Stormwater Management Requirements & the Building Permit Process

Step 1

When was the lot created the building permit is being applied for?

Was the lot a subdivision or off-conveyance that was required to address the 2000 MD stormwater management requirements?

Was the lot recorded prior to any stormwater management requirements?

A lot that addressed stormwater management ESD requirements at the time of subdivision can grandfather the approval provided the square feet of the proposed dwelling is equal or less than what was shown at the time of subdivision.

This even applies to lots that showed 1 drywell for a 2,400– 3,500 sq. ft. dwelling at the time of lot recordation.

A lot of record created prior to the enforcement of stormwater management laws(1984) must address current stormwater management requirements as part of the building permit application.

What is required on the plot plan?
What must be included with the plot plan?

Stormwater Management Design Computations

Area of the lot and limit of disturbance (L.O.D.) on the lot.

Total impervious area within the L.O.D.

Proposed impervious area being created.

ESD volume required.

ESD volume provided.

The drainage area to the ESD practice must be clearly delineated and the square feet of drainage area (and square feet of impervious area if different) specified.

Designer must address…

Quantity control. Is it a concern? Does this office have known downstream flooding concerns?

The hydrologic soil group delineation must be provided on the plot plan.

Soil testing requirements for specific ESD practices must be met.

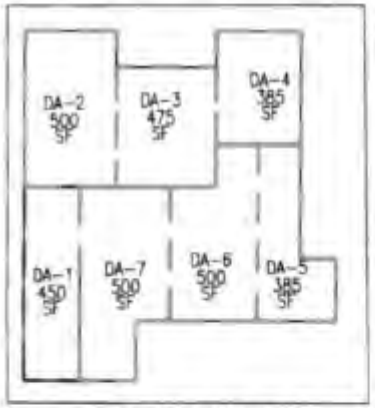
Example 1:

SWM Treatment Site Design Summary

Practice	Area Treated (SF)	Area Treated (Acres)	Impervious Treated (SF)	Pe	Rv	ESDv Required (ft^3)	ESDv Provided (ft^3)
PARCEL 39	24,101	0.55	4,380	1.0	0.21	429	
M-5 DRYWELL#1	885	0.02	885	2.5	0.95	175	175
M-5 DRYWELL#2	950	0.02	950	2.5	0.95	188	188
N-2 Non Rooftop Disconnection	1,180	0.03	1,180	1.0	0.95	93	93
			Total ESDv Provided				457
			ESDv Required			429	

LOT SIZE: 3.009 ac
PROPOSED IMPERVIOUS AREA:
HOUSE 3200 SF
DRIVEWAY 1180 SF
TOTAL 4380 SF

DISTURBED AREA: 24,101 SF



HOUSE DRAINAGE AREA
SCALE: 1 "= 30'

DA 1 & 7= 950 SF- DRYWELL#2 (10'X10'X4.5')
DA 5 & 5= 885 SF- DRYWELL#1 (10'X10'X4.5')

DESCRIPTION	DRYWELL #1		DRYWELL #2	
	INSPECTION DATE	APPROVAL DATE	INSPECTION DATE	APPROVAL DATE
1. EXCAVATE DRYWELL TRENCH AS PER DIMENSION AND ELEVATION AS SHOWN ON THE DETAIL. INSTALL FILTER FABRIC ON THE SIDES.				
2. INSTALL OBSERVATION WELL AND PLACE 12" SAND LAYER.				
3. INSTALL ROOF LEADER INTO DRYWELL TRENCH AS PER DIMENSION AND ELEVATION AS SHOWN ON THE DETAIL AND BACKFILL WITH #57 OR #2 STONE, CLEAN WASHED. PLUG SURCHARGE PIPE CONNECTION.				
4. COVER WITH FILTER FABRIC.				
5. BACKFILL UP TO THE FINISHED GRADE AND STABILIZE.				
6. AFTER 2" GRASS IS ESTABLISHED, REMOVE SINGLE PIPE CONNECTION PLUG, CONNECT DOWNSPOUT SURCHARGE PIPE AND PLACE SPLASH BLOCK.				

CONTACT THE PROFESSIONAL ENGINEER RONALD E. THOMPSON @ VANMAR ASSOCIATES - (301) -829 -2890) 24 HOURS PRIOR TO START OF CONSTRUCTION.

