AREA AND BEGIN ROUGH GRADING. BRING THE REMAINING PORTION OF RIVER RIDGE TRAIL LOCATED WITHIN "PHASE III" AREA UP TO SUBGRADE, ROUGH GRADE BIORETENTION FACILITY No.1. (3 WEEKS)
27. BEGIN CONSTRUCTION OF WATER AND STORM DRAIN SYSTEMS WITHIN LIMITS OF PHASE III, AND LEVEL SPREADERS Nos. 1 AND 2. CONTRACTOR TO INSTALL FROM DOWNSTREAM END OF UTILITY TO UPSTREAM END. INSTALL INLET PROTECTION ON ALL PROPOSED INLETS IMMEDIATELY UPON INSTALLATION. PROVIDE MODIFIED INLET PROTECTION FOR THOSE INLETS DRAINING TO BIORETENTION FACILITY No.1. (2 WEEKS)
28. FINE GRADE ROAD AREAS AND INSTALL PROPOSED ROAD BASE COURSE AND CURB AND GUTTER FOR REMAINDER OF RIVER RIDGE TRAIL. MAINTAIN INLET PROTECTIONS AT ALL TIMES. STABILIZE AREAS DISTURBED DURING PHASE III GRADING OPERATIONS. (2 WEEK)
29. AS UPSTREAM DRAINAGE AREAS ARE STABILIZED FLUSH STORM DRAIN SYSTEM. (1 WEEK)
30. ONCE THE AREA DRAINING TO PIPE OUTLET SEDIMENT TRAP No.1 HAS BEEN STABILIZED, AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE RIPRAP OUTLET SEDIMENT TRAP No.1.
31. ONCE "PHASE III" AREA DRAINING TO BIORETENTION FACILITY No.1 HAS ACHIEVED PERMANENT STABILIZATION, AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, INSTALL BIORETENTION FACILITY No.1 AND PROVIDE PERMANENT STABILIZATION. REMOVE MODIFIED INLET PROTECTIONS AFTER BIORETENTION FACILITY No.1 INSTALLATION HAS BEEN COMPLETED. (1 WEEK)
32. ONCE "PHASE III" AREA HAS BEEN STABILIZED AND WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, BEGIN INSTALLING "PHASE IV" SEDIMENT CONTROL MEASURES, INCLUDING STONE CONSTRUCTION ENTRANCE, SILT FENCES, SUPER SILT FENCES, EARTH DIKES, AND MOUNTABLE BERM. (3 DAYS)

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

PHASE IV

33. INSTALL FOREST PROTECTION MEASURES AND SPECIMEN TREE PROTECTION MEASURES ALONG THE ULTIMATE L.O.D. AS SHOWN FOR THIS SPECIFIC PHASE. (1 WEEK)
34. CLEAR AND GRUB AREAS FOR THE INSTALLATION OF LEVEL SPREADERS Nos. 4 & 5 AND SWALES Nos.11 & 12. BEGIN INSTALLATION OF SWALES Nos.11 & 12 (PERMANENT OFFSITE CLEARWATER DIVERSION) AND LEVEL SPREADERS Nos. 4 & 5. INSTALLATION OF SWALES TO BE DONE IN MANNER IN WHICH CONTRACTOR IS DISTURBING ONLY THAT PORTION THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. PROVIDE PERMANENT STABILIZATION. (1 WEEK)
35. CLEAR AND GRUB "PHASE IV" AREA (2 DAYS)
36. BEGIN ROUGH GRADING. (2 WEEKS)
37. CONCURRENT TO STEP 35, BEGIN INSTALLING THAT PORTION OF THE STORM DRAIN SYSTEM FOUND WITHIN THE "PHASE IV" AREA. CONSTRUCT INFILTRATION FACILITY No.2, AND TEMPORARILY SEAL PIPE LEADING TO INFILTRATION FACILITY No.2. INSTALL INLET PROTECTION ON ALL PROPOSED INLETS IMMEDIATELY UPON INSTALLATION. (3 WEEKS)
38. ONCE "PHASE IV" GRADING HAS BEEN ACHIEVED, PROVIDE PERMANENT STABILIZATION ON STEEP SLOPES. PROVIDE TEMPORARY STABILIZATION OVER BALANCE OF "PHASE IV" AREA. (2 DAYS)
39. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, BEGIN INSTALLING SEDIMENT CONTROL MEASURES FOR "PHASE V", INCLUDING STONE CONSTRUCTION ENTRANCE, PIPE OUTLET SEDIMENT TRAP No. 3 & 4, SILT FENCES, SUPER SILT FENCES, EARTH DIKES, AND MOUNTABLE BERM. (3 DAYS)

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

PHASE V

40. INSTALL FOREST PROTECTION MEASURES AND SPECIMEN TREE PROTECTION MEASURES ALONG THE ULTIMATE L.O.D. AS SHOWN FOR THIS SPECIFIC PHASE. (1 WEEK)
41. CLEAR AND GRUB BALANCE OF PHASE V AREA. (1 WEEK)
42. BEGIN ROUGH GRADING "PHASE V" AREA. BRING THE REMAINDER OF ROAD "B" AND ROADS "G", "H" AND "I" LOCATED WITHIN "PHASE V" UP TO SUBGRADE. (6 WEEKS)
43. CONCURRENT TO STEP 41, BEGIN INSTALLING THE SANITARY SEWER SYSTEM FROM MANHOLE SMH-9 UP TO "PHASE V" WORK AREA. PROVIDE SILT FENCE PROTECTION DOWNSLOPE OF UTILITY TRENCHING. EXCAVATED MATERIALS TO BE PLACED ON THE UPSLOPE SIDE OF TRENCH, DISTURBING ONLY THAT PORTION THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. SEE STREAM CROSSING DETAILS ON THE PUBLIC WATER AND SEWER PLAN FOR STREAM AND WETLAND CROSSINGS. (4 DAYS)
44. CONCURRENT TO STEP 42, BEGIN INSTALLING THE WATER, SANITARY SEWER, AND STORM DRAIN SYSTEMS WITHIN "PHASE V" AREA. CONTRACTOR TO INSTALL FROM DOWNSTREAM END OF UTILITY TO UPSTREAM END. INSTALL INLET PROTECTION ON ALL PROPOSED INLETS IMMEDIATELY UPON INSTALLATION. PROVIDE MODIFIED INLET PROTECTION FOR THOSE INLETS DRAINING TO MICRO-BIORETENTION FACILITIES Nos. 1 & 2, AND BIORETENTION FACILITY No.2. (4 WEEKS)
45. FINE GRADE ROAD AREAS AND INSTALL PROPOSED ROAD BASE COURSE AND CURB AND GUTTER FOR THE REMAINDER OF VINEYARD SPRINGS WAY AND SAWMILL BRANCH TRAIL, SPRING GLEN COURT, AND TALL POPLAR COURT. MAINTAIN INLET PROTECTION AT ALL TIMES. STABILIZE AREAS DISTURBED DURING PHASE V GRADING OPERATIONS. (6 WEEKS)
46. AS UPSTREAM DRAINAGE AREAS ARE STABILIZED, FLUSH STORM DRAIN SYSTEM. AS SITE IS BROUGHT TO FINAL GRADE AND STABILIZED, REMOVE PIPE OUTLET SEDIMENT TRAP No. 3 & 4, WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR. (2 WEEKS)
47. ONCE "PHASE V" AREA DRAINING TO MICRO-BIORETENTION FACILITIES Nos. 1 & 2 AND BIORETENTION FACILITY No.2 HAVE ACHIEVED PERMANENT STABILIZATION, INSTALL MICRO-BIORETENTION FACILITIES Nos. 1 & 2 AND BIORETENTION FACILITY No.2. PROVIDE PERMANENT STABILIZATION. REMOVE MODIFIED INLET PROTECTION FOR THOSE INLETS DRAINING TO MICRO-BIORETENTION FACILITIES 1 & 2, AND BIORETENTION FACILITY No.2. (2 WEEKS)
48. INSTALL PERMANENT LANDSCAPING. (1 WEEK)
49. AFTER ALL CONSTRUCTION HAS BEEN COMPLETED AND UPON APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT CONTROL MEASURES AND REMOVE TEMPORARY CAP FOR PIPE LEADING TO INFILTRATION FACILITY No.2. (2 DAYS)
50. NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.

NOTES:

1. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON, AFTER EACH RAINFALL AND ON A DAILY BASIS.
2. ALL OF THE PRIVATE ON-LOT FACILITIES WILL BE CONSTRUCTED AT THE SITE DEVELOPMENT PLAN STAGE.
3. CONTRACTOR MAY RELOCATE CONTRACTOR STAGING AREA WITHIN EACH RESPECTIVE PHASE AS CONSTRUCTION PROGRESSES. CONTRACTOR TO OBTAIN APPROVAL FROM SEDIMENT CONTROL INSPECTOR FOR RELOCATION OF STAGING AREA AND TO INSTALL PERIMETER CONTROLS FOR THE RELOCATED STAGING AREA(S) AS APPROPRIATE.

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
12/15/14
SIGNATURE OF ENGINEER DATE
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE
"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
12/15/14
NAME: DATE
TITLE:

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART						
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A		
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:	

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG
THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PS0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

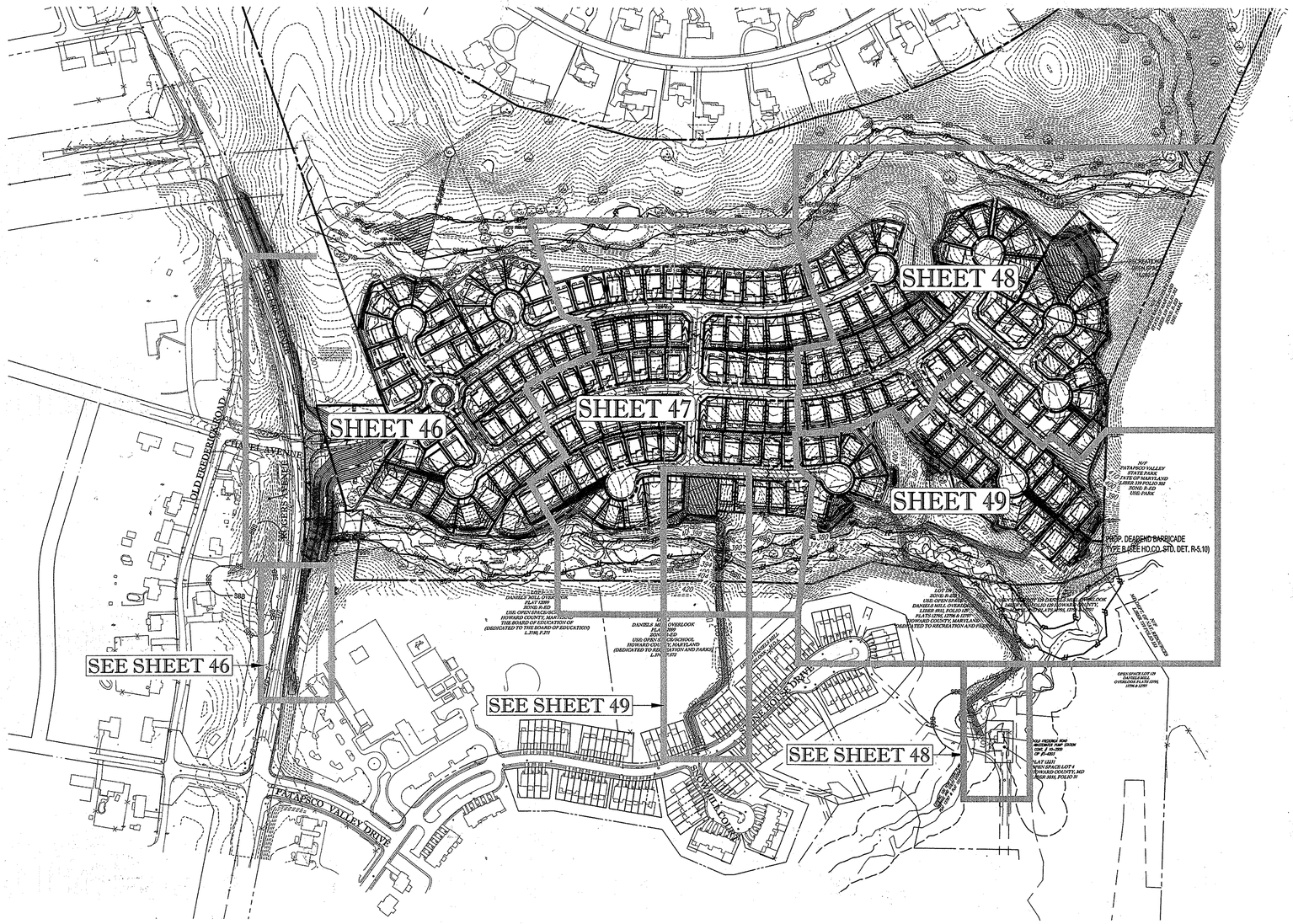
B. R. ROWE — STATE OF MARYLAND — PROFESSIONAL ENGINEER — 12/15/14

SHEET TITLE:
EROSION & SEDIMENT CONTROL NOTES & DETAILS

SHEET NUMBER:
44

F-14-124

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008C03.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:17 P



APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

200 100 50 0 200

1"= 200'

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/9/2017

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
♦ WARREN, NJ
OFFICES:
♦ SOUTHBOROUGH, MA
ALBANY, NY
BINGHAMTON, NY
CHALFONT, PA
KING OF PRUSSIA, PA
TAMPA, FL
BOWIE, MD
♦ TOWSON, MD
STERLING, VA
♦ WARRENTON, VA
♦ FORT LAUDERDALE, FL
♦ PORT CHARLOTTE, FL

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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD150013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=200'
CAD I.D.:	GP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

BRANDON R. ROWE
STATE OF MARYLAND
No. 40808
PROFESSIONAL ENGINEER
11/3/15

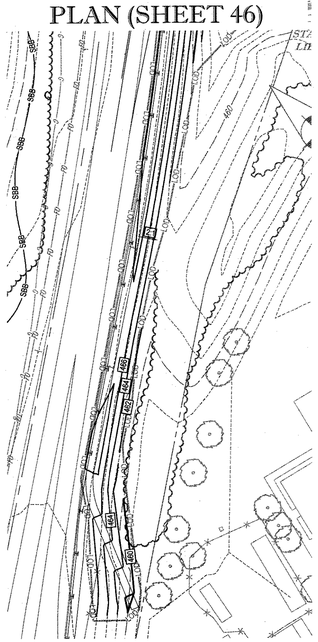
SHEET TITLE:
ULTIMATE GRADING PLAN KEY SHEET

SHEET NUMBER:
45

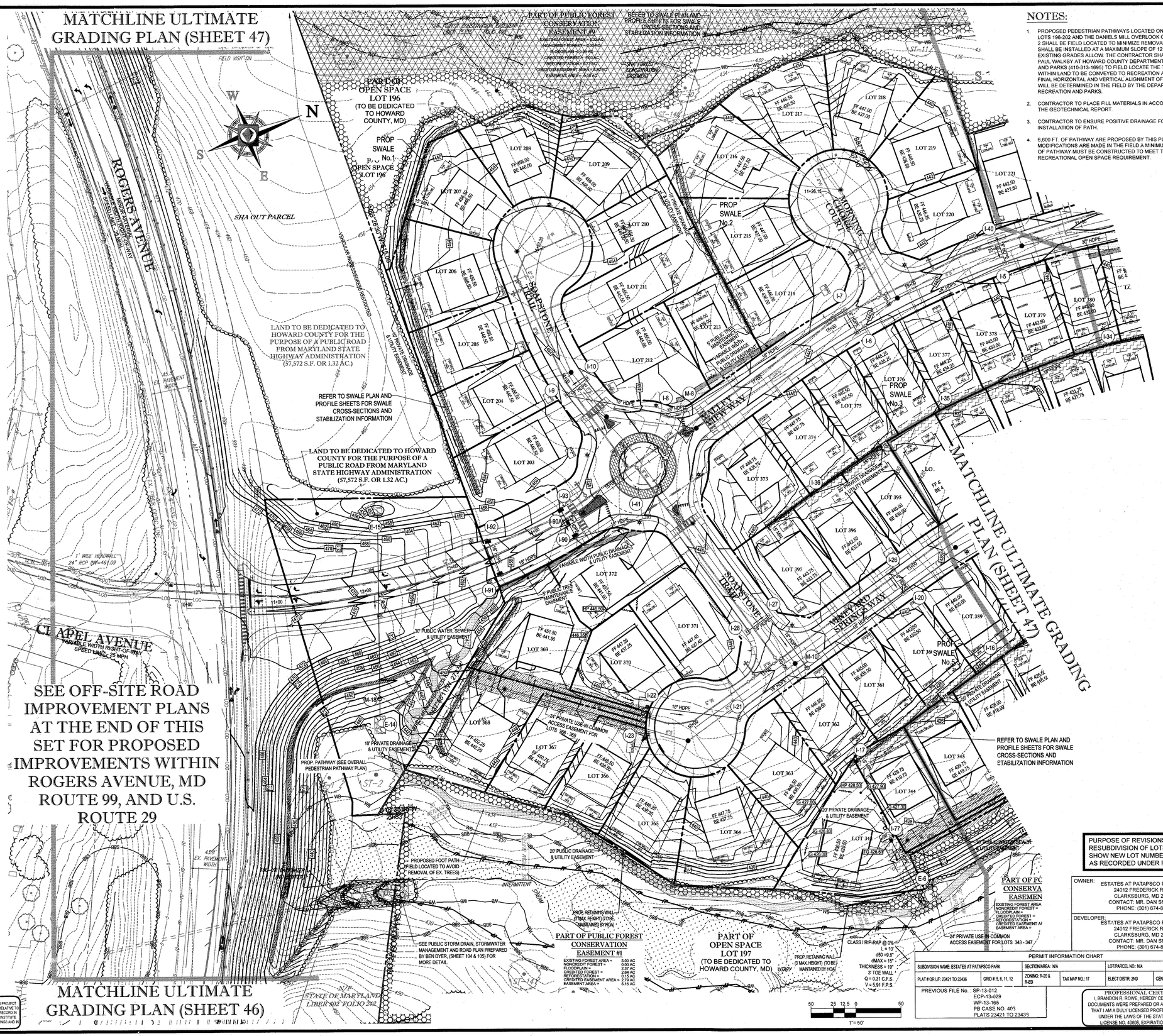
F-14-124

H:\2015\MD150013\DRAWINGS\PLAN SET\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD150013GP4.DWG PRINTED BY: BROWEN 10.22.15 @ 12:34

MATCHLINE ULTIMATE GRADING PLAN (SHEET 46)



MATCHLINE ULTIMATE GRADING PLAN (SHEET 47)



NOTES:

1. PROPOSED PEDESTRIAN PATHWAYS LOCATED ON OPEN SPACE LOTS 196-202 AND THE DANIELS MILL OVERLOOK OPEN SPACE LOT 2 SHALL BE FIELD LOCATED TO MINIMIZE REMOVAL OF TREES AND SHALL BE INSTALLED AT A MAXIMUM SLOPE OF 12% WHERE EXISTING GRADES ALLOW. THE CONTRACTOR SHALL CONTACT PAUL WALKSY AT HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS (410-313-1695) TO FIELD LOCATE THE TRAILS THAT FALL WITHIN LAND TO BE CONVEYED TO RECREATION AND PARKS. THE FINAL HORIZONTAL AND VERTICAL ALIGNMENT OF THE PATHWAYS WILL BE DETERMINED IN THE FIELD BY THE DEPARTMENT OF RECREATION AND PARKS.
2. CONTRACTOR TO PLACE FILL MATERIALS IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
3. CONTRACTOR TO ENSURE POSITIVE DRAINAGE FOLLOWING INSTALLATION OF PATH.
4. 6,600 FT. OF PATHWAY ARE PROPOSED BY THIS PLAN. IF MODIFICATIONS ARE MADE IN THE FIELD A MINIMUM OF 2,550 L.F. OF PATHWAY MUST BE CONSTRUCTED TO MEET THE RECREATIONAL OPEN SPACE REQUIREMENT.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 8/19/16

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10-4-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9.13.16

GENERAL NOTE
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BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: BOWIE, MD; CHARLOTTESVILLE, VA; HARRISBURG, PA; MORRISTOWN, NJ; PHILADELPHIA, PA; SOUTHBOROUGH, MA; STERLING, VA; WILKES-BARRE, PA; YARDLEY, PA; CHANTEPARTY, HAITI; TAMPA, FL

THE REPRODUCTION, DISCLOSURE OR USE OF THIS PLAN AND SPECIFICATIONS IN WHOLE, PART OR IN CONCEPT WITHOUT THE WRITTEN CONSENT OF BOHLER ENGINEERING IS STRICTLY PROHIBITED AND SHALL NOT BE USED ON OTHER WORK OR FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB
2	7/15/16	PER ENTRANCE IMPROVEMENTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=50'
CAD I.D.:	GP6

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

BRANDON R. ROWE — STATE OF MARYLAND — PROFESSIONAL ENGINEER — No. 40808 — PROFESSIONAL ENGINEER — 8/11/16

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC, 24012 FREDERICK ROAD, CLARKSBURG, MD 20861, CONTACT: MR. DAN SNYDER, PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC, 24012 FREDERICK ROAD, CLARKSBURG, MD 20861, CONTACT: MR. DAN SNYDER, PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A	LOT/PARCEL NO.: N/A
PLAT # OR LF: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17
		ELECT DISTR: 2ND	CENSUS TRACT:

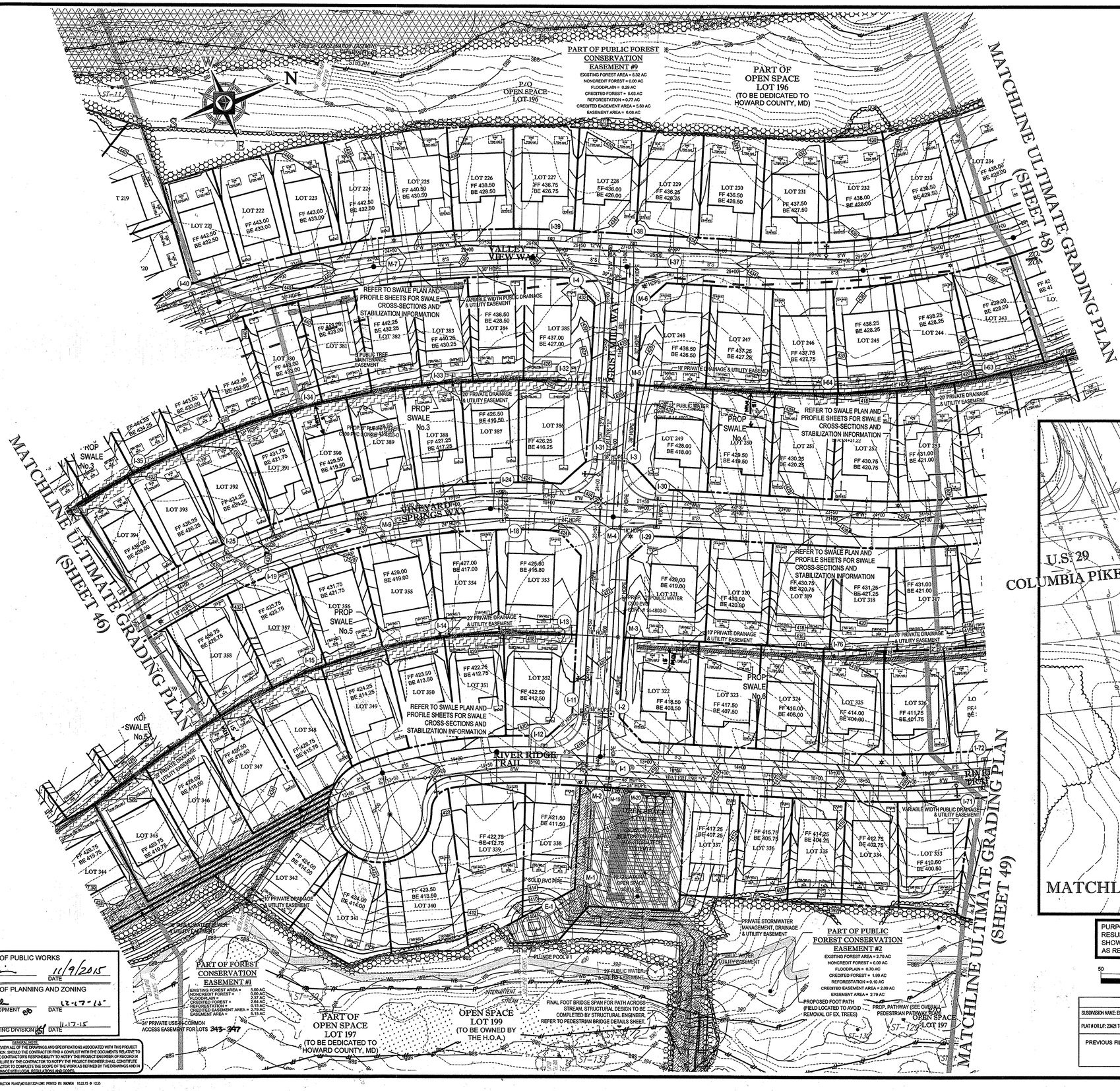
PREVIOUS FILE No.: SP-13-012, ECP-13-029, WP-13-165, PB CASE NO. 403, PLATS 23421 TO 23433

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017.

SHEET TITLE:
ULTIMATE GRADING PLAN

SHEET NUMBER:
46

F-14-124



NOTES:

1. PROPOSED PEDESTRIAN PATHWAYS LOCATED ON OPEN SPACE LOTS 196-202 AND THE DANIELS MILL OVERLOOK OPEN SPACE LOT 2 SHALL BE FIELD LOCATED TO MINIMIZE REMOVAL OF TREES AND SHALL BE INSTALLED AT A MAXIMUM SLOPE OF 12% WHERE EXISTING GRADES ALLOW. THE CONTRACTOR SHALL CONTACT PAUL WALKSY AT HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS (410-313-1690) TO FIELD LOCATE THE TRAILS THAT FALL WITHIN LAND TO BE CONVEYED TO RECREATION AND PARKS. THE FINAL HORIZONTAL AND VERTICAL ALIGNMENT OF THE PATHWAYS WILL BE DETERMINED IN THE FIELD BY THE DEPARTMENT OF RECREATION AND PARKS.
2. CONTRACTOR TO PLACE FILL MATERIALS IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
3. CONTRACTOR TO ENSURE POSITIVE DRAINAGE FOLLOWING INSTALLATION OF PATH.
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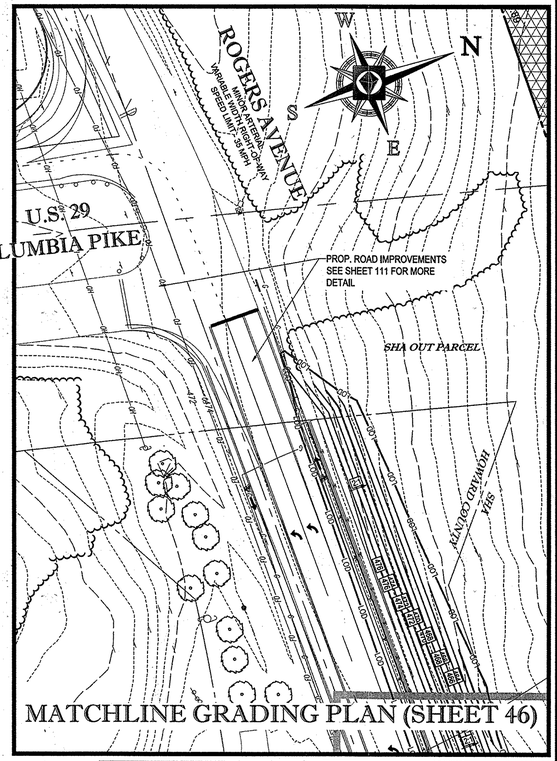

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTES
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H:\2015\MD152013\[MD152013PLAN SET]\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013GP4.DWG PRINTED BY: BBROWN 10.23.15 @ 12:33

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ♦ WARREN, NJ
OFFICES: ♦ SOUTHBOROUGH, MA ♦ ALBANY, NY ♦ BOHEMIA, NY ♦ CHESTER, NJ ♦ CENTER VALLEY, PA ♦ HARRISBURG, PA ♦ ROWLETT, TX ♦ STERLING, VA ♦ WILLIAMSBURG, VA ♦ FORT LAUDERDALE, FL ♦ PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=50'
CAD I.D.:	GP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
STATE OF MARYLAND — BRANDON R. ROWE — PROFESSIONAL ENGINEER — No. 40803 — PROFESSIONAL ENGINEER
10/23/15

SHEET TITLE:
ULTIMATE GRADING PLAN

SHEET NUMBER:
47

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

50 25 12.5 0 50
1"= 50'

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

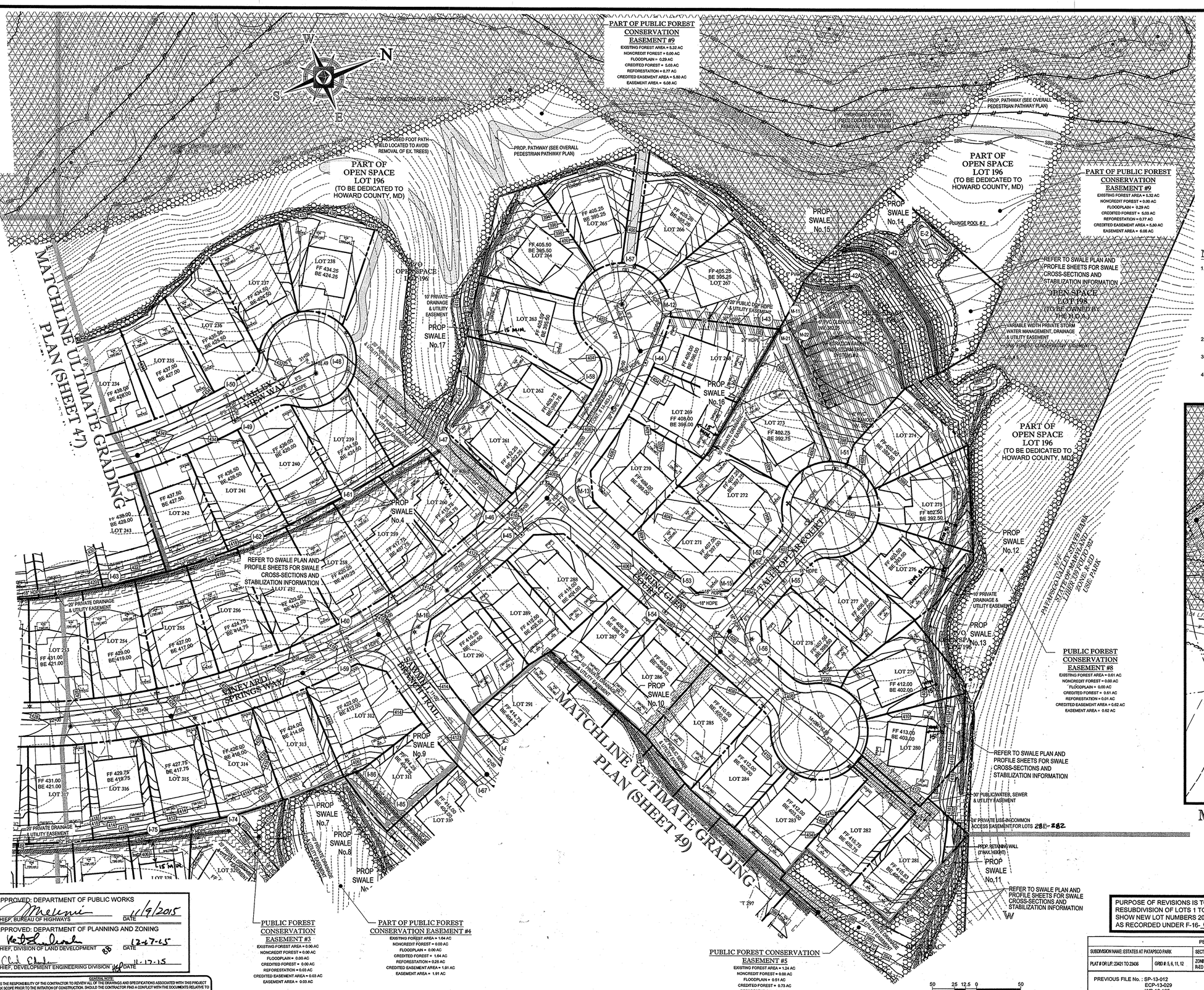
PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR LF: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012, ECP-13-029, WP-13-165, PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40803, EXPIRATION DATE: 7/3/2017

F-14-124



NOTES:

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APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-7-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051 .

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:
PREVIOUS FILE No. : SP-13-012 ECP-13-029 WP-13-165 PB CASE NO. 403					

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BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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OFFICES:
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◆ CHANTILLY, VA
◆ STERLING, VA
◆ SOUTHBOROUGH, MA
◆ RONKONKOMA, NY
◆ MORRISVILLE, NC
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◆ TAMPA, FL
◆ FORT LAUDERDALE, FL
◆ PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=50'
CAD I.D.:	GP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE — PROFESSIONAL ENGINEER — No. 40808 — PROFESSIONAL ENGINEER — 1/23/15

SHEET TITLE:
ULTIMATE GRADING PLAN

SHEET NUMBER:
48

F-14-124

H:\2015\MD\152013\ENGINEER\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013GRADING PRINTED BY: RDIXON 10.23.15 @ 12:25

NOTES:

1. PROPOSED PEDESTRIAN PATHWAYS LOCATED ON OPEN SPACE LOTS 196-202 AND THE DANIELS MILL OVERLOOK OPEN SPACE LOT 2 SHALL BE FIELD LOCATED TO MINIMIZE REMOVAL OF TREES AND SHALL BE INSTALLED AT A MAXIMUM SLOPE OF 12% WHERE EXISTING GRADES ALLOW. THE CONTRACTOR SHALL CONTACT PAUL WALKSY AT HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS (410-313-1695) TO FIELD LOCATE THE TRAILS THAT FALL WITHIN LAND TO BE CONVEYED TO RECREATION AND PARKS. THE FINAL HORIZONTAL AND VERTICAL ALIGNMENT OF THE PATHWAYS WILL BE DETERMINED IN THE FIELD BY THE DEPARTMENT OF RECREATION AND PARKS.
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MATCHLINE ULTIMATE GRADING PLAN (SHEET 48)

MATCHLINE ULTIMATE GRADING PLAN (SHEET 47)

OPEN SPACE LOT 198 (TO BE OWNED BY THE H.O.A.)

OPEN SPACE LOT 202 (TO BE OWNED BY THE H.O.A.)

OPEN SPACE LOT 201 (TO BE OWNED BY THE H.O.A.)

OPEN SPACE LOT 200 (TO BE OWNED BY THE H.O.A.)

PART OF OPEN SPACE LOT 197 (TO BE DEDICATED TO HOWARD COUNTY, MD)

PART OF PUBLIC FOREST CONSERVATION EASEMENT #2
EXISTING FOREST AREA = 2.70 AC
NONCREDIT FOREST = 0.00 AC
FLOODPLAIN = 0.70 AC
CREDITED FOREST = 1.99 AC
REFORESTATION = 0.10 AC
CREDITED EASEMENT AREA = 2.09 AC
EASEMENT AREA = 2.79 AC

PART OF PUBLIC FOREST CONSERVATION EASEMENT #7
EXISTING FOREST AREA = 0.11 AC
NONCREDIT FOREST = 0.00 AC
FLOODPLAIN = 0.00 AC
CREDITED FOREST = 0.11 AC
REFORESTATION = 0.06 AC
CREDITED EASEMENT AREA = 0.17 AC
EASEMENT AREA = 0.17 AC

PART OF PUBLIC FOREST CONSERVATION EASEMENT #9
EXISTING FOREST AREA = 5.32 AC
NONCREDIT FOREST = 0.00 AC
FLOODPLAIN = 0.29 AC
CREDITED FOREST = 5.03 AC
REFORESTATION = 0.77 AC
CREDITED EASEMENT AREA = 5.80 AC
EASEMENT AREA = 6.08 AC

PAVAROSCO, LLC
LIBER 15749 / FOLIO 497 &
LIBER 14459 / FOLIO 485
TOTAL AREA
5,348,935 SQ.FT/ 122.7947 ACRES

RIVER RIDGE TRAIL

PROP SWALE No.7
PROP SWALE No.8
PROP SWALE No.9
PROP SWALE No.10
PROP SWALE No.11

SMALL BRANCH VALLEY

REFER TO SWALE PLAN AND PROFILE SHEETS FOR SWALE CROSS-SECTIONS AND STABILIZATION INFORMATION

PROP GUARDRAIL

VARIABLE WIDTH PUBLIC STORM WATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT

PROP. PATHWAY (SEE OVERALL PEDESTRIAN PATHWAY PLAN)

PROPOSED FOOT PATH FIELD LOCATED TO AVOID REMOVAL OF EX. TREES

GRADE OVER OFF-SITE SANITARY SEWER EXTENSION TO BE RETURNED TO EXISTING GRADE

GRADE OVER OFF-SITE WATER EXTENSION AND OFF-SITE PEDESTRIAN PATHWAY TO BE RETURNED TO EXISTING GRADE

PROP. RETAINING WALL (7 MAX HEIGHT) TO BE MAINTAINED BY HOA

30' PUBLIC WATER, SEWER & UTILITY EASEMENT

24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 281-282

24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 299-304

TYPE B (SEE HO.CO. STD. DET. R-6.10)

S65° 45'44"E 6.10.05'

S18° 40'14"W 139.75'

S30° 38'41"W 319.97'

PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT

20' PUBLIC WATER & UTILITY EASEMENT

FINAL FOOT BRIDGE SPAN FOR PATH ACROSS STREAM, STRUCTURAL DESIGN TO BE COMPLETED BY STRUCTURAL ENGINEER. REFER TO PEDESTRIAN BRIDGE DETAILS SHEET.

P/O OPEN SPACE LOT 197

CONSERVATION EASEMENT - P/O O.S. LOT 129, PLAT NO. 12 ZONE: R-ED

FOREST CONSERVATION

PROPOSED 12" WATER MAIN

STONE HO

CONSERVATION EASEMENT - P/O O.S. LOT 129, PLAT NO. 12 ZONE: R-ED

50 25 12.5 0 50
1"= 50'

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12.17.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

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H:\2015\MD152013\ENGINEER\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013GP4.DWG PRINTED BY: RBOWICH 10.22.15 @ 13:36

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
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CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23438	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
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◆ ROANOKE, VA
◆ HONOLULU, HI
◆ CHESTERFIELD, MO
◆ CENTER VALLEY, PA
◆ FORT LAUDERDALE, FL
◆ TAMPA, FL
◆ PHILADELPHIA, PA

THE DRAWINGS, SPECIFICATIONS AND DESIGNS CONTAINED IN THESE PLANS ARE THE PROPERTY OF BOHLER ENGINEERING AND ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF BOHLER ENGINEERING. BY ACCEPTANCE OF THESE PLANS, THE RECIPIENT AGREES TO RETURN THEM UPON REQUEST OF BOHLER ENGINEERING AND TO NOT REPRODUCE OR COPY THEM, IN WHOLE OR IN PART. IT IS UNLAWFUL TO USE THESE PLANS IN ANY FASHION WITHOUT THE PRIOR WRITTEN CONSENT OF BOHLER ENGINEERING. BOHLER ENGINEERING WILL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THESE PLANS BY ANY PERSON OTHER THAN BOHLER ENGINEERING. BY ACCEPTANCE OF THESE PLANS, THE RECIPIENT AGREES TO INDEMNIFY AND HOLD HARMLESS BOHLER ENGINEERING FROM AND AGAINST ANY AND ALL LOSS, COST, DAMAGE AND EXPENSE ARISING FROM OR CONNECTED WITH ANY SUCH MODIFICATION BY ANY PERSON OTHER THAN BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.: MD152013
DRAWN BY: RLB
CHECKED BY: BRR
DATE: 12/3/15
SCALE: 1"=50'
CAD I.D.: GP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R.ROWE
STATE OF MARYLAND
40808
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER
10/30/15

SHEET TITLE:
ULTIMATE GRADING PLAN

SHEET NUMBER:
49

F-14-124

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11.17.15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051.

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR LIF: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

H:\2015\md152013\Drawings\Plan Sets\Final Grading and Road Construction Plans\md152013SHT.dwg PLOTTED BY: RSOMON 10.23.15 @ 1:46 P

F-14-124

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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♦ BOWIE, MD
♦ TOWSON, MD
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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

MISS UTILITY OF DELMARVA
STATE LAW REQUIRES NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE, IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-300-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=100'
CAD I.D.:	BP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
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B.R. ROWE — STATE OF MARYLAND — BRANDON R. ROWE — 40808 — PROFESSIONAL ENGINEER

SHEET TITLE:
BORING LOCATION MAP

SHEET NUMBER:
50

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — Location: Howard County, Maryland — Job #: 11503A

Sampler (all borings): Hammer Wt. 140 lbs. — Hammer Drop 30 in. — Pipe Size 2.0 in. — Hole Diameter 6" — Boring Method HSA

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

Boring No. B-2
Surf. Elev. 448.68 ft — Date Started 12-13-11 — Date Completed 12-13-11 — Foreman M. Stawas

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown, moist, soft sandy silty CLAY, trace organics and rootmatter (CL-ML)	4" Topsoil	6"	2-1-2	3
Brown to Orange Brown, moist, loose to very dense, fine to coarse silty SAND with mica and weathered rock (SM)		18"	4-3-5	8
		16"	5-4-5	9
	No groundwater encountered while drilling	14"	8-13-19	32
		18"	13-11-14	25
Bottom of Hole at 19.3	Backfilled after 24 hrs	10"	31-50/4"	50/4"

At completion: Ground Water Dry, Cave-in Depth 14.0 ft; After 24 hrs: Dry, 14.0 ft

Boring No. B-4
Surf. Elev. 444.01 ft — Date Started 12-13-11 — Date Completed 12-13-11 — Foreman M. Stawas

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, soft, fine sandy silty CLAY, trace rootmatter (CL-ML)	3" Topsoil	12"	2-1-3	4
Brown, moist, loose to medium dense fine sandy SILT, trace clay and mica (ML)		16"	3-3-5	8
	No groundwater encountered while drilling	18"	5-5-6	11
	Backfilled after 24 hrs	18"	4-5-6	11
Bottom of Hole at 12.5'		18"	4-5-5	10

At completion: Dry, 7.5 ft; After 24 hrs: Dry, 6.0 ft

Boring No. B-7
Surf. Elev. 444.63 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, medium stiff sandy silty CLAY, trace organics (CL-ML)	6" Topsoil	7"	2-3-3	6
Brown, moist, medium dense to very dense silty SAND with rock fragments (SM)		18"	11-12-14	26
	No groundwater encountered while drilling	18"	6-8-17	25
Bottom of Hole at 9.0'	Backfilled after 24 hrs	6"	50/6"	50/6"

At completion: Dry, 8.5 ft; After 24 hrs: Dry, 8.5 ft

Boring No. B-9
Surf. Elev. 438.82 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Orange Brown, moist, loose to medium dense, fine to coarse silty SAND, trace to little clay and quartz rock fragments (SM)		8"	2-3-5	8
		18"	7-8-10	18
		18"	7-10-10	20
	No groundwater encountered while drilling	18"	6-9-12	21
Light Brown, dry, very dense silty SAND and ROCK fragments (GM-SM) Decomposed Rock	Backfilled after 24 hrs	4"	50/4"	50/4"
Bottom of Hole at 16.0' Spoon Refusal		0"	50/0"	50/0"

At completion: Dry, 12.5' ft; After 24 hrs: Dry, 8.6 ft

Boring No. B-12
Surf. Elev. 438.36 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Orange Brown, moist, medium stiff sandy silty CLAY, trace fine rock fragments (CL-ML)	6" Topsoil	18"	2-3-4	7
Orange Brown, moist, medium dense clayey to silty SAND, trace mica (SC-SM)	No groundwater encountered while drilling	18"	6-9-10	19
		18"	7-9-11	20
Bottom of Hole at 8.5' Auger & Spoon Refusal. Offset 5' and refused again at 8.0'	Backfilled after 24 hrs	0"	50/0"	50/0"

At completion: Dry, 4.0 ft; After 24 hrs: Dry, 4.0 ft

Boring No. B-15
Surf. Elev. 445.54 ft — Date Started 12-15-11 — Date Completed 12-15-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, loose to medium dense, fine silty SAND with mica and weathered rock (SM)	5" Topsoil	7"	2-3-5	8
		16"	3-4-3	7
		18"	4-5-6	11
	No groundwater encountered while drilling	18"	5-6-9	15
		18"	7-10-13	23
		18"	11-12-13	25
Bottom of Hole at 25.0'		18"	10-12-15	27

At completion: Dry, 13.0 ft; After 24 hrs: Dry, 5.7 ft

Boring No. B-20
Surf. Elev. 446.72 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman M. Stawas

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, very loose fine clayey SAND (SC)	4" Topsoil	12"	1-1-2	3
Tan/Pink, moist, medium dense, fine to coarse silty SAND with quartz rock fragments (SM)		13"	7-7-6	13
	No groundwater encountered while drilling	16"	4-7-5	12
		13"	7-9-10	19
Gray/Brown, moist, medium dense silty SAND with weathered rock (SM). Bottom of Hole at 15.0'	Backfilled after 24 hrs	18"	6-8-13	21

At completion: Dry, 12.0 ft; After 24 hrs: Dry, 12.0 ft

Boring No. B-21
Surf. Elev. 428.68 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman M. Stawas

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown, moist, soft, sandy silty CLAY (CL-ML)	5" Topsoil	13"	1-1-3	4
Orange Brown, moist, medium dense, fine to coarse clayey SAND with fine quartz gravel (SC)	No groundwater encountered while drilling	18"	4-6-6	12
Bottom of Hole at 5.5'	Backfilled after 24 hrs	18"	4-5-6	11

At completion: Dry, 3.5 ft; After 24 hrs: Dry, 3.0 ft

Boring No. B-23
Surf. Elev. 423.30 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, very loose, fine silty clayey SAND, trace mica (SC-SM)	3" Topsoil	10"	1-2-3	5
Brown to Brown/Gray/White, moist, medium dense micaceous silty SAND (SM)		18"	4-6-8	14
	No groundwater encountered while drilling	18"	5-9-12	21
		16"	5-9-8	17
Bottom of Hole at 12.5'	Backfilled after 24 hrs	18"	8-9-10	19

At completion: Dry, 10.5 ft; After 24 hrs: Dry, 10.5 ft

Boring No. B-26
Surf. Elev. 416.62 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown, moist, medium stiff sandy silty CLAY (CL-ML)	5" Topsoil	15"	1-2-3	5
Brown, moist, medium dense, fine to coarse silty SAND with mica and weathered rock (SM)		18"	8-11-13	24
	No groundwater encountered while drilling	16"	5-8-11	19
		18"	10-8-11	19
Bottom of Hole at 11.5'	Backfilled after 24 hrs	18"	13-13-17	30

At completion: Dry, 5.9 ft; After 24 hrs: Dry, 5.0 ft

Boring No. B-28
Surf. Elev. 433.27 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, medium stiff sandy silty CLAY, trace rootmatter (CL-ML)	5" Topsoil	6"	2-3-4	7
Orange Brown, moist, medium dense silty clayey SAND, trace mica (SC-SM)		18"	6-8-11	19
Brown to Gray, moist, medium dense silty SAND with mica (SM)	No groundwater encountered while drilling	18"	7-8-11	19
		18"	6-7-9	16
		18"	8-9-10	19
Bottom of Hole at 17.5'	Backfilled after 24 hrs	18"	8-8-12	20

At completion: Dry, 10.8 ft; After 24 hrs: Dry, 10.0 ft

Boring No. B-32
Surf. Elev. 407.78 ft — Date Started 12-15-11 — Date Completed 12-15-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown to Light Brown, moist, loose to dense micaceous silty SAND (SM)	5" Topsoil		2-4-5	9
			6-7-7	14
	No groundwater encountered while drilling		6-7-6	13
			6-6-10	16
Bottom of Hole at 11.5'	Backfilled after 24 hrs		12-14-17	31

At completion: Dry, 9.5 ft; After 24 hrs: Dry, 7.0 ft

Boring No. B-34
Surf. Elev. 410.93 ft — Date Started 12-15-11 — Date Completed 12-15-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, very loose to dense micaceous silty SAND (SM)	6" Topsoil	18"	2-2-2	4
		12"	5-4-5	9
		18"	5-5-7	12
	No groundwater encountered while drilling	18"	14-25-23	48
Light Brown, moist to dry, very dense silty SAND with rock fragments (SM) Decomposed Rock		18"	30-23-40	63
		2"	50/2"	50/2"
		2"	50/2"	50/2"
Bottom of Hole at 25.0' Spoon Refusal		0"	50/0"	50/0"

At completion: Dry, 13.0 ft; After 24 hrs: Dry, 8.9 ft

Boring No. B-36
Surf. Elev. 399.73 ft — Date Started 12-15-11 — Date Completed 12-15-11 — Foreman J. Parnell

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown/Orange, moist, medium dense to dense, fine silty SAND with mica and weathered rock (SM)	4" Topsoil	10"	2-7-8	15
		16"	11-16-15	31
	No groundwater encountered while drilling	18"	7-8-16	24
		18"	13-14-18	32
Bottom of Hole at 13.5'		18"	10-15-20	35

At completion: Dry, 7.5 ft; After 24 hrs: Dry, 7.5 ft

Boring No. B-40
Surf. Elev. 415.99 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman M. Stawas

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, soft, sandy silty CLAY with mica (CL-ML)	4" Topsoil	12"	1-2-3	5
		18"	2-2-3	5
Brown, moist, medium dense, micaceous silty SAND (SM)	No groundwater encountered while drilling	18"	5-6-9	15
		18"	10-12-12	22
Bottom of Hole at 12.5'	Backfilled after 24 hrs	18"	10-9-11	20

At completion: Dry, 8.0 ft; After 24 hrs: Dry, 7.0 ft

Boring No. B-41
Surf. Elev. 424.78 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman M. Stawas

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown/Gray, moist, medium dense to very dense, fine to coarse silty SAND with rock fragments and mica (SM)	2" Topsoil	12"	1-2-9	11
		14"	19-32-50/4"	82/10"
		16"	24-24-20	44
	No groundwater encountered while drilling	17"	12-23-25	48
		15"	32-21-16	37
		18"	12-18-26	44
Bottom of Hole at 25.0'	Backfilled after 24 hrs	18"	11-16-23	39

At completion: Dry, 18.0 ft; After 24 hrs: Dry, 18.0 ft

Boring No. B-45
Surf. Elev. 416.77 ft — Date Started 12-14-11 — Date Completed 12-14-11 — Foreman M. Stawas

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, very loose fine silty SAND, little clay (SM)	4" Topsoil	16"	1-1-3	4
Brown/Tan/Gray, moist, very loose to very dense micaceous silty SAND (SM)		18"	2-3-3	6
		18"	2-2-2	4
	No groundwater encountered while drilling	18"	7-7-9	16
		18"	14-18-19	37
Bottom of Hole at 19.3'	Backfilled after 24 hrs	10"	30-50/4"	50/4"

At completion: Dry, 15.0 ft; After 24 hrs: Dry, 15.0 ft

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-8-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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OWNER: PM PATAPSCO LLC, 12116 ARBIE ROAD, SILVER SPRING, MD 20904, CONTACT: MR. SIMON ROSENBERG, PHONE: (301) 622-0645

DEVELOPER: NAI THE MICHAEL COMPANIES, 10100 BUSINESS PARKWAY, LANHAM, MD 20706, CONTACT: BRIAN GOLDSTEIN, PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No.: SP-13-012, ECP-13-029, WP-13-165, PB CASE NO. 403

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS, SURVEYORS, PROJECT MANAGERS, ENVIRONMENTAL CONSULTANTS, LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.: MD132008
DRAWN BY: RLB
CHECKED BY: BRR
DATE: 12/11/14
SCALE: AS SHOWN
CAD I.D.: BP1

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

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901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
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www.BohlerEngineering.com

STATE OF MARYLAND — BRANDON R. ROWE — No. 40805 — PROFESSIONAL ENGINEER

SHEET TITLE: BORING LOGS

SHEET NUMBER: 51

F-14-124

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008BP3.DWG PRINTED BY: RBOWEN 12.12.14 @ 11:35

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-46 — **Location:** Howard County, Maryland — **Job #:** 11503A

Datum	Surf. Elev.	Date Started	Hammer Wt.	Hammer Drop	Pipe Size	Hole Diameter	Boring Method	Foreman	Date Completed
	404.50 ft	12-15-11	140 lbs.	30 in.	2.0 in.	6"	HSA	M. Stawas	12-15-11

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown, moist, very soft to soft, sandy silty CLAY (CL-ML)	4" Topsoil	15"	1-1-1	2
	No groundwater encountered while drilling	18"	1-2-2	4
Dark Brown, moist, loose to medium dense fine silty SAND, trace clay and quartz rock fragments (SM)		18"	2-3-3	6
		18"	6-5-6	11
Bottom of Hole at 8.0'				

Ground Water: At Completion Dry ft. — Cave In Depth: 4.0 ft.

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-48 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev.	Date Started	Hammer Wt.	Hammer Drop	Pipe Size	Hole Diameter	Boring Method	Foreman	Date Completed
383.75 ft	12-15-11	140 lbs.	30 in.	2.0 in.	6"	HSA	M. Stawas	12-15-11

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown, moist, very loose fine silty SAND, little clay (SM)	5" Topsoil	16"	1-1-1	2
		18"	1-2-2	4
		17"	1-1-3	4
Gray/Brown, moist, medium dense to very dense, micaceous silty SAND with weathered rock (SM)	No groundwater encountered while drilling	18"	10-14-30	44
		18"	15-13-12	25
		8"	12-50/2"	50/2"
Bottom of Hole at 17.2'				

Ground Water: At Completion 14.5 ft. — Cave In Depth: 15.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-60 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev.	Date Started	Hammer Wt.	Hammer Drop	Pipe Size	Hole Diameter	Boring Method	Foreman	Date Completed
406.48 ft	12-15-11	140 lbs.	30 in.	2.0 in.	6"	HSA	M. Stawas	12-15-11

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Orange Brown, moist, very loose clayey SAND (SC)	4" Topsoil	13"	1-2-2	4
Orange Brown to Light Brown, moist, medium dense, fine to coarse silty SAND with quartz rock fragments (SM)		17"	4-6-5	11
		18"	4-6-10	16
Brown to Gray, moist, medium dense to very dense, micaceous silty SAND with weathered rock (SM)	No groundwater encountered while drilling	18"	6-7-7	14
		18"	10-12-13	25
		18"	14-18-14	32
		16"	13-12-21	34
		11"	22-50/5"	50/5"
Bottom of Hole at 25.9'				

Ground Water: At Completion Dry ft. — Cave In Depth: 19.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-66 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev.	Date Started	Hammer Wt.	Hammer Drop	Pipe Size	Hole Diameter	Boring Method	Foreman	Date Completed
409.34 ft	12-15-11	140 lbs.	30 in.	2.0 in.	6"	HSA	M. Stawas	12-15-11

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Brown, moist, soft, sandy silty CLAY, trace rootmatter (CL-ML)	5" Topsoil	15"	1-1-2	3
Orange Brown, moist, loose micaceous silty SAND (SM)		18"	3-3-3	6
			3-3-3	6
Light Brown, moist, dense to very dense micaceous silty SAND (SM). Decomposed Rock at 18.5'	No groundwater encountered while drilling		10-13-24	37
			16-25-34	57
			5-39-50/3"	89/9"
			26-50/5"	50/5"
			42-50/4"	50/4"
Bottom of Hole at 25.8'				

Ground Water: At Completion Dry ft. — Cave In Depth: 18.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-70 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev.	Date Started	Hammer Wt.	Hammer Drop	Pipe Size	Hole Diameter	Boring Method	Foreman	Date Completed
403.21 ft	12-15-11	140 lbs.	30 in.	2.0 in.	6"	HSA	J. Parnell	12-15-11

Description	Boring and Sampling Notes	Rec.	SPT Blows	N
Dark Brown, moist, very loose to dense micaceous silty SAND (SM)	6" Topsoil	18"	2-2-3	5
		18"	4-3-5	8
		18"	12-16-27	43
Light Brown, moist, very dense micaceous silty SAND with weathered rock (SM) Decomposed Rock	No groundwater encountered while drilling	18"	21-28-50	78
		9"	28-50/3"	50/3"
		18"	38-34-50/6"	84
Bottom of Hole at 20.0'				

Ground Water: At Completion Dry ft. — Cave In Depth: 8.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-71 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 440 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Orange Brown, moist, sandy SILT, trace clay and mica (ML)	6" Topsoil
Brown, moist, fine silty SAND with mica and weathered rock (SM)	No groundwater encountered
Bottom of Hole at 11.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. 11.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-72 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 440 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Light Brown to Orange Brown, moist, sandy silty CLAY, trace mica (CL-ML)	6" Topsoil
Orange Brown to Tan, moist, fine to medium silty SAND with mica and weathered rock (SM)	No groundwater encountered
Bottom of Hole at 15.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. 8.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-73 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 434 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Orange Brown, moist, sandy silty CLAY with mica (CL-ML)	6" Topsoil
Brown, moist, fine to medium silty SAND with mica and weathered rock (SM)	No groundwater encountered
Bottom of Hole at 11.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-74 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 432 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Orange Brown, moist, sandy silty CLAY with mica (CL-ML)	8" Topsoil
Brown To Red/Brown, moist, fine silty SAND with mica and weathered rock (SM)	No groundwater encountered
Bottom of Hole at 16.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-75 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 436 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Brown to Orange Brown, moist, fine silty SAND with mica and boulder size rock fragments (SM)	8" Topsoil; No groundwater encountered
Bottom of Hole at 14.0' Refusal on Rock	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-76 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 388 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Brown, moist, silty SAND with mica and rock fragments (SM)	8" Topsoil; No groundwater encountered; Backfilled at completion
Bottom of Hole at 9.0' Refusal on Rock	

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-77 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 344 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Light Brown, moist, sandy silty CLAY with mica (CL-ML)	8" Topsoil
Tan/Gray, moist, fine micaceous silty SAND with rock fragments (SM)	No groundwater encountered
Bottom of Hole at 11.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. 5.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-78 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 378 ft — Date Started 4-16-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Light Brown, moist, sandy silty CLAY with mica (CL-ML)	8" Topsoil
Tan/Gray, moist, fine micaceous silty SAND with rock fragments (SM)	Groundwater encountered at 11.0'
Bottom of Hole at 12.5' Sidewalls caving	Backfilled at completion

Ground Water: At Completion 11.0 ft.; After 24 Hrs. 1.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-79 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 390 ft — Date Started 4-17-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Orange Brown, moist, sandy SILT, little clay and mica (CL-ML)	6" Topsoil
Brown/Tan/Gray, moist, silty SAND with mica and weathered rock (SM)	No groundwater encountered while drilling
Bottom of Hole at 13.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-80 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 392 ft — Date Started 4-17-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Orange Brown, moist, sandy SILT, little clay and mica (CL-ML)	6" Topsoil
Brown/Tan/Gray, moist, silty SAND with mica and weathered rock (SM)	No groundwater encountered while drilling
Bottom of Hole at 13.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. 7.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-81 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 384 ft — Date Started 4-17-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Brown, moist, silty SAND with mica and boulder size rock fragments	4" Topsoil; No groundwater encountered while drilling; Backfilled at completion
Bottom of Hole at 9.0' Refusal on Rock	

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — **Boring No.:** B-82 — **Location:** Howard County, Maryland — **Job #:** 11503A

Surf. Elev. 383 ft — Date Started 4-17-14 — Inspector R. Yonkers — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Orange Brown, moist, sandy SILT to silty SAND, trace clay and mica (SM-ML)	6" Topsoil
Tan to Brown, moist, micaceous silty SAND with weathered rock and rock fragments (SM)	No groundwater encountered while drilling
Bottom of Hole at 13.0'	Backfilled at completion

Ground Water: At Completion Dry ft.; After 24 Hrs. Dry ft.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008BP3.DWG PRINTED BY: RBOWEN 12.12.14 @ 11:35

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No.: SP-13-012, ECP-13-029, WP-13-165, PB CASE NO. 403

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
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REVISIONS			
REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	BP1

PROJECT: FINAL ROAD CONSTRUCTION PLANS FOR ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

STATE OF MARYLAND — BRANDON R. ... — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE: BORING LOGS

SHEET NUMBER: 52

F-14-124

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Patapsco Park — Boring No. B-83
Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 386 ft — Inspector R. Yonkers — Date Started 4-17-14 — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Brown, moist, sandy silty CLAY (CL-ML)	8" Topsoil
Brown/Tan/Orange, moist, silty SAND with weathered rock (SM)	No groundwater encountered
Bottom of Hole at 10.0'	Backfilled at completion

Ground Water: At Completion Dry ft; After 24 Hrs. Dry ft

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-84 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 420 ft — Inspector R. Yonkers — Date Started 4-17-14 — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Orange Brown to Brown, moist, silty SAND with mica and weathered rock (SM)	6" Topsoil; No groundwater encountered
Bottom of Hole at 11.0' Refusal on Rock	Backfilled at completion

Ground Water: At Completion Dry ft; After 24 Hrs. Dry ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-85 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 398 ft — Inspector R. Yonkers — Date Started 4-17-14 — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Dark Brown/Gray, moist silty SAND with mica and boulder size rock fragments (SM)	7" Topsoil; No groundwater encountered
Bottom of Hole at 11.0' Refusal on Rock	Backfilled at completion

Ground Water: At Completion Dry ft; After 24 Hrs. Dry ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-86 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 412 ft — Inspector R. Yonkers — Date Started 4-14-14 — Boring Method Backhoe — Date Completed 4-14-14

Description	Boring and Sampling Notes
Brown, moist, fine to coarse silty SAND (SM)	7" Topsoil
Gray/Brown, moist to wet, silty SAND with rock fragments (SM)	No groundwater encountered
Bottom of Hole at 13.0'	Backfilled at completion

Ground Water: At Completion 11.0 ft; After 24 Hrs. 11.0 ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-87 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 412 ft — Inspector R. Yonkers — Date Started 4-14-14 — Boring Method Backhoe — Date Completed 4-14-14

Description	Boring and Sampling Notes
Red/Brown, moist, fine to coarse silty SAND, trace clay (SM)	12" Topsoil
Gray/Brown, moist, silty SAND with mica and weathered rock (SM)	Groundwater encountered at 10.0'
Bottom of Hole at 13.0'	Backfilled at completion

Ground Water: At Completion 10.0 ft; After 24 Hrs. 9.0 ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-88 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 434 ft — Inspector R. Yonkers — Date Started 4-14-14 — Boring Method Backhoe — Date Completed 4-14-14

Description	Boring and Sampling Notes
Brown, moist, fine to coarse silty SAND, trace clay (SM)	12" Topsoil
Tan to Light Brown, moist, silty SAND with mica and weathered rock (SM)	Groundwater encountered at 11.0'
Bottom of Hole at 13.0'	Backfilled at completion

Ground Water: At Completion 11.0 ft; After 24 Hrs. 7.5 ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-89 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 448 ft — Inspector R. Yonkers — Date Started 4-14-14 — Boring Method Backhoe — Date Completed 4-14-14

Description	Boring and Sampling Notes
Brown, moist, fine to coarse silty SAND, trace clay (SM)	8" Topsoil; Groundwater encountered at 14.0'
Brown to Gray, moist, silty SAND with mica and rock fragments (SM)	Backfilled at completion
Bottom of Hole at 13.0'	

Ground Water: At Completion 14.5 ft; After 24 Hrs. 9.0 ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-90 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 457 ft — Inspector R. Yonkers — Date Started 4-14-14 — Boring Method Backhoe — Date Completed 4-14-14

Description	Boring and Sampling Notes
Brown, moist, fine silty SAND, trace clay with mica and weathered rock (SM)	8" Topsoil; No groundwater encountered
Bottom of Hole at 17.5'	Backfilled at completion

Ground Water: At Completion Dry ft; After 24 Hrs. Dry ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. B-91 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 395 ft — Inspector R. Yonkers — Date Started 4-17-14 — Boring Method Backhoe — Date Completed 4-17-14

Description	Boring and Sampling Notes
Brown, moist, sandy silty CLAY (CL-ML)	10" Topsoil
Brown/Tan/Orange, moist to wet silty SAND with weathered rock (SM)	Groundwater encountered at 10.0'
Bottom of Hole at 15.0' Sidewalls caving due to groundwater	Backfilled at completion

Ground Water: At Completion 14.5 ft; After 24 Hrs. 7.5 ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. SWM-1 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 411 ft — Inspector R. Yonkers — Date Started 4-14-14 — Boring Method Backhoe — Date Completed 4-14-14

Description	Boring and Sampling Notes
Brown, moist, silty SAND with boulder size rock fragments (SM)	8" Topsoil
Tan/Gray, moist, silty SAND with weathered rock and mica (SM)	In-situ Infiltration pipe set at 5.0'; No groundwater encountered; Backfilled at completion
Bottom of Hole at 10.0' Refusal on Rock	

Ground Water: At Completion Dry ft; After 24 Hrs. Dry ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. SWM-2 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 422 ft — Inspector R. Yonkers — Date Started 4-14-14 — Boring Method Backhoe — Date Completed 4-14-14

Description	Boring and Sampling Notes
Orange/Brown to Tan/Gray, moist, fine to medium silty SAND with mica and weathered rock	10" Topsoil; No groundwater encountered; In-situ Infiltration pipe set at 15.0'
Bototm of Hole at 21.0' Refusal on Rock	Backfilled at completion

Ground Water: At Completion Dry ft; After 24 Hrs. 19.0 ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. SWM-3 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 384 ft — Inspector R. Yonkers — Date Started 4-16-14 — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Brown/Tan/Orange, moist, silty SAND with mica, weathered rock and rock fragments (SM)	6" Topsoil; No groundwater encountered; In-siut infiltration pipe set at 8.0'
Bottom of Hole at 13.0' Refusal on Rock	Backfilled at completion

Ground Water: At Completion Dry ft; After 24 Hrs. Dry ft

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. — RECORD OF SOIL EXPLORATION
Project Name: Patapsco Park — Boring No. SWM-4 — Location: Howard County, Maryland — Job # 11503A
Surf. Elev. 373 ft — Inspector R. Yonkers — Date Started 4-16-14 — Boring Method Backhoe — Date Completed 4-16-14

Description	Boring and Sampling Notes
Tan, moist, sandy SILT with mica and clay (CL-ML)	8" Topsoil
Tan, moist, fine to medium silty SAND with mica and weathered rock (SM)	No groundwater encountered; In-situ Infiltration pipe set at 5.0'; Backfilled at completion
Bottom of Hole at 10.0'	

Ground Water: At Completion Dry ft; After 24 Hrs. Dry ft

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — BB — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008BP3.DWG PRINTED BY: RBOWEN 12.12.14 @ 11:35

OWNER: PM PATAPSCO LLC, 12116 ARBIE ROAD, SILVER SPRING, MD 20904, CONTACT: MR. SIMON ROSENBERG, PHONE: (301) 622-0645

DEVELOPER: NAI THE MICHAEL COMPANIES, 10100 BUSINESS PARKWAY, LANHAM, MD 20706, CONTACT: BRIAN GOLDSTEIN, PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012, ECP-13-029, WP-13-165, PB CASE NO. 403

BOHLER ENGINEERING
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CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

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REVISIONS			
REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.: MD132008
DRAWN BY: RLB
CHECKED BY: BRR
DATE: 12/11/14
SCALE: AS SHOWN
CAD I.D.: BP1

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

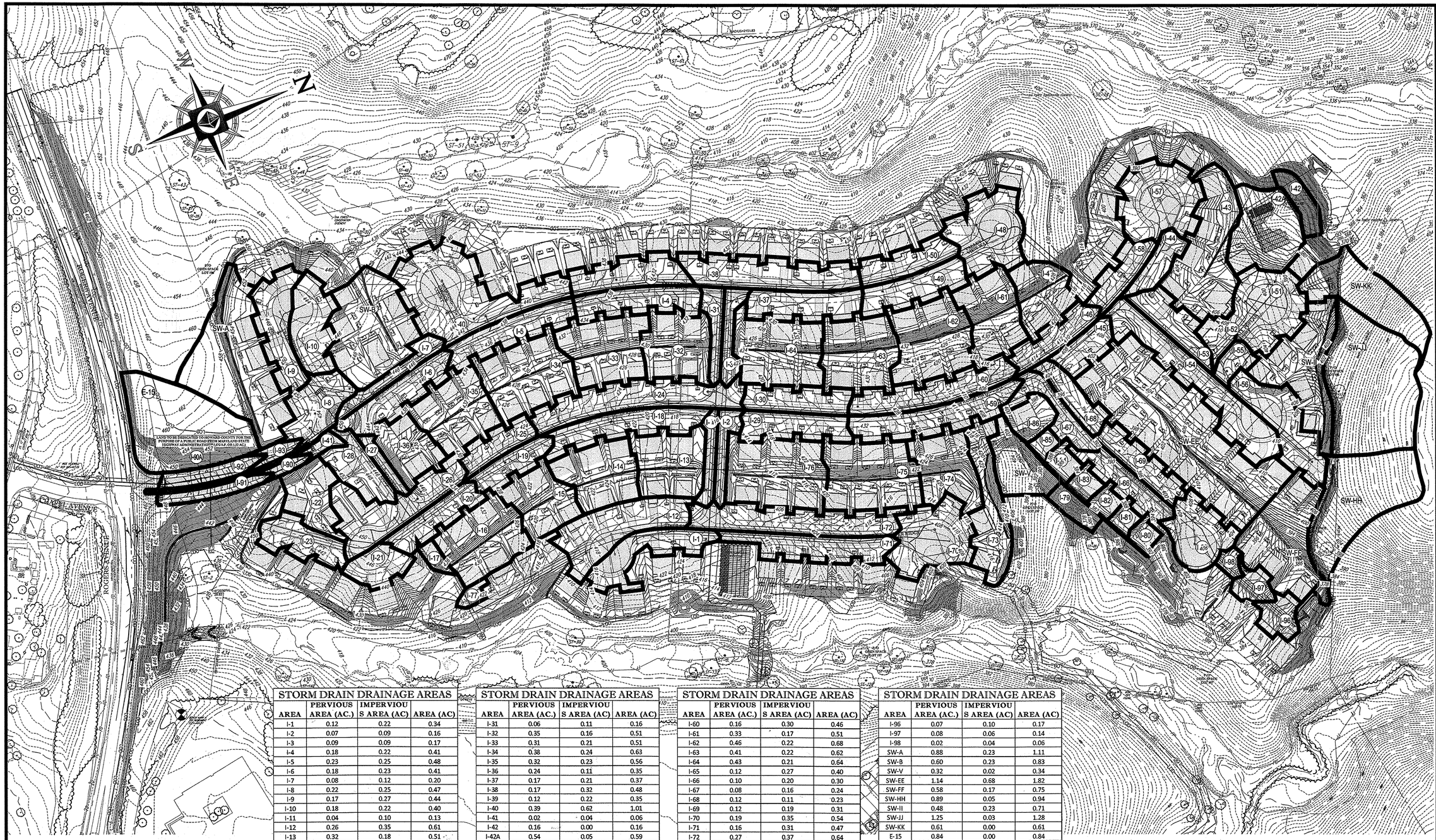
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

STATE OF MARYLAND — BRANDON ROWE — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE: BORING LOGS

SHEET NUMBER: 53

F-14-124



STORM DRAIN DRAINAGE AREAS

AREA	PERVIOUS AREA (AC.)	IMPERVIOUS AREA (AC)	AREA (AC)
I-1	0.12	0.22	0.34
I-2	0.07	0.09	0.16
I-3	0.09	0.09	0.17
I-4	0.18	0.22	0.41
I-5	0.23	0.25	0.48
I-6	0.18	0.23	0.41
I-7	0.08	0.12	0.20
I-8	0.22	0.25	0.47
I-9	0.17	0.27	0.44
I-10	0.18	0.22	0.40
I-11	0.04	0.10	0.13
I-12	0.26	0.35	0.61
I-13	0.32	0.18	0.51
I-14	0.33	0.20	0.53
I-15	0.26	0.17	0.42
I-16	0.35	0.26	0.61
I-17	0.05	0.02	0.07
I-18	0.19	0.25	0.44
I-19	0.11	0.15	0.25
I-20	0.13	0.19	0.32
I-21	0.09	0.15	0.24
I-22	0.24	0.11	0.35
I-23	0.16	0.18	0.33
I-24	0.25	0.40	0.65
I-25	0.10	0.17	0.27
I-26	0.21	0.40	0.61
I-27	0.02	0.07	0.09
I-28	0.15	0.16	0.31
I-29	0.14	0.19	0.33
I-30	0.11	0.21	0.31

STORM DRAIN DRAINAGE AREAS

AREA	PERVIOUS AREA (AC.)	IMPERVIOUS AREA (AC)	AREA (AC)
I-31	0.06	0.11	0.16
I-32	0.35	0.16	0.51
I-33	0.31	0.21	0.51
I-34	0.38	0.24	0.63
I-35	0.32	0.23	0.56
I-36	0.24	0.11	0.35
I-37	0.17	0.21	0.37
I-38	0.17	0.32	0.48
I-39	0.12	0.22	0.35
I-40	0.39	0.62	1.01
I-41	0.02	0.04	0.06
I-42	0.16	0.00	0.16
I-42A	0.54	0.05	0.59
I-43	0.58	0.25	0.83
I-44	0.10	0.09	0.19
I-45	0.09	0.12	0.21
I-46	0.11	0.19	0.30
I-47	0.25	0.13	0.38
I-48	0.20	0.37	0.56
I-49	0.16	0.20	0.36
I-50	0.03	0.25	0.28
I-51	0.20	0.34	0.53
I-52	0.05	0.05	0.09
I-53	0.14	0.19	0.33
I-54	0.30	0.43	0.73
I-55	0.06	0.07	0.13
I-56	0.25	0.25	0.50
I-57	0.24	0.39	0.63
I-58	0.13	0.14	0.27
I-59	0.24	0.31	0.55

STORM DRAIN DRAINAGE AREAS

AREA	PERVIOUS AREA (AC.)	IMPERVIOUS AREA (AC)	AREA (AC)
I-60	0.16	0.30	0.46
I-61	0.33	0.17	0.51
I-62	0.46	0.22	0.68
I-63	0.41	0.22	0.62
I-64	0.43	0.21	0.64
I-65	0.12	0.27	0.40
I-66	0.10	0.20	0.30
I-67	0.08	0.16	0.24
I-68	0.12	0.11	0.23
I-69	0.12	0.19	0.31
I-70	0.19	0.35	0.54
I-71	0.16	0.31	0.47
I-72	0.27	0.37	0.64
I-73	0.39	0.13	0.51
I-74	0.35	0.14	0.49
I-75	0.41	0.29	0.70
I-76	0.48	0.26	0.74
I-77	0.04	0.03	0.07
I-79	0.13	0.00	0.13
I-80	0.05	0.04	0.09
I-81	0.05	0.04	0.09
I-82	0.05	0.04	0.09
I-83	0.05	0.04	0.09
I-84	0.05	0.04	0.09
I-85	0.02	0.04	0.07
I-86	0.14	0.04	0.18
I-90	0.03	0.03	0.07
I-91	0.07	0.07	0.14
I-92	0.04	0.14	0.18
I-93	0.03	0.04	0.08

STORM DRAIN DRAINAGE AREAS

AREA	PERVIOUS AREA (AC.)	IMPERVIOUS AREA (AC)	AREA (AC)
I-95	0.07	0.10	0.17
I-97	0.08	0.06	0.14
I-98	0.02	0.04	0.06
SW-A	0.88	0.23	1.11
SW-B	0.60	0.23	0.83
SW-V	0.32	0.02	0.34
SW-EE	1.14	0.68	1.82
SW-FF	0.58	0.17	0.75
SW-HH	0.89	0.05	0.94
SW-II	0.48	0.23	0.71
SW-JJ	1.25	0.03	1.28
SW-KK	0.61	0.00	0.61
E-15	0.84	0.00	0.84
I-90A	0.07	0.00	0.07

LEGEND

- IMPERVIOUS AREA
- LOD — LIMIT OF DISTURBANCE
- (A-1) DRAINAGE DIVIDE LABEL
- DRAINAGE AREA DIVIDE

100 50 25 0 100
1"= 100'

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

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H:\2015\01\#01203\7\[SUBMIXED]PLAN SET\[FINAL GRADING AND ROAD CONSTRUCTION PLANS]#01203SWALDWG PRINTED BY: RSCHICH 10.22.15 @ 13:39

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART				
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A	LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23438	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND
CENSUS TRACT:				

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40809, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING

CORPORATE OFFICE:
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ALBANY, NY
POUGHKEEPSIE, NY
ROCHESTER, NY
CENTER VALLEY, PA
EXTON, PA
EWING, NJ
TOWSON, MD
STERLING, VA
RICHMOND, VA
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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=100'
CAD I.D.:	DA4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

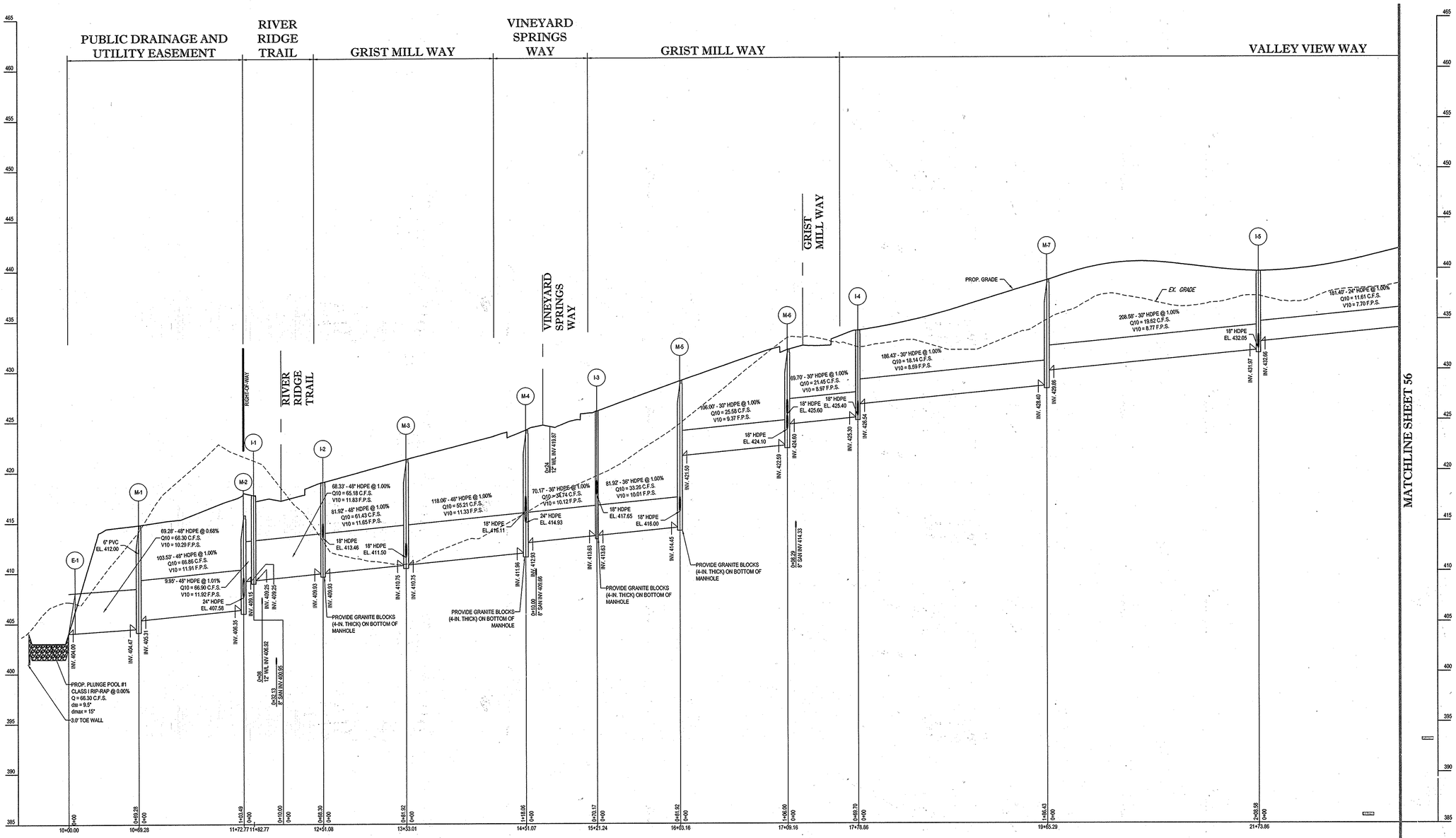
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — PROFESSIONAL ENGINEER — No. 40809 — STATE OF MARYLAND

SHEET TITLE:
STORM DRAIN DRAINAGE AREA MAP

SHEET NUMBER:
54

F-14-124



PROPOSED STORM PROFILE - STM E-1 TO STM I-5

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

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12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR LF: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ♦ MORRISTOWN, NJ
OFFICES ♦ SOUTHBOROUGH, MA ♦ ALBANY, NY ♦ CHALFONT, PA ♦ CHARLOTTE, NC ♦ TAMPA, FL ♦ BOWIE, MD ♦ TOWSON, MD ♦ FREDERICK, MD ♦ WARRENTON, VA ♦ CHESTERFIELD, MO ♦ EXTON (MALVERN), PA ♦ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PD1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

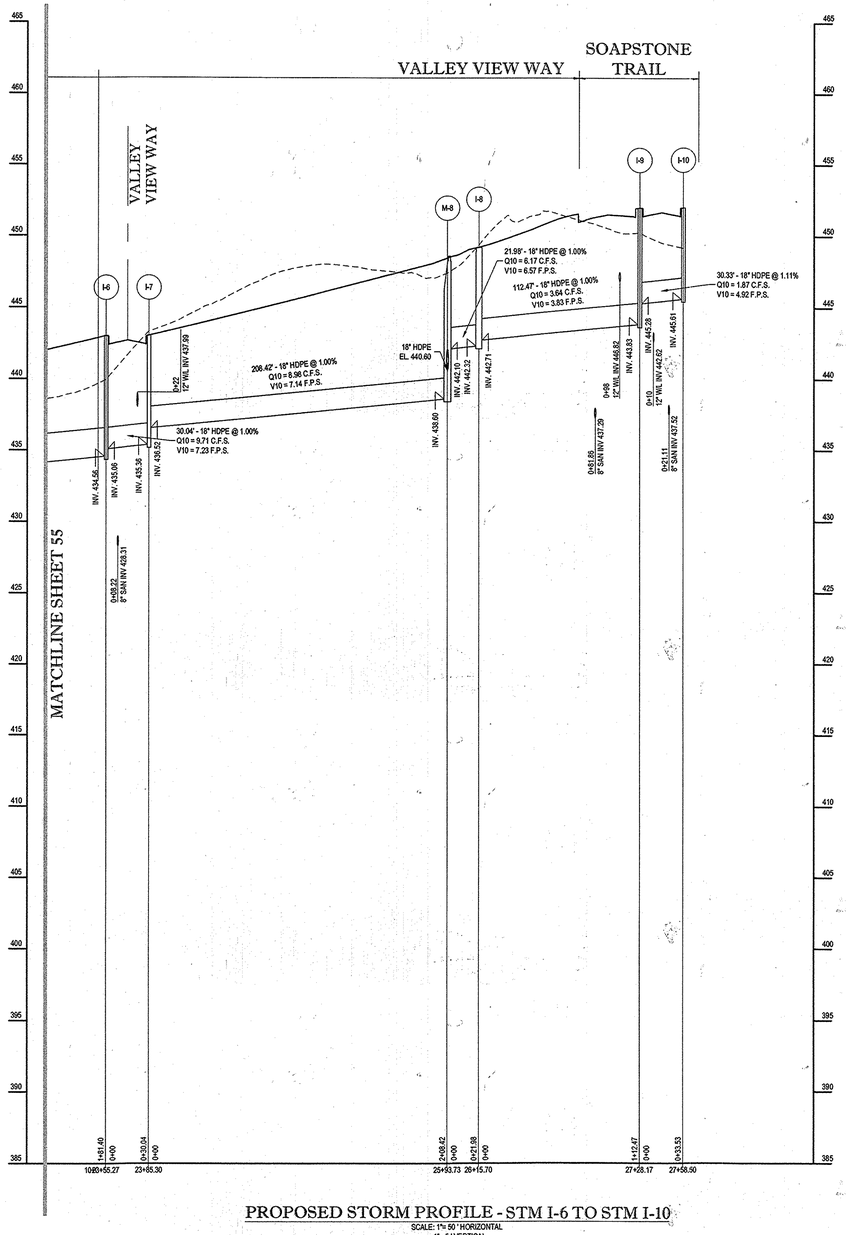
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

BRANDON R. ROWE — No. 40808 — PROFESSIONAL ENGINEER — 12/11/14

SHEET TITLE:
STORM DRAIN PROFILES

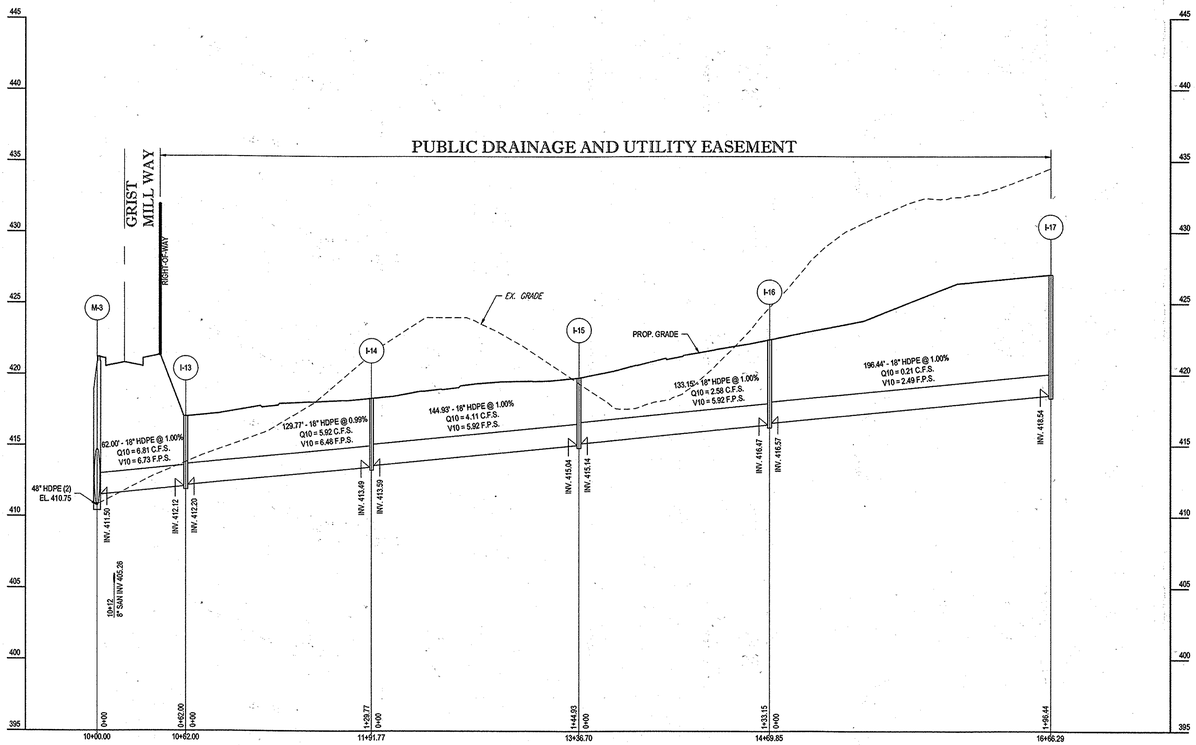
SHEET NUMBER:
55

F-14-124



PROPOSED STORM PROFILE - STM I-6 TO STM I-10

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM M-3 TO STM I-17

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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CIVIL & CONSULTING ENGINEERS
SURVEYORS
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ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ BOWIE, MD ◆ CHARLOTTE, NC ◆ CHICAGO, IL ◆ MARLTON, NJ ◆ PITTSBURGH, PA ◆ RONKONKOMA, NY ◆ SOUTHBOROUGH, MA ◆ STERLING, VA ◆ WILMINGTON, DE ◆ CENTER VALLEY, PA ◆ FORT LAUDERDALE, FL ◆ TAMPA, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD15201
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

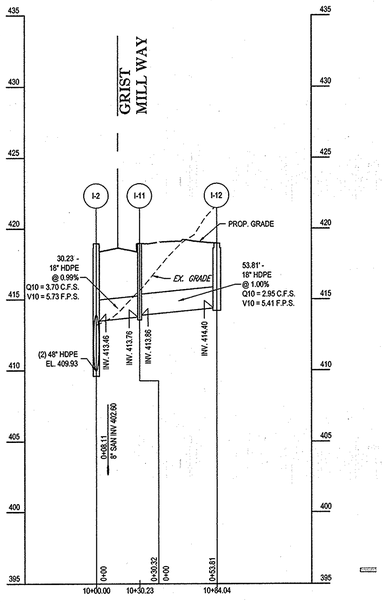
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
NO. 40808
PROFESSIONAL ENGINEER
12/15

SHEET TITLE:
STORM DRAIN PROFILES

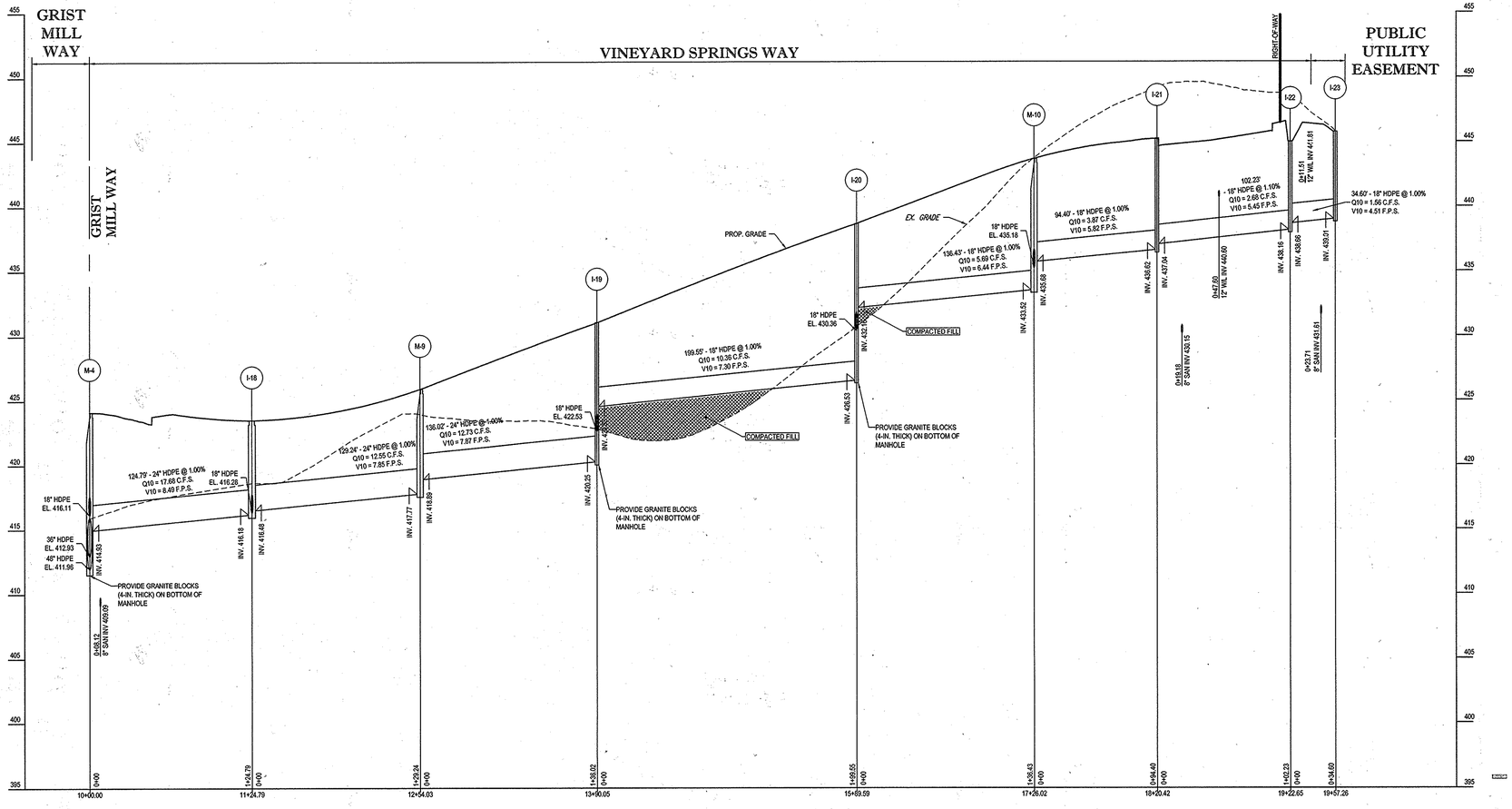
SHEET NUMBER:
56

F-14-124



PROPOSED STORM PROFILE - STM I-2 TO STM I-12

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM M-4 TO STM I-23

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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W:\2013\MD132008\DRAWINGS\FINAL SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008PROFILE2.DWG PRINTED BY: RBOWEN 12.13.14 @ 1:04 P

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OFFICES ♦ SOUTHBOROUGH, MA ♦ ALBANY, NY ♦ ALBUQUERQUE, NM ♦ CHALFONT, PA ♦ CHERRY HILL, NJ ♦ TAMPA, FL ♦ BOWIE, MD ♦ TOWSON, MD ♦ STERLING, VA ♦ WARRENTON, VA ♦ WILLIAMSBURG, VA ♦ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

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(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PDH

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. ROWE — STATE OF MARYLAND — No. 40888 — PROFESSIONAL ENGINEER

SHEET TITLE:
STORM DRAIN PROFILES

SHEET NUMBER:
57

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

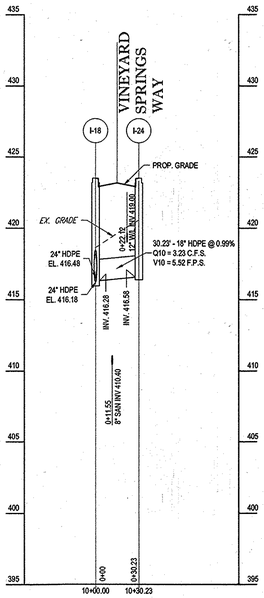
PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR LF: 15149/405 & 15149/407	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

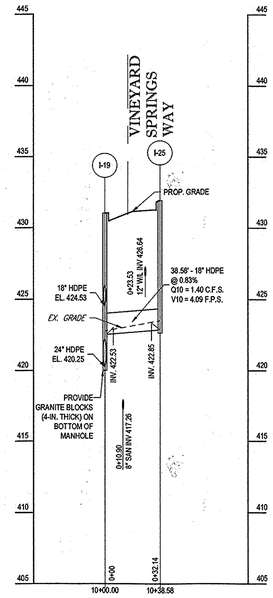
PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40888, EXPIRATION DATE: 7/3/2015.

