PDSC Spreadsheet

Michael J Wilk PE
Monroe County Conservation District

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PDSC Spreadsheet

- **Completing the Spreadsheet correctly**
- **Soil Testing/ Location Related Issues with PCSM BMP's (Time Permitting)**

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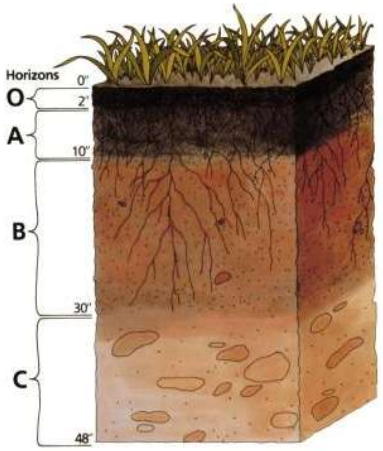
PDSC Spreadsheet

- **Pre-Development Site Characterization Spreadsheet**
- **Summarizes Testing Performed on the Site**
- **Determines if *Overall* Site Testing was Adequate**
  - Auto Generated Conclusion based on Test Results
  - Additional Testing may be needed at specific SCM locations
- **Addresses Karst Geology**
- **Macro Enabled Spreadsheet (similar to PCSM Spreadsheet)**
- **Read and follow the instructions**
- **Complete Testing and Spreadsheet for Pre-App Meeting**







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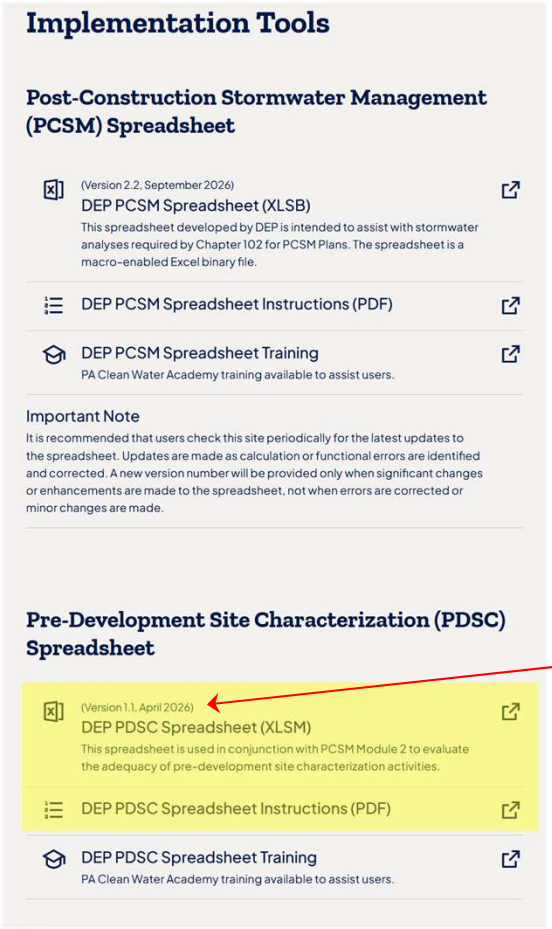
DEP Website (E&S Resources)



Implementation Tools

Post-Construction Stormwater Management (PCSM) Spreadsheet

(Version 2.2, September 2026)
DEP PCSM Spreadsheet (XLSB)
This spreadsheet developed by DEP is intended to assist with stormwater analyses required by Chapter 102 for PCSM Plans. The spreadsheet is a macro-enabled Excel binary file.

DEP PCSM Spreadsheet Instructions (PDF)

DEP PCSM Spreadsheet Training
PA Clean Water Academy training available to assist users.

Important Note
It is recommended that users check this site periodically for the latest updates to the spreadsheet. Updates are made as calculation or functional errors are identified and corrected. A new version number will be provided only when significant changes or enhancements are made to the spreadsheet, not when errors are corrected or minor changes are made.

Pre-Development Site Characterization (PDSC) Spreadsheet

(Version 1.1, April 2026)
DEP PDSC Spreadsheet (XLSM)
This spreadsheet is used in conjunction with PCSM Module 2 to evaluate the adequacy of pre-development site characterization activities.

DEP PDSC Spreadsheet Instructions (PDF)

DEP PDSC Spreadsheet Training
PA Clean Water Academy training available to assist users.

- **Use Current Version (1.2)**
  - **Website says 1.1**
  - **Check Website for Updates**

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Site Information

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Version 1.2, September 2026

CLEAR FORM

CHAPTER 102
PRE-DEVELOPMENT SITE CHARACTERIZATION SPREADSHEET

Project Site Name: **Example for LCCD Workshop**

Project Site Area: **8.9** acres Applicant: **MJW Enterprises LLC**

Will PCSM requirements for the project be satisfied entirely by stormwater capture and use or riparian forest buffer SCMs or can the entire project be considered a site restoration activity?

☑ Yes ☐ No *A pre-development site characterization is not required*



Site Restoration

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- **Match Project Name with Application**
- **Use Project Area, Not ED**
- **Check No if <u>Entire Site</u> being managed by:**
  - **Capture/ Reuse**
    - Spray Irrigation with ET only
  - **Riparian Forest Buffer**
  - **Site Restoration**
- **Submit Form even if no testing required**
- **Still Need Environmental Due Diligence**
  - Site Contamination
  - Past Land Uses

Karst Section

Is the project site located in an area of known karst terrain?

☑ Yes ☐ No ***Complete the information below***

Identify the individual(s) responsible for the geotechnical investigation. ADD ROW DELETE ROW

Name	Company	License/Certification

Geotechnical investigation techniques (check all that were completed):

- ☐ Geophysical survey
- ☐ Geotechnical borings
- ☐ Soil profiling
- ☐ Downstream analysis
- ☐ Bedrock core borings
- ☐ Field review of adjacent properties
- ☐ Identification of sinkholes and closed depressions
- ☐ Other:

☐ A geotechnical report has been completed and is attached to Module 2.

