Green Infrastructure: Septic Systems

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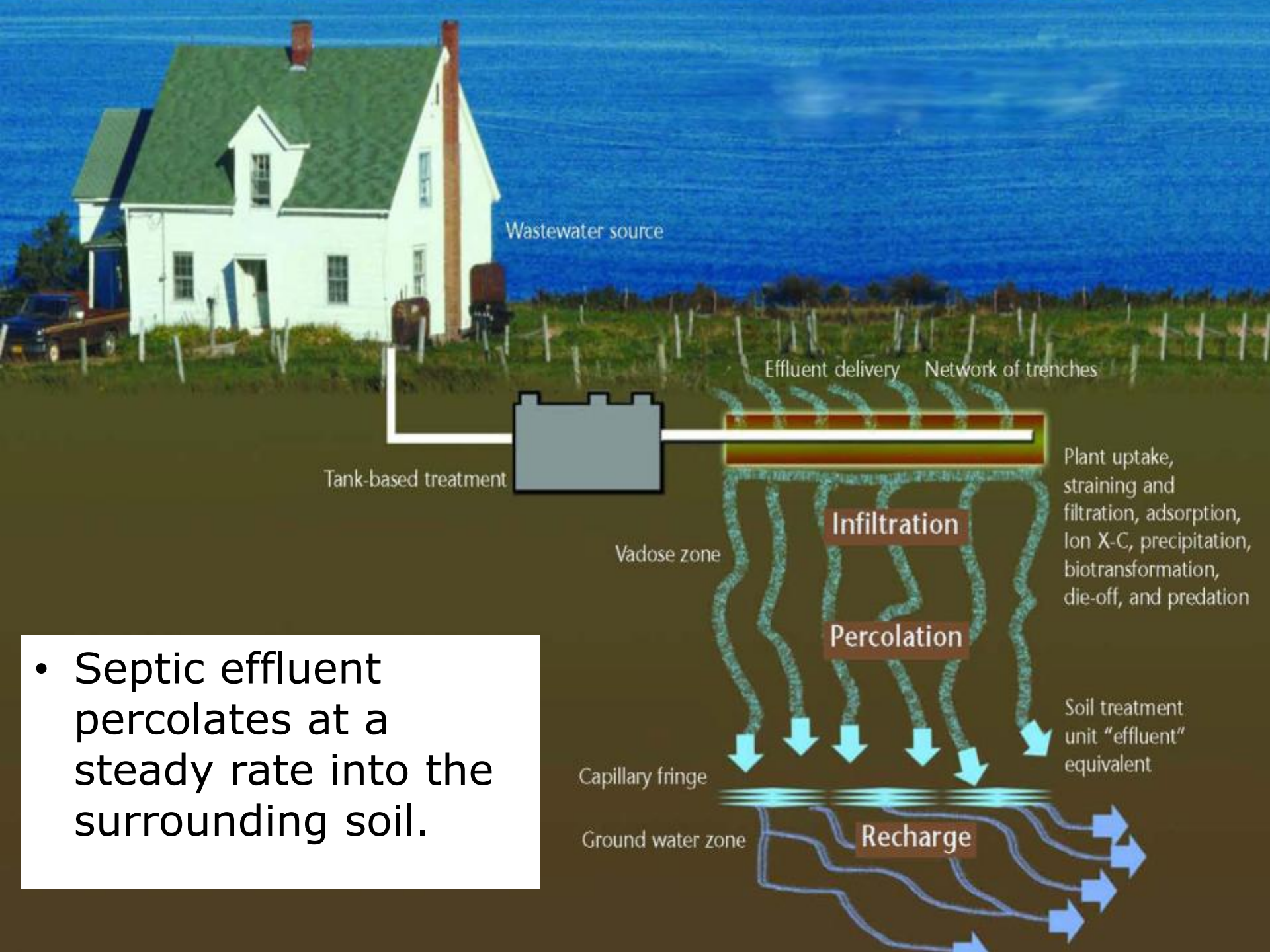
www.ct.gov/dph/subsurfacesewage



- Septic effluent percolates at a steady rate into the surrounding soil.

On-site Sewage Disposal Systems

- Subsurface sewage disposal systems, a.k.a, septic systems, provide a simple & effective way to treat & dispose of domestic sewage
- Serve almost 1.5 million people in CT, approximately 40 percent of the state's population
- Typically utilized in rural and low-density suburban areas
- Rely on capacity of the land for treatment and disposal

There's nothing greener!

