

DEQ Certification Class Presentations

Class presentations are provided for study/review purposes only. Printouts of these PowerPoint slides will not be allowed into the exam testing centers.

August 2024



SMW Program Overview:

VESMP Process Activity

- Review for Plan Reviewers

Directions:

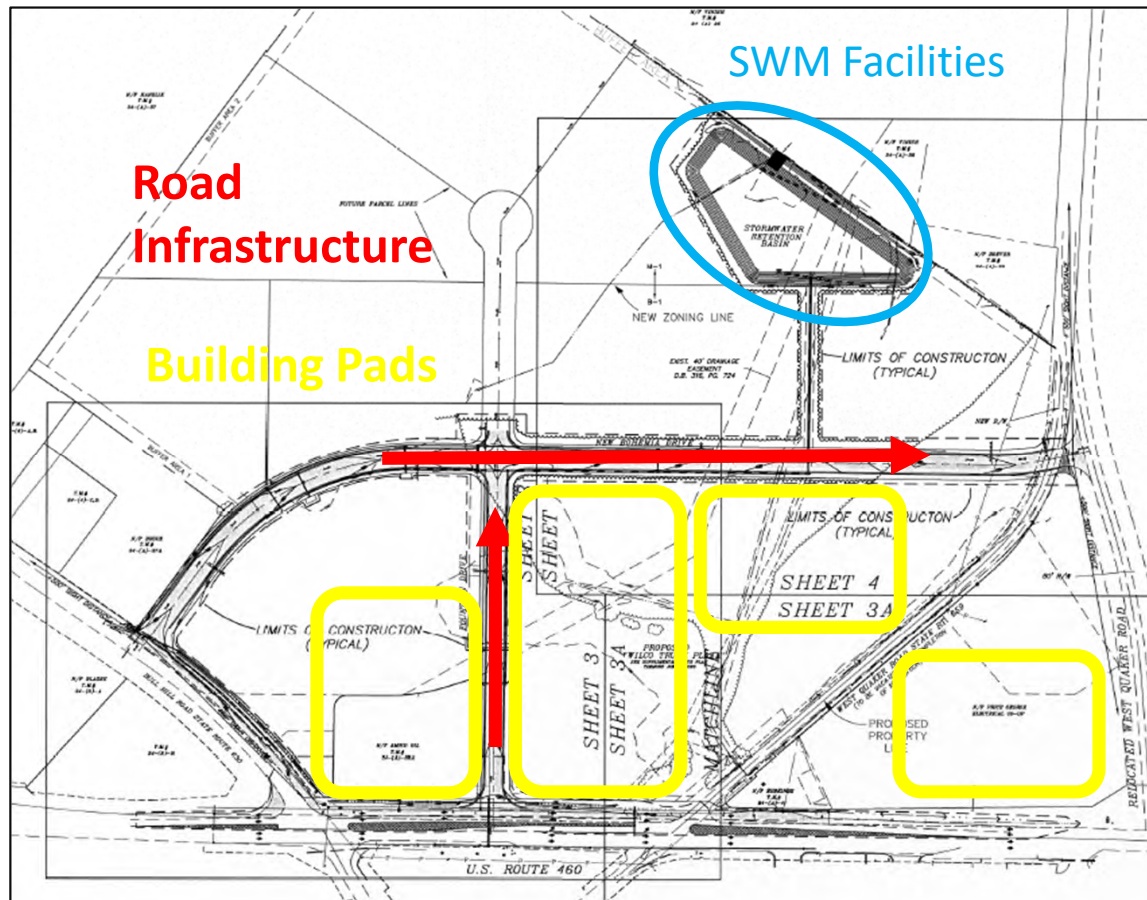
- Establish the situation
- Review all site information, including reports, plan elements, photos, and correspondence
- Determine the next courses of action
- Decide if the activity in question is a *Regulated LDA* or the activity falls under *Exemption* status
- Determine next steps for VESMP Authority