DEVELOPER'S CERTIFICATION

I/WE HEREBY CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) WILL BE CONDUCTED IN STRICT ACCORDANCE WITH THESE PLANS. I/WE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED, INCLUDING THE SUBMITTAL OF "AS-BUILT" PLANS CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER WITHIN THIRTY (30) DAYS OF COMPLETION OF WORK ON THE STORM WATER MANAGEMENT FACILITY/FACILITIES. I/WE ALSO CERTIFY THAT THIS/THESE STORM WATER MANAGEMENT FACILITY/FACILITIES WILL BE INSPECTED DURING CONSTRUCTION BY A REGISTERED PROFESSIONAL ENGINEER IN ACCORDANCE WITH SECTIONS 151.095 AND 151.096 OF THE CODE OF PUBLIC LOCAL LAWS AND ORDINANCES OF CARROLL COUNTY.

SIGNED: DATE:

ENGINEER'S DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN DESIGNED ACCORDING TO CHAPTER 151 OF THE CODE OF PUBLIC LOCAL LAWS AND ORDINANCES OF CARROLL COUNTY AND I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND I AM DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNED: DATE:

RONALD E. THOMPSON
LICENSE NO. 16417 EXPIRATION DATE 09/18/2025

ENGINEER'S "AS-BUILT" CERTIFICATION

I/WE HEREBY CERTIFY THAT THE FACILITY/FACILITIES SHOWN ON THIS/THESE PLAN(S) WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS. I ALSO CERTIFY THAT THIS/THESE FACILITIES WERE INSPECTED IN ACCORDANCE WITH SECTION 151.095 AND 151.096 OF THE CODE OF PUBLIC LOCAL LAWS AND ORDINANCES OF CARROLL COUNTY AND I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNED: DATE:

LICENSE NO 16417 EXPIRATION DATE 09/18/2025

Soil Testing Requirements

If the site has private septic and is a HSG (hydrologic soil group) ‘A’ or ‘B’ with passing perc tests, then no testing is required for downspout drywells. (No ‘A’ soil in Carroll County).

If the site is on public sewer, then soil testing is required for downspout drywells regardless of HSG.

If the site is located in HSG‘C’ and ‘D’, then soils testing is required for downspout drywells at the locations and depths of the drywells.

What type of testing?

A perc test at the proposed drywell bottom elevation.

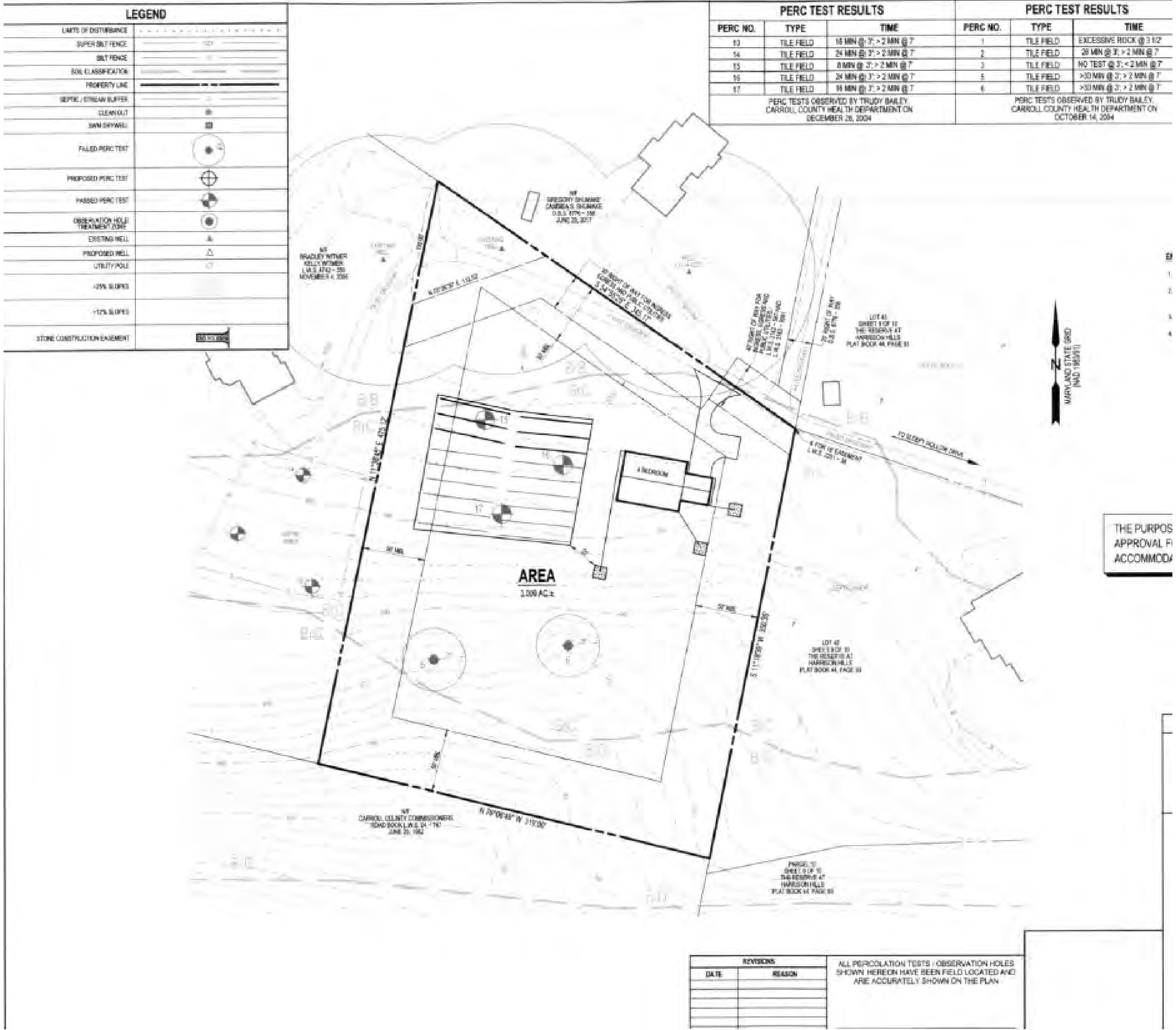
Extend the test 4 ft. below the bottom elevation to determine if permeable soil exists and no evidence of groundwater or bedrock.

