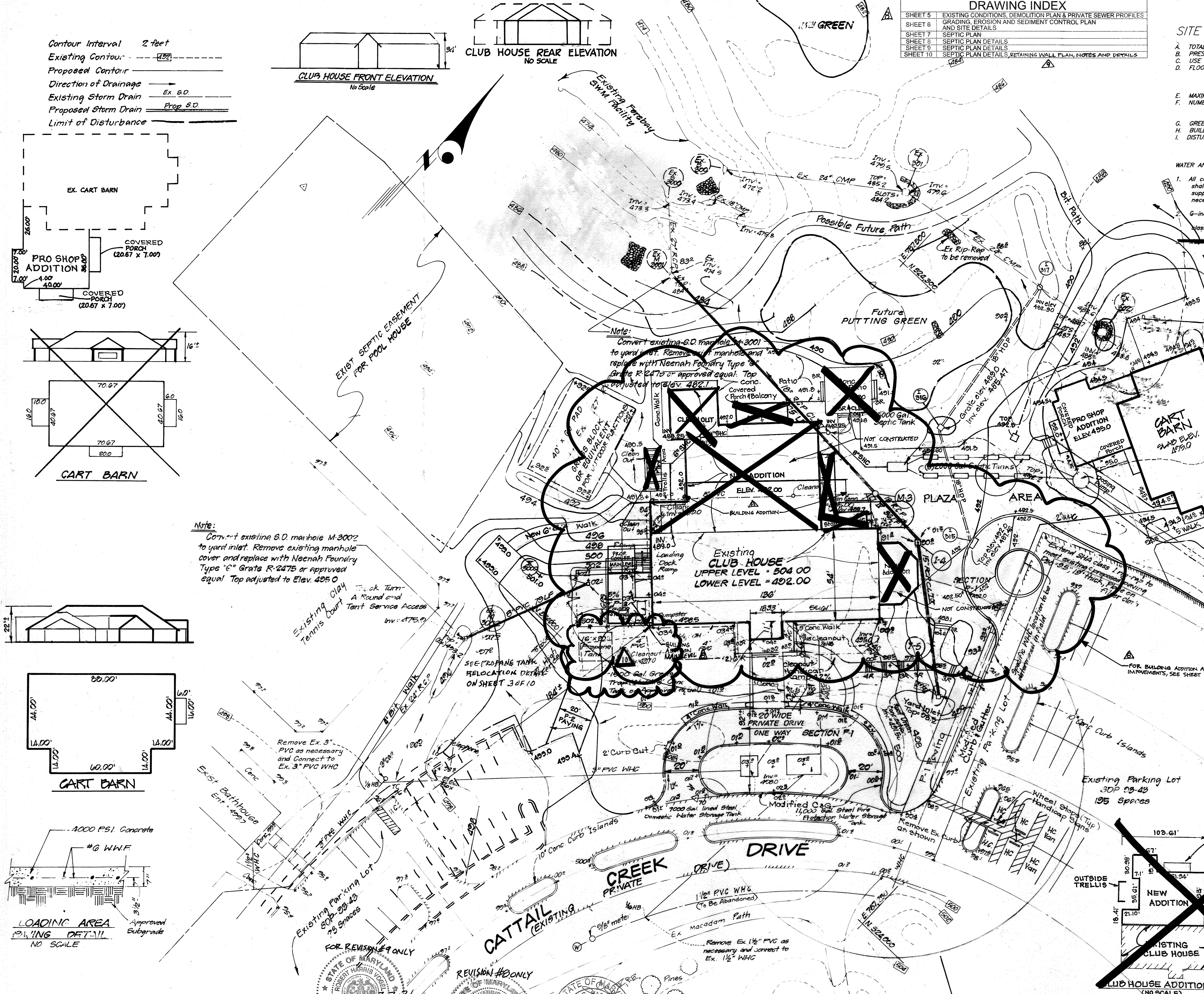
Contour Interval 2 feet
Existing Contour - - - 492 - - -
Proposed Contour ————
Direction of Drainage ——→
Existing Storm Drain — Ex. S.D. —
Proposed Storm Drain — Prop S.D. —
Limit of Disturbance ——— ———



Note:
Convert existing S.D. manhole M-3001 to yard inlet. Remove exist manhole and replace with Neenah Foundry Type "E" Grate R-2475 or approved equal. Top adjusted to elev. 482.1

Note:
Convert existing S.D. manhole M-3002 to yard inlet. Remove existing manhole cover and replace with Neenah Foundry Type "E" Grate R-2475 or approved equal. Top adjusted to Elev. 495.0

SEE BLOW-UP DETAIL OF CLUBHOUSE HANDICAP ACCESS ON SHEET 2 OF 4

FOR BUILDING ADDITION AND IMPROVEMENTS, SEE SHEET 6

DRAWING INDEX	
SHEET 5	EXISTING CONDITIONS, DEMOLITION PLAN & PRIVATE SEWER PROFILES
SHEET 6	GRADING, EROSION AND SEDIMENT CONTROL PLAN AND SITE DETAILS
SHEET 7	SEPTIC PLAN
SHEET 8	SEPTIC PLAN DETAILS
SHEET 9	SEPTIC PLAN DETAILS
SHEET 10	SEPTIC PLAN DETAILS, RETAINING WALL PLAN, NOTES AND DETAILS

SITE ANALYSIS:

A. TOTAL AREA OF PARCEL: 106.572 ACRES
B. PRESENT ZONING: RC DEO
C. USE OF STRUCTURE: Golf Course Clubhouse
D. FLOOR SPACE:
CLUBHOUSE - Exist. Bldg = 15,091 SF, BUILDING ADDITIONS: 4,847 SF, OUTDOOR TERRACE AREA: 2,067 SF TOTAL: 21,978 SF
POOL HOUSE 5,362 SF
HALFWAY HOUSE 300 SF
E. MAXIMUM NUMBER OF EMPLOYEES 37
F. NUMBER OF PARKING SPACES:
REQUIRED: 196 (144 Golfers, 10 Swimming Pool, 20 Tennis Courts, 22 Clubhouse/21,978 SF)
PROVIDED: 244 (Including 12 H.C.)
G. GREEN SPACE TO REMAIN ON SITE: 101.661 AC AND 95.04% OF NET AREA
H. BUILDING COVERAGE OF SITE: 0.587 AC. AND 0.549% OF GROSS
I. DISTURBED AREA: 3.8 ACRES

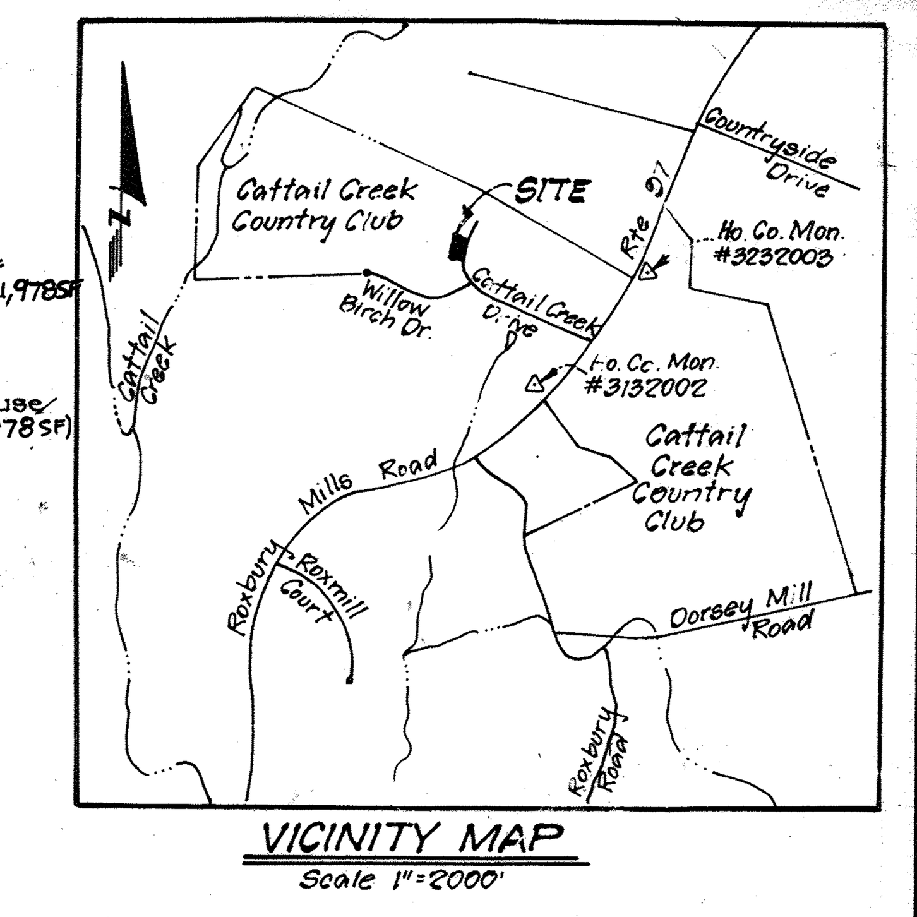
WATER AND SEWER NOTES:

1. All construction and materials for on-site private water and sewer systems shall follow the current edition of the Howard County Plumbing Code, supplemented by the Howard County Standard Details and Specifications where necessary.
2. 6-inch sewer house connection shall be built within 5 foot of building. PVC pipe shall meet the requirements of ASTM-D-3034, wall thickness classification SDR-35. Cleanouts to be provided every 75'.

[redacted]

3. MAXIMUM TOTAL DESIGN SEWAGE FLOW ALLOCATION: CLUBHOUSE AND PROSHOP - 7,500 GPD; POOL HOUSE - 2,750 GPD; MAINTENANCE SHOP - 500GPD AND RESTROOMS ON 17 - 400 GPD. OVERALL SITE WATER USE - 11,150 GPD. (MDE PERMIT #19DP3863)
4. THE 7,500 GPD DESIGN FLOW FOR THE CLUBHOUSE BREAKS DOWN TO 1,500 GPD FOR THE GOLF COURSE TO INCLUDE 5 LOCKERS/SHOWERS AND A PRO SHOP RESTROOM, 30 GPD PER DINING SEAT (187 SEATS) AND 15 GPD PER BAR SEAT (26 BAR STOOLS).
5. WELL TO BE DRILLED AND APPROVED PRIOR TO ISSUANCE OF BUILDING PERMIT FOR HALFWAY HOUSE.
6. GROUNDWATER DISCHARGE PERMIT MUST BE APPROVED BY MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR INSTALLATION OF SYSTEMS TO TREAT AND DISPOSE OF WASTEWATER FOR THE ENTIRE SITE PRIOR TO BUILDING PERMIT APPROVAL OF THE CLUBHOUSE OR ANY OTHER EXPANSION.

ON-SITE SEWAGE DISPOSAL PLANS
CLUBHOUSE & PROSHOP: SDP-96-15
POOL HOUSE AND RESTROOMS ON 17: SDP-93-43
MAINTENANCE SHOP: SDP93-20



VICINITY MAP
Scale 1"=2000'

GENERAL NOTES:

1. All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications.
2. The contractor shall notify the Department of Public Works/Bureau of Construction Inspection at (410) 792-7272 at least (5) working days prior to the start of work.
3. The contractor shall notify "MISS UTILITY" at 1 (800) 257-7777 at least 48 hours prior to start of work.
4. Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTSCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.
5. All plan dimensions are to the top of curb unless otherwise noted.
6. Existing topography was compiled from field survey by Clark, Finefrock & Sackett, Inc. dated December 1994 & July 1995.
7. Coordinates are based on NAD 27 Maryland Coordinate System as projected by Howard County Geodetic Control Stations No. 3132002 and No. 323003.
8. All water and sewer service is to be private.
9. Flood plain information was provided per the record plat prepared by Fisher, Collins and Carter, Inc. (F-90-62).
10. Stormwater management is to be provided in the existing ponds on site, SDP 91-106 Extended Detention.
11. No clearing, grading or construction is permitted within the required wetland and stream buffers except as permitted by WRA Permit # 91-WC-0382. MDE # 91-WQ-0400, CENAB-OP-RP-90-1963-5 AND WP-91-03 granted April 22, 1993.
12. Existing utilities were compiled from available records and field survey.
13. All wells and septic systems within 200' of the sewage disposal easement have been shown.
14. The lots shown hereon comply with minimum ownership width and lot area as required by the Maryland State Department of the Environment.
15. This area designates a private sewage easement as required by the Maryland State Department of the Environment for individual sewage. Improvements of any nature in this area are restricted until public sewer is available. These easements shall become null and void upon connection to a public sewage system. The county health officer shall have the authority to grant variances for encroachments into the private sewage easement. Recordation of a modified sewage easement plat shall not be necessary. See sheet 3
16. Subject property Zoned RC DEO per 10/93 Comprehensive Zoning Plan.
17. A water meter shall be installed on an incoming line in an accessible location for all buildings.
18. Any damage to county or state owned right-of-ways are to be repaired at the contractor's expense.
19. All exterior lighting fixtures shall be directed/reflected away from public roads.
20. See DPZ Files SDP-91-106, SDP-93-20, S-89-95, F-90-62 and BA-90-02, SDP 93-43, WP-91-03, SDP-96-015
21. BA-90-02 decision and order was granted on October 6th, 1992.
22. Trench excavation over 4 feet in depth to comply with MOSHA.
23. ~~Parking lots constructed and approved under SDP 93-43.~~
24. Existing temporary Clubhouse, Office & Pro Shop to be removed when the Clubhouse is built
25. WP-91-03 granted 4-22-91 allowing fill wetlands
26. UNDER REDLINE REVISION 8, THE 3,826 SF INCREASE IN IMPERVIOUS AREA IS EXEMPT FROM PROVIDING STORMWATER MANAGEMENT. ANY ADDITIONAL CHANGES WHERE THE CUMULATIVE INCREASE IS OVER 5,000 SF SHALL REQUIRE THAT STORMWATER MANAGEMENT BE ADDRESSED.
27. BUILDING HEIGHT: 26'
28. BA-19-019C GRANTED 1-24, 2020 THAT THE PETITION OF CATTAIL COUNTRY CLUB, INC., FOR EXPANSION OF A CONDITIONAL USE FOR A GOLF COURSE IN AN RC-DEO ZONING DISTRICT SUBJECT TO: THE PETITIONER SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND COUNTY LAWS AND REGULATIONS.

ADDRESS CHART					
Lot / Parcel	Street Address				
Parcel B	3600 Cattail Creek Drive				
Subdivision Name: Cattail Creek Country Club		Section / Area: 2		Lots / Parcels: Parcel B	
Plat No: 11047 11052	Block No: 8	Zone: RC DEO	Tax Map No: 21	Election District: 4th	Census Tract: 6040
Water Code: Private Water			Sewer Code: Private Sewer		

APPROVED HOWARD COUNTY HEALTH DEPARTMENT FOR ON-SITE WATER & PRIVATE SEWERAGE SYSTEMS.
Joyce M Boyd ... HEALTH OFFICER 10/3/95 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division MK 9/25/95 Date
Chief, Division of Land Development and Research 10/4/95 Date
Director 10/5/95 Date

Nº	REVISION	DATE
10	REVISE THE PLAN TO RELOCATE & REPLACE 3 BURIED 1000 GALLON LP-G STORAGE TANKS WITH 6 BURIED 1000-GALLON LP-G STORAGE TANKS - SEE DETAIL ON SHEET 3 OF 10	7-15-21
9	REVISE THE PLAN TO ADD A RETAINING WALL, SECTIONS AND DETAILS	7-7-21
8	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21
7	Rev. new Club house & Pro shop additions per rev. arch plans incl. Plaza area, cart path and additional S.D. by FCC, Inc.	6-6-05
6	Rev. Pro Shop addition per new arch. plans By FCC	12-15-04
5	NEW CLUB HOUSE ADDITION, NEW PATIO AND PRO SHOP, NEW SERVICE AND CART PATHS BY FCC	8-27-04
4	REV. CART BARN, TOPO & PATH PER APPROVED RED-LINE	7-7-99
3	Rev. Plan to Add Cart Barn & grd.	1-29-97
2	Rev. loading Dock, Relocate Ret. Wall, Add Storm Drainage	7-8-96
1	Rev. Clubhouse per Architectural Revisions	12-12-95

FOR REVISION #9 ONLY — 7-7-21
REVISION #8 ONLY — 3-5-21
REVISION #10 8/25/21
REVISION #7 6/6/05 FISHER COLLINS AND CARTER INC.
REVISION #6 12/15/04 FISHER COLLINS AND CARTER INC.
8/27/04 REV. 5 FISHER COLLINS & CARTER INC.
6-8-99

DRAWING INDEX (SEE CHART THIS SHEET FOR CONTINUATION)	
SHEET 1	SITE DEVELOPMENT PLAN
SHEET 2	SEPTIC FIELD, RESERVE AREA & DRAINAGE AREA MAP
SHEET 3	SEDIMENT & EROSION CONTROL PLAN
SHEET 4	STORM DRAIN PROFILES & DETAILS

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA MD 21045 • (410) 381-7500 - BALTO • (301) 621-8100 - WASH.

DESIGNED JLS	(REVISED) SITE DEVELOPMENT PLAN CLUBHOUSE	SCALE 1" = 30'
DRAWN ZAH		DRAWING 1 of 10
CHECKED JLS	CATTAIL CREEK COUNTRY CLUB FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94-189
DATE 7-28-95	FOR: CATTAIL CREEK COUNTRY CLUB, INC. 3600 CATTAIL CREEK DRIVE GLENWOOD, MARYLAND 21738	FILE NO. 94-189-X

SDP-96-15

No.	REVISIONS	DATE
8	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21

Nº	Revisions	Date
4	Revise Club house & Pro shop additions per revised arch plans including additional S.D & profile by FCC, Inc.	6-6-05

No.	REVISIONS	DATE
1.	Rev. Septic Fields	12-12-95
2.	Rev. Plan to Add Turn Station & grds.	1-30-97
3	NEW PATIO ADDITION, NEW PRO SHOP ADDITION NEW SERVICE ACCESS & CART PATH BY FCC	8-24-04

REVISION #4 6/6/05 FISHER COLLINS AND CARTER INC

REVISION 3 8/24/04 FISHER COLLINS AND CARTER INC.