- Septic systems are a green technology.
  - Aquifer recharge
  - Small carbon footprint
  - Typically no mechanical parts
  - No large sewage bypass into rivers or the Long Island Sound
  - High level of treatment in a natural environment
  - SORA White Paper

On-site Sewage Disposal Considerations

- Sewage Disposal Area Preservation per PHC Section 19-13-B100a (e): Local health department approval for construction activities
- Maintain minimum separation distances between septic system & storm water systems
- Local health department coordination for storm water disposal & LID programs

CONNECTICUT PUBLIC HEALTH CODE

On-site Sewage Disposal Regulations, and Technical Standards for Subsurface Sewage Disposal Systems

PHC Section 19-13-B100a (Building Conversions, Changes in Use, Building Additions, etc)

Effective August 3, 1998

PHC Section 19-13-B103 (Design Flows 5,000 Gallons per Day or Less)

Effective August 16, 1982

Technical Standards for Subsurface Sewage Disposal Systems

Effective August 16, 1982

Former revisions: 1986, 1989, 1992, 1994, 1997, 2000, 2004, 2007, 2009

Revised January 1, 2011

PHC Section 19-13-B104 (Design Flows Greater than 5,000 Gallons per Day)

Effective August 16, 1982

State of Connecticut
Department of Public Health
Environmental Engineering Program
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Hartford, Connecticut 06134

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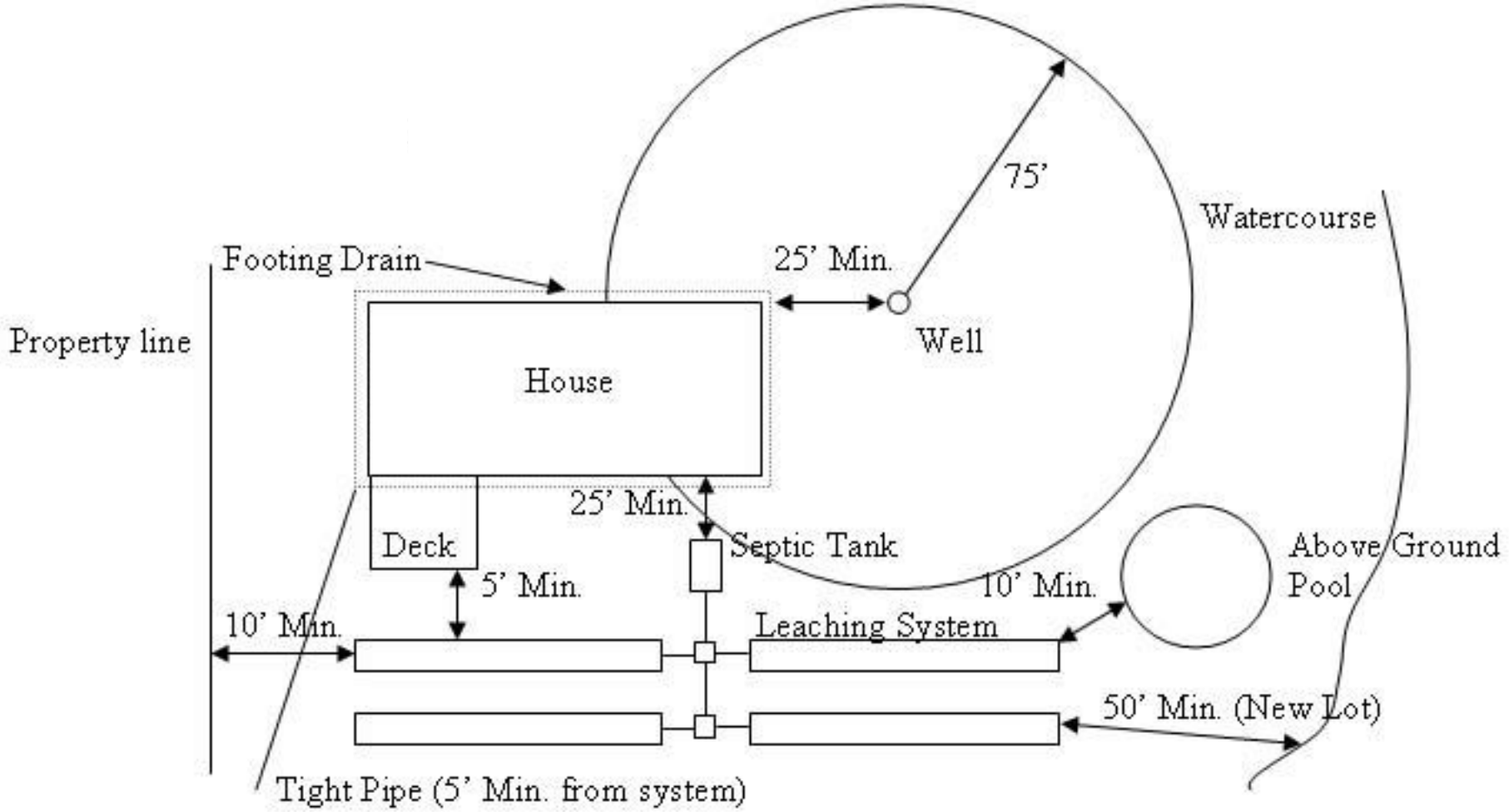
January 2011

