

# COMMERCIAL SITE DEVELOPMENT PLAN

# TOWN SQUARE AT TURF VALLEY

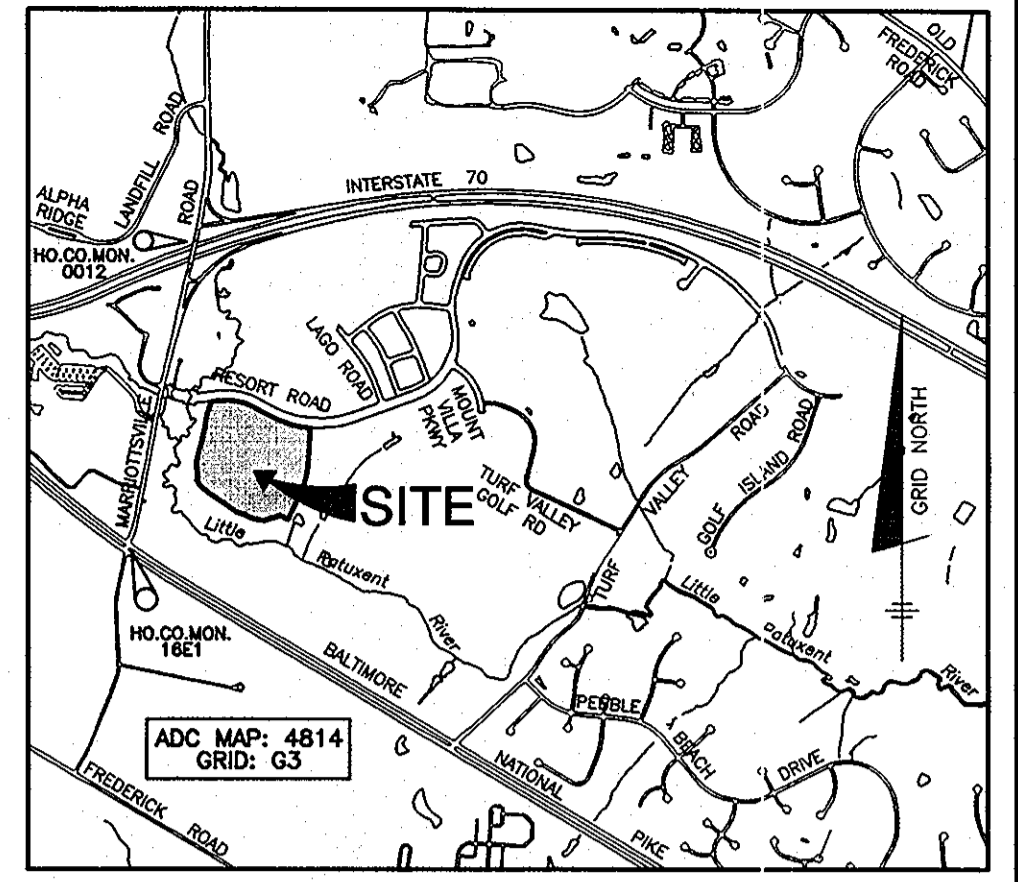
## PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4 & 5

## TURF VALLEY PROFESSIONAL BUILDINGS

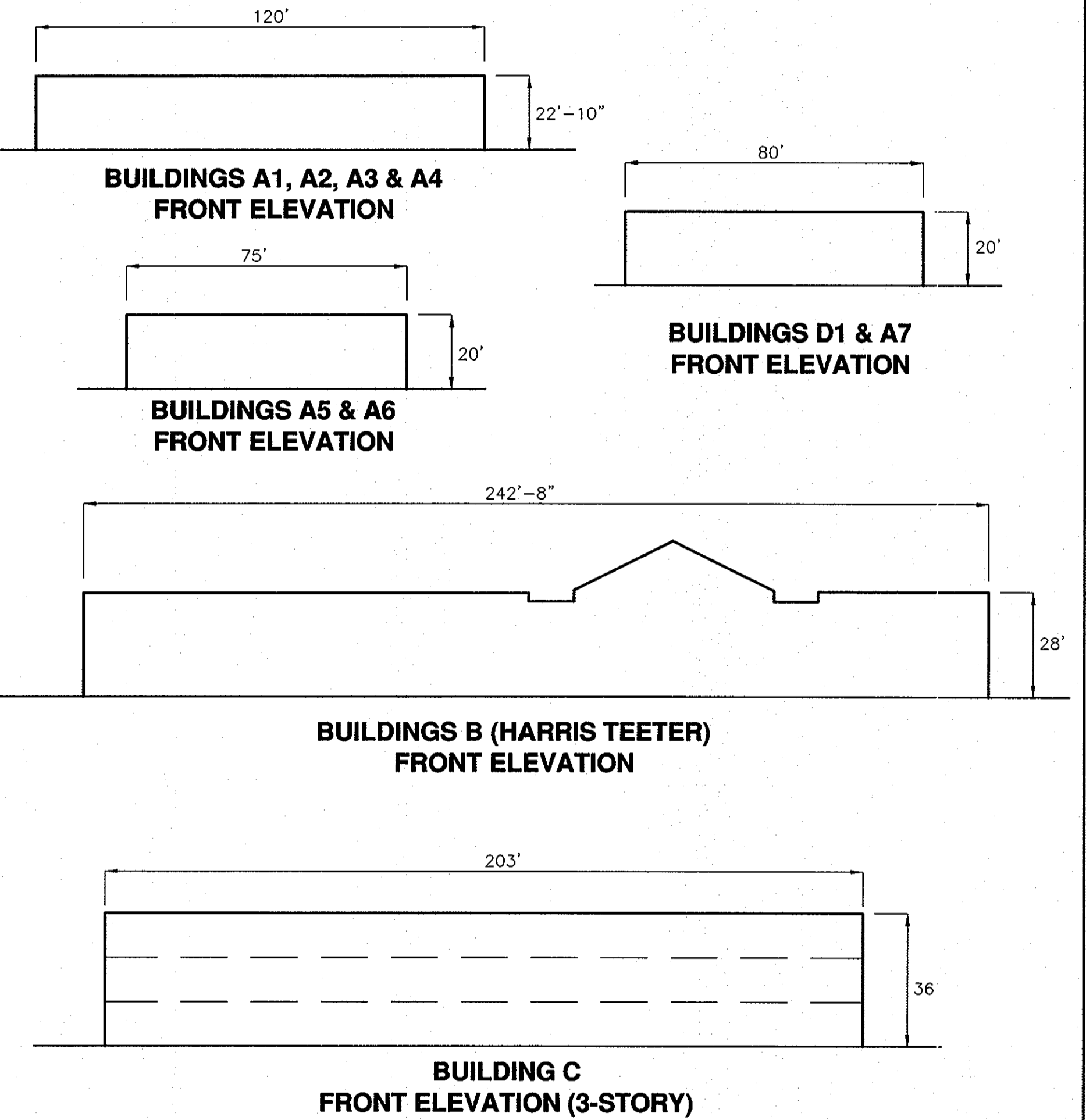
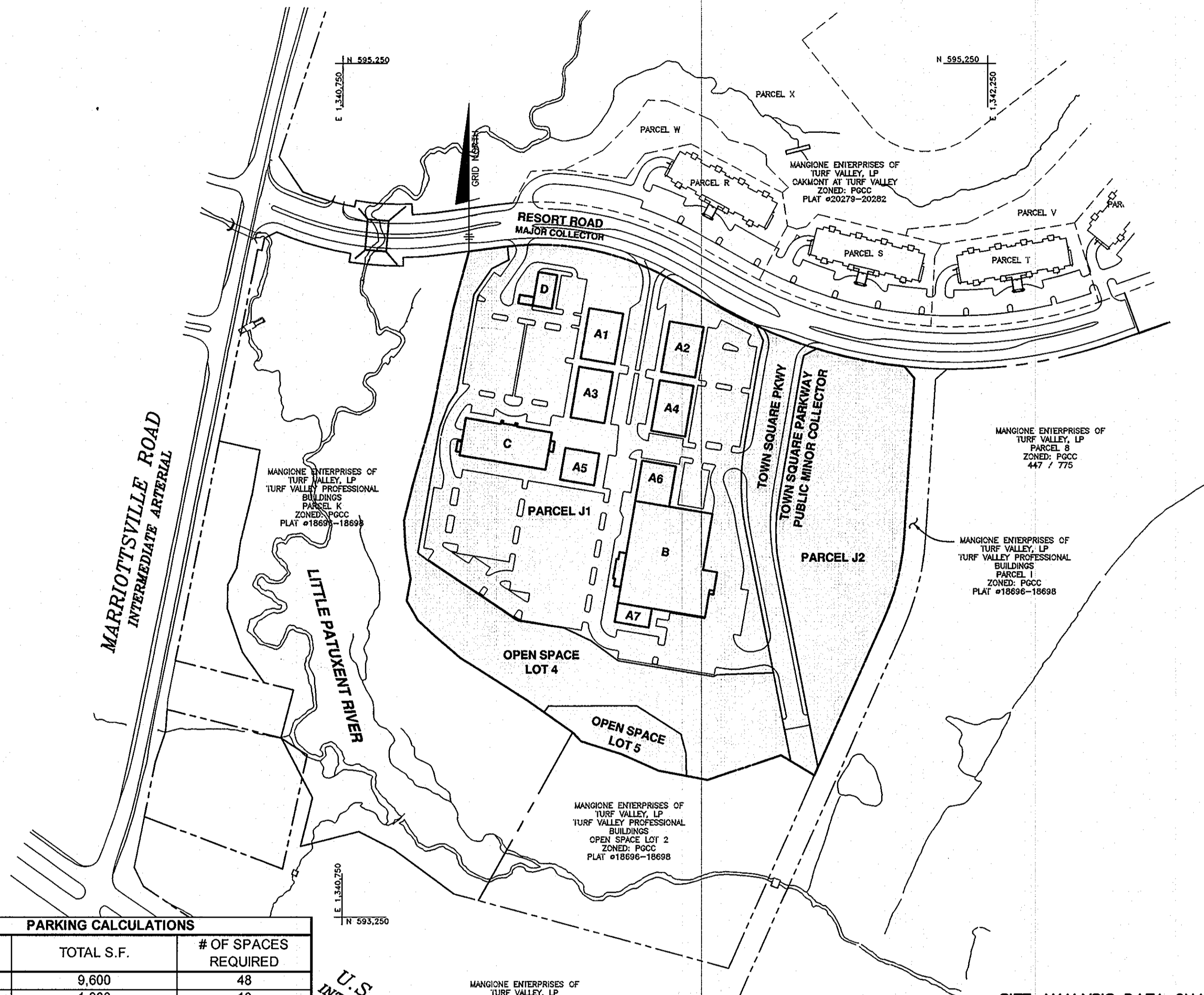
### GENERAL NOTES

1. THE SUBJECT PROPERTY IS ZONED PGCC PER THE 2-2-04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING REGULATION AMENDMENTS EFFECTIVE 7-29-2006.
2. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE APRIL 13, 2004.
3. BOUNDARY IS BASED ON RECORD PLAT ENTITLED, "TURF VALLEY PROFESSIONAL BUILDINGS" PLAT NOS. 18696-18698, PREPARED BY MILDENBERG, BOENDER AND ASSOCIATES, INC. AND RECORDED ON DECEMBER 15, 2006.
4. EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL TOPOGRAPHIC SURVEY PERFORMED BY WINGS AERIAL MAPPING CO., INC. FLOWN ON OR ABOUT JANUARY, 2006.
5. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 16E1 AND 0012 WERE USED FOR THIS PROJECT.
6. EXISTING UTILITIES SHOWN HAVE BEEN TAKEN FROM F-02-074, CONTRACT DRAWINGS #14-3724-D, #24-4048-D, #24-3447-D AND FIELD SURVEYED LOCATIONS. IF NECESSARY, CONTRACTOR SHALL ADJUST ANY OR ALL STRUCTURE TOP ELEVATIONS TO MATCH SDP GRADES.
7. STORMWATER MANAGEMENT FOR THIS SITE WAS PREVIOUSLY PROVIDED BY THE EXISTING EXTENDED DETENTION POND UNDER F-02-074. FOR THIS DEVELOPMENT, THAT POND IS BEING UTILIZED BUT HAS BEEN MODIFIED TO ACCOMMODATE A HIGHER CURVE NUMBER BASED ON COMMERCIAL ZONING. THIS POND REMAINS UNDER THE STORMWATER MANAGEMENT REQUIREMENTS IN EFFECT PRIOR TO THE ADOPTION OF THE MDE 2000 MANUAL QUALITY AND QUANTITY CONTROL FOR THE REMAINDER OF THE SITE IS BEING PROVIDED IN SWAF #2 (EXTENDED DETENTION WITH MICROPOOL) AND RECHARGE CHAMBER #1. THIS POND IS IN CONFORMANCE WITH THE MDE 2000 STORMWATER MANAGEMENT REGULATIONS. POND #1 IS PRIVATELY OWNED AND PRIVATELY MAINTAINED. POND #2 IS PRIVATELY OWNED AND JOINTLY MAINTAINED.
8. THE GEOTECHNICAL REPORT WAS PREPARED BY HILLIS-CARNE ENGINEERING ASSOCIATES, INC. ON OCTOBER 26, 2009.
9. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM, OR THEIR REQUIRED BUFFERS.
10. THERE IS NO 100-YEAR FLOODPLAIN LOCATED ON WITHIN THE BOUNDARIES OF TOWN SQUARE AT TURF VALLEY.
11. THERE ARE NO EXISTING STRUCTURES LOCATED ON THIS SITE.
12. THERE ARE NO CEMETERIES OR HISTORICAL STRUCTURED LOCATED ON THIS SITE.
13. A NOISE STUDY IS NOT REQUIRED FOR TOWN SQUARE AT TURF VALLEY.
14. THIS PROJECT IS SUBJECT TO THE TRAFFIC STUDY PREPARED BY THE TRAFFIC GROUP, INC. WHICH WAS UPDATED JANUARY 7, 2005, AUGUST 11, 2006, AND LETTER DATED 11-9-2009. IT WAS APPROVED ON 12-10-2009.
15. THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
16. WATER IS PUBLIC. THE CONTRACT NUMBER IS 44-4653-D. THE DRAINAGE AREA IS "LITTLE PATUXENT".
17. SEWER IS PUBLIC. THE CONTRACT NUMBER IS 24-3447-D. THE DRAINAGE AREA IS "LITTLE PATUXENT".
18. THIS PROJECT IS EXEMPT FROM HOWARD COUNTY FOREST CONSERVATION REQUIREMENTS UNDER SECTION 16.1202(b)(1)(v) OF THE COUNTY CODE SINCE IT IS A PLANNING UNIT DEVELOPMENT WHICH HAD PRELIMINARY DEVELOPMENT PLAN APPROVAL AND 50% OR MORE OF THE LAND WAS RECORDED AND SUBSTANTIALLY DEVELOPED BEFORE DECEMBER 31, 1992.
19. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$30,210.00 (\$20,100.00 FOR 67 SHADE TREES, \$9,150.00 FOR 61 EVERGREEN TREES, AND \$960.00 FOR 32 SHRUBS).
20. HOWARD COUNTY FILE NUMBERS: S-86-013 (368), S-00-018, P-00-006, F-02-074, WP-12-129
21. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT (410)313-1889 AT LEAST FIVE(5) WORKING DAYS PRIOR TO THE START OF WORK.
22. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
23. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
24. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
25. ALL EXTERIOR LIGHTING SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL VOLUME III (1993), ZONING SECTION 134 AND AS SHOWN ON THESE PLANS. ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS ON-SITE AWAY FROM ALL ADJOINING RESIDENTIAL PROPERTIES AND PUBLIC ROADS IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
26. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED SQUARE TUBE POST (1 1/2" GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL PERFORATED SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
27. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
28. TRASH COLLECTION SHALL BE PROVIDED PRIVATELY.
29. PRIVATE ROAD 'A' AS SHOWN ON THIS SITE DEVELOPMENT PLAN SHALL BE A PRIVATE ROAD. HOWEVER, IT IS INTENDED TO BE DEDICATED TO HOWARD COUNTY AS A PUBLIC ROAD IN THE FUTURE. IT HAS BEEN DESIGNED PER DESIGN MANUAL VOLUME III STANDARDS AS A MAJOR COLLECTOR.
30. OPEN SPACE FOR THIS SUBDIVISION WAS PREVIOUSLY PROVIDED UNDER F-02-074.  
TOTAL AREA OF SUBDIVISION: 68.97 +/- ACRES.  
OPEN SPACE REQUIRED: 15% OF 68.97 ACRES OR 10.35 ACRES.  
OPEN SPACE PROVIDED: 24.33 ACRES (PARCELS K, L, N, O, & P) 13.98 ACRES OF WHICH IS TO BE CREDITED TOWARD FUTURE REQUIREMENTS.
31. THIS SITE COMPLES WITH THE HOWARD COUNTY GREEN BUILDINGS LAW SET FORTH UNDER TITLE 3, SUBTITLE 10 OF THE HOWARD COUNTY CODE AND SECTION 3.1005(A) OF THE CODE. REGISTRATION WITH THE U.S. GREEN BUILDING COUNCIL AND THE APPLICABLE LEED REGISTRATION FEE WAS PAID ON 11-6-2009. THE LEED NEW CONSTRUCTION CHECKLIST WAS PREPARED, SIGNED AND DATED BY THE PROJECT LEAD ACCREDITED PROFESSIONAL AND WAS RECORDED BY DPZ ON 11-6-2009. BUILDING 'C' IS TENTATIVELY CERTIFIED BY LEED WITH THE MINIMUM REQUIRED CERTIFIED LEVEL RATING.
32. PRIOR TO GRADING PERMIT APPLICATION, THIS PROJECT SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 16.129 OF THE HOWARD COUNTY CODE.
33. KNOX BOX SHALL BE PLACED ON THE FRONT OF ALL BUILDINGS NO MORE THAN 6' TO THE RIGHT OF THE MAIN ENTRANCE AT A HEIGHT OF 4'-5". IT SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
34. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
35. REDEVELOPMENT OF GOLF COURSE FEATURES ASSOCIATED WITH THIS PROJECT WILL BE OVERSEEN BY HOWARD COUNTY HEALTH DEPARTMENT FOR COMPLIANCE WITH SECTION 16.129. IF ANY "TIE" IS IMPORTED AS PART OF THE GRADING/DEVELOPMENT PROCESS, THAT FILL CANNOT BE FROM ANY PRIOR GOLF COURSE FEATURE UNLESS TESTED AND APPROVED UNDER THE PROVISIONS OF SECTION 16.129.

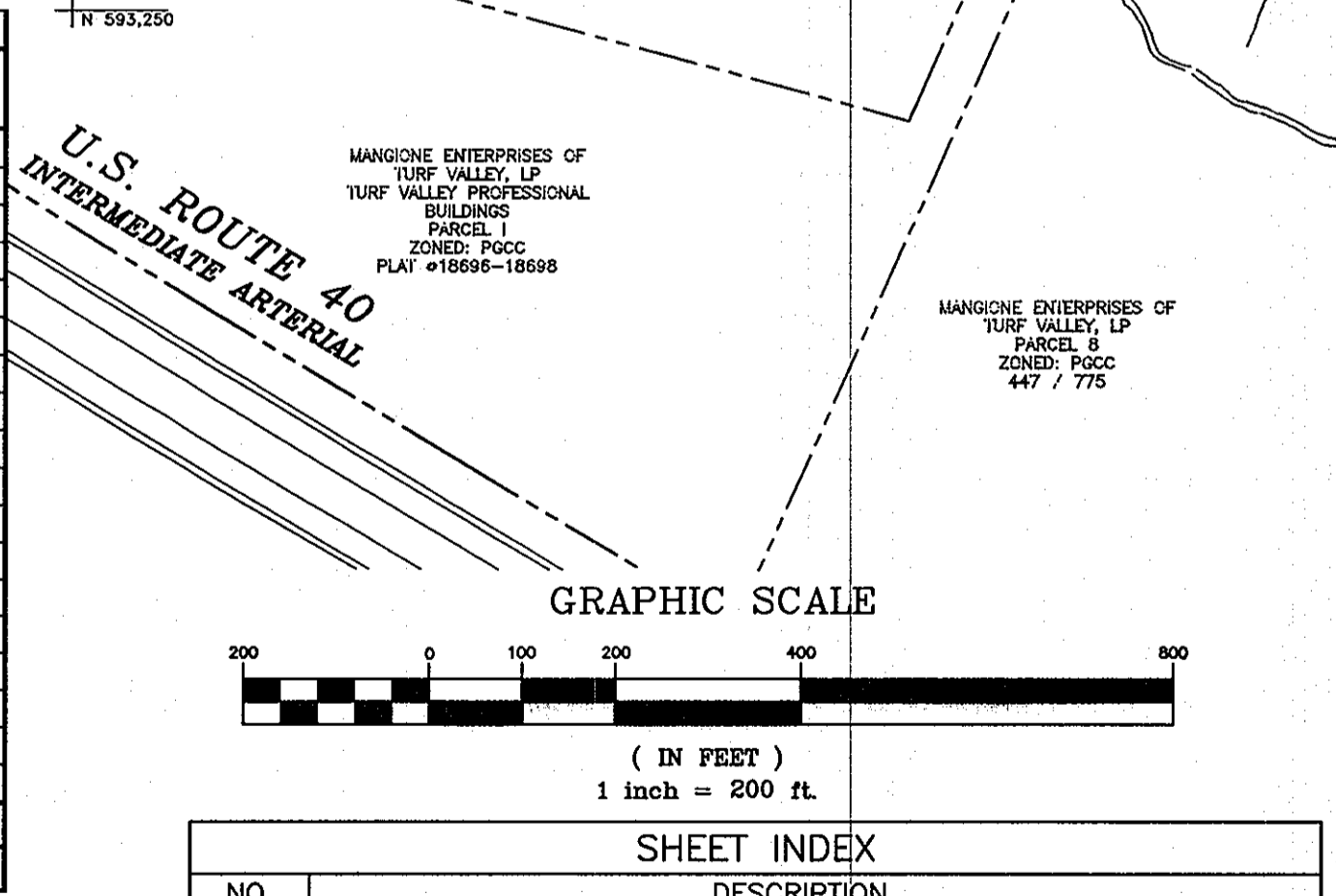
BENCHMARKS NAD'83 HORIZONTAL	
HO. CO. #16E1 (AKA: 3438001)	STAMPED BRASS DISK SET ON TOP OF A 3" DEEP COLUMN OF CONCRETE.
N 593250.960' E 1340192.70'	ELEVATION: 463.981'
HO. CO. #0012 (AKA: 3439001)	STAMPED BRASS DISK SET ON TOP OF A 3" DEEP COLUMN OF CONCRETE.
N 596502.760' E 1340864.37'	ELEVATION: 486.298'



VICINITY MAP  
SCALE: 1" = 2000'



PARKING CALCULATIONS		
BUILDING	TOTAL S.F.	# OF SPACES REQUIRED
A1	9,600	48
A1 outdoor dining	1,300	18
A2	9,600	48
A2 outdoor dining	0	0
A3	9,600	48
A3 outdoor dining	700	10
A4	9,600	48
A4 outdoor dining	732	10
A5	6,000	30
A5 mezzanine	178	1
A5 outdoor dining	700	10
A6	8,373	42
A6 mezzanine	1,150	6
A7	3,427	17
B	48,808	244
C (medical)	17,600	88
C (office)	35,200	176
D	3,600	18
<b>TOTAL PARKING REQUIRED*</b>		<b>862</b>
<b>TOTAL PARKING PROVIDED**</b>		<b>794</b>



SITE ANALYSIS DATA CHART	
A.) TOTAL PROJECT AREA	25.67 AC.
B.) AREA OF PLAN SUBMISSION	25.67 AC.
C.) LIMIT OF DISTURBED AREA	21.50 AC.
D.) PRESENT ZONING:	PGCC (MULTI-USE SUBDISTRICT)
E.) PROPOSED USE OF SITE:	COMMERCIAL
F.) FLOOR SPACE ON EACH LEVEL OF BLDG PER USE	N/A
G.) TOTAL NUMBER OF UNITS ALLOWED AS SHOWN ON FINAL PLAT(S)	N/A
H.) TOTAL NUMBER OF UNITS PROPOSED	N/A
I.) MAXIMUM NUMBER OF EMPLOYEES, TENANTS ON SITE PER USE	N/A
J.) NUMBER OF PARKING SPACES REQUIRED BY HO. CO. ZONING REGS AND/OR DPZ CRITERIA	SEE PARKING CALCS THIS SHEET
K.) NUMBER OF PARKING SPACES PROVIDED ON-SITE (INCLUDES HANDICAPPED SPACES)	SEE PARKING CALCS THIS SHEET
L.) OPEN SPACE ON-SITE	SEE GENERAL NOTE 30
M.) AREA OF RECREATIONAL OPEN SPACE REQUIRED	N/A
N.) BUILDING COVERAGE OF SITE	N/A
O.) PERCENTAGE OF GROSS AREA	161,408 S.F. 14.43%
P.) APPLICABLE DPZ FILE REFERENCES:	S-86-13 (PB368), S-00-018 P-00-006, F-02-074, WP-12-129

ELEVATIONS		
NO.	DATE	REVISION
7	7-9-2013	REVISE TOTAL PARKING PROVIDED IN PARKING CALCULATIONS TO "794"
6	1-11-2013	show R/W and parcels per plot 22079 in plan view, revise parking calculations.
5	9-7-2012	add sheet 12A to sheet index. Add ownership/maintenance to Gen Note 7.
4	3-26-2012	revise Sheet Index to add sheet 29, revise Total Parking provided.
3	12-2-2011	revise BLDG 'D2' to 'A7' and revise square footage and parking requirement.
2	9-21-2011	revise parking calculation based on revised BLDG 'A6' area. Revise height of bldgs A1-A4.
1	5-31-2011	revise parking calculation based on revised BLDG 'B' area. Revise 'N' in Site Analysis Chart

- ### BULK REGULATIONS:
- PERMITTED USES:** ALL USES AS PER TURF VALLEY PGCC DISTRICT, MULTI-USE SUBDISTRICT FINAL DEVELOPMENT PLAN SECOND AMENDMENT, PLAT NOS. 18696-18698 (46 USES OBTAINED FROM RESIDENTIAL USES TO SPECIALTY STORES)
- PROPOSED USE:** COMMERCIAL
- PERMITTED HEIGHT:** COMMERCIAL: 120 FEET  
ACCESSORY STRUCTURES: 15 FEET  
OTHER: 15 FEET
- PERMITTED SETBACKS:**  
FROM ARTERIAL ROADS:  
RESIDENTIAL STRUCTURES: 50 FEET  
NON-RESIDENTIAL STRUCTURES: 30 FEET  
ACCESSORY USES: 30 FEET  
PARKING: 25 FEET
- FROM LOT LINES WITHIN PGCC MULTI-USE SUBDISTRICT:  
ZERO LOT LINE AND ALL OTHER USES - SIDE - 0 FEET  
A MINIMUM OF 15 FEET MUST BE PROVIDED BETWEEN STRUCTURES  
RESIDENTIAL - REAR - 20 FEET
- FROM COLLECTORS AND LOCAL STREETS:  
RESIDENTIAL AND NON-RESIDENTIAL STRUCTURES  
30 FEET FROM A 60 FT. ROW  
30 FEET FROM A 50 FT. ROW
- FROM NON-PGCC ADJACENT DISTRICTS:  
FROM RESIDENTIAL DISTRICTS 75 FEET  
FROM ALL OTHER DISTRICTS 30 FEET

ADDRESS CHART	
BUILDING	STREET ADDRESS
A1	11105 RESORT ROAD
A2	11089 RESORT ROAD
A3	11099 RESORT ROAD
A4	11085 RESORT ROAD
A5	11095 RESORT ROAD
A6	11079 RESORT ROAD
B	11075 RESORT ROAD
C	11115 RESORT ROAD
D1	11125 RESORT ROAD
A7	11071 RESORT ROAD

\*Shared parking analysis reduces the number of required spaces to 617

HANDICAPPED PARKING CALCULATIONS		
C (medical)	10% of total spaces per Federal ADA Manual Sect. 4.1.2(5)(d)	9
rest of center	(2% of total with 501-1000 spaces per Maryland ADA Manual Sect. 4.1.2(5)(a))	14
<b>TOTAL HANDICAP PARKING REQUIRED</b>		<b>23</b>
<b>TOTAL HANDICAP PARKING PROVIDED</b>		<b>33</b>

SHEET INDEX	
NO.	DESCRIPTION
1	TITLE SHEET
2-5	SITE DEVELOPMENT AND GRADING PLAN
6	ROAD PROFILE AND DETAILS
7	STORM DRAIN DRAINAGE AREA MAP
8-10	STORM DRAIN PROFILES
11-12A	STORMWATER MANAGEMENT DETAILS
13-14	SEWER PROFILES
15-16	LANDSCAPE PLAN
17-18	SEDIMENT AND EROSION CONTROL PLANS
19	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
20	SOILS BORING PLAN AND DETAIL SHEET
21	SHOPPING CENTER LIGHTING PLAN
22	ROAD 'A' INTERIM STREET LIGHT AND STRIPING PLAN FOR STOP CONTROL
22A	ROAD 'A' ULTIMATE STREET LIGHT AND STRIPING PLAN FOR SIGNALIZATION
23-28	RETAINING WALL PLANS
29	ROOF LEADER MANIFOLD DETAILS

PERMIT INFORMATION CHART				
SUBDIVISION NAME:	SECTION/AREA:	LOT/PARCEL #	TAX MAP NO.	ELECTION DISTRICT
TURF VALLEY PROFESSIONAL BUILDINGS	NA	PARCELS J1 & J2 O.S. LOTS 4&5	16	3
PLAT No. OR L/F	GRID No.	ZONE	CENSUS TRACT	
22078-22079	10	PGCC	6030	

**BENCHMARK ENGINEERS, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
8450 BALTIMORE NATIONAL PIKE & SUITE 418 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
60 THOMAS JOHNSON DRIVE FREDERICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3506  
www.BE-CMD.ENGINEERING.COM

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
[Signature] DATE 1/24/13  
[Signature] DATE 1/24/13  
[Signature] DATE 1/24/13

APPROVED: PLANNING BOARD OF HOWARD COUNTY  
[Signature] DATE 4/15/10  
[Signature] DATE 4/15/10

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

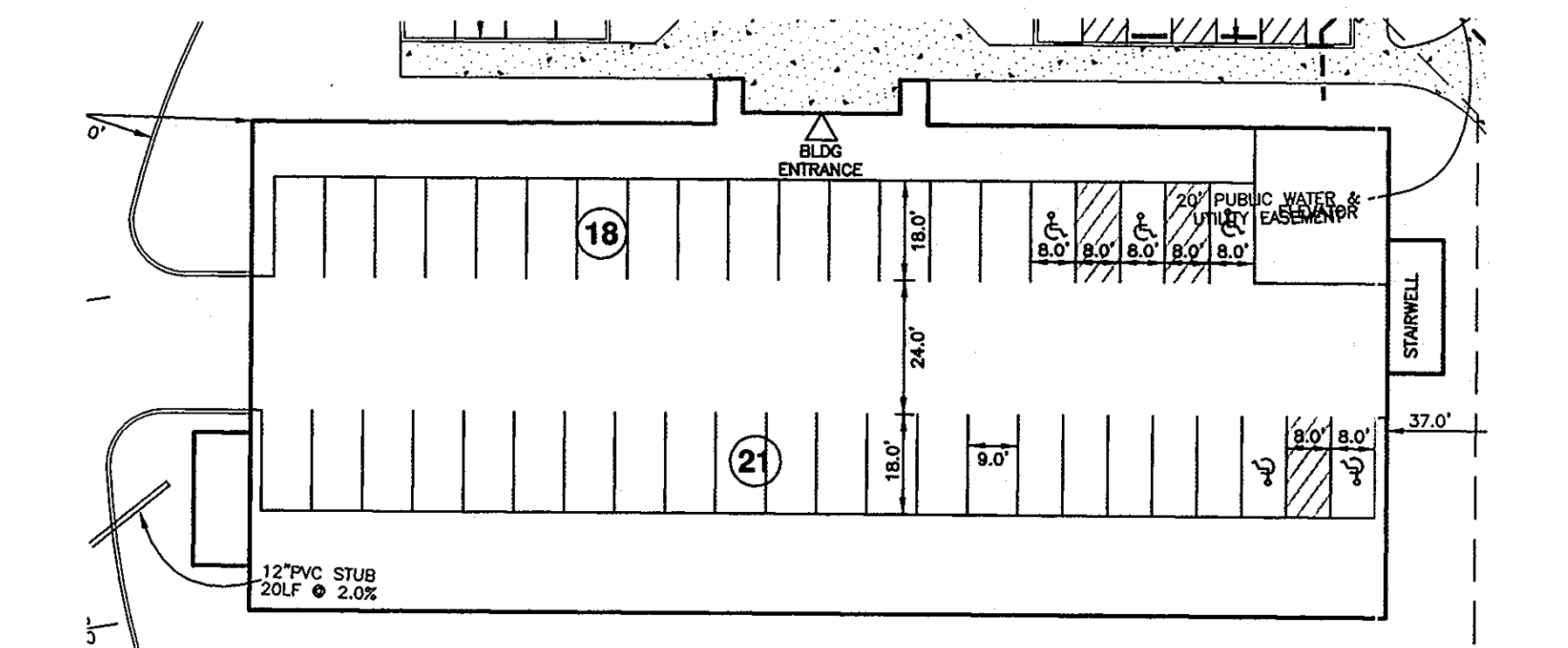
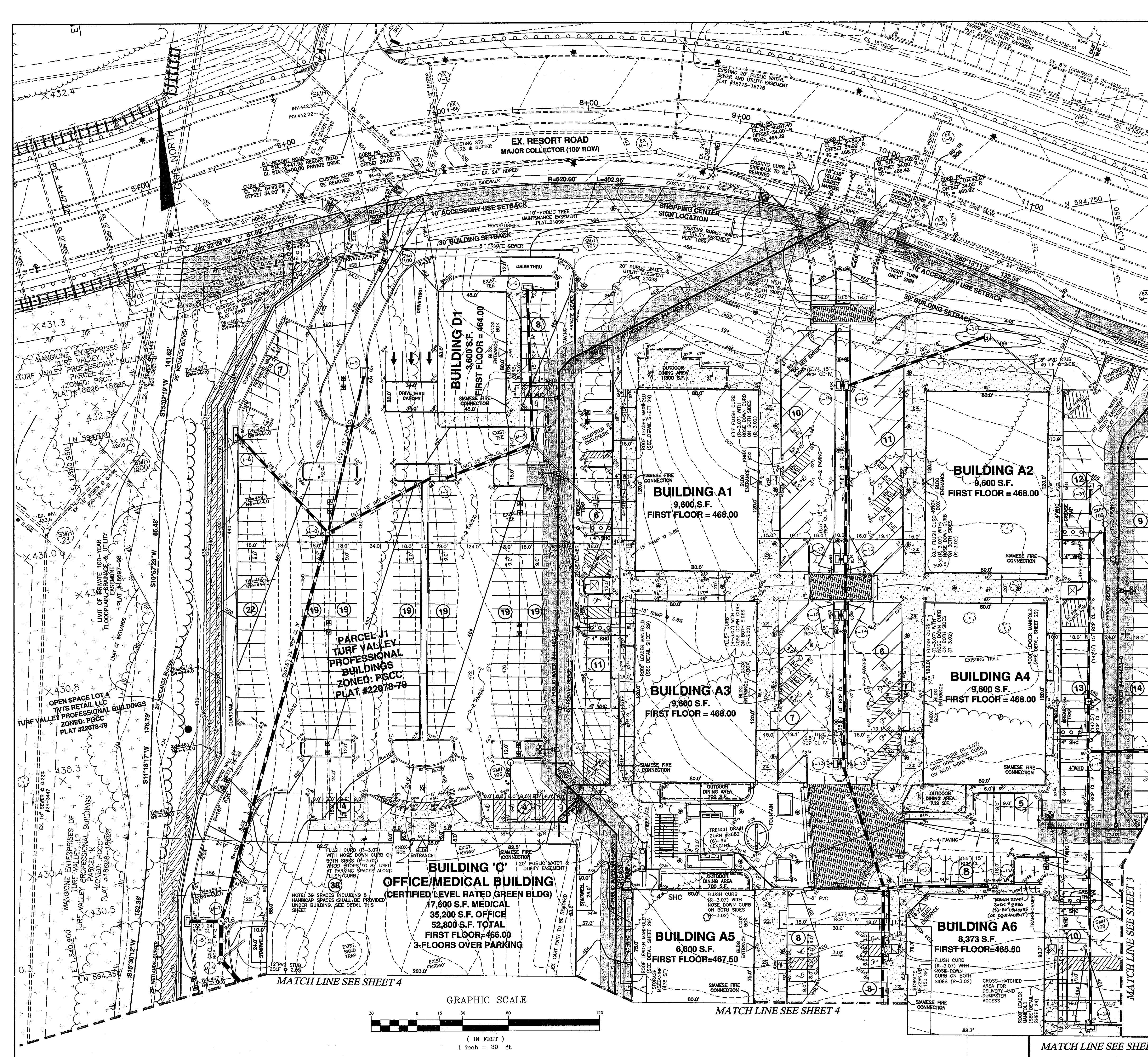
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 5  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

REVISED TITLE SHEET

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 1 OF 29



PARKING BELOW BUILDING 'C' DETAIL

LEGEND

- EXISTING CONTOURS
- EXISTING BRUSH
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING STREAM
- LIMIT OF WETLANDS
- LIMIT OF SUBMISSION
- PARKING SPACE COUNT
- STORM DRAIN PIPE
- SIDEWALK
- EXISTING STREET LIGHTS ALONG RESORT ROAD.
- INTERNAL PARKING LOT LIGHT POLES
- FIRE HYDRANT
- 10' CONSTRUCTION/MAINTENANCE STRIP FOR RETAINING WALL
- EXISTING 100YR FLOODPLAIN

- NOTES:
1. ALL CURBING TO BE STANDARD 7" COMBINATION CURB AND GUTTER (HO.CO.STD.R-301) UNLESS OTHERWISE STATED.
  2. ALL SPOT ELEVATION SHOWN WITHIN PARKING LOT ARE FLOWLINE/PURVEYMENT ELEVATIONS.
  3. ALL CURB FILLETS ARE 3' RADIUS UNLESS OTHERWISE STATED.
  4. INSIDE METER SETTINGS SHALL BE USED FOR THE WATER.

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE 4/15/10  
EMAS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/16/13  
 CHIEF, DIVISION OF LAND DEVELOPMENT 1/24/13  
 DIRECTOR 9/28/13

7-1-2013 ADD CONCRETE AREA BY ELIMINATING 2 EXISTING SPACES AT BUILDING A6 AND ADD TRENCH DRAIN.

NO.	DATE	REVISION
5	1-11-2013	show plaza design, revised sidewalks, grading, parking spaces, WHC's for A2&A4, add I-11A.
4	3-26-2012	add roof leader manifolds, show transformer locations, add shopping center sign location.
3	12-21-2011	revise main entrance location on BLDG A6. revise parking spaces and grades in that location.
2	9-21-2011	revise grading along fronts of A1 A2 A3 A4 A5 A6 to be continuous elevation. revise A6 dimensions and areas. revise I-10, I-11, I-29, add I-33, relocate WHC's for A1-A6.
1	5-31-2011	revise storm drain from M-15 to I-29. revise grading in parking lot behind bldg A6

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 60 THOMAS JOHNSON DRIVE FREDERICK, MARYLAND 21072  
 (P) 301-371-3505 (F) 301-371-3506  
 WWW.BEI-CIVILENGINEERING.COM

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. 23589.

STATE OF MARYLAND  
 BRUNN F. CLEARY  
 REGISTERED PROFESSIONAL ENGINEER  
 1/10/2013

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-525-8400

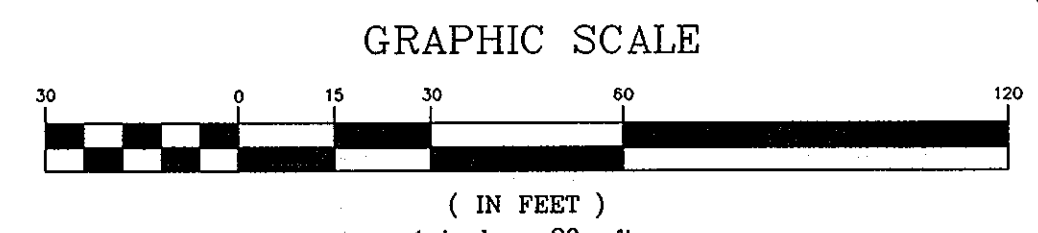
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-525-8400

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS '11' & '12' AND OPEN SPACE LOTS 4 & 5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/0 8 & 50  
 ZONED: PGCC (MULTI-USE SUBDISTRICT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

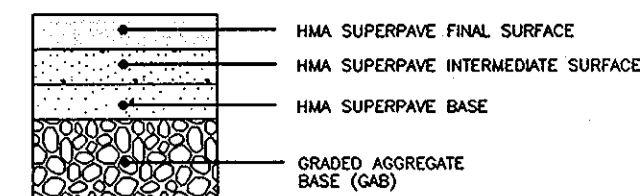
REVISED  
 SITE DEVELOPMENT AND GRADING PLAN

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
 SCALE: AS SHOWN SHEET 2 OF 29



**RIGHT OF WAY ELEVATION**  
CHART NAD 83

R/W P.T. NO.	DESCRIPTION	ELEVATION
1926	REBAR & CAP	492.02'
1927	CONC. MON.	479.61'
1928	REBAR & CAP	477.87'
1929	REBAR & CAP	468.88'
1930	CONC. MON.	462.75'
1931	REBAR & CAP	424.72'
1932	REBAR & CAP	425.06'
1933	REBAR & CAP	466.23'
1934	REBAR & CAP	474.73'
1935	REBAR & CAP	477.71'
1936	REBAR & CAP	477.52'
1937	REBAR & CAP	476.43'
1938	REBAR & CAP	424.54'



**P-2 PAVING DETAIL**

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	PAVEMENT MATERIAL (INCHES)				
			MIN HMA WITH GAB	HMA WITH CONSTANT GAB	MIN HMA WITH GAB	HMA WITH CONSTANT GAB	
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-SAC: RESIDENTIAL	9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	
			9.5 MM PG 64-22, LEVEL 2 (LOW ESAL)	1.0	1.0	1.0	1.0
			HMA SUPERPAVE BASE	2.0	2.0	3.5	2.0
			GRADED AGGREGATE BASE (GAB)	8.0	4.0	4.0	4.0

**P-4 PAVING DETAIL**

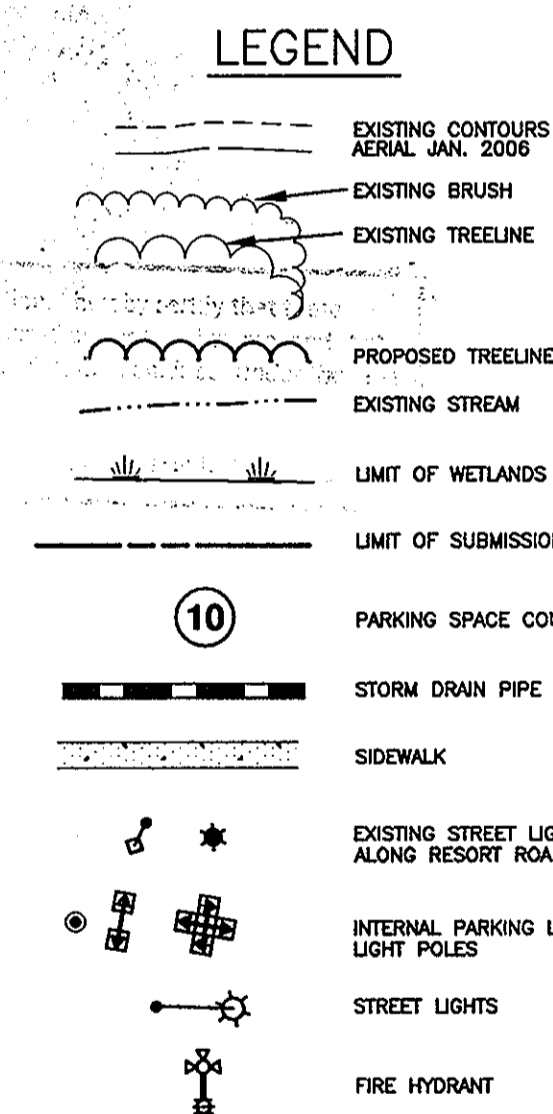
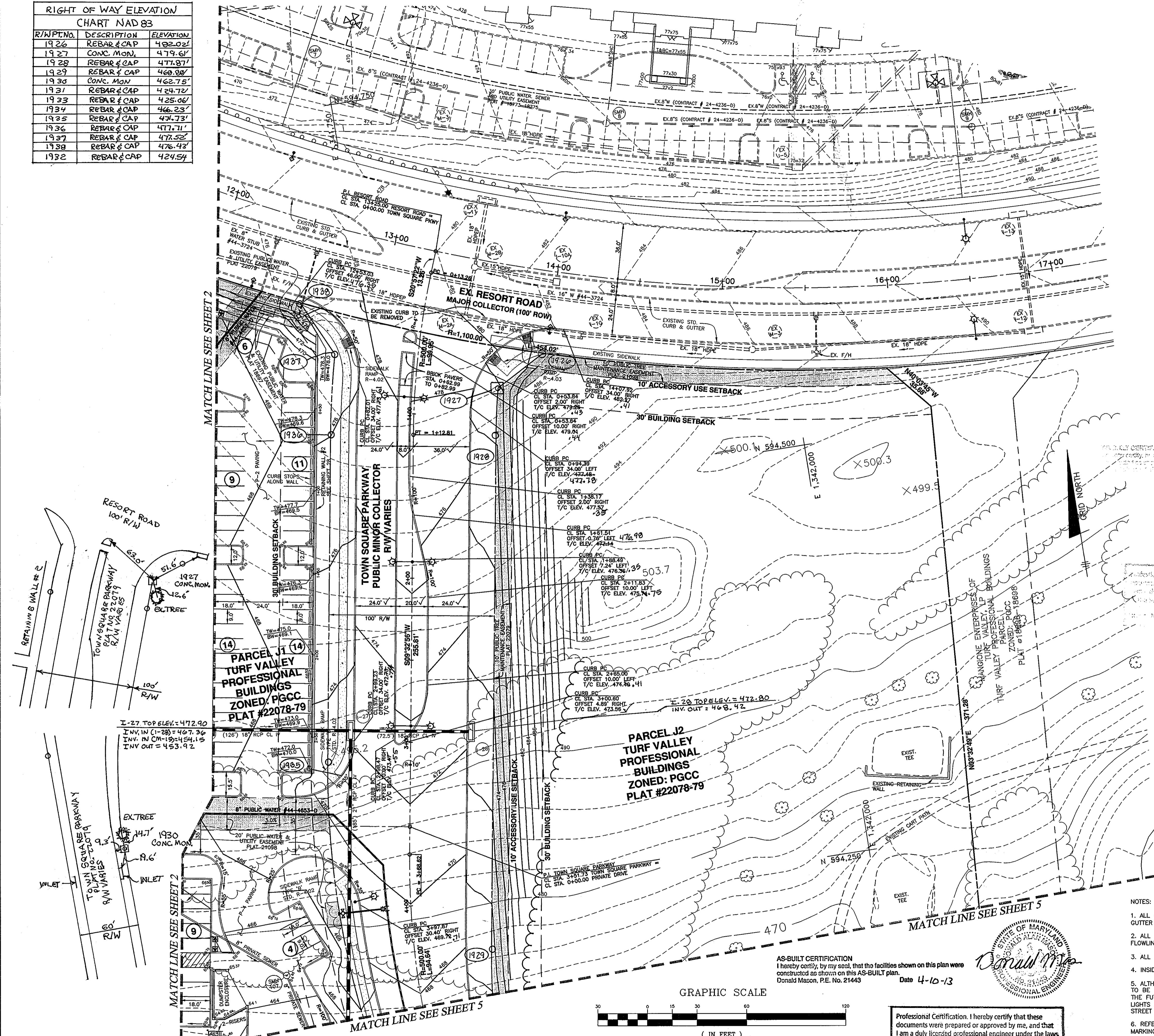
SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	PAVEMENT MATERIAL (INCHES)				
			MIN HMA WITH GAB	HMA WITH CONSTANT GAB	MIN HMA WITH GAB	HMA WITH CONSTANT GAB	
P-4	MINOR COLLECTORS: NON-RESIDENTIAL MAJOR COLLECTORS	12.5 MM PG 64-22, LEVEL 2 (LOW ESAL)	2.0	2.0	2.0	2.0	
			12.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	2.0
			HMA SUPERPAVE BASE	4.0	4.0	6.0	5.0
			GRADED AGGREGATE BASE (GAB)	13.0	7.0	4.0	6.0

**CENTER LINE CURVE DATA**

STREET NAME	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD
TOWN SQUARE ROAD	0+13.86 TO 1+12.81	500.00'	99.55'	11°24'26"	49.94'	S15°15'09"W 99.38'
PARKWAY	3+68.62 TO 5+47.99	500.00'	179.38'	20°33'18"	90.66'	S00°43'43"E 178.42'

**CENTERLINE CONTROL DATA**

STREET NAME	STATION	NORTH	EAST
TOWN SQUARE ROAD - PARKWAY	0+00.00	594651.8233	1341798.3013
	0+13.86	594639.4388	1341793.5582
	1+12.81	594543.5580	1341767.4135
	3+68.62	594291.2944	1941724.9773
	5+47.99	594112.8930	1341727.2458
	9+75.00	593693.7386	1341808.7668



APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10  
[Signature]

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
[Signature] 1/16/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
[Signature] 1/24/13  
CHIEF, DIVISION OF LAND DEVELOPMENT  
[Signature] 1/2/10  
DIRECTOR

NO.	DATE	REVISION
4	1-11-2013	show R/W dedication, parcels and BRLs per plat 22079, add dumpster for A6.
3	3-26-2012	revise radius of western edge of loading zone exit from the 4 parking spaces to be 15'
2	9-21-2011	add 4 parking spaces behind fire hydrant by SMH107
1	5-31-2011	revise median island in Road 'A' at entrance to shopping center.

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 418 ELICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
60 THOMAS JOHNSON DRIVE FREDERICK, MARYLAND 21702  
(P) 301-371-3506 (F) 301-371-3506  
WWW.BE-ENGINEERING.COM

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. 21443, Expiration Date: 12-21-14

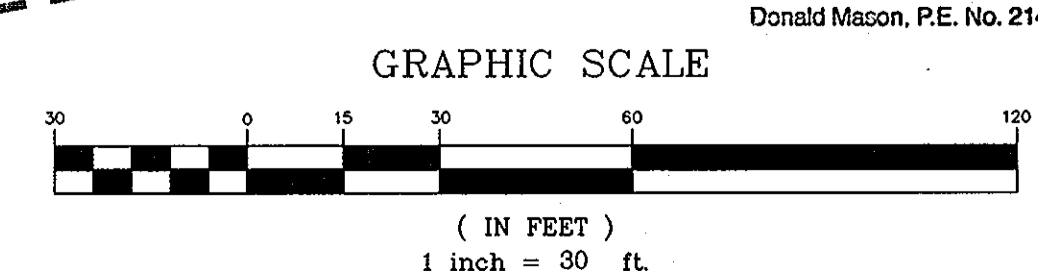
**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O B  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**REVISOR**  
SITE DEVELOPMENT AND GRADING PLAN

DATE: APRIL, 2010	BEI PROJECT NO. 2208
SCALE: AS SHOWN	SHEET 3 OF 29

- NOTES:**
- ALL CURBING TO BE STANDARD 7" COMBINATION CURB AND GUTTER (HO.CO.STD.R-3.01) UNLESS OTHERWISE STATED.
  - ALL SPOT ELEVATION SHOWN WITHIN PARKING LOT ARE FLOWLINE/PAVEMENT ELEVATIONS.
  - ALL CURB FILLETS ARE 3' RADIUS UNLESS OTHERWISE STATED.
  - INSIDE METER SETTINGS SHALL BE USED FOR THE WATER.
  - ALTHOUGH ROAD 'A' WILL BE PRIVATE INITIALLY, IT IS INTENDED TO BE DEDICATED TO HOWARD COUNTY AS A PUBLIC ROAD IN THE FUTURE (SEE GENERAL NOTE 29 ON SHEET 1); THE STREET LIGHTS ALONG ROAD 'A' SHALL BE TREATED AS FUTURE PUBLIC STREET LIGHTS AND THUS PAID FOR BY THE DEVELOPER.
  - REFER TO SHEET 22 FOR SIGNAGE, LIGHTING AND PAVEMENT MARKINGS FOR ROAD 'A'.



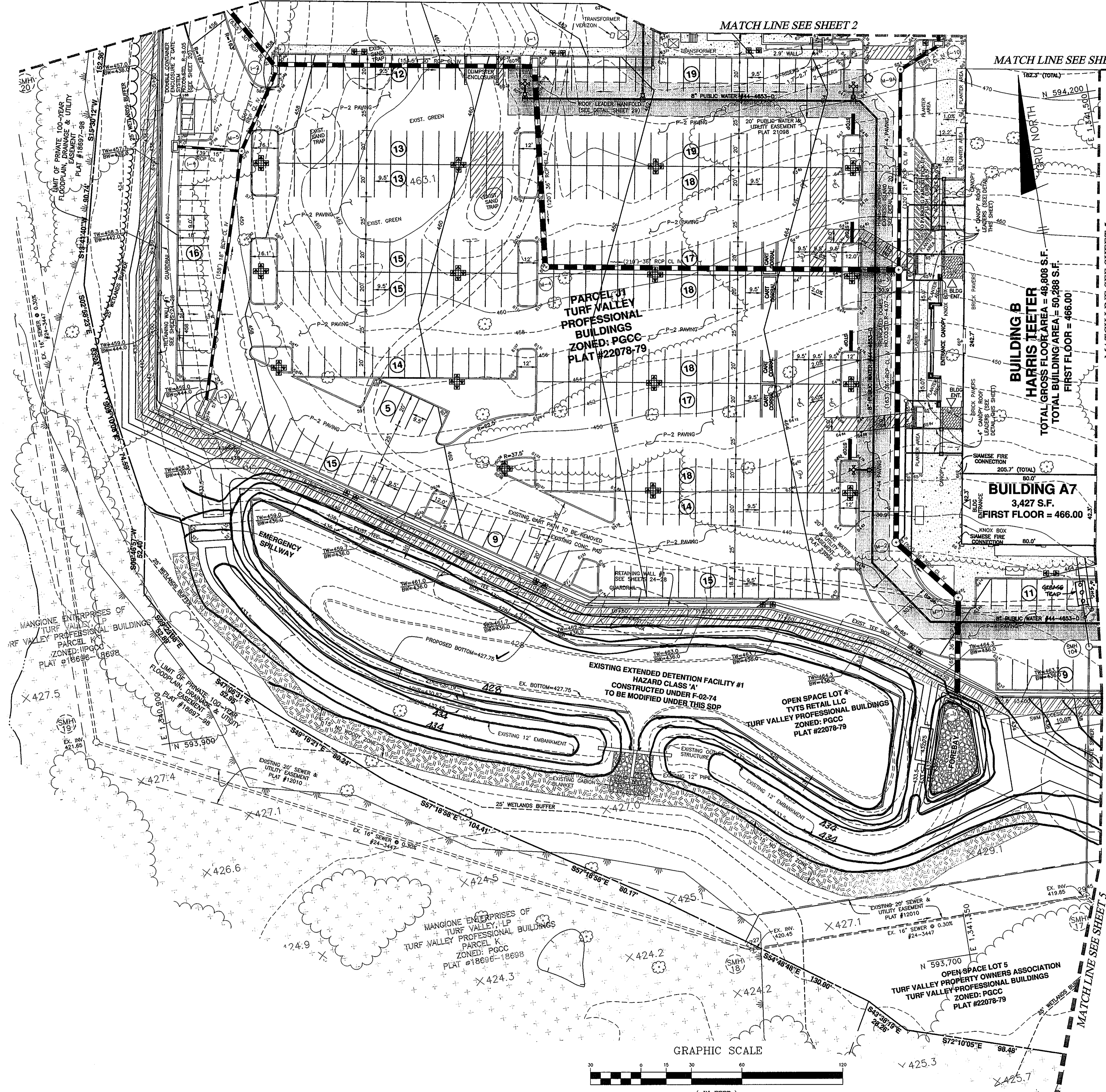
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.  
License No. 21443, Expiration Date: 12-21-14

MATCH LINE SEE SHEET 2

MATCH LINE SEE SHEET 2

MATCH LINE SEE SHEET 2

MATCH LINE SEE SHEET 5



**STUDY POINT #1**  
1-Year Discharge Comparison Table for

Existing 1-year Discharge	Developed 1-year Discharge	Notes
107.26 cfs	107.37 cfs	Developed is 0.11 cfs greater than existing

**SUMMARY TABLE**  
GENERAL STORAGE REQUIREMENTS FOR  
DRAINAGE AREA 3A

Requirement	Existing under F-02-74	Proposed under this SDP
2-yr discharge	0.19 cfs	0.28 cfs
10-yr discharge	4.68 cfs	3.91 cfs
100-yr discharge	45.34 cfs	57.00 cfs
2-yr WSEL	430.88	430.19
10-yr WSEL	432.03	430.87
100-yr WSEL	432.49	432.45
Drainage Area	10.7 acres	10.68 acres
RCN	80	92
TC	0.20 Hr	0.10 Hr
Lag Time	>29.5 hours	43.8 hours

SWMF #1 was designed as an Extended Detention Facility under F-02-074 based on old SWM prior to the 2000 MDE guidelines. It has been modified to handle the increase in runoff due to the increase in impervious area from "Industrial" to "Commercial" under this SDP.

**SUMMARY TABLE**  
GENERAL STORAGE REQUIREMENTS FOR  
DRAINAGE AREA 3B

Requirement	Volume Required	Notes
Water Quality Volume (WQv)	0.6060 ac-ft 22040 cf	Provided in Pond #2
Recharge Volume (REV)	1.64 acres 5708 cf	Provided in offline recharge chamber in Pond #2
Channel Protection Volume (CPV)	0.6954 ac-ft 30282 cf	Provided in Pond #2
Overbank Flood Protection Volume (Op)	NA	not required for this area
Extreme Flood Volume (Ef)	NA	not required for this area

SWMF #2 (P-1 Micro-Pool Extended Detention Pond) and an offline recharge chamber are being provided to address the requirement for this drainage area.

**STUDY POINT #2**  
1-Year Discharge Comparison Table for

Existing 1-year Discharge	Developed 1-year Discharge	Notes
0.44 cfs	0.22 cfs	Developed is less than existing

**SUMMARY TABLE**  
GENERAL STORAGE REQUIREMENTS FOR  
DRAINAGE AREA 4

Requirement	Volume Required	Notes
Water Quality Volume (WQv)	0.0657 ac-ft 2861 cf	No new impervious
Recharge Volume (REV)	0.02 acres 744 cf	No new impervious
Channel Protection Volume (CPV)	0.0000	not required for this area
Overbank Flood Protection Volume (Op)	NA	not required for this area
Extreme Flood Volume (Ef)	NA	not required for this area

A facility is not required for this drainage area as no new impervious areas are proposed.