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR ON-SITE WATER & PRIVATE SEWERAGE SYSTEMS

HEALTH OFFICER — 10/3/95 — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9/25/95 — DATE

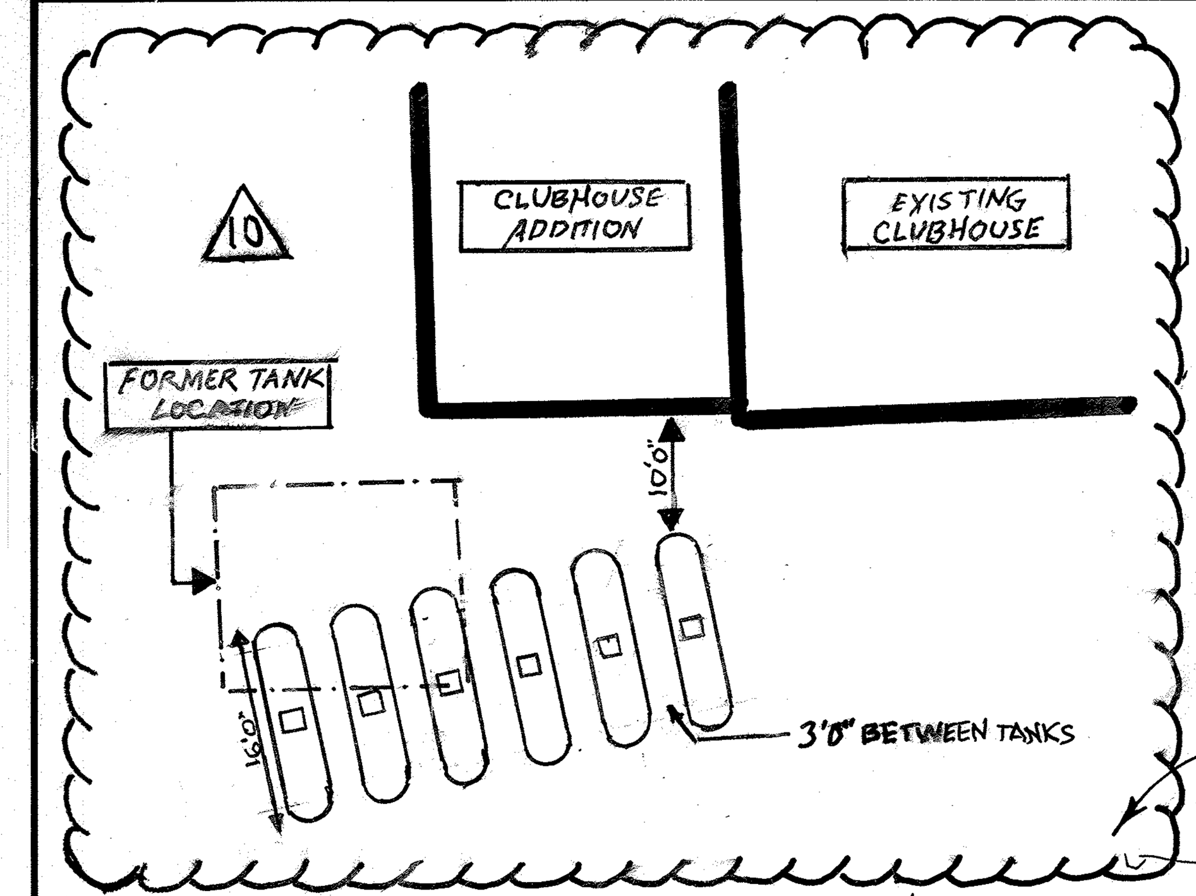
CHIEF, DIVISION OF LAND DEVELOPMENT AND RESEARCH — 10/4/95 — DATE

DIRECTOR — 10/5/95 — DATE

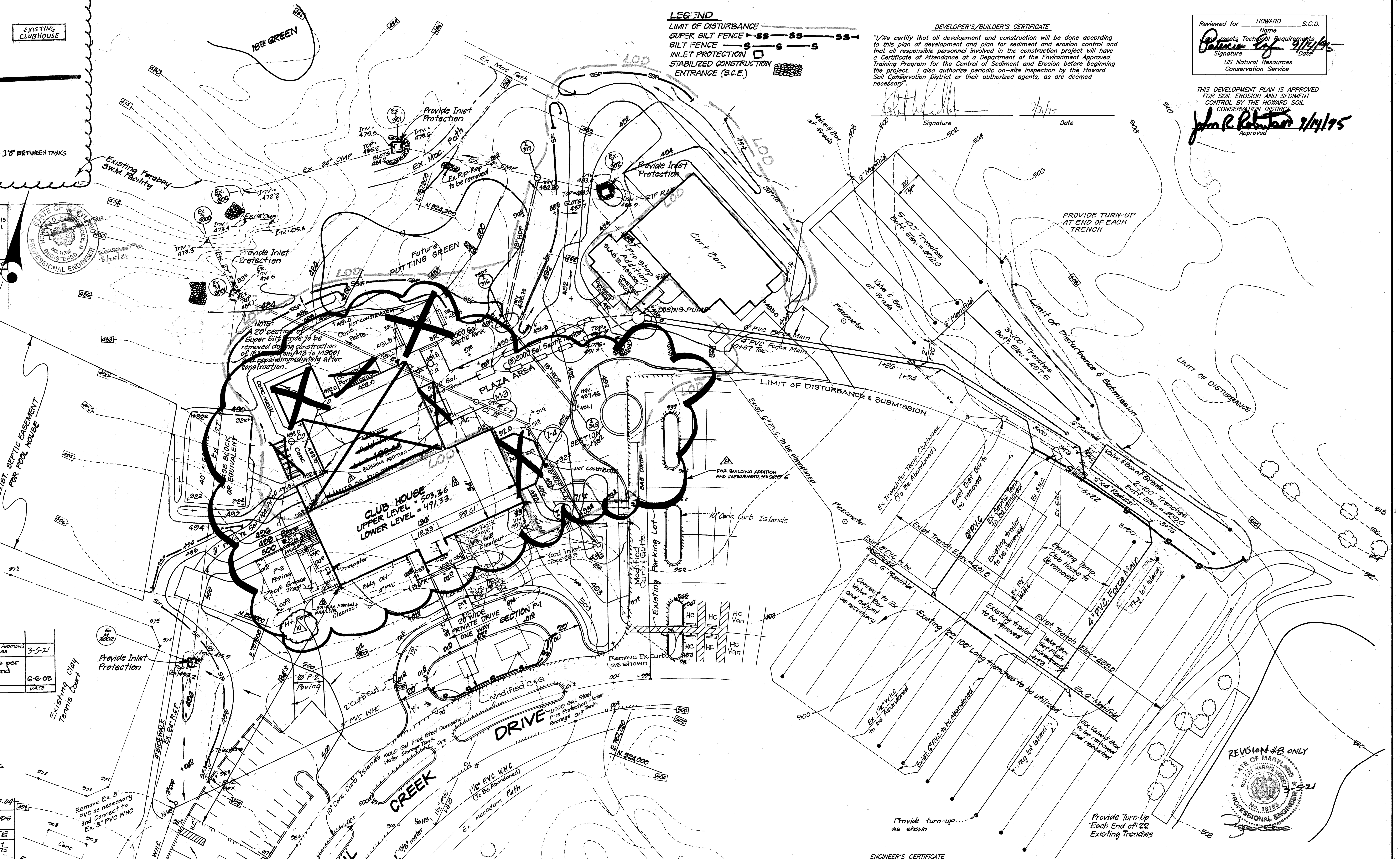
CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED		SCALE
JLS	LAYOUT OF SEPTIC FIELD AND RESERVE AREAS, DRAINAGE AREA MAP & HANDICAP ACCESS DETAIL	1" = 50'
DRAWN	**CATTAIL CREEK COUNTRY CLUB** (REVISED)	DRAWING
LAI		2 OF 10
CHECKED	FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO.
JLS		94-189
DATE	FOR: CATTAIL CREEK COUNTRY CLUB, INC. 3600 CATTAIL CREEK DRIVE GLENWOOD, MARYLAND 21738	FILE NO.
7-23-95		94-189-X

SDP-96-15



NO.	REVISIONS	DATE
10	REVISE PLAN TO REMOVE 3 BURIED 1,000-GALLON PROPANE TANKS NOT MEETING CODE DUE TO BUILDING ADDITION AND REPLACED THEM WITH 6 BURIED 1,000-GALLON PROPANE TANKS THAT MEET CODE AND TO SUPPLEMENT THE INCREASED FUEL DEMAND OF THE LARGER BUILDING	7-15-21



LEGEND

LIMIT OF DISTURBANCE
SUPER SILT FENCE —SS—SS—SS—
SILT FENCE —S—S—S
INLET PROTECTION
STABILIZED CONSTRUCTION ENTRANCE (S.C.E.)

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan 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 or their authorized agents, as are deemed necessary".

Signature — Date 7/31/95

Reviewed for HOWARD S.C.D.
Name
and meets Technical Requirements
Signature — Date 9/14/95
US Natural Resources Conservation Service

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

John R. Robertson 9/14/95
Approved

NO.	REVISIONS	DATE
8	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21
3	Rev new club house & pro shop additions per revised arch. plans. Revise Plaza area and cart path by FCC, Inc.	6-6-05

8/27/04 REVISION 2 FISHER COLLINS AND CARTER INC.

No.	REVISIONS	DATE
2	New Patio & Pro Shop additions; new service access & cart paths by FCC	8.27.04
1.	Rev. Bldg. per Architectural Revisions and Rev. Septic Field	12-12-95

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR ON-SITE WATER AND PRIVATE SEWERAGE SYSTEMS.

Joyce M Boyd — 10/3/95
HEALTH OFFICER — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division MK — 9/25/95 Date

Chief, Division of Land Development and Research — 10/4/95 Date

Director TC — 10/5/95 Date

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 condtions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature — Date 7.31.95

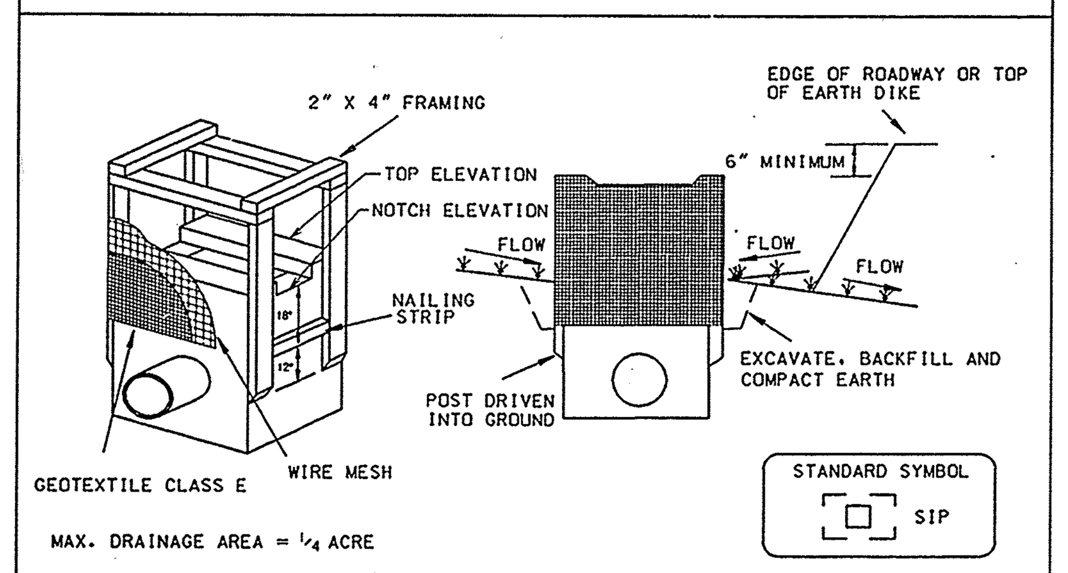
REVISION #8 ONLY 3-5-21

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 — BALTO. • (301) 621-8100 — WASH.

DESIGNED JLS	SEDIMENT AND EROSION CONTROL PLAN	SCALE 1"=30'
DRAWN ZAH	CATTAIL CREEK COUNTRY CLUB (REVISED) FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	DRAWING 8 3 of 10
CHECKED JLB		JOB NO. 94-189
DATE 7-28-95	FOR: Cattail Creek Country Club, INC. 3600 Cattail Creek Drive Glenwood, Maryland 21738	FILE NO. 94-189-X

SDP-96-15

DETAIL 23A - STANDARD INLET PROTECTION



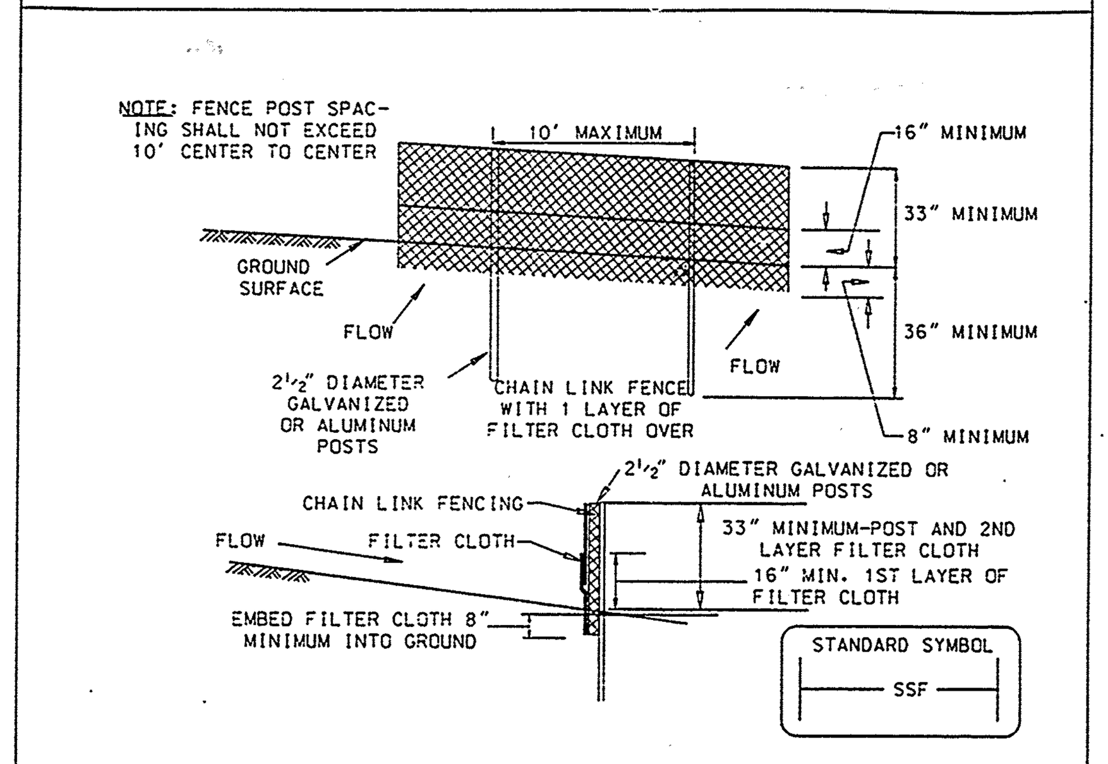
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE



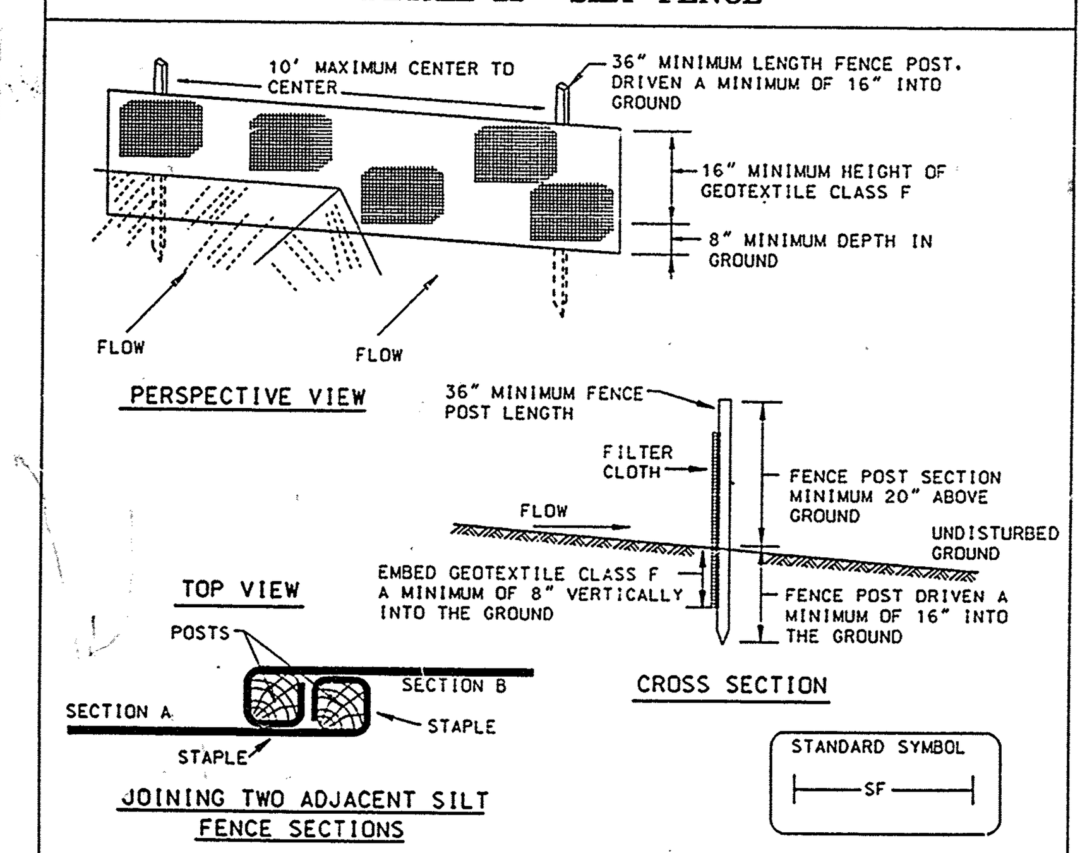
Construction Specifications

Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.

1. The poles do not need to set in concrete.
2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence.

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

DETAIL 22 - SILT FENCE



Construction Specifications

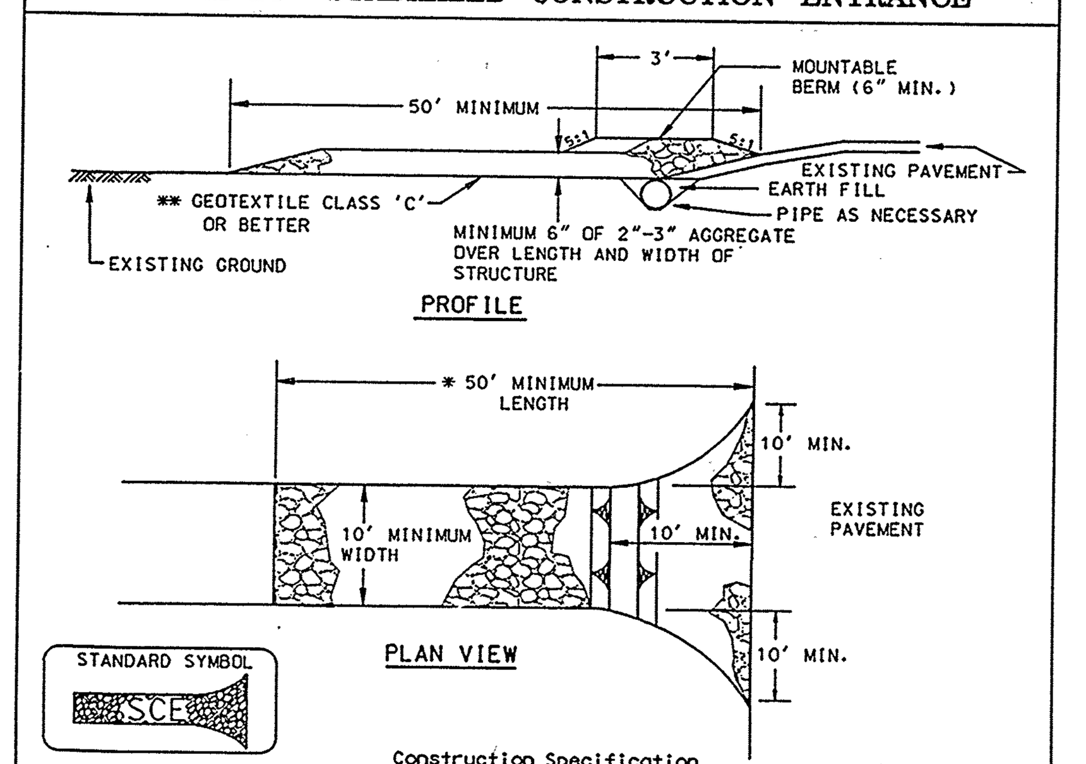
1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

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

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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

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

SEDIMENT AND EROSION CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 2011 MARYLAND STANDARDS AND SPECS. FOR SOIL EROSION AND SEDIMENT CONTROL.
3. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control stuctures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site. (8)
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeters in accordance with Vol.1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec.51) sod (Sec.54), temporary seeding (Sec.50) and mulching (Sec 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. SITE ANALYSIS:
   - Total Area of Site: 106.972 Ac.
   - Area Disturbed: 3.8 Ac.
   - Area to be roofed or paved: 0.74 ac±
   - Area to be vegetatively stabilized: 3.06 ac±
   - Total Cut: 2000 CY±
   - Total Fill: 4000 CY±
   - Offsite Waste/Borrow Area Location: *
8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County DPW Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. If houses are to be constructed on an "as sold" basis, at random, Single Family Sediment Control, as shown below shall be implemented.
12. All pipes to be blocked at the end of each day (see detail this sheet).
13. The total amount of silt fence= 655 LF SF , 215 LF SSF

* It is the responsibility of the contractor to identify the spoil/borrow site and notify and gain approval from the sediment control inspector of the site and it's grading permit number at the time of construction.