Predominant overburden depth across site: ft

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Karst Counties:

- **Adams**
- **Bedford**
- **Berks**
- **Blair**
- **Bucks**
- **Centre**
- **Chester**
- **Clinton**
- **Cumberland**
- **Dauphin**
- **Franklin**
- **Fulton**
- **Huntington**
- **Lancaster**
- **Lebanon**
- **Lehigh**
- **Lycoming**
- **Mifflin**
- **Montgomery**
- **Northampton**
- **York**

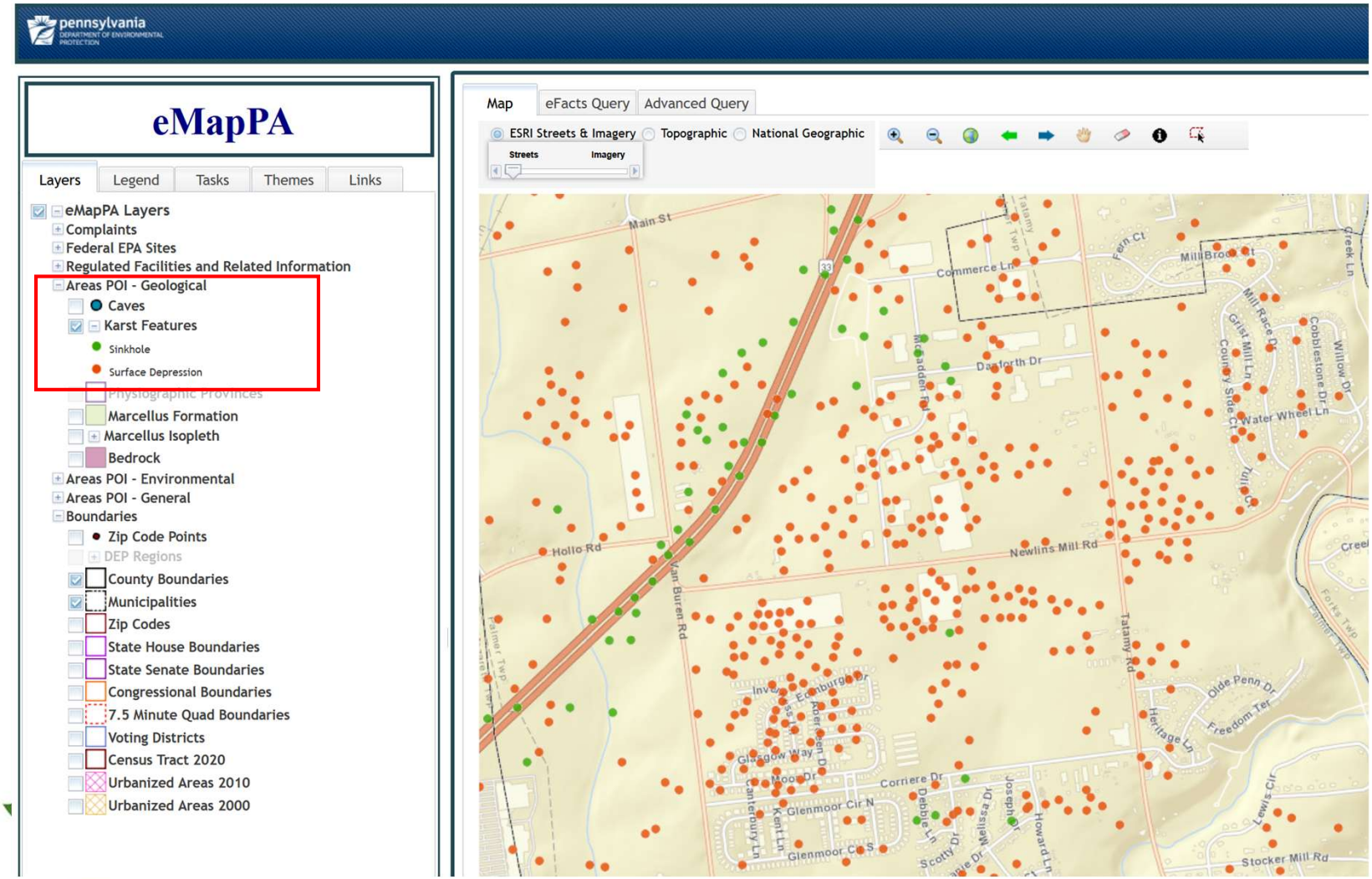


Geotech Investigation for Sites within 0.5 miles of

- identified sinkholes
- Closed depressions
- Known Karst Features
- Carbonite Rock / Active Karst Geology

Karst Features on DEP EmapPA

EmapPA


pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
eMapPA
Layers
Legend
Tasks
Themes
Links
eMapPA Layers
Complaints
Federal EPA Sites
Regulated Facilities and Related Information
Areas POI - Geological
Caves
Karst Features
Sinkhole
Surface Depression
Physiographic Provinces
Marcellus Formation
Marcellus Isopleth
Bedrock
Areas POI - Environmental
Areas POI - General
Boundaries
Zip Code Points
DEP Regions
County Boundaries
Municipalities
Zip Codes
State House Boundaries
State Senate Boundaries
Congressional Boundaries
7.5 Minute Quad Boundaries
Voting Districts
Census Tract 2020
Urbanized Areas 2010
Urbanized Areas 2000
Map
eFacts Query
Advanced Query
ESRI Streets & Imagery
Topographic
National Geographic
Streets
Imagery
Main St
Commerce Ln
Danforth Dr
Newlins Mill Rd
Hollo Rd
Van Buren Rd
Tatamy Rd
Corriere Dr
Glenmoor Cir N
Glenmoor Cir S
Stocker Mill Rd
Water Wheel Ln
Olde Penn Dr
Freedom Ter
Heritage Ln
Lewis Cir
Cobblestone Dr
Willow Dr
Mill Race Dr
Grist Mill Ln
Country Side Ct
Fern Ct
Mill Brook Ct
Glasgow Way
Moor Dr
Canterbury Ln
Kent Ln
Debbie Ln
Melissa Dr
Joseph Dr
Howard Ln
Scotty Dr
Palmer Twp
Forks Twp

Karst Section

Is the project site located in an area of known karst terrain?

☑ Yes ☐ No ***Complete the information below***

Identify the individual(s) responsible for the geotechnical investigation. ADD ROW DELETE ROW

Name	Company	License/Certification
Brian St. Bernard	Dirt Dogs GeoTech	PA-Licensed Professional Geologist

Geotechnical investigation techniques (check all that were completed):

- ☐ Geophysical survey
- ☑ Geotechnical borings
- ☐ Soil profiling
- ☐ Downstream analysis
- ☐ Bedrock core borings
- ☐ Field review of adjacent properties
- ☐ Identification of sinkholes and closed depressions
- ☑ Other: no potholes observed

☑ A geotechnical report has been completed and is attached to Module 2.

