

What we will cover



- ✓ Net Usable Lot Area Validation
- ✓ Unobstructed Area Determination
- √ Establishing a Benchmark
- ✓ Sloping Lots
- ✓ System Setbacks Validation
- ✓ Excavation and Fill Determinations
- √ Frequent Flooding
- ✓ Soil Sizing Criteria
- ✓ Surface Water Boundaries (MAFL/MHWL)

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Site Evaluations

Site Evaluation Form DH 4015 (3 of 4)



- Estimated sewage flow, authorized sewage flow, unobstructed area
- Benchmark/reference point
- Setbacks to pertinent features
- Flooding Determination
- 2 Soil profiles, estimated wet season water table elevation (WSWT) and documentation and elevations
- Loading rate, restrictive layers and excavation
- Drainfield configuration (trench vs bed)
- Good for life of permit and 180 days prior to application

(Note: the separation from the bottom of the drainfield to the WSWT is 24 inches)



Net Usable Lot Area 64E-6.005 (7)



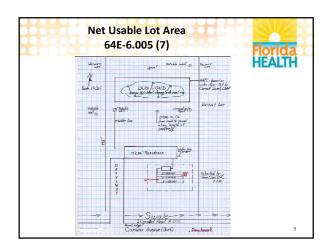
Net usable area is used to calculate the authorized sewage flow for the subject property.

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Net Usable Lot Area 64E-6.005 (7)



"Contiguous unpaved and non-compacted road rightsof-way, and easements with no subsurface
obstructions that would affect the operation of
drainfield systems, shall be included in total lot size
calculations. Where an unobstructed easement is
contiguous to two or more lots, each lot shall receive
its pro rata share of the area contained in the
easement. Surface water bodies shall not be included
in total lot size calculations. subsection 64E-6.008(1),
F.A.C., Table I, shall be used for determining
estimated average daily sewage flows."





Unobstructed Area Determinations

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Unobstructed Area Determinations 64E-6.005 (4)



- Minimum 1.5 X the drainfield area
- Be contiguous (gravity and lift dosed systems)
- Does not include any tanks nor 18 inches from tank
- 100% must meet the same setbacks as the drainfield

Note: Area between drain trenches shall be included in the unobstructed area calculation.

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Unobstructed Area Examples

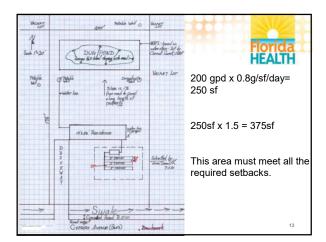


200 gpd / 0.60 gal. per sq.ft. per day for $\underline{\textbf{bed}}$ configuration = 334 sq.ft. drainfield

unobstructed area = (334 x 1.5) 500 sqft

or 200 gpd / 0.80 gal. per sq.ft. per day for <u>trench</u> configuration = 250 sq.ft. drainfield

 $unobstructed\ area = (250 \times 1.5)\ 375\ sqft$



Coastal Construction Control Line



Chapter 64E-6.004(3)(f), FAC and s. 381.0065(4), Florida Statues (FS)

Part of the application information required for permitting.

Established per s. 161.053, FS

See Memos 06-004 and 07-007

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Coastal Construction Control Line Chapter 62B-33, FAC



- Provides the design and siting requirements that must be met to obtain a coastal construction control line permit.
- Approval or denial of a permit application is based upon a review of the potential impacts to the beach dune system, adjacent properties, native salt resistant vegetation, and marine turtles.



Coastal Construction Control Line 64E-6.004(3)(f), FAC



- Permit or exemption notice required if any part of the system will be seaward of the CCCL.
- If you cannot definitively make a
 determination using the tools on DEP website,
 then the applicant must provide survey by
 certified professional surveyor or mapper
 showing the location of the CCCL on the
 property.