Determine there is no evidence of seasonal high groundwater within the soil test profile.

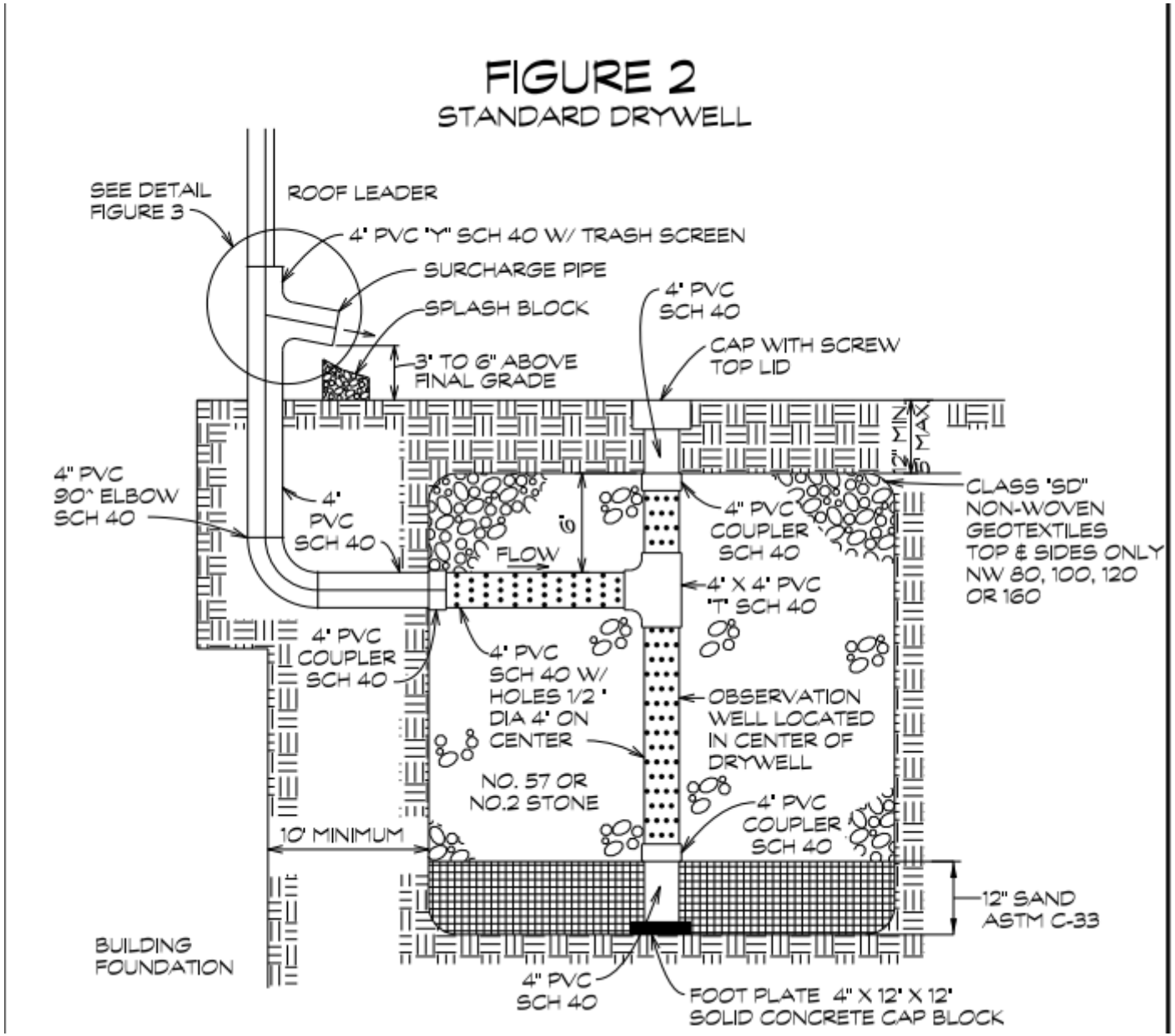
All findings must be documented in the soil report.