Predominant overburden depth across site: 40 ft

A sinkhole risk assessment is recommended

Sinkhole risk: Low ***An investigation of infiltration capabilities is recommended***

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- **Geotech Investigation**
  - Consider Professional Geologist
- **List Techniques Utilized**
- **Attach All Reports to Module 2**
- **Overburden Depths:**
  - 0-33’: Consider other options than infiltration (Spray, MRC)
  - 33-50’: Complete Sinkhole Risk Assessment
  - Over 50: Investigate Infiltration Capabilities
- **Sinkhole Risk Assessments**
  - No DEP Guidance
  - ASCE, US DOT Guidance
    - Links in Instructions
- **Sinkhole Risk**
  - Low-Investigate Infiltration
  - Medium or High: Consider Other Options

Exclusion Section

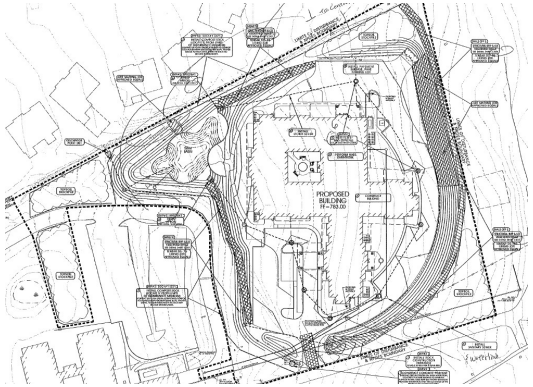
☑ Areas Excluded for Infiltration SCMs *(attach map(s))*

ADD ROW | DELETE ROW

Exclusion	Description	Area (ac)

Area Unsuitable for Infiltration SCMs (ac):	
Area Potentially Suitable for Infiltration SCMs (ac):	8.9

- **14 Exclusions**
- **Attach Map (color coded) justifying exclusion areas**
- **Reduces Testing requirements**
- **Other attachments justifying exclusions may be required (local ordinance requirements, etc.)**



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Excluded Areas

1. Underground Utilities with Site Restoration
2. Areas previously Investigated and have shallow bedrock
3. Areas previously investigated and have seasonal high water table or hydric conditions
4. Undisturbed impervious areas
5. Surface waters, floodways, and floodplains (floodplains-local requirements)
6. Areas where the soils are contaminated
7. Protected Natural SCMs (Buffers, Protected Areas)
8. Slopes 20% or greater that will not be disturbed+ 10' top and bottom of slope
9. Habitat Protection for T&E species (undisturbed)
10. Upland areas remote from ED activities (cannot gravity feed stormwater)
11. Public safety concerns and/or pollution based on field observations or studies
12. Other areas that must be avoided to meet local ordinance setbacks (need to justify)
13. Impervious Surfaces created for public safety (highway widening)
14. Phased Testing Plan identified areas large enough to install BMP's for entire development

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Exclusion Section

☑ **Areas Excluded for Infiltration SCMs** *(attach map(s))*

ADD ROW | DELETE ROW

Exclusion	Description	Area (ac)
1	Areas of a project site that will be disturbed for underground utilities or other infrastructure and then restored to approximate original condition.	0.29
5	Areas that are defined at 25 Pa. Code § 102.1 as surface waters and waters of this Commonwealth and areas that are defined at 25 Pa. Code § 105.1 as floodways and floodplains.	0.96
8	Areas that will not be disturbed where slopes exceed 20%, including 10 feet from the top and top of slope.	0.53
10	Upland areas that are remote from earth disturbance activities and would be unable to receive stormwater from new impervious surfaces by gravity flow.	2.24

Area Unsuitable for Infiltration SCMs (ac):	**4.02**
Area Potentially Suitable for Infiltration SCMs (ac):	**4.88**

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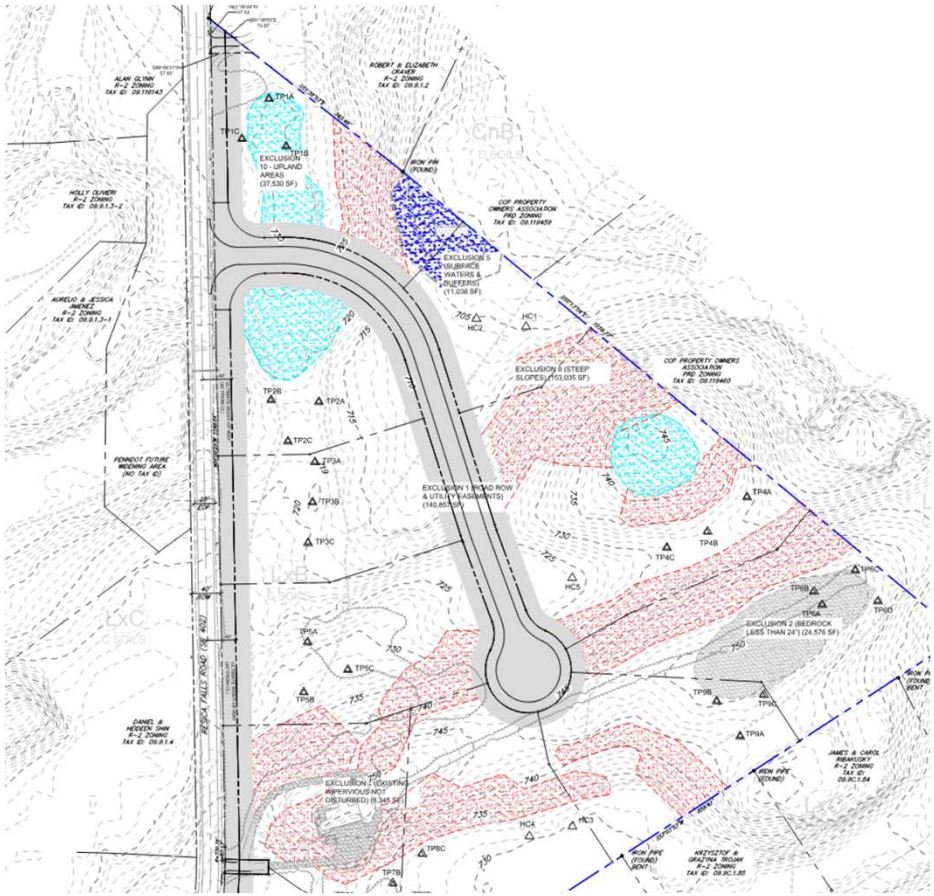
- **1 Test/40,000 sf**
- **8.9 Acres (Project Area)**
  - **10 Tests Required (9.69)**
- **With Exclusions (4.88 Acres)**
  - **6 Tests Required (5.31)**