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

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

SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following schedules:
1) Preferred- Apply 2 tons per acre dolomitic limestone (92 lbs/100 sqft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs./1000 sq.ft.) before seeding. Harrow or disc into upper three inches of soil. At the time of seeding, apply 400 lbs. per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq.ft.)
2) Acceptable- Apply 2 tons per acre dolomatic limestone (92 lbs/1000 sg ft.) and 1000 lbs. per acre 10-10-10- fertilizer (23 lbs./1000 sg ft.) before seeding. Harrow or disc into upper three inches of soil.

SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

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

MAINTENANCE: Inspect all seeded areas and make needed repairs, repalcements and reseedings.

TEMPORARY SEEDING NOTES

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

SOIL AMENDMENTS: Apply 600 lbs per acre 10-10-10 fertilizer (14lbs/1000 sq ft).

SEEDING: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2 1/2 bushel per acre of annual rye (3.2 lbs./1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

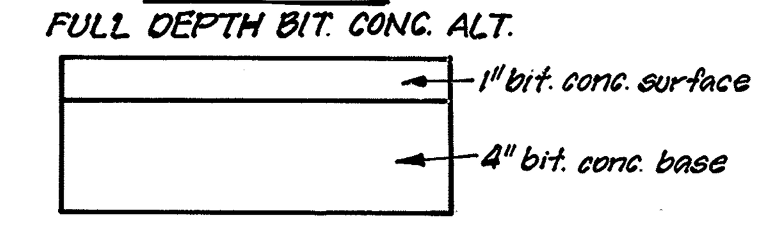
MULCHING: Apply 1 1/2 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher,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

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

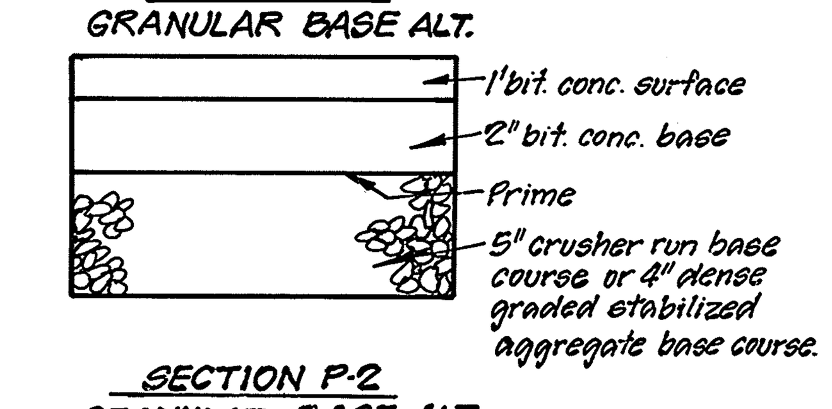
SITE ANALYSIS (SHOP DRAWING - REDLINE 8): (8)

AREA DISTURBED (PROJECT)	0.47 ACRES
AREA TO BE ROOFED OR PAVED	0.31 ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.16 ACRES
TOTAL CUT	0 CY
TOTAL FILL	0 CY
WASTE/BORROW LOCATION	N/A

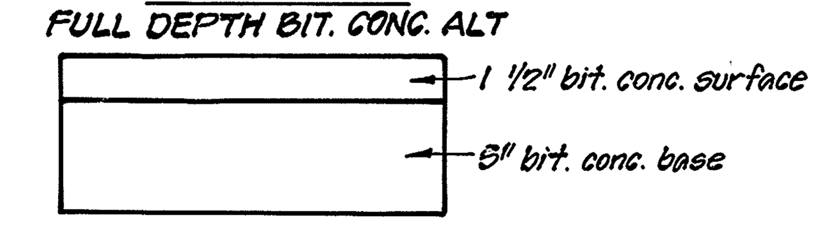
SECTION P-1 FULL DEPTH BIT. CONC. ALT.



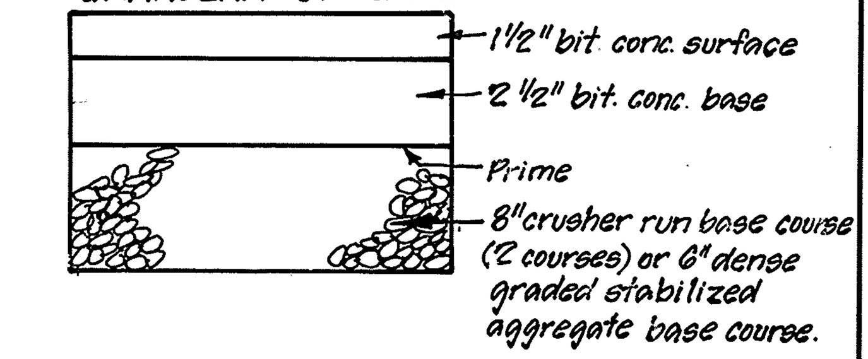
SECTION P-1 GRANULAR BASE ALT.

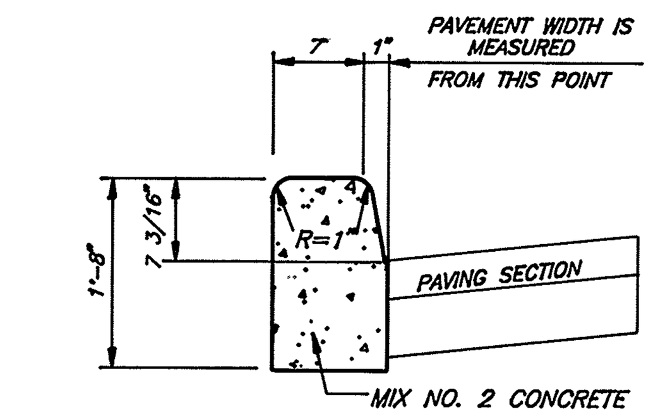


SECTION P-2 FULL DEPTH BIT. CONC. ALT



SECTION P-2 GRANULAR BASE ALT





STANDARD BARRIER CURB

NO SCALE

SEQUENCE OF CONSTRUCTION

1.) Obtain Grading Permit.

2.) Notify "Miss Utility" at least 48 hours before beginning any work at 1-800-257-7777. Notify the Howard County Office of Construction/Inspection at 410-313-1330 24 hours before starting work.

3.) Install all sediment control measures as shown on the plans. 1 Week

4.) Grade site to subgrade. 3 Weeks

5.) Construct building additions, install service drive to the clubhouse. 15 Months.

6.) Construct sidewalks and cart paths. 2 Weeks.

7.) Fine grade and stabilize all disturbed areas with permanent seeding. 2 Weeks

8.) Notify Howard County Office of Construction/Inspection for permission for removal of sediment control measures and stabilize disturbed areas with permanent seeding.

STRUCTURE SCHEDULE

Nº	TYPE	INVERT IN	INVERT OUT	TOP ELEVATION UPPER	TOP ELEVATION LOWER	REMARKS	LOCATION
I-5	"S"-Inlet 2'-7½" Sq.	490.60	490.5	Top Elev 491 / 493.5		Ho. Co Std. SD 4.22	See Plan
I-4	"S"-Inlet 2'-7½" Sq	487.00	486.75	Top Elev 481 / 490.8		Ho. Co. Std. SD 4.22	See Plan
M-3	Shallow Precast Manhole 4'-0" dia	486.75	483.52	491.0		Ho. Co. Std. G 5.12	See Plan
EXIST. M3001	Existing Manhole	475.46	474.5	Top Elev.=482.1			See Plan
I 5000	Inlet	—	499.25	Top Elev. 502.0			See Plan

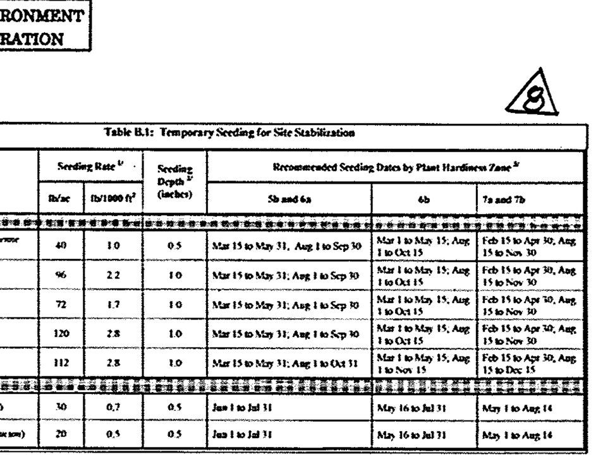
PIPE SCHEDULE

SIZE	TYPE	LENGTH
15"	R.C.P. CL.IV	91 LF
18"	R.C.P. CL IV	211 LF
8"	P.V.C. SDR 35	369 LF

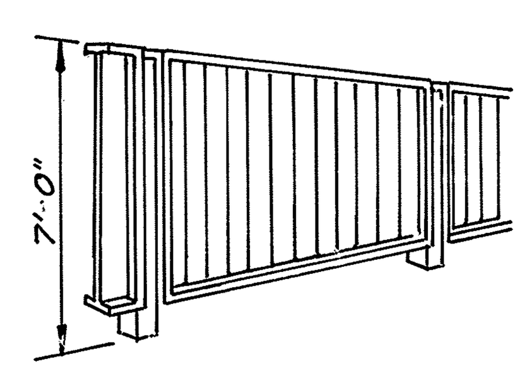
IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES: (8)
WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5b, 6a)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 6b)
SOUTHERN MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7a, 7b)

CONSTRUCTION SEQUENCE:

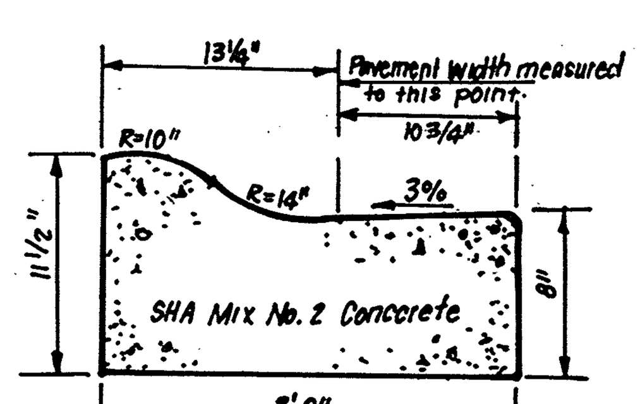
	NO. OF DAYS
1. Obtain grading permit.	7
2. Install tree protection fence.	N/A
3. Install sediment and erosion control devices and stabilize.	14
4. Excavate for foundations, rough grade and temporarily stabilize.	30
5. Construct structures, sidewalks and driveways.	60
6. Final grade and stabilize in accordance with Stds. and Specs.	14
7. Upon approval of the sediment control inspector, remove sediment and erosion control devices and stabilize.	7



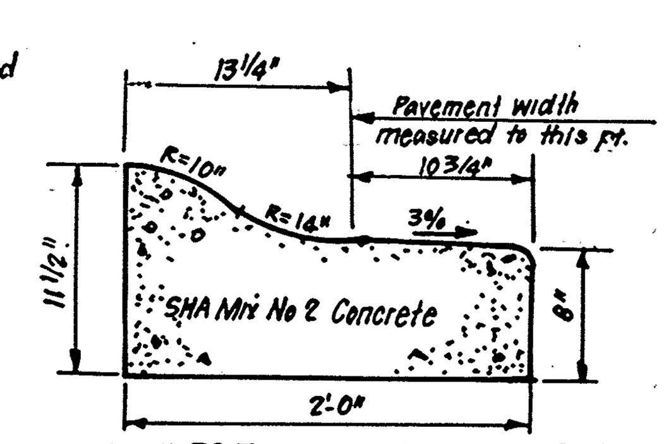
(8)



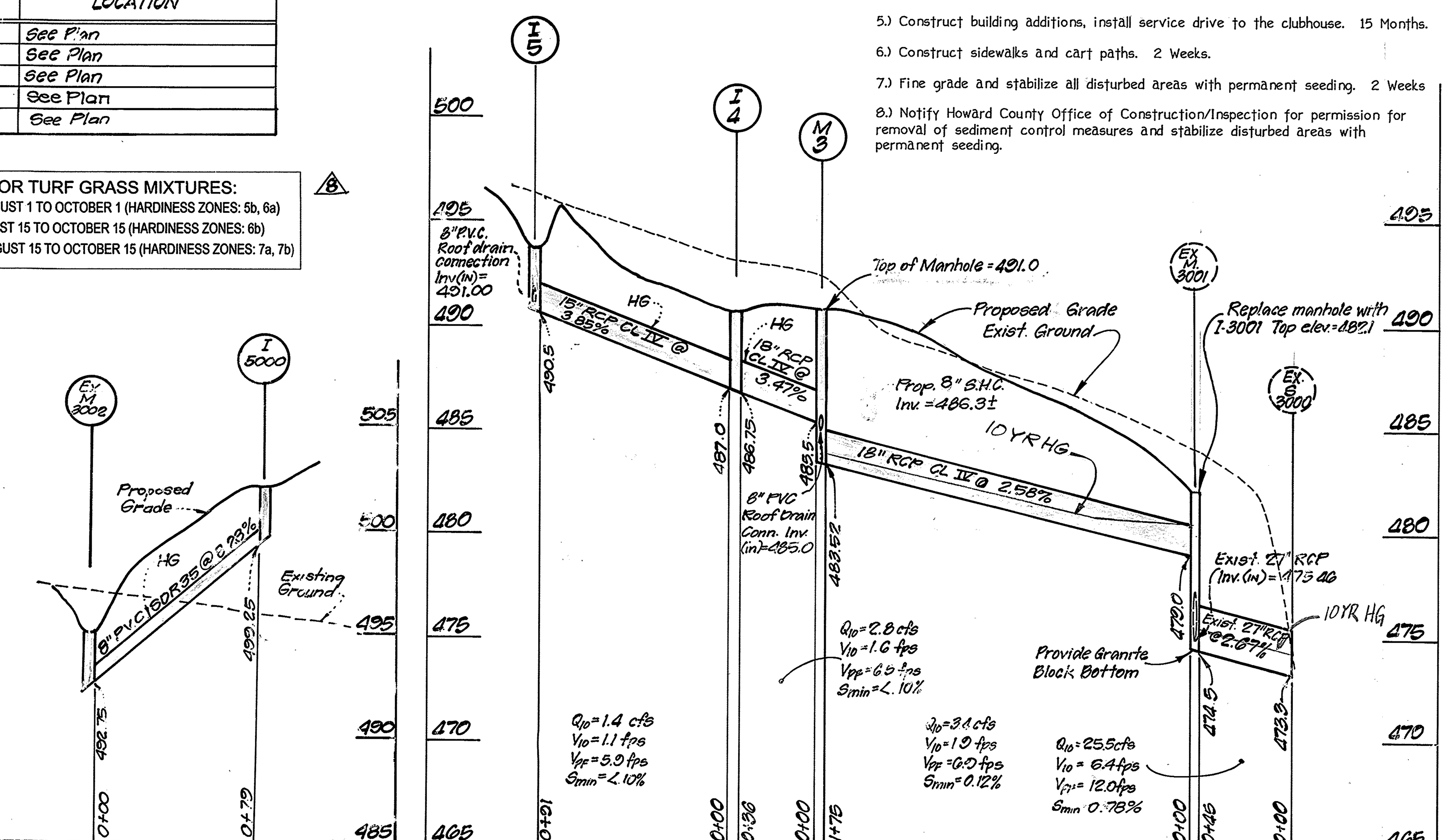
7' HIGH FENCE
No Scale



MODIFIED COMBINATION CURB & GUTTER
NO SCALE



REVERSE MODIFIED COMBINATION CURB & GUTTER
NO SCALE



STORM DRAIN PROFILE
Scale: HOR 1"=50'
VER 1"=5'

APPROVED: HOWARD COUNTY HEALTH DEPARTMENT FOR ON-SITE WATER & PRIVATE SEWERAGE SYSTEMS.

Joyce M Boyd ... 10/3/95
HEALTH OFFICER — DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division MK — 9/25/95 Date

Chief, Division of Land Development and Research — 10/4/95 Date

Director TC — 10/5/95 Date

REVISION #8 ONLY

7/27/04 REV. 3

FISHER COLLINS & CARTER INC.

No.	REVISIONS	DATE
8	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21
3	NEW PATIO ADDITION / NEW PRO SHOP ADDITION / NEW SERVICE ACCESS AND CART PATHS BY FCC	7-27-04
2.	Rev. & Add Storm Drain Profile, Add Fence Detail	7-8-96
1.	Rev. Storm Drain Profile Per Rev. SDP	12-12-95

Reviewed for HOWARD S.C.D.
Name
and meets Technical Requirements
Signature — 9/14/95 Date
US Natural Resources Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
9/14/95
Approved

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan 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 or their authorized agents, as are deemed necessary".