Can it all fit? Competing Land Uses

Location of a Septic System



II. LOCATION OF SUBSURFACE SEWAGE DISPOSAL SYSTEMS

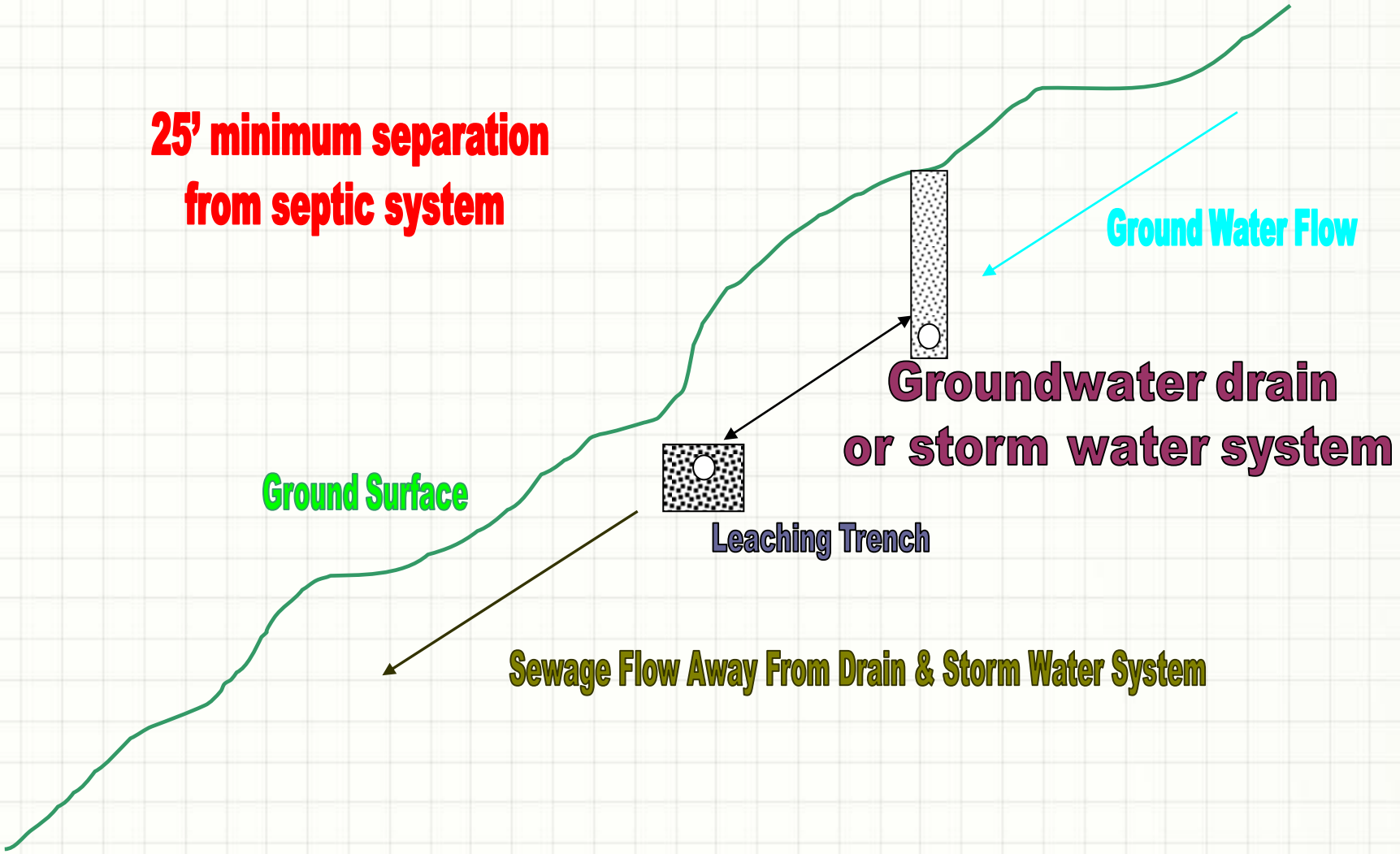
A. Minimum separating distances

The minimum separating distances specified in Table 1 are required and shall be maintained between the cited items and subsurface sewage disposal systems, except for approved piping. Tables 2, 2-C and 2-D list specific applications whereby approved piping shall have reduced separating distances to cited items. Groundwater control systems only need to comply with the separating distances cited in Item G. Proposed relocation of lot lines reviewed pursuant to PHC Section 19-13-B100a (e) shall comply with the distances cited in Item I. Separating distance compliance shall be based on horizontal measurements except for non-vertical closed loop geo-exchange bore holes that utilize measurements taken from the closest portion of the bore hole.