Situation – Potential Land-disturbing activity



| REGULATED LDA | EXEMPTION STATUS |

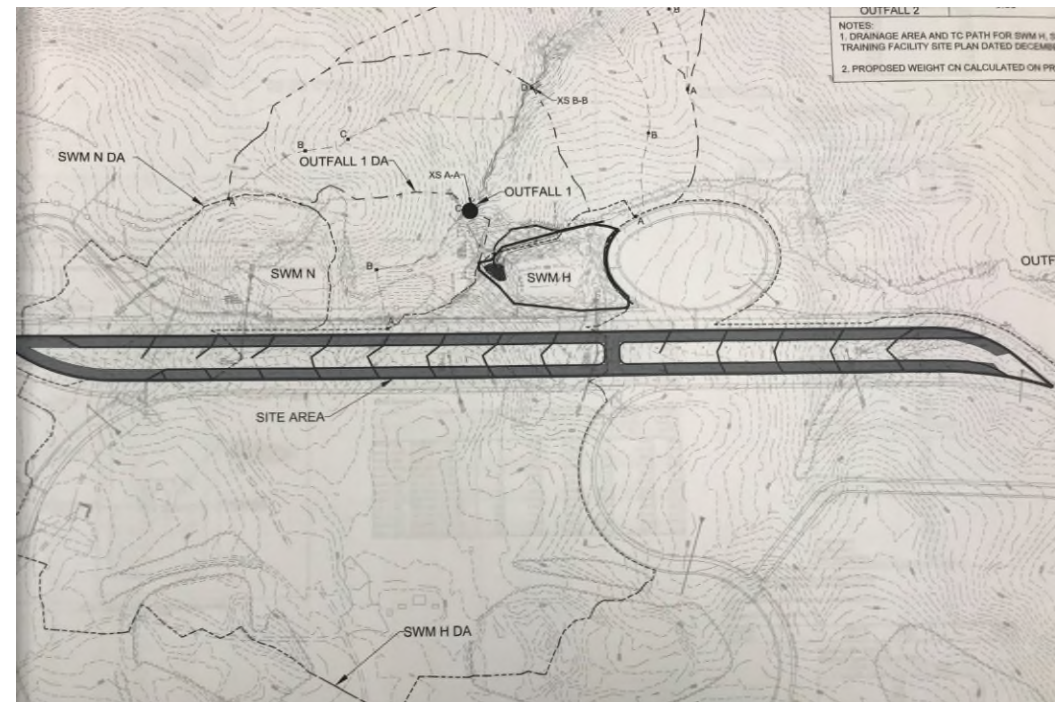
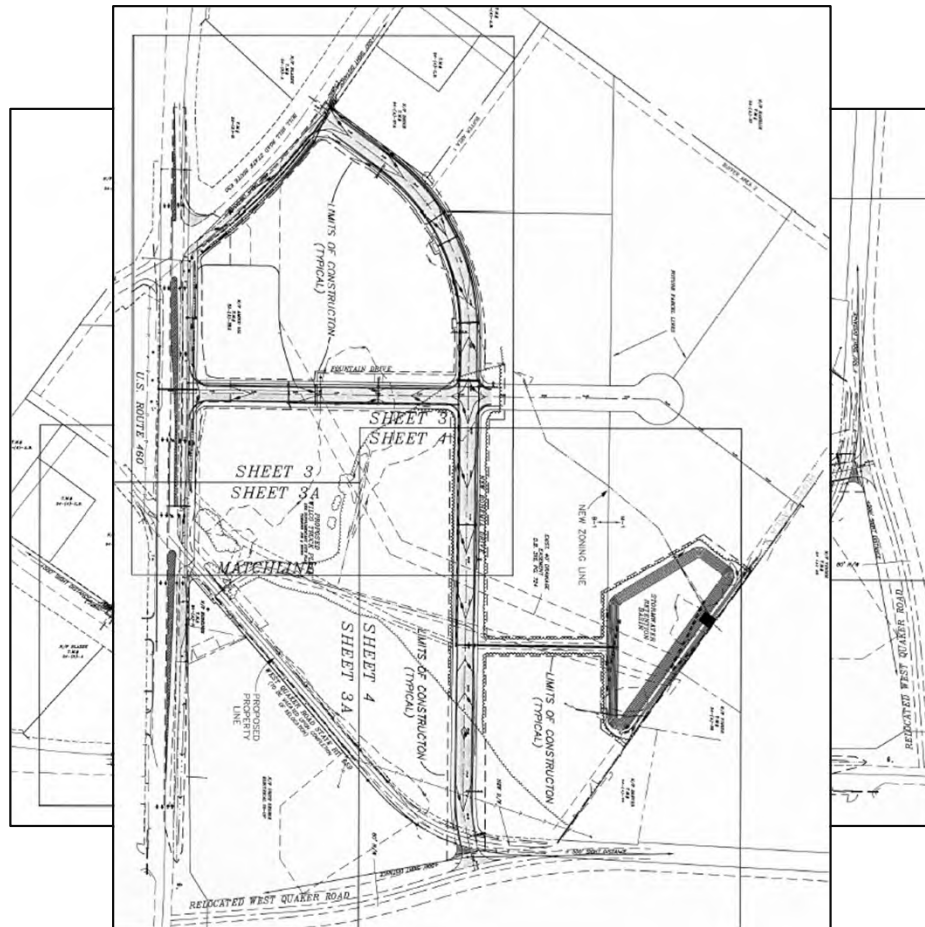
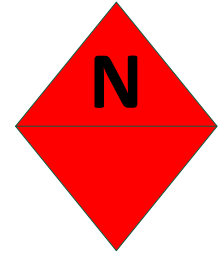
Situation – ESM Plan Submitted



- Plan submitted for business park and parking lot development
- Plan includes:
 - New roads, with curb & gutter and
 - SWM facility to treat portions of on-site development

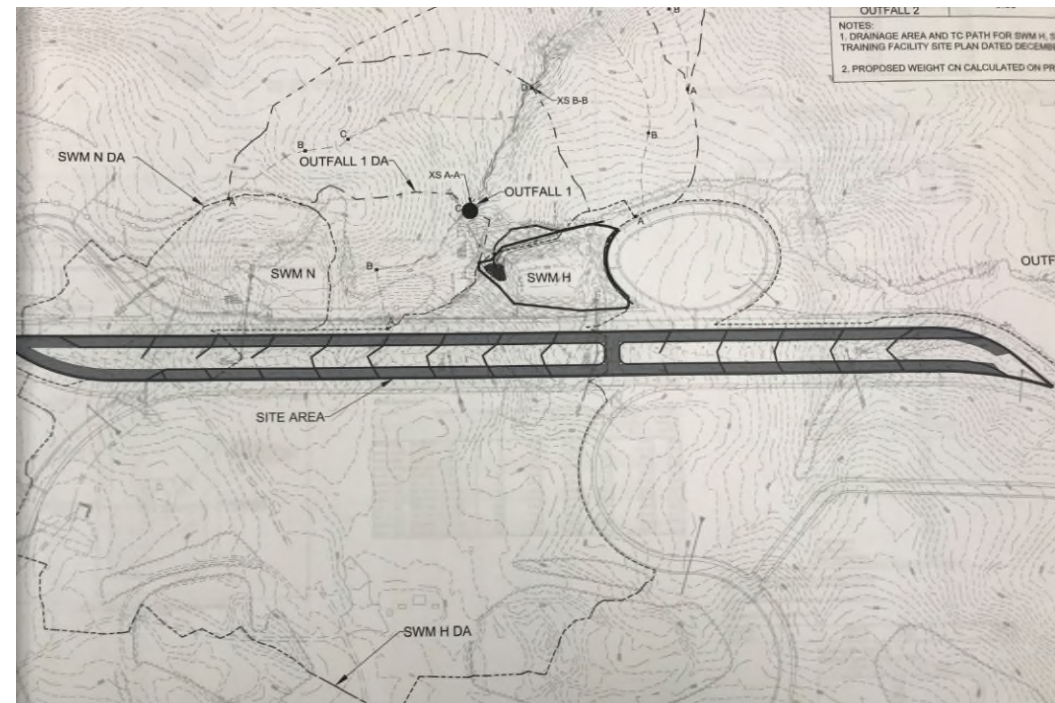
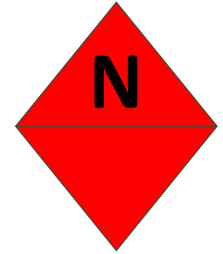
| REGULATED LDA | EXEMPTION STATUS |