Exclusion Map



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Soils Testing – How Many Locations

- Minimum of 4 tests
- 1 test per 40,000 sq. ft. of area outside of exempt areas – must be distributed across the site.
- Minimum of 2 test if:
  - ED is less than 5 acres, **AND**
  - Prior Approval from DEP/CCD at Pre-App Meeting, **AND**
  - Infiltration Rates greater than 0.4 inches per hour for all tests
- Spreadsheet will guide you and provide feedback on the number of tests and are test result adequate. Additional tests may be necessary – great item to discuss at a pre-app!
- Attach soil testing data-including test pit descriptions and infiltration testing data sheets
  - Provide Surface Elevations for Test Locations

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Testing Summary

☑ **Test Pit / Soil Boring Log** No. Test Locations: 6

Test Location ID	Investigation Method	Total Depth Investigated (ft)	Limiting Zone Depth (ft)	Limiting Zone Description	Infiltration Test(s) Completed?
TP-1	Test Pit	4	2.4	SHWT	Yes
TP-2	Test Pit	6	3.6	SHWT	Yes
TP-3	Test Pit	5	4.2	SHWT	Yes
TP-4	Test Pit	3	3	Bedrock	Yes
TP-5	Test Pit	6	2.1	Bedrock	Yes
TP-6	Test Pit	4	1.6	Bedrock	Yes

☑ **Infiltration Test Results** No. Infiltration Tests: 8

Test Location ID	Infiltration Test ID	Infiltration Test Depth (ft)	Infiltration Test Method	Field Ksat (in/hr)	Temp (°F)	Adjusted Ksat (in/hr)
TP-1	IT-1A	2.8	Double Ring	0.1	55	0.120
TP-1	IT-1B	0.6	Double Ring	2.3	62	2.438
TP-2	IT-2A	3	Double Ring	4.5	64	4.590
TP-3	IT-3A	2	Double Ring	0.2	68	0.192
TP-3	IT-3B	2	Double Ring	0.32	70	0.298
TP-4	IT-4A	2	Double Ring	0.86	72	0.783
TP-5	IT-5A	0.5	Double Ring	0.25	72	0.228
TP-6	IT-6A	1	Double Ring	0.16	72	0.146

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- **List ALL Pits/ Borings Performed**
- **List ALL Infiltration Testing Results**
- **Investigation Method**
  - Test Pit
  - Soil Boring*
  - Other*
  - * 2 Infiltration Tests/location needed
- **Limiting Zone Description**
  - Bedrock
  - Compacted Fill*
  - Fragipan*
  - SHWT (Redox)
  - Groundwater
  - *Advance test pits, borings 2 feet below restrictive layer
- **Infiltration Test Method**
  - Double Ring
  - Single Ring
  - Cased Borehole
  - Other (cannot see seal at bottom)
- **Temperature is Water Temperature**

Testing Results

☑ **Test Pit / Soil Boring Log** No. Test Locations: 6

Test Location ID	Investigation Method	Total Depth Investigated (ft)	Limiting Zone Depth (ft)	Limiting Zone Description	Infiltration Test(s) Completed?
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Recommended infiltration test location frequency: 1 test / 40,000 square feet (4 minimum)
Actual infiltration test location frequency: 1.13 test(s) / 40,000 square feet

Infiltration test location frequency is adequate.

Based on Ksat results alone (not considering limiting zones), opportunities for infiltration SCMs may exist on-site. These opportunities must be maximized to the extent practicable.

- *Infiltration test location frequency is adequate.* This response will be displayed if the Actual Infiltration Test Location Frequency is greater than or equal to 1, the minimum number of test locations (4) has been reported, and, if test pits were not used, a minimum of 2 infiltration tests were conducted at each test location.

- 6 test locations/5.31 required=1.13

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Testing Results

- *The number of infiltration test results entered is less than the number of test pits or borings where infiltration tests were reported; enter all infiltration test results*. This response will be displayed if the number of test pits or soil borings where infiltration testing was conducted, as entered into the Test Pit / Soil Boring Log table, exceeds the number of infiltration results entered.

- *Additional infiltration tests are recommended*. This response will be displayed if either 1) the Actual Infiltration Test Location Frequency is less than 0.5, or 2) the number of unique test locations is less than 4 (see **NOTE 3**), or 3) the Investigation Method is either Soil Boring or Other and less than 2 infiltration test results have been entered for that test location. The Spreadsheet recommends that at least two infiltration tests should be completed for the cased borehole method and other infiltration test methods where the seating of the device cannot be observed to ensure water loss does not occur. For example, if the user indicates Soil Boring 1 (SB-1) had infiltration tests completed, but there are not at least 2 tests in the Infiltration Test Results table for SB-1, this response will be displayed.

  NOTE 3 – If MRC SCMs will not be proposed for stormwater management on the site and it is known that infiltration-based SCMs will be used, DEP/CCD will accept a minimum of two test locations for small sites with earth disturbance less than 5 acres when 1) the applicant receives prior written approval from DEP/CCD during a pre-application meeting or otherwise prior to submission of a Chapter 102 permit application or Notice of Intent and 2) when the infiltration rate or saturated hydraulic conductivity determined for all tests completed is at least 0.4 inch/hour (i.e., not limited or marginal) prior to the application of a factor of safety.

Testing Results

- *The coefficient of variation (CV) for infiltration test results is relatively low (__). Additional infiltration tests may be unnecessary at the discretion of the professional*. This response will be displayed if the Actual Infiltration Test Location Frequency is less than 1 but at least 0.5 AND the CV of the infiltration test results (i.e., the standard deviation of test results divided by the average of test results) is less than or equal to 0.5. In these cases the professional overseeing the PDSC may conclude that subsurface conditions are sufficiently uniform across the site such that additional test locations are not warranted.