Signature — 7/31/95 Date

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 condtions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

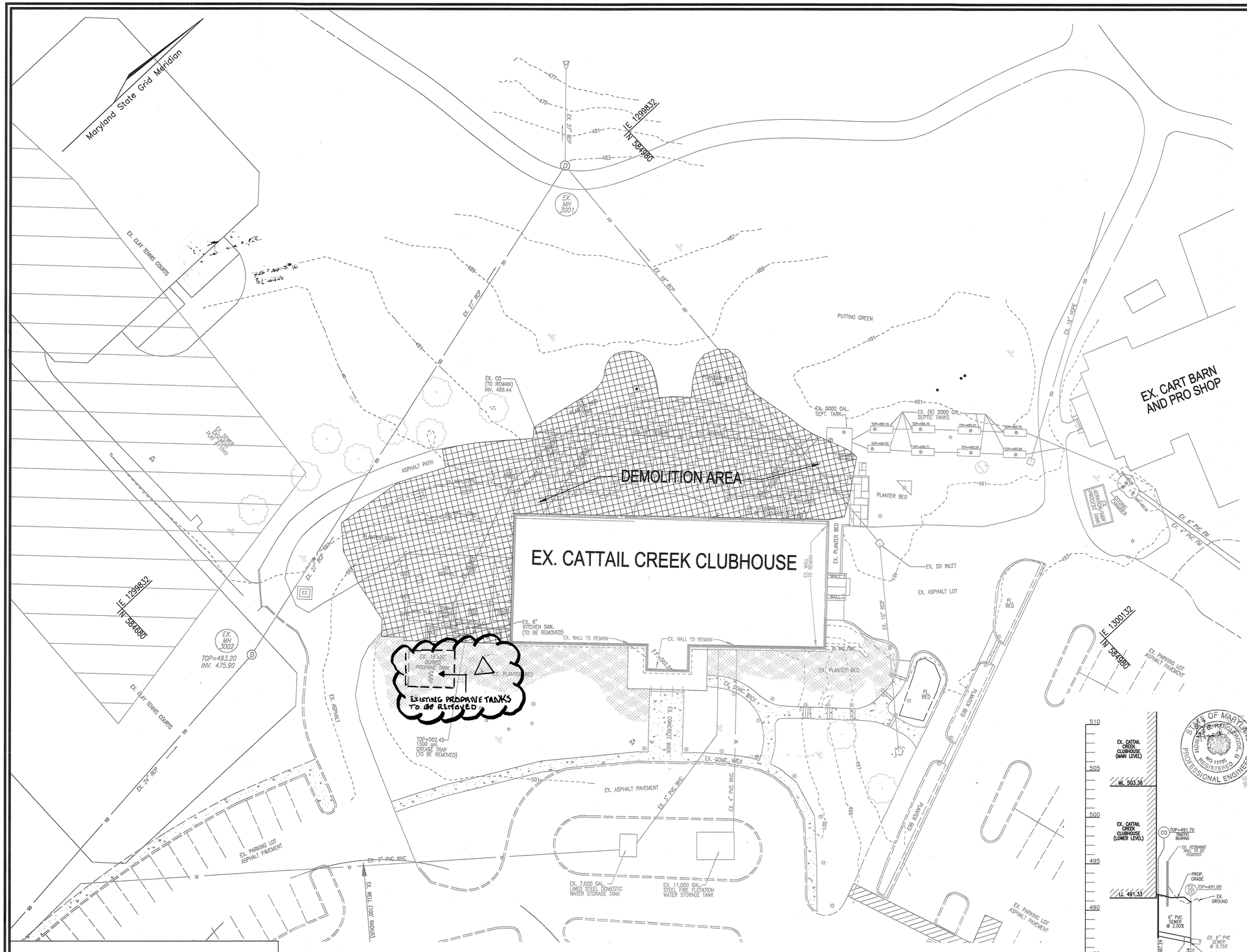
Signature — 7-31-95 Date

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (410) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED JLS	~~STORM DRAIN-PROFILE AND DETAIL SHEET~~	SCALE As Shown
DRAWN ZAH	CATTAIL CREEK COUNTRY CLUB (REVISED)	DRAWING 4 of 10 (8)
CHECKED JLS	FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 94-189
DATE 7-28-95	FOR: Cattail Creek Country Club, INC. 3600 Cattail Creek Drive Glenwood, Maryland 21738	FILE NO. 94-189-X

581366

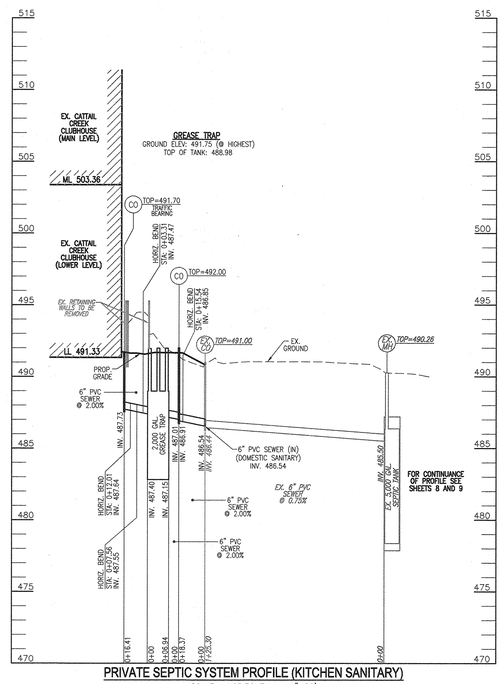
SDP-96-15



PLAN VIEW
SCALE: 1"= 20'

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREES (FIELD LOCATED)
- EXISTING TREELINE (FIELD LOCATED)
- SOILS BOUNDARY
- EXISTING FENCE
- DEMOLITION AREA



PRIVATE SEPTIC SYSTEM PROFILE (KITCHEN SANITARY)
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

PRIVATE SEPTIC SYSTEM PROFILE (DOMESTIC SANITARY
SCALE : HORIZONTAL – 1"=50'
VERTICAL – 1"=5'

OWNER/DEVELOPER

CATTAIL CREEK COUNTRY CLUB, INC.
3600 CATTAIL CREEK DRIVE
GLENWOOD, MD 21738
C/O STEVE SCHRENK
PHONE: 410-982-4750

NO.	REVISION	DATE
1	REVISE THE PLAN TO SHOW RELOCATED BURIED PROPANE TANK AREA	7-15-21
2	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21

REVISED SITE DEVELOPMENT PLAN

EXISTING CONDITIONS, DEMOLITION PLAN & PRIVATE SEWER PROFILES

CATTAIL CREEK COUNTRY CLUB

3600 CATTAIL CREEK DRIVE
ZONED: RC-DEO

TAX MAP: 21 GRID: 8 — PARCEL: 211
4TH ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4.5.21
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/7/21
DIRECTOR	DATE 4/7/2021

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE 3/2/2021

20' 0 20' 40' 60'

DESIGN BY:	RHV/LRC
DRAWN BY:	LRC
CHECKED BY:	RHV
DATE:	02/23/21
SCALE:	AS SHOWN
W.O. NO.:	42317

PROFESSIONAL CERTIFICATE

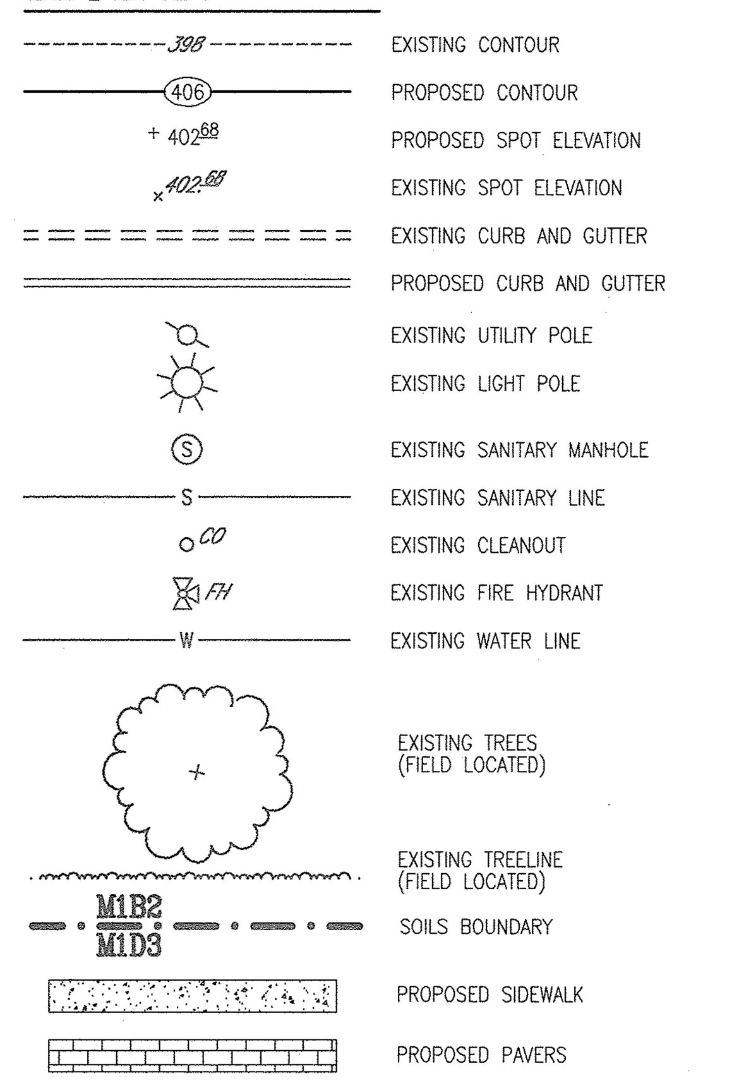
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2022

ROBERT H. VOGEL, PE No.16193

SHEET 5 OF 10

SDP-96-015

LEGEND:

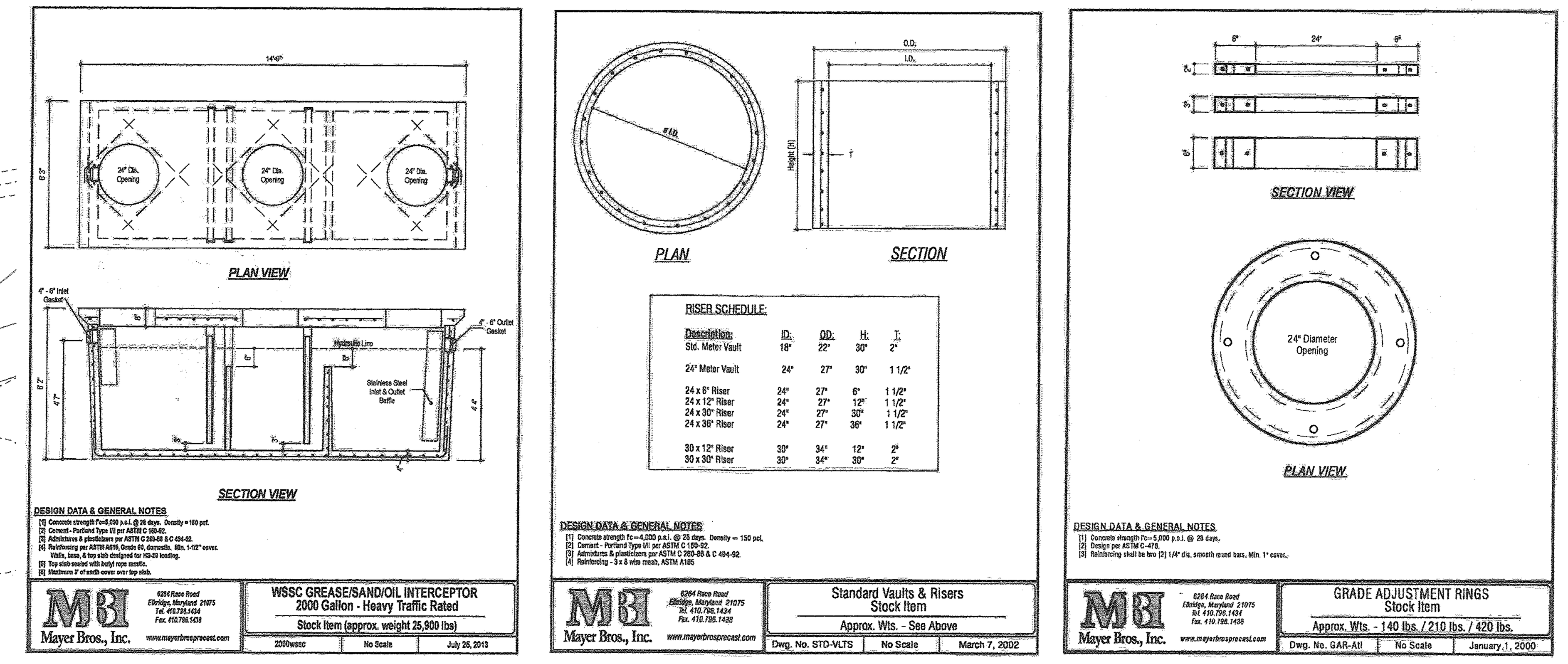


SEQUENCE OF CONSTRUCTION

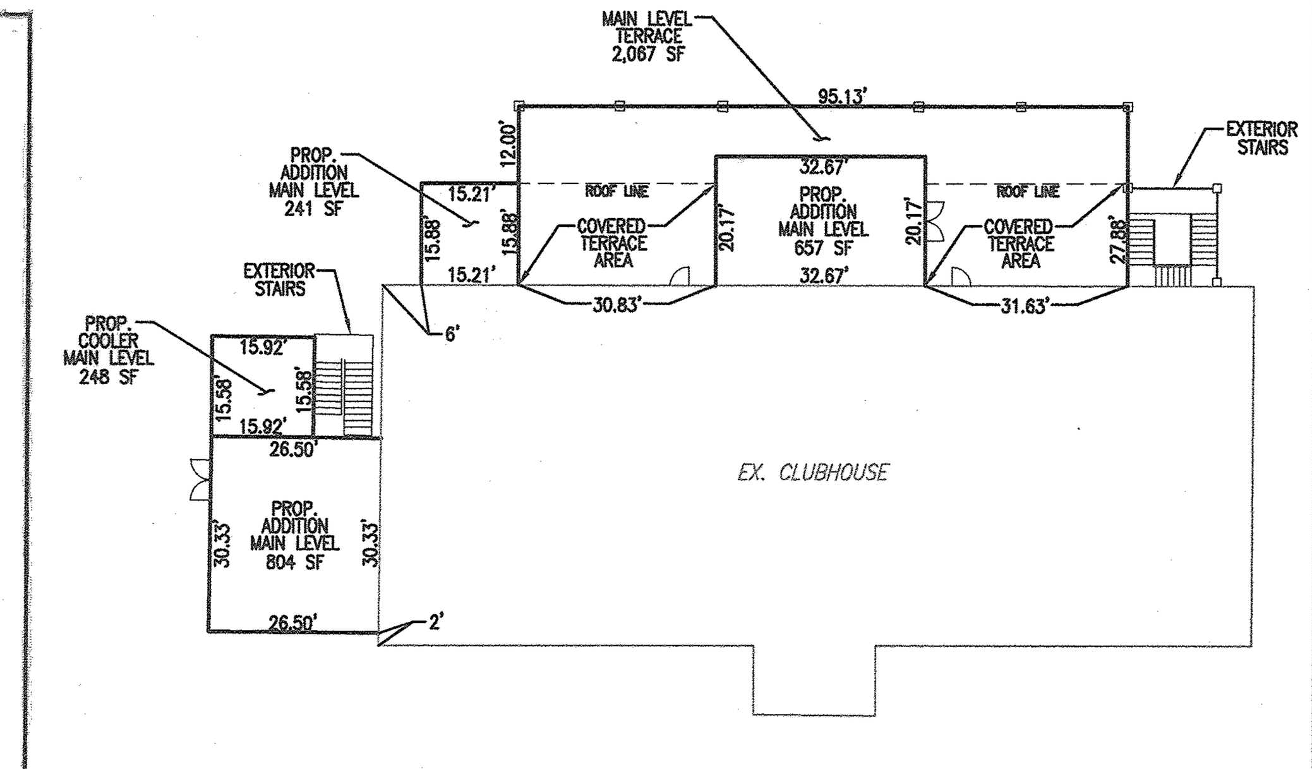
1. OBTAIN HOWARD COUNTY GRADING PERMIT. (WEEK 1)
2. NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION. (WEEK 1)
3. CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE. (WEEK 1)
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM. (WEEK 2)
5. CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS. (2 DAYS)
6. INSTALL ALL PERIMETER CONTROLS INCLUDING SILT FENCE, SUPER SILT FENCE AND EARTH DIKES, AS INDICATED ON PLANS. (WEEK 2)
7. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE. (WEEK 2)
8. BEGIN BUILDING CONSTRUCTION. (3 MONTHS)
9. WITH INSPECTOR'S APPROVAL, BEGIN INSTALLATION OF CURB AND GUTTER AND ON-SITE BASE COURSE PAVING. (2 WEEKS)
10. COMPLETE BUILDING AND UTILITY CONSTRUCTION.
11. COMPLETE ALL BASE COURSE PAVEMENT CONSTRUCTION. (1 WEEK)
12. CONSTRUCT SURFACE COURSE PAVING AND PATHWAY. (1 WEEK)
13. WITH THE INSPECTOR'S APPROVAL, FINE GRADE AND STABILIZE ALL AREAS OF PARCEL INCLUDING ANY EXPOSED EARTH AREAS OUTSIDE THE LOD. REMOVE ALL TRASH JUNK AND DEBRIS FROM ENTIRE PARCEL. (1 WEEK)
14. INSTALL SITE LANDSCAPING. (WEEK 15)
15. AFTER RECIEVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. STABILIZE ALL REMAINING DISTURBED AREAS.

NOTE

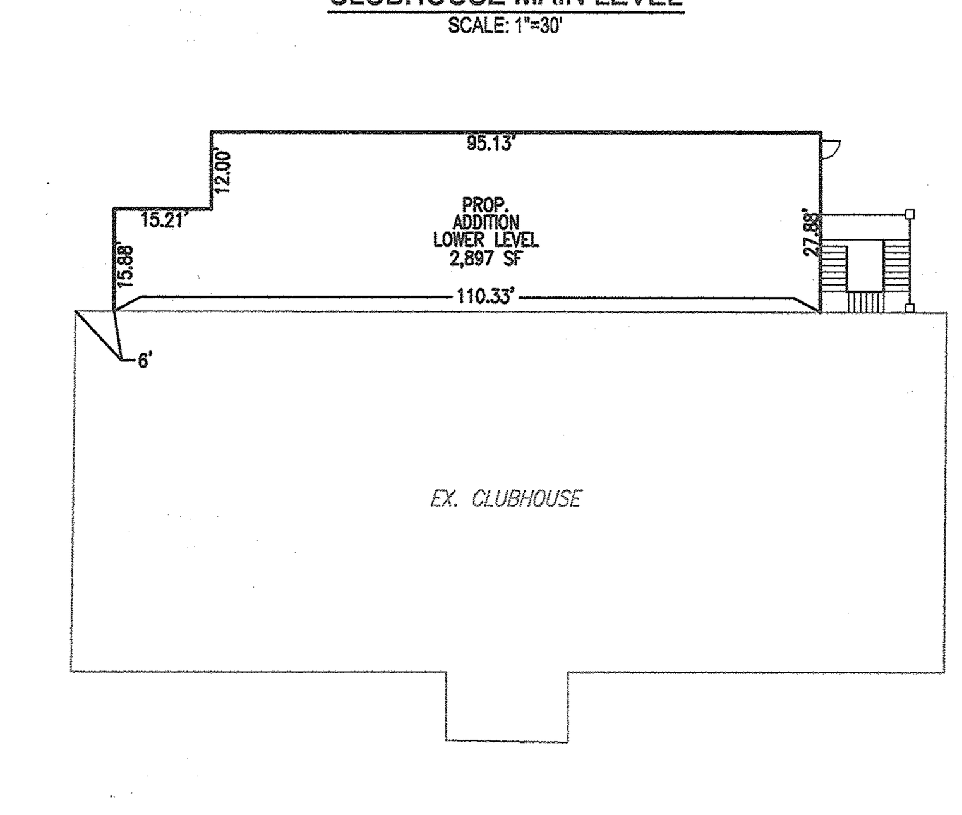
1. PROPOSED BUILDING ADDITIONS TOTAL 4,847 SFT APPROVED AREA IS 6,715 SFT PER BA-19-019C.