NO.	DATE	REVISION
6	7-9-2013	ADD GREASE TRAP FOR BUILDING A7

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10  
SMH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

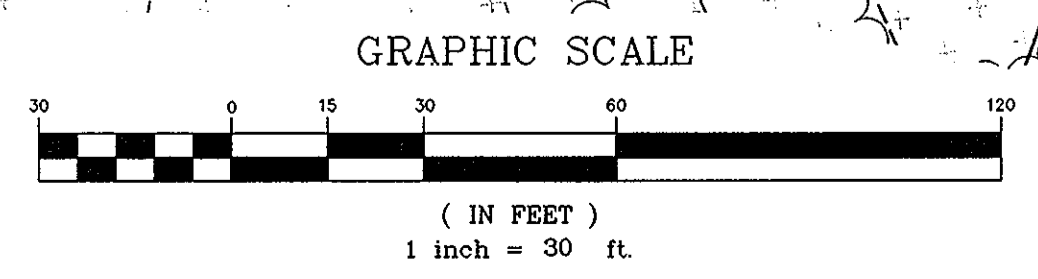
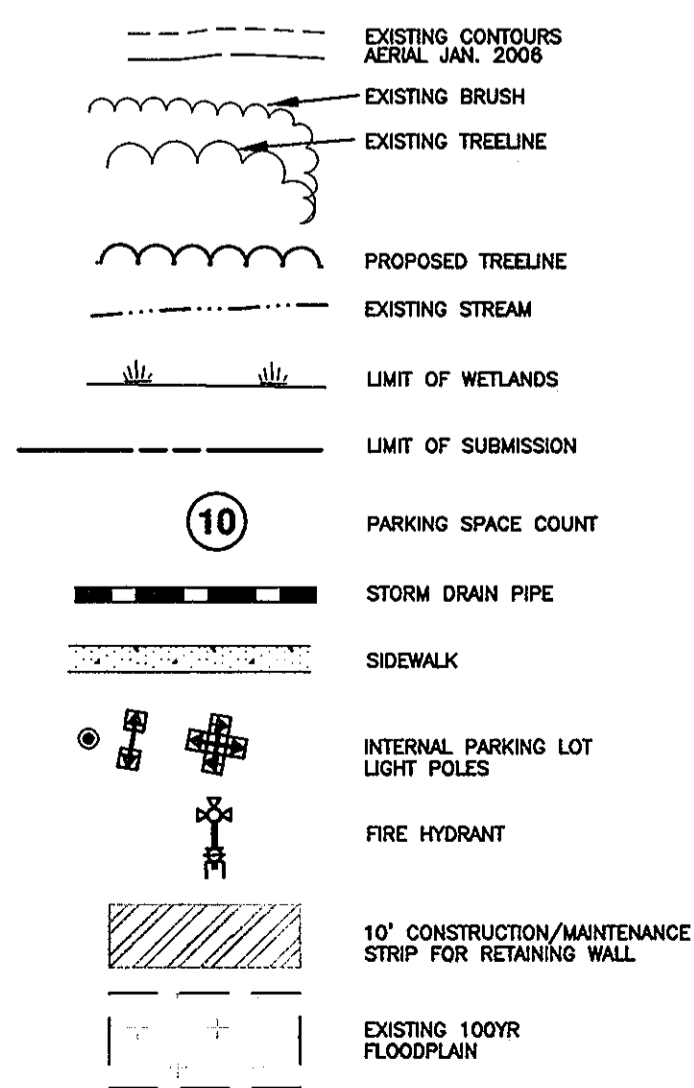
Michael J. ... 1/16/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kathleen ... 1/24/13  
CHIEF, DIVISION OF LAND DEVELOPMENT

Frank ... 1/24/13  
DIRECTOR

- NOTES:
- ALL CURBING TO BE STANDARD 7" COMBINATION CURB AND GUTTER (HO.CO.STD.R-3.01) UNLESS OTHERWISE STATED.
  - ALL SPOT ELEVATION SHOWN WITHIN PARKING LOT ARE FLOWLINE/PAVEMENT ELEVATIONS.
  - ALL CURB FILLETS ARE 3" RADIUS UNLESS OTHERWISE STATED.
  - INSIDE METER SETTINGS SHALL BE USED FOR THE WATER.

**LEGEND**



NO.	DATE	REVISION
5	1-11-2013	add dumpster south of bldg C, revise sdwk area SE of A5.
4	3-26-2012	delete drive-thru for BLDG A7, add transformers, add roof manifold for BLDG A5.
3	12-2-2011	revise building 'D2' to 'A7', revise square footage, revise drive thru canopy.
2	8-29-2011	revise front hardscape and front canopy drain manifolds of Building 'B', add manifold detail.
1	5-31-2011	revise front hardscape and area of Building 'B', handicap spaces, and match line.

**BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS**  
ENGINEERING, INC.  
8480 BALTIMORE NATIONAL PIKE & SUITE 418 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-6844  
60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
(P) 301-371-3558 (F) 301-371-3550  
WWW.BEI-COENGINEERS.COM

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. 21443 Expiration Date: 12-21-14

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

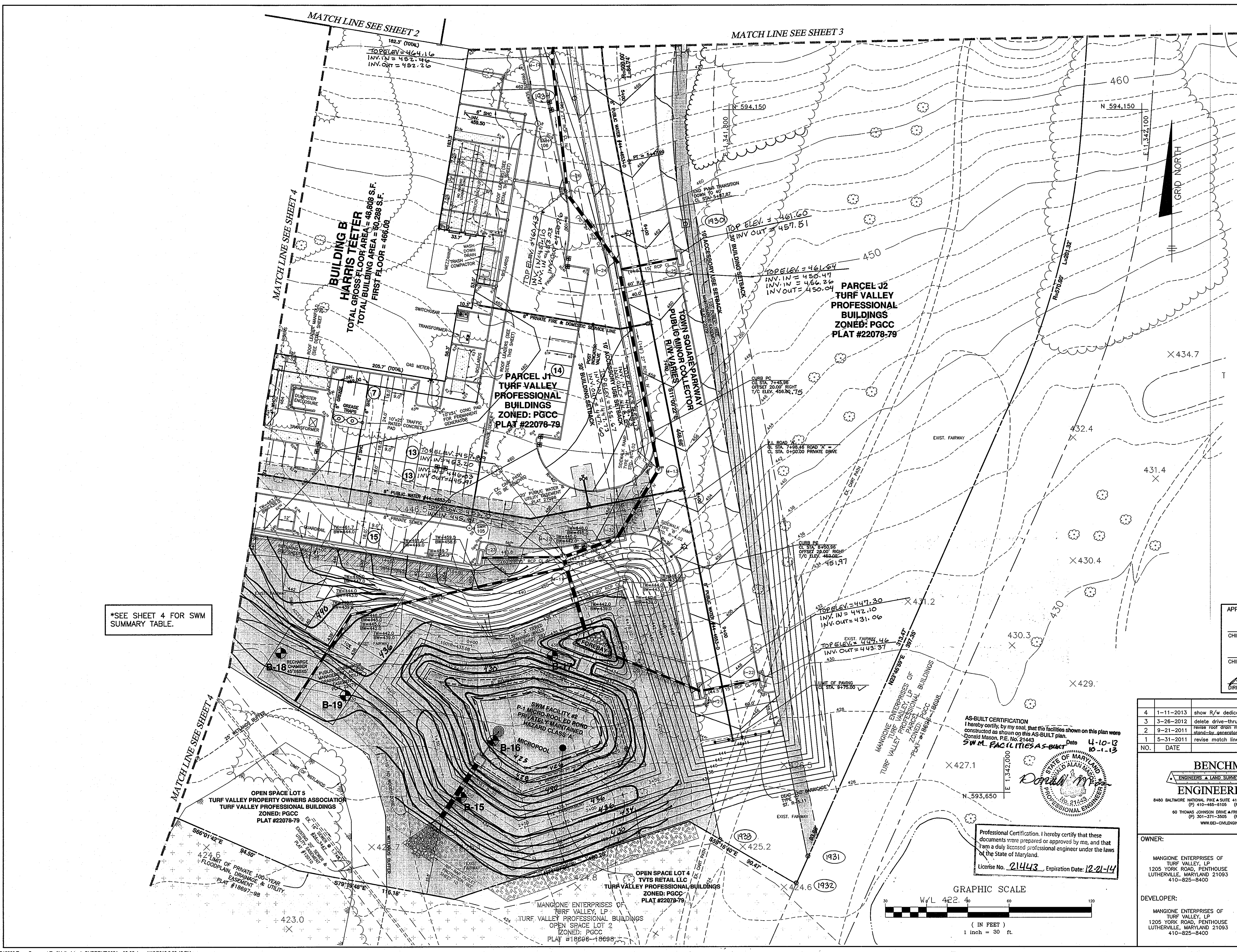
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

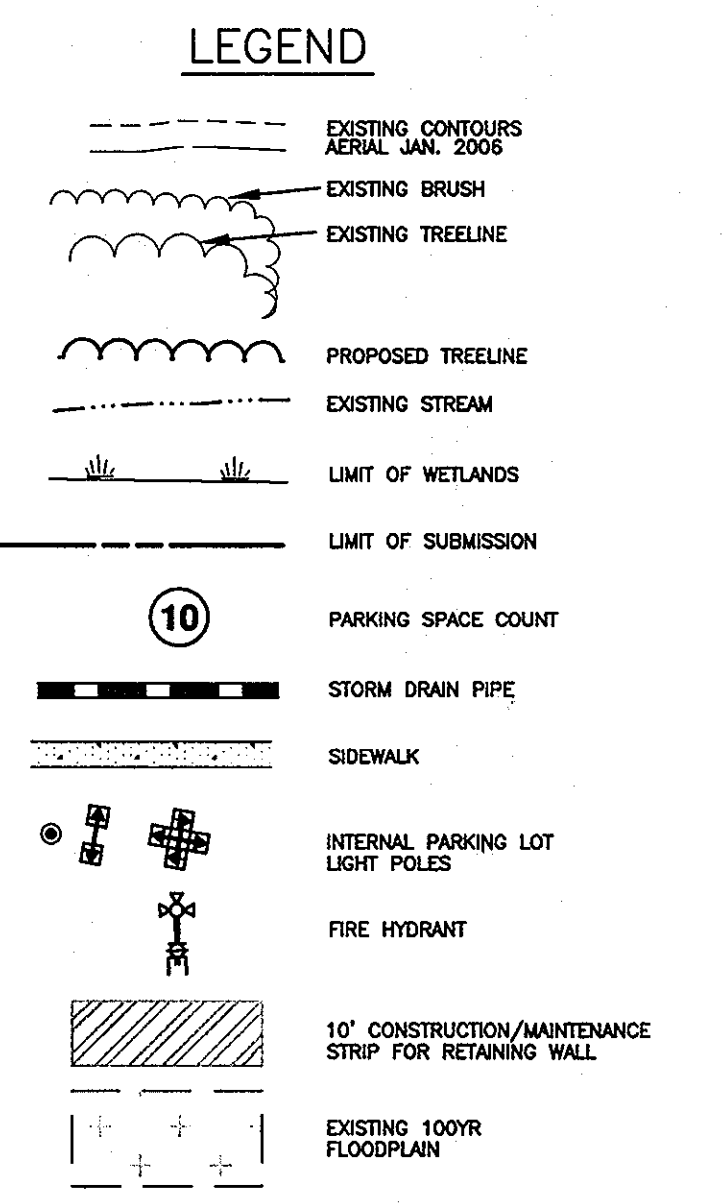
TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PCCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

REVISED  
**SITE DEVELOPMENT AND GRADING PLAN**

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 4 OF 29



- NOTES:
1. ALL CURBING TO BE STANDARD 7" COMBINATION CURB AND GUTTER (HO.CO.STD.R-3.01) UNLESS OTHERWISE STATED.
  2. ALL SPOT ELEVATION SHOWN WITHIN PARKING LOT ARE FLOWLINE/PAVEMENT ELEVATIONS.
  3. ALL CURB FILLETS ARE 3' RADIUS UNLESS OTHERWISE STATED.
  4. INSIDE METER SETTINGS SHALL BE USED FOR THE WATER.
  5. ALTHOUGH ROAD 'A' WILL BE PRIVATE INITIALLY, IT IS INTENDED TO BE DEDICATED TO HOWARD COUNTY AS A PUBLIC ROAD IN THE FUTURE (SEE GENERAL NOTE 28 ON SHEET 1). THE STREET LIGHTS ALONG ROAD 'A' SHALL BE TREATED AS FUTURE PUBLIC STREET LIGHTS AND THUS PAID FOR BY THE DEVELOPER.
  6. REFER TO SHEET 22 FOR SIGNAGE, LIGHTING AND PAVEMENT MARKINGS FOR ROAD 'A'.



APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10  
[Signature]

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/16/13 DATE  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 1/24/13 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 1/24/13 DATE  
DIRECTOR

NO.	DATE	REVISION
4	1-11-2013	show R/w dedication and parcel lines per plat 22079. revise FH location.
3	3-26-2012	delete drive-thru for BLDG A7. add transformers. add roof manifold for A7.
2	9-21-2011	revise roof drain manifolds for Bldg 'B' and add detail. add truck striping in loading dock. add stand-by generator in rear of Bldg 'B'.
1	5-31-2011	revise match line, utilities and parking behind Building 'B'.

**BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS**  
**ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE & SUITE #184 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6100 (F) 410-465-6644  
60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
410-371-3505 (F) 301-371-3508  
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License No. 21443, Expiration Date: 12-31-14

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

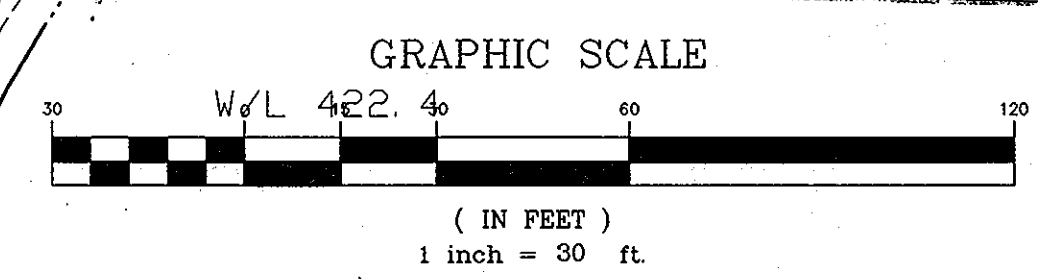
TAX MAP: 16 - GRID: 10 - PARCEL: P/O B & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**REVISOR**  
S'ITE DEVELOPMENT AND GRADING PLAN

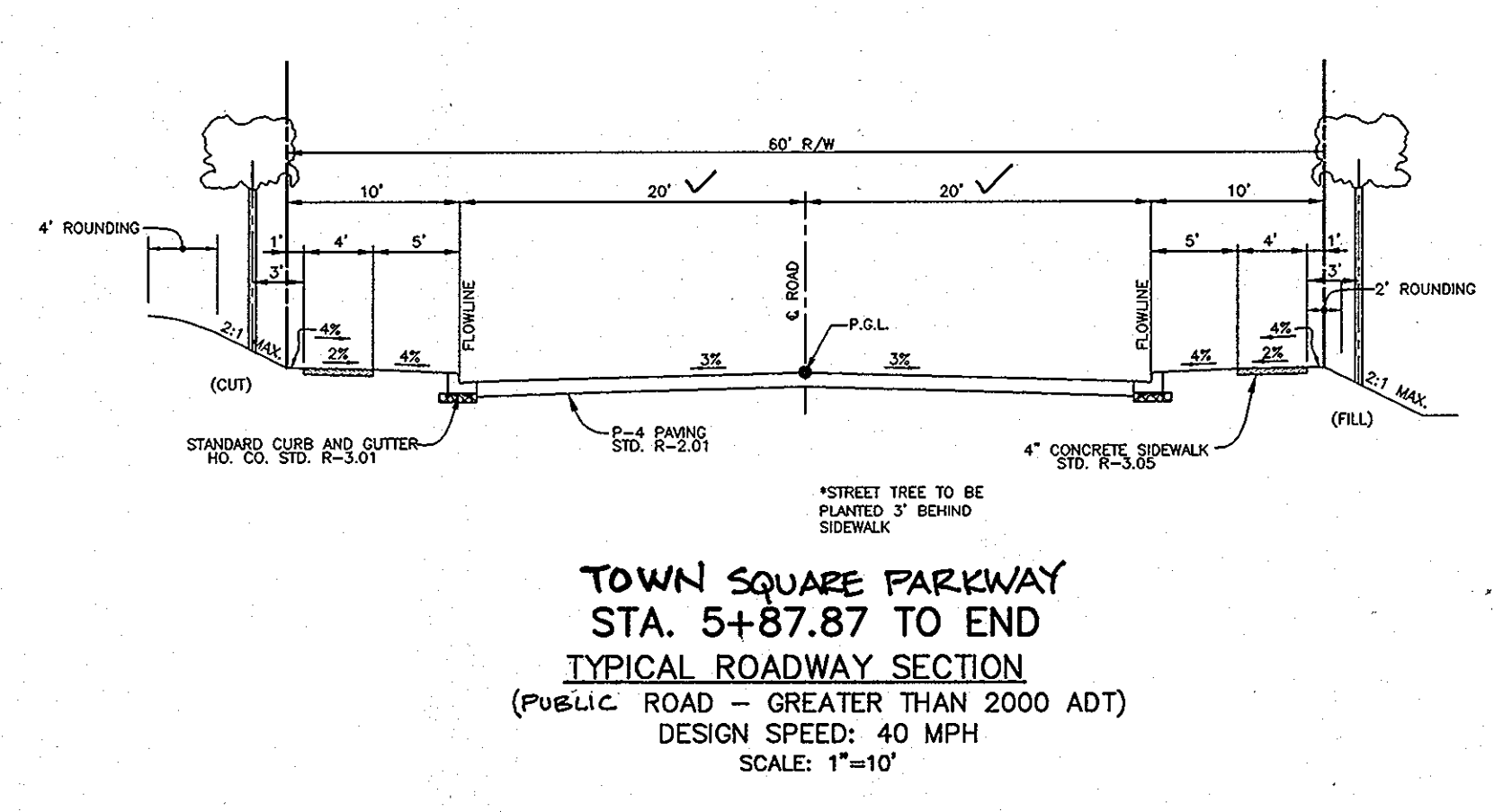
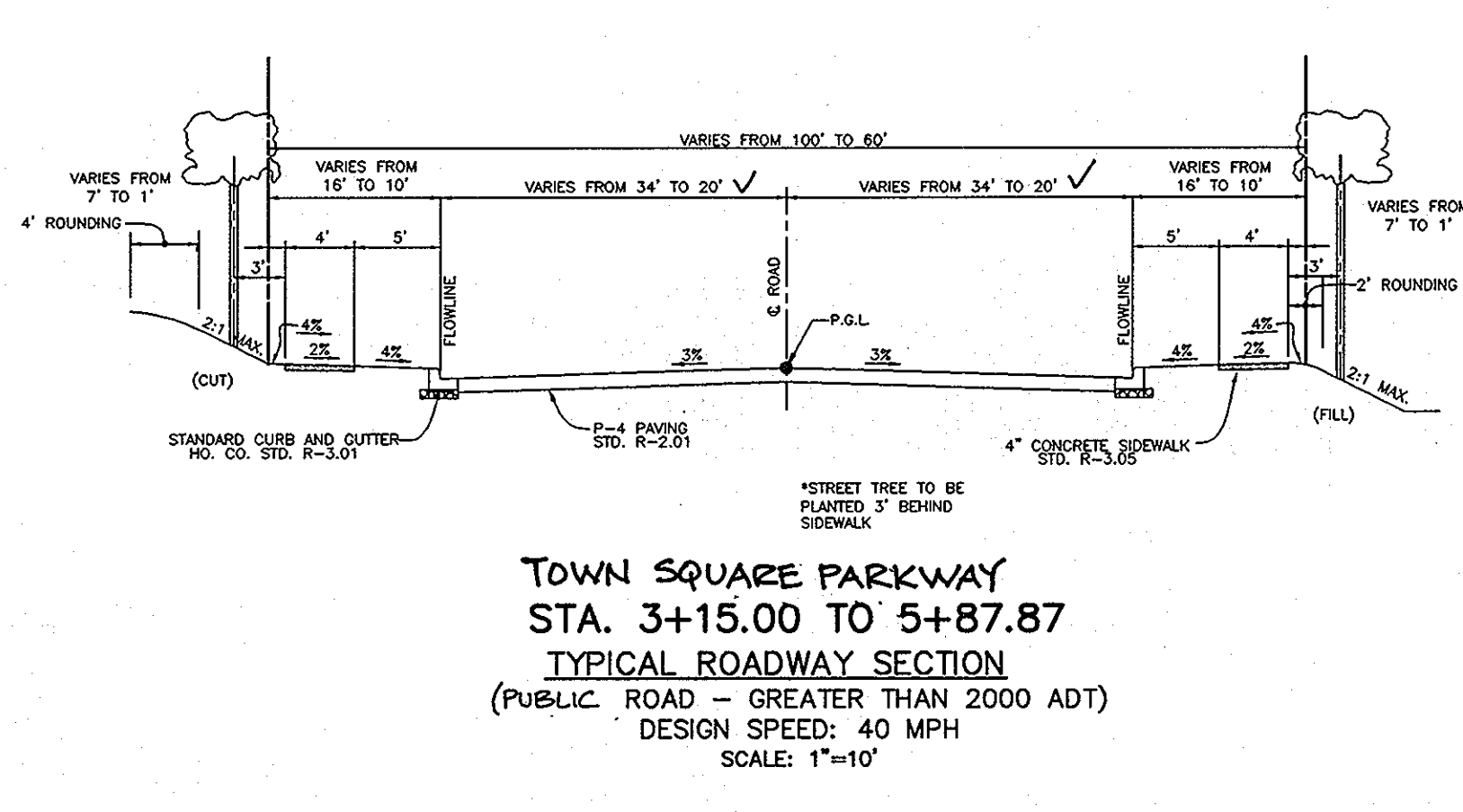
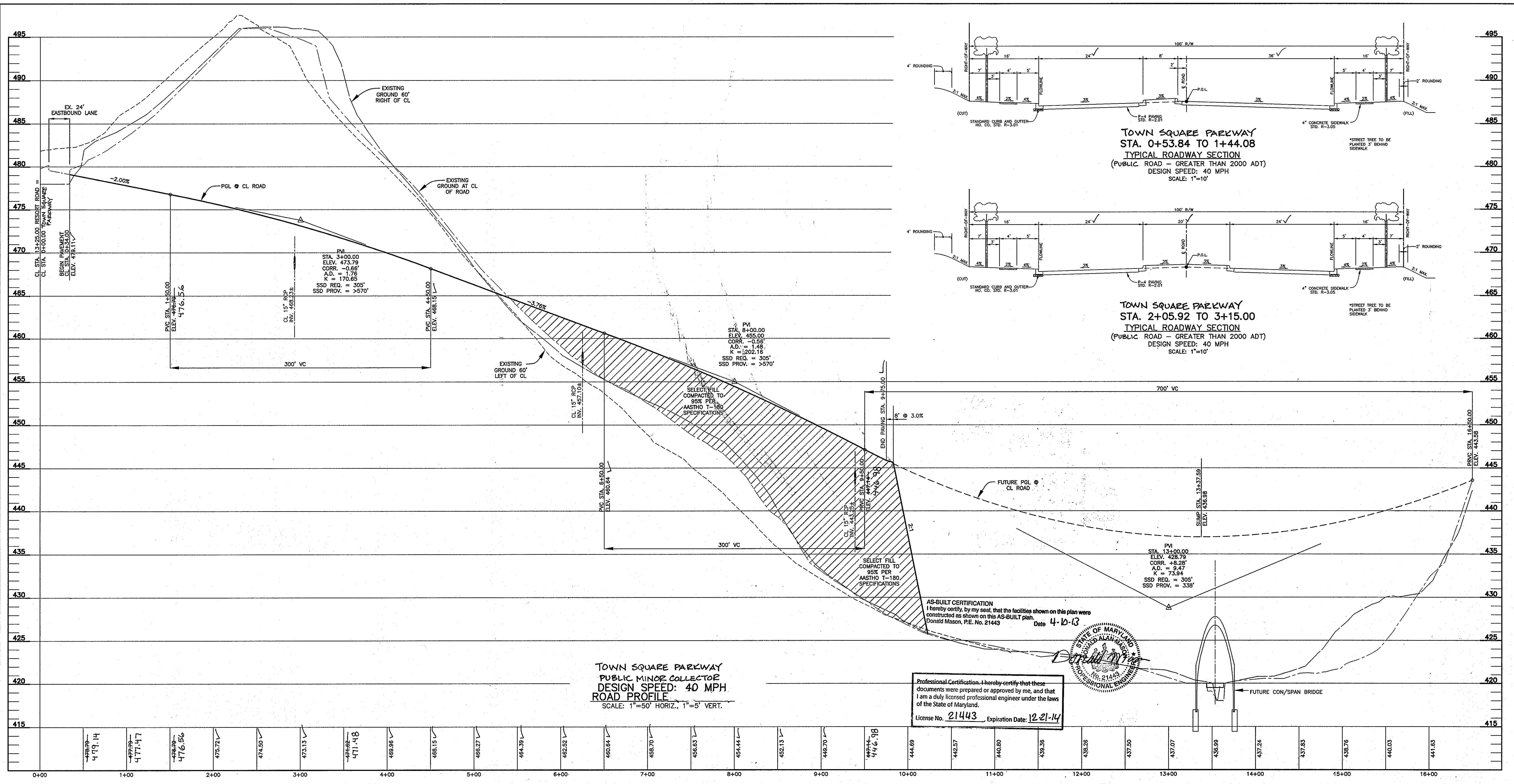
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 5 OF 29



\*SEE SHEET 4 FOR SWM SUMMARY TABLE.



APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10

APPROVED: DEPARTMENT OF PUBLIC WORKS PLANNING & ZONING  
*Thomas E. Ruttle* 5/3/10 DATE  
CHIEF, DIVISION OF PLANNING & ZONING

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*West Shaddock* 5/3/10 DATE  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
8480 BALTIMORE NATIONAL PIKE SUITE 418  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
WWW.BE-CIVILENGINEERING.COM

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS A & S  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS: 22076 - 22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**ROAD PROFILE AND DETAILS**

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 6 OF 29

NO.	DATE	REVISION
2	1-11-2013	REVISE ROAD 'A' TO BE TOWN SQUARE PARKWAY AND A PUBLIC ROAD
1	4-10-2012	REVISE TOTAL SHEET COUNT IN TITLE BLOCK

SYMBOL	HYDRIC	HYDROLOGIC GROUP	NAME
CgC2	B		CHESTER GRAVELLY SILT LOAM, 8 TO 15 PERCENT MODERATELY ERODED
ChB2	B		CHESTER SILT LOAM, 3 TO 8 PERCENT, MODERATELY ERODED
ChC2	B		CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
ChD2	B		CHESTER SILT LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
Cc	YES	C	CODORUS SILT LOAM
Cs	YES	B	COMUS SILT LOAM
GID2	B		GLENELG LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
GID3	B		GLENELG LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED
Ht	YES	D	HATBORO SILT LOAM
MgB2	B		MANOR GRAVELLY LOAM, 3 TO 8 PERCENT, MODERATELY ERODED
MgC2	B		MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
ME	B		MANOR LOAM, 25 TO 45 PERCENT SLOPES

INLET #	ZONING (Z)	AREA (Ac)	"C" FACTOR (<25 YR (C))	% IMPERVIOUS (P)
NA I-1	PGCC	0.68	0.72	85
NA I-2	PGCC	1.05	0.72	85
NA I-3	PGCC	1.44	0.72	85
NA I-4	PGCC	0.39	0.72	85
NA I-5	PGCC	0.45	0.72	85
NA I-6	PGCC	0.23	0.72	85
NA I-7	PGCC	0.73	0.72	85
NA I-8	PGCC	0.78	0.72	85
NA I-9	PGCC	0.38	0.72	85
NA I-10	PGCC	0.13	0.72	85
NA I-11	PGCC	0.09	0.72	85
NA I-12	PGCC	0.08	0.72	85
NA I-13	PGCC	0.08	0.72	85
NA I-14	PGCC	0.09	0.72	85
NA I-15	PGCC	0.09	0.72	85
NA I-16	PGCC	0.09	0.72	85
NA I-17	PGCC	0.09	0.72	85
NA I-18	PGCC	0.23	0.72	85
NA I-19	PGCC	0.15	0.72	85
NA I-20	PGCC	0.21	0.72	85
NA I-21	PGCC	0.41	0.72	85
NA I-22	PGCC	0.21	0.72	85
NA I-23	PGCC	0.74	0.72	85
NA I-24	PGCC	0.22	0.72	85
NA I-25	PGCC	0.41	0.72	85
NA I-26	PGCC	0.76	0.72	85
NA I-27	PGCC	0.31	0.72	85
NA I-28	PGCC	0.72	0.72	85
NA I-29	PGCC	0.26	0.72	85
NA I-30	PGCC	0.46	0.72	85
NA I-31	PGCC	0.48	0.72	85
NA I-32	PGCC	0.32	0.72	85
NA I-33	PGCC	0.17	0.72	85
NA ROOF 'B'	PGCC	1.22	0.86	100
NA ROOF 'C'	PGCC	0.41	0.86	100
NA ROOF 'A1'	PGCC	0.22	0.86	100
NA ROOF 'A2'	PGCC	0.22	0.86	100
NA ROOF 'A3'	PGCC	0.22	0.86	100
NA ROOF 'A4'	PGCC	0.22	0.86	100
NA ROOF 'A5'	PGCC	0.14	0.86	100
NA ROOF 'A6'	PGCC	0.19	0.86	100
NA ROOF 'A7'	PGCC	0.08	0.86	100
NA ROOF 'D1'	PGCC	0.08	0.86	100
NA I-11A	PGCC	0.14	0.72	85
NA TRENCH	PGCC	0.12	0.72	85

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE 4/15/10  
*[Signature]*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 4/19/12  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*[Signature]* 4/24/12  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
*[Signature]* 4/24/12  
 DIRECTOR

NO.	DATE	REVISION
4	1-11-2013	ADD TRENCH DEAN AND I-11A. REVISE DRAINAGE AREAS ACCORDINGLY. UPDATE CHART.
3	4-10-2012	REVISE DRAINAGE AREAS BASED ON ROOF LEADER MANHOLE DESIGN. REVISE CHART. DELETE DRIVE-THRU AT BLDG A7 AND GRID PORTIONS. SHOW ADDITIONAL PARKING BEHIND BLDG A5.
2	9-21-2011	ADD I-33, REVISE DRAINAGE AREA FOR I-10 AND I-33
1	5-31-2011	REVISE I-29 LOCATION AND ASSOCIATED PARKING LOT GRADING BEHIND BLDG 'A6'

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE SUITE 418 ELLEWOOD CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 60 THOMAS JOHNSON DRIVE A FREDERICK, MARYLAND 21702  
 (P) 301-371-3508  
 WWW.BE-CMLENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the State of Maryland, License No. 17-20-0013.  
*[Signature]* 4/19/2012

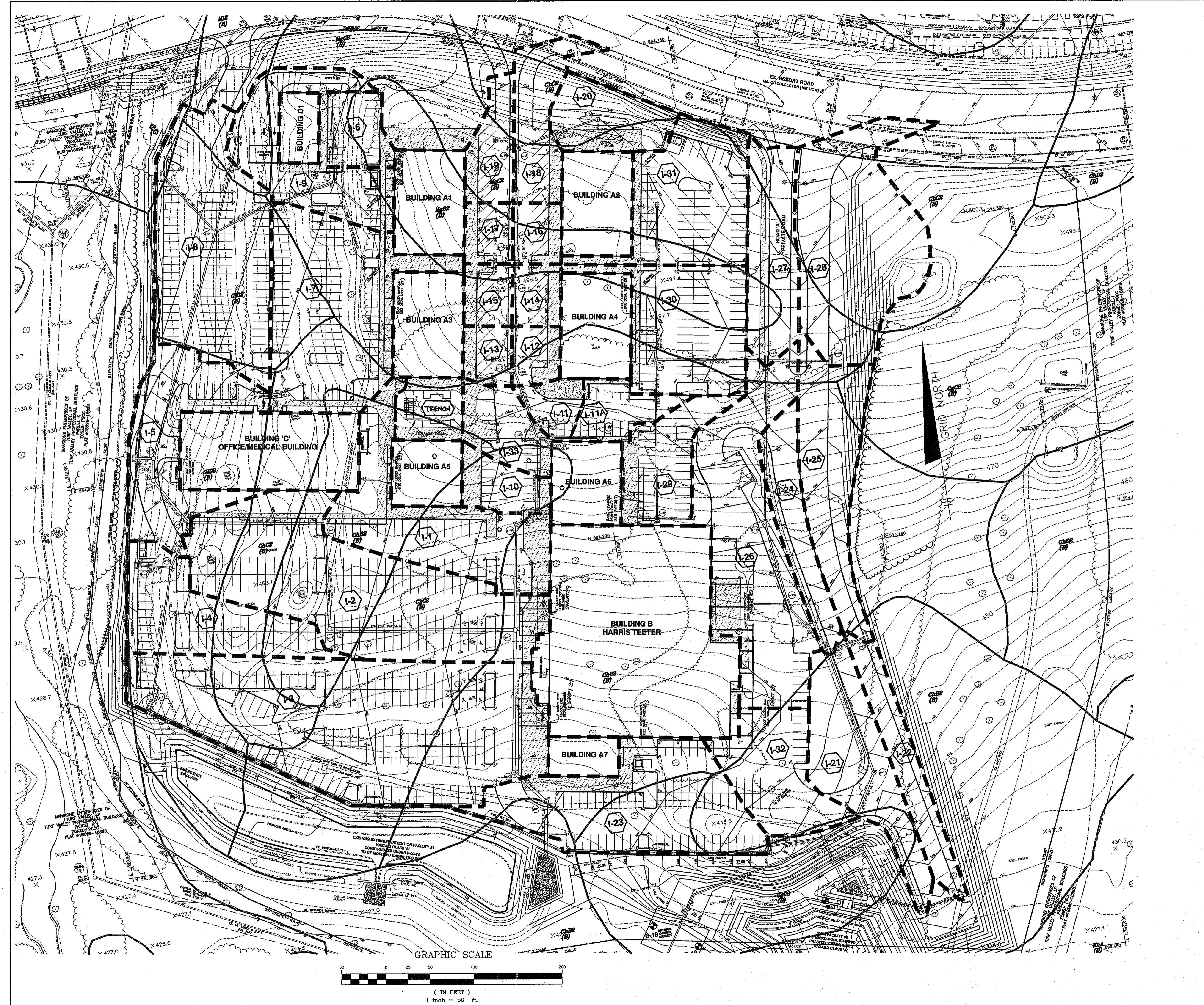
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
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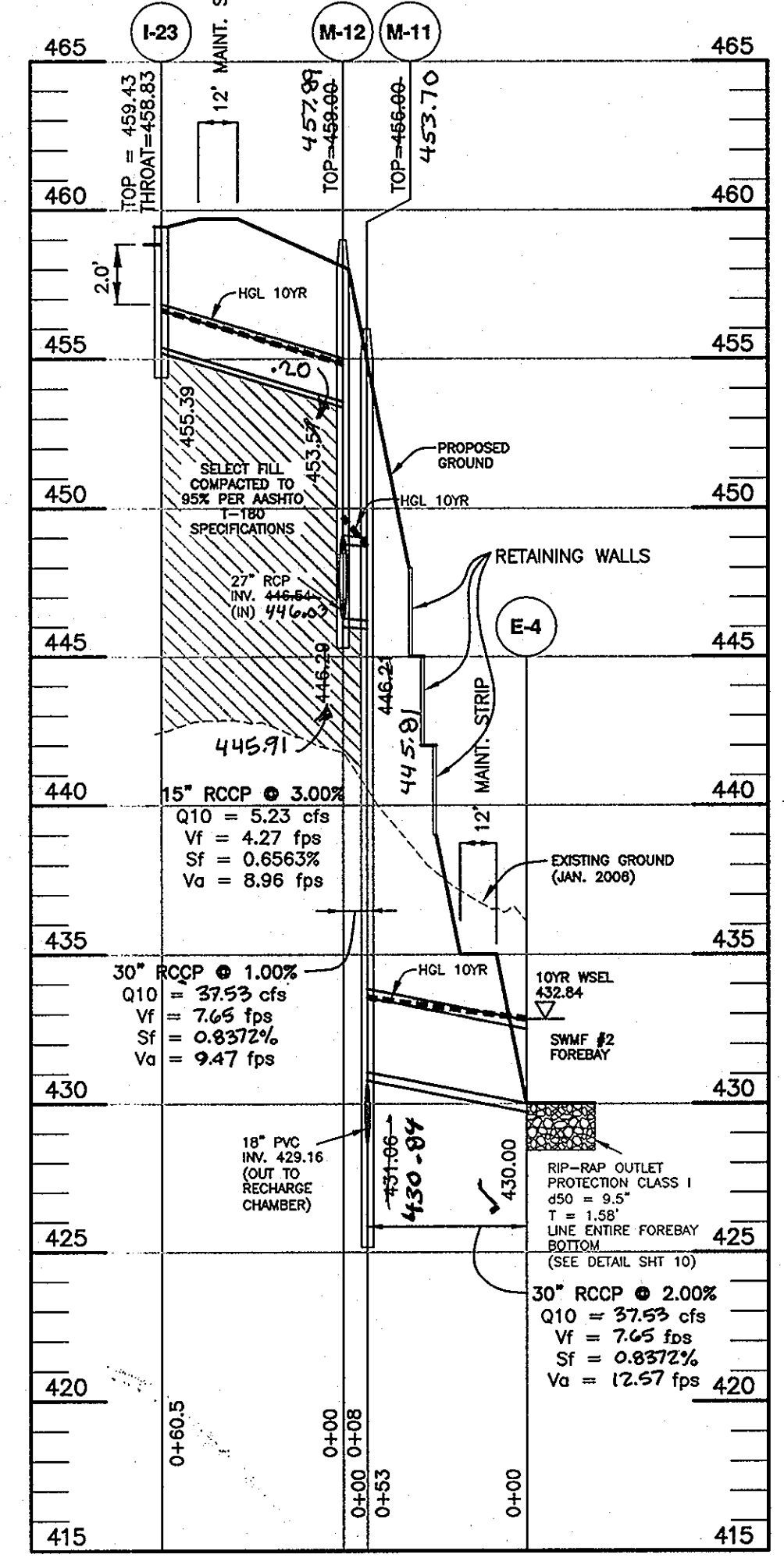
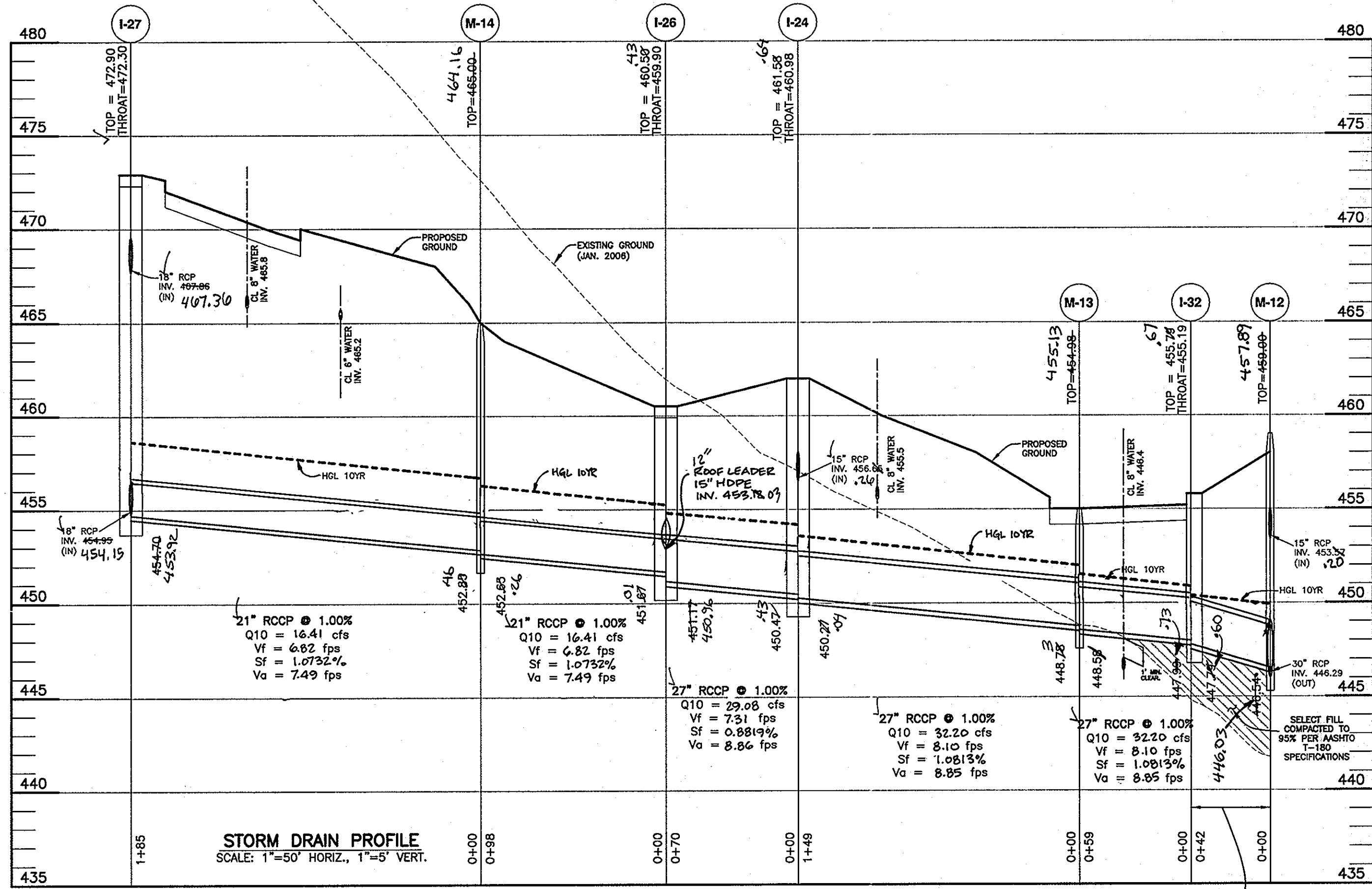
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
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**TOWN SQUARE AT TURF VALLEY**  
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 PARCELS 'A1' & 'A2' AND OPEN SPACE LOTS 4 & 5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
 ZONED: PGCC (MULTI-USE SUBDISTRICT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

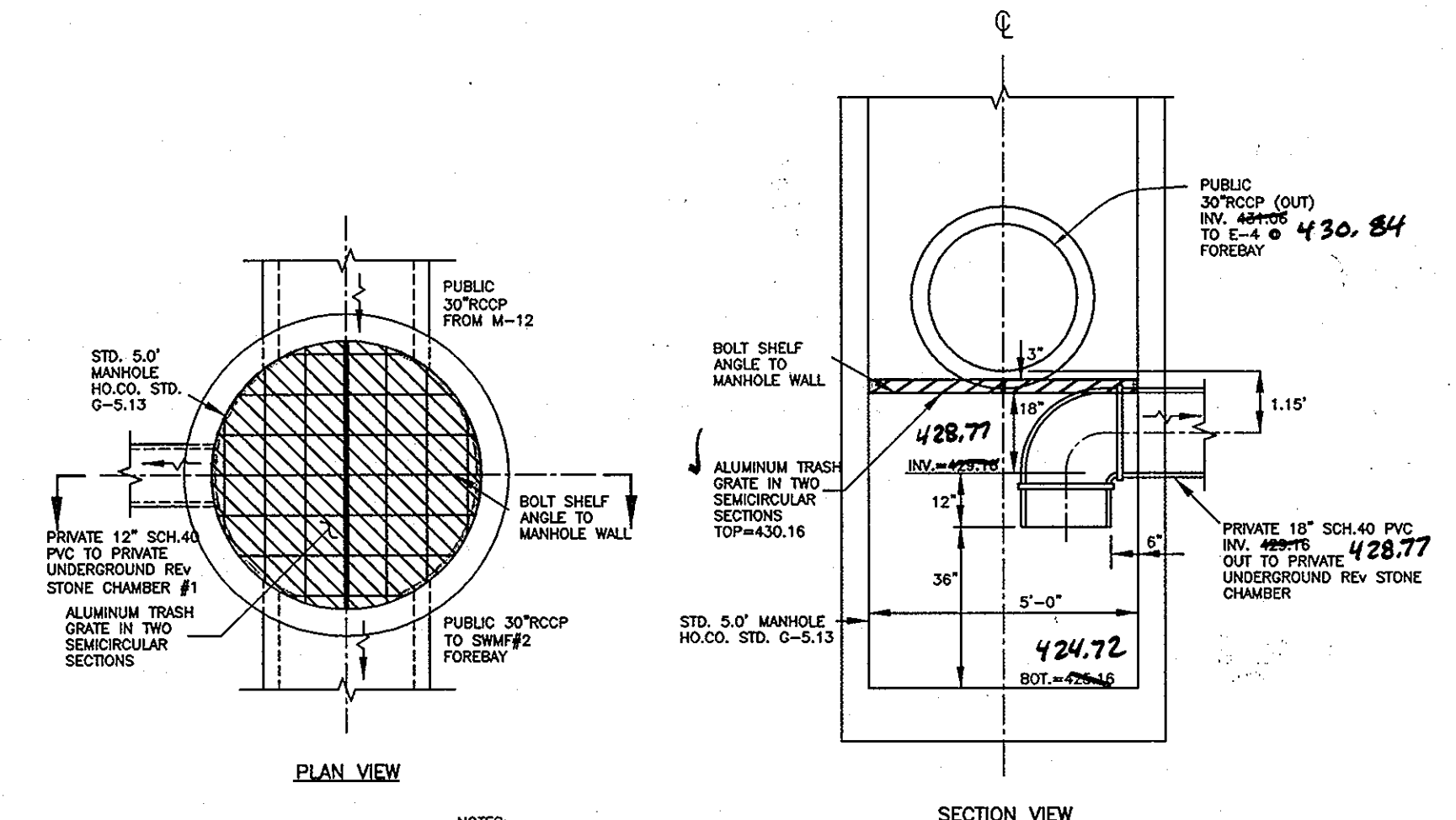
REVISED  
**STORM DRAIN DRAINAGE AREA MAP**  
 DATE: APRIL, 2010 BEI PROJECT NO. 2208  
 SCALE: AS SHOWN SHEET 7 OF 29





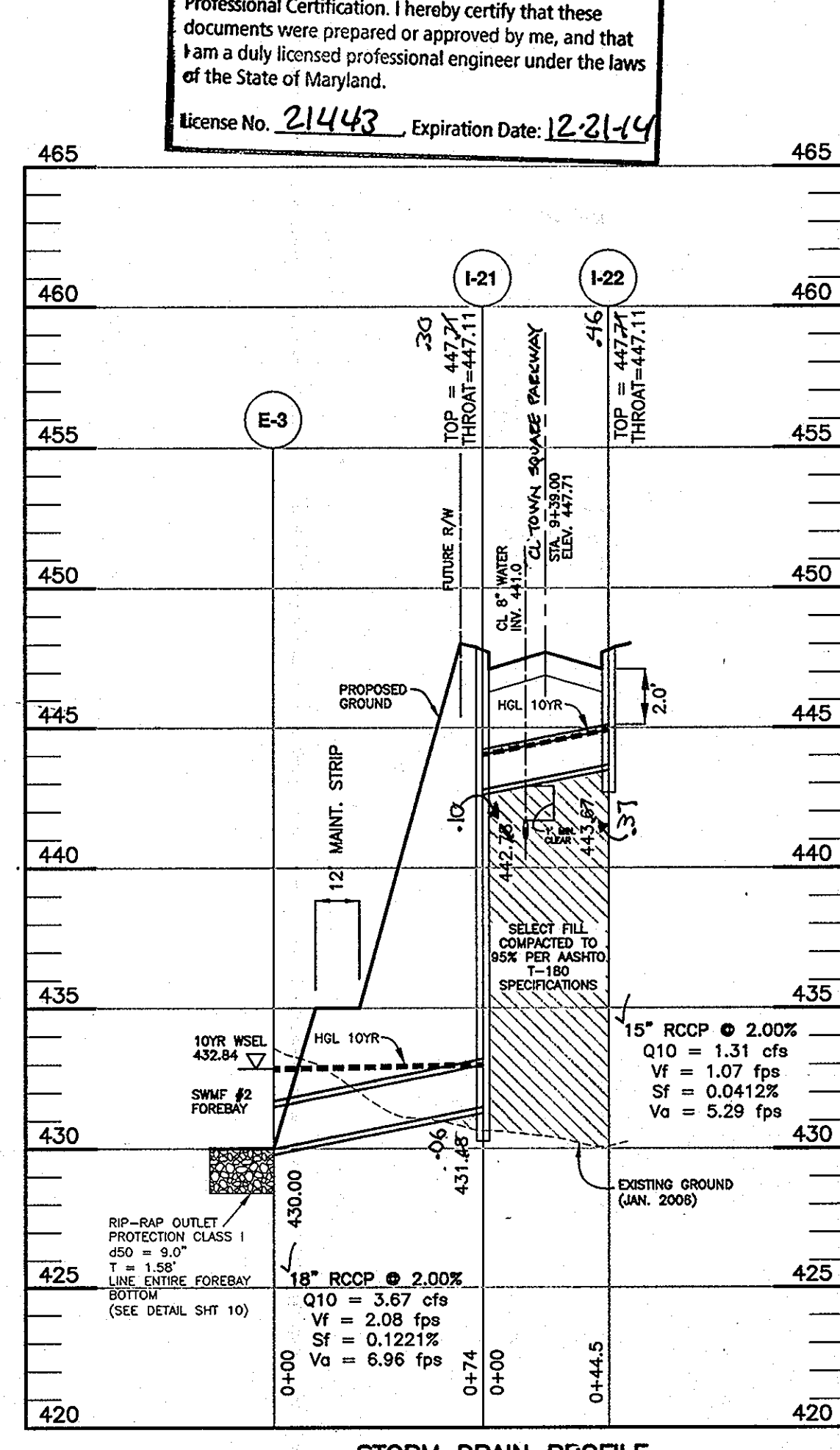
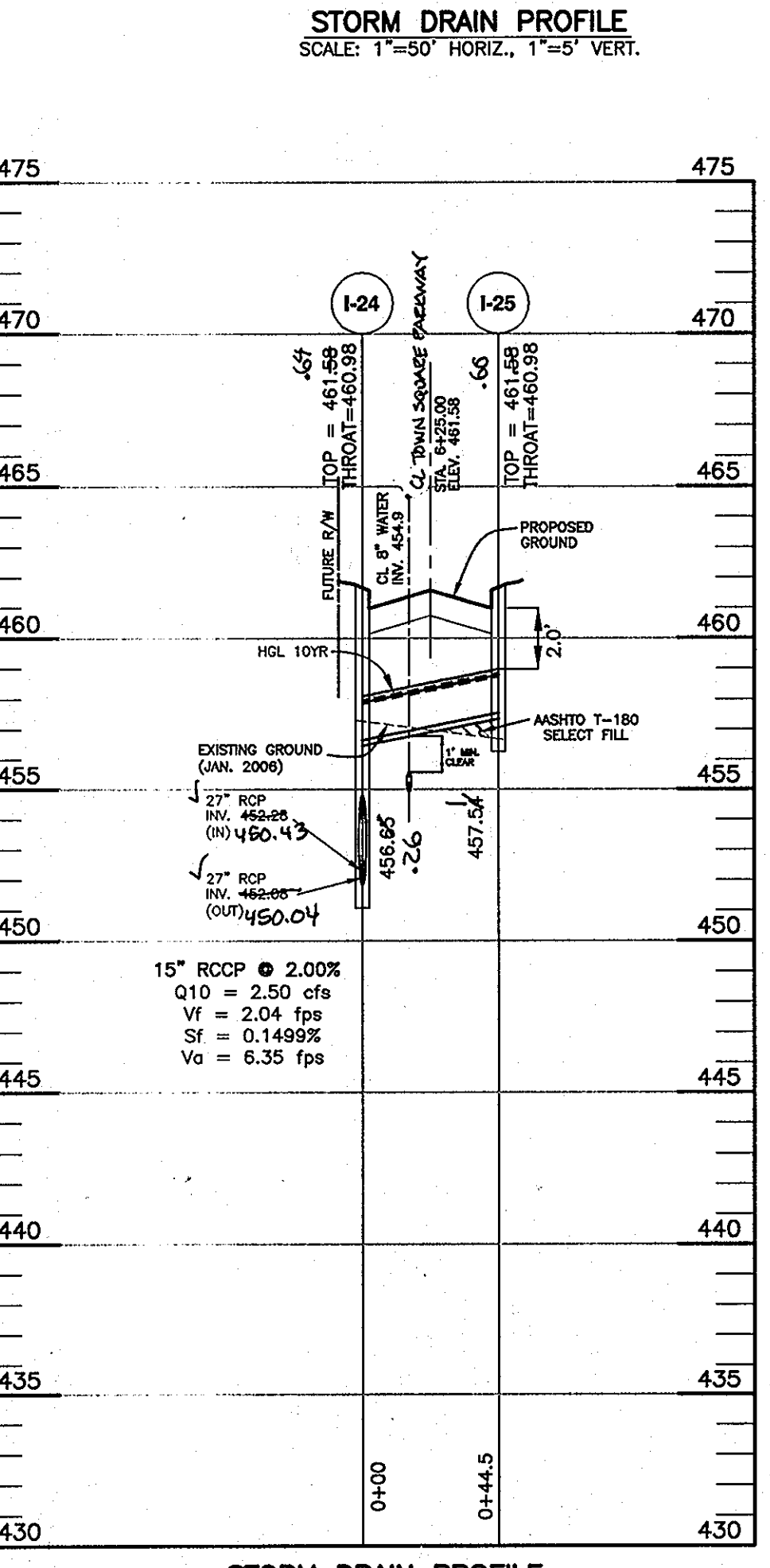
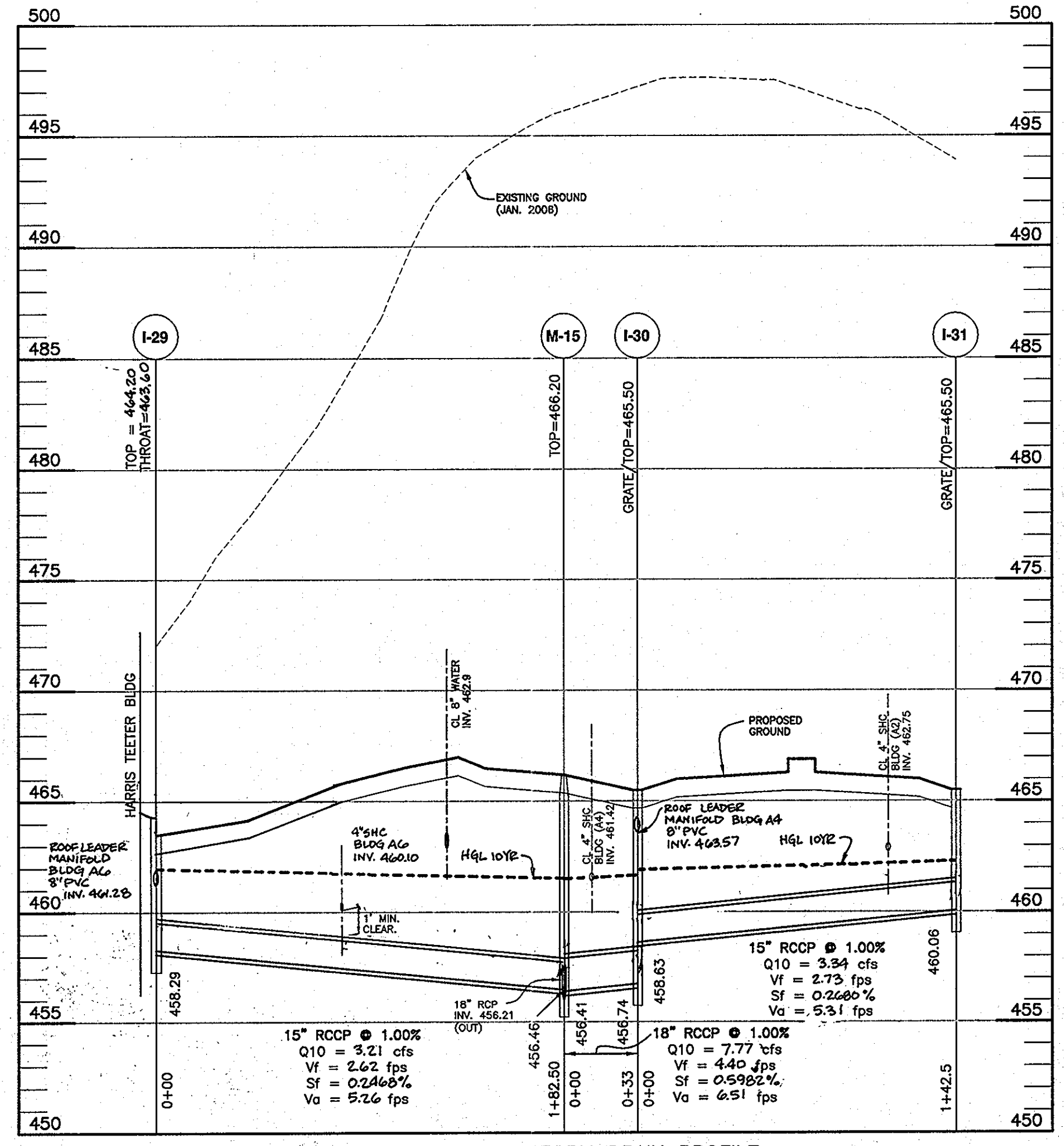
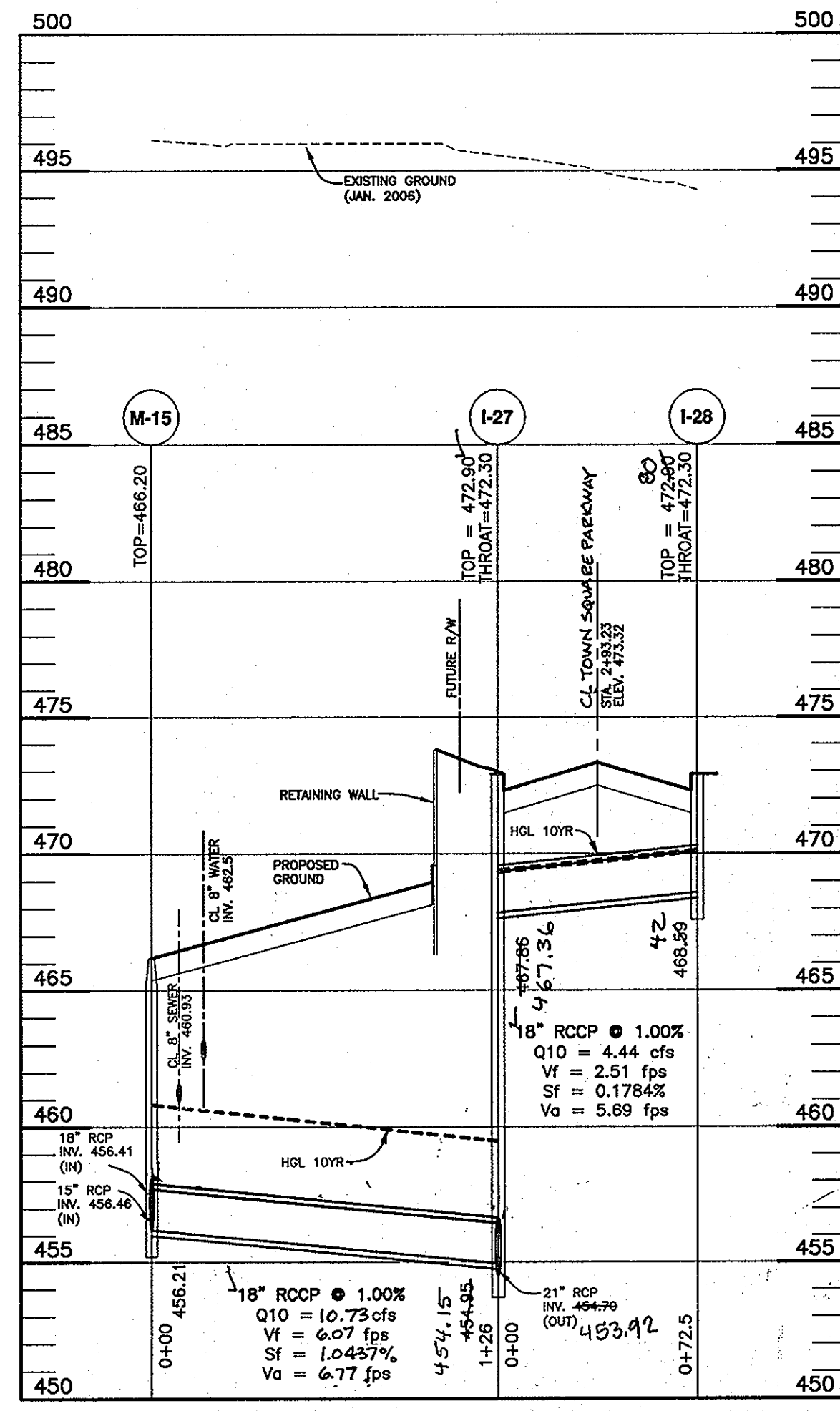
**AS-BUILT CERTIFICATION**  
I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.  
Donald Mason, P.E. No. 21443 Date 4-10-13

**4-10-13 DIVERSION STRUCTURE M-11**



**NOTES:**  
1. THIS STRUCTURE CONFORMS TO MDSE APPENDIX D-8; DETAIL 6 AND HO. CO. STD. DETAIL 0-5.13  
2. DIVERSION STRUCTURE SHALL BE PRIVATELY OWNED AND MAINTAINED

**DIVERSION STRUCTURE (M-11)**  
SCALE: 1" = 3'



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. 21443 Expiration Date: 12-31-14

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DIRECTOR

NO.	DATE	REVISION
4	1-11-2013	REVISE ROAD REFERENCES TO TOWN SQUARE PARKWAY, REVISE TITLE BLOCK
3	4-10-2012	REVISE COMPS AND M&L BASED ON ROOF MANIFOLD DESIGN.
2	9-21-2011	ADD ROOF LEADER INVERT C 1-26, REVISE THREAT/TOP ELEVATIONS OF I-29.
1	5-31-2011	REVISE STORM DRAIN RUN FROM I-32 TO I-29 AND FROM M-15 TO I-31, UPDATE CROSSINGS.