Coastal Construction Control Line s.381.0065(4), FS



The department may issue permits to carry out this section, but shall not make the issuance of such permits contingent upon prior approval by the Department of Environmental Protection, except that the issuance of a permit for work seaward of the coastal construction control line established under s. 161.053 shall be contingent upon receipt of any required coastal construction control line permit from the Department of Environmental Protection.

Coastal Construction Control Line



- Where the DEP permits construction seaward of the CCCL, the area landward of the construction setback line can be calculated as unobstructed area.
- Where DEP does not allow construction seaward of the CCCL, only that area landward of the CCCL can be calculated as unobstructed area.

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Benchmarks

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Benchmark/Fixed Point of Reference



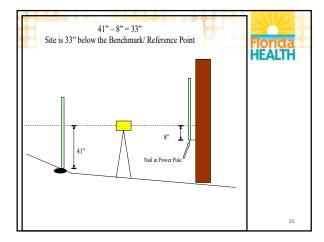
Benchmark- "A mark on a permanent object of predetermined position and elevation used as a reference point."

Reference Point- "A specific location (in plan elevation) to which measurements are referred."

Establishing a Benchmark/Reference Point



- Choose a fixed point/location.
- Put an identifying mark.
- Identify the specific location on the site plan and on the form DH 4015 (3 of 4).
- Establish water table and property (at the site of the soil profiles) elevations using the benchmark or reference point.





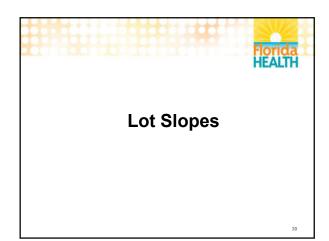












Lot Slopes



Slope: An elevation change over a specified distance.

Calculation:

 Δ E/ Δ D where Δ = change in; E= elevation; D= distance

Also calculated as Rise/Run

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Lot Slopes



Example: $\Delta E=15''$ over $\Delta D=75'$

• First make all units the same, convert to inches or feet (since we normally work in inches this would be best)

So: 75' = 75' x 12"/1' = 900"

Slope = $\Delta E/\Delta D = 15/900 = 0.0167$ or 1.67%

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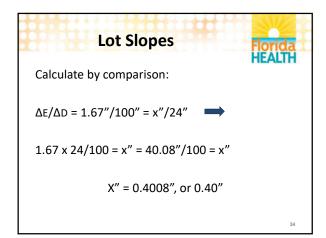
Lot Slopes

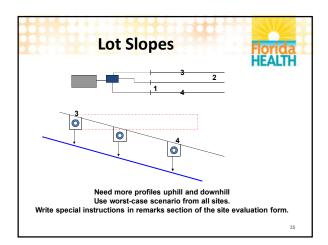


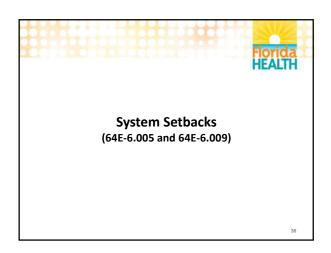
This equals: 0.84" per 50" (4'2")

or 0.42" per 25" (2'1") or 0.167" per 10" or 0.40" per 24" (2')

(2' is the minimum distance between trenches)







System Setbacks



- Setbacks must be verified at the time of the site evaluation.
- The actual measurements must be recorded on the form.
- The property lines should be located/marked prior to the site evaluation.
- For those features that are "proposed" and not on site at the time of the evaluation setbacks would be recorded based on the submitted site plan.

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System Setbacks



64E-6.005 (1)(2) & (3)

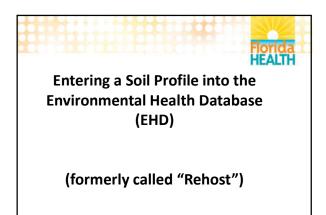
- Private potable wells (75 ft), non potable (50 ft)
- Public drinking water wells (100 200 ft)
- Monitoring wells (5 ft)
- Storm sewer pipe (10 ft or max possible, not <5 ft)</p>
- Dry ponds/drainage features, retention areas (15 ft)
- Building foundations, pilings, mobile home walls, swimming pool walls, property lines (5 ft)
- Drainfields shall not be installed below, sidewalks, decks and patios. Mound drainfield, (4 ft) from these features (the shoulder shall not be covered).

