

General NPDES Permit for Construction Activities



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Besides the Impact on Aquatic Life...

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- Storm Sewer Cleaning
- Dredging
- (800,000 - 900,000 c.y. annually from Maumee)
- Property Damage Due to Flooding
- Increased Drinking Water Treatment
- Loss of Revenue from Recreational Sources

Who Needs Permit Coverage?

- “Operators” of sites which, either by themselves or collectively, disturb ≥ 1 acre in the “larger common plan of development or sale”
- An “Operator” is either:
 - Party with operational control over construction plans and specifications, including the ability to modify the plans
 - Party with day-to-day operational control of activities necessary to comply with the SWP3 or other permit conditions

Who Needs Permit Coverage?

- In general, this means...
 - Developers
 - General Contractors
 - Home Builders
- Exemptions:
 - Small construction (1 to 5 acres) for the routine maintenance of storm water facilities
 - Agriculture or silviculture activity
 - Discharges to combined sewer systems

How to Obtain Permit Coverage

- NPDES Construction General Permit
 - **READ THE PERMIT**
 - Develop Storm Water Pollution Prevention Plan (SWP3)
 - Submit Notice of Intent Application
- Alternative: Individual NPDES permit
 - Form 1 and 2F
 - Submit applications at least 180 days prior to ground breaking
 - Anti-Degradation review may apply

How to Obtain Permit Coverage

- Developer submits Notice of Intent (NOI)
 - **At least** 21 days prior to the start of construction
 - Can not start before receiving Authorization Letter from Ohio EPA
 - Fee is \$200 for disturbances ≤ 5 acres
 - \$20/acre surcharge for larger sites, \$500 max.
- General Contractor submits Co-Permittee NOI
 - Before he starts work on project
 - Can submit with Developer’s NOI or after Developer obtains coverage
 - No fee

How to Obtain Permit Coverage

- Home Builder submits Individual Lot NOI
 - Submit 7 days prior to date they accept responsibility of lot
 - No fee
 - Developer must maintain all centralized sediment controls
 - If no centralized sediment controls are required:
 - Developer must stabilize lot at least 7 days prior to transfer
 - Developer submits Individual Lot Notice of Termination (Individual Lot NOI) for lot

Completing the NOI

- List the name of project, as it will be known when completed, as "Facility Name"
- Include 8 ½ by 11 map, showing project location and boundaries of earth disturbance.
- List total acreage to be covered by the NOI
 - Disturbed area, not parcel size
- List any other DSW applications pending or for which you have yet to apply
 - PTL, NPDES, 401, Isolated Wetlands
 - If an Anti-Degradation Review is required, NOI will be processed at the same time.
 - Incorrectly leaving this blank may mean your site is actually unauthorized to discharge

Completing the NOI

- Don't submit NOI until after applicant has read the permit.
- Don't submit NOI until after a SWP3 is developed.
- Don't send to NWDO
 - This will cause a delay. They are processed in Columbus.
- Don't sign the NOI.
 - OAC 3745 requires a corporate officer, partner, or sole proprietor to sign any NPDES application.

Storm Water Pollution Prevention Plan (SWP3)

- SWP3 submittal not required unless requested.
 - The use of alternative post-construction BMPs must be requested and OK'd before NOI submittal.
- Ohio EPA screens NOIs. May request SWP3. Coverage **may not be granted** if SWP3 is deficient.
- Must address **entire** permitted area
 - Example: NOI submitted for 20 acres. SWP3 only developed for Phase I (5 acres). The remaining 15 acres do not have permit coverage as there is no SWP3.
- Checklist of required information available at www.epa.state.oh.us/dsw/storm/swp3_cgp_checklist2.pdf

What is a SWP3?