**BENCHMARK ENGINEERING, INC.**  
410-465-8105 (P) 410-465-8844 (F)  
60 THOMAS JOHNSON DRIVE A/FREDERICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3506  
WWW.BEI-ENGINEERING.COM

Professional Engineer Seal for Donald Mason, No. 21443, State of Maryland.

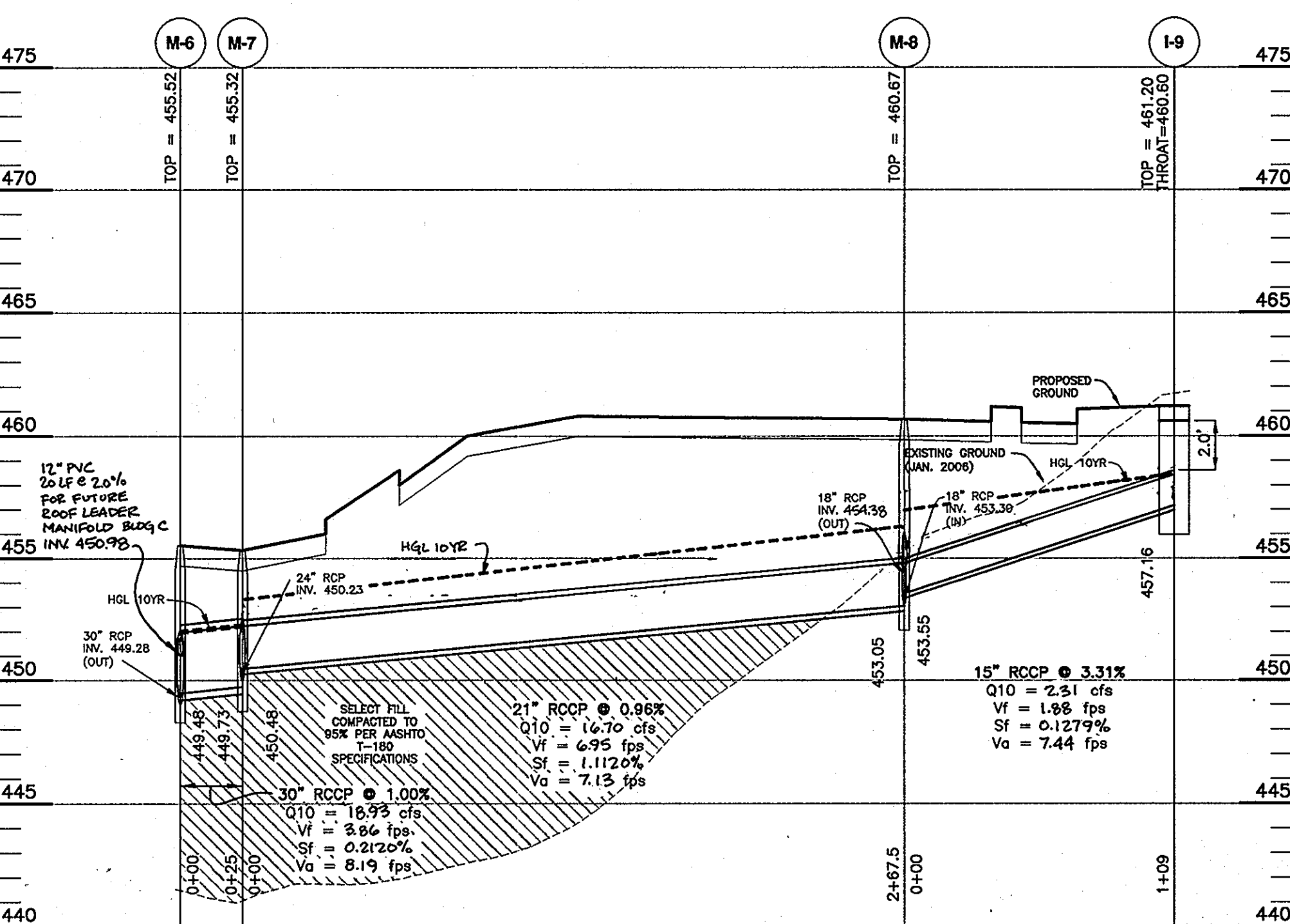
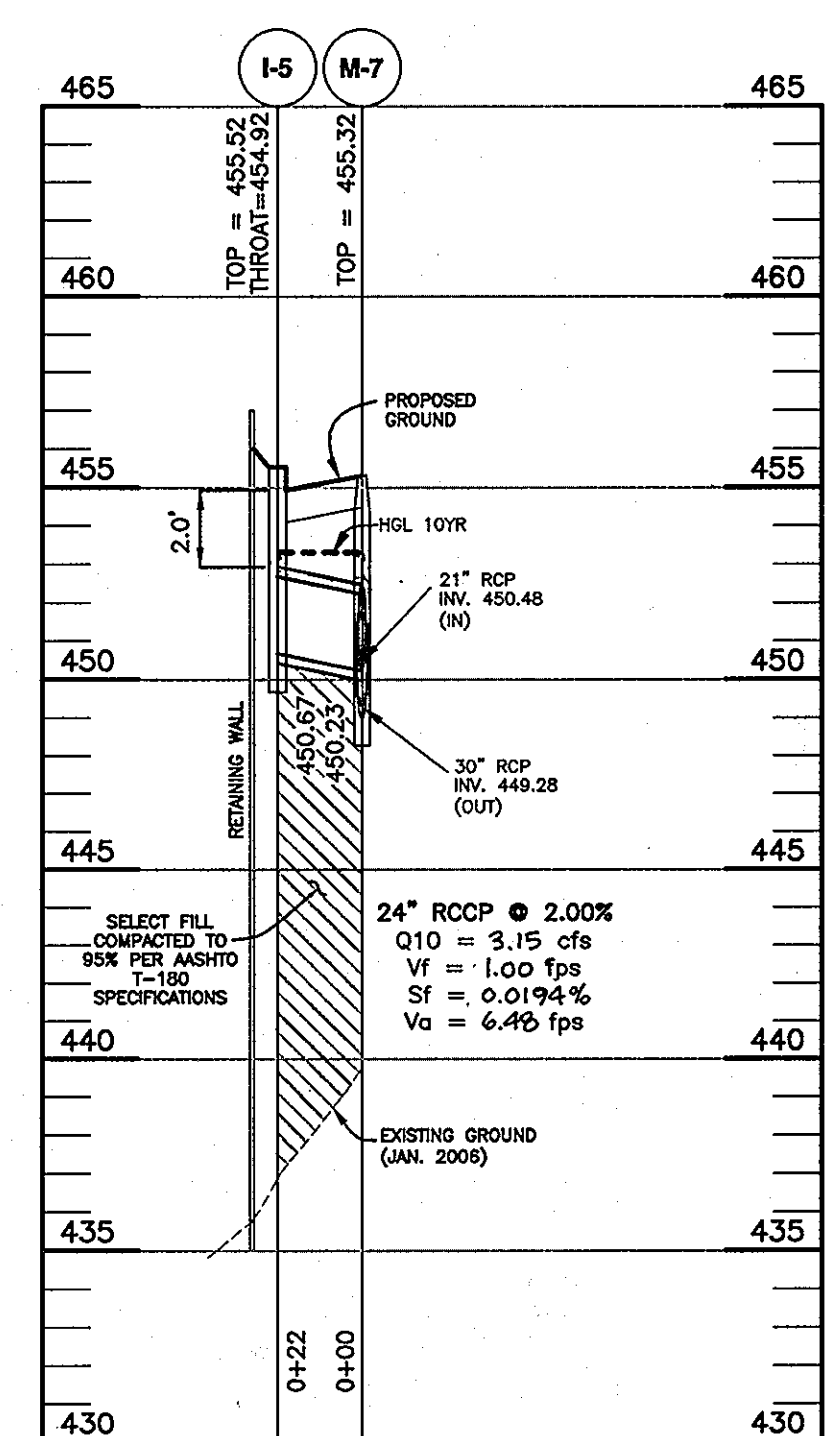
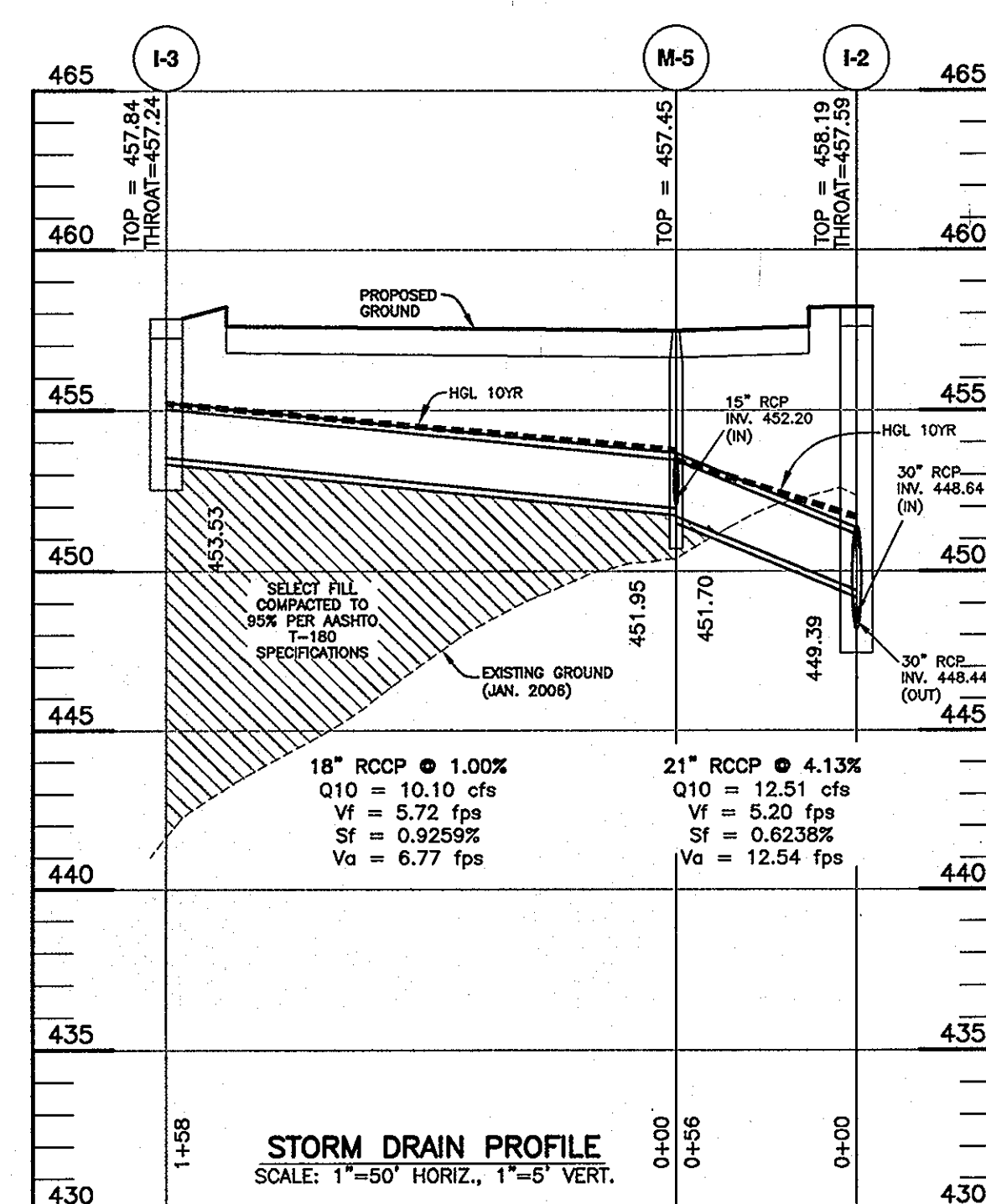
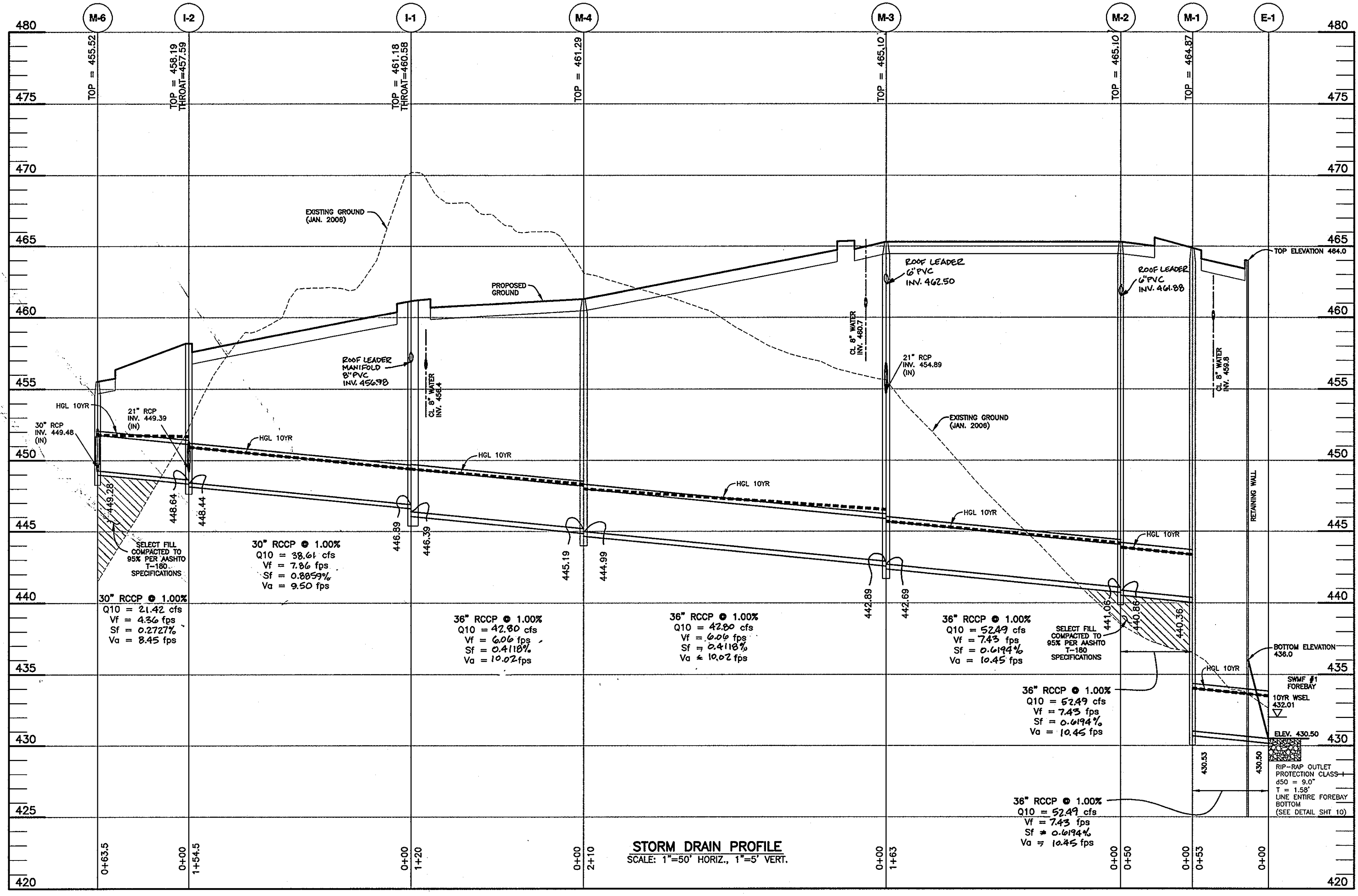
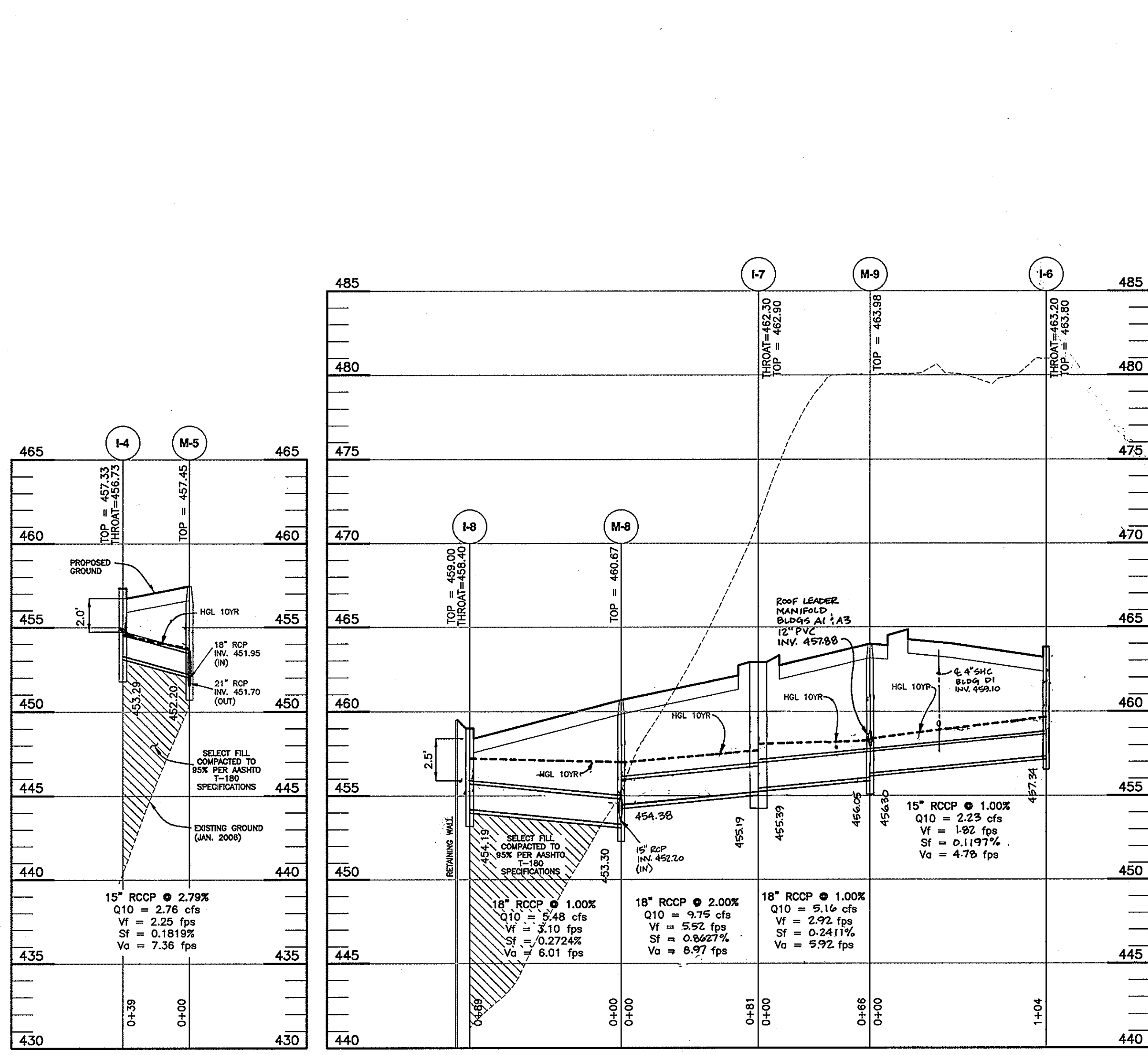
**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS '31' & '32' AND OPEN SPACE LOTS A, B & C  
TURF VALLEY PROFESSIONAL BUILDINGS  
FLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8  
ZONED: POCG (MULTI-USE SUBSTRUCT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**REVISOR**  
**STORM DRAIN PROFILES AND DETAILS**

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 8 OF 29





APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE: 4/15/10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division: 4/2/10  
 Chief, Division of Land Development: 5/3/10  
 Director: 5/3/10

NO.	DATE	REVISION
1	5-31-2011	REVISE TOP ELEV OF M-2 & M-3. REVISE STORM DRAIN FROM M-8 TO I-6
2	9-21-2011	ADD 6" ROOF DRAIN MANIFOLD INVERTS AT M-2 & M-3
3	4-10-2012	REVISE COMPS & HGL BASED ON ROOF MANIFOLD DESIGN. ADD MANIFOLD INVERTS TO M-6, M-9, I-1
4	1-11-2013	REVISE COMPS FROM I-1 TO E-1. REVISE TITLE BLOCK

**BENCHMARK ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE & SUITE 418 ELLOTT CITY, MARYLAND 21043  
 (P) 410-465-8105 (F) 410-465-8444  
 60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
 (P) 301-371-3505 (F) 301-371-3506  
 WWW.BE-CIVILENGINEERING.COM

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS 'J' & 'K' AND OPEN SPACE LOTS 4 & 5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078-22079

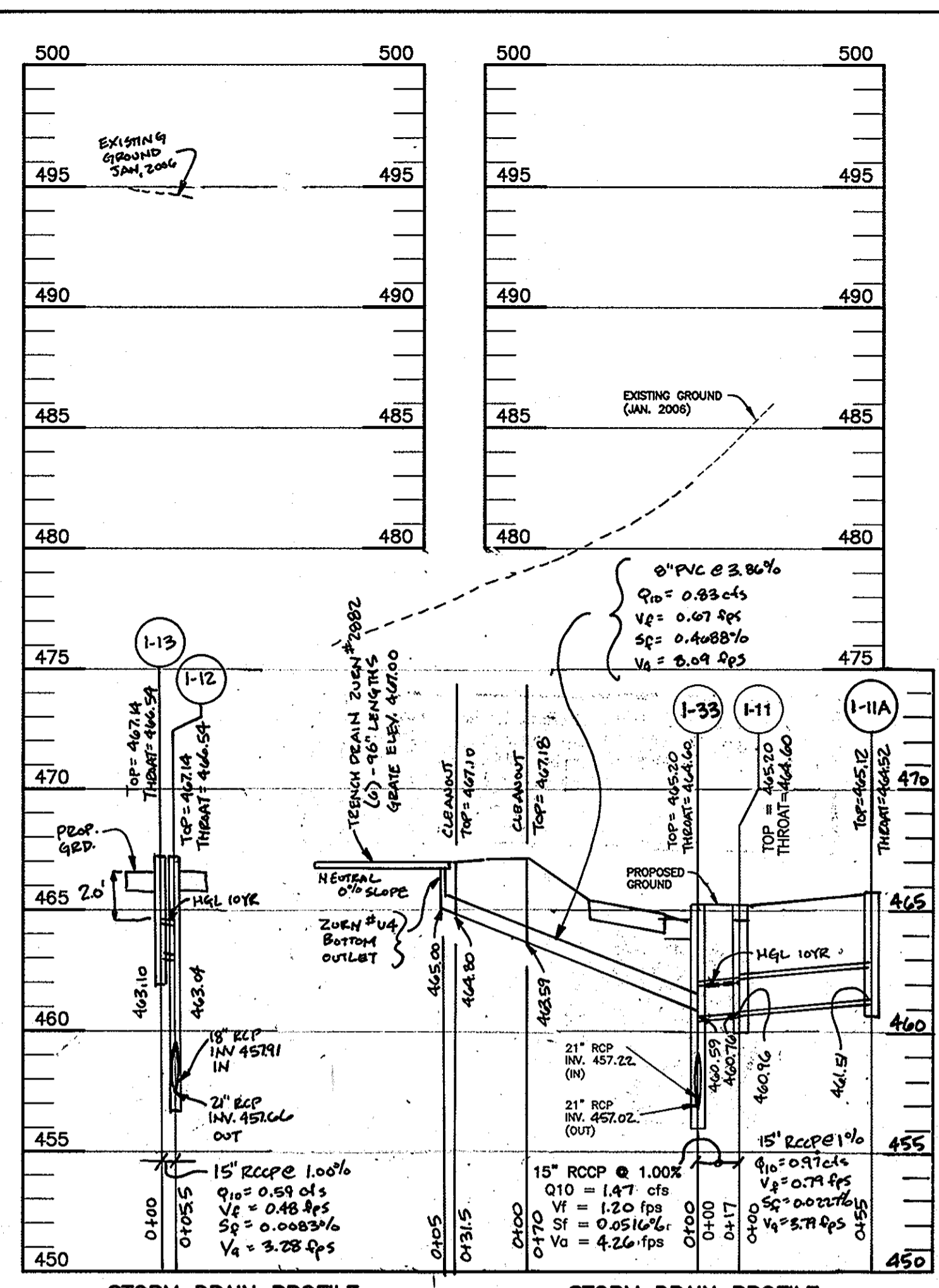
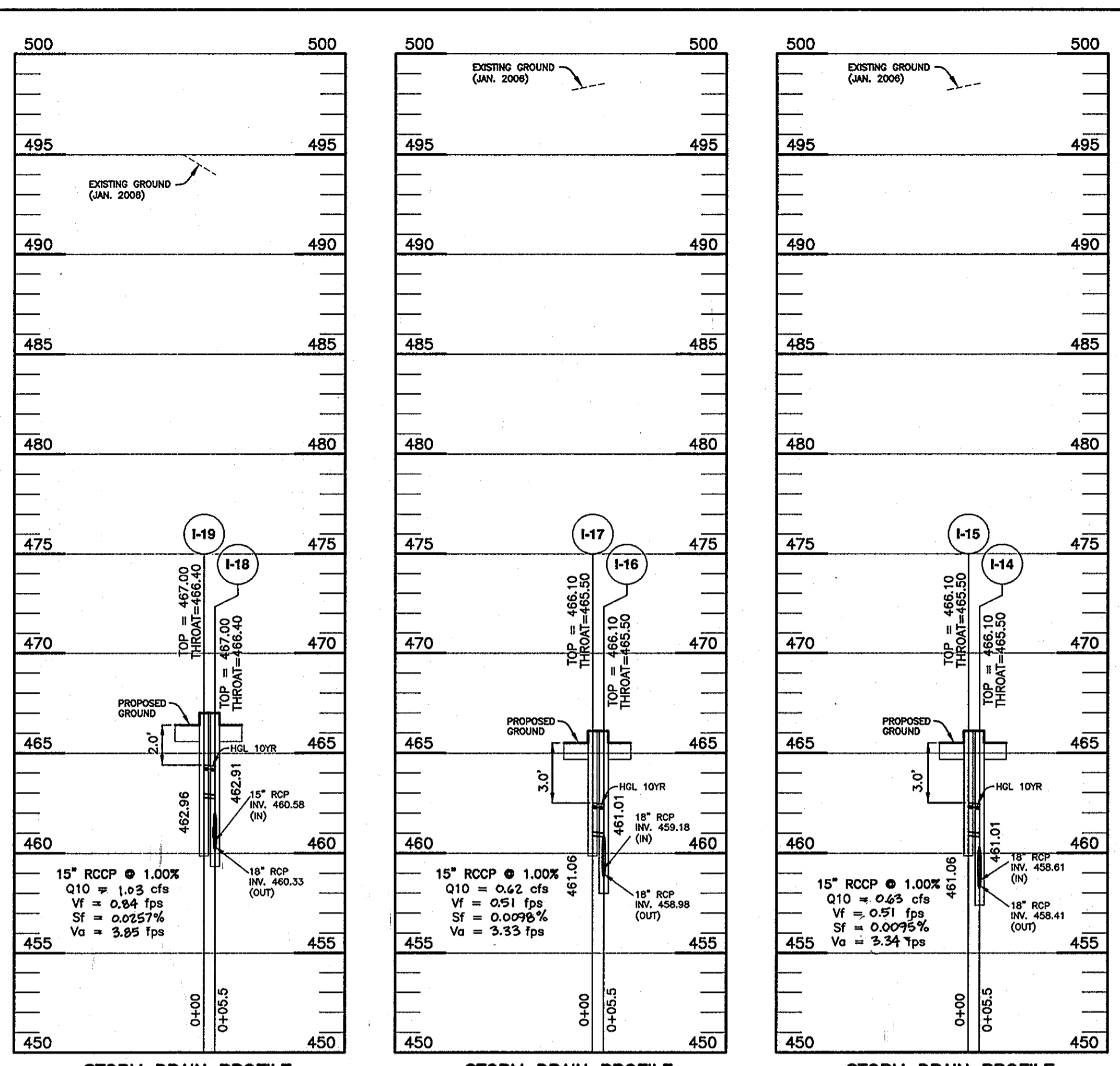
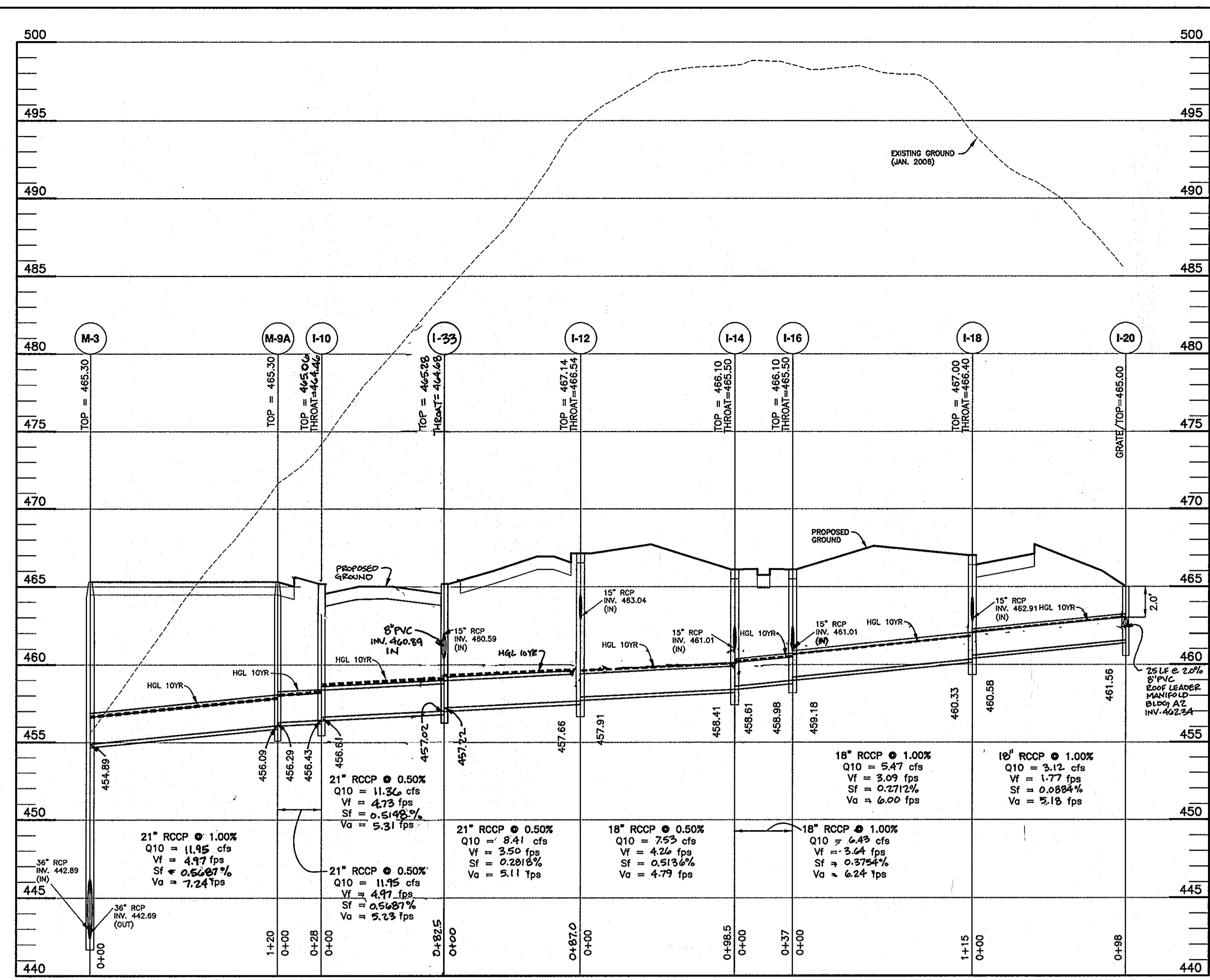
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

TAX MAP: 16 - GRID: 10 - PARCEL: P/O B & 50  
 ZONED: PCCC (MULTI-USE SUBDISTRICT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

DATE: APRIL, 2010  
 SCALE: AS SHOWN

BEI PROJECT NO. 2208  
 SHEET 9 OF 29

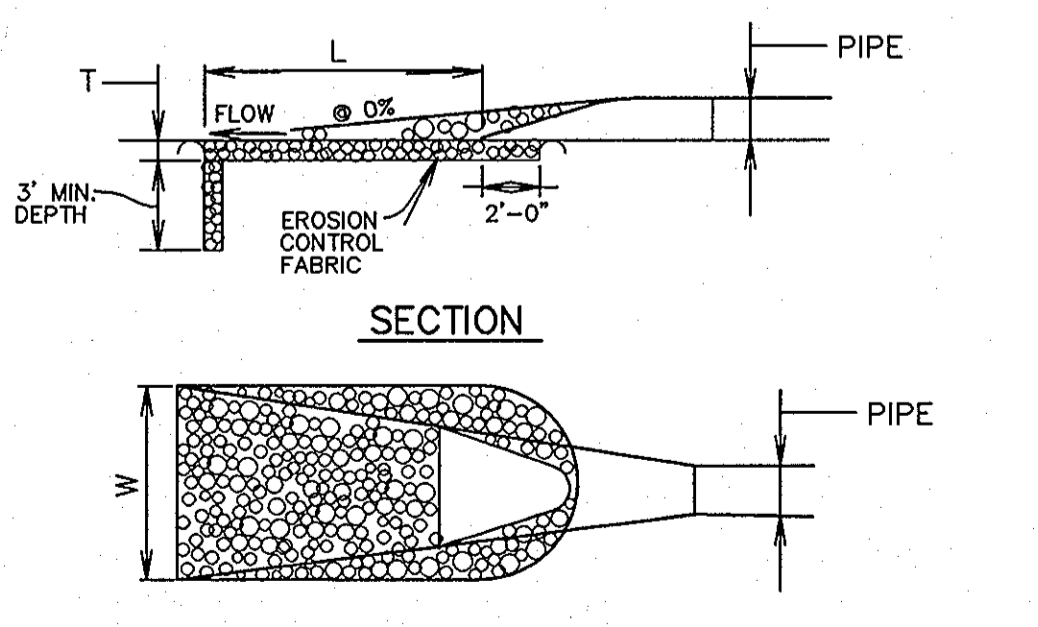


**STORM DRAIN PROFILE**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

STRUCTURE TABLE									
NUMBER	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	THROAT ELEV.	HO. CO.	STD. DETAIL	MAINTENANCE
<b>INLETS</b>									
I-1	A-10	N 594286 1310 E 1341180 6610	448.89	448.39	461.18	460.58	D-03 & D-04	PRIVATE	
I-2	A-10	N 594291 7611 E 1341028 3017	448.64 (M-6)	448.39 (M-5)	448.44	457.59	D-03 & D-04	PRIVATE	
I-3	A-10	N 594352 4438 E 1340362 3631	-	-	453.53	457.24	D-03 & D-04	PRIVATE	
I-4	A-5	N 594252 7511 E 1340961 8090	-	-	453.29	457.33	D-01 & D-02	PRIVATE	
I-5	A-5	N 594374 1608 E 1340978 5224	-	-	450.67	455.52	D-01 & D-02	PRIVATE	
I-6	A-5	N 594752 3166 E 1341262 3465	-	-	457.34	463.20	D-01 & D-02	PRIVATE	
I-7	A-10	N 594636 6151 E 1341184 5751	455.39	-	455.19	462.30	D-03 & D-04	PRIVATE	
I-8	A-10	N 594887 9311 E 1341090 3670	-	-	454.19	458.00	D-03 & D-04	PRIVATE	
I-9	A-5	N 594715 3549 E 1341150 1605	-	-	457.16	461.20	D-01 & D-02	PRIVATE	
I-10	A-5	N 594247 5239 E 1341417 8638	456.61	-	455.43	465.04	D-01 & D-02	PRIVATE	
I-11	A-5	N 594324 594 E 1341449 0925	-	-	446.76	445.22	D-01 & D-02	PRIVATE	
I-12	A-5	N 594408 2381 E 1341420 2204	463.10 (I-13)	457.91 (I-14)	457.66	457.14	D-01 & D-02	PRIVATE	
I-13	A-5	N 594410 8970 E 1341410 3590	-	-	463.10	467.14	D-01 & D-02	PRIVATE	
I-14	A-5	N 594506 5065 E 1341436 5831	461.01 (I-15)	458.61 (I-16)	458.41	466.10	D-01 & D-02	PRIVATE	
I-15	A-5	N 594508 1654 E 1341426 7216	-	-	461.06	466.10	D-01 & D-02	PRIVATE	
I-16	A-5	N 594542 9938 E 1341442 7210	461.01 (I-17)	458.18 (I-18)	458.98	466.10	D-01 & D-02	PRIVATE	
I-17	A-5	N 594544 6527 E 1341432 8596	-	-	461.06	466.10	D-01 & D-02	PRIVATE	
I-18	A-5	N 594656 4004 E 1341481 7965	462.91 (I-19)	460.33 (I-20)	460.33	467.00	D-01 & D-02	PRIVATE	
I-19	A-5	N 594658 0593 E 1341451 8370	-	-	462.96	467.00	D-01 & D-02	PRIVATE	
I-20	D	N 594973 7825 E 1341555 3061	-	-	461.59	465.00	D-10 & D-11	PRIVATE	
I-21	A-10	Road 'A' sta. 9+39.00 - Offset 20' right	442.76 (D)	-	431.86 (M)	447.71 (D)	D-03 & D-04	PRIVATE	
I-22	A-10	Road 'A' sta. 9+39.00 - Offset 20' left	-	-	443.87 (D)	447.71 (D)	D-03 & D-04	PRIVATE	
I-23	A-10	N 593823 0002 E 1341616 6337	-	-	455.39	459.43	D-03 & D-04	PRIVATE	
I-24	A-10	Road 'A' sta. 6+25.00 - Offset 20' right	450.41 (I-25)	456.85 (I-26)	450.24 (M)	461.58 (D)	D-03 & D-04	PRIVATE	
I-25	A-10	Road 'A' sta. 6+25.00 - Offset 20' left	-	-	457.51 (M)	461.58 (D)	D-03 & D-04	PRIVATE	
I-26	A-10	N 594091 1727 E 1341680 5333	451.84 (D)	453.0 (M-15)	454.0 (M)	460.50 (D)	D-03 & D-04	PRIVATE	
I-27	A-10	Road 'A' sta. 2+93.23 - Offset 34' left	467.86 (I-28)	464.96 (M-15)	454.93 (D)	472.30 (D)	D-03 & D-04	PRIVATE	
I-28	A-10	Road 'A' sta. 2+93.23 - Offset 34' left	-	-	458.56 (D)	472.30 (D)	D-03 & D-04	PRIVATE	
I-29	A-5	N 594212 8446 E 1341551 0795	-	-	459.79	464.20	D-01 & D-02	PRIVATE	
I-30	S	N 594425 0551 E 1341583 2028	456.45	-	456.74	465.50	D-4-22	PRIVATE	
I-31	S	N 594565 5808 E 1341605 8420	455.47	-	460.06	465.50	D-4-22	PRIVATE	
I-32	A-10	N 593838 2093 E 1341718 5258	447.99	-	447.73 (M)	455.79 (D)	D-03 & D-04	PRIVATE	
<b>MANHOLES</b>									
M-1	5' DIA	N 593912 6929 E 1341376 5220	440.36	-	430.53	464.87	G-5.13	PRIVATE	
M-2	5' DIA	N 593951 1785 E 1341345 1930	441.05	-	440.86	465.10	G-5.13	PRIVATE	
M-3	5' DIA	N 594112 2101 E 1341372 2820	442.89 (M-4)	454.89 (M-9A)	442.89	465.10	G-5.13	PRIVATE	
M-4	5' DIA	N 594147 0657 E 1341165 0819	445.19	-	444.99	461.29	G-5.13	PRIVATE	
M-5	4' DIA	N 594244 1389 E 1340397 9347	452.20 (I-9)	451.95 (I-3)	451.70	457.45	G-5.12	PRIVATE	
M-6	5' DIA	N 594345 2193 E 1340293 7572	449.49	-	449.29	455.52	G-5.13	PRIVATE	
M-7	5' DIA	N 594370 8895 E 1340397 9088	450.48 (M-8)	450.23 (I-5)	449.73	455.32	G-5.13	PRIVATE	
M-8	4' DIA	N 594614 7136 E 1341107 9611	453.55 (I-16)	454.39 (I-7)	453.05	460.67	G-5.12	PRIVATE	
M-9	4' DIA	N 594651 4916 E 1341243 7012	456.50	-	456.05	463.98	G-5.12	PRIVATE	
M-9A	4' DIA	N 594230 5474 E 1341392 1889	456.29	-	456.09	465.30	G-5.12	PRIVATE	
M-11	SEE DETAIL SHEET	N 593815 0068 E 1341681 7461	448.24	431.06	458.09	470.00	G-5.13	PRIVATE	
M-12	5' DIA	N 593822 8079 E 1341679 4514	448.24	448.34 (I-23)	448.00	467.09	G-5.13	PRIVATE	
M-13	5' DIA	Road 'A' sta. 7+74.13 - Offset 22.25' RIGHT	446.74 (D)	446.98 (D)	446.98	454.59	G-5.13	PRIVATE	
M-14	4' DIA	Road 'A' sta. 4+89.43 - Offset 47.34' RIGHT	452.84 (D)	452.45 (D)	452.45	463.00	G-5.12	PRIVATE	
M-15	4' DIA	N 594392 5123 E 1341577 7282	456.46 (I-25)	456.41 (I-30)	456.21	463.00	G-5.12	PRIVATE	
<b>END SECTIONS</b>									
E-1	36" CONC	N 593960 2359 E 1341367 7129	-	-	430.50	NA	D-5.51	PRIVATE	
E-2	42" CONC	N 593624 8525 E 1341586 0345	-	-	424.50	NA	D-5.51	PRIVATE	
E-3	18" CONC	N 593752 1725 E 1341712 7195	-	-	430.00	NA	D-5.51	PRIVATE	
E-4	30" CONC	N 593764 4138 E 1341696 6277	-	-	430.00	NA	D-5.51	PRIVATE	
<b>STRUCTURES</b>									
S-1	SEE SWM	N 593673 6738 E 1341618 2639	432.40 (WEIR)	425.00 (6")	425.00	435.00	NA	SEE SWM DETAILS	PRIVATE
STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE RIM.									
STRUCTURE LOCATION FOR INLETS IS AT THE CENTER OF THE INLET FACE.									
STRUCTURE LOCATION FOR THE END-SECTION IS AT THE MIDPOINT OF THE END OF THE STRUCTURE.									
PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.									
I-13	A-5	N 594321 4947 E 1341430 3027	460.59 (I-5)	457.22 (I-2)	457.02	465.28	D-01 & D-02	PRIVATE	
I-11A	A-5	N 594315 4188 E 1341502 0548	-	-	461.51	465.12	D-01 & D-02	PRIVATE	

PIPE SCHEDULE			
SIZE	TYPE	LENGTH (L.F.)	MAINTENANCE
15"	RCCP CLASS IV	821	PRIVATE
18"	RCCP CLASS IV	1048	PRIVATE
21"	RCCP CLASS IV	920	PRIVATE
24"	RCCP CLASS IV	22	PRIVATE
27"	RCCP CLASS IV	320	PRIVATE
30"	RCCP CLASS IV	304	PRIVATE
36"	RCCP CLASS IV	598	PRIVATE
42"	ASTM C-361 B-25	55	PRIVATE
18"	PVC	235	PRIVATE
6"	PVC	22	PRIVATE
8"	PVC	107	PRIVATE

- CONSTRUCTION SPECIFICATIONS**
- THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
  - THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
  - GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
  - STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
  - THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL, AND SCOUR ADJACENT TO THE STONE WILL OCCUR.



STRUCTURE	D=50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
E-1	9.0"	FOREBAY	FOREBAY	1.58"	I
E-2	9.5"	23' @ 0%	26.5'	1.58"	I
E-3	9.0"	FOREBAY	FOREBAY	1.58"	I
E-4	9.5"	FOREBAY	FOREBAY	1.58"	I

**OUTLET PROTECTION DETAIL**  
NOT TO SCALE

APPROVED  
PLANNING BOARD OF HOWARD COUNTY

DATE: 4/15/10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4/20/10 DATE

5/9/10 DATE

5/31/10 DATE

AS-BUILT CERTIFICATION

I hereby certify, by my seal, that the facilities shown on this plan were constructed as shown on this AS-BUILT plan.

Donald Mason, P.E. No. 21443 Date 4-10-13

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. 21443 Expiration Date 12-21-14

5 1-11-2013 REVISE PROFILE FROM I-13 TO I-11 TO INCLUDE I-11A TRENCH DRAIN. REVISE TITLE BLOCK

4 4-10-2012 REVISE COMPS + HGL BASED ON ROOF MANIFOLD DESIGN. REVISE I-18 TO I-20 TO BE 18" RCP

3 12-2-2011 REVISE THROAT AND BUN ELEVATIONS OF I-10 AND I-13

2 9-21-2011 REVISE I-10, I-11, I-12, I-13 IN STRUCTURE SCHEDULE. DELETE M-10

1 5-31-2011 REVISE PIPE SCHED + STRUCTURE SCHED FOR I-4, I-7, I-24, I-29, I-29, I-30, I-31, I-32, M-2, M-3, M-8

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**

8400 BALTIMORE NATIONAL PIKE & SUITE 418 ELLIOTT CITY, MARYLAND 21043  
(P) 410-465-1105 (F) 410-465-6644  
60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3508  
WWW.BE-ENGINEERING.COM

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. 21443 Expiration Date: 7-22-2011.

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS '11' & '12' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NO. 22078-22079

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

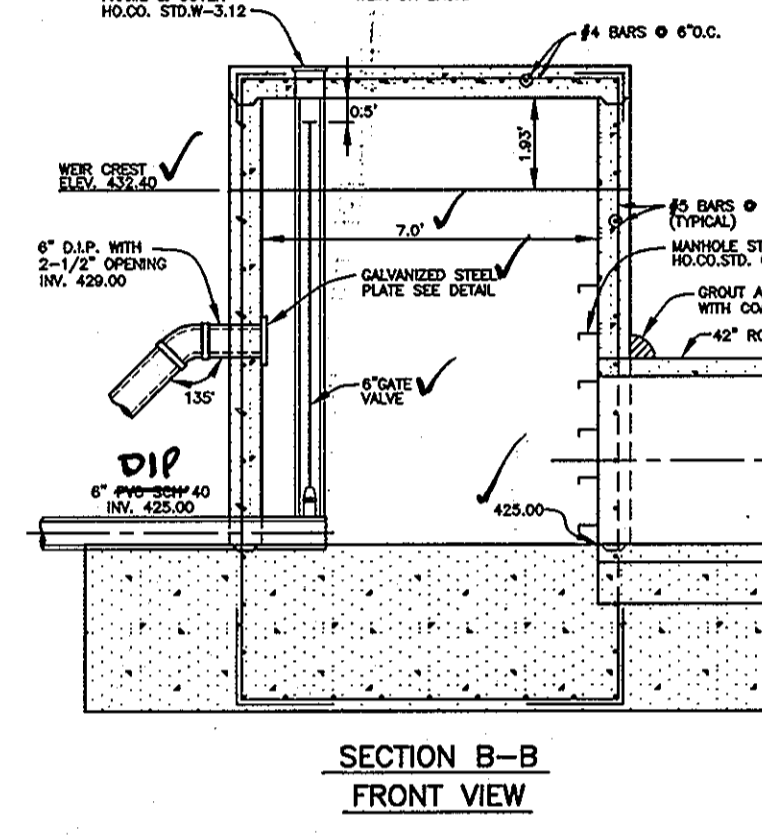
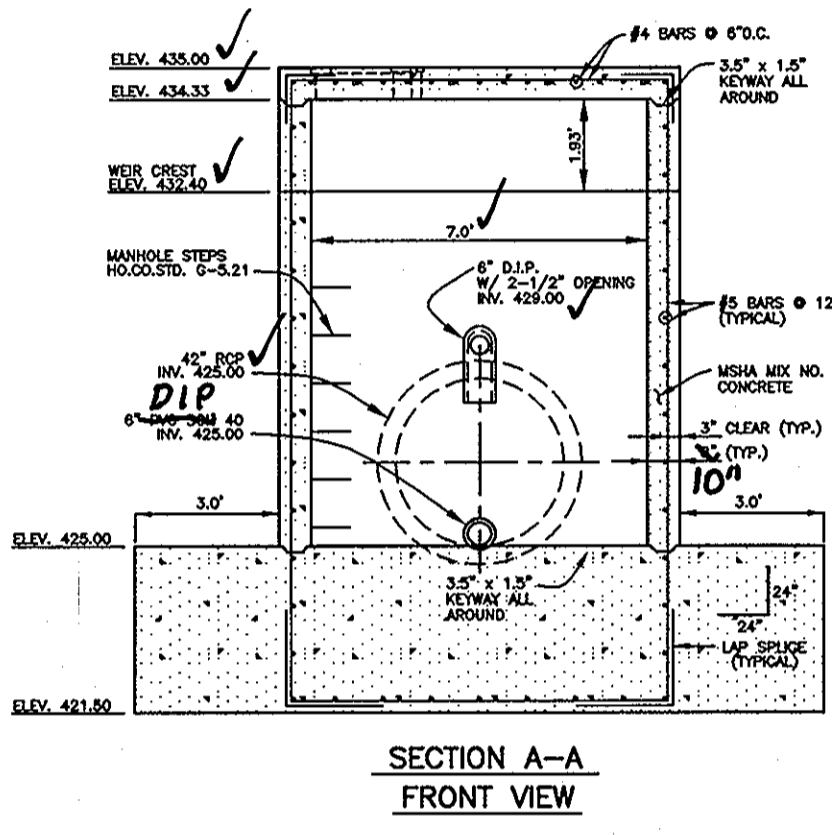
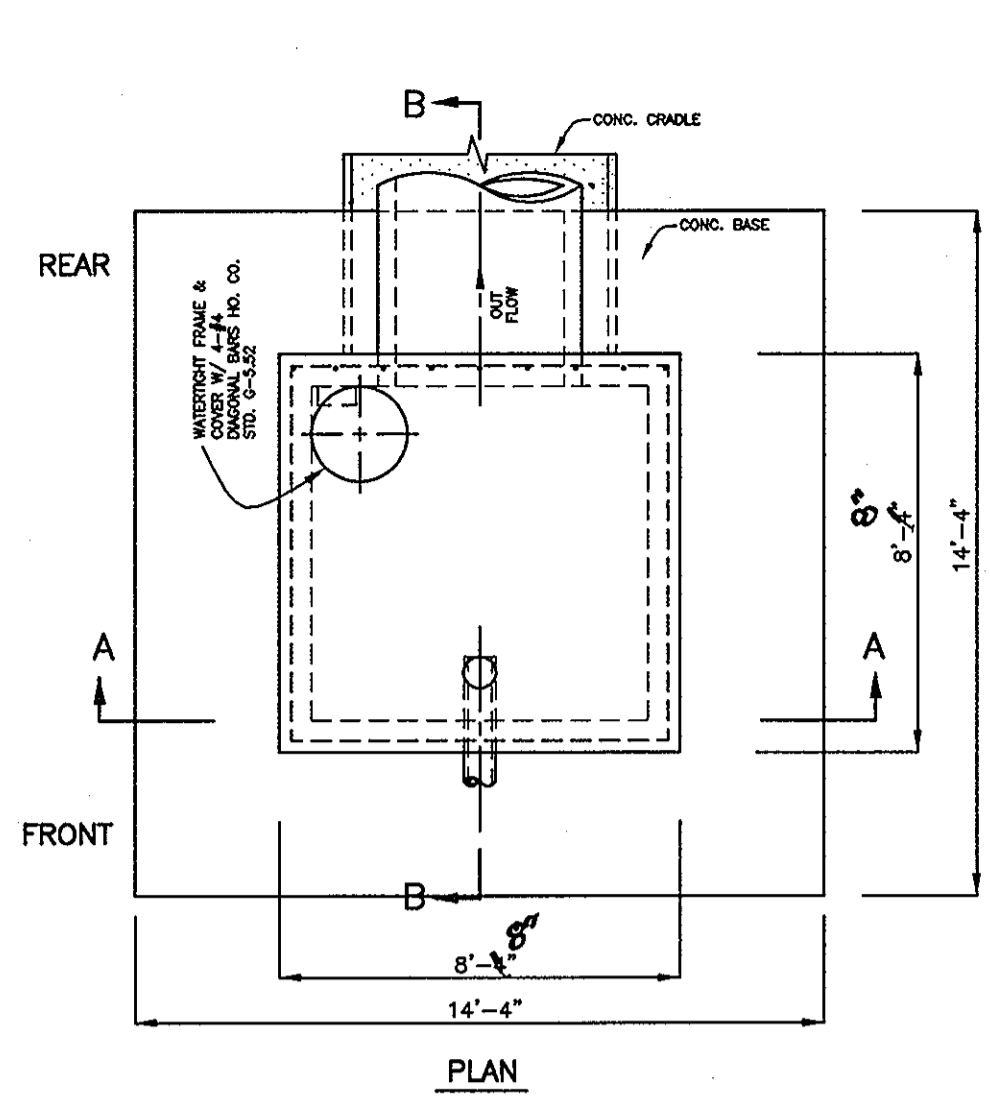
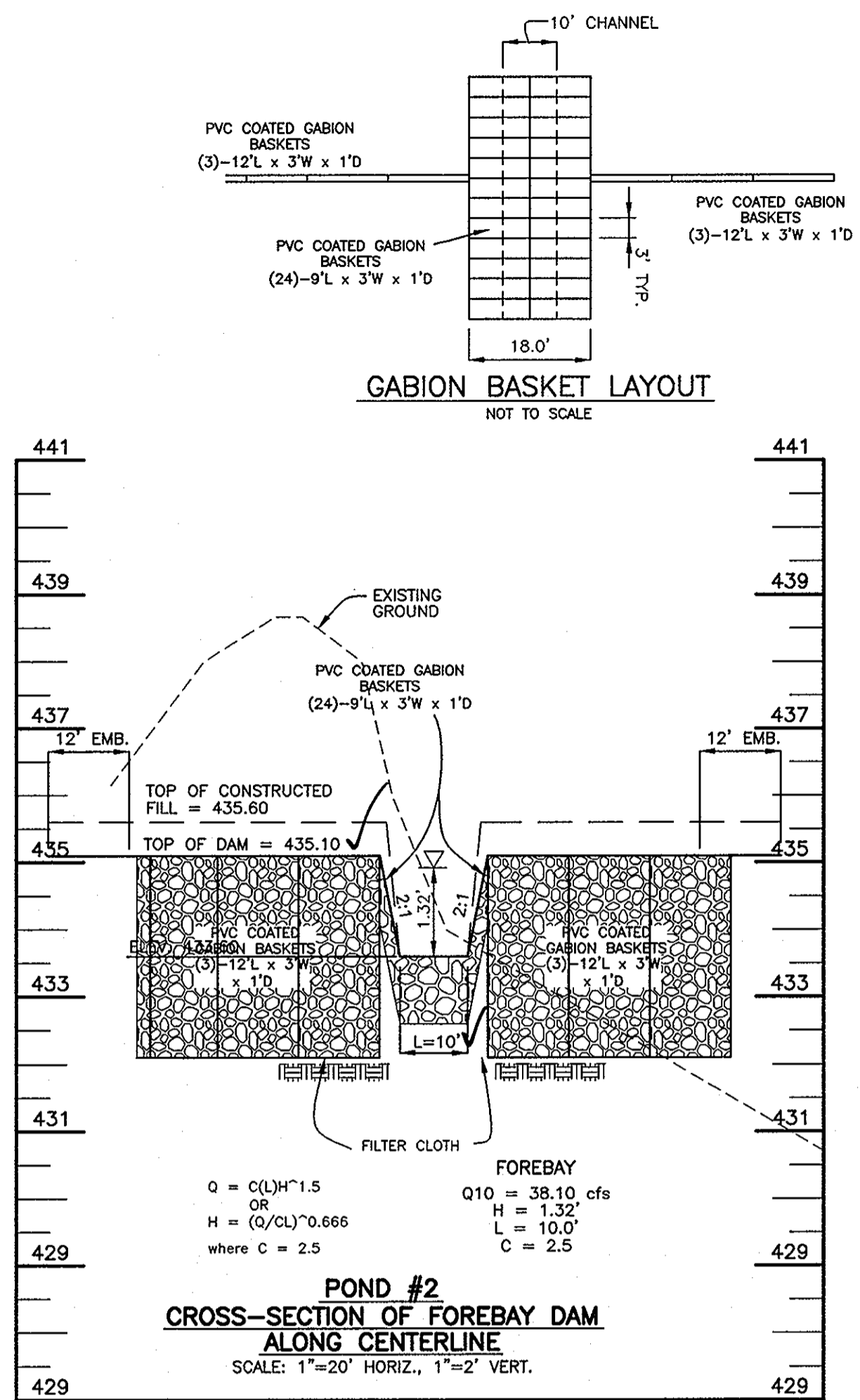
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