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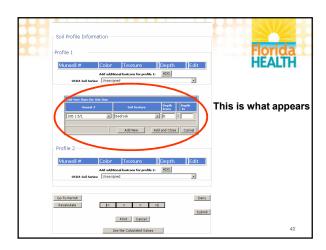
System Setbacks

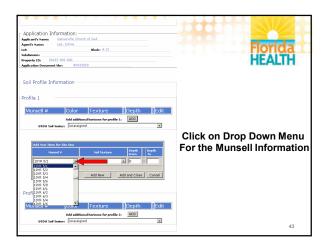


- Potable water lines (10 ft) or not less than (2 ft) if double sleeved or consist of schedule 40 PVC or stronger.
- PNon-potable water lines (2 ft) and (<2 ft) if backflow devices.
- Groundwater interceptor drains (15 ft)
- Fiffluent transmission lines (schedule 40 PVC) to <u>private</u> <u>potable wells, irrigation wells</u> and surface water bodies not less than (25 ft)
- Effluent transmission lines (schedule 40 PVC) to property lines and building foundations not less than (2 ft)
- Effluent transmission lines (schedule 40 PVC or double sleeved) – potable water lines and storm sewer lines not less than (5 ft) see 64E-6.007(8)





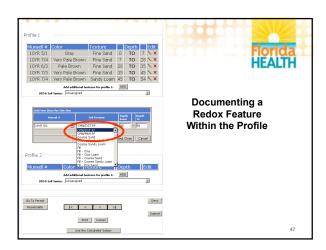


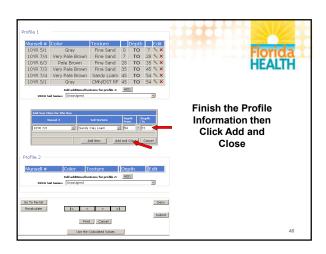


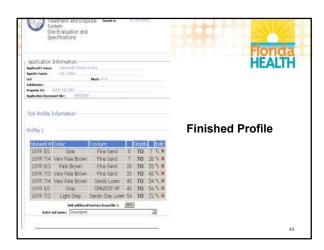


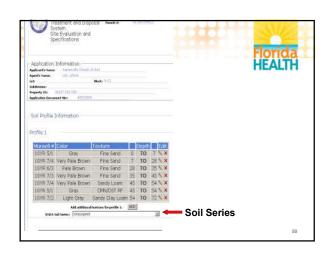


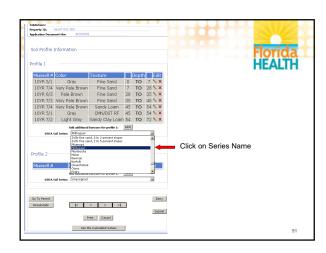




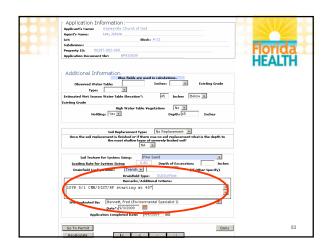


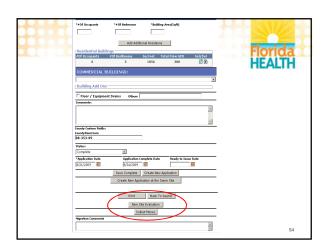


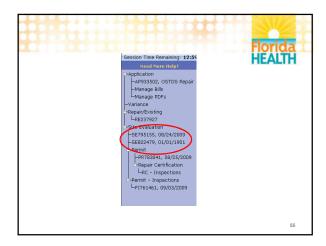


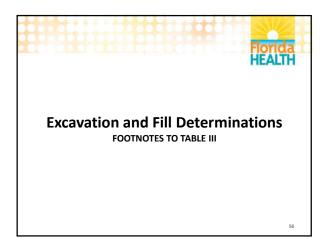


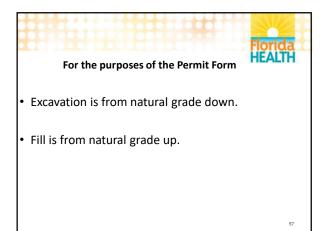


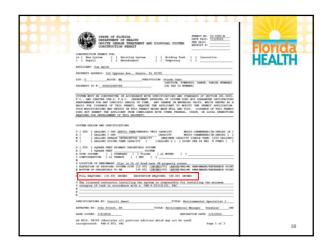












Effective Soil Depth



64E-6.006(1) "The effective soil depth throughout the drainfield installed extends 42 inches or more below the bottom surface of the drainfield."

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Excavation



64E-6.008 Table III, Footnotes to Table III

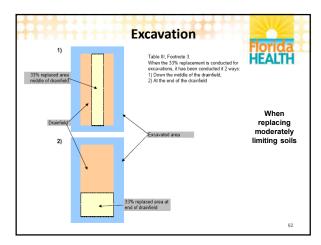
3. "When all other site conditions are favorable, horizons or strata of moderately or severely limited soil may be replaced with slightly limited soil or soil of the same texture as the satisfactory slightly limited permeable layer lying below the replaced layer. The slightly limited permeable layer below the replaced layer shall be identified within the soil profile which was submitted as part of the permit application."

Excavation



- Must be <u>complete removal</u> of moderately or severely limited soil layer being replaced.
- Must be satisfactory to a <u>minimum</u> depth of 54 inches beneath the bottom surface of the proposed drainfield.