Situation – ESM Plan Submitted: Vicinity View



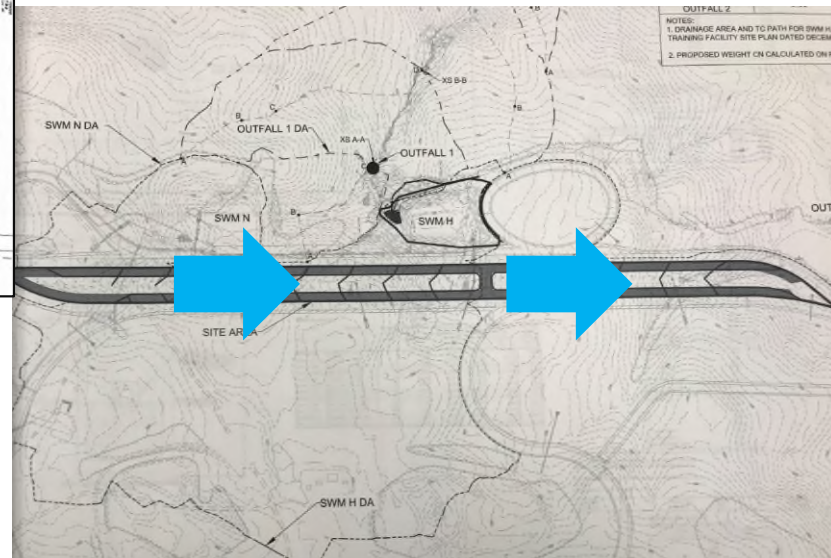
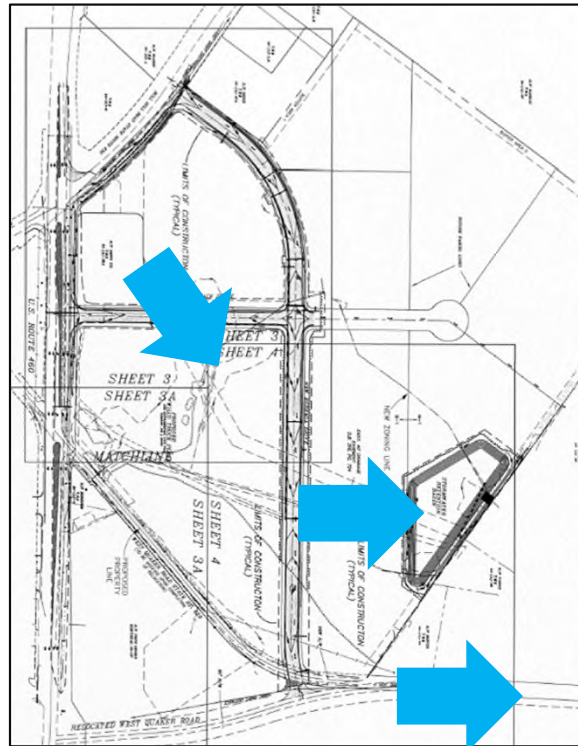
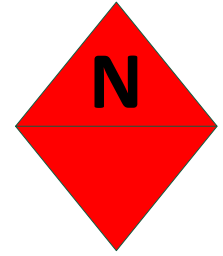
| REGULATED LDA | EXEMPTION STATUS |

Situation – ESM Plan Submitted: Vicinity View



| REGULATED LDA | EXEMPTION STATUS |

Situation – ESM Plan Submitted: Vicinity View



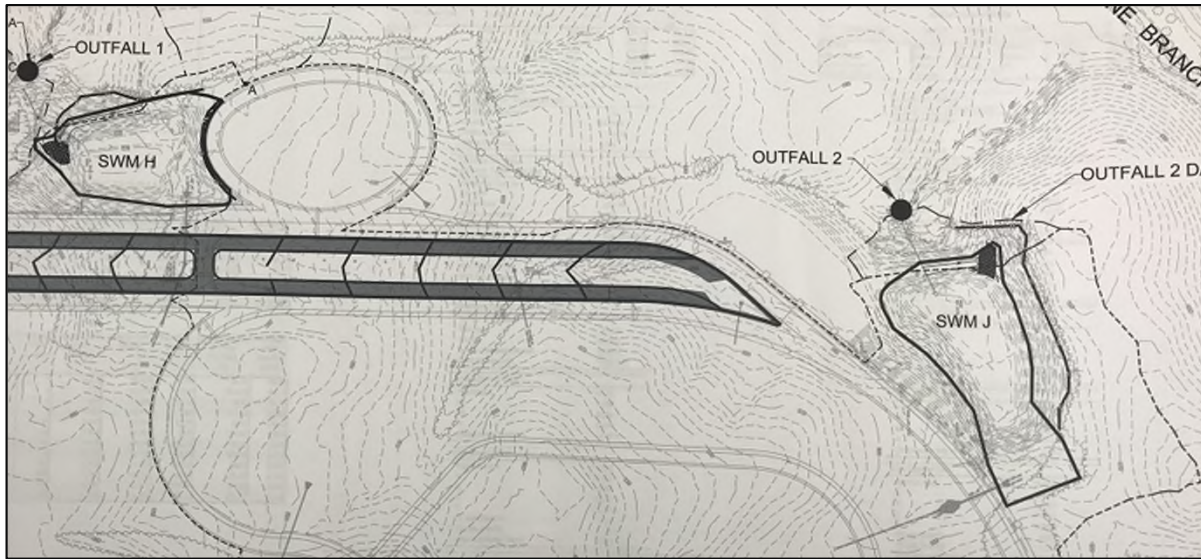
| REGULATED LDA | EXEMPTION STATUS |

Situation – ESM Plan Submitted



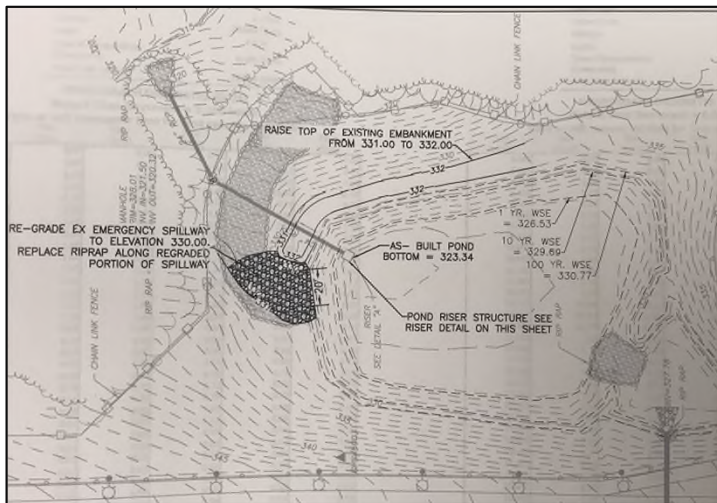
- Plan narrative provides general description & supporting details for commercial project construction
- Disturbed acreage: 7.5 acres including new roads, new SWM facilities (P-BMPs), building pads, and parking
- Additional areas: permitted facility for accepting excess fill material, and existing roadside ditch improvements

| REGULATED LDA | EXEMPTION STATUS |



SWM portion of plan

- Plan also details all of the 4 proposed SWM facilities (3 downslope)
- Water Quality: VRRM spreadsheet shows *P reductions* met
- Water Quantity: Calculations confirm *channel and flood protection* criteria met for all concentrated discharge points downstream



Water Quantity Requirements

A. Channel Protection Requirement - The site drains concentrated stormwater flow into a natural stormwater conveyance system. Therefore, the energy balance equation must be satisfied for the 1-year storm. The energy balance equation is:

$$Q_{1,post} \times V_{post} \leq Q_{1,pre} \times V_{pre}$$

Where $Q_{pre} = 3.6$ cfs and $V_{pre} = 0.43$ Acre-ft. The V_{post} and Q_{post} shall be less than the product of Q_{pre} and V_{pre} . $Q_{allowable}$ is 4.1 cfs. See Appendix B for detailed calculations.