TAX MAP: P/O B & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

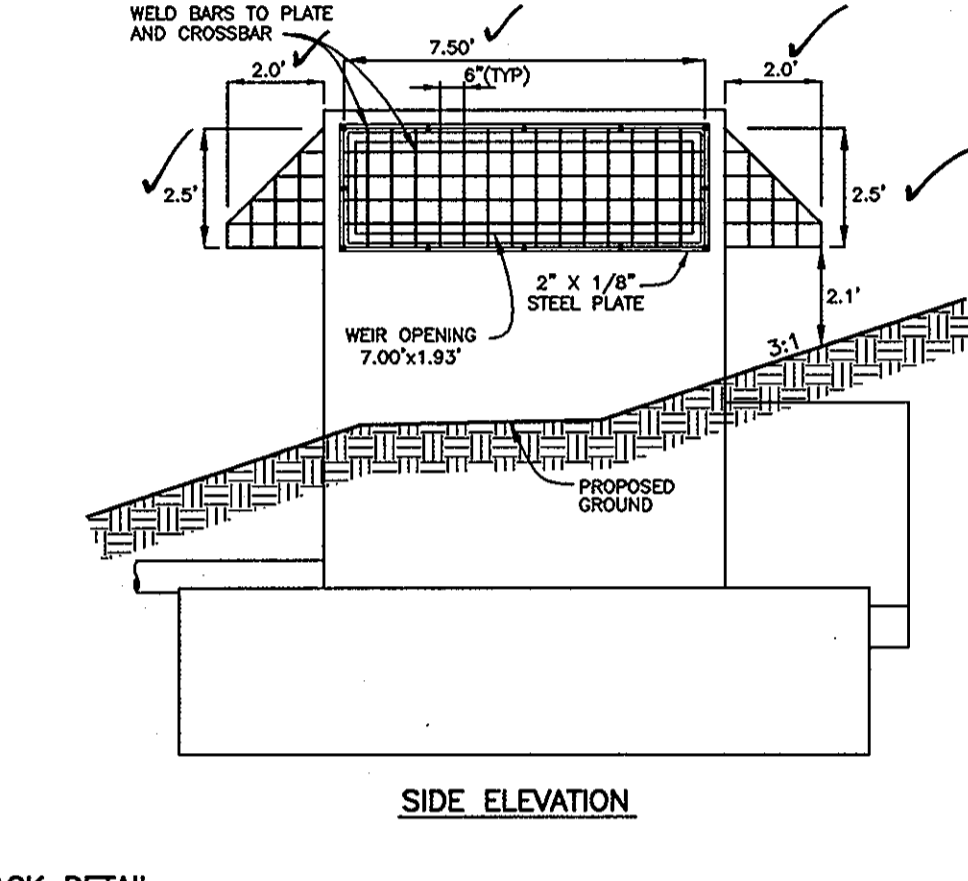
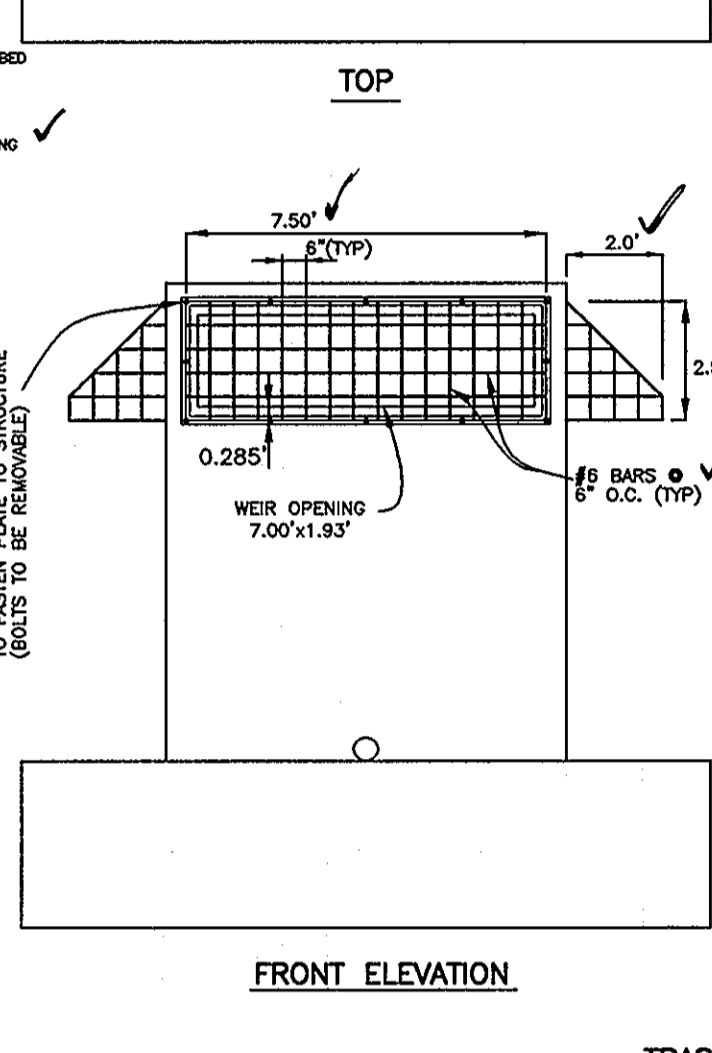
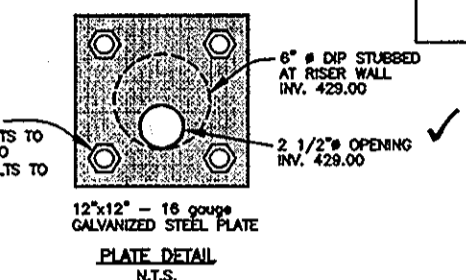
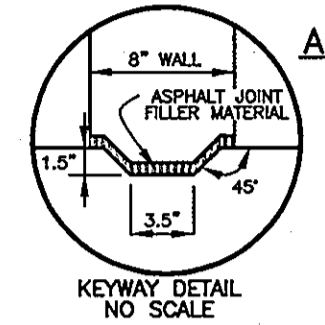
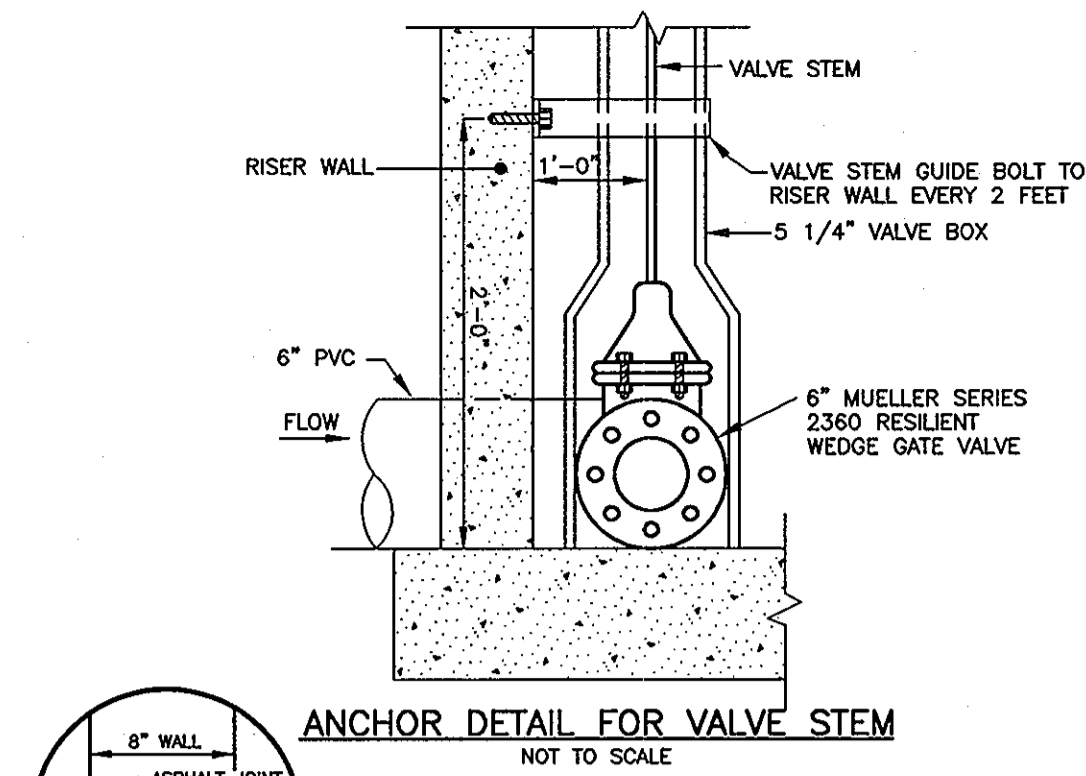
**STORM DRAIN PROFILES AND DETAILS**

DATE: APRIL, 2010 BEI PROJECT NO. 2208

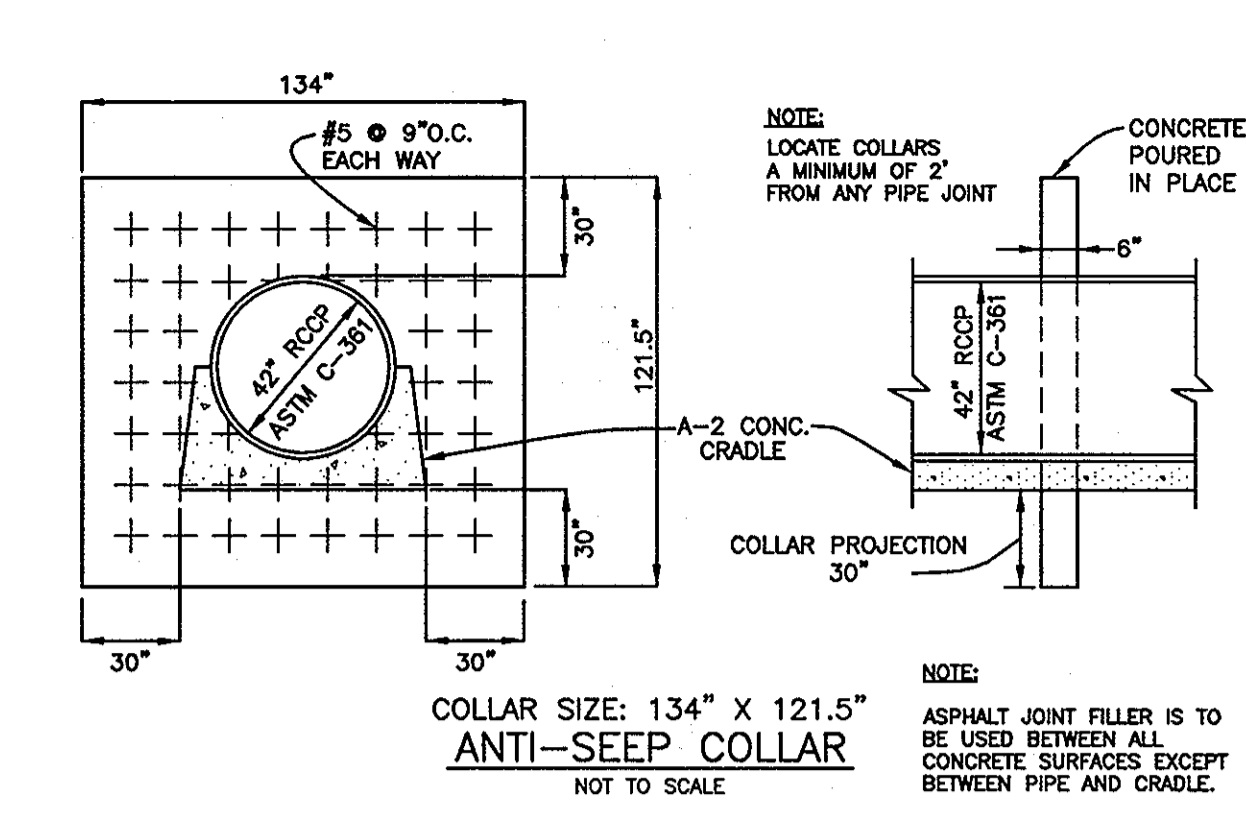
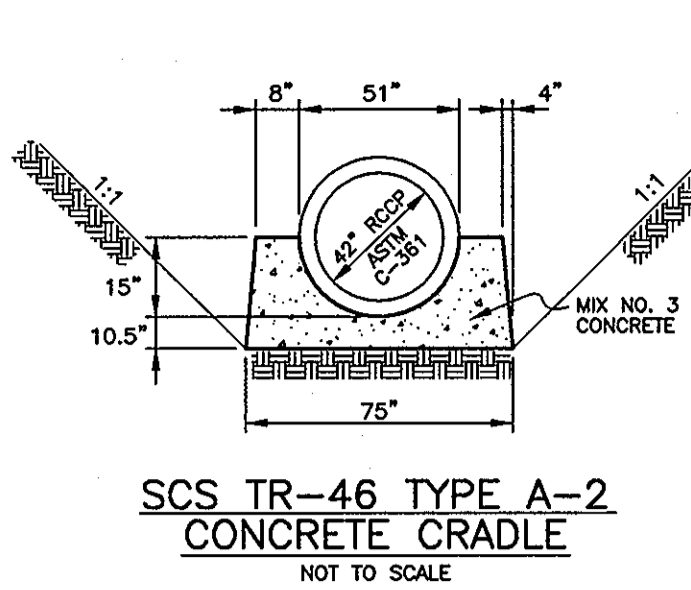
SCALE: AS SHOWN SHEET 10 OF 29



**CONTROL STRUCTURE**  
SCALE: 1" = 4'



**TRASH RACK DETAIL**  
SCALE: 1" = 4'



- NOTES:
- TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION.
  - TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.
  - TRASH RACK TO BE INSTALLED UPON CONVERSION TO SWM POND.

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. 21443 Expiration Date: 12-21-14

**AS-BUILT CERTIFICATION**

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

Donald M. Mangione, P.E. 21443  
ENGINEER - 10-28-13

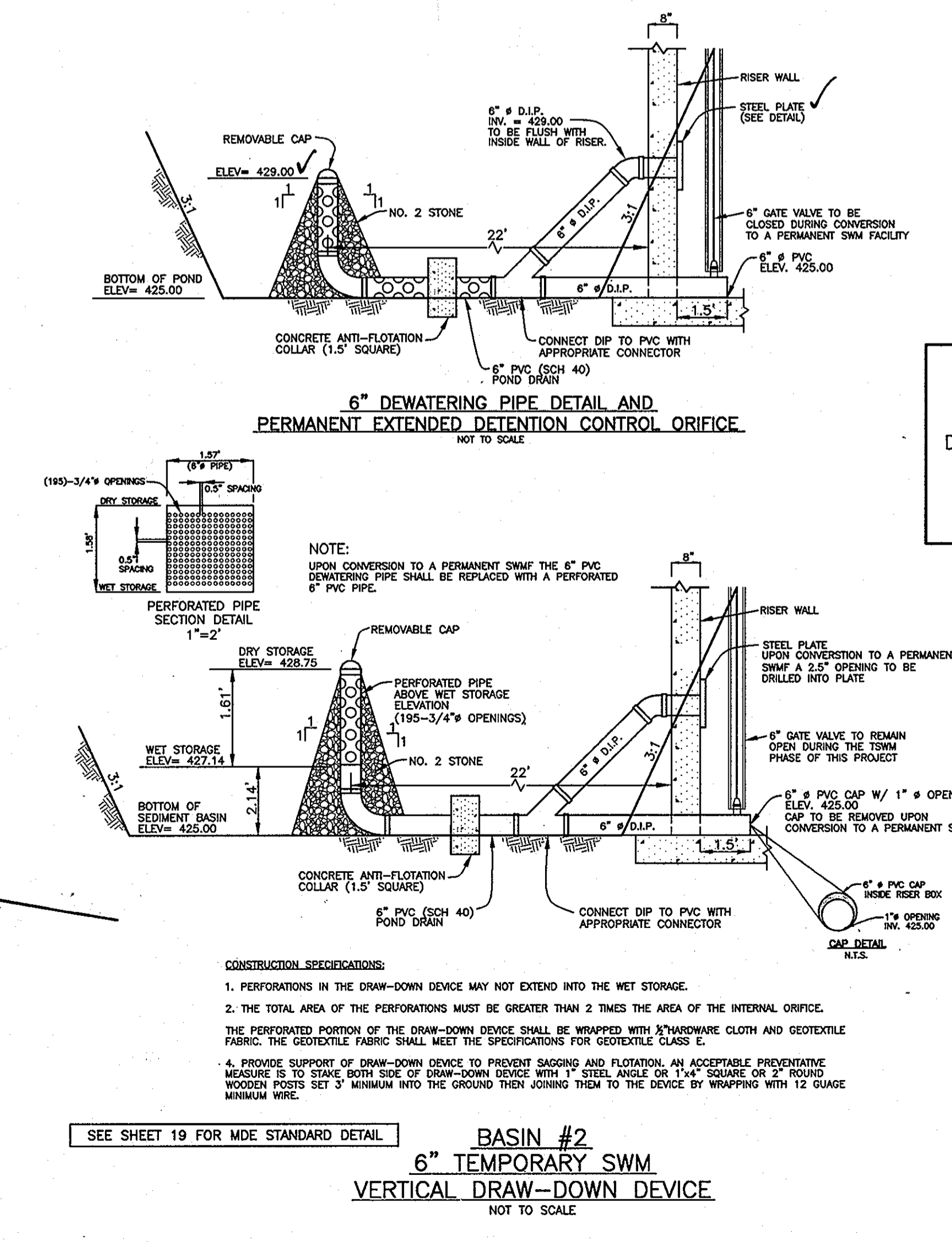
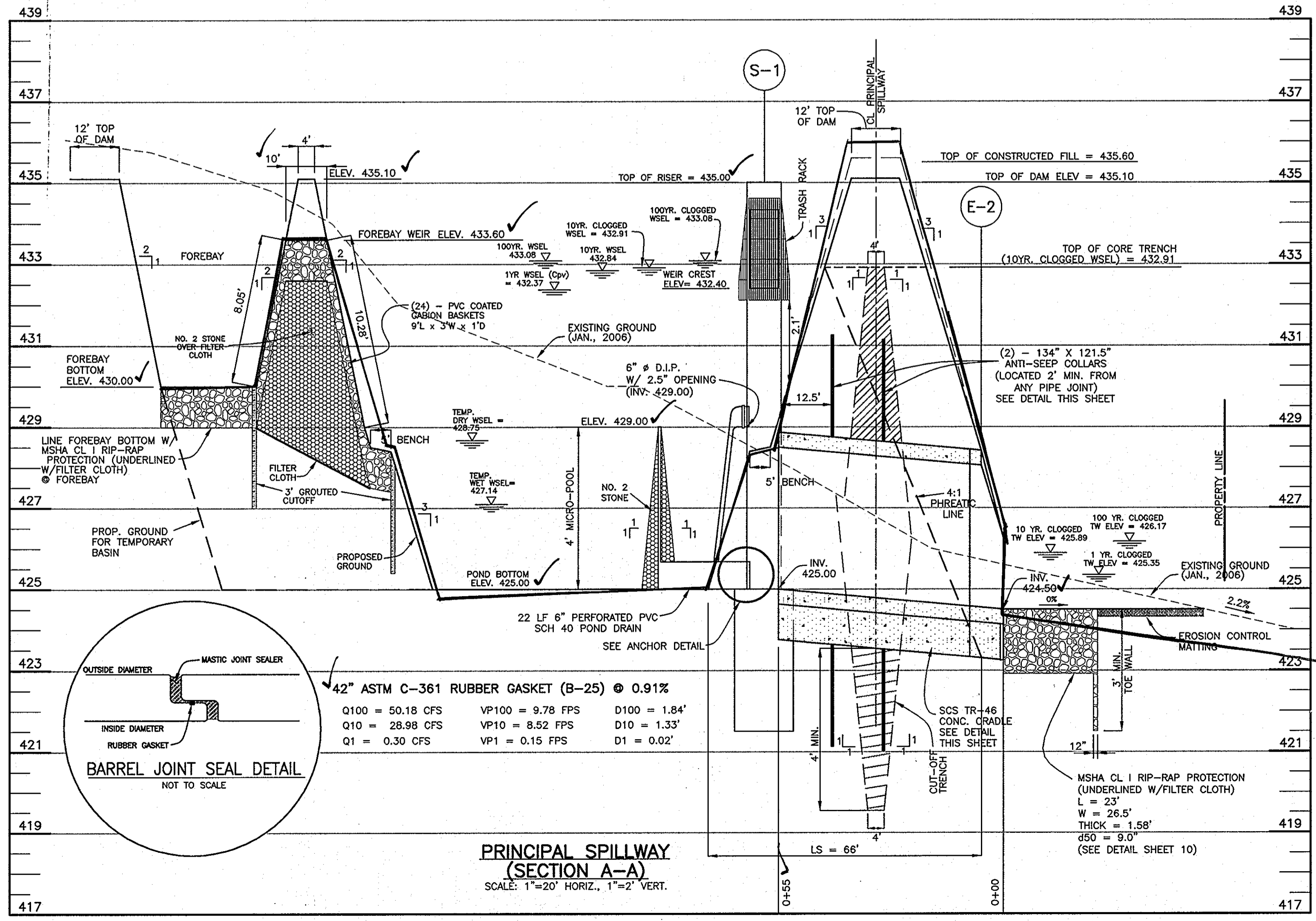
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED ABOVE AND BEYOND THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS WHICH ARE NECESSARY TO OBTAIN A PROFESSIONAL OPINION. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT OR OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:  
Dan Mangione 4/14/10 DATE

BY THE ENGINEER:  
Bryan F. Cleary 4/14/2010 DATE

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Chief, Development Engineering Division 4/27/10 DATE  
Chief, Division of Land Development 5/3/10 DATE  
Director 5/3/10 DATE



APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10

**BENCHMARK ENGINEERING, INC.**  
8400 BALTIMORE NATIONAL PIKE SUITE #184 ELLOTT CITY, MARYLAND 21043  
(P) 410-465-8100 (F) 410-465-8444  
60 THOMAS JOHNSON DRIVE/FREDERICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3508  
WWW.BE-CIVILENGINEERING.COM

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS J1 & J2 AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PCCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT DETAILS**  
POND #2

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 11 OF 29



**POND #1 SPECIFICATIONS**

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARD FOR PRACTICE MD-378. ALL REFERENCES TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

**SITE PREPARATION**  
AREAS DESIGNATED FOR BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1 AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED OF ALL TREES, BRUSH, LOGS, RUBBER AND OTHER OBJECTIONABLE MATERIAL UNLESS OTHERWISE DESIGNATED TO THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH THE GROUND SURFACE. FOR CITY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 20 FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

**EARTH FILL**  
MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBER, STONES GREATER THAN 4" PROCEED OF OTHER OBJECTIONABLE MATERIALS. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, CH OR CL. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGN AND CONSTRUCTION ARE SUPERVISED BY A GEOTECHNICAL ENGINEER.

**PLACEMENT** - AREAS ON WHICH FILL IS TO BE SHALL BE SOAKED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8 INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNHILL PORTIONS OF THE EMBANKMENT. THE PROPOSED SLOPES MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

**COMPACTION** - THE MOVEMENT OF AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVEL BY NOT LESS THAN ONE TREAD TRACK OF THE EQUIPMENT OR COMPACTION SHALL BE ACCOMPLISHED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SNEEFOOT, RUBBER TRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHERE A MINIMUM REQUIRED DENSITY IS SPECIFIED, IT SHALL NOT BE LESS 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME OF CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99.

**CUT OFF TRENCH** - THE CUT OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE COVERED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TAMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

**STRUCTURE BACKFILL**  
BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL MATERIAL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TAMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE.

**PIPE CONDUITS**  
ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.  
CORRUGATED METAL PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:  
1. MATERIALS - (STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL BE GALVANIZED AND FULLY BITUMINOUS COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-100 TYPE A WITH WATER TIGHT COUPLING BANDS. ANY BITUMINOUS COATING DAMAGED OR OTHERWISE REMOVED SHALL BE REPLACED WITH COLO APPLIED BITUMINOUS COATING COMPOUND. STEEL PIPES WITH POLYMER COATINGS SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THE FOLLOWING COATINGS OR AN APPROXIMATE EQUAL MAY BE USED: HEXON, PLASTIC-COIL, BAC-146, AND BETH-50-100. COATED CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-245 AND M-246.

MATERIALS - (ALUMINUM COATED STEEL PIPE) - THIS PIPE AND ITS APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-166 OR M-211 WITH WATER TIGHT COUPLING BANDS OR FLANGES. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PI OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-SEEP COLLARS, END SECTIONS, ETC. MUST BE COMPOSED OF THE SAME MATERIAL AS THE PIPE. METALS MUST BE INSULATED FROM DISSIMILAR MATERIALS WITH USE RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATER TIGHT. THE DRAIN PIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATER TIGHT. DUMPLE BANDS ARE NOT CONSIDERED TO BE WATER TIGHT.  
ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE ROLLED AND APPROPRIATE NUMBER OF CORRUGATIONS TO ACCOMMODATE THE BAND WITH THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPE LESS THAN 24" IN DIAMETER:  
FLANGES ON BOTH ENDS OF THE PIPE, A 1/2" WIDE STANDARD LAP TYPE BAND, 1/2" WIDE BY 18" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET, AND A 1/2" WIDE NEOPRENE TYPE BAND WITH O-RING GASKETS HAVING MINIMUM DIAMETER OF 1/2" GREATER THAN THE CORRUGATION DEPTH. PIPES 24" IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24" LONG ANNULAR CORRUGATED BAND USING RINGS AND LUGS. A 1/2" WIDE BY 3/8" THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED ON THE END OF EACH PIPE FOR A TOTAL OF 24".  
HEMICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.  
5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."  
6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

**REINFORCED CONCRETE PIPE** - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE:  
1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL CONFORM TO EXCEED ASTM DESIGNATION C-900.  
2. BEDDING - ALL REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING FOR THEIR ENTIRE LENGTH. THIS BEDDING SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AND UP THE SIDES OF THE PIPE AT LEAST 10X OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 3 INCHES, OR AS SHOWN ON THE DRAWINGS.

3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FROM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 2 FEET FROM THE RISER.  
4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."  
5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

**POLYVINYL CHLORIDE (PVC) PIPE** - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:  
1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.  
2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATER TIGHT.  
3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSTABLE SOIL IS ENCOUNTERED ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.  
4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL."  
5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

**CONCRETE**  
CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 905. THE RRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THE RRAP IN PLACE SHALL BE REASONABLY HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT WITH THE SMALLER ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE PLACED UNDER ALL RRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.12.

**CARE OF WATER DURING CONSTRUCTION**  
ALL WORK ON THE PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVES, COFFERDAMS, DRAINAGE CHANNELS, AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO INSTALL, OPERATE AND MAINTAIN ALL NECESSARY PUMPING AND OTHER EQUIPMENT REQUIRED FOR REMOVAL OF WATER FROM THE VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH PART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM MAINTENANCE UNTIL THE FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM OF THE REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL AND CONSTRUCTION OPERATIONS. DURING THE PLACING AND COMPACTION OF MATERIAL IN REQUIRED EXCAVATIONS, THE WATER LEVEL AT THE LOCATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER TO SLOPES FROM WHICH THE WATER SHALL BE PUMPED.

**STABILIZATION**  
ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SLIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPILL AND BORROW AREAS, AND BORROW SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE MARYLAND SOIL CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

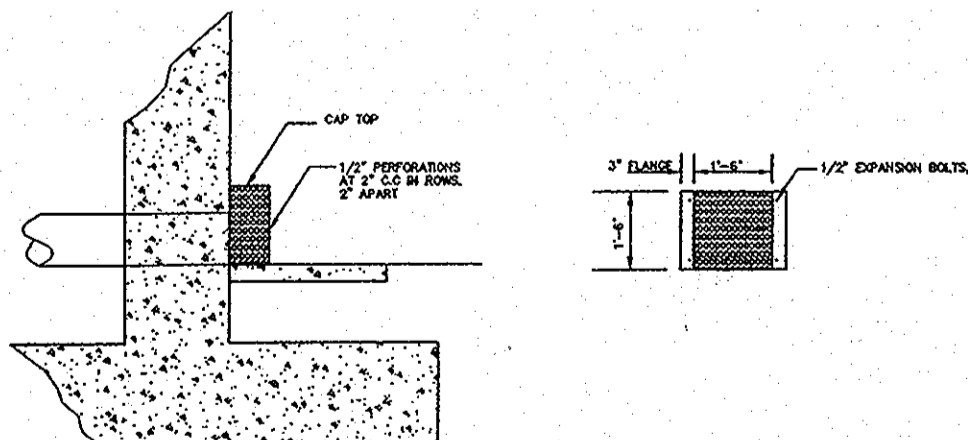
**EROSION AND SEDIMENT CONTROL**  
CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL REGULATIONS AND ABATEMENT STABILIZATION BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE MARYLAND SOIL CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

**SWM POND MAINTENANCE REQUIREMENTS (PRIVATE):**  
a. SILT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS SIX (6) INCHES IN BASINS WITHOUT FOREBAYS IN BASIN WITH FOREBAYS, SILT SHALL BE REMOVED WHEN THE ACCUMULATION EXCEEDS FOUR (4) INCHES IN THE FOREBAY.  
b. ACCUMULATED PAPER, TRASH AND DEBRIS SHALL BE REMOVED AS NECESSARY.  
c. VEGETATION GROWING ON THE EMBANKMENT TOP AND FACES IS NOT ALLOWED TO EXCEED 18 INCHES IN HEIGHT AT ANY TIME.  
d. ANNUAL INSPECTION AND REPAIR, IF REQUIRED, OF THE STRUCTURE SHALL BE PERFORMED.

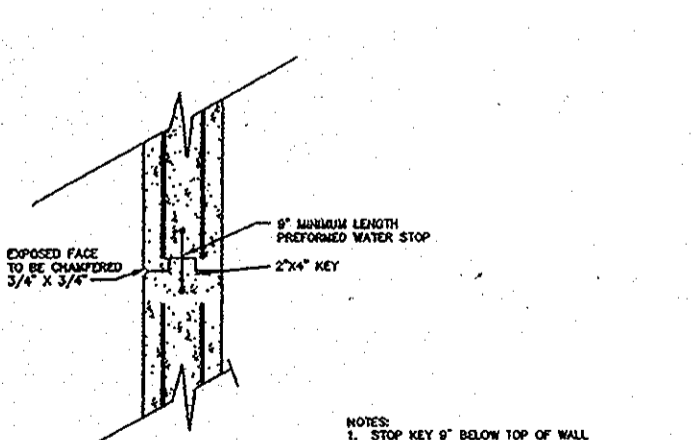
**OPERATION, MAINTENANCE AND INSPECTION (PRIVATE):**  
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS (MD-376)". THE POND OWNER(S) AND THE HEIR(S) SUCCESSORS OR AGENTS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATORS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

**GENERAL NOTES:**

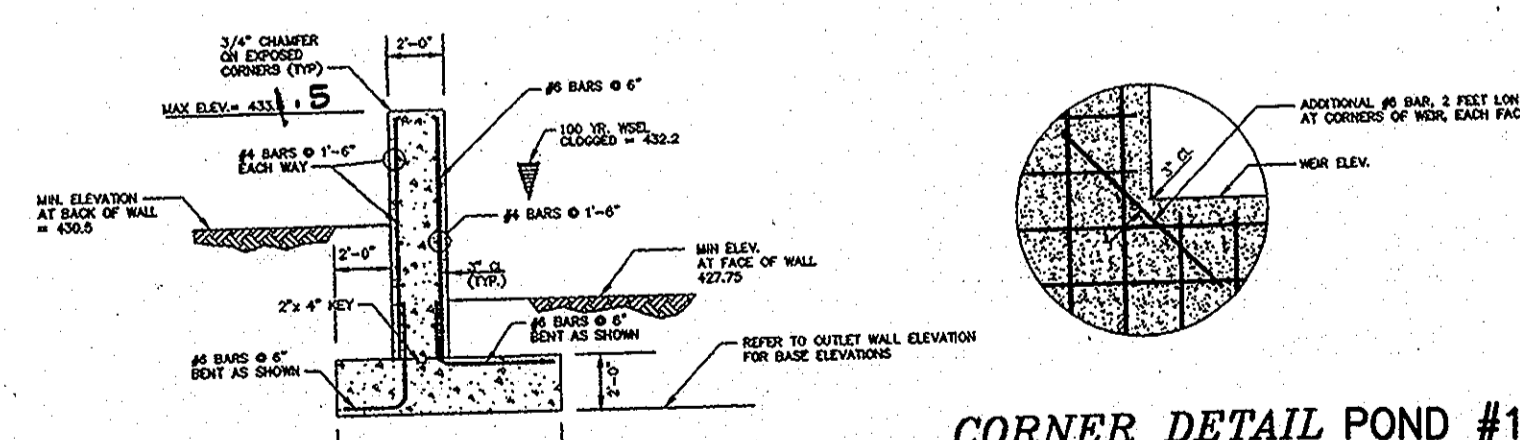
- CONCRETE SHALL BE MSHA MIX NO. 3 (4" C" = 2,500 PSl)
- REINFORCING SHALL BE Fy = 60,000 PSl, EPOXY COATED
- ALL FILL UNDER FOOTERS OF PROPOSED STRUCTURE SHALL BE COMPACTED TO 95% OF AASHTO T-99, AS CREDITED BY AN ON-SITE GEO-TECHNICAL ENGINEER.
- MINIMUM ALLOWABLE BEARING PRESSURE OF 2,500 PSF SHALL BE VERIFIED BY ON SITE GEO-TECHNICAL ENGINEER.
- ALL RE-BAR SPLICES SHALL BE 24 INCH LAP SPLICES OR EQUIVALENT.
- PROVIDE ELASTOMERIC SPLIT FACE ROCK, NO. 159 OR EQUIVALENT FROM LINERS ON ALL EXPOSED FACES OF CONCRETE WALL.
- PROVIDE MSHA STANDARD STEPPED FOOTINGS PER MSHA STD. RIM-09-83-155.



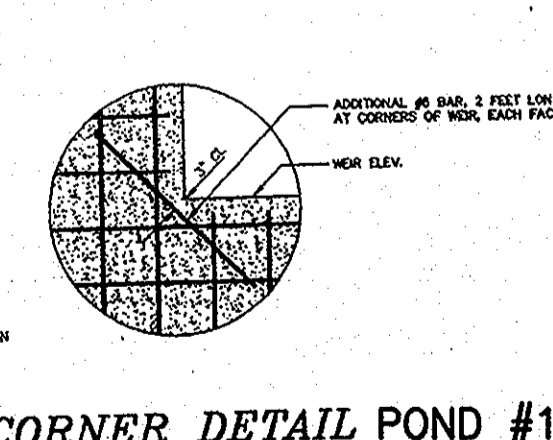
**POND #1 HALF SHELL TRASHRACK**  
N.T.S.



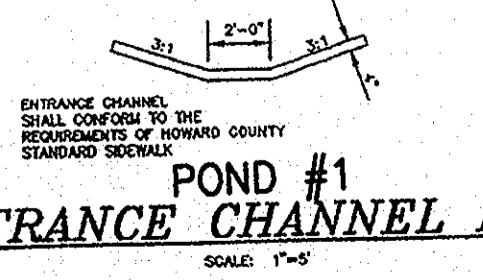
**POND #1 CONSTRUCTION JOINT DETAIL**  
N.T.S.



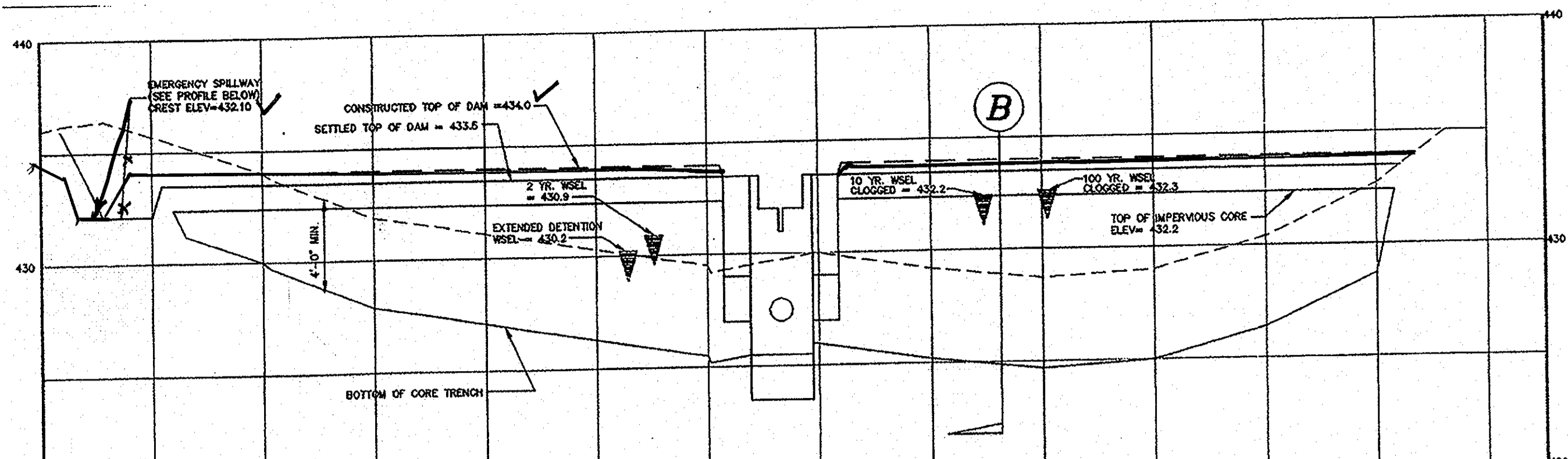
**POND #1 WALL SECTION A**  
N.T.S.



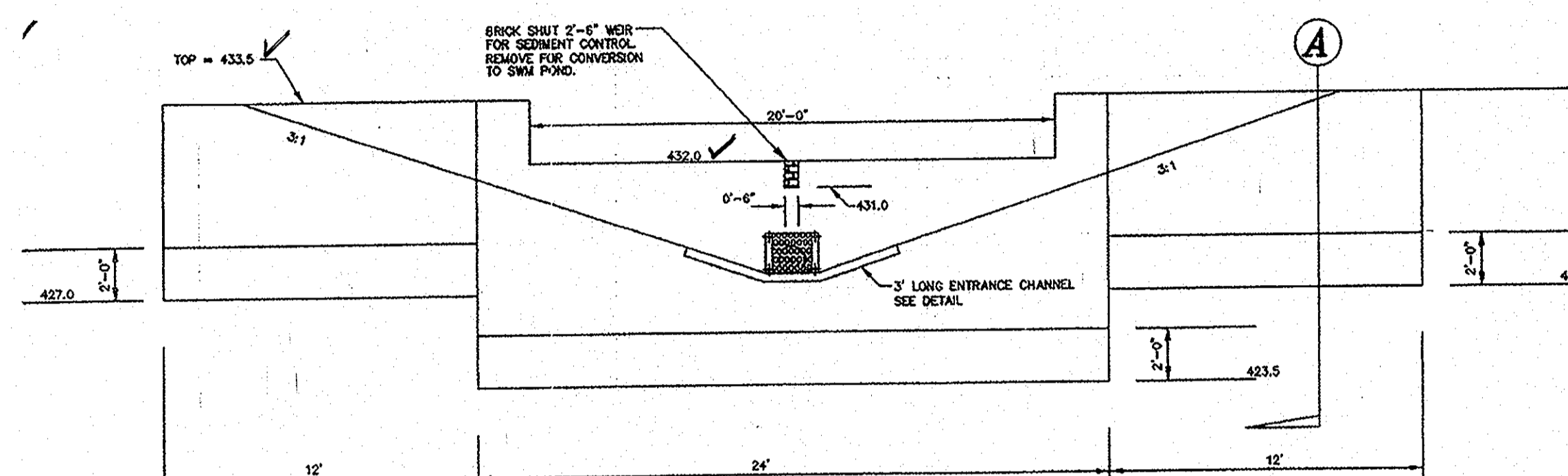
**CORNER DETAIL POND #1**  
N.T.S.



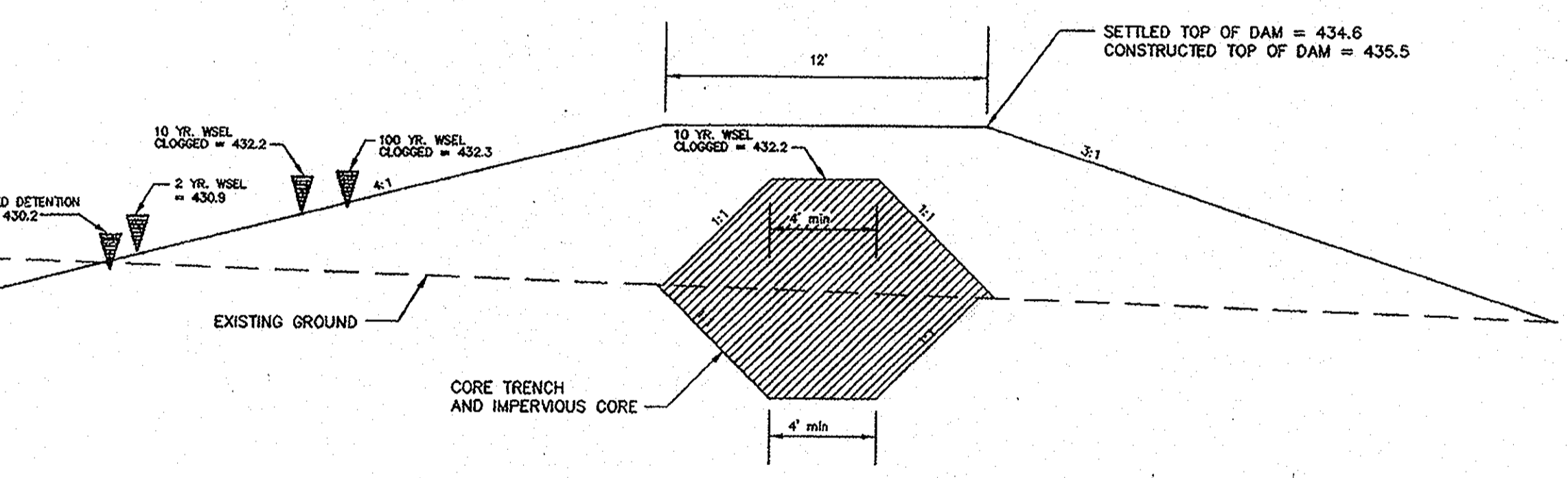
**POND #1 ENTRANCE CHANNEL DETAIL**  
SCALE: 1" = 5'



**POND #1 CENTERLINE DAM PROFILE**  
SCALE: HOR. 1" = 50'  
VER. 1" = 5'



**POND #1 OUTLET WALL ELEVATION**  
SCALE: 1" = 5'



**POND #1 SECTION B**  
SCALE: 1" = 5'

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. 21443 Expiration Date: 12-21-14

**AS-BUILT CERTIFICATION**  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THESE AS-BUILT PLANS AND MEETS THE APPROVED REQUIREMENTS.  
*Donald M. Mangione*  
ENGINEER -  
STATE OF MARYLAND LICENSE NO. 21443 DATE 10-23-13

CERTIFY MEANS TO STATE OR DECLARE THAT THE PROFESSIONAL ENGINEER HAS CONDUCTED ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONSISTENT WITH THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*Louis Mangione*  
DEVELOPER 9-26-12 DATE

BY THE ENGINEER:  
I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.  
*Brian F. Cleary*  
ENGINEER 9/7/2012 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*John R. Bratton*  
HOWARD SOIL CONSERVATION DISTRICT 10/3/12 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*John R. Bratton* 10/10/12 DATE  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*John R. Bratton* 10/22/12 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT  
*John R. Bratton* 10/22/12 DATE  
DIRECTOR

NO.	DATE	REVISION
2	1-11-2013	REVISE TITLE BLOCK
1	9-7-2012	NEWLY ADDED SHEET TO ADD POND #1 DETAILS AND NOTES FROM F-02-074.

**BENCHMARK ENGINEERING, INC.**  
6480 BALTIMORE NATIONAL PIKE & SUITE 418 & ELLIOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6644  
60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
(P) 301-371-3566 (F) 301-371-3506  
WWW.BEM-ENGINEERING.COM

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. 21443 DATE 9/7/2012

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 31 & 32 AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: POC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**STORMWATER MANAGEMENT DETAILS**  
POND #1

DATE: SEPTEMBER, 2012 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 12A OF 29

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10  
*[Signature]*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

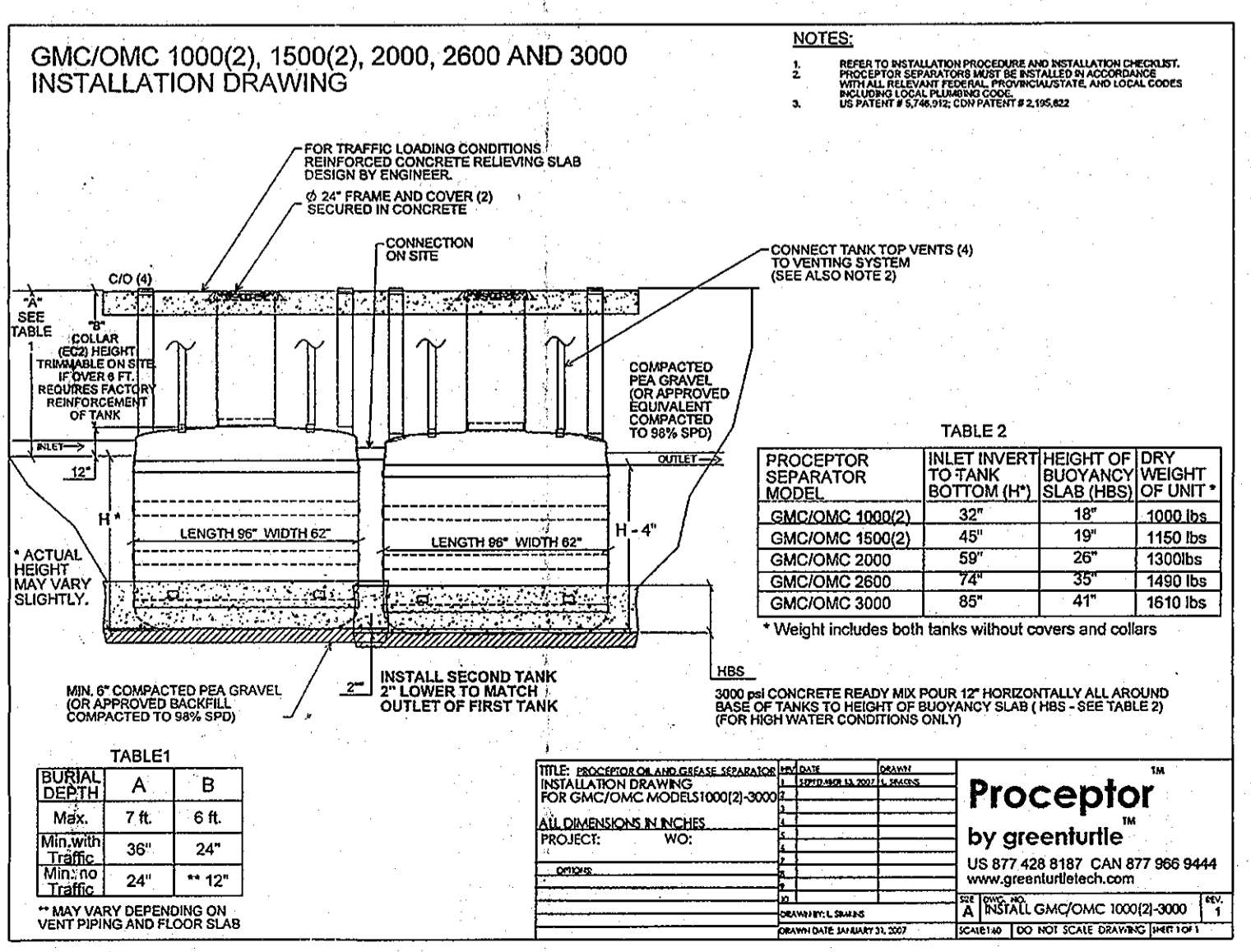
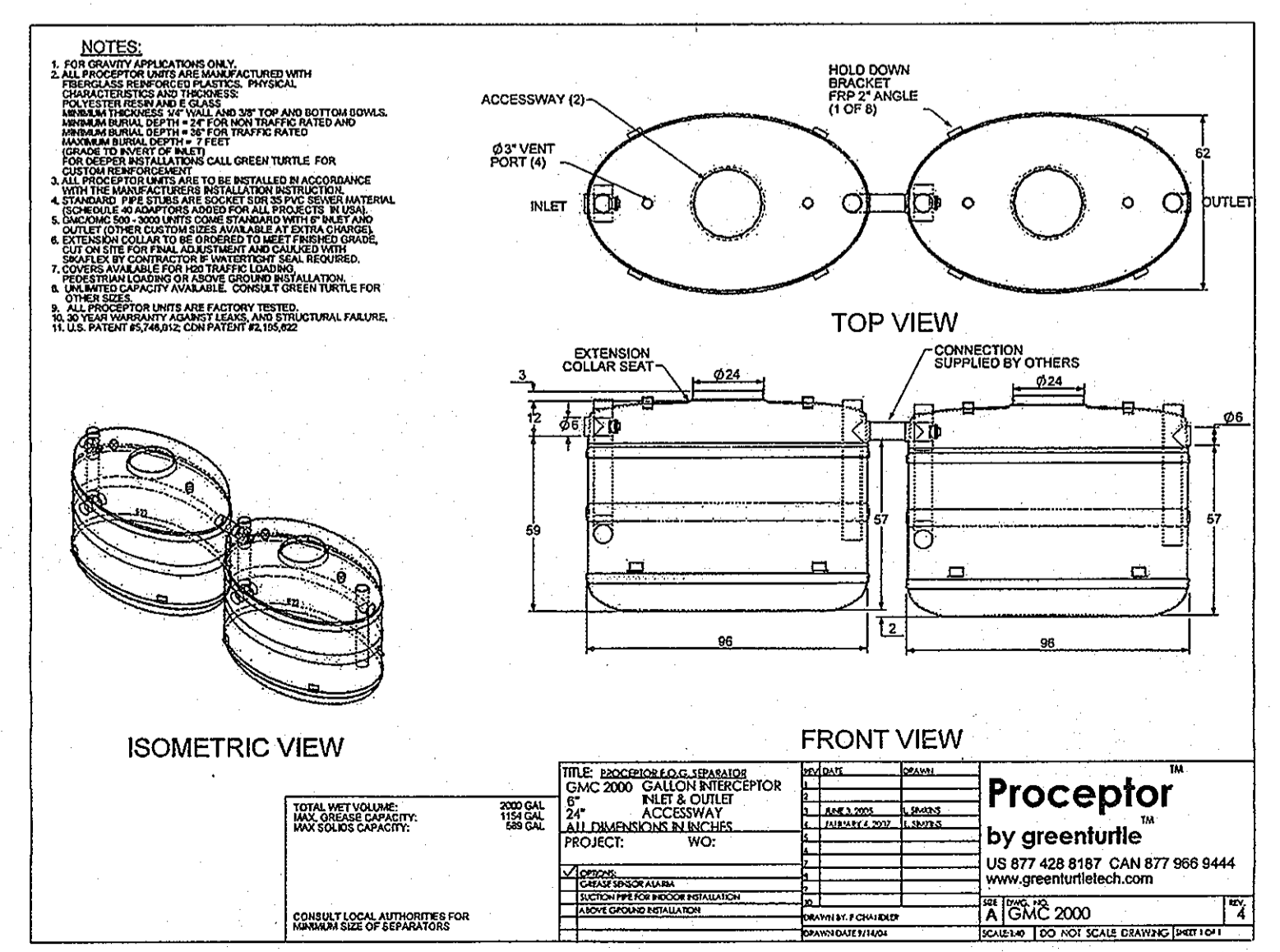
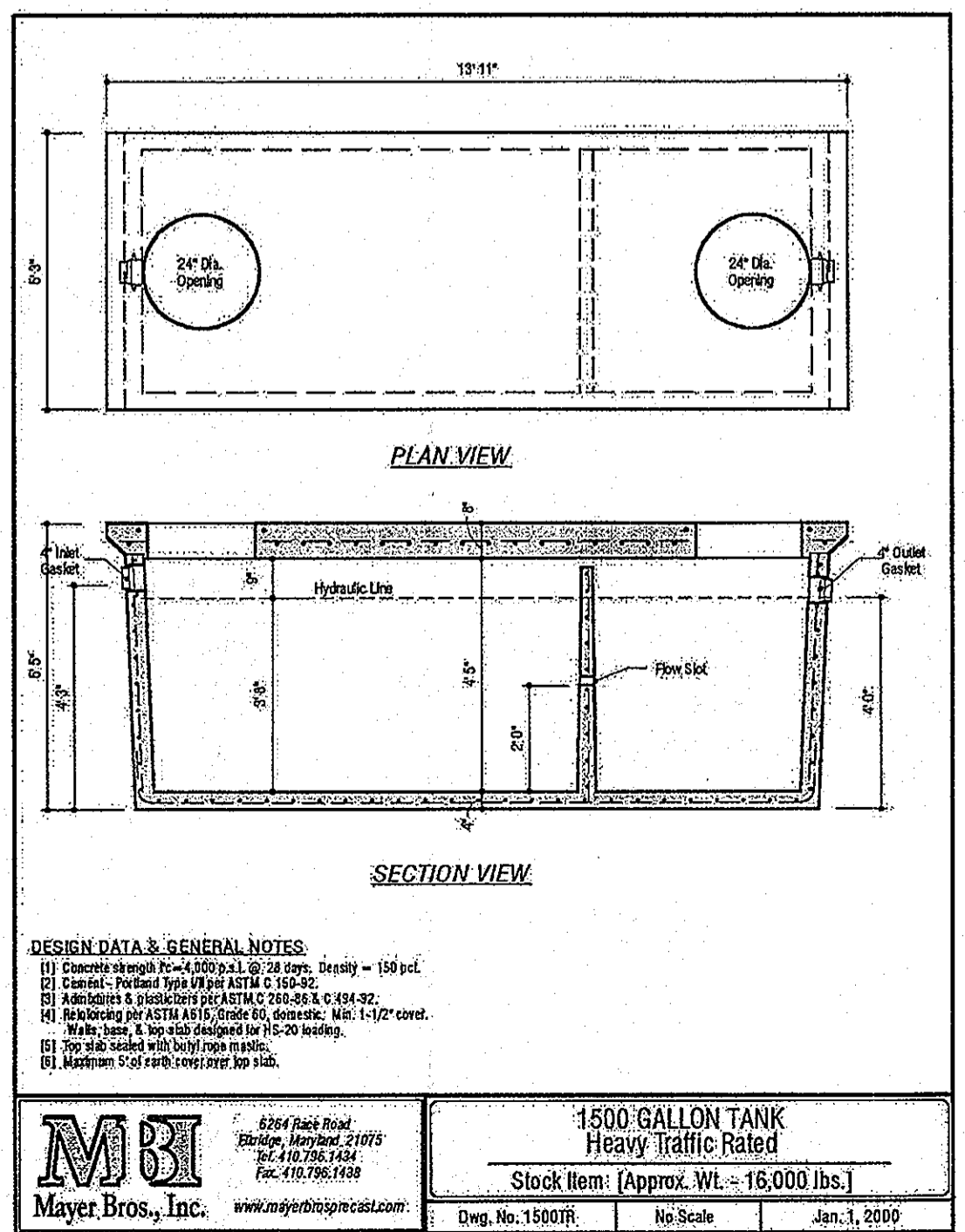
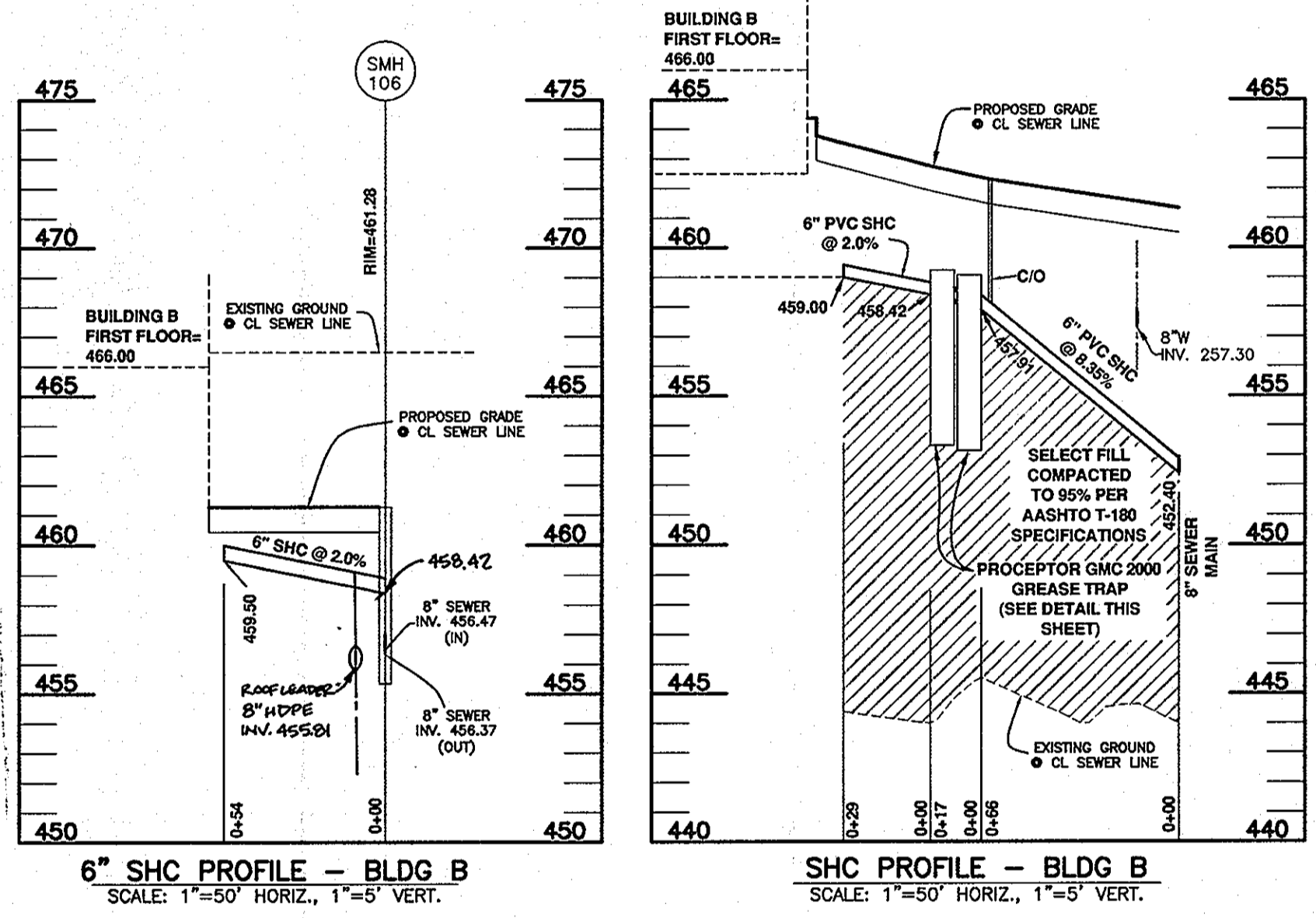
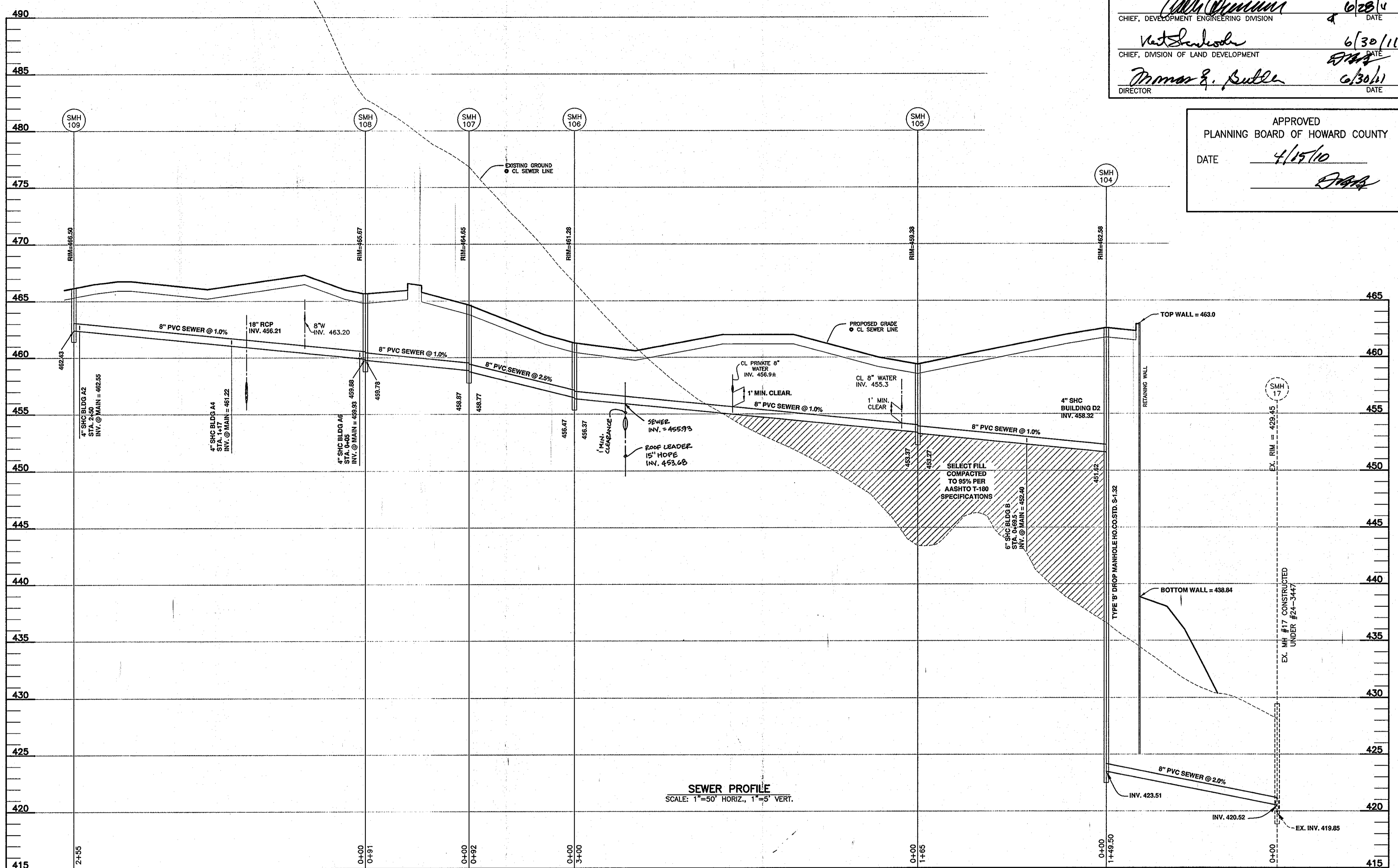
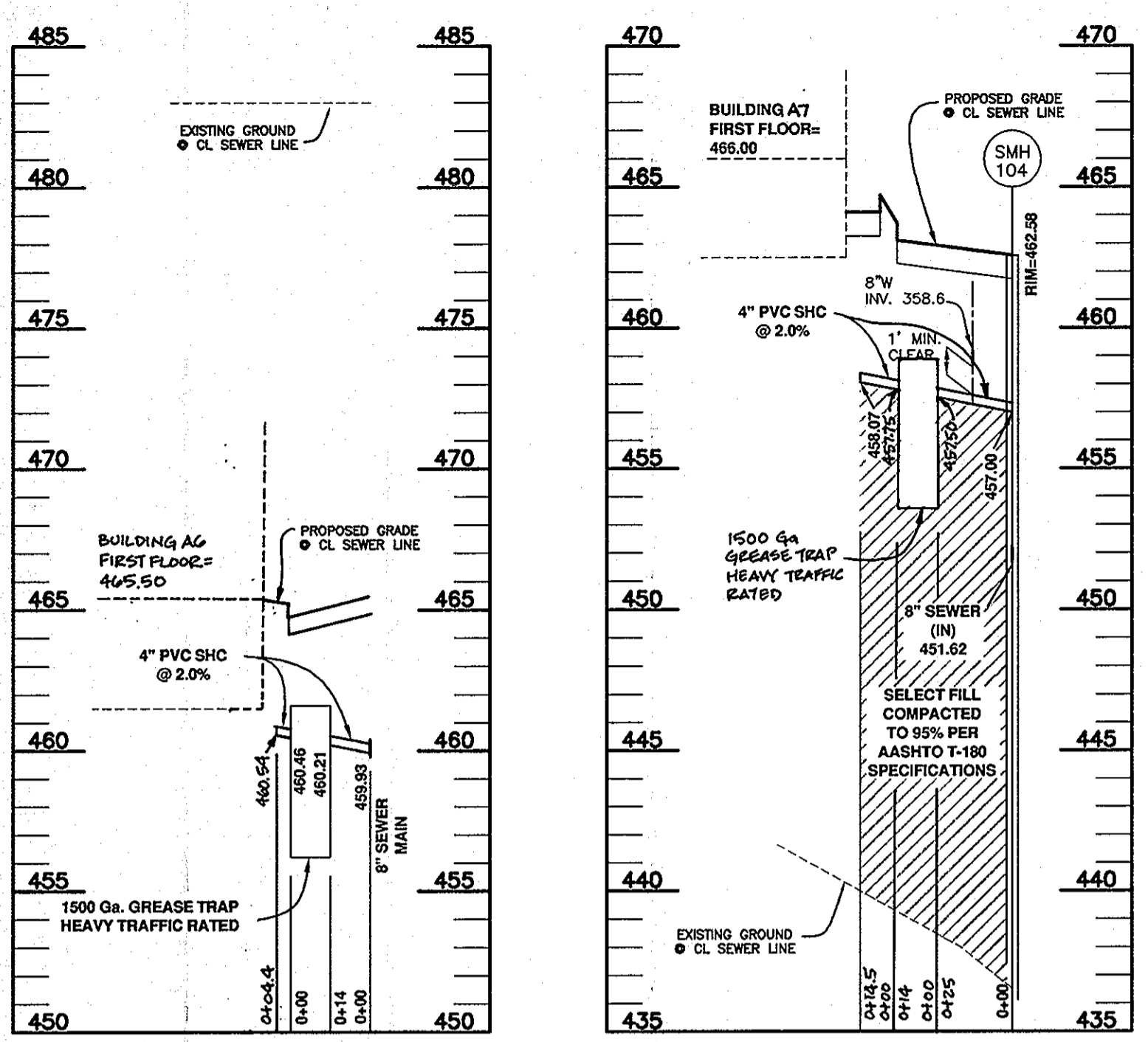
*John P. ...* 6/28/14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Walt ...* 6/30/11  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mona S. ...* 6/30/11  
 DIRECTOR DATE