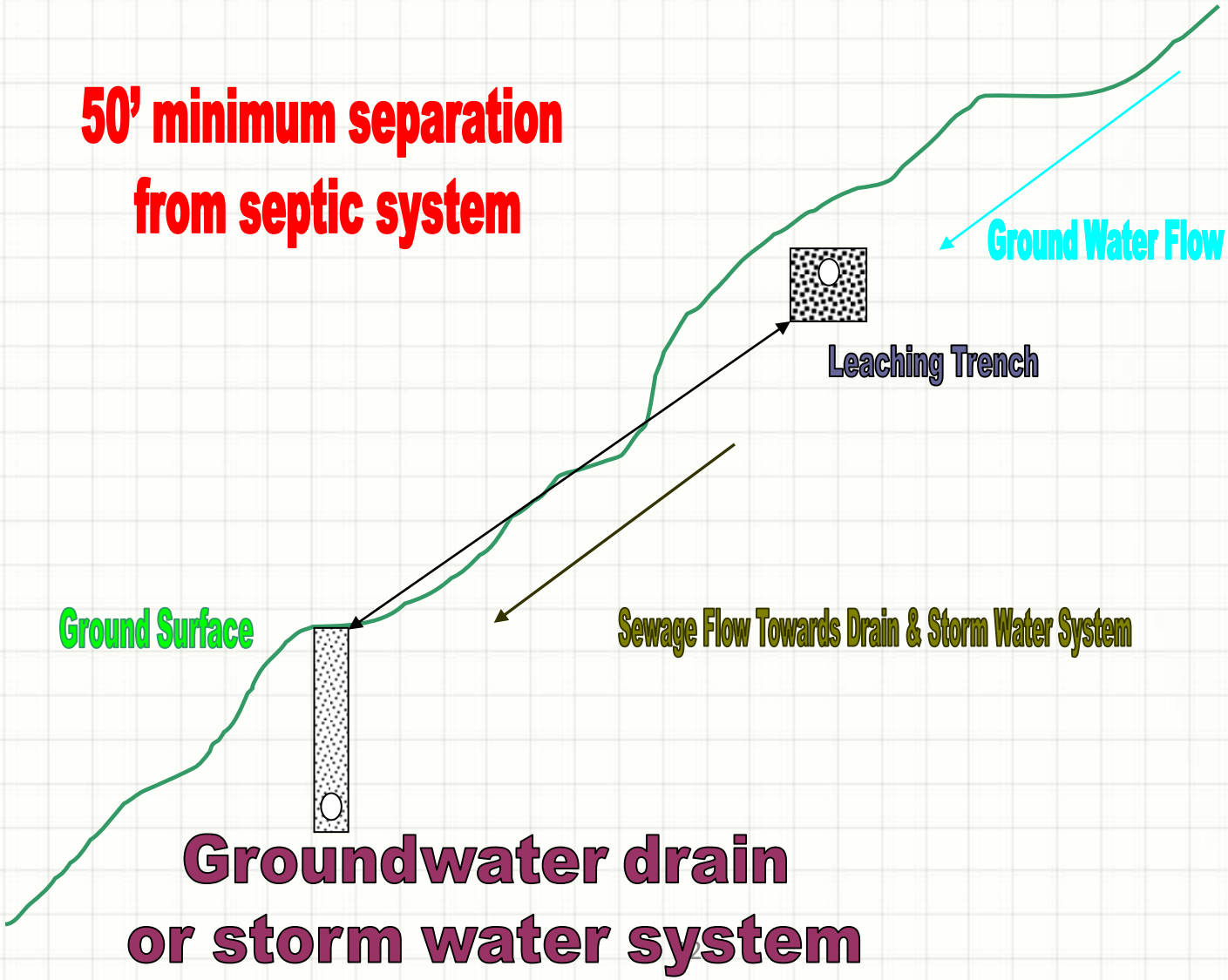
Table 1

Item	Separating Distance (Feet)	Special Provisions
A. Water supply well (potable, open loop geo-exchange, irrigation), spring or domestic water suction pipe. Required withdrawal rate: < 10 gal. per minute 10 to 50 gal. per minute > 50 gal. per minute	 75 150 200	1. Separating distance to leaching system shall be doubled if the percolation rate is faster than one minute/inch and system is less than eight (8) feet above ledge rock. 2. Separating distance shall be increased as necessary to protect the sanitary quality of a public water supply well. 3. Separating distance between a domestic water suction pipe and a septic tank/pump chamber/grease interceptor tank shall be reduced to 25 feet if tank is verified to be watertight.
B. Human habitation on adjacent property	15	Building without drains. See item G for distance to building with drains.
C. Building served	15	Building without drains. See item G for distance to building with drains. Separating distance to a septic tank/pump chamber/grease interceptor tank shall be reduced to 10 feet for building served without drains.
D. Open watercourse	50	When not located on a public water supply watershed, distance shall be reduced as necessary to not less than 25 feet on lots in existence prior to the effective date of this regulation (8/16/82) and thereafter recorded as required by statute.
E. Public water supply reservoir	100	
F. Surface or groundwater drain constructed of solid pipe	25	Tight pipe with rubber gasketed joints or approved equal (See Table 2-C) are exempted from this requirement as long as the pipe excavation is not backfilled with free draining material, however no tight pipe shall be less than 5 feet from system. Leakage tests may be required to verify water tightness.
G. Groundwater drains (curtain, foundation, footing etc.), stormwater infiltration or retention/detention system Upgradient or on sides Downgradient	 25 50 (2)	1. No such drain shall be constructed downgradient of a leaching system for the purpose of collecting sewage effluent regardless of the distance. 2. Distance to septic tank/pump chamber/grease interceptor tank shall be reduced to 25 feet if tank is verified to be watertight.