B. Flood Protection - The existing outfall is currently experiencing localized flooding, as the culvert is undersized. Therefore, the SWM Plan was designed such that the 10 year, 24 hour post-development peak discharge will be less than the pre-development 10-year, 24 hour storm event.

$$Q_{10,post} \leq Q_{10,pre}$$

The flood protection criteria are satisfied as the pre-development $Q_{10,post}$ of 15.9 cfs, is less than the $Q_{10,pre}$ of 17.5 cfs.

| REGULATED LDA | EXEMPTION STATUS |

Situation – SWM Plan Submitted

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
GENERAL VPDES PERMIT FOR DISCHARGES OF
STORMWATER FROM CONSTRUCTION ACTIVITIES (VAR10)
REGISTRATION STATEMENT 2024

PERMIT #:
PLAN/ID #:

Application type.
(CHOOSE ONE)

☐ NEW PERMIT ISSUANCE
☐ MODIFICATION WITH ACREAGE INCREASE: Permit #
☐ MODIFICATION WITHOUT ACREAGE INCREASE: Permit #
☐ EXISTING PERMIT REISSUANCE: Permit #

Section I. Operator/Permittee/Billing Information.

A. Construction Activity Operator (Permittee). The person or entity that is applying for permit coverage and will have operational control over construction activities to ensure compliance with the general permit. A person with signatory authority for this operator must sign the certification in Section V (per Part III.K of the VAR10 Permit).

Operator Name:
Contact person:
Address:

Section III. Off-site Support Activity Location Information.

List all off-site support activities and excavated material disposal areas being utilized for this project. Include additional areas on a separate page.

Off-site Activity Name:	Roadside ditch improvements downslope of commercial project site;
Address:	Smalltown, VA
City or County:	
Off-site Activity Entrance Location (description, street address and/or latitude/longitude in decimal degrees):	37.5555, -77.4664
Latitude and Longitude (6-digit, decimal degrees format):	
Is this off-site activity an excavated material disposal area?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
If this off-site activity is an excavated material disposal area, list the contents of the excavated fill material:	Permitted disposal site
Will a separate VPDES permit cover this off-site activity?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>

Total area of the construction site (including off-site area):
Estimated area to be disturbed by the construction activity (on-site only):
Off-site estimated area to be disturbed (if applicable; please also refer to Section III):

D. Construction Activity Status: FEDERAL ☐ STATE ☐ PUBLIC ☐ PRIVATE ☐

E. Nature of the Construction Activity Description (i.e. commercial, industrial, residential, agricultural, utility, solar, linear, stream restoration, etc.):

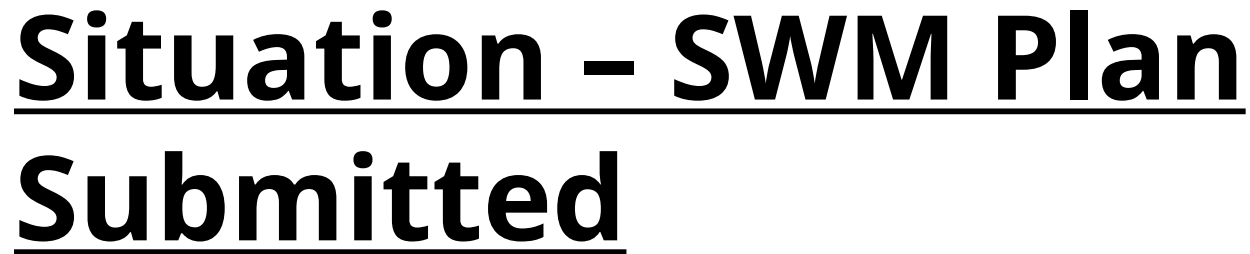
Rev 03/2024 PAGE 1 | 6

Program Administrator reviews Registration Statement:

- Notices off-site areas identified
- Claiming Exempt status for certain areas

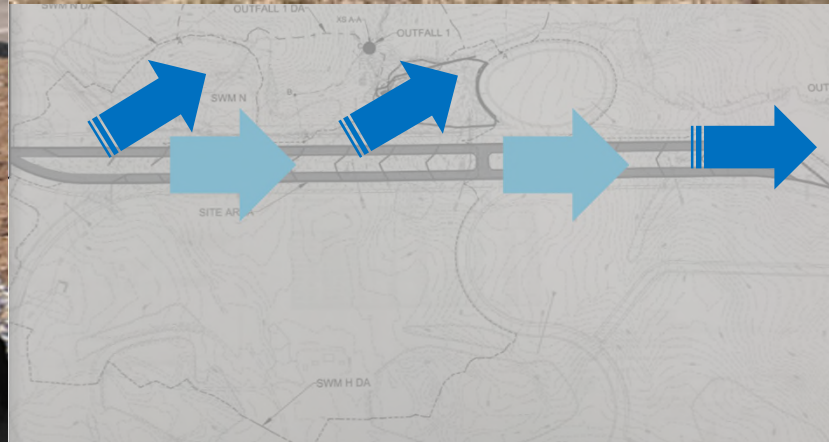


| REGULATED LDA | EXEMPTION STATUS |

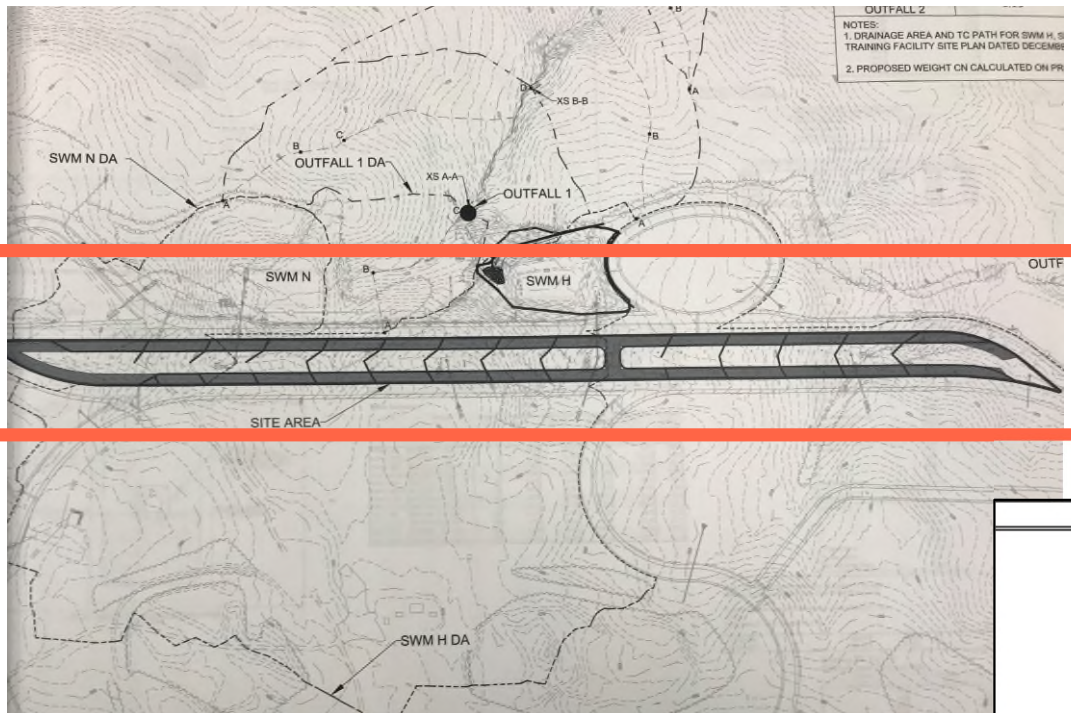


-
- Topographic map of the Training Facility site. The map shows contour lines, a road, and various labels. A red line highlights the 'SITE AREA'.
- Labels on the map include:
- SWM N DA
 - OUTFALL 1 DA
 - XS A-A
 - OUTFALL 1
 - XS B-B
 - SWM N
 - SWM H
 - SITE AREA
 - SWM H DA
- Notes in the top right corner:
- OUTFALL 2
- NOTES:
1. DRAINAGE AREA AND TC PATH FOR SWM H, S
 - TRAINING FACILITY SITE PLAN DATED DECEMBER
 2. PROPOSED WEIGHT CN CALCULATED ON PR

Situation: Stormwater Infrastructure Details

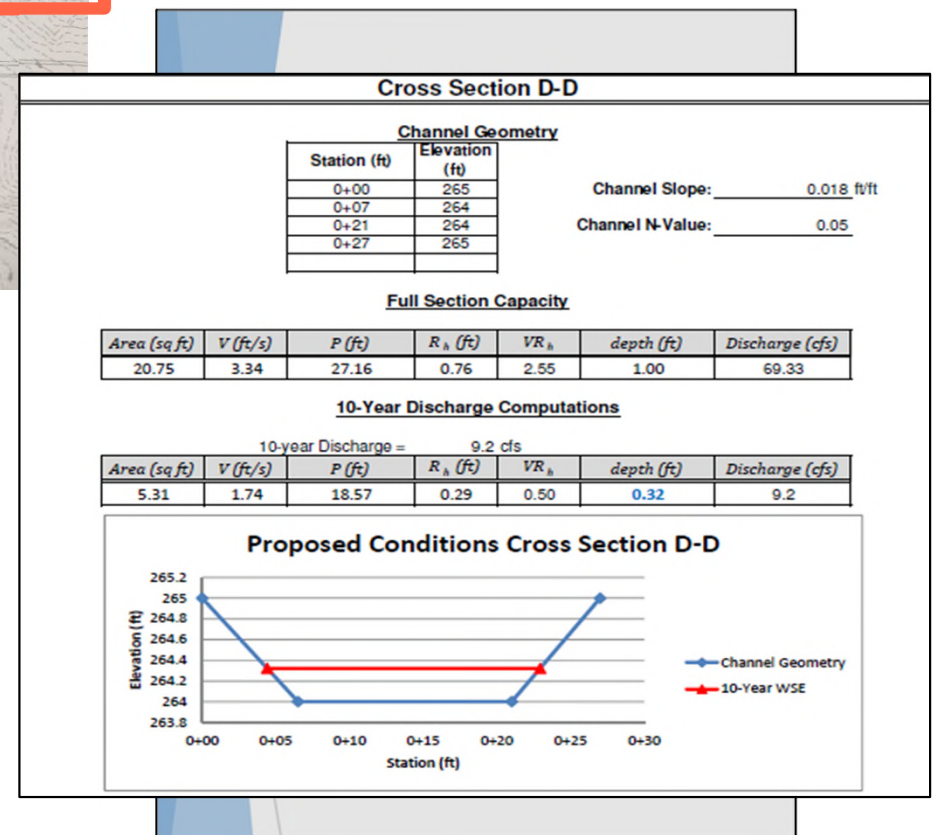


| REGULATED LDA | EXEMPTION STATUS |



- Disturbed acreage does not include portions of the project where older ditches are being reworked

- Narrative explains that the *original design* of downslope conveyances will be maintained post-construction
- Channel report shows information about ditch reworking; original grade and geometry of **grass channel** being maintained