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY

DATE 4/15/10  
*[Signature]*



6	7-9-2013	ADD GREASE TRAP ALONG SHC FOR BUILDING A7
5	1-11-2013	REVISE TITLE BLOCK
4	4-10-2012	REVISE SHEET NUMBER IN TITLE BLOCK
3	12-2-2011	REVISE BLDG 'DZ' TO 'A7' ON SHC PROFILE
2	9-21-2011	ADD ROOF LEADER CROSSINGS, REVISE BLDG A6 FIRST FLOOR AND GRADES.
1	5-31-2011	REVISE SHC PROFILE TO BUILDING 'B'; ADD PROFILE FOR 6" SHC TO BLDG 'B'

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 418 • ELLSWORTH CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
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 WWW.BE1-CIVIL-ENGINEERING.COM

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4 & 5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
 ZONED: PGCC (MULTI-USE SUBDISTRICT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**REVISION**  
**SEWER PROFILES AND DETAILS**

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

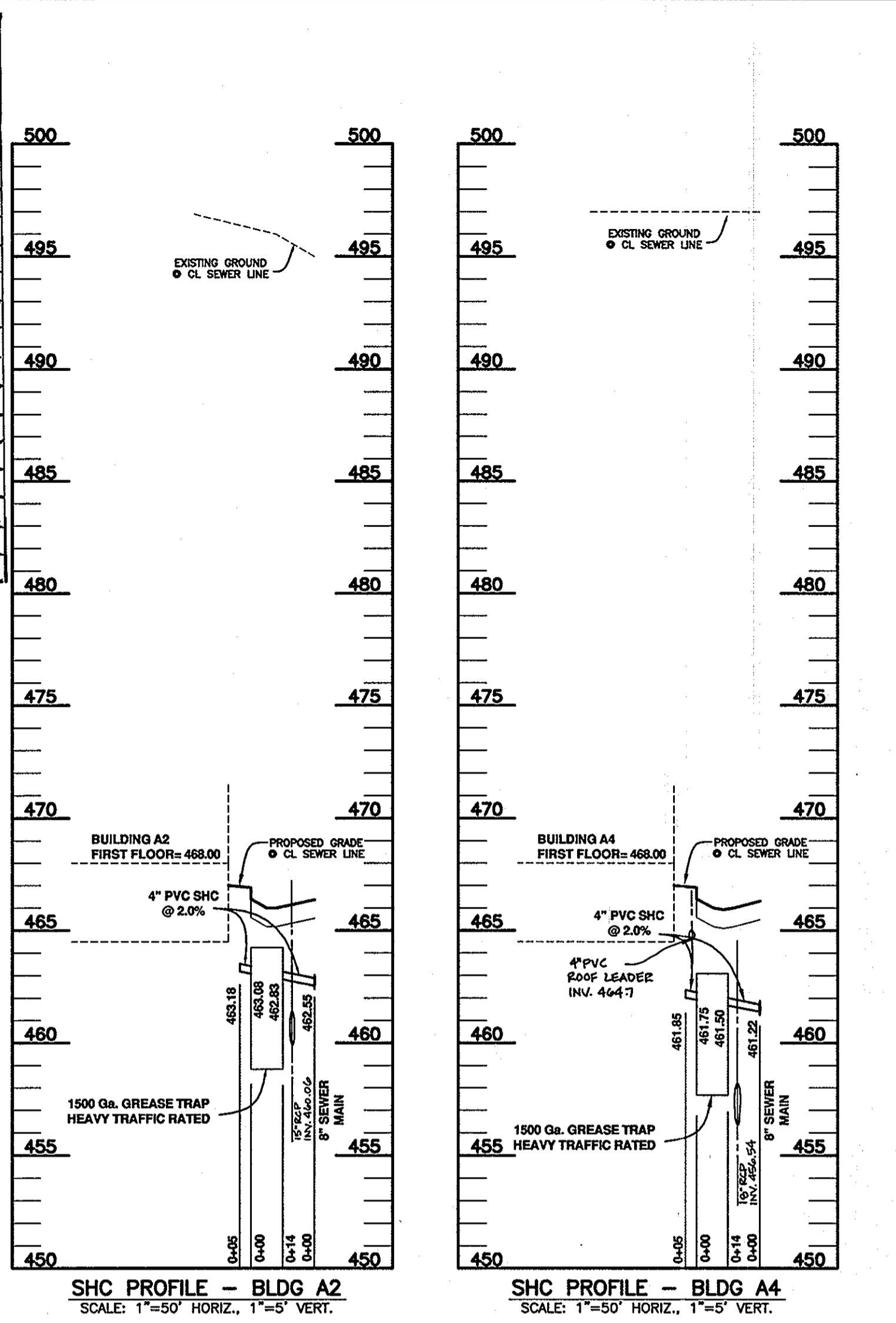
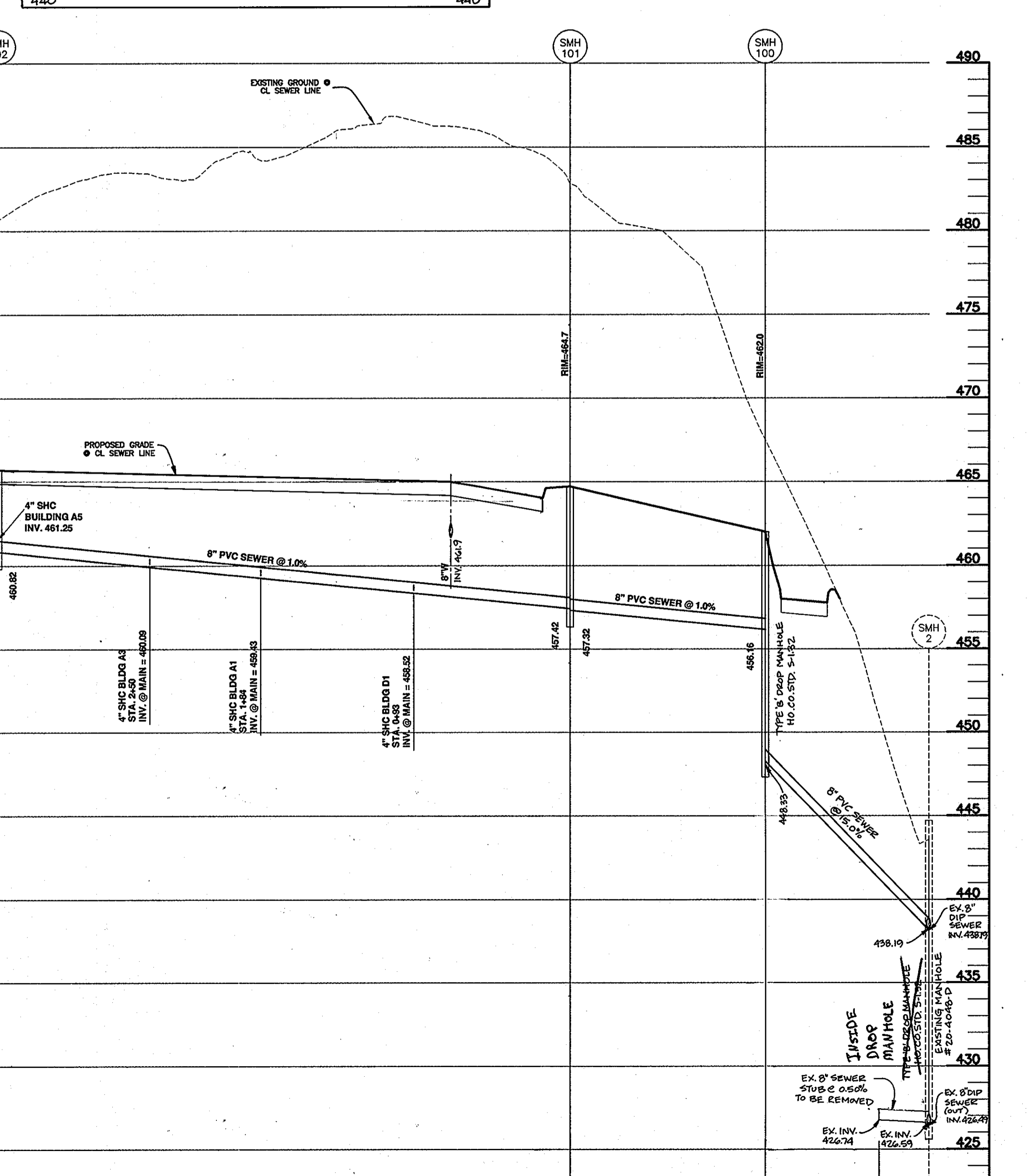
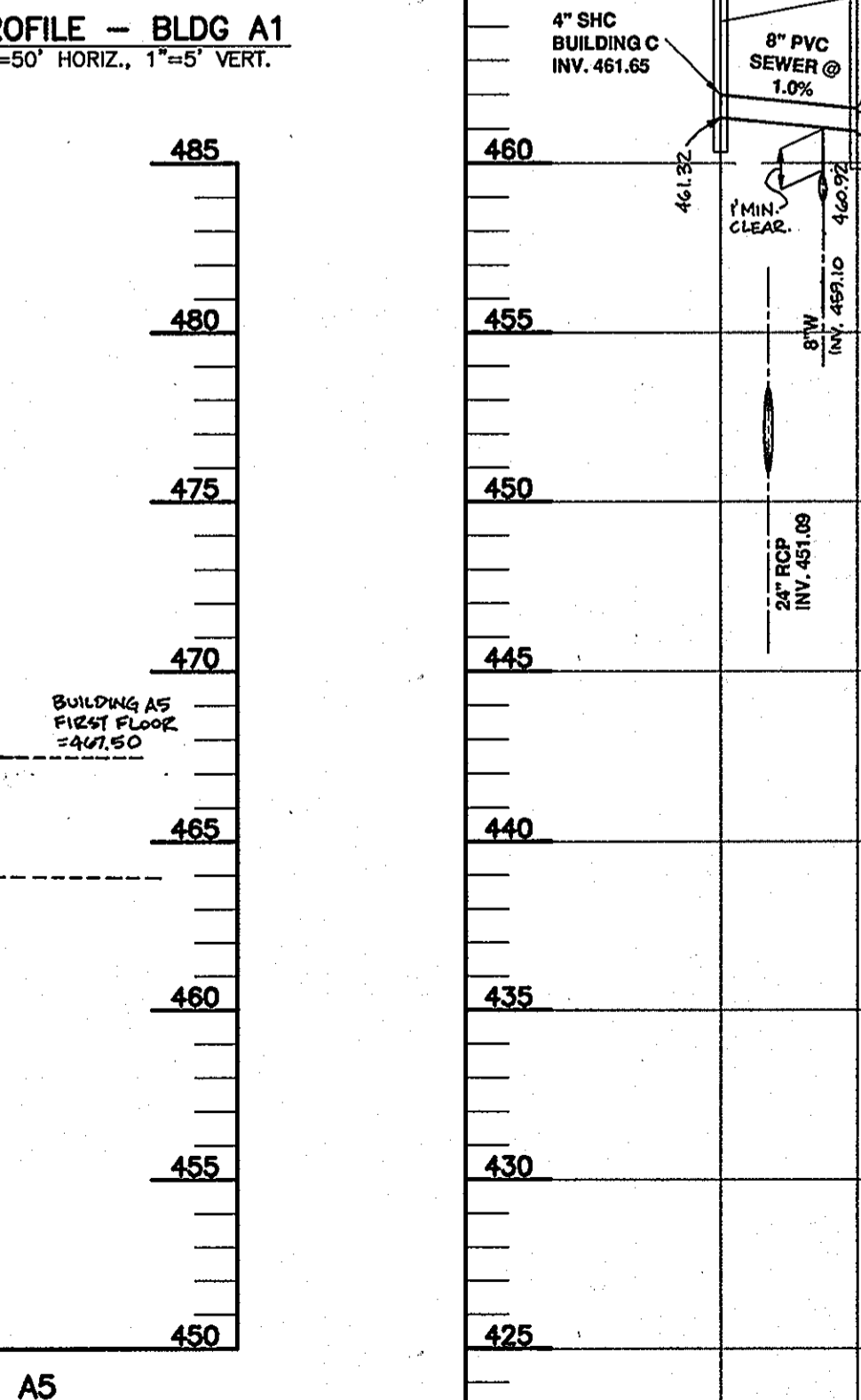
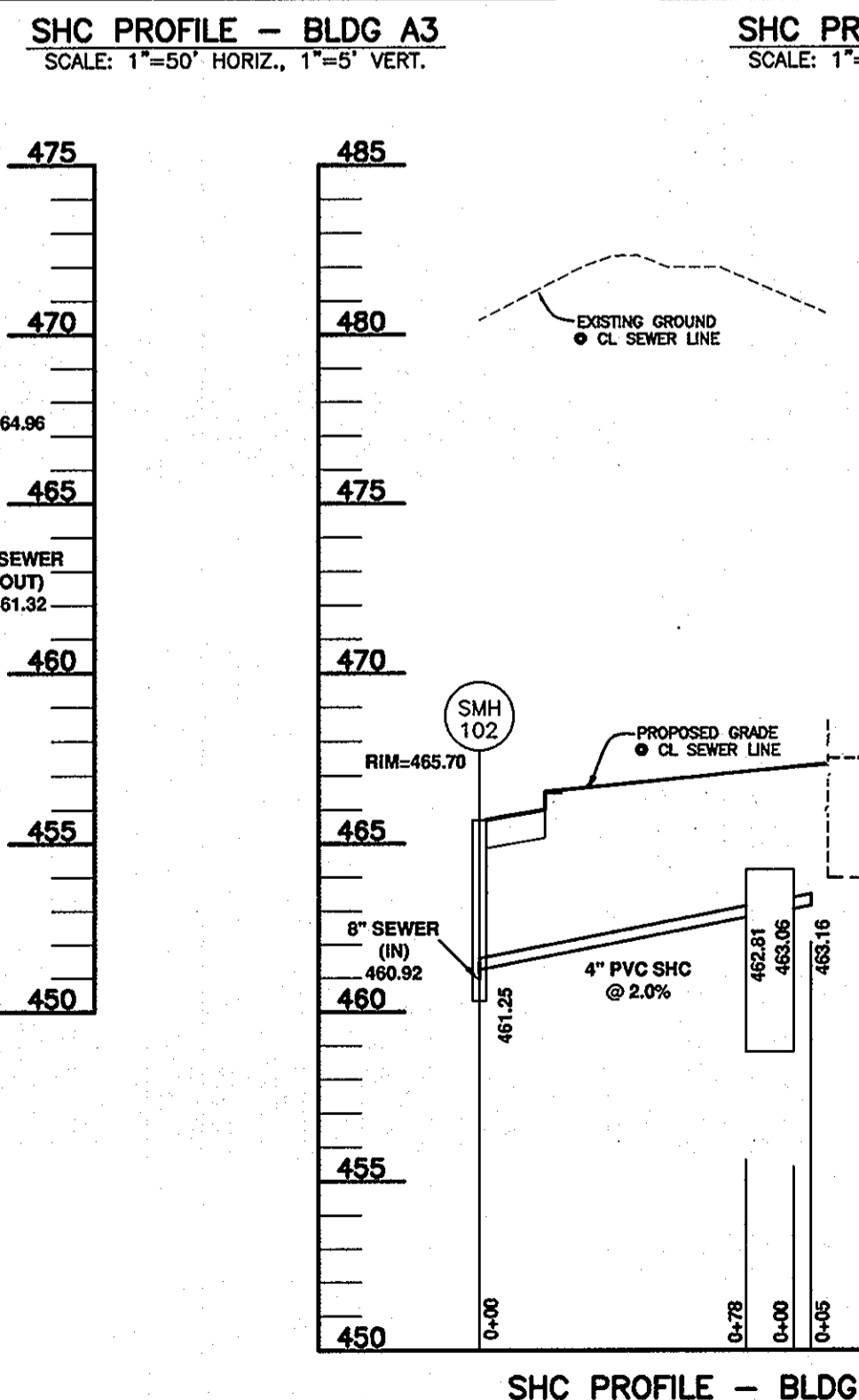
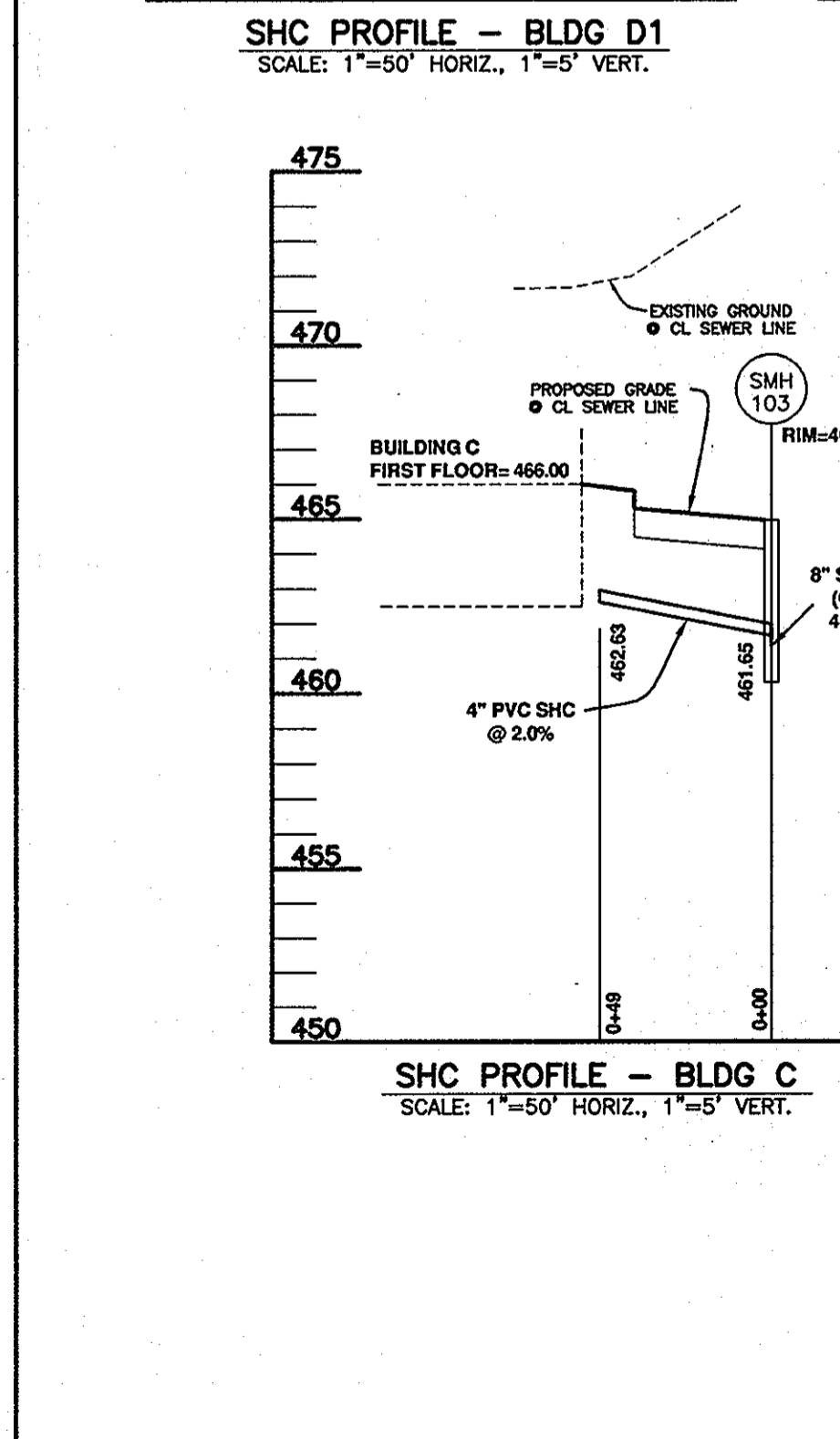
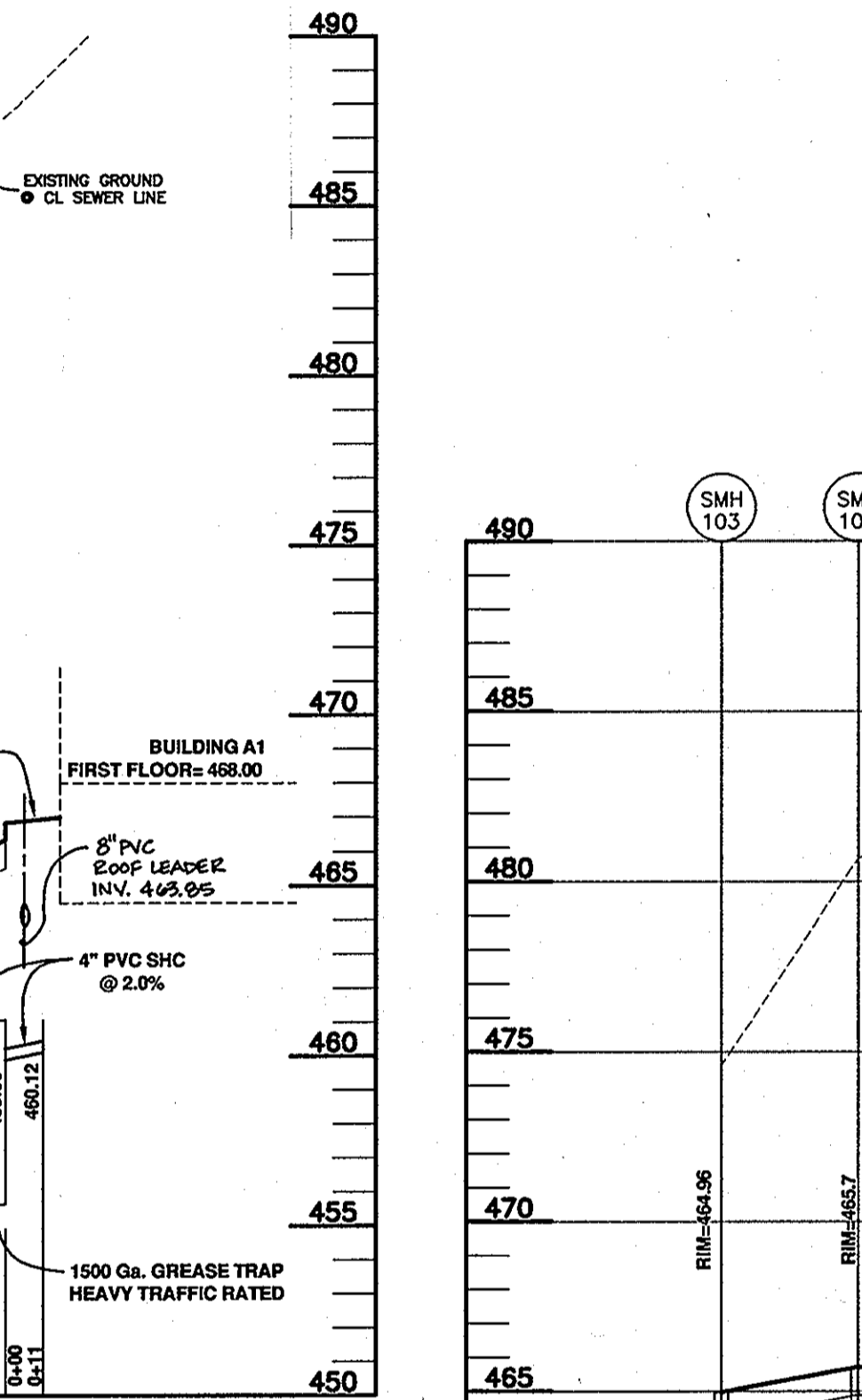
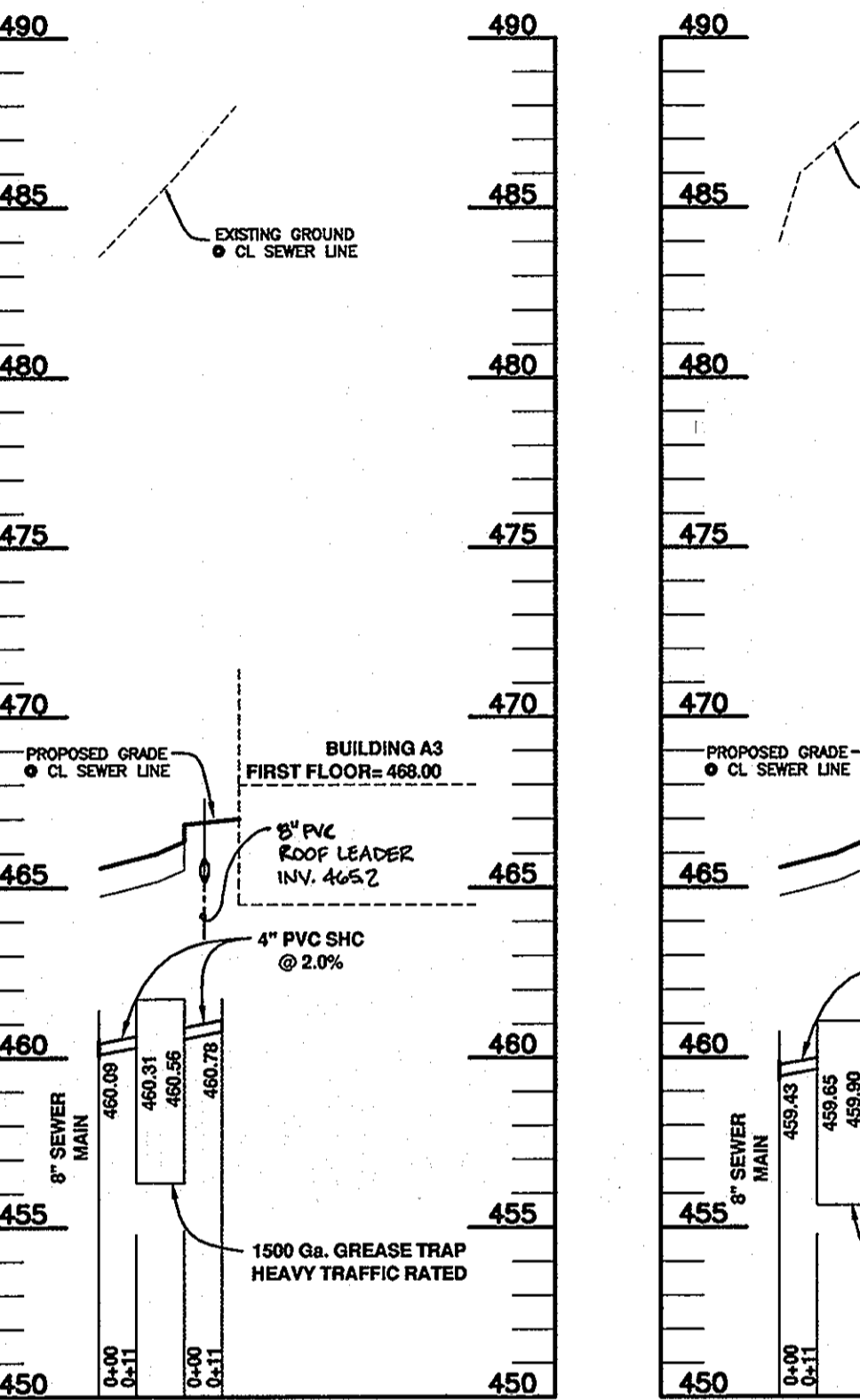
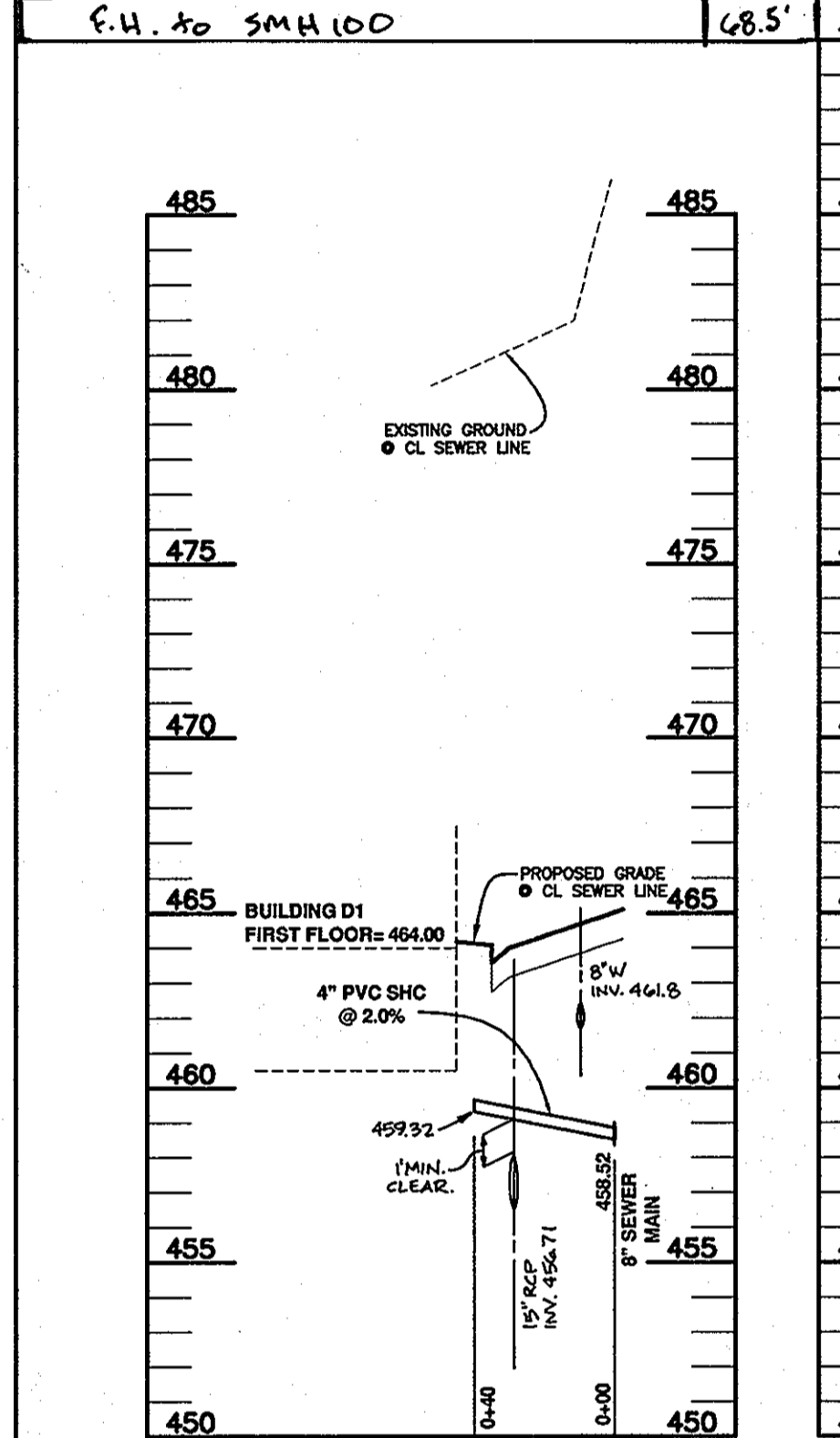
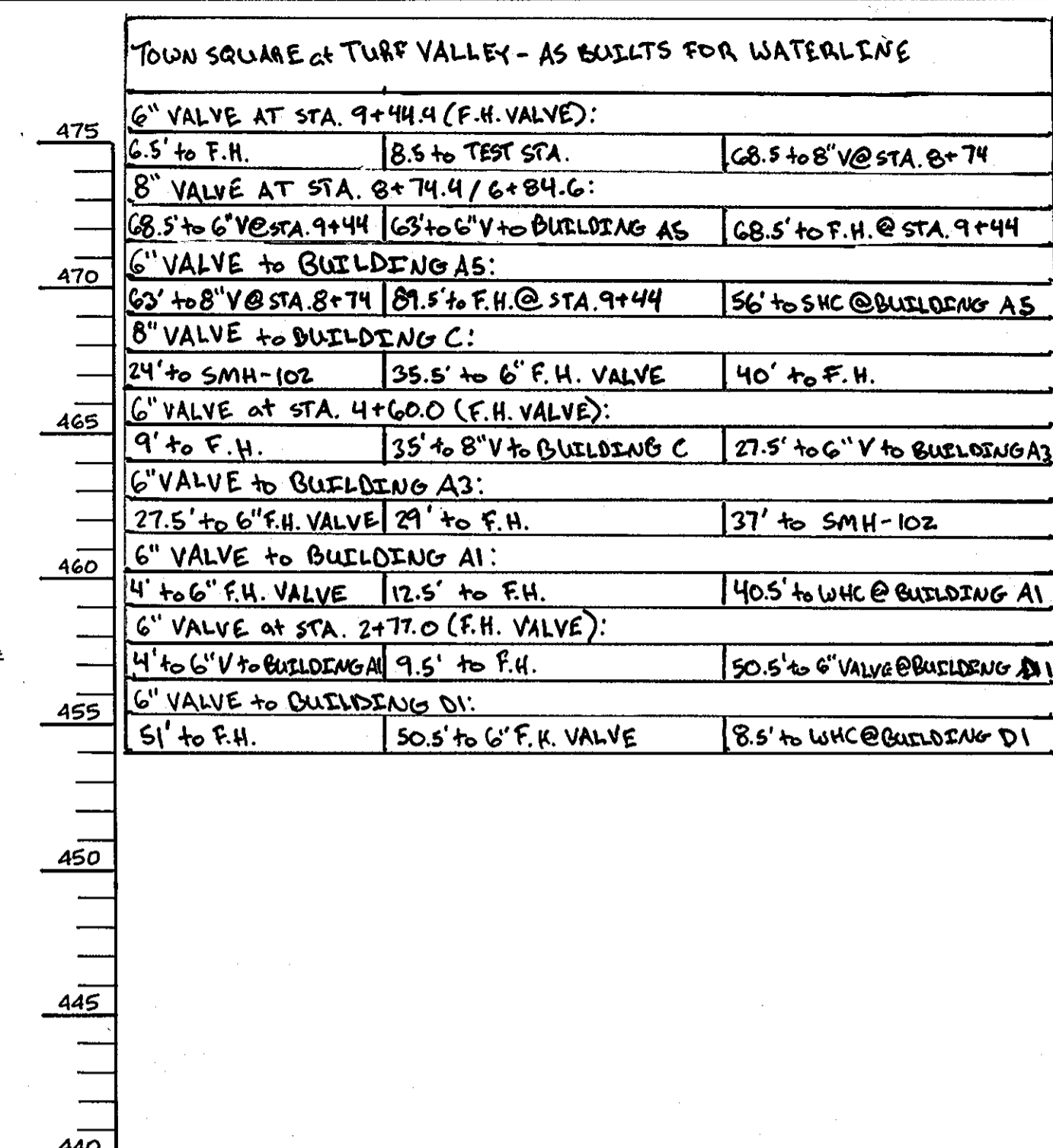
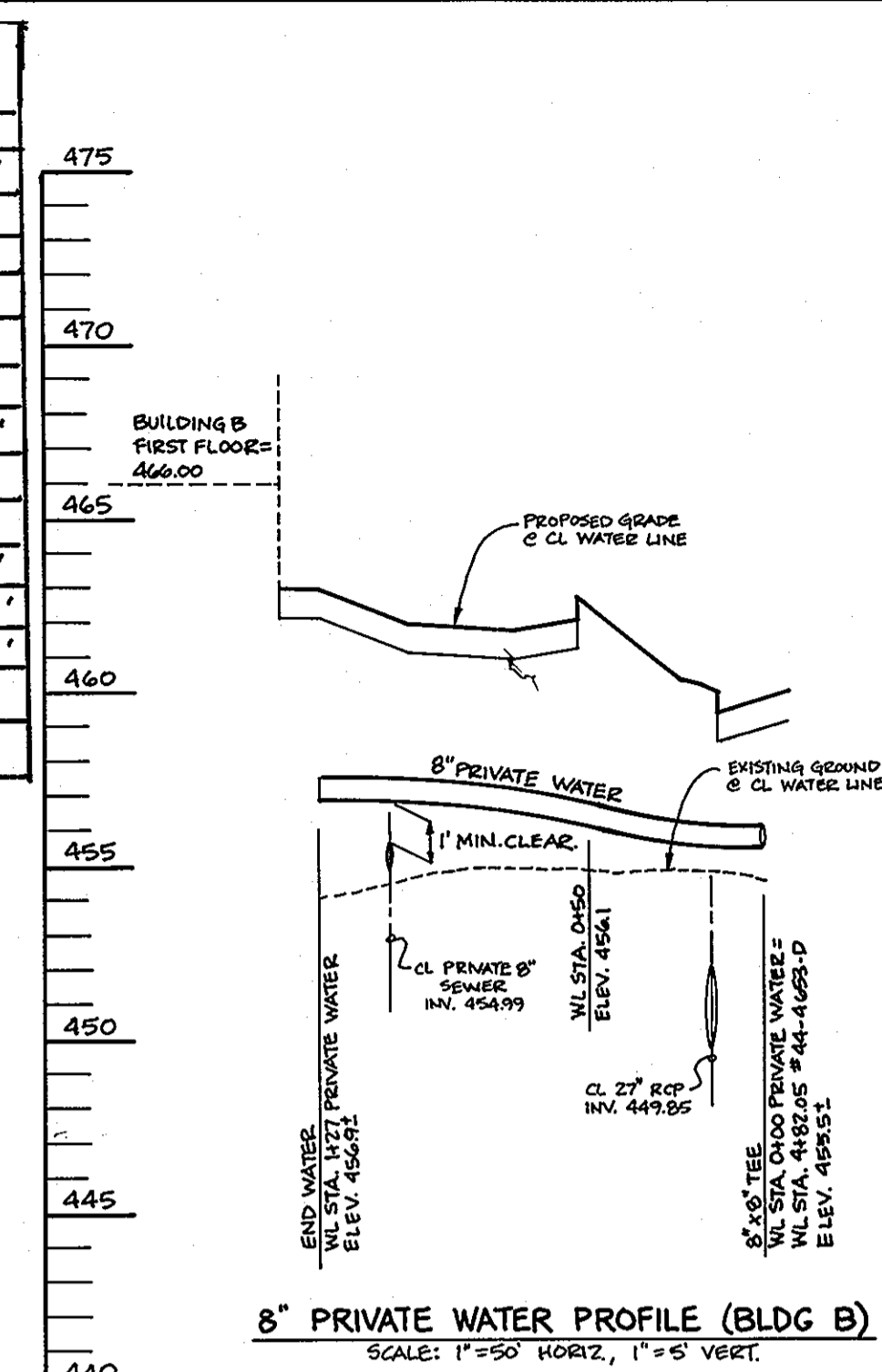
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
 SCALE: AS SHOWN SHEET 13 OF 29

6" VALVE on G'U to BUILDING A-2	
6" VALVE to SMH 104	25'
6" VALVE to F.H. (STA. 1+77.77)	21.5'
F.H. (STA. 1+77.7) to 6" F.H. VALVE	6.5'
F.H. 6" VALVE to SMH 104	45.5'
F.H. (STA. 1+77.7) to SMH 104	47.5'
6" VALVE on G'W to BUILDING A-4	
6" V to 3D MH	22.5'
6" V to 8" VALVE (STA. 0+45.8)	26'
6" V to F.H. (STA. 0+02.0)	52.5'
8" VALVE STA. 0+45.8 on 8" WATER	
8" VALVE to SMH 108	55.5'
8" VALVE to 6" F.H. V @ STA. 0+02	43.5'
8" VALVE to S.D. MH	52.5'
8" VALVE to F.H. STA. 0+02	44.5'
FIRE HYDRANT @ STA. 0+02	
F.H. to F.H. VALVE	7.5'
F.H. to 6" VALVE to BUILDING 'B'	12.5'
6" F.H. VALVE to 6" VALVE to BUILDING 'B'	7.5'
6" VALVE (BUILDING 'B') to SMH 108	57'
6" F.H. VALVE to SMH 108	63'
F.H. to SMH 100	68.5'

FIRE HYDRANT @ STA. 2+12 ROAD 'A'	
F.H. to 6" F.H. VALVE	25'
F.H. to 5D MH 107	50.5'
6" F.H. VALVE to SMH 107	74'
6" F.H. VALVE to SMH 107	68.5'
6" F.H. VALVE to 3D MH-14	79.0'
9" WATER to BUILDING B	
8" VALVE to S.D. SALET I-24	38.5'
8" VALVE to S.D. SALET MH I-25	47'
8" x 8" TEE @ STA. 6+08.3 ± 0+00	
8" VALVE 6+08.3 to S.D. MH M-13	24.2'
8" VALVE 0+00 to S.D. MH M-13	21.0'
8" V to 8" V	3.5'
8" V (0+00) to F.H.	71.8'
8" V (6+08.3) to F.H.	74.8'
FIRE HYDRANT @ 8" x 6" TEE STA. 0+70 ±	
F.H. to 6" F.H. VALVE	21.2'
F.H. to 5D MH 13	58.0'
F.H. to 5D MH 12	59.7'
6" F.H.V. to 5D MH 13	60'
6" F.H.V. to 5D MH 12	41'

TOWN SQUARE @ TURF VALLEY AS-BUILTS 44-4652-D	
6" WATER VALVE 6" W to BUILDING 'B'	
6" VALVE to SMH 104	18.0'
6" VALVE to SMH 105	19.0'
6" VALVE to 3D MH 1	87.1'
F.H. @ 8" x 6" TEE STA. 5+20.2	
F.H. to 6" F.H. VALVE	10'
F.H. to 3D MH-2	49.4'
6" F.H. VALVE to 3D MH-2	45.0'
3D MH 3 to 6" F.H.V.	12.7'
F.H. @ 8" x 6" TEE STA. 7+49.3	
F.H. to 6" F.H. VALVE	7.7'
F.H. to S.D. MH-9A	29.4'
6" F.H. VALVE to S.D. MH-9A	26.7'
6" F.H. VALVE to INLET COVER I-10	58'
F.H. to INLET F & COVER I-10	54'



APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Calvin Dorman* 4/29/10  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*Robert Shalinski* 5/3/10  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
*Morgan E. Sullivan* 5/3/10  
 DIRECTOR

5	1-11-2013	REVISE TITLE BLOCK
4	7-10-2012	AS-BUILT
3	4-10-2012	ADD ROOF LEADER CROSSING FOR BLDG A1, A3, A4
2	9-21-2011	REVISE FF OF BLDG A5
1	5-31-2011	ADD 8\"/>

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
 8480 BALTIMORE NATIONAL PIKE SUITE 415 A ELLOTT CITY, MARYLAND 21043  
 (P) 410-465-8100 (F) 410-465-8844  
 60 THOMAS JOHNSON DRIVE FREDERICK, MARYLAND 21702  
 (P) 301-371-3505 (F) 301-371-3506  
 WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the State of Maryland. License No. 12345, Expiration Date: 7-22-2011.

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

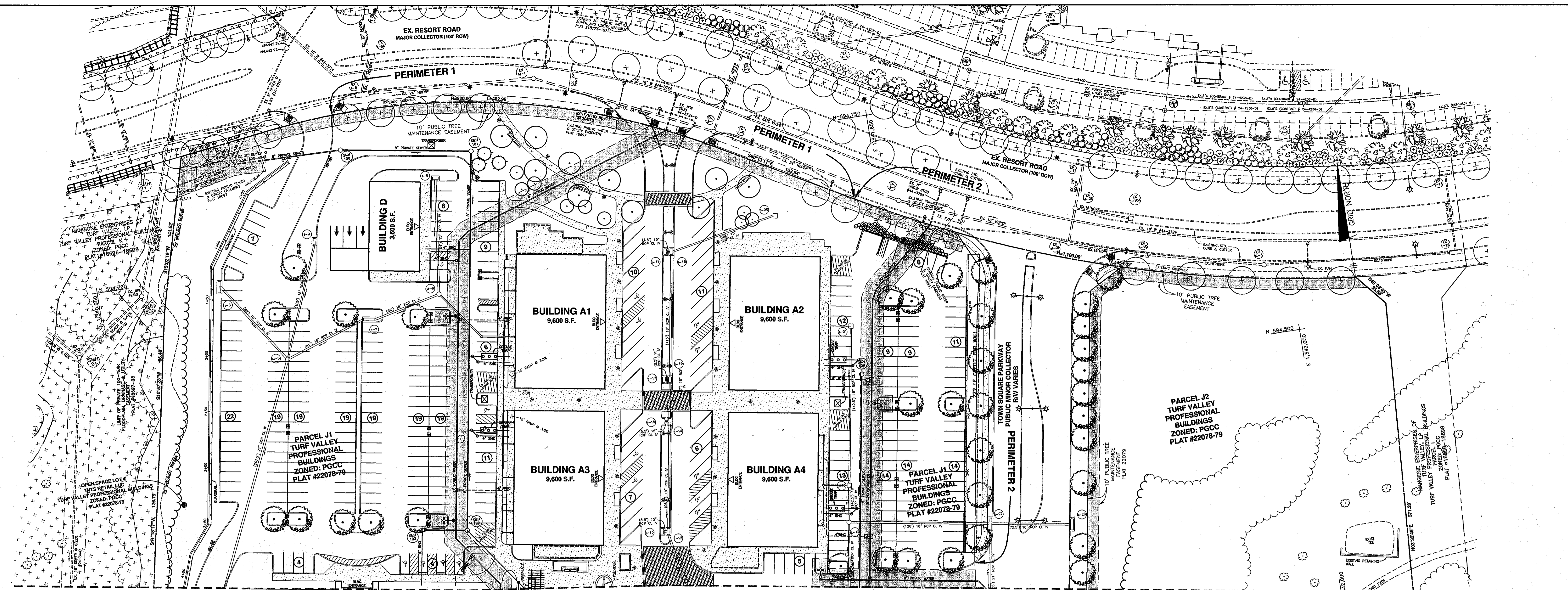
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
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**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS 'S1' & 'S2' AND OPEN SPACE LOTS A-R5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 21078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
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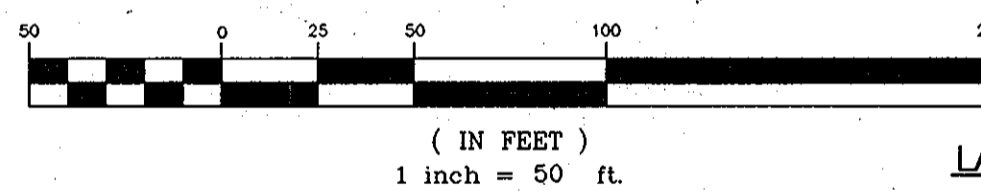
DATE: APRIL, 2010 BEI PROJECT NO. 2208  
 SCALE: AS SHOWN SHEET 14 OF 29

SDP-10-027

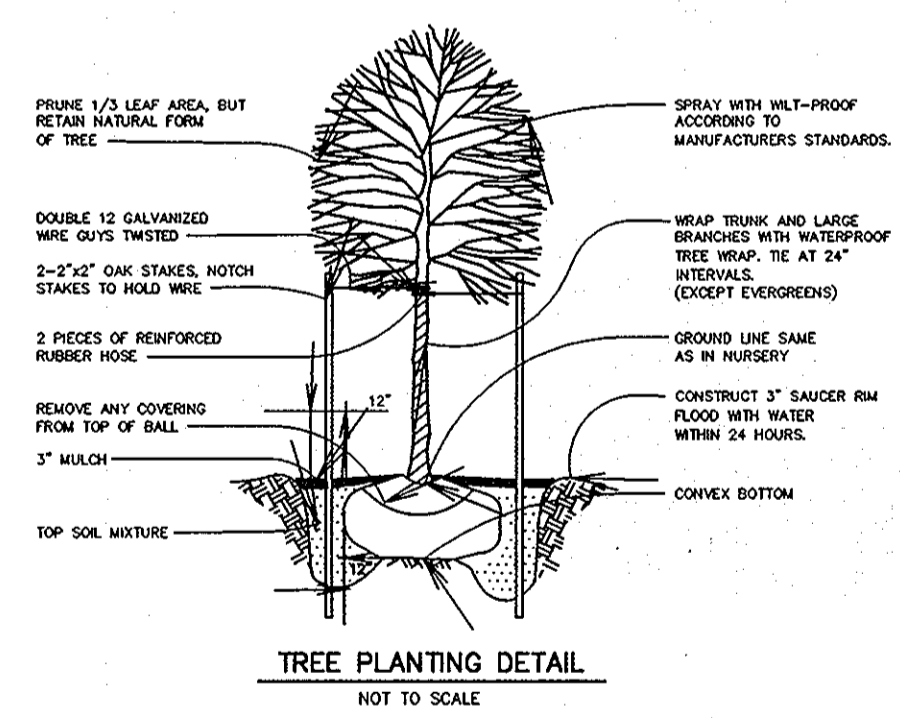


MATCH LINE SEE SHEET 16

GRAPHIC SCALE



MATCH LINE SEE SHEET 16



STREET TREE SCHEDULE			
ROAD NAME	PERIMETER	TREES REQ.	SIZE
TOWN SQUARE PARKWAY	1816'	45	LARGE

STREET TREE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
(Symbol)	45	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2 1/2" - 3" cal.	TO BE PLANTED ALONG TOWN SQUARE PARKWAY

STREET TREES TO BE PROVIDED BY THE DEVELOPER.

(+) EXISTING STREET TREE (ACER RUBRUM) PLANTED UNDER F-02-074 & F-02-082.

LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
(Symbol)	41	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2.5" - 3" cal. 10' - 12' HT.	SHADE TREES LOCATED WITHIN LANDSCAPED ISLANDS TO BE PROVIDED BY THE DEVELOPER
(Symbol)	10	ACER RUBRUM 'RED SUNSET' RED SUNSET RED MAPLE	3.0" - 3.5" cal. 12' - 14' HT.	SHADE TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
(Symbol)	7	PLATANUS X ACERFOLIA 'BLOODGOOD' BLOODGOOD LONDON PLANE	2.5" - 3" cal. 10' - 12' HT.	SHADE TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
(Symbol)	29	ILEX X 'NELLIE R STEVENS' NELLIE R STEVENS HOLLY	8" - 10" HT. B&B, FULL	EVERGREENS PLANTED ALONG PERIMETER. TO BE PROVIDED BY THE DEVELOPER
(Symbol)	15	PICEA ABIES 'NORWAY SPRUCE' NORWAY SPRUCE	8" - 10" HT. B&B, FULL	EVERGREENS PLANTED ALONG PERIMETER. TO BE PROVIDED BY THE DEVELOPER
(Symbol)	41	MALUS SARGENTII SARGENT CRAB APPLE	7" HT. B&B, FULL	ORNAMENTAL TREES ALONG PERIMETER TO BE PROVIDED BY THE DEVELOPER
(Symbol)	62	VIBURNUM CARLESI KOREANSPICE VIBURNUM	24" - 30" HT. FULL, 36" O.C.	SHRUBS PLANTED ALONG PERIMETER. TO BE PROVIDED BY THE DEVELOPER
(Symbol)	8	ILEX X 'NELLIE R STEVENS' NELLIE R STEVENS HOLLY	8" - 10" HT. B&B, FULL	EVERGREEN TREES ALONG SWM PERIMETER TO BE PROVIDED BY THE DEVELOPER
(Symbol)	6	QUERCUS PHellos WILLOW OAK	2.5" - 3" cal. 10' - 12' HT.	SHADE TREES ALONG SWM PERIMETER TO BE PROVIDED BY THE DEVELOPER

LANDSCAPE NOTES:

- STREET TREES ALONG ROAD 'A' TO BE LOCATED 3 FEET BEHIND SIDEWALK. STREET TREES MAY NOT BE PLANTED WITHIN 5 FEET OF A DRAIN INLET, 5 FEET OF AN OPEN SPACE ACCESS STRIP, OR 10 FEET OF A DRIVEWAY.
- SEE TREE PLANTING DETAIL - THIS SHEET.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY LANDSCAPE MANUAL.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWIT LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPINGS SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$30,210.00 (\$20,100.00 FOR 67 SHADE TREES, \$9,150.00 FOR 61 EVERGREENS, AND \$960.00 FOR 32 SHRUBS)

SCHEDULE A PERIMETER LANDSCAPE EDGE				
CATEGORY	NON-RES SIDE TO ROADWAY (1)	PARKING (2)	NON-RES REAR-LOAD TO ROADWAY (3)	TOTALS
LANDSCAPE TYPE	B 1:50 shade 1:40 evergreen	E 1:40 shade 1:4 evergreen	D 1:60 shade 1:10 evergreen	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	479'	398'	411'	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES, WALL 272'	NO	
NUMBER OF PLANTS REQUIRED				
SHADE TREES	10	3	7	20
EVERGREEN TREES	12	-	41	53
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	0
SHRUBS	-	32	-	32
NUMBER OF PLANTS PROVIDED				
SHADE TREES	10	0	7	17
EVERGREEN TREES	12	-	41	53
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	0
SHRUBS	-	62*	-	62

\*30 SHRUBS WERE SUBSTITUTED FOR THE REQUIRED 3 SHADE TREES

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING		
NUMBER OF PARKING SPACES	796	
NUMBER OF TREES REQUIRED	40	
NUMBER OF TREES PROVIDED	1/20 SPACES	
SHADE TREES	41	
SMALL DECIDUOUS OR EVERGREEN TREES (2:1 RATIO)	0	

SCHEDULE D SWM AREA LANDSCAPING		
LINEAR FEET OF PERIMETER	SWMF1	SWMF2
575'	79'	438'
BUFFER TYPE	1:50 shade 1:40 evergreen	1:50 shade 1:40 evergreen
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	NO
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	YES, WALL 575'	YES, WALL 138'
NUMBER OF TREES REQUIRED	0 L.F.	300 L.F.
SHADE TREES	0	6
EVERGREEN TREES	0	8
NUMBER OF TREES PROVIDED		
SHADE TREES	0	6
EVERGREEN TREES	0	8

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10  
DMA

DEVELOPER'S/BUILDER'S 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 HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF 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.  
Louis Mangione 1/11/2013  
LOUIS MANGIONE DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
1/16/13 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT  
1/24/13 DATE  
DIRECTOR

NO.	DATE	REVISION
2	1-11-2013	update tree species and locations, show R/W dedication and parcels per plot 22078-79.
1	3-26-2012	ADD TRANSFORMERS AND ROOF LEADER MANIFOLDS

**BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS**  
ENGINEERING, INC.  
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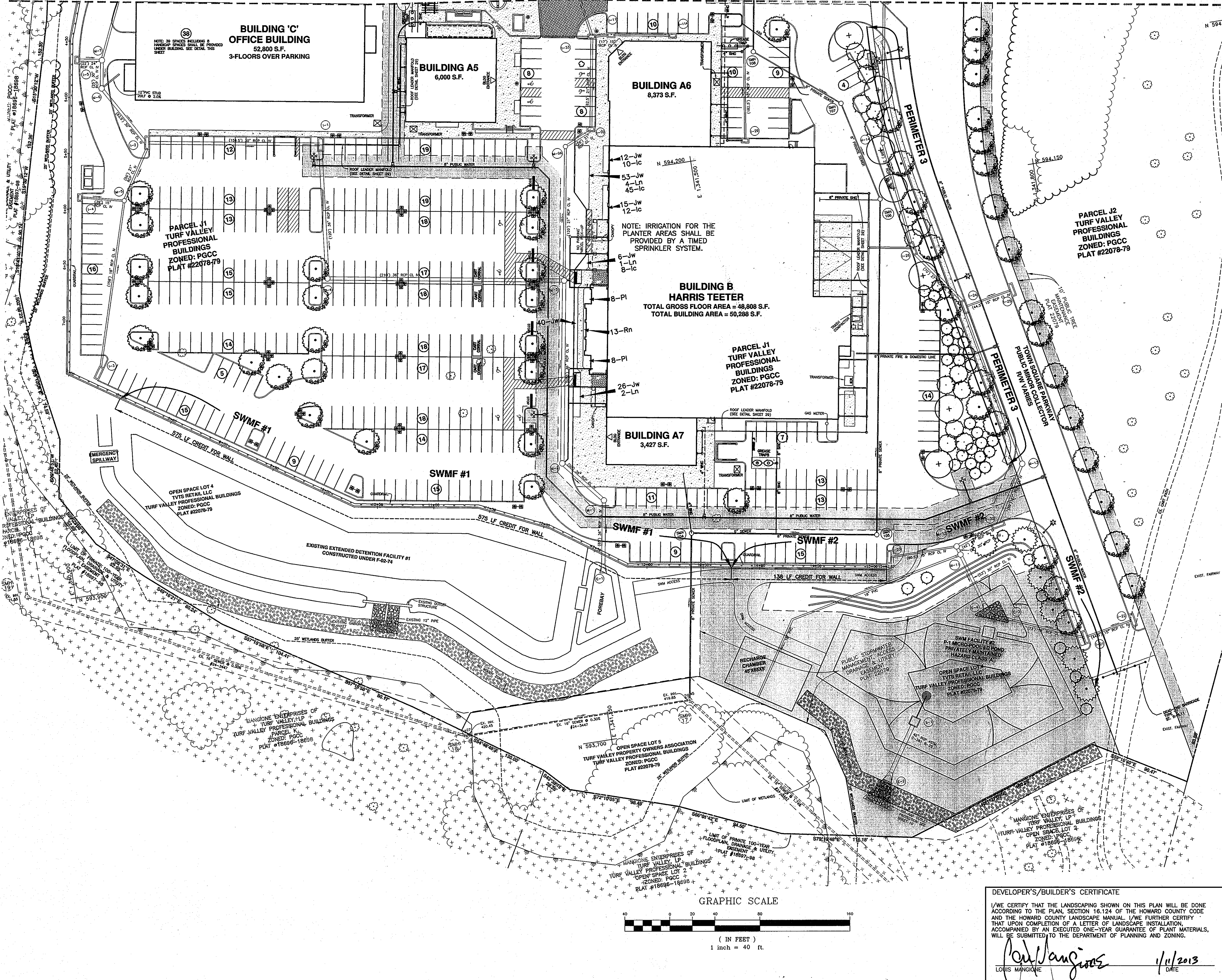
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ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

REVISED LANDSCAPE PLAN  
DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 15 OF 29



MATCH LINE SEE SHEET 15

MATCH LINE SEE SHEET 15



HARRIS TEETER LANDSCAPE PLANTING LIST				
SYMBOL	QUANTITY	NAME	REMARKS	DESCRIPTION
Ln	7	LAGERSTROEMIA INDICA NATCHEZ GRAPE MYRTLE	6'-8" HT. B&B, FULL	ORNAMENTAL TREES TO BE PLANTED IN FRONT OF HARRIS TEETER BY THE BUILDER
Rn	13	ROSA 'KNOCKOUT' KNOCKOUT ROSE	3 GAL. FULL, 36" O.C.	DECIDUOUS SHRUBS TO BE PLANTED IN FRONT OF HARRIS TEETER BY THE BUILDER
lc	75	ILEX CRENATA JAPANESE HOLLY	3 GAL. B&B, FULL	EVERGREEN SHRUBS TO BE PLANTED IN FRONT OF HARRIS TEETER BY THE BUILDER
Pl	16	PRUNUS LAURACERASUS OTTO LUHMEN OTTO LUHMEN CHERRY LAUREL	5 GAL. FULL, 36" O.C.	EVERGREEN SHRUBS TO BE PLANTED IN FRONT OF HARRIS TEETER BY THE BUILDER
Jw	152	JUNIPERUS HORIZONTALIS MILTON BLUE RUG JUNIPER	3 GAL. FULL, 30" O.C.	GROUNDCOVER/PERENNIALS/GRASSES TO BE PLANTED IN FRONT OF HARRIS TEETER BY THE BUILDER

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE 4/15/10  
BAW

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
McDonnell 1/16/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
KatSalvador 1/24/13  
CHIEF, DIVISION OF LAND DEVELOPMENT  
David A. Ogden 1/21/10  
DIRECTOR

- 5 1-11-2013 update tree species and locations, show R/W dedication and parcels per plat 22078-79.
- 4 3-26-2012 delete drive-thru for BLDG A7, revise parking, add transformers, add roof leader manifolds.
- 3 12-2-2011 revise bldg D2 to A7, revise SF and drive thru canopy, revise entrance location BLDG A5, revise plan scale.
- 2 9-21-2011 add planting types for front of Bldg 'B', revise storm drain in front of BLDG AS, revise BLDG AS, show 4 parking spaces by SWM 107.
- 1 5-31-2011 revise front hardscape of Bldg 'B' and associated utilities, Revise 1-29.

**BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS**  
ENGINEERING, INC.  
8450 BALTIMORE NATIONAL, PREC & SUITE 418A ELICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-8444  
60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3506  
WWW.BE-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me or under my direct supervision and that I am a duly licensed professional engineer in the State of Maryland, License # 15859, Exp. 7-22-2013.

SETO 1/10/2013  
REGISTERED PROFESSIONAL ENGINEER

OWNER:  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

DEVELOPER:  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

TOWN SQUARE AT TURF VALLEY  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

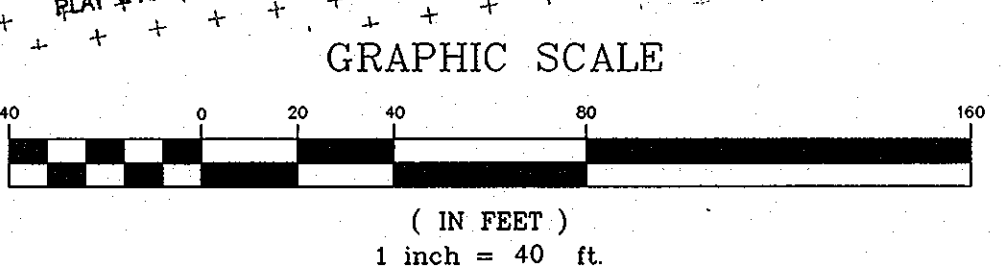
TAX MAP: 16 - GRID: 10 - PARCEL: P/O B & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

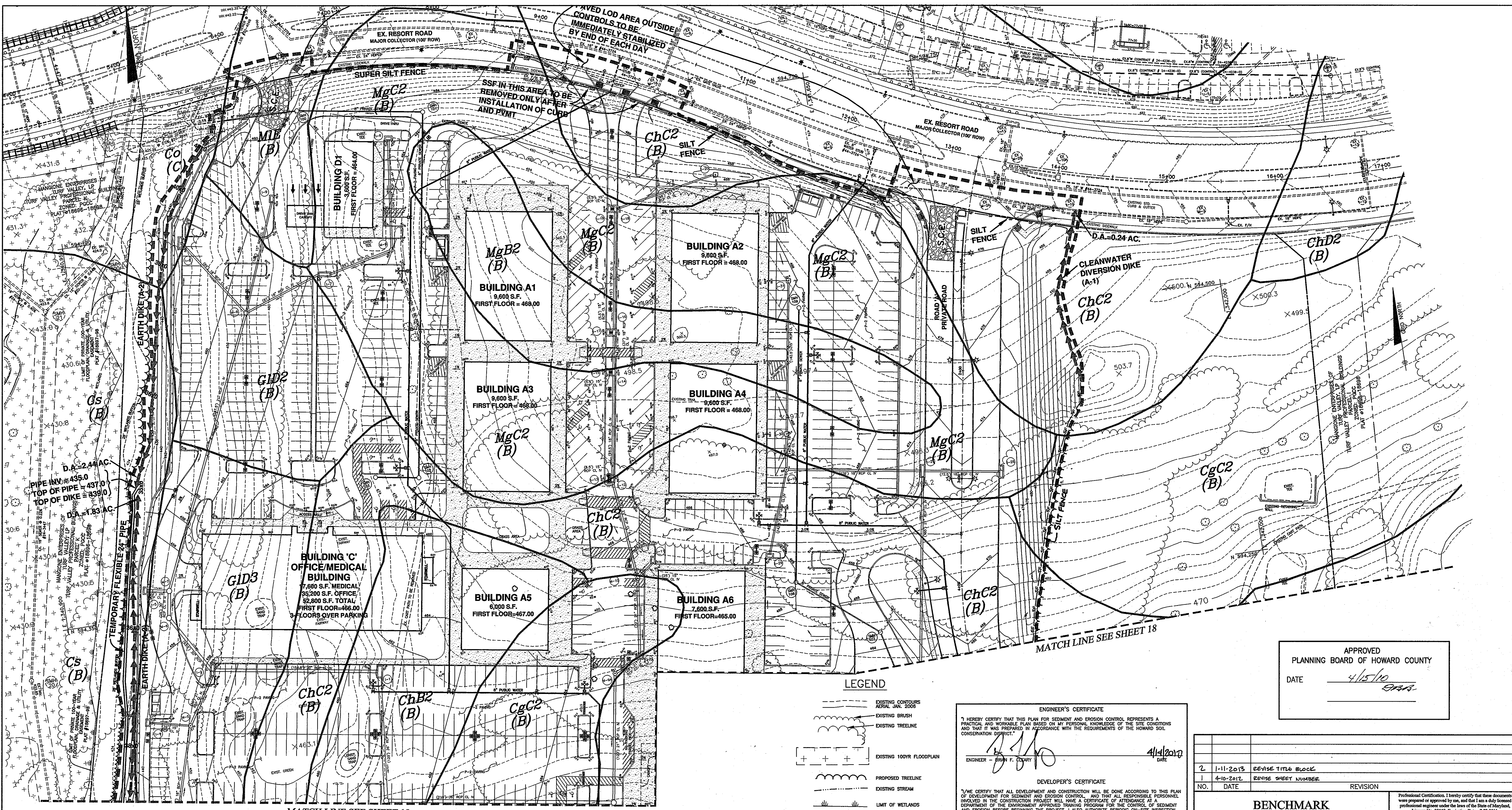
REVISED LANDSCAPE PLAN

DATE: APRIL, 2010    BEI PROJECT NO. 2208  
SCALE: AS SHOWN    SHEET 16 OF 29

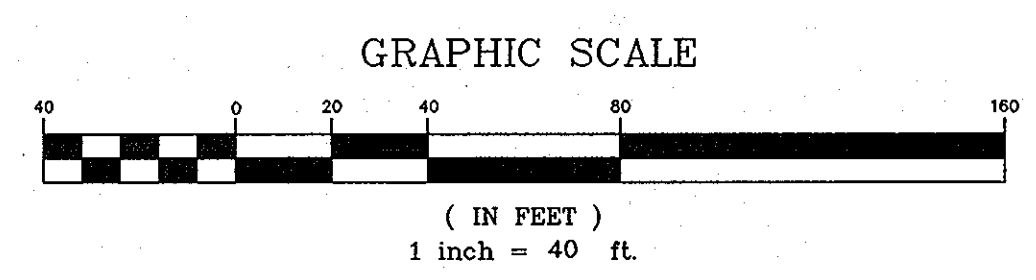
DEVELOPER'S/BUILDER'S CERTIFICATE  
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

Louis Mangione 1/11/2013  
LOUIS MANGIONE DATE





SYMBOL	HYDROLOGIC GROUP	NAME
CgC2	B	CHESTER GRAVELLY SILT LOAM, 8 TO 15 PERCENT MODERATELY ERODED
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT, MODERATELY ERODED
ChC2	B	CHESTER SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
ChD2	B	CHESTER SILT LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
Co	YES C	CODORUS SILT LOAM
Cs	B	COMUS SILT LOAM
GID2	B	GLENELG LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
GID3	B	GLENELG LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED
Ha	YES D	HATBORO SILT LOAM
MgB2	B	MANOR GRAVELLY LOAM, 3 TO 8 PERCENT, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
MIE	B	MANOR LOAM, 25 TO 45 PERCENT SLOPES



**THIS PLAN IS FOR  
SEDIMENT AND EROSION  
CONTROL ONLY**

**LEGEND**

- EXISTING CONTOURS
- EXISTING BRUSH
- EXISTING TREELINE
- EXISTING 100YR FLOODPLAIN
- PROPOSED TREELINE
- EXISTING STREAM
- LIMIT OF WETLANDS
- LIMIT OF SUBMISSION
- LIMIT OF DISTURBANCE
- SILT FENCE
- SUPER SILT FENCE
- TREE PROTECTION FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE
- EROSION CONTROL MATTING
- SOIL TYPE
- SOILS DELINEATION LINE

**ENGINEER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 ENGINEER - BRIAN F. CLEARY  
 DATE 4/14/2010

**DEVELOPER'S CERTIFICATE**  
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 DEVELOPER  
 DATE 4/14/10

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 HOWARD SCD  
 DATE 4/29/10  
 DATE 5/3/10  
 DATE 5/3/10

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE 4/15/10  
 BRFA

NO.	DATE	REVISION
2	1-11-2013	REVISE TITLE BLOCK
1	4-10-2012	REVISE SHEET NUMBER

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
 8480 BALTIMORE NATIONAL PIKE & SUITE 415 & ELLCOTT CITY, MARYLAND 21043  
 (P) 410-452-6100 (F) 410-452-6844  
 60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
 (P) 301-371-3505 (F) 301-371-3506  
 WWW.BE-CIVILENGINEERING.COM

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS '31' & '32' AND OPEN SPACE LOTS 4 & 5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078-22079  
 TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
 ZONED: PCCC (MULTI-USE SUBDISTRICT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

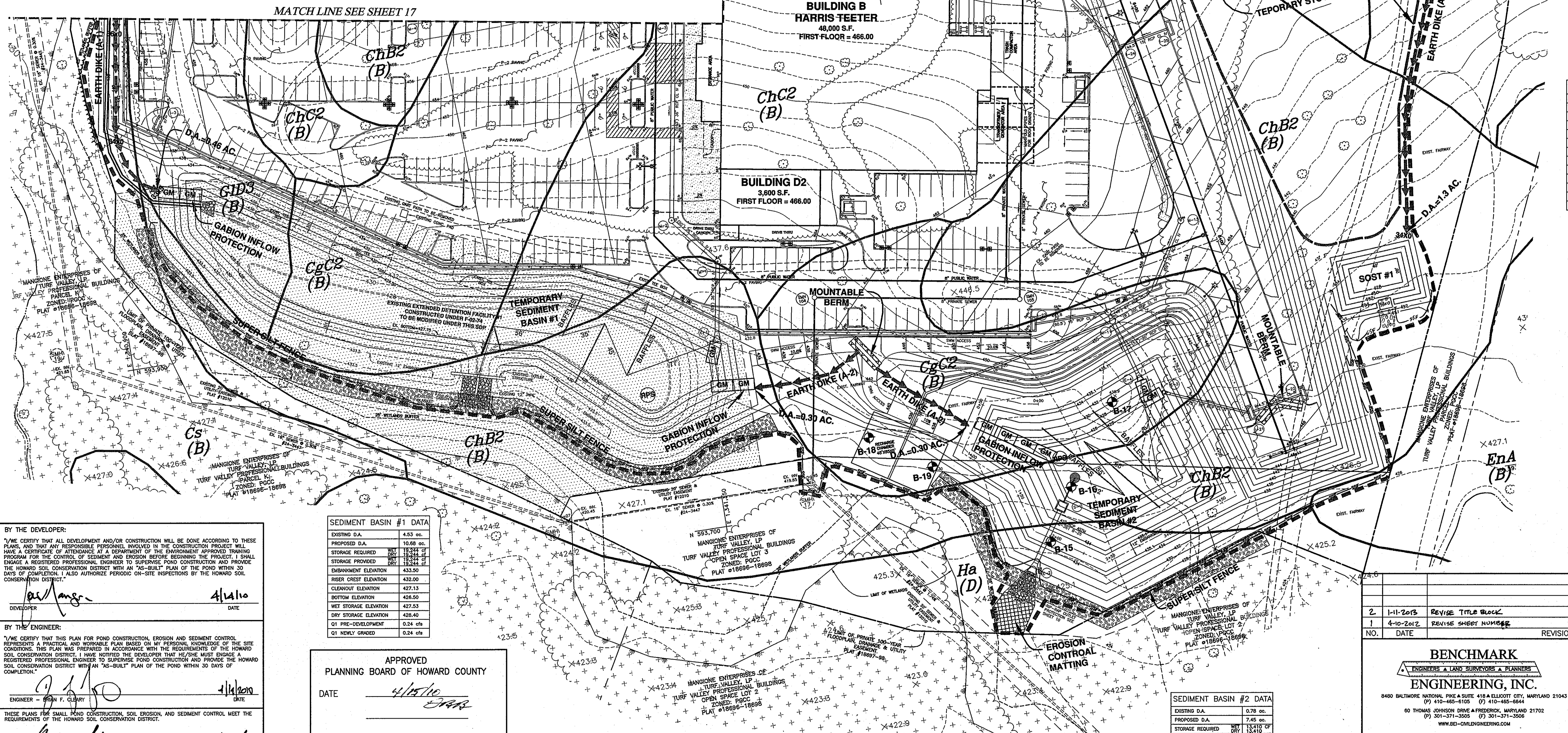
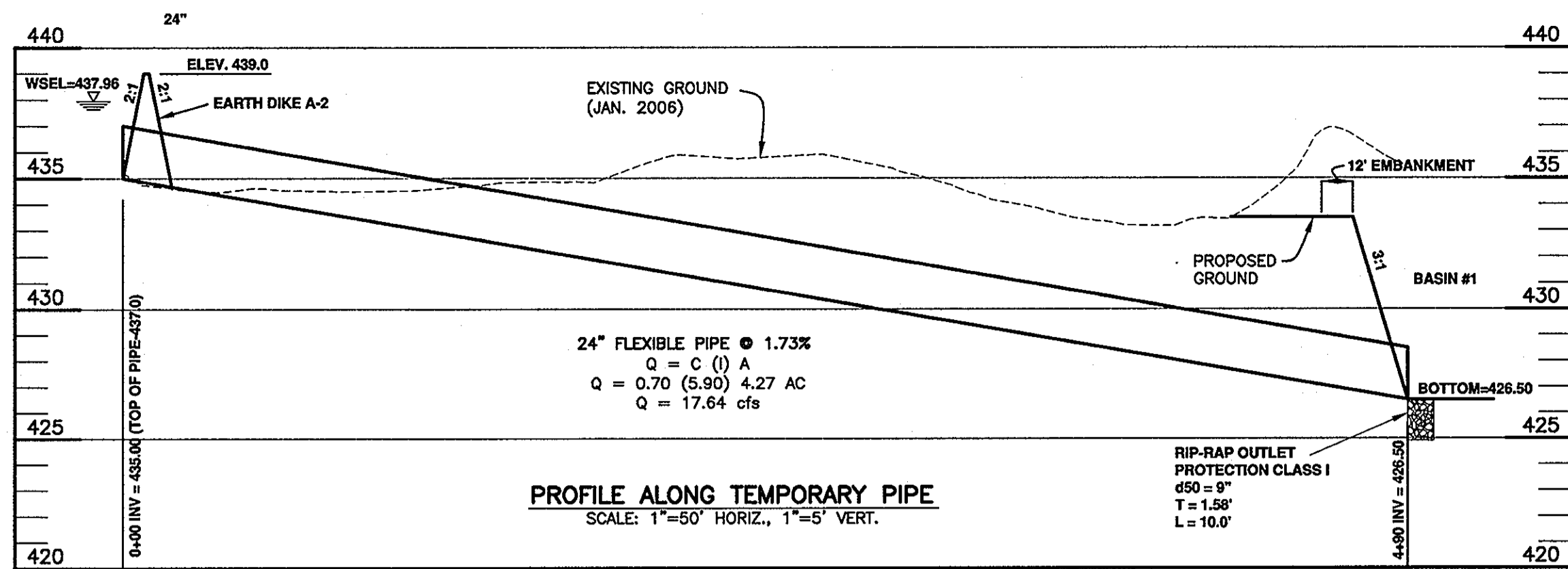
**SEDIMENT AND EROSION CONTROL PLAN**

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

DATE: APRIL, 2010  
 SCALE: AS SHOWN

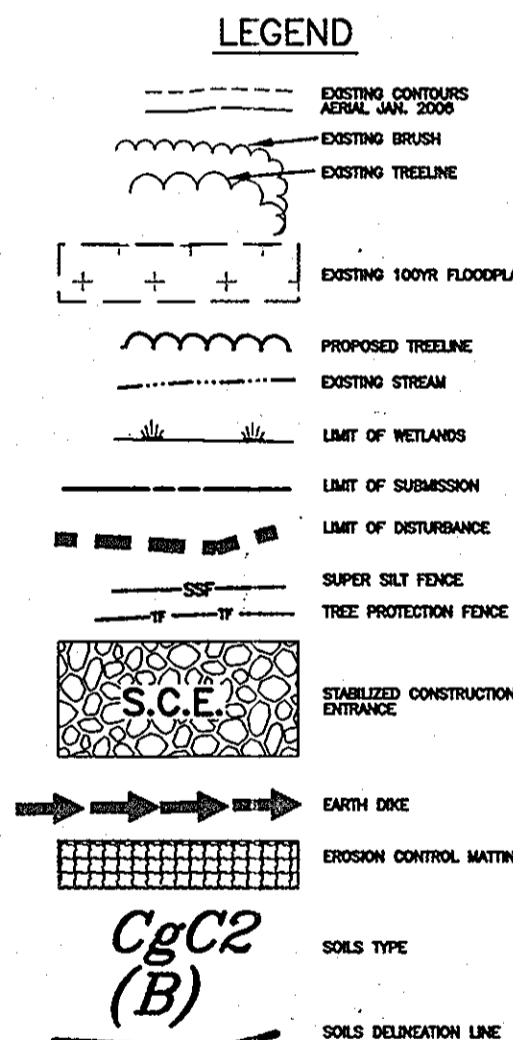
BEI PROJECT NO. 2208  
 SHEET 17 OF 29



**SOST #1**

TYPE	ST-II
EXISTING D.A.	1.4 AC.
PROPOSED D.A.	0.4 AC.
STORAGE REQUIRED	2,550 cu ft
STORAGE PROVIDED	2,550 cu ft
WET STORAGE ELEV.	431.00
DRY STORAGE ELEV.	435.00
EMBANKMENT ELEVATION	434.00
EMBANKMENT WIDTH	4 FEET
WEIR CREST ELEVATION	433.00
WEIR CREST LENGTH	4 FEET
CLEANOUT ELEVATION	428.17
BOTTOM ELEVATION	425.00

BOTTOM DIMENSION 20' 40'



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

DEVELOPER: *[Signature]* DATE: 4/14/10

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

ENGINEER: *[Signature]* DATE: 4/14/10

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DATE: 4/23/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 4/23/10

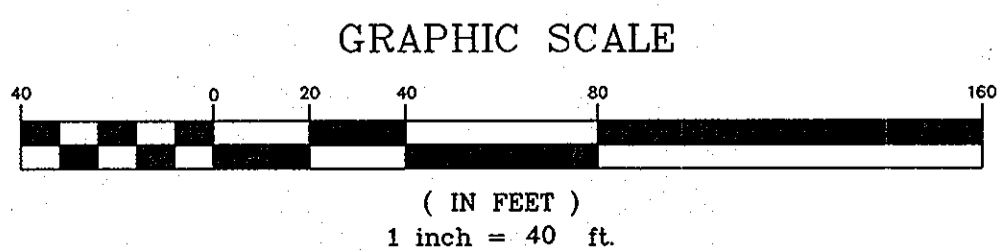
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 5/3/10

DIRECTOR  
DATE: 5/3/10

APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE: 4/15/10

**AS-BUILT CERTIFICATION**  
I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.  
PE NO. \_\_\_\_\_  
ENGINEER: \_\_\_\_\_ DATE: \_\_\_\_\_

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



**THIS PLAN IS FOR  
SEDIMENT AND EROSION  
CONTROL ONLY**

NO.	DATE	REVISION
2	1-11-2013	REVISE TITLE BLOCK
1	4-10-2012	REVISE SHEET NUMBER

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
8450 BALTIMORE NATIONAL PIKE & SUITE 418 ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-6105 (F) 410-465-6544  
80 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3506  
WWW.BEI-CIVILENGINEERING.COM

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. 22076-22079 Date: 7-22-2011.

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS "J1, J2, J3" AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22076-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O B & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**SEDIMENT AND EROSION CONTROL PLAN**

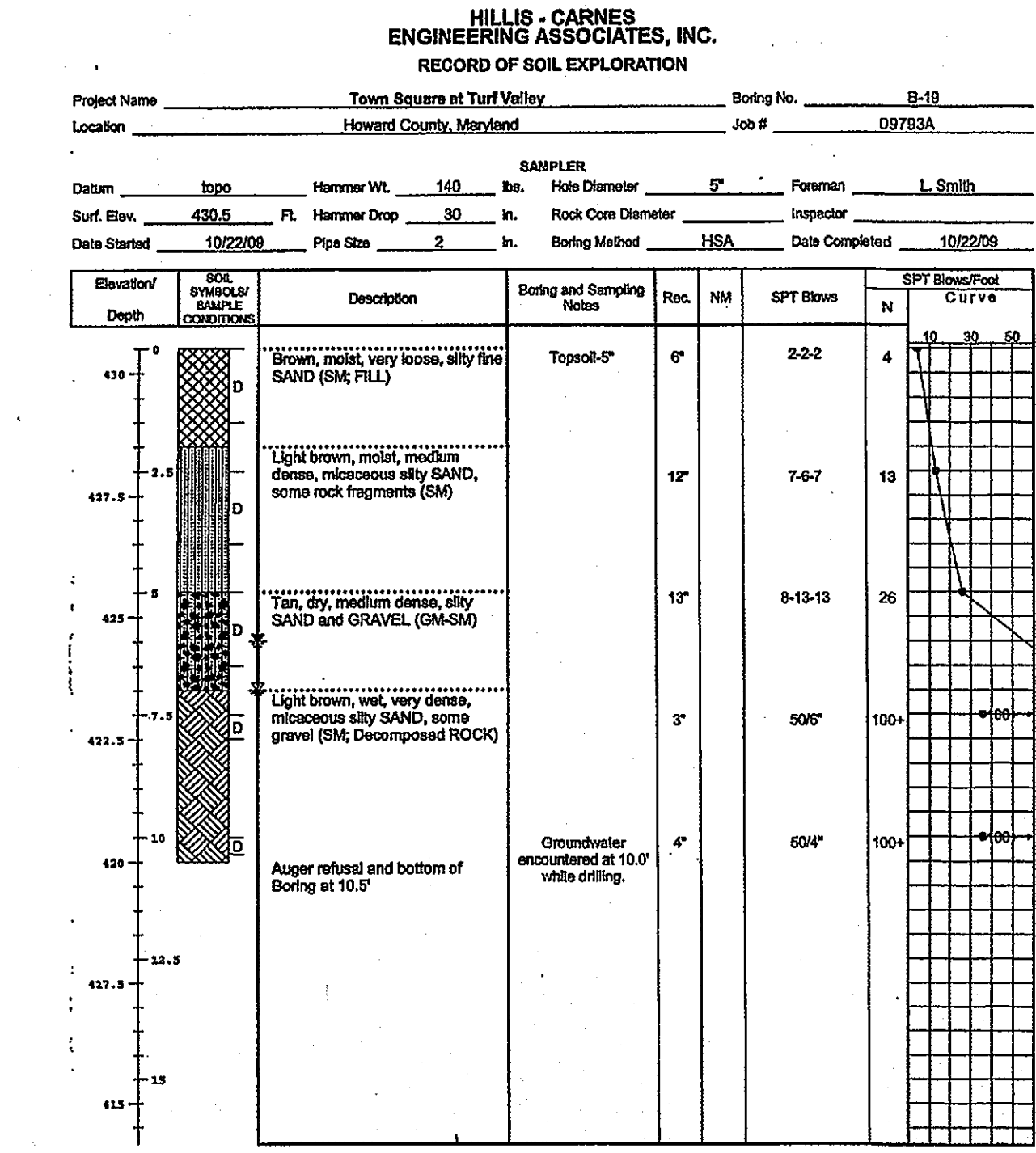
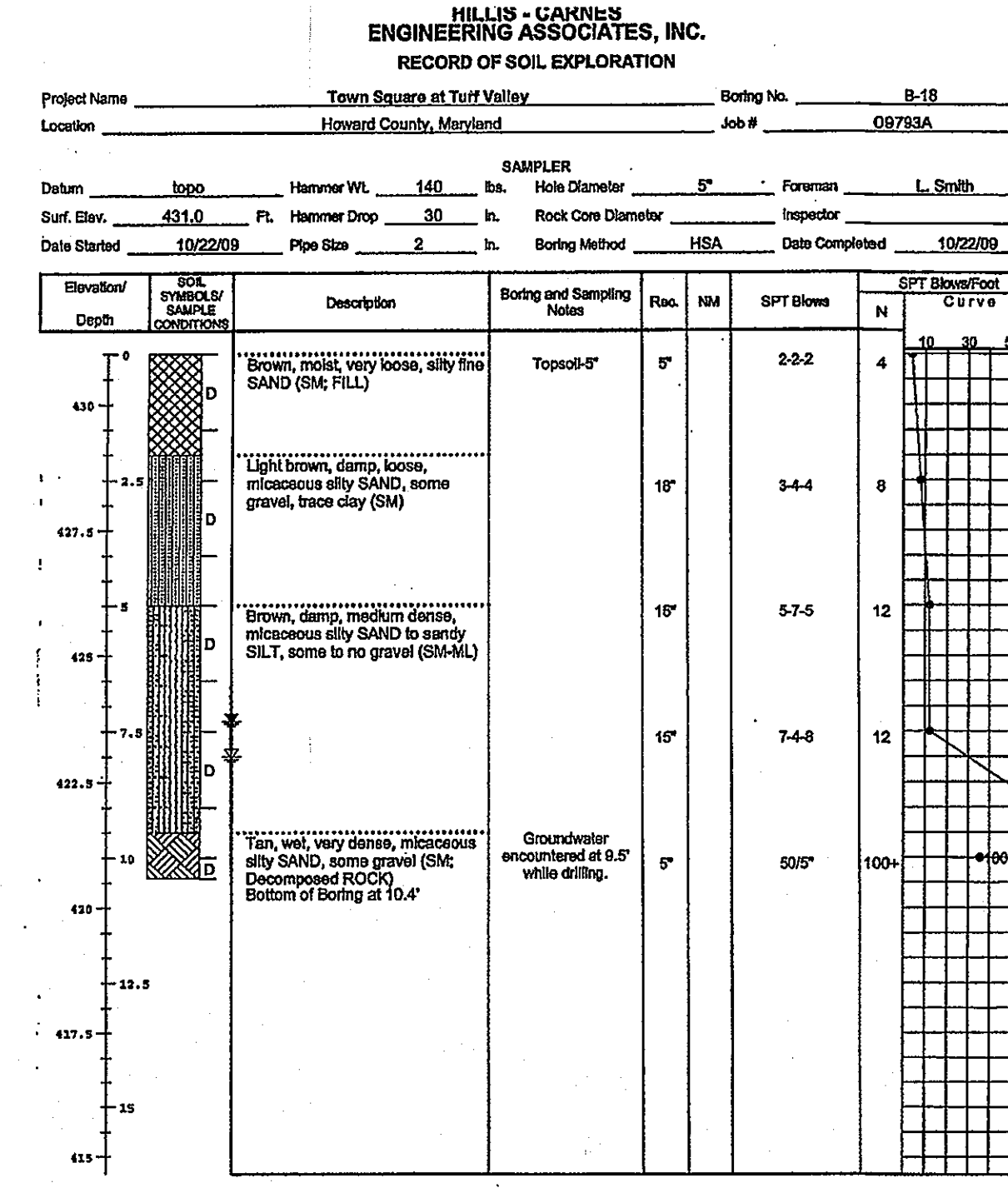
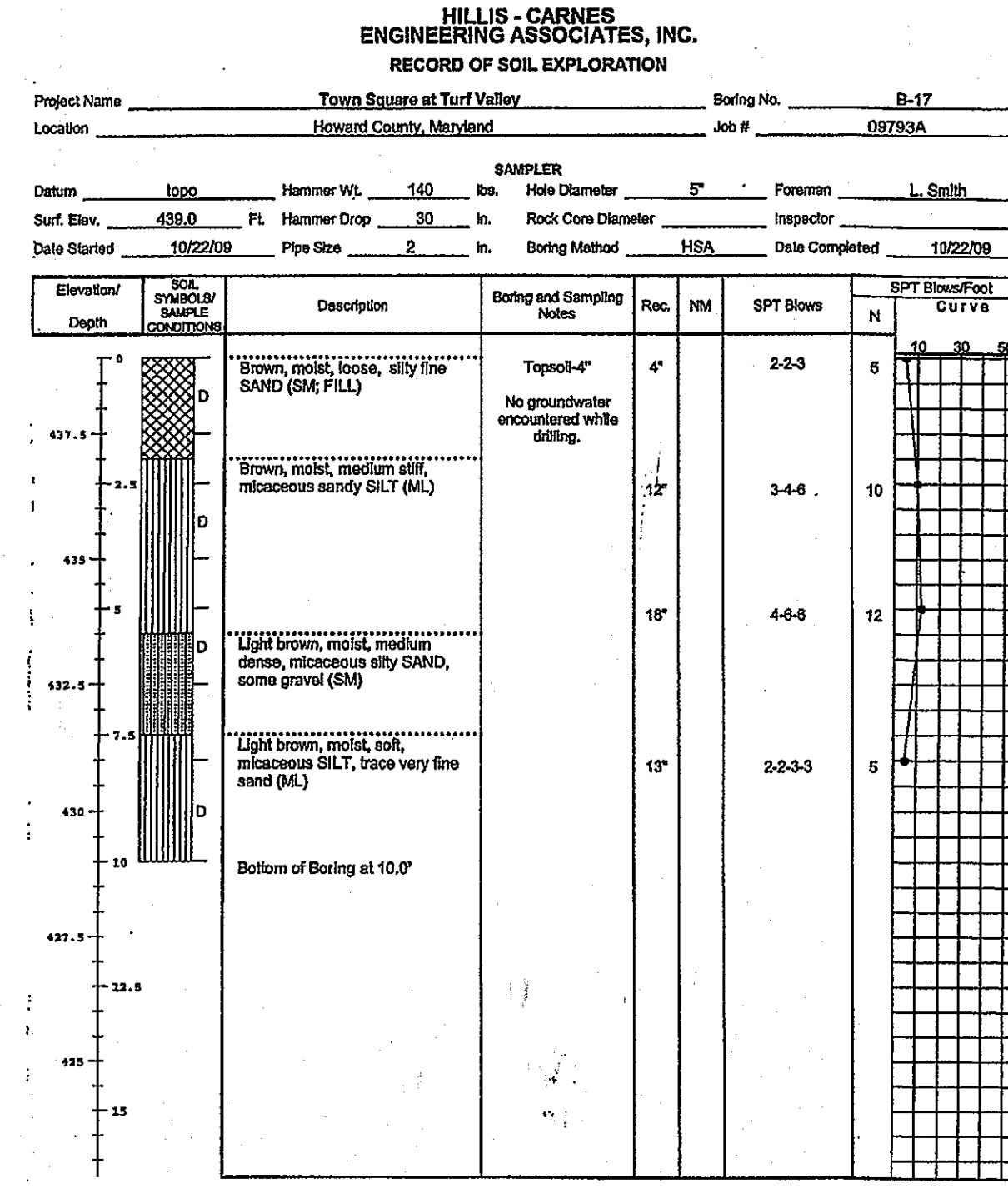
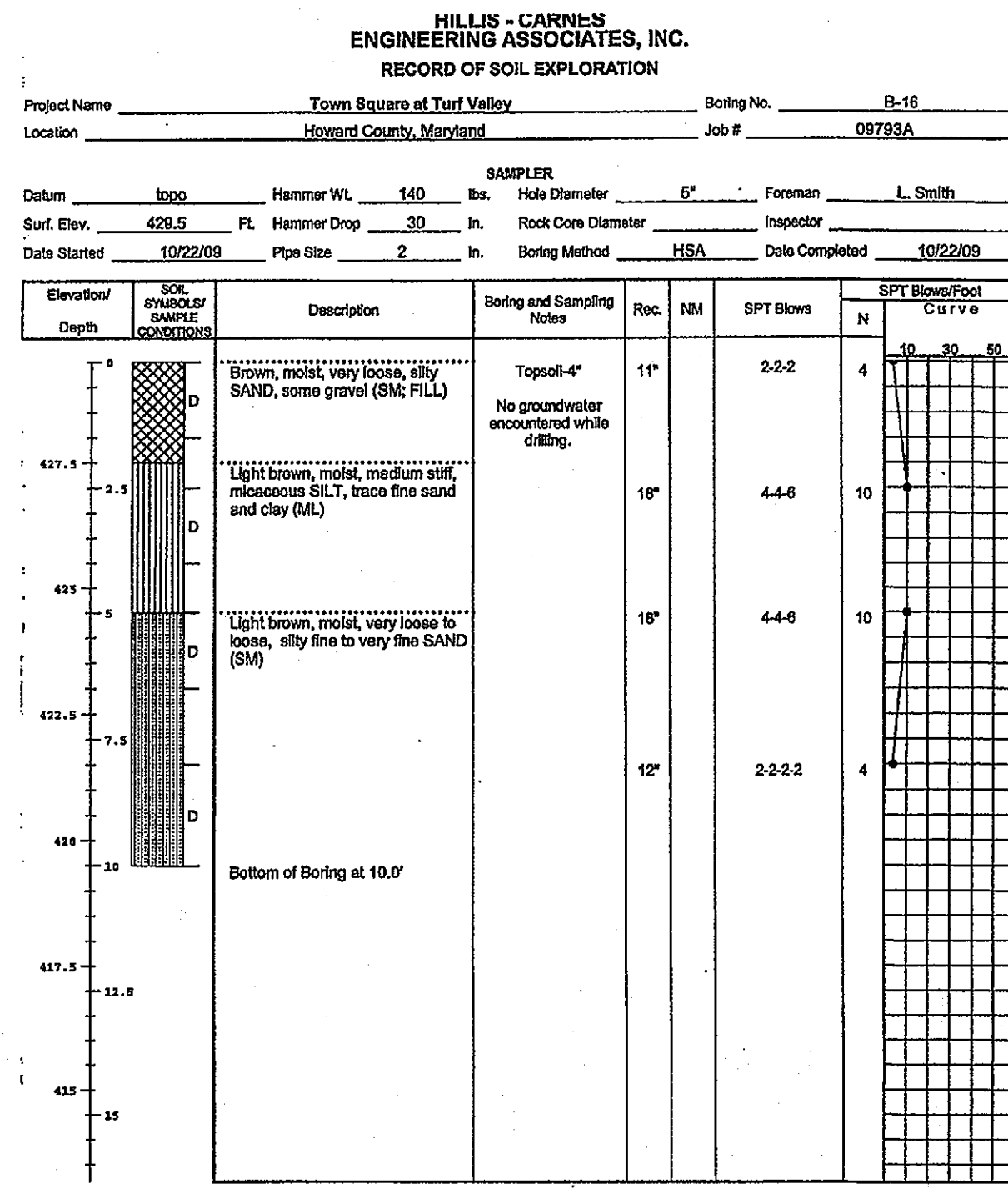
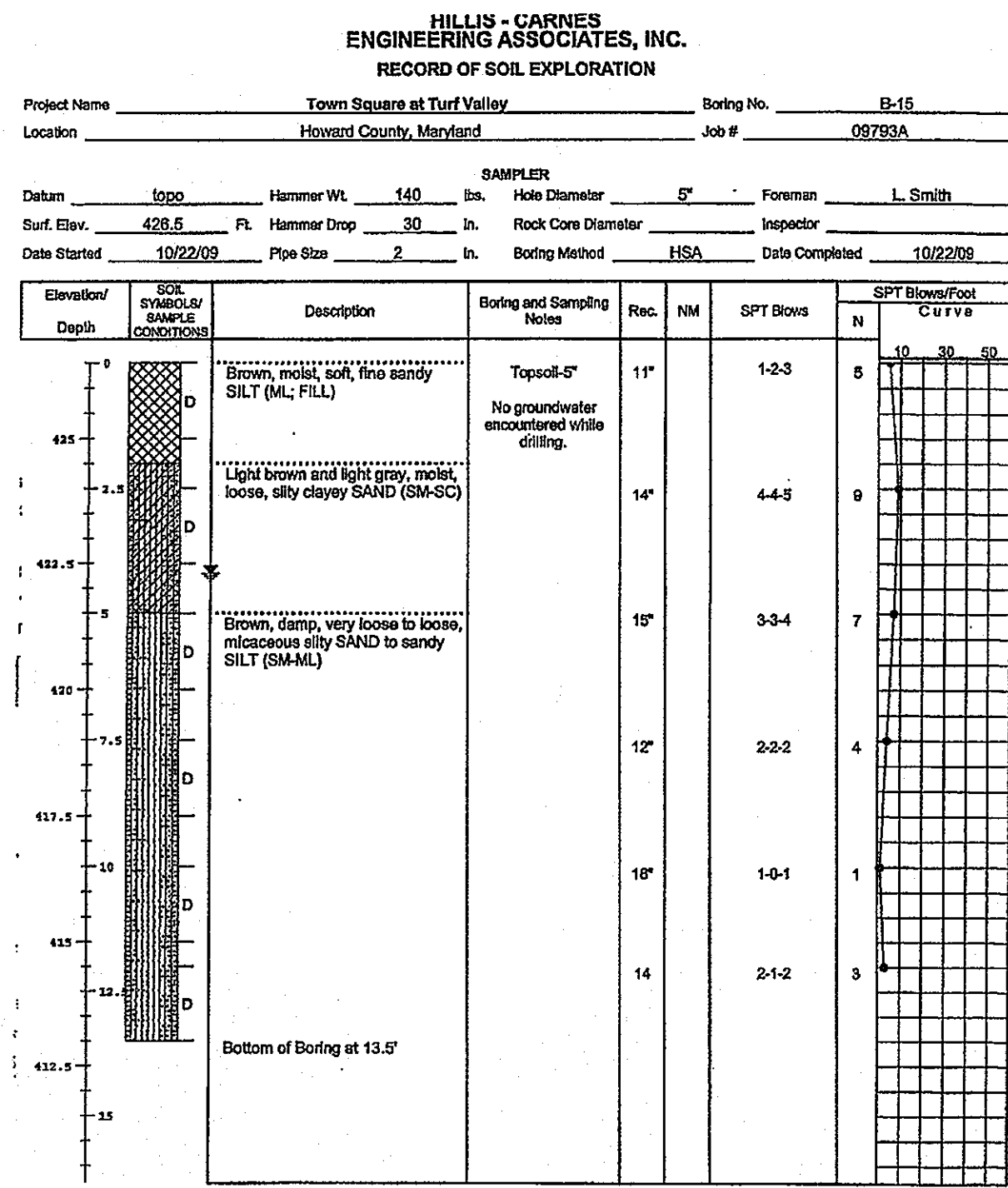
OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

DATE: APRIL, 2010  
SCALE: AS SHOWN

BEI PROJECT NO. 2208  
SHEET 18 OF 29





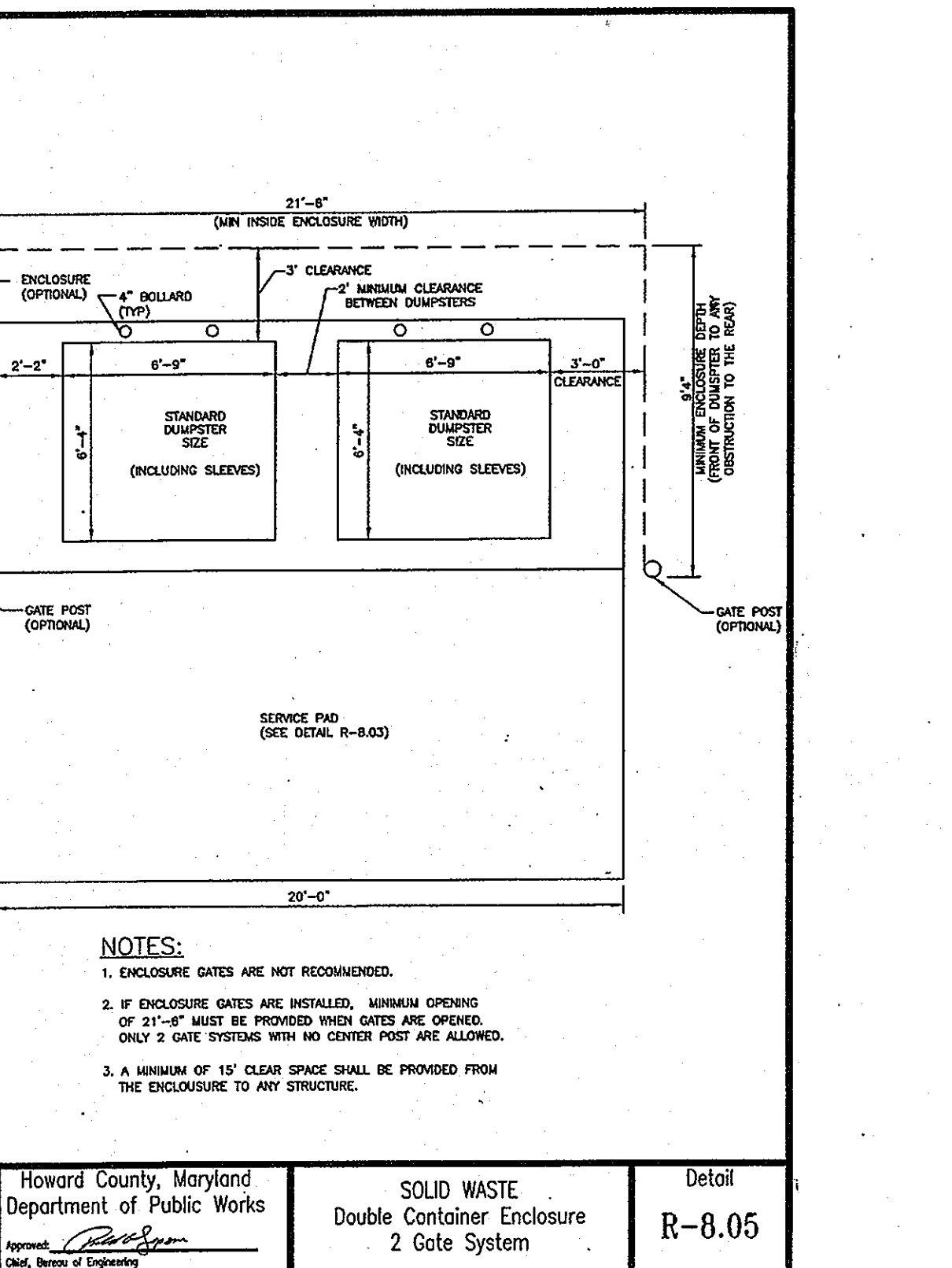
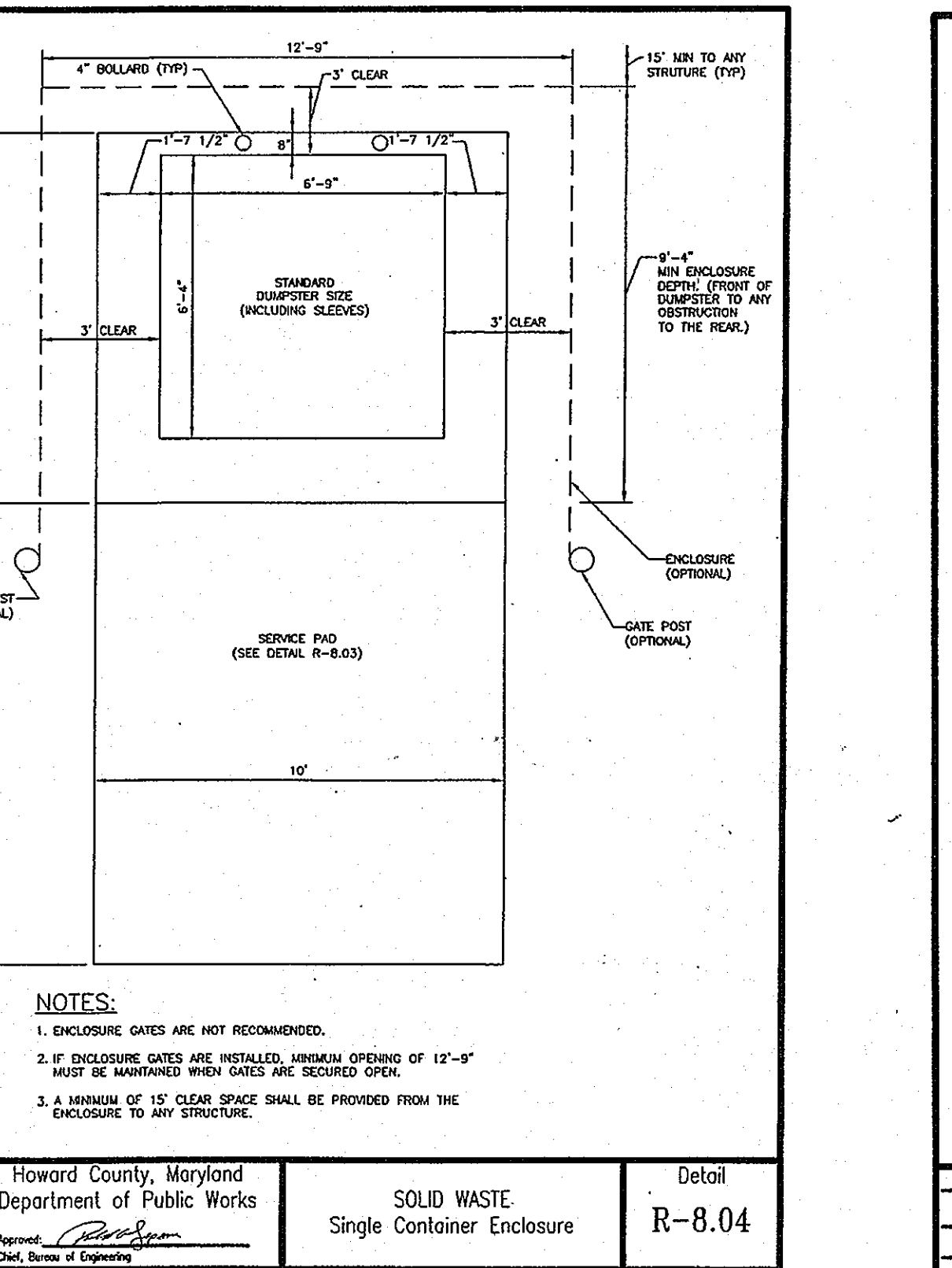
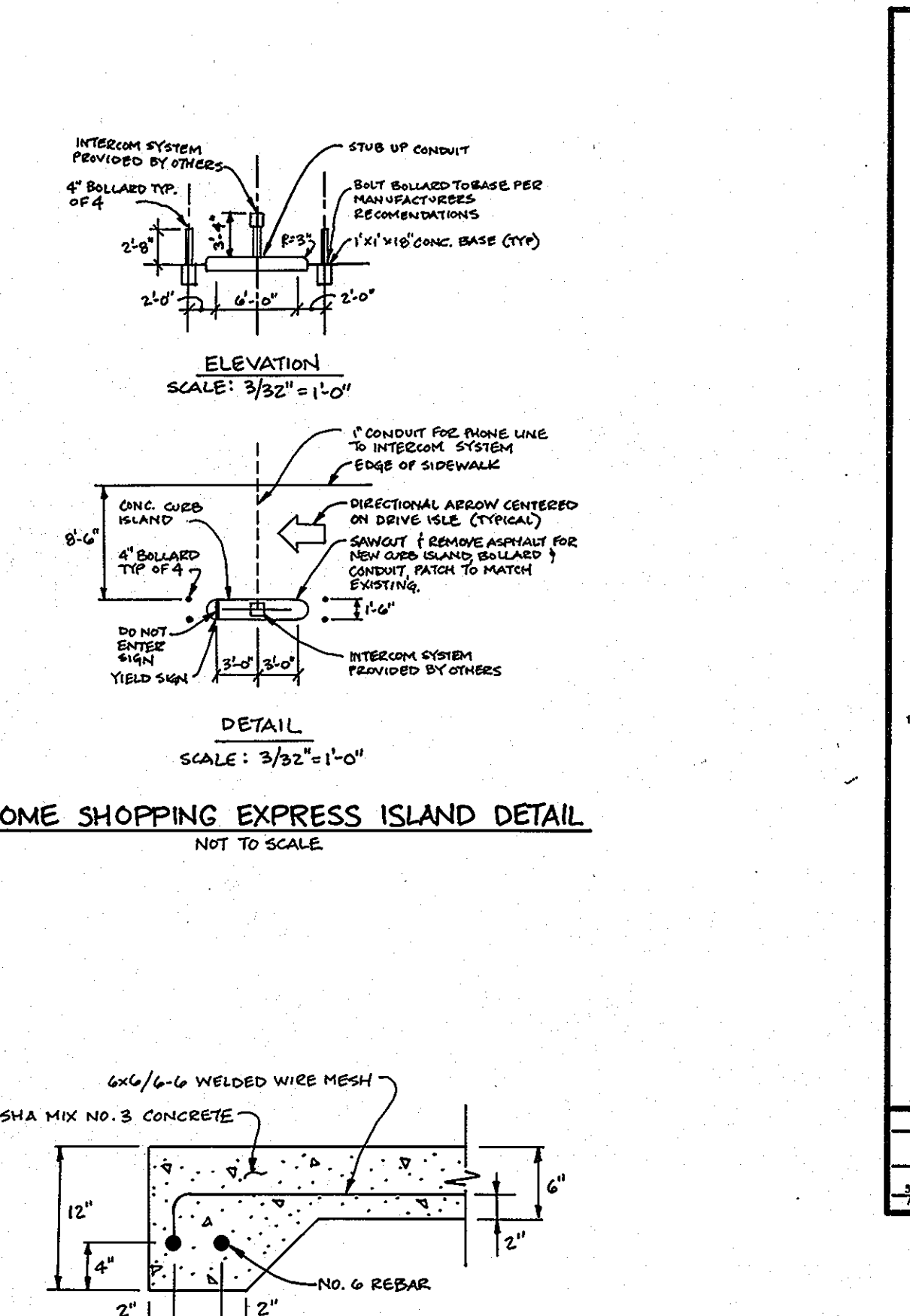
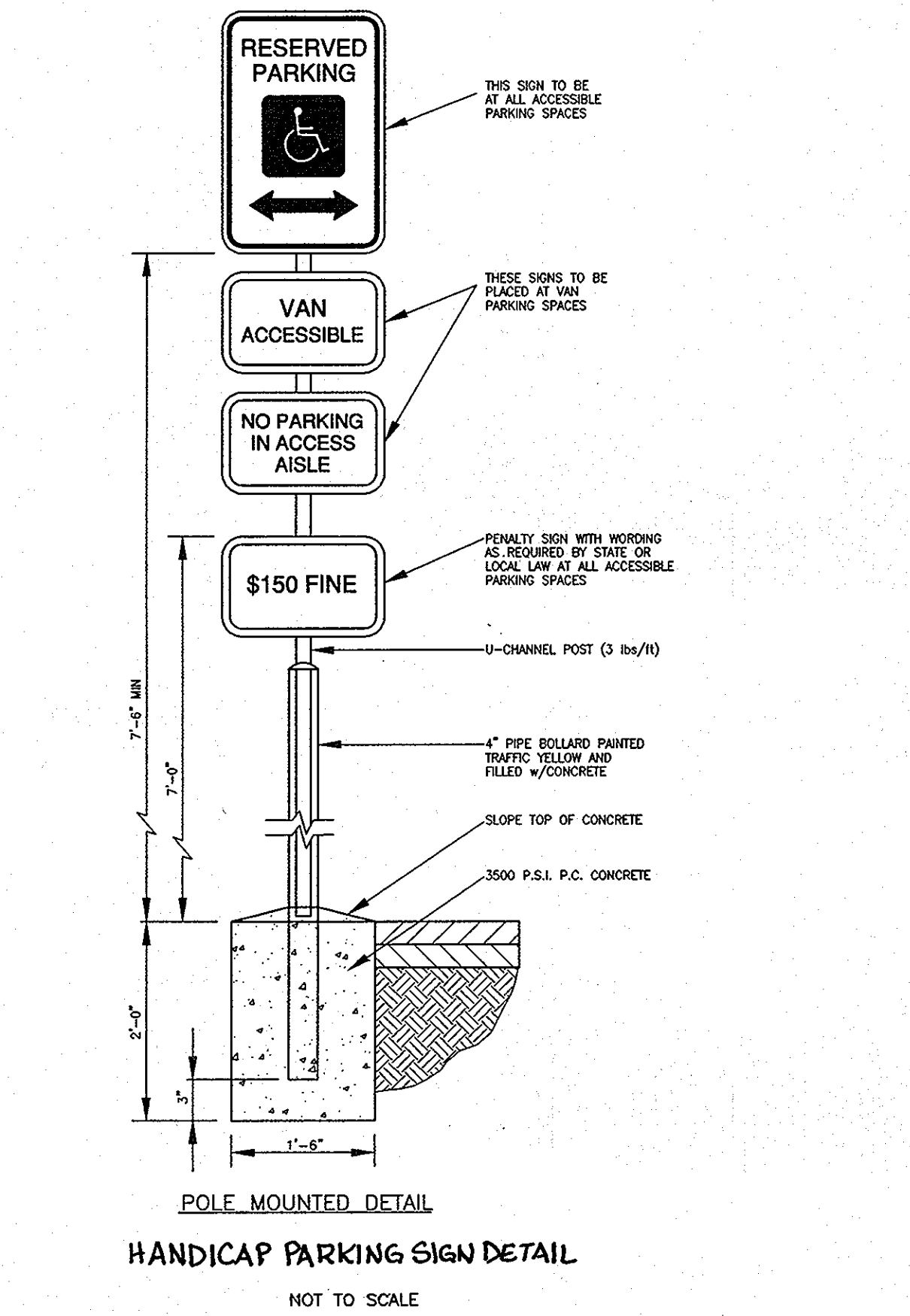
SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 S-SOIL, R-ROCK  
 AT COMPLETION: AFTER 24 HRS. AFTER 1 HRS.  
 GROUND WATER: 0.0' A. 0.0' A.  
 GAIN IN DEPTH: 0.0' A. 0.0' A.  
 BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONTINUOUS FLIGHT AUGERS, DC-DRIVING AUGER, MD-MID DRILLING, RC-ROCK CORE

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 S-SOIL, R-ROCK  
 AT COMPLETION: AFTER 24 HRS. AFTER 1 HRS.  
 GROUND WATER: 0.0' A. 0.0' A.  
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 BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONTINUOUS FLIGHT AUGERS, DC-DRIVING AUGER, MD-MID DRILLING, RC-ROCK CORE

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
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SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE NOTED  
 S-SOIL, R-ROCK  
 AT COMPLETION: AFTER 24 HRS. AFTER 1 HRS.  
 GROUND WATER: 0.0' A. 0.0' A.  
 GAIN IN DEPTH: 0.0' A. 0.0' A.  
 BORING METHOD: HSA-HOLLOW STEM AUGERS, CFA-CONTINUOUS FLIGHT AUGERS, DC-DRIVING AUGER, MD-MID DRILLING, RC-ROCK CORE



APPROVED: DEPARTMENT OF PUBLIC WORKS PLANNING & ZONING  
 Director: [Signature] DATE: 5/3/10  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Division of Land Development: [Signature] DATE: 5/3/10  
 Chief, Development Engineering Division: [Signature] DATE: 4/20/10

APPROVED: PLANNING BOARD OF HOWARD COUNTY  
 DATE: 4/15/10

NO.	DATE	REVISION
1	1-11-2013	REVISE TITLE BLOCK
2	4-10-2012	REVISE SHEET NUMBER
3	9-21-2011	DELETE PARKING LOT LIGHT DETAIL
4	5-31-2011	ADD HOME SHOPPING EXPRESS ISLAND DETAIL AND CONCRETE PAD DETAIL.