- *The coefficient of variation (CV) for infiltration test results is moderate to high (__). Additional infiltration tests are recommended*. This response will be displayed if the Actual Infiltration Test Location Frequency is less than 1 but at least 0.5 AND the CV of the infiltration test results exceeds 0.5. In these cases the variability of infiltration results is sufficiently high that additional test locations may be warranted.

- Attach Justification if additional tests are not performed

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Testing Results

2. **Site infiltration capabilities –** The second recommendation will populate if additional infiltration testing is not recommended and addresses whether the site has the potential for infiltration-based SCMs. The following are possible responses:

   - *Based on Ksat results alone (not considering limiting zones), opportunities for infiltration SCMs may exist on-site. These opportunities must be maximized to the extent practicable*. This response will be displayed when sufficient tests were completed, and one or more infiltration test results exceeds 0.25 inch/hour.

   - *Infiltration potential may be limited and use of other options should be considered*. This response will be displayed when sufficient tests were completed, and all infiltration test results are less than or equal to 0.25 inch/hour.

- 0.25 inch/hr is marginal at best. Design Rate with FS=2 is 0.13 in/hr
- MRC limit is 0.2 in/hr (0.1 with FS)
- Basins will need to be large and shallow to meet 96 hour dewatering time
- Require additional testing at SCM to verify rates, evaluate if MRC is better option

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Questions?

For additional information on PDSC Spreadsheet:

-Instructions

-Clean Water Academy

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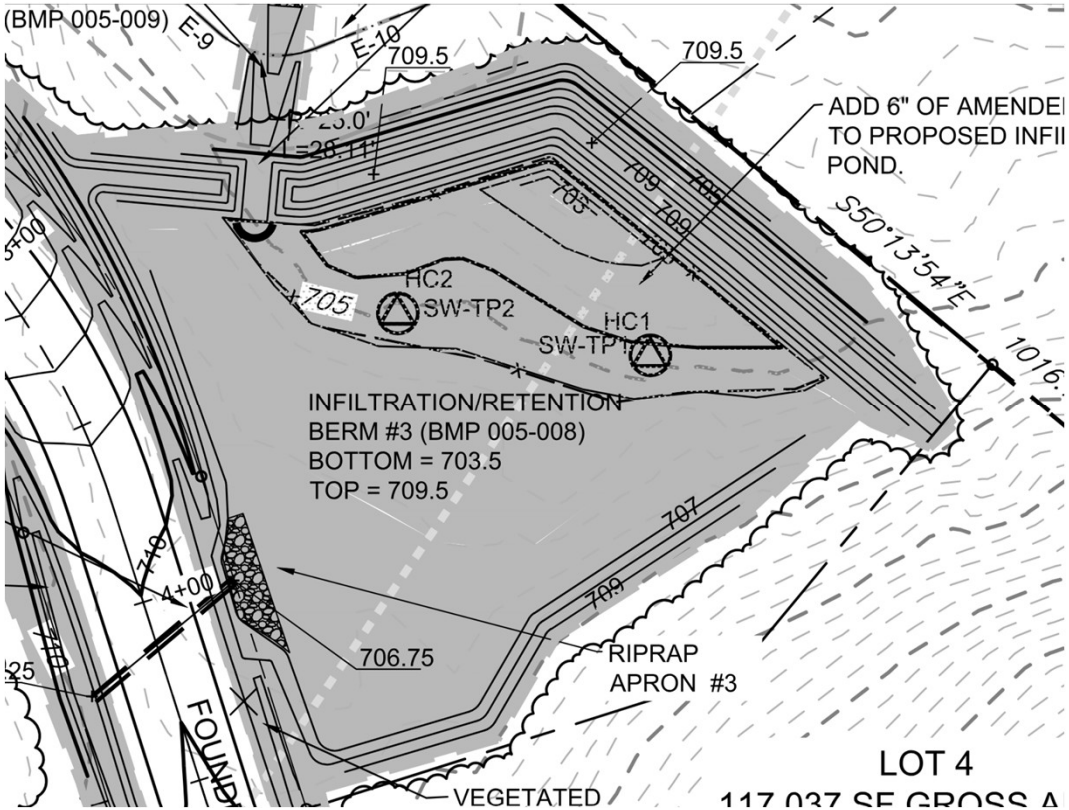
Testing Issues



- **Tests at Same Elevation**
  - **Tests at Elev 705**
  - **LZ at 703.00**
  - **Bottom Basin 703**
  - **Will it infiltrate?**
  - **Test at different elevations in the basin-is LZ depth consistent?**
  - **Additional Testing to verify LZ**

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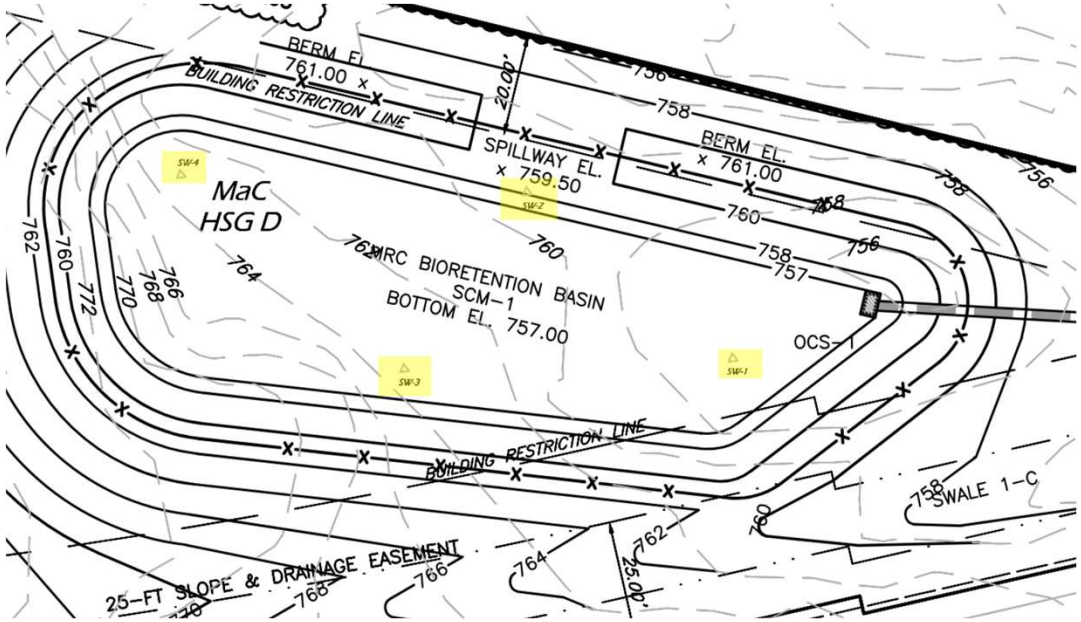
Testing Issues