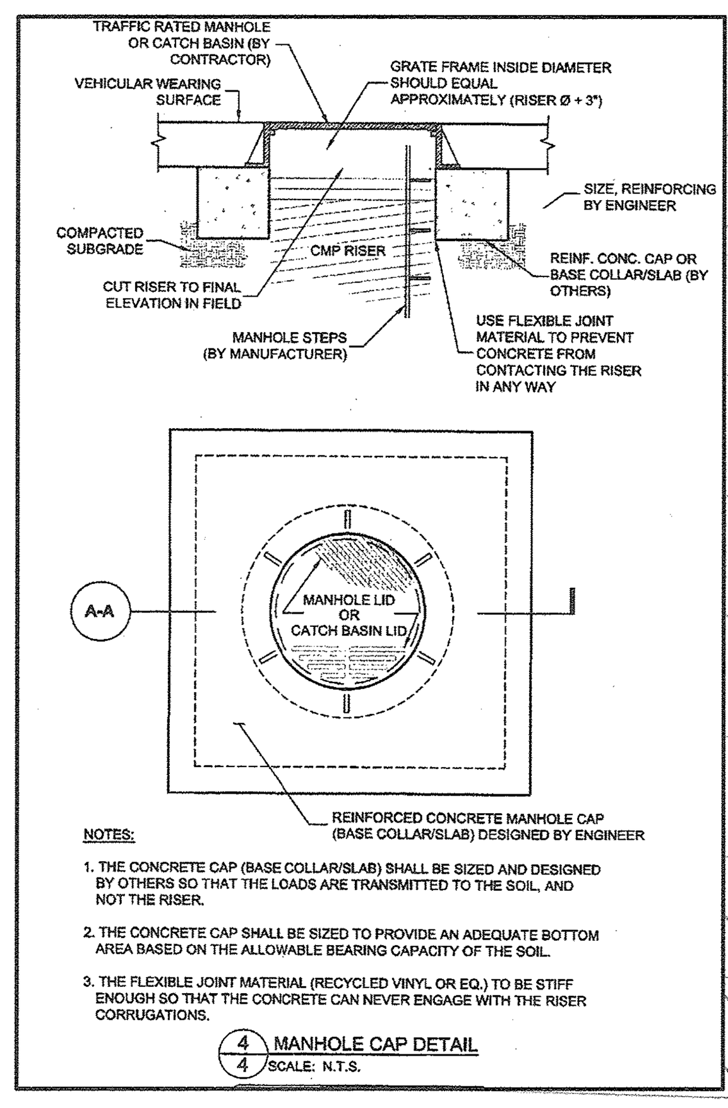
FOR SEPTIC PLAN SEE SHEETS 7-9



CLUBHOUSE MAIN LEVEL
SCALE: 1"=30'

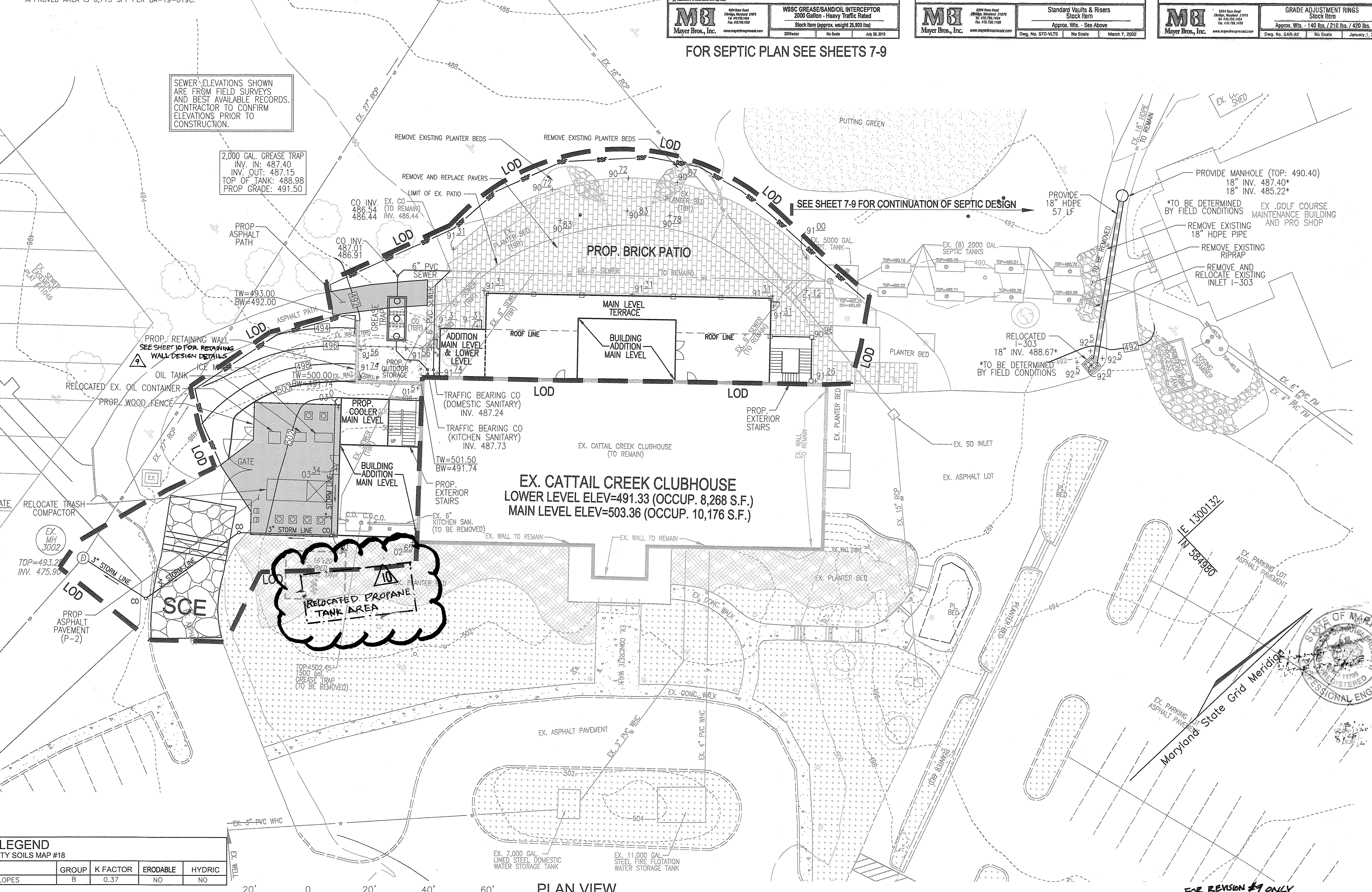


CLUBHOUSE LOWER LEVEL
SCALE: 1"=30'



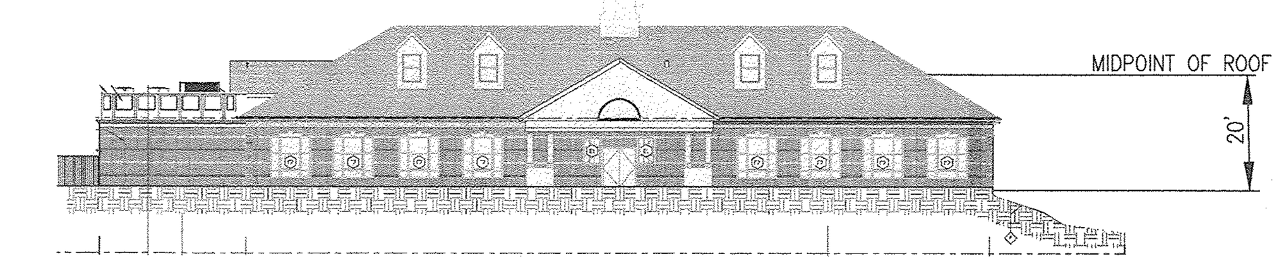
NOTES:
1. THE CONCRETE CAP (BASE COLLAR/SLAB) SHALL BE SIZED AND DESIGNED BY OTHERS SO THAT THE LOADS ARE TRANSMITTED TO THE SOIL, AND NOT THE RISER.
2. THE CONCRETE CAP SHALL BE SIZED TO PROVIDE AN ADEQUATE BOTTOM AREA BASED ON THE ALLOWABLE BEARING CAPACITY OF THE SOIL.
3. THE FLEXIBLE JOINT MATERIAL (RECYCLED VINYL OR EQ.) TO BE STIFF ENOUGH SO THAT THE CONCRETE CAN NEVER ENGAGE WITH THE RISER CORRUGATIONS.

MANHOLE CAP DETAIL
SCALE: N.T.S.



PLAN VIEW
SCALE: 1"= 20'

CLUBHOUSE ELEVATION REAR
NOT TO SCALE



CLUBHOUSE ELEVATION FRONT
NOT TO SCALE

SOILS LEGEND
HOWARD COUNTY SOILS MAP #18

SYMBOL	NAME / DESCRIPTION	GROUP	K FACTOR	ERODABLE	HYDRIC
WgB	WHEATON-GLENELG COMPLEX, 0 TO 8 PERCENT SLOPES	B	0.37	NO	NO

-TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
-K VALUES PER https://www.howardscd.org/documents - "K FACTORS (USE KW)".
-HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4.5.21

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/7/21

DIRECTOR — DATE 4-7-21

OWNER/DEVELOPER CERTIFICATION:
"I/WE CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE."

OWNER/DEVELOPER SIGNATURE — DATE 3/5/21

STEVEN SCHRENK, PRESIDENT
PRINTED NAME & TITLE

DESIGN CERTIFICATION:
"I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

DESIGNER'S SIGNATURE — DATE 3/1/21

ROBERT H. VOGEL
PRINTED NAME

MD REGISTRATION NO. 16193
P.E., R.L.S., OR R.L.A. (circle one)

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

~~HOWARD S.C.D. — DATE~~

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT — 3/3/2021

FOR REVISION #9 ONLY

OWNER/DEVELOPER

CATTAIL CREEK COUNTRY CLUB, INC.
3600 CATTAIL CREEK DRIVE
GLENWOOD, MD 21738
C/O STEVE SCHRENK
PHONE: 410-982-4750

NO.	REVISION	DATE
10	REVISE THE PLAN TO SHOW RELOCATED PROPANE TANK LOCATION	
9	REVISE THE PLAN TO ADD A RETAINING WALL, SECTIONS AND DETAILS	7-7-21
8	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21

REVISED SITE DEVELOPMENT PLAN

GRADING, EROSION AND SEDIMENT CONTROL PLAN AND SITE DETAILS

CATTAIL CREEK COUNTRY CLUB

3600 CATTAIL CREEK DRIVE
ZONED: RC-DEO

TAX MAP: 21 GRID: 8
4TH ELECTION DISTRICT
PARCEL: 211
HOWARD COUNTY, MARYLAND

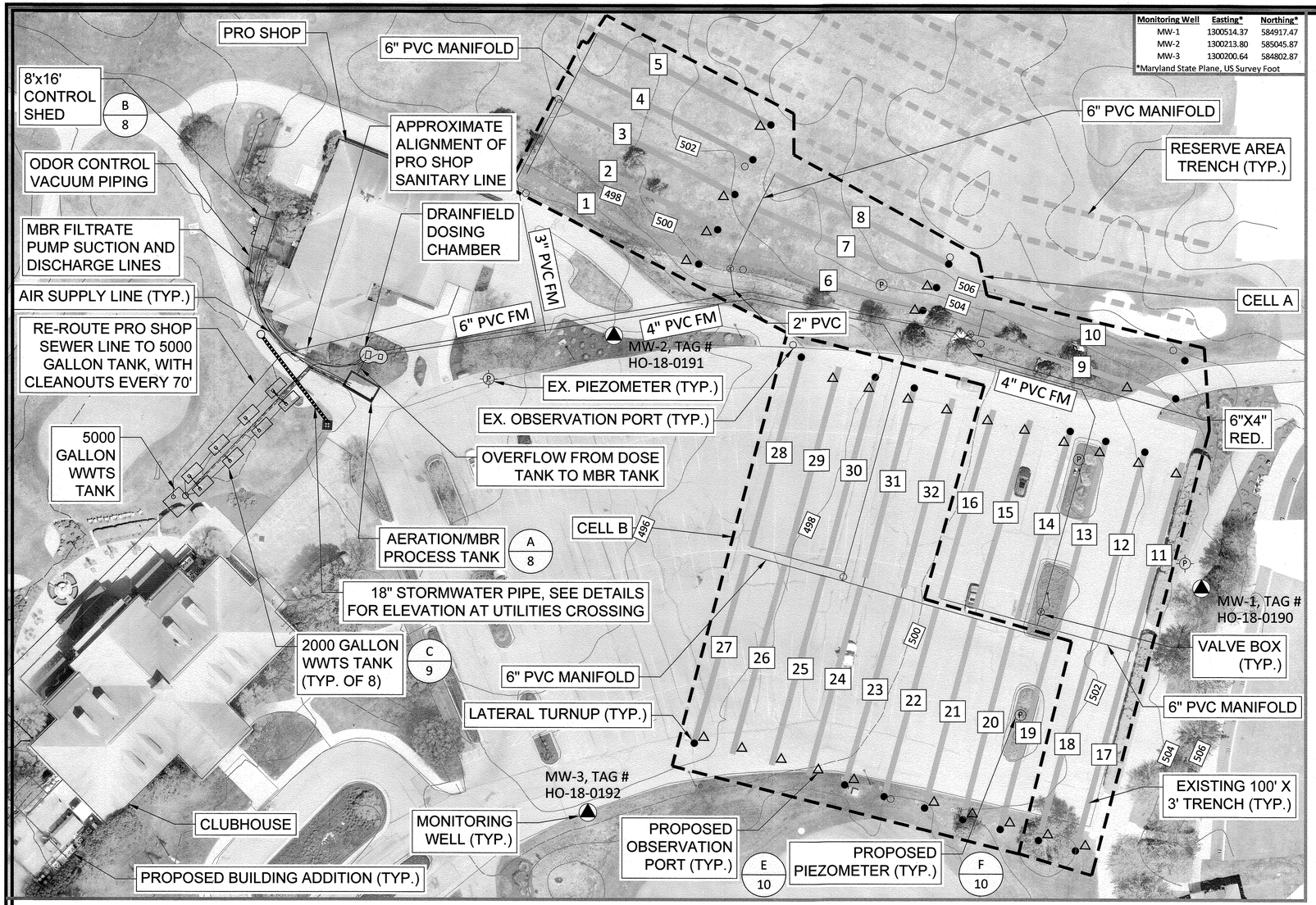
VOGEL ENGINEERING
+
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

ROBERT H. VOGEL, PE No.16193

DESIGN BY:	RHV/LRC
DRAWN BY:	LRC
CHECKED BY:	RHV
DATE:	02/23/21
SCALE:	AS SHOWN
W.O. NO.:	42317

PROFESSIONAL CERTIFICATE
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. 16193 EXPIRATION DATE: 09-27-2022

SDP-96-015



Monitoring Well	Easting*	Northing*
MW-1	1300514.37	584917.47
MW-2	1300213.80	585045.87
MW-3	1300200.64	584802.87

*Maryland State Plane, US Survey Foot

NOTES:

1. Site information is based upon data downloaded from the Howard County GIS department website.
2. Existing on-site wastewater system components are located and labeled per as-built drawings by Clark, Finefrock and Sackett, inc., dated 4-17-1996, job no. 94-189. Installed system is for initial design layout only, area for two repair systems is reserved.
3. Site aerial drone imagery and component location verification data collected on 5-4-2020 by Hydro-Terra Group, Inc.
4. Original trench capacity design is based on standard trench calculations (length x width x loading rate). The upgraded design is based on deep trench calculations given a 2' sidewall and loading rate for advanced treatment utilizing membrane bioreactor (MBR) technology.
5. Eight (8) existing 2000-gallon septic tanks will be repurposed as anoxic/aerobic mixing tanks. The 2000-gallon tanks may be alternated between anoxic and aerobic bioprocesses as needed. The current functions of the existing 5000-gallon septic tank and drainfield dosing tank will remain as is.
6. Field-conduit for electric and controls/monitoring cabling will be installed as necessary per local electrical codes. Field junction boxes and control panels will be installed per local electrical codes.
7. All buried piping and conduit will be bedded on virgin soil or #57 stone with warning tape, and per local plumbing codes.
8. New grease trap (not shown) will be installed and will process all kitchen flow.

LEGEND

- EX. OBSERVATION PORT
- PROPOSED OBSERVATION PORT
- EX. LATERAL TURN-UP
- EX. VALVE BOX
- 9 TRENCH LABEL
- EX. PIEZOMETER
- PROPOSED PIEZOMETER
- MONITORING WELL

WATER USE AND TREATMENT CRITERIA

Use Projections (see historical data statistical analysis)		
MDF =	7,500	gpd
ADF =	3,750	gpd

Design Wastewater Strength	Influent (Restaurant)	Effluent (MBR)
BOD (mg/L)	800	3
mass loading at ADF (lb/day)	*25.0*	*0.09*
TSS (mg/L)	500	1
mass loading at ADF (lb/day)	*15.6*	*0.03*
Total Nitrogen (mg/L as N)	120	3
mass loading at ADF (lb/day)	*3.8*	*0.09*
FOG (mg/L)	40	

Notes
calculated values in italics
ADF = average daily flow
MDF = maximum daily flow
Use data take into account expansion of clubhouse

TRENCH DESIGN

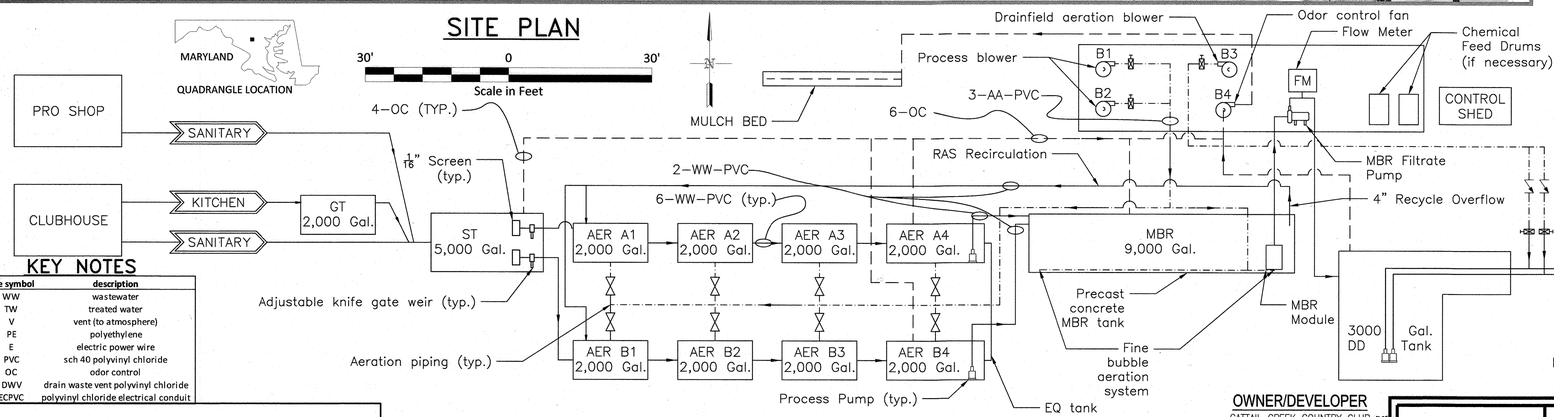
Existing trenches dosed as two cells, deep trench design with MBR effluent loading rate