F-14-124



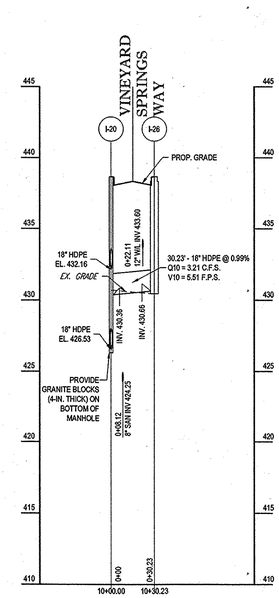
PROPOSED STORM PROFILE - STM I-18 TO STM I-24

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



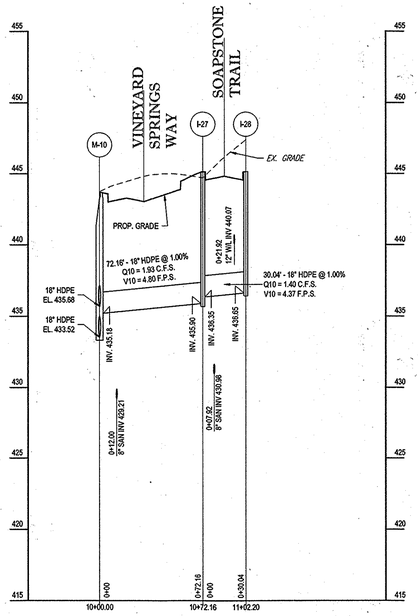
PROPOSED STORM PROFILE - STM I-19 TO STM I-25

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



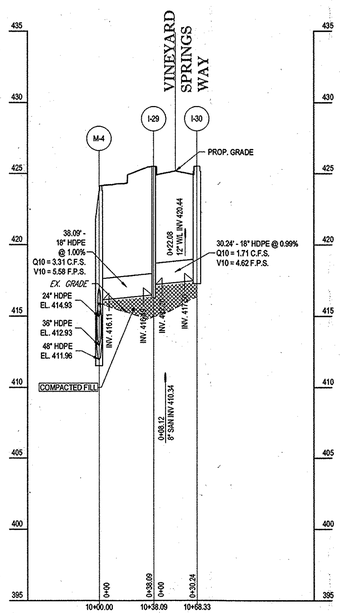
PROPOSED STORM PROFILE - STM I-20 TO STM I-26

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM M-10 TO STM I-28

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM M-4 TO STM I-30

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/2/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHERRY HILL, NJ ◆ CENTERVALLEY, PA ◆ TAMPA, FL ◆ EXTON, PA ◆ TOWSON, MD ◆ STERLING, VA ◆ WILLIAMSBURG, VA ◆ FORT LAUDERDALE, FL ◆ PALM BEACH GARDENS, FL
THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE PLANS WAS IN RESPresponsible charge over the preparation of the design plans and specifications. The professional engineer is not responsible for construction means, methods, techniques, sequences, procedures, safety precautions and programs in connection with the construction, and he shall not be responsible for the contractor's failure to carry out the construction in accordance with the construction documents. The professional engineer shall not be responsible for the acts or omissions of any person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the final construction documents.

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

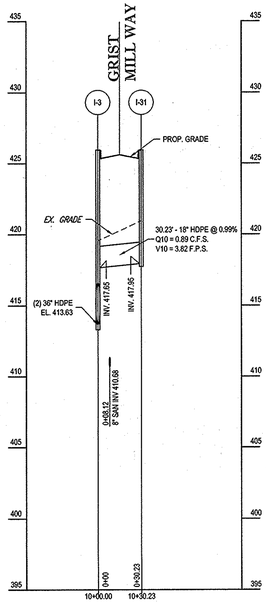
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE — BRANDON R. ROWE — No. 40808 — PROFESSIONAL ENGINEER — 12/31/15

SHEET TITLE:
STORM DRAIN PROFILES

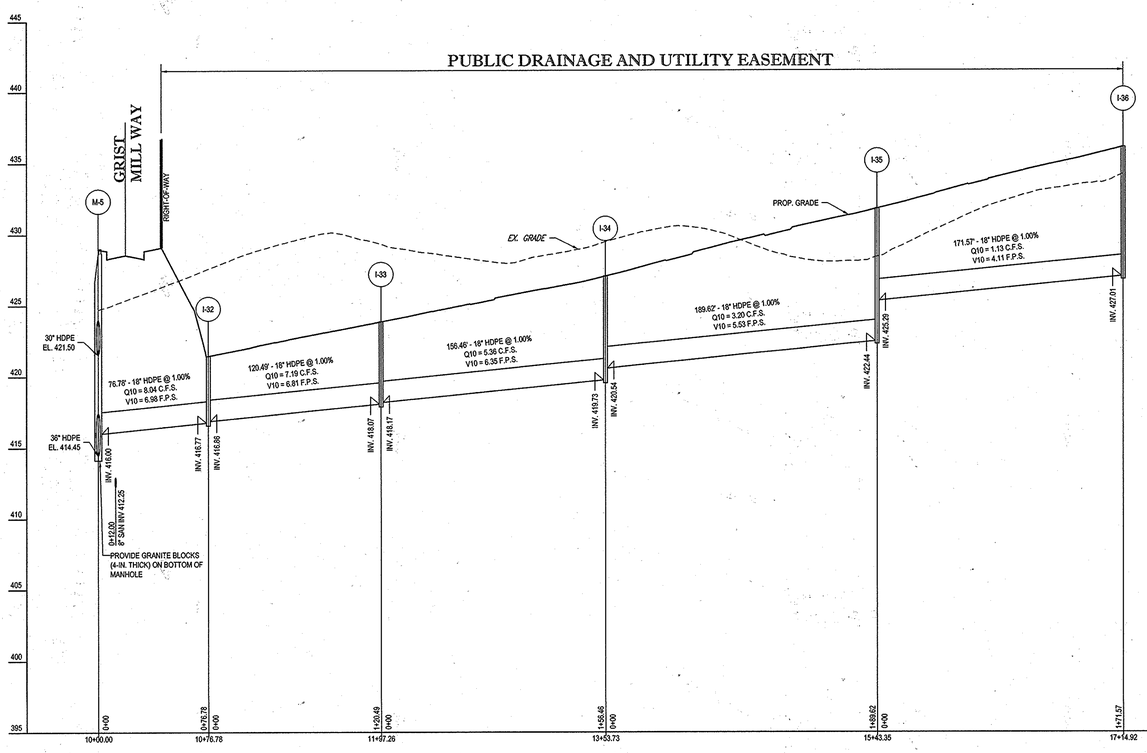
SHEET NUMBER:
58

F-14-124



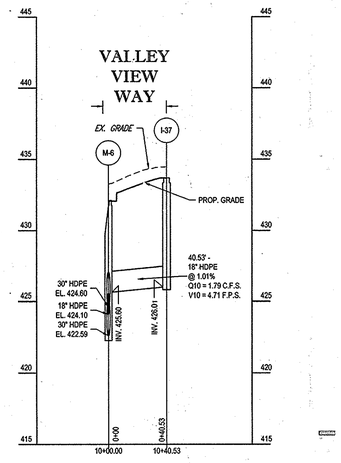
PROPOSED STORM PROFILE - STM I-3 TO STM I-31

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROPOSED STORM PROFILE - STM M-5 TO STM I-36

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROPOSED STORM PROFILE - STM M-6 TO STM I-37

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/4955 & 15149/4957	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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♦ CHERRY HILL, NJ
♦ TAMPA, FL
♦ BOWIE, MD
♦ TOWSON, MD
♦ ROCKVILLE, MD
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REVISIONS

REV	DATE	COMMENT	BY

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PD1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

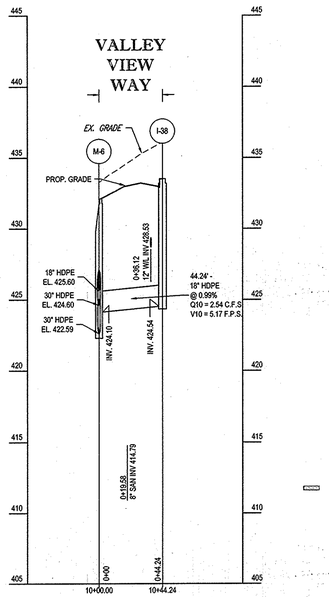
BRANDON R. ROWE
STATE OF MARYLAND
No. 40808
PROFESSIONAL ENGINEER

SHEET TITLE:
STORM DRAIN PROFILES

SHEET NUMBER:
59

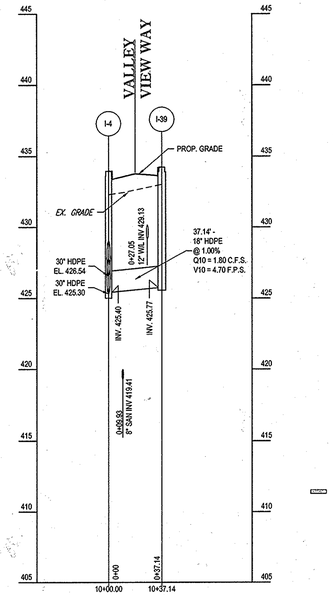
F-14-124

W:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008PROFILE.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:06 P



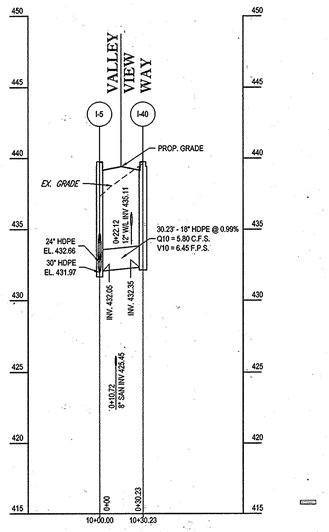
PROPOSED STORM PROFILE - STM M-6 TO STM I-38

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



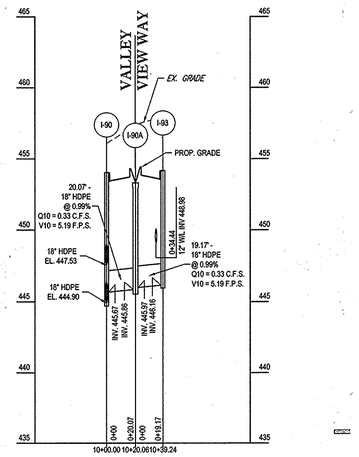
PROPOSED STORM PROFILE - STM I-4 TO STM I-39

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



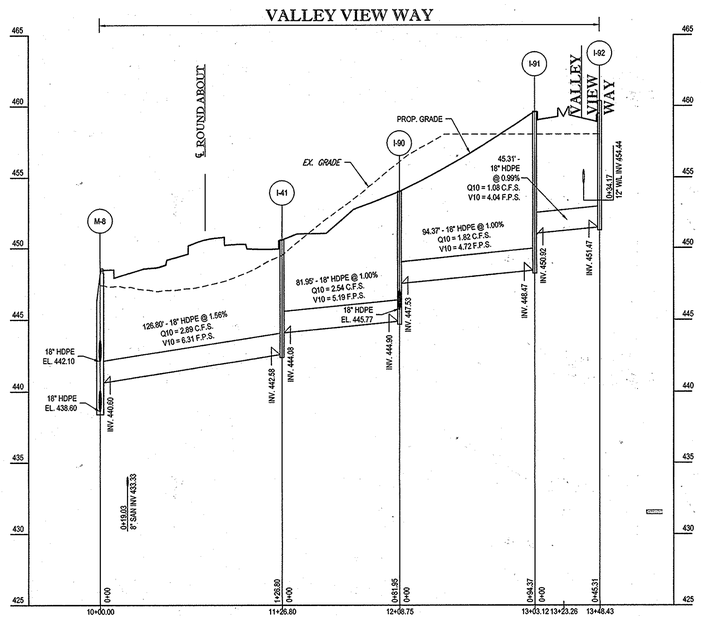
PROPOSED STORM PROFILE - STM I-5 TO STM I-40

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROPOSED STORM PROFILE - STM I-90 TO STM I-93

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROPOSED STORM PROFILE - STM M-8 TO STM I-92

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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W:\2015\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008GLOBAL PRINTED BY: RBORUCH 10:13:14 AM 1:05 P

BOHLER ENGINEERING
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SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ♦ NEW JERSEY, NJ
OTHER OFFICES: ♦ SOUTHBOROUGH, MA ♦ ALBANY, NY ♦ BINGHAMTON, NY ♦ CHALFONT, PA ♦ CENTER VALLEY, PA ♦ TAMPA, FL ♦ BOWIE, MD ♦ TOWSON, MD ♦ FREDERICK, MD ♦ WARRENTON, VA ♦ FORT LAUDERDALE, FL ♦ PHILADELPHIA, PA
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REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE — MISS UTILITY OF DELMARVA

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PDI

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
No. 40908
PROFESSIONAL ENGINEER
STATE OF MARYLAND

SHEET TITLE:
STORM DRAIN PROFILES

SHEET NUMBER:
60

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

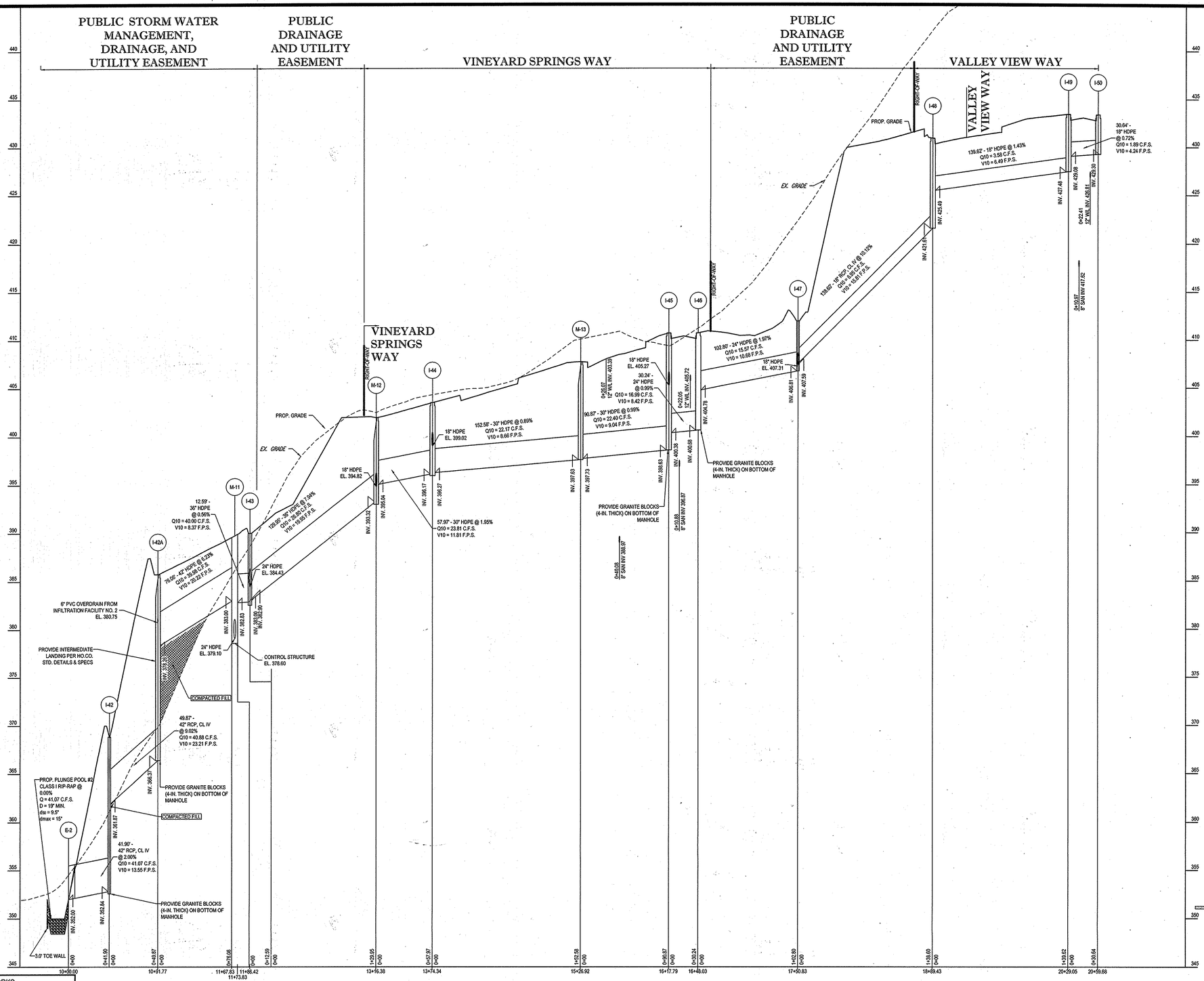
DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR LIR: 15149/495 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40908, EXPIRATION DATE: 7/3/2015



PROPOSED STORM PROFILE - STM E-2 TO STM I-50

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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N:\2015\md132008\DRAWINGS\PLAN SETS\final grading and road construction plans\md132008fcplans printed by: rkowe 12.12.14 @ 1:07 P

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
◆ WALL, NJ
OFFICES:
◆ BOWIE, MD
◆ TOWSON, MD
◆ ELKRIDGE, MD
◆ WARRENTON, VA
◆ HARRISBURG, PA
◆ SOUTHBOROUGH, MA
◆ ALBANY, NY
◆ ROCHESTER, NY
◆ CHALFONT, PA
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REVISIONS

REV	DATE	COMMENT	BY

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MISS UTILITY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.
IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PD1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
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B.R. ROWE
STATE OF MARYLAND
PROFESSIONAL ENGINEER

OWNER:
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12116 ARBIE ROAD
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CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

SHEET TITLE:
STORM DRAIN PROFILES

SHEET NUMBER:
61

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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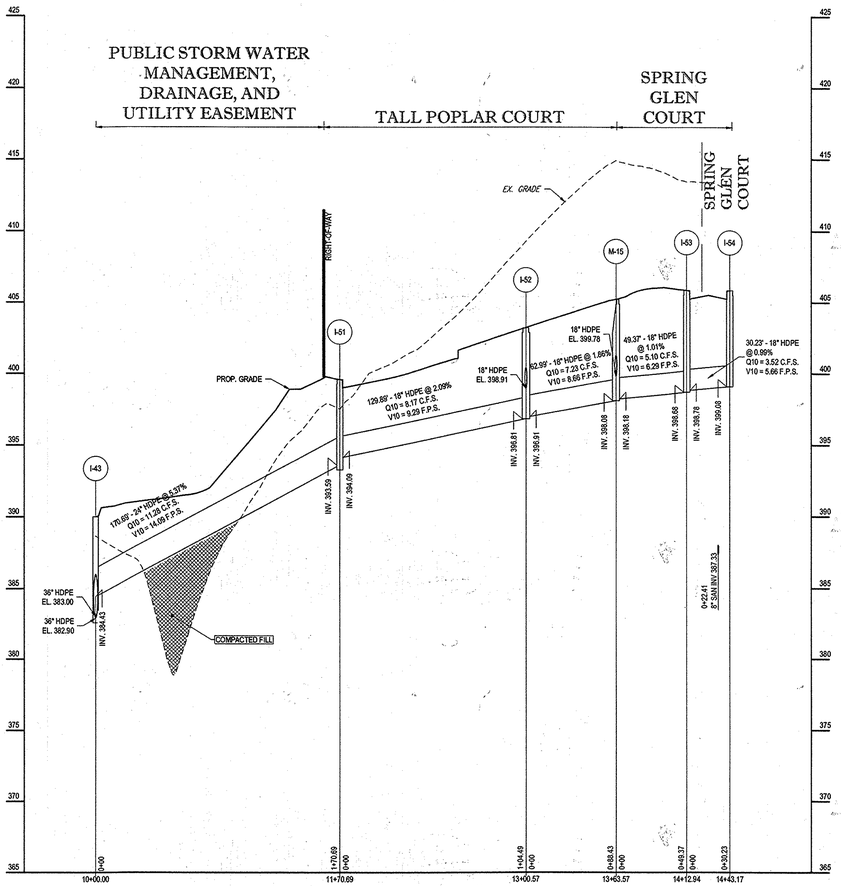
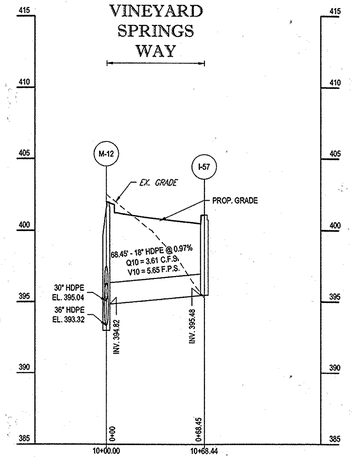


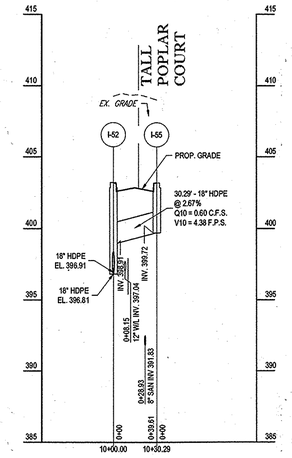
PROPOSED STORM PROFILE - STM I-43 TO STM I-54

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



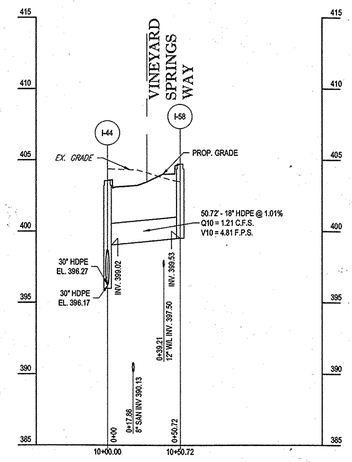
PROPOSED STORM PROFILE - STM M-12 TO STM I-57

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



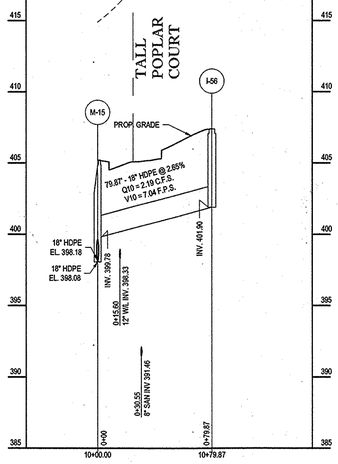
PROPOSED STORM PROFILE - STM I-52 TO STM I-55

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM I-44 TO STM I-58

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM M-15 TO STM I-56

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
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H:\2015\MD152013\DRAWINGS\PLAN SET\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013SPROFILE PRINTED BY: RSCHICK 10:23:15 @ 12:43

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART				
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 23421 TO 23438	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40806, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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OFFICES:
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◆ ALBANY, NY
◆ ROMOCONOMA, NY
◆ CHESTER VALLEY, PA
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◆ TOWSON, MD
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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

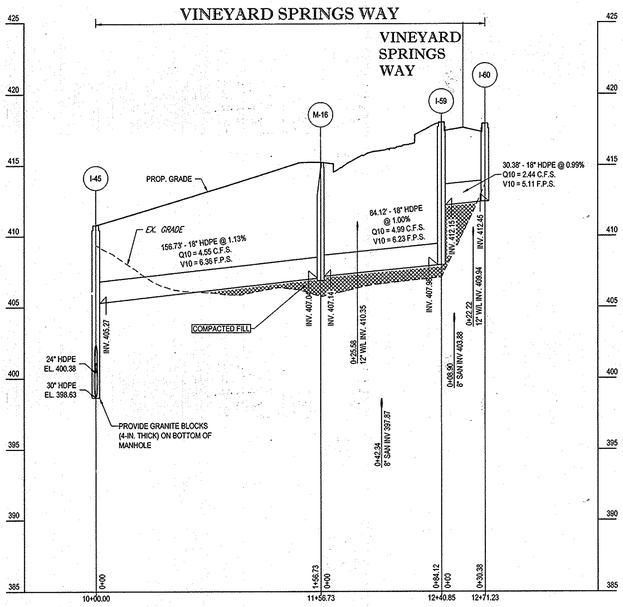
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
STATE OF MARYLAND
BRANDON R. ROWE
PROFESSIONAL ENGINEER
No. 40806

SHEET TITLE:
STORM DRAIN PROFILES

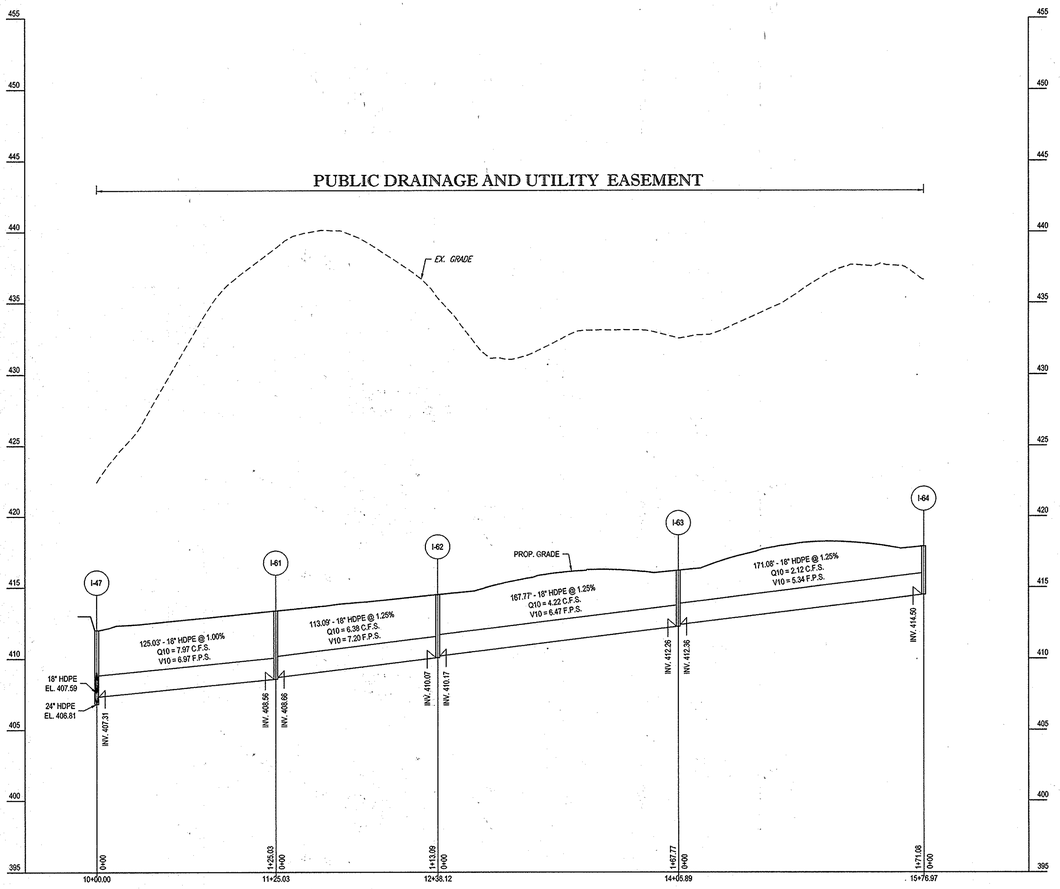
SHEET NUMBER:
62

F-14-124



PROPOSED STORM PROFILE - STM I-45 TO STM I-60

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROPOSED STORM PROFILE - STM I-47 TO STM I-64

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

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PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15145/6455 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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BOHLER ENGINEERING
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LANDSCAPE ARCHITECTS
CORPORATE OFFICE:
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REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PD1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
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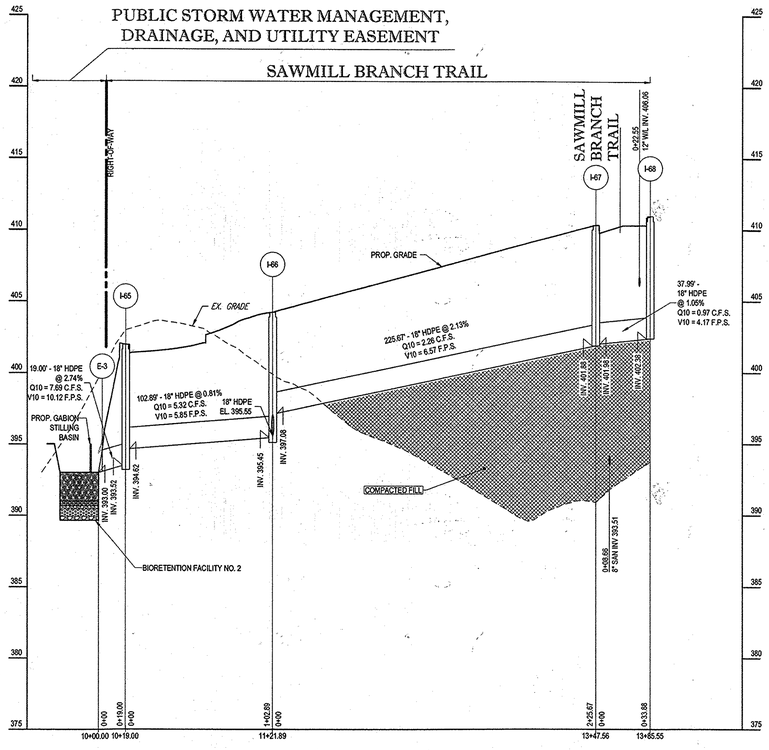
www.BohlerEngineering.com

BRANDON R. ROWE
STATE OF MARYLAND — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE:
STORM DRAIN PROFILES

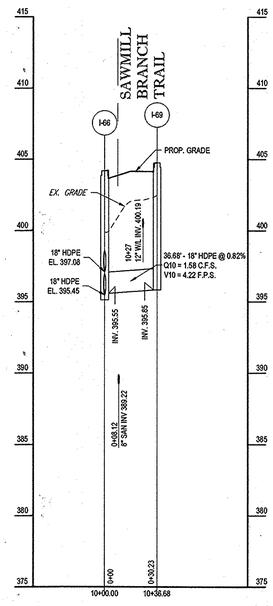
SHEET NUMBER:
63

H:\2013\FLM\132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008PROFILE.DWG PRINTED BY: RBOWEN 12.15.14 @ 3:25 P



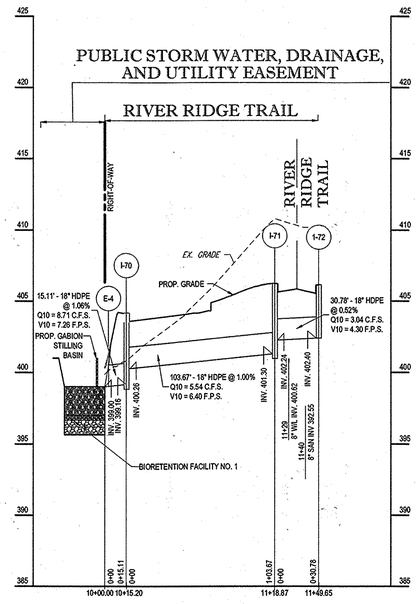
PROPOSED STORM PROFILE - STM E-3 TO STM I-68

SCALE: 1"= 50 " HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM I-66 TO STM I-69

SCALE: 1"= 50 " HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM E-4 TO STM I-72

SCALE: 1"= 50 " HORIZONTAL
1"= 5 ' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051 .

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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H:\2013\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013PGRADING PRINTED BY: RBOWEN 10:22:15 @ 12:43

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
♦ WARREN, NJ

OFFICES:
♦ SOUTHBOROUGH, MA
♦ ALBANY, NY
♦ RONKONKOMA, NY
♦ PHOENIXVILLE, PA
♦ CENTER VALLEY, PA
♦ DENVER, CO
♦ TOWSON, MD
♦ TOWSON, MD
♦ STERLING, VA
♦ MANASSAS, VA
♦ FORT LAUDERDALE, FL
♦ PALM BEACH GARDENS, FL

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REVISIONS

REV	DATE	COMMENT	BY
.1	10/21/15	RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	PD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

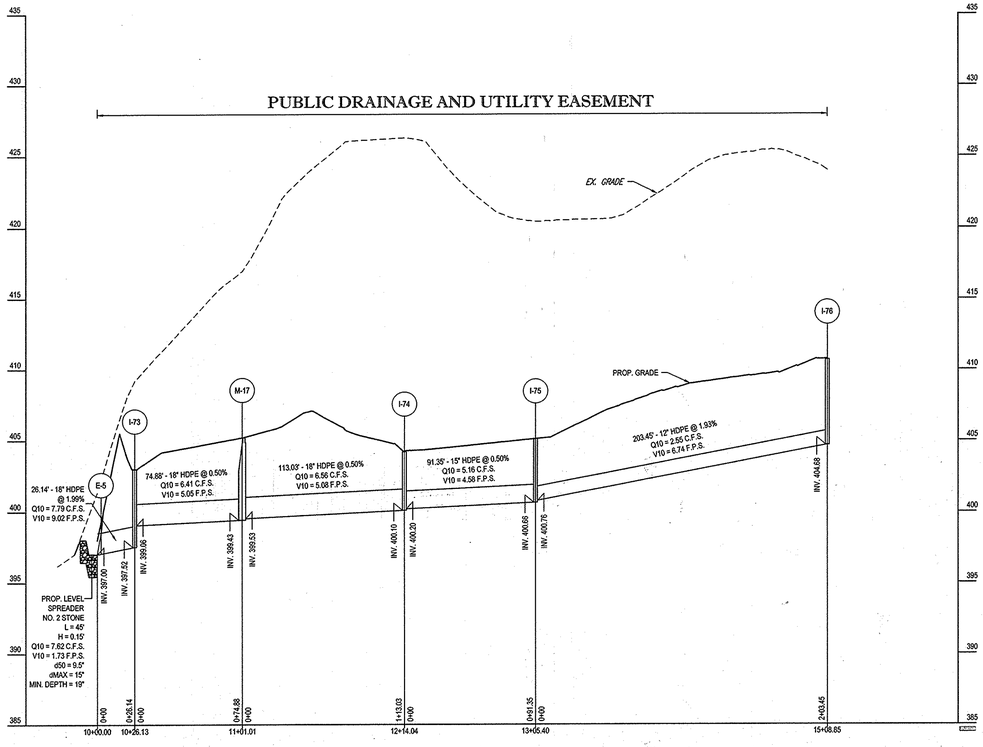
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
STATE OF MARYLAND
BRANDON R. ROWE
No. 40808
PROFESSIONAL ENGINEER
REGISTERED PROFESSIONAL ENGINEER
11/9/15

SHEET TITLE:
STORM DRAIN PROFILES

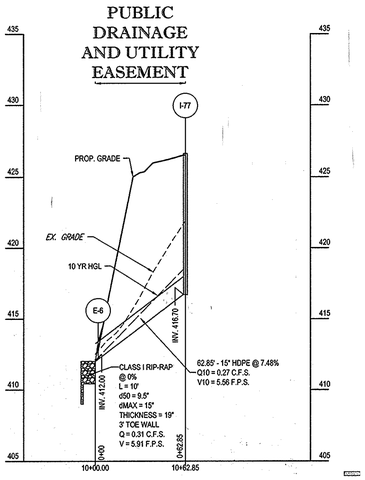
SHEET NUMBER:
64

F-14-124



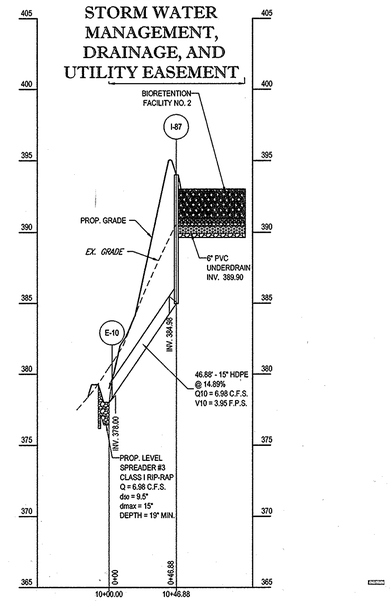
PROPOSED STORM PROFILE - STM E-5 TO STM I-76

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



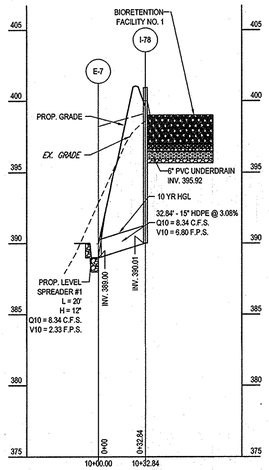
PROPOSED STORM PROFILE - STM E-6 TO STM I-77

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



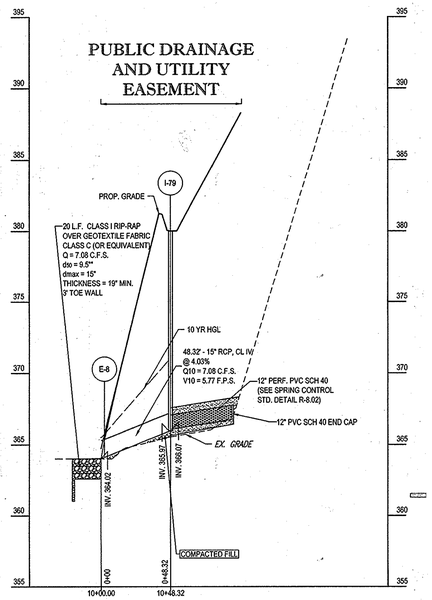
PROPOSED STORM PROFILE - STM E-10 TO STM I-87

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



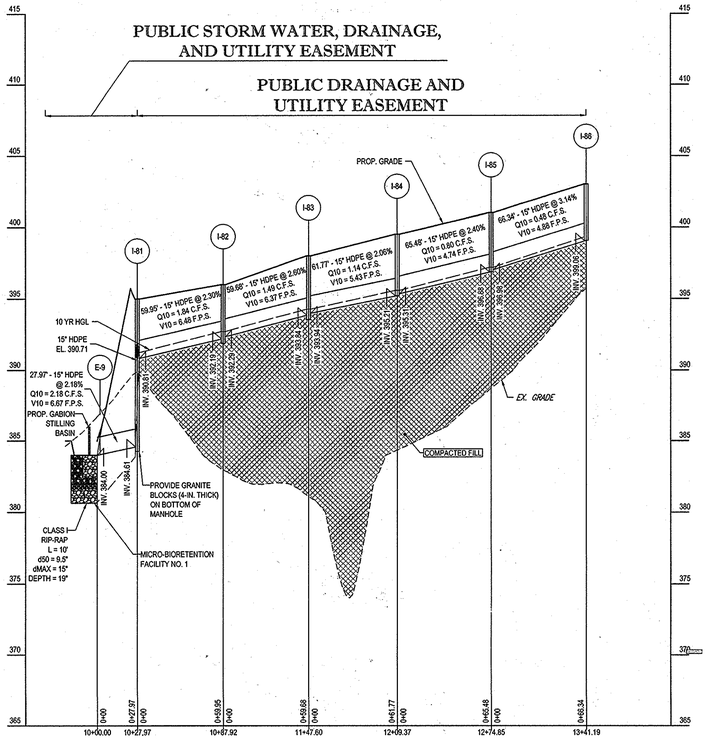
PROPOSED STORM PROFILE - STM E-7 TO STM I-78

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



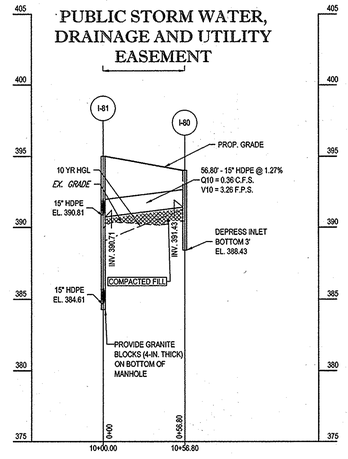
PROPOSED STORM PROFILE - STM E-8 TO STM I-79

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM E-9 TO STM I-86

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL



PROPOSED STORM PROFILE - STM I-81 TO STM I-80

SCALE: 1"= 50 ' HORIZONTAL
1"= 5 ' VERTICAL

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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REVISIONS

REV	DATE	COMMENT	BY

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132006
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PD1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE
STATE OF MARYLAND
REGISTERED PROFESSIONAL ENGINEER
No. 40888
PROFESSIONAL ENGINEER
12/11/14

SHEET TITLE:
STORM DRAIN PROFILES

SHEET NUMBER:
65

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

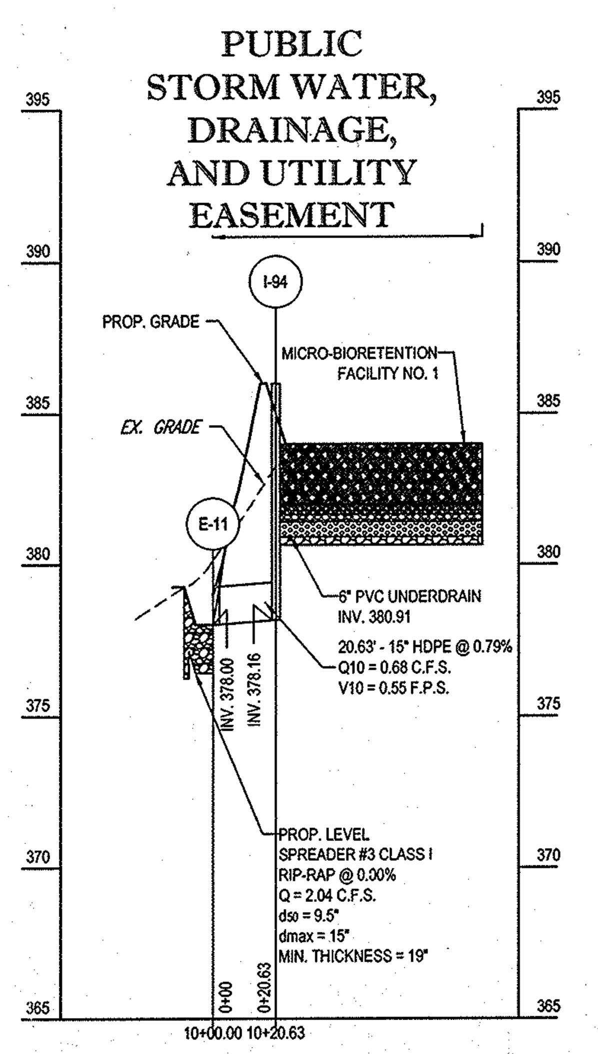
PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK	SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR LIF: 15149495 & 15149497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17
ELECT DISTR: 2ND	CENSUS TRACT:		

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

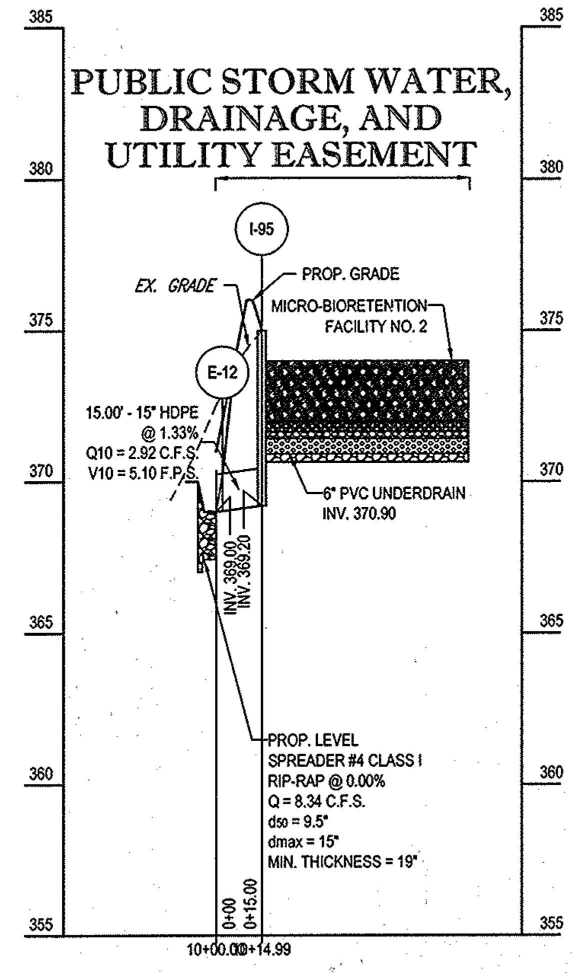
PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40888, EXPIRATION DATE: 7/3/2015

N:\2013\MD132006\ENGINEER\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132006PROFILE.DWG PRINTED BY: BROWER 12.12.14 @ 9:05 P



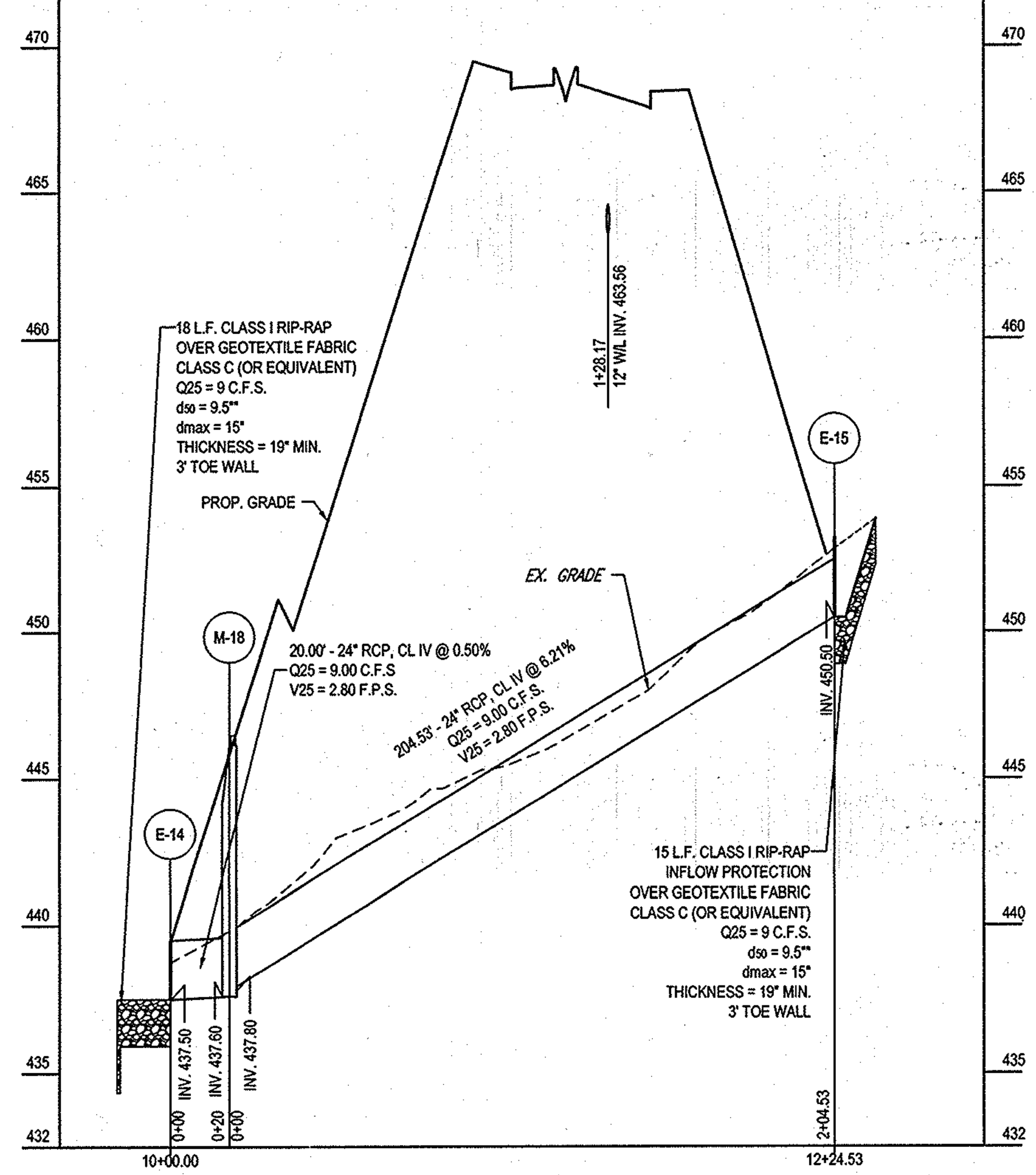
PROPOSED STORM PROFILE - STM E-11 TO STM I-94

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



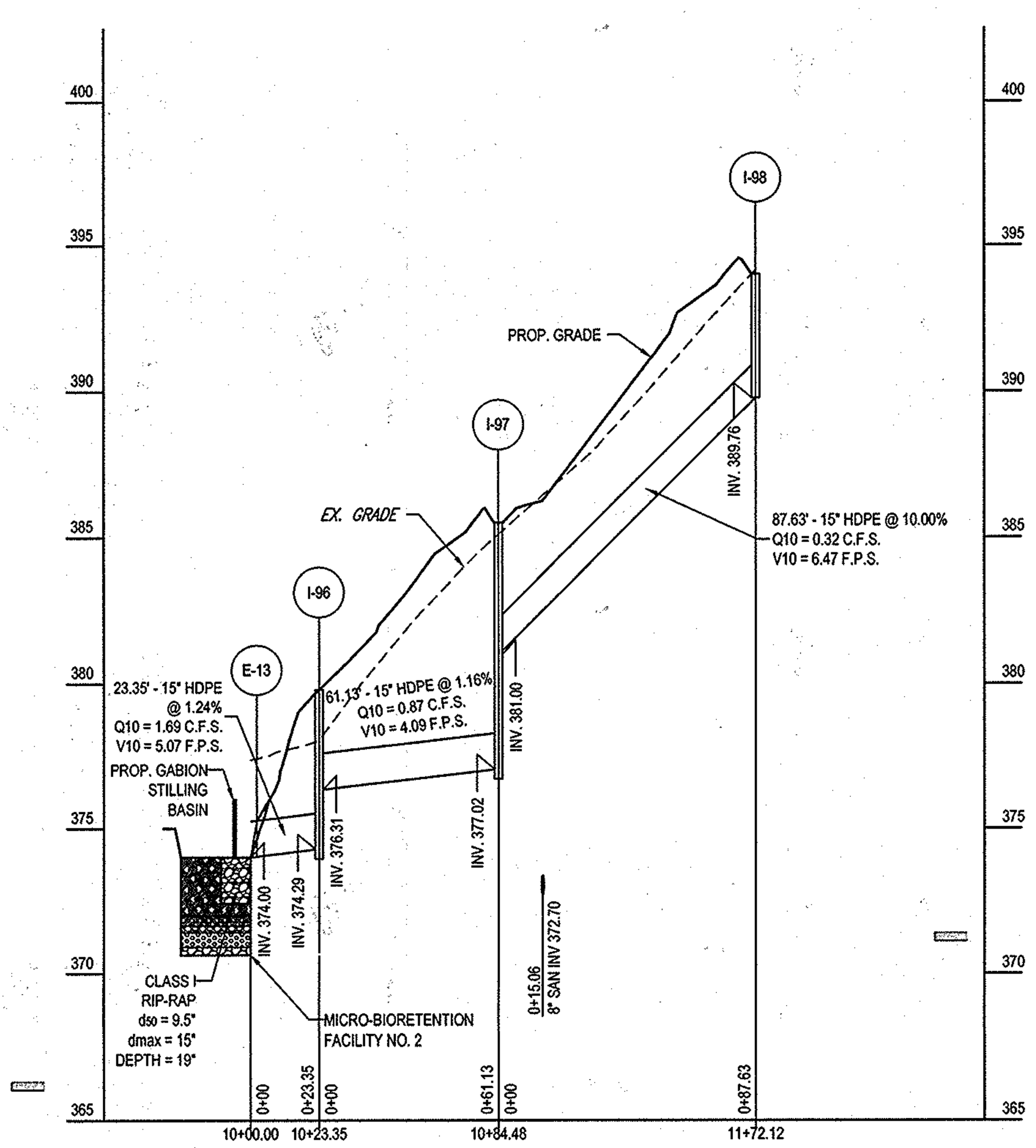
PROPOSED STORM PROFILE - STM E-12 TO STM I-95

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROPOSED STORM PROFILE - STM E-14 TO STM E-15

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROPOSED STORM PROFILE - STM E-13 TO STM I-98

SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

STORM STRUCTURE SCHEDULE

Structure Number	Top Elev. (FT.)	Inverts	Location	Description	Remarks
E-1	NA	404.00 (48")	N 596903.05, E 1363699.26	crete End Section, Ho. Co. Std. Det. D	Use Manufacturer's Standard
E-2	NA	352.00 (42")	N 598540.89, E 1363290.96	crete End Section, Ho. Co. Std. Det. D	Use Manufacturer's Standard
E-3	NA	393.00 (18")	N 597939.62, E 1364008.36	Flared End Section	Use Manufacturer's Standard
E-4	NA	399.00 (18")	N 597447.59, E 1363826.36	Flared End Section	Use Manufacturer's Standard
E-5	NA	397.00 (18")	N 597638.39, E 1363827.86	Flared End Section	Use Manufacturer's Standard
E-6	NA	412.00 (15")	N 596450.62, E 1363589.82	Flared End Section	Use Manufacturer's Standard
E-7	NA	389.00 (15")	N 597370.73, E 1363902.71	Flared End Section	Use Manufacturer's Standard
E-8	NA	364.02 (15")	N 597749.11, E 1363867.84	Flared End Section	Use Manufacturer's Standard
E-9	NA	384.00 (15")	N 597845.03, E 1363928.52	Flared End Section	Use Manufacturer's Standard
E-10	NA	378.00 (15")	N 597856.12, E 1364002.95	Flared End Section	Use Manufacturer's Standard
E-11	NA	378.00 (15")	N 597843.44, E 1363993.81	Flared End Section	Use Manufacturer's Standard
E-12	NA	369.00 (15")	N 598199.15, E 1364218.72	Flared End Section	Use Manufacturer's Standard
E-13	NA	374.00 (15")	N 598157.38, E 1364212.65	Flared End Section	Use Manufacturer's Standard
E-14	440.25	437.50 (24")	N 595963.93, E 1363195.70	Type 'C' Endwall	SHA Std Detail MD. 354.01
E-15	453.25	450.50 (24")	N 596042.35, E 1362985.30	Type 'C' Endwall	SHA Std Detail MD. 354.01

PIPE SCHEDULE

SIZE/MATERIAL	LENGTH (FT.)
48" HDPE	451.05
42" HDPE	167.76
36" HDPE	294.63
30" HDPE	904.37
24" HDPE	844.94
18" HDPE	6029.00
15" HDPE	550.00
42" RCP, CL IV	92.00
24" RCP, CL IV	225.00
18" RCP, CL IV	139.00
15" RCP, CL IV	49.00

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

GENERAL NOTE:
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H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008PD3.DWG PRINTED BY: RBOWEN 12.12.14 @ 1:09 P

STORM STRUCTURE SCHEDULE

Structure Number	Rim Elev. (FT.)	Inverts	Location	Description	Remarks
*I-1	417.77	409.25 (48") 409.25 (48")	N 597021.03, E 1363584.27	Type A-5 Inlet	*Ho. Co. Std Detail D-4.01
*I-2	418.97	409.93 (48") 409.93 (48") 413.46 (18")	N 597046.64, E 1363520.93	Type A-5 Inlet w/ GRANITE BLOCKS ON BOTTOM	*Ho. Co. Std Detail D-4.01
*I-3	425.95	413.63 (36") 413.63 (36") 417.65 (18")	N 597156.75, E 1363274.40	Type A-5 Inlet w/ GRANITE BLOCKS ON BOTTOM	*Ho. Co. Std Detail D-4.01
*I-4	433.93	425.30 (30") 426.54 (30") 425.40 (18")	N 597176.65, E 1363062.37	Type A-5 Inlet	*Ho. Co. Std Detail D-4.01
I-5	439.75	431.97 (30") 432.66 (24") 432.05 (18")	N 596792.73, E 1362975.11	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-6	443.02	434.56 (24") 435.06 (18")	N 596611.76, E 1362987.59	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-7	443.02	435.36 (18") 436.52 (18")	N 596606.91, E 1362957.95	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-8	449.21	442.71 (18") 442.32 (18")	N 596380.88, E 1362995.18	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
*I-9	454.30	445.28 (18") 443.83 (18")	N 596285.25, E 1362935.98	Type A-5 Inlet	*Ho. Co. Std Detail D-4.01
I-10	454.51	445.62 (18")	N 596311.50, E 1362915.11	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-11	418.97	413.86 (18") 413.76 (18")	N 597019.04, E 1363508.60	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-12	418.98	414.40 (18")	N 596968.77, E 1363527.82	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-13	417.05	412.20 (18") 412.12 (18")	N 597026.95, E 1363422.51	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-14	418.33	413.59 (18") 413.49 (18")	N 596904.36, E 1363379.94	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-15	419.78	415.14 (18") 415.04 (18")	N 596760.22, E 1363364.85	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-16	422.45	416.57 (18") 416.47 (18")	N 596628.18, E 1363382.10	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-17	427.04	418.54 (18")	N 596438.27, E 1363432.32	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-18	423.48	416.48 (24") 416.28 (18") 416.18 (24")	N 597014.19, E 1363287.58	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
*I-19	431.03	424.53 (18") 422.53 (18") 420.25 (24")	N 596752.90, E 1363245.10	Type A-5 Inlet w/ GRANITE BLOCKS ON BOTTOM	*Ho. Co. Std Detail D-4.01
*I-20	438.66	432.16 (18") 430.36 (18") 426.53 (18")	N 596555.94, E 1363277.13	Type A-5 Inlet w/ GRANITE BLOCKS ON BOTTOM	*Ho. Co. Std Detail D-4.01
I-21	445.25	437.04 (18") 436.62 (18")	N 596334.14, E 1363341.02	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-22	445.00	438.66 (18") 438.16 (18")	N 596244.04, E 1363292.73	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-23	445.75	439.01 (18")	N 596228.47, E 1363323.63	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-24	423.48	416.58 (18")	N 597024.48, E 1363259.15	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-25	431.43	422.85 (18")	N 596741.02, E 1363215.24	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-26	438.66	430.66 (18")	N 596548.20, E 1363247.91	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
I-27	445.15	436.35 (18") 435.90 (18")	N 596406.64, E 1363246.04	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-28	445.15	436.65 (18")	N 596377.60, E 1363253.73	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-29	425.50	417.20 (18") 416.49 (18")	N 597163.65, E 1363352.27	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-30	425.50	417.50 (18")	N 597175.98, E 1363324.66	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
I-31	425.95	417.95 (18")	N 597129.14, E 1363262.07	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-32	421.41	416.86 (18") 416.77 (18")	N 597123.56, E 1363169.95	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-33	423.83	418.17 (18") 418.07 (18")	N 597010.39, E 1363128.60	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-34	427.04	420.54 (18") 419.73 (18")	N 596856.75, E 1363099.04	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-35	431.79	425.29 (18") 422.44 (18")	N 596667.14, E 1363100.99	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-36	436.08	427.01 (18")	N 596499.35, E 1363136.84	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-37	433.67	426.01 (18")	N 597273.75, E 1363105.74	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
I-38	433.52	424.54 (18")	N 597249.33, E 1363061.72	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-39	434.24	425.77 (18")	N 597169.37, E 1363025.95	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
I-40	439.75	432.35 (18")	N 596793.41, E 1362944.89	Type A-20 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 20')
I-41	450.58	444.08 (18") 442.58 (18")	N 596320.87, E 1363095.87	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
*I-42	368.85	361.87 (42") 352.84 (42")	N 598499.69, E 1363298.57	Dbl. Type 'S' Inlet w/ GRANITE BLOCKS ON BOTTOM	*Ho. Co. Std Detail D-4.01
*I-42A	385.75	378.26 (42") 366.37 (42") 380.75 (6")	N 598450.64, E 1363307.62	Dbl. Type 'S' Inlet w/ GRANITE BLOCKS ON BOTTOM	*Ho. Co. Std Detail D-4.01
I-43	390.00	383.00 (36") 384.43 (24") 382.90 (36")	N 598357.51, E 1363323.89	Dbl. Type 'S' Inlet	Ho. Co. Std Detail D-4.23
I-44	403.54	396.27 (30") 399.02 (18") 396.17 (30")	N 598201.94, E 1363305.98	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
*I-45	410.77	400.38 (24") 405.27 (18") 398.63 (30")	N 598000.91, E 1363438.72	Type A-5 Inlet w/ GRANITE BLOCKS ON BOTTOM	*Ho. Co. Std Detail D-4.01
I-46	410.78	404.78 (24") 400.68 (24")	N 597988.71, E 1363411.06	Type A-5 Inlet w/ GRANITE BLOCKS ON BOTTOM	Ho. Co. Std Detail D-4.01
I-47	412.00	407.59 (18") 407.31 (18") 406.81 (24")	N 597947.90, E 1363316.70	Dbl. Type 'S' Inlet	Ho. Co. Std Detail D-4.23
I-48	430.97	425.49 (18") 421.61 (18")	N 597883.93, E 1363193.74	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-49	433.45	429.08 (18") 427.48 (18")	N 597744.59, E 1363202.45	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-50	433.39	429.30 (18")	N 597745.67, E 1363171.83	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
I-51	399.56	394.09 (18") 393.59 (24")	N 598360.02, E 1363494.56	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
I-52	402.41	396.91 (18") 398.91 (18") 396.81 (18")	N 598273.31, E 1363552.86	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-53	406.08	398.78 (18") 398.68 (18")	N 598148.41, E 1363564.79	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-54	406.08	399.08 (18")	N 598121.59, E 1363578.74	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-55	403.22	399.72 (18")	N 598264.64, E 1363591.51	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-56	407.40	401.90 (18")	N 598201.63, E 1363667.11	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-57	401.09	395.48 (18")	N 598219.00, E 1363199.73	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-58	404.70	399.53 (18")	N 598151.60, E 1363312.21	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-59	418.04	412.15 (18") 407.98 (18")	N 597770.65, E 1363500.18	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-60	417.95	412.45 (18")	N 597770.13, E 1363469.80	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-61	413.36	408.66 (18") 408.56 (18")	N 597824.43, E 1363336.41	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-62	414.50	410.17 (18") 410.07 (18")	N 597711.62, E 1363344.45	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-63	416.18	412.36 (18") 412.26 (18")	N 597544.57, E 1363328.88	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-64	417.89	414.50 (18")	N 597379.79, E 1363282.91	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
*I-65	401.95	394.62 (18") 393.52 (18")	N 597958.32, E 1364005.00	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')

* PRECAST STRUCTURE FABRICATOR SHALL PROVIDE SHOP DRAWINGS FOR HOWARD COUNTY APPROVAL OF ALL INLETS: 1) WITH DEPTHS GREATER THAN TEN (10) FT. PER THE REFERENCED COUNTY STANDARD DETAIL, 2) FOR THOSE INLETS REQUIRING GREATER WIDTHS THAN THE STANDARD TO ACCOMMODATE STORM DRAIN PIPE DIAMETERS AND 3) FOR MODIFIED THROAT OPENINGS OF 15' AND 20' NOTED HEREIN AS A-15 AND A-20 INLETS, RESPECTIVELY.

STORM STRUCTURE SCHEDULE

Structure Number	Rim Elev. (FT.)	Inverts	Location	Description	Remarks
*I-66	404.20	397.08 (18") 395.55 (18") 395.45 (18")	N 597974.86, E 1363903.44	Type A-5 Inlet	*Ho. Co. Std Detail D-4.01
I-67	410.34	401.98 (18") 401.88 (18")	N 597870.95, E 1363703.12	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-68	410.76	402.38 (18")	N 597891.73, E 1363676.36	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-69	404.21	395.85 (18")	N 598001.68, E 1363889.48	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-70	404.16	400.26 (18") 399.16 (18")	N 597454.45, E 1363812.90	Type A-15 Inlet	*Ho. Co. Std. Detail D-4.03 (Modified throat opening: 15')
I-71	406.24	402.24 (18") 401.30 (18")	N 597386.13, E 1363734.92	Type A-10 Inlet	Ho. Co. Std Detail D-4.03
I-72	406.14	402.40 (18")	N 597399.96, E 1363707.43	Type A-5 Inlet	Ho. Co. Std Detail D-4.01
I-73	403.00	399.06 (18") 397.52 (18")	N 597616.74, E 1363813.20	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-74	404.20	400.20 (15") 400.10 (18")	N 597571.65, E 1363634.43	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-75	405.11	400.76 (12") 400.66 (15")	N 597482.92, E 1363612.68	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-76	410.68	404.68 (12")	N 597290.02, E 1363547.99	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-77	426.61	418.29 (15")	N 596443.26, E 1363527.40	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-78	400.00	390.01 (15")	N 597388.93, E 1363879.45	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
*I-79	380.01	365.97 (15") 366.07 (12")	N 597769.20, E 1363823.88	Type 'S' Inlet	*Ho. Co. Std Detail D-4.01
I-80	394.00	391.43 (15")	N 597890.12, E 1363958.26	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
*I-81	395.00	390.71 (15") 390.81 (15") 384.61 (18")	N 597863.90, E 1363907.87	Type 'S' Inlet w/ GRANITE BLOCKS ON BOTTOM	Ho. Co. Std Detail D-4.22
I-82	396.00	392.29 (15") 392.19 (15")	N 597836.21, E 1363854.69	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-83	398.00	393.94 (15") 393.84 (15")	N 597809.24, E 1363801.46	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-84	399.50	395.31 (15") 395.21 (15")	N 597781.13, E 1363746.45	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-85	401.00	396.98 (15") 396.88 (15")	N 597754.88, E 1363686.46	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-86	403.00	399.06 (15")	N 597730.40, E 1363624.81	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-87	394.00	384.98 (15") 389.90 (6")	N 597896.86, E 1363979.76	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-90	454.03	447.53 (18") 445.67 (18") 444.90 (18")	N 596239.22, E 1363088.82	Double WR Combination Inlet	Ho. Co. Std Detail D-4.35
I-90A	453.29	445.97 (18") 445.86 (18")	N 596236.15, E 1363068.99	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
*I-91	459.60	450.92 (18") 448.47 (18")	N 596145.34, E 1363098.33	Double WR Combination Inlet	*Ho. Co. Std Detail D-4.01
I-92	459.47	451.47 (18")	N 596146.01, E 1363053.03	Double WR Combination Inlet	Ho. Co. Std Detail D-4.35
I-93	454.16	446.16 (18")	N 596233.22, E 1363050.04	Double WR Combination Inlet	Ho. Co. Std Detail D-4.35
I-94	386.00	378.16 (15")	N 597854.54, E 1363976.41	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-95	375.00	369.20 (15")	N 598190.30, E 1364206.61	Type 'S' Inlet	Ho. Co. Std Detail D-4.22
I-96	379.78	376.31 (15") 374.29 (15")	N 598140.60, E 1364210.53	Type 'S' Inlet	Ho. Co. Std Detail D-4.22

* PRECAST STRUCTURE FABRICATOR SHALL PROVIDE SHOP DRAWINGS FOR HOWARD COUNTY APPROVAL OF ALL INLETS: 1) WITH DEPTHS GREATER THAN TEN (10) FT. PER THE REFERENCED COUNTY STANDARD DETAIL, 2) FOR THOSE INLETS REQUIRING GREATER WIDTHS THAN THE STANDARD TO ACCOMMODATE STORM DRAIN PIPE DIAMETERS AND 3) FOR MODIFIED THROAT OPENINGS OF 15' AND 20' NOTED HEREIN AS A-15 AND A-20 INLETS, RESPECTIVELY.

STORM STRUCTURE SCHEDULE

Structure Number	Rim Elev. (FT.)	Inverts	Location	Description	Remarks
M-1	414.77	404.47 (48") 405.31 (48") 412.00 (6")	N 596971.08, E 1363686.13	Manhole w/ GRANITE BLOCKS ON BOTTOM	Ho. Co. Std Detail G-9.03
M-2	418.01	406.35 (48") 409.15 (48") 408.75 (24")	N 597016.03, E 1363592.86	Control Structure Infil. Facility 1	
M-3	421.25	410.75 (48") 410.75 (48") 411.50 (18")	N 597083.56, E 1363447.79	Manhole	Ho. Co. Std Detail G-9.03
M-4	424.11	411.96 (48") 412.93 (36") 416.11 (18") 414.93 (24")	N 597128.13, E 1363338.47	Manhole w/ GRANITE BLOCKS ON BOTTOM	Ho. Co. Std Detail G-9.03
M-5	429.00	414.45 (36") 421.50 (30") 416.00 (18")	N 597193.66, E 1363201.26	Manhole w/ GRANITE BLOCKS ON BOTTOM	Ho. Co. Std Detail G-5.13
M-6	432.10	422.59 (30") 424.60 (30") 424.10 (18") 425.60 (18")	N 597233.31, E 1363102.96	Manhole	Ho. Co. Std Detail G-5.13
M-7	438.95	428.40 (30") 429.86 (30")	N 596999.05, E 1363005.68	Manhole	Ho. Co. Std Detail G-5.13
M-8	448.60	438.60 (18") 442.10 (18") 440.60 (18")	N 596402.542, E 1362998.86	Manhole	Ho. Co. Std Detail G-5.12
M-9	425.89	418.89 (24") 417.77 (24")	N 596888.26, E 1363258.53	Manhole	Ho. Co. Std Detail G-5.12
M-10	443.68	435.68 (18") 435.18 (18") 433.52 (18")	N 596425.11, E 1363315.80	Manhole	Ho. Co. Std Detail G-5.12
M-11	386.25	383.00 (42") 382.83 (36") 379.10 (24")	N 598372.75, E 1363320.94	Control Structure Infil. Facility 2	
M-12	401.99	395.04 (30") 394.82 (18") 393.32 (36")	N 598242.09, E 1363264.17	Manhole	Ho. Co. Std Detail G-5.13
M-13	407.82	397.73 (30") 397.63 (30")	N 598084.76, E 1363403.70	Manhole	Ho. Co. Std Detail G-5.13
M-15	405.28	398.18 (18") 399.78 (18") 398.08 (18")	N 598192.08, E 1363587.81	Manhole	Ho. Co. Std Detail G-5.12
M-16	415.10	407.14 (18") 407.04 (18")	N 597854.61, E 1363494.95	Manhole	Ho. Co. Std Detail G-5.12
M-17	405.20	399.53 (18") 399.43 (18")	N 597616.17, E 1363738.33	Manhole	Ho. Co. Std Detail G-5.12
M-18	446.00	437.80 (24") 437.60 (24")	N 595970.91, E 1363176.96	Manhole	SHA Std Detail MD. 383.00
M-19	417.25	408.00 (24") 406.94 (24") 406.94 (24")	N 597025.82, E 1363600.49	Manhole	Ho. Co. Std Detail G-5.12
M-20	417.10	406.94 (24") 408.67 (24") 406.94 (24")	N 597034.11, E 1363604.20	Manhole	Ho. Co. Std Detail G-5.12
M-21	389.90	378.92 (24") 377.19 (24") 377.19 (24")	N 598371.80, E 1363332.37	Manhole	Ho. Co. Std Detail G-5.12
M-22	390.00	377.19 (24") 377.19 (24") 378.92 (24")	N 598371.93, E 1363341.45	Manhole	Ho. Co. Std Detail G-5.12

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER
ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE:
♦ WARREN, NJ
OFFICES:
♦ SOUTHBOROUGH, MA ♦ BOWIE, MD
♦ ALBANY, NY ♦ TOWSON, MD
♦ RONKONKOMA, NY ♦ STERLING, VA
♦ CHALFONT, PA ♦ WARRENTON, VA
♦ CENTER VALLEY, PA ♦ FORT LAUDERDALE, FL
♦ TAMPA, FL ♦ PHILADELPHIA, PA

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES. © 2008 BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.: MD132008
DRAWN BY: RLB
CHECKED BY: BRR
DATE: 12/11/14
SCALE: AS SHOWN
CAD I.D.: PD1

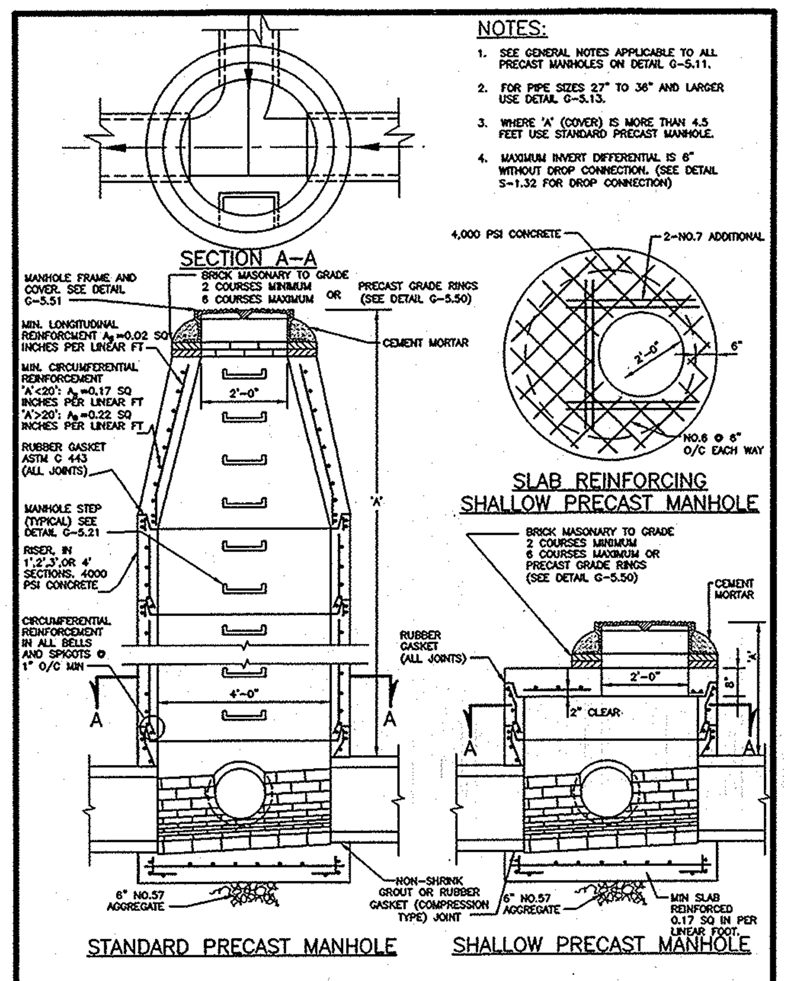
PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

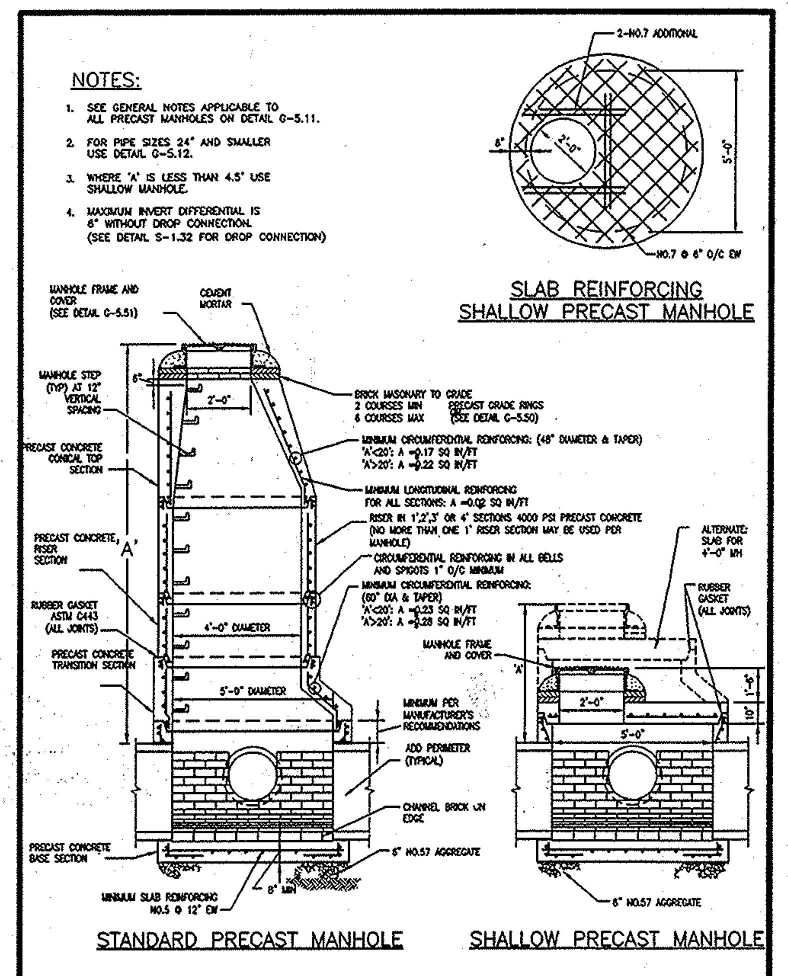
B.R. ROWE
STATE OF MARYLAND — PROFESSIONAL ENGINEER — No. 40808

SHEET TITLE:
STORM DRAIN PROFILES

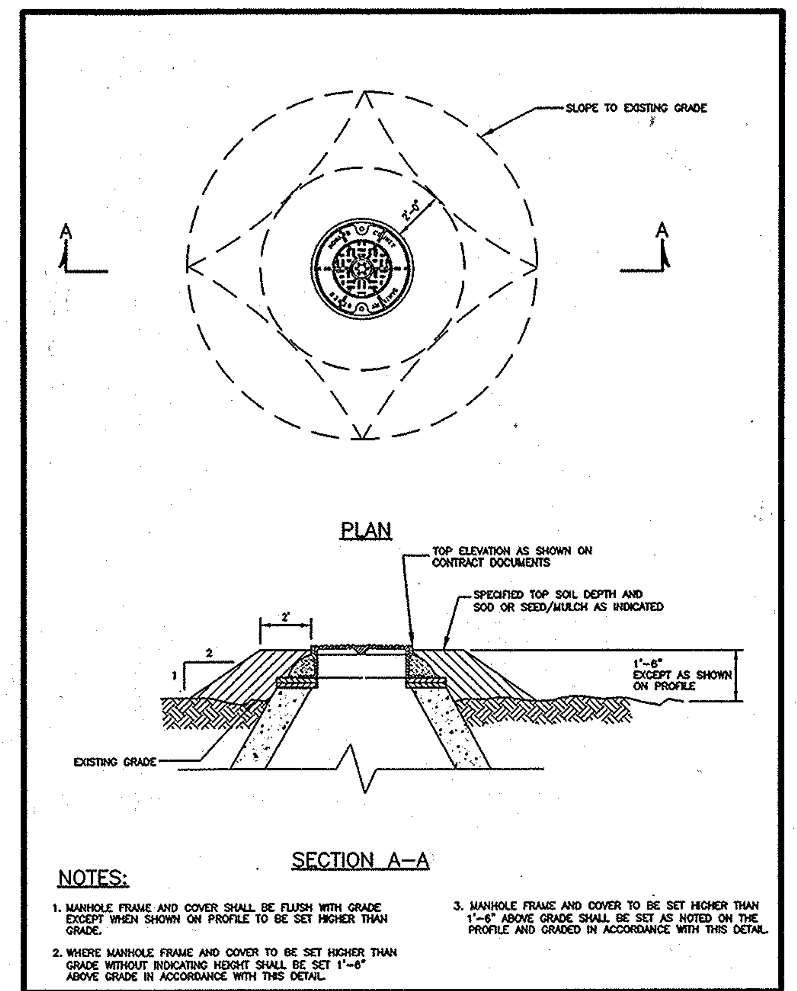
SHEET NUMBER:
66



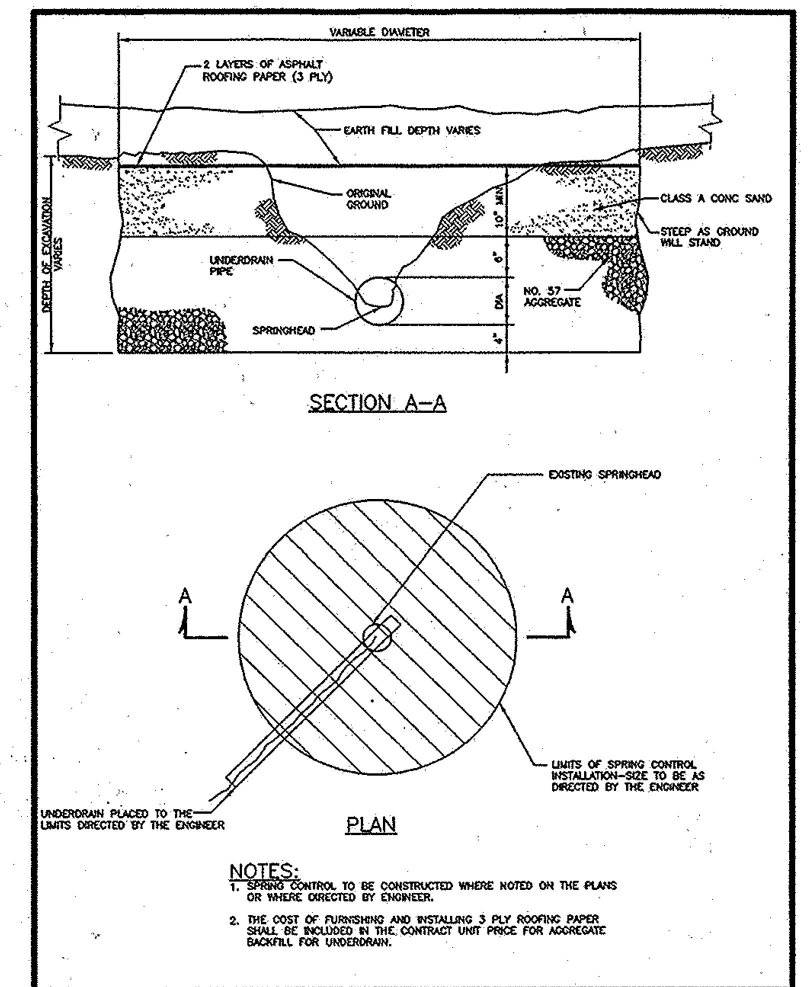
Howard County, Maryland Department of Public Works	PRECAST MANHOLE Standard and Shallow 4'-0" for 24" Pipe and smaller	Detail G-5.12



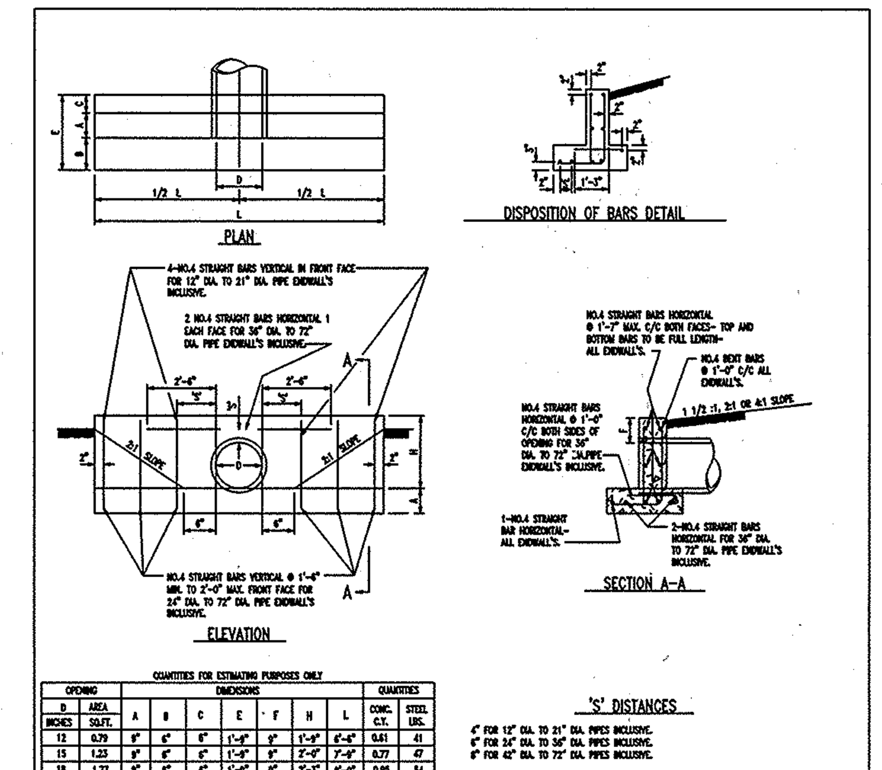
Howard County, Maryland Department of Public Works	PRECAST MANHOLE Standard and Shallow 5'-0" for 27" to 36" Pipe	Detail G-5.13



Howard County, Maryland Department of Public Works	Manhole Special Backfill	Detail G-5.41



Howard County, Maryland Department of Public Works	Spring Control	Detail R-8.02



QUANTITIES FOR ESTIMATING PURPOSES ONLY

OPENING D INCHES	OPENING AREA SQ.FT.	A	B	C	E	F	H	L	CONC. C.Y.	STEEL LBS.
12	0.79	9"	6"	6"	1'-9"	9"	1'-9"	6'-6"	0.61	41
15	1.23	9"	6"	6"	1'-9"	9"	2'-0"	7'-9"	0.77	47
18	1.77	9"	6"	6"	1'-9"	9"	2'-3"	9'-0"	0.95	54
21	2.40	9"	6"	6"	1'-9"	9"	2'-6"	10'-3"	1.14	70
24	3.14	9"	14"	6"	2'-5"	9"	2'-9"	11'-6"	1.56	80
27	3.98	9"	14"	6"	2'-5"	9"	3'-0"	12'-10"	1.82	88
30	4.91	9"	14"	6"	2'-5"	12"	3'-6"	14'-2"	2.22	96
33	5.94	9"	14"	6"	2'-5"	12"	3'-9"	15'-5"	2.48	105
36	7.07	12"	16"	10"	3'-2"	12"	4'-0"	16'-8"	4.16	182
42	9.62	12"	16"	10"	3'-2"	12"	4'-6"	19'-2"	5.07	206
48	12.57	12"	16"	10"	3'-2"	12"	5'-0"	21'-8"	6.09	244
54	15.90	12"	20"	12"	3'-8"	12"	5'-6"	24'-2"	7.62	275
60	19.64	12"	20"	12"	3'-8"	12"	6'-0"	26'-8"	8.82	304
72	28.27	12"	20"	12"	3'-8"	12"	7'-0"	31'-8"	11.46	377

'S' DISTANCES

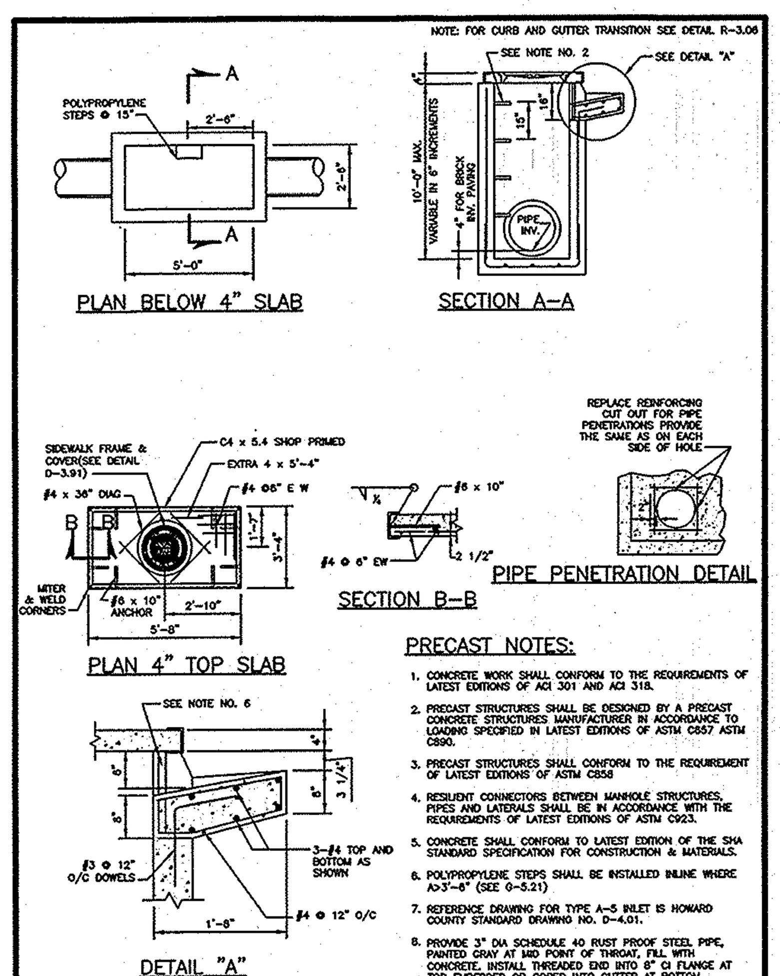
4" FOR 12" DIA. TO 21" DIA. PIPES INCLUSIVE.
6" FOR 24" DIA. TO 36" DIA. PIPES INCLUSIVE.
8" FOR 42" DIA. TO 72" DIA. PIPES INCLUSIVE.