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Excavation



- When removing severely limited soil textures, removal must be 100% down to slightly limiting soil textures.
- Slightly limited soil horizon below the moderately or severely limited soil horizons must be at least 6" in thickness.

Excavation



64E-6.008 Table III, Footnotes to Table III

4. Where coarse sand, gravel, or oolitic limestone directly underlies the drainfield area, the site shall be approved provided a minimum depth of 42 inches of the rapidly percolating soil beneath the bottom absorption surface of the drainfield and a minimum 12 inches of rapidly percolating soil contiguous to the drainfield sidewall absorption surfaces, is replaced with slightly limited soil material.

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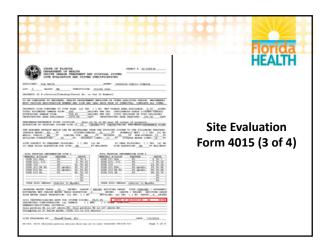
Excavation



What is not considered and excavation:

Removal of the "O" horizon. For the purposes of OSTDS regulations, this means the organic parts of original topsoil and vegetation, including leaf litter, roots, and grass.

Removing poor fill that is on the site above the original natural soil surface.



Effective Soil Depth Criteria



In order to meet the effective soil depth criteria for our example the two alternatives are:

1-Excavation and Removal of the spodic horizon using Footnote 3, Table III, Chapter 64E-6,FAC

or

2-Elevation of the system to provide 42 inches of effective soil above the spodic horizon (or severely limited soil).

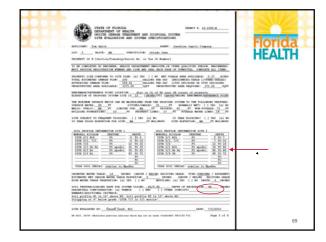
67

What would be the minimum depth of excavation required for our example?



Complete removal of the spodic horizon which extends to **48 inches below existing grade**, based on the soil profiles (worst case).

Remember the width of the replacement area shall be at least two feet wider and longer than the proposed drain trench or absorption bed.



If Spodic Layer Is Not Removed



To meet the 42 inch effective soil depth, elevate the bottom of drainfield to 24 inches above grade which equates to 36 inches above the benchmark/reference point.

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Fill



There are two things we call "fill".