The soil testing could prove that other stormwater management BMPs should be considered.

Example 2:


LEGEND
LIMITS OF DISTURBANCE
SUPER SILT FENCE
SILT FENCE
SOIL CLASSIFICATION
PROPERTY LINE
SEPTIC / STREAM BUFFER
CLEAN OUT
SWM DRYWELL
FAILED PERC TEST
PROPOSED PERC TEST
PASSED PERC TEST
OBSERVATION HOLE TREATMENT ZONE
EXISTING WELL
PROPOSED WELL
UTILITY POLE
>25% SLOPES
>12% SLOPES
STONE CONSTRUCTION EASEMENT
PERC TEST RESULTS
PERC NO. | TYPE | TIME
13 | TILE FIELD | 16 MIN @ 3'; > 2 MIN @ 7'
14 | TILE FIELD | 24 MIN @ 3'; > 2 MIN @ 7'
15 | TILE FIELD | 8 MIN @ 3'; > 2 MIN @ 7'
16 | TILE FIELD | 24 MIN @ 3'; > 2 MIN @ 7'
17 | TILE FIELD | 16 MIN @ 3'; > 2 MIN @ 7'
PERC TESTS OBSERVED BY TRUDY BAILEY, CARROLL COUNTY HEALTH DEPARTMENT ON DECEMBER 28, 2004
PERC TEST RESULTS
PERC NO. | TYPE | TIME
1 | TILE FIELD | EXCESSIVE ROCK @ 3 1/2'
2 | TILE FIELD | 28 MIN @ 3'; > 2 MIN @ 7'
3 | TILE FIELD | NO TEST @ 3'; < 2 MIN @ 7'
5 | TILE FIELD | >30 MIN @ 3'; > 2 MIN @ 7'
6 | TILE FIELD | >30 MIN @ 3'; > 2 MIN @ 7'
PERC TESTS OBSERVED BY TRUDY BAILEY, CARROLL COUNTY HEALTH DEPARTMENT ON OCTOBER 14, 2004
AREA
3.009 AC ±
4 BEDROOM
TO SLEEPY HOLLOW DRIVE
MARYLAND STATE GRID (NAD 1983/91)
N
THE PURPOS
APPROVAL F
ACCOMMODA
REVISIONS
DATE
REASON
ALL PERCOLATION TESTS / OBSERVATION HOLES SHOWN HEREON HAVE BEEN FIELD LOCATED AND ARE ACCURATELY SHOWN ON THE PLAN

Note: Do not glue PVC ‘y’ to pipe. Must be able to remove to clean.



Use of Grass Swales

This practice does not require testing.

Depending on lot topography, may be well suited for the site.

If well graded, easy to maintain.

Micro-Bioretention Facility

This practice has a maximum drainage area requirement not to exceed 20,000 square feet.

Can provide management for house and driveway.