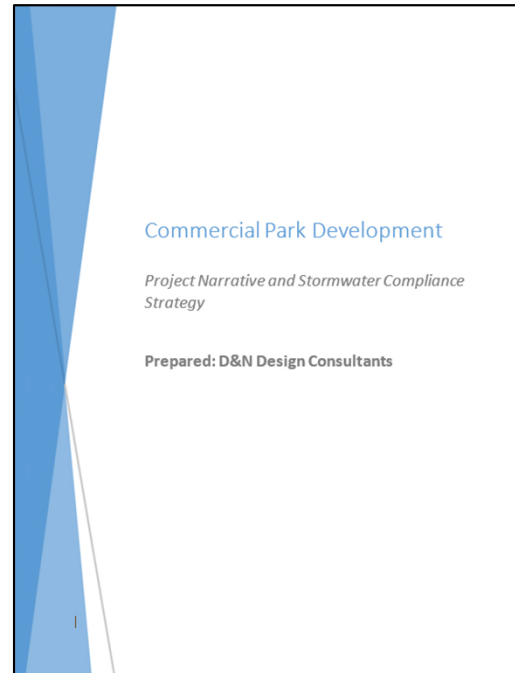
| REGULATED LDA | EXEMPTION STATUS |



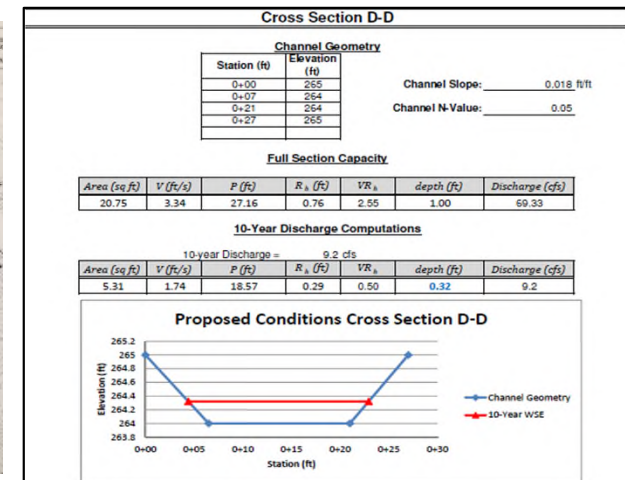
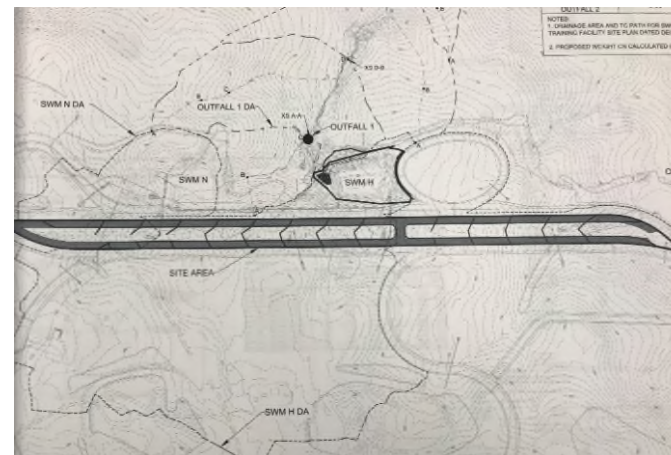
Review

- Project Narrative & Registration Statement detail some off-site work
- SWM Plan submitted showing portions of site not included in disturbed acreage (existing ditch maintenance)
- Channel Report shows original design maintained

*LDA: Regulated
-or- Exempt?*



Section III. Off-site Support Activity Location Information.	
List all off-site support activities and excavated material disposal areas being utilized for this project. Include additional areas on a separate page.	
Off-site Activity Name:	Roadside ditch improvements downslope of commercial project site;
Address:	Smalltown, VA
City or County:	
Off-site Activity Entrance Location (description, street address and/or latitude/longitude in decimal degrees):	37.5555, -77.4664
Latitude and Longitude (6-digit, decimal degrees format):	
Is this off-site activity an excavated material disposal area?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
If this off-site activity is an excavated material disposal area, list the contents of the excavated fill material:	Permitted disposal site
Will a separate VPDES permit cover this off-site activity?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>



| REGULATED LDA | EXEMPTION STATUS |

Q: Given the information on the SWM plan, is the off-site ditch work Exempt?

A. Regulated

B. *Exempt*

Site Visit Inspection Report



- Site inspection by *VESMP Inspector* documents field conditions; conveyance grading adjacent to BMP installations



- The Inspector also documents soil stockpiling in Exempt portions off-site

| REGULATED LDA | EXEMPTION STATUS |

Site Visit Inspection Report #2



- Site inspection by *VESMP Inspector* documents field changes; HDPE culvert pipes replaced with concrete



- Report also shows steeper portions of channel lined with new rip-rap





Review

- Inspection report shows channel grading and stockpiling around downslope BMPs
- Inspection report #2 reveals changes to *pipe material*, and in *channel lining*



→ ***Next Step?***

| REGULATED LDA | EXEMPTION STATUS |

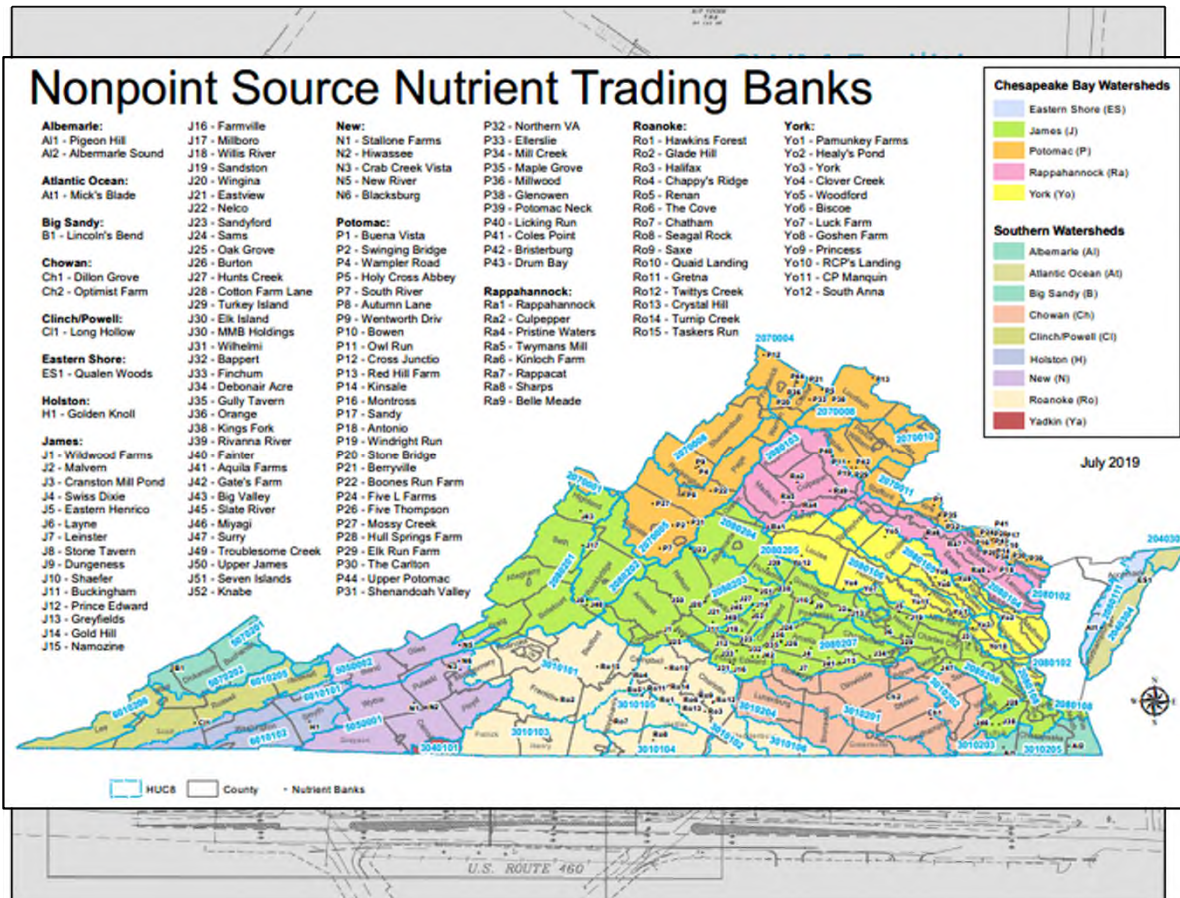
Q: With new site information provided in reports, what's the next step?

