



## APPENDIX P

# VILLAGE OF LIBERTYVILLE STORMWATER MANAGEMENT REGULATIONS

Effective: August 14, 2019

## A. PURPOSE AND GOAL

The purpose of all new development/redevelopment and teardown stormwater management regulations is to accommodate the increase in stormwater runoff volume that may result from a redeveloped property.

The goal of these stormwater management regulations is to demonstrate the detail and depth of information required by the Department of Public Works/Engineering Division to determine that all goals are understood and met by those desiring to make alterations.

The Village of Libertyville does not desire to prescribe how an owner/developer should design their modifications to meet Village Ordinances. Examples of Best Management Practices (BMPs) utilized to reduce run-off volume and rate may include storm vaults, cisterns, oversized piping for detention, rain gardens and natural landscaping, bio-retention, infiltration trenches, rain barrels, porous pavement and underground storage and rainwater harvesting systems.

## B. ISSUE

The Village of Libertyville previously adopted its own Appendix P amendments to the Watershed Development Ordinance (WDO) in 2015, which applied stormwater management regulations to developments that would otherwise not require storage volumes to be provided due to the project scope and impacts. While the Village believes that the adoption of Appendix P has benefited the community to accommodate redevelopments while accounting for associated stormwater impacts, the Village continues to reassess all standards and regulations for the benefit of the community. The modifications made within this updated version of Appendix P are a result of experiences since the initial adoption, as well as the accommodation of increased rainfall totals experienced in the area.

## C. FINDINGS

1. "All new development/redevelopment and teardown projects disturbing greater than 5,000 square feet must comply with the complete WDO requirements, as amended by the Village Board of Trustees. Projects which result in a net increase in impervious surface area **exceeding 400 square feet**, regardless of the area of land disturbance, must meet the **Appendix P** Stormwater Management Regulations, whereby the threshold for flow control in the WDO shall be reduced from 0.5 acre to 400 square feet of net new impervious surface as a threshold for the stormwater storage requirements. New or increased impervious surface area is defined by comparison to the existing conditions as of the original effective date of these local regulations (July 28, 2015).
2. The designated areas depicted on **Exhibit 1** (see attached map) shall not be subject to the Appendix P regulations, as these areas have been accommodated by the provision of subdivision stormwater management systems which account for impervious surface area totals allowed under the Zoning Ordinance.
3. "Existing conditions" are to be documented by a Plat of Survey at a specified scale. In the case of demolition of structures on properties that may not be redeveloped immediately, 'banking' of the existing impervious surface area will be allowed for up to ten (10) years with proper documentation.
4. "Development" shall mean the erection or construction of any building, structure, concrete, asphalt, decking, gravel, crushed rock, natural stone, other pavers or brick patios made with sand or concrete or other impervious surface that result in an increase in storm water runoff. "Development" shall also mean the erection or construction of any addition to existing buildings and on sites where an existing building is replaced with a new building.
5. Where a proposed improvement, new development/redevelopment or teardown creates 400 square feet or greater of net new or increased impervious area, the developer shall provide storm water storage on-site to mitigate the impact of development by the provision of an approved Best Management Practice (BMP).

6. The stormwater flow control/detention design requirement shall comply with these Appendix P Stormwater Management Regulations.
7. Porous pavements, permeable pavers and modular grid pavement are semi-pervious surfaces and are counted toward each zone's maximum impervious surface limit; however, these shall be counted at only 50% of the total area installed with regards to the stormwater management requirements. Perforated underdrains with an approved outlet connection to the Village's storm sewer system, or an alternative outlet approved by the Village Engineer, must be provided beneath the system in order to receive this 50% credit. The design submittal must include a standard detail and maintenance plan for the system. Upon approval of the submittal documents, the Village will provide an acknowledgment form for the maintenance responsibilities to be executed by the homeowner and returned to the Village prior to permit issuance.
8. Open-grid decks are also counted toward each zone's maximum impervious surface limit; however, these shall be counted at only 50% of the total area installed with regards to the stormwater management requirements if the area beneath the deck is to remain pervious. To receive this credit, the plans must specify an "open-grid deck over pervious surface".
9. Sub-surface stone can be utilized for stormwater storage at 33% porosity, subject to the provision of a proper gradation of stone (CA-7 or approved equivalent) and perforated underdrain system with an outlet connection to the Village public storm sewer system or an alternative outlet location approved by the Village Engineer. The storage volume shall only be counted at or above the invert elevation of the associated underdrain system.
10. Restrictor-sizing calculations shall be provided for all developments regulated by the Appendix P requirements for an allowable release rate of 0.15 cfs/acre. **The minimum allowable restrictor diameter shall be two (2) inches.**
11. A public storm sewer connection must be provided from all detention/retention systems subject to these Appendix P requirements, unless it is identified that a direct connection is not feasible or practical, as determined by the Village Engineer. The design submittal shall provide sufficient information for making such determination.
12. Should a connection to the storm sewer system not be feasible, the Village will accept rain gardens as a suitable means for stormwater management. All rain gardens must accommodate the required volume of storage above ground, have a minimum depth of six (6) inches, and a proper typical section and planting list must be included on the proposed plan by the design engineer. The applicant shall also be required to provide either an 'as-built planting plan' or a list of the installed plants from the supplier and/or landscaper.
13. For developments that result in a net increase in impervious area between 400 square feet and 4,999 square feet, the required stormwater detention volume shall be in accordance with the values shown in Table P-1.
14. For developments resulting in an increase of 5,000 square feet or greater, the required detention storage shall be calculated from Worksheet P-2 or by methods as outlined in the current WDO, as approved by the Village Engineer.