Cell	Trench	Approx Existing Ground Elevation (feet msl)	Lateral as-built Elevation (feet msl)	Perc Rate (min/inch)	*Sidewall Bottom Elevation (feet msl)*	Trench Bottom Depth (feet)	Trench Length (feet)	*Capacity (gpd, L * W * Appl#/ft²)*	*Cell Capacity (gpd)*
	1	499.0	494.40		*492.4*	*6.6*	100	*960*	
	2	499.5	494.80		*492.8*	*6.7*	100	*960*	
	3	500.5	494.70		*492.7*	*7.8*	100	*960*	
	4	502.0	494.60		*492.6*	*9.4*	100	*960*	
	5	503.5	494.60		*492.6*	*10.9*	100	*960*	
	6	504.0	499.70		*497.7*	*6.3*	100	*960*	
	7	505.0	499.70		*497.7*	*7.3*	100	*960*	
	8	506.0	499.70		*497.7*	*8.3*	100	*960*	
A	9	504.0	501.00	2-5	*499.0*	*5.0*	100	*960*	*17,280*
	10	506.0	501.00		*499.0*	*7.0*	100	*960*	
	11	503.0	497.20		*495.2*	*7.8*	100	*960*	
	12	502.5	497.20		*495.2*	*7.3*	100	*960*	
	13	502.0	497.20		*495.2*	*6.8*	100	*960*	
	14	501.5	497.20		*495.2*	*6.3*	100	*960*	
	15	501.0	497.20		*495.2*	*5.8*	100	*960*	
	16	500.5	497.20		*495.2*	*5.3*	100	*960*	
	17	503.0	497.10		*495.1*	*7.9*	100	*960*	
	18	502.7	497.20		*495.2*	*7.5*	100	*960*	
	19	502.3	497.10		*495.1*	*7.2*	100	*960*	
	20	502.0	497.10		*495.1*	*6.9*	100	*960*	
	21	501.5	497.50		*495.5*	*6.0*	100	*960*	
	22	501.0	493.70		*491.7*	*9.3*	100	*960*	
	23	500.5	493.40		*491.4*	*9.1*	100	*960*	
	24	500.0	493.40		*491.4*	*8.6*	100	*960*	
B	25	499.7	493.40	2-5	*491.4*	*8.3*	100	*960*	*13,440*
	26	499.3	493.40		*491.4*	*7.9*	100	*960*	
	27	499.0	493.20		*491.2*	*7.8*	100	*960*	
	28	498.0	493.00		*491.0*	*7.0*	100	*960*	
	29	498.0	493.00		*491.0*	*7.0*	100	*960*	
	30	499.0	493.00		*491.0*	*8.0*	100	*960*	
	31	499.5	493.10		*491.1*	*8.4*	100	*960*	
	32	500.0	493.10		*491.1*	*8.9*	100	*960*	

Installed capacity (gpd) *30,720*

Sidewall height = 2 ft
Trench width = 3 ft
Application rate = 2.0 gpd/ft², MBR effluent
trench length = 100 ft
calculated values in italics
gpd = gallons per day
msl = mean sea level in feet
laterals in each trench are at same elevation

SITE PLAN



KEY NOTES

line symbol	description
WW	wastewater
TW	treated water
V	vent (to atmosphere)
PE	polyethylene
E	electric power wire
PVC	sch 40 polyvinyl chloride
OC	odor control
DWV	drain waste vent polyvinyl chloride
ECPVC	polyvinyl chloride electrical conduit

LEGEND

- ISOLATION VALVE
- CONTROL VALVE
- CHECK VALVE
- FLOW ARROW TO OR FROM OUTSIDE PROJECT LIMITS

PIPE IDENTIFIER:

#-XX-XXX
- PIPE MATERIAL
- PIPE FUNCTION
- NOMINAL PIPE SIZE (IN INCHES)

NO.	REVISION	DATE
2	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4.5.21
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/7/21
DIRECTOR — DATE 4-7-21

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE 3/3/2021

OWNER/DEVELOPER
CATTAIL CREEK COUNTRY CLUB, INC
3600 CATTAIL CREEK DRIVE
GLENWOOD, MD 21738
PHONE #: 410-489-4653

Hydro-Terra GROUP
www.hydro-terra.com
(410) 861-5376

2021.3.1

DESIGN BY: MJM
DRAWN BY: MJM
CHECKED BY: MDH
DATE: FEB. 2020
SCALE: AS SHOWN

PROFESSIONAL CERTIFICATE
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. 50293 EXPIRATION DATE: 12-15-2022

SHEET 7 OF 10

REVISED SITE DEVELOPMENT PLAN

CATTAIL CREEK COUNTRY CLUB
3600 CATTAIL CREEK DRIVE
ZONED: RC-DEO

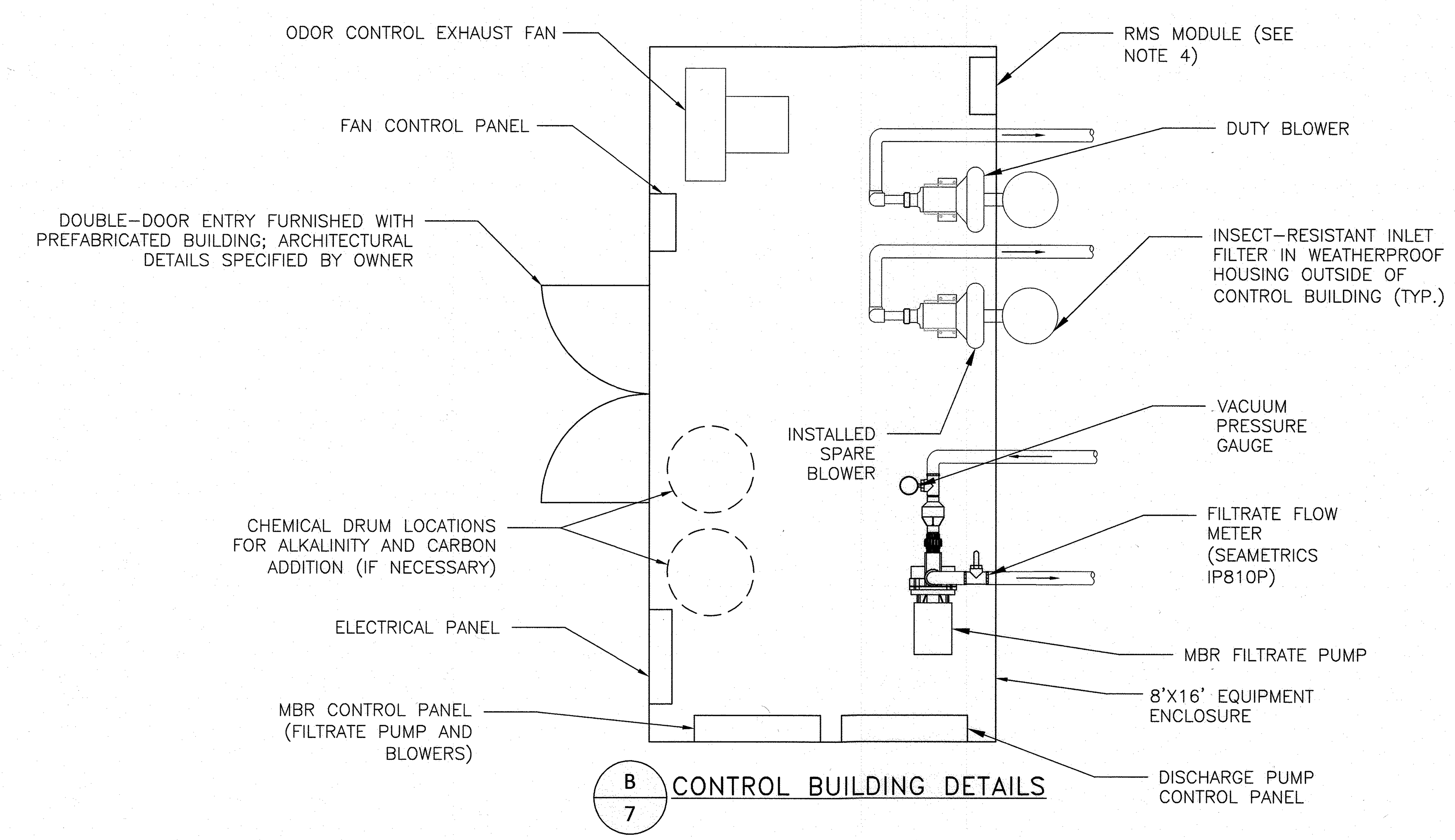
TAX MAP: 21 GRID: 8 PARCEL: 211
4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TAX MAP - 21 GRID - 8 PARCEL - 211

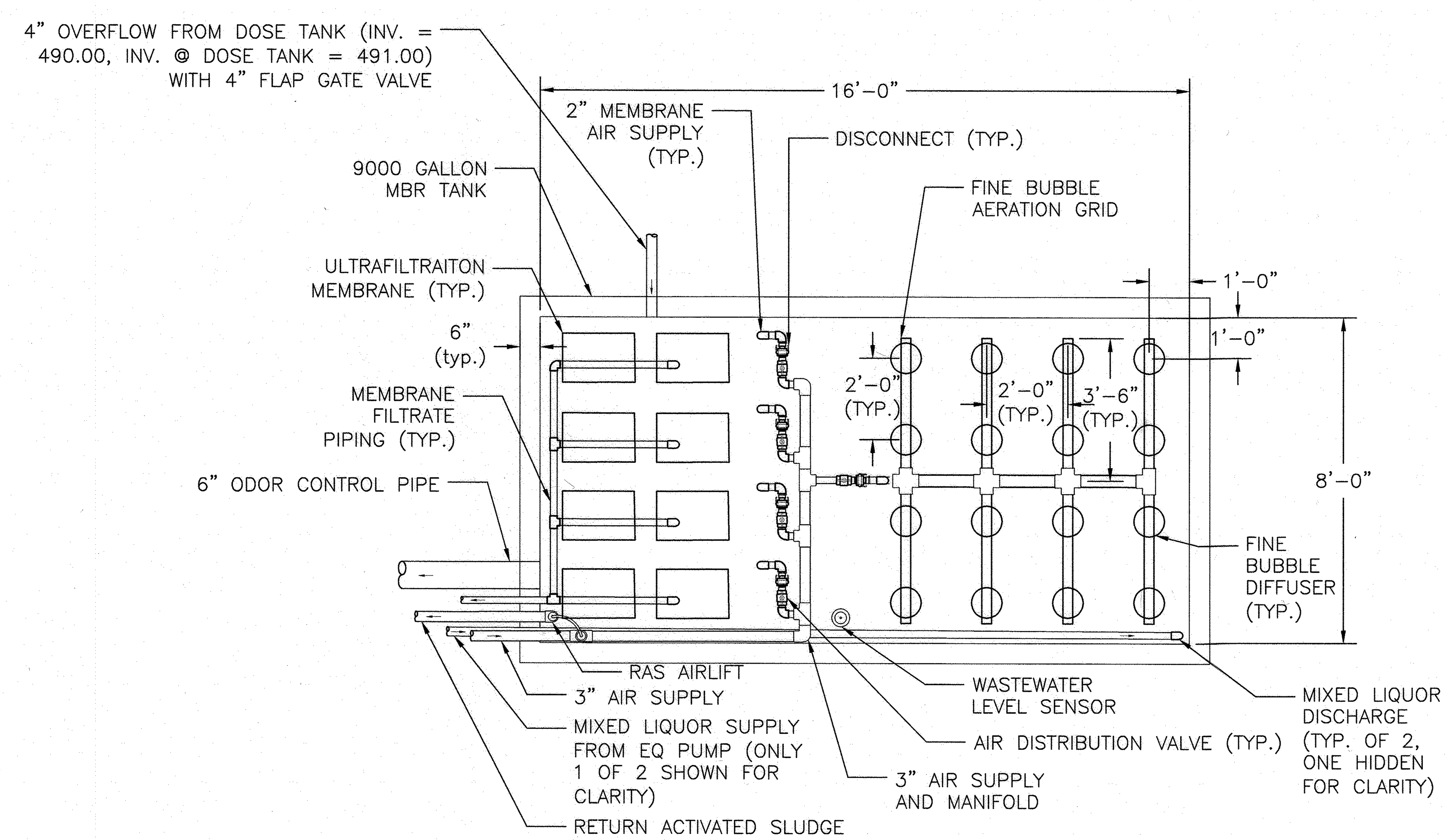
SDP-96-015

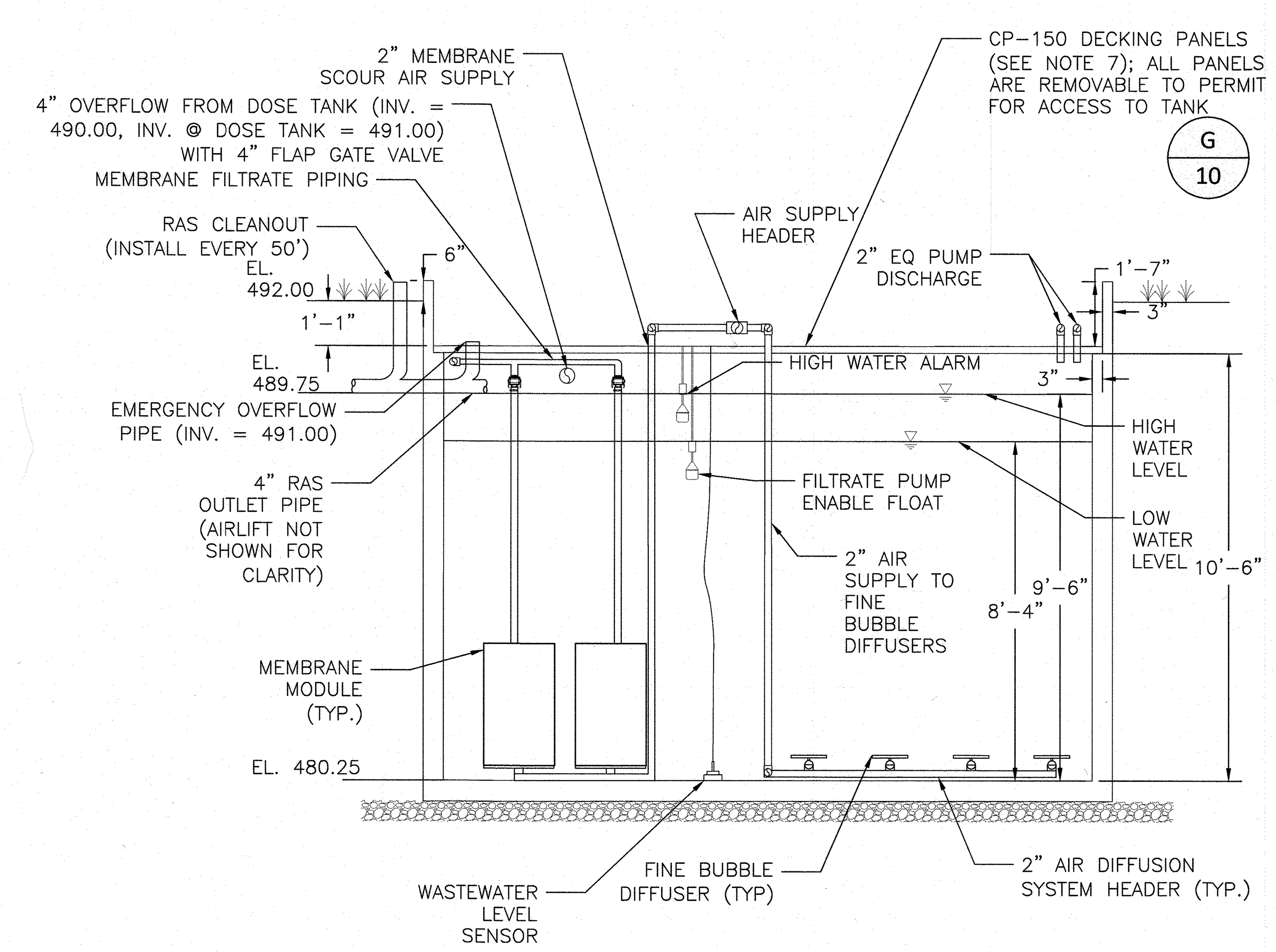
NOTES:

1. Pipe penetrations in new concrete walls will be sealed via Press–Seal Cast–A–Seal boot connectors. Pipe penetrations in existing concrete structures will be sealed via Press–Seal PSX boot connectors.
2. All control panels will have NEMA 4X enclosures with hinged, lockable doors.
3. Membrane bioreactor (MBR) treatment system manufacturer (TSM) will be Biomicrobics, BioBarrier model HSMBR 6.0–N or approved equal.
4. Control building will have interior and exterior lighting, gable venting, insulation and temperature control to ensure chemicals remain within operational thermal range year–round and housed equipment is not operated above manufacturer's specified temperature. 120V convenience outlets will be spaced on walls every 8'.
5. A remote monitoring system (RMS) will be installed to allow remote observation of the treatment system and alert the owner and operators of alarm conditions. RMS will be by OnSet Computer Corporation, P/N RX3000. RMS will monitor, at a minimum, indoor and outdoor air temperature; filtrate pump suction pressure; blower air pressure; dose tank and MBR tank levels; filtrate pump discharge flow rate.
6. Chemical feed pumps will be Stenner–style tube pumps with sizing and rates as needed. Discharge tubing will be connected to recirculation line run through conduit from the treatment building to the treatment area.
7. FRP deck panel system will be Superplank CP150 by Creative Pultrusions or approved equal. Removable panels will be installed over membrane modules to allow for access for removal. Create access by removing bottom flange from hatchway groove, and bottom flange from adjacent panel's groove, and installing handles onto hatchway panel (see detail on sheet 10).
8. Precast concrete tank will be provided by Gillespie Precast or approved equal, and installed per these drawings. Pipe sleeves will be cast into walls as sch. 40 PVC pipes 2" in diameter larger than process pipe, and appropriate penetration seals will be provided.
9. Existing site layout base on site survey and drone mapping, and as–built drawings from Clark, Finefrock and Sackett, Inc. dated 4–17–96 (SDP–96–15, job no. 94–189).
10. Fine bubble diffusers will be EDI FlexAir High–Capacity 9" diffusers with ¾" NPT(M) connection and will be installed with a PVC ¾" insertion bushing that is secured to the 2" air head via compression and solvent weld.
11. Installation, startup and sludge seeding of MBR will be completed per manufacturer's instructions. Refer to manufacturer's and Engineer's O&M manual for proper use and care of MBR modules.
12. Blowers will be Atlantic Blower model AB–700 or approved equal. Blowers will have separate, lockable hinged control panels.
13. RAS ALP depth and air flow rate will be set such that MBR water level is never drawn down below top of membrane modules. Once wetted, membrane modules cannot be unsubmerged unless by following strict protocol of membrane manufacturer.
14. Chemical feed systems for alkalinity or carbon addition are assumed to not be necessary. Should chemical analysis of effluent and process flows indicate otherwise, consult the Engineer.
15. System operation, maintenance, effluent sampling, and reporting will be conducted as stipulated by the groundwater discharge/NPDES permit, the issued Operation and Maintenance Manual, and other requirements imposed by the Owner, Engineer, or federal, state or local approving authorities.
16. Should re–route of pro shop gravity sewer line prove impossible via 1% gravity sewer pipe, consult with Engineer for alternatives.
17. Odor control fan will be Cincinnati Fan model PB–10A, or approved equal. Interior components contacting process air will be of corrosion–resistant construction (e.g. aluminum).