**BENCHMARK ENGINEERING, INC.**  
 8460 BALTIMORE NATIONAL PRICE & SUITE 418 ELLOTT COTT. MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
 (P) 301-371-3505 (F) 301-371-3506  
 WWW.BED-CADENGINEERING.COM

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS 'J1' & 'J2' AND OPEN SPACE LOTS 4&5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
 ZONED: PGCC (MULTI-USE SUBDISTRICT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

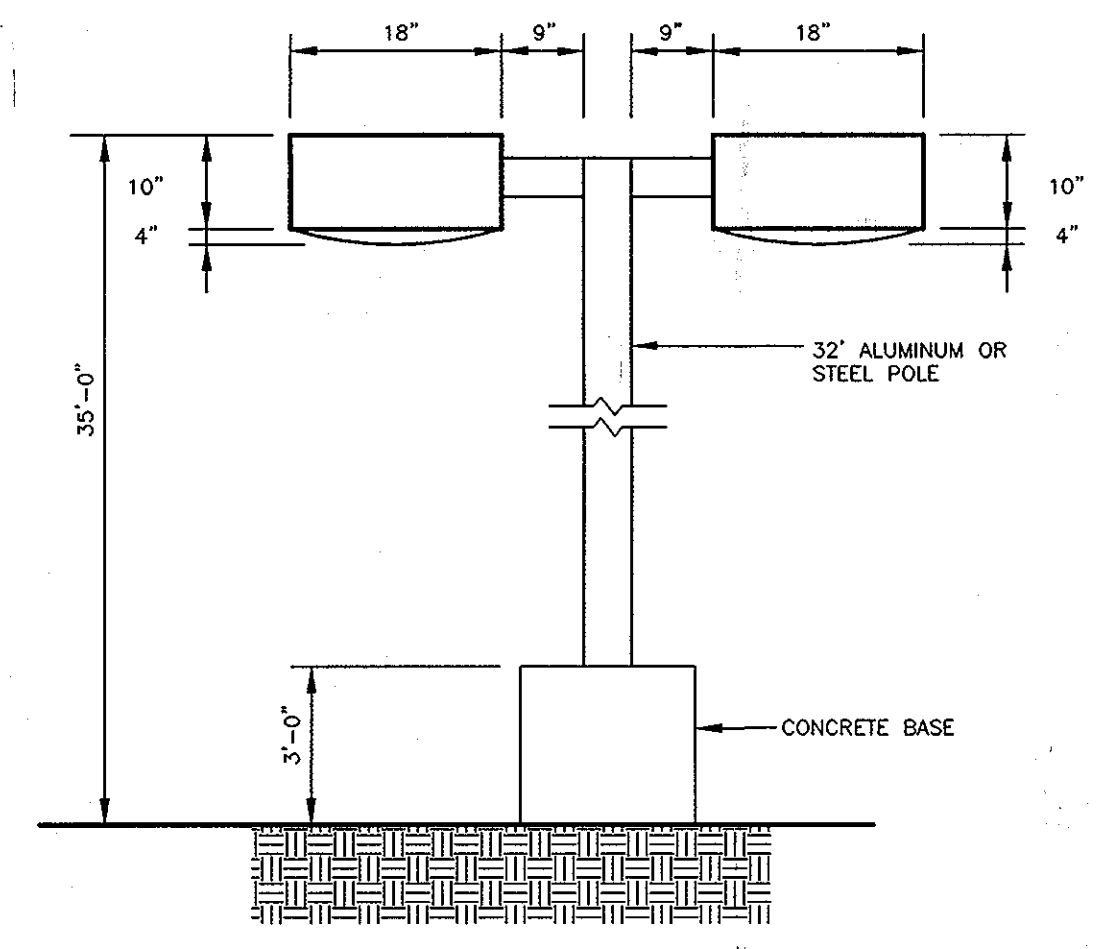
**SOILS BORING PLAN AND DETAIL SHEET**

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
 SCALE: AS SHOWN SHEET 20 OF 29

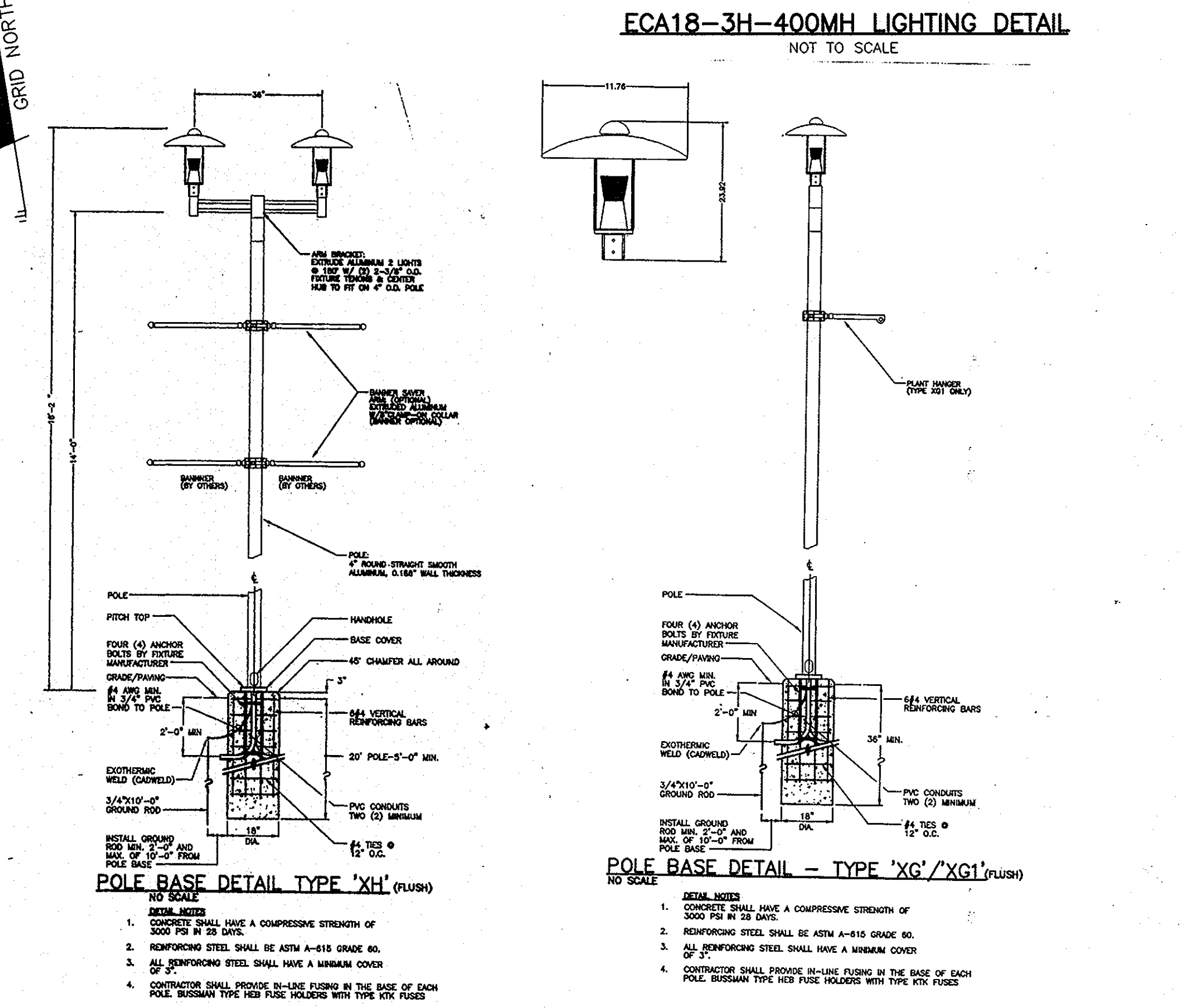
Symbol	Qty	Label	Arrangement	Lumens	LLF	Description
LM	19	LM	BKCR-BKCR	40000	0.800	ECA18-3H-400MH
CS	15	CS	4 # 30 ENGINEERS FT	40000	0.800	ECA18-3H-400MH
TS	15	TwinSS	TWIN	40000	0.800	ECA18-3H-400MH
SA	31	G alt	SINGLE	6200	0.750	CS-105-P4-RD-A-RS-D-70H
W alt	6	W alt	BKCR-BKCR	14000	0.750	CS-105-P4-RD-A-RS-D-150H

Calculation Summary	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Label	ILLUMINANCE	Fc	3.11	18.4	0.0	N/A	N/A
CalcType	ILLUMINANCE	Fc	11.72	18.4	7.6	1.54	2.42



NOTES:  
 1. THE STREET LIGHTS ALONG TOWN SQUARE PARKWAY SHALL BE TREATED AS PUBLIC STREET LIGHTS AND THUS PAID FOR BY THE DEVELOPER.  
 2. REFER TO SHEET 22 FOR ROAD 'A' STREET LIGHTING PLACEMENT AND TYPE.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director

NO.	DATE	REVISION
3	1-11-2013	revised photometric plan based on new light pole locations and type.
2	4-10-2012	revise sheet number
1	9-21-2011	revised photometric plan based on 8-foot candle minimum.

**BENCHMARK ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE SUITE 418 ELLEWOOD CITY, MARYLAND 21043  
 (P) 410-465-6105 (F) 410-465-6644  
 60 THOMAS JOHNSON DRIVE A FREDERICK, MARYLAND 21702  
 (P) 301-371-3605 (F) 301-371-3608  
 WWW.BE-ENGINEERING.COM

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCEL 'J' AND OPEN SPACE LOT 3 OF TURF VALLEY PROFESSIONAL BUILDINGS PLAT NOS. 18696-18698

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
 ZONED: PCCC (MULTI-USE SUBDISTRICT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**REVISOR CENTER LIGHTING PLAN**

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

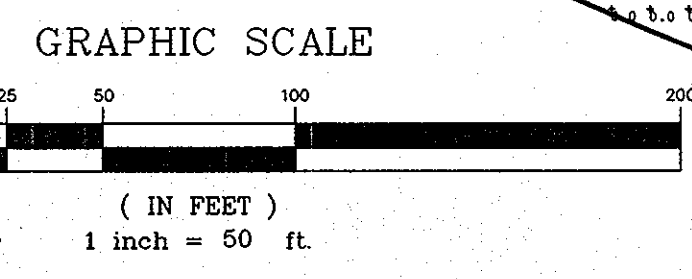
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
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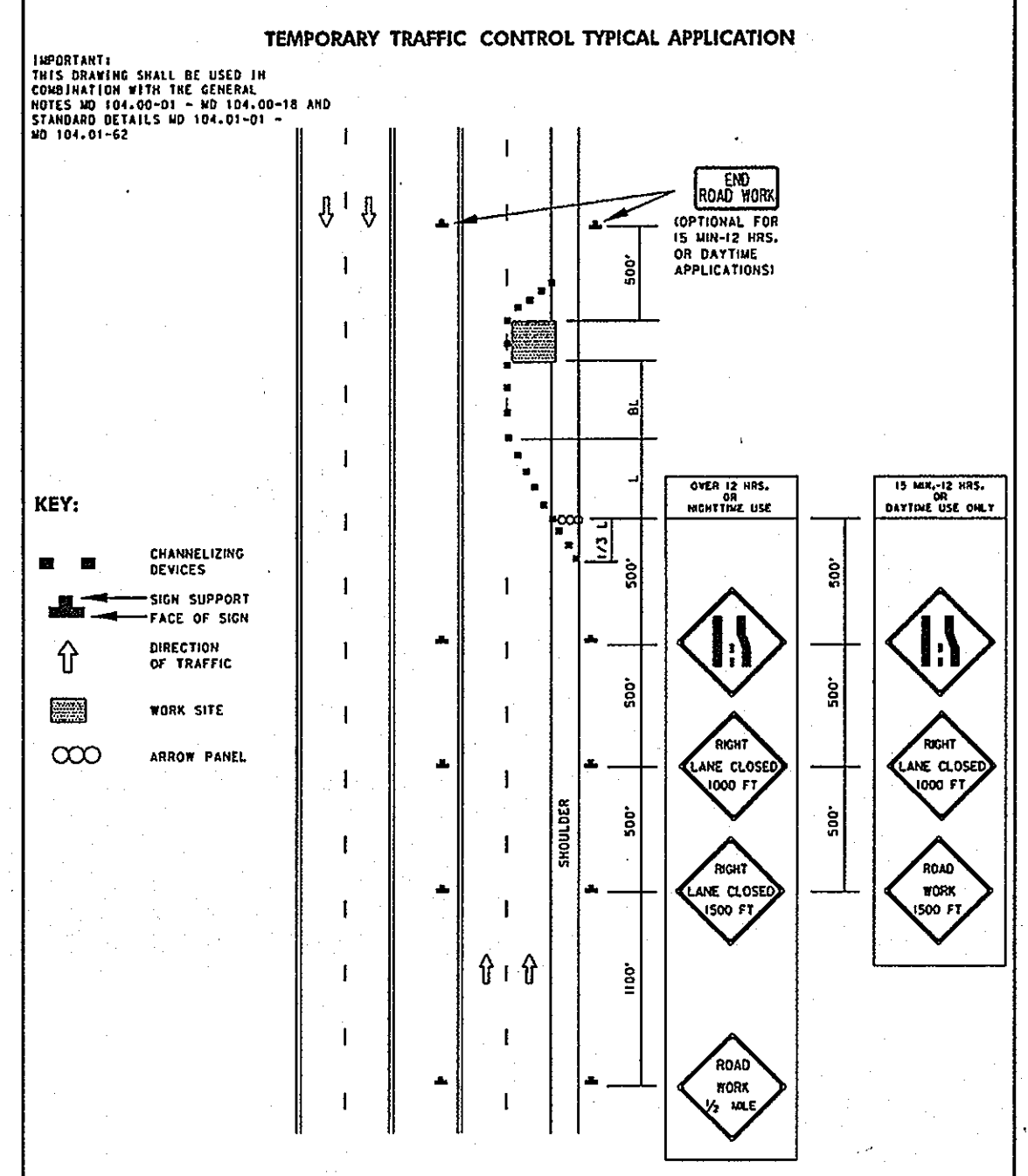
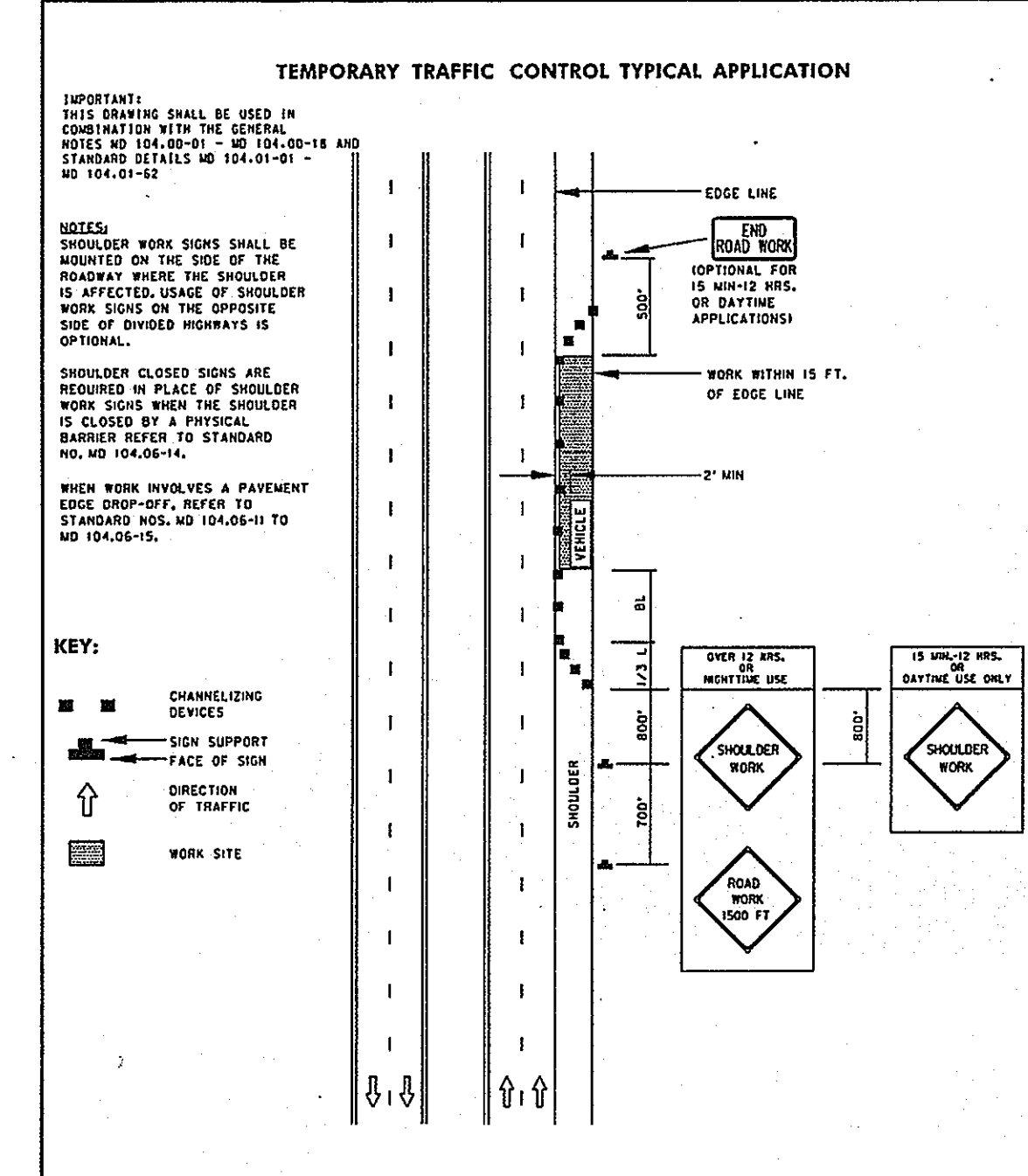
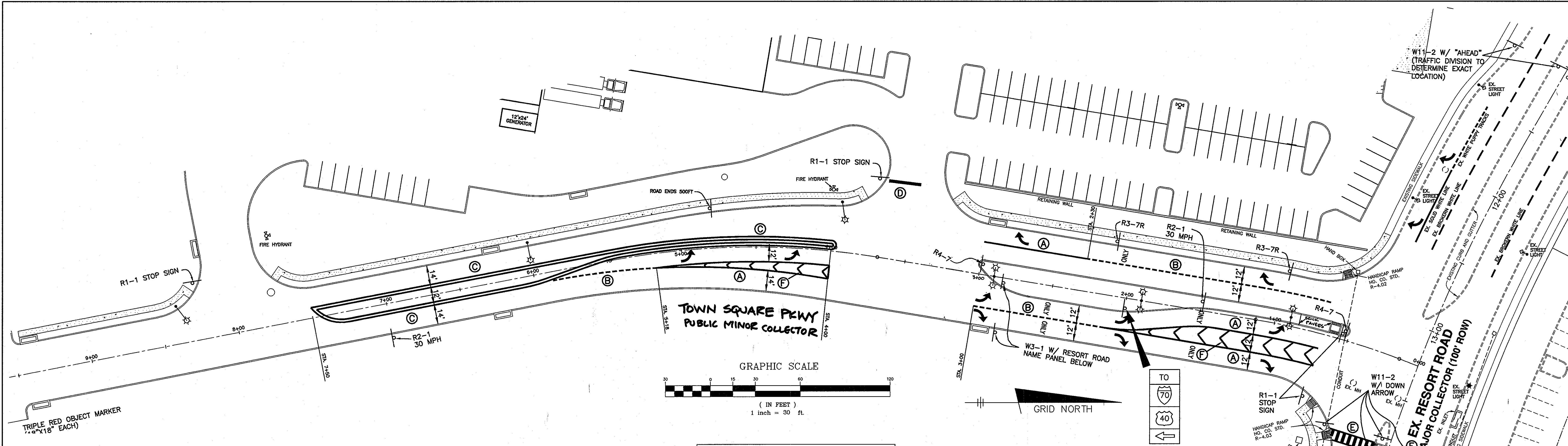
DATE: APRIL, 2010  
 SCALE: AS SHOWN

BEI PROJECT NO. 2208  
 SHEET 21 OF 29

APPROVED  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE: 4/15/10  
 [Signature]

\*PHOTOMETRICS DESIGNED BY:  
 B&R CONSTRUCTION SERVICES,  
 502 McCORMICK DRIVE, SUITE M  
 GLEN BERNIE, MARYLAND 21061  
 410-761-9600





**SIGN POSTS:**

ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (1.4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

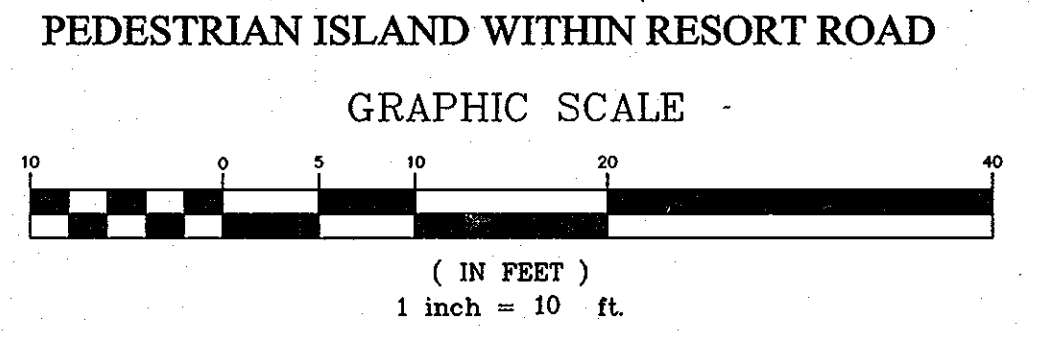
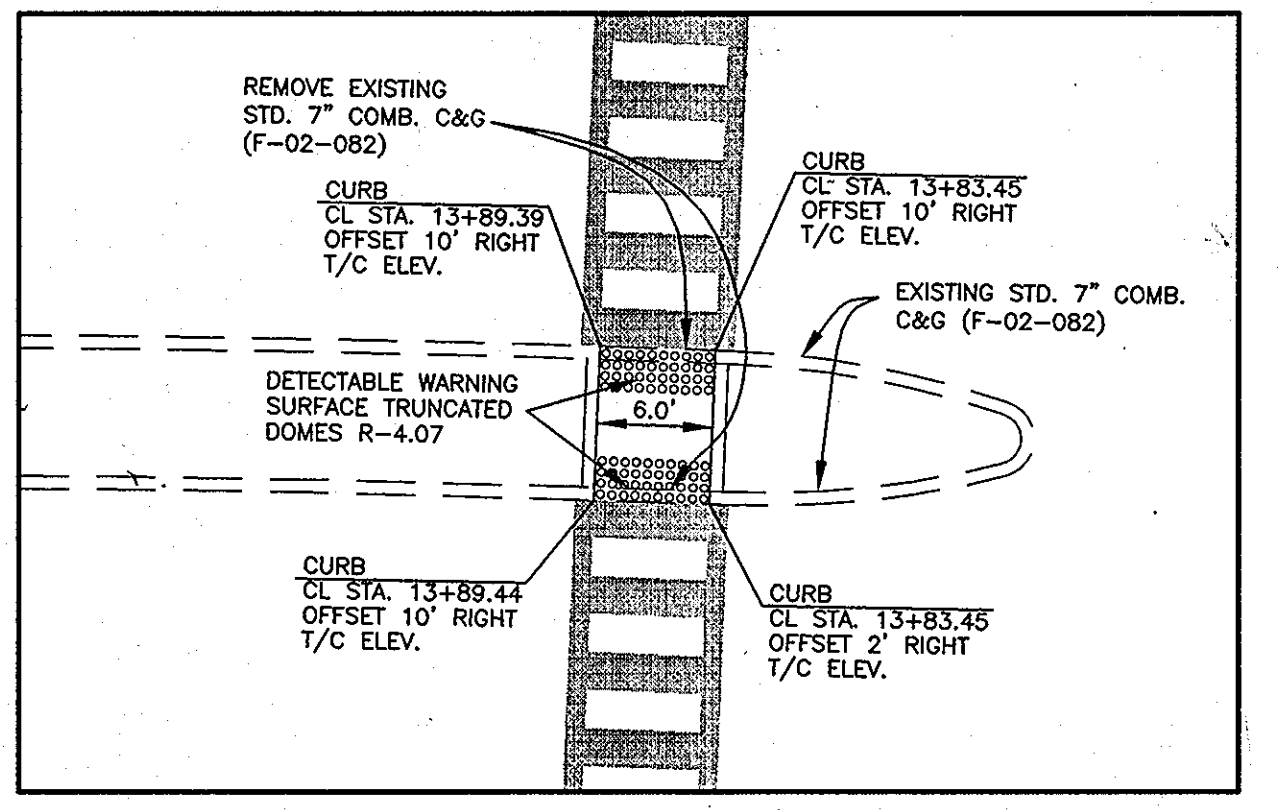
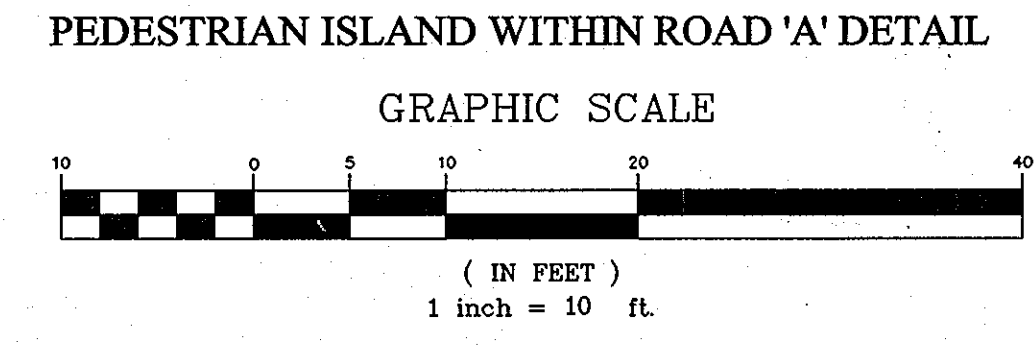
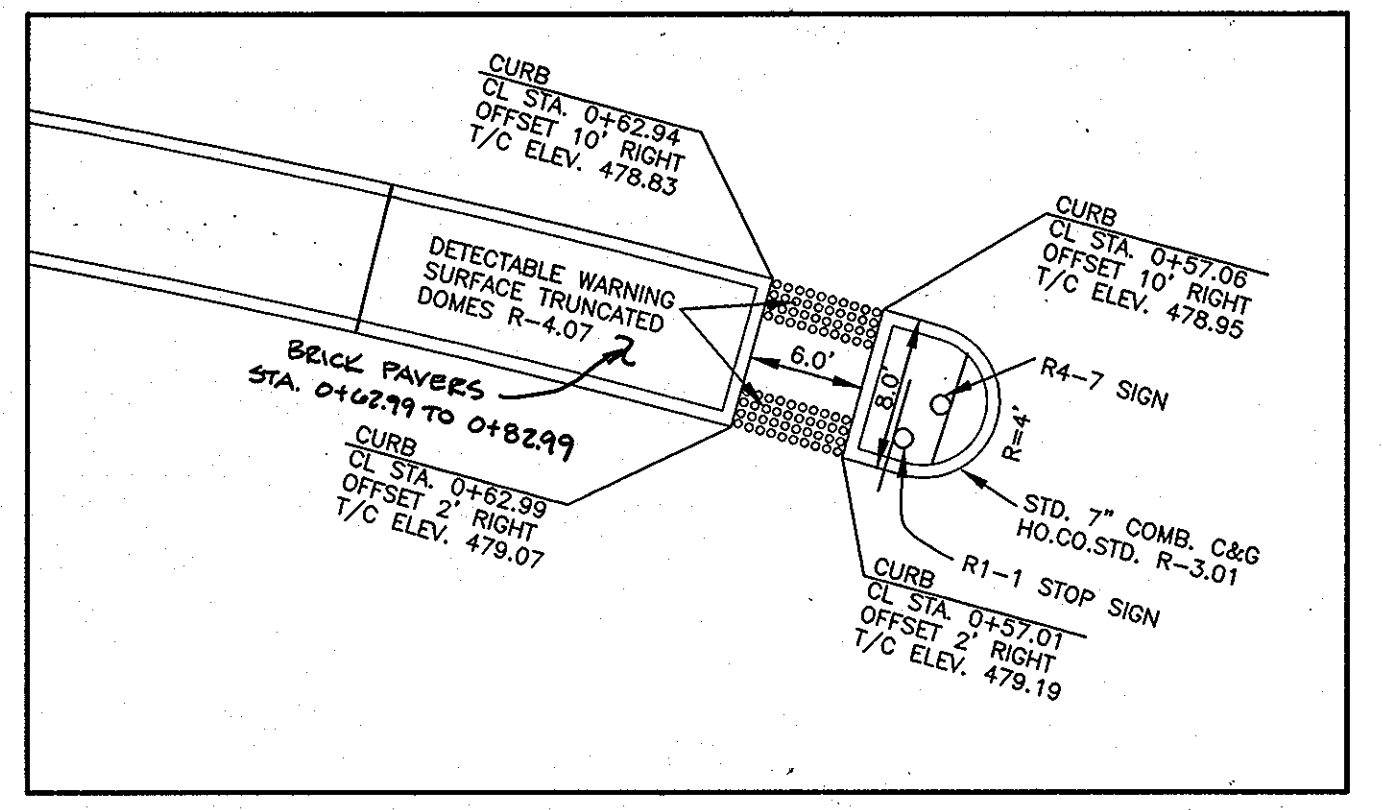
**CABLE PULLS:**

ALL 4" PVC CABLE PULLS TO HAVE ENDS IDENTIFIED BY BOE LOCATORS.

**STREET LIGHT SCHEDULE**

SYMBOL	LOCATION	DESCRIPTION
★	TOWN SQUARE PKWY STA. 0+80 RIGHT	2-250 WATT HPS VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING TWIN 8' ARMS
★	TOWN SQUARE PKWY STA. 1+80 CENTER	250 WATT HPS VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
★	TOWN SQUARE PKWY STA. 2+90 CENTER	250 WATT HPS VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING TWIN 8' ARMS
★	TOWN SQUARE PKWY STA. 3+85 RIGHT	250 WATT HPS VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
★	TOWN SQUARE PKWY STA. 6+00 RIGHT	250 WATT HPS VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING TWIN 8' ARMS
★	TOWN SQUARE PKWY STA. 8+38 RIGHT	250 WATT HPS VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING TWIN 8' ARMS

- STRIPING LEGEND**
- (A) 5" WIDE WHITE SOLID LINE
  - (B) 5" WIDE WHITE "PUDDY TRACKS" (2' SPACE, 6' PAINT, 2' SPACE)
  - (C) 5" WIDE DOUBLE YELLOW LINE
  - (D) 24" WIDE WHITE SOLID LINE FOR STOP BAR THERMOPLASTIC OR HEAT APPLIED PERFORMED TAPE
  - (E) ALTERNATE 2' WIDE BLACKTOP AND 2' WIDE WHITE THERMOPLASTIC OR HEAT APPLIED PERFORMED TAPE. SIDES TO BE 1" WIDE WHITE THERMOPLASTIC OR HEAT APPLIED PERFORMED TAPE.
  - (F) 10" WIDE WHITE SOLID LINE SPACED 25'



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County Department of Planning and Zoning*

4/2/10 DATE

*Kevin J. DeLoach*

5/3/10 DATE

*Thomas G. Butler*

5/3/10 DATE

DIRECTOR

**Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION**

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SHOULDER WORK/DIVIDED UNCON. EQ/LESS THAN 40 MPH.

STANDARD NO. MD 104.04-02

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County Department of Planning and Zoning*

4/2/10 DATE

*Kevin J. DeLoach*

5/3/10 DATE

*Thomas G. Butler*

5/3/10 DATE

DIRECTOR

**Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION**

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

RIGHT LANE CLOSURE / DIVIDED UNCON. EQ/LESS THAN 40 MPH.

STANDARD NO. MD 104.04-06

NO.	DATE	REVISION
3	1-11-2013	REVISE ROAD 'A' TO TOWN SQUARE PARKWAY. REVISE TITLE BLOCK
2	4-10-2012	REVISE SHEET NUMBER
1	5-31-2011	REVISE ISLAND IN ROAD 'A' AT STATION 3+00.

**BENCHMARK ENGINEERING, INC.**

ENGINEERS & LAND SURVEYORS & PLANNERS

8480 BALTIMORE NATIONAL PIKE & SUITE 418A ELLICOTT CITY, MARYLAND 21043

(P) 410-465-8100 (F) 410-465-8644

60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702

(P) 301-371-3505 (F) 301-371-3506

WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer registered in the State of Maryland. License No. 22558 License Date: 7-22-2011.

*Stanley F. Cleary*

4/4/2010

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County Department of Planning and Zoning*

4/2/10 DATE

*Kevin J. DeLoach*

5/3/10 DATE

*Thomas G. Butler*

5/3/10 DATE

DIRECTOR

APPROVED: PLANNING BOARD OF HOWARD COUNTY

DATE 4/15/10

*Thomas G. Butler*

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

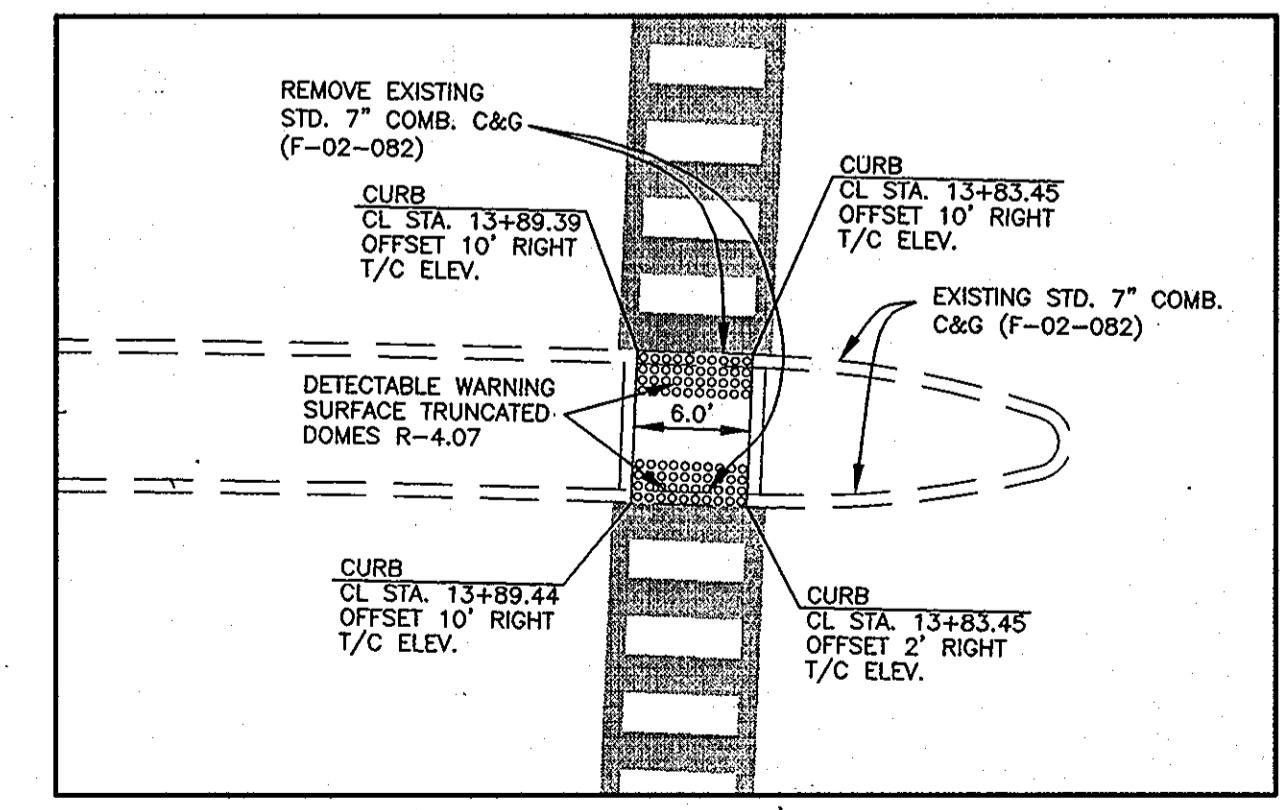
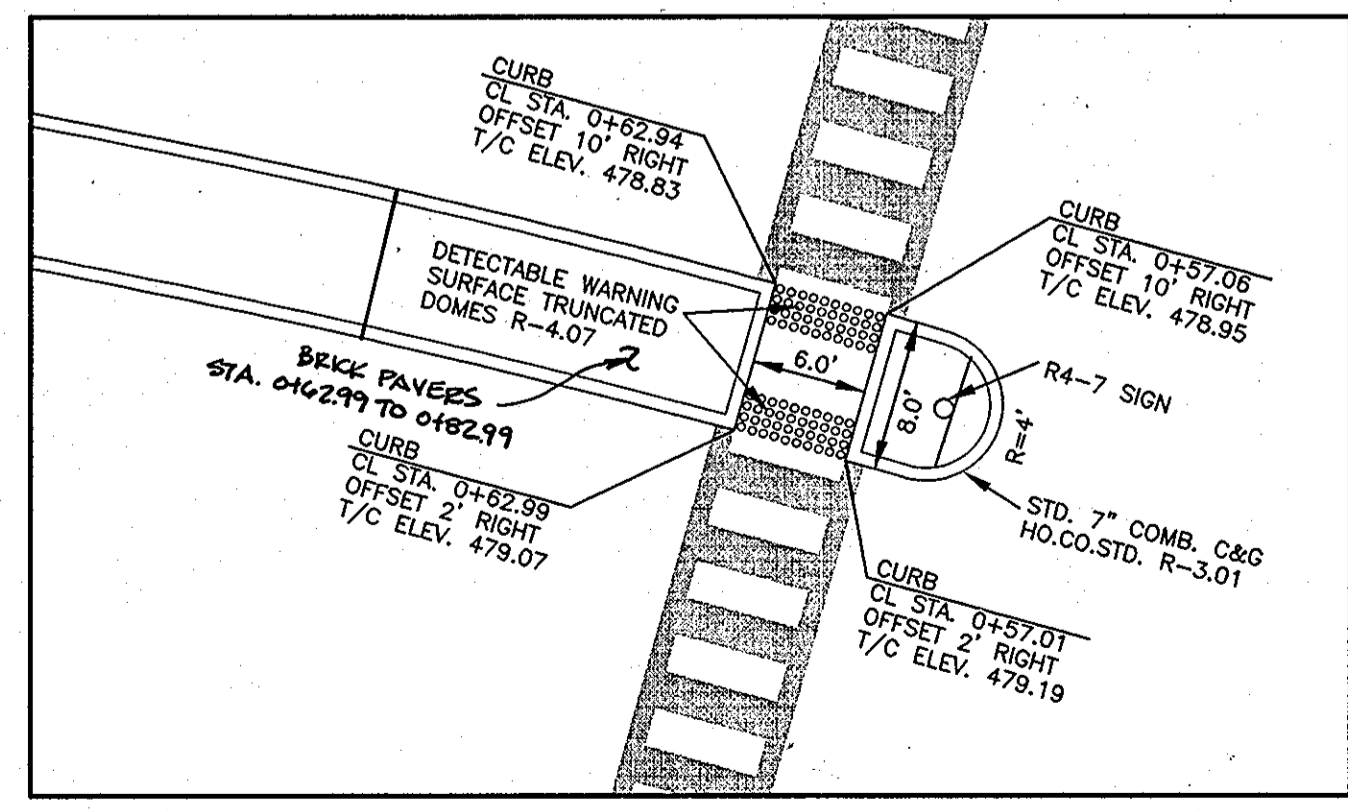
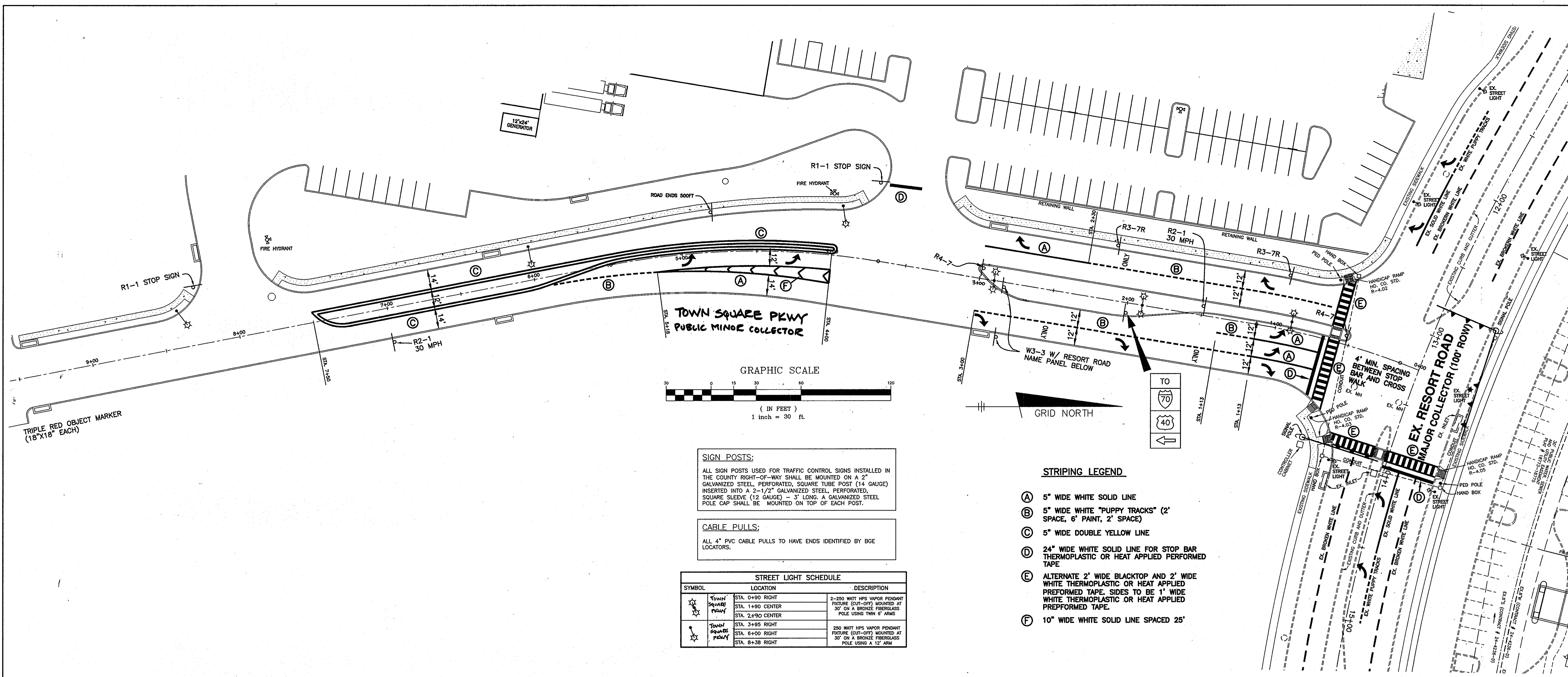
**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS '1' & '2' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22578-22579

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

ROAD 'A' INTERIM STREET LIGHT AND STRIPING PLAN FOR STOP CONTROL

DATE: APRIL, 2010 BEI PROJECT NO. 2208

SCALE: AS SHOWN SHEET 22 OF 29



NO.	DATE	REVISION
3	1-11-2013	REVISE ROAD 'A' TO TOWN SQUARE PKWY. REVISE TITLE BLOCK
2	4-10-2012	REVISE SHEET NUMBER
1	5-31-2011	REVISE ISLAND IN ROAD 'A' AT STATION 3+00

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS & LAND SURVEYORS & PLANNERS

8480 BALTIMORE NATIONAL PIKE & SUITE 418 & ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-8100 (F) 410-465-8844

60 THOMAS JOHNSON DRIVE & FREDERICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3508  
WWW.BE-CIVILENGINEERING.COM

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. 28889-Registration Date: 7-22-2011.

**STATE OF MARYLAND**  
Professional Engineer  
4/14/2010

**OWNER:**  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

**DEVELOPER:**  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS '1' & '2' AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**ROAD 'A' ULTIMATE STREET LIGHT AND STRIPING PLAN WITH SIGNALIZATION**

DATE: APRIL, 2010 BEI PROJECT NO. 2208  
SCALE: AS SHOWN SHEET 22A OF 29

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard County Seal*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 4/23/10

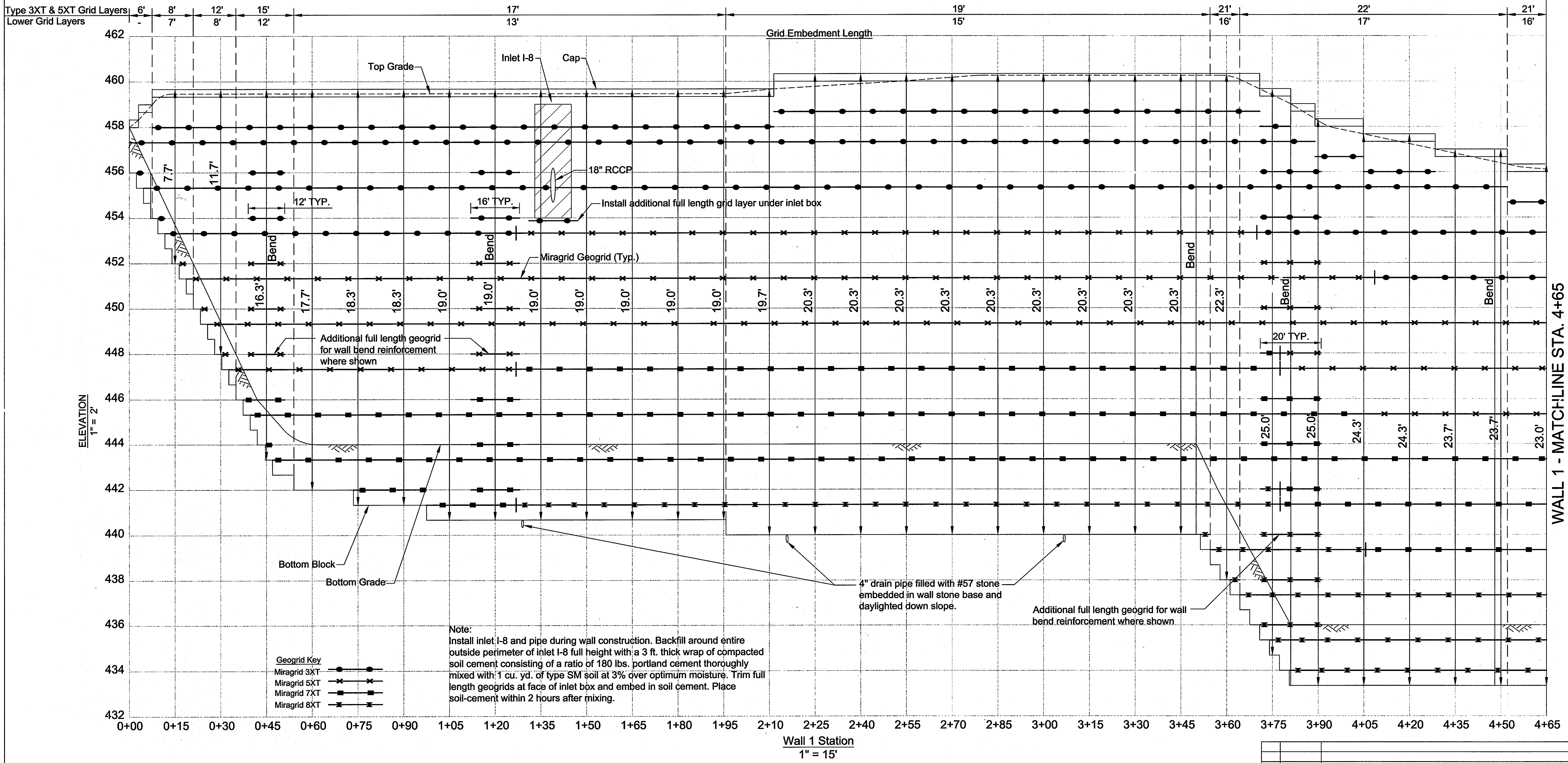
*West Sh... Seal*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 5/3/10

*M... Seal*  
DIRECTOR  
DATE: 5/3/10

APPROVED  
PLANNING BOARD OF HOWARD COUNTY

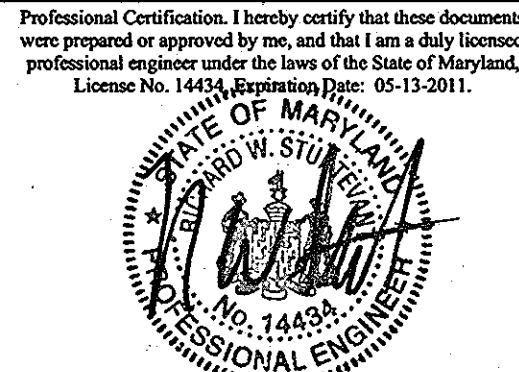
DATE: 4/15/10





NO.	DATE	REVISION
2	1-11-2013	REVISE TITLE BLOCK
1	4-10-2012	REVISE SHEET NUMBER

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, MD  
(410) 880-4788 Fax: (410) 880-4098



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 4/25/10  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 5/3/10  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 5/3/10  
DIRECTOR DATE

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

DATE 4/15/10  
*[Signature]*

OWNER:  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

DEVELOPER:  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

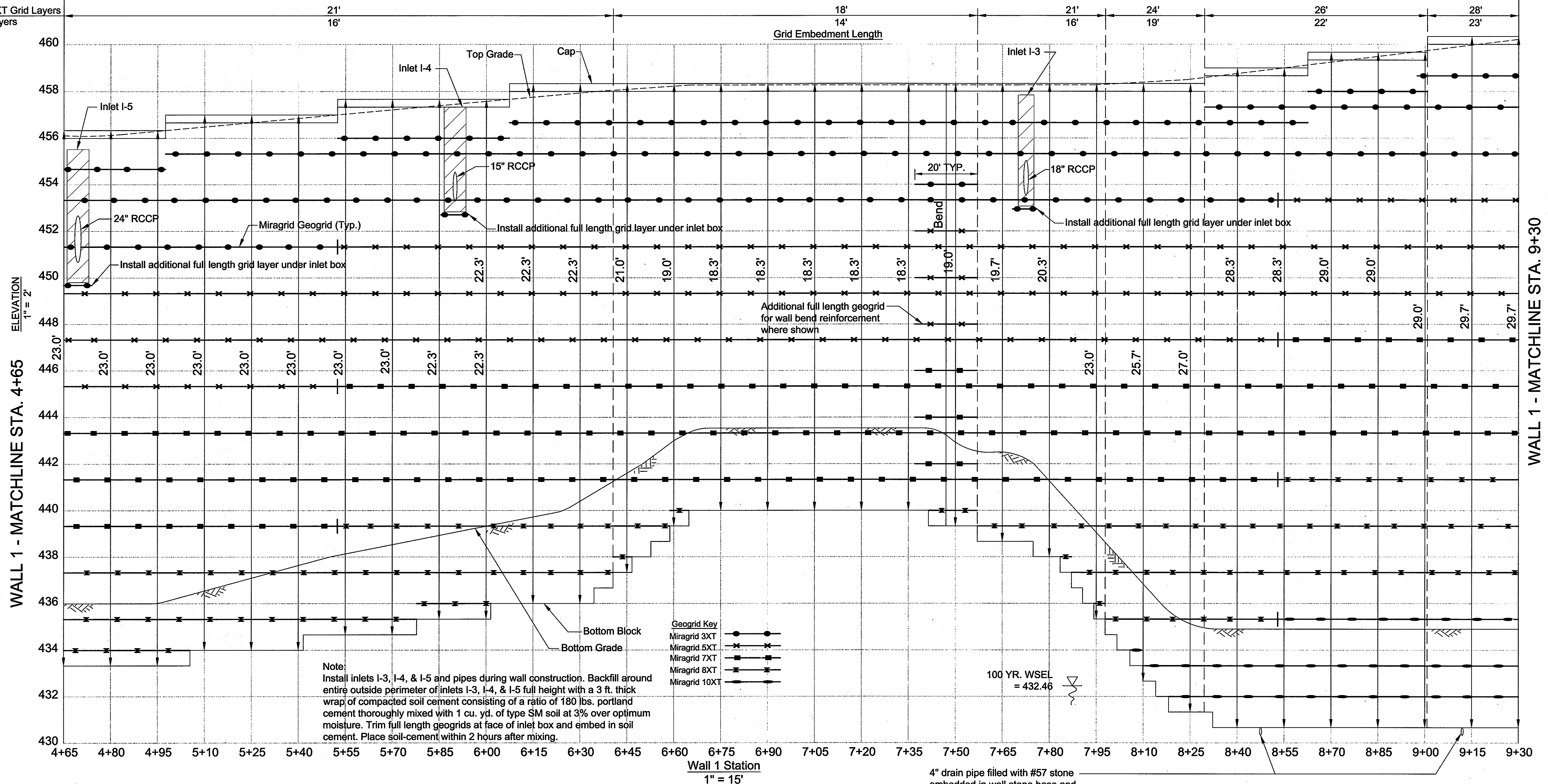
**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 31 & 32 AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 2207B-2207J

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**WALL 1 ELEVATION - STA. 0+00 TO 4+65**

DATE: APRIL, 2010 HCEA PROJECT NO. 08209-D  
SCALE: AS SHOWN SHEET 23 OF 29

Type 3XT & 5XT Grid Layers  
Lower Grid Layers



Note:  
Install inlets I-3, I-4, & I-5 and pipes during wall construction. Backfill around entire outside perimeter of inlets I-3, I-4, & I-5 full height with a 3 ft. thick wrap of compacted soil cement consisting of a ratio of 180 lbs. portland cement thoroughly mixed with 1 cu. yd. of type SM soil at 3% over optimum moisture. Trim full length geogrids at face of inlet box and embed in soil cement. Place soil-cement within 2 hours after mixing.

- Geogrid Key
- Miragrid 3XT
  - Miragrid 5XT
  - Miragrid 7XT
  - Miragrid 8XT
  - Miragrid 10XT

100 YR. WSEL  
= 432.46

4" drain pipe filled with #57 stone embedded in wall stone base and daylighted down slope.

2		1-11-2013	REVISE TITLE BLOCK
1		4-10-2012	REVISE SHEET NUMBER
NO.	DATE		REVISION

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. 14434, Expiration Date: 05-15-2011.