GENERAL NOTES

SPECIFICATIONS: LATEST S.H.A.
CONCRETE SHALL BE MIX NO.2
REINFORCING: DEFORMED STEEL BARS-NO.4
CHAMFER: ALL EXPOSED EDGES 1"x1" OR AS DIRECTED

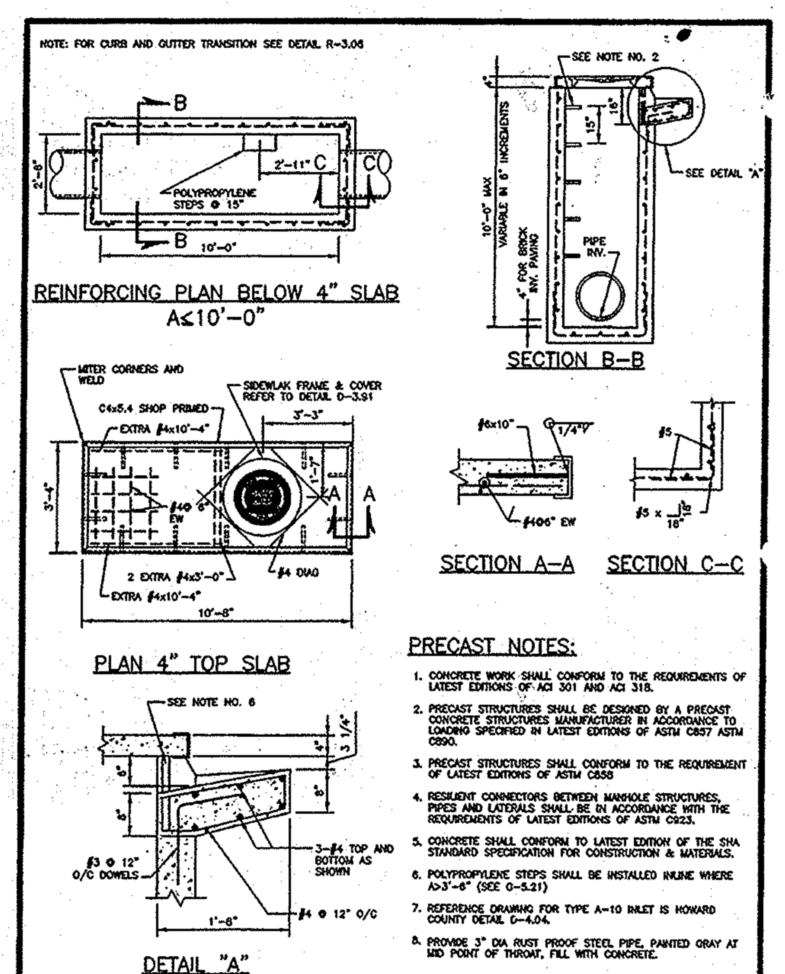
SPECIFICATION 305 | CATEGORY CODE ITEMS | APPROVED | APPROVAL 8-28-86 | REVISED 10-1-01 | APPROVAL 12-12-86

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STANDARD TYPE C ENDWALL
METAL OR CONCRETE ROUND PIPE
STANDARD NO. MD 354.01



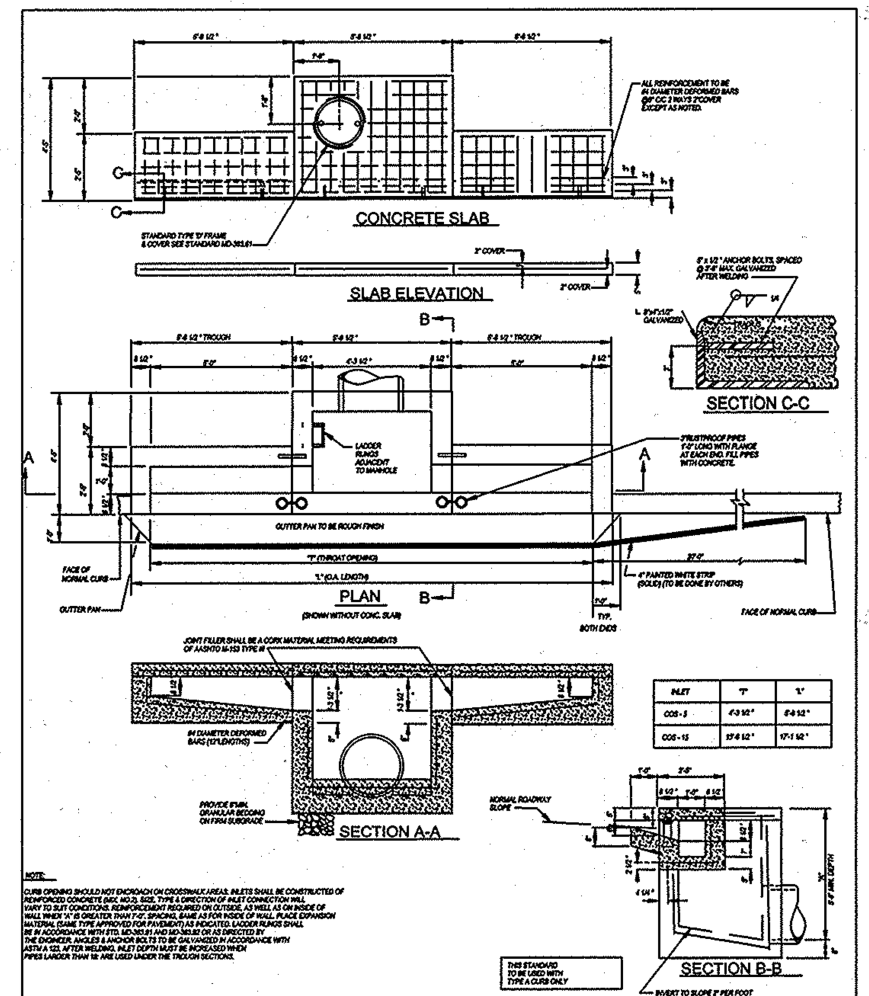
Howard County, Maryland Department of Public Works	Type A-5 Inlet Precast ≤10' Depth	Detail D-4.01

*PRECAST STRUCTURE FABRICATOR SHALL PROVIDE SHOP DRAWINGS FOR HOWARD COUNTY APPROVAL OF ALL INLETS:
1) WITH DEPTHS GREATER THAN TEN (10) FT. PER THE REFERENCED COUNTY STANDARD DETAIL
2) FOR THOSE INLETS REQUIRING GREATER WIDTHS THAN THE STANDARD TO ACCOMMODATED STORM DRAIN PIPE DIAMETERS
3) FOR MODIFIED THROAT OPENINGS OF 15' AND 20' NOTED HEREIN AS A-15 AND A-20 INLETS, RESPECTIVELY



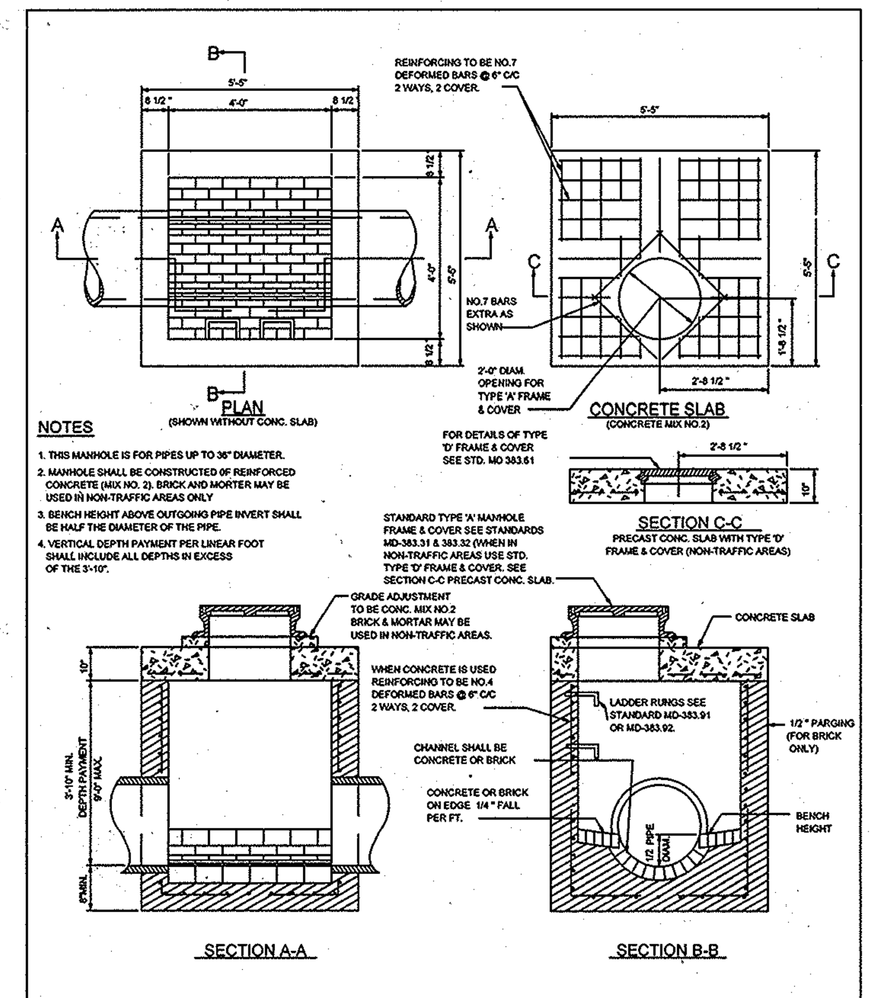
Howard County, Maryland Department of Public Works	Type A-10 Inlet Precast ≤10' Depth	Detail D-4.03

*PRECAST STRUCTURE FABRICATOR SHALL PROVIDE SHOP DRAWINGS FOR HOWARD COUNTY APPROVAL OF ALL INLETS:
1) WITH DEPTHS GREATER THAN TEN (10) FT. PER THE REFERENCED COUNTY STANDARD DETAIL
2) FOR THOSE INLETS REQUIRING GREATER WIDTHS THAN THE STANDARD TO ACCOMMODATED STORM DRAIN PIPE DIAMETERS
3) FOR MODIFIED THROAT OPENINGS OF 15' AND 20' NOTED HEREIN AS A-15 AND A-20 INLETS, RESPECTIVELY



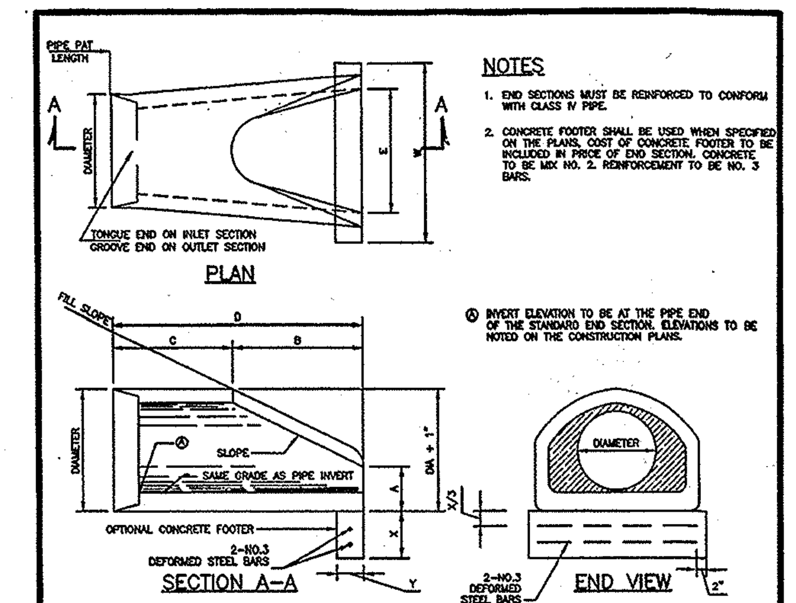
SPECIFICATION 306 | CATEGORY CODE ITEMS | APPROVED | APPROVAL 2-27-81 | REVISED 11-18-04 | APPROVAL 6-4-81 | REVISED 3-30-87

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STANDARD C O S INLETS
5' & 15'
STANDARD NO. MD - 374.41



SPECIFICATION 305 | CATEGORY CODE ITEMS | APPROVED | APPROVAL | REVISED 10-1-01 | APPROVAL 3-1-83 | REVISED 4-26-89

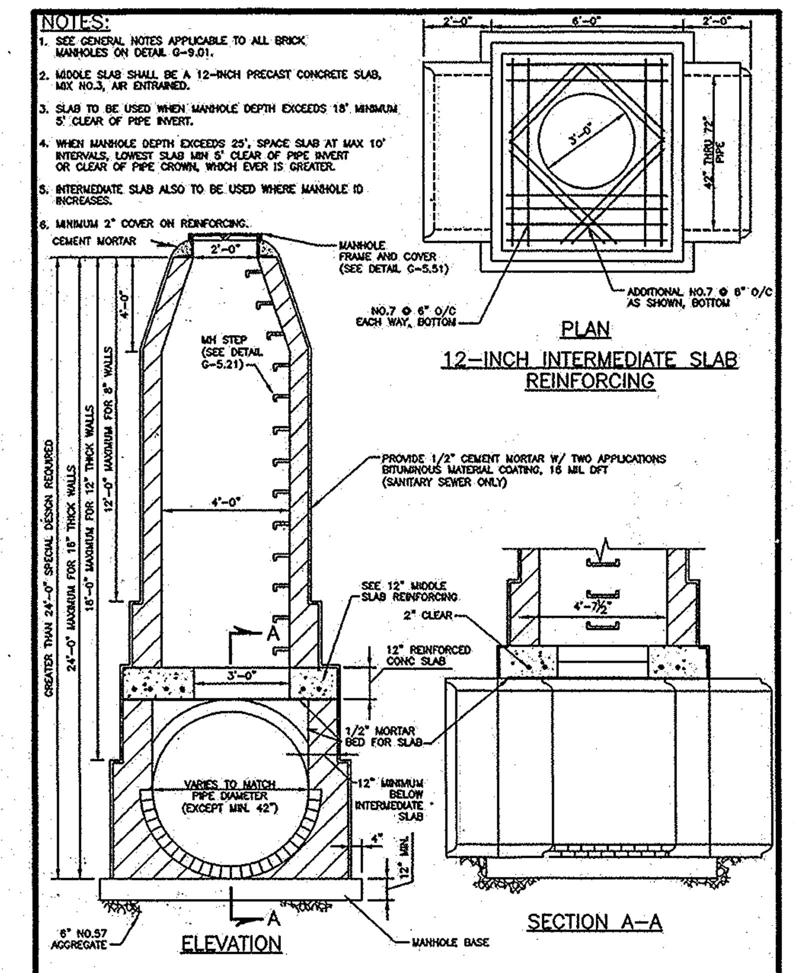
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
48" SQUARE
STANDARD SHALLOW MANHOLE
STANDARD NO. MD. 383.00



QUANTITIES FOR ESTIMATING PURPOSES ONLY

DIA	SLOPE	A	B	C	D	E	W	X	Y	CONC CY	STEEL LBS
12"	3:1	4"	2'-0"	4'-0⅞"	6'-0⅞"	2'-0"	3'-0"	12'	9'	0.08	24.00
15"	3:1	6½"	2'-4"	3'-10"	6'-2"	2'-5"	3'-6"	12'	9'	0.10	28.50
18"	3:1	10½"	2'-2"	4'-0"	6'-2"	3'-0"	4'-0"	12'	9'	0.11	33.00
21"	3:1	9"	3'-0"	3'-1½"	6'-1½"	3'-6"	4'-6"	12'	9'	0.13	37.50
24"	3:1	11"	3'-7"	2'-8"	6'-3"	4'-0"	5'-0"	15'	9'	0.17	42.00
27"	3:1	10½"	4'-1½"	2'-0"	6'-1½"	4'-6"	5'-6"	15'	9'	0.19	46.50
30"	3:1	1'-1"	4'-5"	1'-10"	6'-3"	5'-0"	6'-0"	15'	9'	0.21	51.00
33"	3:1	1'-2"	4'-7"	2'-2"	6'-9"	5'-6"	6'-6"	15'	9'	0.2[illegible]	55.50
36"	3:1	1'-3½"	5'-3"	3'-1"	8'-1½"	6'-0"	7'-3"	15'	9'	0.25	62.25
42"	3:1	1'-9¼"	5'-5"	2'-10"	8'-3"	6'-6"	7'-9"	15'	9'	0.27	66.75
48"	3:1	2'-1"	6'-0"	2'-2"	8'-2"	7'-0"	8'-6"	18'	12'	0.47	73.50
54"	2.4:1	2'-5"	5'-2"	2'-10"	8'-0"	7'-6"	9'-0"	18'	12'	0.50	78.00
60"	3:1	2'-7"	4'-11"	3'-8½"	8'-7½"	8'-0"	9'-6"	18'	12'	0.53	82.50
66"	3:1	2'-4"	6'-6"	1'-9"	8'-3"	8'-6"	10'-0"	18'	12'	0.56	87.00
72"	3:1	2'-10"	6'-6"	1'-9"	8'-3"	9'-0"	10'-9"	18'	12'	0.60	93.75

Howard County, Maryland Department of Public Works	Concrete End Section Circular Concrete Pipe	Detail D-5.51



Howard County, Maryland Department of Public Works	BRICK MANHOLE 42" to 72" Pipe Private	Detail G-9.03

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008SD3.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:35

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES © 2008 BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY

DIG WITH C.A.R.E. CALL BEFORE YOU DIG
THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SD2

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

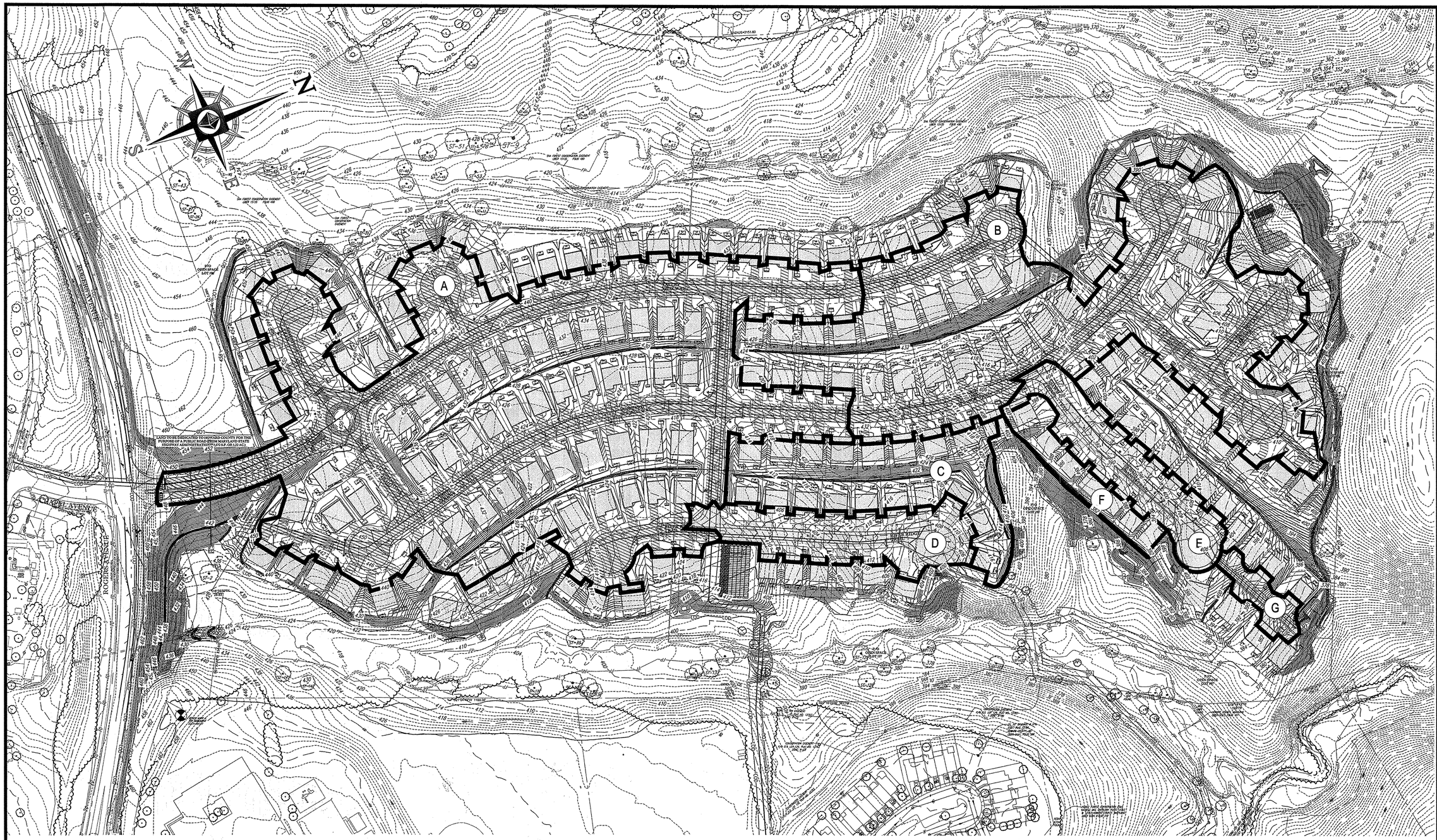
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE
PROFESSIONAL ENGINEER
12/15/14

SHEET TITLE:
STORM DRAIN DETAILS

SHEET NUMBER:
67

F-14-124



STORM WATER MANAGEMENT DRAINAGE AREAS			
AREA	PERVIOUS AREA (AC.)	IMPERVIOUS AREA (AC.)	TOTAL AREA (AC.)
A	7.34	8.69	16.03
B	5.15	4.66	9.81
C	1.63	0.82	2.45
D	0.61	1.02	1.63
E	0.53	0.91	1.44
F	0.42	0.29	0.71
G	0.17	0.20	0.37

LEGEND

- IMPERVIOUS AREA
- LOD — LIMIT OF DISTURBANCE
- (X) DRAINAGE AREA LABEL
- DRAINAGE AREA DIVIDE
- IMPERVIOUS AREA BEING TREATED BY INFILTRATION FACILITIES
- IMPERVIOUS AREA FROM DRAINAGE AREA A: 5.42 AC.
- IMPERVIOUS AREA FROM DRAINAGE AREA B: 2.71 AC.

100 50 25 0 100
1"= 100'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-7-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051

PERMIT INFORMATION CHART				
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:
PREVIOUS FILE No. : SP-13-012 ECP-13-029 WP-13-165 PB CASE NO. 403				

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; PITTSBURGH, PA; CENTER VALLEY, PA; TOWSON, MD; STERLING, VA; FORT LAUDERDALE, FL

REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	ADD NEW LOTS RESUBDIVISION OF LOTS	RLB

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DW 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=100'
CAD I.D.:	DA4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — STATE OF MARYLAND — BRANDON R. ROWE — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE:
STORM WATER MANAGEMENT DRAINAGE AREA MAP

SHEET NUMBER: 68

F-14-124

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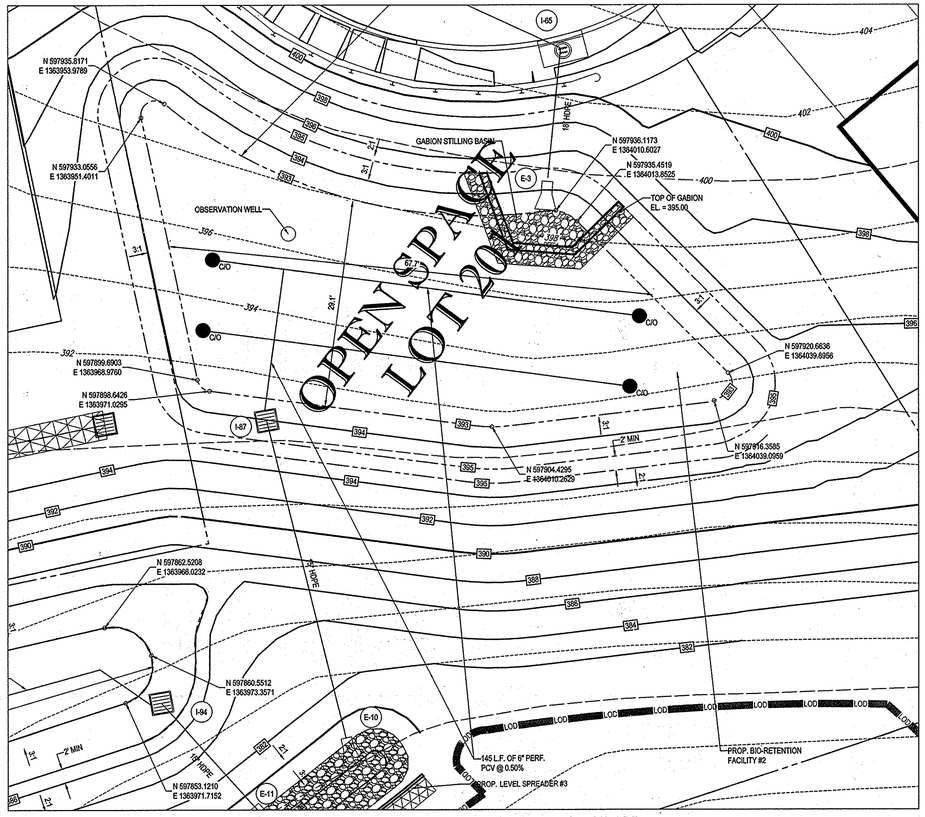
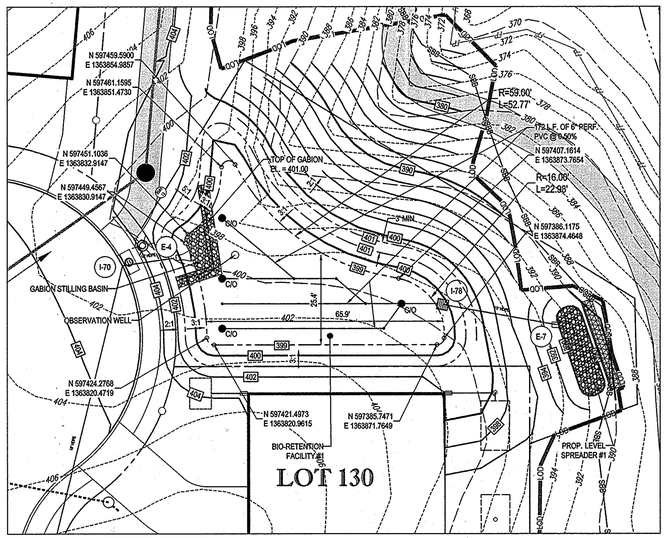


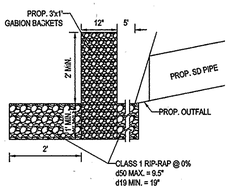
BIO-RETENTION (F-6) FACILITY #2 - PLAN

SCALE : 1" = 10'



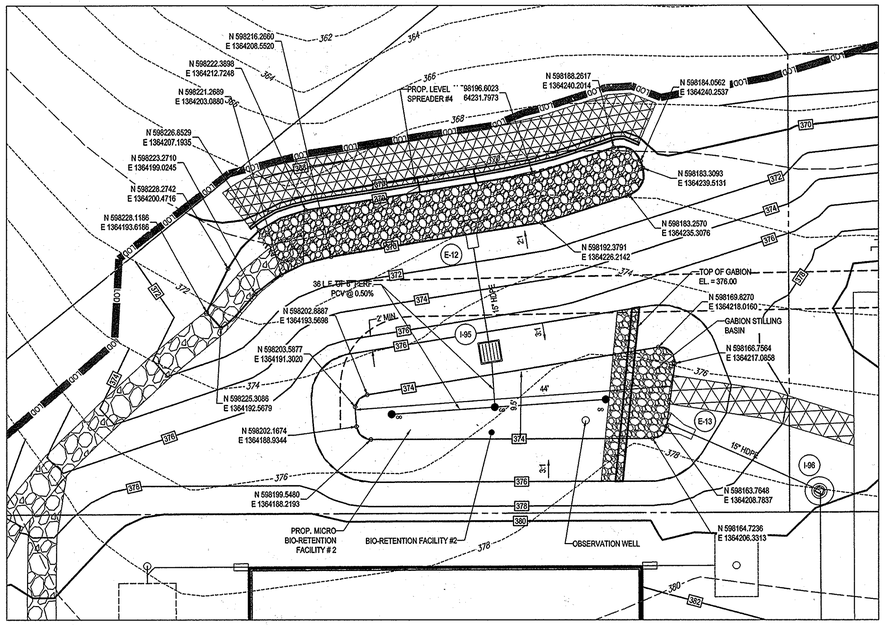
BIO-RETENTION (F-6) FACILITY #1 - PLAN

SCALE : 1" = 20'



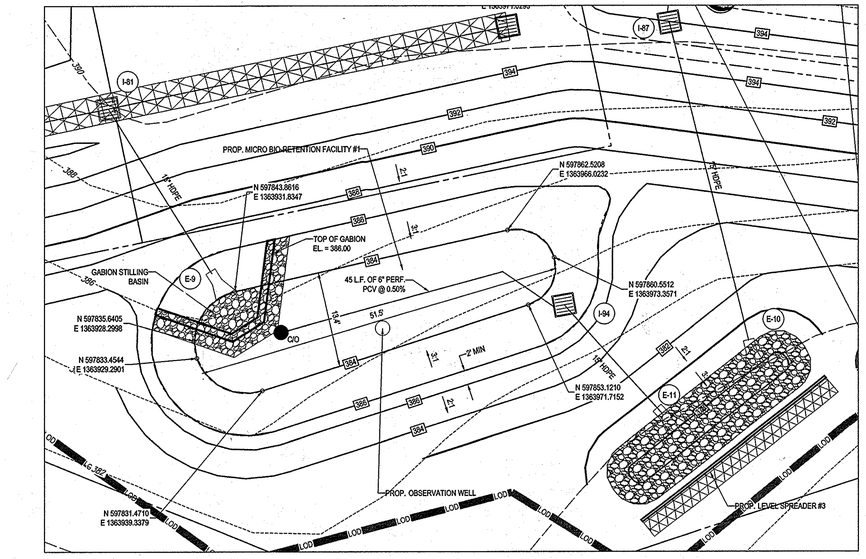
TYPICAL GABION STILLING BASIN

SCALE: NTS



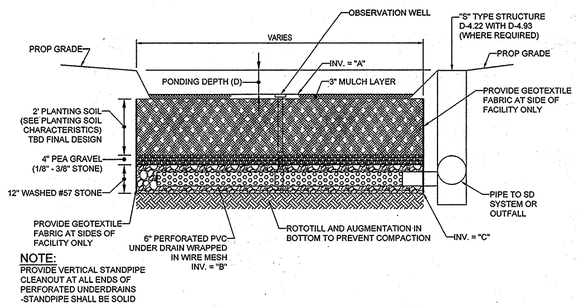
MICRO BIO-RETENTION (M-6) FACILITY #2 - PLAN

SCALE : 1" = 10'



MICRO BIO-RETENTION (M-6) FACILITY #1 - PLAN

SCALE : 1" = 10'



NOTE:
PROVIDE VERTICAL STANDPIPE CLEANOUT AT ALL ENDS OF PERFORATED UNDERDRAINS -STANDPIPE SHALL BE SOLID

TYPICAL MICRO-BIORETENTION FACILITY SECTION

NTS

BIORETENTION FACILITIES - TABLE

FACILITY NO.	A	B	C	D	TOP OF GRATE ELEV.	TOP BERM ELEV.	Q 10 (CFS)	10-YR WS ELEV.
B-1 (F-6)	399.00	395.67	395.42	12"	400.00	401.00	6.78	400.44
B-2 (F-6)	393.00	389.67	389.42	12"	394.00	395.00	6.22	394.42
M-1 (M-6)	384.00	380.67	380.42	12"	385.00	386.00	2.96	385.26
M-2 (M-6)	374.00	370.67	370.42	12"	375.00	376.00	1.79	375.18

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

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CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ BOHLER, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ PORT LAUDERDALE, FL ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ DOWNINGTOWN, PA ◆ CENTER VALLEY, PA ◆ NEW YORK, NY

REVISIONS

REV.	DATE	COMMENT	BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SM1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE — MARYLAND — 21664 — REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE:
STORMWATER MANAGEMENT DETAILS

SHEET NUMBER:
69

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 IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 12/15/14
BRANDON R. ROWE, P.E.

DEVELOPER'S CERTIFICATE

"I/WE HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

NAME: — DATE 12/15/14
TITLE:

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

HOWARD SCD — DATE 7/9/15

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART				
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR LIF: 15149/495 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND
				CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-185
PB CASE NO. 403

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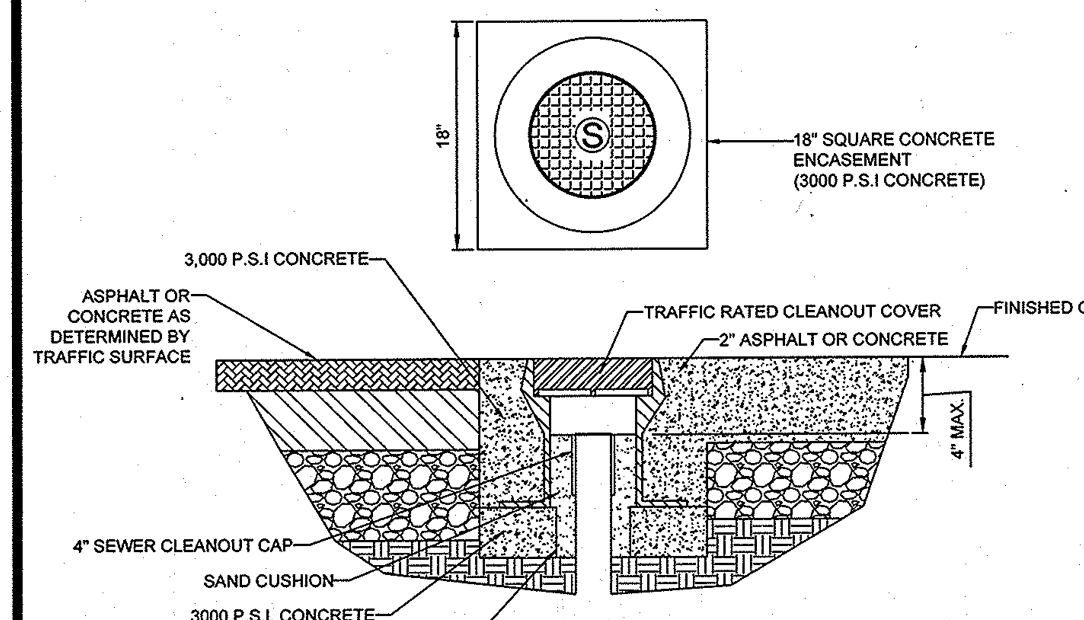
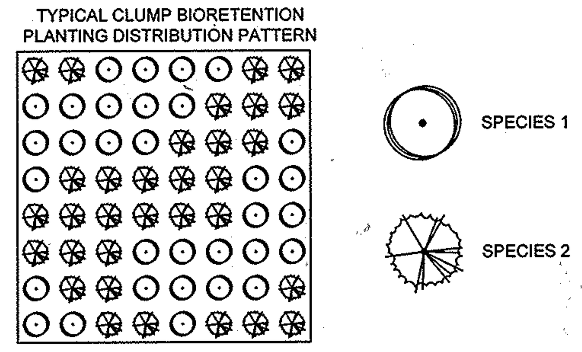


TRAFFIC RATED CLEANOUT DETAIL

NOT TO SCALE

TYPICAL CLUMP BIORETENTION PLANTING DISTRIBUTION PATTERN

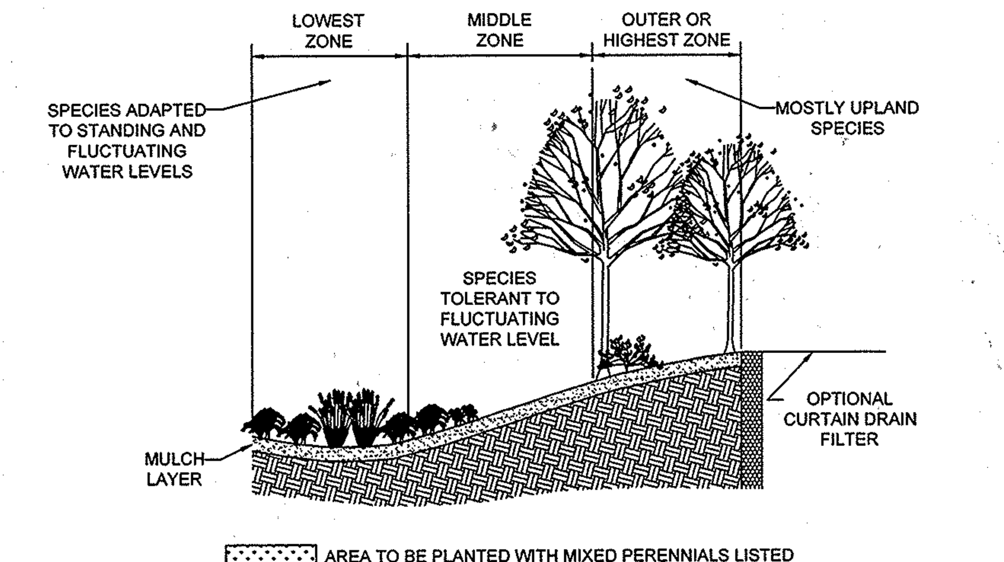


NOTE:
NATURALLY OCCURRING POPULATIONS TEND TO BE FOUND IN INFORMAL GROUPINGS. A CLUSTER OF PLANTS IS REALLY A MOSAIC OF DIFFERENT SPECIES GROUPS. THE OBJECTIVE IS TO SELECT THE APPROPRIATE SPECIES AND DISTRIBUTION PATTERN FOR A CHOSEN SITE THAT MIMIC NATURAL PATTERNS.

PLANTING DISTRIBUTION PATTERN DETAIL

NOT TO SCALE

PLANTING ZONES FOR BIORETENTION FACILITIES

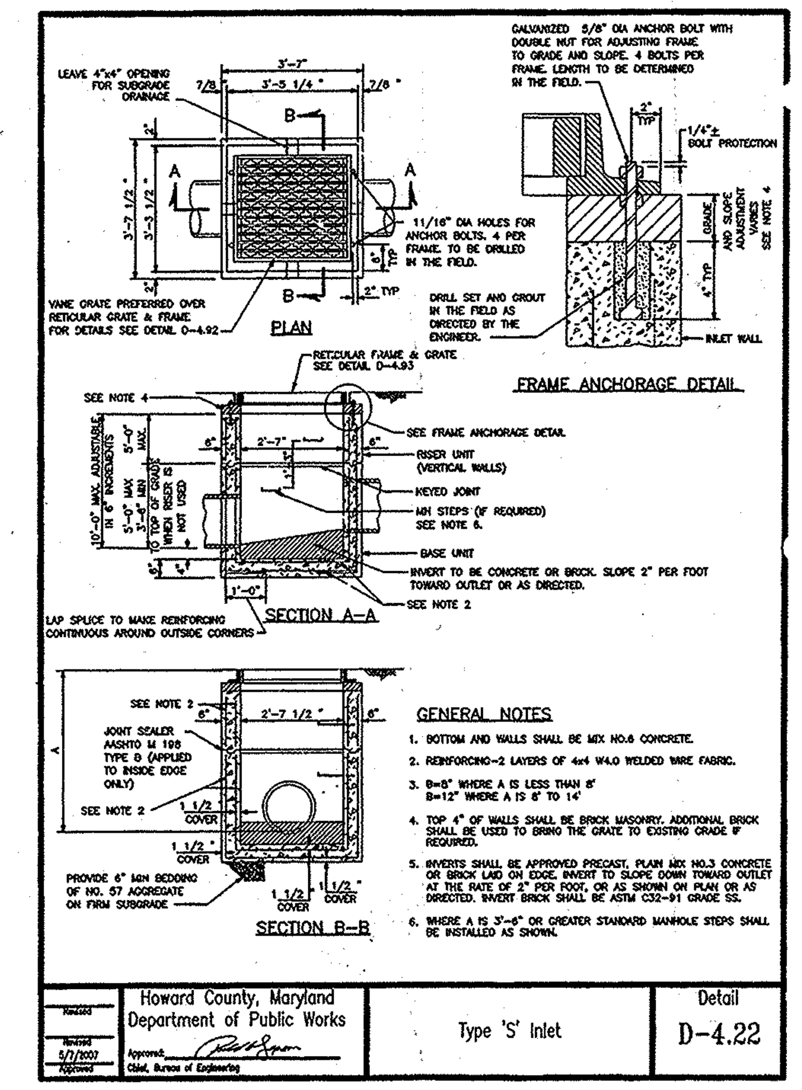


AREA TO BE PLANTED WITH MIXED PERENNIALS LISTED IN BIORETENTION AREAS PLANTING SCHEDULES

NOTES:
1. HERBACEOUS PERENNIALS TO BE PLANTED 18" O.C. IN GROUPS BETWEEN 15 TO 20 PLUGS
2. LANDSCAPE CONTRACTOR TO GROUP LIKE PLANTS TOGETHER IN EACH BED AS SHOWN IN PLANTING DISTRIBUTION PATTERN DETAIL.
3. ALL BIORETENTION AREAS ARE TO BE MULCHED WITH A 4" LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH.
4. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12" TO 18" LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS.

TYPICAL PLANTING FOR BIORETENTION AREAS

NOT TO SCALE



INFILTRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS

INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC1. AND RE V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR QP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS.

WHEN PROPERLY PLANTED, VEGETATION WILL THRIVE AND ENHANCE THE FUNCTIONING OF THESE SYSTEMS. FOR EXAMPLE, PRE-TREATMENT BUFFERS WILL TRAP SEDIMENTS THAT OFTEN ARE BOUND WITH PHOSPHOROUS AND METALS. VEGETATION PLANTED IN THE FACILITY WILL AID IN NUTRIENT UPTAKE AND WATER STORAGE. ADDITIONALLY, PLANT ROOTS WILL PROVIDE ARTERIES FOR STORMWATER TO PERMEATE SOIL FOR GROUNDWATER RECHARGE. FINALLY, SUCCESSFUL PLANTINGS PROVIDE AESTHETIC VALUE AND WILDLIFE HABITAT MAKING THESE FACILITIES MORE DESIRABLE TO THE PUBLIC.

DESIGN CONSTRAINTS:

- PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
- DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES. SEE FIGURE A5 AND TABLE A4 FOR PLANTING MATERIAL GUIDANCE).
- PLANTS KNOWN TO SEND DOWN DEEP TAPROOTS SHOULD BE AVOIDED IN SYSTEMS WHERE FILTER FABRIC IS USED AS PART OF FACILITY DESIGN.
- TEST SOIL CONDITIONS TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY.
- PLANTS SHALL BE LOCATED SO THAT ACCESS IS POSSIBLE FOR STRUCTURE MAINTENANCE.
- STABILIZE HEAVY FLOW AREAS WITH EROSION CONTROL MATS OR SOD.
- TEMPORARILY DIVERT FLOWS FROM SEEDED AREAS UNTIL VEGETATION IS ESTABLISHED.
- SEE TABLE A5 FOR ADDITIONAL DESIGN CONSIDERATIONS.

BIO-RETENTION AND MICRO-BIORETENTION

SOIL BED CHARACTERISTICS
THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION, AND MICRO-BIORETENTION FACILITIES ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME. THE SOIL MUST BE PERMEABLE ENOUGH TO ALLOW RUNOFF TO FILTER THROUGH THE MEDIA, WHILE HAVING CHARACTERISTICS SUITABLE TO PROMOTE AND SUSTAIN A ROBUST VEGETATIVE COVER CROP. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED THROUGH ABSORPTION AND MICROBIAL ACTIVITY WITHIN THE SOIL PROFILE. THEREFORE, SOILS MUST BALANCE THEIR CHEMICAL AND PHYSICAL PROPERTIES TO SUPPORT BIOTIC COMMUNITIES ABOVE AND BELOW GROUND.

THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM 35 TO 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME [ENVIRONMENTAL QUALITY RESOURCES (EQR), 1996; ENGINEERING TECHNOLOGY INC. AND BIOHABITATS, INC. (ETAB), 19931. SOILS SHOULD FALL WITHIN THE SM, ML, SC CLASSIFICATIONS OR THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (.5"/HR) IS REQUIRED (A CONSERVATIVE VALUE OF 0.5 FEET PER DAY IS USED FOR DESIGN). THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. BRUSH OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUGWORT, NUTSEDGE, AND CANADA THISTLE OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.) SHOULD NOT BE PRESENT IN THE SOILS. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12 TO 18 LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS). THE SPECIFIC CHARACTERISTICS ARE PRESENTED IN TABLE A.3.

TABLE A.3 PLANTING SOIL CHARACTERISTICS

PARAMETER	VALUE
PH RANGE	5.2 TO 7.00
ORGANIC MATTER	1.5 TO 4.0% (BY WEIGHT)
MAGNESIUM	35 LBS. PER ACRE. MINIMUM
PHOSPHORUS (PHOSPHATE - P205)	75 LBS. PER ACRE. MINIMUM
POTASSIUM (POTASH - 1(K20)	85 LBS. PER ACRE. MINIMUM
SOLUBLE SALTS	500 PPM
CLAY	10 TO 25%
SILT	30 TO 55%
SAND	35 TO 60%

MULCH LAYER

THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION AND MICRO-BIORETENTION SYSTEMS. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE SEALING, WHICH REDUCES PERMEABILITY. MULCH HELPS PREVENT EROSION, AND PROVIDES A MICROENVIRONMENT SUITABLE FOR SOIL BIOTA AT THE MULCH/SOIL INTERFACE. IT ALSO SERVES AS A PRETREATMENT LAYER, TRAPPING THE FINER SEDIMENTS, WHICH REMAIN SUSPENDED AFTER THE PRIMARY PRETREATMENT.

THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS, SUCH AS WEED SEEDS, SOIL, ROOTS, ETC. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

PLANTING GUIDANCE

PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND-SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES, BUT HAVE A DISTINCT COMMUNITY OF UNDERSTORY TREES, SHRUBS AND HERBACEOUS MATERIALS. BY CREATING A DIVERSE, DENSE PLANT COVER, THE BIORETENTION AND MICRO-BIORETENTION FACILITIES WILL BE ABLE TO TREAT STORMWATER RUNOFF AND WITHSTAND URBAN STRESSES FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND AND EXPOSURE.

THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION OR MICRO-BIORETENTION FACILITY (FIGURE A5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT LIKE DRIER SOIL CONDITIONS, BUT CAN STILL TOLERATE OCCASIONAL INUNDATION BY WATER. THE OUTER EDGE IS THE HIGHEST ELEVATION AND GENERALLY SUPPORTS PLANTS ADAPTED TO DRYER CONDITIONS. A SAMPLE OF APPROPRIATE PLANT MATERIALS FOR BIORETENTION AND MICRO-BIORETENTION FACILITIES ARE INCLUDED IN TABLE A4. THE LAYOUT OF PLANT MATERIAL SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPALS DESCRIBED IN TABLE A5. THE OBJECTIVE IS TO HAVE A SYSTEM, WHICH RESEMBLES A RANDOM, AND NATURAL PLANT LAYOUT, WHILE MAINTAINING OPTIMAL CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. FOR A MORE EXTENSIVE PLANTING PLAN, CONSULT ETAB, 1993 OR CLAYTOR AND SCHUELER, 1997.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6) AND BIO-RETENTION (F-6) FACILITIES

(FACILITY NOS. B-1, B-2, M-1, AND M-2)

1. THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLAN MATERIAL, TREAT DISEASED TREES AND SHRUBS AND REPLACE DEFICIENT STAKES AND WIRES.
3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

BIORETENTION AREAS PLANTING SCHEDULES

SPECIES		CONTAINER SIZE	SPACING	FACILITY/SIZE (S.F.)				
				#1	#2	#3	#4	TOTAL
BOTANICAL NAME	COMMON NAME			3,360	3,490	1,484	1,175	9,509
SHRUBS								
ALNUS RUGOSA	SPECKLED ALDER	2 GAL. CONT.	3' O.C.	50	50	20	20	140
ARONIA ARBUTIFOLIA	CHOKEBERRY	2 GAL. CONT.	3' O.C.	50	50	20	20	140
CORNUS AMMOMUM	SILKY DOGWOOD	2 GAL. CONT.	3' O.C.	90	90	35	35	250
HERBACEOUS								
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	PLUG	18" O.C.	80	85	35	25	225
IRIS VERSICOLOR	BLUE FLAG	PLUG	18" O.C.	80	85	35	25	225
LOBELIA CARDINALIS	CARDINAL FLOWER	PLUG	18" O.C.	80	85	35	25	225
CYPERUS PSEUDOVEGETUS	MARSH FLATSEDGE	PLUG	18" O.C.	80	85	35	25	225
RUDBECKIA LACINIATA	TALL CONEFLOWER	PLUG	18" O.C.	80	85	35	25	225
JUNCUS EFFUSUS	SOFT RUSH	PLUG	18" O.C.	100	95	45	40	280
SCIRPUS ACUTUS	HARDSTEMMED BULLRUSH	PLUG	18" O.C.	100	95	45	40	280
SOLIDAGO SEMPERVIRENS	GOLDEN ROD	PLUG	18" O.C.	80	85	35	25	225
HIBISCUS MOSCHEUTOS	SWAMP ROSEMALLOW	PLUG	18" O.C.	80	85	35	25	225

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SW1

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

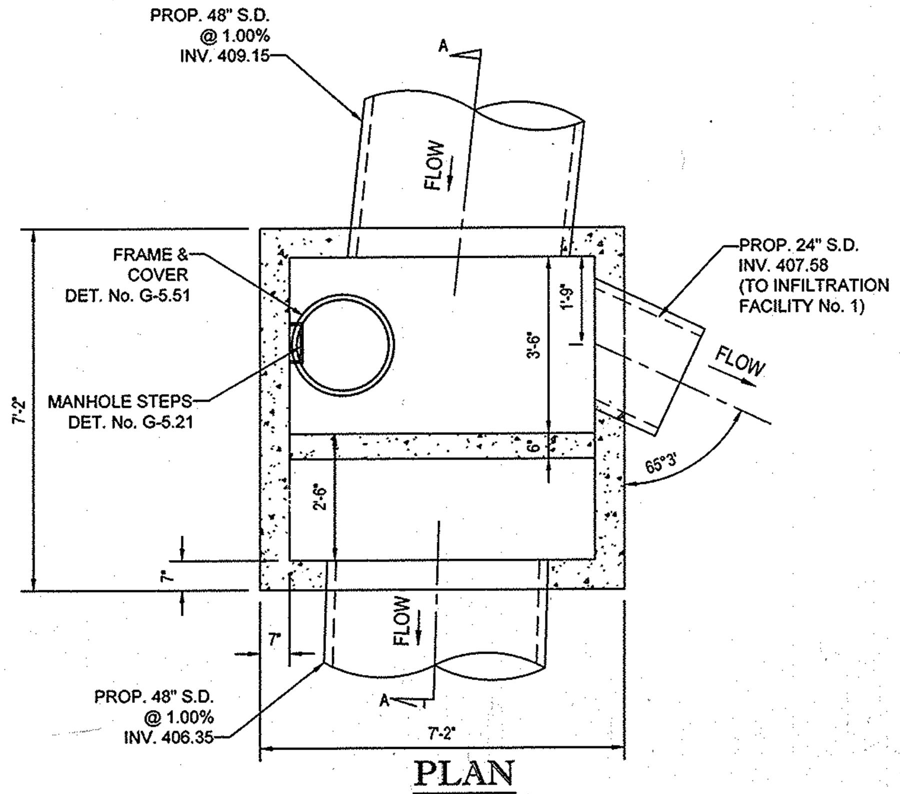
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER

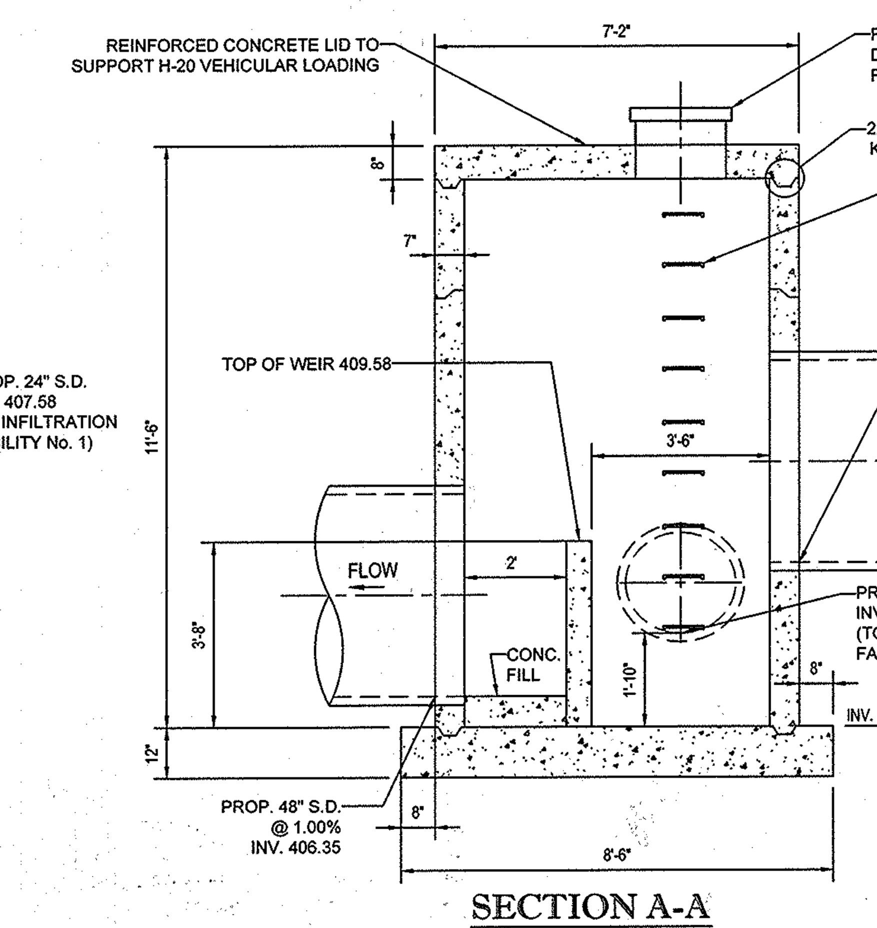
SHEET TITLE:
STORMWATER MANAGEMENT DETAILS

SHEET NUMBER:
70

F-14-124



PLAN



SECTION A-A

CONTROL STRUCTURE (M-2) - DETAIL

SCALE: 1" = 3'

SOILS NOTES

1. FOOTING DESIGN BASES ON ASSUMES MAXIMUM ALLOWABLE SOILS BEARING CAPACITY OF 2,000 PSF. CONTRACTOR RESPONSIBLE TO VERIFY ADEQUACY OF ASSUMED BEARING CAPACITY PRIOR TO CONSTRUCTION ENGINEER TO BE NOTIFIED IF INCONSISTENCIES EXIST.
2. SUBGRADE TO BE FREE OF ORGANICS AND BE SUITABLE, COMPACTED MATERIAL.
3. BACKFILL SHALL BE PERFORMED IN 6" LIFTS COMPACTED TO 95% OPTIMUM PROCTOR DRY DENSITY.

CONCRETE NOTES

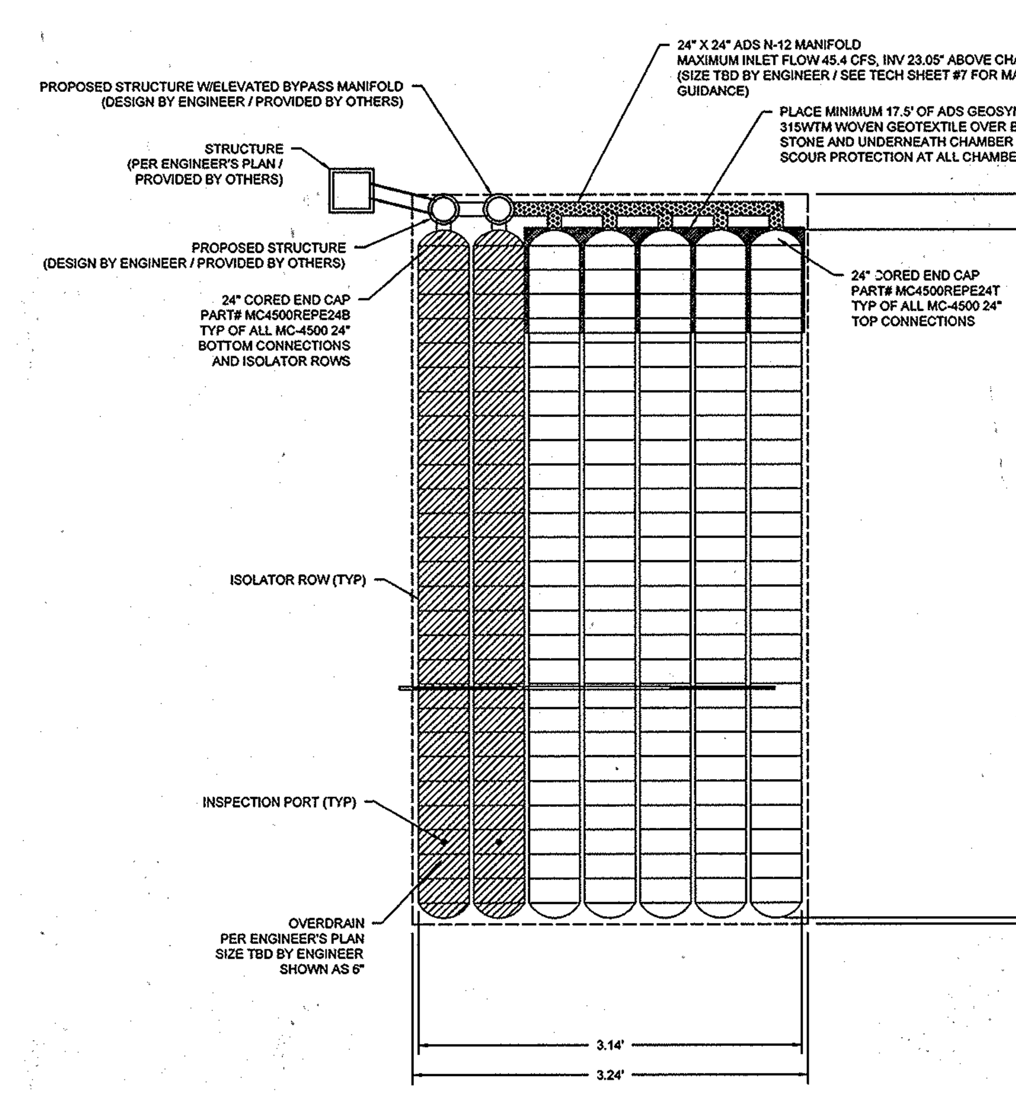
1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS WITH A MINIMUM CEMENT CONTENT OF 600 POUNDS PER CUBIC YARD FOR ALL FOOTINGS.
2. ALL CONCRETE SHALL HAVE A SLUMP OF NO GREATER THAN 4" TO WITHIN A TOLERANCE OF 1'-0".
3. ALL EXPOSED CONCRETE SHALL BE AIR-ENTRAINED, 6% (WITHIN 1% TOLERANCE), CONFORMING TO ASTM C260.
4. ALL FRAMEWORK, AND PLACEMENT OF CONCRETE SHALL COMPLY WITH GOOD CONSTRUCTION PRACTICES AND BE IN ACCORDANCE WITH ALL LOCAL GOVERNING CODES, AND REGULATIONS AS WELL AS THE ACI AND UNIFORM BUILDING CODE.
5. CONTRACTOR TO PROVIDE SIGNED AND SEALED STRUCTURAL CALCULATIONS PRIOR TO CONSTRUCTION.

PROPOSED LAYOUT: FACILITY NO. 1
(189) STORMTECH MC-4500 CHAMBERS
(14) STORMTECH MC-4500 END CAPS
INSTALLED WITH 14" COVER STONE, 9" BASE STONE, 40% STONE VOID
INSTALLED SYSTEM VOLUME: 34,032 CF (PERIMETER STONE INCLUDED)
AREA OF SYSTEM: 7,827 FT²
PERIMETER OF SYSTEM: 371 FT

PROPOSED ELEVATIONS

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	418.75
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	414.25
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	413.75
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	413.75
MINIMUM ALLOWABLE GRADE (TOP OF REINFORCED CONCRETE PAVEMENT):	413.75
TOP OF STONE:	412.92
TOP OF CHAMBER:	411.75
24" MANIFOLD INVERT:	408.67
24" ISOLATOR ROW INVERT:	406.94
BOTTOM OF CHAMBER:	406.75
BOTTOM OF STONE:	406.00

NOTE
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.



ESTATES AT PATAPSCO PARK
HOWARD COUNTY, MD

REV	DRW	CHK	DESCRIPTION
3/31/14	KLJ	KMS	RESIZED PER NEW VOL RQMTS
5/07/14	KLJ	KAM	RESIZED FACILITY 2 PER ENGINEER
6-28-14	MSY	KP	RESIZED FACILITY NO. 2 PER ENG

DATE: 1/28/14 DRAWN: KLJ
PROJECT #: 44111 CHECKED: —

StormTech
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

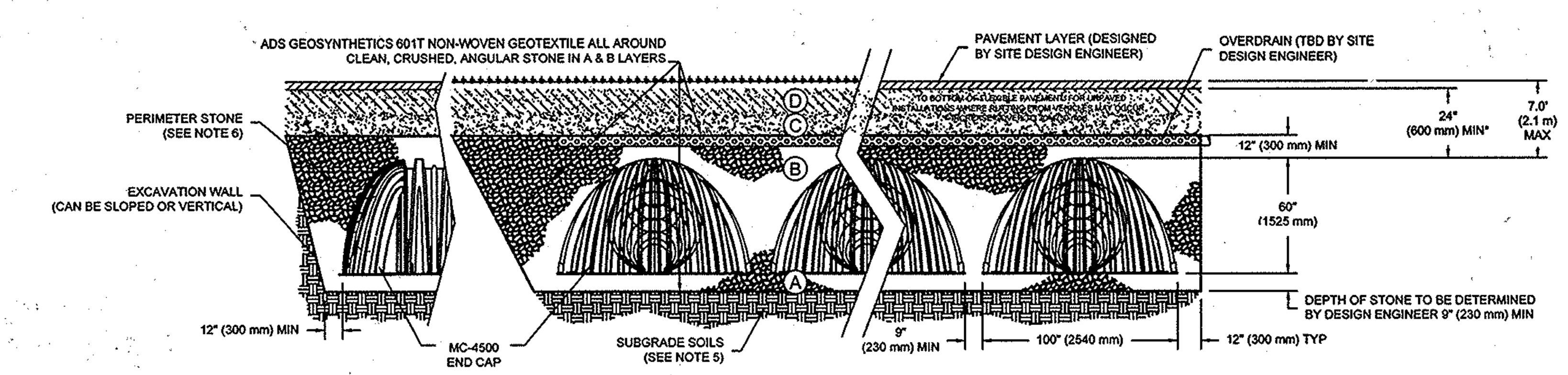
ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473
ADVANCED DRAINAGE SYSTEMS, INC.

SHEET 2 OF 7

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

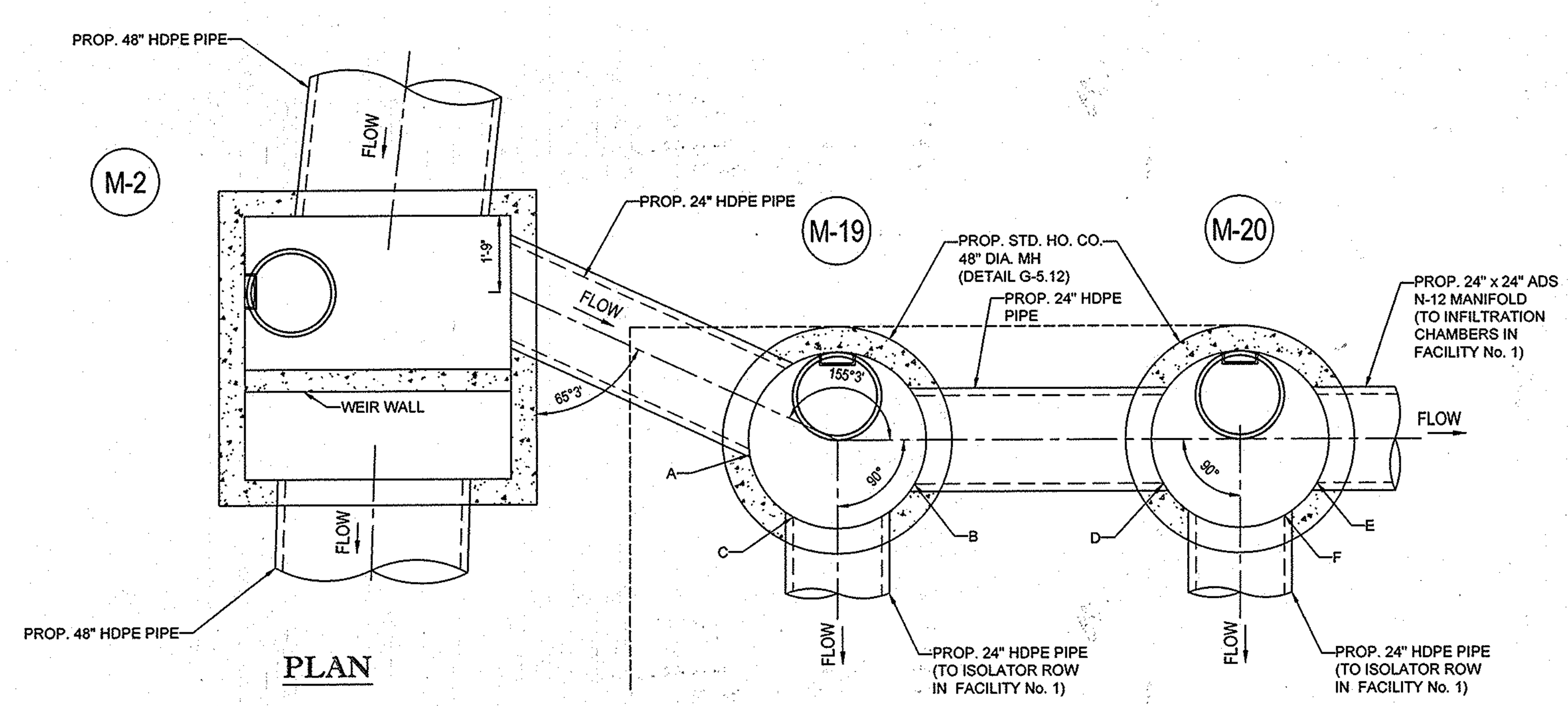
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:
1. MC-4500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

ESTATES AT PATAPSCO PARK
HOWARD COUNTY, MD
SHEET 4 OF 7

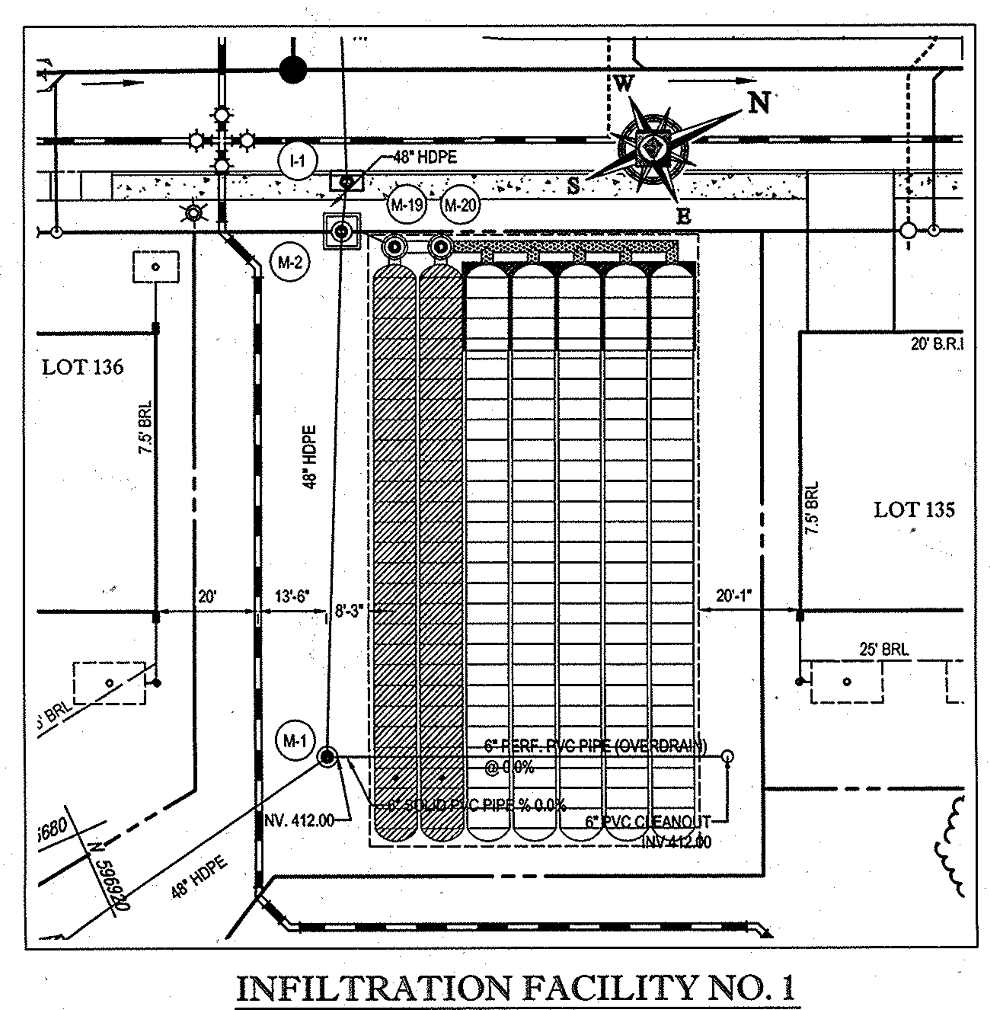


PLAN

CONTROL STRUCTURE (M-2) AND INFILTRATION MANHOLES (M-19 TO M-20) - DETAIL

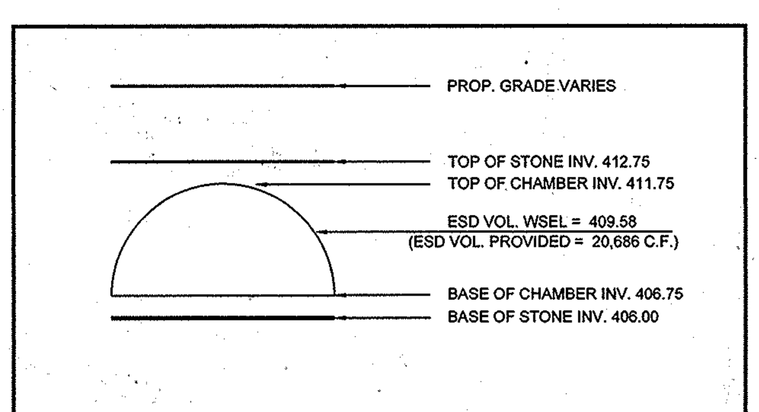
SCALE: 1" = 3'

STORM STRUCTURE SCHEDULE				
STRUCTURE NUMBER	RIM ELEV.	INV. IN	INV. OUT	DETAIL
M-19	417.25	407.00 (A 24")	406.94 (B 24") 406.94 (C 24")	HO. CO. STD DETAIL G-5.12
M-20	417.10	406.94 (D 24")	408.67 (E 24") 406.94 (F 24")	HO. CO. STD DETAIL G-5.12

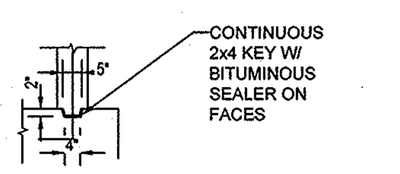


INFILTRATION FACILITY NO. 1

SCALE: 1" = 30'

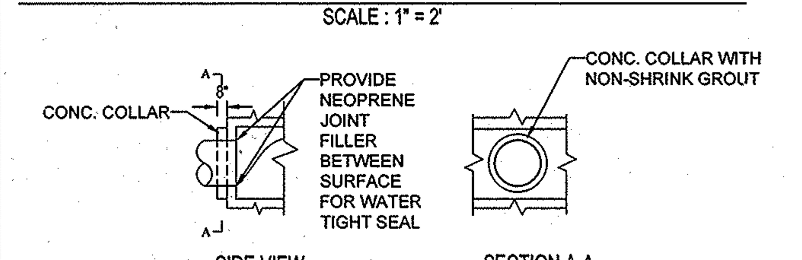


STORMTECH CROSS SECTION INFILTRATION FACILITY NO. 1



2x4 CONTINUOUS KEY - DETAIL

SCALE : 1" = 2'



CONC. COLLAR DETAIL

NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 1/8/2015
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 7-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
[signature] 6-15-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS			
REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SW1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
STATE OF MARYLAND — BRANDON R. ROWE — PROFESSIONAL ENGINEER No. 40808

SHEET TITLE:
STORMWATER MANAGEMENT & STORMTECH DETAILS

SHEET NUMBER:
71

F-14-124

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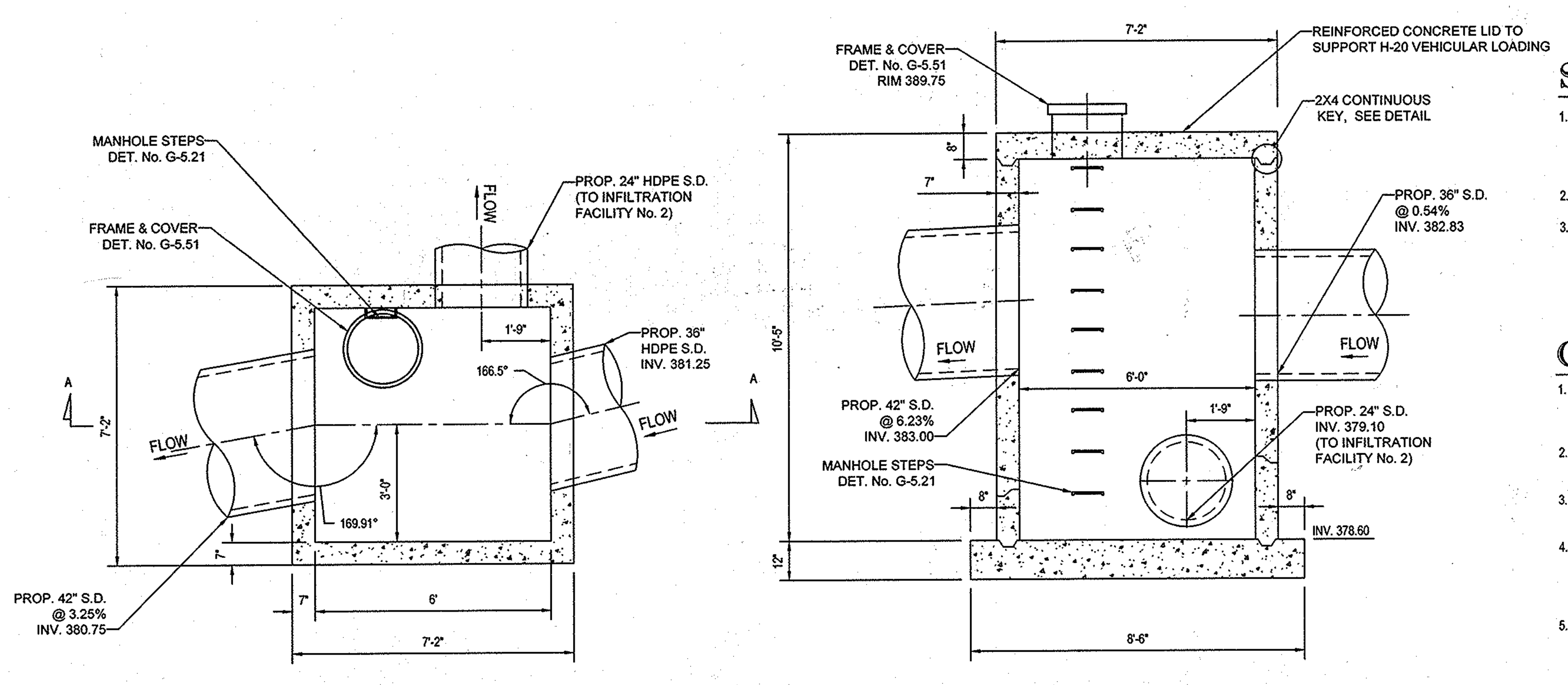


CONTROL STRUCTURE (M-11) - DETAIL

SCALE: 1" = 3'

SOILS NOTES

1. FOOTING DESIGN BASES ON ASSUMES MAXIMUM ALLOWABLE SOILS BEARING CAPACITY OF 2,000 PSF. CONTRACTOR RESPONSIBLE TO VERIFY ADEQUACY OF ASSUMED BEARING CAPACITY PRIOR TO CONSTRUCTION ENGINEER TO BE NOTIFIED IF INCONSISTENCIES EXIST.
2. SUBGRADE TO BE FREE OF ORGANICS AND BE SUITABLE, COMPACTED MATERIAL.
3. BACKFILL SHALL BE PERFORMED IN 6" LIFTS COMPACTED TO 95% OPTIMUM PROCTOR DRY DENSITY.