H. Top of embankment (Downgradient and on sides of leaching system)	10	Cuts within 50 feet downgradient of leaching systems shall not be allowed if bleed-out conditions are possible.
I. Property line Upgradient or on sides Downgradient	 15 (2) 25 (2,3)	1. Separating distance to septic tank/pump chamber/grease interceptor tank and reserve leaching system shall be reduced to 10 feet. 2. Separating distance shall be reduced to 10 feet if the top of the leaching system is below original grade, grading rights from the affected property owner are secured, or retaining walls are utilized (See Section VIII A for retaining wall provisions). 3. Separating distance between the primary leaching system and downgradient property line shall be reduced to 15 feet if MLSS is not applicable or on flat groundwater table lot.
J. Potable water and irrigation lines that flow under pressure	10	Excavations between 10 – 25 feet from system shall not be backfilled with free draining material.
K. Below ground swimming pool	25	See item G for downgradient pools with drains.
L. Above ground swimming pool	10	Includes hot tubs.
M. Accessory structure	10	Structure shall have no footing drains. See item G if drains provided. Structure without full wall, frost protected footings shall be reduced to 5 feet.
N. Utility service trench (Underground electric, gas, phone services, etc.)	5	Excavations between 5 – 25 feet from system shall not be backfilled with free draining material.
O. Water treatment wastewater system	10	See Section X.
P. Closed loop geo-exchange system Bore hole (BH), Trench Geo-exchange piping to BH, Trench	 50 10	Separating distance to a septic tank/pump chamber/grease interceptor tank shall be reduced to 25 feet if tank is verified to be watertight. Excavations between 10 – 25 feet from system shall not be backfilled with free draining material.