- Drawings and Narrative
 - Which Best Management Practices (BMPs) will be implemented?
 - Where will they be installed?
 - When will they be implemented during the sequence of construction?
 - How will they be built?
 - What are their maintenance requirements?
- Essential Components
 - **Sediment & Erosion Controls** - Permit guides the selection of these controls and requires them to be implemented within certain timeframes
 - **Non-Sediment Pollution Controls** - To address issues such as cement washout, fuel tank storage areas, waste disposal, trench dewatering, etc.
 - **Post-Construction Storm Water BMPs** - Permanent features of the site which improve the quality of storm water runoff from the developed site

SWP3 – Typical Compliance Issues

- Define all symbols in the legend
- Show limits of earth disturbance.
 - Contours not sufficient as grade changes may not occur
- Be sure to delineate drainage areas & give acreage
 - Picking the right BMP depends on drainage area and slope
- BMPs must be site specific.
 - Don't list BMPs for activities not occurring.
 - Don't just recite permit language.
- Provide detail drawings/specifications for all structural BMPs and stabilization methods.

SWP3 – Typical Compliance Issues

- BMPs must address all phases of construction, not just final grade.
 - Sediment pond may be required prior to the installation of storm sewers
 - Address individual lot construction
 - Multiple grade changes/shifting drainage areas may require multiple site maps.
- Include non-sediment pollution control BMPs
- Give draft inspection logs. ID who will inspect and maintain each control.

SWP3s – Typical Compliance Issues

- Include proper trench & groundwater dewatering BMPs
- Include post-construction BMPs
 - Designing for 5, 10, 25 year storm not sufficient
- Include Post-C detail drawings/ WQv calculations
- Give stage/storage tables and release rate calculations
- Include O & M info
- SWP3 must be kept onsite and current

Sediment Control vs. Erosion Control

- **Erosion Control** prevents the suspension of particulates in storm water runoff
 - Provides cover over disturbed soils
 - 90 to 98% soil retention can be achieved
- **Sediment Control** removes particulates once they become suspended in storm water runoff
 - Must pond runoff long enough to allow settling
 - 50 to 80% soil retention can be achieved

Sediment vs. Erosion Controls

- The NPDES permit requires that both are used in conjunction with one another to achieve optimal soil retention
- Therefore...doing one does not relieve you of the obligation of doing the other
- BMPs standards? **Rainwater & Land Development Manual** or other Ohio EPA accepted standard

Erosion Control Requirements

- Must be capable of providing **immediate** cover
- Initiate temporary stabilization:
 - Within 7 days of last disturbance on all disturbed areas where construction has temporarily ceased for 21 days
 - Within 2 days for ground within 50 ft. of a waterway
 - Before the onset of winter
- Often this means: after backfilling foundations and before material delivery, before utilities are completely installed.

Erosion Control Requirements

- Permanent stabilization required
 - Within 7 days of final grade
 - Areas likely to remain dormant for 1 year or longer
- Disturbed areas are **not** considered stable until the vegetative growth **density** is at least 70% or equivalent – Don't remove sed controls before this!

Erosion Control

Permanent Seeding

- Should only be applied between March 1 to May 31 and August 1 to September 30. Apply dormant seeding, temporary seeding or mulch during other times of the year
- Prepare the soil and add topsoil, lime and/or fertilizer as necessary
- Be sure to WATER to assure success
- Temp or Permanent Seeding must include mulch

Sediment Controls

- Structural controls required for sites remaining bare for 14 days or longer
- Must be capable of ponding runoff in order to be considered functional
- Sediment basins and perimeter sediment controls must be implemented
 - Prior to grading
 - Within 7 days of the start of grubbing
- Must function until the contributing drainage area is restabilized

Sheet Flow vs. Concentrated Flow

- Sheet Flow is controlled with
 - Silt Fence for small drainage areas
 - Diversions to sediment ponds for larger drainage areas
- Concentrated Flow is controlled with
 - Sediment ponds
- Storm sewer inlets are controlled with
 - Sediment ponds
 - Inlet Protection

Sediment Controls

- Stress the increased use of diversions
 - Maximum drainage area to diversion = 10 acres
- Limit the use of silt fence.
 - Max drainage area per 100 linear feet of silt fence:

| Slope | Drainage Area |
|------------|---------------------|
| 0 to 2% | 0.5 ac (or 218 ft.) |
| 2 to 20% | 0.25 ac (109 ft.) |
| 20% to 50% | 0.125 ac (55 ft.) |
| > 50% | Do not use |