CONCRETE NOTES

1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS WITH A MINIMUM CEMENT CONTENT OF 600 POUNDS PER CUBIC YARD FOR ALL FOOTINGS.
2. ALL CONCRETE SHALL HAVE A SLUMP OF NO GREATER THAN 4" TO WITHIN A TOLERANCE OF 1'-0".
3. ALL EXPOSED CONCRETE SHALL BE AIR-ENTRAINED, 6% (WITHIN 1% TOLERANCE), CONFORMING TO ASTM C260.
4. ALL FRAMEWORK, AND PLACEMENT OF CONCRETE SHALL COMPLY WITH GOOD CONSTRUCTION PRACTICES AND BE IN ACCORDANCE WITH ALL LOCAL GOVERNING CODES, AND REGULATIONS AS WELL AS THE ACI AND UNIFORM BUILDING CODE.
5. CONTRACTOR TO PROVIDE SIGNED AND SEALED STRUCTURAL CALCULATIONS PRIOR TO CONSTRUCTION.

PROPOSED LAYOUT: FACILITY NO. 2

(99) STORMTECH MC-4500 CHAMBERS
(22) STORMTECH MC-4500 END CAPS
INSTALLED WITH 12" COVER STONE, 24" BASE STONE, 40% STONE VOID
INSTALLED SYSTEM VOLUME: 22,564 CF (PERIMETER STONE INCLUDED)
AREA OF SYSTEM: 4,927 FT²
PERIMETER OF SYSTEM: 411 FT

PROPOSED ELEVATIONS

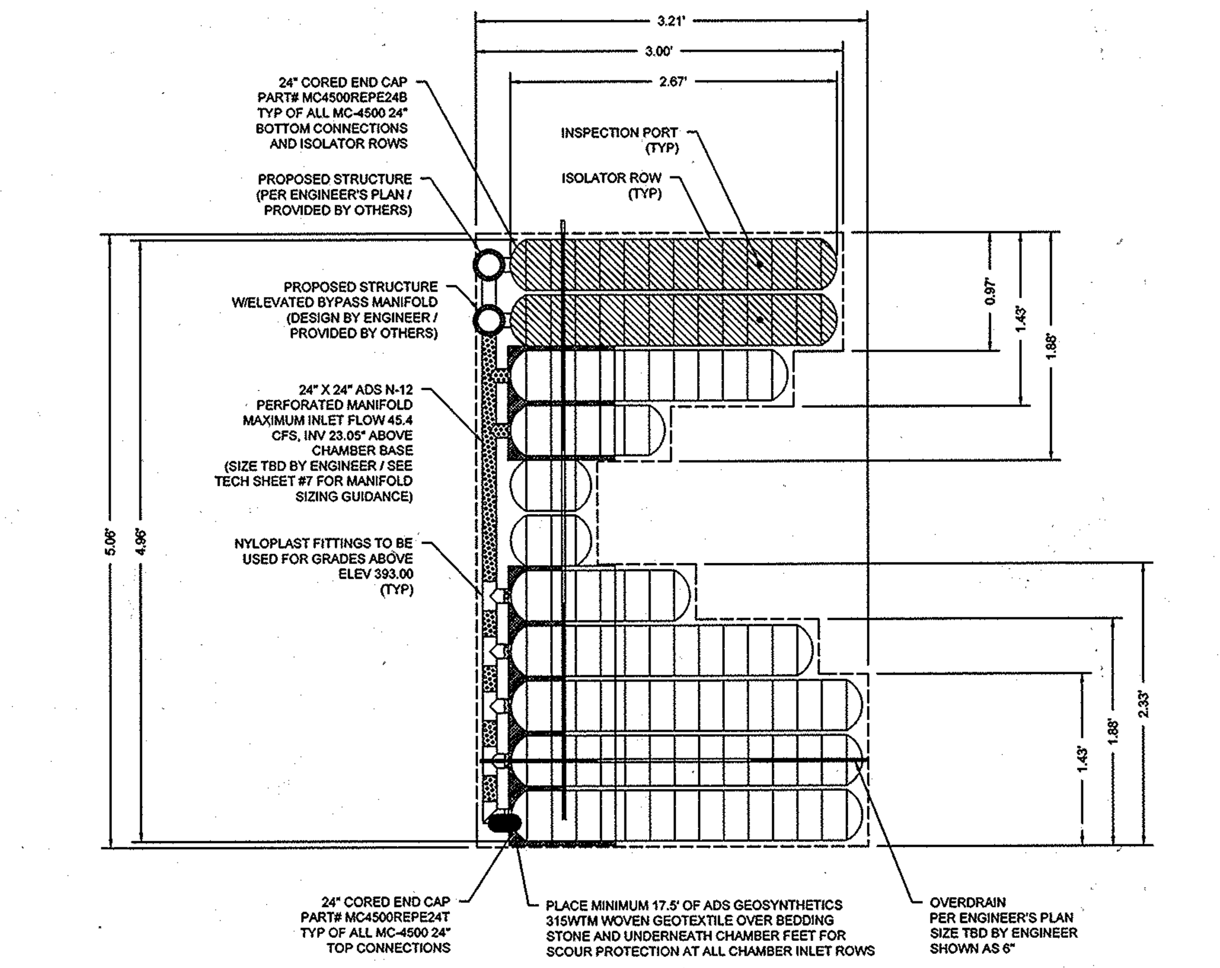
MAX GRADE PER PLAN:	396.00
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	384.50
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	384.00
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	384.00
MINIMUM ALLOWABLE GRADE (TOP OF REINFORCED CONCRETE PAVEMENT):	384.00
TOP OF STONE:	383.00
TOP OF CHAMBER:	382.00
24" MANIFOLD INVERT:	378.92
24" ISOLATOR ROW INVERT:	377.19
BOTTOM OF CHAMBER:	377.00
BOTTOM OF STONE:	375.00

SPECIAL PROVISIONS

1. INSTALLATION REQUIREMENTS SHALL BE AS SPECIFIED IN THE STORMTECH DESIGN MANUALS AND CONSTRUCTION GUIDES EXCEPT AS MODIFIED IN THESE SPECIAL PROVISIONS.
2. ATTENTION IS CALLED TO "TABLE 1 - ACCEPTABLE FILL MATERIALS" IN THE STORMTECH CONSTRUCTION GUIDE AND ALL OTHER APPEARANCES OF THE "ACCEPTABLE FILL MATERIALS" TABLE. FOR AREAS OF THE SYSTEM WITH COVER ABOVE 11 FT FOR THE MC-4500 AND ABOVE 12 FT FOR THE MC-3500, EMBEDMENT STONE SHALL BE COMPACTED WITH 3 PASSES OF A WALK BEHIND VIBRATORY PLATE COMPACTOR OR JUMPING JACK IN NO GREATER THAN 9" LIFTS. INITIAL LIFTS BETWEEN CHAMBER ROWS WHERE CLOSE SPACING OF CHAMBER ROWS PRECLUDES THE USE OF EQUIPMENT SHALL BE HAND TAMPED.
3. STONE SHALL BE GENERALLY UNIFORM IN SHAPE. FLAT OR ELONGATED STONE IS UNACCEPTABLE. FOR DESCRIPTIONS OF ANGULARITY SEE ASTM D2488 "STANDARD PRACTICE FOR DESCRIPTION AND IDENTIFICATION OF SOILS (VISUAL-MANUAL PROCEDURE)".
4. STONE SHALL BE HARD AND DURABLE. IT IS THE ENGINEER'S OR CONTRACTOR'S RESPONSIBILITY TO SELECT HARD AND DURABLE STONE. STORMTECH CONSIDERS AN LA ABRASION VALUE OF LESS THAN OR EQUAL TO 30 TO BE HARD STONE.
5. FOUNDATION STONE SHALL BE MECHANICALLY COMPACTED WITH A VIBRATORY ROLLER OR VIBRATORY PLATE IN 6" LIFTS.
6. EMBEDMENT STONE MUST BE DUMPED IN PLACE BY A STONE SHOOTER OR CONVEYOR OR EXCAVATOR.
7. INSPECTION DURING THE INSTALLATION BY THE ENGINEER, OWNER OR OTHER REPRESENTATIVE IS RECOMMENDED. THE INSPECTION SHALL INCLUDE OBSERVATIONS OF THE CHAMBER SYMMETRY DURING BACKFILLING TO ENSURE THE CONTRACTOR'S METHODS ARE NOT CAUSING UNACCEPTABLE DISTORTION OF THE CHAMBERS.
8. AN ADS FIELD TECHNICIAN WILL CONDUCT A PRECONSTRUCTION MEETING TO TRAIN ALL REPRESENTATIVES INSPECTING THE PROJECT AND WILL PERFORM MANDATORY SITE INSPECTIONS.

NOTES

- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW THE PROXIMITY OF THE CHAMBERS TO THE SLOPE AND CONSIDER EFFECTS OF POSSIBLE SATURATED SOILS ON THE SLOPE'S INTEGRITY.



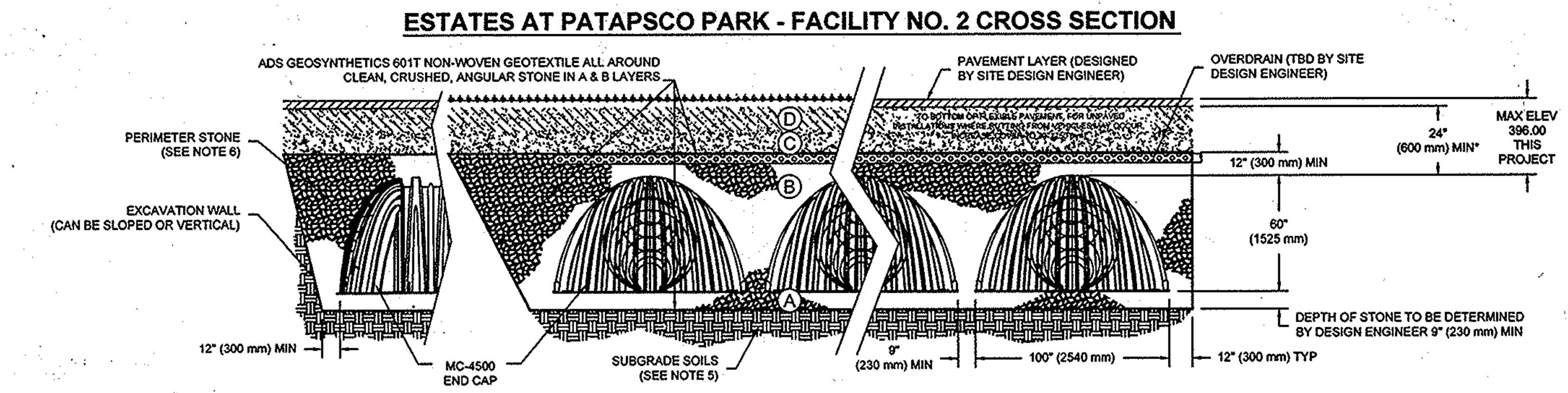
REV	DRW	CHK	DESCRIPTION
3/31/14	KLJ	KMS	RESIZED PER NEW VOL RQMTS
5/07/14	KLJ	KAM	RESIZED FACILITY 2 PER ENGINEER
8-28-14	MSY	KP	RESIZED FACILITY NO. 2 PER ENG

ESTATES AT PATAPSCO PARK
HOWARD COUNTY, MD
DATE: 1/28/14 DRAWN: KLJ
PROJECT #: 44111 CHECKED: --

StormTech
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
ADS 4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473

SHEET 3 OF 7

ESTATES AT PATAPSCO PARK - FACILITY NO. 2 CROSS SECTION



ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145¹ A-1, A-2-4, A-3 OR AASHTO M43¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43¹ 3, 4	COMPACTION REQUIRED. SEE SPECIAL PROVISIONS ON SHEET 3.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43¹ 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ²³

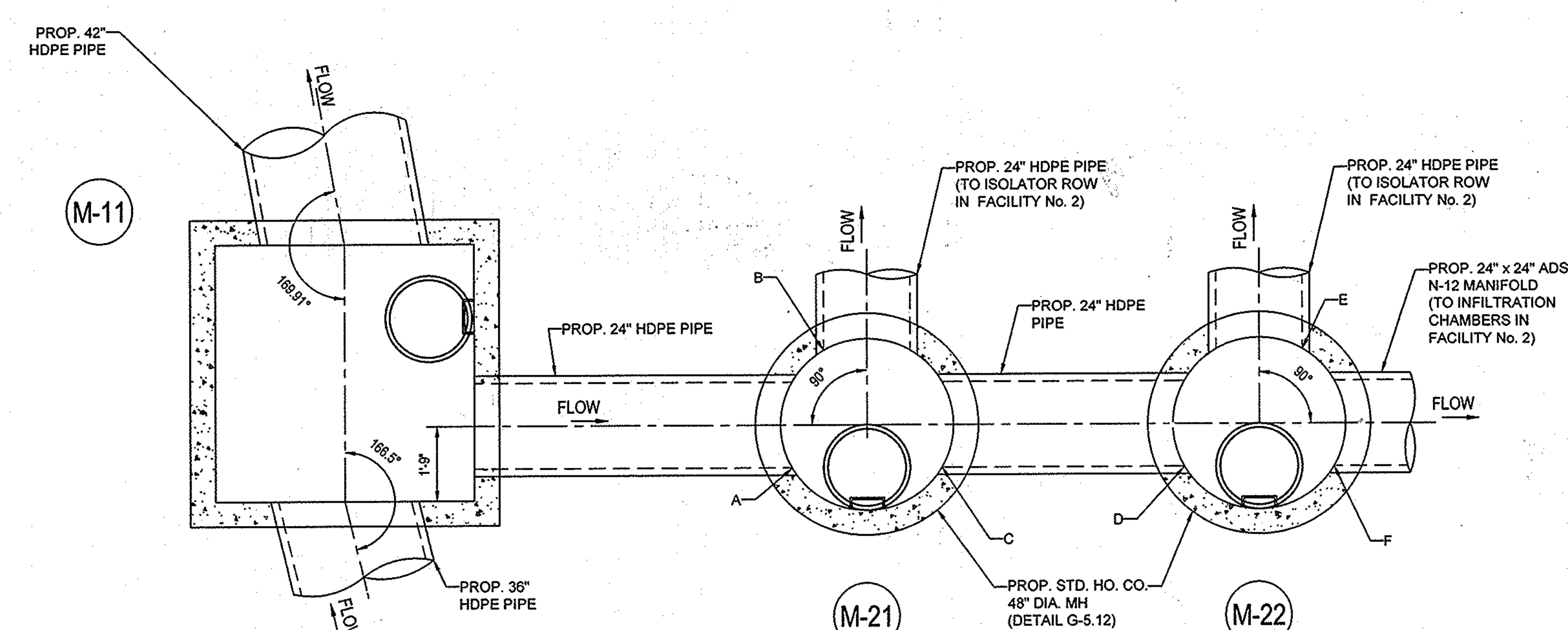
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

NOTES:

1. MC-4500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

ESTATES AT PATAPSCO PARK
HOWARD COUNTY, MD

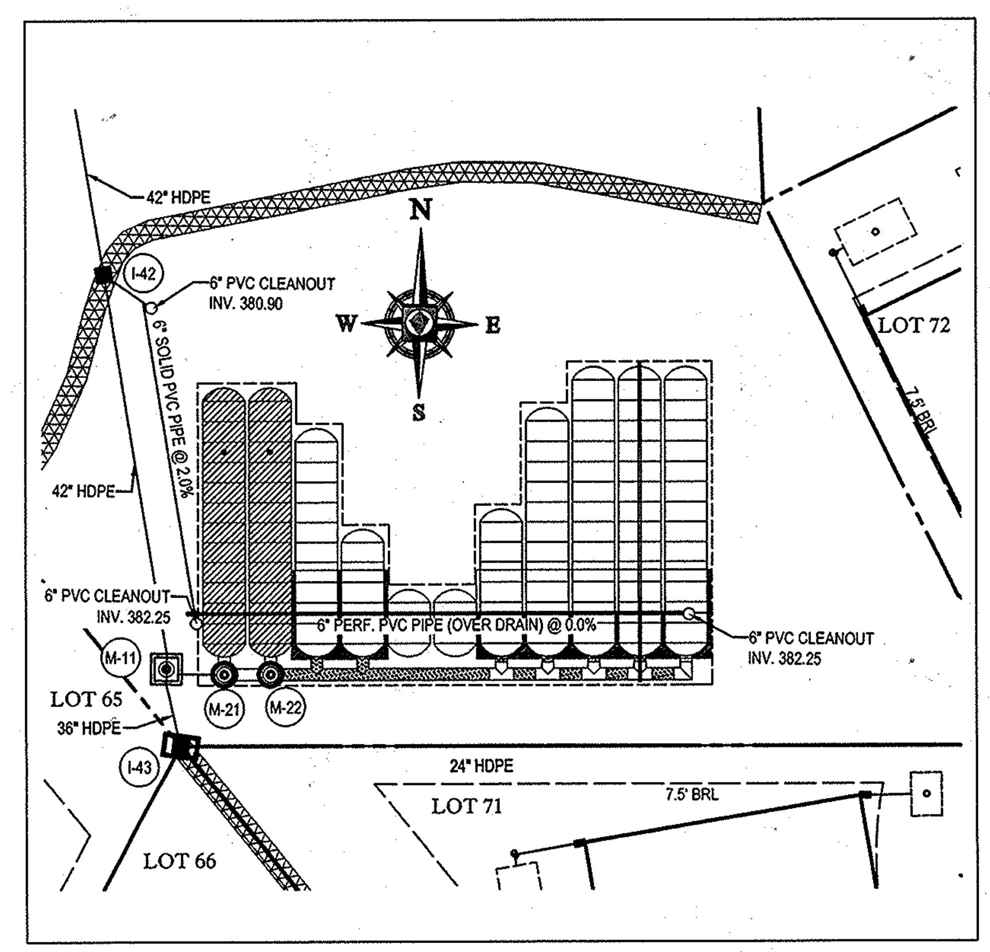
SHEET 5 OF 7



CONTROL STRUCTURE (M-11) AND INFILTRATION MANHOLES (M-19 TO M-20) - DETAIL

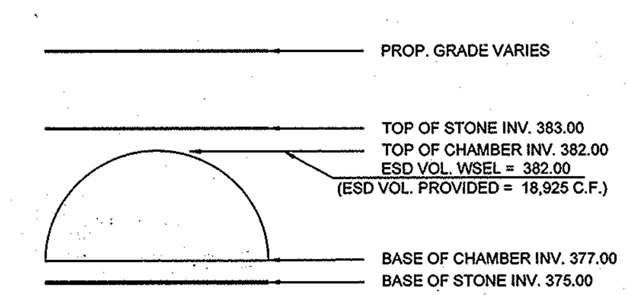
SCALE: 1" = 3'

STORM STRUCTURE SCHEDULE				
STRUCTURE NUMBER	RIM ELEV.	INV. IN	INV. OUT	DETAIL
M-21	389.90	378.92 (A 24")	377.19 (B 24") 377.19 (C 24")	HO. CO. STD DETAIL G-5.12
M-22	390.00	377.19 (D 24")	377.19 (E 24") 378.92 (F 24")	HO. CO. STD DETAIL G-5.12

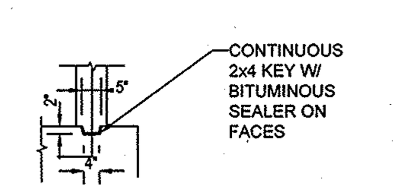


INFILTRATION FACILITY NO. 2

1" = 30'



STORMTECH CROSS SECTION INFILTRATION FACILITY NO. 2



2x4 CONTINUOUS KEY - DETAIL

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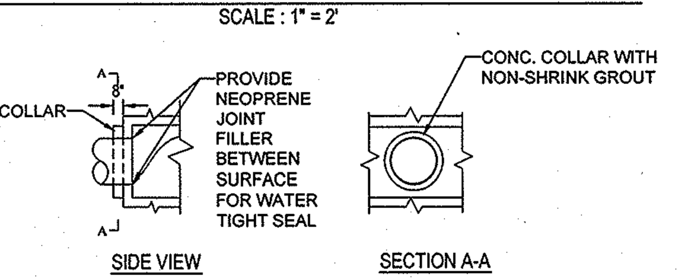

CONC. COLLAR DETAIL

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PERMIT INFORMATION CHART					
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PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SW1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

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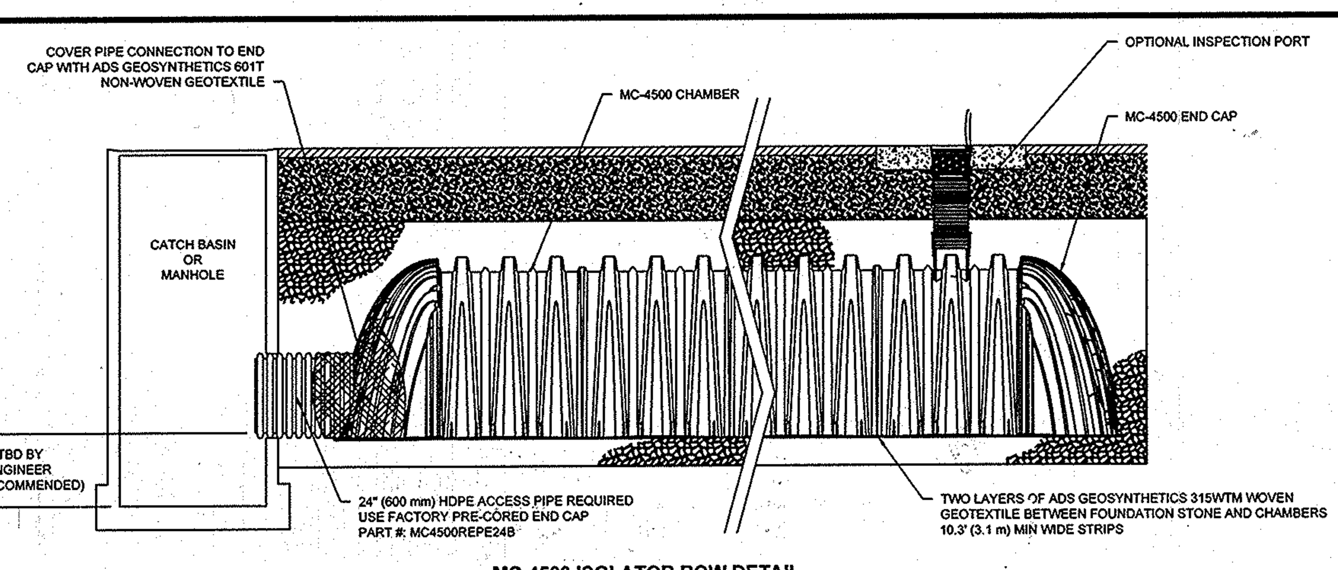
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
[seal: STATE OF MARYLAND, BRANDON R. ROWE, No. 40808, PROFESSIONAL ENGINEER]

SHEET TITLE:
STORMWATER MANAGEMENT & STORMTECH DETAILS

SHEET NUMBER:
72

F-14-124



MC-4500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

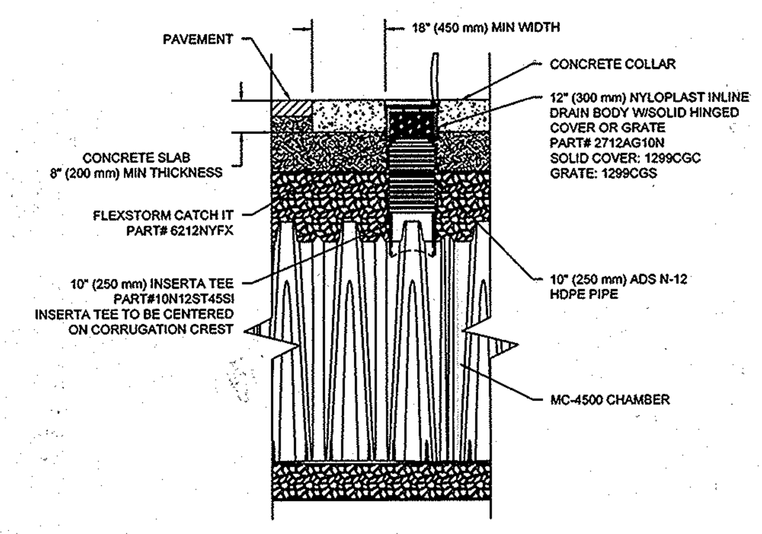
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



MC-4500 INSPECTION PORT DETAIL
NTS

REV	DRW	CHK	DESCRIPTION
3/31/14	KLJ	KMS	RESIZED PER NEW VOL RQMTS
5/07/14	KLJ	KAM	RESIZED FACILITY 2 PER ENGINEER
8-28-14	MSY	KP	RESIZED FACILITY NO. 2 PER ENG

ESTATES AT PATAPSCO PARK
HOWARD COUNTY, MD
DATE: 1/28/14 DRAWN: KLJ
PROJECT #: 44111 CHECKED: —

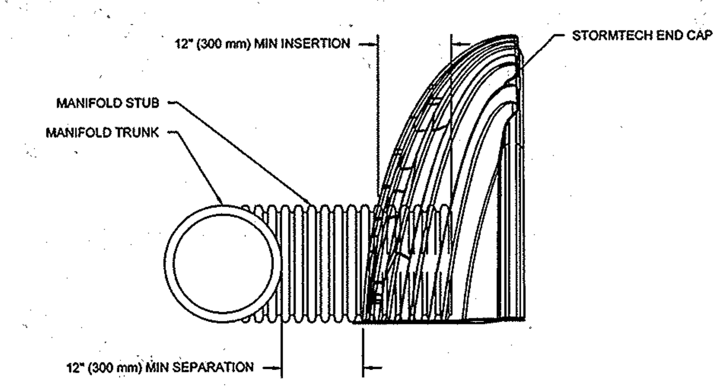
StormTech
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

ADS ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

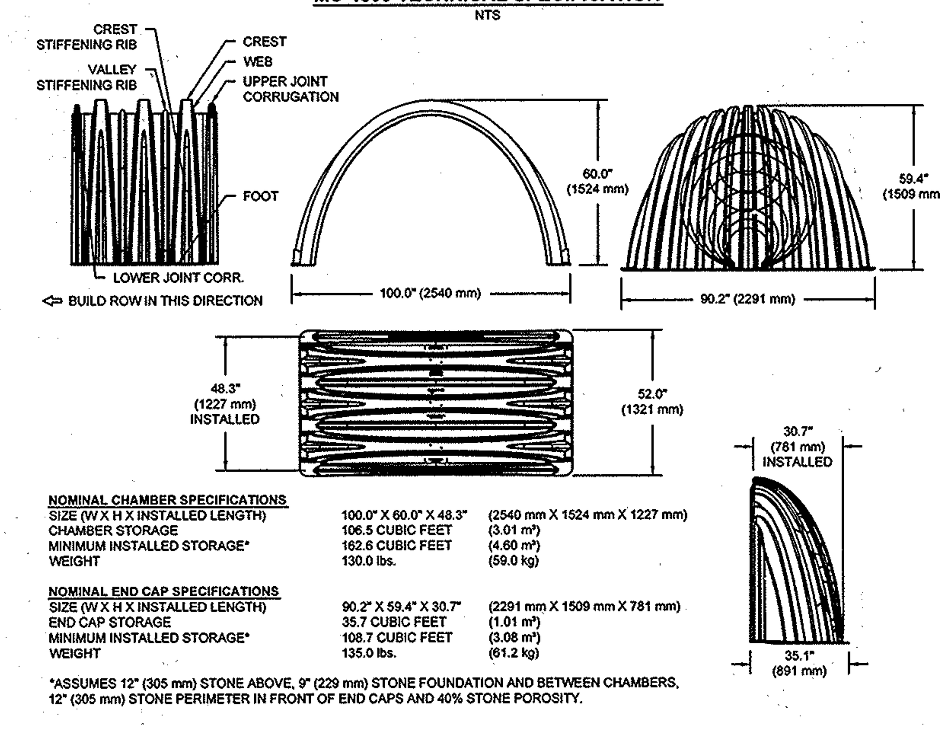
SHEET 6 OF 7

MC-SERIES END CAP INSERTION DETAIL
NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-4500 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT	130.0 lbs.	(59.0 kg)

NOMINAL END CAP SPECIFICATIONS

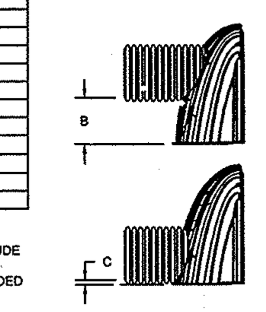
SIZE (W X H X INSTALLED LENGTH)	90.2" X 59.4" X 30.7"	(2291 mm X 1509 mm X 781 mm)
END CAP STORAGE	35.7 CUBIC FEET	(1.01 m³)
MINIMUM INSTALLED STORAGE*	108.7 CUBIC FEET	(3.08 m³)
WEIGHT	135.0 lbs.	(61.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	B	C
MC4500REPE06T	6" (150 mm)	42.54" (1.081 m)	—
MC4500REPE06B		—	0.86" (22 mm)
MC4500REPE08T	8" (200 mm)	40.50" (1.029 m)	—
MC4500REPE08B		—	1.01" (26 mm)
MC4500REPE10T	10" (250 mm)	38.37" (975 mm)	—
MC4500REPE10B		—	1.33" (34 mm)
MC4500REPE12T	12" (300 mm)	35.69" (907 mm)	—
MC4500REPE12B		—	1.55" (39 mm)
MC4500REPE15T	15" (375 mm)	32.72" (831 mm)	—
MC4500REPE15B		—	1.70" (43 mm)
MC4500REPE18T	18" (450 mm)	29.36" (746 mm)	—
MC4500REPE18B		—	1.97" (50 mm)
MC4500REPE24T	24" (600 mm)	23.05" (585 mm)	—
MC4500REPE24B		—	2.26" (57 mm)
MC4500REPE30B	30" (750 mm)	—	2.95" (75 mm)
MC4500REPE36B	36" (900 mm)	—	3.25" (83 mm)
MC4500REPE42B	42" (1050 mm)	—	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS.
CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm)
THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHTEST POSSIBLE FOR THE PIPE SIZE.

REV	DRW	CHK	DESCRIPTION
3/31/14	KLJ	KMS	RESIZED PER NEW VOL RQMTS
5/07/14	KLJ	KAM	RESIZED FACILITY 2 PER ENGINEER
8-28-14	MSY	KP	RESIZED FACILITY NO. 2 PER ENG

ESTATES AT PATAPSCO PARK
HOWARD COUNTY, MD
DATE: 1/28/14 DRAWN: KLJ
PROJECT #: 44111 CHECKED: —

StormTech
70 INWOOD ROAD, SUITE 3 | ROCKY HILL | CT | 06067
860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

ADS ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SHEET 7 OF 7

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

STORMTECH INFILTRATION FACILITY MAINTENANCE AND INSPECTION REQUIREMENTS

1. INSPECTION EVERY THREE YEARS
2. UPSTREAM MANHOLES SHALL BE JET-VACCUMED WHEN NECESSARY

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008SWM3.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:46

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

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(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SW1

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

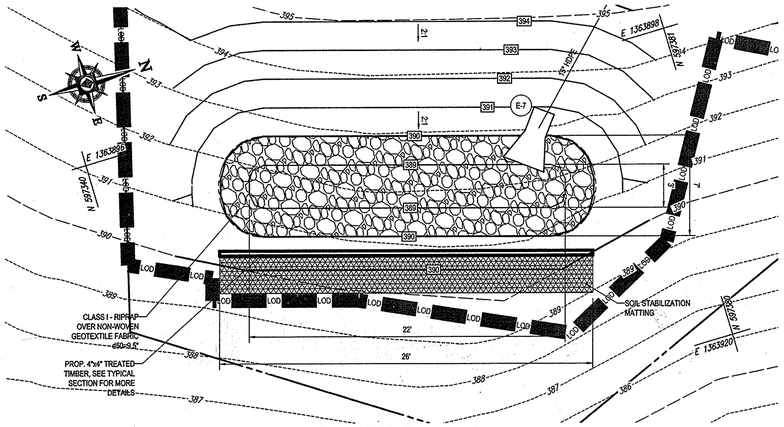
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE

SHEET TITLE:
STORMWATER MANAGEMENT & STORMTECH DETAILS

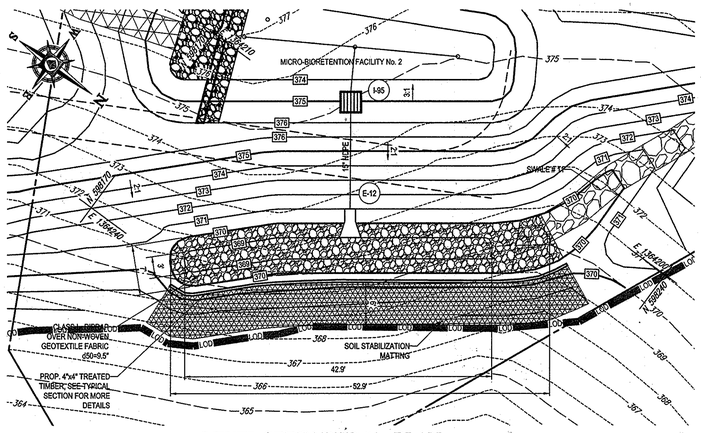
SHEET NUMBER:
73

F-14-124



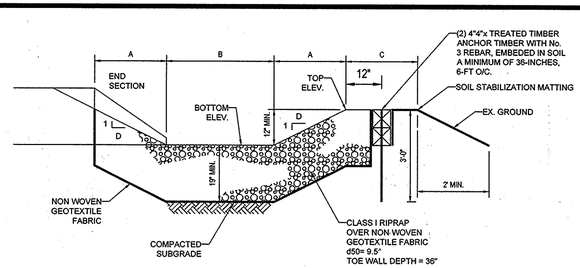
LEVEL SPREADER #1 - PLAN

SCALE: 1" = 5'



LEVEL SPREADER #4 - PLAN

SCALE: 1" = 10'

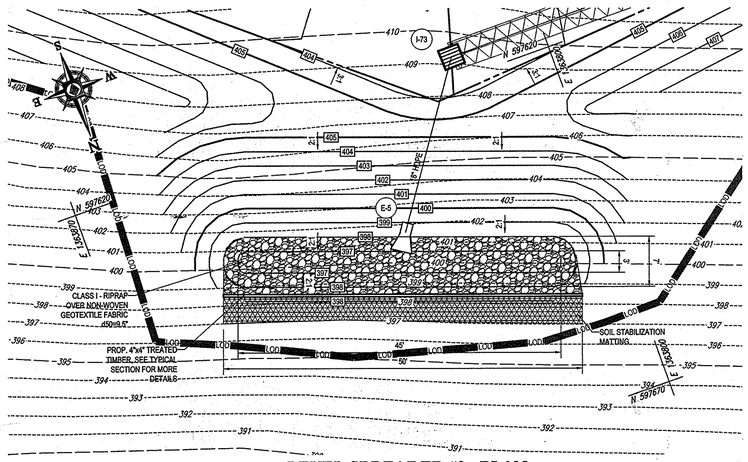


LEVEL SPREADER TYPICAL SECTION

SCALE : 1" = 2'

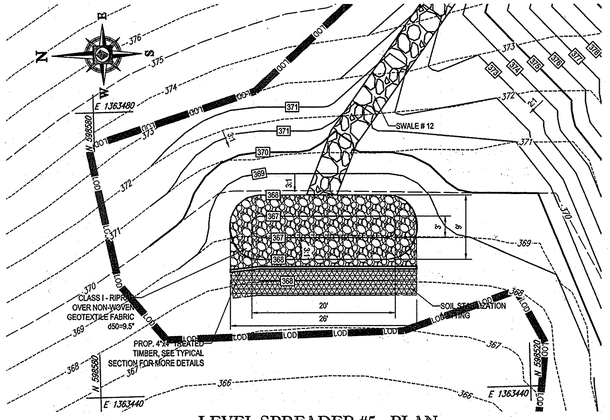
DIMENSION CHART

LEVEL SPREADER NO.	A	B	C	D	BOTTOM ELEV.	TOP ELEV.
1	2'-0"	3'-0"	2'-0" MIN.	2'-0"	389.0	390.0
2	2'-0"	3'-0"	2'-0" MIN.	2'-0"	397.0	398.0
3	3'-0"	3'-0"	3'-0" MIN.	3'-0"	378.0	379.0
4	2'-0"	3'-0"	2'-0" MIN.	2'-0"	369.0	370.0
5	3'-0"	3'-0"	3'-0" MIN.	3'-0"	367.0	368.0



LEVEL SPREADER #2 - PLAN

SCALE: 1" = 10'



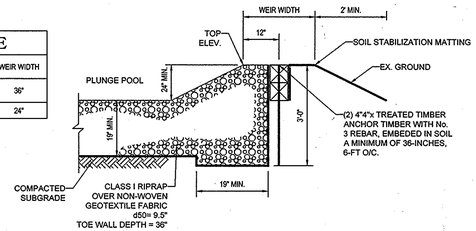
LEVEL SPREADER #5 - PLAN

SCALE: 1" = 10'

PLUNGE POOL TABLE

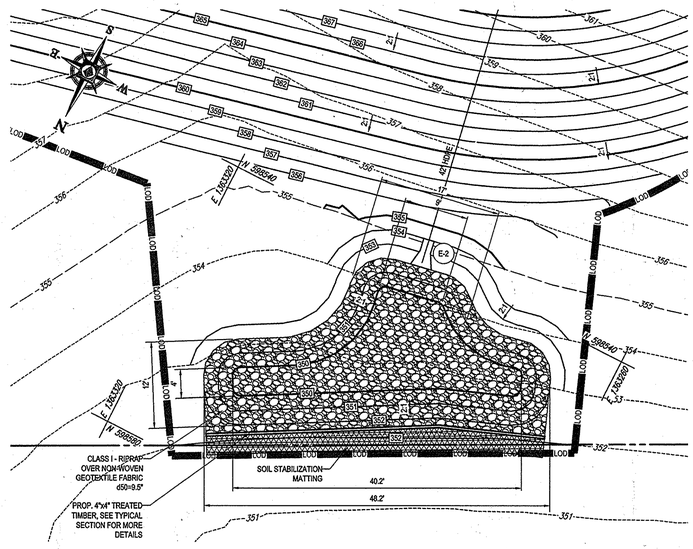
NO.	BOTTOM ELEV.	TOP ELEV.	SIDE SLOPES	WEIR WIDTH
1	402.00	404.00	3:1	36"
2 *	350.00	352.00	2:1	24"

* NOTE: PLUNGE POOL #2 IS MODIFIED TO INCORPORATE A LEVEL SPREADER STYLE DISCHARGE.



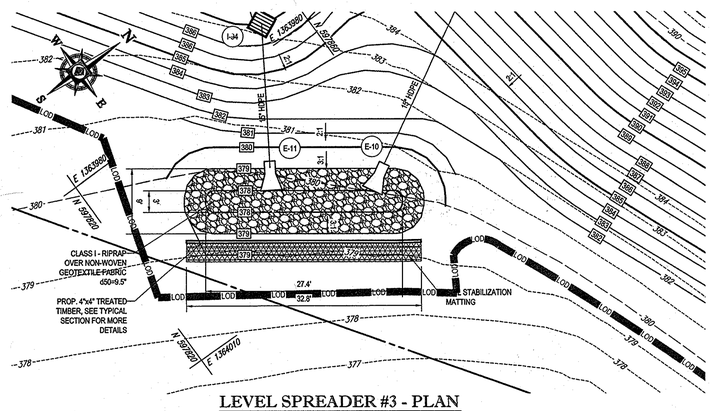
PLUNGE POOL TYPICAL SECTION

SCALE : 1" = 2'



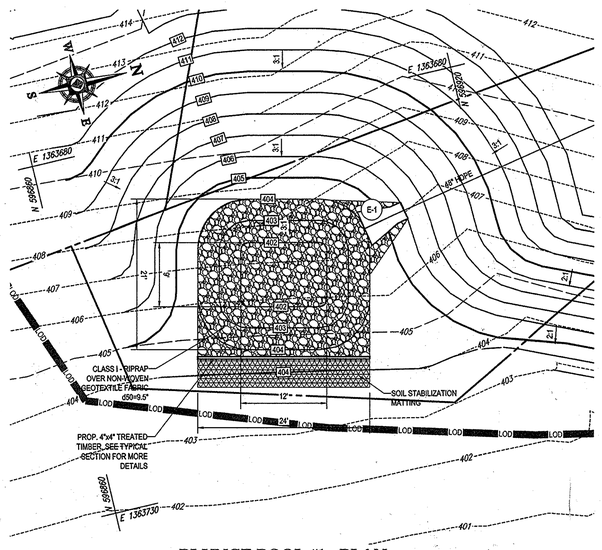
PLUNGE POOL #2 - PLAN

SCALE: 1" = 10'



LEVEL SPREADER #3 - PLAN

SCALE: 1" = 10'



PLUNGE POOL #1 - PLAN

SCALE: 1" = 10'

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE 1/18/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6.15.15

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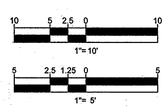

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/0/2015

BOHLER ENGINEERING
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ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
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◆ BOWIE, MD
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REVISIONS

REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SW0

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

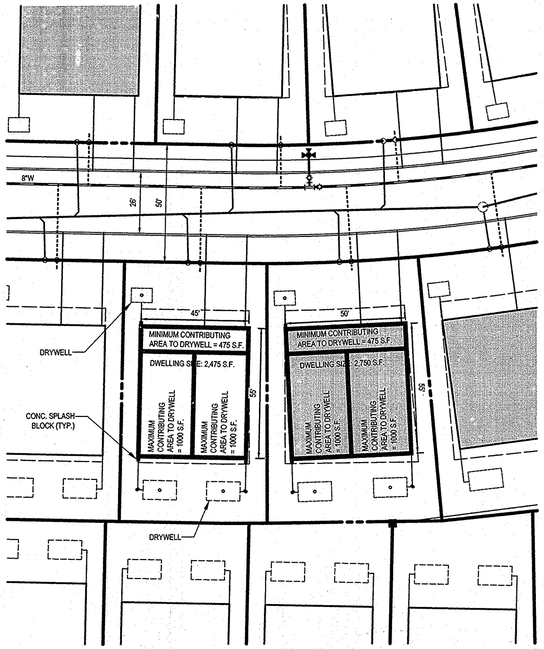
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

BRANDON R. ROWE
REGISTERED PROFESSIONAL ENGINEER
No. 40808
PROFESSIONAL ENGINEER
STATE OF MARYLAND

SHEET TITLE:
OUTFALL STABILIZATION DETAILS

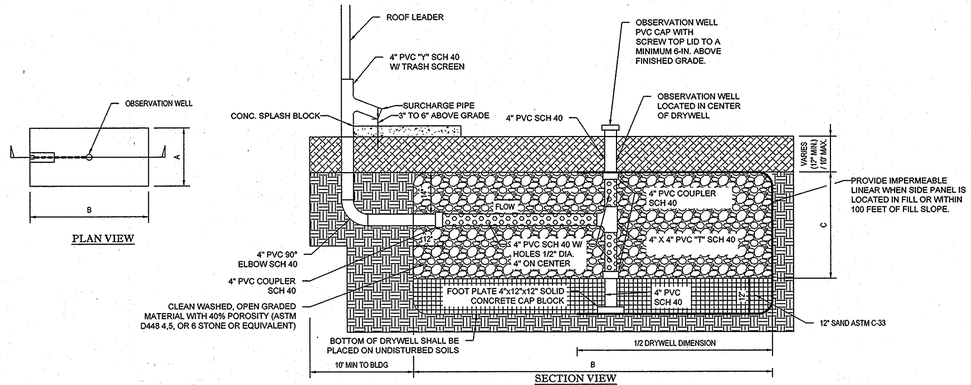
SHEET NUMBER:
74

H:\2013\MD132008\2000WIP\GIS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008OSDETAILS.DWG PRINTED BY: BROWEN 12.12.14 @ 11:43



TYPICAL LAYOUT PLAN

SCALE : 1" = 30'



DRYWELL SIZE TABLE

DWELLING SIZE: 2,475 S.F. *	DRYWELL DIMENSIONS			DRYWELL STORAGE PROVIDED (CUBIC FOOT)
	A	B	C	
REAR YARD DRYWELL(S)	8'	14'	4'-8"	205.8
FRONT YARD DRYWELL	6'	8'-9"	4'-8"	97.8
DWELLING SIZE: 2,750 S.F. **				
REAR YARD DRYWELL(S)	8'	14'	4'-8"	205.8
FRONT YARD DRYWELL	8'	10'-4"	4'-8"	154.4

NOTES:

1. FROM THE DOWNSPOUT TO THE DRYWELL THE DRAIN PIPE MUST BE AT LEAST 6" BELOW GRADE.
2. NONWOVEN GEOTEXTILE FABRIC TO BE INSTALLED ON TOP AND SIDES ONLY. THESE GEOTEXTILES ARE AVAILABLE IN FINKSBURG @ ES&G DISTRIBUTORS 2801 EMORY RD. BLDG 8. 866-744-5001, ANY EQUIVALENT GEOTEXTILE IS ACCEPTABLE.
3. DRYWELL BOTTOM TO BE INSTALLED AS LEVEL AS POSSIBLE AND IN UNDISTURBED SOILS.
4. WHEN TOP OF DRYWELL IS PLACED IN FILL WITHIN 100' OF SLOPES 15% OR GREATER, AN IMPERMEABLE LINER SHALL BE PROVIDED ON THE STEEP SLOPE SIDE OF THE FACILITY AS SHOWN ABOVE.
5. ALL ROOF DRAINS LEADING TO A DRYWELL FACILITY SHALL HAVE A GUTTER DRAIN FILTER.
6. CONSTRUCTION OF A DRYWELL SHALL BE PERFORMED WITH A LIGHTWEIGHT WIDE-TRACKED EQUIPMENT TO MINIMIZE DISTURBANCE AND COMPACTION.

STANDARD DRYWELL SECTION

NOT TO SCALE

DRY WELL CONSTRUCTION SPECIFICATIONS

REGULAR INSPECTIONS SHALL BE DURING THE FOLLOWING STAGES OF CONSTRUCTION:

- DURING EXCAVATION TO SUBGRADE
- DURING PLACEMENT OF BACKFILL AND PERFORATED INLET PIPE AND OBSERVATION WELL
- DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA
- DURING CONSTRUCTION OF THE APPURTENANT CONVEYANCE
- UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED DRY WELLS

1. PRIVATELY OWNED PRACTICES SHALL HAVE A MAINTENANCE PLAN AND SHALL BE PROTECTED BY EASEMENT, DEED RESTRICTION, ORDINANCE, OR OTHER LEGAL MEASURES PREVENTING ITS NEGLECT, ADVERSE ALTERATION, AND REMOVAL.
2. DRY WELLS SHALL BE INSPECTED AND CLEANED ANNUALLY BY THE OWNER. THIS INCLUDES GUTTERS, DOWNSPOUTS, AND ALL FILTERS.
3. PONDING, STANDING WATER, OR ALGAL GROWTH ON THE TOP OF A DRY WELL MAY INDICATE FAILURE DUE TO SEDIMENTATION IN THE GRAVEL MEDIA. IF WATER PONDS FOR MORE THAN 48 HOURS AFTER A MAJOR STORM OR MORE THAN SIX INCHES OF SEDIMENT HAS ACCUMULATED, THE GRAVEL MEDIA SHOULD BE EXCAVATED AND REPLACED.

STORMTECH INFILTRATION FACILITY MAINTENANCE AND INSPECTION REQUIREMENTS

1. INSPECTION EVERY THREE YEARS
2. UPSTREAM MANHOLES SHALL BE JET-VACCUMED WHEN NECESSARY

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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N:\2015\15012026\DWG\SHEET\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132006SWM.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:47

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ BOWIE, MD ◆ SOUTHBOROUGH, MA ◆ TOWSON, MD ◆ ALBANY, NY ◆ PITTSBURGH, PA ◆ WARRENTON, VA ◆ CHARLEROI, PA ◆ FORT LAUDERDALE, FL ◆ CENTER VALLEY, PA ◆ PORT CHARLOTTE, FL ◆ LEHIGH, PA

THE APPEARING IDEAS AND CONCEPTS OF THE NEW PLANS PROPRIETARY AND SHALL NOT BE USED, DISCLOSED OR REPRODUCED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, DATED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES © 2014 BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132006
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SW1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — STATE OF MARYLAND — No. 22408 — PROFESSIONAL ENGINEER — 12/17/14

SHEET TITLE:
ON-LOT STORMWATER MANAGEMENT DETAILS

SHEET NUMBER: 75

OWNER:
PM PATAPSCO LLC
12115 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

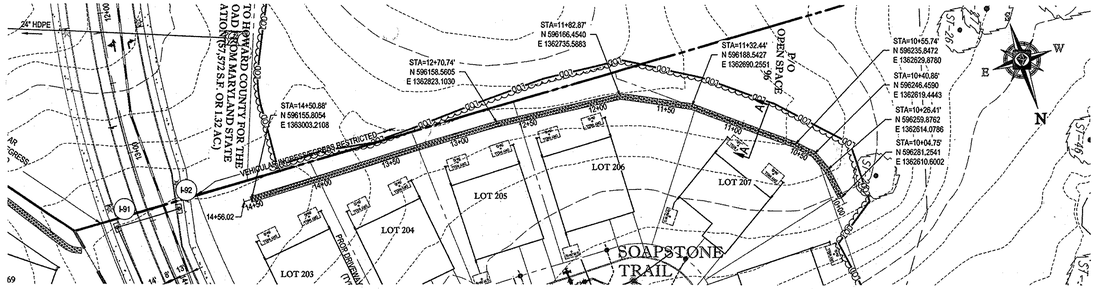
DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

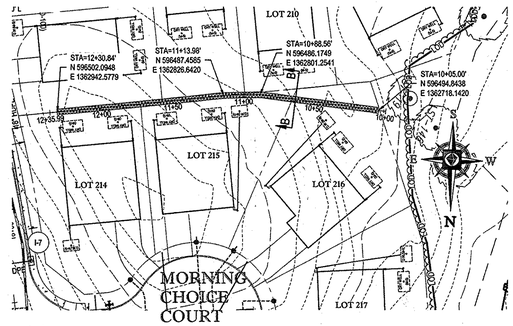
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR LIT: 15145/455 & 15145/457	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22408, EXPIRATION DATE: 7/3/2015



SWALE No. 1 - PLAN
SCALE: 1" = 50'



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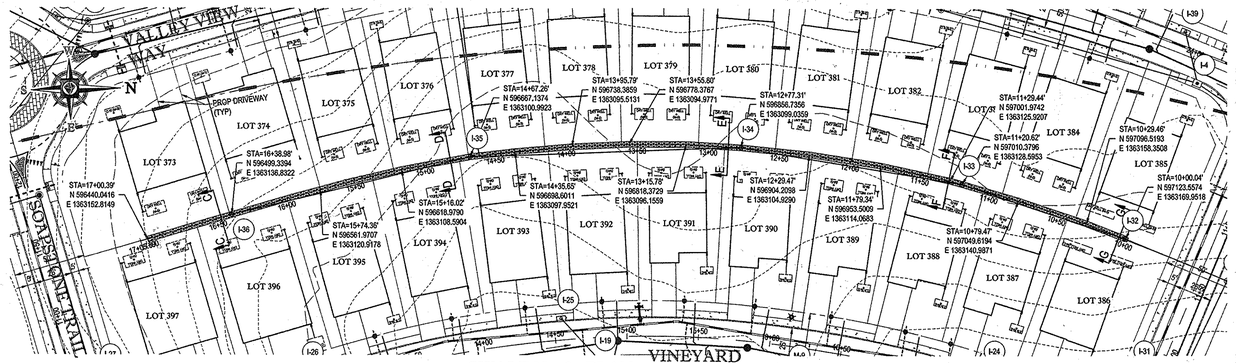

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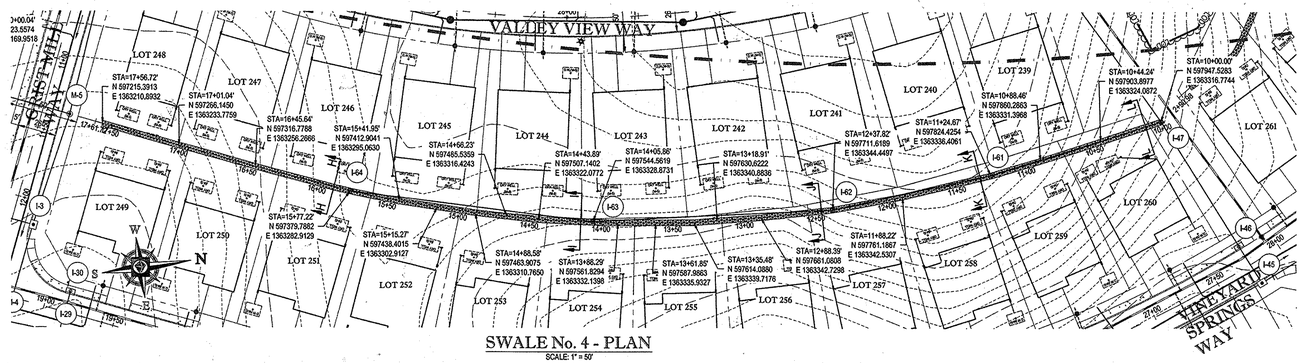

SWALE No. 4 - PLAN
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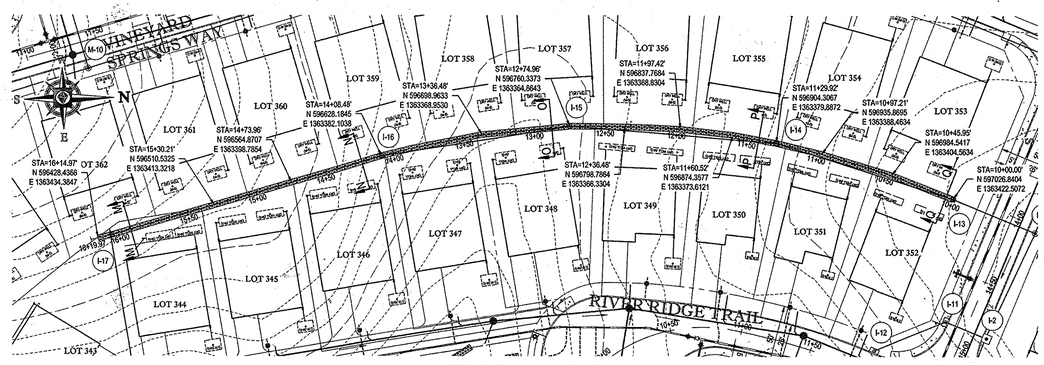

SWALE No. 5 - PLAN
SCALE: 1" = 50'

SEE SHEET 78 & 79 FOR WIDTH OF SOIL STABILIZATION MATTING TO BE INSTALLED AT EACH SWALE LOCATION

50 25 12.5 0 50
1"= 50'

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR LIR: 23421 TO 23438	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING
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SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHESTER, NY; CENTER VALLEY, PA; EXTON, PA; EDISON, NJ; TOWSON, MD; STERLING, VA; FORT LAUDERDALE, FL; CHARLOTTE, NC

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.: MD152013
DRAWN BY: RLB
CHECKED BY: BRR
DATE: 1/23/15
SCALE: AS SHOWN
CAD I.D.: RD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

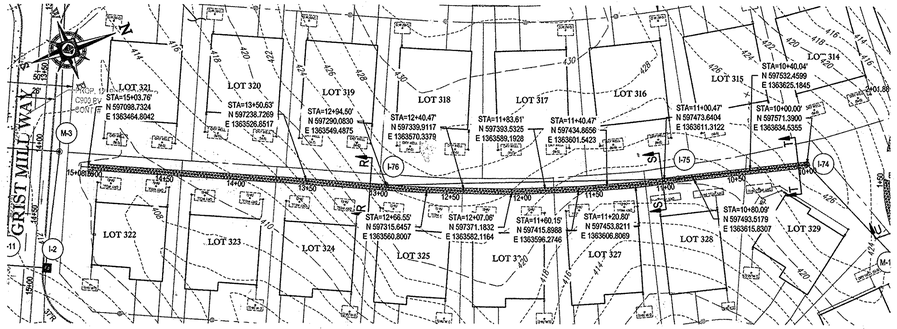
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

BRANDON R. ROWE — PROFESSIONAL ENGINEER — No. 40808 — PROFESSIONAL ENGINEER

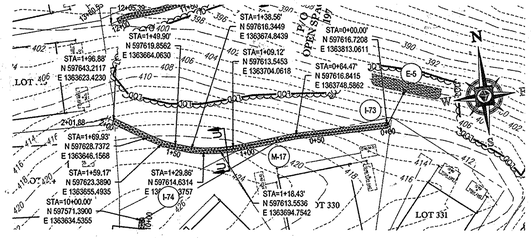
SHEET TITLE:
SWALE PROFILES AND SECTIONS

SHEET NUMBER:
76

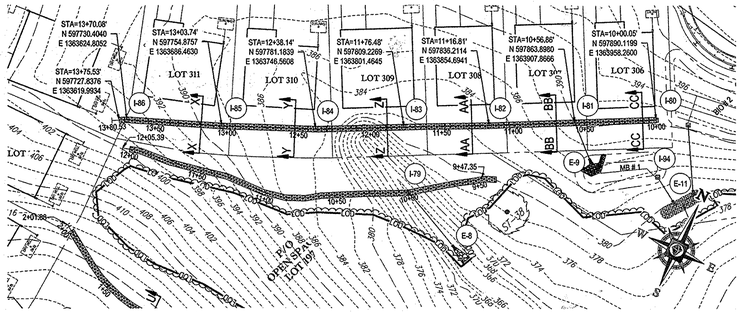
F-14-124



SWALE No. 6 - PLAN
SCALE: 1" = 50'



SWALE No. 7 - PLAN
SCALE: 1" = 50'



SWALE No. 9 - PLAN
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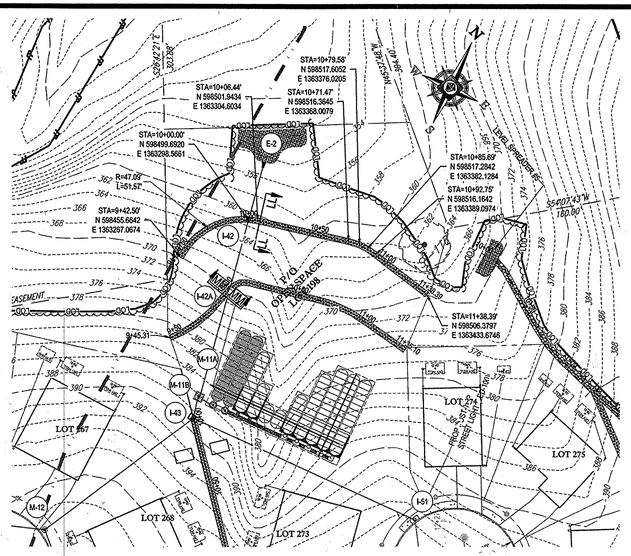
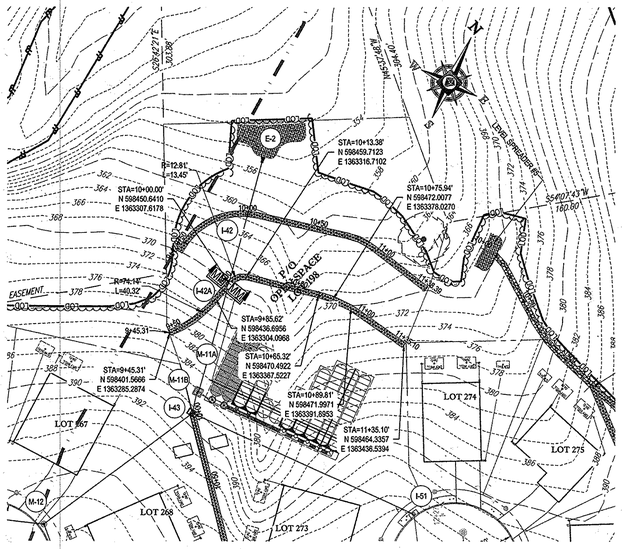
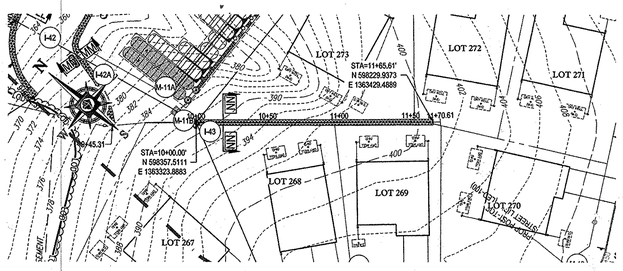


SWALE No. 14 - PLAN
SCALE: 1" = 50'



SWALE No. 15 - PLAN
SCALE: 1" = 50'



SWALE No. 16 - PLAN
SCALE: 1" = 50'

50 25 12.5 0 50
1"= 50'

SEE SHEET 78 & 79 FOR WIDTH OF SOIL STABILIZATION MATTING TO BE INSTALLED AT EACH SWALE LOCATION

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/6/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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H:\2015\MD\15013\7.0\WINGS\PLAN SET\7/FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD15013FSH04.DWG PRINTED BY: RSOWEK 10.22.15 @ 12:50

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PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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◆ WARREN, NJ

OFFICES:
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◆ ALBANY, NY
◆ ROANOKE, VA
◆ PITTSBURGH, PA
◆ CENTER VALLEY, PA
◆ TAMPA, FL
◆ BOWIE, MD
◆ CHANTILLY, VA
◆ STERLING, VA
◆ HARRISBURG, PA
◆ FORT LAUDERDALE, FL
◆ PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	RD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE — STATE OF MARYLAND — BRANDON R. ROWE — PROFESSIONAL ENGINEER — No. 40808 — 10/22/15

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

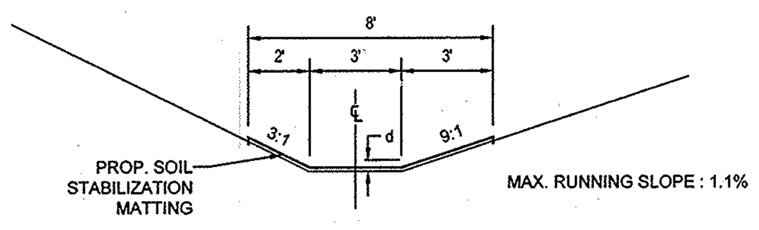
PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/9/2017

SHEET TITLE:
SWALE PROFILES AND SECTIONS

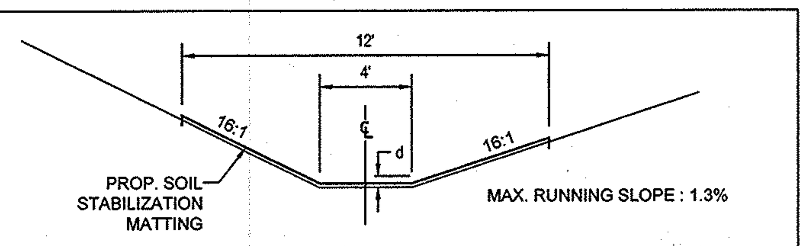
SHEET NUMBER:
77

F-14-124



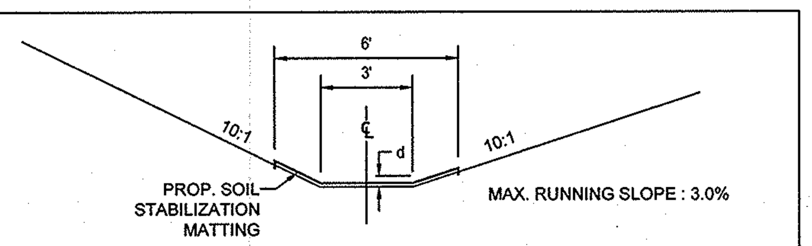
A SWALE 1 - CROSS SECTION
NOT TO SCALE

Q_{10} = 3.26 CFS
V_{10} = 1.97 FPS
d_{10} = 0.33'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



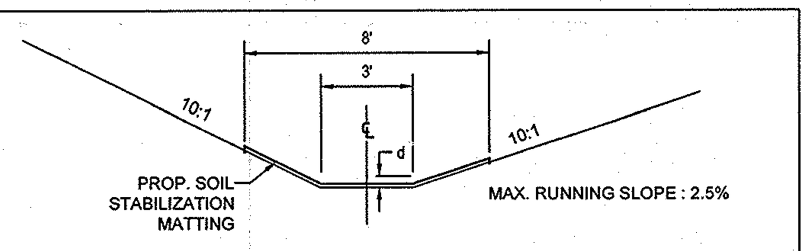
B SWALE 2 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.94 CFS
V_{10} = 1.64 FPS
d_{10} = 0.23'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



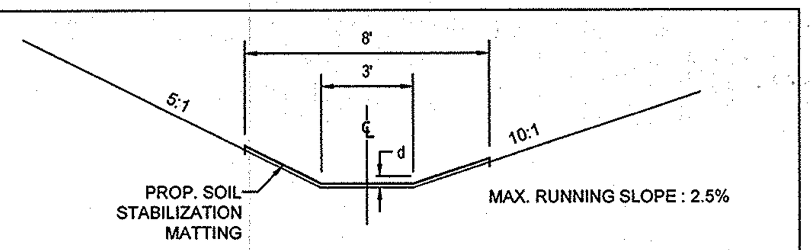
C SWALE 3 - CROSS SECTION
NOT TO SCALE

Q_{10} = 1.37 CFS
V_{10} = 2.01 FPS
d_{10} = 0.15'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



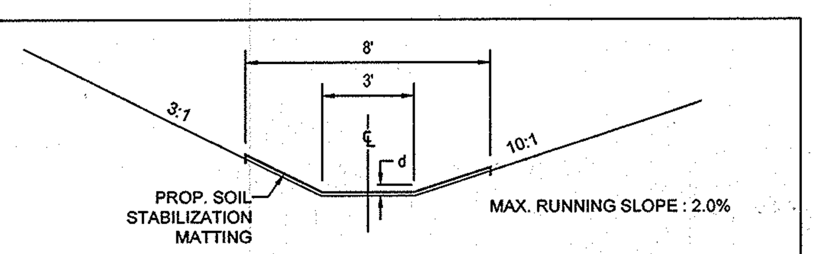
D SWALE 3 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.46 CFS
V_{10} = 2.22 FPS
d_{10} = 0.21'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



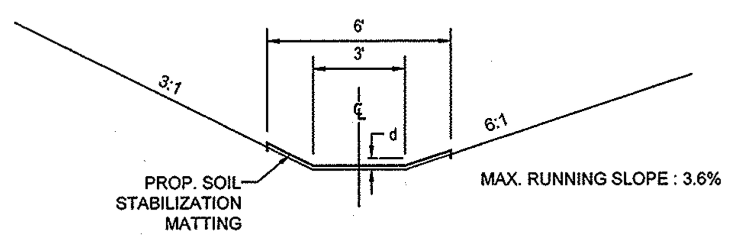
E SWALE 3 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.38 CFS
V_{10} = 2.32 FPS
d_{10} = 0.22'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



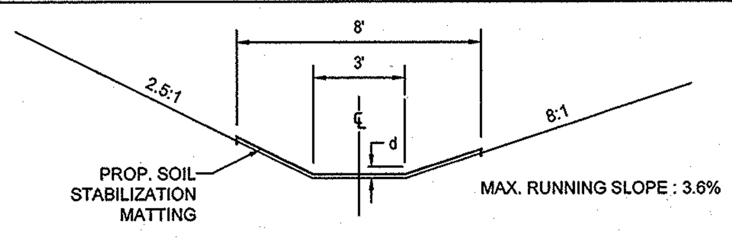
F SWALE 3 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.26 CFS
V_{10} = 2.17 FPS
d_{10} = 0.23'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



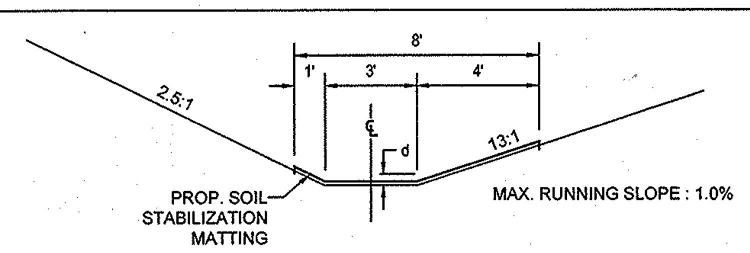
G SWALE 3 - CROSS SECTION
NOT TO SCALE

Q_{10} = 1.92 CFS
V_{10} = 2.67 FPS
d_{10} = 0.19'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



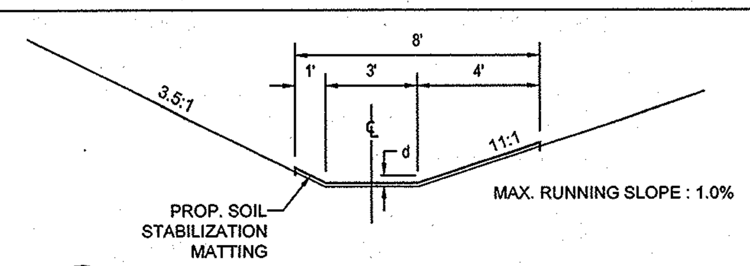
H SWALE 4 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.77 CFS
V_{10} = 2.93 FPS
d_{10} = 0.23'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



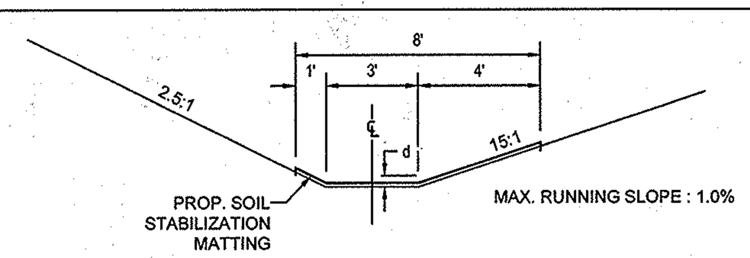
I SWALE 4 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.51 CFS
V_{10} = 1.69 FPS
d_{10} = 0.29'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



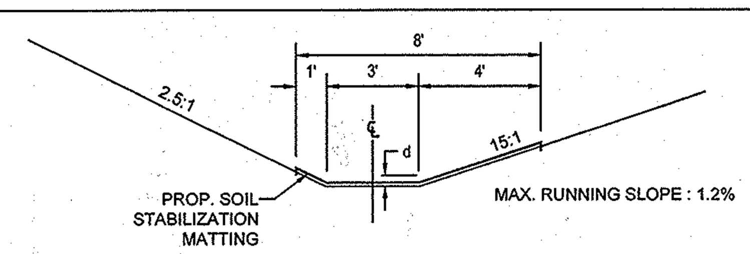
J SWALE 4 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.62 CFS
V_{10} = 1.73 FPS
d_{10} = 0.29'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



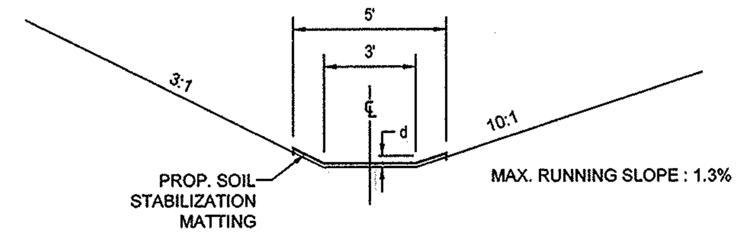
K SWALE 4 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.03 CFS
V_{10} = 1.55 FPS
d_{10} = 0.25'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



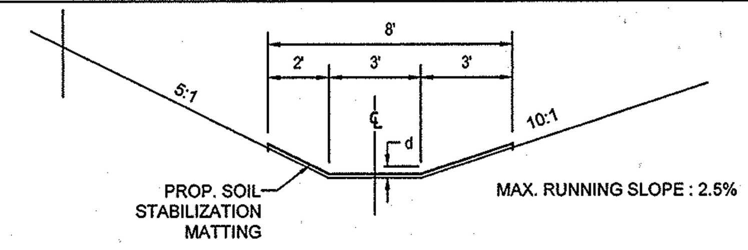
L SWALE 4 - CROSS SECTION
NOT TO SCALE

Q_{10} = 1.50 CFS
V_{10} = 1.52 FPS
d_{10} = 0.21'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



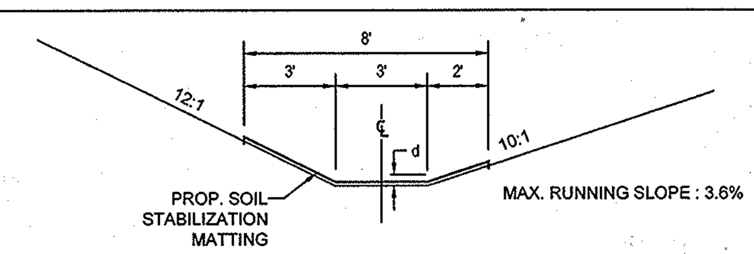
M SWALE 5 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.24 CFS
V_{10} = 0.92 FPS
d_{10} = 0.07'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



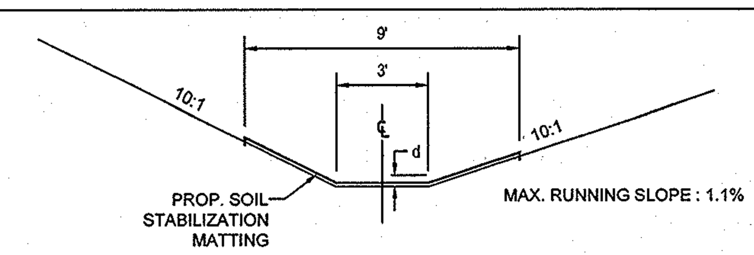
N SWALE 5 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.77 CFS
V_{10} = 2.43 FPS
d_{10} = 0.24'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



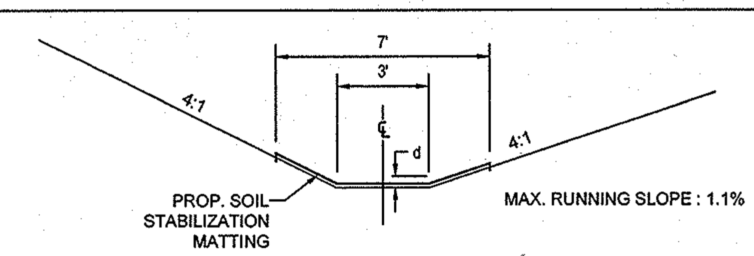
O SWALE 5 - CROSS SECTION
NOT TO SCALE

Q_{10} = 1.82 CFS
V_{10} = 2.28 FPS
d_{10} = 0.17'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



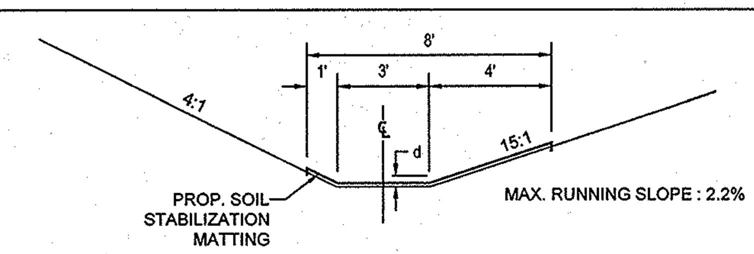
P SWALE 5 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.29 CFS
V_{10} = 1.62 FPS
d_{10} = 0.25'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



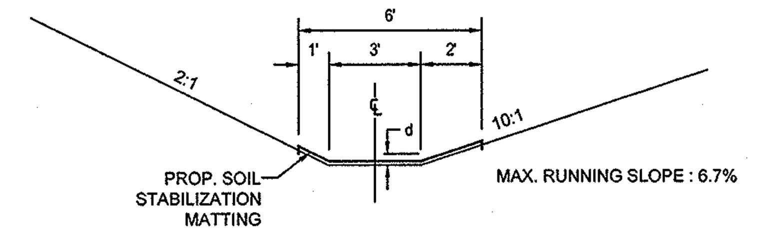
Q SWALE 5 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.14 CFS
V_{10} = 1.87 FPS
d_{10} = 0.28'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



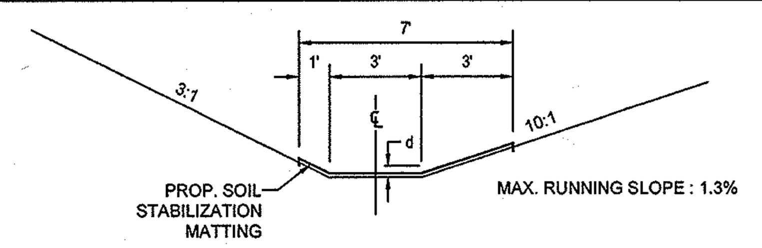
R SWALE 6 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.95 CFS
V_{10} = 2.25 FPS
d_{10} = 0.25'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



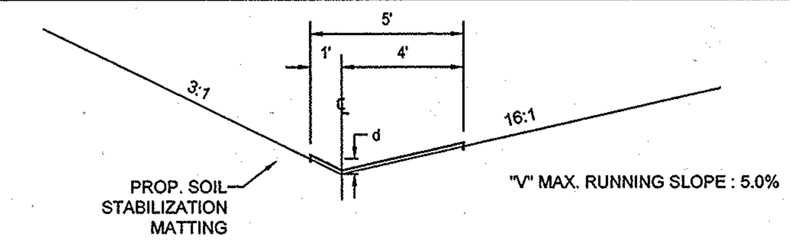
S SWALE 6 - CROSS SECTION
NOT TO SCALE

Q_{10} = 3.16 CFS
V_{10} = 3.71 FPS
d_{10} = 0.20'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



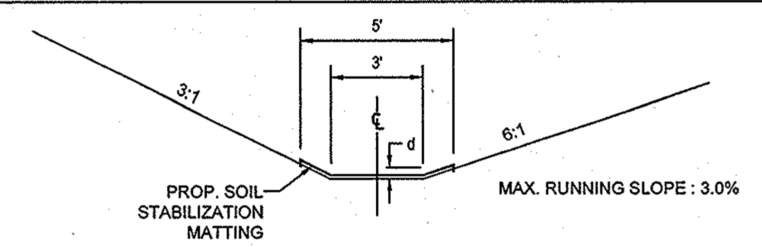
T SWALE 6 - CROSS SECTION
NOT TO SCALE

Q_{10} = 1.66 CFS
V_{10} = 1.70 FPS
d_{10} = 0.22'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



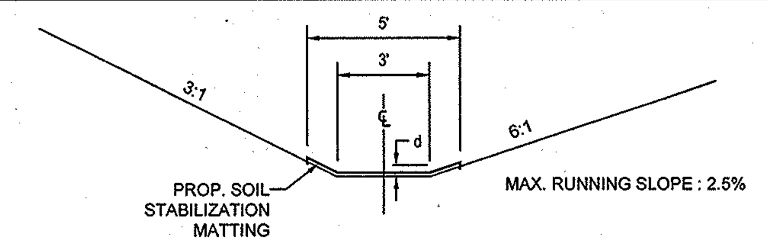
U SWALE 7 - CROSS SECTION
NOT TO SCALE

Q_{10} = 1.77 CFS
V_{10} = 2.81 FPS
d_{10} = 0.26'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



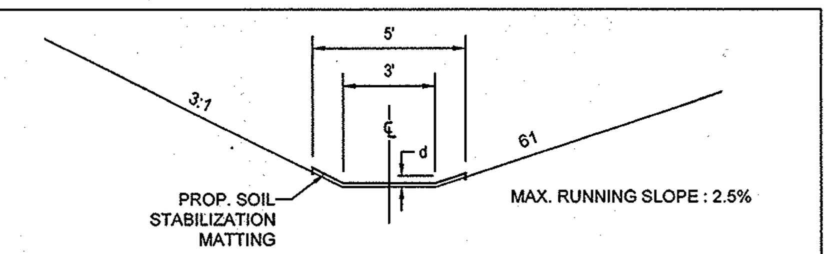
X SWALE 9 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.35 CFS
V_{10} = 1.42 FPS
d_{10} = 0.07'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



Y SWALE 9 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.39 CFS
V_{10} = 1.39 FPS
d_{10} = 0.08'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



Z SWALE 9 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.39 CFS
V_{10} = 1.39 FPS
d_{10} = 0.08'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH

CENTER OF SOIL STABILIZATION MATTING SHALL COINCIDE WITH CENTER OF SWALE UNLESS NOTED OTHERWISE.

REFER TO EROSION AND SEDIMENT CONTROL STABILIZATION STANDARDS & SPECIFICATIONS FOR INSTALLATION OF SOIL STABILIZATION MATTING OVER SEED & MULCH.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008RD3.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:41

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	RD1

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

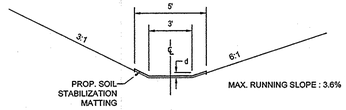
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND — BRANDON R. ROWE — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE:
SWALE PROFILES AND SECTIONS

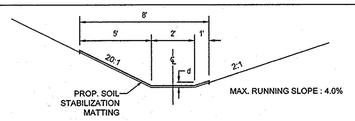
SHEET NUMBER:
78

F-14-124



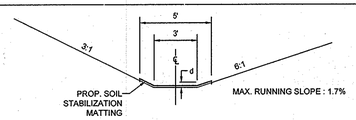
AA SWALE 9 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.39 CFS
V_{10} = 1.56 FPS
d_{10} = 0.07'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



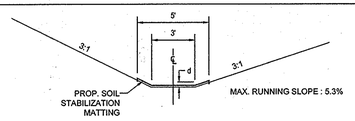
MM SWALE 15 - CROSS SECTION

Q_{10} = 1.24 CFS
V_{10} = 2.20 FPS
d_{10} = 0.15'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



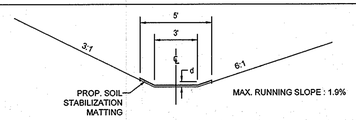
BB SWALE 9 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.39 CFS
V_{10} = 1.22 FPS
d_{10} = 0.09'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



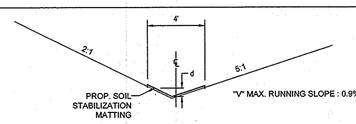
NN SWALE 16 - CROSS SECTION
NOT TO SCALE

Q_{10} = 2.87 CFS
V_{10} = 3.64 FPS
d_{10} = 0.22'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



CC SWALE 9 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.39 CFS
V_{10} = 1.27 FPS
d_{10} = 0.09'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



LL SWALE 14 - CROSS SECTION
NOT TO SCALE

Q_{10} = 0.29 CFS
V_{10} = 1.18 FPs
d_{10} = 0.25'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH

CENTER OF SOIL STABILIZATION MATTING SHALL COINCIDE WITH CENTER OF SWALE UNLESS NOTED OTHERWISE.

REFER TO EROSION AND SEDIMENT CONTROL STABILIZATION STANDARDS & SPECIFICATIONS FOR INSTALLATION OF SOIL STABILIZATION MATTING OVER SEED & MULCH.