Up-gradient Drains & Storm Water Systems

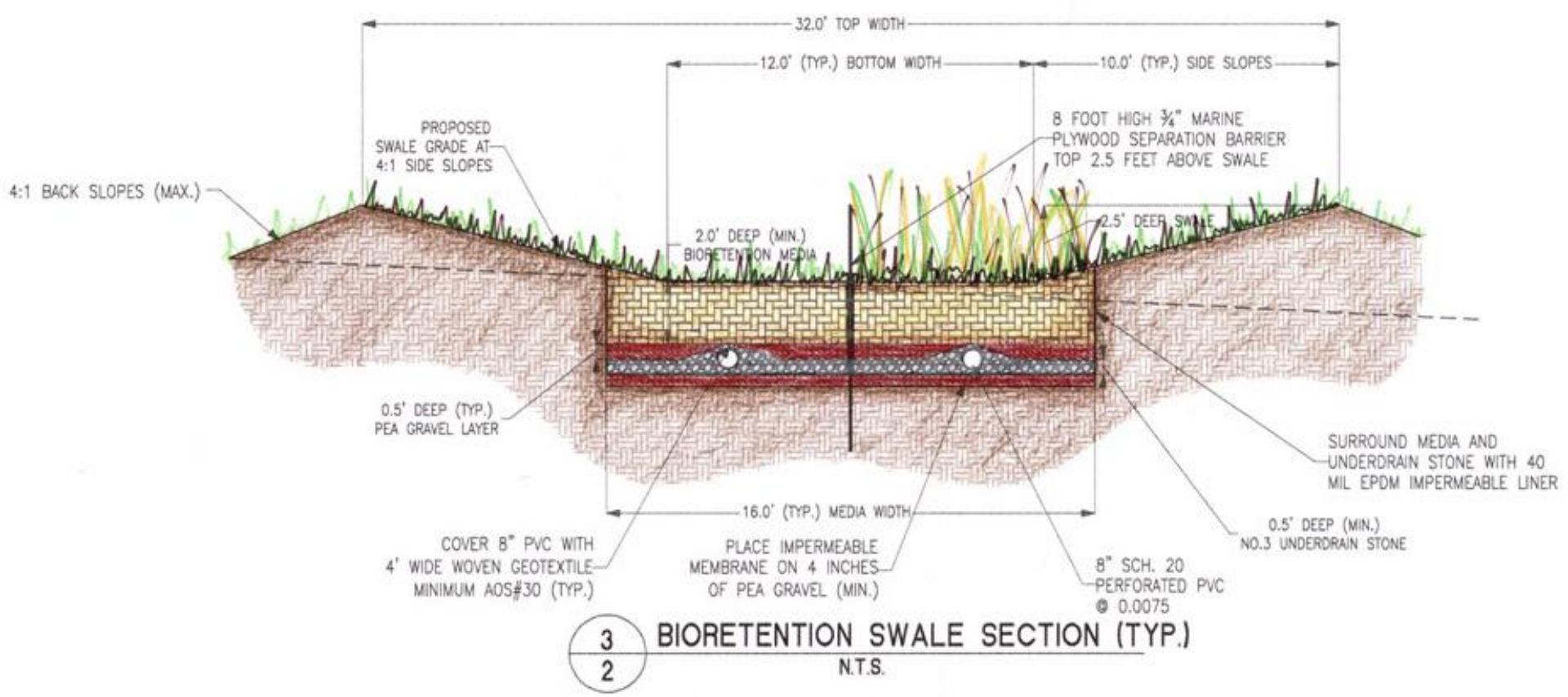


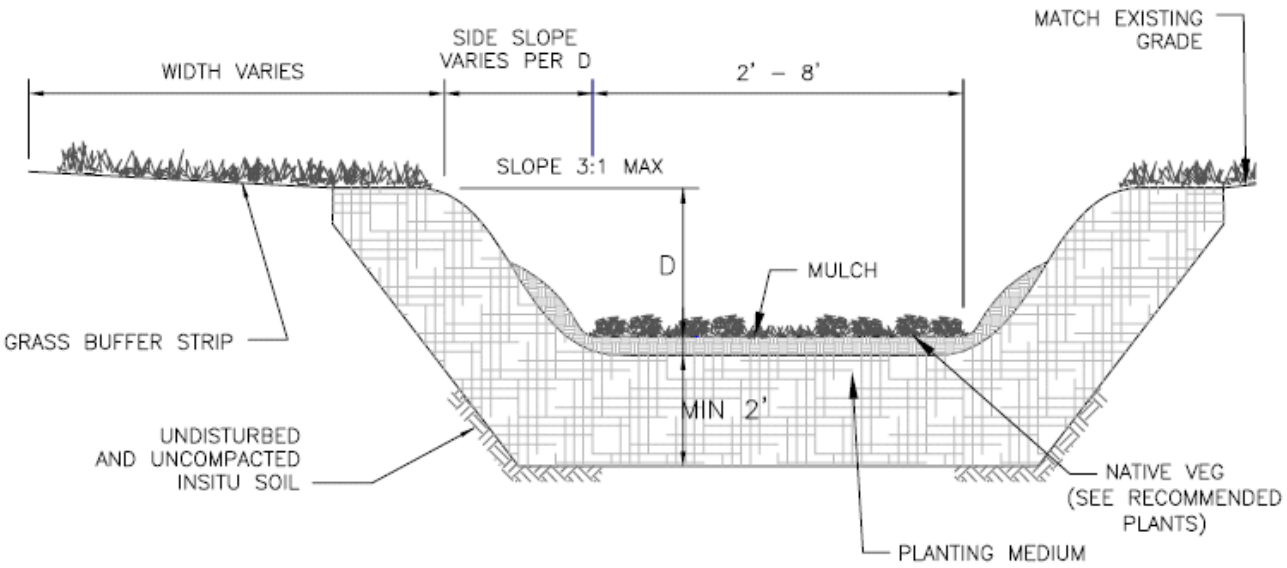
Down-gradient Drains & Storm Water Systems