B / 7 CONTROL BUILDING DETAILS





A / 7 MEMBRANE BIOREACTOR PLAN AND SECTION

SCALE: ⅜" = 1'–0"

4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TAX MAP - 21 GRID - 8 PARCEL - 211

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4-5-21
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/7/21
DIRECTOR	DATE 4-7-21

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE 3/2/2021

OWNER/DEVELOPER
CATTAIL CREEK COUNTRY CLUB, INC.
3600 CATTAIL CREEK DRIVE
GLENWOOD, MD 21738
PHONE #: 410-489-4653

NO.	REVISION	DATE
8	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21

Hydro-Terra GROUP
www.hydro-terra.com
(410) 861-5376

DESIGN BY:	MJM
DRAWN BY:	MJM
CHECKED BY:	MDH
DATE:	FEB. 2020
SCALE:	AS SHOWN

PROFESSIONAL CERTIFICATE
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. 50293 EXPIRATION DATE: 12-15-2022

2021-3-1

SHEET 8 OF 10

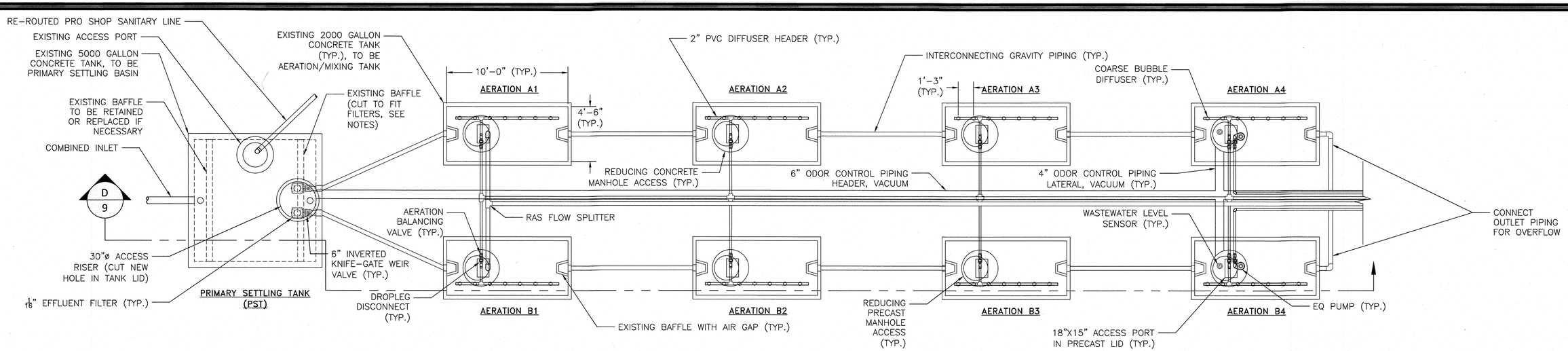
REVISED SITE DEVELOPMENT PLAN

CATTAIL CREEK COUNTRY CLUB
3600 CATTAIL CREEK DRIVE
ZONED: RC-DEO

TAX MAP: 21 GRID: 8 PARCEL: 211
4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

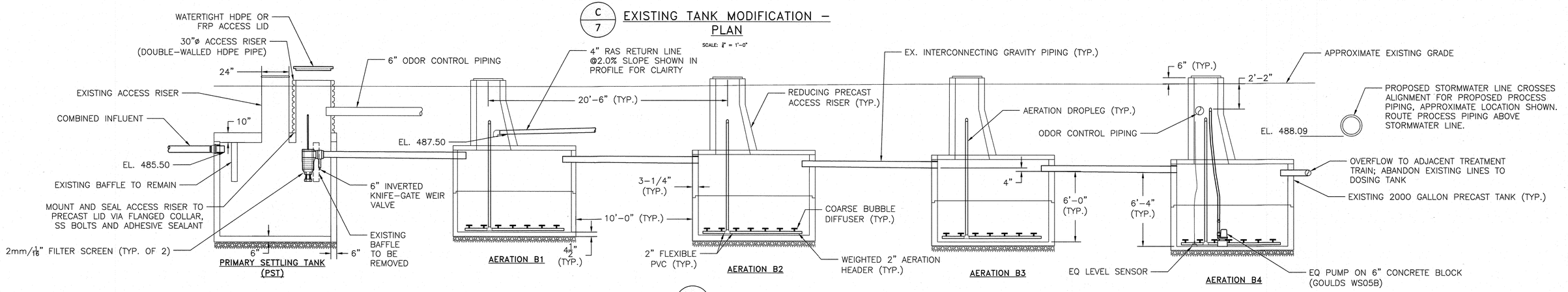
Plotted on: February 23, 2021

SDP-96-015



C/7 EXISTING TANK MODIFICATION – PLAN

SCALE: 1" = 1'-0"



D/9 EXISTING TANK MODIFICATION – B TRAIN SECTION

SCALE: 1" = 1'-0"

NOTES:

1. All connections of risers and pipes to existing tanks will be sealed. Water-tight testing will be conducted post-installation (24 hr watertight test). Ensure tanks are filled to normal operating levels and cut off flow to tanks via pumping out PST. Record water levels when flow is cut off, and again after 24 hours. Readings will be within 0.5% of each other. Inspect concrete risers and covers for evidence of inflow and infiltration (I&I). Seal all new riser penetrations with watertight sealing methods (e.g. Press-Seal PSX connectors). Spray coat potential leakage areas (e.g. seams between concrete joints) with polyurethane coating.
2. All components submerged in wastewater, exposed to wastewater tank headspace, or to the exterior environment (soil or outside air) will be of corrosion resistant construction. Examples of acceptable materials are PVC, HDPE, FRP, stainless steel, concrete and aluminum. Galvanized steel, coated steel, and cast iron components will not be permitted unless specifically noted.
3. Pipe penetrations in existing concrete walls and access risers will be via core-drilled holes and sealed. Pipe penetrations through plastic access risers will be sealed with polyurethane expanding foam and marine adhesive sealant.
4. Coarse bubble diffusers will be Hydro-Aerobic Hydro-Ceal HA-75 diffusers with 3/4" NPT(M) connection and will be installed with a PVC 3/4" insertion bushing that is secured to the 2" air head via compression and solvent weld.
5. Flow will be split evenly between the A and B aeration trains via adjustable balancing weirs in the PST. Adjustability will be accomplished with rising stem extension via FRP and stainless steel threaded mounts.
6. Odor control piping will be schedule 40 PVC pipe. Connections will be water- and air-tight.
11. The services of both Miss Utility and private utilities locator(s) will be employed to determine utilities conflicts with proposed infrastructure. It will be the responsibility of the Contractor to identify all existing utilities in the vicinity of the proposed improvements, make all reasonable efforts to avoid contact with them during installation, and repair at their own expense any damaged utilities.
12. A-train aeration section is mirror image of B-train section.
13. Filter screen will be 1/16" filtration size Polylok PL-525 filter. Baffle will be removed via confined space entry utilizing OSHA-approved techniques.
14. No tank lid will be removed to construct the improvements specified herein. Coarse bubble aeration components will be installed with flexible plumbing sections and weighted ends for entry-free installation.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4.5.21
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/7/21
DIRECTOR	DATE 4.7.21

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

For COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE 3/19/21

OWNER/DEVELOPER

CATTAIL CREEK COUNTRY CLUB, INC
3600 CATTAIL CREEK DRIVE
GLENWOOD, MD 21738
PHONE #: 410-489-4653

NO.	REVISION	DATE
4	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21

Hydro-Terra GROUP
www.hydro-terra.com
(410) 861-5376

2021-3.1

DESIGN BY:	MJM
DRAWN BY:	MJM
CHECKED BY:	MDH
DATE:	FEB. 2020
SCALE:	AS SHOWN

PROFESSIONAL CERTIFICATE

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. 50293 EXPIRATION DATE: 12-15-2022

9 SHEET OF 10

REVISED SITE DEVELOPMENT PLAN

CATTAIL CREEK COUNTRY CLUB

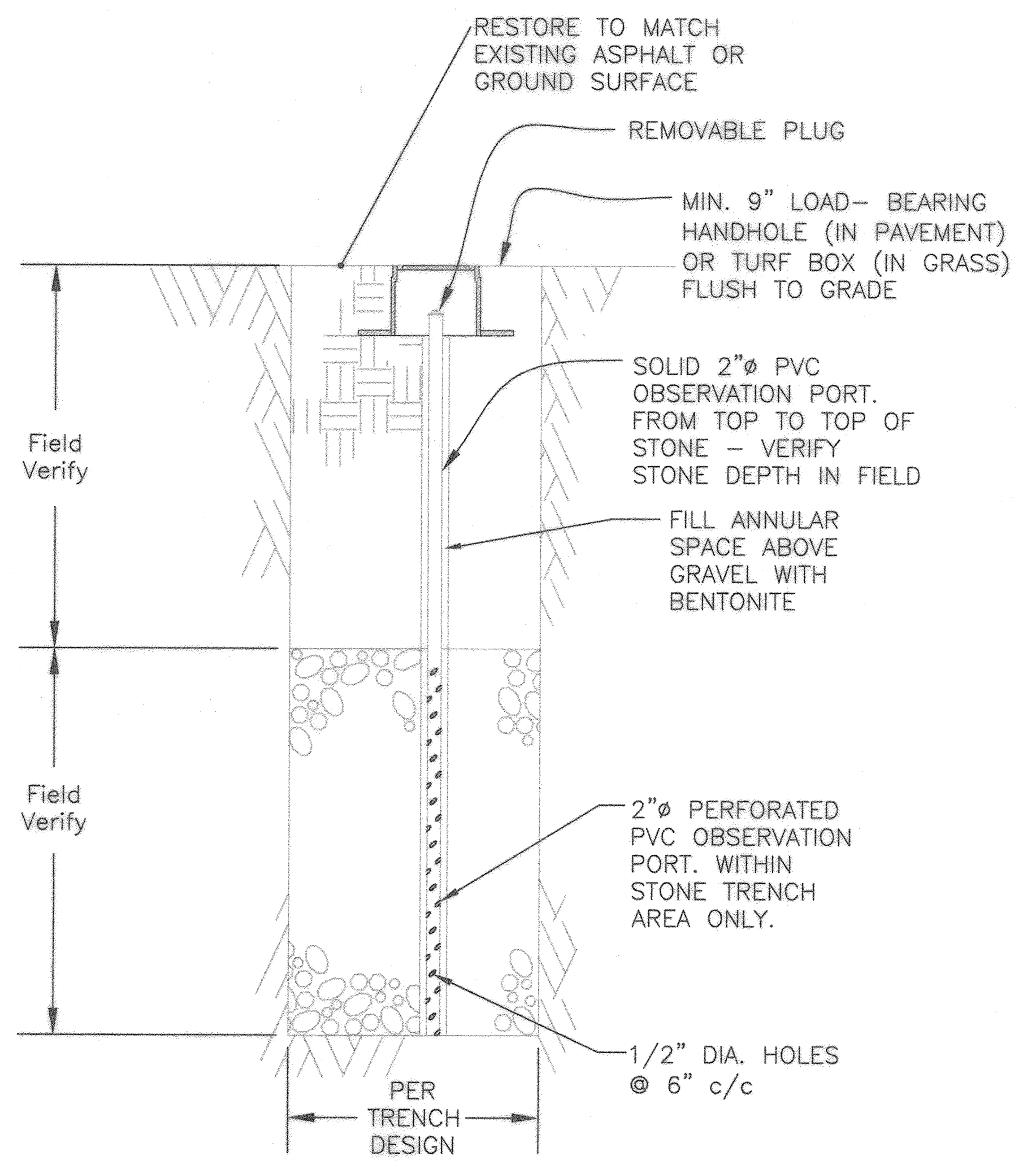
3600 CATTAIL CREEK DRIVE
ZONED: RC-DEO

TAX MAP: 21 GRID: 8 PARCEL: 211
4TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

4TH ELECTION DISTRICT TAX MAP - 21 GRID - 8 PARCEL - 211 HOWARD COUNTY, MARYLAND

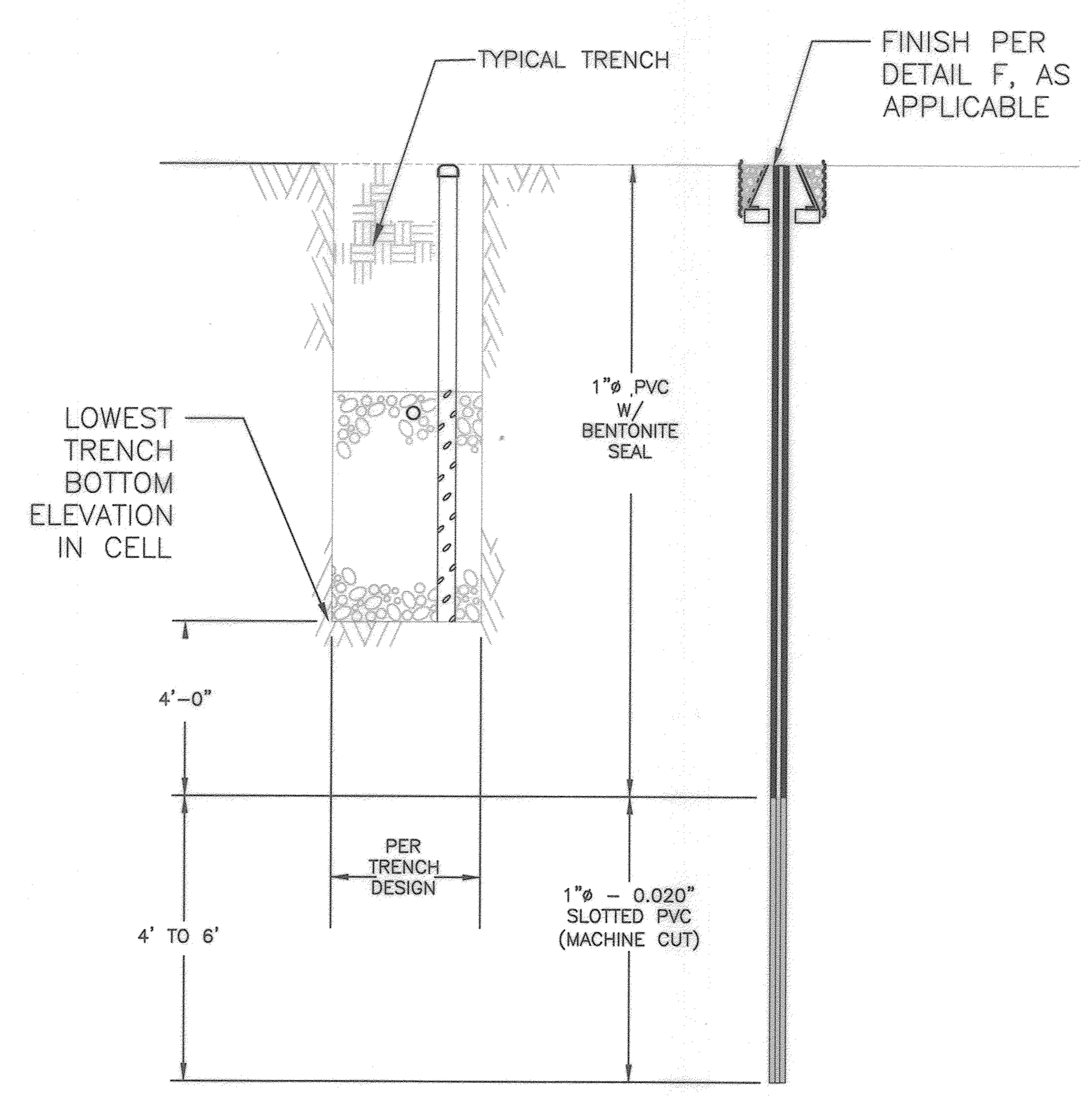
Plotted on: February 23, 2021

SDP-96-015



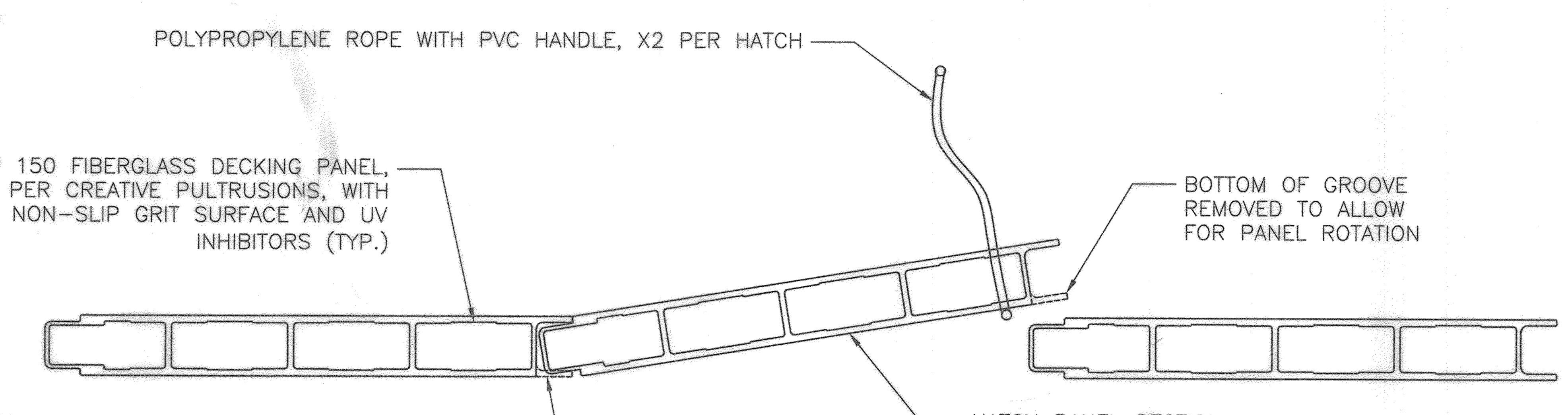
OBSERVATION PORT/LATERAL TURNUP - UNDER PAVEMENT (E/7)

NOT TO SCALE



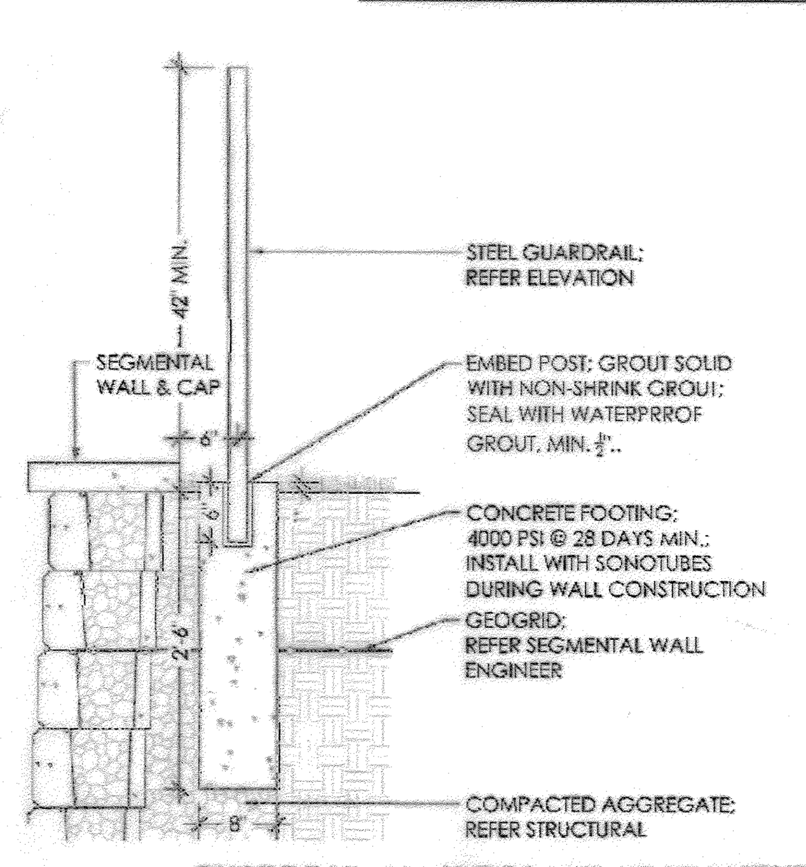
TYPICAL PIEZOMETER (F/7)

NOT TO SCALE



FIBERGLASS HATCH - CP 150 PANELS (G/8)

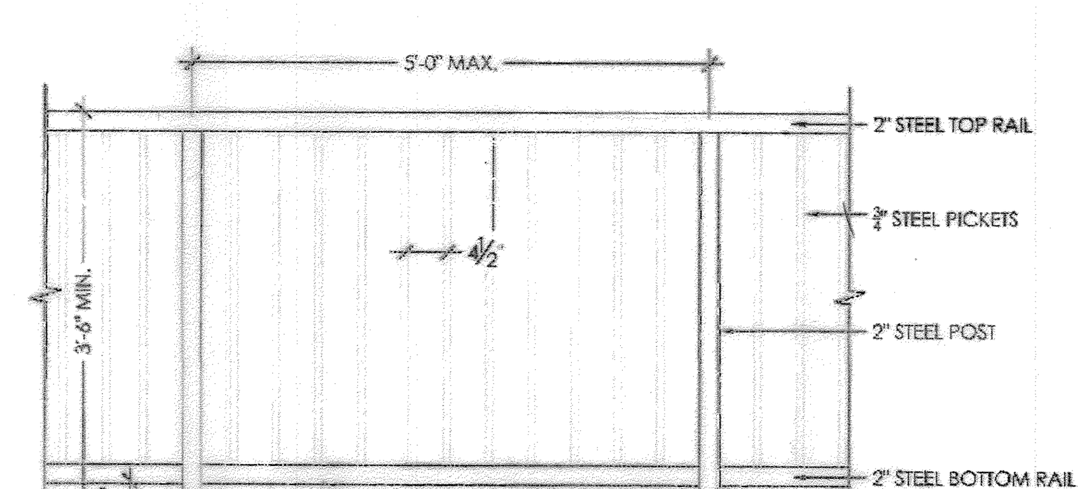
NOT TO SCALE



NOTES:
1. REFER SEGMENTAL WALL ENGINEER FOR WALL DETAILS.