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/455 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015

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SURVEYORS
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LANDSCAPE ARCHITECTS

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OFFICES:
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	RD1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
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BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
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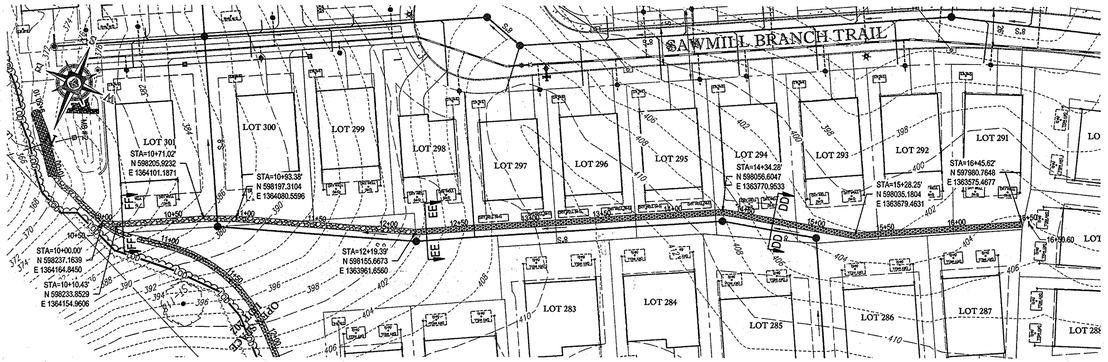
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

BRANDON R. ROWE
STATE OF MARYLAND — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE:
SWALE PROFILES AND SECTIONS

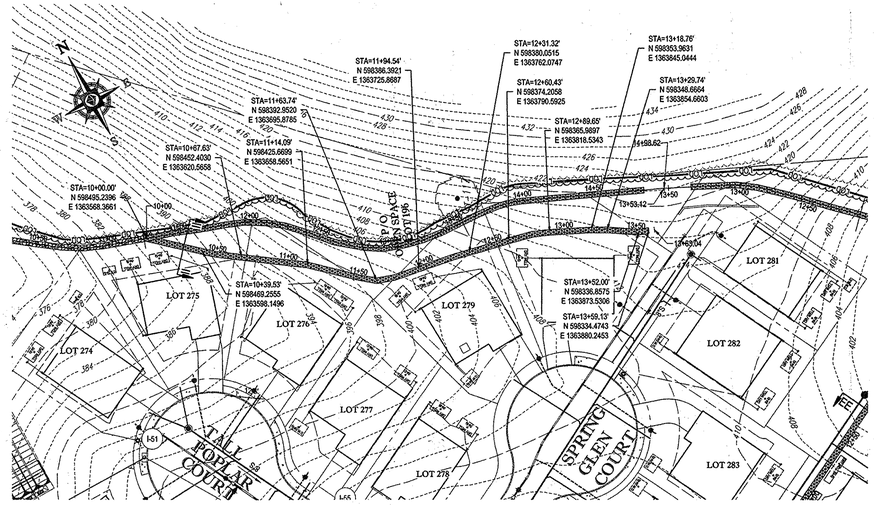
SHEET NUMBER:
79

M:\2015\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008RD1.DWG PRINTED BY: RBOWEN 12.12.14 @ 12:41



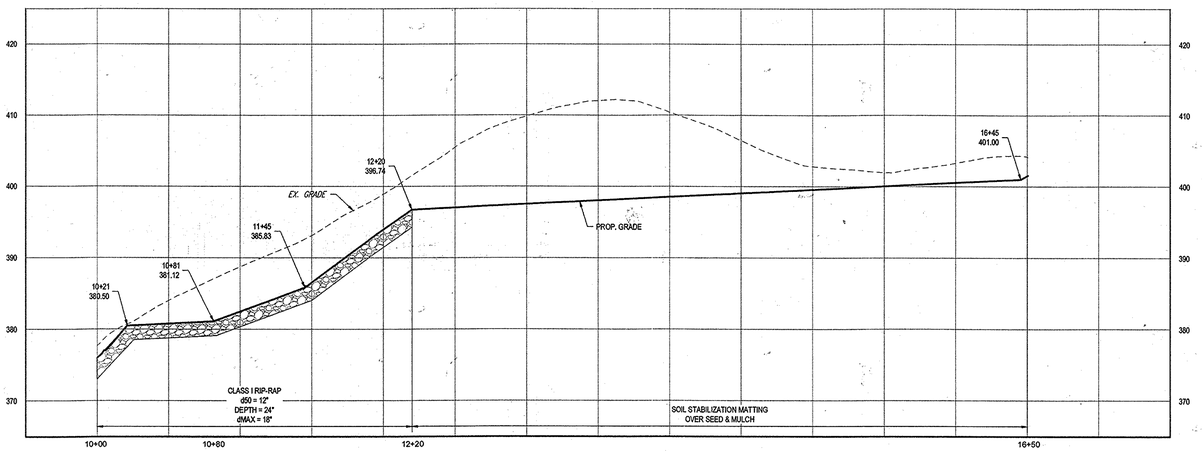
SWALE No. 10 - PLAN

SCALE: 1" = 50'



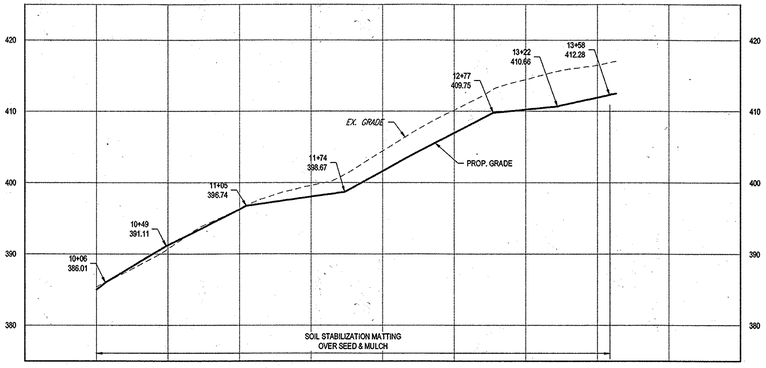
SWALE No. 13 - PLAN

SCALE: 1" = 50'



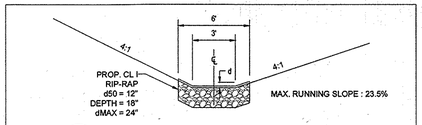
SWALE No. 10 - PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL



SWALE No. 13 - PROFILE

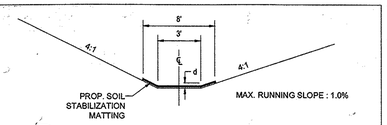
SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL



FF SWALE 10 - CROSS SECTION

NOT TO SCALE

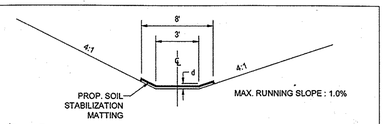
Q_{10} = 10.14 CFS
V_{10} = 8.71 FPS
d_{10} = 0.28'
LINING = CLASS I RIP-RAP



EE SWALE 10 - CROSS SECTION

NOT TO SCALE

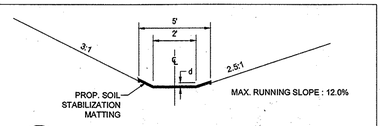
Q_{10} = 7.68 CFS
V_{10} = 2.62 FPS
d_{10} = 0.55'
LINING = SOIL STABILIZATION MATTING
OVER SEED & MULCH



DD SWALE 10 - CROSS SECTION

NOT TO SCALE

Q_{10} = 3.89 CFS
V_{10} = 2.16 FPS
d_{10} = 0.39'
LINING = SOIL STABILIZATION MATTING
OVER SEED & MULCH



II SWALE 13 - CROSS SECTION

NOT TO SCALE

Q_{10} = 2.78 CFS
V_{10} = 5.19 FPS
d_{10} = 0.21'
LINING = SOIL STABILIZATION MATTING
OVER SEED & MULCH

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/17/15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

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50 25 12.5 0 50

1"= 50'

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE:
WARREN, NJ
OFFICES:
SOUTHBOROUGH, MA
ALBANY, NY
ROANOKE, VA
CENTER VALLEY, PA
EPHRATA, PA
EXTON, PA
TOWSON, MD
STERLING, VA
FORT LAUDERDALE, FL
CHARLOTTE, NC

THE DRAWINGS, SPECIFICATIONS AND DESIGNS CONTAINED IN THESE PLANS ARE THE PROPERTY OF BOHLER ENGINEERING AND ARE NOT TO BE USED IN WHOLE OR IN PART FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF BOHLER ENGINEERING. THE SALE OF ANY REPRODUCTION OF THESE PLANS IS PROHIBITED. ANY VISUAL OR ELECTRONIC REPRODUCTION IS EXPRESSLY PROHIBITED. THE RETENTION OF THESE PLANS BY ANY PERSON, FIRM OR ENTITY CONSTITUTES AGREEMENT TO THESE RESTRICTIONS.

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	RD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

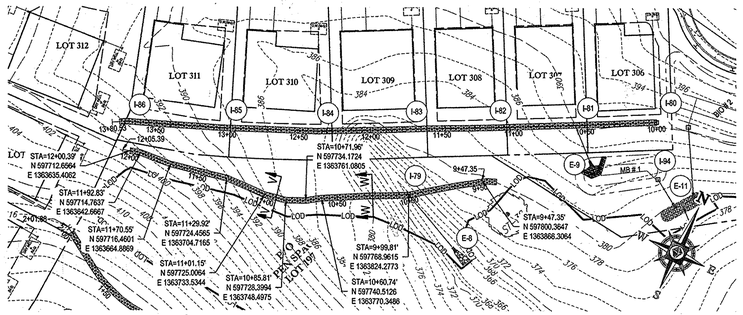
BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B.R. ROWE — STATE OF MARYLAND — No. 40808 — PROFESSIONAL ENGINEER

SHEET TITLE:
SWALE PROFILES AND SECTIONS

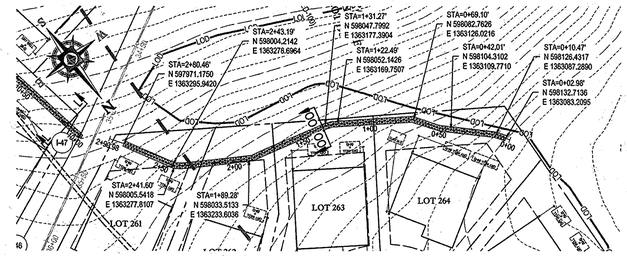
SHEET NUMBER:
80

F-14-124



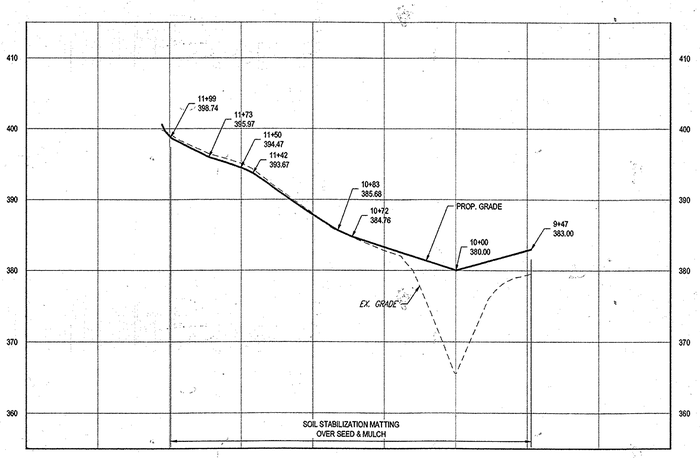
SWALE No. 8 - PLAN

SCALE: 1" = 50'



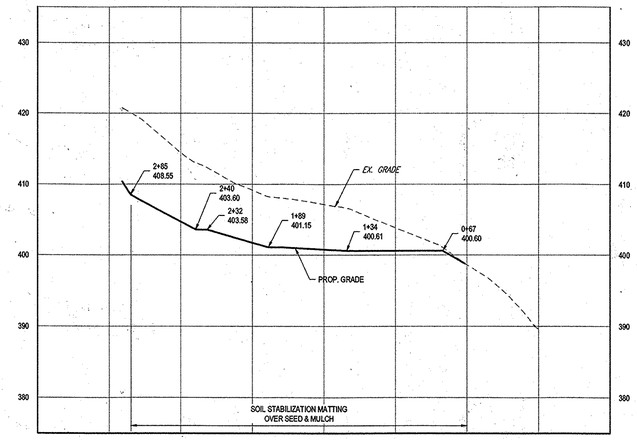
SWALE No. 17 - PLAN

SCALE: 1" = 50'



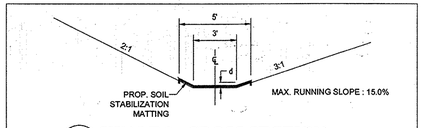
SWALE No. 8 - PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL



SWALE No. 17 - PROFILE

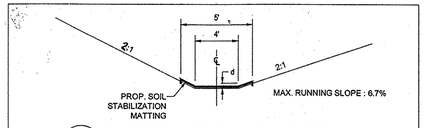
SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL



V SWALE 8 - CROSS SECTION

NOT TO SCALE

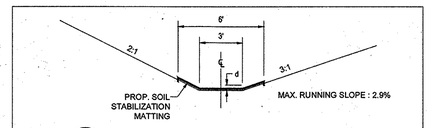
Q_{10} = 0.64 CFS
V_{10} = 3.03 FPS
d_{10} = 0.07'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



W SWALE 8 - CROSS SECTION

NOT TO SCALE

Q_{10} = 0.89 CFS
V_{10} = 2.42 FPS
d_{10} = 0.09'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH



OO SWALE 17 - CROSS SECTION

NOT TO SCALE

Q_{10} = 6.28 CFS
V_{10} = 3.88 FPS
d_{10} = 0.40'
LINING = SOIL STABILIZATION MATTING OVER SEED & MULCH

50 25 12.5 0 50

1"= 50'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/07/15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11.17.15

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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16- 051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23438	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
◆ WARREN, NJ

OFFICES:
◆ ASHEVILLE, NC
◆ BOWIE, MD
◆ CHARLESTON, SC
◆ CHARLOTTE, NC
◆ DENVER, CO
◆ EXTON, PA
◆ FREDERICK, MD
◆ GREENVILLE, SC
◆ HARRISBURG, PA
◆ HOUSTON, TX
◆ MORRISVILLE, NC
◆ NASHVILLE, TN
◆ PITTSBURGH, PA
◆ PORTSMOUTH, NH
◆ RICHMOND, VA
◆ SPRINGFIELD, MA
◆ STERLING, VA
◆ TAMPA, FL
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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

CALL MISS UTILITY OF MARYLAND AT LEAST 48 HOURS BEFORE YOU DIG
1-800-257-7777
IT'S THE LAW!

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	RD4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
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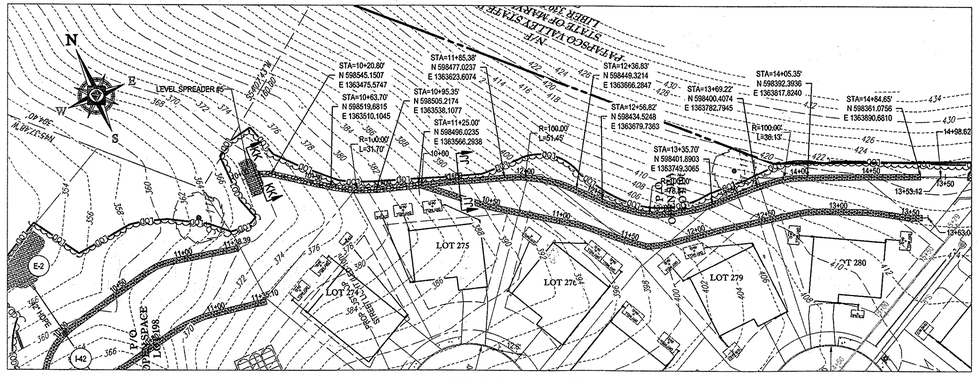
BRANDON R. ROWE
STATE OF MARYLAND
PROFESSIONAL ENGINEER
No. 40808
11/9/15

SHEET TITLE:
SWALE PROFILES AND SECTIONS

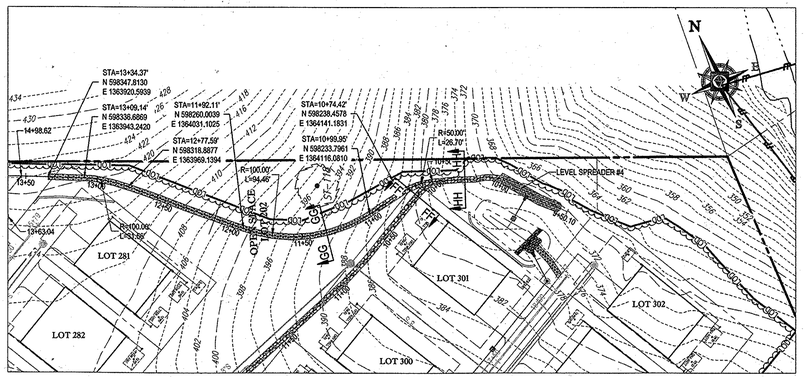
SHEET NUMBER:
81

F-14-124



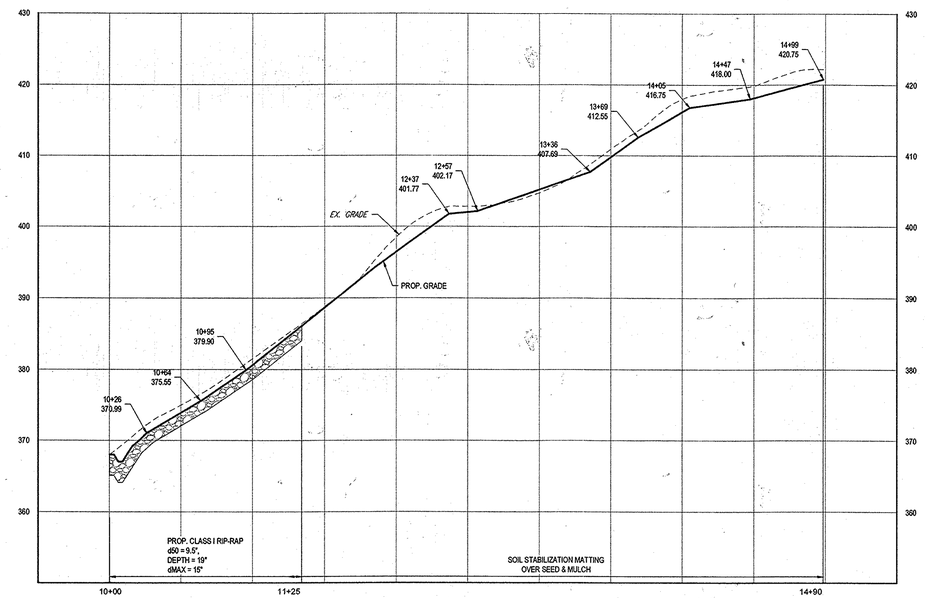
SWALE No. 12 - PLAN

SCALE: 1" = 50'



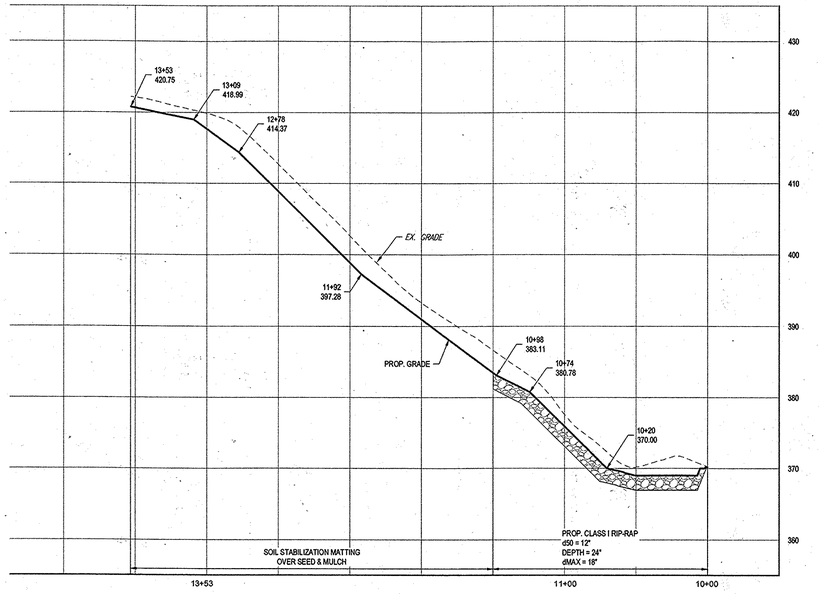
SWALE No. 11 - PLAN

SCALE: 1" = 50'



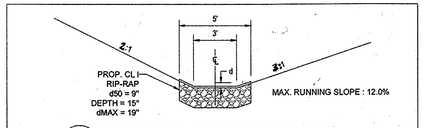
SWALE No. 12 - PROFILE

SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL



SWALE No. 11 - PROFILE

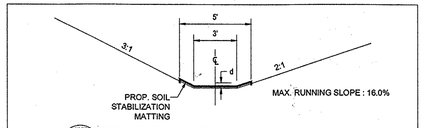
SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL



KK SWALE 12 - CROSS SECTION

NOT TO SCALE

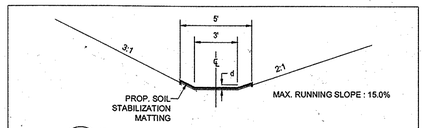
Q_{10} = 5.45 CFS
V_{10} = 6.02 FPS
d_{10} = 0.25'
LINING = CLASS I RIP-RAP



JJ SWALE 12 - CROSS SECTION

NOT TO SCALE

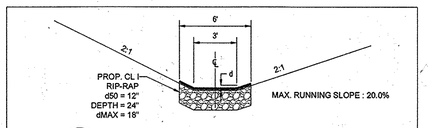
Q_{10} = 1.70 CFS
V_{10} = 4.43 FPS
d_{10} = 0.12'
LINING = SOIL STABILIZATION MATTING
OVER SEED & MULCH



GG SWALE 11 - CROSS SECTION

NOT TO SCALE

Q_{10} = 1.31 CFS
V_{10} = 3.95 FPS
d_{10} = 0.10'
LINING = SOIL STABILIZATION MATTING
OVER SEED & MULCH



HH SWALE 11 - CROSS SECTION

NOT TO SCALE

Q_{10} = 11.46 CFS
V_{10} = 9.33 FPS
d_{10} = 0.33'
LINING = CLASS I RIP-RAP

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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50 25 12.5 0 50

1"= 50'

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
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CONTACT: MR. DAN SNYDER
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PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
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M:\2015\MD\15201\7\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD15201SWDH.DWG PRINTED BY: RSCHICH 10.22.15 @ 12:53

BOHLER ENGINEERING

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OFFICES:
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CHANTILLY, VA
STERLING, VA
ROANOKE, VA
FORT LAUDERDALE, FL
CENTER VALLEY, PA
TAMPA, FL
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CIVIL & CONSULTING ENGINEERS
SURVEYORS
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ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

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REVISIONS

REV	DATE	COMMENT	BY
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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	AS SHOWN
CAD I.D.:	RD4

PROJECT:
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FOR
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BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
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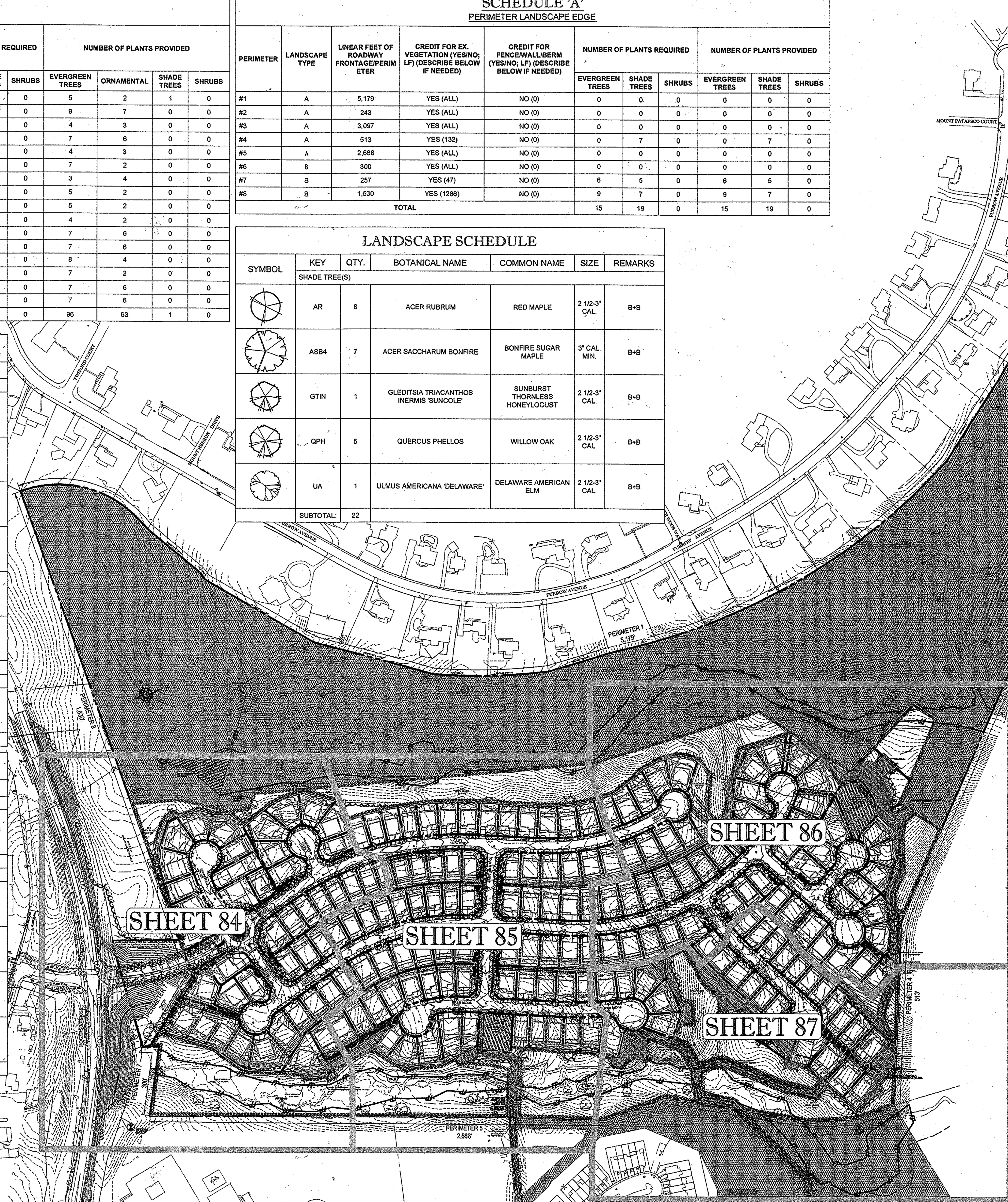
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B. R. ROWE — 40808 — PROFESSIONAL ENGINEER — 10/29/15

SHEET TITLE:
SWALE PROFILES AND SECTIONS

SHEET NUMBER:
82

F-14-124



SCHEDULE 'A'

PERIMETER LANDSCAPE EDGE

PERIMETER	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	CREDIT FOR EX. VEGETATION (YES/NO; LF) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR FENCE/WALL/BERM (YES/NO; LF) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED			NUMBER OF PLANTS PROVIDED			
					EVERGREEN TREES	SHADE TREES	SHRUBS	EVERGREEN TREES	ORNAMENTAL	SHADE TREES	SHRUBS
LOT 1	B	120	NO	NO (0)	3	3	0	5	2	1	0
LOT 10 & 11	B	215	NO	NO (0)	6	5	0	9	7	0	0
LOT 17	B	98	NO	NO (0)	3	2	0	4	3	0	0
LOT 45 & 46	B	170	NO	NO (0)	5	4	0	7	6	0	0
LOT 68	B	85	NO	NO (0)	3	2	0	4	3	0	0
LOT 70	B	110	NO	NO (0)	3	3	0	7	2	0	0
LOT 76	B	90	NO	NO (0)	3	2	0	3	4	0	0
LOT 86	B	85	NO	NO (0)	3	2	0	5	2	0	0
LOT 88	B	85	NO	NO (0)	3	2	0	5	2	0	0
LOT 109	B	75	NO	NO (0)	2	2	0	4	2	0	0
LOT 119 & 120	B	170	NO	NO (0)	5	4	0	7	6	0	0
LOT 150 & 151	B	170	NO	NO (0)	5	4	0	7	6	0	0
LOT 169 & 172	B	155	NO	NO (0)	4	4	0	8	4	0	0
LOT 171	B	105	NO	NO (0)	3	3	0	7	2	0	0
LOT 173 & 195	B	180	NO	NO (0)	5	4	0	7	6	0	0
LOT 184 & 185	B	170	NO	NO (0)	5	4	0	7	6	0	0
TOTAL					61	50	0	96	63	1	0

SCHEDULE 'A'

PERIMETER LANDSCAPE EDGE

PERIMETER	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	CREDIT FOR EX. VEGETATION (YES/NO; LF) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR FENCE/WALL/BERM (YES/NO; LF) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED			NUMBER OF PLANTS PROVIDED		
					EVERGREEN TREES	SHADE TREES	SHRUBS	EVERGREEN TREES	SHADE TREES	SHRUBS
#1	A	5,179	YES (ALL)	NO (0)	0	0	0	0	0	0
#2	A	243	YES (ALL)	NO (0)	0	0	0	0	0	0
#3	A	3,097	YES (ALL)	NO (0)	0	0	0	0	0	0
#4	A	513	YES (132)	NO (0)	0	7	0	0	7	0
#5	A	2,668	YES (ALL)	NO (0)	0	0	0	0	0	0
#6	B	300	YES (ALL)	NO (0)	0	0	0	0	0	0
#7	B	257	YES (47)	NO (0)	6	5	0	6	5	0
#8	B	1,630	YES (1286)	NO (0)	9	7	0	9	7	0
TOTAL					15	19	0	15	19	0

PUBLIC STREET TREE PLANTING SCHEDULE

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	SHADE TREE(S)					
	AR	117	ACER RUBRUM	RED MAPLE	2 1/2-3" CAL.	B+B
	PXAB	22	PLATANUS X ACERIFOLIA 'BLOODGOOD'	BLOODGOOD LONDON PLANETREE	2 1/2-3" CAL.	B+B
	QPH	56	QUERCUS PHELLOS	WILLOW OAK	2 1/2-3" CAL.	B+B
	QR	43	QUERCUS RUBRA	RED OAK	2 1/2-3" CAL.	B+B
	TCG	66	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2 1/2-3" CAL.	B+B
	UA	65	ULMUS AMERICANA 'DELAWARE'	DELAWARE AMERICAN ELM	2 1/2-3" CAL.	B+B
	SUBTOTAL:	369				
	ORNAMENTAL TREE(S)					
	CMAS	1	CORNUS MAS	CORNELIAN CHERRY	2-2 1/2" CAL.	B+B
	SUBTOTAL:	1				

LANDSCAPE TRAFFIC CIRCLE SCHEDULE

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	GROUND COVER(S)					
	JCBP	49	JUNIPERUS CONFERTA 'BLUE PACIFIC'	BLUE PACIFIC JUNIPER	15-18" SPRD.	#3 CAN
	SUBTOTAL:	49				
	PERENNIAL(S)					
	AT	226	ASCLEPIAS TUBEROSA	BUTTERFLY WEED	1 GAL.	CONTAINER
	ATBI	226	AMSONIA TABERNAEMONTANA 'BLUE ICE'	BLUE ICE AMSONIA	1 GAL.	CONTAINER
	CVZ	226	COREOPSIS VERTICILLATA 'ZAGREB'	ZAGREB COREOPSIS	1 GAL.	CONTAINER
	EPKK	226	ECHINACEA PURPUREA	KIM'S KNEE HIGH CONEFLOWER	1 GAL.	CONTAINER
	SUBTOTAL:	904				

LANDSCAPE SCHEDULE

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	SHADE TREE(S)					
	AR	8	ACER RUBRUM	RED MAPLE	2 1/2-3" CAL.	B+B
	ASB4	7	ACER SACCHARUM BONFIRE	BONFIRE SUGAR MAPLE	3" CAL. MIN.	B+B
	GTIN	1	GLEDITSIA TRIACANTHOS INERMIS 'SUNCOLE'	SUNBURST THORNLESS HONEYLOCUST	2 1/2-3" CAL.	B+B
	QPH	5	QUERCUS PHELLOS	WILLOW OAK	2 1/2-3" CAL.	B+B
	UA	1	ULMUS AMERICANA 'DELAWARE'	DELAWARE AMERICAN ELM	2 1/2-3" CAL.	B+B
	SUBTOTAL:	22				

LANDSCAPE SURETY

RELEASE OF SURETY WILL NOT BE GRANTED UNTIL ALL LANDSCAPING SHOWN ON THESE PLANS HAS BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED LANDSCAPE PLAN. SURETY FOR LANDSCAPING SHALL BE BASED ON THE TOTAL NUMBER OF REQUIRED NEW TREES (SHADE, ORNAMENTAL AND EVERGREEN) OR COMPARABLE ELEMENTS SHOWN ON THE LANDSCAPE PLAN. THE UNIT PRICES TO BE USED FOR ESTABLISHING SURETY REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE ADOPTED COUNTY FEE SCHEDULE WHICH IS $300.00 PER SHADE TREE, $150.00 PER EVERGREEN/ORNAMENTAL TREE, $30.00 PER SHRUB, $10.00 PER LINEAR FEET OF FENCING AND $20.00 PER LINEAR FEET OF WALL.

BASED ON ALL THE PLANTING SCHEDULE, THE SURETY FOR REQUIRED LANDSCAPING IS THE FOLLOWING:

20 SHADE TREES X $300.00 = $6,000.00 (STREET TREES =370)

63 ORNAMENTAL TREES X $150.00 =$9,450

111 EVERGREEN TREES X $150.00 =$16,650

TOTAL = $32,100.00

NOTE: THE LANDSCAPING SURETY WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT. LANDSCAPE IN THE AMOUNT OF $32,100.00 SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS FINAL PLAN. F-14-124

STREET TREE CHART

STREET	LENGTH	SPACING	TREES REQUIRED	TREES PROVIDED
VALLEY VIEW WAY	2,101	40 L.F.	106	106
VINEYARD SPRINGS WAY	2,065	40 L.F.	104	104
RIVER RIDGE TRAIL	745	40 L.F.	38	38
SOAPSTONE TRAIL	553	40 L.F.	28	28
GRIST MILL WAY	544	40 L.F.	28	28
MORNING CHOICE COURT	126	40 L.F.	7	7
SAWMILL BRANCH TRAIL	553	40 L.F.	28	28
SPRING GLEN COURT	413	40 L.F.	21	21
TALL POPLAR COURT	197	40 L.F.	10	10
TOTAL			370	370

LANDSCAPE SCHEDULE

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	ORNAMENTAL TREE(S)					
	AC2	2	AMELANCHIER CANADENSIS	MULTI STEM SHADBLOW SERVICEBERRY	20'	B+B
	CC	42	CERCIS CANADENSIS	EASTERN REDBUD	2-2 1/2" CAL.	B+B
	MV	3	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	8-10'	B+B
	PXO	4	PRUNUS X 'OKAME'	OKAME CHERRY	2-2 1/2" CAL.	B+B
	PY	12	PRUNUS X YEDOENSIS	YOSHINO CHERRY	2-2 1/2" CAL.	B+B
	SUBTOTAL:	63				

LANDSCAPE SCHEDULE

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	EVERGREEN TREE(S)					
	CLY	88	X CUPRESSOCYPARIS LEYLANDII	LEYLAND CYPRESS	6-7'	B+B
	PM	6	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	6-7'	B+B
	PO	17	PICEA OMORIKA	SERBIAN SPRUCE	6-7'	B+B
	SUBTOTAL:	111				

LANDSCAPE SCHEDULE

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
	EVERGREEN SHRUB(S)					
	IGS	5	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	24-30"	#5 CAN
	VR	9	VIBURNUM X RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM	3-4'	B+B
	SUBTOTAL:	14				

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 11/9/2015

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 12-17-15

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 11.17.15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

DEVELOPER'S / OWNER'S LANDSCAPE CERTIFICATE

I / WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I / WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

[signature] PM — 10-23-15

NAME: Daniel Snyder — DATE

TITLE: Project Manager, Pleasants LLC Agent for Estates at Patapsco Park LLC

200 100 50 0 200
1"= 200'

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A	LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

DIG WITH CARE — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=200'
CAD I.D.:	LP4

PROJECT:

REVISED FINAL ROAD CONSTRUCTION PLANS FOR ESTATES AT PATAPSCO PARK

BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
10-21-15

SHEET TITLE:

STREET TREE AND LANDSCAPE PLAN KEY SHEET

SHEET NUMBER:

F-14-124

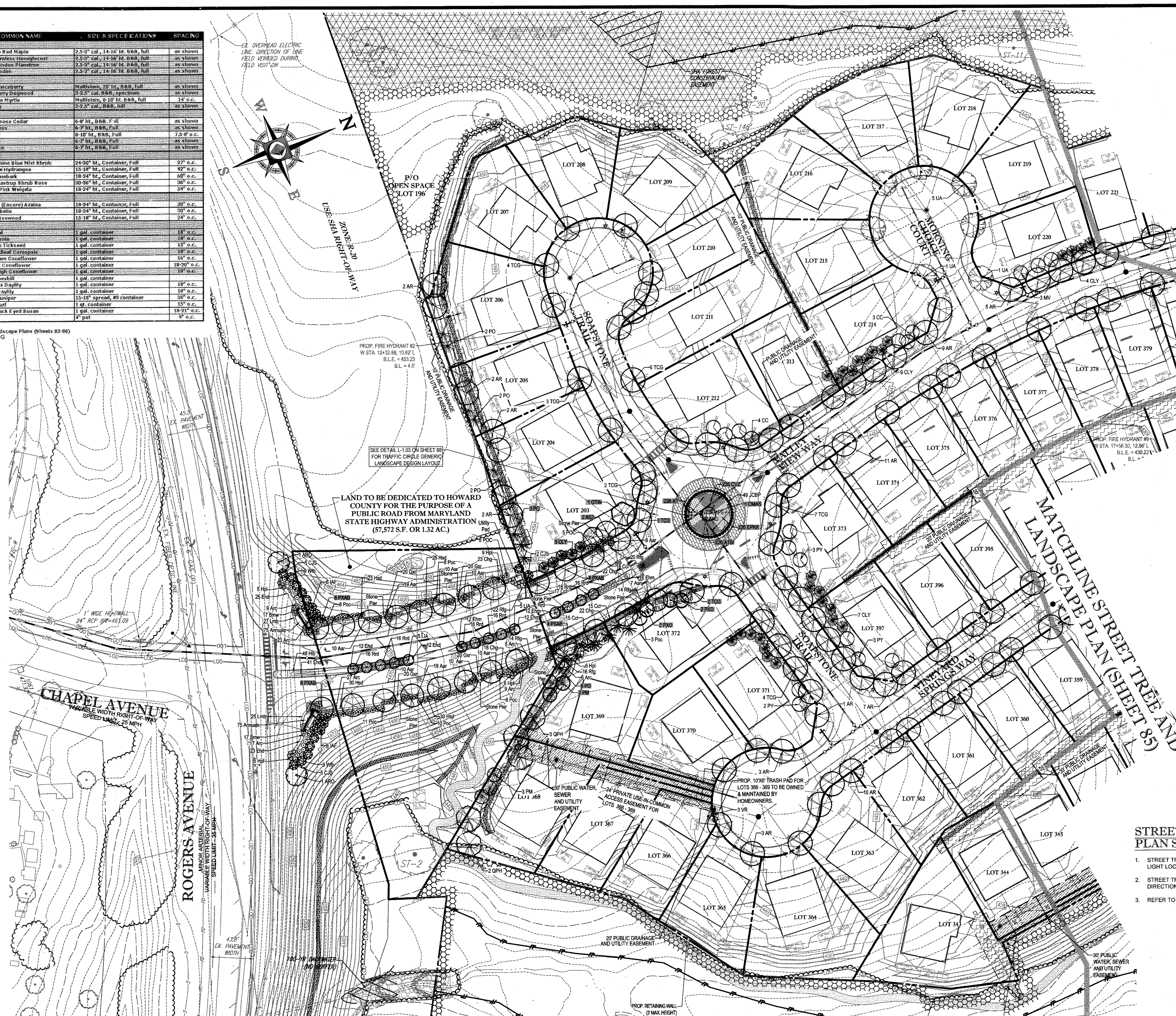
H:\2015\MD152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013LP5.DWG PRINTED BY: RBOWEN 10.22.15 @ 12:54

PLANT SCHEDULE

Entrance to Roundabout - Valley View Way

KEY	COUNT	BOTANICAL NAME	COMMON NAME	SIZE & SPECIFICATIONS	SPACING
TREES - DECIDUOUS SHADE					
ARO	2	Acer rubrum 'October Glory'	October Glory Red Maple	2.5-3" cal., 14-16' ht. B&B, full	as shown
GTIN	1	Gleditsia triacanthos inermis 'Suncole'	Sunburst Thornless Honeylocust	2.5-3" cal., 14-16' ht. B&B, full	as shown
PXAB	24*	Platanus x acerifolia 'Bloodgood'	Bloodgood London Planetree	2.5-3" cal., 14-16' ht. B&B, full	as shown
TCG	3*	Tilia cordata 'Greenspire'	Greenspire Linden	2.5-3" cal., 14-16' ht. B&B, full	as shown
TREES - DECIDUOUS ORNAMENTAL					
AC2	2	Amelanchier canadensis	Shadblow Serviceberry	Multistem, 20' ht., B&B, full	as shown
CMAS	1	Cornus mas	Cornelian Cherry Dogwood	3-3.5" cal. B&B, specimen	as shown
LIA	14	Lagerstroemia indica x fauriei 'Arapaho'	Arapaho Crape Myrtle	Multistem, 8-10' ht. B&B, full	14' o.c.
PXO	4	Prunus x 'Okame'	Okame Cherry	2-2.5" cal., B&B, full	as shown
TREES - EVERGREEN					
CJS	12	Cryptomeria japonica 'Yoshino'	Yoshino Japanese Cedar	6-8' ht., B&B, Full	as shown
CLY	5	x Cupressocyparis leylandii	Leyland Cypress	6-7' ht., B&B, Full	as shown
IAF	12	Ilex x attenuata 'Fosteri'	Foster's Holly	8-10' ht., B&B, Full	7.5-8' o.c.
PM	3	Pseudotsuga menziesii	Douglas Fir	6-7' ht., B&B, Full	as shown
PO	11	Picea omorika	Serbian Spruce	6-7' ht., B&B, Full	as shown
SHRUBS - DECIDUOUS					
Ccd	65	Caryopteris x clandonensis 'Lil Miss Sunshine'	Lil Miss Sunshine Blue Mist Shrub	24-30" ht., Container, Full	27" o.c.
Hpl	31	Hydrangea paniculata 'Little Quickfire'	Little Quickfire Hydrangea	15-18" ht., Container, Full	42" o.c.
Poc	61	Physocarpus opulifolius 'Mindia' Coppertina	Coppertina Ninebark	18-24" ht., Container, Full	60" o.c.
Rrd	104	Rosa rugosa 'Dagmar Hastrup'	Fru Dagmar Hastrup Shrub Rose	30-36" ht., Container, Full	36" o.c.
Wfb	18	Weigela florida 'Bokrasopin' Sonic Bloom	Sonic Bloom Pink Weigela	18-24" ht., Container, Full	54" o.c.
SHRUBS - EVERGREEN					
Aar	95	Azalea x 'Conler' Autumn Ruby	Autumn Ruby (Encore) Azalea	18-24" ht., Container, Full	30" o.c.
Arc	86	Abelia x 'Rose Creek'	Rose Creek Abelia	18-24" ht., Container, Full	30" o.c.
Bmw	34	Buxus macrophylla 'Wintergreen'	Wintergreen Boxwood	15-18" ht., Container, Full	24" o.c.
PERENNIALS, GROUNDCOVERS					
At	226	Asclepias tuberosa	Butterfly Weed	1 gal. container	18" o.c.
Atbi	226	Amsonia tabernaemontana 'Blue Ice'	Blue Ice Amsonia	1 gal. container	18" o.c.
Chg	85	Coreopsis rosea 'Heaven's Gate'	Heavens' Gate Tickseed	1 gal. container	15" o.c.
Cvz	226	Coreopsis verticillata 'Zagreb'	Zagreb Threadleaf Coreopsis	1 gal. container	18" o.c.
Ehd	113	Echinacea 'Heavenly Dream'	Heavenly Dream Coneflower	1 gal. container	16" o.c.
Ehm	52	Echinacea 'Harvest Moon'	Harvest Moon Coneflower	1 gal. container	18-20" o.c.
Epkk	226	Echinacea purpurea	Kim's Knee High Coneflower	1 gal. container	18" o.c.
Gxr	80	Geranium x 'Rozanne'	Rozanne Cranesbill	1 gal. container	
Hlb	48	Hemerocallis x 'Little Business'	Little Business Daylily	1 gal. container	18" o.c.
Hsd	108	Hemerocallis 'Stella D'Oro'	Stella D'Oro Daylily	1 gal. container	18" o.c.
Jcbp	49	Juniperus conferta 'Blue Pacific'	Blue Pacific Juniper	15-18" spread, #3 container	36" o.c.
Lmb	52	Liriope muscari 'Big Blue'	Big Blue Lilyturf	1 qt. container	15" o.c.
Rfg	86	Rudbeckia fulgida var. sullivantii 'Goldsturm'	Goldsturm Black Eyed Susan	1 gal. container	18-21" o.c.
Annuals	150	Seasonal color - spring and fall		4" pot	9" o.c.

Note: Shaded Plants Represent Plantings Shown on the Approved Street Tree and Landscape Plans (Sheets 83-88)
* WITH THE EXCEPTION OF ADDITIONAL QUANTITIES OF 2 PXAB AND 1 TCG



STREET TREE AND LANDSCAPE PLAN SPECIFIC NOTES:

1. STREET TREES MUST BE PLACED A MINIMUM OF 20' FROM STREET LIGHT LOCATIONS.
2. STREET TREES MUST BE PLACED 30' FROM THE APPROACHING DIRECTION OF ALL "STOP" SIGNS AND "YIELD" SIGNS.
3. REFER TO SHEET 88 FOR LANDSCAPE NOTES AND DETAILS.

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 8/19/16
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 10-4-16
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 9.13.16
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
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DEVELOPER'S / OWNER'S LANDSCAPE CERTIFICATE

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[signature] / PM Planning/Dev. 8/4/16
NAME: — DATE
TITLE: Agent for Estates at Patapsco Park LLC

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

50 25 12.5 0 50
1"= 50'

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403
PLATS 23421 TO 23436

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES:
◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL
◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB
2	7/15/16	PER ENTRANCE IMPROVEMENTS	RLB

DIG WITH CARE — CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=50'
CAD I.D.:	LP6

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
STATE OF MARYLAND — ERIC R. McWILLIAMS — REGISTERED LANDSCAPE ARCHITECT — 3697

SHEET TITLE:
STREET TREE AND LANDSCAPE PLAN

SHEET NUMBER:
84

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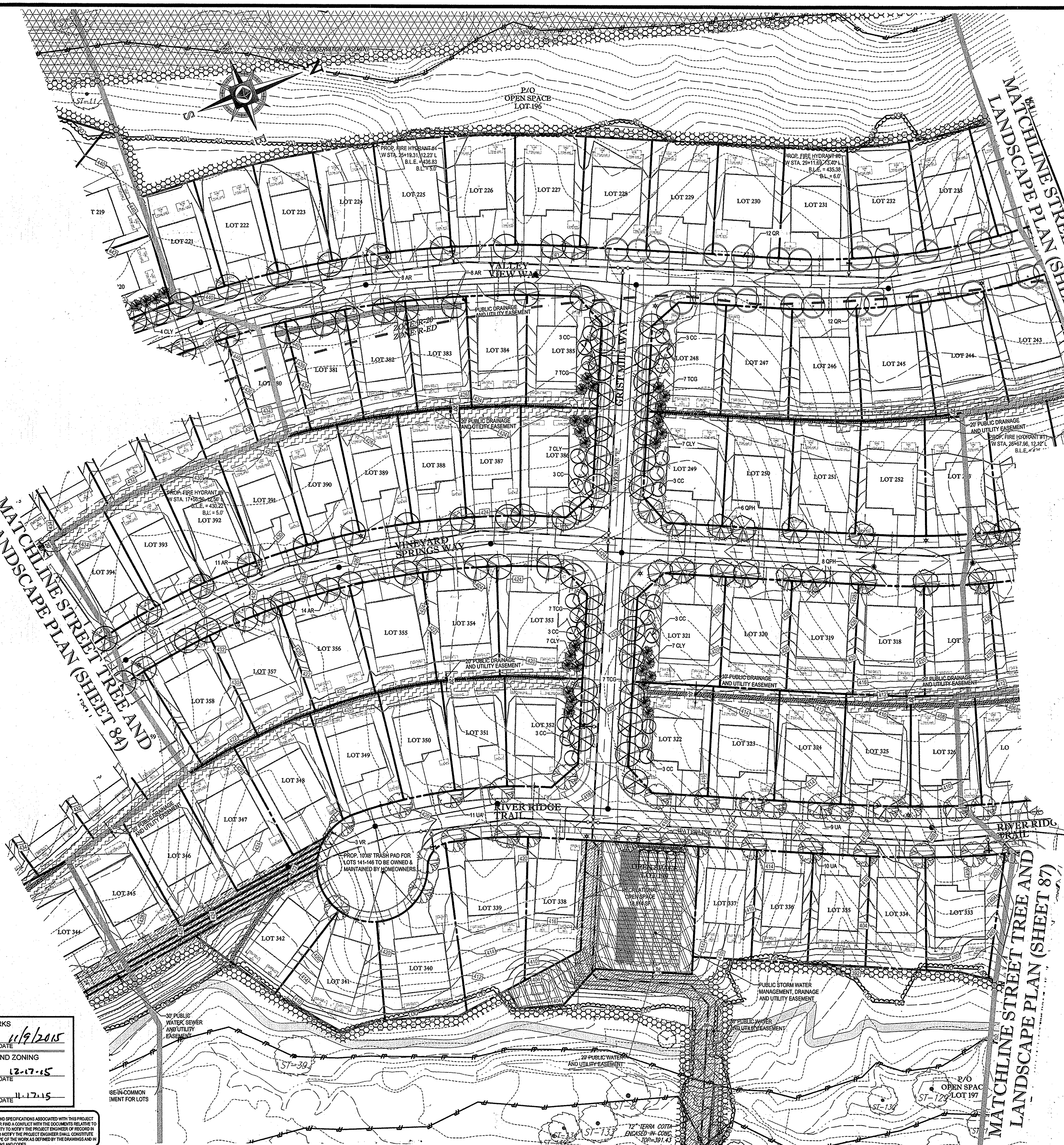

APPROVED: DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE 11/9/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 11-17-15

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STREET TREE AND LANDSCAPE PLAN SPECIFIC NOTES:

1. STREET TREES MUST BE PLACED A MINIMUM OF 20' FROM STREET LIGHT LOCATIONS.
2. STREET TREES MUST BE PLACED 30' FROM THE APPROACHING DIRECTION OF ALL "STOP" SIGNS AND "YIELD" SIGNS.
3. REFER TO SHEET 88 FOR LANDSCAPE NOTES AND DETAILS.

DEVELOPER'S / OWNER'S LANDSCAPE CERTIFICATE

I / WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I / WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

10-28-15
DATE

NAME: Daniel Snyder
TITLE: Project manager, Pleasants Development, Agent Estates at Patapsco Park, LLC

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

50 25 12.5 0 50
1"= 50'

OWNER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER: ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING

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CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES:
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REVISIONS			
REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

DIG WITH C.A.R.E. CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=50'
CAD I.D.:	LP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:
STREET TREE AND LANDSCAPE PLAN

SHEET NUMBER:
85

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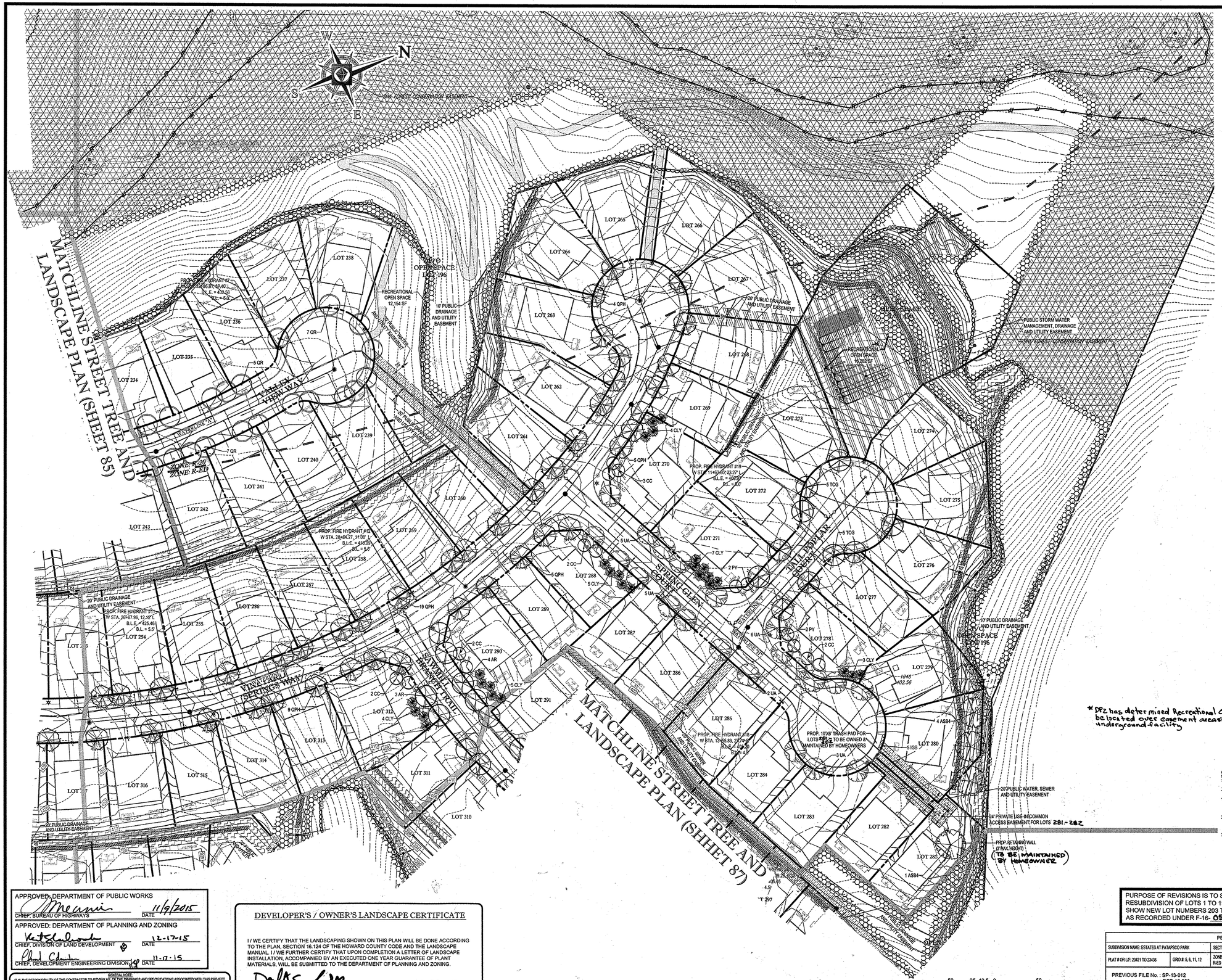

* PZ has determined Recreational O.S. may be located over easement areatince it is an underground facility

STREET TREE AND LANDSCAPE PLAN SPECIFIC NOTES:

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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

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NAME: Donald Snyder — DATE 10-23-15

TITLE: Project Manager, Clarksburg Development, Estates of Patapsco Park LLC

OWNER:	ESTATES AT PATAPSCO PARK, LLC 24012 FREDERICK ROAD CLARKSBURG, MD 20861 CONTACT: MR. DAN SNYDER PHONE: (301) 674-8509
DEVELOPER:	ESTATES AT PATAPSCO PARK, LLC 24012 FREDERICK ROAD CLARKSBURG, MD 20861 CONTACT: MR. DAN SNYDER PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:
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LANDSCAPE ARCHITECTS

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REVISIONS

REV.	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD15201S
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=50'
CAD I.D.:	LP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
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BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

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901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
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Fax: (410) 821-7987
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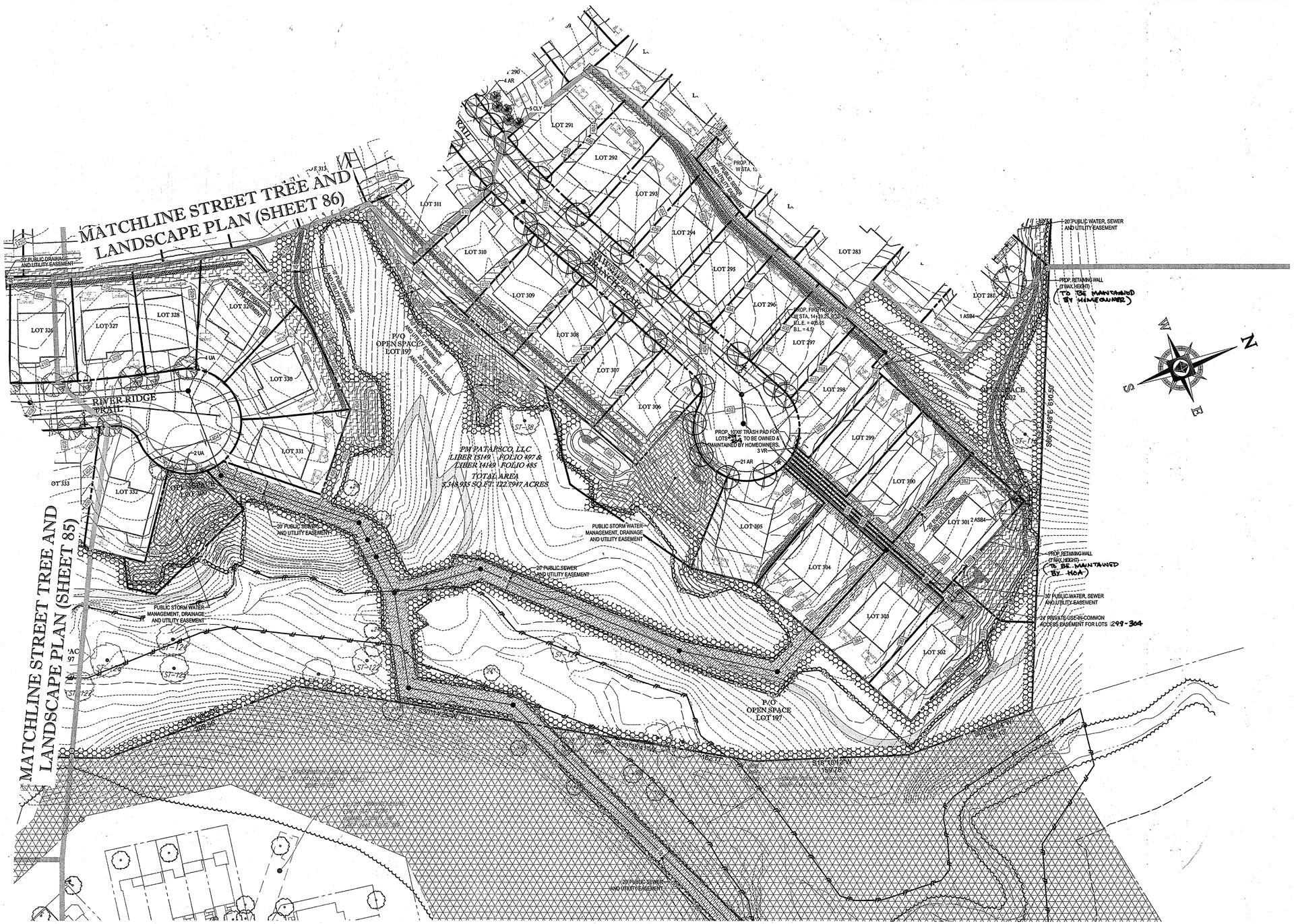
E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
10-23-15

SHEET TITLE:
STREET TREE AND LANDSCAPE PLAN

SHEET NUMBER:
86

F-14-124



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NAME: Daniel Snyder — DATE 10-23-15

TITLE: Project Manager Planning Development, Manager of Patapsco Park LLC

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051

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CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; ROCHESTER, NY; PITTSBURGH, PA; CENTER VALLEY, PA; PHOENIX, AZ; EPHRATA, PA; TOWSON, MD; STERLING, VA; FORT LAUDERDALE, FL; WINTER PARK, FL
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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=50'
CAD I.D.:	LP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
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LOCATION OF SITE
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E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
10-23-15

SHEET TITLE:
STREET TREE AND LANDSCAPE PLAN

SHEET NUMBER:
87

F-14-124

N:\2015\MD\152013\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013_PLOTTING PRINTED BY: RBOWEN 10.22.15 @ 12:55

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK:
THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS
A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
1.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
1.2. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS.
1.3. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

D. MULCH - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

E. FERTILIZER
1.1. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
1.2. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

F. PLANT MATERIAL
1.1. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
1.2. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
1.3. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
1.4. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1¼", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED.PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
1.5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
1.6. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
1.7. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
1.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES
A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS
A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION
A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS
A. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

B. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
1.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
1.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
1.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING
A. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

B. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).

C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

OWNER MAINTENANCE RESPONSIBILITIES

UPON OWNER'S (OR OWNER CONTRACTOR'S) COMPLETION OF LANDSCAPING WORK, THE OWNER IS FULLY RESPONSIBLE FOR ALL FUTURE MAINTENANCE, CARE, UPKEEP, WATERING, AND TRIMMING OF ALL INSTALLED VEGETATION, PLANTS, TREE, BUSHES, SHRUBS, GRASSES, GRASS, ORNAMENTAL PLANTS AND FLOWERS, FLOWERS, GROUND COVER, AND LANDSCAPING, INCLUDING ALL LANDSCAPE ISLANDS AND AREAS ADJACENT OR PART OF THE LANDSCAPED AREAS. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- TREES ADJACENT TO WALKWAYS AND AREAS OF PEDESTRIAN TRAFFIC MUST BE MAINTAINED TO ASSURE THAT ANY BRANCHES MUST BE LIMBED UP TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PEDESTRIAN SURFACES) OR PRUNED BACK TO AVOID ANY INTERFERENCE WITH THE TYPICAL PATH OF TRAVEL.
- TREES WITHIN VEHICULAR SIGHT LINES, AS ILLUSTRATED ON THE LANDSCAPE PLAN, ARE TO BE TRIMMED TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PAVED, TRAVELED SURFACES), OR AS OTHERWISE INDICATED ON THE PLANS.
- VEGETATIVE GROUND COVER, SHRUBS AND ORNAMENTAL PLANTS AND GRASSES MUST BE TRIMMED SO THAT NO PORTION OF THE PLANT EXCEEDS 30 INCHES ABOVE GRADE (OF ALL PAVED, TRAVEL SURFACES) ALONG AND WITHIN THE SIGHT LINES OF PARKING LOTS AND INGRESS-EGRESS WAYS.
- FALLEN PLANT FLOWERS, FRUIT, SEEDS AND DEBRIS DROPPINGS ARE TO BE REMOVED IMMEDIATELY FROM VEHICULAR AND PEDESTRIAN TRAFFIC AREAS TO PREVENT TRIPPING, SLIPPING OR ANY OTHER HAZARDS.

THESE REQUIREMENTS DO NOT AFFECT THE PLANT LIFE GUARANTEES THE LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE.

8. TOPSOILING
A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

D. ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA):
1.1. 20 POUNDS 'GROW POWER' OR APPROVED EQUAL
1.2. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP

E. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING
A. INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
1.1. PLANTS: MARCH 15 TO DECEMBER 15
1.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

G. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

H. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:

ACER RUBRUM	PLATANUS X ACERIFOLIA
BETULA VARIETIES	POPULOUS VARIETIES
CARPINUS VARIETIES	PRUNUS VARIETIES
CRATAEGUS VARIETIES	PYRUS VARIETIES
KOELREUTERIA	QUERCUS VARIETIES
LIQUIDAMBER STYRACIFLUA	TILIA TOMENTOSA
LIRIODENDRON TULIPIFERA	ZELKOVA VARIETIES

I. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
- 1 PART PEAT MOSS
- 1 PART COMPOSTED COW MANURE BY VOLUME
- 3 PARTS TOPSOIL BY VOLUME
- 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
  A) 2 TABLETS PER 1 GALLON PLANT
  B) 3 TABLETS PER 5 GALLON PLANT
  C) 4 TABLETS PER 15 GALLON PLANT
  D) LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK

J. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

K. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

L. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

M. GROUND COVER AREAS SHALL RECEIVE A ¼" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

N. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

O. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

P. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)
A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING
A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE
A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP
A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

SEEDING SPECIFICATIONS

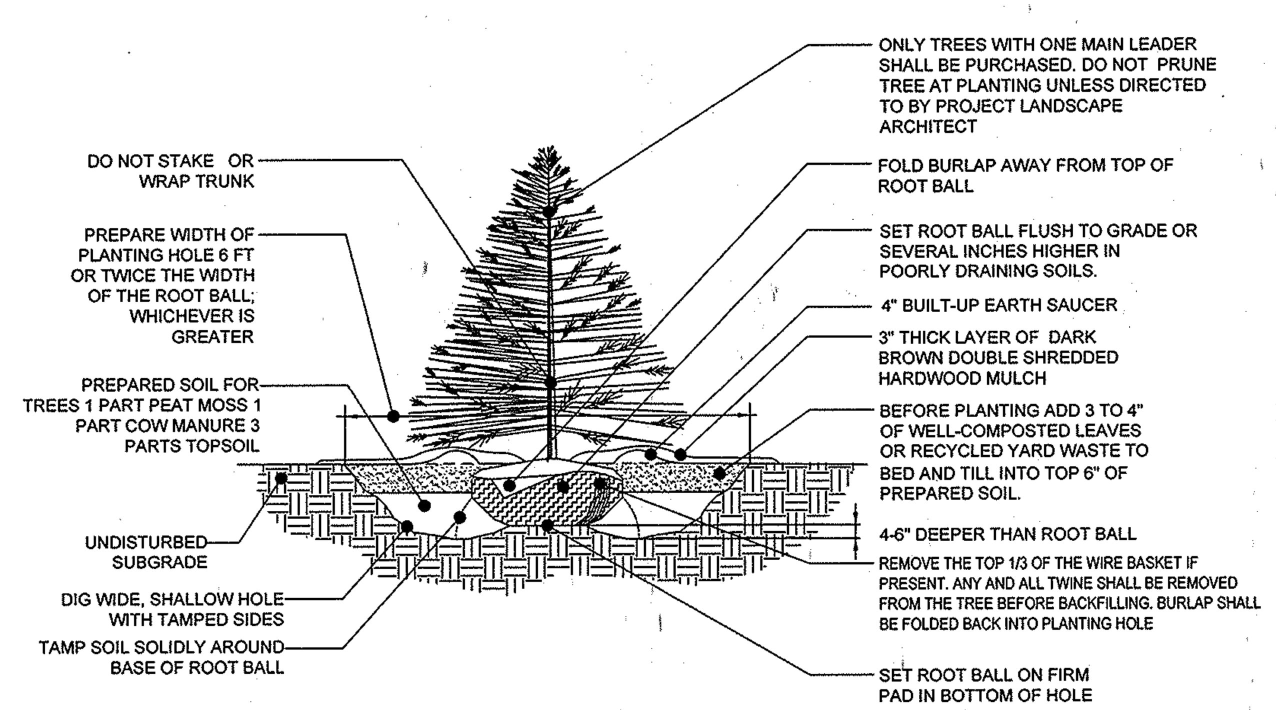
1. PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS LARGER THAN 2" DIAMETER.
2. PRIOR TO SEEDING, CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.
3. SEEDING RATES:

PERENNIAL RYEGRASS	1/2 LB/1,000 SQ FT
KENTUCKY BLUEGRASS	1 LB/1,000 SQ FT
RED FESCUE	1 1/2 LBS/1,000 SQ FT
SPREADING FESCUE	1 1/2 LBS/1,000 SQ FT
FERTILIZER (20:10:10)	14 LBS/1,000 SQ FT
MULCH	90 LBS/1,000 SQ FT

4. GERMINATION RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDED AREA UNTIL AN ACCEPTABLE STAND OF COVER IS ESTABLISHED BY OWNER.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

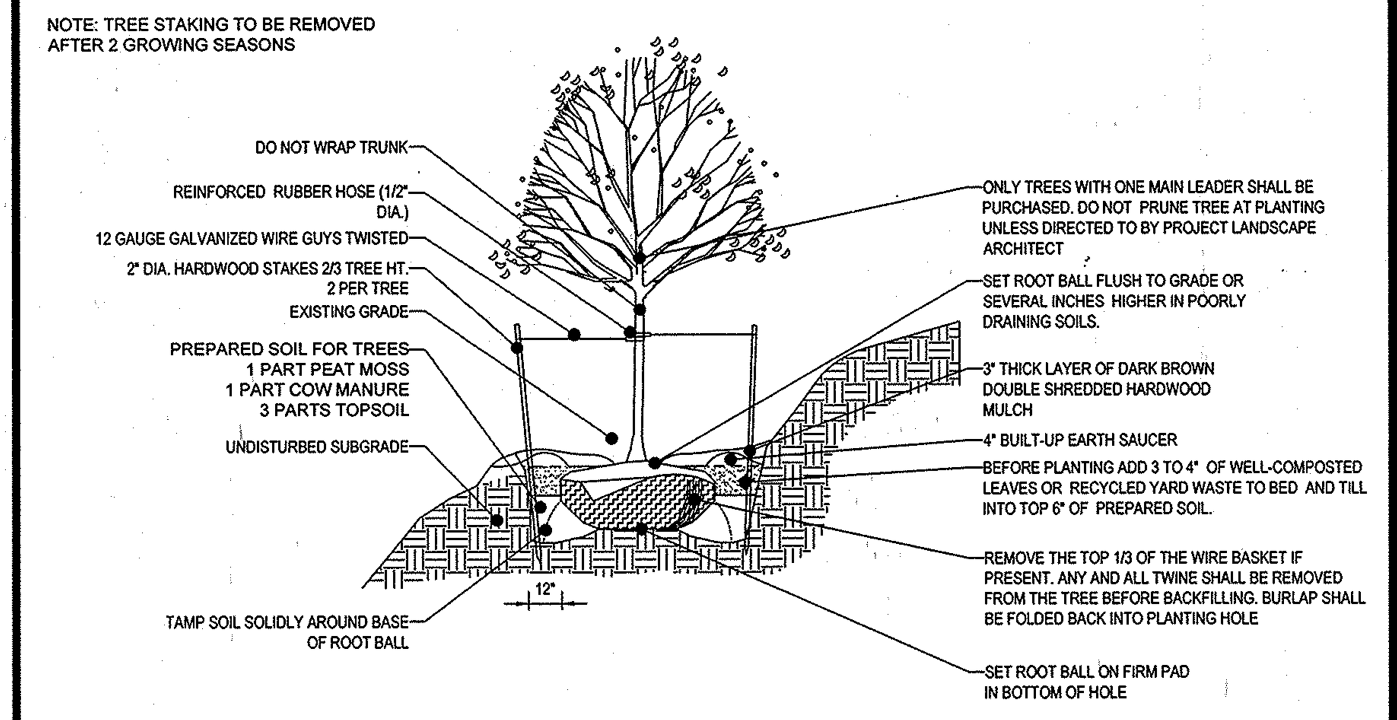
GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

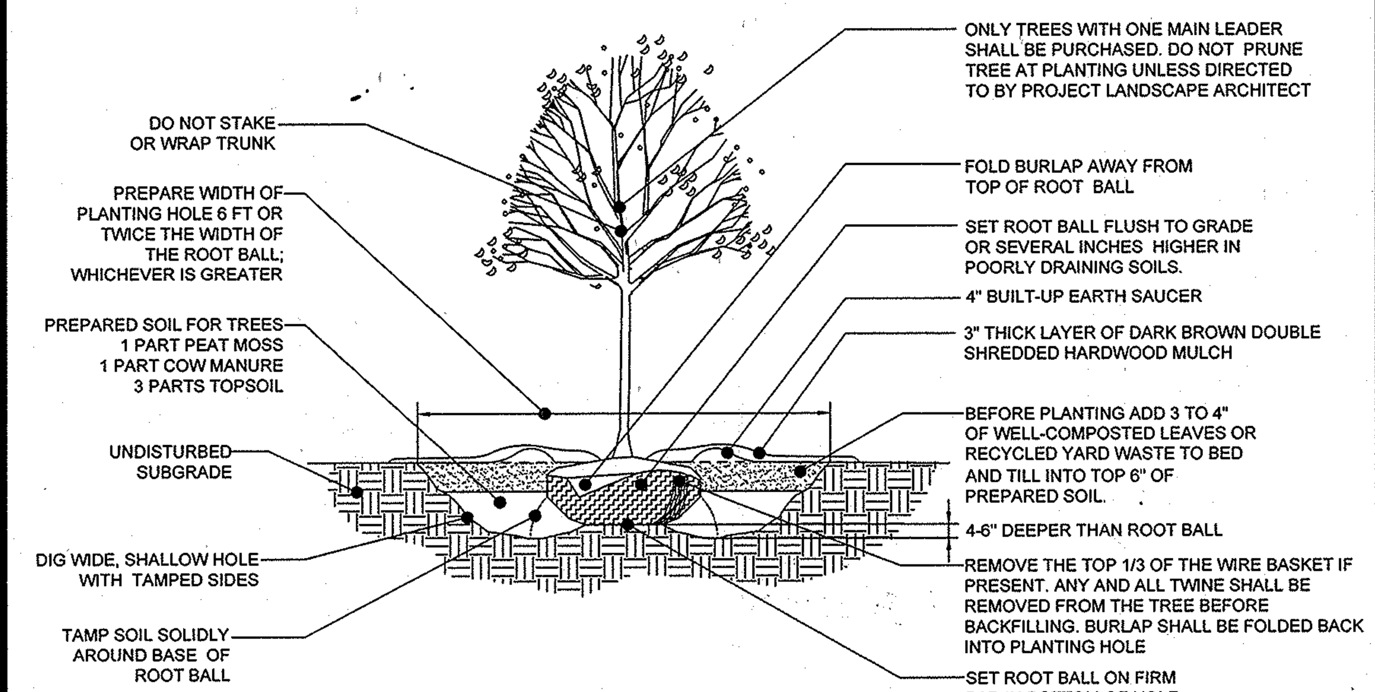
EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE



TREE PLANTING ON SLOPE DETAIL

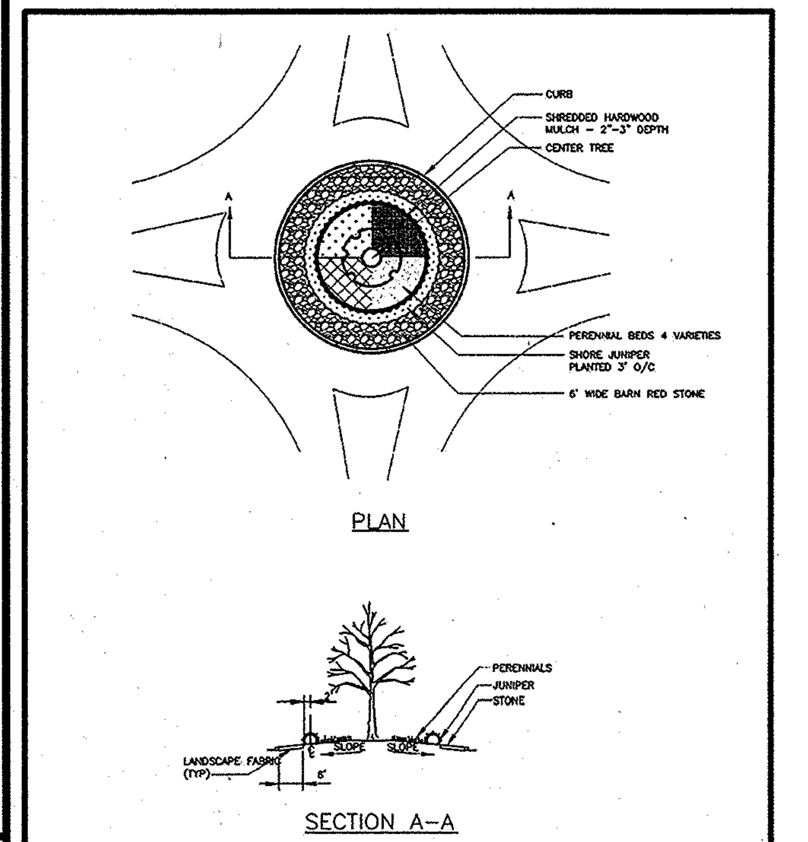
NOT TO SCALE



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE



Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Traffic Circle Generic Landscape Design Layout	Detail L-1.03

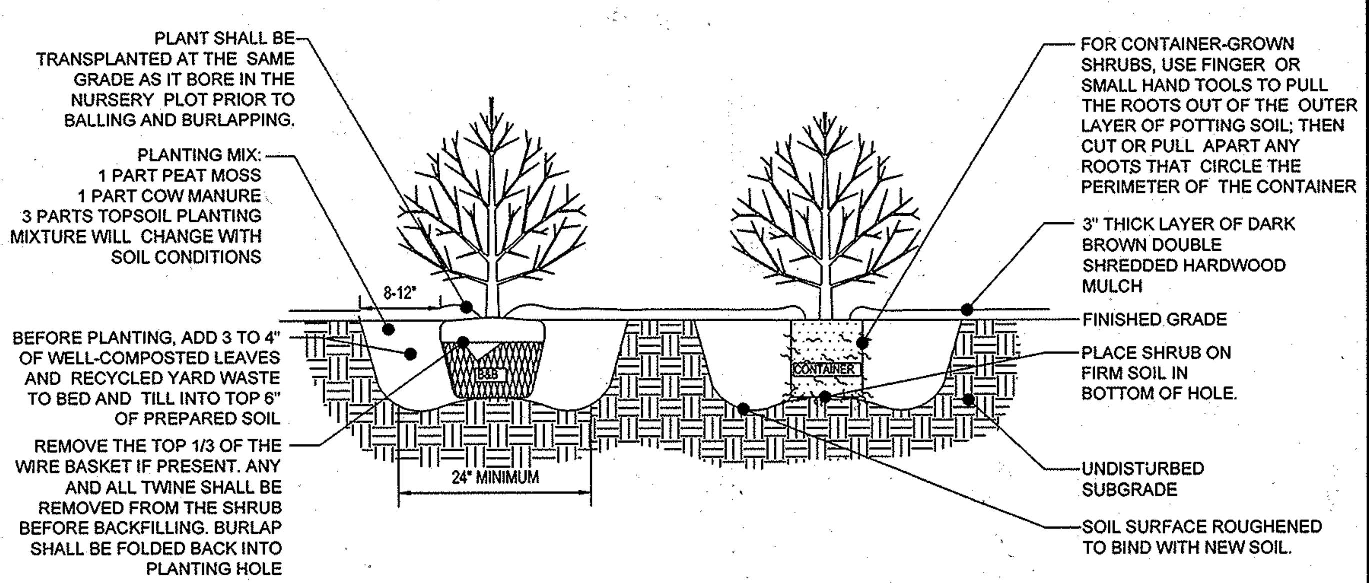
1. CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES AND SHALL WORK WITH THE COUNTY ON THE BEST TIME FOR WORK TO TAKE PLACE.
2. LANDSCAPE MATERIAL SHALL BE PLANTED BETWEEN APRIL AND MAY OR SEPTEMBER AND OCTOBER.
3. ALL EXISTING PLANT MATERIAL SHALL BE REMOVED FROM ISLAND.
4. THE OUTER SIX FEET OF THE ISLAND SHALL BE DUG TO THE DEPTH OF THREE INCHES BELOW CURB AND SOIL REMOVED.
5. THE DUG OUT AREA SHALL BE COMPACTED USING A SMALL VIBRATOR.
6. LANDSCAPE FABRIC SHALL COVER THE COMPACTED AREA AND GO UP THE INNER SOIL EDGE JOINTS IN FABRIC SHALL OVERLAP BY A FOOT.
7. "BARN RED STONE" (3-4 INCHES IN DIA) SHALL BE ADDED TO THE COMPACTED AREA AND BROUGHT UP TO JUST ABOVE THE TOP OF THE CURB AND INNER CIRCLE OF SOIL.
8. THE INNER CIRCLE OF SOIL SHALL BE LOOSEN TO A ONE-FOOT DEPTH.
9. 3 INCHES THICK OF LEAFGRO OVER TOTAL PLANTING AREA SHALL BE TILLED INTO TOP 6 INCHES.
10. CREATE A SLIGHT CROWN IN THE CENTER OF THE ISLAND.
11. SHREDDED HARDWOOD MULCH SHALL BE ADDED TO THE DEPTH OF 2-3 INCHES WITH IT NOT TOUCHING THE BASE OF PLANTS.
12. PLANTS SHALL MEET MARYLAND NURSERYMEN SPECIFICATIONS.
13. A CENTER TREE (6-8 FT IN HEIGHT AND 1.5 INCH CALIBER) SHALL BE SELECTED FROM THE FOLLOWING LIST:

ACER GINNALA	AMUR MAPLE
ACER BUERGERANUM	TRIDENT MAPLE
AMERLANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY
CERCIS CANADENSIS 'OKLAHOMA'	OKLAHOMA REDBUD
CORNUS MAS	CORNELIANCHERRY DOGWOOD
HAMAMELIS VIRGINIANA	WITCHHAZEL
LAGERSTROEMIA INDICA	CRAPEMYRTLE
(A CULTIVAR MATURING AT 18 FEET, MILDEW RESISTANT AND FOR THIS HARDINESS ZONE)	
MALUS SPP. (ANY HIGHLY DISEASE RESISTANT CULTIVAR)	CRABAPPLE
SYRINGA RETICULATA	JAPANESE TREE LILAC
VIBURNUM LENTAGO	NANNYBERRY (TREE FORM) VIBURNUM

14. A RING OF SHORE JUNIPER (JUNIPERUS CONFERTA) SHALL BE PLANTED AT A THREE FOOT SPACING ON CENTER AND TWO-FEET FROM THE STONE RING (1 PER NINE SQ FT). PLANTS SHALL BE OF A 3 GALLON SIZE.
15. A SELECTION OF FOUR PERENNIALS FROM THE FOLLOWING LIST SHALL BE PLANTED AT 18" ON CENTER (1 PER 2.25 SQ FT) IN 4 LARGE GROUP CLUSTERS BETWEEN THE CENTER TREE AND SHORE JUNIPER. DO NOT PLANT PERENNIALS CLOSER THAN 2 FT FROM THE CENTER TREE OR SHORE JUNIPER. PLANTS SHALL BE A 1-GALLON SIZE. (N-NATIVE)

AMSONIA TABERNAEMONTANA 'BLUE ICE'	DWARF BLUESTAR	N
ASCLEPIAS TUBEROSA	BUTTERFLYWEED	N
CHRYSOPSIS MARIANA	MARYLAND GOLDENASTER	N
COREOPSIS VERTICILLATA 'ZAGREB'	THREADLEAF COREOPSIS	N
ECHINACEA PUPUREA 'KIM'S KNEE HIGH'	DWARF PURPLE CONEFLOWER	

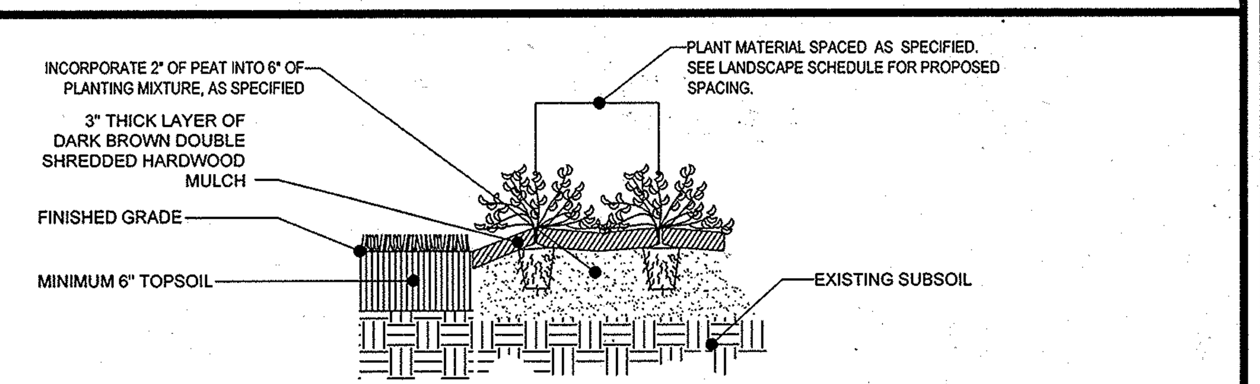
Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Traffic Circle Generic Landscape Design Information	Detail L-1.02



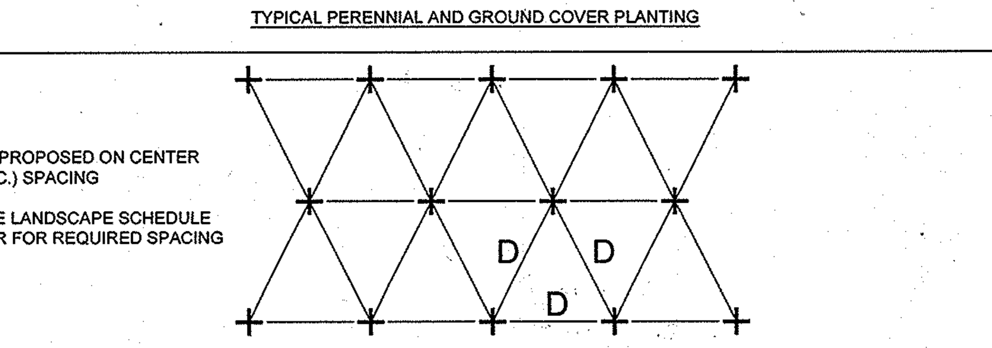
REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT

DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE



TYPICAL PERENNIAL AND GROUND COVER PLANTING



TYPICAL PERENNIAL AND GROUND COVER SPACING & LAYOUT

PERENNIAL/GROUND COVER PLANTING DETAIL

NOT TO SCALE

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLAIMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; RONKONKOMA, NY; CHALFONT, PA; CENTER VALLEY, PA; TAMPA, FL; BOWIE, MD; TOWSON, MD; STERLING, VA; WARRENTON, VA; FORT LAUDERDALE, FL; PHILADELPHIA, PA

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REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	SD2

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:
LANDSCAPE NOTES AND DETAILS

SHEET NUMBER:
88

F-14-124

FOREST CONSERVATION EASEMENT AREA TABULATION

EASEMENT	GROSS FOREST AREA (AC)	FOREST AREA NONCREDITED (FOR FOREST LESS THAN 10,000 S.F. (AC)	FOREST AREA NONCREDITED (100 YEAR FLOODPLAIN) (AC)	NET FOREST (RETAINED) (CREDITED) (AC)	PLANTED AREA (REFORESTATION) (CREDITED) (AC)	CREDITED EASEMENT AREA (AC)	TOTAL EASEMENT AREA (AC)
FCE #1	5.00	0.00	2.37	2.64	0.15	2.79	5.15
FCE #2	2.70	0.00	0.70	1.99	0.10	2.09	2.79
FCE #3	0.00	0.00	0.00	0.00	0.03	0.03	0.03
FCE #4	1.64	0.00	0.00	1.64	0.26	1.91	1.91
FCE #5	1.24	0.00	0.51	0.73	0.17	0.90	1.42
FCE #6	0.00	0.00	0.00	0.00	0.24	0.24	0.24
FCE #7	0.11	0.00	0.00	0.11	0.06	0.17	0.17
FCE #8	0.61	0.00	0.00	0.61	0.01	0.62	0.62
FCE #9	5.32	0.00	0.29	5.03	0.77	5.80	6.08
FCE #10	0.00	0.00	0.00	0.00	0.03	0.03	0.03
TOTAL	16.62	0.00	3.87	12.75	1.82	14.58	18.44

FOREST CONSERVATION WORKSHEET

BASIC SITE DATA		ACRES
GROSS SITE ACREAGE		122.79
AREA WITHIN FLOODPLAIN		3.93
AREA IN OVERHEAD TRANSMISSION LINE EASEMENT		0
PREVIOUSLY DEDICATED FOREST CONSERVATION FOR OFFSITE SHA PROJECTS		55.65
NET TRACT AREA		63.2
LAND USE CATEGORY		HDR
INFORMATION FOR CALCULATIONS		ACRES
NET TRACT AREA		63.2
FOREST CONSERVATION THRESHOLD (PERCENTAGE OF NET TRACT AREA)	20.00%	12.6
AFFORESTATION THRESHOLD (PERCENTAGE OF NET TRACT AREA)	15.00%	9.5
EXISTING FOREST ON NET TRACT AREA		60.9
EXISTING FOREST ABOVE FOREST CONSERVATION THRESHOLD		48.3
BREAK-EVEN POINT		22.3
FOREST TO BE CLEARED		48.1
FOREST TO BE RETAINED		12.8
AFFORESTATION CALCULATIONS		ACRES
NO FOREST CLEARING: AFFORESTATION THRESHOLD - EXISTING FOREST		N/A
FOREST CLEARING: (AFF. THRESH. - EX. FOREST) + (FOREST TO BE CLEARED X2)		N/A
REFORESTATION CALCULATIONS		ACRES
FOREST CLEARED ABOVE THRESHOLD 48.1 X 1/4		12.0
FOREST REMOVED BELOW THRESHOLD 0.0 X 2		0.0
FOREST RETAINED ABOVE THRESHOLD		0.0
REFORESTATION REQUIRED		12.0
ON-SITE REFORESTATION PROVIDED		1.8
OFF-SITE REFORESTATION PROVIDED *		10.2

* OFF-SITE MITIGATION TO BE PROVIDED BY PAYMENT OF FEE IN LIEU INTO THE COUNTY'S FOREST CONSERVATION FUND.