- **Deep Excavations to construct basins**
  - **13’ cut at backside of basin**
  - **6’ cut beyond testing locations**
  - **Into Rock?**
  - **Into Groundwater?**
  - **Adjust Testing Locations**

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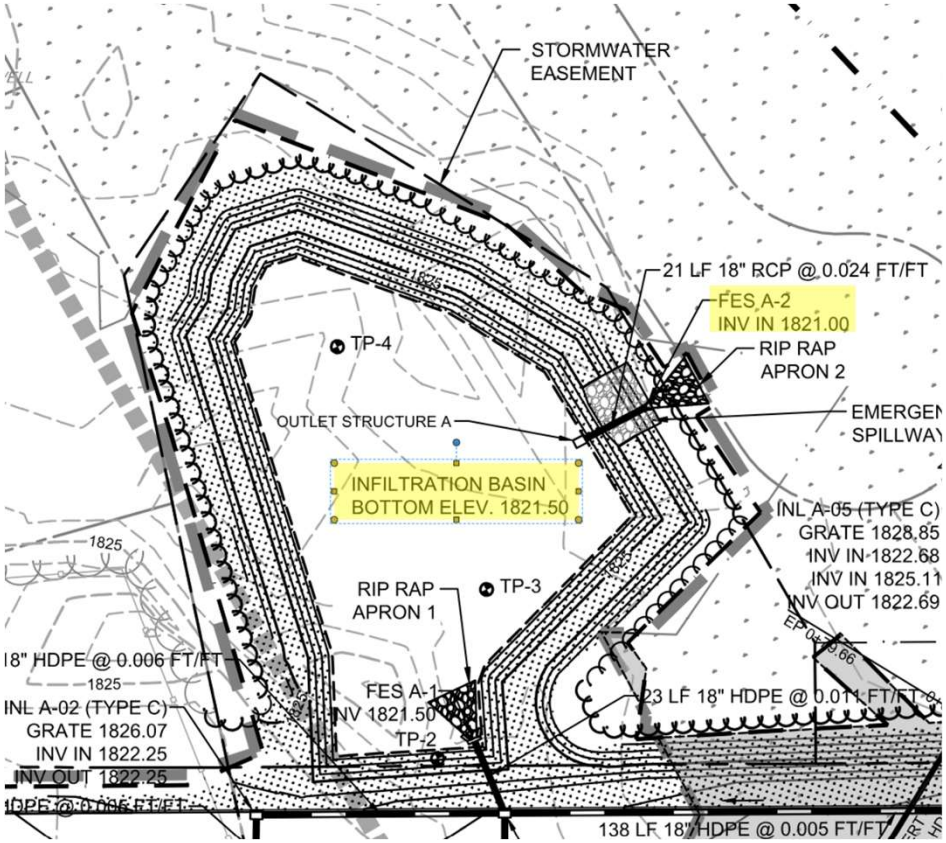
Testing Issues



- **Basins Adjacent to Wetlands**
  - **Variable Water Levels**
  - **Testing in Dry Season**
  - **Raise bottom of bed above Wetlands (2' +)**
  - **Wetlands connected to Streams**
    - Beaver Activity raising water levels

Infiltration Test/Test Pit No.	*Approximate Surface Elev. (ft)*	*Approximate Testing Elev. (ft)*	*Soil Stratum Tested*	*Infiltration Rate (in./hr)*	*Approximate Limiting Zone Elev. (ft)*	*Limiting Zone Type**
I-1 / TP-1	1822.5	1820.5	1	0.25	1818.5	SHWT
I-2 / TP-2	1822.5	1820.0	4	1	1818.0	SHWT
I-3 / TP-3	1823.3	1821.1	1	0.25	1819.0	SHWT
I-4 / TP-4	1824.0	1822.0	1	0.25	1820.0	SHWT

*SHWT-Seasonal High-Water Table

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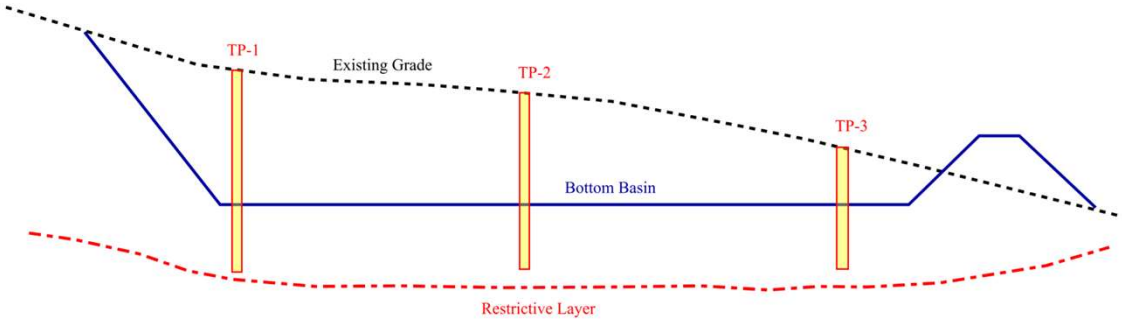
Testing Issues





- **Test Pits not Deep Enough**
- **Glacial Deposits-Variable Soils**
- **Infiltration Stops**
- **Need deeper test pit(s) to rule out restrictive layer.**
- **Where does the water below the basin discharge?**