GUARDRAIL IN LANDSCAPE AT SEGMENTAL WALL

NOT TO SCALE



NOTES:
1. ALL METAL MEMBERS TO BE PAINTED TO MATCH BUILDING RAILING.
2. ALL GAPS TO BE LESS THAN 4" IN ANY DIRECTION PER CODE.
3. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR APPROVAL BY LANDSCAPE ARCHITECT.
4. GUARDRAIL TO BE IN ACCORDANCE WITH SECTION 10 OF THE IBC 2018 CODE.

GUARDRAIL ELEVATION

NOT TO SCALE

9

NOTES:

1. INSTALLER WILL ENSURE OBSERVATION PORT INSTALLATION PENETRATES TRENCH STONE AND EXTENDS TO TRENCH BOTTOM.
2. ALL ON-SITE WASTEWATER SYSTEMS WILL BE INSPECTED AND UPGRADED AS NECESSARY PRIOR TO USE AND OCCUPANCY OF THE CLUBHOUSE.

DESIGN CALCULATIONS

Cattail Creek Country Club Wastewater System Rehab

Membrane Bioreactor (MBR) Design

Overall Site Water Use (total = 11,150 gpd)

Location	MDF (gpd)
*Clubhouse and Pro Shop	7500
Pool House	2750
Maintenance Shop	500
Halfway House	400

***Flow Processed by Proposed Treatment System Upgrade**

Maximum daily design flow	7,500 gpd
Maximum design flow to drainfield	7,500 gpd
Recirculation percentage	500 %
Equalized Flow (EF) with recirculation	45,000 gpd
	31.3 gpm

Raw wastewater characteristics:		Mass Loading at MDF
BOD	800 mg/L	50.07 lb/day
TSS	500 mg/L	31.30 lb/day
TN	120 mg/L	7.51 lb/day
FOG (post-grease trap)	<40 mg/L	

Design effluent wastweater characteristics:		Mass Loading at MDF
BOD	30 mg/L	1.88 lb/day
TSS	30 mg/L	1.88 lb/day
TN	10 mg/L	0.63 lb/day

Treatment Stage Specifications

	PST	Anox	Aer1-4	MBR	Dose (dia.)	unit
Length	10.00	10.00	10.00	16.00	---	ft
Width	10.00	4.5	4.5	8	8	ft
Outlet Ht.	6.30	6.00	6.00	9.50	8.70	ft
# tanks	1	4	4	1	1	
Volume	4712	8078	8078	9096	3271	gal
Specific Capacity	62.33	112.20	112.20	79.79	31.33	gal/inch
Air Req'd		131		147		CFM
Pressure		79.2		118.8		inch H2O
Total length		40	40			ft
Diffuser Spacing		15	15			inch, C-C
Diffuser count		32	32	32		
CFM/diffuser		2.04		4.60		CFM

Treatment System Parameters

PST retention time	0.63 day	Total aeration req'd	278 cfm
Aerobic process retention time	4.31 hr	max water column	65 in H2O
Anoxic process retention time	4.31 hr	Blower (Atlantic)	AB-301
tank volume req'd for membranes (per M&E)	0.025 m3/m2	*Total membrane area*	*1920 m2*
Surface area per membrane cartridge	120 m2	***Aer. vol. provided***	***17,174 gal***
# cartridges	16	membrane tank vol.	48 m3
Bioprocess Calculations			12680.3 gal
Membrane tank MLSS	12 g/L	Aerobic Tank MLSS	10 g/L
Design SRT	18.4 day	***Aer. vol. required***	38.56 m3
Biomass production, per day	25.15 kg/day		**10,187 gal**
Xa	12 kg/m3	module height	5.34 ft
Va	48 m3	module width	4.04 ft
Xm	12 kg/m3	module length	2.82 ft
Vm	38.56 m3	freeboard needed	1.48 ft
Qw	3 m3/day	membrane tank SWD	8.33 ft, min
SRT	28.85 day		9.50 ft, max
flow output per cartridge	0.5 gpm	tank interior width	8 ft
max instantaneous flow output	8 gpm	tank interior length	16 ft
max daily output, at 1/6 rest time	9,600 gpd	tank volume	7979 gal, min
		Gillespie 9000 gal HT	9096 gal,max
		MBR tank EQ capacity	1117 gal

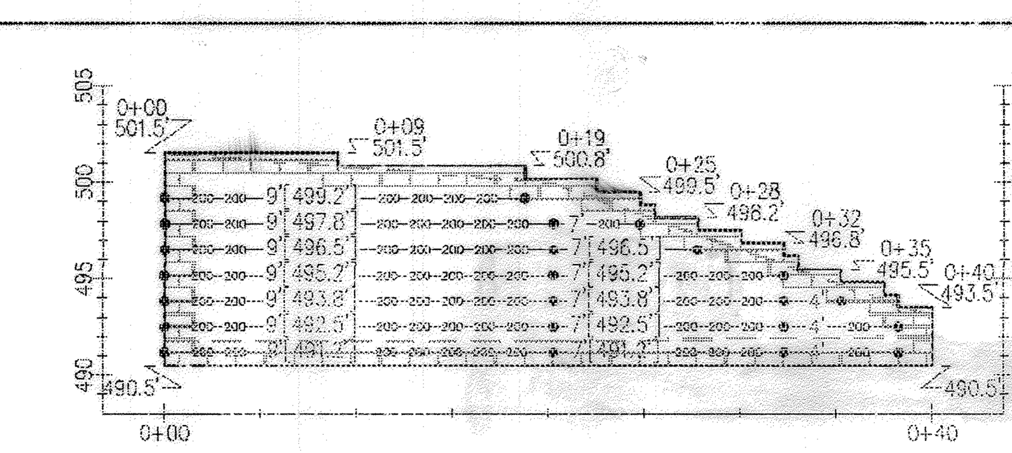
Equalization Pumping Calculations

total EQ flow	31.25 gpm	**design EQ flow**	**55 gpm**
EQ force main diameter	2.067 in (2")	dose time	20 min
recirculation force main length	72 ft	*dose volume*	*1100 gal*
static head difference	12.4 ft	*dose/day at EF*	*40.9*
TDH	**18.12 ft**	dose/pump/day	20.5
recirulcation pump (Goulds)	WE03		
recirculation low water cutoff (piggyback switch)	12 in	*pump off time*	*0.8 hr*
		low water cutoff/timer on	18 in
dose pump elevation (ft msl)	250.30	alarm height	68 in
minor loss equivalent lengths (ft)	40	timer override height	70 in
dual alternating pumps (Goulds)	WS05BHF	*combined EQ tank capacity*	*56.10 gal/inch*
		total EQ volume provided (EQ+MBR)	*3922 gal*
pump control panel (SJE Rhombus IFS)	31W124H4D8AC10E18A		

Emergency Storage Volume (ESV) Calculations

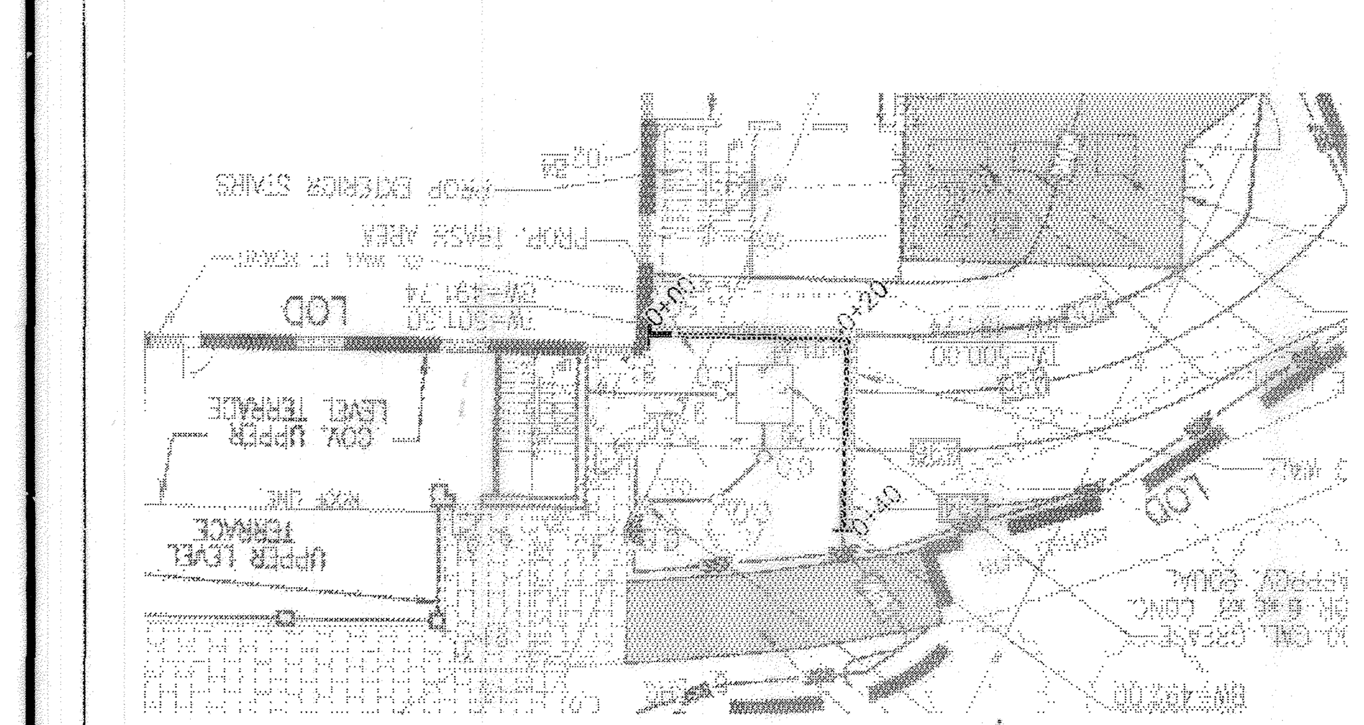
Dose tank diameter	8 ft	Min ESV required	7,500 gal
Dose tank max depth	15.5 ft	**Total ESV provided**	**8,128 gal**
Dose tank ESV bottom height	5.5 ft	Dose Tank ESV	3,760 gal
MBR tank emegency volume height	1.75 ft	MBR tank ESV	1,676 gal
Anoxic tank emergency volume height	1 ft	Anoxic Tank ESV	2,693 gal

9 RETAINING WALL PLAN, NOTES AND DETAILS



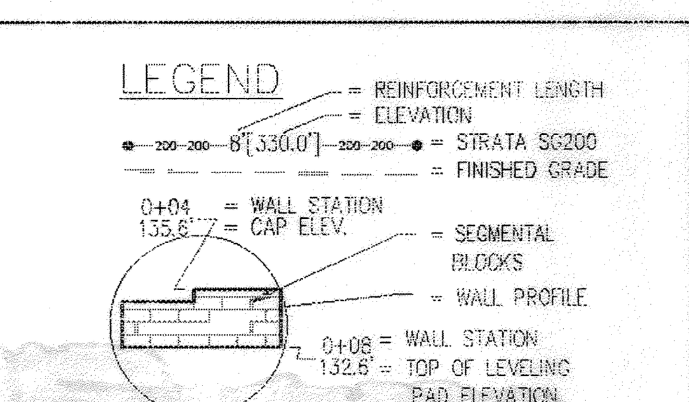
PROFILE VIEW

SCALE: 1" = 10'



PLAN VIEW

SCALE: 1" = 30'



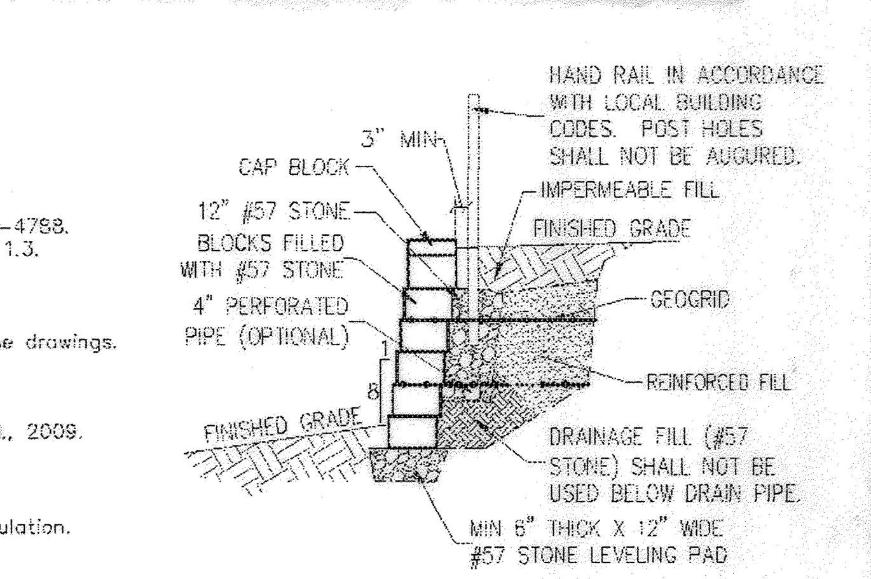
LEGEND

CONSTRUCTION NOTES

1.0 GENERAL
A. Designer - Geomo Enterprises, Inc. (703) 266-7100
B. Installer - Segmental Wall Specialists, Inc. (703) 361-4040
C. General Contractor (GC) - Scott Long Construction (703) 802-7500
D. Civil Engineer - Robert H. Vogel Engineering, Inc. (410) 461-7666
E. Geotechnical Engineer - Hillis-Carnes Engineering Associates, Inc. (410) 880-4788.
F. Factor of Safety: Sliding = 1.5, Overturning = 2.0, Bearing = 2.0, Global = 1.3.
G. Uniform Surcharge (Live Load, where applicable) = 0 psf.
H. Maximum Applied Bearing Pressure = 1500 psf.
I. Hydrostatic Pressure = none
J. Notify Designer if soil, drainage, or site conditions are not as noted on these drawings.
K. Locate all utilities prior to construction.
L. Maintain excavations per 29 CFR Part 1926, OSHA - Excavation Standards.
M. Building Code: IBC 2015.
N. Design Standard: NCMA Design Manual for Segmental Retaining Walls, 3rd Ed., 2009.
O. Reference Documents:
1. Site plan sheet 6 of 6 dated 5/3/2019 by Civil Engineer.
2. Geotechnical report dated 12/7/2018 by Geotechnical Engineer
P. Drainage: Wall design does not allow for surface or subsurface water accumulation.

2.00 MATERIALS
A. Geogrid- Strata SG200.
B. Segmental Concrete Facing Units (Blocks) - Anchor Diamond Pro.
C. Geotextile Filter - Mirafi 140N or equal.
D. Drainage Fill (Unit Fill, Leveling Pad) - #57 stone.
E. Reinforced Fill (Infill) - Soil with less than 35% passing #200 sieve and PI < 10.
F. Impermeable Fill (Cap Fill): Soil with greater than 50% passing #200 sieve.

3.00 EXECUTION
A. Retaining wall shall be located in the field with survey stakes by GC or Civil Engineer.
B. Subgrade conditions not meeting the required strength shall be removed and replaced.
C. Blocks and geogrid shall be placed in accordance with manufacturer's recommendations.
D. Construction equipment shall not be operated directly upon the soil reinforcement.
E. Only hand-operated compaction equipment shall be allowed within 3 feet of wall face.
F. Compact soil to min. 95% Std. Proctor density (ASTM D698) within ±2% of optimum moisture content.
G. Permanently secure cap units to blocks using a manufacturer-approved adhesive.
H. Place impermeable fill over geotextile filter at top of drainage fill zone.
I. Maintain grade at top of wall to allow surface water to flow away from wall face.



TYPICAL SECTION

NOT TO SCALE

11/19/2020

Geomo Enterprises, Inc.
12975 Hampton Forest Ct.
Fairfax, VA 22030

Revision	Date	Project: CATTAIL CREEK CLUBHOUSE, HOWARD COUNTY, MARYLAND
PERMIT	11/19/2020	Title: SEGMENTAL RETAINING WALL SYSTEM PLAN AND PROFILE, LEGEND TYPICAL SECTION AND CONSTRUCTION NOTES

Sheet: RW-1 of 1
3654

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4-5-21

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/7/21

DIRECTOR — DATE 4-7-21

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

COUNTY HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT — DATE 3/2/2021

FOR REVISION #9 ONLY — 7-7-21

OWNER/DEVELOPER
CATTAIL CREEK COUNTRY CLUB, INC
3600 CATTAIL CREEK DRIVE
GLENWOOD, MD 21738
PHONE #: 410-489-4653

NO.	REVISION	DATE
9	REVISE THE PLAN TO ADD A RETAINING WALL, SECTIONS AND DETAILS	7-7-21
8	REVISE THE PLAN TO MODIFY THE EXISTING BUILDING BY ADDING ADDITIONS TO THE NORTHWEST AND SOUTHWEST SIDES OF THE CLUBHOUSE	3-5-21

Hydro-Terra Group
www.hydro-terra.com
(410) 861-5376

DESIGN BY:	MJM
DRAWN BY:	MJM
CHECKED BY:	MDH
DATE:	FEB. 2020
SCALE:	AS SHOWN

PROFESSIONAL CERTIFICATE

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. 50293 EXPIRATION DATE: 12-15-2022

10 SHEET OF 10

REVISED SITE DEVELOPMENT PLAN

CATTAIL CREEK COUNTRY CLUB

3600 CATTAIL CREEK DRIVE
ZONED: RC-DEO

TAX MAP: 21 GRID: 8
4TH ELECTION DISTRICT

PARCEL: 211
HOWARD COUNTY, MARYLAND

Plotted on: February 23, 2021

SDP-96-015