Fill as the replacement material after an excavation (must always be of slightly limited textures)

Fill used to construct the mound/filled systems (can also be some specific moderately limited textures)

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Fill

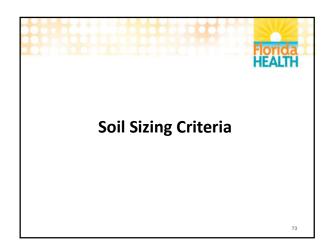


- How do we determine how much fill is required for our example?
- How much if we excavate?

6" ESHWT = 36" of fill

• How much if we do not excavate?

Same 6" ESHWT = 42" of fill







64E-6.009(3) Mounds		
ll Material and; Coarse Sand;	Maximum Sewage Loading Rate to Mound Dram Trench Bottom Surface in gallons per square foot per day 0.80	Maximum Sewage Loading Rate to Mound Absorption Bed Bottom Surface in gallons per square foot per day 0.60
d Loamy Coarse Sand	0.80	0.60
ne Sand ndy Loam; oarse Sandy Loam; d Loamy Sand	0.80	0.40
e Sandy Loam; Very e Sand; Loamy Fine Sand; Loamy Very Fine Sand	0.35	0.25

How do you size a system if there was an excavation and replacement material? (64E-6.008 Footnotes to Table III, 3)



Maximum sewage loading rates for <u>standard subsurface</u> systems installed in replacement areas shall be 0.80 gallons per square foot per day for trench systems and 0.60 gallons per square foot per day for absorption beds in slightly limited soil textures.

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64E-6.008, Footnote to Table III and 64E-6.009(3)



- Where more than one soil texture classification is encountered within a soil profile and it is not removed as part of a replacement, drainfield sizing for <u>standard subsurface drainfield</u> systems and fill drainfield systems shall be based on the most restrictive soil texture encountered <u>within 24 inches</u> of the bottom of the drainfield absorption surface.
- Where moderately limited soils underlie the mound within 36 inches of the bottom of the drainfield, drainfield sizing shall be based on the most restrictive soil texture existing in the profile to a depth of 36 inches below the bottom of the drainfield, using Table III for soil loading rates.

NOTE: If you cannot perform a soil boring to the required 72" depth, you can only size the system based on the information you know within the profile.



Frequent Flooding Determination

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Frequent Flooding Determination



- **64E-6.002(25)** Flooding a covering of soil surface by water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, elevation of the ground water table exceeding that of the soil surface, or combinations of these. Terms also associated with flooding and used elsewhere in this chapter are:
- (a) Frequent flooding which occurs more than once every two years on the average;
- (b) Ten year flood elevation that flood elevation which has a 10 in 100 probability of being equaled or exceeded in any calendar year.

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Frequent Flooding Determinations



64E-6.002(46) Regulatory floodway – means the channel of a river or other water course and adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

(Suwannee and Aucilla)

Frequent Flooding Determination



How do you know if the lot is subject to frequent flooding?

(FEMA FLOOD MAPS)

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Flood Zone Designations



FEMA website to look up flood information (www.FloodSmart.Gov)

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Flood Zone Designations



B and X (shaded)-Area of moderate flood hazard.

C and X (unshaded)- Area of minimal flood hazard.

A- High Risk Area

AE-High Risk Area



64E-6.006(6) The existing lot elevation at the site of the proposed system installation and any contiguous land referred to in subsection 64E-6.005(4), F.A.C., shall not be subject to frequent flooding. Except for areas affected by Section 381.0065(4)(t), F.S., fill material, <u>if permitted</u>, shall be placed in the area for the system and contiguous unobstructed area to raise the lot elevation above the 2 year flood.