Sediment Ponds

- When required?
 - Concentrated runoff
 - When the design capacity of silt fence or inlet protection is exceeded
 - For drainage areas with 10 acres or more disturbed at once
 - Includes “storm sewer-shed”
- Sizing requirements
 - 67 cubic yards of storage per acre of **contributing** drainage area
 - 2:1 length-to-width ratio
 - Divide pond's surface area by the length from the nearest inlet to the outlet to obtain the width
 - No deeper than 5 feet
 - Can not be placed “in-stream”

Sediment Controls

- Inlet protection
 - Required whenever storm drain system does not discharge to a sediment pond
- No sediment controls can be placed in a stream channel
 - Retention basins built “in-stream” can not serve as the sediment basin
 - When installing culverts in-stream, temporarily divert stream flow around work area

Non-Sediment Pollutant Controls

- No wastewater discharges permitted
 - Concrete truck or paint pan washout
 - Leachate at C&DD landfills or slag
 - Runoff from contaminated soils
- Waste disposal
 - Provide dumpsters
 - Do not open burn
- Control off-site tracking
 - Including dust control
- Material storage
 - Fuel tanks within dikes
 - Cover or locate stockpiles, drums, containers indoors or in trailers

Post-Construction BMPs

- Provide a narrative description of post-construction BMPs for ALL sites and rationale for their selection
- All large construction projects (5 or more acres in the larger common plan of development or sale) must provide structural controls that capture the Water Quality Volume and release it over a prescribed number of hours
- Post Construction Q & A Document is online: <http://www.epa.state.oh.us/dsw/storm/CGP-PC-Q&A.html>.

Water Quality Volume (WQv)

Goal: capture and treat 85% of the annual runoff volume

- Use the following formula to calculate

$$WQv = 0.75 * C * A / 12$$

where C = runoff coefficient appropriate for storms less than 1 inch

A = contributing drainage area (ac)

WQv = in units of acre-feet

(to convert to yd³, multiply by 1613)

Add 20% to store sediment which will accumulate in structure.

Water Quality Volume

| Runoff Coefficients (C) | |
|--|-----|
| Industrial & Commercial | 0.8 |
| High Density Residential (> 8 dwellings/acre) | 0.5 |
| Medium Density Residential (4 to 8 dwellings/acre) | 0.4 |
| Low Density Residential (<4 dwellings/acre) | 0.3 |
| Open Space and Recreational Areas | 0.2 |

- If mixed use, must calculate C using a weighted average
- Calculate based on the contributing drainage area to the BMP you are designing...not the overall value for the development

Water Quality Volume

- Draw down time is for the WQv or extended detention portion of the BMP
- Some BMPs may need to be placed "off-line"
- Design Guidance - See Q & A Document:
 - Georgia Storm Water Manual
 - New York's
 - Connecticut's
 - Until Ohio's Rainwater Manual is updated

| Target Draw Down Time | |
|---|------------|
| BMP | Time (hrs) |
| Infiltration | 24 - 48 |
| Vegetated Swale & Filter Strip | 24 |
| Extended Detention Basin (Dry Basin) | 48 |
| Retention Basins (Wet Basins) <small>*Provide both a permanent pool and an extended detention volume above the permanent pool.</small> | 24 |
| Constructed Wetlands (above permanent pool) | 24 |
| Media Filtration & Bioretention | 40 |

Effective Stormwater Management Practices

- Ponds
 - Micro-pool ED pond
 - Wet pond
 - Wet ED pond
 - Pocket pond
- Wetlands
 - Shallow marsh
 - ED wetland
 - Pond/marsh system
 - Pocket wetland
- Infiltration
 - infiltration trench
 - infiltration basin
- Filtering
 - surface sand filter
 - underground sand filter
 - perimeter sand filter
 - organic filter
 - bioretention
- Open Channels
 - Dry Swale
 - Wet Swale

For More Information

Websites

Ohio EPA

www.epa.state.oh.us/dsw/storm/index.html

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