FOREST STAND / VEGETATIVE COVER

KEY	COMMUNITY TYPE	ACREAGE	DOMINANT VEGETATION	GENERAL CONDITION
A	UPLAND DECIDUOUS	51.10 (GROSS)	LIRIODENDRON TULIPIFERA, ACER RUBRUM, QUERCUS SSP.	GOOD
B	UPLAND DECIDUOUS	58.81 (GROSS)	ACER RUBRUM, PRUNUS SEROTINA	GOOD
C	RIPARIAN	7.67 (GROSS)	ACER RUBRUM, ACER NEGUNDO	GOOD

WETLAND DATA

WETLAND SYSTEM	COWARDIN CLASSIFICATION	DOMINANT VEGETATION
A	PF01A	ACER RUBRUM, PLATANUS OCCIDENTALIS, LIRIODENDRON TULIPIFERA, FRAXINUS PENNSYLVANICA, LINDERA BENZOIN

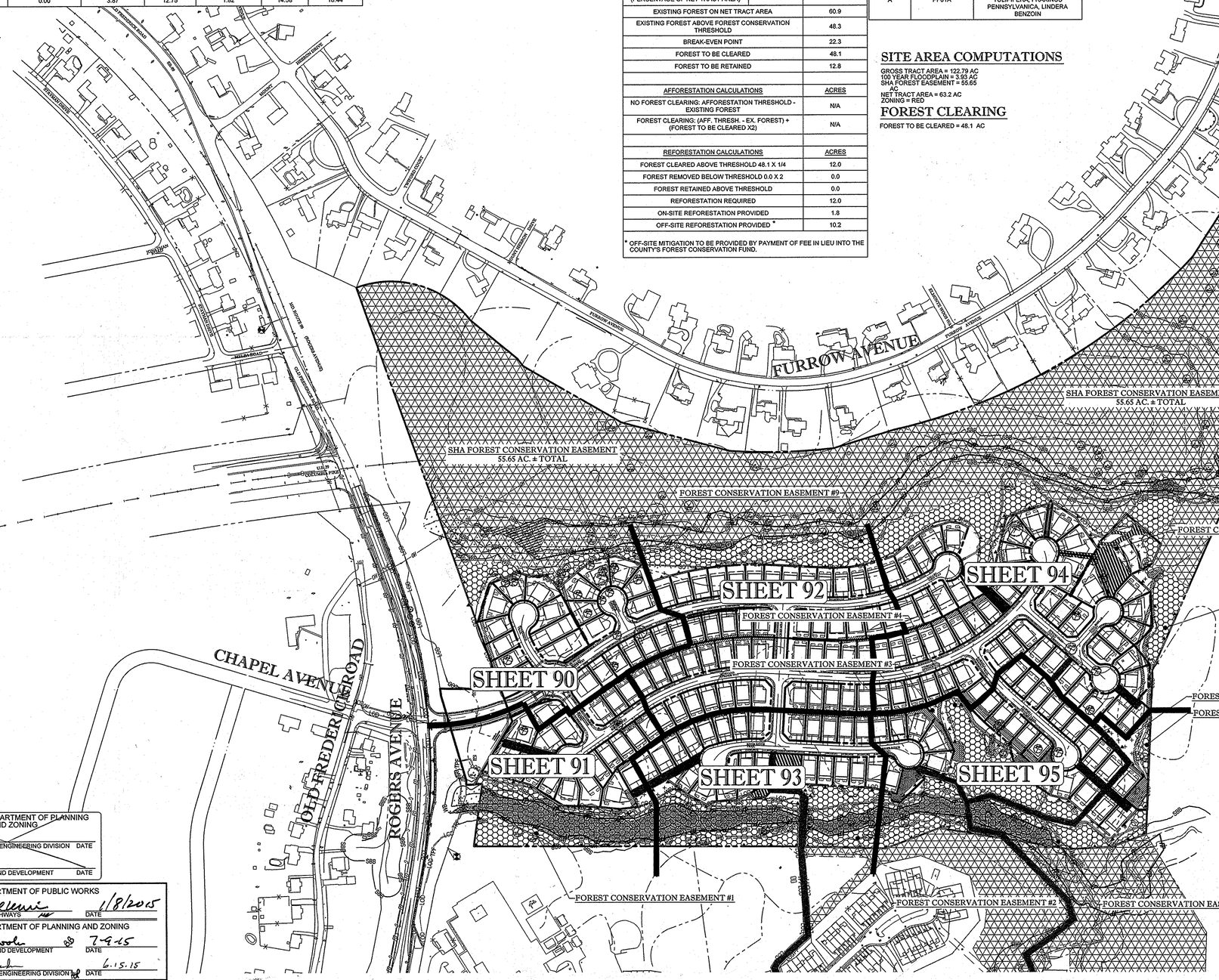
SITE AREA COMPUTATIONS

GROSS TRACT AREA = 122.79 AC
100 YEAR FLOODPLAIN = 3.93 AC
SHA FOREST EASEMENT = 55.65 AC

NET TRACT AREA = 63.2 AC
ZONING = RED

FOREST CLEARING

FOREST TO BE CLEARED = 48.1 AC



FCP NOTES

1. ANY FOREST CONSERVATION EASEMENT (FCE) SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY AND WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
2. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT EXCEPT AS PERMITTED BY HOWARD COUNTY.
3. NO STOCKPILE, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
4. PERMANENT SIGNAGE SHALL BE PLACED 100' APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.

NOTE:

FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 12.8 ACRES, 1.8 ACRES FOR REFORESTATION FOR A TOTAL CONSERVATION EASEMENT AREA OF 14.6 ACRES. THE TOTAL SURETY AMOUNT FOR ONSITE REFORESTATION IS $39,204.00 FOR A TOTAL SURETY AMOUNT OF $39,204.00 WHICH WILL BE PART OF THE DEVELOPER'S AGREEMENT. THE REMAINING FOREST CONSERVATION REQUIREMENT OF 10.2 ACRES WILL BE MET BY PAYMENT OF FEE IN LIEU TO HOWARD COUNTY'S FOREST CONSERVATION FUND IN THE AMOUNT OF $333,234.00 (444,312x.75).

FOREST CONSERVATION SEQUENCE OF CONSTRUCTION

1. PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN DEVELOPER, CONTRACTOR, AND COUNTY INSPECTOR.
2. SEDIMENT SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. TEMPORARY PROTECTIVE FENCING AND CONSERVATION SIGNAGE SHALL BE INSTALLED AS PER FOREST CONSERVATION PLAN.
3. SITE SHALL BE GRADED, INFRASTRUCTURE INSTALLED, AND HOUSES CONSTRUCTED. DISTURBED AREAS SHALL BE STABILIZED. PERMANENT SIGNAGE IN POOR CONDITION SHALL BE REPLACED.
4. POSTCONSTRUCTION MEETING SHALL BE HELD WITH COUNTY INSPECTOR TO ENSURE COMPLIANCE WITH DEVELOPMENT PLAN. SEDIMENT CONTROL AND TEMPORARY PROTECTIVE FENCING UPON STABILIZATION OF SITE AND COMPLETION OF CONSTRUCTION ACTIVITIES.

LEGEND

- PROPERTY LINE
- WETLAND BUFFER LIMITS
- SSF — SSF — SUPER SILT FENCE
- LOD — LOD — LIMIT OF DISTURBANCE
- 341 — EXISTING CONTOUR
- 341 — PROPOSED CONTOUR
- TPF — TPF — TREE PROTECTION FENCE
- FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- PREVIOUSLY RECORDED FOREST CONSERVATION EASEMENT
- FOREST RETENTION AREA
- WETLANDS
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- FOREST CONSERVATION SIGNAGE
- ST-XX SPECIMEN TREE (TO REMAIN)
- ST-XX SPECIMEN TREE (TO BE REMOVED)

200 100 50 0 200
1"= 200'

DEVELOPER'S / OWNER'S LANDSCAPE CERTIFICATE

I / WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I / WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: _____ DATE 12/10/14
TITLE: _____

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF-DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF-DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF-BUREAU OF HIGHWAYS DATE 6/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 6.15.15

GENERAL NOTE:
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OWNER:	PM PATAPSCO LLC 12115 ARBIE ROAD SILVER SPRING, MD 20904 CONTACT: MR. SIMON ROSENBERG PHONE: (301) 622-0645
DEVELOPER:	HAI THE MICHAEL COMPANIES 10100 BUSINESS PARKWAY, LANHAM, MD 20706 CONTACT: BRIAN GOLDSTEIN PHONE: (301) 918-2955

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3897, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ BOHLER, MD ◆ TOWSON, MD ◆ SOUTHBOROUGH, MA ◆ WATERBURY, CT ◆ ALBANY, NY ◆ WILLISTON, VT ◆ CHARLOTTE, NC ◆ PORT LAUDERDALE, FL ◆ CENTER VALLEY, PA ◆ ATLANTA, GA

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REVISIONS

REV	DATE	COMMENT	BY

MISS UTILITY OF DELMARVA
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NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD13200B
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=200'
CAD I.D.:	FC1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
MARYLAND LICENSE NO. 3897

SHEET TITLE:
FOREST CONSERVATION PLAN KEY SHEET

SHEET NUMBER
89

F-14-124

LEGEND

- PROPERTY LINE
- WETLAND BUFFER LIMITS
- SSF — SUPER SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- 341 — EXISTING CONTOUR
- 341 — PROPOSED CONTOUR
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- FOREST RETENTION AREA
- WETLANDS
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- FOREST CONSERVATION SIGNAGE
- ST-XX SPECIMEN TREE (TO REMAIN)
- ST-XX SPECIMEN TREE (TO BE REMOVED)

50 25 12.5 0 50
1"= 50'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008FC3.DWG PRINTED BY: RBOWEN 12.12.14 @ 11:44

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No.: SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
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SURVEYORS
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ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
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REV	DATE	COMMENT	BY

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(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	FC1

PROJECT:
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FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
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ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
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Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
12.16.14

SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
90

F-14-124

LEGEND

- PROPERTY LINE
- WETLAND BUFFER LIMITS
- SSF — SSF — SUPER SILT FENCE
- LOD — LOD — LIMIT OF DISTURBANCE
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APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

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BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
♦ WARREN, NJ

OFFICES:
♦ BOHME, MD
♦ SOUTHBOROUGH, MA
♦ TOWSON, MD
♦ ALBANY, NY
♦ HARRISBURG, PA
♦ COMFORT, TX
♦ STERLING, VA
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REV	DATE	COMMENT	BY

MISS UTILITY OF DELMARVA
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CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	FC1

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FOR
ESTATES AT PATAPSCO PARK
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E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
12-16-14
LANDSCAPE ARCHITECT

OWNER:
PM PATAPSCO LLC
12115 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK			SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 15149/685 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

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SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
91

F-14-124

LEGEND

- PROPERTY LINE
- WETLAND BUFFER LIMITS
- SSF — SSF — SUPER SILT FENCE
- LOD — LOD — LIMIT OF DISTURBANCE
- 341 — EXISTING CONTOUR
- 341 — PROPOSED CONTOUR
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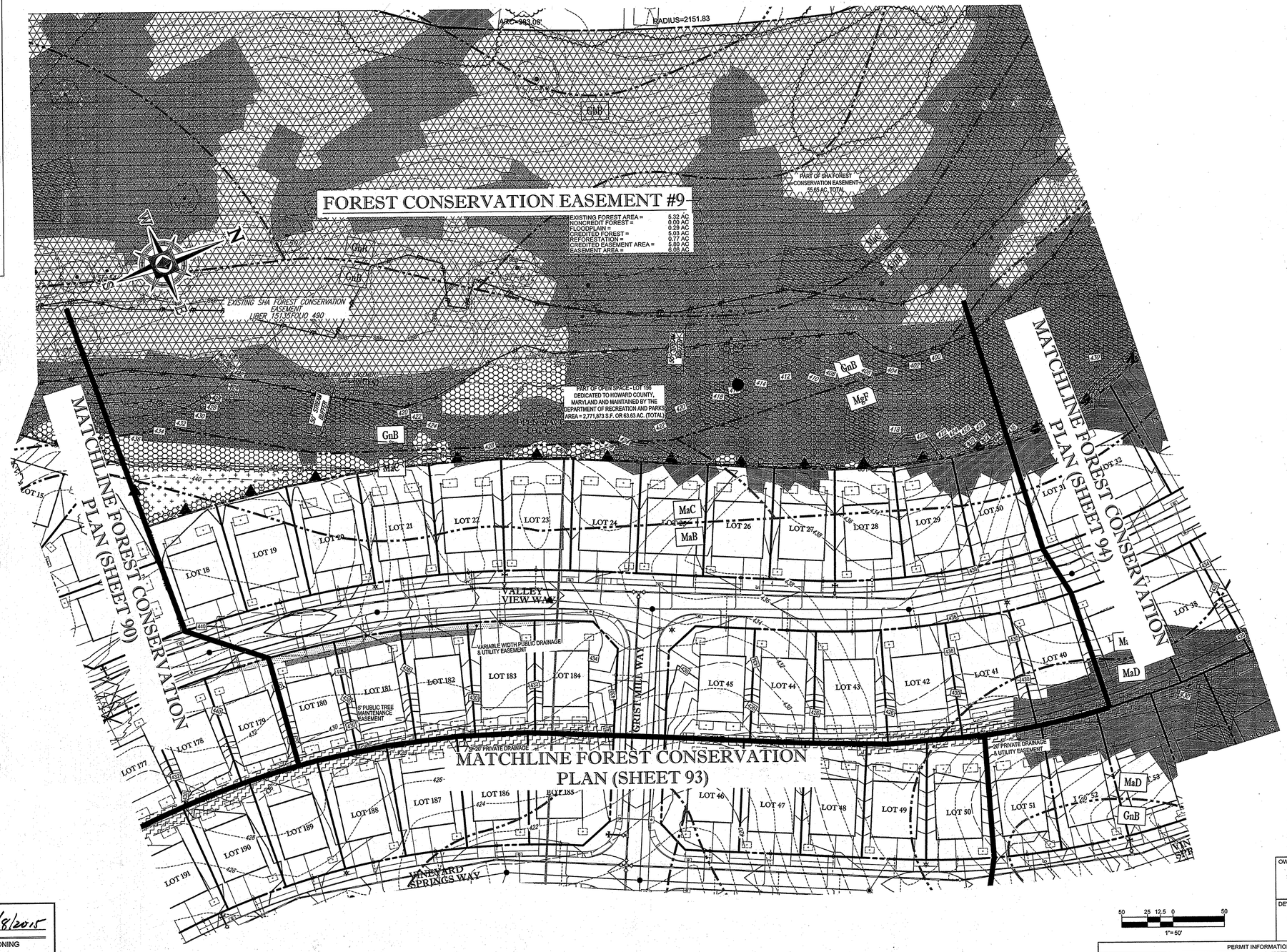
- FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- PREVIOUSLY RECORDED FOREST CONSERVATION EASEMENT
- FOREST RETENTION AREA
- WETLANDS
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- FOREST CONSERVATION SIGNAGE
- ST-XX — SPECIMEN TREE (TO REMAIN)
- ST-XX — SPECIMEN TREE (TO BE REMOVED)



50 25 12.5 0 50
1"=50'

PERMIT INFORMATION CHART				
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 15143/MSA & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND / CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
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PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
◆ SOUTHBOROUGH, MA ◆ BOWIE, MD ◆ TOWSON, MD ◆ ALBANY, NY ◆ CHARLESTON, WV ◆ CHALFONT, PA ◆ WARRENTON, VA ◆ KING OF PRUSSIA, PA ◆ TAMPA, FL ◆ PHILADELPHIA, PA

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REVISIONS

REV.	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	FC1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
3697
LANDSCAPE ARCHITECT

SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
92

F-14-124

LEGEND

- PROPERTY LINE
- WETLAND BUFFER LIMITS
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- TREE PROTECTION FENCE
- FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- PREVIOUSLY RECORDED FOREST CONSERVATION EASEMENT
- FOREST RETENTION AREA
- WETLANDS
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- FOREST CONSERVATION SIGNAGE
- SPECIMEN TREE (TO REMAIN)
- SPECIMEN TREE (TO BE REMOVED)

MATCHLINE FOREST CONSERVATION PLAN (SHEET 92)

MATCHLINE FOREST CONSERVATION PLAN (SHEET 94)

MATCHLINE FOREST CONSERVATION PLAN (SHEET 91)

MATCHLINE FOREST CONSERVATION PLAN (SHEET 95)

VALLEY VIEW WAY

HARVARD SPRINGS WAY

RIVER RIDGE TRAIL

20' PRIVATE DRAINAGE & UTILITY EASEMENT

10' PRIVATE DRAINAGE & UTILITY EASEMENT

VARIABLE WIDTH PUBLIC DRAINAGE & UTILITY EASEMENT

25' PUBLIC TREE MAINTENANCE EASEMENT

PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT

PART OF OPEN SPACE LOT 197 DEDICATED TO HOWARD COUNTY, MARYLAND AND MAINTAINED BY THE DEPARTMENT OF RECREATION AND PARKS AREA = 600,336 S.F. OR 13.78 AC. (TOTAL)

EXISTING CONSERVATION EASEMENT P/O O.S. LOT 129, PLAT NO. 12763 ZONE: R-ED

LOT 2 DANIELS MILL OVERLOOK PLAT 12099

FOREST CONSERVATION EASEMENT #1

EXISTING FOREST AREA =	5.00 AC
NONCREDIT FOREST =	0.00 AC
FLOODPLAIN =	2.37 AC
CREDITED FOREST =	2.64 AC
REFORESTATION =	0.15 AC
CREDITED EASEMENT AREA =	2.79 AC
EASEMENT AREA =	5.15 AC

FOREST CONSERVATION EASEMENT #2

EXISTING FOREST AREA =	2.70 AC
NONCREDIT FOREST =	0.00 AC
FLOODPLAIN =	0.70 AC
CREDITED FOREST =	1.99 AC
REFORESTATION =	0.10 AC
CREDITED EASEMENT AREA =	2.09 AC
EASEMENT AREA =	2.79 AC

50 25 12.5 0 50

1"= 50'

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6/18/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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H:\2017\jobs\332\00\planning\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD332000FCLONG PRINTED BY: RSOWCH 12.12.14 @ 11:45

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
♦ WARREN, NJ

OFFICES:
♦ SOUTHBOROUGH, MA
♦ ALBANY, NY
♦ CONCORD, NH
♦ CENTER VALLEY, PA
♦ RALEIGH, NC
♦ BOWIE, MD
♦ TOWSON, MD
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REV.	DATE	COMMENT	BY

MISS UTILITY OF MARYLAND

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	FC1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
991 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
LANDSCAPE ARCHITECTS

SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
93

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR LIF: 15149/685 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
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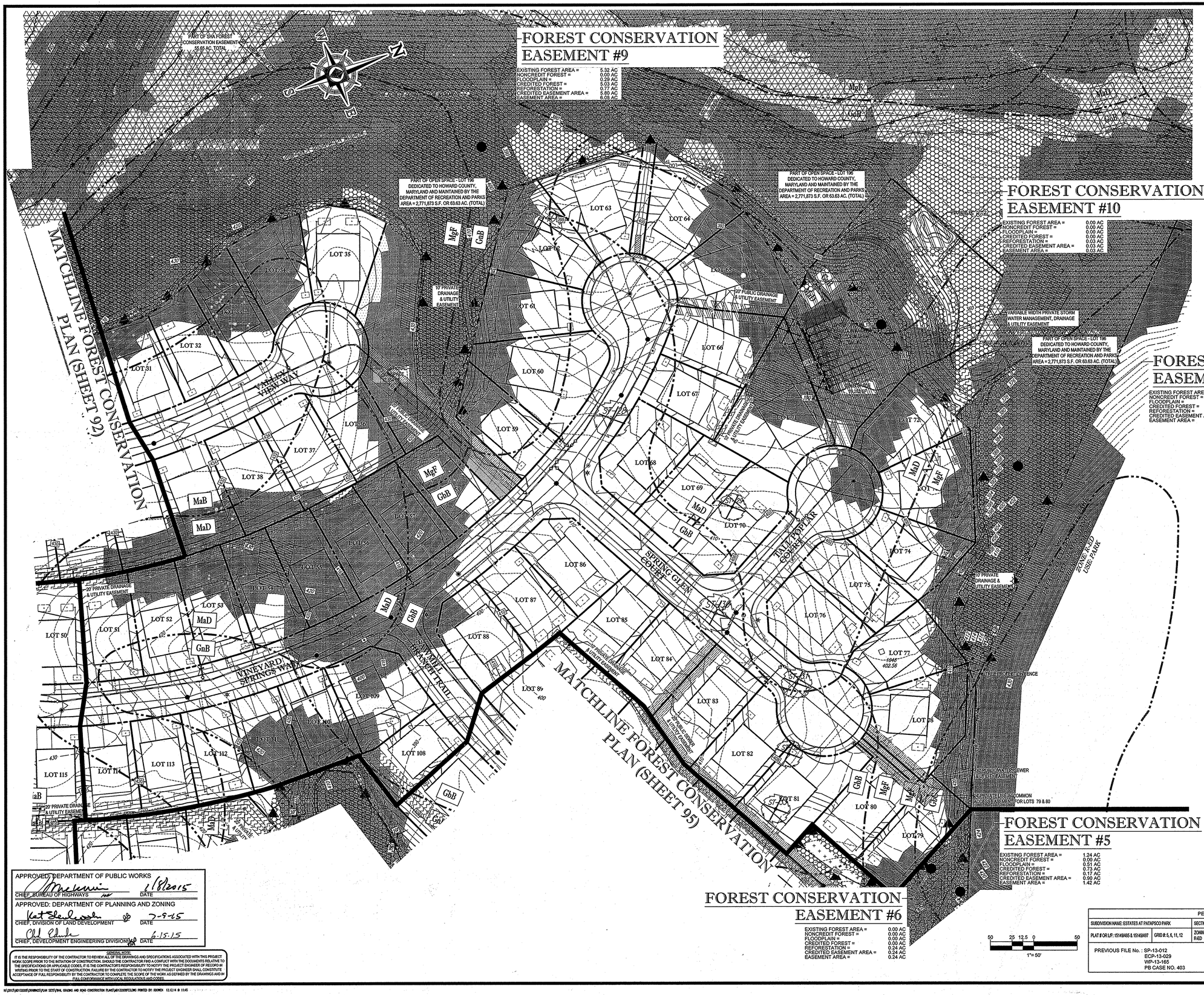
F-14-124



APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6/18/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

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DEVELOPER:
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10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART				
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
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BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
◆ WARREN, NJ

OTHER OFFICES:
◆ SOUTHBOROUGH, MA
◆ ALBANY, NY
◆ CHARLOTTE, NC
◆ CHALFONT, PA
◆ CENTER VALLEY, PA
◆ DOVER, DE
◆ BOWIE, MD
◆ TOWSON, MD
◆ LEESBURG, VA
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REV	DATE	COMMENT	BY

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD13200S
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=50'
CAD I.D.:	FC1

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
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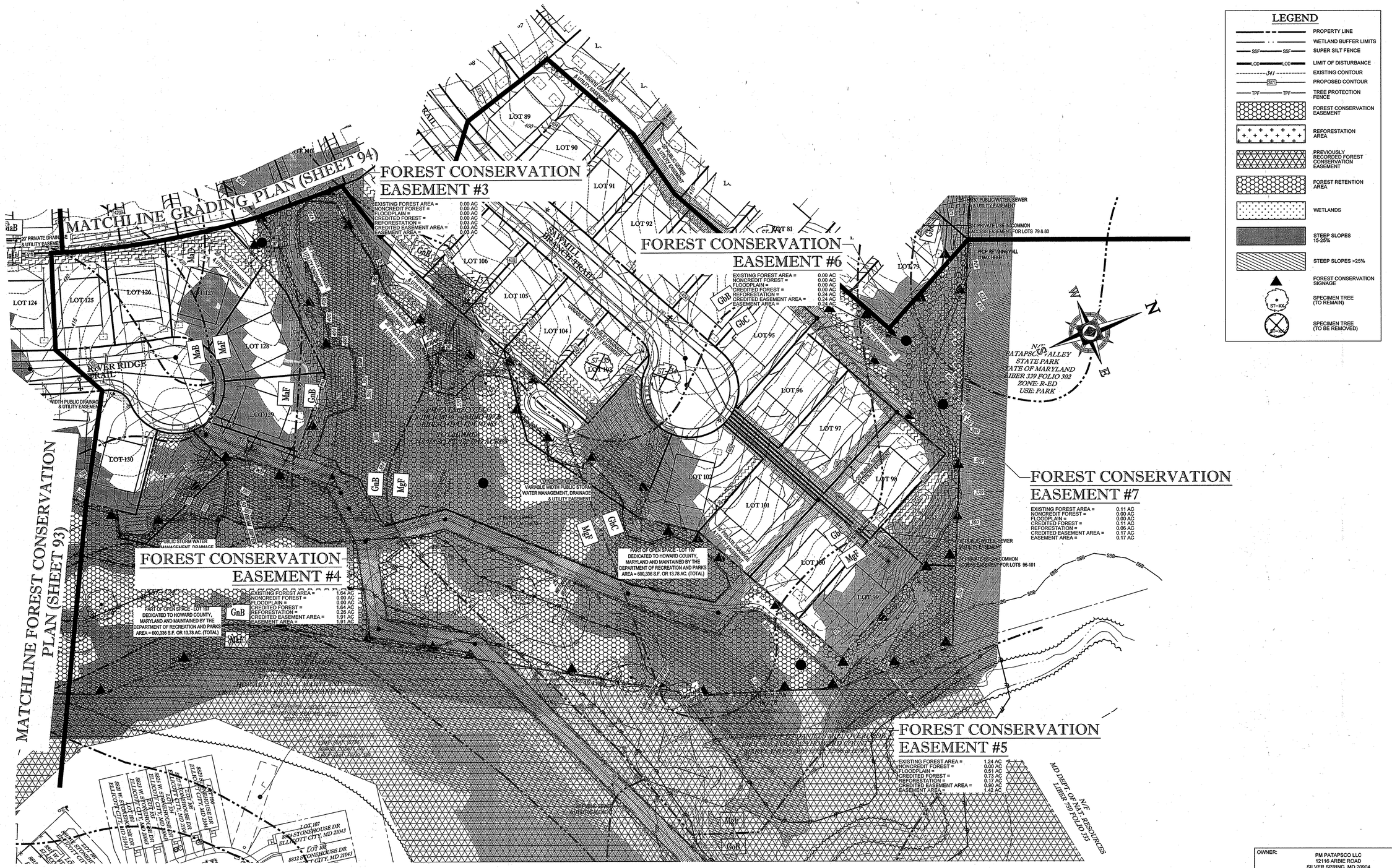
E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
No. 3697
STATE OF MARYLAND
LANDSCAPE ARCHITECT
9/20/14

SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
94

F-14-124

M:\2013\MD\13200S\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD13200SFCLDWG PLOTTED BY: BROWN 12:32:14 @ 15:45



H:\2015\MD132008\DWG\MCD\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008FCPLANS PRINTED BY: REDWICK 1.23.15 @ 11:54 A

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
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PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
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◆ RICHMOND/CHESTERFIELD, VA
◆ STERLING, VA
◆ ROANOKE/SALEM, VA
◆ CENTER VALLEY, PA
◆ FORT LAUDERDALE, FL
◆ LAKELAND, FL
◆ AUSTIN, TX

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REVISIONS

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=60'
CAD I.D.:	FC4

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

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E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT

SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
95

F-14-124

FOREST CONSERVATION PLANTING SPECIFICATIONS

1. SCOPE OF WORK:
THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS
A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.
1.1. LAWN SEED MIXTURE SHALL BE FRESH, CLEAN NEW CROP SEED.
1.2. SOD SHALL BE STRONGLY ROOTED, WEED AND DISEASE/PEST FREE WITH A UNIFORM THICKNESS.
1.3. SOD INSTALLED ON SLOPES GREATER THAN 4:1 SHALL BE PEGGED TO HOLD SOD IN PLACE.

D. MULCH - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

E. FERTILIZER
1.1. FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.
1.2. FOR THE PURPOSE OF BIDDING, ASSUME THAT FERTILIZER SHALL BE 10% NITROGEN, 6% PHOSPHORUS AND 4% POTASSIUM BY WEIGHT. A FERTILIZER SHOULD NOT BE SELECTED WITHOUT A SOIL TEST PERFORMED BY A CERTIFIED SOIL LABORATORY.

F. PLANT MATERIAL
1.1. ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
1.2. IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.
1.3. PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.
1.4. TREES WITH ABRASION OF THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1¼", WHICH HAVE NOT BEEN COMPLETELY CALLUSED, SHALL BE REJECTED.PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.
1.5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH: WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.
1.6. CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE. IF THE CALIPER AT SIX INCHES (6") ABOVE THE GROUND EXCEEDS FOUR INCHES (4") IN CALIPER, THE CALIPER SHOULD BE MEASURED AT A POINT 12" ABOVE THE NATURAL GRADE.
1.7. SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.
1.8. TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES
A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS
A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE REMAINDER OF THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION
A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY 'VISI-FENCE', OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS
A. CONTRACTOR SHALL ATTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

B. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.
1.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.
1.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. SUBSURFACE DRAINAGE LINES MAY NEED TO BE ADDED TO INCREASE DRAINAGE.
1.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING
A. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

B. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1"±).

C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING
A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

D. ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE TILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA):
1.1. 20 POUNDS 'GROW POWER' OR APPROVED EQUAL
1.2. 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP

E. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN CONDITIONS.

9. PLANTING
A. INSOFAR THAT IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS AND NON-BIODEGRADABLE MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM AROUND THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:
1.1. PLANTS: MARCH 15 TO DECEMBER 15
1.2. LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

G. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

H. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE. WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:

ACER RUBRUM	PLATANUS X ACERIFOLIA
BETULA VARIETIES	POPULOUS VARIETIES
CARPINUS VARIETIES	PRUNUS VARIETIES
CRATAEGUS VARIETIES	PYRUS VARIETIES
KOELREUTERIA	QUERCUS VARIETIES
LIQUIDAMBER STYRACIFLUA	TILIA TOMENTOSA
LIRIODENDRON TULIPIFERA	ZELKOVA VARIETIES

I. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
- 1 PART PEAT MOSS
- 1 PART COMPOSTED COW MANURE BY VOLUME
- 3 PARTS TOPSOIL BY VOLUME
- 21 GRAMS 'AGRIFORM' PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
  A) 2 TABLETS PER 1 GALLON PLANT
  B) 3 TABLETS PER 5 GALLON PLANT
  C) 4 TABLETS PER 15 GALLON PLANT
  D) LARGER PLANTS: 2 TABLETS PER ½" CALIPER OF TRUNK

J. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

K. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

L. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

M. GROUND COVER AREAS SHALL RECEIVE A ¼" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

N. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

O. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

P. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED)
A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING
A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE
A. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.

13. CLEANUP
A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

REFORESTATION PLAN

THE REFORESTATION AREA WILL BE PLACED INTO A FOREST CONSERVATION EASEMENT.

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED IN THE SOIL SURVEY ON TYPICAL VEGETATION FOR THE SOIL TYPE ON THE PLANTING SITE. SPECIES SELECTION WAS ALSO BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

REFORESTATION WILL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF WHIPS AND BRANCHED TRANSPLANTS. CONTAINER GROWN STOCK IS RECOMMENDED BUT BAREROOT STOCK MAY BE USED TO HELP CONTROL AFFORESTATION COSTS. IF BAREROOT STOCK IS USED THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PRIOR TO PLANTING THE PROPOSED FOREST CONSERVATION EASEMENTS ALL MULTIFLORA ROSE IN THE PLANTING AREA SHALL BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD BE RETAINED WHEREVER POSSIBLE. HERBICIDES TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

B. PLANTING AND SOIL SPECIFICATIONS

PLANT MATERIAL WILL BE INSTALLED IN ACCORDANCE WITH THE PLANTING DETAIL AND PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN.

AMENDMENTS TO EXISTING SOIL WILL BE IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. SOIL DISTURBANCE WILL BE LIMITED TO INDIVIDUAL PLANTING LOCATIONS.

C. MAINTENANCE OF PLANTINGS

SEE POST CONSTRUCTION NOTES

D. GUARANTEE REQUIREMENTS

A 90 PERCENT SURVIVAL RATE OF THE REFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

E. SECURITY FOR REFORESTATION

SECTION 16-1209 OF THE HOWARD COUNTY FOREST CONSERVATION ACT REQUIRES THAT A DEVELOPER SHALL POST A SECURITY (BOND, LETTER OF CREDIT, ETC.) WITH THE COUNTY TO INSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF A ITS ROOTS MAY BE FOUND. THE MAJORITY OF ROOTS RESPONSIBLE FOR WATER AND NUTRIENT UPTAKE ARE LOCATED JUST BELOW THE SOIL SURFACE. TEMPORARY FENCING SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

EXISTING FOREST LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY INSPECTOR. THE PURPOSE OF THE MEETING WILL BE TO VERIFY THAT ALL SEDIMENT CONTROL IS IN ORDER, AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT WILL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT. CLEANING OF EQUIPMENT WILL BE LIMITED TO AREA WITHIN THE LOD OF THE PROPOSED HOMESITES. WASTEWATER RESULTING FROM EQUIPMENT CLEANING WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE ENACTED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.

BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION.

1. INSTALL ALL SIGNAGE AND SEDIMENT CONTROL DEVICES.
2. HOLD PRE-CONSTRUCTION MEETING BETWEEN DEVELOPER, CONTRACTOR AND COUNTY INSPECTOR.
3. BUILD ACCESS ROADS, INSTALL WELL AND SEPTIC SYSTEMS, AND CONSTRUCT HOUSES. STABILIZE ALL DISTURBED AREAS ACCORDINGLY.
4. INSTALL PERMANENT PROTECTIVE SIGNAGE FOR EASEMENTS AND INITIATE PLANTINGS IN ACCORDANCE WITH FOREST CONSERVATION PLAN. PLANTINGS WILL BE COMPLETED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.
5. REMOVE SEDIMENT CONTROL.
6. HOLD POST-CONSTRUCTION MEETING WITH COUNTY INSPECTORS TO ASSURE COMPLIANCE WITH FCP. SUBMIT CERTIFICATION OF INSTALLATION.
7. MONITOR AND MAINTAIN PLANTINGS FOR 2 YEARS.

E. CONSTRUCTION MONITORING

ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO ENSURE THAT ALL ACTIVITIES ARE IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.

F. POST-CONSTRUCTION MEETING

UPON COMPLETION OF CONSTRUCTION, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL NOTIFY THE COUNTY THAT CONSTRUCTION HAS BEEN COMPLETED AND ARRANGE FOR A POST-CONSTRUCTION MEETING TO REVIEW THE PROJECT SITE. THE MEETING WILL ALLOW THE COUNTY INSPECTOR TO VERIFY THAT AFFORESTATION PLANTINGS HAVE BEEN INSTALLED.

POST-CONSTRUCTION MANAGEMENT PLAN

HOWARD COUNTY REQUIRES A TWO YEAR POST-CONSTRUCTION MANAGEMENT PLAN BE PREPARED AS PART OF THE FOREST CONSERVATION PLAN. THE PLAN GOES INTO EFFECT UPON ACCEPTANCE OF THE CONSTRUCTION CERTIFICATION OF COMPLETION BY THE COUNTY. ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THE POST-CONSTRUCTION MANAGEMENT PLAN.

THE FOLLOWING ITEMS WILL BE INCORPORATED INTO THE PLAN:

A. FENCING AND SIGNAGE

PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/REFORESTATION AREA SHALL BE MAINTAINED.

B. GENERAL SITE INSPECTIONS/MAINTENANCE OF PLANTINGS

SITE INSPECTIONS WILL BE PERFORMED A MINIMUM OF THREE TIMES DURING THE GROWING SEASON. THE PURPOSE OF THE INSPECTIONS WILL BE TO ASSESS THE HEALTH OF THE AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE.

IN ADDITION, MAINTENANCE OF THE AFFORESTATION PLANTINGS WILL INVOLVE THE FOLLOWING STEPS:

1. WATERING - ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, MORE OR LESS FREQUENTLY DEPENDING ON WEATHER CONDITIONS. DURING THE SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
2. REMOVAL OF INVASIVE EXOTICS AND NOXIOUS WEEDS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
3. IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES, TREATMENT WITH APPROPRIATE AGENT.
4. PRUNING OF DEAD BRANCHES.
5. AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.

C. EDUCATION

THE DEVELOPER WILL PROVIDE APPROPRIATE MATERIALS TO PROPERTY OWNERS INFORMING THEM OF THE LOCATION AND PURPOSE OF THE AFFORESTATION AREA. MATERIALS MAY INCLUDE SITE PLANS AND INFORMATION EXPLAINING THE INTENT OF THE FOREST CONSERVATION LAW.

D. FINAL INSPECTION

AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL, WILL SUBMIT TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM CERTIFICATION THAT ALL RETENTION/AFFORESTATION REQUIREMENTS HAVE BEEN MET. UPON ACCEPTANCE OF THIS CERTIFICATION, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE DEVELOPER'S BOND.

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-DESICCANT GEL PRIOR TO PLANTING.
4. PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART PINE FINES OR EQUIVALENT.
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 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 THE 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 PLANTINGS SHALL LAST FOR A PERIOD OF 24 MONTHS.
2. ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON. WATERING MAY BE MORE OR LESS FREQUENT DEPENDING ON WEATHER CONDITIONS. DURING SECOND 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 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

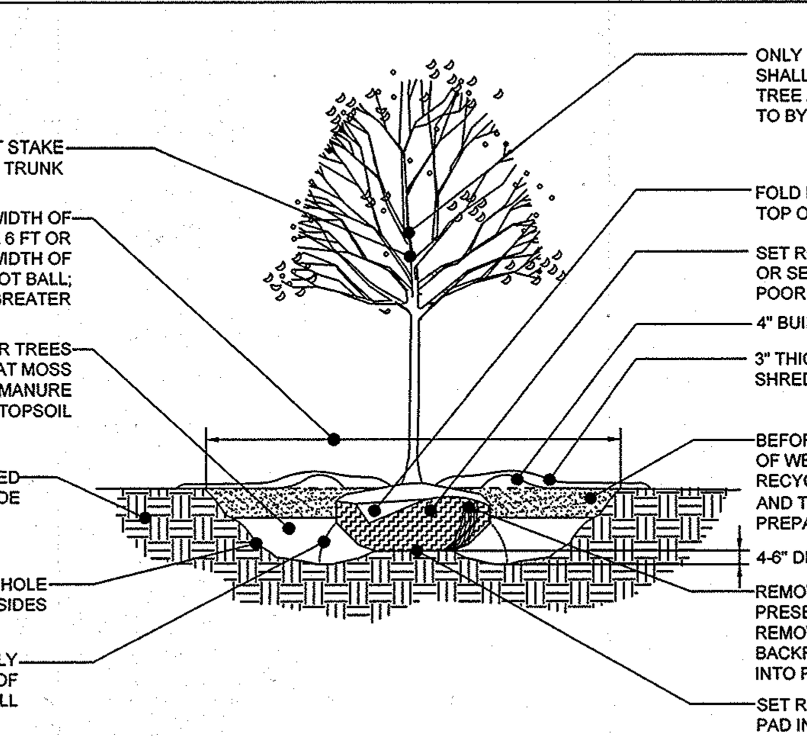
1. A 75 PERCENT SURVIVAL RATE OF FORESTATION PLANTINGS WILL BE REQUIRED AT THE END OF THE 24 MONTH MAINTENANCE PERIOD. ALL PLANT MATERIAL BELOW THE 75 PERCENT THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE NEXT GROWING SEASON.

SURETY FOR FORESTATION

1. THE DEVELOPER SHALL POST A SURETY (BOND, LETTER OF CREDIT) TO ENSURE THAT FORESTATION 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 COVENANTS 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 OF 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. FENCING SHALL BE INSTALLED ALONG LIMITS OF DISTURBANCE OCCURRING WITHIN 50 FEET OF THE PROPOSED FCE LIMITS.
7. PERMANENT SIGNAGE WILL BE POSTED A AT 50-100 FOOT INTERVALS ALONG ALL FCE LIMITS.
8. FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 12.8 ACRES, 1.8 ACRES FOR REFORESTATION FOR A TOTAL CONSERVATION EASEMENT AREA OF 14.6 ACRES. THE TOTAL SURETY AMOUNT FOR ONSITE REFORESTATION IS $39,204.00 FOR A TOTAL SURETY AMOUNT OF $39,204.00 WHICH WILL BE PART OF THE DEVELOPER'S AGREEMENT. THE REMAINING FOREST CONSERVATION REQUIREMENT OF 10.2 ACRES WILL BE MET BY PAYMENT OF FEE IN LIEU TO HOWARD COUNTY'S FOREST CONSERVATION FUND.



REFERENCE: ARCHITECTURAL GRAPHIC STANDARDS 1998 CUMULATIVE SUPPLEMENT.

DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

REFORESTATION AREA PLANTING SCHEDULE

SPECIES		SIZE	SPACING	REFORESTATION EASEMENT	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	
				REFORESTATION AREA (S.F.)	6625	4170	1233	11463	7520	10246	2644	423	33450	1505	TOTAL
BOTANICAL NAME	COMMON NAME			PLANTING UNITS REQUIRED	30	19	6	51	34	46	12	2	150	7	357
TREES					QUANTITY PROPOSED										
ACER RUBRUM	RED MAPLE	1" CAL	15' X 15'		5	4	1	9	6	8	2	1	25	2	63
LIRODENDRON TULIPIFERA	TULIP POPLAR	1" CAL	15' X 15'		5	3	1	9	6	8	2	1	25	1	61
NYSSA SYLVATIC	BLACK GUM	1" CAL	15' X 15'		5	3	1	9	6	8	2	0	25	1	60
PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	1" CAL	15' X 15'		5	3	1	8	6	8	2	0	25	1	59
QUERCUS RUBRA	RED OAK	1" CAL	15' X 15'		5	3	1	8	5	7	2	0	25	1	57
QUERCUS PALUSTRIS	PIN OAK	1" CAL	15' X 15'		5	3	1	8	5	7	2	0	25	1	57

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 1/8/2015
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 7-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 6.15.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

DEVELOPER'S / OWNER'S LANDSCAPE CERTIFICATE

I / WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I / WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

[signature] 12/10/14
DEVELOPER'S / OWNER'S NAME — DATE

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLAIMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE:
◆ WARREN, NJ
OFFICES:
◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL
◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES © 2008 BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY

DIG WITH CARE — CALL BEFORE YOU DIG
THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=200'
CAD I.D.:	FC1

PROJECT: FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT
[seal: STATE OF MARYLAND, ERIC R. McWILLIAMS, LANDSCAPE ARCHITECT, 3697] [signature] 12-16-14

SHEET TITLE:
FOREST CONSERVATION NOTES AND DETAILS

SHEET NUMBER:
96

H:\2013\MD132008\DRAWINGS\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008FC3.DWG PRINTED BY: RBOWEN 12.11.14 @ 1:35 P

SPECIMEN TREE TABLE

NO.	COMMON NAME	SCIENTIFIC NAME	DBH (INCHES)	CONDITION RATING	DISPOSITION
1	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34	FAIR	TO REMAIN
2	TULIP POPLAR	LIRIODENDRON TULIPIFERA	42	FAIR	TO REMAIN
3	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34.5	FAIR	TO BE REMOVED
4	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO BE REMOVED
5	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34.5	FAIR	TO BE REMOVED
6	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	32.5	FAIR	TO BE REMOVED
7	RED OAK	QUERCUS RUBRA	48	POOR	TO BE REMOVED
8	SILVER MAPLE	ACER SACCHARINUM	44	GOOD	TO REMAIN
9	SYCAMORE	PLATANUS OCCIDENTALIS	71.5	GOOD	TO REMAIN
10	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34.5	FAIR	TO BE REMOVED
11	WHITE OAK	QUERCUS ALBA	32	GOOD	TO REMAIN
12	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34.5	FAIR	TO BE REMOVED
13	RED OAK	QUERCUS RUBRA	32.5	FAIR	TO BE REMOVED
14	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32.5	FAIR	TO BE REMOVED
15	CHESTNUT OAK	QUERCUS PRINUS	50 DBL	FAIR	TO BE REMOVED
16	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31.5	FAIR	TO BE REMOVED
17	WHITE OAK	QUERCUS ALBA	32	GOOD	TO BE REMOVED
18	WHITE OAK	QUERCUS ALBA	32	GOOD	TO BE REMOVED
19	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34	FAIR	TO REMAIN
20	TULIP POPLAR	LIRIODENDRON TULIPIFERA	35	FAIR	TO REMAIN
21	TULIP POPLAR	LIRIODENDRON TULIPIFERA	35	GOOD	TO REMAIN
22	TULIP POPLAR	LIRIODENDRON TULIPIFERA	54 DBL	FAIR	TO BE REMOVED
23	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO BE REMOVED
24	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32.5	FAIR	TO BE REMOVED
25	CHESTNUT OAK	QUERCUS PRINUS	33.5	FAIR	TO REMAIN
26	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
27	TULIP POPLAR	LIRIODENDRON TULIPIFERA	36	FAIR	TO REMAIN
28	TULIP POPLAR	LIRIODENDRON TULIPIFERA	42.5 DBL	GOOD	TO BE REMOVED
29	PIN OAK	QUERCUS PALUSTRIS	34	FAIR	TO BE REMOVED
30	TULIP POPLAR	LIRIODENDRON TULIPIFERA	44	FAIR	TO BE REMOVED
31	TULIP POPLAR	LIRIODENDRON TULIPIFERA	35.5	FAIR	TO BE REMOVED
32	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34	FAIR	TO BE REMOVED
33	TULIP POPLAR	LIRIODENDRON TULIPIFERA	33.5	FAIR	TO BE REMOVED
34	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34.5	FAIR	TO BE REMOVED
35	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32.5	FAIR	TO BE REMOVED
36	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO BE REMOVED
37	TULIP POPLAR	LIRIODENDRON TULIPIFERA	38.5	FAIR	TO BE REMOVED
38	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
39	SYCAMORE	PLATANUS OCCIDENTALIS	41	GOOD	TO REMAIN
40	TULIP POPLAR	LIRIODENDRON TULIPIFERA	57 DBL	GOOD	TO BE REMOVED
41	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32.5	GOOD	TO BE REMOVED
42	PIN OAK	QUERCUS PALUSTRIS	33	GOOD	TO BE REMOVED
43	TULIP POPLAR	LIRIODENDRON TULIPIFERA	45.5 DBL	FAIR	TO REMAIN
44	GREEN ASH	FRAXINUS PENNSYLVANICA	40.5	FAIR	TO REMAIN
45	WHITE OAK	QUERCUS ALBA	41	FAIR	TO REMAIN
46	RED OAK	QUERCUS RUBRA	34	FAIR	TO REMAIN
47	TULIP POPLAR	LIRIODENDRON TULIPIFERA	35	FAIR	TO REMAIN
48	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34.5	FAIR	TO REMAIN
49	SYCAMORE	PLATANUS OCCIDENTALIS	31	FAIR	TO REMAIN
50	SILVER MAPLE	ACER SACCHARINUM	40.5 DBL	POOR	TO REMAIN
51	SILVER MAPLE	ACER SACCHARINUM	55	FAIR	TO REMAIN
52	SILVER MAPLE	ACER SACCHARINUM	34	FAIR	TO REMAIN
53	SILVER MAPLE	ACER SACCHARINUM	45.5	FAIR	TO REMAIN
54	SILVER MAPLE	ACER SACCHARINUM	30	POOR	TO REMAIN
55	SILVER MAPLE	ACER SACCHARINUM	30 TRPL	FAIR	TO REMAIN
56	SILVER MAPLE	ACER SACCHARINUM	30	FAIR	TO REMAIN
57	WHITE PINE	PINUS STROBUS	30	FAIR	TO REMAIN

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

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SPECIMEN TREE TABLE

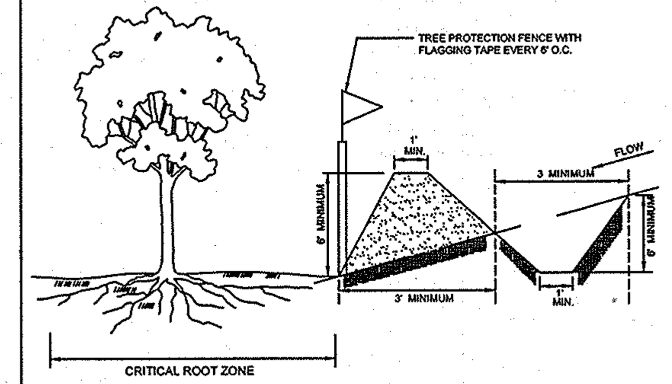
NO.	COMMON NAME	SCIENTIFIC NAME	DBH (INCHES)	CONDITION RATING	DISPOSITION
58	SILVER MAPLE	ACER SACCHARINUM	44	GOOD	TO REMAIN
59	WILLOW OAK	QUERCUS PHELLOS	35.5	POOR	TO REMAIN
60	WILLOW OAK	QUERCUS PHELLOS	30	FAIR	TO REMAIN
61	SILVER MAPLE	ACER SACCHARINUM	44	GOOD	TO REMAIN
62	SILVER MAPLE	ACER SACCHARINUM	30	FAIR	TO REMAIN
63	SILVER MAPLE	ACER SACCHARINUM	40	GOOD	TO REMAIN
64	SYCAMORE	PLATANUS OCCIDENTALIS	33.5	FAIR	TO REMAIN
65	SYCAMORE	PLATANUS OCCIDENTALIS	43.5	GOOD	TO REMAIN
66	GREEN ASH	FRAXINUS PENNSYLVANICA	30	GOOD	TO REMAIN
67	SYCAMORE	PLATANUS OCCIDENTALIS	30	GOOD	TO REMAIN
68	SYCAMORE	PLATANUS OCCIDENTALIS	32 DBL	FAIR	TO REMAIN
69	TULIP POPLAR	LIRIODENDRON TULIPIFERA	50	FAIR	TO REMAIN
70	TULIP POPLAR	LIRIODENDRON TULIPIFERA	37	FAIR	TO REMAIN
71	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
72	TULIP POPLAR	LIRIODENDRON TULIPIFERA	33	FAIR	TO REMAIN
73	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
74	TULIP POPLAR	LIRIODENDRON TULIPIFERA	45.5	FAIR	TO REMAIN
75	TULIP POPLAR	LIRIODENDRON TULIPIFERA	33	FAIR	TO REMAIN
76	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
77	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
78	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
79	TULIP POPLAR	LIRIODENDRON TULIPIFERA	33	FAIR	TO REMAIN
80	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
81	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
82	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
83	RED OAK	QUERCUS RUBRA	30	FAIR	TO REMAIN
84	TULIP POPLAR	LIRIODENDRON TULIPIFERA	33	FAIR	TO REMAIN
85	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34	FAIR	TO REMAIN
86	TULIP POPLAR	LIRIODENDRON TULIPIFERA	35.5	POOR	TO REMAIN
87	TULIP POPLAR	LIRIODENDRON TULIPIFERA	36	FAIR	TO REMAIN
88	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
89	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
90	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34	FAIR	TO REMAIN
91	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34	FAIR	TO REMAIN
92	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
93	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
94	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
95	PIN OAK	QUERCUS PALUSTRIS	32	GOOD	TO REMAIN
96	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32.5	FAIR	TO REMAIN
97	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
98	AMERICAN BEECH	FAGUS GRANFIFOLIA	32	GOOD	TO REMAIN
99	CHESTNUT OAK	QUERCUS PRINUS	34.5	GOOD	TO REMAIN
100	RED OAK	QUERCUS RUBRA	32	FAIR	TO REMAIN
101	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
102	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
103	PIN OAK	QUERCUS PALUSTRIS	30	GOOD	TO REMAIN
104	TULIP POPLAR	LIRIODENDRON TULIPIFERA	35.5	GOOD	TO REMAIN
105	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	GOOD	TO REMAIN
106	PIN OAK	QUERCUS PALUSTRIS	32	GOOD	TO REMAIN
107	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
108	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30.5	FAIR	TO REMAIN
109	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
110	PIN OAK	QUERCUS PALUSTRIS	34	GOOD	TO REMAIN
111	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
112	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30.5	FAIR	TO REMAIN
113	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
114	TULIP POPLAR	LIRIODENDRON TULIPIFERA	32	FAIR	TO REMAIN
115	AMERICAN BEECH	FAGUS GRANFIFOLIA	31	FAIR	TO REMAIN
116	TULIP POPLAR	LIRIODENDRON TULIPIFERA	36	FAIR	TO REMAIN
117	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31.5	FAIR	TO REMAIN
118	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30.5	FAIR	TO REMAIN
119	TULIP POPLAR	LIRIODENDRON TULIPIFERA	34	FAIR	TO REMAIN
120	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
121	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31	FAIR	TO REMAIN
122	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN

SPECIMEN TREE TABLE

NO.	COMMON NAME	SCIENTIFIC NAME	DBH (INCHES)	CONDITION RATING	DISPOSITION
123	GREEN ASH	FRAXINUS PENNSYLVANICA	34	GOOD	TO REMAIN
124	PIN OAK	QUERCUS PALUSTRIS	35	GOOD	TO REMAIN
125	TULIP POPLAR	LIRIODENDRON TULIPIFERA	30	FAIR	TO REMAIN
126	TULIP POPLAR	LIRIODENDRON TULIPIFERA	36	FAIR	TO REMAIN
127	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31.5	FAIR	TO REMAIN
128	TULIP POPLAR	LIRIODENDRON TULIPIFERA	38	FAIR	TO REMAIN
129	SYCAMORE	PLATANUS OCCIDENTALIS	39	GOOD	TO REMAIN
130	GREEN ASH	FRAXINUS PENNSYLVANICA	30	GOOD	TO REMAIN
131	SYCAMORE	PLATANUS OCCIDENTALIS	45	FAIR	TO REMAIN
132	SYCAMORE	PLATANUS OCCIDENTALIS	34	FAIR	TO REMAIN
133	SYCAMORE	PLATANUS OCCIDENTALIS	39	GOOD	TO REMAIN
134	SYCAMORE	PLATANUS OCCIDENTALIS	31	GOOD	TO REMAIN
135	SYCAMORE	PLATANUS OCCIDENTALIS	30	POOR	TO REMAIN
136	SYCAMORE	PLATANUS OCCIDENTALIS	36	GOOD	TO REMAIN
137	SYCAMORE	PLATANUS OCCIDENTALIS	44	GOOD	TO REMAIN
138	SYCAMORE	PLATANUS OCCIDENTALIS	48	FAIR	TO REMAIN
139	GREEN ASH	FRAXINUS PENNSYLVANICA	30.5	FAIR	TO REMAIN
140	RED OAK	QUERCUS RUBRA	34	FAIR	TO REMAIN
141	TULIP POPLAR	LIRIODENDRON TULIPIFERA	36	FAIR	TO REMAIN
142	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31.5	FAIR	TO REMAIN
143	YELLOW POPLAR	LIRIODENDRON TULIPIFERA	31.5	FAIR	TO BE REMOVED
144	CHESTNUT OAK	QUERCUS PRINUS	31.5	GOOD	TO BE REMOVED
145	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31.5	FAIR	TO REMAIN
146	TULIP POPLAR	LIRIODENDRON TULIPIFERA	31.5	FAIR	TO REMAIN

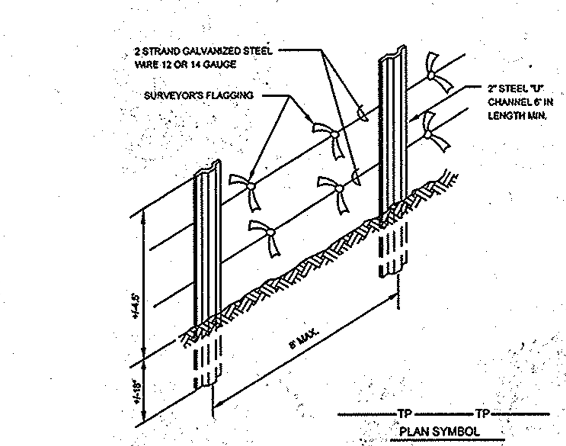
SOILS FOUND ON SITE

SYMBOL	NAME/DESCRIPTION	K-FACTOR	HYDRIC	HYDROLOGIC GROUP	DRAINAGE CLASS
GbB	Gladstone loam, 3 to 8 percent slopes	.20	NO	B	WELL DRAINED
GbC	Gladstone loam, 8 to 15 percent slopes	0.20	NO	B	WELL DRAINED
GgB	Glenelg loam, 3 to 8 percent slopes	0.20	NO	B	WELL DRAINED
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	0.20	NO	B	WELL DRAINED
GhB	Glenelg-Urban land complex, 0 to 8 percent slopes		NO	B	
GhC	Glenelg-Urban land complex, 8 to 15 percent slopes	0.20	NO	B	WELL DRAINED
GmB	Glenville silt loam, 3 to 8 percent slopes	0.37	YES	C	MODERATELY DRAINED
GmC	Glenville silt loam, 8 to 15 percent slopes	0.37	NO	C	MODERATELY DRAINED
GnB	Glenville-Baile silt loams, 0 to 8 percent slopes	0.37	Y	C	MODERATELY DRAINED
GoB	Glenville-Codorus silt loams, 0 to 8 percent slopes	0.37	NO	C	MODERATELY DRAINED
MaB	Manor loam, 3 to 8 percent slopes	0.24	NO	B	WELL DRAINED
MaC	Manor loam, 8 to 15 percent slopes	0.24	NO	B	WELL DRAINED
MaD	Manor loam, 15 to 25 percent slopes	0.24	NO	B	WELL DRAINED
MgD	Manor-Brannertown sandy loams, 15 to 25 percent slopes, rocky	0.24	NO	B	WELL DRAINED
MgF	Manor-Brannertown sandy loams, 25 to 65 percent slopes, rocky	0.24	NO	B	WELL DRAINED
MkF	Manor-Brinklow complex, 25 to 65 percent slopes, very rocky	0.24	NO	B	WELL DRAINED



Notes:
1. Combination sediment control and forest protection device.
2. Boundaries of the Retention Area will be set as part of the forest conservation plan review process.
3. Boundaries of Retention Area should be staked prior to installing protective device.
4. Root damage should be avoided.
5. The toe of slope should be outside the critical root zone
6. Equipment is prohibited within critical root zone of retention area; place dike accordingly.
7. All standard maintenance for earthen dikes and swales apply to these details.
8. All standard reclamation practices for earthen dikes and swales shall apply to these details.

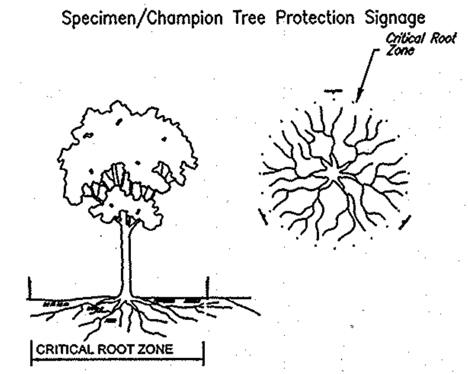
COMBINATION EARTH DIKE & TREE PROTECTION - TYPE III
NOT TO SCALE



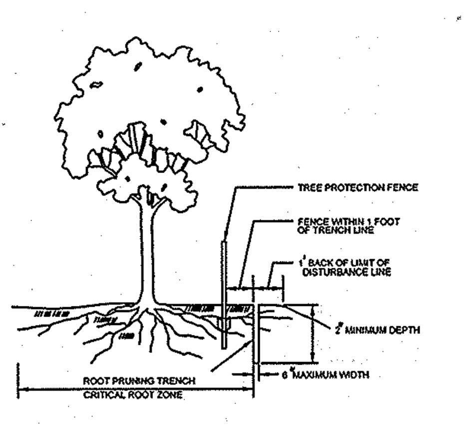
NOTES:
1. Forest preservation, specimen tree and re/af-forestation protection device.
2. Protected areas will be set as part of the review process.
3. Boundaries of protected areas should be staked and flagged prior to installing device.
4. Avoid root damage when placing anchor posts.
5. Wire should be securely attached to posts.
6. Device should be properly maintained during construction.
7. Use brightly colored surveyor's flagging every 4'.
8. Protective signage is also recommended.
9. Contractor may use blaze orange tree protection fence or equal according to MD State Forest Conservation Technical Manual Figure D-5.

TREE PROTECTION FENCING - TYPE I
NOT TO SCALE

Specimen/Champion Tree Protection Signage



Notes:
1. *Retention Areas will be set as part of the review process*
2. *Boundaries of Retention Areas/Critical Root Zones should be marked with signage prior to construction.*
3. *Signs should be placed at edge or 1-foot outside the Critical Root Zone.*
4. *Signs should be placed around each specimen tree as indicated on the plan.*



Notes:
1. Retention Areas to be established as part of the forest conservation plan review process.
2. Boundaries of Retention Areas should be staked, flagged and/or fenced prior to trenching.
3. Exact location of trench should be identified.
4. Trench should be immediately backfilled with soil removed or other high organic soil.
5. Roots should be cleanly cut using vibratory knife or other acceptable equipment.

ROOT PRUNING
NOT TO SCALE

Forest Conservation Manual
Chapter 3: Forest Conservation Plan
Section 3.6: Reforestation and Afforestation Procedures

Figure 3.6.6 Handling Seedlings in the Field

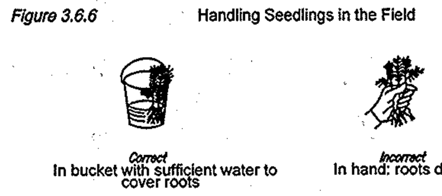
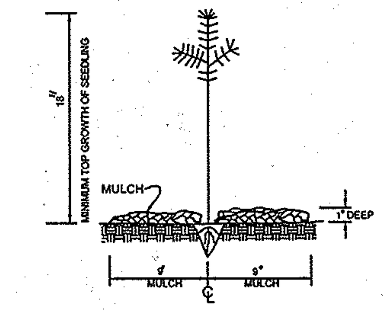
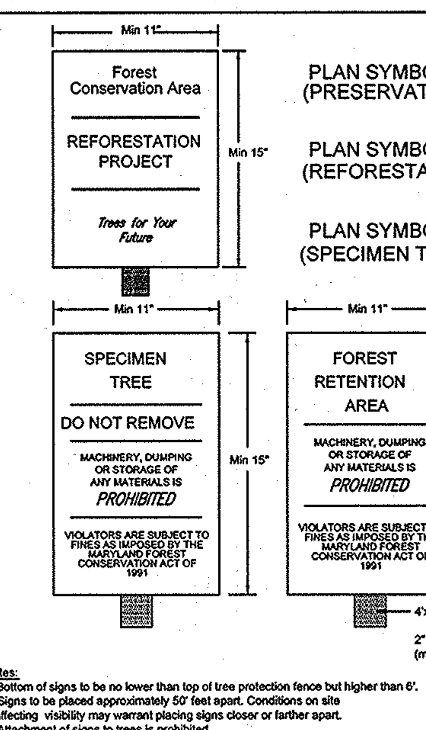


Figure 3.3.6 notes the correct method for handling seedlings in the planting field. Seedlings dry out very quickly and, once dry, often are not usable even after moistening.

Figure 3.6.7 Seedling and Whip Planting Specification



Mulching newly planted seedlings is suggested as it helps the soil retain moisture and it protects the seedling from compaction and stem injury.



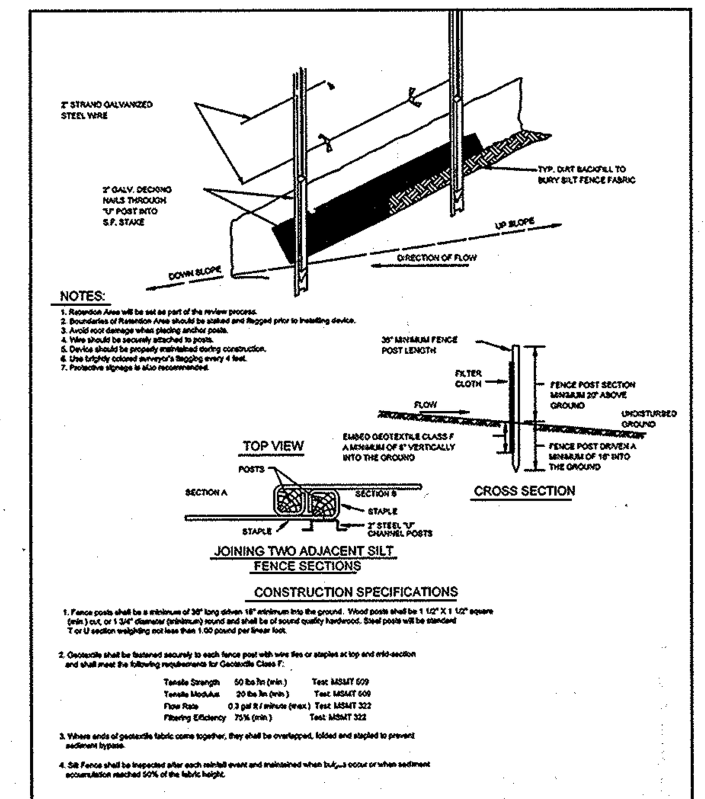
PLAN SYMBOL = (PRESERVATION) ▲

PLAN SYMBOL = (REFORESTATION) ●

PLAN SYMBOL = (SPECIMEN TREE) ■

Notes:
1. Bottom of signs to be no lower than top of tree protection fence but higher than 6'.
2. Signs to be placed approximately 50' feet apart. Conditions on site affecting visibility may warrant placing signs closer or farther apart.
3. Attachment of signs to trees is prohibited.
4. Signs to be posted on 4'x4' pressure treated wood posts driven a minimum of 1.5' into ground or 2" steel "U" channel (minimum 6' length) driven into ground.
5. Signs to be attached to posts with 2 galvanized bolts, each with 2 washers and a galvanized nut.

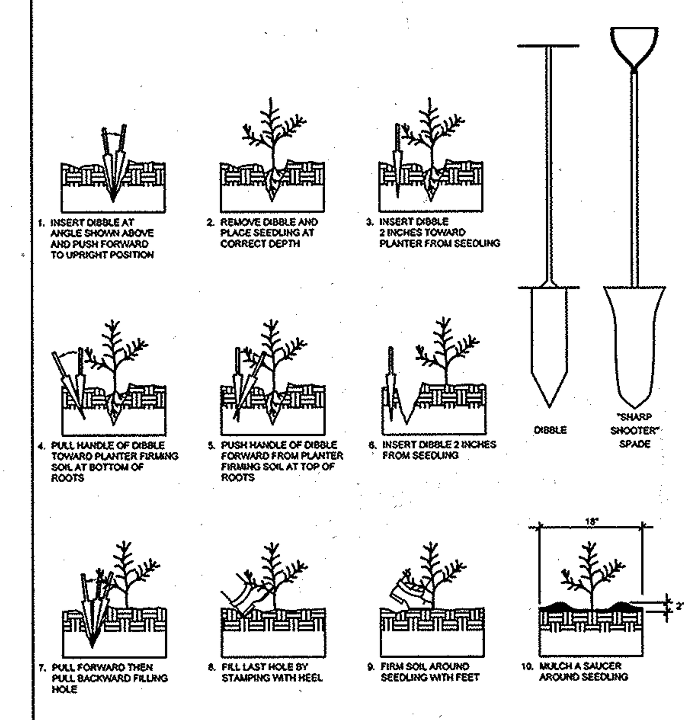
SIGNAGE
NOT TO SCALE



NOTES:
1. Retention Area will be set as part of the review process.
2. Boundaries of Retention Area should be staked and flagged prior to installing device.
3. Avoid root damage when placing anchor posts.
4. Wire should be securely attached to posts.
5. Device should be properly maintained during construction.
6. Use brightly colored surveyor's flagging every 4 feet.
7. Protective signage is also recommended.

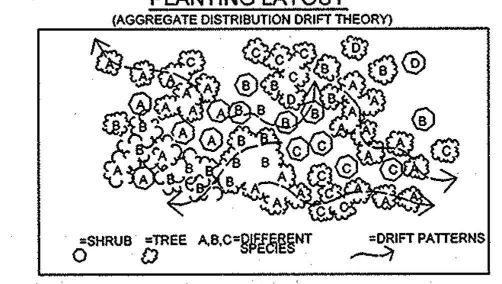
CONSTRUCTION SPECIFICATIONS
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" X 1 1/2" square (min.) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:
Tensile Strength 50 lbs/in (min.) Test: MSMT 509
Tensile Modulus 20 lbs/in (min.) Test: MSMT 509
Flow Rate 0.3 gal ft / 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.

COMBINATION SILT FENCE & TREE PROTECTION - TYPE II
NOT TO SCALE



SEEDLING PLANTING DETAIL
NOT TO SCALE

PLANTING LAYOUT
(AGGREGATE DISTRIBUTION DRIFT THEORY)



Concept: Aggregate Drift or Sweep. A cluster type grouping which tapers or feathers out along the edges.

Example: Aggregate massing or drifts are one of the most common vegetation distribution patterns occurring in nature. Principle seed bearers are at the central core of the cluster with seed dispersal outwards, often windblown, with densities thinning out along the fringes or extremities (groupings blend through and to other groupings). Imagine the fallout of windblown milkweed seeds. They often appear as aggregate drifts, elongated and tear drop in shape.

Application: When developing a planting plan the Maryland Forest Conservation Manual (pages 98 thru 101) offers recommendations on reforestation methods, species selection, plant materials and site stocking options. This is meant for determining the appropriate number of plants required, not necessarily a feet-on-center "grid pattern" layout.

Many of the State's regulatory reforestation sites installed since the inception of the Act appear as orchards. This unnatural grid patterns can be corrected thru the application of aggregate distribution. This does not mean that plants must be in a grid pattern, the drifts of shrubs cannot blend into groupings of trees or that groupings of same species cannot occur together. It simply means that the installer should meet the aforementioned forest conservation act criteria at the same time replicating natures aggregate drift patterns (see detail).

When using this theory to lay out a planting plan the size of the drifts should depend on the quantity of plants allocated, the scale of the site, and the careful consideration of the installer.

DEVELOPER'S / OWNER'S LANDSCAPE CERTIFICATE

I / WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I / WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER'S / OWNER'S NAME — DATE 12/15/14

OWNER:
PM PATAPSCO LLC
12116 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0645

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 15149/485 & 15149/497	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/14

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: ◆ WARREN, NJ
OFFICES: ◆ SOUTHBOROUGH, MA ◆ ALBANY, NY ◆ RONKONKOMA, NY ◆ CHALFONT, PA ◆ CENTER VALLEY, PA ◆ TAMPA, FL ◆ BOWIE, MD ◆ TOWSON, MD ◆ STERLING, VA ◆ WARRENTON, VA ◆ FORT LAUDERDALE, FL ◆ PHILADELPHIA, PA

THE INFORMATION, DESIGN AND CONTENT OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE COPIED OR USED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM BOHLER ENGINEERING. ONLY APPROVED, SIGNED AND SEALED PLANS SHALL BE UTILIZED FOR CONSTRUCTION PURPOSES © 2008 BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	1"=200'
CAD I.D.:	FC1

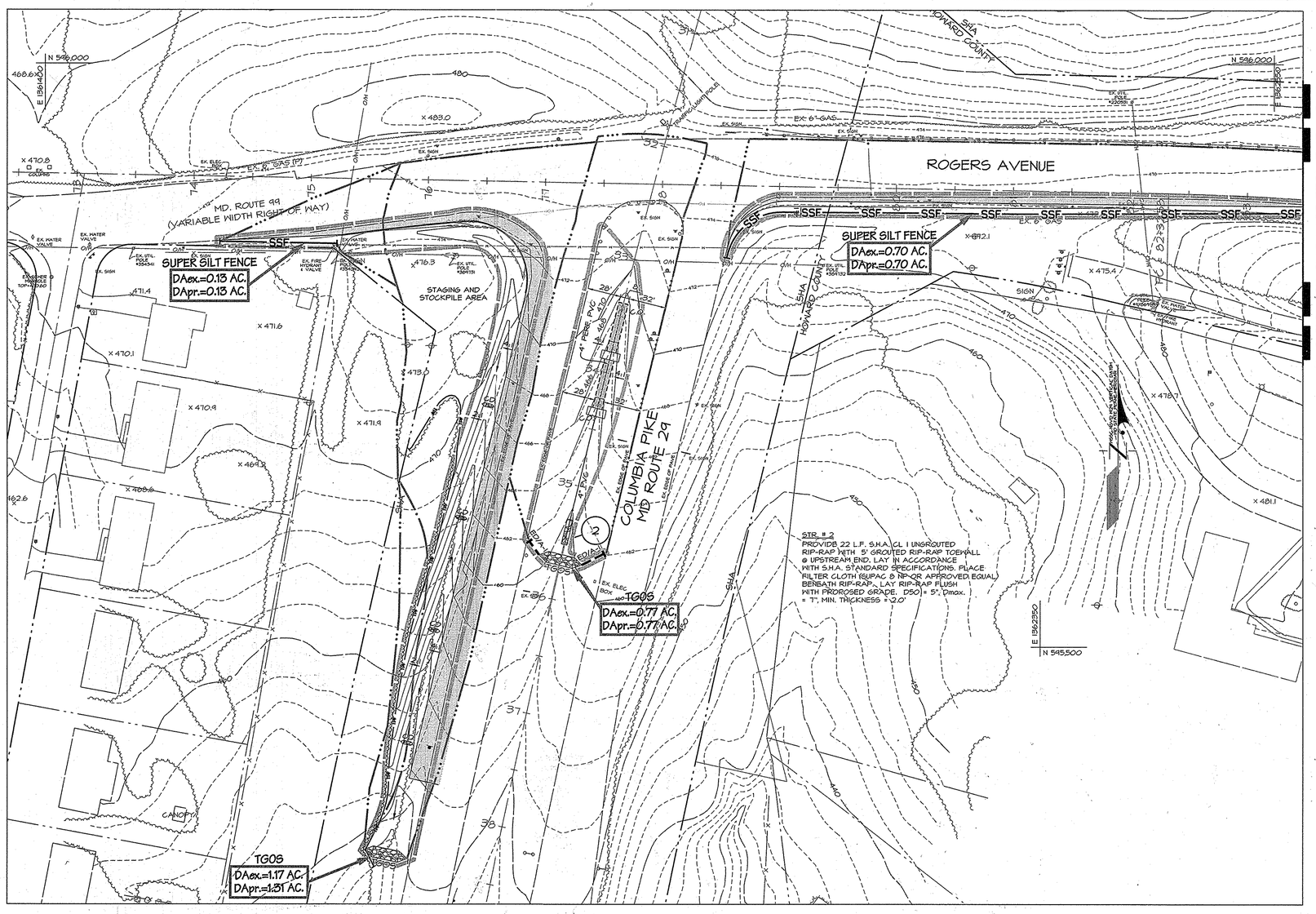
PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS
REGISTERED LANDSCAPE ARCHITECT

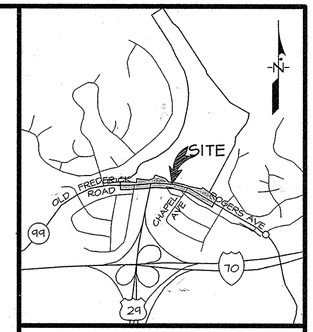
SHEET TITLE:
FOREST CONSERVATION NOTES AND DETAILS

SHEET NUMBER:
97



LEGEND

- EXISTING CONTOURS (2')
- EXISTING CONTOURS (10')
- PROPOSED CONTOUR (10')
- PROPOSED CONTOUR (2')
- PROPOSED STORM DRAIN — 24" RCP
- PROPOSED TREE LINE
- EXISTING TREE LINE
- ENVIRONMENTAL STREAM
- ENVIRONMENTAL STREAM — SD
- PROPOSED DRAINAGE DIVIDE
- PROPOSED CURB & GUTTER
- PROPOSED PAVEMENT
- MICRO-BIORETENTION
- PROPOSED EARTH DIKE — ED/A-1
- PROPOSED SUPER SILTFENCE — SSF
- LIMITS OF DISTURBANCE
- TEMP. GABION OUTLET STRUCTURE — TGOS
- PROPOSED STONE CHECK DAM — CD



VICINITY MAP
SCALE: 1" = 2000'

SEQUENCE OF CONSTRUCTION

As sediment control devices are installed, and with the permission of the sediment control inspector, grading can start in areas draining to those sediment control devices. In-lieu of installing a stabilized construction entrance, contractor shall sweep the pavement at the end of each work day.

Note: steps 1 to 4 may begin simultaneously

1. US 29 — WEEKS 1-8

   a. Install perimeter sediment controls including temporary gabion outlet structure and earth dikes at west end of site, west of US 29. Clear and grub for stockpile and contractor storage area as shown on plan. Stockpiling of material and equipment are to occur at this location. Clear and grub for remainder of site.

   b. Begin onsite grading and construction of swale and roadway excavation. Install base layer for road. Temporarily stabilize all areas of disturbance at the end of each work day. Permanently stabilize all areas as soon as final grades are attained; refer to landscaping plan (BDAI drawing nos. 8.033-Y & 8.034-Y). Install base paving layer.

   Note: Perimeter sediment control devices for this phase are to remain in place until the drainage areas contributing are stabilized.

2. US 29 Median — WEEKS 1-8

   a. Install perimeter sediment controls including temporary gabion outlet structure and earth dikes in the median of US route 29. Clear and grub remainder of site. Temporarily stabilize all areas of disturbance at the end of each work day.

   b. Begin installation of 4" PVC underdrain starting from the downstream end: STR 2 to 4. Install underdrains and begin grading in bio-swale including check dams. Permanently stabilize as final grades are attained.

   c. Once all contributing drainage areas are stabilized and with written permission from the sediment control inspector, remove sediment control devices and permanently stabilize remaining areas.

   Note: Contractor shall clean sweep pavement at the end of each working day.

3. Rogers Avenue — WEEKS 1-8

   a. Install stabilized construction entrance and perimeter sediment controls including super silt fence and silt fence. Clear and grub the site as necessary.

   b. Install silt fence downstream of storm drain outfall as shown on plan. Install riprap and headwall for STR 6. Remove downstream silt fence and install the riprap above the headwall after its installation.

   c. Begin installation of storm drain system starting at the downstream end: STR 6 to 10. Install inlet protection as soon as inlets are installed. Begin grading operation for road widening on Rogers Ave. including installation of base paving layer. Permanently stabilize as final grades are attained; refer to landscaping plan (BDAI drawing nos. 8.033-Y & 8.034-Y).

   d. Once contributing drainage areas are stabilized begin installation of micro-bioretention devices. Begin with the installation of underdrains. Permanently stabilize as final grades are attained.

   e. Once all contributing drainage areas are stabilized and with written permission from the sediment control inspector, remove sediment control devices and permanently stabilize remaining areas.

5. Begin mill and overlay operation and install final paving layer. — WEEKS 5-11

6. Once all areas are stabilized and with written permission from the sediment control inspector, remove remaining sediment control devices and permanently stabilize remaining areas. — WEEK 12

TOTAL TIME OF CONSTRUCTION: 3 MONTHS

ENGINEER'S CERTIFICATION

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

MORGAN M. WALUBITA, PE. 1/12/15
Signature of Engineer — Date

DEVELOPER'S CERTIFICATION

"I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

1/12/15
Signature of Developer — Date

CALL MISS UTILITY
1-800-257-7777
48 hrs, Before Excavation

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

John R. Robertson 1/15/15
Howard Soil Conservation District — Date

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

OWNER
PATAPSCO ASSOCIATES, LP
12116 ARBIE ROAD
SILVER SPRING, MD 20904
ATTN: MR. SIMON ROSENBERG
(301) 622-0645

DEVELOPER
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY
LANHAM, MD 20706
ATTN: BRIAN GOLDSTEIN
(301) 918-2455

GRADING, EROSION AND SEDIMENT CONTROL PLAN
THE ESTATES AT PATAPSCO PARK
DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

17

SHEET 98 ~~OF 114~~
SHA SHEET 11 OF 20

PROFESSIONAL CERTIFICATION.
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN M. WALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
1/13/15

DATE	DESCRIPTION / REVISIONS	BY

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

COPYRIGHT © 2014 BEN DYER ASSOCIATES, INC.

DRAWN BY: CEG | DESIGNED BY: MMM | CHECKED BY: MMM | RECORD NO.: J-B08034
SCALE: 1"=50' | DRWG. NO.: 40.009-Y
DATE: MAY 2014

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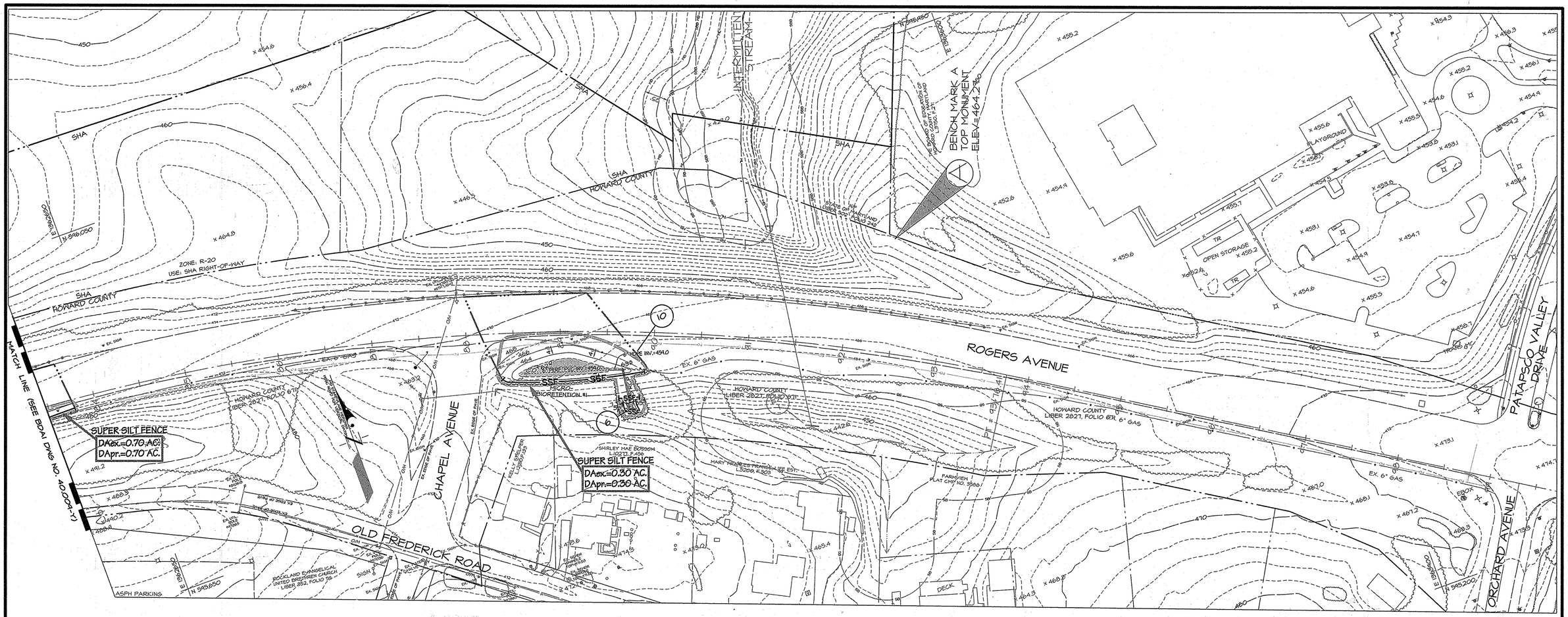

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

Approved: [signature] 1/15/15

GRADING, EROSION AND SEDIMENT CONRTOL PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2

HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'

0 50' 100' 150'

17

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 1/29/2015

CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 7-9-15

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 6-15-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

GENERAL NOTE:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

SHEET 99 ~~OF 109~~

SHA SHEET 12 OF 20

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

MORGAN M. WALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15

STATE OF MARYLAND MORGAN M. WALUBITA 34788 PROFESSIONAL ENGINEER

1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

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DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMW	MMW	J-B08034
SCALE 1"=50'			DRWG. NO. 40.010-Y
DATE MAY 2014			

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B-3 STANDARDS AND SPECIFICATIONS

FOR

LAND GRADING

Definition

Reshaping the existing land surface to provide suitable topography for building facilities and other site improvements.

Purpose

To provide erosion control and vegetative establishment for extreme changes in grade.

Conditions Where Practice Applies

Earth disturbances or extreme grade modifications on steep or long slopes.

Design Criteria

The grading plan should be based on the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, adjacent properties, drainage patterns, measures for water removal, and vegetative treatment, etc.Many jurisdictions have regulations and design procedures already established for land grading that must be followed. The plan must show existing and proposed contours for the area(s) to be graded including practices for erosion control, slope stabilization, and safe conveyance of runoff (e.g., waterways, lined channels, reverse benches, grade stabilization structures). The grading/construction plans are to include the phasing of these practices and consideration of the following:

1. Provisions to safely convey surface runoff to storm drains, protected outlets or stable water courses to ensure that surface runoff will not damage slopes or other graded areas.

2. Cut and fill slopes, stabilized with grasses, no steeper than 2:1. (Where the slope is to be mowed, the slope should be no steeper than 3:1, but 4:1 is preferred because of safety factors related to mowing steep slopes.) Slopes steeper than 2:1 require special design and stabilization considerations to be shown on the plans.

3. Benching per Detail B-3-1 whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slopes, when it exceeds 30 feet; and for 4:1 slopes, when it exceeds 40 feet. Locate benches to divide the slope face as equally as possible and to convey the water to a stable outlet. Soils, seeps, rock outcrops, etc. are to be taken into consideration when designing benches.

   a. Provide benches with a minimum width of six feet for ease of maintenance.

   b. Design benches with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Grade the longitudinal slope of the bench between 2 percent and 3 percent, unless accompanied by appropriate design and computations.

   c. The maximum allowable flow length within a bench is 800 feet unless accompanied by appropriate design and computations.

4. Diversion of surface water from the face of all cut and fill slopes using earth dikes or swales. Convey surface water down slope using a designed structure, and:

   a. Protect the face of all graded slopes from surface runoff until they are stabilized.

   b. Do not subject the slope's face to any concentrated flow of surface water such as from natural drainage ways, graded swales, downspouts, etc.

   c. Protect the face of the slope by special erosion control materials to include, but not be limited to, approved vegetative stabilization practices, riprap or other approved stabilization methods.

5. Serrated slope as shown in Detail B-3-2. The steepest allowable slope for ripable rock is 1.5:1. For non rock surfaces, the slopes are to be 2:1 or flatter. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization.

6. Subsurface drainage provisions. Provide subsurface drainage where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

7. Proximity to adjacent property. Slopes must not be created close to property lines without adequate protection against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.

8. Quality of fill material. Fill material must be free of brush, rubbish, logs, stumps, building debris, and other objectionable material. Do not place frozen materials in the fill nor place the fill material on a frozen foundation.

9. Stabilization. Stabilize all disturbed areas structurally or vegetatively in compliance with Section B-4 Standards and Specifications for Stabilization Practices.

Maintenance

The line, grade, and cross section of benching and serrated slopes must be maintained. Benches and serrated slopes must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization.

B-4 STANDARDS AND SPECIFICATIONS

FOR

VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 85 percent groundcover.

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.

3. If an area has between 40 and 84 percent groundcover, over-seed and fertilize using half of the rates originally specified.

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS

FOR

INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes

   1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.