- A. Inspector helps contractor redline field changes
- B. Site area still exempt, no further action
- C. Require channel report confirming original design
- D. Require full plan modification submittal



Situation – SWM Plan

Modification Submitted



- Plan modification submitted for business park. New SWM plan shows:
 - On-site SWM facility deleted
 - Downgradient BMPs (3) will serve as water quality/quantity compliance facilities
 - Remaining P load reduction being addressed by offsite nutrient credit purchase

| REGULATED LDA | EXEMPTION STATUS |

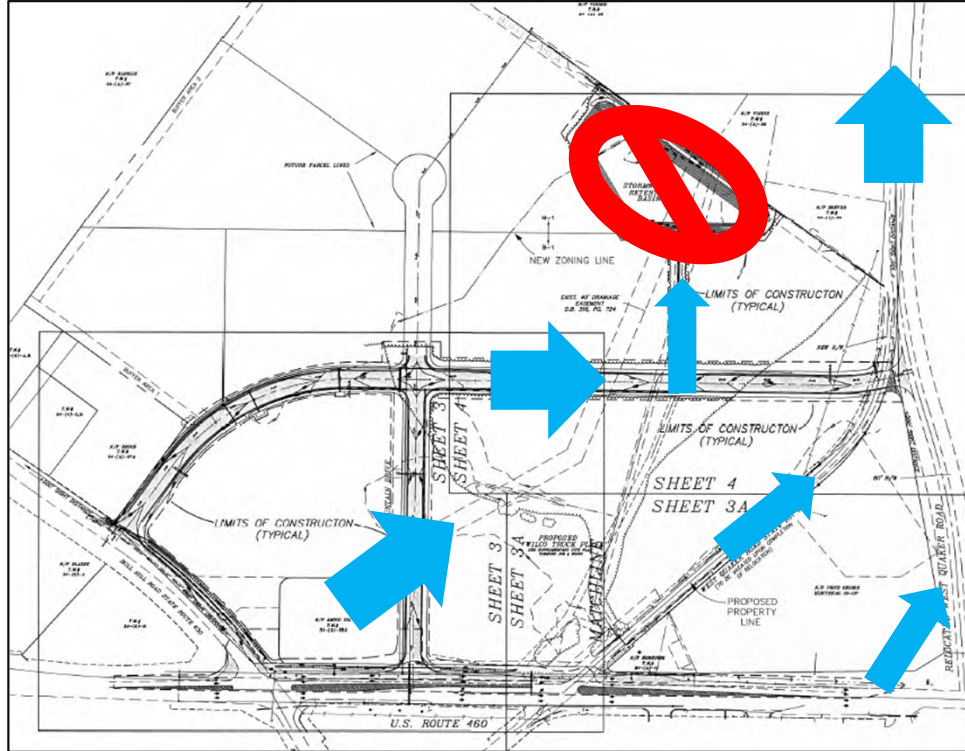
Q: How long does the VESMP authority have to review the plan modification?

A. 60 days

B. 45 days

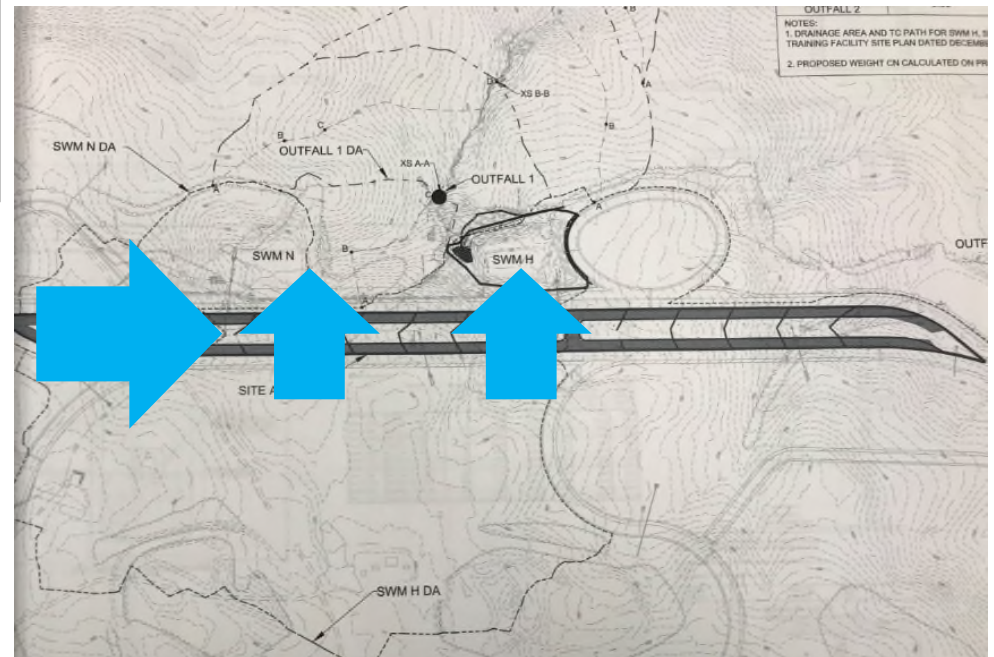
C. 15 days

D. 30 days



- Original plan directed a portion of the site to SWM facility
- Onsite BMP deletion increases volume and velocity of runoff downstream

- Modification reflects the quantity increase flowing to downstream conveyance and BMPS



| REGULATED LDA | EXEMPTION STATUS |



- Modified plan also eliminates any channel lining changes
- Original vegetated lining maintained

- Modification also includes details of downslope conveyance system **widening** to accommodate the increase in site runoff volume and velocity