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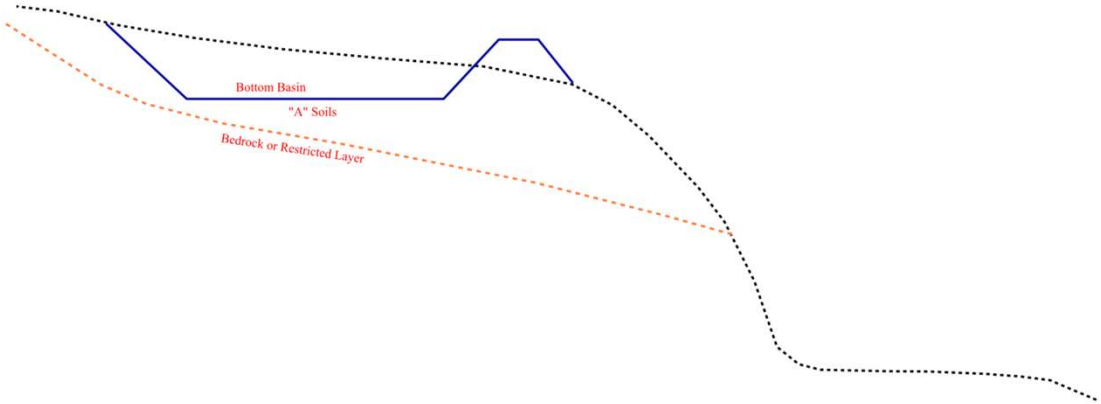
BMP Location-Unanticipated Discharge







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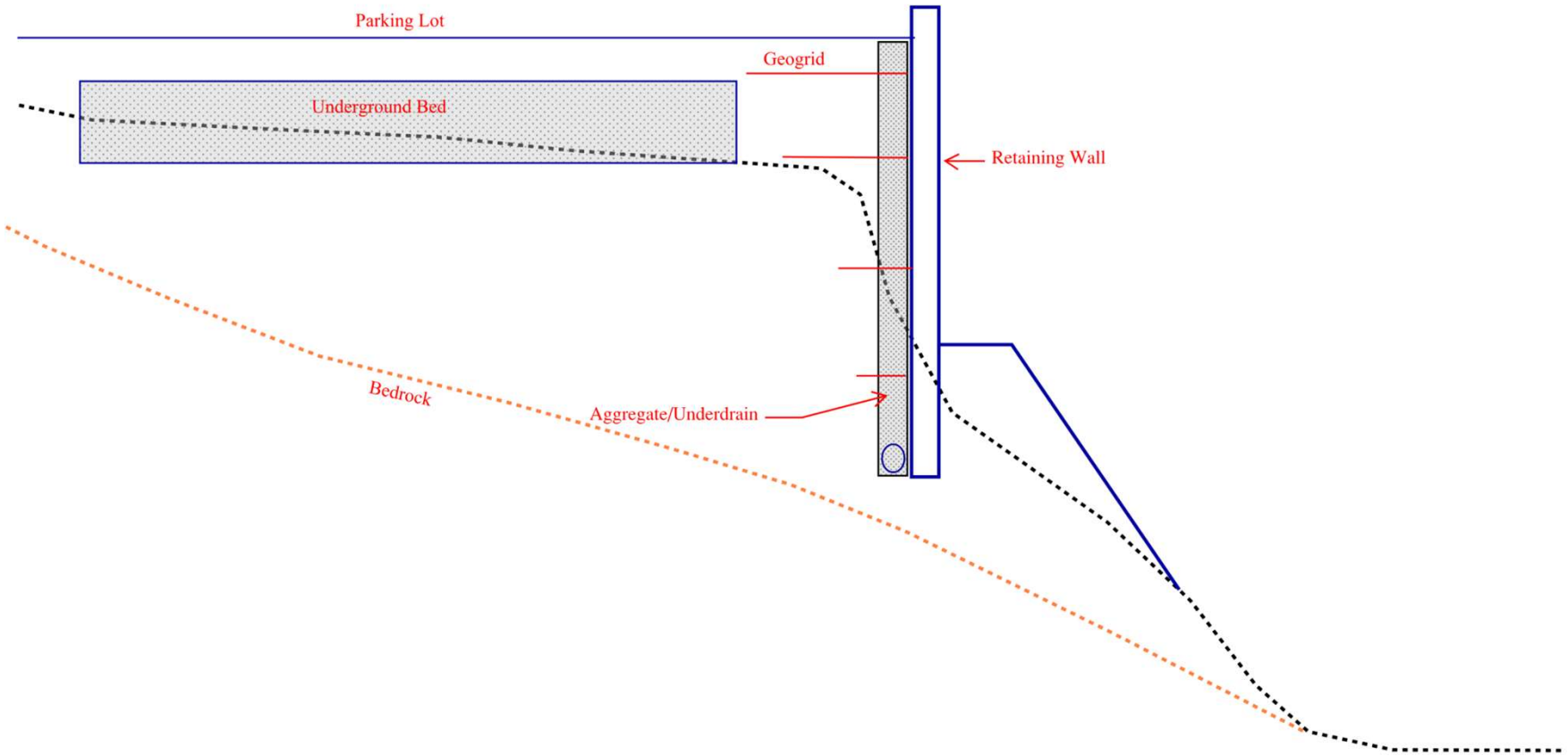
Unanticipated Discharge