### **ADDITIONAL DESIGN CONSIDERATIONS**

1. All projects that fall subject to the Appendix P regulations shall require a Site Improvement Plan to be prepared by an Illinois licensed Professional Engineer, along with a completed Project Data Worksheet and Project Checklist (see attached).
2. All plans for projects subject to the Appendix P regulations shall include the following drainage statement: *"To the best of my knowledge and belief, reasonable provisions have been made for the collection and discharge of*

*surface waters in accordance with accepted engineering practices so as to reduce the likelihood of damage to the adjoining property due to the construction of this development.”*

3. Overflow routes shall be provided on the plans with consideration to existing drainage patterns and the protection of structures.
4. Window wells shall be sealed at the foundation to prevent water infiltration, and shall be constructed to a minimum height of 6" above adjacent grade. In addition, all window wells shall be covered.
5. All roof downspouts shall discharge on grade in the front, rear, or corner side yard direction as defined by the Libertyville Zoning Code with a maximum extension of 5-feet from the structure and no closer than 5-feet from any property line. Any modifications to these requirements shall be approved by the Village Engineer.
6. All sump pumps shall be directly connected to the stormwater management system or directly to a Village storm sewer; where possible. Each property shall have a single storm service to the public storm system (public storm sewer if available or roadside swale if appropriate), unless a single service is not feasible or practical as determined by the Village Engineer.
7. Soil erosion and sediment control measures shall be provided in accordance with the WDO standards.
8. Outlet Control Structures shall be designed with consideration to future access for maintenance and minimizing risks of potential clogging within the restrictor orifice.
9. Should it be determined that a public storm sewer does not exist along the frontage of the subject property, and that a connection to the public storm sewer system is necessary to accommodate a proper stormwater management system for the site, the Village reserves the right to require an extension of the storm sewer system to the subject property as part of the improvements.
10. All projects that fall subject to the Appendix P regulations shall require a Restrictive Covenant to be recorded over the stormwater management system. Upon approval of the design plans, Village Staff will provide a Restrictive Covenant and Acknowledgment form which will need to be executed by the property owner and recorded with the Lake County Recorder of Deeds. A copy of the recorded document must be provided to the Village prior to permit issuance.
11. As-built drawings, signed and sealed by an Illinois licensed Professional Engineer or Land Surveyor, are required for all developments regulated by the Appendix P requirements. The As-Built drawings must include calculations for the constructed impervious surfaces and detention volume. A .PDF copy of the final as-built drawings must be emailed to [engineering@libertyville.com](mailto:engineering@libertyville.com) upon Village approval of the drawings and prior to close-out of the permit.

**D. APPROVAL WITHIN 'SPECIAL DRAINAGE AREAS' (SEE EXHIBIT 2):**

In development/redevelopment or teardown projects within the Special Drainage Areas, as depicted on Exhibit 2, the following shall be required:

1. Building top of foundation shall be one (1) foot minimum above the studied high water elevation.
2. The lowest adjacent grades shall be six inches (6 inches) minimum above the studied high water elevation. If it is determined that these elevations are not feasible or practical, the submittal documents shall provide sufficient information and a narrative for making such determination for approval by the Village Engineer.
3. Compensatory storage (1:1) must be provided for any volume lost below the high water elevation.

Table P-1	
Net Increase in Impervious Surface Area	Storage Volume Required (cubic-feet)
< 400 ft <sup>2</sup> *	N/A
400 ft <sup>2</sup> - 499 ft <sup>2</sup>	124
500 ft <sup>2</sup> - 599 ft <sup>2</sup>	155
600 ft <sup>2</sup> - 699 ft <sup>2</sup>	186
700 ft <sup>2</sup> - 799 ft <sup>2</sup>	217
800 ft <sup>2</sup> - 899 ft <sup>2</sup>	248
900 ft <sup>2</sup> - 999 ft <sup>2</sup>	279
1,000 ft <sup>2</sup> - 1,099 ft <sup>2</sup>	310
1,100 ft <sup>2</sup> - 1,199 ft <sup>2</sup>	341
1,200 ft <sup>2</sup> - 1,299 ft <sup>2</sup>	372
1,300 ft <sup>2</sup> - 1,399 ft <sup>2</sup>	403
1,400 ft <sup>2</sup> - 1,499 ft <sup>2</sup>	433
1,500 ft <sup>2</sup> - 1,599 ft <sup>2</sup>	465
1,600 ft <sup>2</sup> - 1,699 ft <sup>2</sup>	496
1,700 ft <sup>2</sup> - 1,799 ft <sup>2</sup>	527
1,800 ft <sup>2</sup> - 1,899 ft <sup>2</sup>	558
1,900 ft <sup>2</sup> - 1,999 ft <sup>2</sup>	583
2,000 ft <sup>2</sup> - 2,249 ft <sup>2</sup>	620
2,250 ft <sup>2</sup> - 2,499 ft <sup>2</sup>	697
2,500 ft <sup>2</sup> - 2,749 ft <sup>2</sup>	774
2,750 ft <sup>2</sup> - 2,999 ft <sup>2</sup>	892
3,000 ft <sup>2</sup> - 3,499 ft <sup>2</sup>	929
3,500 ft <sup>2</sup> - 3,999 ft <sup>2</sup>	1,084
4,000 ft <sup>2</sup> - 4,499 ft <sup>2</sup>	1,239
4,500 ft <sup>2</sup> - 4,999 ft <sup>2</sup>	1,394
5,000 ft <sup>2</sup> or more	To be calculated

\* 400 square feet is a single life-time credit for each property and is effective for proposals submitted for permit on or after August 14, 2019.