Storm water systems typically not of concern: Pervious pavers & porous concrete

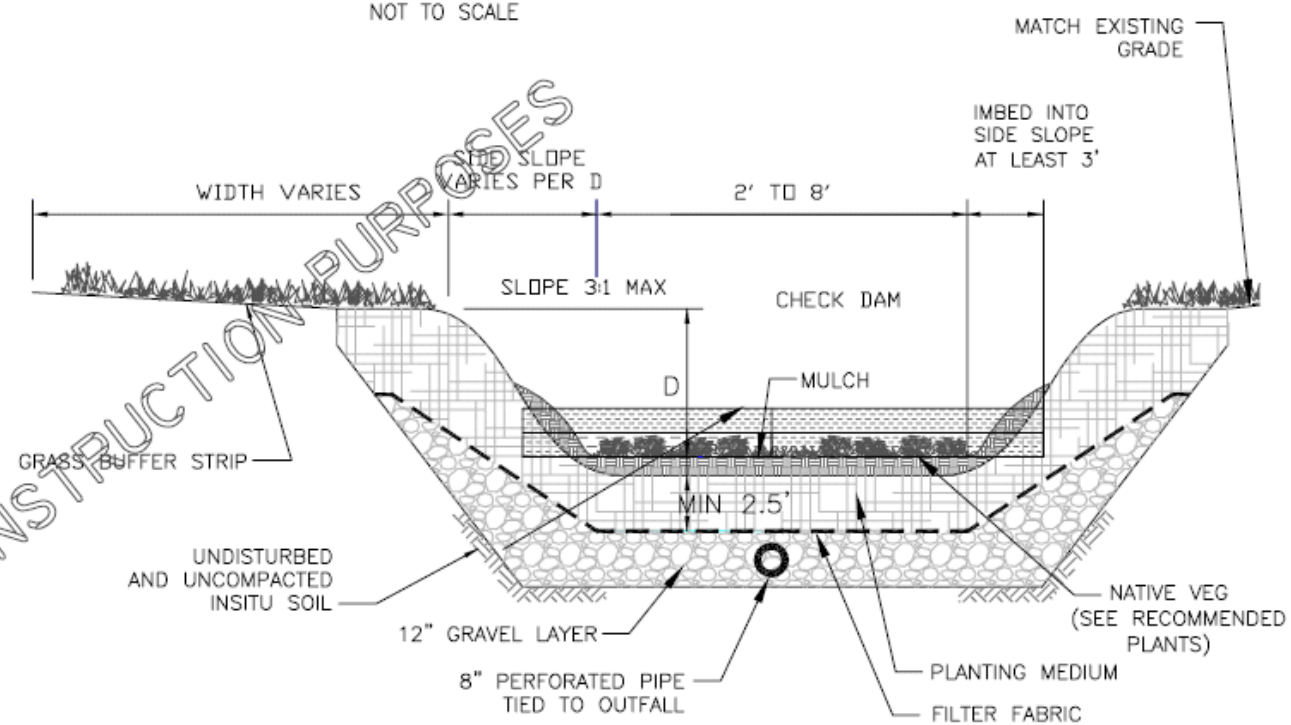
Types of storm water systems and drainage systems of concern