   2. Construction sequence example (Refer to Figure B. 1):

      a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.

      b. Perform Phase 1 excavation, prepare seedbed, and stabilize.

      c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.

      d. Perform final phase excavation, prepare seedbed, and stabilize Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

B. Incremental Stabilization - Fill Slopes

   1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.

   2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.

   3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.

   4. Construction sequence example (Refer to Figure B.2):

      a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.

      b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.

      c. Place Phase 1 fill, prepare seedbed, and stabilize.

      d. Place Phase 2 fill, prepare seedbed, and stabilize.

      e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

   1. Temporary Stabilization

      a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.

      b. Apply fertilizer and lime as prescribed on the plans.

      c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

   2. Permanent Stabilization

      a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

      i. Soil pH between 6.0 and 7.0.

      ii. Soluble salts less than 500 parts per million (ppm).

      iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

      iv. Soil contains 1.5 percent minimum organic matter by weight.

      v. Soil contains sufficient pore space to permit adequate root penetration.

      b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

      c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

      d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

      e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

   1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

   2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey publication by the USDA.

   3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

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

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

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

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

   4. Areas having slopes steeper than 2:1 require special consideration and design.

   5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

      a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 ½ inches in diameter.

      b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

      c. 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.

   6. Topsoil Application

      a. Erosion and sediment control practices must be maintained when applying topsoil.

      b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

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

C. Soil Amendments (Fertilizer and Lime Specifications)

   1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

   2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

   3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 90 to 100 percent will pass through a #20 mesh sieve.

   4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

   5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

   1. Specifications

      a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

      b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

      c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

      d. Sod or seed must not 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.

   2. Application

      a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

         i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.

         ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

      b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

         i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.

         ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

      c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

         i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorus), 200 pounds per acre;

         ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

         iii. Mix seed and fertilizer on site and seed immediately and without interruption.

         iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

   1. Mulch Materials (in order of preference)

      a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.

      b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.

         i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

         ii. WCFM, including dye, must contain no germination or growth inhibiting factors.

         iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

         iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.

         v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

   2. Application

      a. Apply mulch to all seeded areas immediately after seeding.

      b. When straw mulch is used, spread it over all seeded areas at the rate of 2 bales per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.

      c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

   3. Anchoring

      a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:

         i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.

         ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at the dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

         iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petrosetl, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.

         iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS

FOR

TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

TEMPORARY SEEDING SUMMARY

No.	Species	Seeding Rate lbs/ac	lbs/1000 ft²	Seeding Depth	Seeding Dates		Fertilizer Rate (10-20-20)	Lime Rate
					From	To		
	Annual Ryegrass	40	1.0	0.5"	3/1-5/15 8/1-10/15	5/15-6/30 9/15-11/30	436 lb/ac (10 lbs/1000 s.f.)	2 tons/ac (90 lbs/1000 s.f.)
	Barley	96	2.2	1.0"	3/1-5/15 8/1-10/15	5/15-6/30 9/15-11/30		
	Oats	72	1.7	1.0"	3/1-5/15 8/1-10/15	5/15-6/30 9/15-11/30		
	Wheat	120	2.8	1.0"	3/1-5/15 8/1-10/15	5/15-6/30 9/15-12/30		
	Cereal Rye	112	2.8	1.0"	3/1-5/15 8/1-11/15	5/15-6/30 9/15-12/15		
	Foxtail Millet	30	0.7	0.5"	5/16-7/31	5/1-8/14		
	Pearl Millet	20	0.5	0.5"	5/16-7/31	5/1-8/14		

B-4-5 STANDARDS AND SPECIFICATIONS

FOR

PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures

   1. General Use

      a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

      b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

      c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.

      d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.

   2. Turfgrass Mixtures

      a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.

      b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

         i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of Central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

         ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

         iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes: Certified Tall Fescue Cultivars 45 to 100 percent; Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

         iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes: Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1.4 to 3 pounds per 1000 square feet.

      Notes:

      Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #17, "Turfgrass Cultivar Recommendations for Maryland"

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

   c. Ideal Times of Seeding for Turf Grass Mixtures

      Western MP: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MP: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MP, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

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

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

THIS DESIGN IS APPROVED FOR EROSION CONTROL AND SEDIMENT CONTROL ONLY

11/13/15

GRADING, EROSION AND SEDIMENT CONTROL PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

17

SHEET 100 ~~OF 114~~
SHA SHEET 13 OF 20

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

MORGAN M. MALUBITTA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15

4/13/15

DATE	DESCRIPTION / REVISIONS	BY

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

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DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMW	MMW	

SCALE: NOT TO SCALE — J-B08034
DATE: MAY 2014 — DRWG. NO. 40.011-Y

J:\LD7-PROJ\B08034-LD7\SHEETS\SEC-DET-01-05.dwg, 1/13/2015 10:02:22 AM,

PERMANENT SEEDING SUMMARY
CHOOSE ONE

Hardiness Zone (from Figure B.3): ________
Seed Mixture (from Table B.1): ________

No.	Species	Seeding Rates lbs/ac	Seeding Rates lbs/1000 ft²	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	P₂O₅	K₂O	Lime Rate
1	Switch Grass or Costal Panic Grass; Creeping Red Fescue; Partridge Pea	10 10 15 4	0.23 0.23 0.34 0.09	(6b) 3/1-5/15 (6b) 5/16-6/15 (7a) 2/15-4/30 (7a) 5/1-5/31	1/4" - 1/2"	45 lbs per acre (1 lbs/ 1000 sf)	90 lbs per acre (2 lbs/ 1000 sf)	90 lbs per acre (2 lbs/ 1000 sf)	2 tons/ac (90 lbs/ 1000 sf)
3	Deertongue; Canada Wild Rye; Common Lespedeza	20 3 10	0.46 0.07 0.23	(6b) 3/1-5/15 (6b) 5/16-6/15 (7a) 2/15-4/30 (7a) 5/1-5/31	1/4" - 1/2"				
11	Creeping Red Fescue; Chewings Fescue; Kentucky Bluegrass	30 30 20	0.69 0.69 0.46	(6b) 3/1-5/15 (6b) 8/1-10/15 (7a) 2/15-4/30 (7a) 8/15-10/31 (7a) 11/1-11/30*	1/4" - 1/2"				

*-Recommend adding Nurse Crop in this period

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

1. General Specifications

a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.

b. Sod must be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.

c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.

d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance

a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.

b. After the first week, sod watering is required as necessary to maintain adequate moisture content.

c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B-4-6 STANDARDS AND SPECIFICATIONS

FOR

SOIL STABILIZATION MATTING

Definition

Material used to temporarily or permanently stabilize channels or steep slopes until groundcover is established.

Purpose

To protect the soils until vegetation is established.

Conditions Where Practice Applies

On newly seeded surfaces to prevent the applied seed from washing out; in channels and on steep slopes where the flow has erosive velocities or convey clear water; on temporary swales, earth dikes, and perimeter dike swales as required by the respective design standard; and, on stream banks where moving water is likely to wash out new vegetative plantings.

Design Criteria

1. The soil stabilization matting that is used must withstand the flow velocities and shear stresses determined for the area, based on the 2-year, 24-hour frequency storm for temporary applications and the 10-year, 24-hour frequency storm for permanent applications. Designate on the plan the type of soil stabilization matting using the standard symbol and include the calculated shear stress for the respective treatment area.

2. Matting is required on permanent channels where the runoff velocity exceeds two and half feet per second (2.5 fps) or the shear stress exceeds two pounds per square foot (2 lbs/ft2). On temporary channels discharging to a sediment trapping practice, provide matting where the runoff velocity exceeds four feet per second (4 fps).

3. Temporary soil stabilization matting is made with degradable (lasts 6 months minimum), natural, or manmade fibers of uniform thickness and distribution of fibers throughout and is smolder resistant. The maximum permissible velocity for temporary matting is 6 feet per second.

4. Permanent soil stabilization matting is an open weave, synthetic material consisting of non-degradable fibers or elements of uniform thickness and distribution of weave throughout. The maximum permissible velocity for permanent matting is 8.5 feet per second.

Maintenance

Vegetation must be established and maintained so that the requirements for Adequate Vegetative Establishment are continuously met in accordance with Section B-4 Vegetative Stabilization.

B-4-7 STANDARDS AND SPECIFICATIONS

FOR

HEAVY USE AREA PROTECTION

Definition

The stabilization of areas frequently and intensively used by surfacing with suitable materials (e.g., mulch and aggregate).

Purpose

To provide a stable, non-eroding surface for areas frequently used and to improve the water quality from the runoff of these areas.

Conditions Where Practice Applies

This practice applies to intensively used areas (e.g., equipment and material storage, staging areas, heavily used travel lanes).

Criteria

1. A minimum 4-inch base course of crushed stone or other suitable materials including wood chips over nonwoven geotextile should be provided as specified in Section H-1 Materials.

2. Select the stabilizing material based on the intended use, desired maintenance frequency, and runoff control.

3. The transport of sediments, nutrients, oils, chemicals, particulate matter associated with vehicular traffic and equipment, and material storage needs to be considered in the selection of material. Additional control measures may be necessary to control some of these potential pollutants.

4. Surface erosion can be a problem on large heavy use areas. In these situations, measures to reduce the flow length of runoff or erosive velocities need to be considered.

Maintenance

The heavy use areas must be maintained in a condition that minimizes erosion. This may require adding suitable material, as specified on the approved plans, to maintain a clean surface.

B-4-8 STANDARDS AND SPECIFICATIONS

FOR

STOCKPILE AREA

Definition

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.

2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.

3. Runoff from the stockpile area must drain to a suitable sediment control practice.

4. Access the stockpile area from the upgrade side.

5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.

7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.

8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

Table B.1: Temporary Seeding for Site Stabilization

9. Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

10. For sandy soils, plant seeds at twice the depth listed above.

11. The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

H-1 STANDARDS AND SPECIFICATIONS

FOR

MATERIALS

Table H.1: Geotextile Fabrics

PROPERTY	TEST METHOD	WOVEN SLIT FILM GEOTEXTILE MD	WOVEN SLIT FILM GEOTEXTILE CD	WOVEN MONOFILAMENT GEOTEXTILE MD	WOVEN MONOFILAMENT GEOTEXTILE CD	NONWOVEN GEOTEXTILE MD	NONWOVEN GEOTEXTILE CD
		MINIMUM AVERAGE ROLL VALUE[1]					
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		900 lb		450 lb	
Apparent Opening Size[2]	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permittivity	ASTM D-4491	0.05 sec⁻¹		0.28 sec⁻¹		1.1 sec⁻¹	
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	70% strength		70% strength		70% strength	

[1] All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARV is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

[2] Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPEP) and conform to the values in Table H.1.

The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95 percent by weight of polyolefins or polyesters, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including selvages.

When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled taut over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

Table H.2: Stone Size

TYPE	SIZE RANGE	d_{50}	d_{100}	AASHTO	MIDSIZE WEIGHT[3]
NUMBER 57[1]	3/8 to 1 ½ inch	½ in	1 ½ in	M-43	N/A
NUMBER 1	2 to 3 inch	2 ½ in	3 in	M-43	N/A
RIPRAP[2] (CLASS 0)	4 TO 7 inch	5 ½ in	7 in	N/A	N/A
CLASS I	N/A	9 ½ in	15 in	N/A	40 lb
CLASS II	N/A	16 in	24 in	N/A	200 lb
CLASS III	N/A	23 in	34 in	N/A	600 lb

[1] This classification is to be used on the upstream face of stone outlets and check dams.

[2] This classification is to be used for gabions.

[3] Optimum gradation is 5 percent of the stone being above and 50 percent below the midsize.

Stone must be composed of a well graded mixture of stone sized so that fifty (50) percent of the pieces by weight are larger than the sizes determined by using the charts. A well graded mixture, as used herein, is defined as a mixture composed primarily of larger stone size but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone in such a mixture must not exceed the respective d_{100} selected from Table H.2. The d_{50} refers to the median diameter of the stone. This is the size for which 50 percent, by weight, will be smaller and 50 percent will be larger.

Note: Recycled concrete equivalent may be substituted for all stone classifications for temporary control measures only. Concrete broken into the sizes meeting the appropriate classification, containing no steel reinforcement, and having a minimum density of 150 pounds per cubic foot may be used as an equivalent.

Table H.3: Compost

Parameters[1]	Acceptable Range
pH	5.0 - 8.5
Moisture content	30% - 60%, wet weight basis
Organic matter content	25% - 65%, dry weight basis
Particle size	% passing a selected mesh size, dry weight basis 3 in (75 mm), 100% passing 1 in (25 mm), 90 - 100% passing 0.75 in (19 mm), 70 - 100% passing 0.25 in (6.4 mm), 30 - 60% passing 0.04 in (1 mm), 30% min. passing
Physical contaminants (manmade inerts)	<1% dry weight basis

Adapted from AASHTO Standards Specs for Compost Filter Socks and EPA Example Compost Filter Parameters.

[1] Recommended test methodologies are provided in Test Methods for the Examination of Composting and Compost (TMEC, The U.S Composting Council).

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Approved: Howard SCD 4/15/15

HOWARD SOIL CONSRVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).

2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within:

a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1

b) 7 days as to all other disturbed or graded areas on the project site.

4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec.B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

5. 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.

Site Analysis:

Total Area of Site __________ Acres
Area Disturbed 1.53 Acres
Area to be roofed or paved __________ Acres
Area to be vegetatively stabilized __________ Acres
Total Cut __________ Cu. Yds.
Total Fill __________ Cu. Yds.
Offsite waste/borrow are location ______________________

7. Any sediment control practice that is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.

8. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

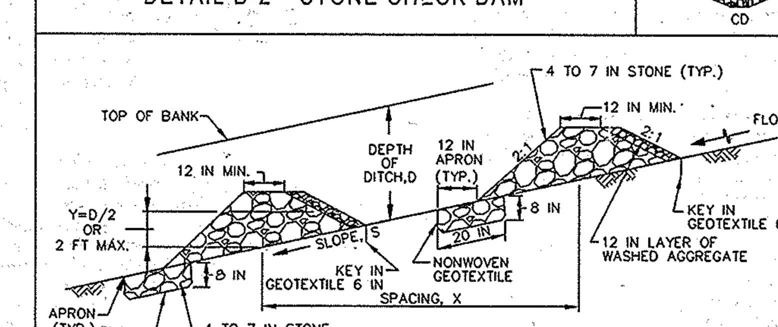
9. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.

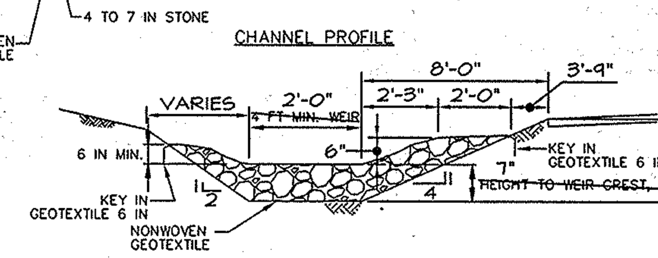
10. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.

11. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.

12. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has be stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time

MODIFIED
DETAIL D-2 STONE CHECK DAM
STANDARD SYMBOL CD



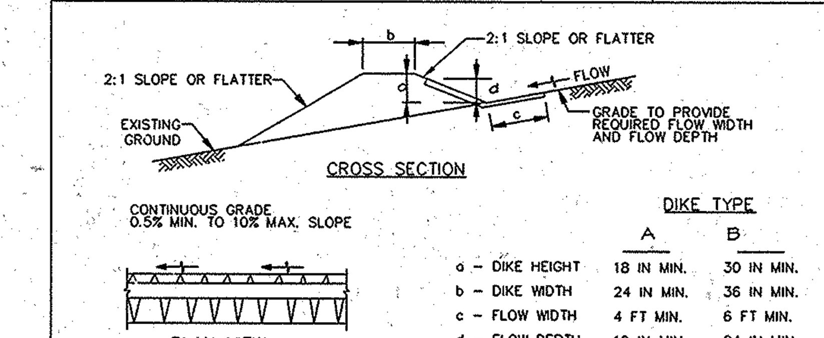


CONSTRUCTION SPECIFICATIONS

1. PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2, STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM TOP WIDTH OF 12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS. FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 FOOT THICK LAYER OF WASHED AGGREGATE (¾ TO 1½ INCH).
3. SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE-HALF THE DEPTH OF THE CHANNEL OR DITCH. TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-1 EARTH DIKE
STANDARD SYMBOL A-1
PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.



DIKE TYPE

	A	B
a - DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b - DIKE WIDTH	24 IN MIN.	36 IN MIN.
c - FLOW WIDTH	4 FT MIN.	6 FT MIN.
d - FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

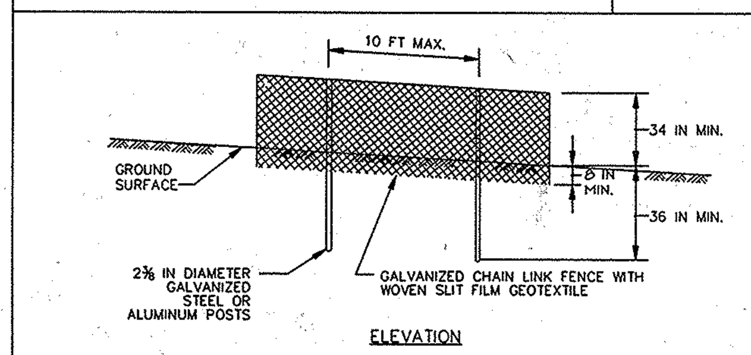
A-1 SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
A-2/B-2 SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
A-3/B-3 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

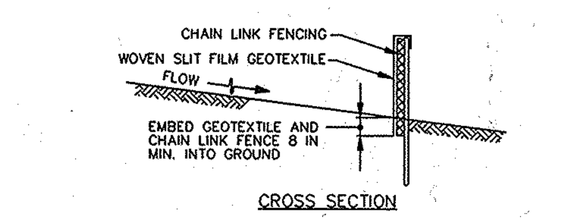
CONSTRUCTION SPECIFICATIONS

1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE
STANDARD SYMBOL SSF





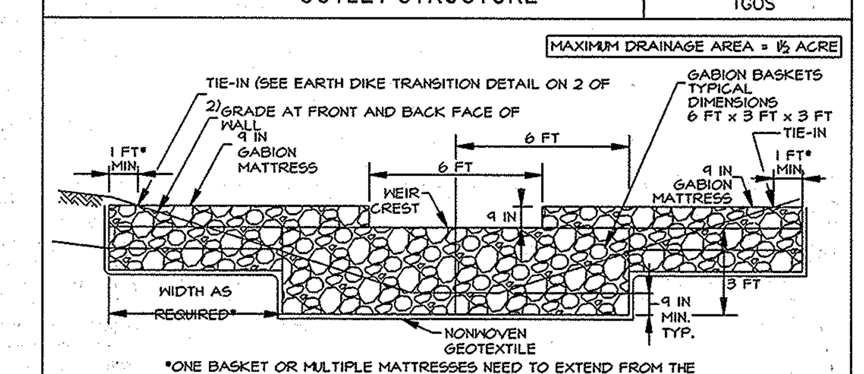
CONSTRUCTION SPECIFICATIONS

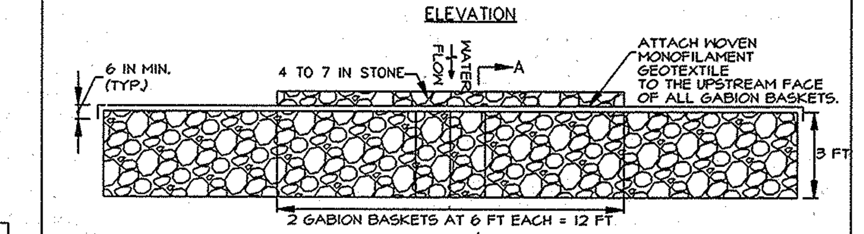
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

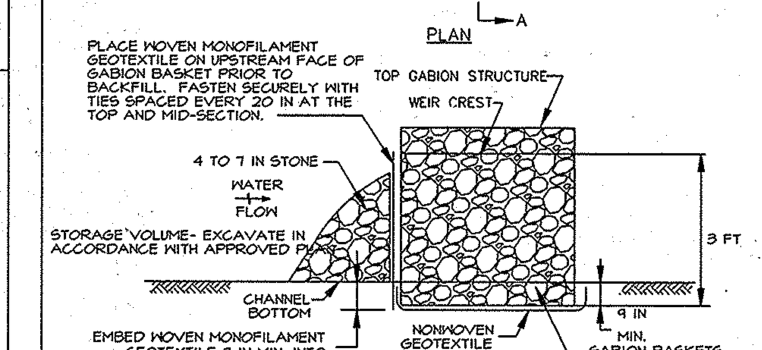
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE
STANDARD SYMBOL TGOS

MAXIMUM DRAINAGE AREA = ½ ACRE



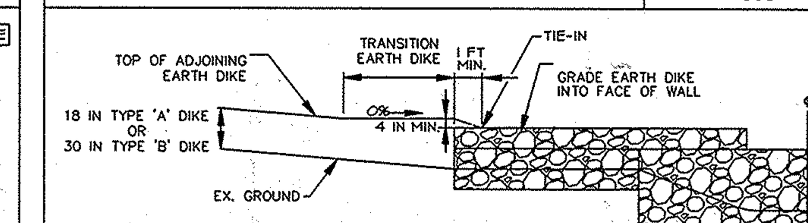




1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-8 TEMPORARY GABION OUTLET STRUCTURE
STANDARD SYMBOL TGOS



NOTES:
1. PROVIDE TRANSITION LENGTH AND HEIGHT AS SPECIFIED ON PLAN. HEIGHT OF TRANSITION EARTH DIKE MUST EXCEED 4 INCH MINIMUM FREEBOARD ABOVE TOP OF GABION AND EXTEND AT THIS ELEVATION UNTIL IT INTERCEPTS THE TOP OF ADJOINING EARTH DIKE.
2. PROVIDE POSITIVE DRAINAGE ALONG EARTH DIKE TO GABION OUTLET STRUCTURE.
3. COMPACT FILL.
4. SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED ON PLAN. BANK PROJECTIONS OR IRREGULARITIES ARE NOT ALLOWED.

CONSTRUCTION SPECIFICATIONS

1. PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS.
2. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER.
3. USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS.
4. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
5. EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9-INCHES. PROVIDE NONWOVEN GEOTEXTILE UNDER ALL GABIONS.
6. FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH.
7. MAKE THE WEIR CREST OF THE GABION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT GABIONS.
8. PROVIDE A MINIMUM WEIR CREST OF 6 FEET.
9. ATTACH WOVEN MONOFILAMENT GEOTEXTILE TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7 INCH STONE.
10. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12 INCHES OF THE WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
11. UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

GRADING, EROSION AND SEDIMENT CONTROL PLAN
THE ESTATES AT PATAPSCO PARK
DISTRICT No. 2
HOWARD COUNTY, MARYLAND

17

SHEET 101 ~~OF 114~~
SHA SHEET 14 OF 20

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN M. WALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

COPYRIGHT © 2014 BEN DYER ASSOCIATES, INC.

DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMW	MMW	J-B08034
SCALE NOT TO SCALE			DRWG. NO.
DATE MAY 2014			40.012-Y

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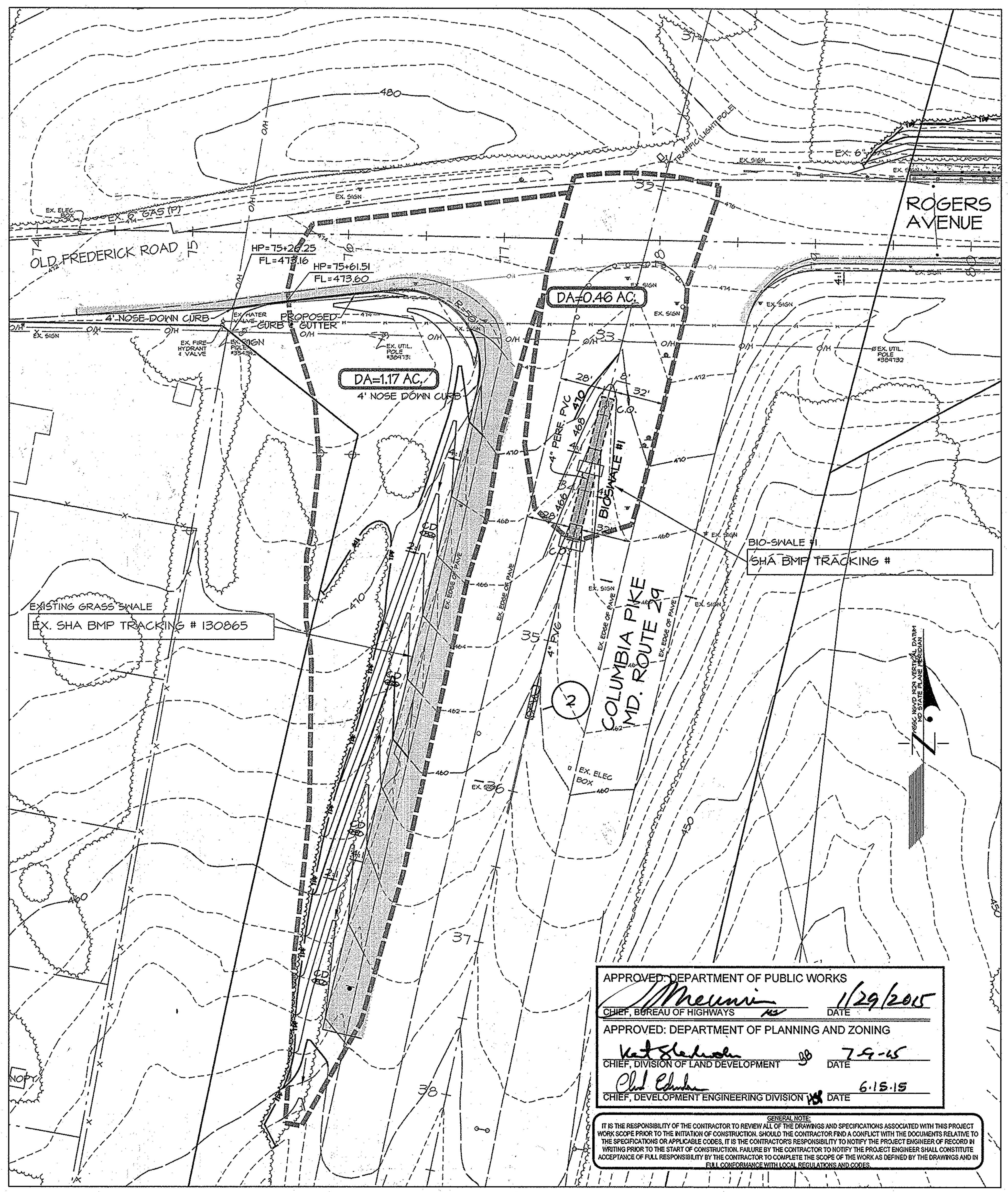

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

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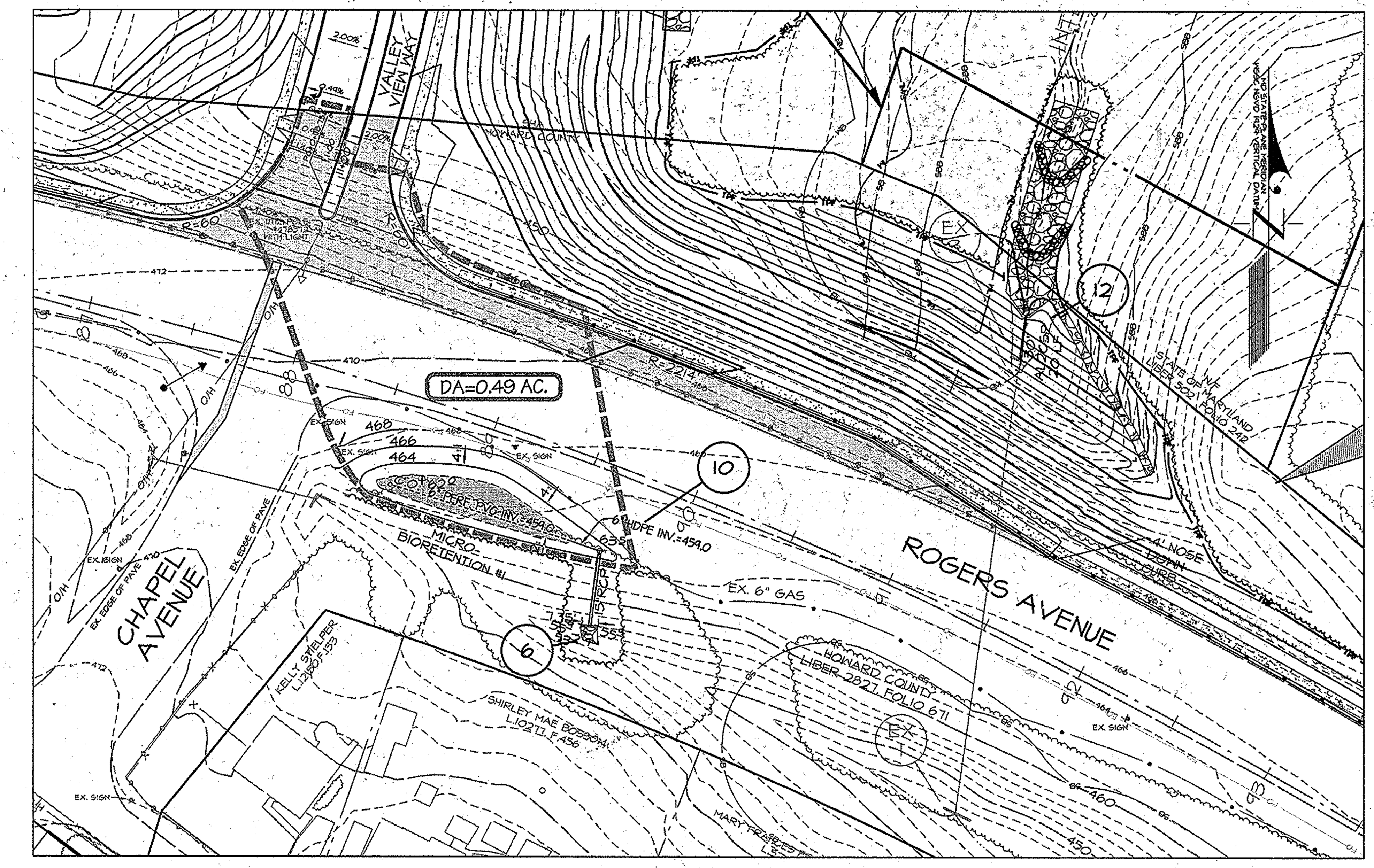


MARYLAND STATE HIGHWAY ADMINISTRATION
STORMWATER MANAGEMENT FACILITY DETAILS

TYPE OF BMP	STATE TRACKING ID	TOTAL AREA BEING TREATED (acres)	LAND USES FOR AREA BEING TREATED BY THE BMP	AMOUNT OF SHA IMPERVIOUS AREA TO BE TREATED BY THE BMP (acres)	COORDINATES	OWNER AND PARTY RESPONSIBLE FOR MAINTENANCE OF THE BMP:
BIOSWALE	# 132192	0.46	ROADWAY (PAVED)	0.19	N 595,750 E 1,361,982	MARYLAND SHA

Summary Table For Proposed Devices

Facility	Drainage Area (sf)	Impervious Area (ac)	Rv	Af (sf)	Dimension (ft)	Average Depth (ft)	ESDv Required (cf)	ESDv Provided (cf)	Pe Required (in)	Pe Provided (in)
BIO-SWALE #1	20,038	0.19	0.95	568	85' X 8'	4.5	966	1,401	2.0"	2.0"
MICRO-BIORETENTION #1	21,344	0.37	0.95	1,211	85' X 14'	3.0	3,304	3962*	2.6"	2.6"
TOTAL:	41,382	0.56	-	1,779	-	-	4,270	1,401	-	-

*NOTE: THE PROVIDED ESDv OF 3,962 cf IS DIVIDED BETWEEN 2,509 cf MICRO-BIORETENTION ABOVE SURFACE AND 1,453 cf IN THE BIO-MEDIA.

SHA BIO-SWALE #1

STORMWATER MANAGEMENT AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE STORMWATER MANAGEMENT FACILITY (FACILITIES) SHOWN ON THE PLANS AND INDIVIDUALLY IDENTIFIED BELOW HAS (HAVE) BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS INCLUDED UNDER THE MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVAL, NUMBER ___ - SF -____ EXCEPT AS NOTED IN GREEN ON THE "AS-BUILT" DRAWINGS. FURTHERMORE, THE GREEN-NOTED EXCEPTIONS DO NOT ADVERSELY AFFECT THE DESIGN AND/OR THE INTENDED PERFORMANCE OF THE FACILITY (FACILITIES).

EACH SWM FACILITY IS IDENTIFIED INDIVIDUALLY BY A UNIQUE SWM FACILITY NUMBER

Name (Printed) ________ Signature ________

Maryland Registration Number ________ Date ________

PROFESSIONAL CERTIFICATION: "I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. ________, EXPIRATION DATE________."

"CERTIFY" MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED ON SUFFICIENT AND APPROPRIATE ONSITE INSPECTIONS AND MATERIAL TESTS CONDUCTED DURING CONSTRUCTION.

NOTE: AS-BUILT CHECKLISTS CONTAINED IN THE CONTRACT DRAWINGS SHALL BE COMPLETED BY THE AS-BUILT INSPECTOR AND SUBMITTED TO THE SHA ALONG WITH THIS CERTIFICATION.

SHA BIO-SWALE #1

As-Built Inspection Tabulations/Checklist for BMP Number: 132192
MDE No.:

Accepted by MDE:

Name ________ Date ________

MICROBIORETENTION MDE TABULATIONS

ACTIVITY	DESIGNED	AS-BUILT	DIFFERENCE	INSPECTOR INITIALS	ACCEPTANCE DATE
As-Built Survey	N/A				
Forebay Area					
Forebay Volume					
Filter Bed Area (L x W)					
Filter Bed Surface Elevation					
Filter Inlet Pipe Size					
Filter Inlet Pipe Elevation					
Filter Inlet Pipe Invert					
Outlet Pipe (Underdrain) Size					
Outlet Pipe (Underdrain) Elevation					
Observation well installed according to plans					

THE FOLLOWING STANDARDS (CONSTRUCTION AND TEMPORARY TRAFFIC CONTROL) ARE REQUIRED FOR THIS PROJECT:

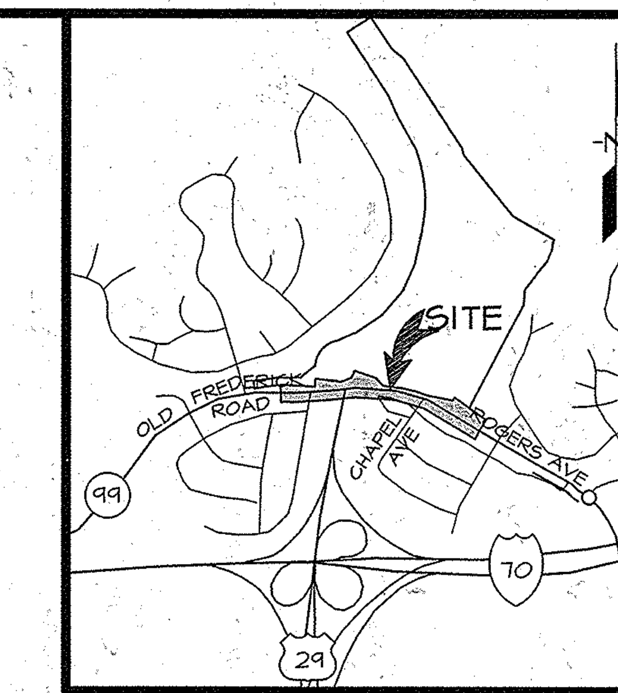
a. MD-350.01 - STANDARD END SUPPORT WALL METAL OR CONCRETE ROUND PIPE
b. MD-374.51 - PRECAST OR CAST IN PLACE SQUARE AND RECTANGULAR COG INLETS 5', 10', 15', & 20'
c. MD-605.01 - TRAFFIC BARRIER W-BEAM WITH TYPE 'A' END ANCHORAGE (SINGLE RAIL)
d. MD-605.31 - TRAFFIC BARRIER W-BEAM PLACEMENT
e. MD-605.03 - TYPE 'C' TRAFFIC BARRIER END TREATMENT
f. MD-620.02 - STANDARD TYPES 'A' AND 'B' CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER
g. MD-620.02-01 - STANDARD TYPES 'C' AND 'D' CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER
h. MD-655.12 - SIDEWALK RAMPS PARALLEL
i. MD-104.02-01 - Shoulder work/2-lane, 2-way greater than 40 MPH
j. MD-104.02-09 - Flagging operation/2-lane, 2-way greater than 40 MPH
k. MD-104.04-01 - Shoulder work/divide uncon. greater than 40 MPH
l. MD-104.04-05 - Right lane closure/divided uncon. greater than 40 MPH

FOR ALL STANDARDS REFERRED TO ON THE PLANS THE CONTRACTOR MUST GO TO THE BOOK OF STANDARDS WHICH WILL HAVE THE MOST CURRENT VERSION. THE BOOK OF STANDARDS CAN BE ACCESSED AT:

http://apps.roads.maryland.gov/businesswithsha/bizStdsSpecs/desManualStdPub/publicationsonline/ohd/bookstd/index.asp

SHA SHEET INDEX

SHEET NO.	DRAWING	DRAWING NO.
1 OF 20	COVER SHEET & DRAINAGE AREA MAP	8.025-Y
2 OF 20	STORM DRAIN, STORMWATER MANAGEMENT & ROAD IMPROVEMENT PLAN	8.026-Y
3 OF 20	STORM DRAIN, STORMWATER MANAGEMENT & ROAD IMPROVEMENT PLAN CONT.	8.027-Y
4 OF 20	STORM DRAIN PROFILES & STANDARD DETAIL SHEET	8.028-Y
5 OF 20	MICRO-BIORETENTION SPECEFICATIONS	8.029-Y
6 OF 20	MICRO-BIORETENTION LANDSCAPING PLAN	8.030-Y
7 OF 20	PAVEMENT MARKING & TRAFFIC CONTROL PLAN	8.031-Y
8 OF 20	PAVEMENT MARKING & TRAFFIC CONTROL PLAN CONT.	8.032-Y
9 OF 20	LANDSCAPING PLAN	8.033-Y
10 OF 20	LANDSCAPING PLAN CONT.	8.034-Y
11 OF 20	GRADING, EROSION & SEDIMENT CONTROL PLAN	40.009-Y
12 OF 20	GRADING, EROSION & SEDIMENT CONTROL PLAN CONT.	40.010-Y
13 OF 20	GRADING, EROSION & SEDIMENT CONTROL STANDARD SPECIFICATIONS AND DETAIL SHEET	40.011-Y
14 OF 20	GRADING, EROSION & SEDIMENT CONTROL STANDARD SPECIFICATIONS AND DETAIL SHEET CONT.	40.012-Y
15 OF 20	GENERAL NOTES	SN-1
16 OF 20	PAVEMENT MARKING & SIGNING PLAN	SN-2.1
17 OF 20	GUIDE SIGN SHEET	SN-4
18 OF 20	PAVEMENT MARKING & SIGNING PLAN LEGEND	SN-11
19 OF 20	TRAFFIC SIGNAL PLAN	SG-01
20 OF 20	GENERAL INFORMATION PLAN	SG-02



VICINITY MAP
SCALE: 1" = 2000'

LEGEND

- EXISTING CONTOURS (2')
- EXISTING CONTOURS (10')
- PROPOSED CONTOUR (10')
- PROPOSED CONTOUR (2')
- PROPOSED STORM DRAIN
- EXISTING WATER
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED TREE LINE
- EXISTING TREE LINE
- ENVIRONMENTAL STREAM
- ENVIRONMENTAL STREAM
- PROPOSED DRAINAGE DIVIDE
- PROPOSED CURB & GUTTER
- PROPOSED STONE CHECK DAM
- PROPOSED PAVEMENT
- MICRO-BIORETENTION
- MILL & OVERLAY

EXISTING UTILITY NOTES

1. NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION OR CONSTRUCTION FOR THEM TO MARK THE LOCATION OF EXISTING UTILITIES.
2. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF THE MAINS BY DIGGING TEST PITS BY HAND AT UTILITY CROSSINGS WELL IN ADVANCE OF TRENCHING. IF CLEARANCES OF THE LINES ARE LESS THAN SHOWN ON THIS PLAN OR LESS THAN TWELVE INCHES, CONTACT THE ENGINEER AND OTHER INVOLVED UTILITY COMPANIES BEFORE PROCEEDING WITH CONSTRUCTION.
3. OMISSIONS AND/OR ADDITIONS OF UTILITIES FOUND DURING CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF ANY CONTRACTOR ENGAGED IN EXCAVATION AT THIS SITE. BEN DYER ASSOCIATES, INC. (BDAI) SHALL BE NOTIFIED IMMEDIATELY OF ANY AND ALL UTILITY INFORMATION, OMISSIONS AND ADDITIONS FOUND BY ANY CONTRACTOR.
4. DUE TO THE PROXIMITY OF LIVE UNDERGROUND AND OVERHEAD UTILITIES, BDAI IS NOT RESPONSIBLE FOR ANY DAMAGE OR INJURY SUSTAINED DURING CONSTRUCTION BY ANY PERSONS, TRUCKS, TRAILERS, OR EQUIPMENT USED ON OR ADJACENT TO THE SITE.

SHA COVER SHEET
DRAINAGE AREA MAP

PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

17

SHEET 102 ~~OF 114~~
SHA SHEET 1 OF 20

OWNER
PATAPSCO ASSOCIATES, LP
12116 ARBIE ROAD
SILVER SPRING, MD 20904
ATTN: MR. SIMON ROSENBERG
(301) 622-0645

DEVELOPER
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY
LANHAM, MD 20706
ATTN: BRIAN GOLDSTEIN
(301) 918-2955

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN M. WALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
1/13/15

STATE OF MARYLAND — MORGAN M. WALUBITA — 34788 — PROFESSIONAL ENGINEER

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

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DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMW	MMW	J-B08034
SCALE 1"=50'			DRWG. NO.
DATE MAY 2014			8.025-Y

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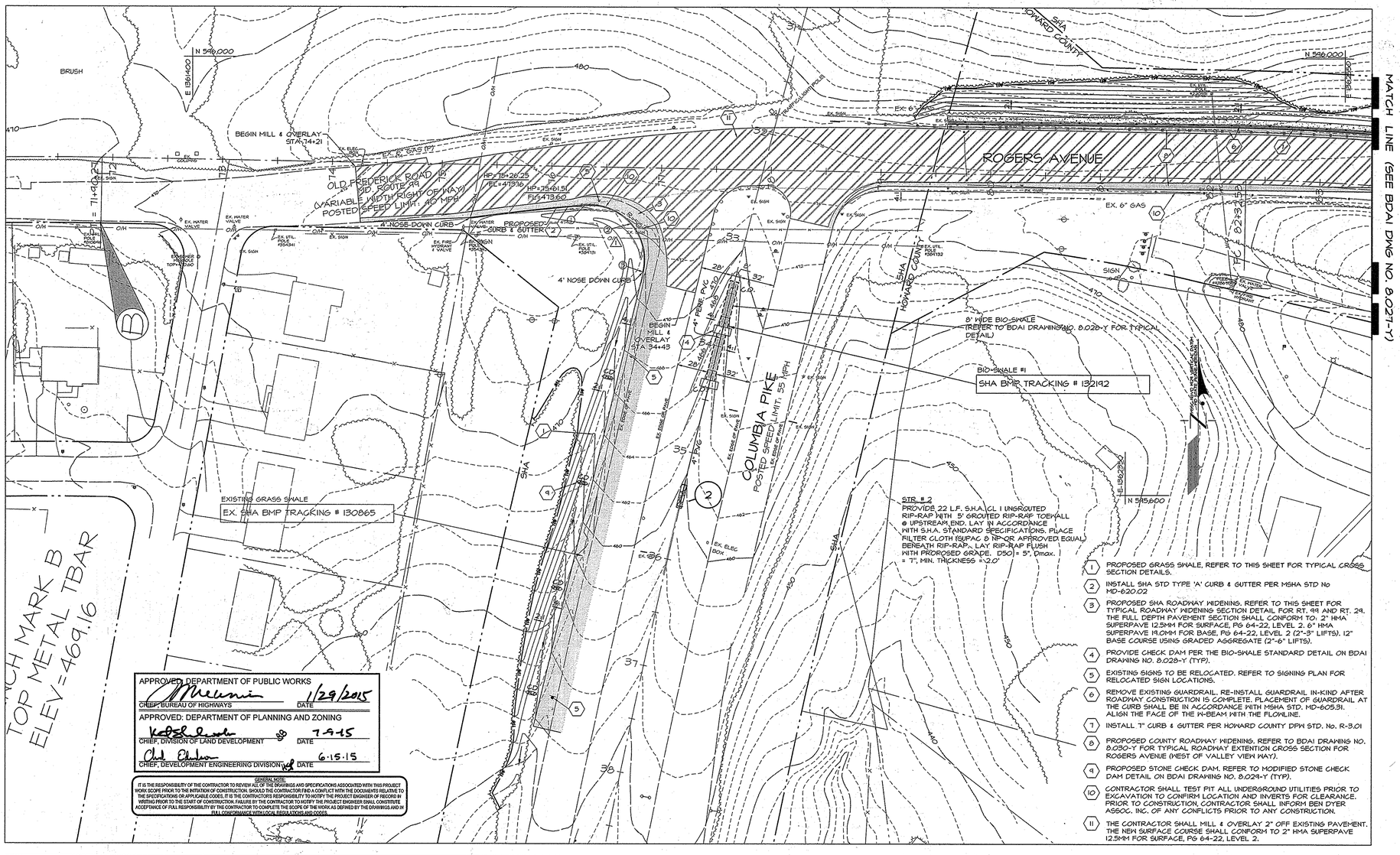


STR. # 2
PROVIDE 22 L.F. S.H.A. CL. 1 UNGROUTED RIP-RAP WITH 5' GROUTED RIP-RAP TOEWALL @ UPSTREAM END. LAY IN ACCORDANCE WITH S.H.A. STANDARD SPECIFICATIONS. PLACE FILTER CLOTH (GUPAC 8 NP-OR APPROVED EQUAL) BENEATH RIP-RAP. LAY RIP-RAP FLUSH WITH PROPOSED GRADE. D50 = 5", Dmax. = 7", MIN. THICKNESS = 2.0'

1. PROPOSED GRASS SWALE, REFER TO THIS SHEET FOR TYPICAL CROSS SECTION DETAILS.
2. INSTALL SHA STD TYPE 'A' CURB & GUTTER PER MSHA STD No MD-620.02
3. PROPOSED SHA ROADWAY WIDENING. REFER TO THIS SHEET FOR TYPICAL ROADWAY WIDENING SECTION DETAIL FOR RT. 99 AND RT. 29. THE FULL DEPTH PAVEMENT SECTION SHALL CONFORM TO: 2" HMA SUPERPAVE 12.5MM FOR SURFACE, PG 64-22, LEVEL 2. 6" HMA SUPERPAVE 19.0MM FOR BASE, PG 64-22, LEVEL 2 (2"-3" LIFTS). 12" BASE COURSE USING GRADED AGGREGATE (2"-6" LIFTS).
4. PROVIDE CHECK DAM PER THE BIO-SWALE STANDARD DETAIL ON BDAI DRAWING NO. 8.028-Y (TYP).
5. EXISTING SIGNS TO BE RELOCATED. REFER TO SIGNING PLAN FOR RELOCATED SIGN LOCATIONS.
6. REMOVE EXISTING GUARDRAIL. RE-INSTALL GUARDRAIL IN-KIND AFTER ROADWAY CONSTRUCTION IS COMPLETE. PLACEMENT OF GUARDRAIL AT THE CURB SHALL BE IN ACCORDANCE WITH MSHA STD. MD-605.31. ALIGN THE FACE OF THE W-BEAM WITH THE FLOWLINE.
7. INSTALL 7" CURB & GUTTER PER HOWARD COUNTY DPW STD. No. R-3.01
8. PROPOSED COUNTY ROADWAY WIDENING. REFER TO BDAI DRAWING NO. 8.030-Y FOR TYPICAL ROADWAY EXTENTION CROSS SECTION FOR ROGERS AVENUE (WEST OF VALLEY VIEW WAY).
9. PROPOSED STONE CHECK DAM. REFER TO MODIFIED STONE CHECK DAM DETAIL ON BDAI DRAWING NO. 8.024-Y (TYP).
10. CONTRACTOR SHALL TEST PIT ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION TO CONFIRM LOCATION AND INVERTS FOR CLEARANCE. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL INFORM BEN DYER ASSOC. INC. OF ANY CONFLICTS PRIOR TO ANY CONSTRUCTION.
11. THE CONTRACTOR SHALL MILL & OVERLAY 2" OFF EXISTING PAVEMENT. THE NEW SURFACE COURSE SHALL CONFORM TO 2" HMA SUPERPAVE 12.5MM FOR SURFACE, PG 64-22, LEVEL 2.

CALL MISS UTILITY
1-800-257-7777
48 hrs, Before Excavation

PROPOSED BIO-SWALE #1 CENTER LINE ELEVATIONS	
STATION	C/L ELEV.
33+09.49	470.00*
33+34.33	467.43
33+50	467.00
34+00	465.00
34+34.33	463.43

COLOMBIA PIKE (RT. 29) PAVEMENT ELEVATIONS		
STATION	OFFSET	F/L ELEV.
33+50	83.53' R	470.99
33+50.55 (PT)	83.52' R	470.97
34+00	82.48' R	464.15
34+50	82.22' R	466.87
35+00	82.23' R	464.40
35+50	82.46' R	462.03
36+00	82.91' R	459.62
36+29.96	83.28' R	458.00
36+29.92	10.80' R	457.75*

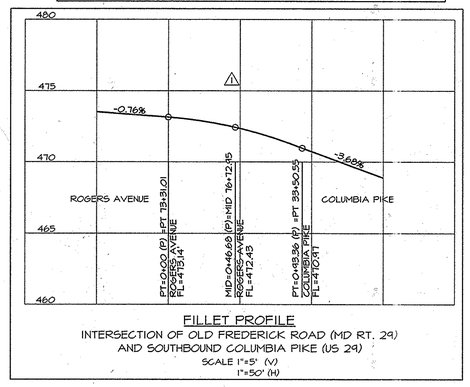
OLD FREDRICK ROAD PAVEMENT & ADD. CURB ELEVATIONS		
STATION	OFFSET	F/L ELEV.
74+26.38	54.87' R	472.58*
74+50	54.03' R	472.78
75+00	50.83' R	473.00
75+26.25	49.15' R	473.16
75+50	45.50' R	473.3
76+00	38.80' R	473.38
76+72.95(MID)	51.51' R	472.43
76+31.01(PC)	35.30' R	473.14

OLD FREDERICK ROAD GRASS SWALE CENTER LINE ELEVATIONS		
STATION	OFFSET	C/L ELEV.
75+91.20	45.36' R	474.00
76+00	45.18' R	473.63
76+37.84(PC)	41.58' R	472.04
76+50	50.24' R	471.62
76+62.47(PCC)	58.61' R	471.02

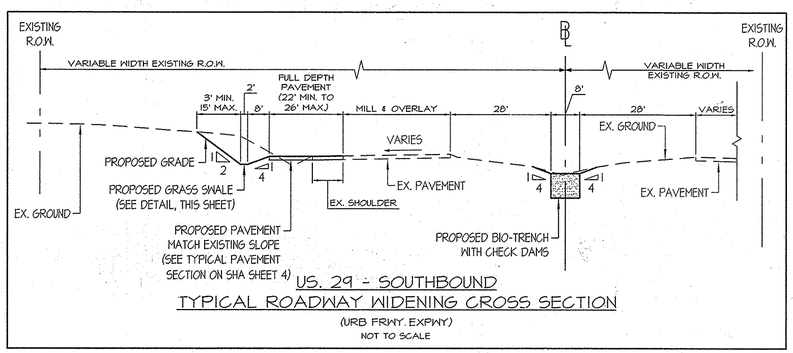
COLUMBIA PIKE (RT. 29) GRASS SWALE CENTER LINE ELEVATIONS		
STATION	OFFSET	C/L ELEV.
33+41.91(PCC)	97.20' R	470.00
33+50	95.28' R	469.55
33+63.04(MID)	93.04' R	468.84
33+84.52(PT)	91.54' R	467.67
34+00	91.43' R	467.03
34+50	91.22' R	464.71
35+00	91.23' R	462.18
35+50	91.46' R	459.77
36+00	91.91' R	457.05
36+50	92.58' R	454.31
37+00	93.47' R	452.25
37+39.74(PC)	94.33' R	451.14
37+50	94.47' R	450.88
37+61.71(MID)	94.38' R	450.58
37+83.66(PT)	93.49' R	450.01
38+00	92.48' R	449.15
38+44.84	84.84' R	446.70*

OLD FREDERICK ROAD AND SOUTHBOUND COLUMBIA PIKE PAVEMENT & ADD. CURB ELEVATIONS							
#	STATION	OFFSET	F/L ELEV.	#	STATION	OFFSET	F/L ELEV.
①	76+31.01	34.64' L	473.14	⑤	33+50.54	82.85' L	470.97
②	76+72.95	51.07' L	472.43				

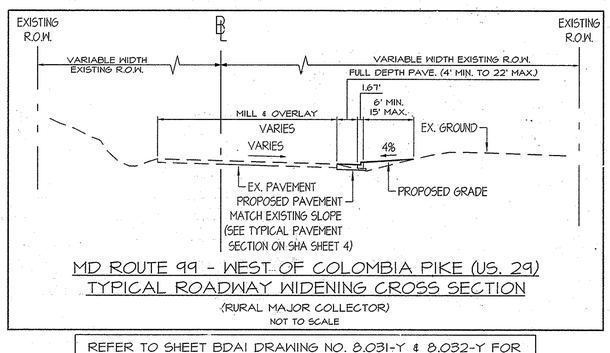
L=LEFT R=RIGHT F/L=FLOW LINE PL= PROPERTY LINE *=MEET EXISTING



FILLET PROFILE
INTERSECTION OF OLD FREDERICK ROAD (MD RT. 29) AND SOUTHBOUND COLUMBIA PIKE (US 29)
SCALE 1"=5' (V)
1"=50' (H)

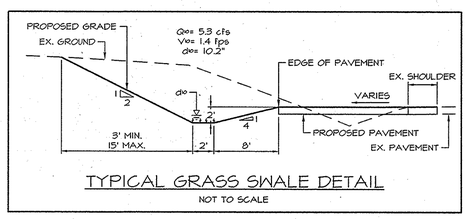


US. 29 - SOUTHBOUND
TYPICAL ROADWAY WIDENING CROSS SECTION
(URB FRWY. EXPWY)
NOT TO SCALE



MD ROUTE 99 - WEST OF COLOMBIA PIKE (US. 29)
TYPICAL ROADWAY WIDENING CROSS SECTION
(RURAL MAJOR COLLECTOR)
NOT TO SCALE

REFER TO SHEET BDAI DRAWING NO. 8.031-Y & 8.032-Y FOR SIGNAGE PAVEMENT MARKINGS AND TRAFFIC CONTROL PLAN



TYPICAL GRASS SWALE DETAIL
NOT TO SCALE

PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

17

SHEET 103 ~~OF 114~~
SHA SHEET 2 OF 20

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN M. MALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	
DATE MAY 2014		

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000
COPYRIGHT © 2014 BEN DYER ASSOCIATES, INC.

DRAWN BY: CEG | DESIGNED BY: MMM | CHECKED BY: MMM | RECORD NO.
SCALE 1"=50' | J-B08034
DATE MAY 2014 | DRWG. NO. 8.026-Y

J:\LD7-PROJ\B08034-LD7\SHEETS\RI-01-02.dwg, 1/13/2015 10:02:09 AM,

APPROVED: DEPARTMENT OF PUBLIC WORKS

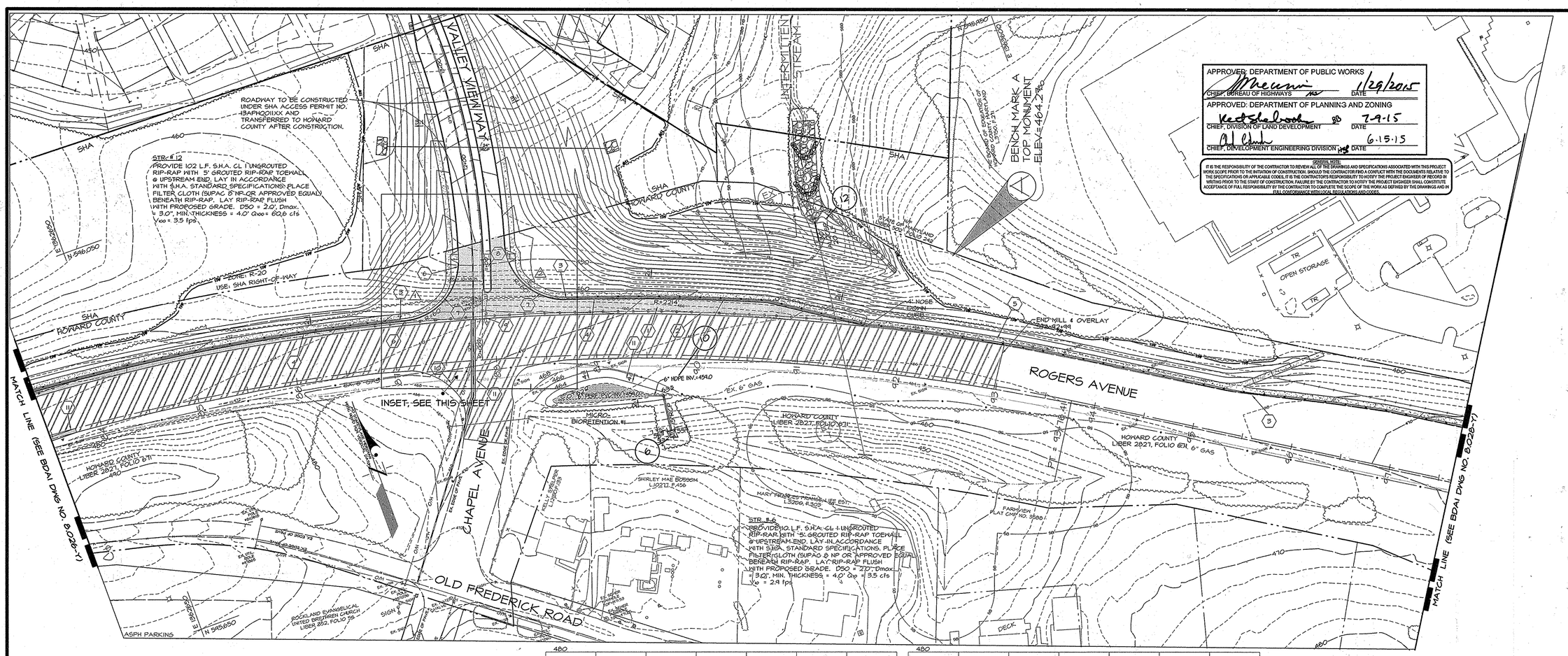
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

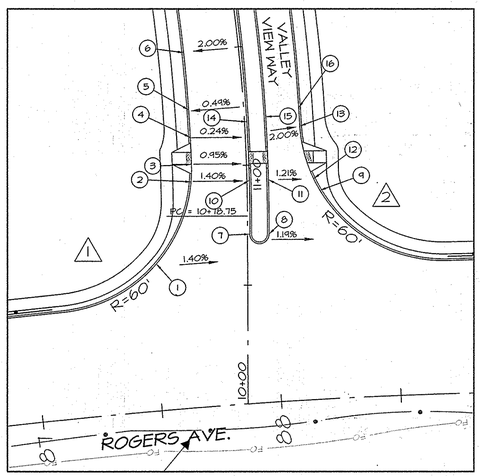
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

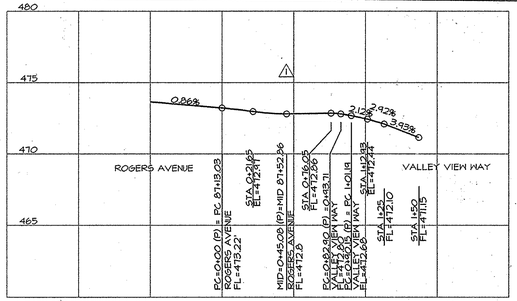




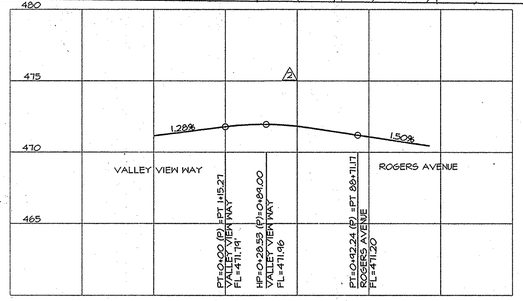
INSET
SCALE: 1"=30'

ROGERS AVE. PAVEMENT & FLOWLINE ELEVATIONS		
STATION	OFFSET	F/L ELEV.
79+59.93	40.87' L	476.71*
79+59.90	45.02' L	476.63
80+00	45.33' L	476.95
80+50	45.73' L	476.92
81+00	46.12' L	476.95
81+50	46.52' L	479.94
82+00	46.91' L	476.92
82+50	46.88' L	476.84
83+00	46.63' L	476.80
83+50	46.34' L	476.66
84+00	46.18' L	476.36
84+50	45.98' L	476.01
85+00	45.80' L	475.61
85+50	45.64' L	475.12
86+00	45.50' L	474.58
86+50	45.38' L	473.98
87+00	45.27' L	473.33
87+00	45.27' L	473.33
87+18.03 (PC)	45.25' L	473.22
88+71.17 (PC)	56.07' L	471.20
89+00	56.06' L	470.77
89+50	56.06' L	469.93
90+00	56.07' L	469.18
90+50	56.11' L	468.54
90+66.2	56.12' L	468.42
91+00	50.36' L	468.06
91+50	42.86' L	467.70
91+65.21	40.85' L	457.64*

L=LEFT R=RIGHT — F/L=FLOW LINE; FL= PROPERTY LINE; * = MEET EXISTING IN LINE & ON GRADE



FILLET PROFILE
ROGERS AVENUE AND VALLEY VIEW WAY
(NORTHWEST)
SCALE 1"=5' (V)
1"=50' (H)



FILLET PROFILE
ROGERS AVENUE AND VALLEY VIEW WAY
(NORTHEAST)
SCALE 1"=5' (V)
1"=50' (H)

VALLEY VIEW WAY PAVEMENT & ADD. CURB ELEVATIONS							
#	STATION	OFFSET	F/L ELEV.	#	STATION	OFFSET	F/L ELEV.
①	10+54.00	38.18' L	472.80	⑦	10+66.70	1.00' R	472.26
②	10+93.71	23.4' L	472.80	⑧	10+67.01	9.00' R	472.19
③	11+01.19 (PT)	23.0' L	472.66	⑨	10+84 (MID)	30.40' R	471.96
④	11+12.93 (PL)	23.0' L	472.44	⑩	10+93.71	1.00' R	471.43
⑤	11+25	23.0' L	472.10	⑪	10+93.71	9.00' R	472.30
⑥	11+50	23.0' L	471.15	⑫	10+93.71	27.71' R	471.96
				⑬	11+15.21 (PT)	23.0' R	471.74
				⑭	11+18.26 (PL)	1.00' (R)	472.25
				⑮	11+19.95 (PL)	9.00' R	472.11
				⑯	11+22.83 (PL)	23.0' R	471.69

F/L=FLOW LINE; PL= PROPERTY LINE; L=LEFT R=RIGHT; * = MEET EXISTING IN LINE & ON GRADE

1. PROPOSED COUNTY ROADWAY WIDENING. REFER TO BDAI DRAWING NO. 8.030-Y FOR TYPICAL ROADWAY EXTENTION CROSS SECTION FOR ROGERS AVENUE (EAST OF VALLEY VIEW WAY).
2. REMOVE EXISTING GUARDRAIL. RE-INSTALL GUARDRAIL IN KIND AFTER ROADWAY CONSTRUCTION IS COMPLETE. PLACEMENT OF GUARDRAIL AT THE CURB SHALL BE IN ACCORDANCE WITH MSHA STANDARD NO. MD-605.31.
3. INSTALL GUARDRAIL END TREATMENT IN ACCORDANCE WITH MSHA STANDARD NO. MD-605.03.
4. INSTALL 1' CURB & GUTTER PER HOWARD COUNTY DPW STANDARD NO. R-3.01
5. INSTALL 4' SIDEWALK PER HOWARD COUNTY DPW STANDARD NO. R-3.05
6. SPILL GUTTER BEGIN AND END
7. INSTALL SIDEWALK RAMP IN ACCORDANCE WITH HOWARD COUNTY DPW STANDARD NO. R-4.01
8. PROPOSED ENTRANCE FEATURE. REFER TO FINAL SITE PLAN FOR DETAILS.
9. THE EXISTING OVERHEAD WOOD POLE AND STREET LIGHT FISTURE WILL BE REMOVED BY BGE. CONTACT PARRIS ZIRKENBACH (410-313-5732) TO MAKE ARRANGEMENTS FOR REMOVAL. PLEASE ALLOW 3 MONTHS FROM NOTIFICATION FOR REMOVAL.
10. HOWARD COUNTY TRAFFIC DIVISION WILL COORDIMATE WITH BGE FOR THE INSTALLATION OF THE NEW STREET LIGHT AND WOOD POLE AT THIS LOACATION.
11. CONTRACTOR SHALL TEST PIT ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION TO CONFIRM LOCATION AND INVERTS FOR CLEARANCE. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL INFORM BEN DYER ASSOC. INC. OF ANY CONFLICTS PRIOR TO ANY CONSTRUCTION.

PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

SHEET 104 ~~OF 114~~
SHA SHEET 3 OF 20

17

PROFESSIONAL CERTIFICATION.
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN M. MALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
STATE OF MARYLAND — MORGAN M. MALUBITA — 34788 — PROFESSIONAL ENGINEER
1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

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DRAWN BY CEG | DESIGNED BY MM-YY | CHECKED BY MM-YY
RECORD NO. J-B08034
SCALE 1"=50'
DRWG. NO. 8.027-Y
DATE MAY 2014

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MGWC 3.8: Cross Vanes

prevent the downstream face of the vortex weir or cross vane from being undermined. The top elevation of the center rock(s), at the apex of the weir or vane, should be at or near bed level to permit fish passage at low flows, and the end rocks on either bank should be at bankfull level. Once the excavated portion of the bank has been backfilled, it should be armored with appropriately sized riprap, sod mats, or willow transplants.

3. Adjacent cross vanes should be spaced sufficiently far apart to allow for proper riffle or pool development according to step-pool and pool-riffle configurations as provided in MGWC 3.5: Step Pools. Additionally, it has been recommended that the overall maximum drop controlled by a set of weirs should be less than 2 feet (0.6 meters) for stability reasons.

4. All disturbed sections of the channel, including the banks and streambed, should be stabilized with methods approved by the WMA.

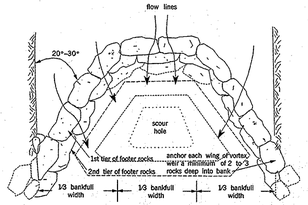
5. All cross vanes should be monitored to determine if:

- their orientation and geometry (e.g., the height of the drop) hinder fish migration,
- their performance is adversely affected by deposited sediment, and
- their placement causes bank instabilities and undesirable lateral stream movement especially in the vicinity of the plunge pools.

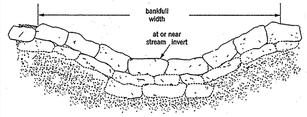
Maryland's Guidelines To Waterway Construction
DETAIL 3.8(a): CROSS VANES

Source: Rosgen, 1999

PLAN VIEW: CROSS VANE



SECTION VIEW: CROSS VANE

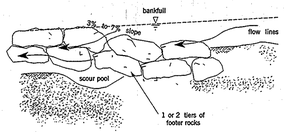


CHANNEL STABILIZATION AND REHABILITATION TECHNIQUES	REVISED NOVEMBER 2000 PAGE 3.8 - 5	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

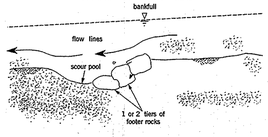
Maryland's Guidelines To Waterway Construction
DETAIL 3.8(b): CROSS VANES

Source: Rosgen, 1999

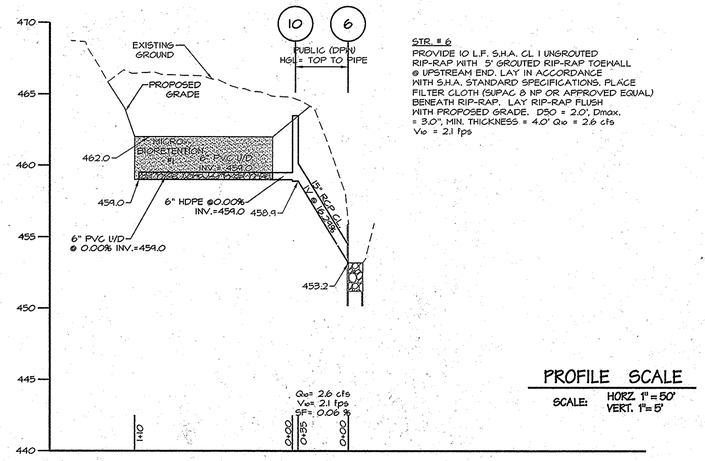
PROFILE: CROSS VANE ARM



PROFILE VIEW OF CENTER OF CROSS VANE

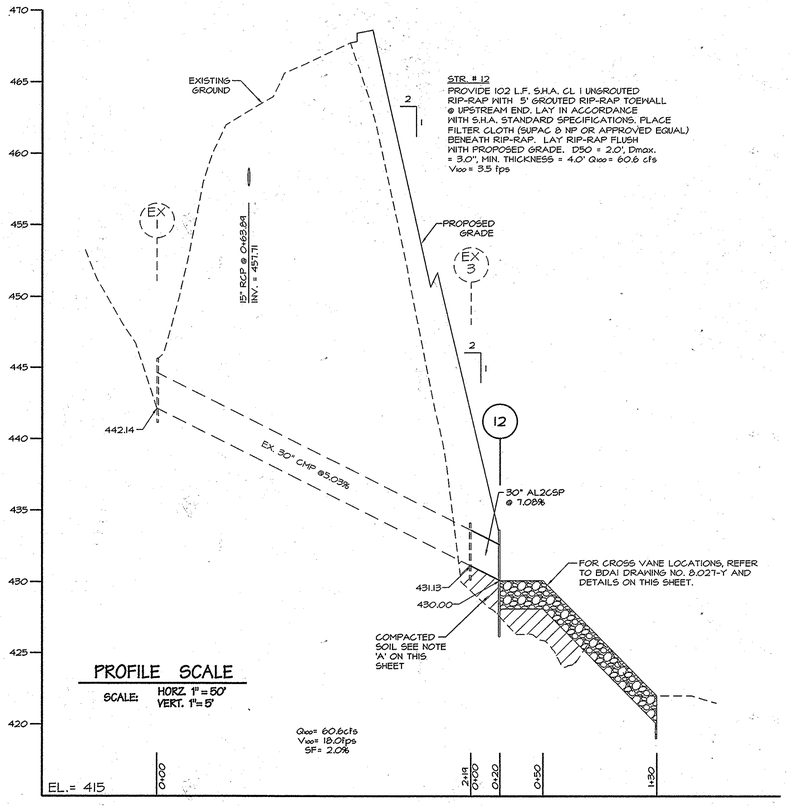


CHANNEL STABILIZATION AND REHABILITATION TECHNIQUES	REVISED NOVEMBER 2000 PAGE 3.8 - 4	MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

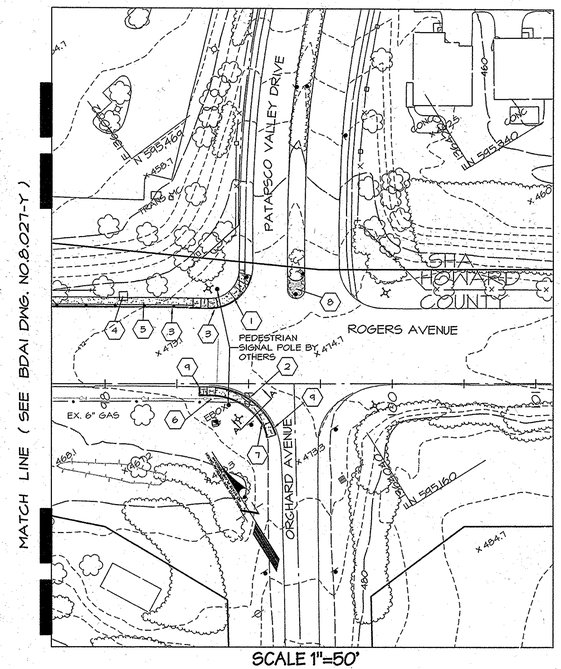


STR. # 6
PROVIDE 10 L.F. S.H.A. CL 1 UNGROUTED RIP-RAP WITH 5' GROUTED RIP-RAP TOEWALL @ UPSTREAM END. LAY IN ACCORDANCE WITH S.H.A. STANDARD SPECIFICATIONS. PLACE FILTER CLOTH (SUPAC & NP OR APPROVED EQUAL) BENEATH RIP-RAP. LAY RIP-RAP FLUSH WITH PROPOSED GRADE. D50 = 2.0', Dmax. = 3.0", MIN. THICKNESS = 4.0" Qxo = 2.6 cfs Vxo = 2.1 fps

PROFILE SCALE
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'

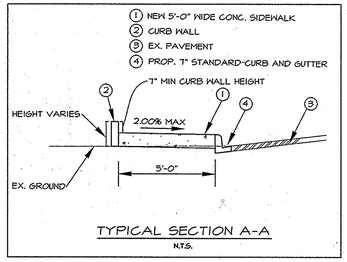


STR. # 12
PROVIDE 102 L.F. S.H.A. CL 1 UNGROUTED RIP-RAP WITH 5' GROUTED RIP-RAP TOEWALL @ UPSTREAM END. LAY IN ACCORDANCE WITH S.H.A. STANDARD SPECIFICATIONS. PLACE FILTER CLOTH (SUPAC & NP OR APPROVED EQUAL) BENEATH RIP-RAP. LAY RIP-RAP FLUSH WITH PROPOSED GRADE. D50 = 2.0', Dmax. = 3.0", MIN. THICKNESS = 4.0" Qxo = 60.6 cfs Vxo = 3.5 fps

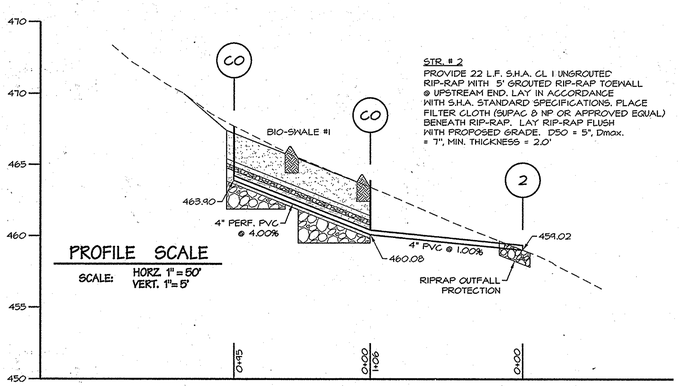


SCALE 1"=50'

1. INSTALL SIDEWALK RAMP PER MODIFIED HOWARD COUNTY SIDEWALK RAMP TYPE "C" WITH VARIABLE WIDTH AND A STANDARD CURB AND GUTTER ALONG THE RAISED AREA BETWEEN THE RAMPS. REMOVE AND REPLACE EXISTING SIDEWALK AS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE EXISTING AND PROPOSED SIDEWALK.
2. INSTALL SIDEWALK RAMP PER MODIFIED HOWARD COUNTY SIDEWALK RAMP TYPE "C" WITH 2' TAPER ALONG THE CURB TO THE WEST OF THE RAMP. EXTEND CURB & GUTTER THRU THE RADIUS/FILLET AND PROVIDE SMOOTH TRANSITION BETWEEN THE CONCRETE SIDEWALK AND THE EXISTING ASPHALT CROSSWALK WITH 8.33% (1" in 12") SLOPE.
3. INSTALL GUARDRAIL END TREATMENT IN ACCORDANCE WITH MSHA STANDARD NO. MD-605.03.
4. ADJUST TOP OF EXISTING COUNTY FIBER BOX TO MEET AND MATCH PROPOSED SIDEWALK PER COUNTY STANDARDS & SPECIFIGATIONS.
5. INSTALL 4' SIDEWALK PER HOWARD COUNTY DPW STANDARD NO. R-3.05
6. CONTRACTOR SHALL TEST PIT ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION TO CONFIRM LOCATION AND INVERTS FOR CLEARANCE. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL INFORM BEN DYER ASSOC. INC. OF ANY CONFLICTS PRIOR TO ANY CONSTRUCTION.
7. INSTALL CURB WALL ALONG THE 5' SAIDE WALK. SEE DETAIL THIS SHEET.
8. REMOVE AND REPLACE CURB & GUTTER TO PULL THE ISLAND BACK. RELOCATE EXISTING SIGNS AS NECESSARY. THIS WORK IS NOT PART OF THIS CONTRACT AND SHALL BE PERFORMED BY OTHERS.
9. PROVIDE 10' STANDARD NORSE DOWN CURB

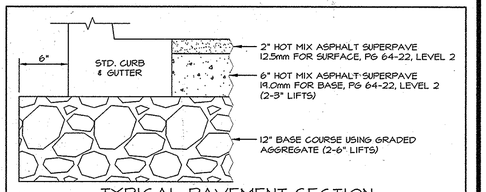


TYPICAL SECTION A-A
N.T.S.



PROFILE SCALE
SCALE: HORZ. 1" = 50'
VERT. 1" = 5'

STR. # 2
PROVIDE 22 L.F. S.H.A. CL 1 UNGROUTED RIP-RAP WITH 5' GROUTED RIP-RAP TOEWALL @ UPSTREAM END. LAY IN ACCORDANCE WITH S.H.A. STANDARD SPECIFICATIONS. PLACE FILTER CLOTH (SUPAC & NP OR APPROVED EQUAL) BENEATH RIP-RAP. LAY RIP-RAP FLUSH WITH PROPOSED GRADE. D50 = 5", Dmax. = 7", MIN. THICKNESS = 2.0'



TYPICAL PAVEMENT SECTION
NOT TO SCALE

PUBLIC PIPE SUMMARY

SIZE	TYPE	LENGTH	AS-BUILT
15"	RCP CL. IV	35'	
30"	AL2CSP	20'	
	TOTAL	55'	

REMARKS:
RCP = REINFORCED CONCRETE PIPE. ALL RCP PIPE SHALL HAVE SMOOTH INTERIOR WALLS (N=0.013 OR BETTER). FOR MORE INFORMATION, CALL (1) HANCOR, INC., 1 (800) 537-8320, EXT. 236; (2) ADS, INC., 1 (800) 521-4554. ALUMINUM COATED STEEL PIPE, TYPE II (AL2CSP) WITH N=0.013 OR BETTER AND HIGH DENSITY POLYETHYLENE PIPE (HDPE) ARE APPROVED SUBSTITUTES FOR RCP.

PUBLIC PIPE SCHEDULE

FROM	TO	SIZE	MATERIAL	LENGTH	AB-LENGTH
6	10	15"	RCP CL. IV	35'	
EX. 3	12	30"	AL2CSP	20'	

REMARKS:

NOTE "A": SOIL TO BE COMPACTED TO 95 % MAX. DRY DENSITY

PUBLIC STRUCTURE SCHEDULE

BONDED BY	No.	TYPE	WIDTH DIA.	INV. ELEV.	INV. ELEV (As-Built)	TOP ELE.	TOP ELE. (AB)	STANDARD DETAIL
SHA	4	SINGLE MR INLET	2'-4"	459.2		463.8		MSHA STD. DET. MD-374.06
HOWARD COUNTY	6	TYPE 'C' ENDWALL	1'-4"	458.2		459.9		HOWARD CO. DPW STD. DET. D-5.21
	10	YARD INLET	2'-0"	458.9		463.5		HOWARD CO. DPW STD. DET. D-4.11
	12	TYPE 'A' HEADWALL	8'-6"	430.0		434.0		HOWARD CO. DPW STD. DET. D-5.11

REMARKS:

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH CODES, REGULATIONS AND CODES.

PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN
THE ESTATES AT PATAPSCO PARK
DISTRICT No. 2
HOWARD COUNTY, MARYLAND

17

SHEET 105 ~~OF 189~~
SHA SHEET 4 OF 20

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN W. WALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
STATE OF MARYLAND — MORGAN W. WALUBITA — 34788 — PROFESSIONAL ENGINEER
1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

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DRAWN BY | DESIGNED BY | CHECKED BY | RECORD NO.
CEG | MMM | MMM |

SCALE: AS SHOWN
DATE: MAY 2014
J-B08034
DRWG. NO. 8.028-Y

J:\LD7-PROJ\B08034-LD7\SHEETS\SD-PR-01.dwg, 1/14/2015 9:57:25 AM,

CATEGORY 300
DRAINAGE

SECTION 316 – STORMWATER FILTRATION FACILITIES

DELETE: SPI SECTION 316 in its entirety.

INSERT: The following.

SECTION 316 – STORMWATER FILTRATION FACILITIES

316.01 DESCRIPTION. Construct stormwater filtration facilities (SFF) as specified in the Contract Documents. Complete a Stormwater Management (SWM) Facility As-Built Certification for the stormwater filtration facilities constructed.

Stormwater Filtration Facilities are identified by unique SWM Facility Numbers and are one the following types.

- Bioretention
- Micro-Bioretention
- Organic filters
- Surface Sand Filters
- Submerged Gravel Wetlands
- Landscape Infiltration
- Rain Gardens (RG)
- Infiltration Berms
- Wet Swales
- Dry Swales
- Bioswales

Due to the high susceptibility of contamination by sediment deposition and the complexity of construction, use extreme care to prevent compaction and contamination.

316.02 MATERIALS.

No. 57 Aggregate	901.01
No. 7 Aggregate	901.01
No. 2 Aggregate	M-43, No. 2
Pipe	905
Topsoil	920.01
Bioretention Soil Mix (BSM)	920.01.05
Coarse Sand	920.01.05(a) (1)
Shredded Hardwood Bark (SHB) Mulch	920.04.03
Soil Stabilization Matting (SSM)	920.05
Seed and Turfgrass Sod	920.06
Plant Materials	920.07
Water	920.09.01
Geotextile, Class PE, Type III	921.09
Securing Pins or Staples	921.09

Subdrain Pipe, Fittings and Geotextile Sock. Perforated and solid-wall polyvinyl chloride profile wall drain pipe (PPWP) meeting M-304 or corrugated polyethylene drainage pipe (CPP) meeting M 252, Type S and Type SP. Perforated pipe shall have two rows of slotted perforations with an opening area of 20 cm^2/m to 21 cm^2/m. Perforated pipe used to construct observation wells, shall use the appropriate geotextile sock recommended and supplied by the pipe manufacturer.

316.03 CONSTRUCTION. Construct SFF after all surrounding and adjacent areas are permanently stabilized and when applicable, has at least 95 percent vegetative groundcover establishment. Do not construct SFF in areas previously used for erosion and sediment controls, stockpile sites, or equipment storage.

Excavation. Use methods of excavation that minimize compaction of the underlying soil. Use excavators and backhoes operating on the adjacent ground. When the bottom width of the excavation area is greater than 15 ft, use wide-track or marsh-track equipment, or light equipment with turf-type tires to excavate, grade, and place fill materials. Do not use equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires.

Bottom Preparation. Except for submerged gravel wetlands, remove any standing water from the excavation area and rototill the excavation area bottom to a minimum depth of 6 in. to loosen soil. Only rototill soil that is friable. Do not rototill soil in a muddy or frozen condition.

Geotextile. Place tightly against the vertical sides of the excavation area, pulling tight to eliminate wrinkles and folds, and pin securely. Eliminate any voids between the geotextile and the soil and avoid wrinkling and folding the geotextile. Maintain a minimum 12 in. overlap at the geotextile joint ends or breaks and pin joints and overlaps securely. Pin longitudinal joints, overlaps and edges no more than 10 ft on center. Do not place geotextile on the bottom of the excavated area.

Aggregate. Place washed aggregate that is free of soil and fines in layers as specified in the Contract Documents. Prevent soil, fines, and other debris from intermixing with the aggregate. If aggregate become contaminated, remove and replace it with uncontaminated aggregate.

Subdrain. Cap the ends of all pipes not terminating in a cleanout, vent, or drainage structure unless otherwise specified in the Contract Documents.

Cleanouts. Install solid-wall pipe vertically and connect to horizontal subdrain with approved manufactured connections. Provide a counter-sunk screw cap on the exposed ends.

Vents. Install solid-wall pipe vertically and connect to the horizontal subdrain with approved manufactured connections. Provide a ventilated screw cap on the exposed ends. Ventilation holes or slots shall be no larger than 1/4 in. in diameter or width. The sum total area of the openings shall be no less than 1 in^2. Ensure that the ventilation openings are above the maximum specified water surface elevation.

Observation Wells. Use perforated and solid-wall pipe. Place the geotextile sock over the perforated pipe portion and secure at both ends. Provide a screw cap on the exposed end extending 2 in above the surface. When a concrete collar is specified, ensure the top of the well is flush with the surface of the concrete collar.

Coarse Sand. Place coarse sand in horizontal layers not exceeding 12 in. in thickness. After each lift, spray or sprinkle water to saturate the entire area of coarse sand until water flows from the subdrain. Use an appropriate sediment control device to capture any discharged sediment-laden water from the subdrain outlet. Prevent soil, fines and other debris from intermixing with the coarse sand. Remove any contaminated coarse sand and replace it with uncontaminated coarse sand.

Bioretention Soil Mixture (BSM). Place BSM in horizontal layers not exceeding 12 in. in thickness. After each lift, spray or sprinkle water to saturate the entire area of BSM until water flows from the subdrain. Use an approved sediment control device to capture any discharge sediment-laden water. Prevent soil, fines, and other debris from intermixing with the BSM. Remove any contaminated BSM and replace with uncontaminated BSM.

Topsoil. Place topsoil as specified in the Contract Documents.

Vegetation Installation and Establishment. Install as specified and immediately after final grading. When vegetation cannot be installed due to time-of-year restrictions or weather conditions, provide an approved diversion method to prevent runoff from entering the SFF until such time that the permanent vegetation can be established.

(a) Turfgrass. Place turfgrass sod as specified in the Contract Documents.

(b) Meadow and Wildflower Seeding. Place the type of seed as specified in the Contract Documents.

(c) Turfgrass Sod. Place sod as specified in the Contract Documents.

(d) Soil Stabilization Matting (SSM). Place SSM as specified in the Contract Documents.

(e) Tree, Shrubs and Perennial Installation. Install as specified in the Contract Documents.

(f) Annuals & Bulb Installation and Establishment. Install as specified in the Contract Documents.