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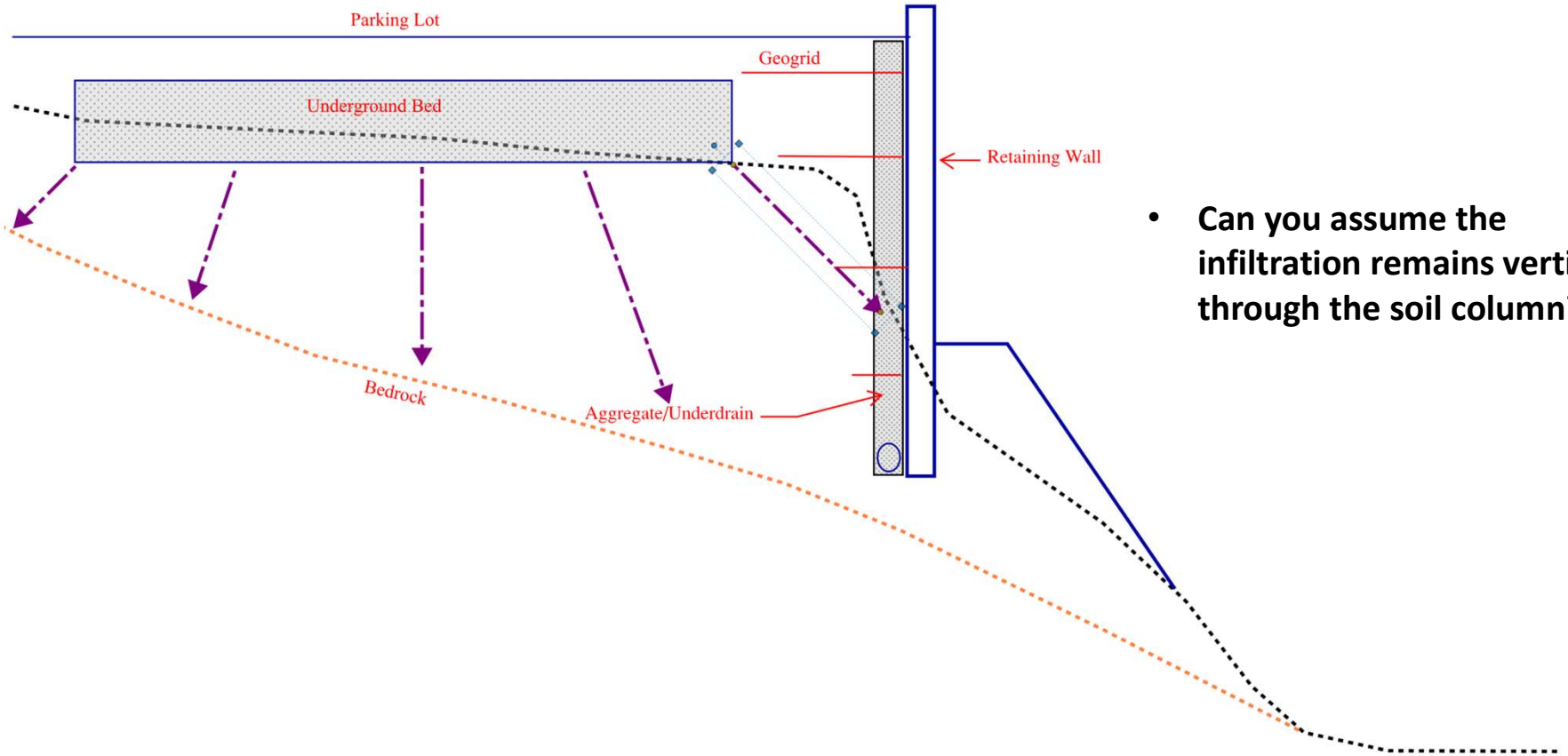
Unanticipated Discharge



- **Can you assume the infiltration remains vertical through the soil column?**

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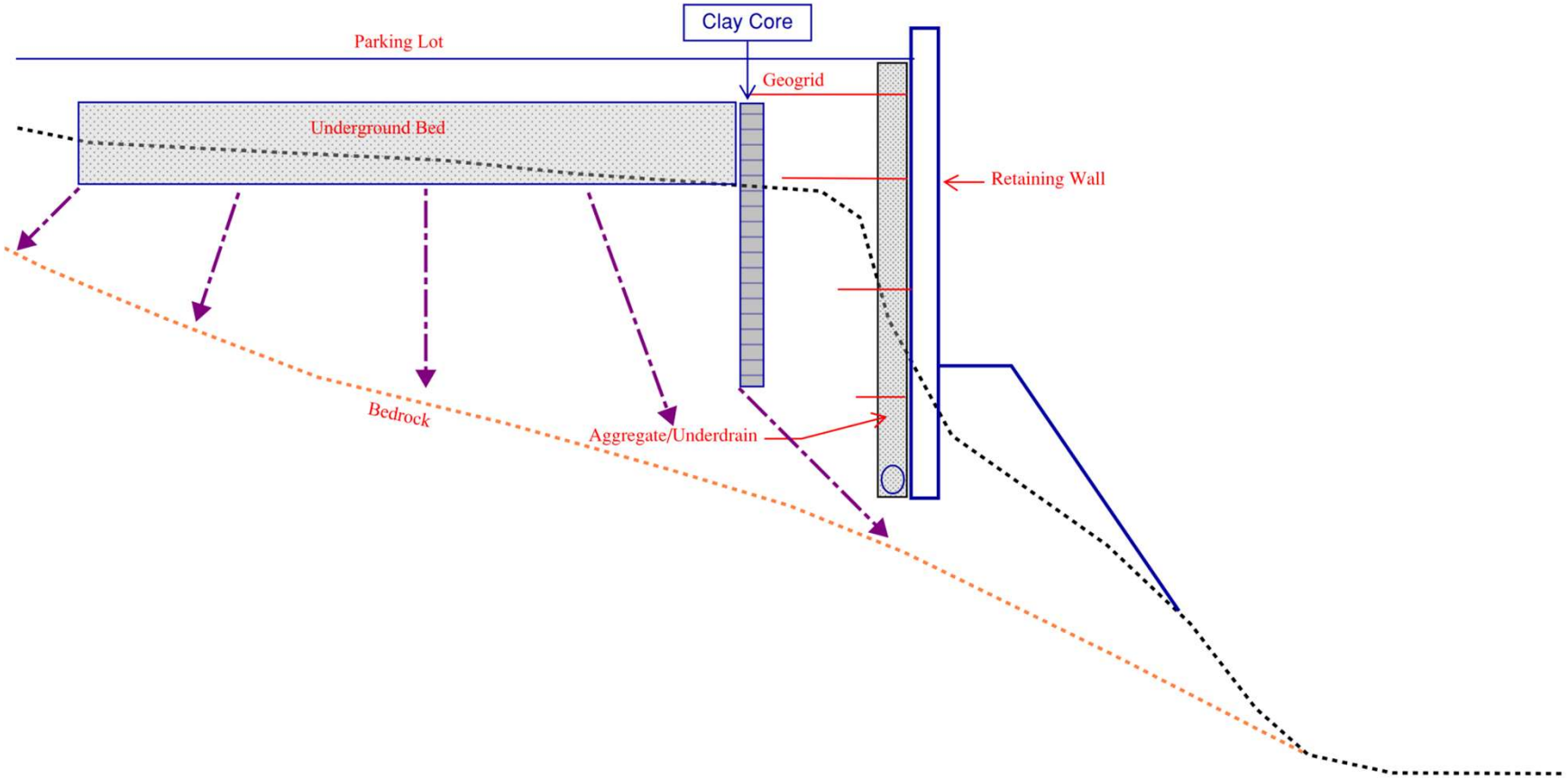
Unanticipated Discharge



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Thank You!

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