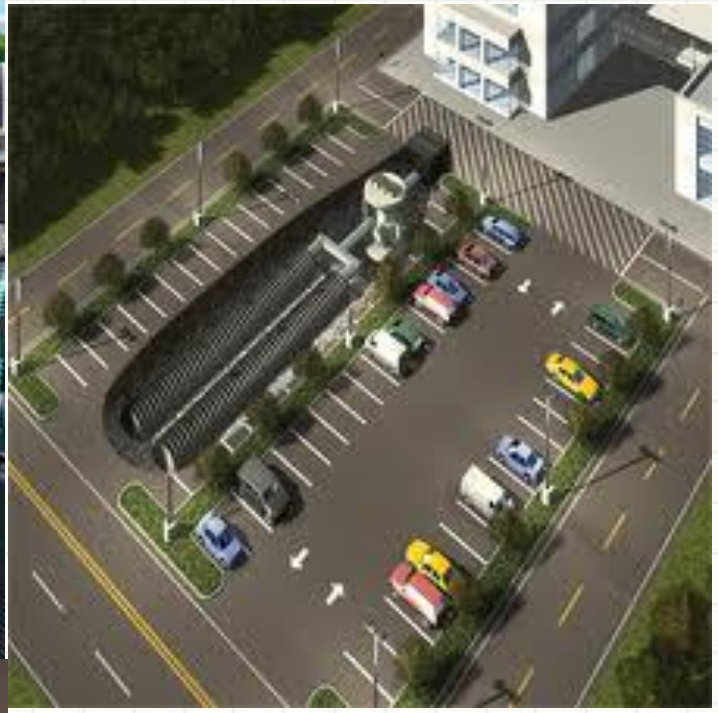
TYPICAL WET SWALE CROSS–SECTION

NOT TO SCALE



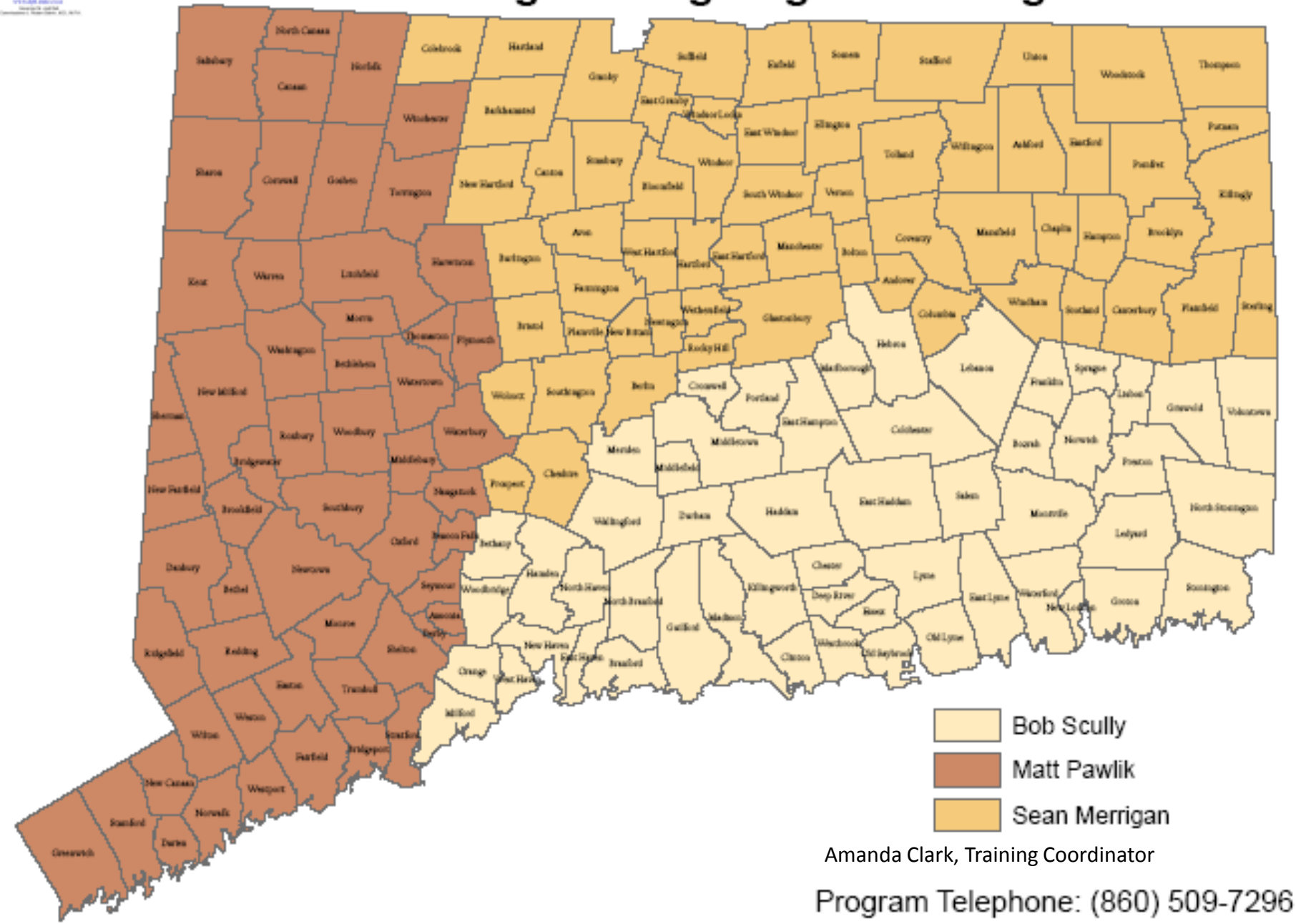
TYPICAL DRY SWALE CROSS–SECTION (WITH CHECKDAM)

NOT TO SCALE



Large commercial storm water systems

CT Department of Public Health
Environmental Engineering Regional Assignments



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Additional information on decentralized sewage system management including 4 recently released white papers:

- EPA MOU