Micro-Bioretention Facility

If treating entire house rooftop,

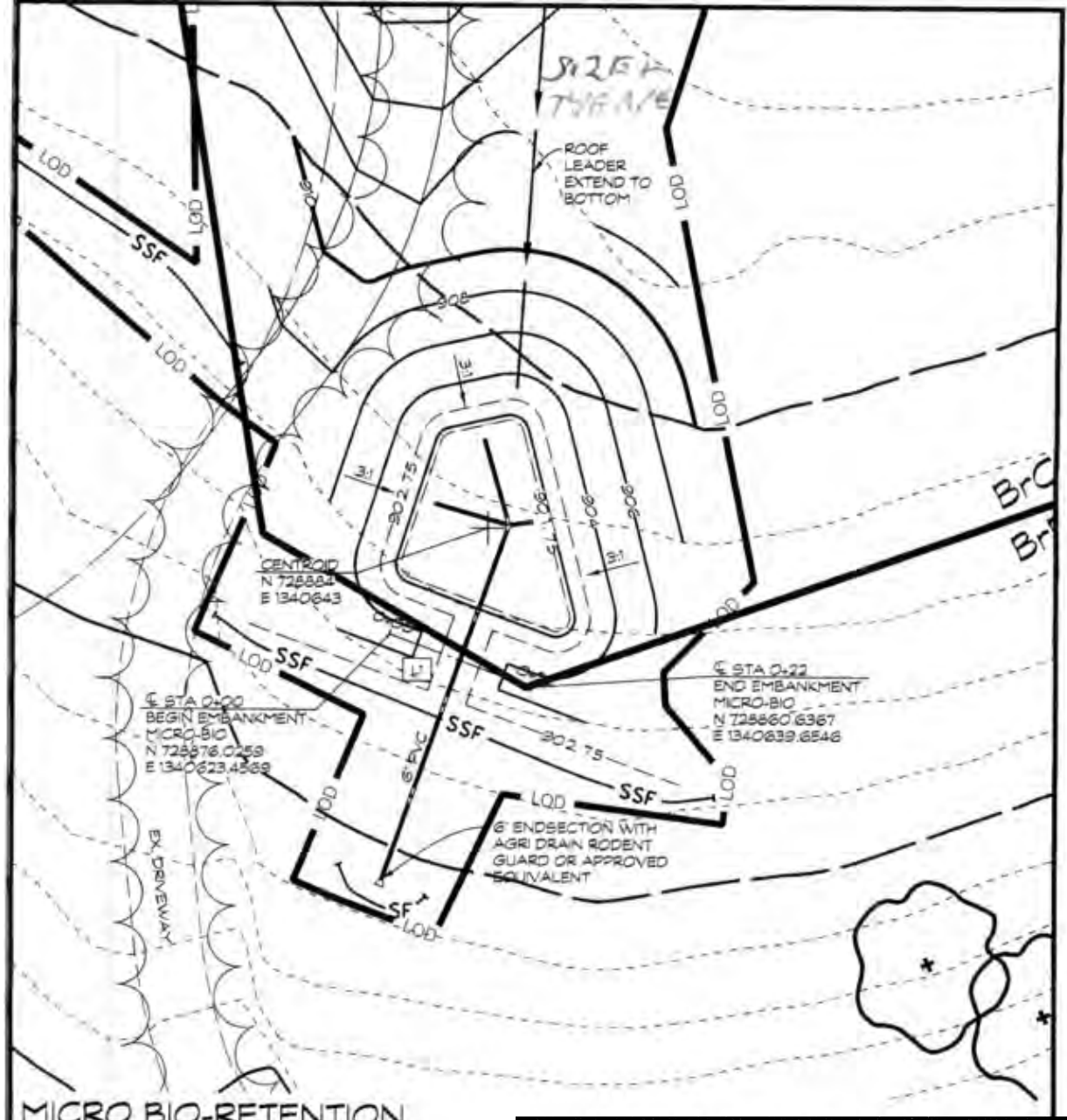
This office will require the rain gutters, downspouts, and conveyance pipes to be designed to capture and convey the volume of runoff that management is being provided for.

The house rooftop runoff must be conveyed with pipes out falling onto the micro-bioretention facility surface, not up the slope.