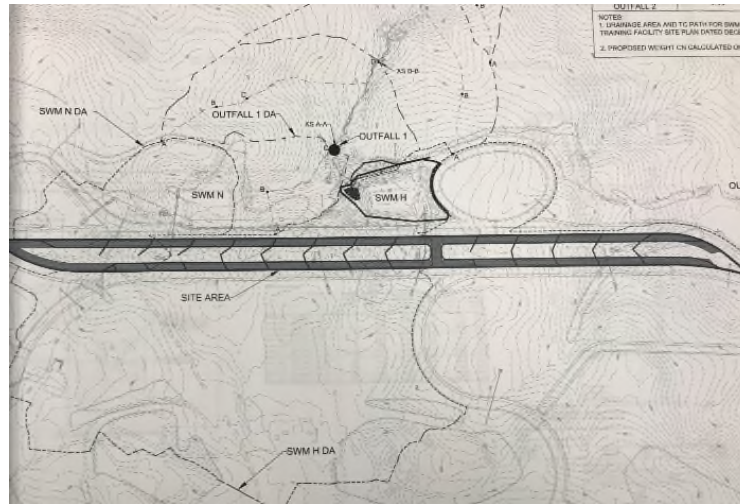
| REGULATED LDA | EXEMPTION STATUS |



Review

- Exempt portions of project; maintenance of existing conveyances
- Inspections reflect field conditions; pipe material & channel lining changes
- Plan modification; includes BMP deletion, original lining & conveyance **widening**

*LDA: Regulated
-or- Exempt?*



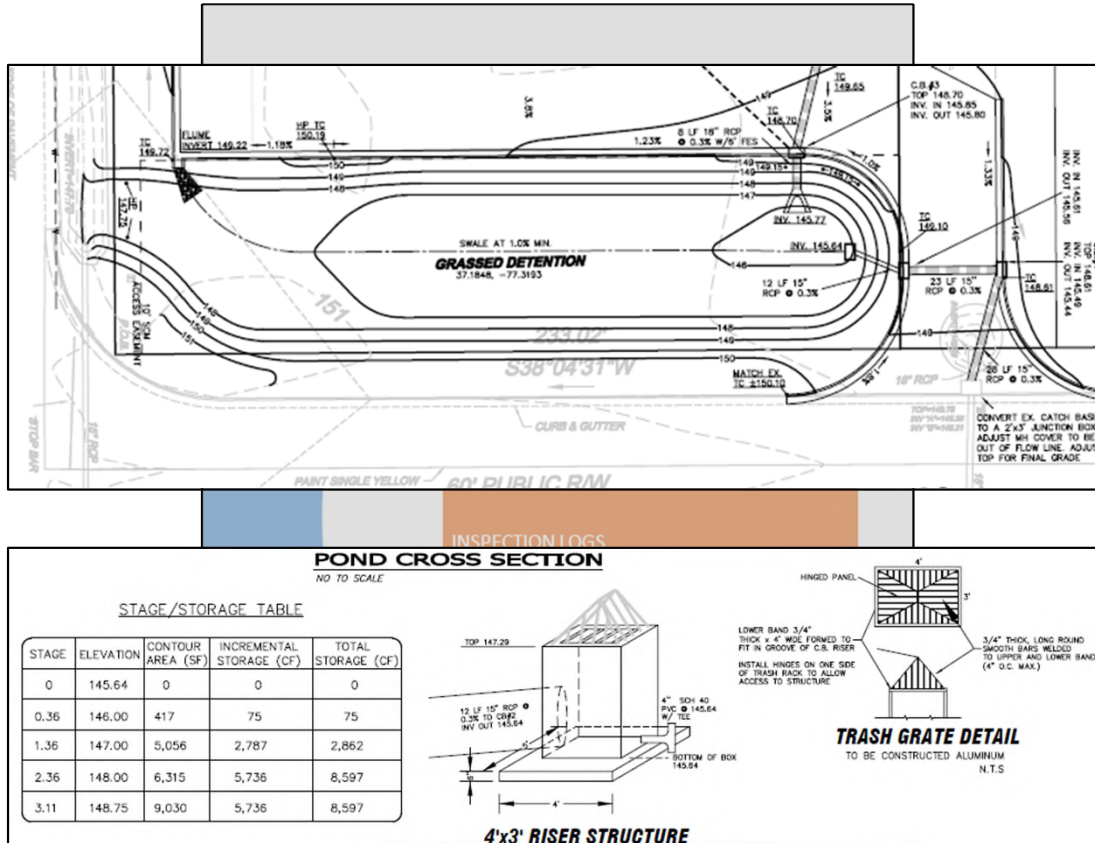
| REGULATED LDA | EXEMPTION STATUS |

Q: Given the recent SWM plan modification, maintenance portions of the site EXEMPT or Regulated?

A. Regulated

B. Exempt

Project Completion Construction Record Drawings



- Submitted by the Operator for approval *prior to permit termination and reviewed by the VESMP Plan Reviewer (You guys!)*
- Final BMP dimensional/material information, and must be retained by the VESMP Authority

→ *But for how long?*

| REGULATED LDA | EXEMPTION STATUS |

Q: Per the VESM regs, how long must a VESMP Authority retain Construction Record Drawings?

- A. 60 days
- B. As long as the facility remains operational
- C. 1 Year, with annual renewal
- D. 3 years

QuickPoll

Bonus

Q: How long must a VESMP Authority keep approved SWM Plans?

- A. 5 years
- B. As long as the facility remains operational
- C. Up to the time of CGP termination
- D. 3 years

Routine Maintenance Exemption



Review



- Initially Exempt; routine maintenance proposed
- Field changes bring Exempt status into question
- SWM Plan modification = 60 days to review
- Existing conveyances NOT under maintenance exemption
- Construction record drawings submitted and retained by VESMP Authority

Email logo: <http://www.differencebetween.net/technology/difference-between-email-and-gmail/>

Drop Inlet Swale: <https://aashtojournal.org/2020/03/20/aashto-seeks-elimination-of-temporary-discharge-rule/>

Gravel Road: US Federal Roadways Gravel Road Maintenance Guide 2015

Rip-rap channel: <https://www.gravelhub.com/gravel-guide>

Commercial site: <http://westernmc.com/commercial-construction/>

HDPE pipe: <https://a1sewercleaning.com/culvert-installation-repair-and-culvert-line-replacement-contractor-in-nj/culvert-installation/>

Concrete pipe: Concrete Pipe News. Spring 2016. American Concrete Pipe Association. Concretepipe.org

Ditch Widening: <https://www.kinneyconstruction.net/Industries/Municipal--Government/KOCH-FIELD-ROAD-WIDENING-CAPE-SEAL>