Shredded Hardwood Bark (SHB) Mulch. Place SHB mulch as specified in the Contract Documents immediately following applicable plant installation.

Inspection, Certification and Final Acceptance. Inspect and document each step of construction of SFF and complete the pertinent As-Built Checklists as specified in the Stormwater Management (SWM) Facility As-Built Certification. Complete and submit a SWM Facility As-Built Certification Package for each SFF. Approval of the SWM As-Built Certification Package is included in the Punch List requirements for the project.

316.04 MEASUREMENT AND PAYMENT. Payment will be full compensation for all treatment of discharge from subdrain, excavation, aggregate, geotextile, pipe, coarse sand, BSM, mulch, seed, SSM, vegetation installation and establishment, topsoil, watering, sheeting, shoring, dewatering, hauling, storing, rehandling of material, removal and disposal of excess and unsuitable material, rototilling, grading and slope adjustments, Stormwater Management (SWM) Facility As-Built Certification, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

Excavation. Excavation will be measured and paid for at the Contact unit price per cubic yard for the pertinent Class of Excavation.

Aggregate. Aggregate will be measured and paid for at the Contract unit price for one or more of the following.

(a) No. 2 Aggregate for Stormwater Management Facilities per cubic yard.

(b) No. 7 Aggregate for Stormwater Management Facilities per cubic yard.

(c) No. 57 Aggregate for Stormwater Managment Facilities per cubic yard.

Removal of contaminated aggregate and replacement with uncontaminated aggregate will be at no additional cost to the Administration.

Geotextile. Geotextile, Class PE, Type III will not be measured but the cost will be incidental to the Excavation.

Subdrain, Cleanouts, Vents, and Observation Wells. Perforated and solid-wall pipe will be measured and paid for at the Contract unit price per linear foot of the specified size Subdrain Pipe. Fittings, caps, geotextile sock, and other incidentals will not be measured, but the cost will be incidental to Subdrain Pipe.

Coarse Sand. Coarse Sand will be measured and paid for at the Contract unit price per cubic yard for Coarse Sand for Stormwater Management Facilities.

Removal of contaminated coarse sand and replacement with uncontaminated coarse sand will be at no additional cost to the Administration.

Bioretention Soil Mixture (BSM). BSM will be measured and paid for at the Contract unit price per cubic yard for Bioretention Soil Mixture.

Removal of contaminated BSM and replacement with uncontaminated BSM will be at no additional cost to the Administration.

Water. Water used for saturation of coarse sand and BSM will not be measured but the cost will be incidental to the pertinent items.

Shredded Hardwood Bark (SHB) Mulch. SHB Mulch will be measured and paid for at the Contract unit price per square yard for Shredded Hardwood Bark Mulching, 3 in. Depth.

Discharge from Subdrain. Capture and treatment of any sediment-laden discharge from subdrain outlets will not be measured but will be incidental to the pertinent Erosion and Sediment Control items specified in the Contract Documents.

Topsoil. Refer to 701.04.

Vegetation Installation and Establishment. Vegetation Installation and Establishment will be measured and paid for at the Contact unit price for the pertinent landscaping items. Refer to Section 705.04, 707.04, 708.04, 710.04 and 711.04.

Soil Stabilization Matting. Refer to 709.04.

Stormwater Management Facility (SWM) As-Built Certification. Refer to the Contract Documents.

CATEGORY 300
DRAINAGE

STORMWATER MANAGEMENT (SWM) FACILITY AS-BUILT CERTIFICATION

DESCRIPTION. Inspect stormwater management facilities during specified stages of construction, and furnish a completed (SWM) Facility As-Built Certification Package to the Administration certifying that the SWM facilities have been constructed as specified in the Contract Documents. Inspection of SWM facilities and completion of the SWM Facility As-Built Certification Package may only be performed by an As-Built Inspector.

As-Built (AB) Inspector. Furnish an approved AB Inspector to complete the As-Built Certification. AB Inspectors require licensure in the State of Maryland as a Professional Engineer or Professional Land Surveyor, experienced in SWM design and construction.

To request approval, furnish a one-page resume for the AB Inspector at least two weeks prior to the start of construction of any SWM facility. The resume shall include the AB Inspector's name, contact information, relevant professional license(s), employer's name, and relevant work history. Failure to receive approval for the AB Inspector or to monitor the specified construction stages will be grounds for replacement.

SWM Facility. As-Built Certification Package. The Certification Package certifies that the SWM Facilities have been constructed as specified. The submitted package shall include, at a minimum, photographs during specified construction phases, written descriptions of each phase, completed tabulations and checklists, completed certification forms, material testing reports, turf/vegetation establishment report and green-line revision plans for each facility

CADD Work and Files. All work and files shall adhere to the CADD Standards established by the Administration.

The Administration will provide the approved SWM Report and MicroStation CADD files to facilitate the duties of the AB Inspector.

MATERIALS. Not applicable.

CONSTRUCTION. Inspect and complete the appropriate AB checklist for each facility. Ensure that the facility features are constructed as designed.

Stages for As-Built Inspections by the AB Inspector. Perform minimum inspections for SWM facilities as follows:

(a) Ponds.

(1) Upon completion of excavation to sub-foundation and when required, installation of structural supports or reinforcement for structures, including, but not limited to:

(a) Core trenches for structural embankments.

(b) Inlet and outlet structures, anti-seep collars or diaphragms, and watertight connections on pipes.

(c) Trenches for enclosed storm drainage facilities.

(2) During placement of structural fill, concrete, and installation of piping and catch basins.

(a) During backfill of foundations and trenches.

(b) During embankment construction.

(c) Upon completion of final grading and establishment of permanent stabilization.

(b) Wetlands. Refer to stages specified for pond construction. Additional inspections include:

(1) During and after wetland area planting.

(2) During the second growing season to verify a vegetation survival rate of no less than 50 percent.

(c) Infiltration Trenches.

(1) During excavation to subgrade.

(2) During placement and backfill of sudrain systems and observations wells.

(3) During placement of geotextile and all filter media.

(4) During construction of appurtenant conveyance systems such as diversion structures, pre-filters and filters, inlets, outlets, and flow distribution structures.

(5) Upon completion of final grading and establishment of permanent stabilization.

(d) Infiltration Basins. Refer to stages specified for pond construction and add:

(1) During placement and backfill of subdrain systems.

(e) Filtering Systems. Filtering systems include bioretention, micro- bioretention, sand filters, organic filters, bio-filters, and dry swales.

(1) During excavation to subgrade.

(2) During placement and backfill of subdrain systems.

(3) During placement of geotextile and all filter media.

(4) During construction of appurtenant conveyance systems such as flow diversion structures, pre-filters and filters, inlets, outlets, orifices, and flow distribution structures.

(5) Upon completion of final grading and establishment of permanent stabilization.

(f) Open Channel Systems. Open channel systems include wet swales and grass channels.

(1) During excavation to subgrade.

(2) During installation of diaphragms, check dams, or weirs.

(3) Upon completion of final grading and establishment of permanent stabilization.

(g) Non-Structural Practices. Upon completion of final grading and after the establishment of permanent stabilization.

Surveys, Computations, and Green-Line Revision Requirements. Upon completion of each SWM facility, survey each SWM facility and provide green-line revisions that include the following items:

(a) Core trench location, dimensions, material and compaction.

(b) Contours. Indicate the grading of the SWM facility using one foot contour intervals.

(c) Inflow and outflow ditches.

(d) Riprap. Indicate the locations dimensions of riprap within SWM facilities and immediately outside of SWM footprints.

(e) Emergency spillways. Indicate locations of emergency spillways for SWM facilities.

(f) Outfall structures. Indicate locations of outfall structures, such as risers and weirs, and include all relevant information such as elevations, dimensions at top, orifice elevations, weir lengths and elevations, and openings.

(g) Miscellaneous Features. Include all other pertinent features in and around the SWM facility, such as freeboard, water surface elevations, and setbacks.

Tolerances. Tolerance limits for green-line as-built information is as follows:

(a) Earthwork Tolerance. Elevations must be within 3 in. of elevations specified in the Contract Documents.

(b) Structures. Elevations must be within 1.2 in. (0.1 ft) for spillways, pipe inverts, orifices, and weirs.

(c) Freeboard. Freeboard must be no less than specified in the Contract Documents.

When tolerances are exceeded, furnish computations for the storage volumes, discharge rates, detention times, and other applicable documentation to demonstrate that the SWM facilities meet all of the designed parameters.

Submission Requirements. Furnish two hard-copies and one digital copy in PDF format of the SWM Facility As-Built Certification Package to the Administration. Incomplete SWM Facility As-Built Certification Packages will not be accepted. The Administration will submit one copy to the Department of the Environment (MDE) for review and approval.

When SWM facilities do not meet the design parameters, reconstruct, re-inspect, resurvey and recalculate deficient aspects of the SWM facilities and furnish the revised information in the SWM Facility As-Built Certification Package.

MEASUREMENT AND PAYMENT. Stormwater Management (SWM) Facility As-Built Certification will not be measured but will be paid for at the Contract lump sum price. The payment will be full compensation for inspection, photographs, documentation, surveys, computations, green-line revisions, completion and submission of the SWM Facility As-Built Certification Package, and for all material, labor, equipment, tools, and incidentals necessary to complete the work. Modifications to rejected SWM Facility As-Built Certification Packages including any associated corrective construction, reconstruction, grading, inspection, planting, stabilization, surveying, engineering analysis and services, and resubmittals will be at no additional cost to the Administration.

Payment Schedule. Payments will be made according to the following schedule when requirements are met:

STORMWATER MANAGEMENT (SWM) FACILITY AS-BUILT CERTIFICATION PAYMENT SCHEDULE		
REQUIREMENTS	**PERCENT OF TOTAL CONTRACT PRICE**	**PAYMENT FOR COMPLETED WORK**
Furnish completed SWM Facility As-Built Certification Package	50	At submission to the Administration
Receive approval from the Maryland Department of the Environment (MDE)	50	At project close-out

CATEGORY 300
DRAINAGE

ACCESS ROAD WITH CELLULAR CONFINEMENT LOAD SUPPORT SYSTEM

DESCRIPTION. Construct an access road with a cellular confinement load support system as specified in the Contract Documents or as directed by the Engineer.

MATERIALS.

No. 7 Stone Aggregate	901.01
Topsoil	920.01
SHA Turfgrass Seed Mix	920.06.07
Miscellaneous	920.08
Geotextile, Class SE	921.09

Cellular Structure. Fabricate using sheet strips of perforated, textured, high-density polyethylene (HDPE) conforming to the following:

PROPERTY	METHOD	REQUIREMENT
Density, lb/ft^3	D 1505	.58 - 60.2
Environmental Stress Crack Resistance, hr min	D 1693	3000
Carbon Black, % by weight	—	1.5 - 2
Thickness before Texturing, mil	D 5199	50 (+5, -10 %)
Thickness after Texturing, mil	D 5199	60 (±10 %)

Each strip shall have a length of 12 ft and a width of 6 in. The surface texturing shall be diamond shape indentations at the rate of 140 to 200 indentations/in. The perforations shall consist of horizontal rows of 0.4 in. diameter holes on 0.75 in. centers. Horizontal rows of perforations shall be staggered and separated by 0.5 in relative to the hole centers. The dimension from the edge of the strip to the nearest edge of perforation shall be 0.3 in.

Connect the HDPE strips in series to form a honeycomb like cellular structure, using full depth ultrasonic spot welded seams, aligned perpendicular to the longitudinal axis of the strips. Weld spacing shall be 14 in. The ultrasonic weld melt pool width shall not exceed 1 in.

When expanded, the interconnected strips shall form the walls of a flexible, three-dimensional cellular confinement structure into which aggregate can be placed. HDPE cell dimensions shall have an expanded length ranging from 8.02 to 9.65 in. and an expanded width ranging from 9.20 to 11.07 in. The number of cells in a manufactured section may vary according to site conditions. Each expanded section shall have a minimum width of 9.2 ft and minimum length of 12 ft.

HDPE cell seam strength shall be uniform over the full depth of the cell. Short-term seam strength shall be tested in conformance with the U.S. Army Corps of Engineers Technical Report GL 86 19, Appendix A. Minimum short-term seam peel strength shall be 480 lb. A long-term seam peel strength test shall be performed for a period of 7 days minimum in a temperature controlled environment that undergoes change on a one hour cycle from room temperature to 130 F. Room temperature shall be as defined in B 41. Test samples shall be made by welding four HDPE strips together to produce a two cell structure. Individual welds shall be tested by cutting them from the two cell structure so that 4 in. of material exist on each side of the weld. Samples shall be cut to a 4 in. width and tested by securing one end to a stationary upper clamp and attaching a weight to the free lower end. The test sample shall support a 160 lb load for the test period.

The cellular confinement load support system shall include stake anchors in the form of steel J pin stakes fabricated as specified in the Contract Documents and ¼ in. staples. Steel for J pin stakes shall conform to 909.02.

CONSTRUCTION.

Subgrade Preparation. Clear and grub according to 211.03.02.

Geotextile Placement. Place according to 211.03.03.

Cellular Structure Placement. Place HDPE cells within three working days of geotextile placement. Expand sections into position and anchor with steel J pins prior to placing the No. 7 stone aggregate. Install the minimum number and layout of the J pins as specified with additional pins as needed to hold the shape and specified dimensions of the expanded cell sections. Ensure J pin diameter and length are suitable to hold the expanded cell sections in tension for the subgrade conditions at the site.

At manholes or other obstructions, stretch the cell section into position and cut out around the perimeter of the obstruction to allow the cell section to fit around the obstruction and be anchored flat on the prepared surface.

Ensure the upper surfaces of adjoining cell sections are flush at the joint. Interleaf sides and abut the ends of adjoining cell sections. Staple adjoining sections staple to each other. Align welded edge seams when stapling sides of adjoining sections. Align abutting sections at longitudinal center lines and staple at the cell wall contact point.

Placement of Infill. Place No. 7 stone aggregate into the expanded HDPE cells to a level at least 2 in. above the top of the cell walls. Limit the drop height of infill to 3 ft. using equipment operating adjacent to the cell sections. Equipment operating on the cell sections is only allowed on cell sections that have been filled and covered with the minimum 2 in. of additional material. Compact infill material to a minimum density of 95 percent of the standard proctor dry density. Grade compacted aggregate surface to a level 1 a 1/2 in. above top of the cell walls.

Placement of Topsoil. Place topsoil on the aggregate infill material to a minimum depth of 4 in. according to 701.03. Apply according to 705.03.

Turfgrass Establishment. Prepare soil and establish turfgrass according to 705.

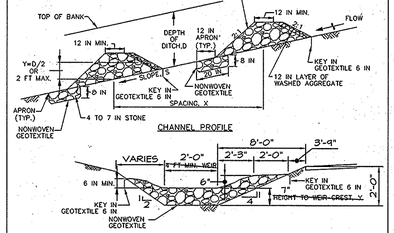
MEASUREMENT AND PAYMENT. Access Road with Cellular Confinement Load Support System will be measured and paid for at the Contract unit price per square yard. Payment will be full compensation for all excavation, geotextile, cellular structure, J pins, staples, fasteners, aggregate, subgrade preparation, hauling, removal and disposal of unsuitable material, anchoring, grading, compacting, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

Topsoil will be measured and paid for as specified in Section 701.

Turfgrass Establishment will be measured and paid for as specified in Section 705.

MODIFIED
DETAIL D-2 STONE CHECK DAM

STANDARD SYMBOL
DD-2
CD



CONSTRUCTION SPECIFICATIONS

1. PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2, STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SIDE SLOPES OF 2:1 OR FLATTER AND A MINIMUM TOP WIDTH OF 12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS. FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 FOOT THICK LAYER OF WASHED AGGREGATE (¾ TO 1½ INCH).
3. SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE-HALF THE DEPTH OF THE CHANNEL OR DITCH. TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR CREST MUST NOT EXCEED 2.0 FEET.
4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF OF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL		
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

APPROVED: DEPARTMENT OF PUBLIC WORKS

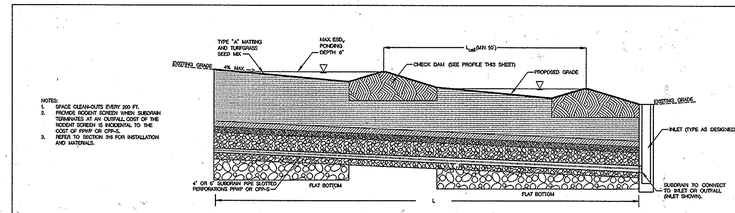
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

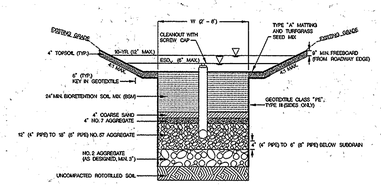
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6-15-15

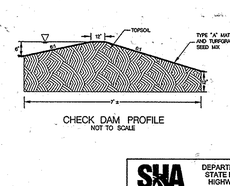
GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.



BIO-SWALE PROFILE
NOT TO SCALE



BIO-SWALE SECTION
NOT TO SCALE



CHECK DAM PROFILE
NOT TO SCALE

DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION HIGHWAY HYDRAULICS DIVISION	
BIO-SWALE STANDARD WITH OPTIONAL CHECK DAM CLEAR ZONE, POORLY DRAINING SOILS	
STANDARD NO.	DATE: MARCH 27, 2013

TYPICAL DETAIL FOR BIO-SWALE NO. 1
NOT TO SCALE

Table B.3.2 Materials Specifications for Bioretention

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
planting soil [2.0' to 4' deep]	~~sand 35 – 60%~~ ~~silt 30 – 55%~~ ~~clay 10 – 25%~~ *	n/a	USDA soil types loamy sand, sandy loam or loam
mulch	shredded hardwood		aged 6 months, minimum
pea gravel diaphragm and curtain drain	pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3300 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/09; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking
sand [1" deep]	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

* SEE BIO-RETENTION DETAIL ON THIS SHEET

MICRO-BIORETENTION SPECIFICATIONS
PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

17

SHEET 106 ~~OF 114~~
SHA SHEET 5 OF 20

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN H. WALUBITA, PE
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000
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DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMM	MMM	J-808034

SCALE	DRWG. NO.
1"=20'	8.029-Y
DATE: MAY 2014	

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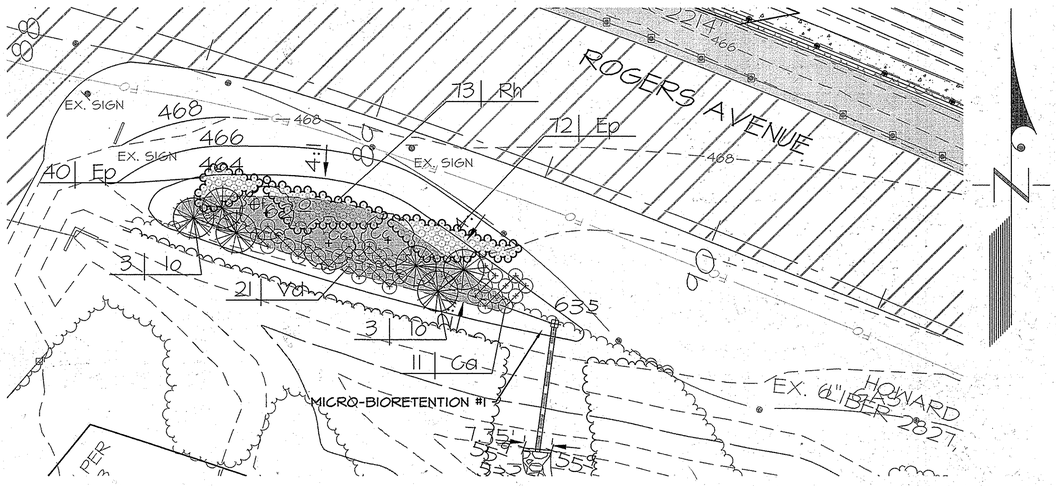
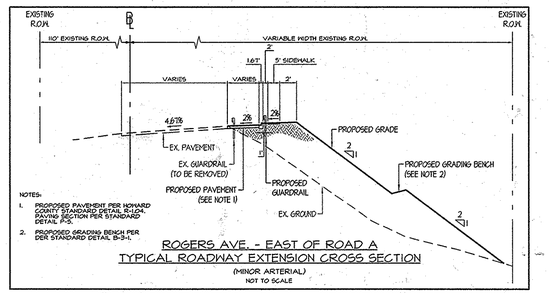


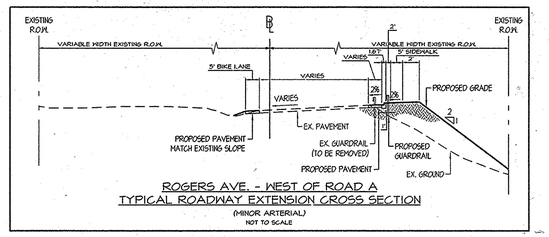
MICRO-BIORETENTION #1 - PLANT SCHEDULE

QUANTITY	SYM	BOTANIC	COMMON	SIZE	SPACING	REMARKS
11	Ca	Clethra alnifolia "Ruby Spice"	Ruby Spice Summersweet	18" - 24" Ht.	4' o.c.	B&B/Container
2	Cc	Cercis canadensis	Eastern Redbud	7' - 8' Ht.	As shown	B&B/Container
1	Cf	Cornus florida	Flowering Dogwood	7' - 8' Ht.	As shown	B&B/Container
112	Ep	Eupaturum purpureum	Joe Pye Weed	Gal.	2' o.c.	Container
6	Io	Ilex opaca	American Holly	8' - 10' Ht.	As shown	B&B/Container
86	Rh	Rudebeckia hirta	Black-eyed Susan	Gal.	2' o.c.	Container
21	Vd	Viburnum dentatum	Arrowwood Viburnum	30" - 36" Ht.	4' o.c.	B&B/Container

REFER TO SHEET 35 FOR TYPICAL MICRO-BIORETENTION FACILITY SECTION



ROGERS AVE. - EAST OF ROAD A
TYPICAL ROADWAY EXTENSION CROSS SECTION
(MINOR ARTERIAL)
NOT TO SCALE



ROGERS AVE. - WEST OF ROAD A
TYPICAL ROADWAY EXTENSION CROSS SECTION
(MINOR ARTERIAL)
NOT TO SCALE

MICRO-BIORETENTION LANDSCAPING
PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND
GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

17

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

SHEET 107 ~~OF 114~~
SHA SHEET 6 OF 20

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MORGAN M. MALUBITA, PE
LICENSE NO. 34780
EXPIRATION DATE: 10/23/15
4/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000
COPYRIGHT © 2014 BEN DYER ASSOCIATES, INC.

DRAWN BY CEG | DESIGNED BY MMM | CHECKED BY MMM | RECORD NO. J-B08034
SCALE 1"=20' | DRWG. NO. 8.030-Y
DATE MAY 2014

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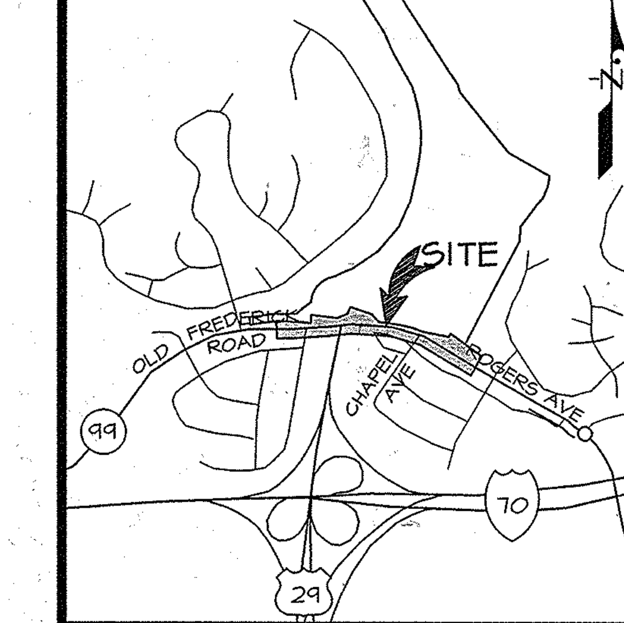

VICINITY MAP
SCALE: 1" = 2000'

SIGNING & PAVEMENT MARKING PLAN NOTES

1. Place new pavement markings in accordance with MSHA standards and specifications and the Manual on Uniform Traffic Control Device (MUTCD).
2. All pavements markings shall be of extruded thermoplastic material and be applied by truck-mounted equipment. All symbols, arrows, stop lines, and word message markings shall be pre-formed heat applied thermoplastic.
3. Coordinate the placement of pavement markings with MSHA inspector prior to implementation.
4. Coordinate the removal of any existing pavement marking and placement of the pavement markings with MSHA inspector.
5. All signs shall have 4"X4" posts or 2" square steel galvanized post with a sleeve.
6. Existing pavement markings no longer needed shall be obliterated.
7. Pavement markings and signage plan based on road improvement plan prepared by Ben Dyer Associates, Inc.
8. Access to all driveways must be maintained. The Maryland Book of Standards, the MUTCD and the Lane closure Schedule 101.04 must be used to govern the Maintenance of Traffic.
9. All of the signing and temporary striping shall comply with Maryland State Highway standards and lastest edition of the MUTCD and 2006 Maryland MUTCD which includes but limited to Temporary Traffic Control Typical Applications (TTCPA), Book of Standards, and the Standard Specifications for Construction & Material and Lane Closure schedule. As provided in the special provision section 104.01.
10. Lane width dimensions are measured from the center of the marking.

LEGEND

- (A) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING.
- (B) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (3' SEGMENT - 9' GAP).
- (C) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (10' SEGMENT - 30' GAP).
- (D) TIE NEW PAVEMENT MARKINGS INTO EXISTING MARKINGS.
- (E) INSTALL 5" WIDE YELLOW SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING @ 35' SPACING (45° TO TRAVEL LANE).
- (F) INSTALL PAVEMENT MARKING SYMBOL PER MSHA STANDARDS AND SPECIFICATION.
- (G) INSTALL 24" WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING.
- (H) INSTALL 5" WIDE DOUBLE YELLOW SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING.
- (I) NOT USED.
- (J) EXISTING PAVEMENT MARKING TO REMAIN.
- (K) EXISTING PAVEMENT MARKING TO BE REPLACED.
- (L) EXISTING PAVEMENT MARKING TO BE REMOVED.
- (M) EXISTING SIGN TO BE RELOCATED.
- (N) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (3' SEGMENT - 3' GAP).

APPROVED: DEPARTMENT OF PUBLIC WORKS
[signature] 1/29/2015
CHIEF, BUREAU OF HIGHWAYS — DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] BB 7-9-15
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE
[signature] 7.9.15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

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PAVEMENT MARKING, SIGNAGE AND TRAFFIC CONTROL PLAN

PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

(17)

SHEET 108 ~~OF 114~~
SHA SHEET 7 OF 20

PROFESSIONAL CERTIFICATION
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MORGAN M. WALUBITA, P.E.
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
[signature] 1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

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DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMW	MMW	J-B08034
SCALE 1"=50'			DRWG. NO. 8.031-Y
DATE MAY 2014			

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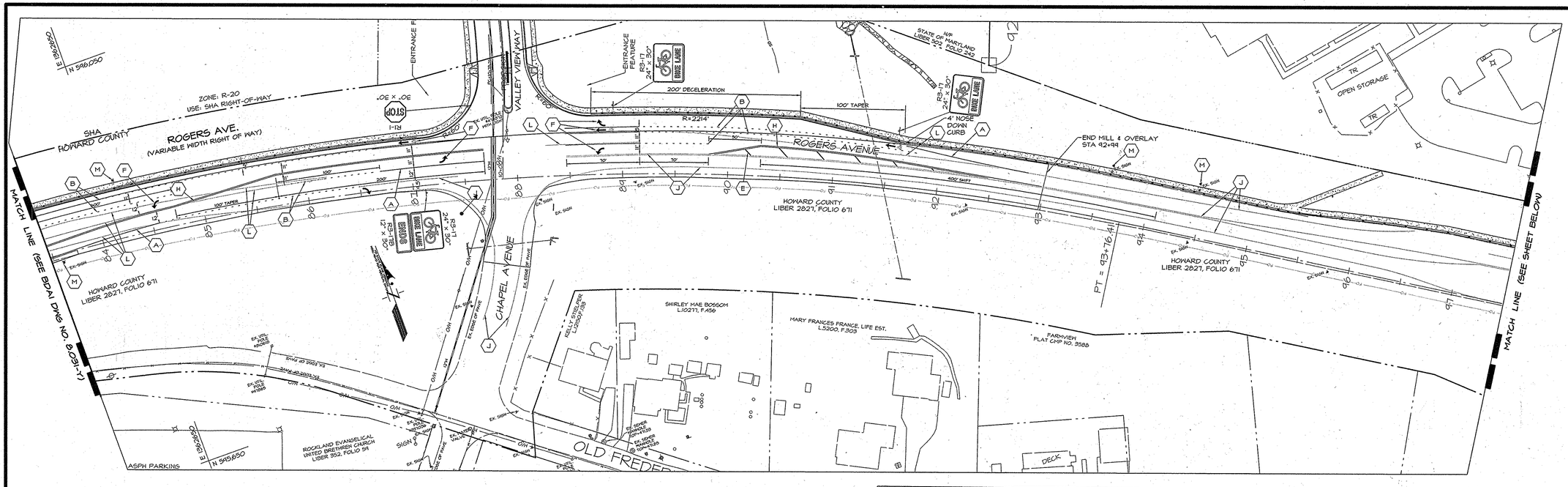
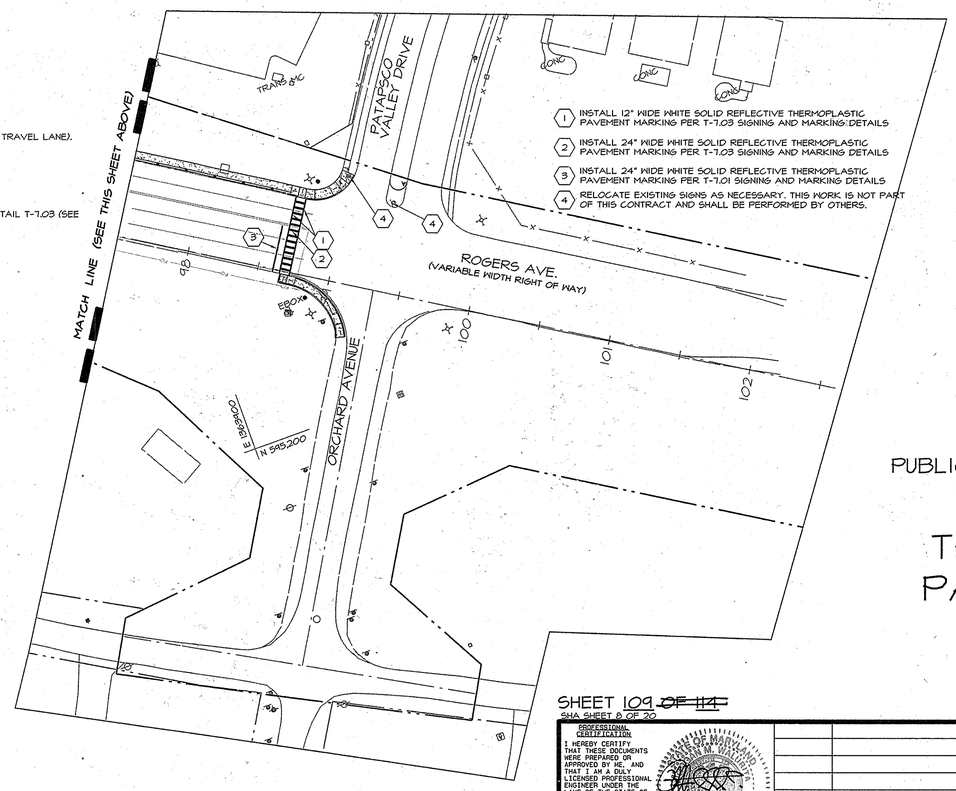


LEGEND

- (A) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING.
- (B) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (3' SEGMENT - 9' GAP).
- (C) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (10' SEGMENT - 30' GAP).
- (D) TIE NEW PAVEMENT MARKINGS INTO EXISTING MARKINGS.
- (E) INSTALL 5" WIDE YELLOW SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING @ 35' SPACING (45° TO TRAVEL LANE).
- (F) INSTALL PAVEMENT MARKING SYMBOL PER MSHA STANDARDS AND SPECIFICATION.
- (G) INSTALL 24" WHITE LEAD FREE REFLECTIVE THERMOPLASTIC PAVEMENT MARKING.
- (H) INSTALL 5" WIDE DOUBLE YELLOW SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING.
- (I) INSTALL 12" WIDE WHITE THERMOPLASTIC PAVEMENT MARKINGS FOR CROSSWALK PER HOWARD COUNTY DETAIL T-7.03 (SEE SHEET 25)
- (J) EXISTING PAVEMENT MARKING TO REMAIN.
- (K) EXISTING PAVEMENT MARKING TO BE REPLACED.
- (L) EXISTING PAVEMENT MARKING TO BE REMOVED.
- (M) EXISTING SIGN TO BE RELOCATED.
- (N) INSTALL 5" WIDE WHITE SOLID REFLECTIVE THERMOPLASTIC PAVEMENT MARKING (3' SEGMENT - 3' GAP).

PAVEMENT MARKING AND SIGN LEGEND

- EXISTING SOLID WHITE PAVEMENT MARKING
- EXISTING SOLID WHITE PAVEMENT MARKING (3' SEGMENT - 9' GAP)
- EXISTING SOLID WHITE PAVEMENT MARKING (10' SEGMENT - 30' GAP)
- EXISTING DOUBLE YELLOW PAVEMENT MARKING
- EXISTING STOP BAR
- PROPOSED SOLID WHITE PAVEMENT MARKING
- PROPOSED SOLID WHITE PAVEMENT MARKING (3' SEGMENT - 9' GAP)
- PROPOSED DOUBLE YELLOW PAVEMENT MARKING
- PROPOSED STOP BAR
- EXISTING ONLY PAVEMENT MARKING
- EXISTING TURN ARROW PAVEMENT MARKING
- PROPOSED TURN ARROW PAVEMENT MARKING
- PROPOSED BICYCLE LANE ARROW & SYMBOL
- PROPOSED "BIKE LANE" SIGN, R3-17 (24" X 30", BLACK & WHITE) — BIKE LANE
- PROPOSED "ENDS" SIGN, R3-17B (12" X 30", BLACK & WHITE) — ENDS
- PROPOSED "STOP" SIGN, R1-1 (30" X 30", RED & WHITE) — STOP



APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

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PAVEMENT MARKING, SIGNAGE AND TRAFFIC CONTROL PLAN
PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

SHEET 109 ~~OF 114~~
SHA SHEET 8 OF 20

17

PROFESSIONAL CERTIFICATION
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MORGAN M. WALUBITA, P.E.
LICENSE NO. 34788
EXPIRATION DATE: 10/23/15
1/13/15

DATE	DESCRIPTION	BY
	REVISIONS	

11721 WOODMORE ROAD, SUITE 200
MITCHELLVILLE, MARYLAND 20721
BEN DYER ASSOCIATES, INC.
Engineers / Surveyors / Planners
TELEPHONE (301) 430-2000

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DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMM	MMM	J-B08034

SCALE	DRWG. NO.
1"=50'	8.032-Y

DATE MAY 2014

J:\LD7-PROJ\B08034-LD7\SHEETS\TRF-01-05.dwg, 1/14/2015 9:57:47 AM,

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

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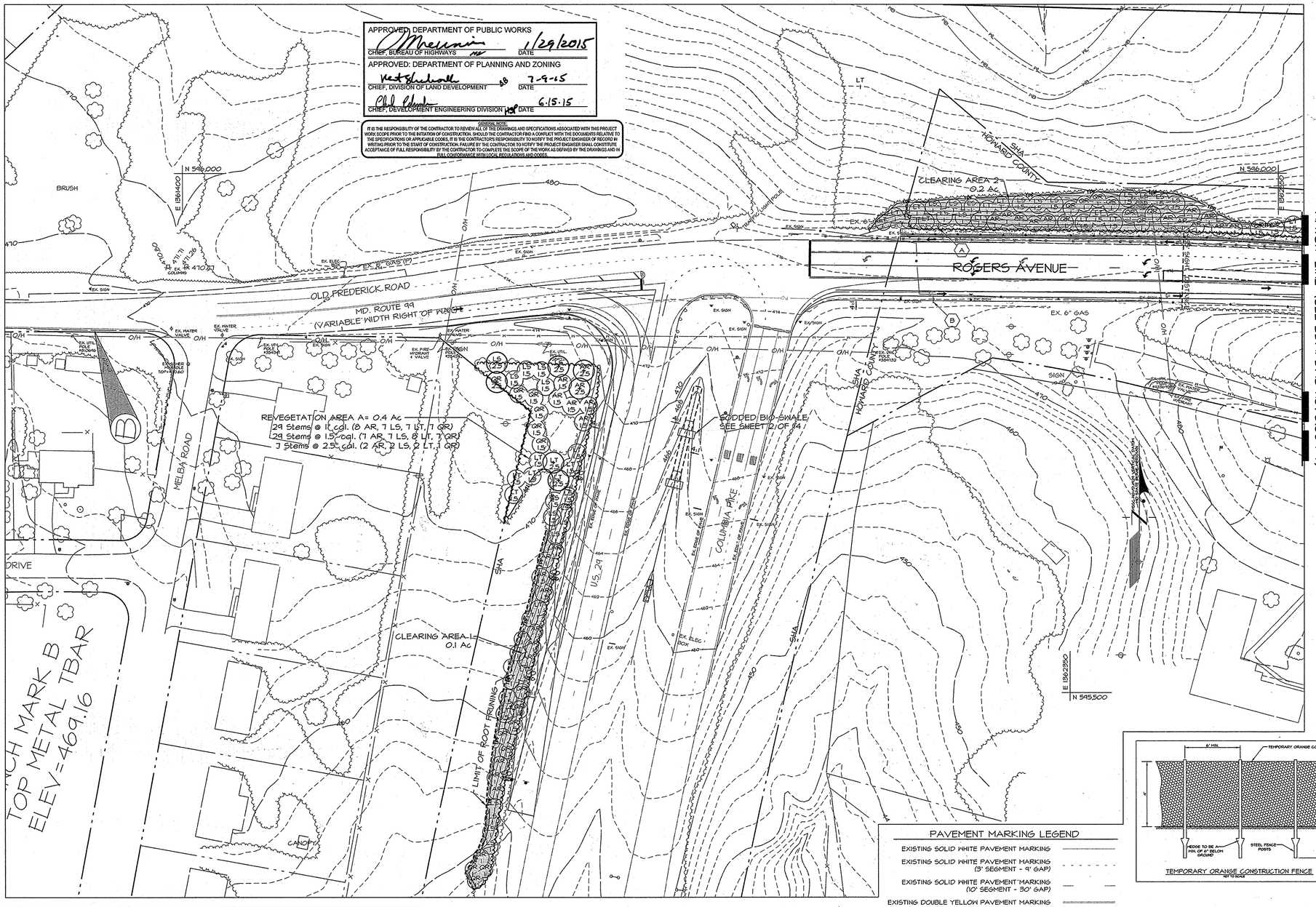

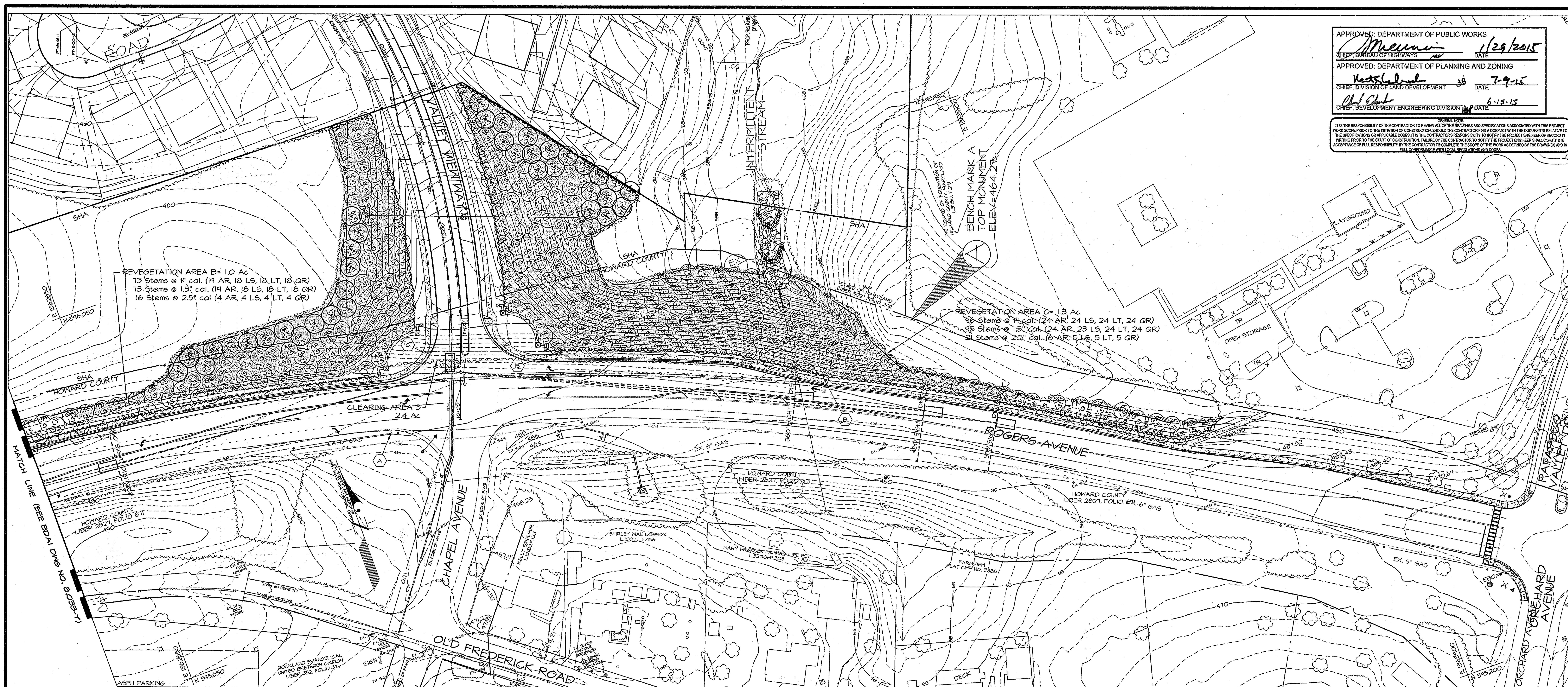

PLANTING SCHEDULE (This Sheet Only)					
SYM.	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
SHADE TREES					
AR2.5	10	Acer rubrum	Red Maple	2.5" cal.	B&B or Cont.
AR1.5	50	Acer rubrum	Red Maple	1.5" cal.	B&B or Cont.
AR1	30	Acer rubrum	Red Maple	1" cal.	Cont.
LS2.5	9	Liquidambar styraciflua	Sweet Gum	2.5" cal.	B&B or Cont.
LS1.5	35	Liquidambar styraciflua	Sweet Gum	1.5" cal.	B&B or Cont.
LS1	37	Liquidambar styraciflua	Sweet Gum	1" cal.	Cont.
LT2.5	9	Liriodendron tulipifera	Tulip Poplar	2.5" ca.l	B&B or Cont.
LT1.5	37	Liriodendron tulipifera	Tulip Poplar	1.5" cal.	B&B or Cont.
LT1	35	Liriodendron tulipifera	Tulip Poplar	1" cal.	Cont.
QR2.5	10	Quercus rubra	Northern Red Oak	2.5" cal.	B&B or Cont.
QR1.5	40	Quercus rubra	Northern Red Oak	1.5" cal.	B&B or Cont.
QR1	35	Quercus rubra	Northern Red Oak	1" cal.	Cont.

MASTER PLANTING SCHEDULE					
SYM.	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT
SHADE TREES					
AR2.5	12	Acer rubrum	Red Maple	2.5" cal.	B&B or Cont.
AR1.5	50	Acer rubrum	Red Maple	1.5" cal.	B&B or Cont.
AR1	50	Acer rubrum	Red Maple	1" cal.	Cont.
LS2.5	11	Liquidambar styraciflua	Sweet Gum	2.5" cal.	B&B or Cont.
LS1.5	49	Liquidambar styraciflua	Sweet Gum	1.5" cal.	B&B or Cont.
LS1	49	Liquidambar styraciflua	Sweet Gum	1" cal.	Cont.
LT2.5	11	Liriodendron tulipifera	Tulip Poplar	2.5" ca.l	B&B or Cont.
LT1.5	49	Liriodendron tulipifera	Tulip Poplar	1.5" cal.	B&B or Cont.
LT1	50	Liriodendron tulipifera	Tulip Poplar	1" cal.	Cont.
QR2.5	10	Quercus rubra	Northern Red Oak	2.5" cal.	B&B or Cont.
QR1.5	49	Quercus rubra	Northern Red Oak	1.5" cal.	B&B or Cont.
QR1	49	Quercus rubra	Northern Red Oak	1" cal.	Cont.

SIGNAGE LEGEND

A — R3-17 24" x 30" BIKE LANE; ENDS R3-17B 12" x 30"

B — R3-17 24" x 30" BIKE LANE

C — R1-1 STOP 30" x 30"

PAVEMENT MARKING LEGEND

- EXISTING SOLID WHITE PAVEMENT MARKING
- EXISTING SOLID WHITE PAVEMENT MARKING (3' SEGMENT - 9' GAP)
- EXISTING SOLID WHITE PAVEMENT MARKING (10' SEGMENT - 30' GAP)
- EXISTING DOUBLE YELLOW PAVEMENT MARKING
- EXISTING STOP BAR
- PROPOSED SOLID WHITE PAVEMENT MARKING
- PROPOSED SOLID WHITE PAVEMENT MARKING (3' SEGMENT - 9' GAP)
- PROPOSED DOUBLE YELLOW PAVEMENT MARKING
- PROPOSED STOP BAR
- EXISTING ONLY PAVEMENT MARKING
- EXISTING TURN ARROW PAVEMENT MARKING
- PROPOSED TURN ARROW PAVEMENT MARKING
- PROPOSED BICYCLE LANE ARROW & SYMBOL

LEGEND

- 252 — EXISTING 2' CONTOUR
- 240 — EXISTING 10' CONTOUR
- 252 — PROPOSED 2' CONTOUR
- 240 — PROPOSED 10' CONTOUR
- EXISTING TREELINE
- PROPOSED CLEARING
- PROPOSED TREELINE
- CLEARING AREA TOTAL AREA: 2.7 ACRES
- PROPOSED REVEGETATION TOTAL AREA: 2.7 ACRES @ 700 SEEDLINGS PER ACRE
- LIMIT OF ROOT PRUNING

Roadside Tree Reconnaissance

Clearing Area 1
Area 1 is located west of the south bound lanes of Route 29 (see plan view), just south of Old Frederick Road. The area is dominated by invasive species such as: Lonicera japonica (Japanese Honeysuckle), Polygonum perfoliatum (Asiatic Tearthumb) and Rosa multiflora (Multiflora Rose). Due to the heavy vine cover, trees growth is being suppressed. A few tree individuals are present, including: Acer negundo (Box Elder Maple), Sassafras albidum (Sassafras) and Quercus muhlenbergii (Chinquapin Oak). Two other tree species were also noted, Paulownia tomentosa (Princes Tree) and Ailanthus altissima (Tree of Heaven), though both are invasive species.

Clearing Area 2
Area 2 is situated north of the west bound lane of Rodgers Avenue and east of the intersection of Route 29. Forest composition includes such species as Liriodendron tulipifera (Yellow Poplar), Acer rubrum (Red Maple), Fraxinus Americana (White Ash), Prunus serotinato (Black Cherry) and Robinia pseudoacacia (Black Locust). Smaller maples and Locust are concentrated nearer the road, while the larger Poplars are found slight further down slope. The forest floor is covered by the invasive species: Microstegium vimineum (Japanese Stiltgrass) and Barbaris thunbergii (Japanese Barberry), though their presence is having little effect on the trees.

Clearing Area 3
Area 3 is dominated by mature Liriodendron tulipifera (Yellow Poplar). Acer rubrum (Red Maple) is common closer to the road, along with Robinia pseudoacacia (Black Locust) and Fraxinus Americana (White Ash). Scattered amoung the larger poplars are Platanus occidentalis (Sycamore), Quercus alba (White Oak), Quercus falcate (Northern Red Oak) and Liquidambar styraciflua (Sweetgum). Lesser numbers of understory trees are also present, such as: Juglans nigra (Black Walnut) and Sassafras albidum (Sassafras). Microstegium vimineum (Japanese Stiltgrass) covers the forest floor.

LANDSCAPING PLAN FOR PUBLIC STORM DRAIN, STORMWATER MANAGEMENT AND ROAD IMPROVEMENT PLAN

THE ESTATES AT PATAPSCO PARK

DISTRICT No. 2
HOWARD COUNTY, MARYLAND

GRAPHIC SCALE 1" = 50'
0 50' 100' 150'

17

SHEET 111 ~~OF 114~~
SHA SHEET 10 OF 20

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BEN DYER ASSOCIATES, INC.
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DRAWN BY	DESIGNED BY	CHECKED BY	RECORD NO.
CEG	MMW	MMW	J-B08034
SCALE 1"=50'			DRWG. NO.
DATE AUGUST 2014			8.034-Y

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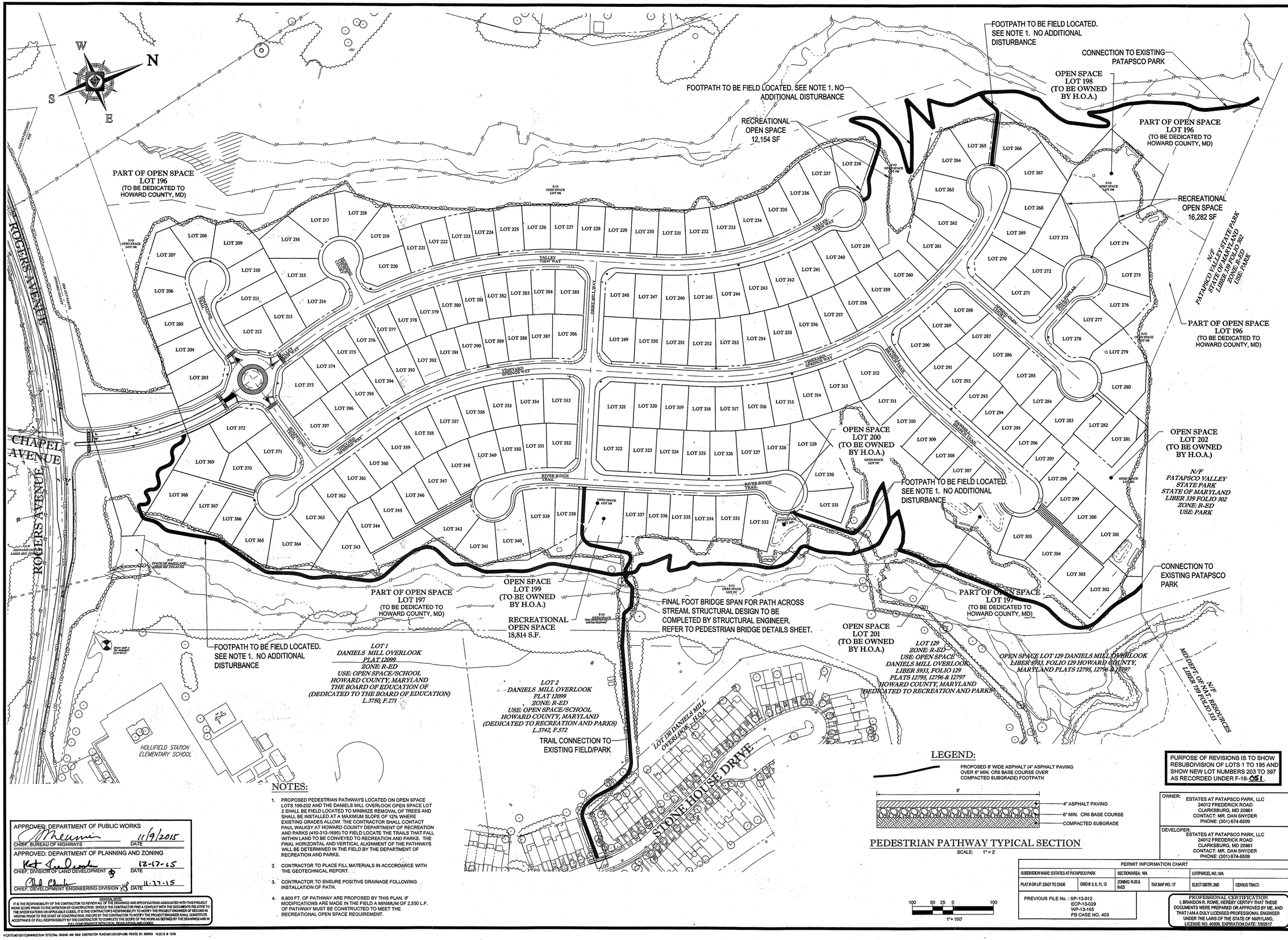

NOTES:

1. PROPOSED PEDESTRIAN PATHWAYS LOCATED ON OPEN SPACE LOTS 196-202 AND THE DANIELS MILL OVERLOOK OPEN SPACE LOT 2 SHALL BE FIELD LOCATED TO MINIMIZE REMOVAL OF TREES AND SHALL BE INSTALLED AT A MAXIMUM SLOPE OF 12% WHERE EXISTING GRADES ALLOW. THE CONTRACTOR SHALL CONTACT PAUL WALKSKY AT HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS (410-313-1695) TO FIELD LOCATE THE TRAILS THAT FALL WITHIN LAND TO BE CONVEYED TO RECREATION AND PARKS. THE FINAL HORIZONTAL AND VERTICAL ALIGNMENT OF THE PATHWAYS WILL BE DETERMINED IN THE FIELD BY THE DEPARTMENT OF RECREATION AND PARKS.
2. CONTRACTOR TO PLACE FILL MATERIALS IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
3. CONTRACTOR TO ENSURE POSITIVE DRAINAGE FOLLOWING INSTALLATION OF PATH.
4. 6,600 FT. OF PATHWAY ARE PROPOSED BY THIS PLAN. IF MODIFICATIONS ARE MADE IN THE FIELD A MINIMUM OF 2,550 L.F. OF PATHWAY MUST BE CONSTRUCTED TO MEET THE RECREATIONAL OPEN SPACE REQUIREMENT.

LEGEND:

PROPOSED 8' WIDE ASPHALT (4" ASPHALT PAVING OVER 6" MIN. CR6 BASE COURSE OVER COMPACTED SUBGRADE) FOOTPATH

PEDESTRIAN PATHWAY TYPICAL SECTION
SCALE: 1" = 2'

100 50 25 0 100
1"= 100'

PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 185 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
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OWNER:	ESTATES AT PATAPSCO PARK, LLC 24012 FREDERICK ROAD CLARKSBURG, MD 20861 CONTACT: MR. DAN SNYDER PHONE: (301) 674-8509
DEVELOPER:	ESTATES AT PATAPSCO PARK, LLC 24012 FREDERICK ROAD CLARKSBURG, MD 20861 CONTACT: MR. DAN SNYDER PHONE: (301) 674-8509

PERMIT INFORMATION CHART					
SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012, ECP-13-029, WP-13-165, PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/9/2017

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS
CORPORATE OFFICE: WARREN, NJ
REGIONAL OFFICES: SOUTHBOROUGH, MA; ALBANY, NY; CHALFONT, PA; CENTER VALLEY, PA; ANNAPOLIS, MD; BOWIE, MD; TOWSON, MD; FREDERICK, MD; WARRENTON, VA; PORT LANDERDALE, FL

THE INFORMATION CONTAINED ON THIS PLAN IS THE PROPERTY OF BOHLER ENGINEERING AND IS NOT TO BE USED IN WHOLE OR IN PART FOR ANY PROJECT OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT HAS BEEN PREPARED BY BOHLER ENGINEERING. ANY REPRODUCTION, ALTERATION OR USE OF THIS PLAN WITHOUT THE EXPRESS WRITTEN PERMISSION OF BOHLER ENGINEERING IS PROHIBITED. ANY UNAUTHORIZED USE OF THIS PLAN SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO BOHLER ENGINEERING.

REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	PER PPR RESUBDIVISION OF LOTS	RLB

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=100'
CAD I.D.:	OP4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

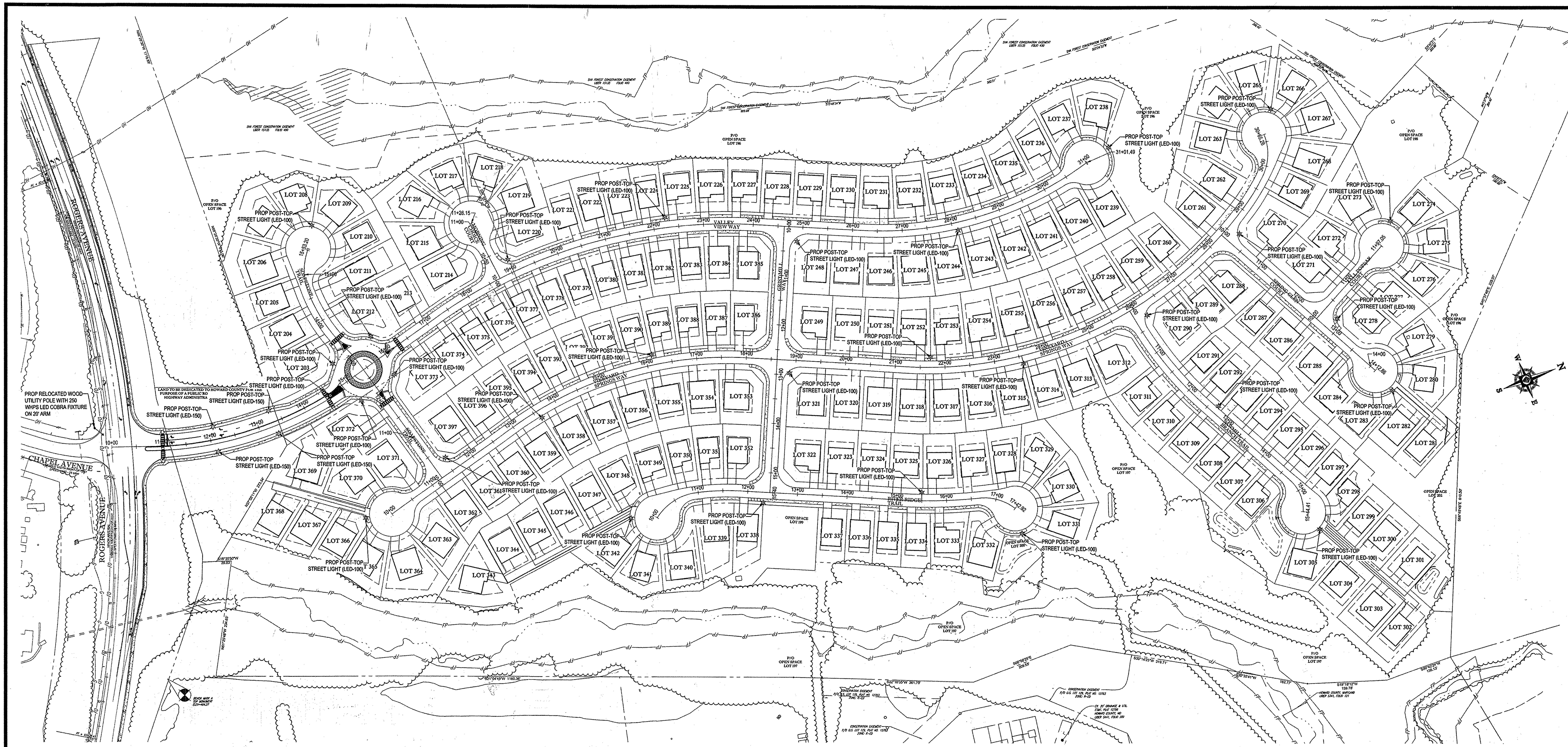
B.R. ROWE — 40808 — REGISTERED PROFESSIONAL ENGINEER — 7/9/2017

SHEET TITLE:
OVERALL PEDESTRIAN PATHWAY PLAN

SHEET NUMBER:
112

F-14-124

H:\2015\MD\15013\DWG\PLAN SET\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD152013GRADING PRINTED BY: BROWN 10.22.15 @ 12:56



STREET LIGHT CHART

STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
ROGERS AVE.	87+43.74	30.18' R	-	RELOCATED WOOD UTILITY POLE	250 WHPS LED COBRA FIXTURE ON 20' ARM MOUNTED
VALLEY VIEW WAY	12+10.40	25.67' L	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	12+10.40	25.67' R	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	13+30.99	24.59' L	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	13+32.65	25.85' R	14'-0"	BLACK FIBERGLASS	COLONIAL POST-TOP (LED-150)
VALLEY VIEW WAY	14+57.44	4.91' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	14+98.32	46.19' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+01.48	48.72' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+85.84	44.19' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	15+92.99	46.22' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	19+03.55	27.28' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	22+24.36	20.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	24+89.04	29.74' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	28+09.75	16.67' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VALLEY VIEW WAY	N 597897.62 E 1363153.74		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

STREET LIGHT CHART

STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
VINEYARD SPRINGS WAY	N 596233.83 E 1363321.43		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	11+53.87	29.61' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	13+60.12	16.67' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	16+12.60	20.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	18+88.34	26.43' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	21+71.10	20.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	23+55.81	16.67' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	26+16.66	26.30' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	28+57.96	26.06' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
VINEYARD SPRINGS WAY	N 598229.38 E 1363199.52		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	N 596731.82 E 1363511.92		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	12+31.94	21.26' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	15+50.26	16.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
RIVER RIDGE TRAIL	N 597455.79 E 1363820.69		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SOAPSTONE TRAIL	N 596344.32 E 1362730.63		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SAWMILL BRANCH TRAIL	12+66.69	16.67' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SAWMILL BRANCH TRAIL	N 598017.46 E 1364026.80		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SPRING GLEN COURT	12+88.68	27.19' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
SPRING GLEN COURT	N 598254.15 E 1363816.98		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)
TALL POPLAR COURT	N 598372.84 E 1363495.68		14'-0"	BLACK FIBERGLASS	POST-TOP (LED-100)

LEGEND

- POST-TOP STREET LIGHT (LED-100)
- POST-TOP STREET LIGHT (LED-150)
- PROP RELOCATED WOOD UTILITY POLE WITH 250 WHPS LED COBRA FIXTURE ON 20' ARM

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 11/9/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11-17-15

GENERAL NOTE:
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PURPOSE OF REVISIONS IS TO SHOW RESUBDIVISION OF LOTS 1 TO 195 AND SHOW NEW LOT NUMBERS 203 TO 397 AS RECORDED UNDER F-16-051.

OWNER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

DEVELOPER:
ESTATES AT PATAPSCO PARK, LLC
24012 FREDERICK ROAD
CLARKSBURG, MD 20861
CONTACT: MR. DAN SNYDER
PHONE: (301) 674-8509

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR L/F: 23421 TO 23436	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2017

100 50 25 0 100
1"= 100'

BOHLER ENGINEERING
CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
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REVISIONS

REV	DATE	COMMENT	BY
1	10/21/15	REV. PER RESUBDIVISION OF LOTS	RLB

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD152013
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	1/23/15
SCALE:	1"=100'
CAD I.D.:	LT4

PROJECT:
REVISED FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 203-397 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

B R ROWE
STATE OF MARYLAND — BRANDON R. ROWE — PROFESSIONAL ENGINEER — No. 40808
12/23/15

SHEET TITLE:
OVERALL LIGHTING PLAN

SHEET NUMBER:
113

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MATERIAL LIST

12' BRIDGE

Material	No. Required

16' BRIDGE

Material	No. Required

18' BRIDGE

Material	No. Required

22' BRIDGE

Material	No. Required

26' BRIDGE

Material	No. Required

32' BRIDGE

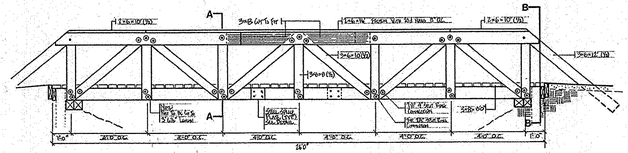
Material	No. Required

38' BRIDGE

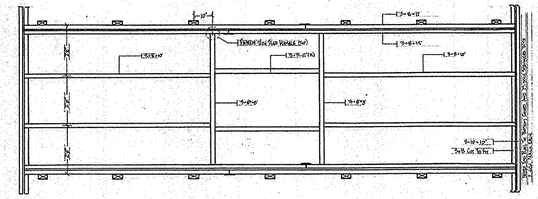
Material	No. Required

TYPICAL 26' BRIDGE

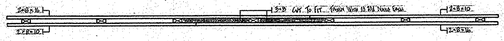
SCALE: 1/2 = 1'0"



SIDE VIEW



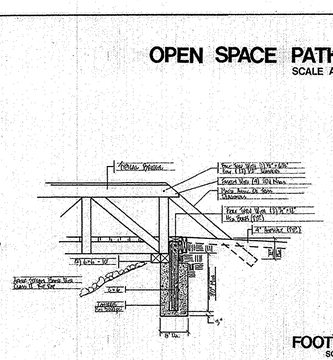
DECK FRAMING PLAN



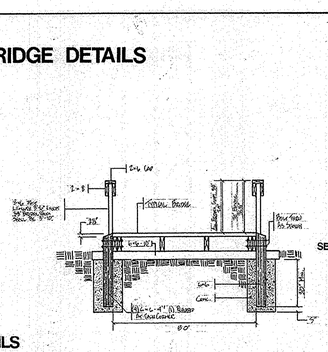
TOP CHORD

OPEN SPACE PATHWAY BRIDGE DETAILS

SCALE AS NOTED



SIDE VIEW



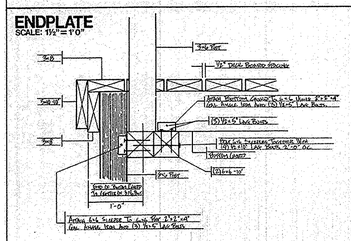
SECTION B-B

FOOTING DETAILS

SCALE: 1/2" = 1'0"

ENDPLATE

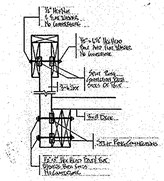
SCALE: 1 1/2" = 1'0"



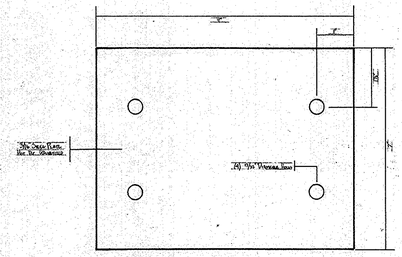
SPLIT RING CONNECTION

Required for bridges over 18' only

Scale: 1 1/2" = 1'0"



SECTION A-A



STEEL SPLICE PLATE

SCALE: 3/4" = 1"

NOTES

FINAL FOOT BRIDGE SPAN FOR PATH ACROSS STREAM. STRUCTURAL DESIGN TO BE COMPLETED BY STRUCTURAL ENGINEER.

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

HOWARD SCD — DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 7/8/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

GENERAL NOTE

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H:\2013\md132008\planning\PLAN SETS\FINAL GRADING AND ROAD CONSTRUCTION PLANS\MD132008PEDLONG PRINTED BY: RSOWCH 12.15.14 @ 8.50 A

BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

CORPORATE OFFICE:
◆ WARREN, NJ

OFFICES:
◆ BOWIE, MD
◆ TOWSON, MD
◆ WILMINGTON, DE
◆ WARRENTON, VA
◆ FORT LAUDERDALE, FL
◆ PORT LAUDERDALE, FL
◆ SOUTHBOROUGH, MA
◆ ALBANY, NY
◆ MORGANTOWN, WV
◆ CHALFONT, PA
◆ HARRISBURG, PA
◆ STATE COLLEGE, PA
◆ WILKES-BARRE, PA
◆ TAMPA, FL
◆ LEXINGTON, KY
◆ CHARLESTON, WV

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REVISIONS

REV	DATE	COMMENT	BY

MISS UTILITY OF DELMARVA

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APPROVED FOR CONSTRUCTION

PROJECT No.:	MD132008
DRAWN BY:	RLB
CHECKED BY:	BRR
DATE:	12/11/14
SCALE:	AS SHOWN
CAD I.D.:	PSO

PROJECT:
FINAL ROAD CONSTRUCTION PLANS
FOR
ESTATES AT PATAPSCO PARK
BUILDABLE LOTS 1-195 AND OPEN SPACE LOTS 196 - 202
LOCATION OF SITE
MD ROUTE 99
ROGERS AVENUE
HOWARD COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

STATE OF MARYLAND — BRANDON R. LONG — No. 409688 — PROFESSIONAL ENGINEER

SHEET TITLE:
PEDESTRIAN BRIDGE DETAILS

SHEET NUMBER:
114

OWNER:
PM PATAPSCO LLC
12115 ARBIE ROAD
SILVER SPRING, MD 20904
CONTACT: MR. SIMON ROSENBERG
PHONE: (301) 622-0545

DEVELOPER:
NAI THE MICHAEL COMPANIES
10100 BUSINESS PARKWAY, LANHAM, MD 20706
CONTACT: BRIAN GOLDSTEIN
PHONE: (301) 918-2955

PERMIT INFORMATION CHART

SUBDIVISION NAME: ESTATES AT PATAPSCO PARK		SECTION/AREA: N/A		LOT/PARCEL NO.: N/A	
PLAT # OR LIF: 15148/685 & 15149/697	GRID #: 5, 6, 11, 12	ZONING: R-20 & R-ED	TAX MAP NO.: 17	ELECT DISTR: 2ND	CENSUS TRACT:

PREVIOUS FILE No. : SP-13-012
ECP-13-029
WP-13-165
PB CASE NO. 403

F-14-124

Rogers Avenue is constructed to run in an East/West direction.

EXISTING SIGNS

14,16 — LEFT TURN YIELD ON GREEN

15a, 17b — Orchard AVE / Patapsco Valley DR

15b,17a — Orchard AVE / Patapsco Valley DR

18 — ONLY

PROPOSED SIGNS

19, 20 — PUSH BUTTON TO CROSS ROGERS AVENUE; RIGHT ENGINE MAY NOT BE TURNING CARS; DON'T START WHEN TIME REMAINING IS FLASHING; PEDESTRIANS SHOULD NOT BE IN CROSSWALK; STREET NAME IN SMALLE TYPE 2

R10-3(1) 9" x 15"

R10-3(1) 9" x 15"

EXISTING SIGNALS

1,2,5,6 — R, Y, G; 12"

3,4, 7-11 — R, Y, G; 12"

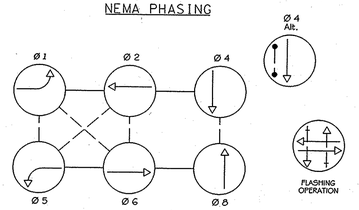
EXISTING VIDEO DETECTION

a,b,c

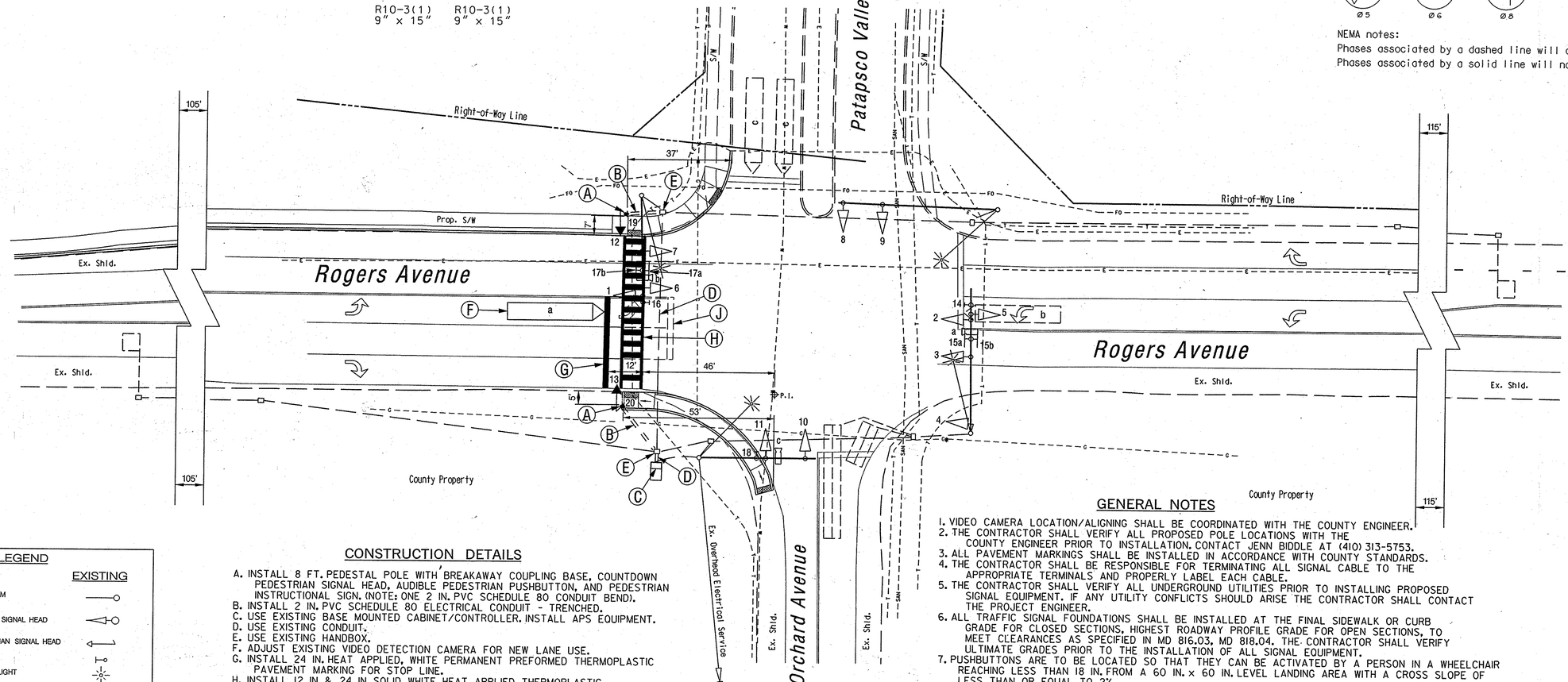
PROPOSED SIGNALS

12,13 — 16" LED COUNTDOWN PEDESTRIAN SIGNAL

NEMA PHASING



NEMA notes:
Phases associated by a dashed line will operate concurrently.
Phases associated by a solid line will not operate concurrently.



LEGEND

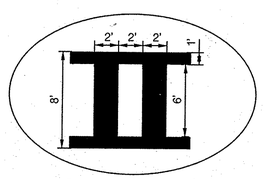
PROPOSED	EXISTING
MAST ARM	
TRAFFIC SIGNAL HEAD	
PEDESTRIAN SIGNAL HEAD	
SIGN	
STREET LIGHT	
HANDBOX	
CONDUIT	
LOOP DETECTOR	
CONTROLLER WITH PAD	
WOOD POLE	
FIRE HYDRANT	
MANHOLE	
W.V. WATER VALVE	W.V.
G.V. GAS VALVE	G.V.
GEOMETRICS	

UTILITY LEGEND

G — G	GAS MAIN
W — W	WATER MAIN
S — S	SEWER MAIN
SD — SD	STORM DRAIN
TV — TV	CABLE TELEVISION
E — E	ELECTRIC CABLES
T — T	TELEPHONE CABLES
A — A	AERIAL CABLES

CONSTRUCTION DETAILS

A. INSTALL 8 FT. PEDESTAL POLE WITH BREAKAWAY COUPLING BASE, COUNTDOWN PEDESTRIAN SIGNAL HEAD, AUDIBLE PEDESTRIAN PUSHBUTTON, AND PEDESTRIAN INSTRUCTIONAL SIGN. (NOTE: ONE 2 IN. PVC SCHEDULE 80 CONDUIT BEND).
B. INSTALL 2 IN. PVC SCHEDULE 80 ELECTRICAL CONDUIT - TRENCHED.
C. USE EXISTING BASE MOUNTED CABINET/CONTROLLER. INSTALL APS EQUIPMENT.
D. USE EXISTING CONDUIT.
E. USE EXISTING HANDBOX.
F. ADJUST EXISTING VIDEO DETECTION CAMERA FOR NEW LANE USE.
G. INSTALL 24 IN. HEAT APPLIED, WHITE PERMANENT PREFORMED THERMOPLASTIC PAVEMENT MARKING FOR STOP LINE.
H. INSTALL 12 IN. & 24 IN. SOLID WHITE HEAT APPLIED THERMOPLASTIC PAVEMENT MARKING - FOR CROSSWALK (SEE DETAIL).
J. REMOVE EXISTING PAVEMENT MARKING BY GRINDING.



Crosswalk Detail

GENERAL NOTES

1. VIDEO CAMERA LOCATION/ALIGNING SHALL BE COORDINATED WITH THE COUNTY ENGINEER.
2. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE LOCATIONS WITH THE COUNTY ENGINEER PRIOR TO INSTALLATION. CONTACT JENN BIDDLE AT (410) 313-5753.
3. ALL PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH COUNTY STANDARDS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABEL EACH CABLE.
5. THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES PRIOR TO INSTALLING PROPOSED SIGNAL EQUIPMENT. IF ANY UTILITY CONFLICTS SHOULD ARISE THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER.
6. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS. HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN MD 816.03, MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
7. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 IN. FROM A 60 IN. x 60 IN. LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
8. THE 10 FT. SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER TO CENTER OF POLE.
9. PUSHBUTTON ARROWS ARE TO BE PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
10. THE LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MUTCD SEC. 4E.08; 4E.10; FIG 4E-3; FIG 4E-4 AND THE NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS: GUIDE TO BEST PRACTICE". IF NOT MET, THE CONTRACTOR IS TO STOP WORK ON PUSHBUTTON LOCATIONS UNTIL AN APPROVED LOCATION HAS BEEN FOUND BY THE HOWARD COUNTY TRAFFIC ENGINEER.
11. PEDESTRIAN RAMP DETAILS CAN BE FOUND ON SHEET 25 OF THE ROADWAY PLANS.
12. THE CONTRACTOR SHALL COORDINATE WITH THE COUNTY ENGINEER 48 HOURS PRIOR TO INSTALLING FOUNDATIONS.
13. CONTRACTOR SHALL CONTACT HOWARD COUNTY'S UNDERGROUND UTILITY PERMIT DIVISION AT 410-313-4207 AT LEAST FIVE BUSINESS DAY PRIOR TO STARTING ANY WORK WITHIN THE PUBLIC RIGHT- OF WAY.

PROFESSIONAL CERTIFICATION - I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENESED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO.: 23316 EXPIRATION DATE: 9/13/16

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 2/11/15
CHIEF, TRAFFIC ENGINEERING DIVISION — DATE 2/2/2015
CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

The Traffic Group
Suite H
9900 Franklin Square Dr.
Baltimore, Maryland
21
410-931-6600
1-800-583-8411
Fax: 410-931-6601

STATE OF MARYLAND — JING-YU CHIEN — No. 23316 — PROFESSIONAL ENGINEER

DES: jjd
DRN: jjd
CHK: J.J.D.
DATE: 10/7/2014

BY	NO.	REVISION	DATE
jjd	1	INSTALL PED CROSSING	1-21-2015

CAPITAL PROJECT NO.

600' SCALE MAP NO. _____ DATE: _____

TRAFFIC SIGNAL PLAN
Rogers Avenue
at
Orchard Ave/Patapsco Valley Dr

SCALE: 1"=20'

SHEET 115

PLOTTED: Wednesday, January 21, 2015 AT 12:34 PM
FILE: F:\2013\2013-0402\DES\TEDD\TS-SH Rogers @ Orchard.dgn

F 14-124

PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE MODIFICATION TO THE EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF ROGERS AVENUE AND ORCHARD AVENUE/PATAPSCO VALLEY DRIVE IN HOWARD COUNTY, MARYLAND. ROGERS AVENUE IS CONSIDERED TO RUN IN AN EAST/WEST DIRECTION.

INTERSECTION OPERATION

THE EXISTING CONTROLLER HOUSED IN A BASE MOUNTED CABINET WILL BE UTILIZED.

THE INTERSECTION WILL BE MODIFIED TO INCLUDE AN ACTUATED PEDESTRIAN MOVEMENT ACROSS THE WEST LEG OF THE INTERSECTION.

EQUIPMENT LIST

A. EQUIPMENT TO BE FURNISHED BY THE COUNTY.

QUANTITY	UNITS	DESCRIPTION
2	EA	16 IN., ONE-WAY, ONE SECTION L.E.D. (COUNTDOWN INDICATIONS) ADJUSTABLE PEDESTRIAN SIGNAL HEAD WITH POST TOP MOUNTING HARDWARE AND CUT-AWAY VISORS.
2	EA	AUDIBLE PEDESTRIAN PUSHBUTTON ASSEMBLY WITH ADA (braille) SIGN
1	EA	APS 2-WIRE CENTRAL CONTROL UNIT

APS WILL FUNCTION AS FOLLOWS:

FOR ROGERS AVENUE AT PATAPSCO VALLEY DRIVE (NW CORNER)

A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON MESSAGE WILL BE "WAIT TO CROSS ROGERS at PATAPSCO VALLEY. WAIT."

B. WHEN WALK PHASE BEGINS, THE AUDIBLE SOUND WILL BE A RAPID TICK, WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

FOR ROGERS AVENUE AT ORCHARD AVENUE (SW CORNER)

A. WHEN PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSHBUTTON MESSAGE WILL BE "WAIT TO CROSS ROGERS at ORCHARD. WAIT."

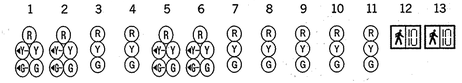
B. WHEN WALK PHASE BEGINS, THE AUDIBLE SOUND WILL BE A RAPID TICK, WHICH WILL LAST FOR THE DURATION OF THE WALK PHASE.

EQUIPMENT LIST CONT.

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE TRAFFIC SIGNAL CONTRACTOR.

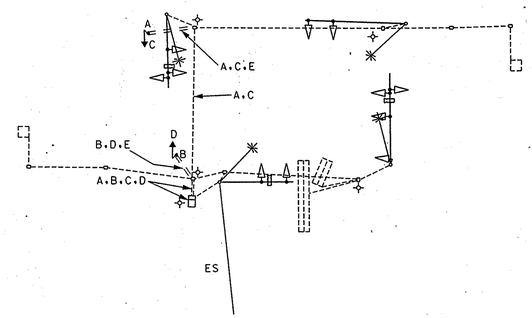
QUANTITY	UNITS	DESCRIPTION
LUMP SUM	LS	MOT - HWY
1	CY	TEST PIT EXCAVATION
2	EA	8 FT. ALUMINUM PEDESTAL POLE WITH BREAKAWAY COUPLING BASE
2	EA	9 IN. x 15 IN. R10-3(I) SIGN - POLE MOUNT
1.5	CY	CONCRETE FOUNDATION
35	LF	2 IN. CONDUIT PVC SCHED 80 - TRENCHED
165	LF	2 - COND. 14 AWG IMSA 19-1
165	LF	5 - COND. 14 AWG IMSA 19-1
40	LF	COPPER GROUND WIRE (NO. 6 A.W.G.)
90	LF	12 IN. WHITE THERMOPLASTIC PAVEMENT MARKING
150	LF	24 IN. WHITE THERMOPLASTIC PAVEMENT MARKING
85	LF	REMOVE EXISTING PAVEMENT MARKING BY GRINDING
1	EA	REMOVE EXISTING PAVEMENT MARKING SYMBOL BY GRINDING
2	EA	INSTALL PEDESTRIAN SIGNAL - POST TOP
2	EA	INSTALL APS PEDESTRIAN PUSHBUTTON

Phase Chart



PHASE 1 AND 5	~~G~~R	~~G~~R	R	R	~~G~~R	~~G~~R	R	R	R	R	R	DW	DW
1 AND 5 CHANGE TO 1 AND 6, 2 AND 5, OR 2 AND 6													
PHASE 1 AND 6	~~G~~G	~~G~~G	G	G	R	R	R	R	R	R	R	DW	DW
1 CHANGE	~~Y~~G	~~Y~~G	G	G	R	R	R	R	R	R	R	DW	DW
PHASE 2 AND 5	R	R	R	R	~~G~~G	~~G~~G	G	R	R	R	R	DW	DW
5 CHANGE	R	R	R	R	~~Y~~G	~~Y~~G	G	R	R	R	R	DW	DW
PHASE 2 AND 6	G	G	G	G	G	G	G	R	R	R	R	WK	WK
2 AND 6 CHANGE	Y	Y	Y	Y	Y	Y	Y	R	R	R	R	DW	DW
PHASE 4 and 8	R	R	R	R	R	R	R	G	G	G	G	DW	DW
4 and 8 CHANGE	R	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW
PHASE ALT 4 and 8	R	R	R	R	R	R	R	G	G	G	G	WK	WK
PED CLEARANCE	R	R	R	R	R	R	R	G	G	G	G	FL/DW	FL/DW
ALT 4 and 8 CHANGE	R	R	R	R	R	R	R	Y	Y	Y	Y	DW	DW
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	FL/R	FL/R	DARK	DARK

Wiring Diagram



KEY

A } 2-CONDUCTOR ELECTRICAL
B } CABLE (NO. 14 A.W.G.)

C } 5-CONDUCTOR ELECTRICAL
D } CABLE (NO. 14 A.W.G.)

E – THWN GREEN COPPER GROUND WIRE (NO. 6 A.W.G.)

ES – EXISTING OVERHEAD ELECTRICAL SERVICE BY BGE

⏚ – EXISTING GROUND ROD

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-9-15

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6.15.15

PROFESSIONAL CERTIFICATION – I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO. 22916 EXPIRATION DATE: 7/3/16

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 2/10/15

CHIEF, TRAFFIC ENGINEERING DIVISION — DATE 2/2/2015

CHIEF, BUREAU OF HIGHWAYS — DATE 1/29/2015

The Traffic Group, Inc.
Suite H
9900 Franklin Square Dr.
Baltimore, Maryland
410-931-6600
1-800-583-8411
Fax: 410-931-6601

STATE OF MARYLAND — JAMES J. DIGIACOMO — No. 22916 — PROFESSIONAL ENGINEER

DRN: jjd

CHK: JJD

DATE: Oct. 17, 2014

BY	NO.	REVISION	DATE
jjd	1	INSTALL PED CROSSING	1-21-2015

600' SCALE MAP NO. _____ DATE: _____

TRAFFIC SIGNAL PLAN SHEET
—
Rogers Avenue
at
Orchard Ave/Patapsco Valley Dr

SCALE: N/A'

SHEET 116

F 14–124

PLOTTED: Wednesday, January 21, 2015 AT 12:34 PM
FILE: F:\2013\2013-0400\DES\TEDD\TS-SH Rogers @ Orchard.dgn