If the micro-bioretention is providing quantity control,

Roof gutters downspouts and conveyance must be designed.


iStock
Credit: Willowpix
2028599109

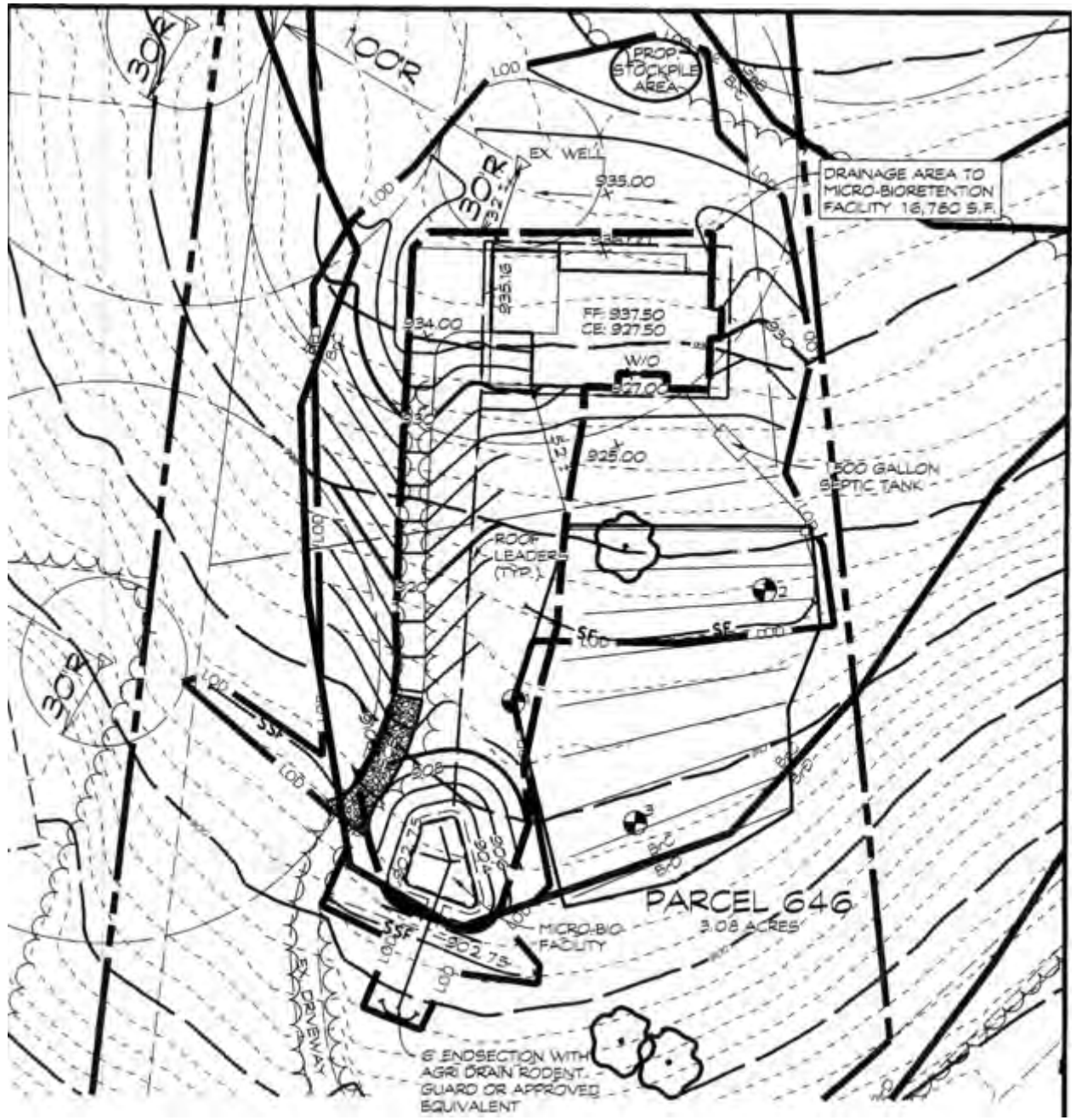


MICRO BIO-RETENTION FACILITY LINE DATA

Ref #	Bearing	Distance
L1	N 46°27'59" W	22.34'

LINE DESIGNATED THUS: [L1]

[redacted]


PROP. STOCKPILE AREA
EX. WELL
935.00
DRAINAGE AREA TO MICRO-BIORETENTION FACILITY 16,760 S.F.
935.16
FF: 937.50
CE: 927.50
934.00
W/O
927.00
925.00
1500 GALLON SEPTIC TANK
ROOF LEADER (TYP.)
MICRO-BIO FACILITY
PARCEL 646
3.08 ACRES
902.75
6' ENDSECTION WITH AGRI DRAIN RODENT GUARD OR APPROVED EQUIVALENT
EX. DRIVEWAY
LOD
SSF
30'R
100'R