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Surface Water Boundaries

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Surface Water Boundaries Mean Annual Flood Line (MAFL) and Mean High Water Line (MHWL)



In 1999 the Legislation amended s. 381.0065, F.S.; defining

- "mean annual flood line" (MAFL)
- "permanent nontidal surface water body"
- "tidally influenced surface water body"

DOH shall not make the issuance of permits contingent on DEP approval

The reason was because of consistency between the CHDs

MEAN ANNUAL FLOOD LINE (MAFL) s. 381.0065(2)(i), FS



Boundary of Permanent Non Tidal Surface Water Bodies

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Permanent nontidal surface water body (PNSWB) s. 381.0065(2)(k), FS



- PERENNIAL / INTERMITTENT STREAM
- PERENNIAL RIVER
- PERENNIAL LAKE
- SUBMERGED MARSH OR SWAMP
- SUBMERGED WOODED MARSH OR SWAMP
- SPRINGS
- SEEPS

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PNSWB



Must be identified on the most recent quadrangle map, **7.5 minute series** (topographic), produced by the United States Geological Survey.



NOTE that the quad sheets cannot be used to determine the mean annual flood line. The MAFL may encompass areas that are actually distant from the PNSWB identified on the quad sheet.

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QUAD SHEETS

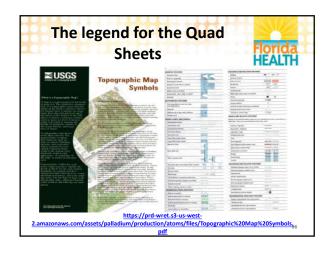


All CHD's should have the most recent quad sheets at this time. Additionally they should have the pamphlet on "Topographic Map Symbols" which is the legend for identification of features on the quad sheet.









QUAD MAPS



Web soil survey now allows you to look at the area of interest with an overlay of the topographic maps.

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PNSWB s. 381.0065(2)(k), FS



It also means:

an artificial surface water body that does not have an <u>impermeable</u> bottom and side and that is designed to hold, or does hold, visible standing water for at least 180 days of the year.

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This Means:



Creeks, pond, gully, etc. could fit where the 180 day criteria is met <u>on an annual basis</u>, based on the artificial surface water body definition.

MEAN ANNUAL FLOOD LINE (MAFL) s. 381.0065(2)(i), FS



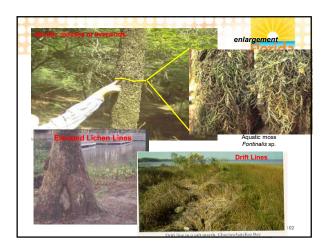
- 10 years of recorded data
- Field verify using one or more of the 7 indicators
- Combination of both

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The 7 Indicators



- 1. Water stains
- 2. Hydric adventitious roots
- 3. Drift lines
- 4. Rafted debris
- 5. Aquatic mosses and liverworts
- 6. Moss collars
- 7. Lichen lines





MEAN ANNUAL FLOOD LINE s. 381.0065(2)(i), FS



Who can determine the MAFL?

• A certified professional surveyor and mapper with experience in the determination of flood water elevation lines

• Department personnel (this is at the option of the applicant)

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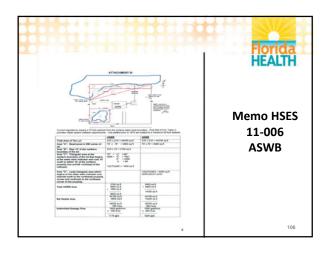
MAFL Alternate Surface Water Boundary **Delineation Procedure (ASWB)**

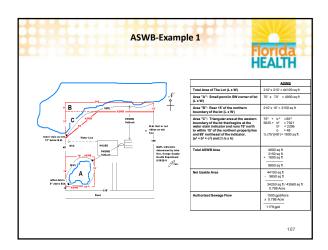


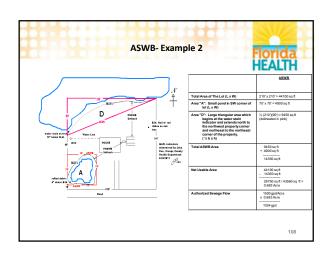
- Applicant makes request for CHD determination in writing (see attachment in Memorandum HSES 11-006)
- If done in conjunction with CHD site evaluation, no additional fees charged.
- Applicant must mark property lines
- CHD will field verify the MAFL and clearly mark the indicator and document their determination.
- The highest indicator will be used to set the ASWB line by using basic geometric shapes whose areas can easily be calculated.
 This area will be subtracted from the total lot size to determine the net usable area and authorized sewage flow.
- and authorized sewage now.