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, MD  
(410) 880-4788 Fax: (410) 880-4098

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
.205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 31 & 32 AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PGCC (MULTI-USE SUBDISTRICT)  
ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**WALL 1 ELEVATION - STA. 4+65 TO 9+30**

DATE: APRIL, 2010 HCEA PROJECT NO. 08209-D  
SCALE: AS SHOWN SHEET 24 OF 29

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 4/28/10  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

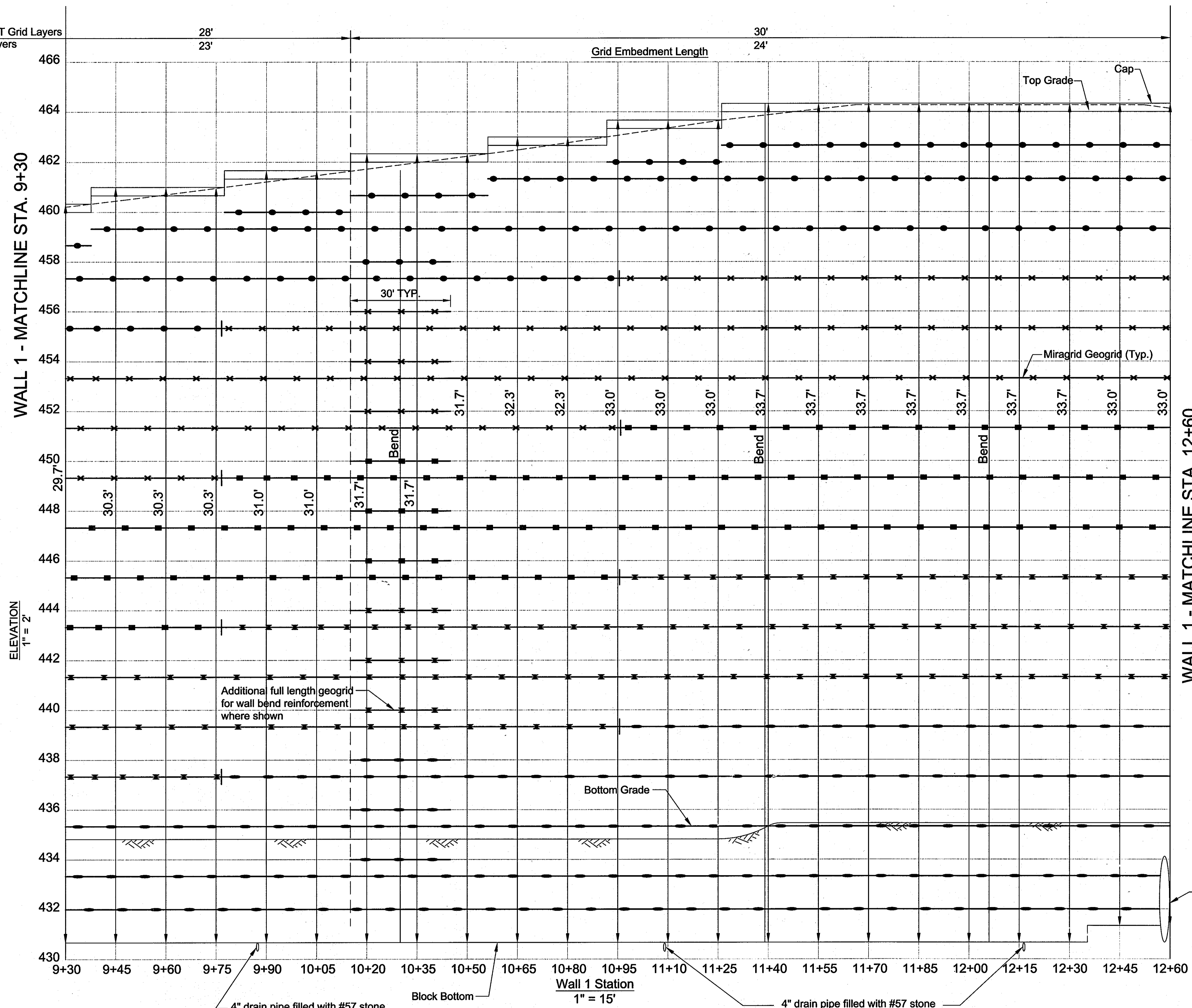
*[Signature]* 5/3/10  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 5/3/10  
DIRECTOR DATE

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

DATE 4/15/10  
*[Signature]*

Type 3XT & 5XT Grid Layers  
Lower Grid Layers

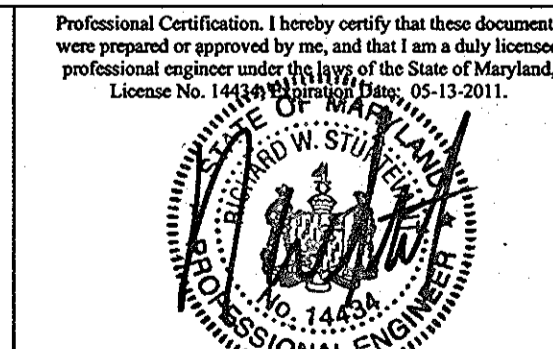


Note:  
Slope top geogrid layers as needed to allow water line installation above top grid layer without conflict.

- Geogrid Key**
- Miragrid 3XT
  - Miragrid 5XT
  - Miragrid 7XT
  - Miragrid 8XT
  - Miragrid 10XT

Note:  
Install pipe during wall construction. Trim block to within 1" of pipe face. Pack block voids around pipe with 2000 psi strength mortar.

NO.	DATE	REVISION
2	1-11-2013	REVISE TITLE BLOCK
1	4-10-2012	REVISE SHEET NUMBER



**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Gullford Road, Suite A Annapolis Junction, MD  
(410) 880-4788 Fax: (410) 880-4098

OWNER:  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

DEVELOPER:  
MANGIONE ENTERPRISES OF TURF VALLEY, LP  
1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
(CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
PARCELS 31 & 32 AND OPEN SPACE LOTS 4 & 5  
TURF VALLEY PROFESSIONAL BUILDINGS  
PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
ZONED: PGCC (MULTI-USE SUBURBIC) ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**WALL 1 ELEVATION - STA 9+30 TO 12+60**

DATE: APRIL, 2010 HCEA PROJECT NO. 08209-D  
SCALE: AS SHOWN SHEET 25 OF 29

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Howard* 4/21/10  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Kent* 5/3/10  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Morgan & Fuller* 5/3/10  
DIRECTOR DATE

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

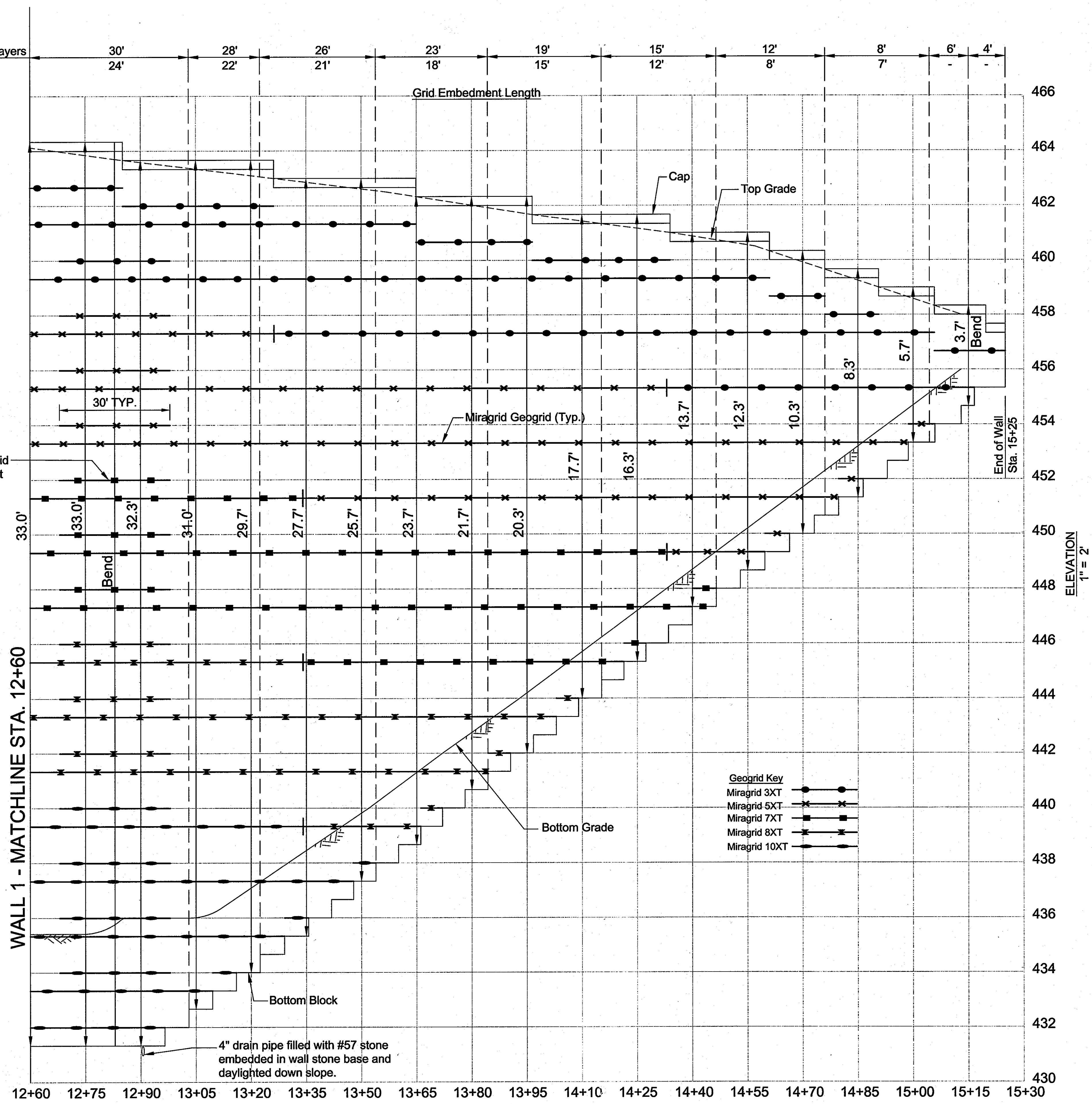
DATE 4/15/10  
*EMM*

4" drain pipe filled with #57 stone embedded in wall stone base and daylighted down slope.

4" drain pipe filled with #57 stone embedded in wall stone base and daylighted down slope.

Type 3XT & 5XT Grid Layers  
Lower Grid Layers

Additional full length geogrid for wall bend reinforcement where shown



Geogrid Key

Miragrid 3XT	●
Miragrid 5XT	×
Miragrid 7XT	■
Miragrid 8XT	+
Miragrid 10XT	▲

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*John P. ...* 4/21/10  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

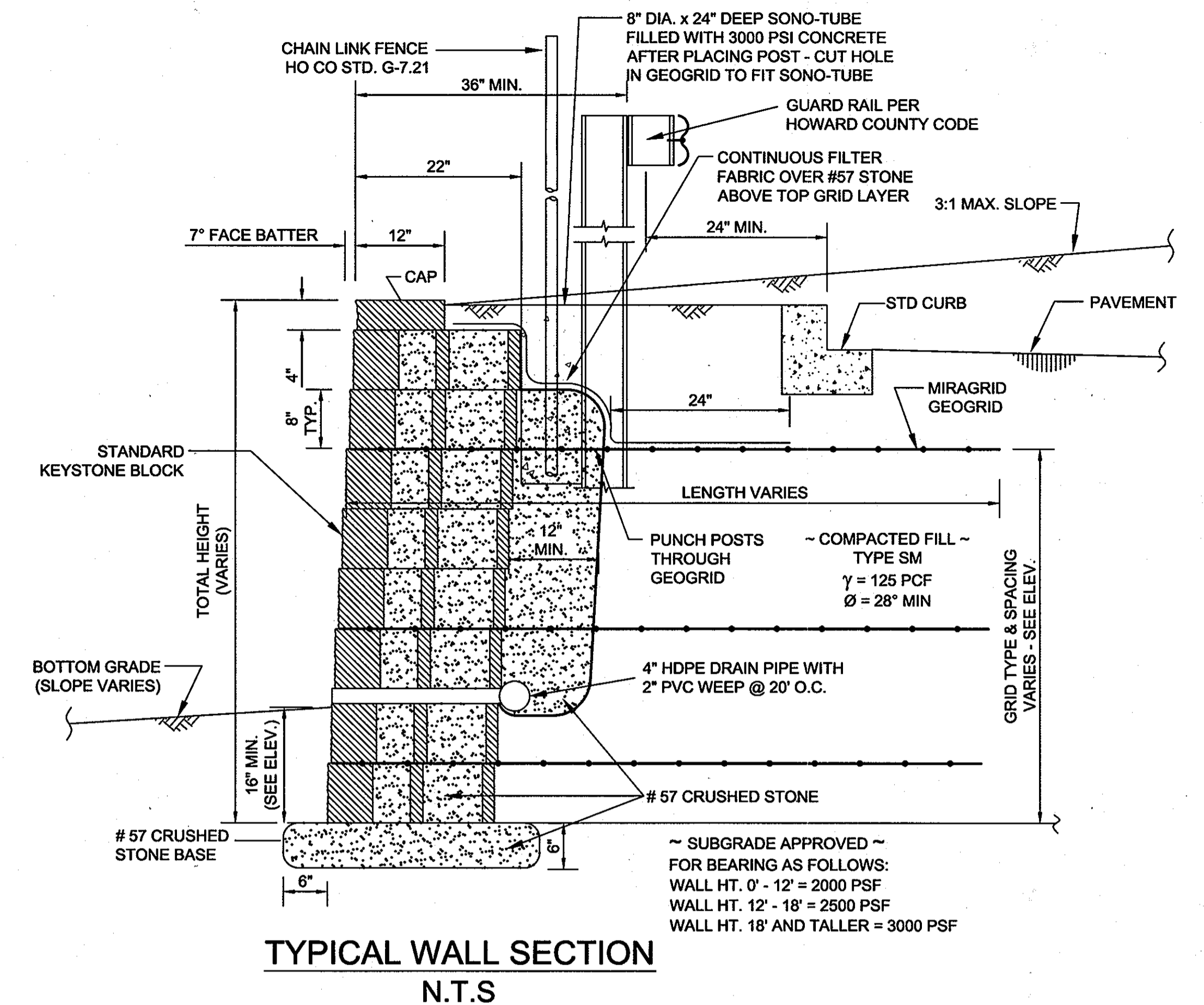
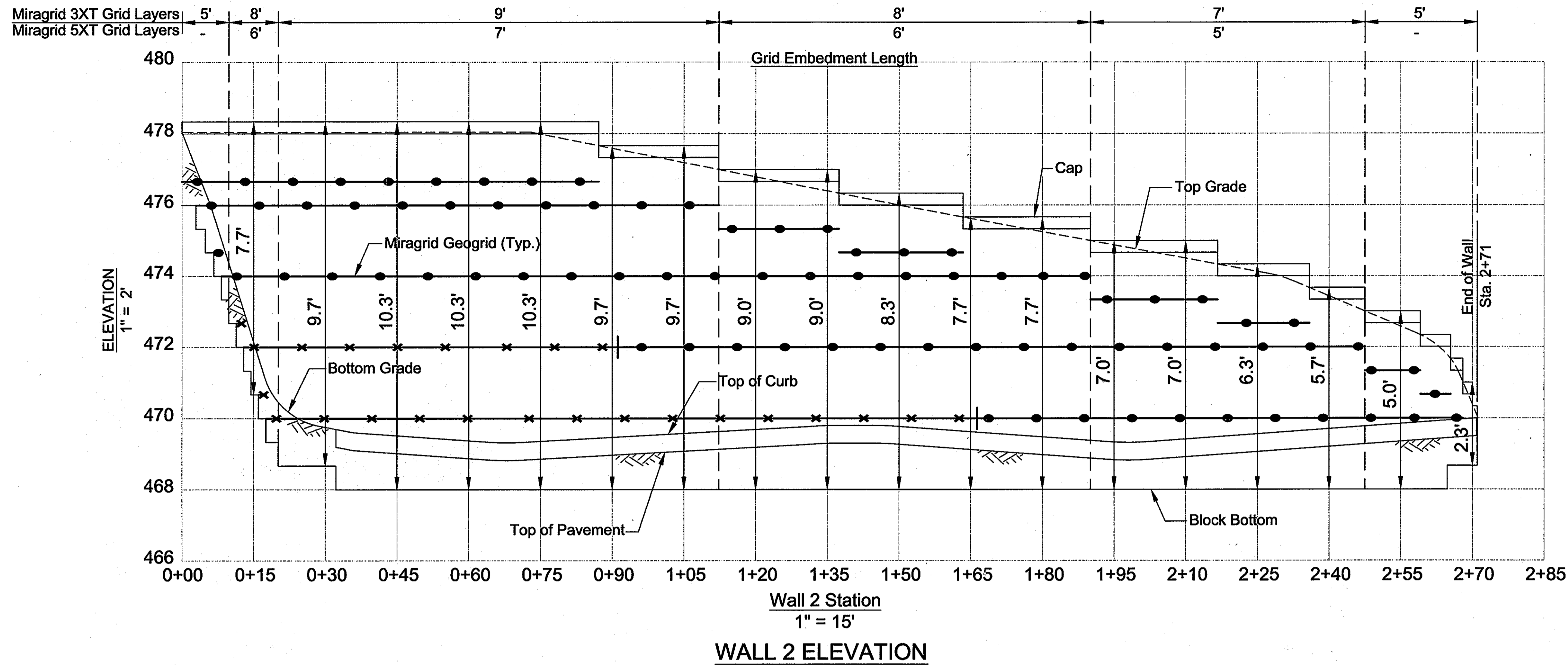
*West ...* 5/3/10  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Thomas E. ...* 5/3/10  
DIRECTOR

APPROVED:  
PLANNING BOARD OF HOWARD COUNTY

DATE: 4/15/10

<table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISION</th> </tr> <tr> <td>2</td> <td>1-11-2013</td> <td>REVISE TITLE BLOCK</td> </tr> <tr> <td>1</td> <td>4-10-2012</td> <td>REVISE SHEET NUMBER</td> </tr> </table>		NO.	DATE	REVISION	2	1-11-2013	REVISE TITLE BLOCK	1	4-10-2012	REVISE SHEET NUMBER	<p>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. 14434, Expiration Date: 05-13-2011.</p>
NO.	DATE	REVISION									
2	1-11-2013	REVISE TITLE BLOCK									
1	4-10-2012	REVISE SHEET NUMBER									
<p><b>HILLIS-CARNES</b> ENGINEERING ASSOCIATES 10975 Gullford Road, Suite A Annapolis Junction, MD (410) 880-4788 Fax: (410) 880-4098</p>											
OWNER:	<p><b>TOWN SQUARE AT TURF VALLEY</b> (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT) PARCELS 15 &amp; 172 AND OPEN SPACE Lots 4 &amp; 5 TURF VALLEY PROFESSIONAL BUILDINGS PLAT NOS. 22078-22079</p>										
DEVELOPER:	<p>MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400</p>										
<p>TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 &amp; 50 ZONED: PGCC (MULTI-USE SUBDISTRICT) ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND</p>											
<p><b>WALL 1 ELEVATION - STA. 12+60 TO 15+25</b></p>											
DATE:	APRIL, 2010	HCEA PROJECT NO. 08209-D									
SCALE:	AS SHOWN	SHEET 26 OF 29									



**SPECIFICATIONS**

**KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL**

**PART 1: GENERAL**

**1.01 Description**  
 A. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.  
 B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.  
 C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

**1.02 Delivery, Storage and Handling**

A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.  
 B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

**PART 2: PRODUCTS**

**2.01 Modular Concrete Retaining Wall Units**

A. Modular concrete units shall conform to the following architectural requirements:  
 face color - concrete gray - standard manufacturers' color may be specified by the Owner.  
 face finish - sculptured rock face in angular tri-planar configuration. Other face finishes will not be allowed without written approval of Owner.  
 bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.  
 exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.  
 B. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.  
 C. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:  
 compressive strength = 3000 psi minimum;  
 absorption = 8 % maximum (6% in northern states) for standard weight aggregates;  
 dimensional tolerances = ± 1/8" from nominal unit dimensions not including rough split face, ± 1/16" unit height - top and bottom planes;  
 unit size - 8' (H) x 18' (W) x 22" (D) minimum;  
 unit weight - 100 lbs/unit minimum for standard weight

aggregates;  
 inter-unit shear strength - 1000 plf minimum at 2 psi normal pressure;  
 geogrid/unit peak connection strength - 1000 plf minimum at 2 psi normal force.  
 D. Modular concrete units shall conform to the following constructability requirements:  
 vertical setback = 1/8"± per course (near vertical) or 1"± per course per the design;  
 alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;  
 maximum horizontal gap between erected units shall be 1/2 inch.

**2.02 Shear Connectors**

A. Shear connectors shall be 1/2 inch diameter thermoset isocyanate polyester resin-impregnated fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units.  
 Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.  
 B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

**2.03 Base Leveling Pad Material**

A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

**2.04 Unit Drainage Fill**

A. Unit drainage fill shall consist of #57 crushed stone

**2.05 Reinforced Backfill**

A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

sieve size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-35

Plasticity Index (PI) <15 for walls shorter than 12 ft. and <10 for wall taller than 12ft. and Liquid Limit <40 per ASTM D-4318.

B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

**2.06 Geogrid Soil Reinforcement**

A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

**2.07 Drainage Pipe**

A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

**PART 3 EXECUTION**

**3.01 Excavation**

A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

**3.02 Base Leveling Pad**

A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6' in front and behind the modular wall unit.  
 B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

**3.03 Modular Unit Installation**

A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.  
 B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.  
 C. Install shear/connecting devices per manufacturer's recommendations.  
 D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.  
 E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

**3.04 Structural Geogrid Installation**

A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.  
 B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.  
 C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to

backfill placement on the geogrid.

D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

**3.05 Reinforced Backfill Placement**

A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of stack in the geogrid and installation damage.  
 B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.  
 C. Reinforced backfill shall be compacted to 95% of the maximum density as determined by T-99 for walls up to 12 ft. tall and 98% for walls taller than 12 ft. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 2% to - 2% of optimum.  
 D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.  
 E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.  
 F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.  
 G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

**3.06 Cap Installation**

A. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

**3.07 Field Quality Control**

A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.  
 B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.

**NOTES:**

- No trees shall be planted within 10 feet of the top of the retaining wall.
- Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
- One soil boring shall be required every one hundred feet along the entire length of the wall. Copies of all boring reports shall be provided to the Howard County Inspector Prior to the start of construction.
- The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
- The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
- Walls shall not be constructed on uncertified fill materials.
- Walls shall not be constructed within a Howard Co. right-of-way or easement.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Chad Williams* 4/2/10  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Kurt Schubert* 5/3/10  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

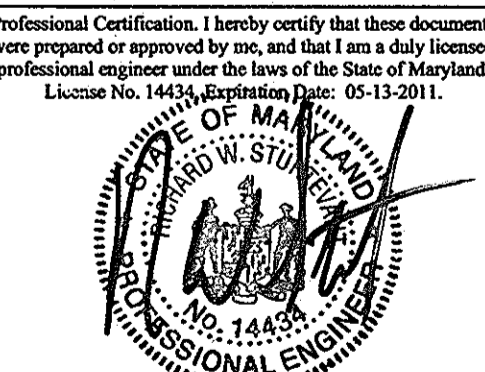
*Thomas J. Butler* 5/3/10  
 DIRECTOR DATE

APPROVED:  
 PLANNING BOARD OF HOWARD COUNTY

DATE 4/15/10  
*EMM*

NO.	DATE	REVISION
2	1-11-2013	REVISE TITLE BLOCK
1	4-10-2012	REVISE SHEET NUMBER

**HILLIS-CARNES**  
 ENGINEERING ASSOCIATES  
 10975 Guilford Road, Suite A Annapolis Junction, MD  
 (410) 880-4788 Fax: (410) 880-4098



OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

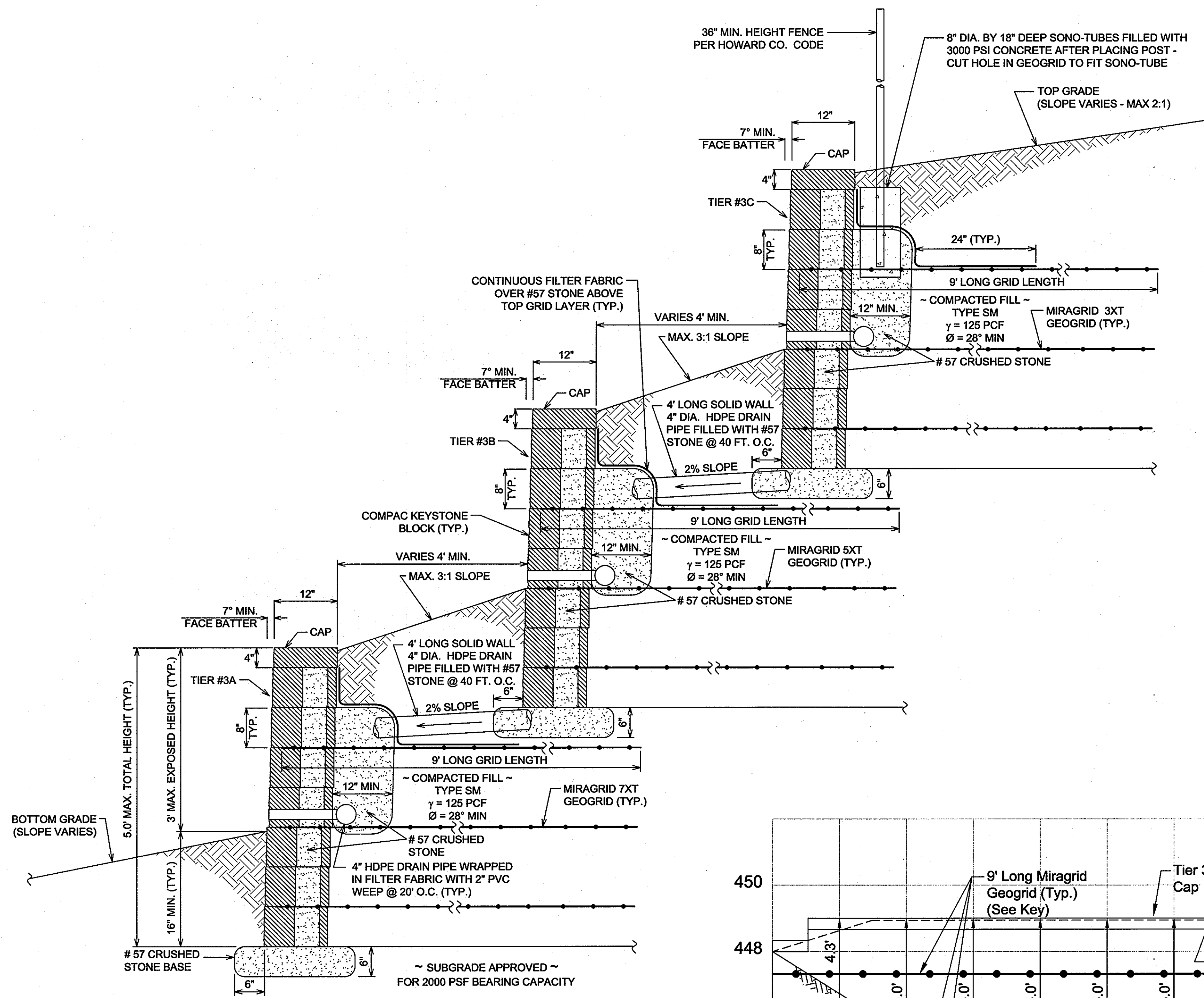
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP  
 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093  
 410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS 31 & 32 AND OPEN SPACE LOTS 4 & 5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078 - 22079

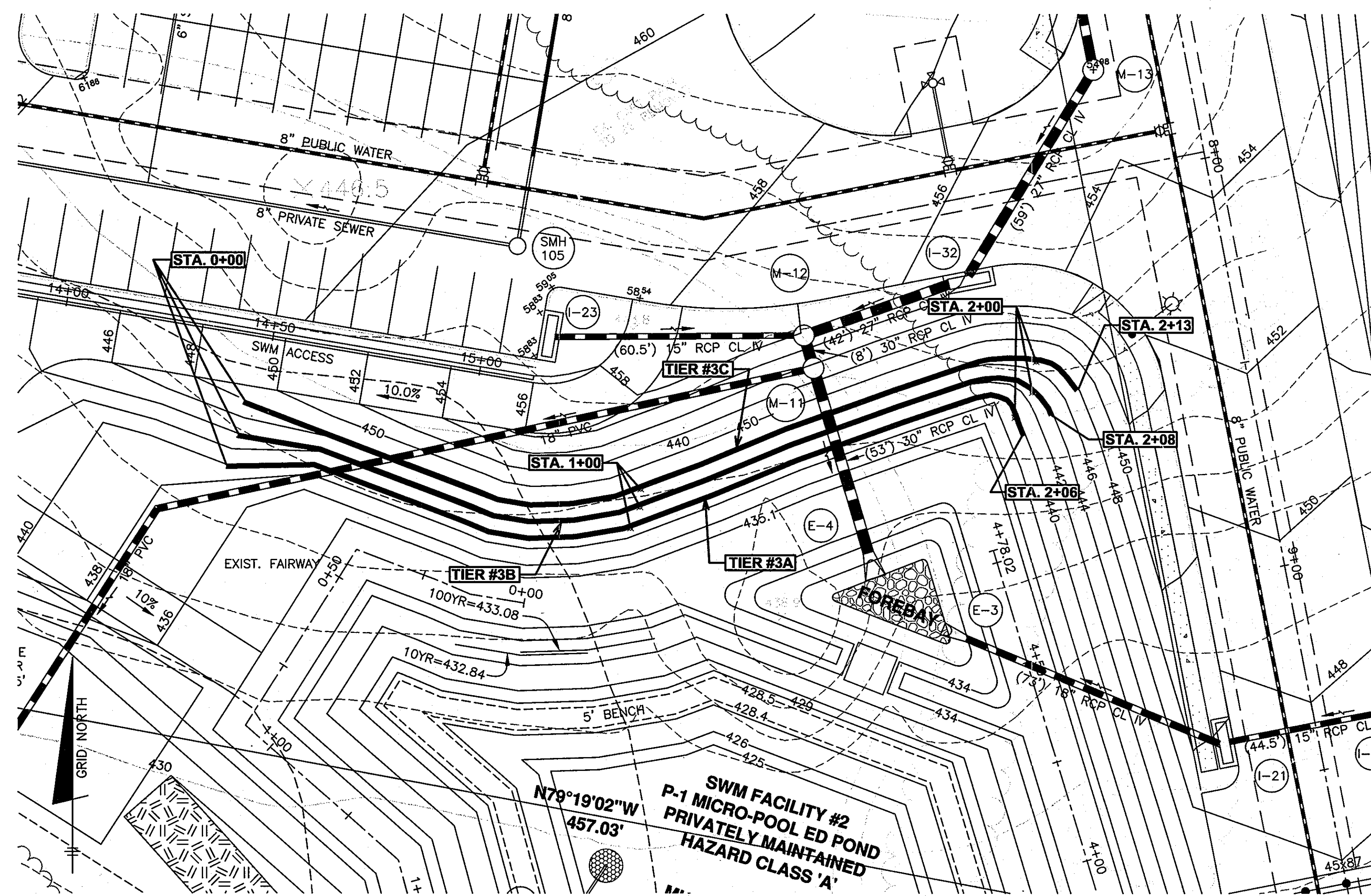
TAX MAP: 16 GRID: 10 - PARCEL: P/O 8 & 9  
 ZONED: PCCC (MULTI-USE SUBSTRUCT)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

**WALL 2 ELEVATION AND CONSTRUCTION DETAILS**

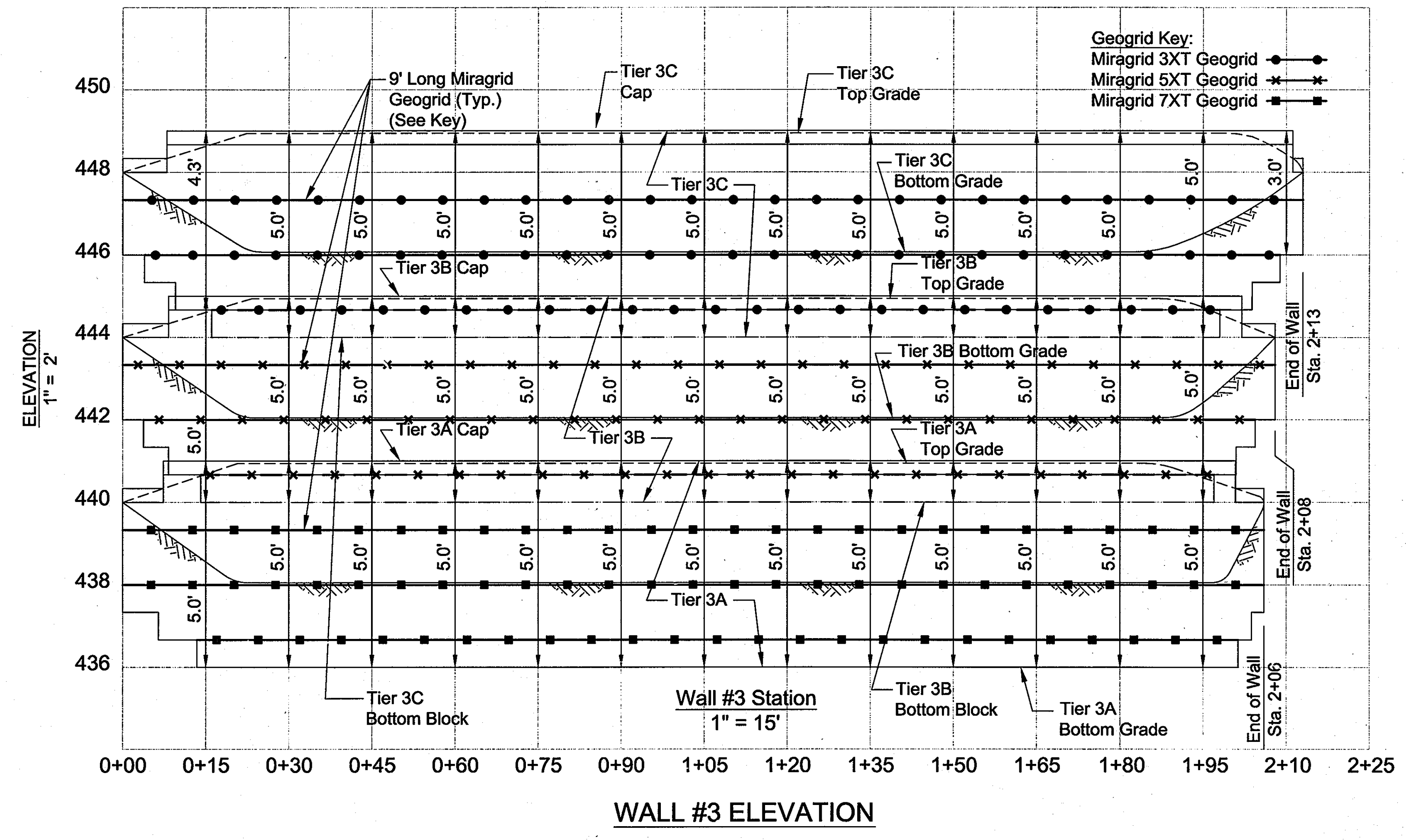
DATE: APRIL, 2010 HCEA PROJECT NO. 08209-D  
 SCALE: AS SHOWN SHEET 27 OF 29



**TYPICAL MAX 3' TALL TIERED WALL SECTION**  
N.T.S



**WALL #3 PLAN**  
1" = 20'



**WALL #3 ELEVATION**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Mark Demery* 4/29/10  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*Kit Shaheen* 5/3/10  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*Mona J. Butler* 5/3/10  
 DIRECTOR DATE

APPROVED:  
 PLANNING BOARD OF HOWARD COUNTY  
 DATE 4/15/10  
*[Signature]*

NO.	DATE	REVISION
2	1-11-2013	REVISE TITLE BLOCK
1	4-10-2012	REVISE SHEET NUMBER

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. 14438 (Expiration Date: 05-13-2011).

**HILLIS-CARNES**  
 ENGINEERING ASSOCIATES  
 10975 Cullford Road, Suite A Annapolis Junction, MD (410) 890-4788 Fax: (410) 890-4089

OWNER: MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

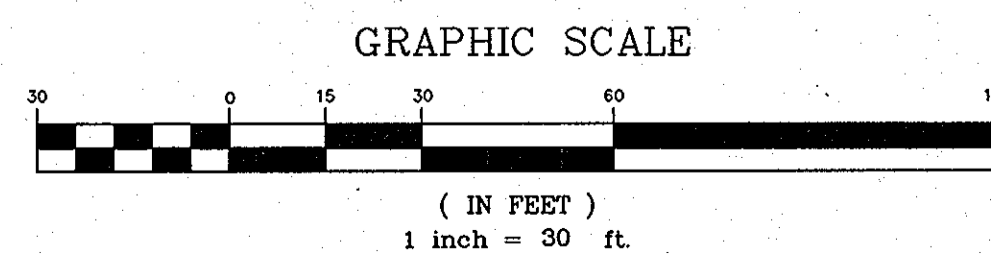
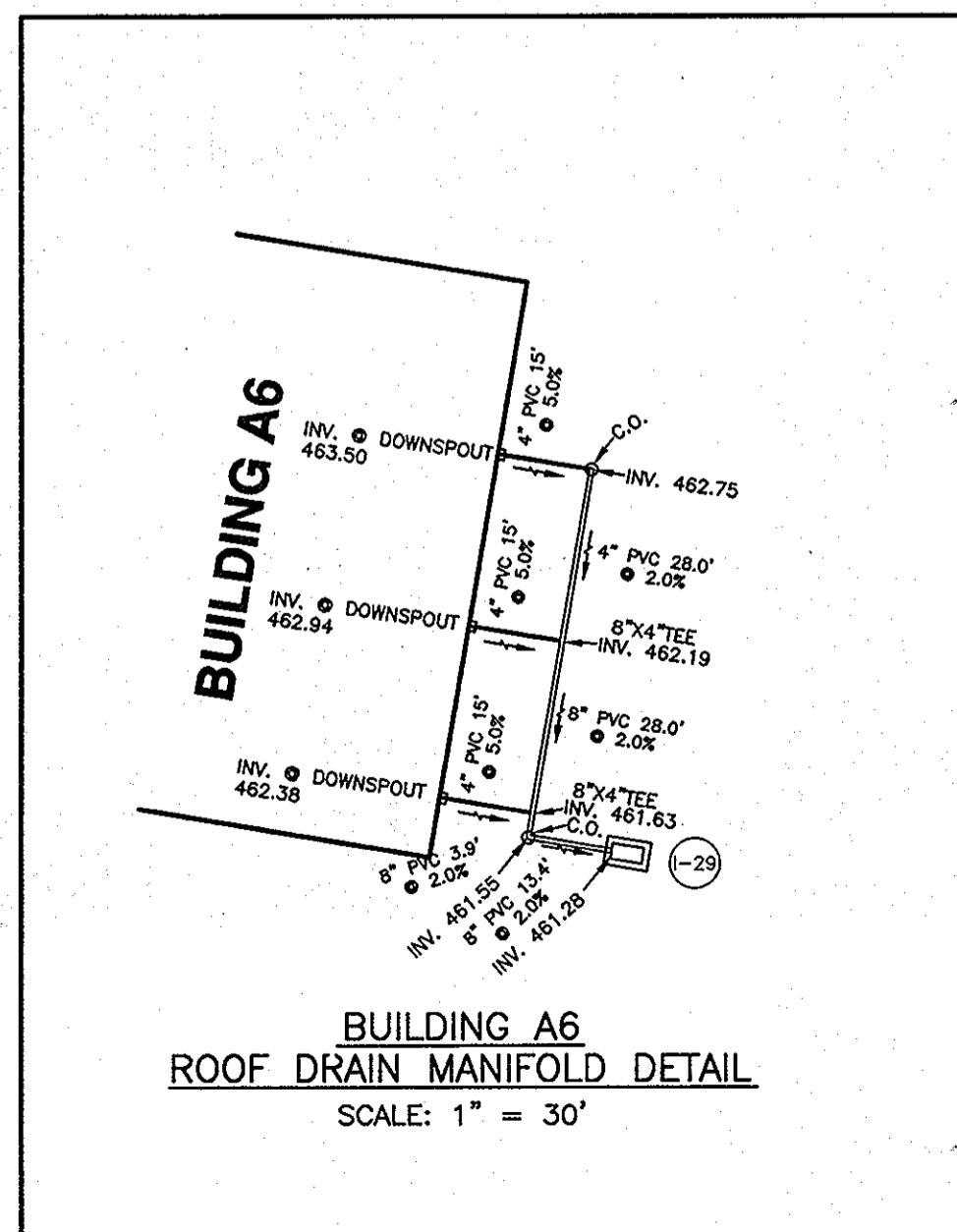
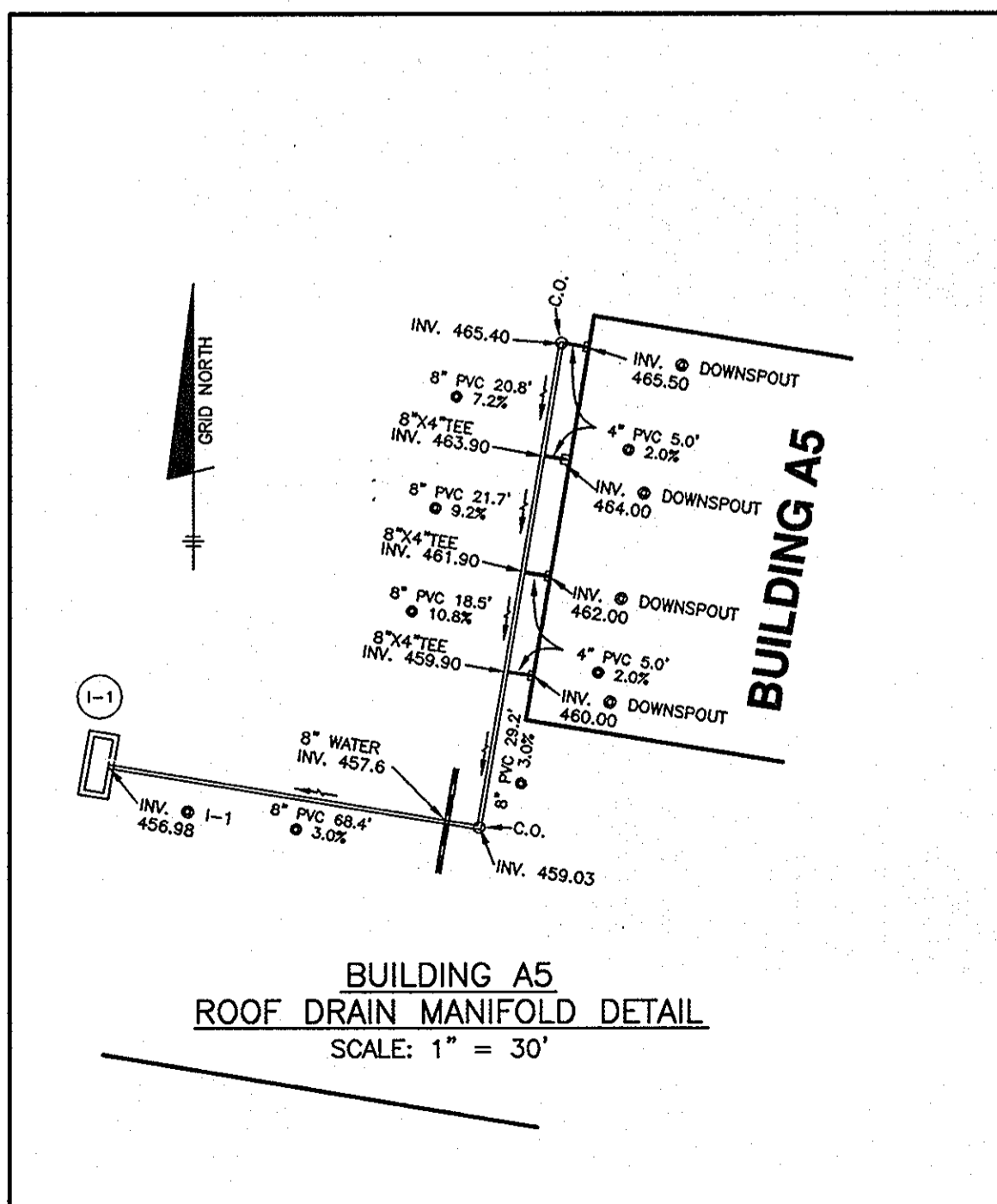
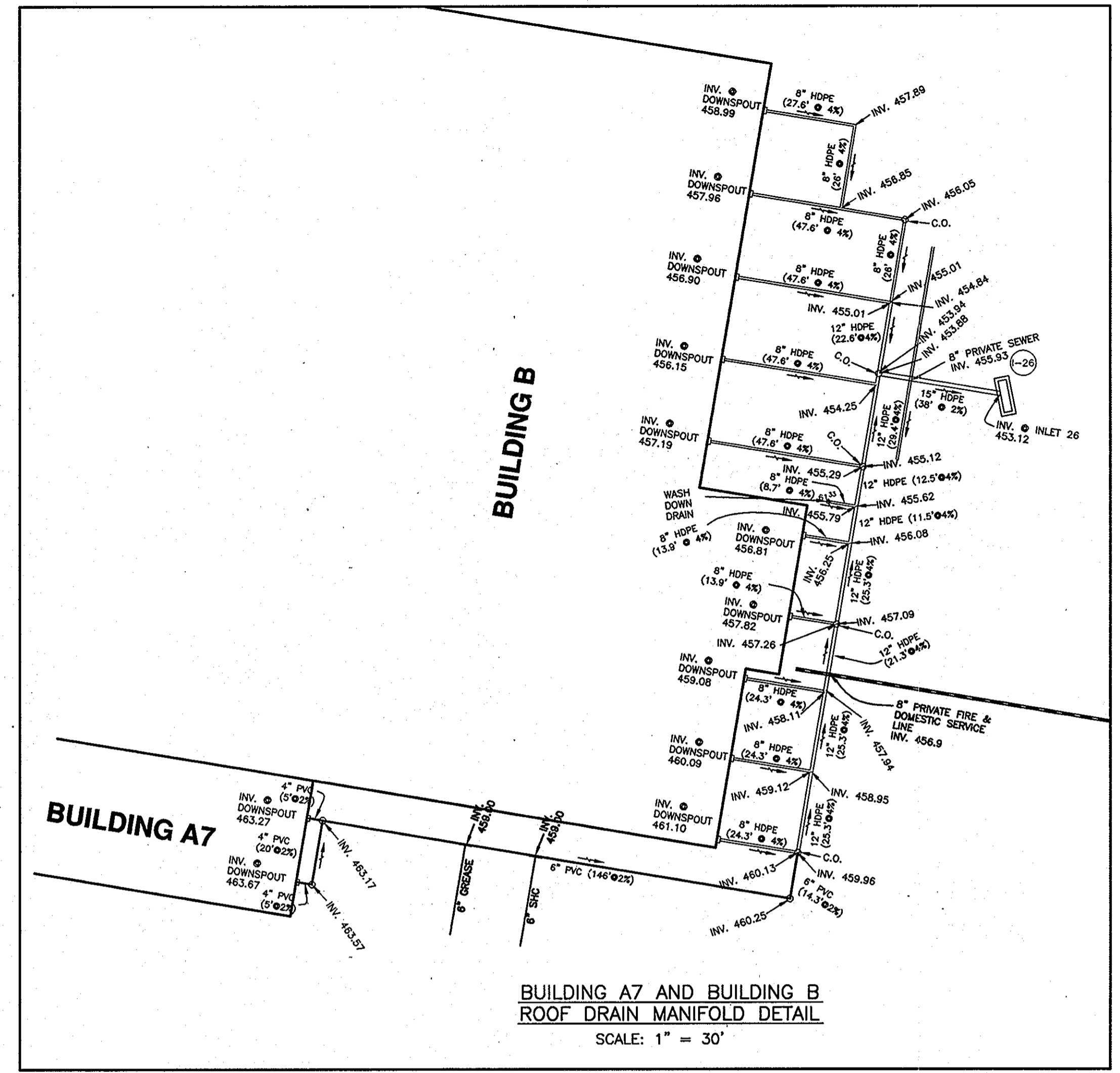
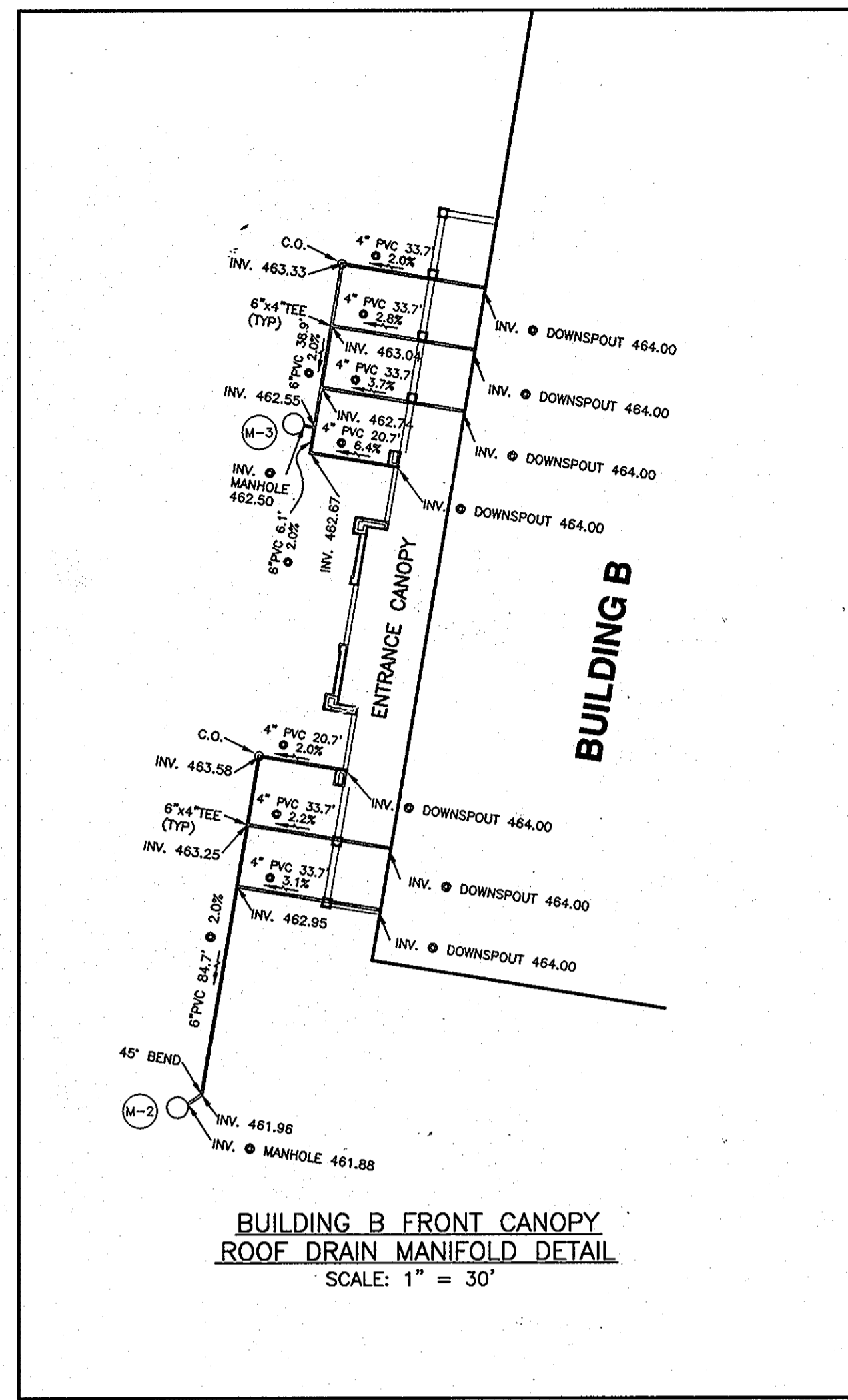
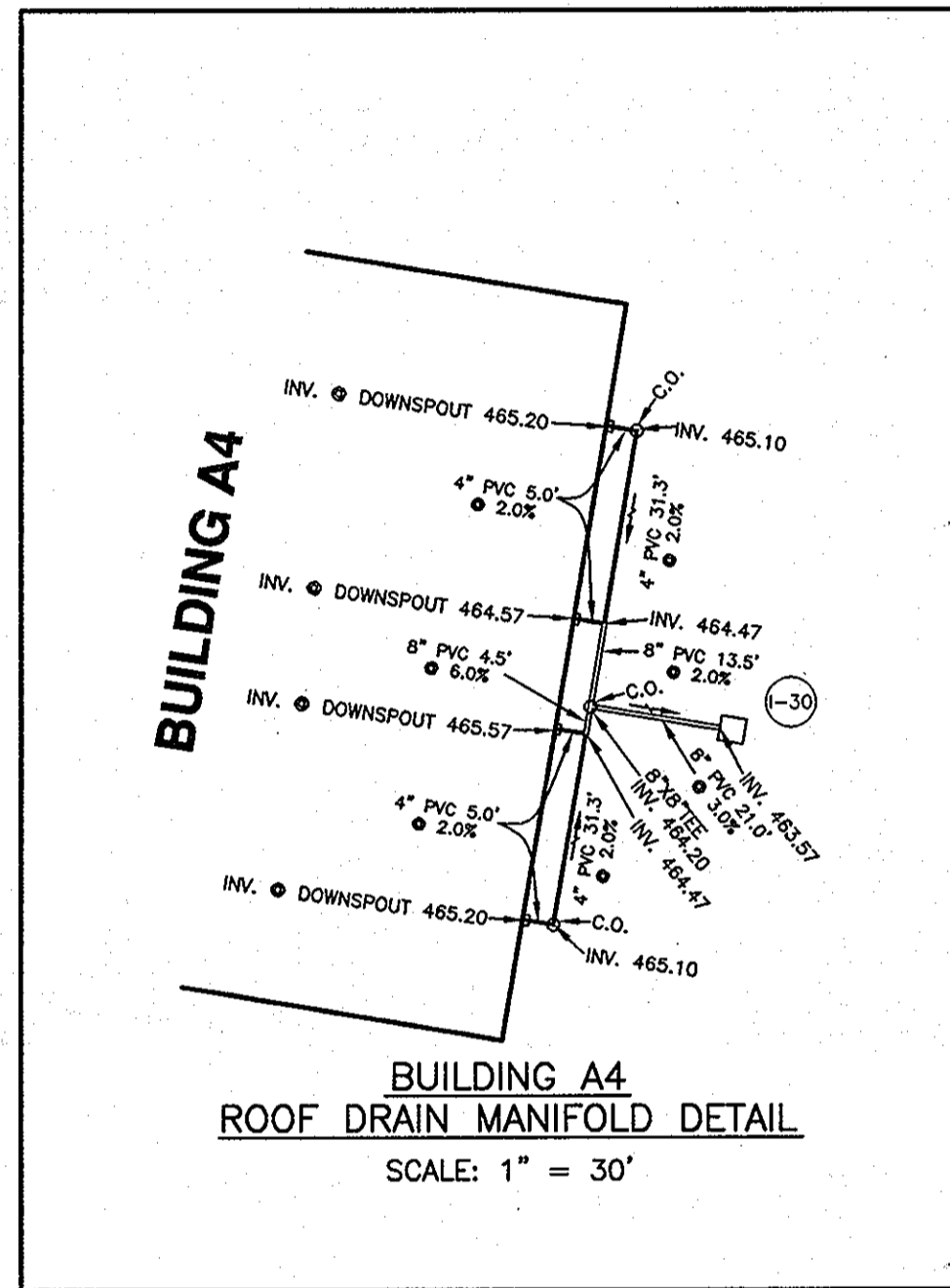
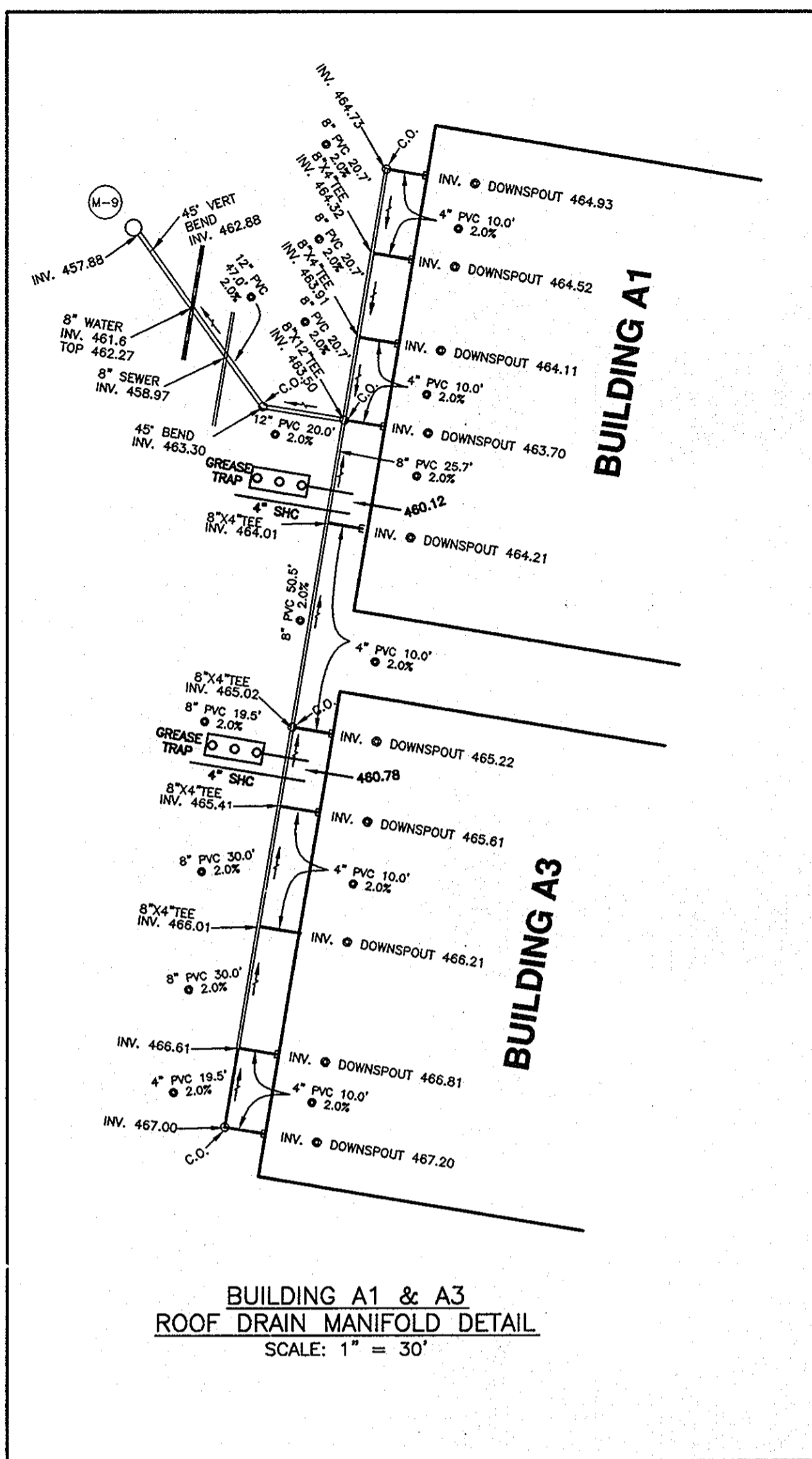
DEVELOPER: MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400

**TOWN SQUARE AT TURF VALLEY**  
 (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT)  
 PARCELS 151 & 152 AND OPEN SPACE LOTS 4 & 5  
 TURF VALLEY PROFESSIONAL BUILDINGS  
 PLAT NOS. 22078-22079

TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 & 50  
 ZONED: PGCC (MULTI-USE SUBURBIC)  
 ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND

TIERED WALL 3 PLAN AND DETAILS

DATE: APRIL, 2010 HCEA PROJECT NO. 08209-D  
 SCALE: AS SHOWN SHEET 28 OF 29



APPROVED  
PLANNING BOARD OF HOWARD COUNTY  
DATE: 4/15/10  
*[Signature]*

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 4/12/12  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*[Signature]* 4/24/12  
CHIEF, DIVISION OF LAND DEVELOPMENT  
*[Signature]* 4/12/12  
DIRECTOR

NO.	DATE	REVISION
1	1-11-2013	REVISE TITLE BLOCK

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS & PLANNERS  
**ENGINEERING, INC.**  
8490 BALTIMORE NATIONAL PIKE SUITE 418 A ELLICOTT CITY, MARYLAND 21043  
(P) 410-465-8105 (F) 410-465-8844  
60 THOMAS JOHNSON DRIVE ARRODCRICK, MARYLAND 21702  
(P) 301-371-3505 (F) 301-371-3506  
WWW.BEI-CIVLENGINEERING.COM

<p><b>OWNER:</b> MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400</p> <p><b>DEVELOPER:</b> MANGIONE ENTERPRISES OF TURF VALLEY, LP 1205 YORK ROAD, PENTHOUSE LUTHERVILLE, MARYLAND 21093 410-825-8400</p>	<p><b>TOWN SQUARE AT TURF VALLEY</b> (CERTIFIED LEVEL RATED GREEN BUILDING PROJECT) PARCELS 51 &amp; 52 AND OPEN SPACE LOTS 4 &amp; 5 TURF VALLEY PROFESSIONAL BUILDINGS PLAT NOS. 22078-22079</p> <p>TAX MAP: 16 - GRID: 10 - PARCEL: P/O 8 &amp; 50 ZONED: PGGC (MULTI-USE SUBDISTRICT) ELECTION DISTRICT NO. 3 - HOWARD COUNTY, MARYLAND</p> <p align="center"><b>ROOF MANIFOLD DETAILS</b></p> <p>DATE: MARCH, 2012    BEI PROJECT NO. 2208 SCALE: AS SHOWN    SHEET 29 OF 29</p>
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