 If this determination means that the authorized sewage flow will be exceeded the CHD would inform the applicant that they must obtain the services of a certified professional surveyor or mapper to determine the area.

 If the applicant declines obtaining the services of a certified professional surveyor or mapper, the CHD would deny the permit based on the CHD determination.
- Note that setbacks will be from the actual MAFL indicator that creates the shortest distance and not from the ASWB.







Mean High Water Line MHWL



Governed by Chapter 177, Florida Statues

Boundary of tidally influenced surface water bodies, defined in s. 177.27(15)

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Tidally influenced surface water body s. 381.0065(2)(o), FS



Means a body of water that is subject to the ebb and flow of the tides

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Tidally influenced surface water body s. 381.0065(2)(o), FS



Who can determine the MHWL?

- Professional Surveyor or Mapper
- Representative of U.S. Government (when approved by DEP to perform this determination)

Mean High Water Line



Safe Uplands Line

More restrictive alternative to determining the MHWL.

A surveyor is still required.

Determined by adding 0.5ft to the nearest tidal datum point (within ½ mile radius of the established safe uplands line).

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Mean High Water Line



Sea Wall or Canal Wall

Top of wall can be used as more restrictive alternative to MHWL

Elevation of top of wall established by surveyor or mapper must be higher than the tidal datum point within ½ mile of the wall otherwise MHWL must be established by surveyor or mapper.

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Mean High Water Line



- DEP maintains information on MHWLs
- DEP also allows mathematical calculations, but a letter from DEP is necessary to validate.

More information can be found in LABINS or by calling or emailing Mr. Lamar Evers at 850-245-2606, lamar.evers@dep.state.fl.us

See interoffice memorandum 11-006 for more detail.



Jurisdictional Areas

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Permitting Coordination in Jurisdictional Areas



- Memo 00-014 and 11-006 describes some instances where other agencies may have jurisdiction.
- They also establish a uniform policy for implementing 64E-6.006(2) and (6), FAC.

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Permitting Coordination in Jurisdictional Areas



- For permit applications where the wet season water table is determined to be at or above the elevation of existing ground surface, the permit shall be issued requiring sufficient fill to provide a 24 inch separation from the bottom of the drainfield to the wet season water table elevation.
- For permit applications where the proposed system site is subject to frequent flooding, the permit shall be issued requiring sufficient fill be placed in the area of the system and contiguous unobstructed area to raise the lot elevation above the 2 year flood elevation.
- Where the wet season water table is <u>not</u> at or above the elevation of the existing ground surface, but the area may be under the regulatory authority of another agency, the permit shall be issued under current rule specifications.

Permitting Coordination in Jurisdictional Areas



- The applicant shall be notified of the jurisdictional issues in writing.
- The appropriate regulatory agencies shall be notified of the permit issuance by copy of the letter to the applicant. In these cases, it is not appropriate to "hold" an application pending action by another regulatory agency.

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Permitting Coordination in Jurisdictional Areas



ear Applicant:

he above referenced permit has been issued on proper suitatory authority of the Florida Decartment of Fruito

over referenced permit has been issued on property that may contain awas unable the ony authority of the Florida Deportment of Environmental Protection. U.S. Cosps of ers, or a local permitting agency, such as your county building department or local mental program. The above referenced permit does not authorize you either to be or to place till this purishcialmal aims. If applicable, you must obtain the necessary to the processory.

By copy of this letter, we are admiring the appropriate regulatorly agencies and the local builds department that we have assect a constitution permit for an onsite sewage meatment and disposal system on a self-that may be under their regulatory authority. If you have any guestions on this matter prease call our office at 599-9999.

Environmental Health Directo

Copy to: Florido Department of Environmental Protection (appropriate district) U.S. Corps of Engineers This letter is available through the EHD

